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Bulletin of the School of Medicine

Fall/Winter 1990-1991

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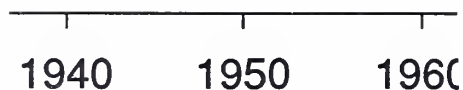
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On the cover: The Laboratory of Epidemiology of Public Health, opened in 1964, was designed by noted architect Phillip Johnson. During the 1990s, the building will undergo extensive modernization and renovation to prepare it for 21st-century education and research. (Photo by Harry Bishop.)

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Dr. Michael Kashgarian, professor of pathology, is editor of YALE MEDICINE. The tri-annual magazine is produced by the Office of Public Information: Helaine Patterson, director; Gregory R. Huth, publications editor; Diane Loupe, staff writer; L. Rosalind D'Eugenio, staff assistant; and Claire Bessinger, senior administrative assistant. Production: Hoblitzelle Graphics; printing: F. H. Roberts Co.

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LETTERS TO THE EDITOR

YSM in W.W. II

To the editor:

I enjoyed reading Dr. Fred Collier's humorous account in the Summer 1990 YALE MEDICINE of the change in the Yale medical students' education during World War II. I would like to mention another change that was effected by the war: the composition of classes at the Yale School of Medicine. During these years, the percentage of women rose dramatically from about 6 percent to over 11 percent. In fact, in 1948, 15 percent of the entering class were women, but this figure dropped to 5 percent two years later. It was not until 1971 that the number of women at the School of Medicine reached the same proportion. These trends are also reflected in national statistics on the admission of women to medical schools.

Susan Baserga, M.D., Ph.D. '88
Lecturer, MB&B
Yale School of Medicine

To the editor:

Dr. Collier's article, "Yale Medical Students March to War," was on target even if we student-soliders rarely were. The war changed all American communities, but the Yale School of Medicine was changed in special ways.

Medical students were allowed to continue their studies, but most went off to the military. They were replaced by all sorts of trainees from the armed services, American and otherwise. My roommate, a public health student named Ray Chan, organized a big dance for a contingent from Chiang Kai-shek's air force, busing in Chinese girls from nearby colleges.

We lost faculty to the regular services and to the Yale unit. We gained faculty in the form of refugees from Hitler and Mussolini. We learned to pronounce "necrosis" with a rolled "R" and a "Z" sound. Arturo Castiglioni, who had just published his *History of Medicine*, gave an elective to a small group before the big fireplace in the historical library. The setting, plus the intensity and passion of his presentations, rose above our differences in language. Other refugee

physicians were not as fortunate and worked in the area at menial jobs.

I can still find the little scar on my arm where Professor Harold S. Burr burned me with mustard gas. While studying the toxic effects of the mustards, faculty of the department of pharmacology discovered the anti-tumor activities of these compounds. As a part-time worker in that department, I witnessed Dr. Burr's research, which included measuring the electrical potential across a blister raised by liquefied mustard gas. He had no trouble recruiting volunteers; long before institutional review boards, we just walked in and rolled up our sleeves.

Far more unpleasant, hazardous — and ultimately important to science — were the studies on conscientious objectors. Then as later there was a strong virology unit at Yale. Hepatitis A, then called catarrhal jaundice, was prevalent among the troops, and an outbreak of hepatitis B followed the introduction of a yellow fever vaccine. With transmission modes unknown, potentially infectious materials were administered to the volunteers through several routes. I don't recall any deaths, but these young men who were often scorned because they were unwilling to "risk their livers" in war certainly risked them in another way.

Charles A. Hall, M.D. '44
Veterans Affairs Medical Center
Albany, New York

Insurance Benefits

To the editor:

Though not a School of Medicine alumnus, I did graduate from another Yale professional school, and that occasionally brings me into contact with YALE MEDICINE.

As a consultant to large employers regarding their employee health insurance benefits, I found the Spring 1990 issue of YALE MEDICINE to be especially helpful. The question of solid organ transplantation is one of vital interest to the nation's employers who are paying the bulk of the cost for these procedures. Gregory R. Huth's interview with Dr. Levine regarding the ethical challenges of transplantation

was well done and proved of interest to one of our clients who is considering whether or not her company should pay for certain types of solid organ transplants.

Keep up the good work and please understand that your impact extends well beyond the medical community. Those of us in the health care financing area also profit from what we learn in YALE MEDICINE.

Scott J. Fruchter, M.Div. '76
Chief operating officer
Costeffex
Cleveland, Ohio

Fetal Transplant Researchers

To the editor:

I read with interest and not a little disappointment the recent article by Susan Okula in the Spring 1990 YALE MEDICINE. While page 16 gave good general coverage to the fetal neural transplant program, it failed to reflect the singular efforts of the department of obstetrics and gynecology and Drs. Richard Robbins and Csaba Leranth, without whom the project would never have progressed. Of course, I know that this was an innocent error. It does not detract from my appreciation of the general excellence and style of the Bulletin. However, it is sad that those who have worked so hard on behalf of the program should have missed their chance to be included in this exposure to the Yale audience.

Frederick Naftolin, M.D., D.Phil.
Professor and Chairman, OB/GYN
Yale School of Medicine

Clarification

In a photo caption on page 39 of the Summer 1990 YALE MEDICINE, Matthew F. Lopes Jr., M.P.H. '77, was listed as director of the medical school's Health Careers Opportunity Program (HCOP). More precisely, HCOP is a program of the department of epidemiology and public health.

THE CREATIVE LEAP

by Dr. Allen C. Steere, Post-doctoral fellow '75-'77

Members of the Yale medical school Class of 1990, I have decided to speak today about artistic qualities in medicine, about the importance of intuitive, creative thinking, and about feeling and empathy for patients. We generally devote little time to thinking or teaching about such things, but I believe that they form an important framework for our lives in medicine. Besides, today is a day for reflection, and more importantly, a day of dreaming about what is to come, so it seems appropriate to think about and highlight the importance of intuitive thinking.

Let me state emphatically that I am in no way downgrading the importance of science or the scientific method. This is an age of incredible, unbelievable scientific accomplishment of which we are all in awe. It still amazes me to think that DNA was described only in the 1950s. I was in high school. We are the first generation ever to know that the same four nucleic acids — adenine, thymidine, guanine and cytosine — code for all life forms, for all the diversity around us. It is almost unfathomable how much this discovery has changed medicine and medical research in only 30 years. This is the molecular biologic revolution. It is an incredibly exciting time to be involved with the biologic sciences.

However, it is important for us to recognize that intuitive thinking and dreaming, what I am calling today a part of the art of medicine, had to come first. There were people previously who knew or felt that all life was interrelated. Charles Darwin theorized that all life had evolved from the simplest to the most complex forms. This kind of thinking had to come first and had to guide the scientific accomplishment.

In the same way, dreaming about your future career in medicine, as we do today, has to come first, and these dreams will play a role in shaping your career. To say it in another way, both the right and left brain must work together to get a creative result; both creative and analytical thought are necessary. To say it more metaphorically, both masculine and feminine qualities are important in creativity; to have a baby, both a man and a woman are necessary. Whether man or woman is more important is an absurd question. Neither can do it alone.

Lessons from *Ixodes dammini* Ticks

As a way of illustrating these points, I would like to share with you a story about ticks. Back a few years ago, we were trying to find the agent of Lyme disease in ticks. Each summer, I hired two students, often from the forestry school, to collect ticks for study.

On several occasions, to show solidarity, I went with them. Flagging for ticks involves dressing up in a white jump suit and dragging a blanket through the forest. On an average day, you may collect a couple of ticks per hour. It is one of the

more tedious things that I have done. However, the people that you are with make a big difference. I particularly enjoyed one student from the forestry school who had a tremendous respect and reverence for nature. Reuben spoke at length about how the entire system in the forest was delicately balanced and every life form had its role.

Well, what good are ticks, I thought. Andy Speilman, an entomologist at Harvard who is always a provocative thinker, has subsequently told me that the purpose of ticks is to keep the visitors out. The animals that have lived with the ticks for eons, like mice and deer, are completely tolerant to infection with the tick-transmitted spirochete that causes Lyme disease. These animals do not become sick when infected. In contrast, the strangers in the forest, the new predator or you and I, do become ill when exposed to the tick-transmitted spirochete.

At the time, I had no such insight and instead thought about how ironic it was that my life's journey had taken me down this road where my life had become inextricably linked with ticks, detestable creatures about which I had no previous interest whatsoever. I was trying to learn about and understand the complex life cycle of *Ixodes dammini* ticks.

These insects feed only three times in their usual two-year life cycle. A larval tick climbs a blade of grass or a twig in the morning or evening during summer and waits for a host, preferably a mouse. If none comes by, the tick drops back down to the ground. This process is repeated over and over. Many larval ticks never find a suitable host and die. Others may find the wrong host, such as my blanket, and end up being dissected in the laboratory.

However, if an appropriate animal brushes by, preferably a mouse, the tick leaps and attaches, sucking blood for three to four days. The tick then falls to the ground, so engorged that it is unable to move. The blood meal is then processed and eventually the tick molts to the next stage, a nymph. The next summer, the nymphal tick goes through this same process, and that fall, the adult ticks must go through the process again. While feeding as adults, the ticks mate, and then the male tick falls off and dies. The female tick falls to the ground, lays thousands of eggs and then dies. What a life, I thought. What a useless life.

Then I realized to my amazement, to my horror, that my life was like that of the ticks. I suppose now you may be wondering what kind of life I've had. Let me tell you something about it. My DNA is lined up in such a way that I am very interested in music. Before medicine, I played the violin; I practiced hours each day. When it was time to go to college, I went to New York. I was a student at Columbia and took private lessons from Ivan Galamian, who was head of the violin department at Juilliard. Important qualities that were stressed included the communication of feeling through music, listening carefully, and practicing long hours in an attempt to refine and perfect one's message.

It is the same person who now does medical research on Lyme disease. I consider myself to be an artist within the scientific field of medical research. The feeling person in music has become the intuitive thinker and listener in my current life, and long hours of practicing violin have become the persistent effort over a period of years to determine whether one's intuitive ideas are correct.

Dr. Allen C. Steere, professor of medicine at Tufts University School of Medicine, and chief, rheumatology/immunology at New England Medical Center, delivered the first School of Medicine Class Day address on May 27. This article is an edited version of that address.



Tick Ixodes Dammini

Let me explain more of what I mean by the intuitive, creative leap. One of the most famous examples of this sort of thinking was manifested by the observation of Sir Alexander Fleming, the father of the antibiotic age. You know the story. He noticed that bread mold, a fungus, which had fallen onto a culture plate, inhibited the growth of bacteria near the fungus. With this seemingly simple and obvious observation, he saw the world in a completely new way; he saw with clarity what others had not seen. As you know, this observation led to the development of penicillin, which remains the wonder drug of our century.

Although creative leaps of genius are rare, all of us must make several creative leaps in the course of our lives. Such an event happened in my life several months after beginning a rheumatology fellowship at Yale in 1975. I learned of a cluster of children in Lyme, Connecticut, who were thought to have juvenile rheumatoid arthritis, a puzzling illness of unknown cause. Soon after beginning work on this problem, there was the intuitive realization that this illness was something new, something different, and that it was probably a tick-transmitted infection.

Our thinking is often formed or at least influenced by listening to others and hearing what they have to say. In this particular case, it was two mothers from Lyme who brought this situation to my attention. Both suspected that the children with apparent juvenile rheumatoid arthritis had an infection because so many children that they knew were affected. Because of the tremendous explosion of ticks in the area, both had even wondered if ticks were transmitting the illness.

Many subsequent experiences have reinforced for me that reasonable patients often have an intuitive sense of what is happening to them, and being able to listen and hear what they say is an important part of the art of medicine. Even if we do not understand the disease process, the sense that you have listened, and stood with the patient, can influence the healing process.

The Long Run

Of course, if one stops here, one is left only with intuition, a guess, and empathy. It is here that science steps in to test the reality of the intuition, and to go, step by step, through the laborious process of determining whether the intuitive idea is correct. For me, the Yale medical school environment was a place where such work could flourish; I was fortunate to be in the fellowship program directed at that time by Dr. Stephen Malawista, who was a supportive mentor.

Still, it often requires one's intuitive vision to help one stay the course through all of the negative experiments. Over the next several years, we were able to put together clinical and epidemiologic evidence that strongly implicated a particular *Ixodes* tick in transmitting the disease. We also learned that the illness responded to penicillin therapy, which suggested that a bacterial agent was the cause. However, all of our efforts to find an infectious agent in ticks were negative.

The actual causative agent, a spirochete, was not found until seven years after the initial observation in Lyme, Connecticut. People have subsequently told me that seven years is no time at all to wait for a major breakthrough. And, as you may know, we were not the ones who made the breakthrough. We did not have the special expertise required; Willy Burgdorfer at the Rocky Mountain Laboratory did. Burgdorfer, an entomologist, had spent years dissecting ticks and working with a type of tick-transmitted spirochete called *Borrelia*.

Dr. Allen C. Steere, Postdoc '75-'77: Lyme Disease Pioneer

Before Dr. Allen C. Steere came to Yale in 1975 for a two-year post-doctoral fellowship in rheumatology, he had spent eight years in and around Columbia University garnering his undergraduate degree and medical education; a 1965 B.A. degree from Columbia College was followed by an M.D. degree in 1969 from the College of Physicians and Surgeons. The next four years featured internship and residency in medicine at St. Luke's Hospital in New York City, including a year as chief resident in medicine. From 1973 to 1975, he served in Atlanta at the Centers for Disease Control as an epidemiologist for the U.S. Public Health Service.

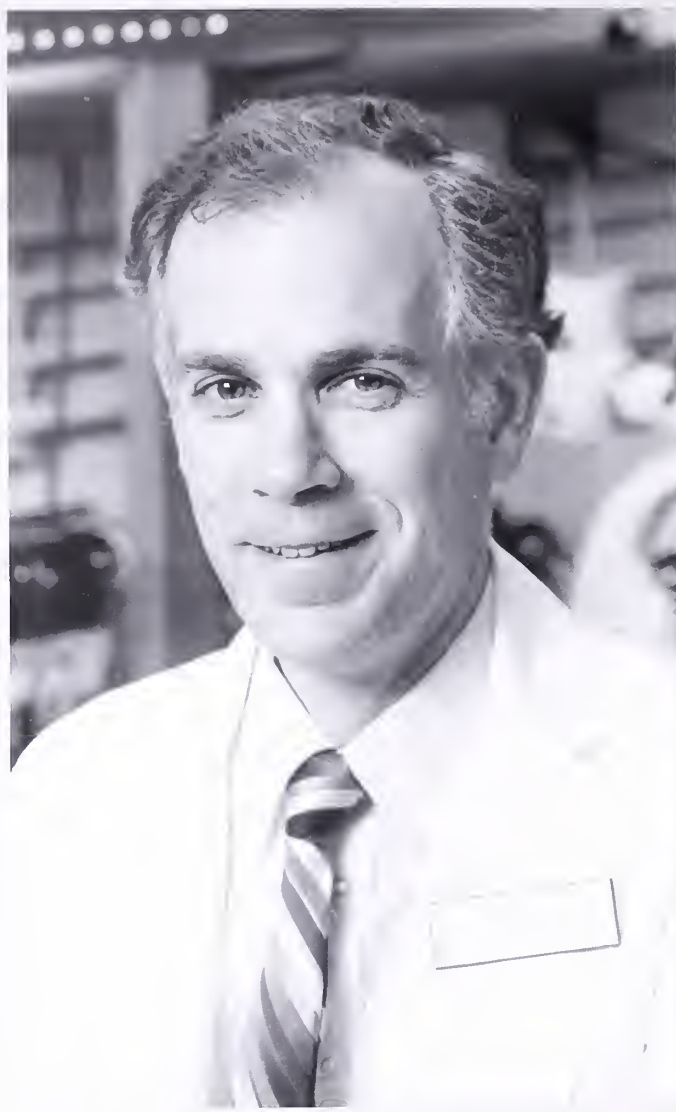
It was Dr. Steere's subsequent work at Yale, however, that established him as one of the nation's preeminent medical researchers. As a fellow in the rheumatology program then directed by Dr. Stephen E. Malawista, professor of medicine, Dr. Steere played a leading role on the team of biomedical scientists that identified Lyme disease. The researchers did so by studying a group of children from Lyme, Connecticut, who had arthritis. With the help of colleagues at the department of epidemiology and public health, the researchers also implicated the tick *Ixodes dammini* as the Lyme disease vector.

Dr. Steere continued his investigations into the disease as an assistant and associate professor at the medical school from 1977 to 1987. His contributions to the study and treatment of Lyme disease have won him numerous citations and awards, including the Ciba-Geigy Rheumatology Prize, which he shared with Dr. Malawista in 1985. Most recently, he received the Zucker Prize from Tufts University School of Medicine, where he has served since 1987 as professor of medicine and chief, rheumatology/immunology at New England Medical Center.

At times, it was difficult for him to get support for this work since its purpose seemed obscure. But then the day came for his creative leap, the day when his special expertise allowed him to see what no one else had seen, a previously unrecognized spirochete, now called *Borrelia burgdorferi*, in the midgut of an *Ixodes dammini* tick. My role, as it turned out, was to help articulate a vision that this tick carried an infectious agent which caused Lyme disease. To articulate a vision is one of the roles of the artist in medical research or in any other field.

So how is my life like the ticks? While they climb a blade of grass each day, I come to work, take out my papers, or set up my test tubes, or perhaps even drag a blanket through the forest. At the end of the average day, I close up and go home; nothing too enlightening has happened. However, at the appropriate time, a time of searching, I must be poised and ready for the intuitive leap.

One cannot decide to make a scientific discovery any more than a tick can make a mouse come by its blade of grass. Rather, we must dream about what we want first, prepare ourselves for those dreams, position ourselves appropriately, and wait. Then, when the opportunity presents itself, we must take an intuitive leap, just as the tick leaps to its host. Though we do not know at the time where our leaps will take us, a



Dr. Allen C. Steere

successful intuitive leap will introduce us to new realms that will make possible the next stage of our lives.

You are about to enter into a new period in your life. For most of you, the demanding years of internship and residency training will still be a period of putting in place the knowledge that will allow you to make creative leaps in medicine. Some of you will make important scientific discoveries; some of you will be exceptional healers; some of you will be gifted leaders; and some of you will be extraordinary teachers. We know that all of you have been given exceptional talents and abilities, and therefore you will have much to give in these roles.

Along the way, it is likely that you, like the ticks, will take several creative leaps which will take you into new realms that are difficult to imagine today. You will see incredible new discoveries and treatments, and because of this, learning will be a part of your everyday life. As graduating medical students, you carry our hopes and aspirations for progress in medicine and for making this a better world. You are both the greatest resource of the Yale School of Medicine and its most important accomplishment. Congratulations and may God bless you in your journey and give you courage in your creative leaps.

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PUBLIC POLICY IN THE AGE OF AIDS

by Stephen C. Joseph, M.D. '63, M.P.H.

All major public health issues have significant social and political parameters. AIDS represents the first major public health issue, at least in modern times, in which the political and social contexts have been defined (one might even say "fixed") before the critical elements of clinical and biomedical knowledge were available. "And that," as the poet said, "has made all the difference."

All through this first decade of the epidemic, we have been playing catch-up defense: charting the epidemic by cases of illness rather than by rates of infection — working with a snapshot in time, five years or more delayed. Thus, we have been identifying new risk groups and foci of infection years too late to be able to cut the virus off before it gained a solid foothold.

