

Yale Medicine

summer 2002

'02



ON THE COVER

Twenty-five faces from the Class of 2002 reflect the elation and aspirations of a new generation of doctors and public health practitioners. The University awarded 112 medical degrees, 114 master's degrees in public health and nine doctoral degrees in public health. Students in the Physician Associate Program will graduate at summer's end. Page 18

Photographs by Terry Dagradi and John Curtis

THESE PAGES

Before starting her residency at Yale, Monique Tello traveled to Guatemala City for training in a pediatric burn unit. While she was there, she learned something about her own family and her attitudes about poverty, wealth and suffering. Page 12

Collage by Janis Melone



SUMMER 2002

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12 Eyes wide open

The suffering of the boy who had fallen into boiling water was like the misery of the city's streets: possible for some to ignore but searing to a medical student working in the hospital's burn unit. A Letter from Guatemala.

By Monique Aurora Tello, M.D.

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A large class, an inspired speaker and a tall order—to do some good in the world.

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On the Web

info.med.yale.edu/yymm

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



HOW TO REACH US

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

State-of-the-art surgery

Dr. Robert Udelsman's concerns about departmental fiscal efficiencies reminded me of a study that indicated hospital business offices had the most timely and comprehensive details about a patient's hospital stay. Every chargeable service and material used (or at times anticipated) was immediately transmitted to the hospital business office. Business office records, with professional input, are excellent resources for up-to-the-minute patient information. Dr. Udelsman may be assured that the hospital business office is right there in the OR with him.

*A.Z. Hamburg, M.P.H. '54
Philadelphia*

I've been reading *Yale Medicine* for a good many years, but never once do I recall this publication ever telling us that Yale's Department of Surgery was "in the doldrums."

Quite the contrary. The articles always gave us the impression of a state-of-the-art department filled with talented, dedicated people. Who was chair of the surgical department when Yale was "in the doldrums?" I'm sure he'd have few words on that.

*John Barchilon, M.D. '65
Sherman Oaks, Calif.*

A thing of beauty

I am on the list of those who receive *Yale Medicine*. I can't tell you how much I enjoy this publication. Each page is an artistic delight and tells the story with simplicity and dignity.

*Ian Mininberg, MUS '34
New Haven*

As we went to press

At press time we received the sad news that Albert J. Solnit, M.D., HS '52, died following an automobile accident in Bethlehem, Conn. Solnit and his wife, Martha, were en route to their weekend home in Lakeville when the accident occurred on June 21. Martha Solnit was recuperating in Waterbury Hospital following the crash.

Solnit, 82, came to Yale in 1948 as a resident in general psychiatry and was the first child psychiatry resident from 1950 to 1952. He served as the third director of the Child Study Center from 1966 to 1983, when he was succeeded by Donald J. Cohen, M.D. '66. Cohen died last October 2 of melanoma. A collaborator of Anna Freud, Solnit was a Sterling Professor at Yale and, from 1991 to 2000, Connecticut's commissioner of mental health and addiction services.

"He was a professional father throughout my career," said John Schowalter, M.D., the Albert J. Solnit Professor of Child Psychiatry. "As a mentor, he was always accessible and combined both a wise brain and a moral backbone."

Alan E. Kazdin, PH.D., who became the center's fifth director in April, called Solnit's death "a huge loss for the Child Study Center, for the faculty and staff, and for children everywhere."

"Al Solnit was a monumental figure in child psychiatry, a pioneer," said Kazdin. "He had enormous impact on individuals because of his acumen as a clinician, and at the same time he had a major influence on the profession throughout the world."

Yale medicine

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Editor-in-Chief

Michael Kashgarian, M.D.
Professor of Pathology and Biology

Publisher

Jane E. Reynolds
Associate Dean

Editor

Michael Fitzsosa
Director of Publications

Associate Editor

John Curtis

Contributing Editors

Sharon McManus
Karen Peart
Cathy Shufro
Jacqueline Weaver
Marc Wortman, Ph.D.

Contributors

Rachel Engers
Susan Froetschel
Monique Tello

Copy Editing

Anne Sommer

Office Manager / Editorial Assistant

Claire M. Bessinger

Senior Administrative Assistant

Cheryl R. Violante

Design

Daphne Geismar

Design Consultant

Peter Johnson
Yale RIS Graphic Design

Production Consultant

Joe Maynard
Yale RIS

Printing

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Address correspondence to:

Editor, *Yale Medicine*

P.O. Box 7612

New Haven, CT 06519-0612

Telephone: 203-785-5824

Facsimile: 203-785-4327

Electronic mail: yymm@yale.edu

Website: <http://info.med.yale.edu/yymm>

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Hand-eye coordination

It's been a humbling spring here at *Yale Medicine* headquarters. Just when we thought we had come up with the perfect design for the magazine, a number of letters and comments pointed out a small flaw in our master plan. A tiny flaw. A miniscule yet serious flaw, if one takes one's mail to heart, as we do. "*Yale Medicine* is attractive in layout. I am very interested in reading it but am unable to do so," Thomas L. Buckley, M.D. '43 Dec., wrote. "The design and type selection must have been made by a very young person and amounts to elder abuse." He was only half joking.

I phoned Dr. Buckley as this issue was in layout stage to assure him that none of us on the magazine's staff is a day under 40, that many of us have failing eyesight and that we have come to agree that the type shrank a little too much during *Yale Medicine's* redesign last autumn. Readers will notice a significant increase in the type size in this issue, and our page format is returning to a full 8.5-by-11 inches to accommodate the change. The Summer issue is also a bit lighter than our other three, down to 36 pages from our

normal 48 or more, as is befitting the season. The Autumn 2002 issue, with a beefed-up alumni section and complete reunion coverage, will return to full strength.

This edition's main feature story continues our "Letter from ..." series with a narrative by second-year medicine resident Monique Tello, M.D., from her experience working in a pediatric burn unit in Guatemala City. *Medicine* is increasingly crossing borders geographic, political and cultural, and, given Yale's international focus at the start of its fourth century, the "Letter from ..." articles have been enormously popular. If you have such a story, please share it with us.

Meanwhile we'll keep our eyes on the big picture as well as the fine print, responding to your interests and concerns as alumni. "No, you don't have to send a large-print edition—just a normal-size print one," Dr. Buckley wrote.

Done.

Michael Fitzsosa
michael.fitzsosa@yale.edu



"I THINK... YES... HIS NAME IS HERE ON THE DOOR: A. VAN LEEUWENHOEK."



MICHAEL MARSLAND

Neurosurgeon Dennis Spencer believes new imaging technology could permit targeted surgery or drug delivery.

Yale sets its sights on biomedical engineering

Program gets a boost from NIH's newest institute with \$7.1 million for imaging work in epilepsy.

In 1996, when President Richard C. Levin laid out his vision for the University's future in an essay titled "Preparing for Yale's Fourth Century," he said that the principle of "selective excellence" would guide Yale as it branched out into certain new fields. "Rather than seek broad coverage of an entire discipline," he wrote, "it may be wise to build a few distinguished groups of faculty who can compete with the best in the world in their areas of specialization."

One of the areas Levin pointed to was biomedical engineering, a field that got its start when engineering strategies contributed to medical inventions such as X-rays and prosthetics. After World War II the field gained more formal acceptance as universities and hospitals discovered that radar and computers had medical applications. In 1998 Yale established an undergraduate biomedical engineering program, which has since become the most popular engineering major. Access to medical research facilities encouraged doctoral candidates in the applied physics and mechanical, chemical and electrical engineering departments to explore biological problems. A PH.D. concentration focusing on medical imaging, molecular engineering and biomechanics was formally approved late last year, and five students will be admitted this year.

Biomedical engineering at Yale got another boost in April, when the National Institute of Biomedical

Imaging and Bioengineering (NIBIB) awarded its first research grant to Yale and two other institutions. As a member of a team that includes the University of Minnesota and Albert Einstein College of Medicine, Yale will receive \$1.4 million this year and up to \$7.1 million over the next five years for the development of advanced imaging techniques for the treatment of neocortical epilepsy. Another sign that biomedical engineering's day has come was the establishment of the NIBIB itself in 2000 as the newest member of the National Institutes of Health.

"Bioengineering, through imaging, offers a way for surgeons to examine the incredible and complex functions of the brain," said neurosurgeon Dennis D. Spencer, M.D., HS '76, co-principal investigator of the epilepsy project. Advances in imaging technology could eventually reduce surgery time, eliminating the need for electrodes and open-brain surgery, and instead permit targeted surgery or delivery of drugs through small openings in the skull, said Spencer, the Harvey and Kate Cushing Professor of Neurosurgery and the department's chair.

According to principal investigator James S. Duncan, PH.D., professor of diagnostic radiology and electrical engineering, mathematical models will be used to analyze an individual human brain before and during surgery to provide the surgeon with precise information in order to guide an intricate procedure that will eliminate the seizures. The technique combines data from both high-field magnetic resonance spectroscopy and functional magnetic resonance imaging to create a three-dimensional view of the brain, Duncan said in an interview in his office on Cedar Street, pointing to a rotating, computerized image of a human brain, with grids and boundaries in brilliant color.

The close collaboration of physicians and scientists from both sides of campus is not yet typical of American medicine, according to Paul A. Fleury, PH.D.,

who came to Yale in 2000 as dean of engineering, succeeding Allan Bromley, PH.D. Engineering strategies can be applied to countless biological systems and medical problems, Fleury said, yet “too often medical researchers regard engineers as ‘providers of gadgets,’ with little real collaboration. Overall, medical and engineering researchers have more to offer each other than what has been exploited so far.”

The challenge of the new educational programs is balancing breadth and depth in a number of subject areas, including mathematics and biochemistry, according to Duncan, an electrical engineer who began his career working on night vision systems at the Hughes Aircraft Company. He is the overall director of the program and also directs the undergraduate program, now in its fourth year. “We need math tools to even approach these problems, but we also need to talk with biologists and clinicians to understand the problems.”

Such collaborations cannot be dictated, but only emerge from genuine mutual curiosity, Fleury said. Engineering’s newest recruit is Cornell University’s W. Mark Saltzman, PH.D., whose research focuses on drug delivery and tissue engineering, with an emphasis on the use of polymeric materials for these purposes rather than more costly animal proteins. His lab has designed polymer implants that permit controlled release, which could be applied to treating serious brain disease, including Alzheimer’s and brain tumors.

“The potential for collaboration between engineering and medicine is exactly what attracted me to Yale,” says Saltzman, who will be a professor of chemical and biomedical engineering. “Yale has a rich tradition of excellence in both of these areas and it has already established an interdisciplinary environment that supports the exchange of ideas across the interface. I believe that biomedical engineering is about to enter a period of tremendous growth, and Yale is well positioned to be at the leading edge of these developments.”

Citing accomplishments, Levin reappoints Kessler to a second term as dean

Five years ago, when David A. Kessler, M.D., was appointed the School of Medicine’s 15th dean, the focus was on the future. In making the announcement in a packed Harkness Auditorium on February 13, 1997, Yale President Richard C. Levin spoke of the things Kessler was likely to accomplish as dean and the support he had from the central administration. “I think this is the right man at the right time for taking the school forward.”

On May 7, Kessler was reappointed to a second five-year term, and the focus was on the dean’s track record since 1997.