The human immunodeficiency virus is extraordinarily well-adapted for survival; its epidemic will smolder on for decades even after the explosive outbreaks of the 1980s and early 1990s are behind us. Transmitted by sexual, blood-borne, or materno-fetal routes, the virus turns the DNA of infected cells into factories to produce more virus.

In adults, it then, with no specific clinical signs at the time of infection, enters a long (usually three-to-five year) period of clinical latency. During the months of the so-called "window period" between infection and first appearance of HIV-antibodies, no currently applicable technology can diagnose the infected individual.

Once infected, a person becomes infectious to others and remains so for life. With a median time from infection to full-blown AIDS of some eight-to-10 years, and a post-diagnosis survival period of more than two years, that leaves a very long interval for continued transmission and infection of others. Moreover, with rapid advances in treating opportunistic infections and palliating viral replication, it may soon be possible to characterize AIDS as a "chronic treatable disease, though incurable."

In New York City, we have had approximately 26,000 cases of AIDS to date as defined by the Centers for Disease Control (CDC). An estimated three-to-four times that many people are affected by HIV-related illness, and some 200,000 persons in the city are infected with the virus.

To understand where the epidemic is going, and what would constitute appropriate public policy to combat it, one needs to look at three major trends that constitute the present and future course of the epidemic in New York. These trends will also be increasingly reflected nationwide, especially in the other cities of high-prevalence HIV infection.

The Imploding Epidemic

The first trend is what I call the "Great Epidemiologic Shift." AIDS is increasingly a family, neighborhood, poverty, minority, drug-abuse associated epidemic. In 1988, the

number of newly diagnosed AIDS cases in New York among intravenous drug users surpassed cases newly diagnosed among men who have sex with men. Substance abusers continue to account for an increasing proportion of HIV transmission, to each other through the use of contaminated injection equipment, and to their sexual partners and unborn children through heterosexual transmission.

Women, who comprised less than 11 percent of AIDS cases in New York during the first five years of the epidemic, now account for over 15 percent of the cases occurring annually; we expect this to rise to 20 percent in the next year or two. Two-thirds of these women have been infected by their own drug use. But increasingly, heterosexual transmission from an infected drug-using sex partner is the route of infection to non-drug injecting women. Often these women are unaware of the risk posed by current or past partners.

We have had almost 3,500 cases of AIDS among females in New York City, and there is little doubt that there are thousands of asymptomatic infected women and women in early stages of clinical immuno-incompetence as yet undiagnosed. State health department surveys have shown that one in 61 women giving birth in New York City is HIV-infected, compared to one in 489 in the rest of the state.

The association with drug abuse has meant that AIDS is increasingly concentrated in minority and poverty populations, and this trend is accentuated as drug use becomes a gateway to heterosexual transmission. Of the more than 600 cases of children with AIDS diagnosed in New York, over 90 percent have been black or Hispanic. In short, the epidemic is not "exploding" across the entire landscape; there is no reason to predict the formerly feared "heterosexual break-out" in epidemic proportions across white middle-class America.

Rather, the virus is *imploding*, in poverty and minority neighborhoods, where rates of intravenous transmission have been high and unmodified since the beginning of the epidemic, and where heterosexual transmission is accelerating. These localized pockets of high endemicity are the future of the epidemic, as the virus adds to the burdens of social and health problems — not to mention the discrimination — that these poverty and minority communities already bear.

A recent CDC study showed at one sentinel hospital in the Bronx, almost one in four emergency room patients are HIV-infected, the great majority unaware of their infection. It is reasonable to assume that in some parts of New York City, five-to-10 percent of childbearing-age women are currently infected.

Intravenous drug use has been the common denominator of this penetration of the virus into poverty and minority communities, but it is no longer the only drug-AIDS connection. Increasingly, the crack epidemic is a powerful channel for the virus. The reasons are multiple:

- the increase in cocaine injectors, who "shoot up" more frequently and share more needles than heroin injectors;
- the hypersexual behavior associated with cocaine, and especially crack addiction;

This article was adapted from an address, "Public Health and Public Policy in the Age of AIDS," which Dr. Joseph delivered at Medical Alumni Weekend on Friday, June 8.

- the vast increase in sex-for-drugs transactions among crack-addicted women;
- the greater proportion of women and young persons in general addicted to crack as compared to heroin;
- the phenomenon of the "crack house," which plays a role in rapid multiple partner transmission comparable to the gay bath house/sex club and the heroin shooting gallery;
- the very probable association of sexually transmitted diseases, especially genital ulcer disease, with potentiation of HIV transmission.

The incidence of primary and secondary syphilis doubled in New York between 1988 and 1989, and more new cases were reported among women than among men, a distinctly unusual trend. In a recent study of men attending a sexually transmitted disease clinic in the Bronx, all of whom were heavy crack users, and all of whom denied intravenous drug injection and sex with other men, 30 percent tested HIV positive.

Among gay men in New York and San Francisco, where educational levels are high and where outstanding community action and mobilization took place, risk-avoiding behavior was mirrored by rates of decrease in sexually transmitted diseases and reduced rates of new HIV infections. By contrast, there is little reason to hope that similar phenomena will take place in the "imploding" communities. Both minority leadership and the rank-and-file have to date been more notably focused on denying the problem rather than on mobilizing against it, though this has started to change, especially in New York's black community.

Educational efforts and other preventive programs aimed at drug injectors have shown no outstanding success. Infection rates among intravenous drug users in New York City are reliably estimated at between 50 and 60 percent, much higher if one focuses on those who frequent the shooting galleries, and are probably reaching functional saturation. And increasingly, onwards heterosexual transmission to black and Hispanic women and their children cannot be predicted by the standard categories of risk groups or risk behavior: The virus has dived below the surface of our scanning categories.

Palliation, Not Cure

The second major trend of critical importance to the future of the epidemic is the rapidly broadening treatment horizon. Though we can offer neither a long-term effective chemotherapeutic agent nor chemoprophylaxis, we can palliate with anti-virals on a rapidly increasing scale.

Our ability to combat the sequelae of immunodeficiency — the opportunistic and other infections — has increased even more dramatically, and here we already have solid instances of chemoprophylaxis that can bring proven survival benefits to asymptomatic and early-stage HIV-ill patients as well as to those with categorical AIDS.

These advances, extraordinary as to how much has been learned and applied to a new disease process in less than a decade, have important implications for patient care, for survival and quality of life. They also have daunting implications for access, availability and costs of medical care. But I wish to focus here on their implications for public health policy.

Now, for the first time, early identification of the HIV-infected individual is in the clear best interests of that

individual, as well as in the interests of society. Medical benefits of early identification of the asymptomatic individual mean that greatly expanded efforts need to be placed upon identifying and alerting that individual, and on making accessible an appropriate system of care. There is no longer any credibility to the old argument, "Why be tested? They can't do anything about it anyway...." Nor can it be said that widespread antibody testing would serve more as a tool of social repression than of public health and individual protection.

I predict that history will view our collective failure to use the HIV-antibody test more vigorously as one of the major missed opportunities of the AIDS tragedy. We have displayed an unwillingness to rapidly expand counseling and testing. We have not matched the technical power of the testing instrument with strong protective legislation and practice to preserve voluntary consent and confidentiality.

Thus, we have lost an opportunity to develop timely understanding of the patterns of infection within populations; neither have we developed effective systems of partner notification that would have warned many thousands of unsuspecting partners-at-risk. As a result, we have failed in our medical responsibilities to provide asymptomatic infected individuals with early access to clinical support and, increasingly, effective disease management.

The strident politics of AIDS has led to a view of the antibody test as a "necessary evil" only to be employed within the narrowest of conditions, rather than as a significant public health tool. With careful safeguards against potential abuse, wider use of this test could have given us a much more effective approach to both the prevention and treatment dilemmas of the epidemic.

Strident Voices

The third major trend, along with the epidemiologic shift and the broadening treatment horizon, has been the growth of the politics of conflict. AIDS, being about sex and about drugs, is impossible to address without engendering controversy and social conflict.

From the earliest issues of homophobia and stigmatism, through the current bitter struggle over providing clean needles and syringes to drug addicts, the history of the epidemic has been one of harsh criticism and counter-criticism, of conflicts over social policy that sometimes led to threats and violence. The politics of sexual and racial conflict have influenced, and at times dominated, the scientific as well as the social response to the epidemic.

More recently, the rise of militant AIDS activism, especially on the part of gay advocacy groups such as ACT-UP, has taken the controversies over public health policy, the availability of care, and the appropriate course of drug research, development and distribution to new heights of visibility — and to new depths of rancor.

In the early years of the epidemic, most of the threats to reasoned debate and unbiased development of public health policy came from the right. Conservative religious and political groups sought to bar explicit health education, condom availability and needle exchange. These days, the clamor comes more from the left, as protesters demand that only their perspective be considered, and that something, everything, be done immediately, successfully, and no matter what the feasibility, cost or competing priority.

My chief concern is that both the scientific community and the public will grow tired of the shrill demands, and move on

Dr. Stephen C. Joseph, '63: Battling the Dragon

Before assuming the office of New York City Commissioner of Health in 1986, Dr. Stephen C. Joseph's public health career had taken him around the world, from the developing nations of Nepal and Cameroon to the wilds of Wyoming and Newfoundland.

A New York City native, Dr. Joseph earned his degree from Harvard before entering the School of Medicine in 1959. He received an M.P.H. degree from the Johns Hopkins University in 1968, and did his internship and residency in pediatrics at Boston Children's Hospital.

He was the special coordinator for Child Health and Survival for the United Nations Children's Fund (UNICEF) in New York from 1983 until 1986. During a five-year term as a commissioned officer in the U.S. Public Health Service in the mid-1960s, he served as a Peace Corps physician in Nepal.

Dr. Joseph has worked at the Children's Hospital Center of the District of Columbia and was chief of pediatrics at Grenfell Regional Health Services in Newfoundland. He has taught at Harvard University, the University for Health Sciences in Cameroon and Memorial University of Newfoundland. He prepared a plan for a community-based medical school for the University of Wyoming.

During two stints with the Agency for International Development, Dr. Joseph worked in Cameroon helping establish a medical school and in Washington, D.C., overseeing health, population and education programs. He has also served as special assistant to the assistant secretary for health and scientific affairs of the U.S. Department of Health, Education and Welfare and as director of the Neighborhood Health Centers Program of the Office of Economic Opportunity.

to other concerns, leaving us less with which to combat the very real and growing needs of the epidemic than we might otherwise have had. To scream "genocide" at the Centers for Disease Control or the National Institutes of Health, the only two federal agencies that have met their responsibilities — and met them with excellence in this epidemic — is not likely to generate additional political, scientific, medical or popular support.

It would be foolish to think that the politics of conflict will lessen as we move into the second decade of the epidemic. We are witnessing a tightening knot composed of a worsening fiscal situation and a rapidly expanding need for ever more expensive care.

The increasingly ugly racial climate of the 1990s and the epidemiologic shift of AIDS will exacerbate each other. Our best measures as health professionals for meeting these conflicts will be the ones that have always served us well: working from our best current data, not being afraid to change our positions as the data give us new insights; providing the public with a full and honest account of what the science reveals, not being afraid to convey either bad news or good; and seeking a balance between the rights of the individual and the protection of society.

Dr. Joseph is a member of the Institute of Medicine, a fellow and former chairman of the executive board of the American Public Health Association, and a fellow of the American Academy of Pediatrics.

Currently, he is writing a book about his experiences confronting the AIDS epidemic while New York City's top health official from 1986 until 1990. The working title is *Dragon Within the Gates: The Once and Future AIDS Epidemic*.



Dr. Stephen C. Joseph

New Initiatives

As the great epidemiologic shift, the broadening therapeutic horizon and the politics of conflict form the future of the epidemic, how should public policy respond? Let me suggest an outline of four principles:

- continued maximal efforts in biomedical and socio-medical research;
- rapid expansion of clinical and social services;
- a serious approach to the national drug abuse epidemic; and
- a mobilization of effective public health action.

I can't imagine that anyone can be found who is opposed to continued investment at the highest feasible level in HIV biomedical research. Since HIV infection represents the convergence of two critical facets of contemporary biomedicine, immunology and virology, the long-term benefits of AIDS research will include an immense payoff for a wide spectrum of diseases.

We have been fortunate in one sense: Had the AIDS epidemic burst upon us even a decade earlier, we would not have possessed the basic tools with which to define and study

the virus as we have. Nevertheless, we have barely tapped the knowledge we need to gain from AIDS regarding the behavioral, social and cultural aspects of epidemic infectious disease.

The critical importance of both areas, biomedical and sociomedical research, transcends this epidemic, for if AIDS has taught us anything, it should be that we are not, as we had mistakenly thought, immune from mass infectious disease. There will be a next time, and perhaps this next virus to come out of the forest and catch hold will be one that is more casually transmissible.

With regard to expanding clinical and social services for people with HIV illness, there is an urgent need for a federal strategy to support high-prevalence areas. New York City is spending more than \$400 million dollars annually on the epidemic, half of that from the city tax levy. Over the first five years of this decade the direct costs of the epidemic in the city will be \$7 billion, and we cannot continue to bear so much of the costs with only moderate state support. The same phenomenon is occurring in San Francisco and in other high-prevalence areas.

There are many more service delivery issues that are not being adequately addressed, too many to mention here. The major problems in HIV clinical care are the same as those that plague our entire health care system: access, equity, quality and quality assurance, evaluation and cost. It may just be that if we find some roads to improvement with AIDS, we may find some answers applicable on a wider scale.

There will be no effective prevention of AIDS until or unless we solve the primary problems of the substance abuse epidemic. Our prevention and treatment efforts to date, beyond sloganeering, have been half-hearted, our law enforcement efforts have been inadequate. Clearly neither approach by itself provides the answer.

We need much broader sanctions on the enforcement side, especially measures that will provide a credible deterrent to street dealers. Only this will provide a buffer within which vastly expanded education and treatment can work. We need to understand much more about why people use drugs, and especially about the pharmacology and sociology of what is clearly the future of drug abuse: smokable purified derivatives, of which crack is only the harbinger.

Instead of decriminalizing hard drugs, we need to effectively criminalize the supply side with harsh and believable sanctions, while at the same time providing preventive education and accessible treatment. All this will be incredibly expensive on a national scale, perhaps \$4 billion a year on education and treatment, perhaps another billion or more annually for research — and who can estimate? — \$10 billion or more in military, local law enforcement, judicial and corrections systems costs.

Are we willing to pay for it? I'm not optimistic, but I can see no order-of-magnitude progress on either epidemic front without that kind of commitment.

Public Health Planning

I want to close by focusing briefly on specific public health initiatives that are necessary at this stage of the epidemic, and that have so far not been adequately taken in New York or elsewhere.

The first has to do with providing clean injection equipment to intravenous drug users. It is in my view inconceivable that we would withhold this measure on the grounds of unproven platitudes of "encouraging drug use" or "sending mixed messages." These same tired

arguments have been used to oppose family planning — with just as little supporting data.

On the contrary, the data, including those from our own constrained program in New York, all point to the same conclusion: no evidence of harm and many indicators of benefit. This is one of the very few direct measures of primary prevention we can take to slow HIV transmission, not only among intravenous drug users, but also to their (largely female and largely minority) sexual partners and children. Simply changing state laws to permit needle possession without prescription is not enough. Proactive public health programs of needle exchange should be vigorously undertaken so that other prevention and treatment initiatives can be coupled with them.

We must have many-fold expansion of counseling and HIV antibody testing programs, with voluntary confidential testing available and aggressively pursued at every clinical point of contact. Anonymous testing must be preserved as an option for those who will refuse under any other circumstances, but voluntary confidential testing in a medical and health service context is the key to massive expansion.

Even in New York City, where the resistance to testing has been greatest, and where we have opened eight city-funded and -operated anonymous counseling and testing sites, the volume of confidential testing outweighs anonymous testing by more than two to one. Expanded testing must, of course, be buttressed by strong legal protection of confidentiality and anti-discrimination measures, as well as by maximal efforts to expand services.

More extensive efforts in contact tracing and partner notification are essential, especially now that the virus has "submerged" in minority communities and risk cannot be correlated with traditional risk groups. Obviously, partner notification must remain voluntary and be focused where it will be most effective. Arguments that "tracing everyone's sex partners for the past 10 years would be expensive and futile" are spurious diversions from what is both a medical and a public health obligation: the duty to warn where possible the unsuspecting person of the risk of a fatal and sexually transmissible disease.

The effective implementation of both expanded testing and partner notification requires that all states should have mandatory confidential public health reporting of HIV infection. Physicians and hospitals should be required to report, under strict conditions of confidentiality, the names of infected persons, as is currently the case in 32 (mostly low-prevalence) states.

We have an excellent record in public health of using this kind of information well and sensitively. In New York City, where AIDS but not HIV infection has been reportable since the beginning of the epidemic, we now have a list of 26,000 names which has been invaluable in tracking the epidemic. Guarded with the utmost care, there has never been a leak from this list, even when we were threatened with legal action.

Particularly because of the epidemiologic shift and the broadening therapeutic horizon, there is an urgent need now to employ the traditional tools of prevention and disease control. The hour is late, and the largest opportunities for stopping transmission are long behind us. But there is much that we can still salvage for the welfare of individuals at risk, for those already infected and for the welfare of the entire community. I believe that future generations of medicine and public health will look back with a measure of contempt for those who understood this equation but failed to act. **YM**

EPH CELEBRATES ITS FIRST 75 YEARS

Photos by Harry Bishop

by Gregory R. Huth, M.P.H. '84

In the winter of 1915, as the cannons of World War I roared an ocean away, a little known singer named Al Jolson faced a far friendlier din in downtown New Haven. Applause thundered in Jolson's ears as he concluded his performance in "Sinbad," a musical at the newly opened Shubert Theater. In that same city, 1915 would prove auspicious for another young man who would touch many lives — though in a field that would offer far less fame, fortune and applause — Charles-Edward Amory Winslow, one of the first biomedical scientists with training in public health.

Winslow had earned his M.S. degree from M.I.T., where he had been a student, and later a colleague, of William T. Sedgwick. Sedgwick, 1877S, had left a teaching position at Yale Medical School to found the nation's first department of public health at M.I.T. C.-E.A. Winslow, bearing the torch that his mentor had lighted, was bringing it to Yale, inaugurating a professorship in public health endowed by the estate of Anna M.R. Lauder, an heiress to the Andrew Carnegie fortune. Thus Yale's department of public health was born.

Three-quarters of century later, the department, known as epidemiology and public health (EPH) since 1960, has emerged from a recent time of uncertainty.

This period ended in the summer of 1989, when a University committee headed by Provost Frank M. Turner affirmed Yale's commitment to the program, while recommending some key changes. University President Benno C. Schmidt Jr. and medical school Dean Leon E. Rosenberg endorsed the Turner report without amendment.

At that time, the dean commented, "Our country must see a closer bond forged between those scientists, educators, care givers and administrators concerned with the health of groups and those concerned with the health of individuals." He added, "The ties between our School of Medicine and its department of public health must be stronger. I will do all I can to see that Yale's educational, service and research activities aimed at improving the health of the public will continue to be strengthened."

This support, along with the take-charge style of the department's new chairman and associate dean, Burton H. Singer, Ph.D., has helped renew EPH's sense of purpose.