In a message to the medical school community, Levin praised Kessler for making “a succession of outstanding appointments to positions of departmental leadership” and for planning and initiating the construction of the new Congress Avenue Building. He also cited Kessler for establishing the new Clinical Program Development Fund in partnership with Yale-New Haven Hospital and for overseeing significant improvements in medical education.

Kessler, a graduate of Amherst College, Harvard Medical School and the University of Chicago School of Law, was commissioner of the Food and Drug Administration from 1990 to 1997 under former Presidents Bush and Clinton. He served as medical director of the Hospital of the Albert Einstein College of Medicine from 1984 to 1990 after training in pediatrics at The Johns Hopkins Hospital and working on Capitol Hill.

Kessler said he “couldn’t be more thrilled to remain at Yale and continue to work hard on advancing the school’s three missions” of patient care, research and education.

“What I knew before coming here was that Yale is a world leader in medicine and science,” he said. “What I’ve come to appreciate even more since



STEFFEN CRETILLA

At the Yale-Harvard game last fall, David Kessler chatted with one of the medical school’s guests at the Yale Bowl.

then is just how special the medical school is, and how packed it is with academic talent and clinical expertise. We have a very bright future ahead of us.”

Under Kessler’s deanship, new chairs have been appointed in the departments of Cell Biology, Cellular and Molecular Physiology, the Child Study Center, Genetics, Obstetrics and Gynecology, Pharmacology and Surgery. He also recruited Herbert Chase, M.D., as the school’s deputy dean for education and negotiated an affiliation agreement with Yale New Haven Health System that established a fund to develop cutting-edge clinical programs with Yale-New Haven Hospital.

Construction of the Congress Avenue Building, a 457,000-square-foot teaching and research facility, began in early 2000 and is nearing completion; more than 700 faculty and staff will begin moving in this coming winter to conduct disease-oriented research in eight key areas; to teach anatomy, histology and other medical school courses; and to support teaching and research activities.

Genomics innovator, bold as ever, makes a few waves during visit to Yale

When the name J. Craig Venter, PH.D., appears in print the words “genome” and “maverick” are seldom far behind. Venter, one of the prime movers behind the sequencing of the human genome, has made a career out of doing things his way. “I have learned,” he told an audience in the Fitkin Amphitheater “to ignore people’s advice on many occasions.”

Indeed, Venter has not only rejected conventional wisdom, but often run counter to the scientific establishment. His independence has worked for him: even before he set out to sequence the human genome he discovered hundreds of new genes, decoded the first full genome of a living organism (the bacterium *H. influenzae*) and deciphered the genome of the fruit fly.

It was his impatience with what he considered the plodding methods of the National Human Genome Research Institute (under the leadership of Francis S. Collins, M.D., PH.D. ’74, FW ’84) that led him into a race to sequence the genome. Venter had developed methods that he believed would be faster and cheaper. Yet the National Institutes of Health (NIH) denied his early requests for funding because it was thought they wouldn’t work. “The NIH is not very good at funding new ideas,” Venter said, “but when an idea is established, they are extremely good at funding it.”

Venter came to Yale in April to deliver the 54th annual keynote lecture to the Associates of the Cushing/Whitney Medical Library. He also spoke

at grand rounds for the Department of Internal Medicine and attended a lunch with about 20 medical students.

What, he was asked, were his future plans?

The scientific community has been waiting for this shoe to drop. In January Venter left Celera Genomics, the company he founded in 1998, because of a disagreement over business strategy. The company chose to pursue drug development, considering that a more profitable pursuit than subscriptions for its genome data.

While at Yale, Venter had little to say about his future plans. Not one to steal his own thunder, he saved his announcement for an interview he gave *The New York Times* during his stay in New Haven. But he offered a hint to medical students. “One of the many things I’ll be spending a little time on is trying to deal with the social and ethical issues of sequencing the human genome,” he said.

During the next few days Venter would twice grace the pages of the *Times*, first with the revelation that Celera’s decoding of the genome was based on a sample of his own DNA. A few days later came the news that Venter plans to write his autobiography and start two not-for-profit institutes to explore issues such as genetic discrimination and the genetics of race and to develop clean energy alternatives possibly by developing or discovering new microbes that can convert carbon dioxide into hydrogen.

In his keynote address at the Historical Library, Venter traced the history of genomic sequencing and his role in it. Applying the power of new computers and algorithms, Venter and colleagues at The Institute for Genomic Research sequenced the *H. influenzae* genome in 1995. The project was a challenge to the NIH, which was also working to sequence the genes of the bacterium. “We thought we could sequence the genome in a year at about a tenth of the cost of current projects,” Venter said, adding that



JOHN CURTIS

At a lunch with students, Craig Venter discussed the human genome, cloning and his future plans.

his group did apply for federal funding only to be turned down. “What we were doing,” he recalled NIH officials telling him, “was absolutely impossible and could never work.”

After sequencing a few more small organisms, such as other bacteria and the fruit fly, Venter tackled the human genome. The NIH had already begun its sequencing project, but Venter believed his methods and tools—supercomputers, expressed sequence tags, mathematical algorithms and shotgun splicing—could do it faster. The race was on.

Ultimately the two teams realized the value of working together and in February 2001, in a tentative and at times testy collaboration, they published their results simultaneously in the pages of *Science* and *Nature*.

For his last appearance at the medical school at grand rounds, Venter discussed the genome’s impact on medicine. “Within 10 years,” he told a resident, “the medicine you practice will be based on knowing the genetic code of your patients. This information can give individuals power and more control over their own lives. If you know what is likely to affect you, you can do something about it early enough to make a difference.”

For the next generation of students, Hope 110 will be known as “Rosenberg”

When former Dean Leon E. Rosenberg, M.D., HS '63, returned to Yale in May for the dedication of a lecture hall in his honor, it was very much a family affair. He was joined by his wife, brother, children and grandchildren, along with dozens of former colleagues, mentors and students. The family members traveled a distance, one of his sons suggested, because the family itself had come a long way.

Robert L. Rosenberg, PH.D., pointed to the new sign above the door to Hope 110 bearing his father's name. “Back in Waunakee, Wis., there was another sign that said ‘Rosenberg.’ It hung over the door of the general store my grandfather owned,” said the younger Rosenberg, who earned his doctorate at Yale in 1985 and is an associate professor of pharmacology at the University of North Carolina. “Coming here today, I thought about what makes this one here as important and significant as that big one in Wisconsin. The answer, I think, comes down to the three most important words in real estate: location, location, location.”

It was an observation that provoked laughter as well as the realization that for others in the room, too, location was indeed key. Hope 110—where gen-

erations of medical students have attended countless lectures—is now The Leon E. Rosenberg, M.D., Lecture Room. “Within these walls, students will have their first classes, drink their coffee, read their newspapers and even fall asleep,” Dean David A. Kessler, M.D., said during the dedication. “Most importantly, they will establish friendships that will last a lifetime.”

Rosenberg joined the Yale faculty in 1965 and served as dean of the medical school from 1984 to 1991, when he left academia to head Bristol-Myers Squibb's Pharmaceutical Research Institute. In 1998, he joined the faculty at Princeton.

The former dean said he was “grateful beyond words” for the tribute and particularly touched by the location chosen for the honor. “I've been on both sides of the podium in 110, many times, and I know what it means to the school and the thousands of students who have passed through it.”

He closed by recounting a comment that his son David made upon hearing that the room would be renamed in his father's honor: “David said, ‘Just think, in 10 years, two Yale medical students will be passing in the hall and one will say, ‘I've got to get to class at 11 o'clock in Rosenberg.’ ” The former dean paused and smiled. “I wouldn't have thought of it myself,” he said. “But it has a nice ring to it.”

et cetera ...

SURGICAL RESIDENCY REVAMPED

The days of surgery “boot camp” may be over. To avoid reaccreditation problems, Yale-New Haven Hospital is shifting to a maximum work week of 80 hours for its 48 general surgery residents. The Chicago-based Accreditation Council for Graduate Medical Education warned the hospital in March that it must reduce work weeks; end every-other-night, in-house call; and improve documentation of procedures done by residents. (The general surgery residency, one of 28 at Yale-New Haven, has had provisional accreditation since obtaining new-program status when combining with Bridgeport Hospital's general surgery program in 1995.) The hospital plans to hire physician assistants and part-time doctors to reduce overnights for residents. Chair of Surgery Robert Udelsman, M.D., predicted that the “standard practice” of 100-hour workweeks would end nationwide. “We must develop techniques to teach an ever-increasing wealth of both information and skills, and we must do this in an efficient and humane environment.” The accreditation group will check in again on August 7.

BIOTECH BOOMLET

The end of 2001 was less than spectacular when it came to investment in startup companies nationally, including those in the biotech sector. Despite this, according to a survey by PriceWaterhouseCoopers, Yale-founded firms managed to raise \$92.8 million in venture capital in the fourth quarter, or 38 percent of the \$246 million raised in New England's biotech industry. The Yale total is actually higher when other deals not included in the survey are counted. Achillion Pharmaceuticals led the list with \$45 million, followed by Agilix Corp. with \$20.8 million, Rib-X Pharmaceuticals with \$20.5 million and Archemix Corp. with \$6.5 million. All but Cambridge, Mass.-based Archemix are located in New Haven. According to Alfred “Buz” Brown, PH.D., director of cooperative research, three additional transactions—initial funding for Asilas, Aureon and Protomoetrix—added \$24 million to the fourth-quarter total. Half a dozen more Yale-founded companies are in the pipeline.



TERRY DAGRADI

Former Dean Leon Rosenberg returned to the medical school in May for the dedication of a lecture hall in his name.



Ralph Hoffman has alleviated some of the symptoms of schizophrenia using magnetic stimulation that targets areas of the brain.

Quieting the voices of schizophrenia

In early trials, magnetic stimulation is shown effective in halting or reducing auditory hallucinations.

Nearly 20 years ago when Stan W. was out on the high seas, menacing voices began to torment him. They told him that his commanding officer was the devil and that he should dive off the boat. Soon thereafter, he was discharged from the Coast Guard and diagnosed with schizophrenia, a form of psychosis that affects about 1 percent of the world's population. Plagued by voices and at times unable to distinguish reality from illusion, Stan W. could not hold a job and was intermittently hospitalized. Doctors tried to control his symptoms with antipsychotic drugs, but to no avail. When the 48-year-old man arrived at Yale's Schizophrenia Research Clinic about a year ago, he

was experiencing some 400 auditory hallucinations a day, voices that told him, "Go slit your throat with a razor," "Go get drunk" and "You are stupid."

A year later, following an experimental treatment that uses electromagnetic waves to reduce brain activity in the area thought to produce auditory hallucinations, Stan W.'s voices have been quieted and he plans to be married. "He's not cured, but he feels much better," said Ralph E. Hoffman, M.D., assistant medical director of the Yale-New Haven Psychiatric Hospital and an associate professor of psychiatry. (The names and some of the details of the patients' stories have been changed to protect their privacy.)

Schizophrenia, one of the most complex and puzzling mental illnesses, as yet has no cure. The delusions, hallucinations and disordered thinking that often accompany the disease prompt one in 10 people with schizophrenia to commit suicide; hundreds of thousands are permanently debilitated by the disorder. While many patients have been able to suppress their symptoms with drugs, a quarter of all schizophrenics who hear voices don't respond well, or at all, to medication.

At Yale, Hoffman has designed treatments using repetitive transcranial

HEARING SOUNDS, NOT WORDS

In a recent experiment conducted by Yale scientists, bird songs, a dog's bark and snowflakes stuck in the memories of people with schizophrenia, while simple words did not. In other words, verbal memories posed a greater difficulty to people with schizophrenia than did nonverbal memories. This could have a profound effect on cognitive function, said Bruce Wexler, M.D., associate professor of psychiatry and principal investigator on the study published earlier this year in *Schizophrenia Research*. "The use of internal language mechanisms to enhance cognition," said Wexler, "is an essential aspect of a wide range of normal human brain functions."

magnetic stimulation (rTMS), a therapy used since the mid-1990s to help patients with severe depression. The procedure uses a high-powered electromagnet to target the speech-processing areas of the brain from which auditory hallucinations are thought to arise. Previous research had shown that rTMS, when delivered to the scalp, produces an electrical current in the brain itself and, if given once per second for 15 minutes, can selectively reduce brain reactivity. The region of the cerebral cortex that is altered is relatively small, from 2 to 4 centimeters in diameter. Studies in animal models have suggested that these results can be sustained weeks after rTMS is applied. Building on this information, as well as on experiments suggesting that auditory hallucinations may be generated, at least in part, by the activation of neurocircuitry underlying speech perception, Hoffman set out to see if rTMS could calm the voices inside schizophrenic patients' heads.

While his research is in the early stages, findings have indicated that rTMS may be able to silence, or at least quiet, the hallucinations in some patients by reducing neural activity in the left temporoparietal cortex or other targeted speech-processing areas. "There's some evidence suggesting perhaps that what we are doing is selectively eliminating abnormal brain activation, while leaving normal brain processes unimpaired," he said.

Hoffman's experiments using rTMS to treat schizophrenics made headlines in March 2000, following publication of his initial findings in *The Lancet*. His study showed that eight of 12 patients treated with 40 minutes of magnetic stimulation above the left ear had the severity and frequency of their voices drop by half. Most patients experienced relief that lasted from one day to two weeks. These results were found to be statistically significant compared to those for a placebo control group. In a follow-up trial, Hoffman increased the length of the magnetic stimulation

threefold and found that the degree and duration of improvement in patients rose dramatically. About three-quarters of the 24 patients showed significant benefit from the treatment and half had their voices quieted or silenced for at least four months. For some patients these improvements have lasted more than one year.

During the procedure, a small electromagnetic coil is placed on the scalp and pulses roughly the strength of an MRI scan pass through the skull. While most of his studies have focused on the left temporoparietal cortex, Hoffman is also using neuroimaging studies of hallucinating patients to find other parts of the brain, such as the prefrontal cortex, Wernicke's area and Broca's area, that may be targeted in particular individuals to stop their hallucinations more effectively. Robert J. Buchanan, M.D., and Kun Wu, M.D., P.H.D., in the Department of Neurosurgery, are helping to develop a computer imaging system for visualizing the scalp locations corresponding to these brain areas that in certain cases are also pathologically active during hallucinations.

While Hoffman emphasizes that more research needs to be done to determine whether rTMS can be used safely and effectively as an alternative treatment, many of his patients have reported significant relief. Victor B., a 50-year-old business owner and father, has suffered from schizophrenia since his mid-30s. "I became so paranoid and dysfunctional that I was afraid to leave home." Medication had failed to help him and he said that many times suicide seemed the only escape from the terrifying voices.

The first rTMS study at Yale provided significant relief for Victor B., reducing the severity of his hallucinations from about 500 per day to about 70 a day for several months. Since his second trial a few months ago using a higher dosage of rTMS that was positioned using neuroimaging data, he says his voices have disappeared entirely.

A DEFINITE LINK TO DIABETES

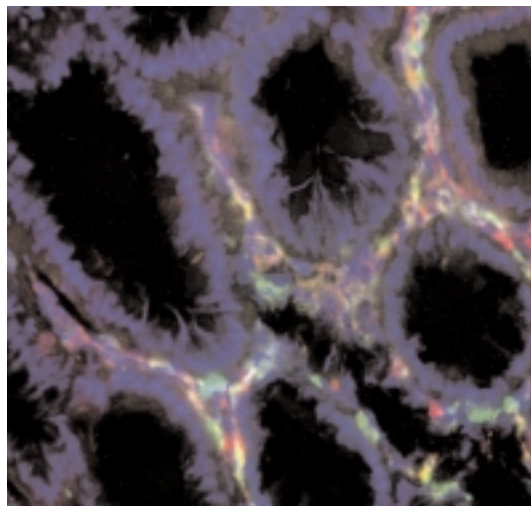
For the past decade, pediatricians have noticed an upswing in the number of young patients presenting with type 2, or adult-onset, diabetes—a diagnosis almost unheard of in children until recently. Now the anecdotal evidence has been quantified and linked to the rise in childhood obesity. In an article published in March in *The New England Journal of Medicine*, Yale pediatric endocrinologist Sonia Caprio, M.D., and colleagues reported that of 167 severely obese children and adolescents a quarter of the children and 21 percent of the adolescents exhibited glucose intolerance, an indicator of diabetes. That intolerance was as prevalent among Caucasians as it was among Hispanics and African-Americans. Long-term complications of diabetes include premature atherosclerosis, early coronary artery disease, kidney disorders, eye disorders and nerve problems.

SCHWANN CELLS TRANSPLANTED AGAIN

A second patient at Yale has received a transplant of cells in an ongoing clinical trial that is attempting to treat multiple sclerosis by repairing myelin in the brain and spinal cord. "The patient is doing fine," said Timothy L. Vollmer, M.D., HS '83, associate professor of neurology. "He has a high level of disability because of the location of the lesions in his brain, but he is otherwise healthy."

Vollmer and his team performed the surgery in two stages in early March, and the 29-year-old patient was discharged a few days later. The team harvested Schwann cells found in peripheral nerves of the patient's ankle and transplanted them into his brain. Their goal is to determine whether the Schwann cells survive in the brain and are able to restore myelin, a protective sheathing that is destroyed by multiple sclerosis.

Five patients are scheduled to participate in this clinical trial. The first was a woman who received a transplant last July. The trial is supported by the Myelin Project.



AKIKO IWASAKI



JOHN CURTIS

Men, women and the risk of AIDS

The adhesion molecule that protects HIV from degradation is expressed differently in the rectum and vagina.

A difference in the anatomy of the rectum and vagina may explain, in part, why anal intercourse is up to 10 times more likely than vaginal intercourse to result in HIV infection. This finding by investigators at the School of Public Health could help in the development of new microbicides against HIV.

The higher risk of HIV transmission among men who have sex with men has long perplexed physicians and researchers. They have been looking for answers since the AIDS epidemic began more than 20 years ago. “We decided to look at the cells that could be mediating this transmission on the mucosal surface,” said Akiko Iwasaki, PH.D., assistant professor of epidemiology.

The key to viral entry, she found, lies in the location of the dendritic cells that express a protein called DC-SIGN in the vaginal and rectal mucosa. “The barrier between the outside world and the inside of the rectum is one single cell deep, whereas in the vaginal tract the barrier is 20 to 25 cells thick, depending on the stage of the menstrual cycle,” Iwasaki said. “We think that this difference, together with the abundance of DC-SIGN-expressing cells in the rectum, might explain the differences in risk.”

That 25-cell barrier is a daunting challenge to HIV, which must cross it to reach dendritic cells and begin its infectious process. Dendritic cells typically act as sentinels, alerting the

immune system to the presence of microbial invaders. In the normal course of events, dendritic cells take microbial prisoners and present them to T lymphocytes, which then learn to recognize and repel them. HIV exploits that process by binding to DC-SIGN, then turning the dendritic cells into Trojan horses that carry the virus to the lymph nodes, where it replicates. “The clever thing about this is that when the virus binds to the DC-SIGN molecule, it is protected from degradation,” Iwasaki said.

DC-SIGN is highly expressed on dendritic cells near the surface of the rectum. In the vagina, however, the only dendritic cells that express DC-SIGN are underneath the skin covering the vaginal tract—25 cells away from the outside world.

Women with sexually transmitted infections such as herpes simplex or syphilis are also at higher risk of HIV infection, Iwasaki said, because the resulting inflammation brings T cells to the surface, where they can be targeted by the virus.

Iwasaki, who came to Yale two years ago from the National Institute of Allergies and Infectious Diseases, has long been interested in the mechanisms of viral transmission and their relevance to sexually transmitted disease. Her findings raise the possibility of a mechanism for a microbicide that would thwart the binding of HIV to DC-SIGN. The DC-SIGN molecule recognizes and binds to a sugar molecule on the viral envelope protein. A microbicide could act by binding another sugar to DC-SIGN, thereby blocking HIV, Iwasaki said.

The study was published in the February issue of the *Journal of Virology*. The research was conducted in collaboration with Robert Doms, M.D., PH.D., at the University of Pennsylvania.

TOP A section of a human rectum stained with immunofluorescent antibodies. Yellow-stained cells express both the receptor molecule CCR5 (in red) and DC-SIGN (in green), the dendritic cells that can not only bind to the virus but become infected themselves.

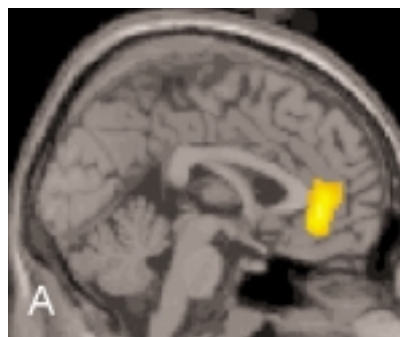
ABOVE Akiko Iwasaki's research suggests that anatomical differences between the vagina and the rectum play a role in HIV infections.

Link between cocaine and self-control emerges from primate study

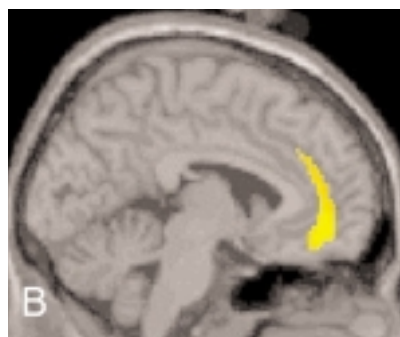
Cocaine users have trouble with self-control and decision making, even after they've given up the drug, according to a study by researchers at the School of Medicine. "It's thought that this impairment in inhibitory control may contribute to certain aspects of drug abuse, such as craving, bingeing and risky behaviors," said Jane R. Taylor, PH.D., associate professor in the division of molecular psychiatry and senior author of the study, published in the February issue of *Neuropsychopharmacology*.

In a study of primates funded by the National Institute on Drug Abuse, Taylor and colleagues investigated whether an impairment in the orbitofrontal cortex leads to drug abuse, or whether it develops as a consequence of drug abuse.