Dr. Burton H. Singer

Comments today's Lauder professor, 22-year faculty member Adrian M. Ostfeld, M.D.: "A feeling of optimism has arisen in this department since the Turner report was released, and much of that feeling is directly attributable to Burt Singer's leadership."

After only a year with Dr. Singer at the helm, the results go far beyond boosting faculty and staff morale. For example, the incoming M.P.H. Class of 1992 comprises 66 students, a third smaller than previous classes due to tighter screening of applicants. And these students have begun the fall semester challenged by a new, more rigorous curriculum.

In one way, EPH's renaissance represents the department's coming full circle, a return to its founder's emphasis on how medicine and public health must work together. Even as Winslow required the department's first public health students to study biochemistry, he also taught medical students about the public health perspective. Similarly, this year's incoming M.P.H. students will be encouraged (and next year's class required) to take a course covering the basic ideas of molecular biology and its implications for epidemiology and health policy. In addition, more classes will be offered jointly between the medical school and EPH.

Gregory R. Huth is publications editor at the Yale University School of Medicine Office of Public Information.

Taking this a step further, Dr. Singer has begun to build bridges between his department and those with a primary focus other than health care, especially Yale's forestry and law schools. In addition to fostering ties with other fields and modernizing the curriculum, the plan to strengthen EPH includes:

- recruiting eight more faculty members, in accordance with the Turner report;
- bolstering the environmental health division by recruiting some of these full-time faculty members for primary appointment with the division;
- putting a greater emphasis on international health;
- repairing and modernizing the Laboratory of Epidemiology and Public Health (LEPH), the department's headquarters and primary research facility.

Toward a 21st-century M.P.H. Curriculum

EPH was undergoing a thorough self-examination even as the Turner committee convened. In July 1989, as the provost's committee concluded its work, an EPH faculty and staff committee also issued a report, about how to strengthen the M.P.H. curriculum. This panel was chaired by Michael B. Bracken, M.P.H., Ph.D., professor of research in epidemiology and obstetrics and gynecology.

Perhaps the most dramatic changes to grow out of the Bracken report have to do with the "core curriculum," the series of lectures and discussions designed to provide M.P.H. students with an overview of the most serious public health problems — and with approaches for dealing with them. Until this year, lectures would feature faculty members from each division giving one or more presentations as part of a single, massive overview course.



Dr. Michael B. Bracken

Observes Dr. Singer: "We came to the conclusion that by attempting to offer so much breadth, we erred on the side of not offering enough depth."

To remedy the situation, key faculty from each division have been more involved in planning and teaching core courses than ever before. Just as importantly, the format of the courses has changed, with each now taught as a discrete, separately graded class, or module, lasting several weeks, similar to medical students' rotations. Reflecting the increased rigor of the courses and the addition of a second required biostatistics course, credit for the core curriculum has been increased by several credit hours, to a total of 30.

The final three semesters of the master's core program resemble those of previous years. The community project is still required in the second semester, and the praxis (renamed "internship") and master's essay (now called the "master's thesis") round out the third and fourth semesters, along with divisional requirements and electives.

For many M.P.H. graduates, the most intriguing core curriculum addition may be the new course, "Concepts of Molecular Biology in Public Health." What does the submicroscopic focus of molecular biology have to offer tomorrow's public health professionals?

Dr. Singer replies: "The tools of tomorrow's epidemiology will be molecular diagnostic tools. These will serve as a kind of early warning system, making it possible to assess who is susceptible to the onset of any number of chronic diseases. If our students are unfamiliar with these technologies, they will be basically illiterate as public health professionals."

His words echo those of the Bracken report: "The development of AIDS policy cannot be understood without an appreciation of the molecular behavior and microbiology of the virus, or the epidemiology of viral transmission. Similarly, the impact of genetic engineering, DNA probes and other new technologies on the health care system cannot be assessed without understanding [these] fundamental concepts."

Hands-on Education Continues

Dr. Bracken's committee strongly endorsed the community project requirement in which teams of students undertake health care research and evaluation projects for a wide range of organizations, most of them within the state. The community project concept represents one of EPH's great contributions to the training of public health professionals in this country. Pioneered at Yale in the 1950s by the late Ira Hiscock, M.P.H., community projects have received national recognition for combining community service, practical experience and the application of academic techniques. [See "Community Projects at Yale: Central to an M.P.H. Education."]

Yet even this part of the core program has undergone fine tuning:

- Like all parts of the master's program, community projects are now overseen by Lorraine V. Klerman, Dr.P.H., professor of public health, in her new role as M.P.H. program director.
- After the traditional review process by faculty and students, final review of projects will be made by the newly formed EPH curriculum committee.
- Each project will involve smaller groups of students — numbering four or five. In recent years, some projects included up to seven students.

Community Projects at Yale: Central to an M.P.H. Education

By offering students hands-on experience in doing research and evaluation for health care and social service organizations, community projects have played a major role in the M.P.H. program for more than 40 years. Community projects are among the most acclaimed facets of the M.P.H. curriculum at Yale. In fact, a recent report on graduate level public health education by the National Academy of Sciences' Institute of Medicine cited EPH's community projects as a model.

Since 1980, community projects have been coordinated by Elaine Anderson, M.P.H. '76, director of the EPH resource center. She can present a litany of projects that have had a lasting impact locally, some even nationally. For instance, a 1974 community project focused on the dangers of second-hand smoking to non-smokers. It resulted in the commuter railroad between New Haven and New York limiting smoking passengers to designated cars. This set a national precedent that helped launch the increasingly successful movement to ban smoking on public transportation.

- Projects will be graded with a full range of grades and not on a pass/fail basis as in recent years.
- Public and non-profit sector projects will be encouraged even more strongly than in the past.

The Bracken committee also made suggestions regarding the final two requirements of the core program, now known as the internship and the master's thesis. Like the community project, the internship allows students to gain work or research experience in their area of interest. The internship, however, involves the placement of a single student in a sponsoring organization that may be located locally or anywhere in the world.

In the past, students were encouraged to begin their praxis in the summer after their first year and if possible to continue their work through the third semester. The department even offered the incentive of up to 13 or 14 extra credits for some praxis experiences.

The rationale behind encouraging an extended praxis was dual: The added experience one gained from a longer placement, the thinking went, would make the praxis more valuable as a job reference. An extended placement might also increase the chances for students finding full-time work at their sponsoring agency after graduation.

Now the emphasis has shifted to maximizing M.P.H. students' exposure to Yale's academic resources during their concentrated, two-year training period. Comments Dr. Bracken, "While the internship is very important, this experience does not make up for the knowledge students gain in their third semester courses."

Beginning this year, students are being encouraged to pursue internship placements that last only the summer. As part of this revised approach, one of the incentives for undertaking an extended internship has been removed; a maximum three credit hours can be accrued for the internship.

Moreover, to increase the opportunities for students looking for experience using statistics, epidemiology and data management, faculty members who are pursuing research that

A more recent community project conducted a survey of New Haven neighborhoods in an effort to help the Hill Health Center plan for expanding its services; another provided the city of West Haven with data about infant mortality rates in various neighborhoods. An evaluation of the LIFESTAR emergency services program of Hartford Hospital helped administrators decide to continue the program, which they had considered closing. And this year a team of M.P.H. students will continue a project that is assisting New Haven department of health Director William P. Quinn, M.P.H. '75, determine how well the city is meeting its health goals for the year 2000.

Almost every year some of the written reports that conclude community projects lead to articles that are published in scholarly journals. Such was the case of a recent project that documented the misconceptions many Connecticut secondary school students hold regarding transmission of the AIDS virus. This project, advised by Steven D. Helgeson, M.D., M.P.H., a former faculty member, was published in the journal *Pediatrics*, and was presented at the 1990 national meeting of the American Public Health Association in Washington, D.C.

involves these disciplines are being asked to consider sponsoring an internship.

Rounding out its review of the core program for the M.P.H. degree, the Bracken committee strongly endorsed continuing the master's thesis requirement. As before, two readers will review each thesis, with one reader coming from a division other than the student's concentration.

In addition to these core program changes, beginning this year, M.P.H. candidates will be given the opportunity to graduate with honors. Students will be so rewarded if they receive an honors grade from both their readers on the master's essay and if their course work ranks within the top 20 percent of their class.

Faculty Mobilizes

EPH's reorganization will have a marked effect on the department's faculty, as well. To start, Chairman Singer expects that the eight additional faculty members called for in the Turner report should be in place within five years.

Currently EPH is recruiting for two professors at the assistant or associate level in health economics and in outcome and technology assessment. Another two junior faculty members will be hired to bolster environmental health, and soon the department will begin a search for a senior person to serve as this division's director.

Finally, EPH has advertised for a senior level faculty person for the Harold H. Hines Jr. Professor of Health Care Management, a position that is moving to the department from the School of Organization and Management (SOM). (The professorship is filled alternately by the YSM and SOM.)

The promise of reinforcements, however, has not kept the work load of many current faculty members from intensifying. Dr. Singer has undertaken the EPH reorganization in close consultation with the faculty; this has translated into hundreds of hours spent on myriad committees. Moreover, institution of the core course modules has demanded more teaching time.



Dr. Lorraine V. Klerman

Neither is this heightened faculty involvement a temporary state of affairs. Take for example the new M.P.H. curriculum committee chaired by Dr. Lorraine V. Klerman. She leads the committee by virtue of her role as director of the M.P.H. program, a newly created position assumed in addition to her other responsibilities.

Other committee members include eight lead faculty from the core courses, the community project coordinator and a member each from the M.P.H. admissions and academic progress committees; three second-year M.P.H. candidates will represent students.

A look at the steering committee charged with strengthening the environmental health division illustrates how EPH is working closer with other departments and Yale professional schools. In fact, the steering committee is led by someone from outside the medical school, Garry D. Brewer, Ph.D., a professor with joint appointments at SOM and the forestry school.

Committee member Dr. Mark R. Cullen, associate professor of medicine and epidemiology, points out that "in addition to recruiting new faculty members and a division head, we have been charged with strengthening EPH's alliances with other Yale professional schools, the Pierce Laboratory and the occupational and environmental health program in internal medicine." The John B. Pierce Laboratory, affiliated with the medical school, conducts basic research into environmental effects on the human body.

Students already are taking advantage of these new links; this year, EPH has offered several new environmental health courses thanks to cross-listings with forestry, law and internal medicine.

This new spirit of inter-departmental and inter-school cooperation may also help lead the way to a deeper involvement in the New Haven community. In July, the W.K. Kellogg Foundation of Battle Creek, Michigan, announced

that Yale was one of 15 institutions which had received grants to submit a plan for developing a community-based center for education, research and service in primary health care. The University's partner in this endeavor is the nearby Hill Health Center, which has had a close working relationship with the School of Medicine since its founding in 1968.

Heading up this effort is Dr. Ralph I. Horwitz, professor of medicine and epidemiology. He has assembled a team of faculty members from EPH and other medical school departments, the School of Nursing, and staff members from the Hill Health Center. The proposal they will submit will allow for health professionals in training to increase the care offered to the most underserved people of greater New Haven. In the summer of 1992, the foundation will announce which of a maximum of six institutions will receive funding to establish such a program. Grants will range from \$4 million to \$6 million.

Foreign Attachments

To complement the department's efforts to help its neighbors, EPH has gotten the backing to expand its service to the international community. Since the early 1960s the department has provided a home for the Yale-World Health Organization (WHO) Collaborating Centre for Arbovirus Research and Reference. [See "EPH Scientists Lead in Wide Range of Research."]

In November, the department's expertise in policy planning and evaluation will be spotlighted as the medical school dedicates the Yale-WHO Collaborating Centre for Health Promotion, Policy and Research. Center Director Lowell S. Levin, Ed.D., M.P.H., professor of public health, explains that the new program will use a space-age computer network to make sophisticated data bases available to improve the health of even the poorest countries. He says that the system "is designed to allow practitioners, scholars, and policy makers and analysts worldwide develop and evaluate public policies and health promotion programs." Beginning in 1991, scholars from around the world will visit EPH to learn

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EPH Divisions and Division Heads

Biostatistics

Theodore R. Holford, Ph.D., professor of public health

Chronic Disease Epidemiology

Adrian M. Ostfeld, M.D., the Anna M.R. Lauder Professor of Epidemiology and Public Health

Environmental Health

Burton H. Singer, Ph.D., associate dean, chairman and professor of public health and statistics (acting head)

Health Policy and Resources

Lisa F. Berkman, Ph.D., associate professor of epidemiology

Infectious Disease Epidemiology

Robert E. Shope, Ph.D., professor of epidemiology

Microbiology*

Nancy H. Ruddle, Ph.D., associate professor of epidemiology and biology

*Division introduced in fall 1990

EPH Scientists Lead in Wide Array of Research



Dr. Robert B. Tesh

Throughout the discussions about EPH's future, the excellence of one major aspect of the department was underscored: its research program. Currently, 25 faculty scientists serve as principal investigators of projects supported by \$7.5 million in grants and contracts. Their studies range from molecular science and "wet" laboratory research to demographic, epidemiological and other social studies.

The researchers whose work is briefly described here undertake their investigations in such fields as tropical diseases, nutrition, genetic disorders and environmental health. They represent but a small sampling of the cornucopia of interests pursued by EPH scientists.

One of the oldest research groups at EPH is the world-renowned Yale Arbovirus Research Unit (YARU), which is directed by Robert E. Shope, M.D., professor of epidemiology. YARU was originally established by the Rockefeller Foundation to study diseases which are transmitted by biting insects and ticks and which affect people and their domestic animals throughout the world. The unit also serves as the World Health Organization Reference Center for Arboviruses.

Dr. Shope and other researchers at YARU study how diseases such as dengue, yellow fever, eastern equine encephalomyelitis and leishmaniasis are transmitted by insects to people. The arbovirus unit, Dr. Shope explains, is devoted to studying how the infectious agents which cause these diseases are maintained in nature, usually through a cycle of biting insects and wild animals. "Man is sort of an incidental host," he explains. "If we can better understand this cycle of the disease, then we can better figure out where the cycle can be best interrupted."

One of Dr. Shope's colleagues, Robert B. Tesh, M.D., professor of epidemiology, has traveled to tropical regions around the globe to collect the mosquitoes, sand flies and triatomines ("kissing bugs") that he breeds in the warm, moist chambers of the YARU insectary on the 6th floor of LEPH. Dr. Tesh is particularly interested in the epidemiology of leishmaniasis, a sometimes fatal parasitic disease which can also cause ulcerations of the skin and mucous membranes. For the past seven years, he has captured sand flies and other potential insect vectors of the disease in the coffee fields and jungles of Colombia, where leishmaniasis is highly endemic.

Also collaborating with Dr. Tesh is Diane McMahon-Pratt, Ph.D., associate professor of epidemiology. She studies more basic questions such as the molecular mechanisms by which the leishmania develop in the sand fly's gut and the immune response of animals and people to infection with these parasites. A better understanding of these questions, she says, may enable researchers to develop vaccines or to genetically engineer antibodies that would protect people from infection.

While tropical diseases as a rule do not plague Western nations, the First World faces its own set of health problems, many associated with the unsound eating habits of affluence, such as a high-fat, low-vegetable diet. Evidence that beta carotene, a vitamin A precursor, may prevent lung cancer has influenced the research of Susan T. Mayne, Ph.D., assistant professor of epidemiology and public health. She is exploring whether the diets of non-smoking lung cancer patients lack this nutrient. Dr. Mayne also has begun enrolling head and neck cancer patients in a seven-year clinical study to test whether beta-carotene — found in carrots and other leafy vegetables — can prevent second primary tumors and local recurrences.

Our modern way of living also presents its share of environmental hazards. This reminder comes from Brian P. Leaderer, M.P.H. '71, Ph.D. '75, associate professor of epidemiology, head of the division of environmental health sciences at EPH and associate fellow at the John B. Pierce Laboratory. He specializes in indoor air quality, passive smoking and environmental risk assessment.

Dr. Leaderer's research indicates that even staying indoors doesn't necessarily help in eluding air pollution. Chemical solvents, air fresheners, new carpets, cleaning fluids and foundation soils release fumes or gases that can cause "sick building syndrome," a chronic case of unhealthy indoor air.

Dr. Leaderer also has documented how other people's cigarette smoke can affect non-smokers' health. In one study he and colleagues found that in buildings where smoking is permitted, three to five times greater ventilation is needed to maintain healthy air quality than in smoke-free buildings.

Neil Risch, Ph.D., associate professor of public health and human genetics, thinks many common chronic disorders may be due to a complex combination of genes and environmental influences. He is looking for possible genetic links to illnesses such as schizophrenia and depression.

Dr. Risch devises mathematical strategies in efforts to detect and map genes associated with such disorders, which tend to run in families. In addition to the diseases mentioned above, he studies breast, ovarian and endometrial cancers, autoimmune diseases such as insulin-dependent diabetes mellitus and multiple sclerosis, psychiatric disorders, cardiovascular disease, epilepsy and dystonia, a neurological disorder prevalent in Ashkenazi Jews.

Recently, Dr. Risch and colleagues studied a controversial aspect of genetic screening: DNA fingerprinting. This technique attempts to single out individuals by identifying gene segments extracted from samples of blood, hair, semen and other tissue. The Risch team found that one problem attributed to DNA fingerprinting resulted from technicians misinterpreting the DNA pattern rather than unexpected genetic similarity among unrelated individuals due to population subgrouping.

"The objections that some people raised to DNA fingerprinting aren't valid reasons for excluding these techniques from the forensic setting," Dr. Risch concludes.

—Diane Loupe and Gregory R. Huth

how they can apply the system in their home countries.

Dr. Singer adds that many of the center's environmental policy efforts will focus on Eastern Europe, where the democracy movement has brought to light some of the most severe pollution problems ever documented. An economist with expertise in the epidemiology of malaria, Dr. Singer has promoted even further EPH involvement in developing lands. Under his leadership, the infectious diseases division is forging new ties with the forestry school's Tropical Resource Institute. Dr. Singer himself is participating in epidemiological studies of malaria in Brazil and Chagas' disease in Argentina.

Renovating LEPH: A \$Multi-million Challenge

In addition to restructuring the department, Dr. Singer also has initiated an ambitious plan to rebuild LEPH, located at 60 College St. Years of neglect to the building had passed due to a combination of circumstances. As a result of difficult financial times in the 1970s, Yale pursued a University-wide policy of deferring maintenance on its physical plant. Later, when the medical school undertook its capital campaign, EPH's uncertain future further delayed renovation plans.

Now, given the long-term commitment of the University and medical school to EPH, Dr. Singer has submitted a multi-million dollar plan for inclusion in the University's upcoming capital campaign. His plans detail the need for a comprehensive fix-up.



Dr. Lisa F. Berkman

LEPH, designed by noted architect Phillip Johnson, is widely regarded as one of the jewels in the medical school's architectural crown. Still, the edifice has not aged gracefully, requiring a "face-lift" after only 26 years. For some months now, those entering or leaving through the main entrance have done so under the protection of scaffolding, lest one of the limestone slabs that makes up the outer walls succumbs to gravity. The building's foundation needs work as well.

Inside, the original ventilation system has to be modernized to meet new building codes, and to more easily accommodate increasing numbers of "P-3" laboratories, those equipped for the most noxious or infectious agents. Such laboratories must adhere to the strictest federal ventilation standards.