The primates were trained to recognize that food was available under only one of three objects. Then the food was placed under a different object. The primates had to inhibit their learned response and choose the other object. Unlike the control animals, primates injected with cocaine were not able to inhibit their initial response and continued to reach for the original object. "While these deficits could be interpreted as indicating that addicts have an underlying orbitofrontal dysfunction that predisposes them to drug abuse, our results indicate that prior cocaine exposure is sufficient to produce cognitive defects reminiscent of orbitofrontal cortical dysfunction," the researchers wrote. "The frontal-lobe impairments in drug abusers may be a consequence of, as well as a predisposing factor to, addiction."



ANNA ROSE CHILDRRESS/
REDRAWN FROM CHILDRESS, ET AL. 1999



ANNA ROSE CHILDRRESS/
REDRAWN FROM FRANKLIN, ET AL. 2002

Deficits in the orbitofrontal cortex, a brain region associated with self-control and decision-making, are thought to be predisposing factors for cocaine abuse. Now Yale scientists, working with primates, have shown that cocaine use may also be a cause of impairment in orbitofrontal function. The images above show pronounced defects in blood flow (top) and gray matter density (above) in cocaine-using human patients, as compared to non-using control subjects.

et cetera ...

CASE OF THE VANISHING VIRUS

Viruses that leave no molecular fingerprints as they destroy brain cells may be behind certain psychiatric and neurological disorders, according to Yale investigators. In a test of their hypothesis they introduced a recombinant virus, vesicular stomatitis virus, into an adult mouse through its nose. The virus, which is not dangerous to humans, traveled down the olfactory nerve, into the periglomerular neurons, past the mitral cell layer, through granule cells and toward the brain's subventricular zone. Then it vanished.

"In young mice, the virus may get past the olfactory system and then may selectively infect and damage other brain regions such as the locus coeruleus and dorsal raphe that are the targets for many psychiatric medicines," said Anthony N. van den Pol, PH.D., professor of neurosurgery and lead author of the study, published in February in the *Journal of Virology*. "The virus can be eliminated by the immune system and leave no trace in the brain, but nerve cells in very specific areas of the brain are lost. This is a potential model for viruses that may infect the brain at one stage of life, and then disappear, but potentially cause long-lasting psychiatric and neurological dysfunction."

HOW LEGIONELLA SUBVERTS THE CELL

Of the 35 species of *Legionella* bacteria, one is implicated in most outbreaks of Legionnaires' disease, a severe pneumonia. Now researchers at Yale have revealed how that bacterium, *L. pneumophila*, subverts the normal functions of cells in order to replicate.

During infection the bacterium travels to the lungs and invades alveolar macrophages, white blood cells which normally hunt down and destroy bacteria. *L. pneumophila* injects a protein into the macrophage that thwarts its transport to lysosomes, where the bacterium would be destroyed. Instead, the bacterium moves to the nutrient-rich endoplasmic reticulum, where it replicates. "These results show that the *Legionella* bacteria have the ability to inject a bacterial protein directly into macrophages during infection," said Craig R. Roy, PH.D., associate professor of microbial pathogenesis. The results were published in the January 25 issue of *Science*.



Eyes wide open

The suffering of the boy who had fallen into boiling water was like the misery of the city's streets: possible for some to ignore but searing to a medical student working in the hospital's burn unit. A letter from Guatemala.

By Monique Aurora Tello, M.D.

Illustrations by Janis Melone

Automatic living ... a life of comfort and achievement, accumulating possessions, honors, and the routine eating, mating, and financial habits of prosperous people, the soul sinking under folds of flesh, the rituals of social position; that was what the author of the Psalms meant when he wrote, 'Their heart is gross like fat.' This was the contented mind that had no dealings with death and whose sole concern was to remain contented. ... It was the crushed spirit that knocked in vain, year after year, tapping on inanimate objects, pleading for the locked door to be reopened.

—Amos Oz, from *Fima*

Welcome to Guatemala City, Guatemala, where the brutal social dichotomy feels like a swift kick in the stomach with soccer cleats. Guate in December was a month of heaven, hell and social obligations. I ran around the pediatric burn unit like a frantic shadow—a shadow that fell in love with a three-year-old and came to life. Misael, Misael, soft and small, eyes wide and black; I will never forget your hoarse morning screams.

Every morning for a full month, including Christmas day, my job was to torture Misael. Somewhere in the Guatemalan highlands, Misael's great-aunt was remembering the same screams, since she was there when Misael fell backwards into a cauldron of scalding water. In the village, the day's drinking water was boiled and thus (one hoped) decontaminated, the pot set down on the earthen floor to cool. Accidents were not uncommon.

In the Guatemalan pediatric burn unit, always full, the job of changing dressings fell to the med student. For the month of December 2000, that was me. Maria the burn nurse—impossibly neat, admirably practical—showed me how.

Oh, Misael. The raw and oozing burn patches spread like a flowery rash over his penis and thighs, back and buttocks. The wet, sticky bandages had to be changed, every day, gauze dipped in Silvadene, Terazol and Vaseline, spread over



Imagine *Quema del Diablo*, a day of purification. For about a dollar and change you could buy a red devil piñata on a rope. By 7 p.m., most of the good citizens of the city had purged their homes of all unnecessary objects—clothes, books, mattresses, even old love letters—and had thrown them all onto piles in the street. And then the world exploded. The next morning there were three new children in the “Burn Room.”

the wasted buttocks, wrapped around his swollen genitals. He screamed. He clenched his tiny fists. But he did not struggle. He held his legs up when asked. He stood and squatted for the Ace bandage wrap, even while screaming.

And then, when he was all diapered, drinking his bottle, he would let me pick him up. Except for when he screamed during dressing changes, Misael was silent; he hadn't spoken for anyone during his monthlong admission. So I tried to make him laugh. I grabbed his nose and said, “Hey, where's your pony? Where's your dog? Where's your cow? Over here? Under here?” and he would watch me sideways with a sad smile, as if to say, “I forgive you.”

I was in Guatemala City for a pediatric surgery elective at a nonprofit hospital downtown, but also to celebrate Christmas with my aunt and cousins. In Guate, Christmas is celebrated the whole month. The days were hectic, the nights a blur of mixed traditions heralding to both the Catholic and the pagan.

Imagine *Quema del Diablo*, a day of purification. For 10 quetzales (about a dollar and change) you could buy a red devil piñata on a rope. At every major intersection there were poor boys laden with large papier-mâché devils, happily unburdening them to happy shoppers. By 7 p.m. on December 7, most of the good citizens of the city had purged their homes of all unnecessary objects—clothes, books, mattresses, even old love letters—and had thrown them all onto piles in the street. Everyone gathered outside at dusk.

And then the world exploded. Each devil, stuffed to the brim with firecrackers, was lit and thrown mercilessly onto the piles. Families and neighbors gathered round the bonfires, and children tossed more firecrackers on top. We even toasted marshmallows. The next morning there were three new children in the “Burn Room”: a teen whose thigh was tattooed by the bottle rocket that had lit in his pocket, a 4-year-old girl whose hand was singed and bubbled and a 6-year-old boy with full-thickness burns on both feet.

For me, the daily culture clash between our comfortable family celebrations and the horrors of the government hospital was difficult to ignore. My family had started out poor. My father and aunt grew up on a *finca*, a ranch, where my grandmother taught the workers' children and my grandfather was a mechanic. The fact that we are now all financially beyond comfortable is almost solely thanks to my father. Through a series of achievements and sacrifice,

he landed a U.S. residency spot in Boston, and is now a physician in Massachusetts.

I felt sometimes that such humble beginnings had been swept under a rug. I got angry at my cousins for such transgressions as shopping at The Gap, eating at Pizza Hut and belonging to the country club. Their young children watch Disney and take swimming lessons and are completely sheltered from the obvious poverty that exists all throughout Guate. I'm not insisting that poverty is anything special or poetic. I am just asking my family to see it, to let their children see it. How about those homeless kids, barefoot in traffic, begging from cars, who can barely reach the driver's window? Or the public emergency rooms, where clotted blood attracts huge cockroaches? It strengthens your spirit, to see and register the poverty and misery around you. I started to feel crazy when I realized that they don't see it, that they have turned from reality.

My cousin Lea picked me up at the hospital the day I discovered that Misael was infested with head lice. Ana Luisa, a well-meaning junior med student, had picked a nit out of my hair that morning. Giggling, she squished several egg cases. "Oh, by the way, did you know that Misael is infested with head lice?" she asked. "Thanks," I replied. I bought Lindane shampoo for us both. It was a bad day. Between the lice, the screams, the wafting putrid-sweet smell of the warm, sticky bandages, the nasty ER and its one dirty examining table, I was heavy with disgust and helplessness. I dragged open the car door and collapsed.

Lea handed me the baby, her chubby, white, blue-eyed baby who, no matter how I searched for some requisite compliment, always looked to me like a fat worm.

Lea chattered on about her day: a brunch at the Hilton, she ate too much, then she got her hair done, but they took off a bit too much in front, didn't I think? And there was no food at home, she had to stop at the grocery store, would I come and help her, because there was simply too much to do.

Here, again, was the culture clash between home and hospital. Here was my cousin, an alien from an alternate universe of ladies' brunches and salons. I felt frustrated anger. Then, I remembered the morning, and calmed:

Misael, Misael ... After the bandages, I wiped his face of tears. I tickled his nose, I tried playing the animal game: "Where's your dog?" And then, he reached out and grasped my fingers, and he spoke to me. It was only a



Swinging lanterns and beating gongs, the children led the procession of family and neighbors on *La Posada*, a few days before Christmas. Old wooden carved figures of Mary and Joseph, sumptuously dressed in velvet and lace, were set on a small bier. We made our way around the neighborhood, singing and calling out: Mary and Joseph were looking for a place to rest, but there was no room at the inn.

hoarse whisper, strained from screaming. I couldn't hear him. I thought quickly of lice, but I bent close anyway, so close his dry lips and hot breath tickled my ear. The little voice was so quiet, almost gone, but then, there it was:

"*Tengo un chucho. Se llama Zorro.*" ("I have a dog. He's called Fox.")

I bit my lip and smiled. "Oh, you do, do you, that's amazing!" And we talked, for the first time, about Zorro, and how Misael sometimes stole food from the kitchen to give to Zorro, and got in trouble with his mother. I once read an article about adoption in a magazine, and this quotation stuck with me: "Some primates are so eager to nurture an infant, they will kidnap one." I understood fully. I remembered this as Lea drove us to her fancy Western-style supermarket, and I held her baby in my arms, and I hated it. This baby represented the *nouveaux riches* of Guatemala, the younger upper classes who have effectively shielded themselves from poverty, dirt and pain. They live an illusory existence, in heavily guarded homes, with fierce dogs, watchmen, walls topped with electrified razor wire. And Lea aspired to this, as do so many Guatemalans.

I needed to escape. So I told her I had head lice. From Misael. It worked like a *curandero* charm. Lea drove me straight home and directed me to the shower. I was free from the car, the worm baby and the fancy supermarket. In Lea's defense, she asked about Misael every time I saw her: how was he, did he eat enough, would his little penis ever be normal, did I think? Looking back, I realize that maybe she did see how different her baby was from Misael. Maybe that concern and curiosity was Lea's spirit, tapping at her from the inside, saying, "See? See?"

I managed to avoid Lea until *La Posada*, a few days before Christmas. This is a procession of family and neighbors, led by the children swinging lanterns and beating gongs. Old wooden carved figures of Mary and Joseph, sumptuously dressed in velvet and lace, are set on a small bier. Lea and I and two other cousins got to carry it. We made our way around the neighborhood, singing and calling out: Mary and Joseph were looking for a place to rest, but there was no room at the inn. The traditional songs degenerated into giggles and shouts of "Lemme in, dammit!" until finally the last neighbor opened her gate, and everyone filed in for rum punch and cake, songs and small gifts.



A bunch of bananas: that was my reward for the daily torture routine. Misael's parents came once a week to visit. Visiting hours were very strict for the burn patients. Infections were so common and so deadly, especially at the public hospitals, that parents could look at their children from the door, but they could never touch them. So a crowd of parents would gather at the glass door to the burn unit, and they would take turns to wave, some sobbing quietly, while Maria pushed the metal cribs up to the door, one by one, and the children screamed, "Please let me out, please take me home! Mama, papa, don't leave me—"

Misael's parents were indigenous Guatemalans. His mother was dark and slight, her long black hair tied back, a worn blouse tucked into a traditional woven wraparound skirt. She was wringing her hands, eyes wide, horrified. His father was wiry, strong, stoic. It had been one full month since they had been able to hold Misael. What kind of torture was this, to know that the child they had created was a hostage, in pain, and they could do nothing? They were being kicked out; it was 4 p.m., the end of visiting hours, no room at the inn. Misael was screaming in his sad, hoarse voice; husband and wife were practically cowering, on the verge of tears.

They were never there for dressing changes. They didn't know that I was a torturer. They didn't know that it was guilt that motivated me, right at that moment, when I gave Misael a cookie and he stopped screaming. They were so grateful for this that they brought me the bananas. I accepted with more guilt.

Sometimes my soul sinks under folds of flesh. Sometimes, I drown. Mine is not the complacent, contented soul Oz speaks of, but rather, something probably worse: hypocritical. I criticize my own family for trying to be comfortable, for trying to raise their children in safety. Who am I to criticize? They have no choice but to live in Guate. I only visit.

And since I was only there for one short month, I had no right to laugh, to enjoy the warm days, to escape. But when I was tired, I always had company: the burnt-out residents, so desperately sick of the daily misery of the hospital, and of being helpless, and of being the cause of more new misery for patients.

Doctora Lorenzo, my senior resident, had the ugliest, most beat-up 1977 beige Datsun, so unbelievably old and dirty. But one day Hugo Gonzales, the chief surgery res-

ident, and Pablo, the second-year, and I piled in happily. The goal was to get some lunch at a nearby restaurant, a break from work. We were tired, and we simply left. What luxury!

I sometimes hated Dra. Lorenzo, even good-natured Hugo. They didn't use enough pain medication for the children. I often asked for analgesics for Misael and others, for dressing changes, but they would only allow Tylenol and Dipirona (another nonnarcotic). Throughout Central America, narcotics are rarely used in children, even for burn victims, for fear of overdose, or of causing addiction. Morphine was used only if the burn was so severe as to require debridement under general anesthesia.

Christmas Eve was an exhausting haul. My cousins and I had delivered a huge bag of inexpensive plastic toys to the ward, probably 30 kids. Every child who could be discharged went home that afternoon. Then, of course, one had to attend the Christmas parties on all the floors and sneak treats to our compatriots in the OR and the ER, and then the party continued at home.

The evening was a long trail of guests coming and going, tropical-fruit rum punch and fresh tamales until midnight. Besides eating and drinking, people appraised our *Nacimiento*, the Nativity scene that many families spent serious time creating. Ours was under the (rather sparse) Christmas tree: a red and green sawdust carpet with a dried moss border, and the simple clay figurines of Jesus, Mary and Joseph. Of course, we had to hear about our neighbors, who had a running water river through theirs, or my little cousins, who had done an entire village, complete with electric lights.

Throughout all this, we heard occasional cracks and whistles, forewarnings. Then, on the stroke of midnight, there exploded a deafening cacophony as the whole city set off their Christmas Eve firecrackers. Neighbors gathered in knots in the streets, and kids dashed in and out of the clouds of smoke, high on sugar and noise and the promise of presents, which were opened after this midnight blast.

Christmas Day started out so well. I went in early, winning the murky battle of the rum-punch hangover. Maria (who is truly dedicated) and I changed all the bandages. That made me feel good. But the rest of the day was a headachy blur. There was a Christmas dinner at the manicured suburban house of rich family friends, who served a large stuffed turkey. I wondered the whole afternoon, where

did they get a Butterball turkey, in Guatemala? They must have had it flown in. Crazy! Then we spent a long evening at the secluded mansion of highly valued family friends, a family previously affiliated with the United Fruit Company. Their palpable wealth, their spoiled grandchildren, their servants ... I felt so frustrated by their status, their complacency.

And then I left. Sure, this good-hearted little med student had worked very hard for a month, and (amazingly enough) maintained a bright affect through it all. I was bone-weary from a month of Christmas excess as much as from the burn unit. I had also struggled with the contrast between the social classes on a daily basis. But in the end, I turned my back on the struggle the moment I got on the plane for home.

Ana Luisa sent me several e-mails about Misael. He had finally needed skin grafts; they took, and he healed, then left the hospital slightly malnourished, in the arms of his mother. I don't know where he is now, and I will never know if I mattered in his life.

The brutal social dichotomy does exist, and I feel caught in the middle. I understand why Lea wants to protect her own, and why just to live and live comfortably is considered an achievement. But we all need to see the inequality of the suffering of the poor, and acknowledge injustice. Seeing is the first step in contact, bridging between cultures, between souls. When you see, you wake up and realize, this is what really matters, and anything else is a dream.

I made real contact with people in all the social strata, moving freely between worlds. I felt like a spy, a clandestine revolutionary. But this is no revolution. This is every day, and while these social rituals are so beautiful sometimes, and occasional escape is necessary for one's sanity, we cannot ignore the spirit, which taps and says, "Fight complacency! Make people see ..."

And so that was the whole point of quoting Oz, to voice the need to fight complacency, to open the closed and contented mind, to wake people and help them see the harsh but beautiful reality around them. But how does one do this? How can I change even one person? If there are answers to these questions, if there are, among you readers, people who know, then please share. For the sake of many spirits. **YM**

Monique Aurora Tello, M.D., is a second-year resident in medicine at Yale. She spent December 2000 in Guatemala City while a fourth-year medical student at the University of Vermont.

Commencement

2002

A large class, an inspired speaker and a tall order—to do some good in the world.

During their second-year show three years ago, the Class of 2001 sang (to the tune of “Jesus Christ Superstar”), “We’ll all take a fifth year before we’re done.” Meant as a joke, the lyric was almost prophetic. Many in the class did stay for a fifth year. Meanwhile, the number of students in the Class of 2002 who took a fifth year was lower than average. These two anomalies swelled the ranks of this year’s graduating class to 112, the largest in recent memory.

The students’ choice of commencement speaker was also a departure from the norm. Paul E. Farmer, M.D., Ph.D., has followed an unusual path since he received a medical degree and a doctorate in anthropology from Harvard in 1990. He works in Haiti’s central plateau, tending to the rural poor in the poorest country in the Western Hemisphere. He also travels the world, defying the experts as he finds ways to bring medical care to tuberculosis patients in Peruvian slums or Russian prisons.

“When we began to treat AIDS patients in rural Haiti, it was dismissed as neither cost-effective nor sustainable,” Farmer said. “In fact, some experts argued that it was down-

right irresponsible to use antiretroviral drugs in a setting of such squalor. I underline the word experts here because such critiques have never, in my experience, come from poor patients and their families. I have never had someone say, ‘You know, doc, I’m very interested in treatment, but being a Haitian I’m really not cost-effective.’ ”

In closing, Farmer urged the new doctors to use their skills to change the face of medicine.

“Try not to constrict your borders to the confines of a single hospital,” he said. “The rest of the world is out there. This world will find you, even if you are hidden away in a hospital or a lab. It is my hunch and my hope that you will succeed in the challenge now before medicine, now before doctors—to rebuild modern medicine on a foundation of evidence and equity.”

Dean David A. Kessler, M.D., awarded Farmer the Peter Parker Medal for his contributions to medicine. “You demonstrate that there is all the difference in the world between a profession and a calling,” Kessler said. “Dr. Farmer, you teach us what it means to have a calling.”

—John Curtis



Graduates Anita Karne, Kamyar Madani, Reza Vagefi and Premila Bhat are framed in the view panel of Marylanne Pol's digital camera on Commencement Day in May. They were among 112 medical students receiving their Yale diplomas.

**THIS PAGE**

Photography was one of the most popular activities at Commencement, where family members, friends and the graduates themselves worked hard to document the day's events. Among them was Scott Floyd (bottom right photo), who checked the display of his digital camera while photographing classmates.

OPPOSITE PAGE

More than anything, the day was a time to celebrate. Clockwise, from top left: Naomi Balamuth, Vasanthi L. Narayan, Rupal Badani and Diana Bojorquez pose enthusiastically for the camera; Virginia Triant gets help with her cap and gown before the class photo on the steps of Sterling Hall of Medicine; Bojorquez is congratu-

lated by Dean David Kessler during University Commencement exercises on the Old Campus; the student a cappella group The Ultrasounds perform under the tent on Harkness Lawn during the medical school ceremony; an exuberant Sarah Rettinger shakes hands with classmate Deborah Smith.



JOHN CURTIS

BELOW

Commencement brought family and friends to New Haven from across the United States and abroad. Clockwise from top left: Steven Song is surrounded by his parents and cousins after the medical school ceremony; Andy Redmond is joined by his god-

daughter, Tazje Henry-Phillip, and her sister, Rashida Peters; Nikki Pinkerton receives her diploma accompanied by her children Nick, Mandy and James (from left) and her husband, Brett; family mem-

bers applaud the new graduates as they receive their diplomas. They, in turn, were recognized by Dean David Kessler, who asked the graduating class to turn and face the audience. "Let's have a round of applause," he said, "for the mothers and fathers, grandmothers and grandfathers, and all the other people who made this day possible."



BELOW

Awards and honors went to Commencement speaker Paul Farmer (top photo, right, with author Tracy Kidder), who received the Peter Parker Medal; Richard Belitsky (middle photo, with graduate Darnita Johnson-LaBorde), who received the Bohmfalk Prize

for clinical teaching; Guadalupe Garcia-Tsao (bottom right, with Dean David Kessler), who received the Humanism in Medicine Award; and Frederick Sigworth (bottom left), recipient of the Bohmfalk Prize for basic science teaching.



Commencement awards and honors

Bohmfolk Prize

Frederick J. Sigworth, PH.D.
Richard Belitsky, M.D.

Healthcare Foundation of New Jersey Humanism in Medicine Award

Guadalupe Garcia-Tsao, M.D.

Leah M. Lowenstein Prize

Marie E. Egan, M.D.

Francis Gilman Blake Award

John S. Hughes, M.D.

Betsy Winters House Staff Award

Haider A. Akmal, M.D.