A Healthy Future

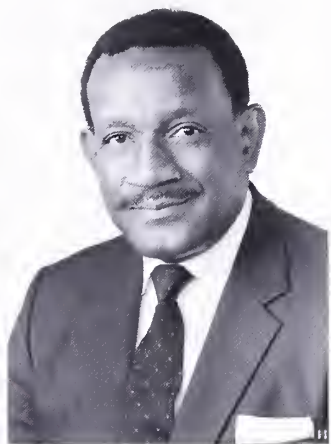
EPH's renaissance, as reflected in its building plans, program improvements and expanding faculty, is based on a proud heritage. In the spirit of the public health ethos, over the years EPH has made its mark through the dramatic contributions of basic researchers such as Drs. Dorothy Horstmann and John Rodman Paul, whose work paved the way for the polio vaccine. Its policy experts, such as John Thompson, have revolutionized the health care field with such cost-control measures as DRGs, or diagnostic-related groups, even as current faculty members such as Drs. Ostfeld and Berkman, along with Stanislav Kastl, Ph.D., are exploring new vistas in the study of aging. Moreover, EPH's graduates are serving in key health care positions from Washington, D.C., to some of the most remote areas of the world.

From these many contributions emerges a picture of a medical school department which for 75 years has fulfilled its mission of education, research and public service by helping to improve the health of people worldwide. Yale's efforts to strengthen EPH too reaffirm a tradition: the University's commitment to academic excellence and to serving its local, national and international communities.

When asked about the time and effort it has taken to implement the new EPH program, Dr. Singer replies at first with only a smile and a shrug. Then he concludes with characteristic aplomb, "Of course, it's a lot of work, but that's what it takes to make exciting things happen." **YM**

REFLECTIONS ON PUBLIC HEALTH

As part of the 75th anniversary celebration of the medical school's department of epidemiology and public health, YALE MEDICINE proudly presents the essays of nine distinguished EPH graduates who have agreed to reflect on their professional education and to share their thoughts about the many public health challenges facing humanity today.



**Frederick G.
Adams**
D.D.S., M.P.H. '70

*Health Services
Commissioner
State of Connecticut
Hartford, Conn.*

In my travels around the country I meet with people from all segments of society. I have found, to my dismay, that Americans in general are more aware of and concerned about public health concerns than their leaders, especially their elected officials. This is particularly true of officials at the highest levels of national government. Although America's leaders express concern in speeches and other forms of public communication, a national policy on public health has yet to be articulated.

To be sure, certain issues have captured the national attention — for example, AIDS, abortion and drug abuse — but the broader aspects of public health have not. My sense is that we as a nation still regard health care as primarily reactive or “curative” rather than comprehensive and preventive; concentration is on the individual rather than on the community.

One distressing result of this approach: Although the United States spends more per capita on health care than other industrialized countries, we seem to benefit less from these services. Our infant mortality rate is higher than that of all but a handful of Western European nations and our life expectancy statistics are not much better. Even more deplorable, America's health care shortcomings affect minority peoples disproportionately.

If the public health approach of prevention, education and empowerment represents what is needed to address the health crisis of developing nations, it also offers the United States' best hope for improving the health of its poor and minority communities — the burgeoning Third World within our own borders.



Shan Cretin
Ph.D., M.P.H. '70

*Professor
UCLA department of
health services
Los Angeles, Calif.*

During the past decade the most urgent public policy questions have involved public health. AIDS and the environment have become front-page news, along with the problems of drug addiction, health care financing and abortion. Despite the demonstrable importance of public health education and research, Yale's department of epidemiology and public health and other schools of public health have recently had their position in the academic milieu questioned. What explains the uneasy relationship between public health and the rest of academia?

Public health offers a shared, societal perspective, in contrast to the majority of more parochial academic disciplines. Faculty in schools of public health come from a variety of backgrounds, including social sciences, biological sciences and physical sciences, and address a wide range of problems, from health financing to toxic waste. What unifies this apparently disparate field is an interest in applying disciplinary training to the solution of health problems at a population, rather than at an individual level. This unifying principle is, unfortunately, also the source of the friction between public health and other faculties of the university. The focus on applications leads colleagues from the “pure” disciplines to view public health research with suspicion. We do not work at the “cutting edge” of theory, but rather see whether established theory can lead to better solutions for practical problems. In this sense, we are engineers more than scientists. When our work is judged by academics from such fields as economics or biochemistry, it may be dismissed as “too applied” to qualify as “real” research.

Public health differs with medicine, as well, over its emphasis on the health of populations rather than individuals. What is good for the health of one individual may benefit the entire community, as in the case of immunizations against infectious diseases. However, costly life support for a terminally ill patient may contribute less to the community's health than such non-medical approaches as subsidized school lunches or better occupational safety standards. Advances in medical technology have improved our collective health, but

have also complicated the delivery and financing of medical care. The United States spends 12 percent of its gross national product on medical care, yet our health as a nation lags behind that of countries spending far less. We clearly need to complement our biomedical research with health policy research focusing on the health of the society.

In the dialogue between advocates for individual patients and advocates for society, there are no "good guys" or "bad guys." A fundamental problem for a free society is balancing the rights of the individual and the needs of society. This same balance is needed in developing national health policies. It is important for there to be both schools of medicine, with physicians who are working to improve the diagnosis and treatment of diseases for individual patients, and schools of public health, with economists, sociologists, behavioral scientists, environmental scientists and epidemiologists working to improve the health of populations.

In providing a home for public health, the university fulfills its obligation to address societal as well as intellectual problems. As an alumna, I am pleased and proud that the tradition of public health education will continue at Yale.



**Debra W. Haffner
M.P.H. '79**

*Executive director
Sex Information and
Education Council
of the United States
New York, N.Y.*

Though I received my degree from the department of epidemiology and public health 11 years ago, to this day I often use information from my epidemiology, management, and maternal and child health courses. My work has been particularly influenced by the principles I learned from Jim Jekel, Lorraine Klerman and Lowell Levin. But I also daily call upon a set of skills which were not addressed during my student days at EPH: the political skills that we as leaders in public health require to educate others as to the need for public health programs.

As the executive director of SIECUS, the Sex Information and Education Council of the United States, I lead an organization dedicated to affirm sexuality as a natural and healthy part of living and to advocate for the right of individuals to make responsible sexual choices. Sexuality is clearly a public health issue, although I do not remember it being addressed in any of my classes.

Both the sexual diseases (sexually transmitted diseases, HIV infection, infertility, etc.) and the rampant sexual "disorders" of our culture (as reflected in sexism, homophobia, etc.) require public health approaches to reduce

their prevalence. Many of today's public health problems are rooted in the culture's lack of understanding about — and acceptance of — sexuality.

Nowhere is this more evident than in the response to the HIV epidemic, where moralism is being presented by some political leaders as a public health imperative. Much of the funding for HIV prevention has been used to promote efforts to restrict sexual behaviors and lifestyles.

For example, almost all HIV education programs for teenagers concentrate on abstinence, while ignoring the needs of millions of teen-agers for "safer sex" education. Regulations promulgated by the Centers for Disease Control at the directive of Congress forbid the use of public monies to produce explicit materials on heterosexual and homosexual safer sex practices. Many of us have worked vigorously to blunt the effects of these misguided political/moral agendas that have dominated public health practice.

Almost all of us in public health need to work in a political context; political decisions affect public health priorities. During the last decade, political considerations have affected regulations and funding for maternal and child health programs, community health centers, abortion, family planning, fetal research, environmental health and occupational health, to name only a few. The acceptance of a national health service or insurance program, first proposed by Yale professors more than 50 years ago, is clearly dependent on building political support.

I believe that it is vital to prepare public health students for their role in the political arena. We need to teach these new professionals how to lobby, work with the media and articulate their vision. Understanding and developing these skills are as important as developing those in research, administration and fund-raising. It is incumbent on all of us in public health to provide the leadership to assure that everyone has the right to affordable and quality health care services and education.



**William L. Kissick
M.D. '57
Dr.P.H. '61**

*G.S. Pepper Professor
of Public Health
and Preventive
Medicine
University of Pennsylvania
Philadelphia, Pa.*

When I left the wards of Yale-New Haven Hospital in the summer of 1958 to matriculate for the study of public health, I crossed the Rubicon of health affairs. Visits as a fourth-year clinical clerk to chronically ill patients in their homes with my wife, a staff nurse with the New Haven Visiting Nurse Association, had convinced me that the School of Public Health needed the School of Medicine. Three decades later, I

recognize the reverse as imperative. Society spent approximately \$600 billion for health and medical care last year, almost 12 percent of the gross national product. That is twice the defense budget and two-and-one-half times the revenues of America's automotive industry. Some claim the United States has thus bought the finest health services in the world. This statement is true, if you mean that our finest is unexcelled. If one includes the dimension of equity and the highest health status, the claim is not valid.

The U.S. Health Care Financing Administration forecasts medical expenditures reaching 15 percent of GNP in the year 2000. Some economists reason that the health care sector's marginal growth will balance out at 18 percent of GNP; an extrapolation of growth over the past three decades, however, would carry it to 100 percent of GNP in 2057.

Kissick's Second Law states, "No society has sufficient resources to provide all of the health services its population would utilize." I am convinced that this law would be valid at 100 percent GNP. This frames the dilemma for medicine in the 21st century. Enter public health.

Public health is based on principles that can be incorporated into medicine in a variety of ways. Medical practice is predominantly reactive; the physician stands ready to provide the fullest spectrum of quality care. By contrast, public health is anticipatory, proactively identifying and targeting opportunities for health promotion, disease prevention and comprehensive care. Medicine, quite properly, focuses on advocacy for the individual patient; public health has a population priority. The golden age of American medicine was fueled by fee-for-service, with the physician determining both price and volume. Retrospective cost-based reimbursement financed hospitals and added to an open-ended philosophy. Public health, by contrast, requires resource allocation in closed budgets.

Population basis, closed budgets and anticipatory strategies help determine our priorities. *Who Shall Live?* asks Victor Fuchs, the distinguished economist. The derivative question is "Who shall decide?" We in medicine are uncomfortable with these decisions and often make them almost by default. Though we may decline to address priorities in medicine, rest assured, the decisions will be made, explicitly or implicitly, overtly or covertly, with or without medicine's participation.

The main lesson of public health is accountability. As physicians we are accountable to the individual patient. Public health is accountable to society through its representatives.

As I view the evolution of health affairs over the past three decades, it is my conviction that medicine in collaboration with public health can achieve excellence as well as equity for 250 million Americans. The department of epidemiology and public health in its 75 years stands ready for the joint venture.



Peter J. Levin
M.P.H. '65, Sc.D.

*Dean, College of
Public Health
University of South
Florida
Tampa, Fla.*

In 1963, jobs in hospital administration were not yet the high-prestige executive positions that they sometimes are today. These were the pre-Medicare days, just before a flood of federal funds would transform the health care system. I was attracted to Yale because it offered the master of public health degree, not a master's in business administration. I viewed hospital care as part of a much wider public health system. Happily, EPH saw it this way, too, which led to my most exciting academic years being spent under John Thompson's tutelage.

The old building on Cedar Street smelled of formaldehyde from the pathology laboratories with which we shared a floor. Smoke from cigars and pipes — then an acceptable part of the academic scene — also made their atmospheric contribution. As they do today, M.P.H. students attended core course lectures together and represented a wide variety of points of view and academic and ethnic backgrounds. What made EPH exceptional for me, however, was the overall positive outlook of the faculty; along with knowledge, they transmitted hope to their students. They believed that what they were doing was important and what we would do in our careers in public health would be important.

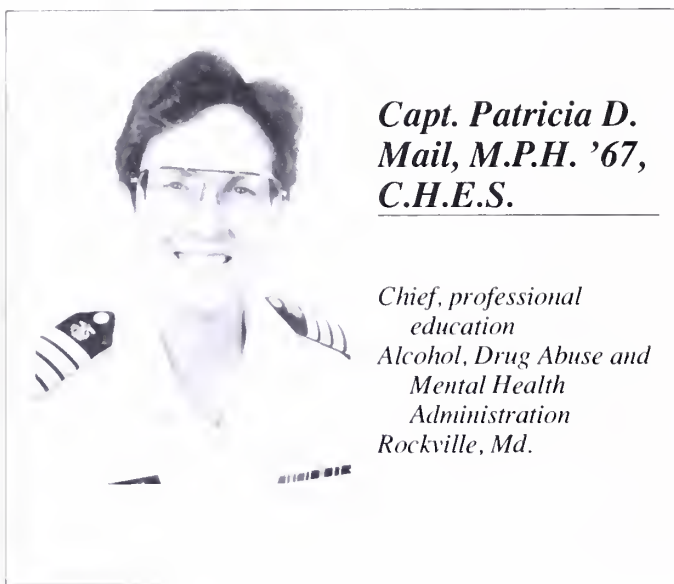
Society as a whole certainly was not impressed with our importance. People did not go into public health to become rich. HMOs, disease prevention and health promotion were not yet accepted as replicable concepts. We were people who were prepared to accept modest material success in exchange for knowing that we were doing good for society. We were the inheritors of the expertise and, hopefully, the values of C.-E.A. Winslow.

In the case of hospital administration, we had John D. Thompson leading the way, prodding and pushing, to have us embrace scientific methods to analyze situations and develop methods for change. He was constantly experimenting with hospital data to improve care through management. He believed that the administrator could make a difference even if the doctors and the trustees did not think so. He taught us to keep one eye on the big picture while you "got the laundry sorted out." Politics as well as statistics were part of the game, and you had better be sure that you had the votes, as well as the numbers, all added up ahead of time.

Another appealing feature of EPH was its future orientation. We were all working to make a better world for everyone. We believed that things would change. My M.P.H.

graduation year, 1965, saw the passage of Medicare and Medicaid. Since then, massive infusions of money have gone into health care delivery, and there is now much wider government involvement in all aspects of health care and the environment. Unfortunately, we have not seen improvement in health status for all of the population that we might have hoped for, given the amount of money we have invested.

The belief that components of health care delivery can be analyzed, studied and integrated into a measurably better system still is not widely accepted. This approach is sometimes threatening to medical schools, physicians, hospitals and those who do not believe that we are our brothers' and sisters' keepers. Yale EPH gave me more than tools; it provided me with a framework to approach and solve problems, and supported my conviction that we can and should make a difference.



***Capt. Patricia D.
Mail, M.P.H. '67,
C.H.E.S.***

*Chief, professional
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Alcohol, Drug Abuse and
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What, you might ask, do the following have in common: the U.S. Surgeon General, medicine men, puberty ceremonies, alcoholism prevention and treatment, food handlers' courses, project officers, clinic managers, HIV services, coalition building, community outreach workers, health manpower shortage areas, and military protocol. These are but a few of the strands that have been woven into the colorful tapestry of my career in the U.S. Public Health Service.

A combination of field placement with a Western Apache tribe coupled with a request to develop a community drinking profile led to a career in public health which has spanned the continent and provided significant opportunities for professional growth and contribution. The core curriculum required during my Yale training laid the foundation for multidisciplinary activities with an emphasis on the importance of wider professional affiliation with peers and colleagues.

My thesis research in alcoholism began a lifelong interest and resulted in the publication of an annotated bibliography on North American Indian alcohol use and abuse (1980), to say nothing about a basement full of reference material collected over 20 years.

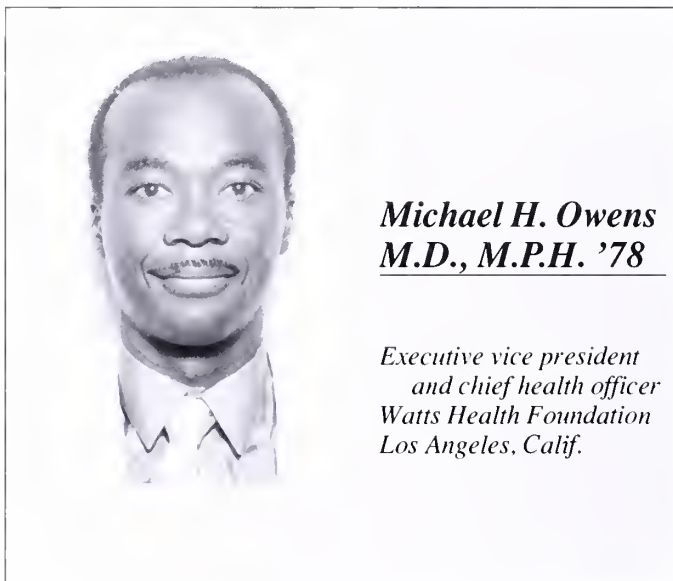
Of greatest value in my professional preparation was the emphasis on developing an appreciation of other public health disciplines. From statistics and epidemiology through administration and basic research, to disease prevention and public health services in the community, my Yale education

provided a coordinated overview that enabled me to approach all my professional activities as parts of a single discipline.

My greatest concern is that public health is being increasingly fragmented, destroying the community and professional integration so important to the delivery and maintenance of public health services. I have found that professionals lack a generic frame of reference. Even that frontline provider, the public health nurse, has disappeared into the linguistic limbo of "community health nursing." The basic environmental health sciences so artfully integrated into the disease-prevention model seem to have shifted toward public works and land conservation, and away from simply protecting people's health. And health promotion seems more closely associated with aerobic exercise than with personal responsibility for positive health behavior.

The finest training in public health was mine in the 1960s. I do not see this same meaningful integration in the 1990s. Education for public health practice seems to have shifted from a community-based model to a more fragmented, single-issue approach characteristic of the "congressional disease syndrome" in which health care priorities are too often set in reaction to the most vocal or most influential special interest groups.

Public health — as distinct from medical care — is the one system equipped to address the nation's health at its core: the family, community and culture, where health and disease have their origins. Moreover, public health works with and understands the needs of the nation's indigent peoples. My professional preparation readied me to work in the front lines of health service delivery. I hope that those of us trained in the 1960s do not represent the last of the generic public health professionals.



***Michael H. Owens
M.D., M.P.H. '78***

*Executive vice president
and chief health officer
Watts Health Foundation
Los Angeles, Calif.*

The shadow of 21st-century health care challenges is already casting a nebulous cloak about us. Our health care system is undergoing nothing short of a revolution in its definition, control and economy. Advancing technology is outpacing our grasp of its liabilities, raising questions of our ability to incorporate modern medicine into society within ethical let alone rational constraints. We are concomitantly faced with the reality that much of the United States' minority population is confronting a health care crisis rivaling that of so-called "Third-World" countries, as evidenced by the current measles outbreak and by minority infant mortality rates.

The perverse interplay of new technology and the life challenges of the poor is evidenced when we view the problem of runaway teenage pregnancy in terms of the debate about fetal research; poor minority women produce ample potential raw material for such research. Similar parallels can be seen between the potential linkages between homicide as the number one cause of mortality in inner-city youth and the coincidental location of many large teaching hospitals with organ transplant centers for everything from cornea to heart-lung transplants.

The failure of leadership and communication from the cognoscente to the ever-burgeoning numbers of functionally illiterate in our society does not argue well for a true national resolve to understand — let alone address — the problems of a society in decay. Our schools of public health must move beyond their current status as bastions of training researchers and bureaucratic information gatherers and users, to become institutions of creative learning, outreach and experimentation. The World Health Organization includes the psychological and spiritual along with the physical as principal tenets of health.