Parker Prize

Michael S. Singer

Miriam Kathleen Dasey Award

Rocco A. Iannucci
Rebekah G. Gross

Norma Bailey Berniker Prize

George King-Tso Lui

Dean's Prize for Community Service

K. Claire Stylianopoulos
Emmanuelle M. Clerisme

Healthcare Foundation of New Jersey Humanism in Medicine Student Award

Anna Gibb Hallemeier

Campbell Prize

James S. Castle
K. Claire Stylianopoulos

Perkins Prize

R. Griff Kelley Jr.

Merck Book Award

Kebba M. Jobarteh
John A. Davis

M.D./PH.D. Award

Scott R. Floyd
Nataki C. Douglas

M.D./PH.D. Alumni Award

Michael S. Singer

Connecticut Society of American Board of Obstetricians and Gynecologists Prize

Hyacinth N. Browne

New England Pediatric Society Prize

Elizabeth M. Bird
Diana I. Bojorquez

Society for Academic Emergency Medicine Award

Jeanne K. Tyan

Connecticut Chapter of American College of Surgeons Prize

Prashanth Vallabhajosyula

Connecticut Academy of Family Physicians Award

R. Griff Kelley Jr.

Dr. David and Arthur Schuman Award of Excellence in Family Practice

Corey L. Martin

Endocrinology Society Medical Student Achievement Award

Daniel A. Hoit

Peter A.T. Grannum Prize

Nataki C. Douglas

Lauren Weinstein Award

F. Nikki Pinkerton

ACP-ASIM Internal Medicine Award

Joyce M.S. Oen-Hsiao

Cortlandt Van Rensselaer Creed Award

Kebba M. Jobarteh

Norman Herzog International Fellowship

Marc A. Davis

BOTH PAGES

Public health graduates celebrated on the Old Campus in the morning and at a second ceremony later in the day in Battell Chapel. Top row, from left: Shalini Kapoor, Jeanna Haw and Margaret Dolin huddle for the camera on Old Campus;



JOHN CURTIS (2)

In a changed world, the agenda for public health remains much the same.

The prospects for public health altered dramatically on the morning that journalist Mark Schoofs left his New York City apartment in search of coffee “and was greeted by the sight of a gaping hole in the World Trade Center.

“You are being graduated into a world that has changed,” the *Wall Street Journal* reporter told students from the School of Public Health at their May 26 Commencement ceremony at Battell Chapel. “Things are different. ... Some of you may find yourselves organizing vaccination or treatment against the deliberate infliction of disease,” said Schoofs. “But I suspect that most of you will not work directly on terrorism. And, without belittling the war on terrorism, that is as it should be.”

In a single day, he said, malaria kills almost 3,000 people. Tuberculosis kills about 5,500 people, and AIDS another 8,000—a toll of more than 15,000 people daily. “That’s five World Trade Center attacks, ten towers collapsing, every day.”

For the 123 students graduating with degrees in public health, Schoofs said the terrorist threat should underscore the impact of politics on public health. “It was a political vision that led those 19 hijackers to mass murder. But it is also politics that condemns many thousands to die of preventable or treatable infectious diseases every year,” said Schoofs, a 1985 Yale College graduate who won a Pulitzer Prize for his coverage of AIDS in Africa in 2000. Parents still lose their children to infections that could have been prevented by inexpensive vaccines. African-Americans die at

higher rates than whites and receive inferior care, even after accounting for differences in socioeconomic status. “That’s politics,” said Schoofs.

He rejected the argument that the terrorists were motivated by anger over poverty and injustice. They were not poor, and their attack was not a protest but rather “an act of pure destruction and obliteration.” To counter this, he said, public health graduates must “insist that every life matters ... Partly this is sheer pragmatism—infectious diseases do not stay in marginalized groups, but leak out into the general public, and your job is to protect the public. But insisting that every life matters is also a profound political statement, perhaps the most profound statement you can make.” In doing so, he told the graduates, “you are putting forth a philosophy that is the exact opposite of callousness and nihilism.”

The Rev. Thomas Gariepy, the student speaker, also emphasized “the political determinants” of health. He said that while the diseases afflicting people may have changed little over time, the political forces that influence disease are unique to our era. “Social justice is born in political engagement,” said Gariepy, a Catholic priest who was among the graduates. “If public health is social justice, then for us, public health will be political engagement.”

—Cathy Shufro

Terry Dagradi is a photographer with Med Media Services at the School of Medicine.

Ferhat Kassamali, Jigar Shah and Toshio Kimura pass the time while waiting for Commencement exercises to begin; Commencement speaker Mark Schoofs addresses the graduates in Battell Chapel. Middle photo: Megan Leaderer,

Katherine Van Loon, Jigar Shah and Edward Huang gather for the morning procession. Bottom photo: Among the recipients of honorary Yale degrees at the University Commencement were women's advocate Ela Ramesh

Bhatt, director Steven Spielberg and civil rights attorney Robert Carter, who successfully argued the *Brown vs. Board of Education* case before the Supreme court a half century ago. Schoofs cited Carter in his speech.



JOHN CURTIS



Commencement awards and honors

The School of Public Health awarded 114 master's degrees and nine doctorates at Commencement exercises at Battell Chapel on May 26.

Dean's Prize for Outstanding

M.P.H. Thesis

Michael Chan

Inhibited hiv & siv Replication by Polymorphic vif Sequences

Shalini Kapoor

A Needs Assessment of Orphan Children and Their Caregivers in the KwaZulu Natal Province in South Africa

Karen Sautter

Protecting Children in Times of Terror: Lessons From the Cold War

Katherine Van Loon

Informed Consent: A Study of the Experiences of Clinical Trial Researchers in South Africa.

Award for Excellence in Teaching

Robert Dubrow, M.D., PH.D.,

The Henry J. (Sam) Chauncey Jr. Inspiration Award

Chanda Cashen

The Cortlandt Van Rensselaer Creed Award.

Eric Ashton



TERRY DAGRADI (3)

Excursions with Paul Greengard

Nobel laureate, an expert on the neuron's "inner world," returns to where the work began.

The visit of Paul Greengard, PH.D., to Yale in May was a homecoming of sorts for the Nobel laureate.

Greengard, who gave the 15th annual Farr Lecture on Student Research Day, spent 15 years working in a lab on the third floor of Sterling Hall of Medicine's B wing before moving to Rockefeller University in 1983.

"The work which formed the foundation for the Nobel Prize was all carried out here at Yale," said Greengard, who shared the 2000 Nobel Prize in physiology or medicine for his research into how nerve cells in the brain communicate. In a joking aside, he added, "Don't tell the president of Rockefeller I said that."

Greengard said that when he started the work shortly after coming to Yale, "one of the things that our research was most interested in was to try to elucidate the mechanism by which neurotransmitters activate receptors." One school of thought argued that electrical impulses drove communications among neurons. An opposing view held that neuronal communications were mediated by a chemical process. The chemical view eventually won out, and Greengard's research led to his discovery of the role of phosphorylation in the mechanism of action of neurotransmitters.

While at Yale, he came close to making a serious error. In 1978 a young scientist wrote and asked

Shalini Kapoor (right) presented her research on the impact of HIV/AIDS on households in South Africa.

for a position in his lab as a postdoc. "I wrote back and said no," Greengard said. "It was probably the dumbest thing I had ever done." Five days later Greengard had a visit from cell biology Chair George Palade, M.D., who had won the Nobel in 1974. "He came into my office and said, 'You made a big mistake.' He was God at that time. He told me how bad the mistake was, and I reversed my decision."

The young postdoc was Pietro De Camilli, M.D., now a professor and former chair of cell biology himself, who introduced Greengard to a standing-room-only crowd in the auditorium of the Jane Ellen Hope Building. "He discovered the inner world of the neuron," De Camilli said of his former mentor.

Greengard's talk capped a day of poster and oral presentations by students. Five students made oral presentations and 65 had posters on the walls of the Hope Building. While slightly more than half of the posters described the results of laboratory work, the range of research questions was quite broad, delving into the basis of absolute pitch, conflicts of interest in medical research, the risk of injury to children in Pakistan and supports and barriers to the use of health care interpreters for patients with limited English.



TOP Nobel laureate Paul Greengard, who began his groundbreaking research in a lab at Yale, visited New Haven on Student Research Day in May.

MIDDLE During the poster session, Julie Jaffe described her research into the characteristics of prostate tumors.

BOTTOM Bonnie Kerker examined the factors that determined whether health care providers screened pregnant women for cocaine abuse.



JOHN CURTIS

The science behind AIDS and prevention

About 250 people attended AIDS Science Day at the School of Public Health on April 12 for discussions of a wide range of medical, preventive, social and political aspects of the disease. “In simple terms,” said public health Dean Michael Merson, “the pandemic now rivals in size and dimension the bubonic plague of the Middle Ages.” Three panels discussed sex, drugs and politics; therapeutic and preventive interventions; and risk factors among vulnerable populations. The 18 posters on display examined topics including the Tijuana sex industry, syringe access in Hartford and links between substance abuse and domestic violence.

Among the presenters was Shalini Kapoor, M.P.H. '02, who received the student poster award for her research into the impact of AIDS on households in South Africa. (She also received the Dean's Prize for Outstanding M.P.H. Thesis; see page 25.) Kapoor found many of them overwhelmed by the loss of productive family members and an increase in the number of orphans. Many households in the KwaZulu Natal province, she said, were unaware of government assistance programs. She also observed obstacles to obtaining that assistance, missing birth certificates being high on the list. “Most children are in need of food, clothing, shoes, school uniforms, blankets and mattresses,” said Kapoor, who spent last summer in South Africa. “The information in this assessment is intended to assist in designing programs targeted to the needs of young orphans and their families.”

For budding scientists, the road ahead holds both promise and pitfalls

At a biotech job fair in February, a panelist on alternative careers offered a sobering statistic. “Only one in five of your peers is going to have their own lab,” Laurie Dempsey, PH.D., told the crowd of graduate students and postdocs in the Harris Auditorium at the Child Study Center. The implication was clear. The other four would have to consider alternatives. Dempsey herself traded pipettes and Western blots for an editor's green eyeshade at *Nature Immunology*.

And that is only one decision facing scientists, according to members of the two panels at this year's Graduate Student Research Symposium. If they remain at the bench, will it be an academic or corporate lab? If the lure of the corporate world is stronger, should a scientist go for big pharma or an unknown biotech startup?

Two panels, which divided neatly along gender lines as it happened—men discussing traditional career paths, women considering alternatives—offered the advice and experience of scientists who have been out of school for a few years. Whether in traditional or unusual careers, all managed to keep their hand in science.

“I do a lot of writing, a lot of financial modeling, and I talk to investors constantly,” said Hailey Xuereb, PH.D., who now does equities research in biotechnology at the financial giant Bear Stearns. Dempsey said she takes satisfaction in helping scientists communicate their work to a larger audience. “You have to write well and enjoy being challenged all the time,” she said.

Karen Mangasarian, PH.D., spent five years as a postdoc before becoming a technical advisor at a law firm by day, while getting a law degree at night. Small biotech companies make up a large part of her client base. “You can help bring those companies from a

middling company to something of substance,” she said.

All agreed that an M.B.A. is not essential to their careers. “It's helpful, but you really learn once you're on the job,” said Xuereb.

Students wishing to pursue more traditional careers were warned of the trade-offs inherent in choosing among established firms, startups and academic research.

“There are high risks involved and you have to determine whether it's worth that risk,” said Timothy S. McConnell, PH.D., who chose a startup—Rib-X Pharmaceuticals, founded in New Haven last July.

“There's a big misconception out there that big companies equal stability and small companies equal instability,” said Vic Myer, PH.D., a founding scientist at Akceli, a 12-person Cambridge, Mass., company that works on high-throughput, cell-based assays. Picking up on Myer's thought, Mark R. Miglarese, PH.D., a senior research scientist at Bayer, added, “A big company is probably not going to go down, but your research area might.”

And, the panel noted, working at small companies allows scientists to develop skills in other areas, such as business, marketing and public relations, while corporations offer another kind of flexibility. “In large companies there's a fair bit of opportunity to move around, because big companies do a lot of different things,” said Miglarese. Panel members also warned students about the difference between science in academia and in industry. Academic researchers have the luxury of pursuing projects for no other reason than that they find them interesting. “Let's face it, these are money-making ventures,” Miglarese said of corporate research. “You've got to sell it. It's got to make some sense for the company.”



GALE ZUCKER (3)



TOP Anna Gibb Hallemeier celebrated her match in pediatrics at Yale-New Haven Hospital with a hug and a glass of champagne.

MIDDLE Aaron Covey and Seth Goldberg congratulated each other on their successful matches. Covey is staying in New Haven to pursue orthopaedics. Goldberg is heading for Boston to start a residency in internal medicine at Brigham and Women's Hospital.

BOTTOM Yee-Bun (Ben) Lui, who is entering an internal medicine residency at UC-San Francisco, shares the good news with a fellow student.

A good year to be matching

Nationally, a record number of seniors make the grade; for two Yale students, it's on to Hopkins and UCSF.

By 11:30 a.m. on March 21, students were gathering in the Marigolds dining hall to wait for the doors to the Harkness Lounge to open. As the crowd grew it was seized by the giddiness that often accompanies high anxiety. This was, of course, Match Day, and in a few minutes the 109 students, along with 14,227 others around the country, would open the letters that would determine the course of their medical careers.

Jordan Prutkin, one of the first to arrive, appeared sanguine. "I think I matched at one of my top three or four choices and I would be happy at any of them," he said. "But talk to me in 25 minutes." What Prutkin couldn't know at that time was that he had good reason to be calm. Not only did he fare well but 2002 was the best year ever for medical school seniors, according to the National Resident Matching Program—94.1 percent matched, up from 93.7 percent last year.

The Office of Student Affairs tried to reduce the anxiety with a new system for getting the letters to their recipients. In years past Nancy R. Angoff, M.P.H. '81, M.D. '90, HS '93, associate dean for student affairs, and Cynthia Andrien, M.S., assistant dean for student affairs, trekked through the milling crowd, smiles on their faces and letters in their hands, closeted themselves in the mailroom, inserted letters in boxes, then

opened the door to the waiting throng. No more.

"The anxiety was just too much, with some people trying to get into the mail room and others not being able to get out," Angoff said.

This year the letters were divided into alphabetical groupings and were waiting at tables in the lounge. Students appeared to welcome the new system. "I thought it gave us enough space," Anna Gibb Hallemeier said. "You hear screams, but it isn't in your face."

Indeed, screams and squeals of joy filled the room as students learned their fates.

Outside the lounge, Prutkin sat with his classmate Jennifer Wang, a good friend since they met at Yale College nine years ago. Prutkin is headed for Johns Hopkins Hospital—his first choice—and a residency in internal medicine. Wang's match will take her to the University of California-San Francisco for general surgery.

"Since freshman year of college we've been friends," Prutkin said. "Now we're on opposite coasts."

"I'll be sure to call you at 11 p.m. my time," Wang joked.

With 109 students involved, this year's match was larger than usual—many of those in the Class of 2001 took a fifth year, while most of the students in the Class of 2002 finished their studies in four years. More than half the Yale students chose a generalist discipline: 26 percent went into internal medicine, another 6 percent chose internal medicine/primary, 6 percent opted for family practice and 14 percent chose some form of pediatrics.

The results of this year's match at Yale appear on the opposite page.

2002 residency placements for Yale medical students

The Office of Student Affairs has provided the following list, which outlines the results of the National Resident Matching Program for Yale's medical graduates. Some names appear twice because the graduate is entering a one-year program before beginning a specialty residency. The transitional designation is a one-year program with three-month rotations in different specialties.

California

Cedars-Sinai Medical Center, Los Angeles
Rupal Badani, pediatrics

Contra Costa Regional Medical Center, Martinez
Kinari Webb, family practice

Harbor-UCLA Medical Center, Los Angeles
Marc Davis, emergency medicine

Scripps Mercy Hospital, San Diego
Jeffrey Bush, transitional

Stanford University Programs
Shannon Sheu, dermatology, medicine
Scott Sutherland, pediatrics
Jeanne Tyan, emergency medicine
M. Reza Vagefi, medicine

University of California, Irvine
Kier Ecklund, orthopaedic surgery
Hung Nguyen, obstetrics and gynecology

University of California Medical Center, Los Angeles
Trac Duong, internal medicine
Amit Jha, internal medicine
Nara Shin, emergency medicine

University of California, San Diego
Jeffrey Bush, emergency medicine

University of California, San Francisco
Felix Adler, diagnostic radiology
Diana Bojorquez, pediatrics/primary
Jon Boone, psychiatry
Karen Kim, internal medicine/primary
Brian Lee, radiation oncology
Yee-Bun (Ben) Lui, internal medicine/primary
Kamyar Madani, internal medicine
Sarah Rettinger, internal medicine
M. Reza Vagefi, ophthalmology
Jennifer Wang, general surgery

VA Greater Los Angeles Health System
Nara Shin, medicine

Colorado
University of Colorado School of Medicine, Denver
David Larson, pediatrics

Connecticut
Greenwich Hospital
Brian Lee, medicine
Patricia Pahk, medicine

Hospital of Saint Raphael, New Haven
Michael Dutka, transitional
Scott Floyd, medicine
Joyce Oen-Hsiao, internal medicine
Marlyanne Pol-Rodriguez, medicine
Neesha Rodrigues, medicine

Middlesex Hospital Program, Middletown
F. Nikki Pinkerton, family practice

Norwalk Hospital
Afari Arash, medicine

Yale-New Haven Hospital
Hyacinth Browne, obstetrics and gynecology
Anita Chandrasena, internal medicine
Jen Chow, otolaryngology, surgery
Emmanuelle Clerisme, internal medicine/primary
Aaron Covey, orthopaedic surgery
Michelle Diu, internal medicine
Monique Grey, orthopaedic surgery
Anna Hallemeier, medicine/pediatrics
Heather Heimerdinger, psychiatry
Joshua Horenstein, internal medicine
Darnita Johnson-LaBorde, psychiatry
Vasanthi L. Narayan, internal medicine
Susan Lee, ophthalmology
Vivian Lombillo, medicine/primary
Louis Marotti Jr., neurosurgery, surgery
Leo Otake, plastic surgery
Patricia Pahk, ophthalmology
Andy Redmond, neurosurgery, surgery
Jennifer Sharp, internal medicine
Kiriaki Stylianopoulos, pediatrics
Bayan Takizawa, surgery, urology
Karen Tie, internal medicine

District of Columbia
Georgetown University Hospital
James Castle, medicine

Georgia
Eisenhower Army Medical Center, Augusta
Jose Miranda, orthopaedic surgery

Louisiana
Tulane University, New Orleans
Roya Vakili, ophthalmology

Maryland
Johns Hopkins University, Baltimore
James Castle, neurology
Jordan Prutkin, internal medicine
Prashanth Vallabhajosyula, general surgery

Massachusetts
Beth Israel Deaconess Medical Center, Boston
Amy Herman, internal medicine

Brigham and Women's Hospital, Boston
Sandeep Bansal, internal medicine
Wendy Garrett, internal medicine
Seth Goldberg, internal medicine
Dawn Harris, internal medicine/primary
Julie Jaffe, internal medicine

Biren Modi, general surgery
Virginia (Jeanne) Triant, internal medicine

Brigham/Faulkner Hospital, Boston
Felix Adler, medicine
Andrew Norden, medicine
Michael Sherling, medicine
Michael Singer, medicine
Luke Yoon, medicine

Children's Hospital of Boston
Amy Fahrenkopf, pediatrics
Melissa McKirdy, pediatrics

Harvard Combined Program, Boston
Michael Fehm, orthopaedic surgery
George Lui, medicine/pediatrics

Harvard Medical School
Andrew Norden, neurology

Joint Center for Radiation Therapy, Boston
Scott Floyd, radiation oncology

Massachusetts Eye and Ear Infirmary, Boston
Michael Singer, ophthalmology

Massachusetts General Hospital, Boston
Brooke Bailey, pediatrics
John Davis, internal medicine
Rebekah Gross, internal medicine/primary

Eric Hazen, pediatrics/psychiatry
Neesha Rodrigues, radiation oncology
Michael Sherling, dermatology
Karen Thomas, internal medicine
Luke Yoon, diagnostic radiology

Massachusetts General Hospital/McLean, Boston
Rocco Iannucci, psychiatry

Tufts–New England Medical Center, Boston
Daniel Hoit, neurosurgery

Michigan
University of Michigan Hospitals, Ann Arbor
Elizabeth Bird, pediatrics
Nathan Siegel, emergency medicine
Deborah Smith, internal medicine

New York
Einstein/Montefiore Medical Center, Bronx
Monica Lopez, general surgery

Mount Sinai Hospital, New York
Stephen Krieger, neurology
Rashida N'Gouamba, obstetrics and gynecology

New York Presbyterian Hospital–Columbia
Premila Bhat, internal medicine
Nataki Douglas, obstetrics and gynecology
Kebba Jobarteh, pediatrics
Jeffrey Miller, psychiatry
Jacqueline Park, internal medicine
Marlyanne Pol-Rodriguez, dermatology

New York Presbyterian Hospital–Cornell
Charles Stowell, psychiatry

New York University School of Medicine, New York
Anita Karne, internal medicine/primary

St. Vincent's Hospital, New York
Stephen Krieger, medicine
Susan Lee, transitional

South Nassau Community Hospital, Oceanside
Jennifer Hammerstein, family practice

SUNY Health Science Center–Brooklyn
Afari Arash, diagnostic radiology

Westchester Medical Center, Valhalla
Jennifer Kreshak, orthopaedic surgery

North Dakota
University of North Dakota School of Medicine, Bismarck
Corey Martin, family practice

Oregon
Oregon Health Sciences University, Portland
Anelene Pentopoulos, obstetrics and gynecology

Pennsylvania
Children's Hospital of Philadelphia
Naomi Balamuth, pediatrics

Hospital of the University of Pennsylvania, Philadelphia
Antony Chu, internal medicine
Kate Lally, internal medicine
Ingi Lee, internal medicine

Thomas Jefferson University, Philadelphia
Michael Dutka, diagnostic radiology

University Health Center of Pittsburgh
Hany Bedair, orthopaedic surgery
Karl Lozanne, neurosurgery, surgery

Washington Hospital, Washington
R. Griff Kelley Jr., family practice

Rhode Island
Rhode Island Hospital/Brown University, Providence
Tara Lagu, internal medicine/primary
Steven Song, pediatrics

Virginia
Medical College of Virginia, Richmond
Sandra Scott, emergency medicine

Washington
Tacoma Family Medicine Program
Rebecca Holmes, family practice

University of Washington Affiliated Hospitals, Seattle
Vivian Lombillo, dermatology

Wisconsin
University of Wisconsin Hospital and Clinics, Madison
Frederick (Frecky) Lewis, anesthesiology

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1950s

Louis R.M. Del Guercio, M.D. '53, of Larchmont, N.Y., was appointed Emeritus Professor of Surgery at New York Medical College. Del Guercio retired at the end of 2000 after 25 years as professor and chair of surgery. He is also a retired colonel from the Army Reserve Medical Corps.