Schools such as Yale must focus more outwardly for the common good. They must aggressively network with minority and non-traditional institutions of higher learning; they must forge links with health care organizations and civic organizations that reflect our poly-cultural and poly-ethnic citizenry. The social responsibilities of our premier schools of public health of course do not stop at our shores. International health needs are also ever-increasing. How better to begin meeting our global responsibility than by rededicating ourselves to creatively bringing forth the potential of our own multicultural/multiethnic population as the cultural bridge between ourselves and those on distant shores. The mission is the same, the timing not yet impossible, the imperative compelling, the risk of avoidance incontrovertibly evident in human misery and suffering. The indefatigable spirit of humanity will prevail only if we get out of our own way.

knowledge was important in my subsequent work for the Dr.P.H., which, in turn, added greater depth to my teaching, research and service activities back at the University of the West Indies. Some of my former students now bear witness to the indirect influence EPH has exerted on their own career choices, especially those who embraced the once new and suspect discipline of epidemiology. My Yale exposure also convinced me that my own career choice in public health was the correct one.

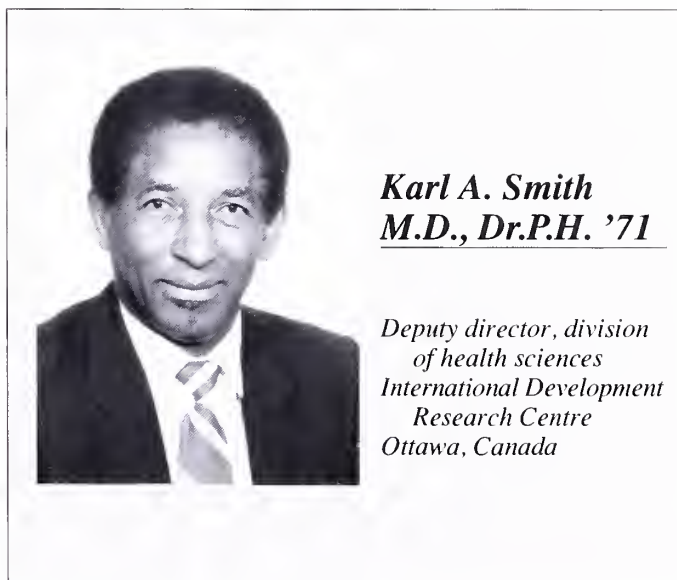
I was later drawn to international health as a second career; for more than a decade I have worked for an organization that encourages and supports research in the developing world. In this role I have discovered that every country needs a rational mix of personal and community health services; that health status results from the interplay of many factors, including genetics, environment, economics, health systems and services, personal and community behavior — and public policies.

There is a tendency in many developed countries to regard basic research and the provision of biomedical and clinical high-technology packages as the answer to health problems. Public health receives little attention. Yet, while many developing countries for reasons of prestige will try to follow this high-technology model, most of them will find it an unaffordable and inappropriate use of scarce resources. Greater emphasis must be placed on "the public health," including preventive measures and health promotion.

Learning institutions like Yale, with their tremendous prestige, must assume even greater leadership in assisting the developing world meet its public health challenges. The world is increasingly becoming a global village with shared needs, concerns and consequences for each other's actions. In this context, Yale has an obligation to make major contributions as one of the world's leaders in medical and public health education and research.

How many developing country scientists are being trained in public health at Yale? Do they return to their own countries to work? What continuing support do they receive? Are there ongoing networks with Yale faculty?

Yale must exercise greater influence, nationally and internationally, in culturally sensitive ways, in research, training and advocacy regarding the public health. While, for example, the EPH chairman's advisory role to WHO is laudable, and other professors engage in international activities, will EPH enhance its corporate international stature? Let me close by quoting the late Arthur J. Viseltear, Ph.D., from his graduation address to the EPH Class of 1989: "The world is changing rapidly; will you do your share to influence the future? Will you remember and hold dear the public health ethos?"



In studying for my M.P.H. at Yale, while the tools of epidemiology and biostatistics and the know-how to administer health services were imperatives, equally exciting were the qualitative approaches and methodologies for understanding people's motivation and behavior. I remain grateful to all my teachers in these various domains. This



**Rosemary A.
Stevens**
M.P.H. '63
Ph.D. '68

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In 1961, the year I entered EPH as a student, the department was housed on Cedar Street. Public health was a collection of disciplines which were assumed to fit naturally together as they had done in the days, not too far distant, when the field was a matter of controlling infectious diseases and was concerned with measurement, sanitation, education, progressive social policies and the stark realities of practical politics. Federal funding for public health was in its prime, both for education and research — I was one of the fortunate recipients.

Medical care and hospital administration, then two separate fields, were taught within this framework, although it was not always clear how the newer problems of institutional management, private health insurance arrangements and proposals for government intervention (this was before Medicare) meshed with some of the other fields. Eric Mood's lecture on how to build a rural sanitation system for a dwelling, made graphic by the large model of a privy he hefted to class, contrasted with Isidore Falk's discussions of who was backing what major piece of health legislation in the U.S. Congress, or John Thompson's concerns about hospital-hospital and hospital-medical staff relations.

I was fortunate to be able to combine hospital administration and medical care in the M.P.H. curriculum and then to go on for a Ph.D. in epidemiology, focusing my dissertation on specialization in medicine with Dr. Falk as my advisor. My dissertation fields, epidemiology, sociology, health administration, have stood me in good stead over the years. How much more versatile than doing three fields of management!

Being a student of health care institutions within a public health context also has been of continuing practical value. Dr. Falk, like others of his generation of activists, saw government involvement in medical care as the next logical step in the broad history of public health. John Thompson, presenting the hospital as a force for potential good in the community, expected the administrator to do more than keep the institution going along established lines. Managers were agents of change, with the opportunity to create better services to local communities through cooperation across institutions.

I realize now how much I have internalized these views. I have instinctively accepted the public health perspective — it has reappeared in the 1990s as the "new way" to look at public health issues. Health is a collective concern, whether

one is talking about Medicare costs, AIDS, pollution, or the absence of health insurance. Managers of health care institutions need to have a strong background in epidemiology and social statistics as well as in the arcane details of capital finance; they certainly need an appreciation of history and politics. As I write about the history and policies of health care, I feel particularly grateful for my background in health statistics. (Thank you, Colin White!)

And yes, the lecture on privies has proved useful on at least three occasions.



C. – E.A. Winslow
M.S.
M.A. '05 (Hon.)

Preventive medicine must come through a fundamental change in the attitude of the physician and in the attitude of the medical school where he is trained. It is to a new generation of medical students, imbued with a new spirit of prevention, that we look forward with hope. At Yale, it is our special duty and opportunity to make this new spirit prevail; and we believe that in the working of such a revolution our medical school can make its most unique contribution to human progress.

To state that the death rate of New York City has been reduced from 25 per 1,000 in 1890 to 13 per 1,000 in 1920 may perhaps leave one unmoved; but think for a moment what such statistics mean in terms of human life and human happiness. Today (1923) in that great city, there are 201 deaths every 24 hours. If the death rate of 30 years ago were still in force there would be 384 — a saving of 183 lives with each revolution of the Earth. If death be the wage of sanitary sin, nearly one-half the debt has been remitted in a period of 30 years.

If we had but the gift of second sight to transmute abstract figures into flesh and blood, so that as we walk along the street we could say, "That man would be dead of typhoid fever," "That woman would have succumbed to tuberculosis," "That rosy infant would be in its coffin" — then only should we have a faint conception of the silent victories of public health. For such achievements we may thank God and take courage for the future, bearing on our banners that eternal phrase of Cicero: "In no single thing do men approach the gods more nearly than in the giving of safety to mankind." *The Evolution and Significance of the Modern Public Health Campaign*, C.-E.A. Winslow, Yale University Press, 1984, pp. 64-65.

YM

THE CHANGING FACE OF PUBLIC HEALTH

by Dr. Myron E. Wegman, '32, '32-'36 HS

From the perspective of 1990, the status of public health in 1915 appears not very different from the turn of the century. By the time Yale established its department of public health, life expectancy in the United States had improved to age 52, from 47 in 1900; figures as low as these are seen today only in a few developing countries. Yet profound changes in thinking were taking place. Understanding of infectious diseases was expanding rapidly, even though newly developed specific treatments, like serotherapy, were not terribly effective.

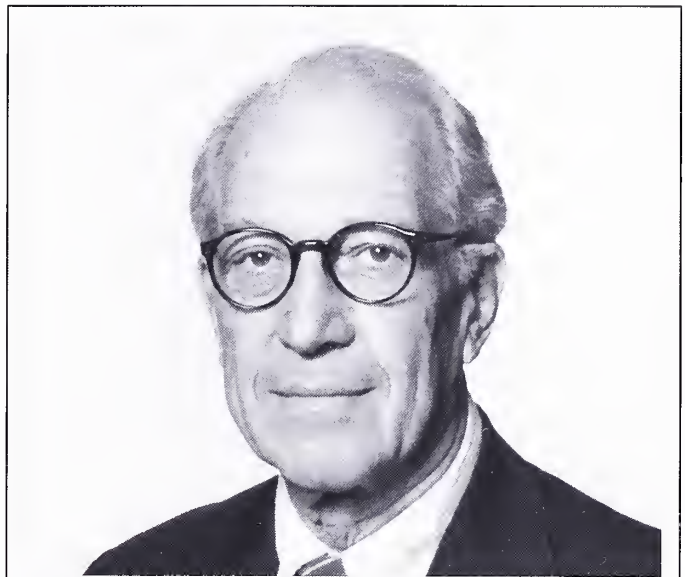
This concern with contagion may have influenced the choice of Charles-Edward Amory Winslow as the first EPH department head; his own studies with William T. Sedgwick at MIT had been in sanitary science and biology. Two earlier efforts to develop a broadly based, University-wide department at Yale had been shelved, which may have moved Winslow to focus on teaching prevention to undergraduate medical students and "to capture a few for public health." In his comprehensive 1988 article in the *Yale Journal of Biology and Medicine*, the late Arthur J. Viseltear reports that Winslow failed in the latter goal; a parallel effort to develop an Institute of Human Relations to bring medicine into closer relationship with non-medical aspects of health and disease also failed, "as the medical curriculum returned to traditional concerns" with the patient, sickness and cure.

Since my own medical school education overlapped some of these developments, I propose to comment on the history from both a personal and conceptual point of view. How a person such as myself — focused on a clinical area in student and residency days — wound up in public health, may be instructive for others. Moreover, a look at how public health has changed in 75 years may help achieve a better perspective on today's problems.

Illustrious Professors

As I think back to 1928-1932, Winslow was hardly a failure. His lectures, and those of Professor Ira Hiscock, were great intellectual exercises for us medical students, even though they did not lead me or, as I recall, any of my classmates directly to a public health career. More importantly, there must have been considerable influence on faculty members like Leo Rettger and George Smith in bacteriology and the Yale greats in infectious diseases — Francis Blake and John Paul in medicine and James Trask in pediatrics. We certainly learned from them of the community implications of the spread of disease.

Winslow's regard for medical students was revealed outside the classroom as well as inside it. Once each year he invited the entire senior class for dinner at his home after which, with most of us sitting on the floor, he talked of the social function of medicine, reading to us selections from medical, public health and English literature. I remember it as an inspiring evening although, again, it did little for recruitment to public health.



Dr. Myron E. Wegman

Dr. Myron Wegman '32, '32-'36 HS: A Half-century in Public Health

After completing his residency in pediatrics at New Haven Hospital in 1936, Dr. Myron Wegman headed South to become a pediatric consultant in the Maryland Department of Health. At the urging of Dr. Grover Powers and another of his former professors at Yale, Dr. Martha Eliot, he also completed an M.P.H. degree at the Johns Hopkins School of Public Health. The advice of these two great teachers had a profound effect on his professional life.

Dr. Wegman's subsequent career in public health led him to Puerto Rico for a teaching post at the School of Tropical Medicine, to New York City and work with the bureau of child hygiene, and to medical school teaching positions at Cornell, Columbia and Johns Hopkins.

In 1946, he returned to his original field, becoming professor and head of pediatrics at Louisiana State University Medical School in New Orleans. Here Dr. Wegman maintained his involvement in public health through volunteer work and by chairing the city's health council. A series of international consultancies for the World Health Organization led him to join the Pan American Health Organization (the WHO Regional Office for the Americas) in Washington, D.C.; for his last four years there, he served as its secretary-general.

In 1960, Dr. Wegman returned to academe as dean and professor of public health at the University of Michigan School of Public Health and Searle Professor of Pediatrics in the medical school. He was named dean emeritus in 1974 and Searle Professor emeritus in 1978.

My own path to a career in public health was anything but straight and narrow. After a three-week substitute internship in surgery demonstrated to my discomfiture that technical dexterity was not my forte, I became more and more attracted to pediatrics, chiefly through increasing admiration for Grover Powers and his colleagues. Internship and residency in pediatrics were glorious years; when I became chief resident, I had reached the top. In fact, although I have since held high administrative and academic positions, I have never felt so important as I did in 1935-1936.

Pediatrics is in many ways public health in action, so upon finishing my residency, I jumped at the opportunity to work as a pediatric consultant in the Maryland Department of Health. There I helped educate rural practitioners in better care of children. Not surprisingly, Dr. Powers' urging that I become involved in the community was crucial to my decision. I also benefited from knowing another faculty member, Martha Eliot, whose sophisticated research on vitamin D and rickets led her almost inevitably to child health. Later, as associate chief and chief of the U.S. Children's Bureau, she had a lasting impact on public health in the United States.

Martha Eliot urged me not only to accept the Maryland post but to insist that I do my Master's in Public Health at Johns Hopkins at the same time. At first I resisted the latter suggestion, largely out of a Yale-induced conceit. After four years of medical school and four years of pediatric residency at Yale, I didn't see how Johns Hopkins could teach me anything! This attitude was shattered quickly as I sat in

Lowell Reed's exciting classes in biostatistics and had contact with public health giants like Wade Hampton Frost and Abel Wolman. Being a graduate student in public health proved to be an intellectually stimulating and rewarding experience.

At the same time, as I tried to teach modern pediatrics to rural Maryland practitioners — some the product of the pre-Flexner diploma mills — I encountered public health "in the raw." In addition to primitive environmental conditions and dreadful maternal and infant mortality rates, I had to deal with a variety of infectious diseases. This included a family outbreak of tularemia, diagnosed not by my clinical acumen but through the astuteness of the state bacteriology laboratory. It was a powerful exposure and a great learning experience, even though there were times when I wondered whether my training on a sophisticated clinical and research service was being frittered away.

Then came a major break; I was asked to teach the six-week maternal and child health course at Hopkins. I accepted and continued at this position as a commuter during my next two jobs. In the second of these, incidentally, I had the good luck to work under another remarkable Yale, Leona Baumgartner, then head of the Bureau of Child Hygiene; her extraordinary career included eight years as one of New York City's greatest health commissioners. Subsequently, my various posts have given me opportunity to take part in city, state and international public health activities, as well as teaching and academic administration in two large state universities.

Table 1. Age-adjusted death rates, United States, selected causes, three five-year periods.

	Age-adjusted death rate per 100,000		
	1 1900-04	2 1940-44	3 1980-84
All causes	1698.1	1017.1	560.8
Selected infectious diseases			
Tuberculosis	188.5	43.0	0.6
Influenza and pneumonia	190.9	60.3	12.0
Measles	8.1	1.1	
Whooping cough	8.0	2.0	
Typhoid fever	26.8	0.7	
Gastritis and enteritis	91.6	8.9	
Syphilis	16.6	12.3	
Selected chronic diseases			
Major cardiovascular disease	437.2	469.1	240.7
Malignant neoplasms	83.9	118.4	132.6
Violence			
Accidents	83.1	71.6	37.8
(Motor vehicle)	-	22.6	20.3
(All other)	83.1	49.0	17.5
Suicide	12.1	11.7	9.3
Homicide	1.2	5.7	9.6

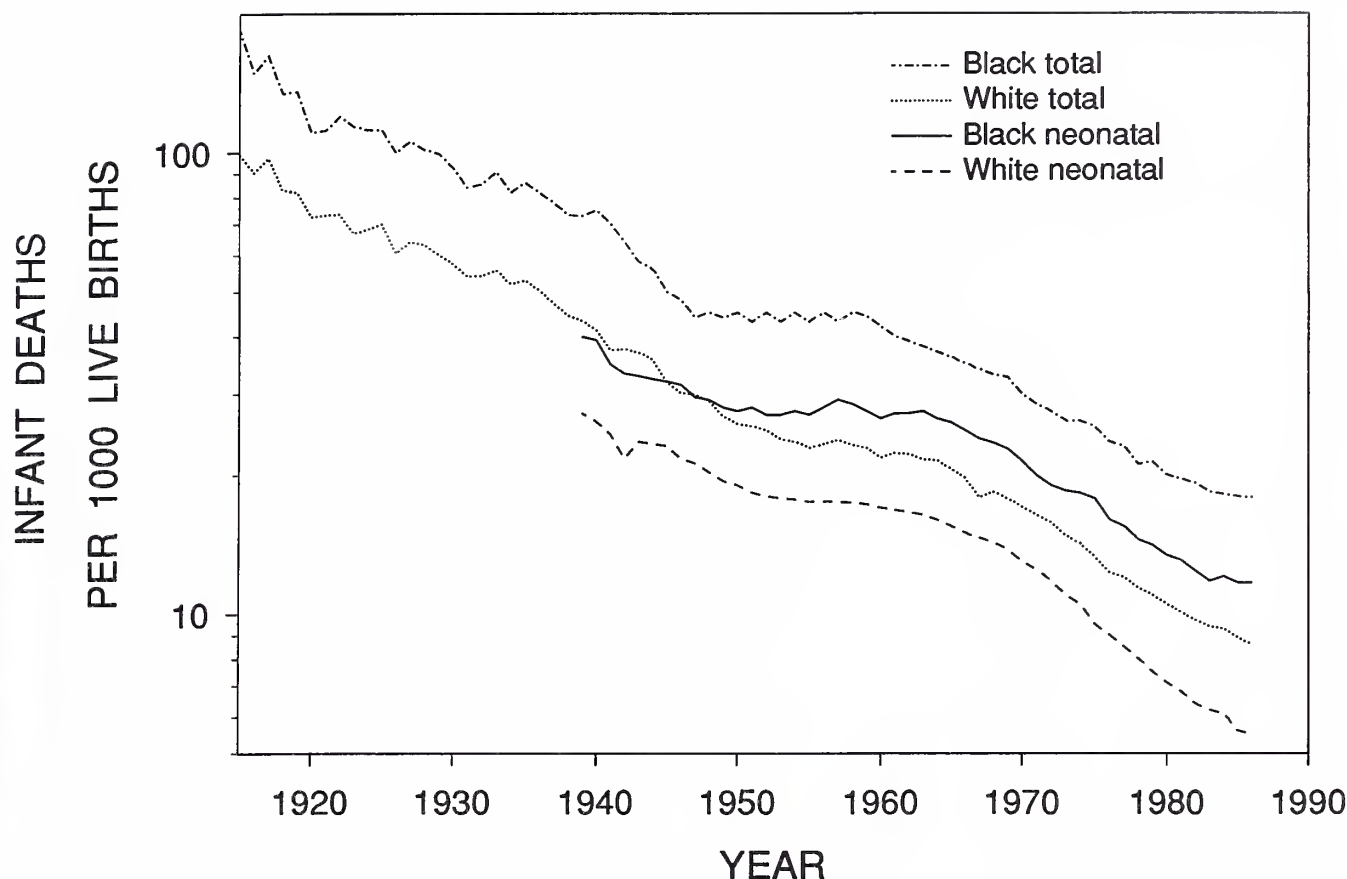


Figure 1. Trends in neonatal and total infant mortality rates, United States, 1915-1987.

Public Health Then and Now

I have gone on at some length about my personal history to set the stage for contrasting the state of public health 75 years ago with today. How to measure the change? Since "health" can't be quantified and morbidity data are incomplete, we often look at absence of mortality as an indicator of health. We certainly live longer — life expectancy in the United States has increased since 1915 to almost 75, a gain of almost 50 percent.

One way to look at the components of this improvement is to study age-adjusted mortality rates for various disease groups. Age-adjustment is a standard technique that compensates for the inevitably higher mortality rates in older people. By applying actual age-specific rates at different times or in different communities to a single standard population, one can calculate a hypothetical total rate that is more meaningful for comparative purposes.

In Table 1, age-adjusted death rates from major cause groups are shown for three five-year periods, 1900-1904, 1940-1944 and 1980-1984. The decline in deaths from communicable diseases has been little short of spectacular. In our present, well-justified concern over the physical and chemical pollution of our environment, it is easy to forget the lethal biological pollution that was so pervasive in the early decades of this century.

Tuberculosis was everywhere — three-quarters of my medical school class tested positive when we entered, and all of us were positive when we graduated. At least two of my classmates had to drop out of medical school because of tuberculosis. Typhoid fever was so prevalent that in 1920 the Boy Scout's handbook advised: "Scouts must be careful when

out in the country never to drink water from a stream just because it looks clean and pure; it may well be contaminated with typhoid bacilli."

Most of the decline in infectious disease deaths, however, took place prior to 1940. During this period there had been considerable expansion of public health activities, particularly as to the environment, as well as great improvement in general clinical management of the ill, especially regarding their fluids and electrolytes. Since 1940, of course, the influence of specific therapy has been substantial; for example, deaths from tuberculosis have declined more rapidly since 1940 than before.

Syphilis is a striking exception to this infectious disease trend; almost no change in death rates took place in the pre-1940 era, when therapy was ineffective and public health focus on venereal diseases was just beginning. It was a curious coincidence that the discovery of penicillin as effective therapy for syphilis came only after the 1936 appointment of an innovative surgeon general, Thomas Parran, who had made an attack on syphilis one of his priorities.

Among chronic diseases, the remarkable decline in deaths from cardiovascular disease since 1940 is more likely attributable to improvements in therapy than to effectiveness of prevention. By contrast, the steady increase in deaths from malignant neoplasms is dire evidence of the gaps in our knowledge as well as our failure to apply what we do know about prevention and therapy. We are doing better with some cancers, but the seemingly inexorable increase in cancer of the lung in women is disheartening.

One explanation is failure to combat the advertising skills of the tobacco companies, who while claiming piously that

their only goal is to get people to change brands, nevertheless target the young. Yet it seems obvious that as older smokers die off the young must be recruited if sales are to be maintained.

American tobacco's other market, of course, is outside our borders. Here the situation is a national disgrace. While the Public Health Service has made a decrease in smoking a national priority, the President's trade representative promotes the sale of American cigarettes abroad. It seems to me obscene to threaten Thailand — in the midst of its national anti-smoking campaign — with U.S. trade sanctions if it resists importation of American cigarettes and won't allow American cigarette advertising.

Death rates from non-motor vehicle accidents have declined by almost 80 percent, but we can glean only small satisfaction from the stabilization of motor vehicle death rates. There is still a long way to go.

Curiously, the age-adjusted rate of deaths from suicide has shown little variation throughout the century although there have been changes in the rates for individual age groups. A recent increase in suicide among teen-agers and young adults has been paralleled by declines in older age groups. One might hypothesize some genetic predisposition to suicide which becomes manifest at different ages, depending upon the social stress of particular time periods. Finally, the awful increase in deaths from homicide reflects deep-rooted social and economic ills in our society not easily susceptible to public health interventions.

Let me supplement the data on the general population with two selected observations on infant mortality, a subject I have worked on for 60 years. Figure 1, taken from an annual paper I do on vital statistics for the journal *Pediatrics*, illustrates a pervasive problem in our society: far poorer health status in some population groups. The widening discrepancy between white and black infant mortality rates runs counter to the expectation that, other things being equal, higher rates ought to come down more rapidly than rates that have already reached lower levels. But all things are not equal. Differences in environmental conditions and access to quality health care for Afro-Americans persist, and the results are obvious.

Infant mortality is also a useful measure of our status internationally. Figure 2 compares the U.S. with four other countries, reasonably representative of the rest of the developed world. The scale is logarithmic, permitting direct comparison of speed of decline, irrespective of absolute differences in rates.

Relative slowing of the U.S. decline has been a cause for serious national concern and can by no means be explained by the size of our minority problem. It seems intolerable that the richest and most powerful nation in the world should have slipped from having the sixth lowest rate in 1930, when we were bettered by only a few small countries, to being 22nd in 1987. And the total population of the countries with rates better than ours now exceeds 500 million.

Remaining Vigilant

This brief review of the past leads me now to speculate on future public health priorities. Since I cannot hope to be exhaustive, I shall limit myself to three general areas:

- attention to the traditional aspects of public health;
- public health efforts in developing countries;
- medical care in the United States.

First off, all the evidence indicates that concern with the more traditional aspects of public health must not slacken. Infectious diseases have not gone away. True, the World Health Organization (WHO) had unique success in eradicating smallpox, a disease with a centuries-long legacy of cutting down "princes and peasants." But the microbial world is resourceful. The appearance of AIDS as a worldwide phenomenon of devastating proportions is but one example. The size of the problem and the way this disease has robbed us of some of our brightest minds worldwide illustrate why we must make a concerted and adequately financed attack an urgent priority.

Thinking in quantitative terms, however, diseases of longer standing must not be forgotten. Measles and tuberculosis also are on the rise, though still on a relatively minor scale. These are portents; maintenance of adequate immunization levels in all sectors of the population must be a national priority. Targeting immunization programs for budget cutting is highly misguided.

Having controlled bacterial and parasitic "pollution," the developed countries must now turn to problems in the chemical and physical environment; such dangers occupy enough space in the media to obviate discussion here. But the media seem to pay less attention to the health danger of ionizing radiation. There is now general recognition that whoever starts a nuclear war signals the suicide of mankind. How then can anyone justify continuing testing of nuclear weapons and the resultant increase in environmental danger?

Secondly, the vast majority of the world's 5,000 million people live in countries with what we would consider unacceptable health resources and environmental conditions. It is naive to assume that in the 20th, let alone the 21st century, we in the West can isolate ourselves and not be affected by health conditions abroad. Nor is this a question solely of infectious diseases. The cycle of ill health and poverty exaggerates international tensions, threatening the "haves" as well as the "have-nots" and leading too often to armed conflicts that may spread like any other epidemic.

Our country has been a leader in international health cooperation. The Agency for International Development, within its limits as an arm of our State Department, has a distinguished history in helping many countries in crucial health areas. Furthermore, the United States took the lead in establishing and supporting the Pan American Health Organization in 1902 and was a potent force in later starting the World Health Organization and encouraging its growth. Yet WHO's accomplishments, while considerable, are far less than its potential.

Is it not a national scandal that our country is crippling WHO's programs by being in serious arrears since 1985, in effect welshing on the dues we accepted as a formal obligation? As of this writing, WHO puts the sum of our arrears and current assessment at \$111.2 million. Yet this is not because of any disagreement with WHO health policies; the United States has, in fact, praised WHO fiscal management. Even countries as poor as Haiti and Bangladesh pay their dues regularly!

Finally, I come to medical care. Although I believe that continued attention to preventive activities must be a priority, the data I have shown emphasize that high quality medical care is central to better health for all. Inequities and unevenness in medical care must be overcome if the United States is to reach its national potential and catch up to the rest of the world. It is simply not enough to say that the United States provides the finest care available anywhere—if one can afford it.

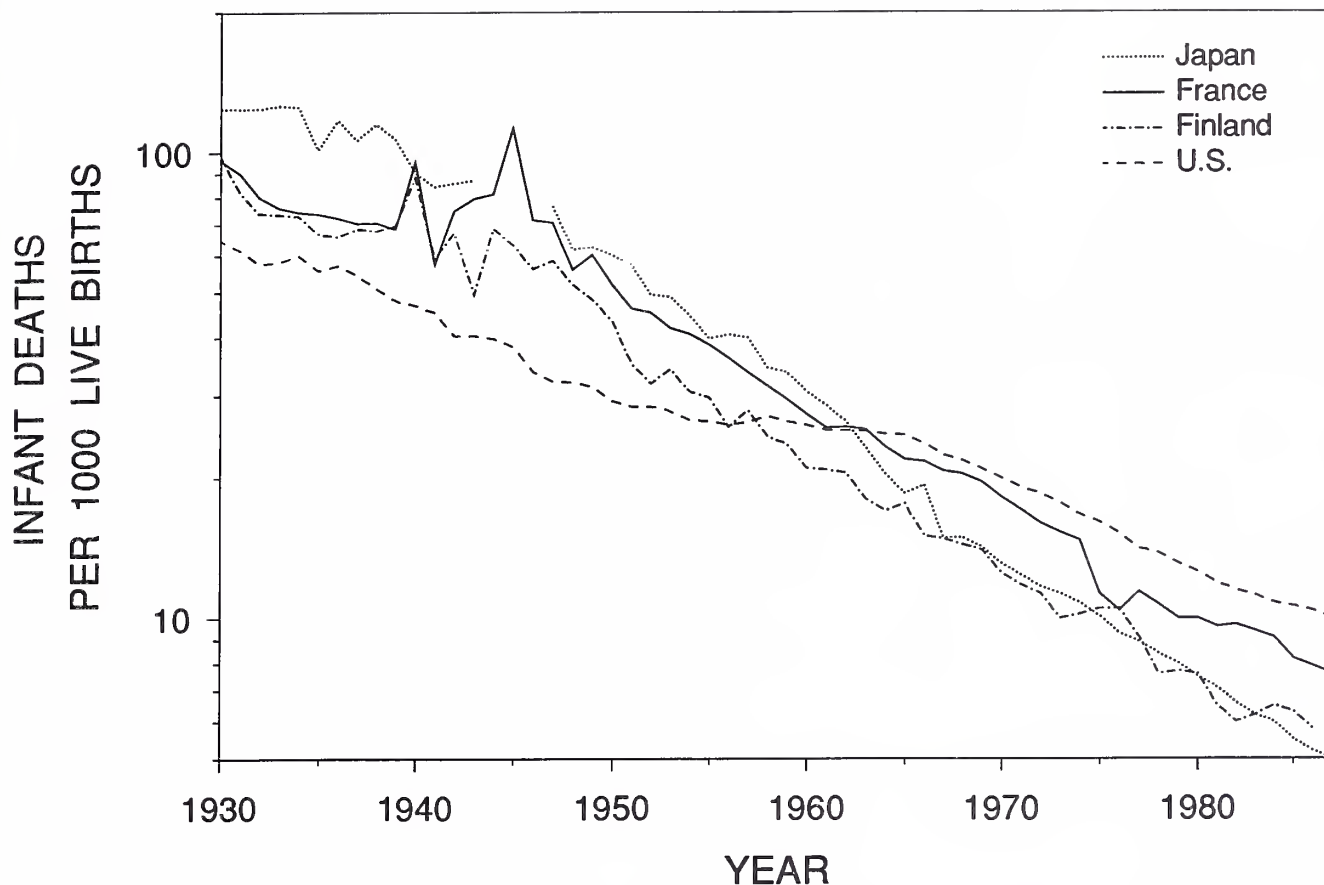


Figure 2. Trends in infant mortality rates, five countries, 1930-1987.

During my early years in public health, many of my colleagues believed that medical care should not be a concern of government. In 1948, the American Public Health Association almost split before adopting a mild statement supporting the principle of health insurance for all Americans. Now, at least, there is growing consensus that assurance of available, accessible and acceptable medical care to everybody is a national responsibility. Many argue that a national plan would be too expensive, yet with our current, chaotic approach, few can suggest that we are getting our money's worth.

It is a bit sad that warnings from decades ago about escalating medical costs are just now hitting home. Secretary of Health and Human Services Louis J. Sullivan predicts that our health care costs will reach \$1.5 trillion by the year 2000. Personally, that figure, incomprehensible as it is, doesn't frighten me. We could afford it — if only we were to receive the full value of every dollar we shall spend. As it stands, absurd fragmentation has led to huge waste and billions of dollars squandered in needless duplication and administrative complexity. Individuals have their costs paid by multiple units, some public and some private. Highly trained physicians waste increasing amounts of time in paperwork instead of caring for patients; doctors are very expensive clerks.

More than 20 years ago, I chaired the Comprehensive Health Planning Council of Southeast Michigan, seeking public and private cooperation for an area of 5 million people. Interestingly, the push to do something about rational planning came primarily from the big auto companies and the unions, working together. Objections and foot-dragging came from the organized medical profession. In the end, the initiative failed. Now, as evidence of waste and unnecessary

expense mounts, business and labor are bringing renewed pressure.

Canada, our neighbor, with better health indices and lower costs, presents an example that merits serious study. But Canada does not have all the answers. Persistence of fee-for-service remuneration reflects serious problems. Industry long ago demonstrated that productivity does not depend on piece work.

Yale people were early leaders in trying to reform medical care. In the 1930s, during my house staff years, Dr. John Punnett Peters, the John Slade Ely Professor of Internal Medicine, formed the "Committee of 430," one of the earliest groups from within the medical profession that called for reform in health care organization. It is no reflection on Dr. Peters or his many successors among medical leaders that a rational plan has not yet been achieved.

Yale's EPH department has a distinguished record in health services research over the years, as well. There is plenty of "room at the top" for Yale once again to take a national leadership role; the department's current reorganization appears to be a major step toward achieving this end.

I'd like to close on an aspect of public health I have referred to only indirectly thus far — the quality of life. It is easy in the desire to quantify health status and progress to concentrate too much on just reducing mortality rates. But clearly, keeping people alive is not enough. One pundit put it well: "The basic objective of public health is to help everyone die young — as late as possible." Society needs to provide the environment, in the broadest sense, that permits every person to enjoy life to the extent of his or her capacity. That's a goal every health worker can accept gladly.

YM

STUDENT RESEARCH DAY 1990



At the poster session, Dr. Robert H. Gifford confers with Sonya Erickson, '90, about her historical research.

Opening Remarks

The tradition of medical student research at Yale goes back about 150 years. We remain one of the few, if not the only medical school that requires a completed, bound thesis as a requirement for graduation. Thus, the thesis project stands as one of the cornerstones of the Yale System of medical education.

This important exercise graphically illustrates to each student how difficult it is to implement and to write up quality research. It fosters an appreciation of the scientific literature and a more critical appraisal of published results. It often, but not always, leads to new information.

However, in many ways, the student research process is more important than the results, especially the experience with sophisticated research techniques and the one-on-one relationship with a faculty advisor. Many students become so engrossed in their projects that they decide to spend an additional year in medical school to pursue their investigation in greater depth.

In recent years, thanks to the efforts of the office of student research and its director, Dr. John N. Forrest Jr., a number of one year fellowships have been made available to support those interested in a fifth year devoted to research. Many of these projects have been or will be published in the near future and many have been presented at national meetings.

Most students commence their thesis work in the summer following their first year of medical school. They choose a

thesis advisor and a topic that interests them. The topic does not have to involve "wet bench" research. Some students select clinical projects involving patients or chart reviews. Some opt for projects in public health. Some tackle subjects in medical ethics or medical history. Whatever the subject, it is essential that there be a hypothesis; the student must ask a question and figure out how best to answer it or to prove the hypothesis using the scientific method.

During that first summer, many choose a faculty sponsor and begin a long, close student-faculty collaboration that extends into the senior year. The final written thesis must be approved by the sponsor and read and approved by a departmental thesis committee. Some theses are later designated by the various departments for honors and these are forwarded to members of the Medical School Thesis Committee where they are read and discussed. That group decides on the five theses that merit presentation here and identifies those to be awarded prizes at graduation.

I would like to express my appreciation to all who worked so hard to make Student Research Day a success, especially the students who have participated, their faculty sponsors, Mrs. Virginia Simon and biomedical communications, Assistant Dean Betsy Winters and Ms. Nancy Dometios in the office of student research.

Dr. Robert H. Gifford
Associate dean for education and student affairs

Abstracts

Identification for RNA splicing errors resulting in human ornithine transcarbamylase deficiency

Russ P. Carstens

Faculty advisor: Leon E. Rosenberg, M.D., the C.N.H. Long Professor of Human Genetics, Medicine and Pediatrics

Ornithine transcarbamylase (OTC) is an X-linked, liver specific enzyme which catalyzes the second step of the urea cycle. In humans, inherited deficiency of OTC in hemizygous affected males usually results in severe ammonia intoxication and early death. In order to characterize mutations responsible for OTC deficiency, we used the polymerase chain reaction to amplify cDNAs prepared from patient livers, obtained at autopsy, which demonstrated no OTC enzyme activity. Of 11 livers tested, it was possible to produce amplifiable cDNA from seven. In three of these seven cases, smaller than normal products were observed. Sequencing of the cDNAs revealed that two were missing exon 7 of the OTC gene and that the other was missing the first 12 base pairs of exon 5. Sequencing of genomic DNA from these patients revealed

that one mutant missing exon 7 had a point mutation causing a T to C substitution in the 5' splice donor site of intron 7. The other mutant missing exon 7 had an A to G change in the third position of intron 7. Interestingly, both of these mutations resulted in skipping the preceeding exon, rather than inclusion of some or all of the affected intron 4. Here, the cryptic splice acceptor site within exon 5 was used. Although each of the deletions was in frame, Western blotting of liver homogenates from these patients with anti-OTC antiserum showed no immunoreactive material. Northern blotting of liver RNA from these patients demonstrated reduced but significant amounts of OTC mRNA in one of the patients with a deleted exon, but dramatic reduction in OTC mRNA in the other two. We propose that these point mutations, which result in aberrant splicing of the OTC pre-mRNAs, lead to OTC deficiency through either decreased efficiency of mRNA export from the nucleus to the cytosol or synthesis of enzyme subunits that are unstable and rapidly degraded. These are the first examples of human OTC deficiency resulting from mutations that cause production of abnormally spliced mRNAs and may represent a common mechanism involved in the pathogenesis of this disease.

Dean Leon E. Rosenberg congratulates those who made oral thesis presentations: (from left) Sanjoy Sundareshan, Russ P. Carstens, Mark A. Dettelbach, Guy M. McKhann and Beverly J. Stoute.