Donald P. Feeney, M.D., HS '57, of LaGrange, Ill., has retired from the practice of urology and as assistant professor of urology at the University of Illinois College of Medicine. Feeney is now assistant medical director at the Unicare Division of WellPoint Health Corporation in suburban Chicago.

Marcia Kraft Goin, M.D. '58, clinical professor of psychiatry and behavioral sciences at the Keck School of Medicine of the University of Southern California, was elected president of the American Psychiatric Association in February. She will serve a one-year term as president-elect that began in May, followed by a one-year term as president starting in May 2003. As president, Goin will head the governing board of the organization and help guide policy and financial decision making. Her goals include decreasing the stigma associated with mental illness, increasing public education and research funding for mental health, getting businesses to offer greater mental health insurance benefits and improving government mental health services.



Harry O. Kendall, M.D. '55, retired in 1995 after a long career as an internist and later as a pulmonologist. His wife, a registered nurse and operating room supervisor, has also retired. They are traveling, gardening and studying languages, genealogy and western U.S. history. They are also involved in social causes, through the ACLU, Amnesty International and the Southern Poverty Law Center.

Jerome O. Klein, M.D. '56, professor of pediatrics and vice chair for academic affairs at Boston Medical Center, received the



2002 Maxwell Finland Award for Scientific Achievement from the National Foundation for Infectious Diseases at a dinner in March at the Capital Hilton Hotel in Washington. Klein is a leader in research on otitis media and has helped define the treatment standards and protocols for ear infections in children. He has been active in studies of vaccines and antibiotic efficacy and infections of the fetus and newborn infant. Only two awards were presented at the event, the other going to Bill and Melinda Gates. Honorary co-chairs for the dinner were former Presidents and First Ladies Clinton, Carter and Ford.

1960s

Leon G. Smith Sr., M.D., FW '60, HS '62, chair of medicine at Saint Michael's Medical Center in Newark, N.J., was awarded

a Mastership from the American College of Physicians-American Society of Internal Medicine in recognition of his career accomplishments and service to the college. He is also co-chair of the bioterrorism task force for the Medical Society of New Jersey. Smith has received a grant to build a bioterrorism lab to isolate potential pathogens, which he says will be run by his son, Stephen M. Smith, M.D. '89. Four of his children are physicians; two graduated from Yale School of Medicine. Smith also established the Infectious Disease Hall of Fame at Saint Michael's.

Augustus A. White III, M.D., HS '66, professor of orthopaedics at Beth Israel Deaconess Medical Center, master of the Oliver Wendell Holmes Society and an orthopaedic spine surgeon, was named the Ellen and Melvin Gordon Professor of Medical Education in 2001 at Harvard Medical School. White is also director of the Daniel E. Hogan Spine Fellowship Program. His research focuses on the clinical biomechanics of the spine.

1970s

Robert A. Brodner, M.D., FW '76, a neurosurgeon in private practice in Palm Beach, Fla., co-authored a play entitled *Handshake*, about a patient who



undergoes a surgical pallidotomy for Parkinson's disease and the interrelationships between the patient, his family and the surgeon. The play had several readings in New York and Palm

Beach, as well as a workshop production at the Cherry Lane Theatre in New York and an Off-Broadway world premiere last year at the Miranda Theater, where it enjoyed a successful six-week run.

Bruce D. Cummings, M.P.H. '77, writes to say that he spent "11 eventful years as the CEO at Blue Hill Memorial Hospital, Maine's first integrated primary care system (a nonprofit medical group practice with five rural health clinics, a Medicare-certified home health agency and Hospice provider, New England's first critical access hospital and Parker Ridge, a retirement community). Now I am leaving 'Downeast' Maine to become president and CEO of the Olean General Hospital in Olean, N.Y." He began his new duties April 1.

Donald L. Kent, M.D. '72, HS '78, reports that he has moved to Palm Harbor, Fla. "My closest friends and family convinced me not to totally retire at age 55, and accordingly, a position 'fell in my lap' through a Yale Med connection. As of May 20 I am to become chief of otolaryngology at Bay Pines VA Hospital in St. Petersburg, Fla."

1980s

David A. Cottrell, D.M.D., HS '88, director of the oral and maxillofacial surgery (OMS) residency program and director of OMS resident research at Boston University School of Dental Medicine, became chair of the

department of OMS in January. He has been on the faculty since 1993. Cottrell specializes in orthognathic surgery, temporomandibular joint reconstruction, and bone grafting for implants and has authored numerous textbook chapters and scientific publications.

David Fassler, M.D. '82, clinical associate professor of psychiatry at the University of Vermont College of Medicine,



received the 2002 Braceland Award for Public Service from the American Psychiatric Association (APA) in May during the APA annual meeting in Philadelphia. Fassler, also clinical director of Otter Creek Associates, a psychiatric and substance abuse treatment practice, was honored for his contributions as an author, spokesperson and publicist in the service of the mentally ill, the disabled and the art and science of helping.

Blackford Middleton, M.P.H. '81, writes, "I have returned to the world of academic medicine after leaving MedicaLogic/Medscape (now owned by GE Medical Systems). In early 2001, I joined the faculty in general medicine at the Brigham and Women's Hospital/Harvard Medical School, and I am also serving as director for clinical information systems research and development at Partners HealthCare System. Having fun with students and research, and still building clinical systems. Daughters Julia, 9, and Lillian, 5, are wondering 'Where

is the snow?' Wife Ursula King is making our new home and considering work ... eventually."

Rock G. Positano, D.P.M., M.Sc., M.P.H. '89, co-director of The Foot Center of the Combined Orthopaedic Trauma and Fracture Service, New York-Presbyterian Hospital/Weill Medical College of Cornell University, received a letter of commendation in January from the New York City Office of the Chief Medical Examiner for his assistance in their efforts to locate and identify the dead from the World Trade Center attack of September 11.

David S. Weiss, M.D. '81, was inaugurated as president of the International Association for Dance Medicine and Science



(IADMS) following the organization's 11th annual meeting in Madrid last November. Weiss is clinical assistant professor of orthopaedic surgery at New York University School of Medicine and senior orthopaedic consultant to the Harkness Center for Dance Injuries of the Hospital for Joint Diseases. IADMS was founded in 1990 by an international group of dancers and dance medicine practitioners, educators and scientists.

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.


DAVID COREY
Attacking a tumor's longevity via telomerase

Telomerase, the protein that keeps cells alive by adding new bits of DNA to chromosomes, may be a target for treatment against cancer, according to David R. Corey, PH.D., an associate professor of pharmacology and biochemistry at the University of Texas Southwestern Medical Center in Dallas. At Cancer Center grand rounds in March, Corey suggested that oligonucleotides could inhibit telomerase, which is found in 80 percent of solid tumors.

Although its normal job is to repair telomeres, which maintain chromosomes, telomerase confers a kind of immortality on tumors. Corey found that certain oligonucleotides, small clusters of nucleic acids, caused tumor cells to grow more slowly and eventually die. When the oligonucleotides were withdrawn, the tumor cell grew at a normal rate.

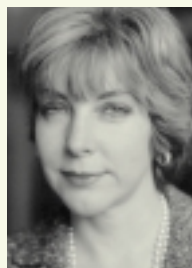
"You would not ever think about giving a telomerase inhibitor as a primary treatment to try to shrink the tumor," Corey said. "Instead, after initial chemotherapy and radiation, you would remove most of the tumor volume and then start treating with telomerase inhibitors and hope that, in combination with other drugs, they would help keep the tumor from recurring."


JOHN NEFF
Smallpox an unlikely threat, says Horstmann lecturer

When smallpox reached the New World, it quickly decimated the indigenous population, said John M. Neff, M.D., professor of pediatrics at the University of Washington and the Children's Hospital in Seattle. A similar, devastating outbreak is unlikely today, Neff told an audience in April for the Dorothy Horstmann Lecture at pediatric grand rounds.

With the disease eradicated since the 1970s, Neff said, the threat would come from misuse of stores of smallpox under guard in Russia and the United States or from rogue countries that might have obtained the virus. The possibility that these nations or groups have the virus is circumstantial, said Neff, who studied smallpox for the U.S. Public Health Service in the 1960s and '70s. Furthermore, he said, its use as a bioterrorist agent would backfire. "It won't be contained in any one country," Neff expressed a greater concern over the risks of vaccination.

Neff called for destroying all remaining samples of the virus. "I don't think the gains of keeping it around outweigh the gains of getting rid of it, and to destroy it makes a very positive statement to the rest of the world," he said.


SALLY SATEL
From the right, a different take on bias in medicine

The same day that Sally Satel, HS '88, spoke on political correctness at the medical school, an Institute of Medicine (IOM) report alleging racial and ethnic bias in medicine hit the news. The report was, for Satel, a practicing psychiatrist and a fellow of the American Enterprise Institute, a perfect example of what she feels is going wrong with medicine. "I worry that residents," she said, "are sometimes being taught to see patients as members of victim groups rather than individuals." Political agendas, from both the right and left, she said, are fueling misperceptions about medicine.

"No one is debating that there are health disparities or, in certain situations, different uses of certain procedures," Satel told an audience at a Program for Humanities in Medicine lecture in March. "But the IOM report managed to leave out some studies that showed comparable outcomes in blacks and whites." More important, there are almost no data comparing the treatment of minorities by minority doctors and white doctors, she said.

"Alleging prejudice on the part of doctors with so little evidence is inflammatory and engenders distrust of the medical profession," said Satel, author of *PC, M.D.: How Political Correctness is Corrupting Medicine*.



JOHN CURTIS (4)

ROBERT LANGER
Technology as a weapon against suffering

During his 28 years as a biomedical engineer, Robert S. Langer, SC.D., has received four honorary doctorates, published 700 articles and is the only active member of all three national academies: the Institute of Medicine, the National Academy of Engineering and the National Academy of Sciences. Yet the acknowledgement of his work that reached the widest audience came not from the academy, but from a popular television show—*ER*.

An episode two years ago featured a "chemotherapy wafer" that was implanted into a character's brain to treat a tumor. The device is one of many to come out of Langer's lab at MIT, where he develops drug delivery devices and polymer scaffolds on which to build replacement tissue.

"Drug delivery and tissue engineering are still at an embryonic stage," he told an audience in April at the Yale Engineering Sesquicentennial Distinguished Lecture Series. "There are so many things we don't know. It is my hope that scientists, engineers and clinicians will be able to develop new principles to try to create new technologies and entities that will relieve suffering and prolong life."

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