Intraperitoneal delivery of free fatty acids induces severe hypocalcemia in rats; a model for hypocalcemia of pancreatitis

Mark Dettelbach

Faculty advisor: Andrew F. Stewart, M.D., associate professor of medicine

Hypocalcemia is a regular feature of severe pancreatitis. Indirect evidence suggests a causative role for intraperitoneal free fatty acids generated by the action of pancreatic lipase on peritoneal and retroperitoneal fat. We therefore examined the effects of direct intraperitoneal injections of free fatty acids on serum calcium in rats. Four free fatty acids were selected based on their natural abundance in animal fat. Two saturated free fatty acids, stearate and palmitate, induced little or no hypocalcemia. In contrast, the two unsaturated free fatty acids, oleate and linoleate, which together account for the majority of free fatty acids in animal fat, caused dramatic hypocalcemia in treated versus control rats (6.3 ± 1.4 and 5.3 ± 0.7 mg/dl, respectively, versus 10.1 ± 0.5). Dose-response studies demonstrated that even minute quantities of oleate (300 and 100 μ per 250 gm rat) caused marked hypocalcemia (7.2 ± 0.8 and 7.2 ± 0.3 mg/dl, respectively). Studies of treated versus control rats also revealed a decrease in ionized calcium (3.15 ± 0.2 versus 5.6 ± 0.05 , $p < .001$) and magnesium (1.4 ± 0.15 versus 2.0 ± 0.10 , $p < .001$), an appropriate increase in PTH levels (1670 ± 451 versus 296 ± 142 pg/dl, $p < .001$), and a fall in calcitonin levels (70.4 ± 16.4 pg/ml, $p < .002$) but no change in albumin or phosphate levels. *In vitro*, the Ksp of calcium dioleate was shown to be 5.3×10^{-8} M $3/L$ 3; thus at physiologic levels of calcium and free fatty acid, 100 μ of oleate binds 7.2 mg of calcium, or approximately twice the total ECF ionized calcium in the rat.

Amounts of intraperitoneal free fatty acids which can easily be achieved in pancreatitis find pathophysiologically significant amounts of calcium and can lead to severe hypocalcemia. This model strongly suggests a role for free fatty acids in the etiology of pancreatitis-associated hypocalcemia.

Neurochemical changes in the hippocampus in human temporal lobe epilepsy

Sanjoy Sundaresan

Faculty advisor: Nahal DeLenerolle, D.Phil., associate professor of surgery (neurosurgery)

Medically intractable temporal lobe epilepsy (TLE) is commonly treated surgically by antero-medical temporal lobectomy, which includes removal of the hippocampus. In patients with temporal lobe epilepsy of unknown etiology (CTLE), such surgery results in seizure control, implying the presence of a seizure focus within this tissue. The hippocampi from such patients; from patients with TLE resulting from a lesion (TTLE); and from autopsy controls were examined by autoradiographic techniques for the localization of receptors (glutamate, GABA A, adenosine A1, muscarinic, NPY, opiate); second messengers (adenylate cyclase, protein kinase C); and sodium-potassium ATPase. The distribution of the opioid peptide dynorphin was studied by immunocytochemistry and *in situ* hybridization. These studies show that TTLE hippocampi are similar to those of autopsy controls. The CTLE hippocampi displayed changes in the above substances which are consistent with mechanisms that may increase the excitability of hippocampal principal neurons. The pattern of distribution of glutamate receptor subtypes provides insight as to the selective vulnerability of neurons in the hippocampus due to excitotoxic injury: CA1 and CA4 neurons which show upregulation of NMDA and QA receptors are in areas most affected, while granule cells which do not show these changes are least affected. The development of a seizure focus and hippocampal injury in epilepsy thus seems to be related to cellular and biochemical reorganization of the hippocampus.



Robin Hornung's research into AIDS prevalence among pregnant women and their children in Tanzania attracted the attention of Dr. Anthony S. Fauci, who delivered the third annual Lee E. Farr, M.D., Lecture. Dr. Fauci is director of the National Institute of Allergy and Infectious Diseases.

Russ Carstens and Beverly Stoute share a lighter moment with Dr. Farr, '33, and his wife Miriam.



Effect of low temperature on the trafficking of 215 kD mannose-6-phosphate/IGF-11 receptors in rat clone 9 hepatocytes

Beverly J. Stoute

Faculty advisor: Marilyn Farquhar, Ph.D., Sterling Professor of Cell Biology and Pathology

Reduction in temperature has been used extensively as a tool for disrupting membrane and intracellular protein traffic at defined stations along both the endocytic and exocytic pathways. In the present study, the effect of low temperature on the intracellular trafficking of mannose-6-phosphate (Man6P) receptors in rat Clone 9 hepatocytes was investigated using indirect immunofluorescence (IF) and immunoperoxidase (IP) localization of receptors at the electron microscopic level. Clone 9 hepatocytes were treated with ammonium chloride (NH₄Cl) or chloroquine for 1 hour, 2 hours, and 3 hours at 37°C and at 20°C to follow receptors as they became progressively trapped in endosomes. The percentage of cells with "Golgi," "Mixed Endosomal-Golgi," and pure "Endosomal" immunofluorescence signals was determined at each time point. The presence of immunodetectable Man6P receptor in each intracellular locale at the IF level was confirmed by diaminobenzidine localization at the electron microscopic level. To follow receptors as they recycled back to the Golgi complex, Clone 9 hepatocytes were first treated with NH₄Cl or chloroquine for 3.5 hours at 37°C to trap receptors in endosomes, then incubated in weak base-free media at 37°C and at 20°C to allow receptors to travel back to the Golgi complex. Results reported in this study demonstrate that the trafficking of Man6P receptors from the Golgi complex (receptor sorting site) to endosomes (receptor delivery site) proceeds at a slower rate, but is not disrupted at 20°C. The results obtained using NH₄Cl and chloroquine are identical except that the recycling of Man6P receptors back to the Golgi complex after chloroquine removal is slower than recycling after NH₄Cl removal. We conclude that movement of intracellular Man6P receptors from the Golgi complex to endosomes and recycling from endosomes back to the Golgi complex proceeds at 20°C, indicating that Man6P receptor traffic is not sensitive at this temperature.

Isolation and characterization of human T-cell lymphotropic virus type-1 from patients with tropical spastic paraparesis

Guy M. McKhann II

Faculty advisor: Gueh-Djen Edith Hsiung, Ph.D., professor emeritus of laboratory medicine

Endemic tropical spastic paraparesis/HTLV-1 associated myelopathy (TSP/HAM) is a slowly progressive chronic neurological disorder that is manifested clinically by spastic paraparesis frequently in association with bowel and bladder dysfunction. It is one of the most common chronic neurologic disorders in many endemic foci around the world. Human T-lymphotropic virus type 1 (HTLV-1) has been etiologically associated with TSP/HAM based primarily on the high prevalence of antibodies to HTLV-1 in the serum and CSF of affected patients. We report here the isolation of HTLV-1 from peripheral blood lymphocytes and cerebrospinal fluid derived mononuclear cells of TSP/HAM patients by stimulation with interleukin-2 and cocultivation with umbilical cord blood mononuclear cells. Established cell lines contained HTLV-1 antigen as demonstrated by immunofluorescence and cell-associated virus particles as observed by electron microscopy; low-level reverse transcriptase activity was detected in cultures expressing viral antigens. Virus infected cultures were transformed *in vitro* as determined by their loss of contact inhibition and their continuous growth in the absence of exogenous IL-2. Of particular significance was our isolation of HTLV-1 from three family members with TSP/HAM of varying duration and clinical severity.

This study resulted in the first isolation of virus from a cluster of TSP/HAM patients within the same family, the first isolation of virus from a childhood case of TSP/HAM, and the first *in vitro* transformed HTLV-1-infected cells from TSP/HAM patients. In addition, the methodology applied in this investigation subsequently has been used to consistently isolate virus from HTLV-1 infected persons from widely separated geographic locations. This work supports a causative role from HTLV-1 in the pathogenesis of TSP/HAM and helps to extend the spectrum of disease that may result from HTLV-1 infection.

GALLERY

"Portrait of Bernardino Ramazzini" by Johann Georg Seilla

Bernardino Ramazzini (1633-1714) was born in Carpi, a town in north central Italy a few miles north of Modena. He studied both medicine and law at Parma and received his doctorate in medicine in 1659.

In 1700, Ramazzini's work entitled *De morbis artificum diatriba* was published; five years later, the Latin work was translated into English (although not adequately until 1940) as *Diseases of Tradesmen*. This was the first treatise to address comprehensively the infirmities provoked by the hazards of one's livelihood, that is, occupational health.

Ramazzini deals with a variety of trades people, such as miners of metals, wet-nurses, corpse-bearers and fishermen. He also offers advice for workers who stand, sedentary workers and those who strain their eyes over fine work. A dissertation on "Diseases of Learned Men" is included as well, lest it be thought that only those involved with physical labor were subject to health hazards.

Ramazzini discusses occupational health and hygiene in a practical yet poetic manner, combining quotations from classical verse with his own erudite prose. In the 1713 supplement, which augments the original edition by 12 entries, Ramazzini muses on the nature of weaving:

How useful or rather how necessary is the weaver's art we can decide from the fact that every living soul covers his nakedness with some sort of woven stuff. Nor should we grumble at Nature for having bestowed plumage on birds and on every animal a hairy covering, while man alone she has left naked. For man has inventive talents and hands with which to weave for himself many different kinds of clothing, not merely as a covering but also to adorn and beautify himself.



Yale Medical Historical Library

This benevolent portrait of Ramazzini appears in his posthumous *Opera Omnia* (Geneva, 1717) as the frontispiece. The print is a copper plate engraving with its characteristic sharply cut lines, which is the most common form of book illustration at the time. Johann Georg Seiller of Schaffhausen was a painter and engraver primarily of portraits, including one in 1705, of Joseph I, Emperor of the Holy Roman Empire, and another with the tantalizing title, "A monk attempting to kiss a girl."

Janice Braum
Medical Historical Library



Joining in Yale-New Haven Hospital's groundbreaking (from left): Deputy Dean Donald M. Donaldson; Dr. Gary Friedlaender, chairman and chief, orthopaedics and rehabilitation; Dr. Paul G. Barash, chairman and chief, anesthesiology; M. Patricia Gibbons, R.N., YNHH's vice president of nursing; and Dr. Joseph Warshaw, chairman and chief, pediatrics.

YNHH Breaks Ground For New Building

After months of preparations, on Sept. 26, Yale-New Haven Hospital (YNHH) broke ground for an 11-story building — which includes a children's hospital — and the renovation of its Memorial Unit. In August, YNHH received approval from the state Commission on Hospitals and Health Care (CHHC) for the construction, which is scheduled for completion in 1993.

Key points of the facilities renewal project include: construction of the new patient care building with all private rooms; renovation of the Memorial Unit and elimination of three- and four-bed rooms; expansion of emergency room, operating room, diagnostic imaging and radiation therapy facilities.

The CHHC granted a bed increase of 25, bringing the hospital's licensed bed capacity up to 900; this will allow YNHH to increase its number of beds and bassinets by 68. The total capital

expenditure approved was \$153 million for 445,000 square feet of new construction and 300,000 square feet of renovation.

In anticipation of the YNHH building project, the nursing school has moved into temporary quarters in the Grace Building. The University has commissioned the New York architectural firm of Williams and Tsien to design and oversee the construction of a new School of Nursing on the medical center campus.

Maternal HIV Transmission Less than 20 Percent

More than 80 percent of babies born to women infected with the AIDS virus are free from infection and symptoms three years after birth, according to a study by School of Medicine researchers.

Dr. Warren A. Andiman, associate professor of pediatrics and epidemiology and medical director of the AIDS

Care Program at Yale-New Haven Hospital (YNHH), directed the study which examined 116 babies born to women infected with the Human Immunodeficiency Virus, or HIV, the virus responsible for AIDS. The researchers reported their results in the July issue of the *American Journal of Diseases of Children*.

Since babies acquire antibodies to many diseases from their mothers, infants of HIV-infected mothers will test positive for HIV antibodies at birth, says Dr. Andiman. But most infants lose their HIV antibodies after birth and will not exhibit signs of infection during the first years of life. Other studies have estimated the materno-fetal transmission rate at 24 to 33 percent.

Co-authors of the article are B. Joyce Simpson, R.N., YNHH; Betty Olson, A.A.S., research associate, Yale; Dr. Laura Dember, '88, the Hospital of the University of Pennsylvania; Dr. Thomas J. Silva, '90, Children's Hospital, Boston; and Dr. George Miller, the John F. Enders Professor of Pediatrics and professor of epidemiology and of molecular biophysics and biochemistry. Dr. Miller is also chief of the section of pediatric infectious diseases at YNHH.

Secondhand Smoke Puts Youth at Risk

Nearly 17 percent of lung cancer deaths among nonsmokers can be traced to secondhand cigarette smoke they inhaled as children or adolescents from their smoking parents. A Yale research team led by Dr. Dwight T. Janerich, professor of epidemiology and in the Cancer Center, reported the findings in the Sept. 5 edition of the *New England Journal of Medicine*.

The study involved almost 400 people throughout upstate New York. It found that the risk of lung cancer was double that of other nonsmokers. If these figures are confirmed, annually 1,700 deaths in the United States are caused by childhood exposure to other people's cigarette smoke.

Researchers Join National Infant Study

The School of Medicine, Yale-New Haven Hospital (YNHH) and Quinnipiac College collaborated with researchers at seven other sites across the country in the Infant Health and Development Program, a national study of whether intervention programs improve the development of premature, low-birth-weight infants.

David T. Scott, Ph.D., an associate professor of pediatrics and a developmental psychologist at YNHH directed the New Haven segment of the study. Results for the national study, which involved more than 1,000 infants, were reported in the June 13 issue of the *Journal of the American Medical Association*.

The New Haven researchers studied 126 premature babies, most from New Haven County. The babies, weighing 5.5 pounds or less, were born at YNHH in 1984 and 1985, and were cared for at the Newborn Special Care Unit.

"All of the children in the trials received high quality follow-up services that included physical examinations, developmental evaluations and referral services," notes Dr. Scott.

Researchers randomly chose which babies would receive extra services, including weekly home visits during their first three years of life. During their second and third years, these children also attended a special child development program for premature babies run by the Quinnipiac College Day-Care Center.

Evaluations at age three showed significant IQ score improvements for children who received the extra educational services. In a second phase of the study, researchers are tracking the children's progress after completing the special intervention program.

Boys Often Mistaken For Reading Disabled

The "snips and snails and puppy dog tails" little boys are made of may result in their teachers misclassifying them as reading disabled, as revealed by a study led by Dr. Sally E. Shaywitz, associate professor of pediatrics and in the Child Study Center.

"In general, teachers rate boys as significantly more active, more

inattentive and less dextrous and as having more problems in behavior, language and academics than their female peers," reports Dr. Shaywitz and colleagues in the August 22 *Journal of the American Medical Association*. Yet, despite teacher reports of difficulties in the classroom, the researchers' measures of the overall ability and achievement of boys turned out to be comparable to that of girls.

The authors studied reading levels in 445 children from six geographic regions in Connecticut. The 235 girls and 210 boys were followed from kindergarten through the third grade.

Co-authors on the study include: Bennett A. Shaywitz, M.D., professor of pediatrics, neurology and in the Child Study Center; Jack M. Fletcher, Ph.D., department of pediatrics, the University of Texas, and Michael D. Escobar, Ph.D., associate research scientist in public health (biostatistics).

Foundation Funds Sexual Abuse Program

The New Haven Foundation has awarded a \$54,000 grant to the department of pediatrics to expand its Sexual Abuse Evaluation Program and enhance the program's affiliations with local organizations concerned with children at risk. "We want to make sure that a child with a complicated case doesn't get lost between the cracks in the system," says Dr. John M. Leventhal, medical director of the program and associate professor of pediatrics. "The grant will enable us to follow through more thoroughly with such cases."

The funding also will help establish outreach with hard-to-contact families in which children have been suspected of being sexually abused and with sexually abused children who are more comfortable talking about their situation in their own home.

Julia P. Hamilton, M.S.W., the program's co-director, adds, "We also hope to start a one-day training program for members of the state Department of Children and Youth Services, along with members of community and health care agencies, to better educate them about the problem of sexual abuse." Ms. Hamilton also is chief social worker for ambulatory care at Yale-New Haven Hospital and assistant clinical professor of pediatrics.

The program began in 1985 in response to a dramatic increase in reports of sexual abuse among children. Dr. Leventhal reports: "We see between 180 and 200 children per year suspected of being sexually abused, with an average age of 7."

The program is a collaborative effort of the School of Medicine's department of pediatrics, the YNHH department of social work, the School of Nursing Pediatric Nurse Practitioner Program and YNHH Primary Care Center. The evaluation team includes a medical director, co-director, two nurse practitioners and two social workers.

Gene Mutation Linked To SIDS Symptoms

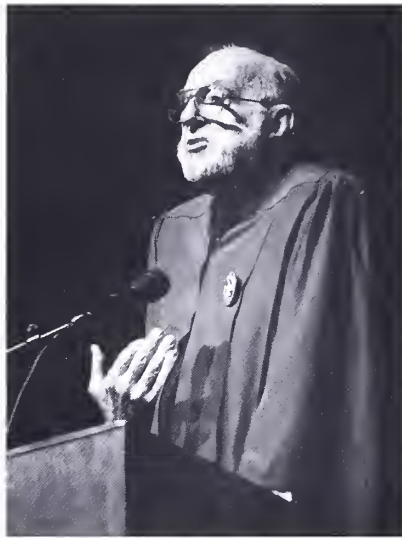
An enzyme deficiency that sometimes masquerades as sudden infant death syndrome (SIDS) can be traced to a single genetic mutation in most cases, paving the way for genetic screening for the disorder, report researchers at Yale and the University of Pennsylvania.

The disorder results from a deficiency of the enzyme MCAD, or medium chain acyl-CoA dehydrogenase. MCAD helps the body use its stored fat to generate energy. People who lack a normally functioning MCAD gene have a problem breaking down fatty acids and are susceptible to sudden drops in blood glucose levels, leading to lethargy, vomiting and coma.

Babies and children who lack the enzyme can suddenly lapse into a coma and die, says Dr. Kay Tanaka, professor of human genetics at Yale. Since such symptoms occur in SIDS, researchers think some babies who apparently died of SIDS probably had MCAD deficiency, he adds.

The disease appears to be most common among people of northern European descent. Studies done in England have estimated that as many as one in 100 people carry the gene, meaning that approximately one in 10,000 people will have the disorder.

Dr. Tanaka, Paul M. Coates, Ph.D., professor of pediatrics at the University of Pennsylvania and a researcher at the Children's Hospital of Philadelphia, and their colleagues report in the September issue of the *Journal of Clinical Investigation* that MCAD deficiency is apparently due to a single genetic mutation in 8 out of 9 cases.



In his commencement address to the EPH Class of 1990, Dr. Benjamin Spock said, "The major problems facing our children today include over-competitiveness; physical punishment; violence on television.... The problems are a lack of daycare and the need for more inspiring schools." He added, "There's no reason why we in the United States shouldn't have a good health care system. . . . It's horrible, it's indecent, it's immoral that people by the hundreds of thousands are wandering the streets without any place to live in the richest country the world has ever known, even as trillions of dollars are being wasted adding to our nuclear arsenal despite the improvement in our relationship with the Soviet Union."

Protein May Lead To Diabetes Test

A protein that plays a key role in the development of insulin-dependent diabetes has been identified by a team of researchers from Yale and University of California at San Francisco (UCSF) medical schools. The finding could lead to a test to screen for people likely to develop insulin-dependent, or Type I, diabetes mellitus. Often called juvenile-onset diabetes, it is the most severe form of diabetes, afflicting nearly a million Americans who come to require daily insulin injections.

The discovery may make it possible to diagnose those prone to developing Type I diabetes as early as eight years before symptoms appear, and could lead to preventive therapy. The researchers report their findings in the Sept. 13 issue of *Nature*.

Pietro De Camilli, M.D., associate professor of cell biology at Yale, Steinunn Baekkeskov, Ph.D., assistant professor of microbiology/immunology and medicine at UCSF, and their colleagues established that the enzyme glutamic acid decarboxylase (GAD), is the protein that stimulates the production of antibodies in the blood of many people who eventually

develop diabetes — often years before symptoms appear. These antibodies were first discovered in diabetics eight years ago, but the identity of the protein that stimulated them remained a mystery. GAD is found in insulin-secreting cells of the pancreas and in many neurons.

Medical Education Project to Begin

Yale University is one of 12 U.S. medical schools selected to participate in the Robert Wood Johnson Foundation's major initiative to reform medical education. The foundation's planning grant of up to \$150,000 will enable the school to "chart a strategy for adapting its educational programs to prepare students to become physicians able to serve the health care needs of both the individual and the public."

Medical school Dean Leon E. Rosenberg comments: "These national foundation funds will help support the school's efforts to review our curriculum and to implement recommendations made in 1988 by a special task force that evaluated our curriculum. Since then, we have been moving in directions parallel to the foundation's initiative."

A year ago, Dean Rosenberg appointed Dr. Emile L. Boulpaep, former chairman of the cellular and molecular physiology department, as the first chairman of a 12-member Educational Policy and Curriculum Committee to carry out its broad mandate to change, integrate or manage the curriculum to adapt it to emerging needs.

Three main program areas that complement the foundation's objectives were identified. They include:

- Finding new sites for clinical education, especially ambulatory, out-patient care settings such as health maintenance organizations. These settings reflect current shifts in the modes of delivering health care services.
- Better integrating the teaching of basic sciences into clinical medicine programs, taking a physiological system- or disease-related approach. In addition, the school will encourage integrated programs between medical students and other health professional students through new curriculum initiatives, including shared teaching experiences.
- Centralizing educational policy and curriculum governance.

A cornerstone of the curriculum review is that the unique "Yale System" of medical education shall be preserved.

Cocaine Withdrawal Tied To Dopamine Metabolism

School of Medicine researchers report that the brain chemical responsible for cocaine's euphoria may also contribute to the intense craving addicts feel when they stop taking the drug.

A month-long study of six cocaine-addicted men, most of whom smoked freebase cocaine, revealed that after they stopped using the drug, their brains processed less dopamine, a neurotransmitter responsible for the cocaine high. That craving helps keep addicts locked in cocaine's potentially deadly embrace.

Researchers at the Clinical Neuroscience Research Unit of the Connecticut Mental Health Center noted that during their subjects' early withdrawal stage, the men exhibited increased dopamine metabolism, a development which normalized later in the study.

Dr. Christopher McDougale, a postdoctoral research fellow in psychiatry, presented his findings May 16 at the annual meeting of the American Psychiatric Association. Other authors include Drs. Lawrence H. Price, associate professor of psychiatry; Joseph Palumbo, formerly a postdoctoral fellow in psychiatry and now in private practice; Thomas R. Kosten, associate professor of psychiatry; and Herbert D. Kleber and George R. Heninger, both professors of psychiatry. Dr. Kleber is on leave from Yale to serve as deputy director for demand reduction for the Office of National Drug Control Policy.

Cocaine Prices Parallel Those of 1908 Epidemic

Legalizing drugs won't necessarily remove profits from drug trafficking, according to a comparison of cocaine pricing undertaken by a School of Medicine physician-historian.

Comparing prices to average wages, the current street price of cocaine is similar to or even lower than cocaine's price during an epidemic of drug abuse that erupted after the turn of the century. Then, cocaine was legally available in the U.S., explains Dr. David F. Musto, professor of psychiatry and the history of medicine. Dr. Musto compared the

price of cocaine during two periods of drug abuse: 1908 to 1914 and 1982 to 1989.

"In terms of buying power, the cost of illicit cocaine in the early and the recent eras studied was similar," notes Dr. Musto.

His findings, published in the June issue of *Connecticut Medicine*, seem to negate the argument that drug legalization would reduce the crime associated with drug sales by undercutting black market profits.

"Today's advocates of the legalization of cocaine may be surprised to find out that the United States was the only major Western nation to allow unlimited distribution, sale and promotion of narcotics during the 19th century," says Dr. Musto.

Anti-drug laws were passed in reaction to public experience with legal drugs, Dr. Musto adds.

Lyme Organism Present A Half-century Ago

Sophisticated genetic tests indicate that ticks carried the organism responsible for Lyme disease as long as 44 years ago, three decades before the disease was identified.

The finding suggests that Lyme disease could have appeared in the 1940s in eastern Long Island, where it may have been diagnosed as "Montauk knee" or "Montauk spider bite," says David Persing, M.D., Ph.D., who directed the study while a researcher at the School of Medicine.

Dr. Persing, now a staff clinical pathologist at the Mayo Foundation, and colleagues describe their research in the Sept. 21 issue of *Science*. Dr. Persing's Yale co-authors are Stephen E. Malawista, M.D., professor of medicine, and Paul N. Rys, a laboratory research scientist.

Lyme disease, named for the Connecticut town where it was first identified in 1975 by Yale rheumatologists including Dr. Malawista, is caused by a spiral-shaped bacterium, or spirochete, called *Borrelia burgdorferi*. It is transmitted by the tick *Ixodes dammini*. In their research, the scientists employed an advanced genetic procedure called polymerase chain reaction, or PCR. The PCR test permitted them to look for the Lyme organism in museum tick specimens, often dried or preserved in alcohol.

Traumatic Stress Causes Brain Chemistry Changes

Traumatic events may substantially alter the chemistry of the brain, sensitizing victims to adrenaline surges decades later. This may account for symptoms of post-traumatic stress disorder (PTSD) and panic disorder, say researchers at the Department of Veterans Affairs Medical Center in West Haven and at the School of Medicine. Dr. Dennis S. Charney, associate professor of psychiatry and director of the National Center for PTSD neuroscience division, presented the findings at a May 19 symposium at the annual meeting of the American Psychiatric Association in New York.

People with PTSD typically have endured severe trauma such as military combat, child abuse, rape, torture or a natural disaster. Years later PTSD sufferers can exhibit "fight or flight" reactions in the absence of real danger. Other symptoms include flashbacks of the traumatic event, jumpiness, irritability, disturbed sleep, depression or feelings of guilt.

Researchers at the National PTSD Center at West Haven have found that yohimbine — a drug commonly used to elevate blood pressure and treat impotence — triggers panic attacks and flashbacks in PTSD patients. On two occasions, the researchers administered either the drug or a placebo to 15 PTSD patients who are Vietnam veterans. Yohimbine induced panic attacks in 60 percent of the subjects and triggered flashbacks in about half of them. In earlier studies, the drug brought about panic attacks in about 60 percent of more than 100 patients with panic disorder.

Because yohimbine blocks the action of the alpha 2 receptor, a protein that stimulates the sympathetic nervous system, the results support the hypothesis that trauma may alter brain chemistry in PTSD patients, sensitizing them to adrenaline surges.

Dr. Charney's co-authors include Dr. Steven M. Southwick, director of PTSD programs at West Haven, and Dr. John H. Krystal, chief of the center's Laboratory of Clinical Psychopharmacology. Drs. Krystal and Southwick are assistant professors of psychiatry.

The West Haven center is the only U.S. institution devoted to studying the biology and psychopharmacology of PTSD.

Fetal Neural Cells Survive Transplantation

Cryopreserved fetal brain cells implanted into the brain of a human patient have survived transplantation, report members of the Yale University Neural Transplant Program in the Sept. 29 issue of *Lancet*.

Comments D. Eugene Redmond Jr., M.D., professor of psychiatry, "The grafted tissue demonstrated the capacity to survive, adapt, develop and mature in the adult human brain, as well as in the brains of monkeys. Grafts were recovered after the patient died of continuing complications of Parkinsonism which the team believes were unrelated to the transplant procedure.

"Although this patient did not appear to benefit from the graft, the team remains optimistic about the success of the procedure and looks forward to determining the outcome from a current study involving 20 patients," Dr. Redmond adds.

The clinical research procedure is based on fundamental scientific work and laboratory animal studies conducted for many years by School of Medicine biomedical scientists, in conjunction with colleagues at the University of Rochester. Private funds support this clinical research study.

Study Offers Clues To OCD Physiology

Researchers at the School of Medicine and at Brown University have found that fluvoxamine, an antidepressant, effectively relieves symptoms of obsessive compulsive disorder (OCD) in many patients. Besides providing doctors with another drug to treat OCD, the research findings, described in the June *Archives of General Psychiatry*, strongly suggest that serotonin, a brain chemical important in transmitting nerve impulses between nerve cells, plays a major role in the disorder.

Simple tasks often tyrannize people suffering from OCD. Some are obsessed with recurring and disturbing thoughts, ideas or images. Others feel compelled to perform repetitive tasks, such as washing their hands. Some



At a reception following the Yale physician associates' commencement on Aug. 28, graduates Jeffrey R. Smith and B. Sarah Schiefer converse with state Rep. Benjamin V. DeZinno Jr. Mr. DeZinno wrote a recently passed law allowing Connecticut P.A.s to write prescriptions, given a physician's approval within 24 hours.

people have both obsessions and compulsions. An estimated 1 to 3 percent of Americans will suffer from some form of OCD during their lifetime.

"Our findings indicate that only those antidepressants which possess the ability to inhibit the transport of serotonin into nerve terminals are also effective against OCD," says Dr. Goodman, assistant professor of psychiatry and director of the study. Serotonin is a multipurpose protein found in many places in the body, and is thought to be involved in controlling states of consciousness and mood.

Dr. Goodman also chairs the Scientific Advisory Board to the New Haven-based Obsessive Compulsive Foundation, Inc., an organization that he co-founded with an OCD patient.

Study co-authors from Yale include: Drs. Lawrence H. Price and Dennis S. Charney, associate professors of psychiatry; Pedro L. Delgado, John H. Krystal and Linda Nagy, all assistant professors of psychiatry; Joseph Palumbo, a former postdoctoral fellow at Yale; and George R. Heninger, professor of psychiatry. Co-author Steven A. Rasmussen is with the Brown University School of Medicine.



NEW BOOKS

Diagnostic Dysmorphology, by Dr. Jon M. Aase '62. Plenum Publishing (New York) 1990.

Spinal Cord Compression: Diagnosis and Principles of Management, by Drs. Thomas N. Byrne, associate clinical professor of neurology, and Stephen G. Waxman, professor and chairman of neurology. F.A. Davis Co. (Philadelphia) 1990.

Scientific Foundations of Sports Medicine, ed. by Dr. Carol C. Teitz, '74. B.C. Decker (Toronto) 1989.

HARVEY CUSHING/JOHN HAY WHITNEY MEDICAL LIBRARY



(Left) A new information room is included in 35,000 square feet of additional medical library space. This augments the previously available 50,000 square feet, much of which was renovated. Total cost of the project: \$10 million.

(Right) At the dedication ceremony held on June 7, Yale President Benno C. Schmidt Jr. presents a framed architectural rendering of the medical library addition to Betsey Cushing Whitney as daughter Kate Whitney looks on. Mrs. Whitney and her family donated \$8 million to the project. As a tribute to their generosity, the medical library has been renamed to honor two illustrious Yale College graduates, Mrs. Whitney's father, Dr. Harvey Cushing, 1891, and her husband, the late John Hay Whitney, 1926.



1B

(1) Daylight streams into the information
 Architect Alexander Purves, associate
 sor of architectural design at Yale,
 ired the renovated and expanded areas with
 Dehar Associates of New Haven.



(Left) Students prepare for classes in one of the
 library's new study areas. Also included in the
 expanded space is a computer system which
 connects to the University's fiber optics computer
 network and which makes available more than
 400 electronic databases.

(Right) Renovation of the periodical room was
 made possible by a \$1 million gift by Mrs. Belle
 Morse. The space was renamed the Morse
 Periodical Room to honor the memory of Mrs.
 Morse's husband, Stephen I. Morse, a 1925
 Sheffield Scientific School graduate, and her son,
 Stephen I. Morse, '51 M.D., Ph.D.



FACULTY NEWS

Dr. Stephen Aryian, professor of surgery, was recognized with a Distinguished Service Award from the Society of Head and Neck Surgeons for his outstanding contributions to the educational activities of the society.

Mark D. Biggin, Ph.D., assistant professor of molecular biophysics and biochemistry, was named a Pew Scholar in the Biomedical Sciences by the Pew Charitable Trusts of Philadelphia. He will receive a \$200,000 award during the next four years to help support his research on determining how proteins control the complex patterns of gene expression in an organism.

Dr. Arthur E. Broadus, professor of medicine and head of the division of endocrinology, was awarded the annual Frederic C. Barter Award from the American Society for Bone and Mineral Research. The international award recognizes Dr. Broadus' leading work on disorders associated with hypercalcemia, abnormally high levels of blood calcium.

Dr. Lawrence S. Cohen, the Ebenezer K. Hunt Professor of Medicine, is president-elect of the Association of University Cardiologists. He will assume the presidency of the national organization in January 1991.

Dr. Michael L. Dewar, assistant professor of cardiothoracic surgery, and **Dr. John A. Eleftheriades**, associate professor of surgery, have received a \$16,900 grant from the American Heart Association, Connecticut affiliate, to support an experimental surgery project that uses skeletal muscle in an attempt to assist a failing heart.

Dr. Rocko M. Fasanella, associate clinical professor of ophthalmology and visual science, received an honorary degree from Sacred Heart University for his research into eye surgery and his pioneering Fasanella-Servat Operation, which corrects drooping eyelids.

Gene R. Gindi, Ph.D., associate professor of diagnostic radiology, has been awarded a 3-year, \$335,000 grant from the Air Force Office of Scientific Research for basic research in the application of neural networks to image processing and analysis.



The 1990 Francis Gilman Blake Award for the most outstanding teacher in the medical arts was shared by G. Morris Dillard, M.D., Ph.D., associate professor of medicine (left), and Peter A. Granum, M.B.B.S., associate professor of obstetrics and gynecology.

Susan Hockfield, Ph.D., associate professor of neuroanatomy, has been named by Yale President Benno C. Schmidt Jr. to the University-wide faculty committee instituted to monitor the University's affirmative action efforts concerning faculty recruitment and retention of women, members of minority groups and handicapped persons.

Dr. Dorothy M. Horstmann, the John R. Paul Professor Emeritus of Epidemiology and Pediatrics and senior research scientist, received the 1990 Alumnus of the Year Award for outstanding achievement from the Alumni-Faculty Association of the University of California San Francisco School of Medicine.

Dr. Robert A. King, assistant professor in the Child Study Center, was the first recipient of the B'nai B'rith Women's National Scholars Award for his contributions toward advances in children's emotional health. He received the award in April during a special session of the organization's biannual convention.

Dr. Michael Lerner, associate professor of internal medicine, was awarded the Burroughs Wellcome Fund's 1990 George Herbert Hitchings Award for Innovative Methods in Drug Design for his research endeavors to harness the chemical reactions that enable frogs to change from green to brown. The \$300,000 gift will support Dr. Lerner's studies for five years, which he hopes will lead to a way for drug developers to rapidly screen experimental drugs for their potential efficacy.

Drs. Robert A. Levine and Stephen C. Wardlaw, both clinical professors of laboratory medicine, received the "R & D 100" award, recognizing their design of the QBC Malaria Test as one of the most significant technical products of the past year. The QBC Malaria Test, which represents the most advanced malaria diagnostic method, was a joint effort with Becton Dickinson Tropical Disease Diagnostics. Also recognized was **Dr. R. Rodion Rathbone**, director of biomedical instrumentation and assistant clinical professor of laboratory medicine, for the development of the light beam-splitting microscope adapter.

Dr. Richard A. Matthay, professor of medicine, has been elected chairman of the Medical School Council for a two-year term beginning Sept. 1, 1990.

Dr. Leonard M. Milstone, associate professor of dermatology, was the Dozor Visiting Professor at the Ben Gurion University Medical School in Beer Sheva, Israel, during the month of June.

Dr. Eva-Pia Reich, associate research scientist in immunobiology, received the Juvenile Diabetes Foundation International Career Development Award and the Greenwall Foundation Award for her research on insulin-dependent diabetes mellitus.

Judith S. Rodin, Ph.D., chairman and the Philip R. Allen Professor of Psychology, and **Thomas A. Steitz**, Ph.D., professor of molecular biophysics and biochemistry, have been elected fellows of the American

Academy of Arts and Sciences. Professor Rodin is chairman of the John D. and Catherine T. MacArthur Foundation Research Network on Health-Promoting and Health-Damaging Behavior. Professor Steitz's research involves the use of X-ray crystallography to determine the three-dimensional molecular structure of proteins and nucleic acids.



Dr. Eva-Pia Reich

Dr. John M. Sedivy, assistant professor of molecular biophysics and biochemistry, received a Presidential Young Investigator Award from the National Science Foundation to support his research on the normal functions of genes that control cell growth and development. He studies ways to halt mutant cancer genes without upsetting normal body function.

Dr. Robert E. Shope, professor of epidemiology, has been appointed chairman of the steering committee of Dengue and Japanese Encephalitis Vaccine Development of the World Health Organization "Programme for Vaccine Development and Transdisease Vaccinology."

Dr. Norman J. Siegel, professor of pediatrics and medicine and director of pediatric nephrology, was appointed in April to the National Board of Medical Examiners Part II Pediatrics Test Committee.

Dr. Stephanie S. Spangler, assistant clinical professor of obstetrics and gynecology, has been named director of the University Health Services Center (UHSC). The five-year appointment, announced by Yale

President Benno C. Schmidt in May, took effect July 1. Dr. Spangler had been serving as acting medical director of UHSC since 1989.

Dr. John S. Strauss, professor of psychiatry, participated in Clark University's conference entitled "What is Schizophrenia?" The conference, held in Worcester, Mass., brought together scholars and clinicians from all over the world to discuss questions relating to the identification and treatment of the debilitating mental illness.

Dr. Joseph B. Warshaw, chairman and professor of pediatrics, has been elected to the Institute of Medicine. Dr. Warshaw's research has led to a better understanding of normal fetal development, how babies adapt biologically to life after birth and other problems newborns have in an intensive care unit. He has also been a leading proponent for the development of a children's hospital at Yale-New Haven Hospital.

In November 1991, **Dr. Barry L. Zaret**, the Robert W. Berliner Professor of Medicine and Diagnostic Radiology, will assume the presidency of the newly formed Association of Professors of Cardiology. The organization of directors comprises cardiology sections at U.S. medical schools.

Several faculty members have been named fellows of the American Association for the Advancement of Science: **Lawrence B. Cohen**, Ph.D., professor of cellular and molecular biology; **Michael Davis**, Ph.D., professor of psychiatry and psychology; **Alan C. Sartorelli**, Ph.D., director of the Comprehensive Cancer Center and the Alfred Gilman Professor of Pharmacology; and **Dieter Gerhard Soll**, Ph.D., professor of molecular biophysics and biochemistry.

Five members of the School of Medicine have been designated "Emeritus" by the Yale Corporation: **Franklin Hutchinson**, Ph.D., professor of molecular biophysics and biochemistry; **William H. Prusoff**, Ph.D., professor of pharmacology; **Morton F. Reiser**, M.D., the Albert E. Kent Professor of Psychiatry; **Daniel S. Rowe**, M.D., professor of pediatrics and public health; and **Albert J. Solnit**, M.D., Sterling Professor in the Child Study Center, Pediatrics and Psychiatry.

ALUMNI REPORT

My association with the School of Medicine began when I enrolled as a freshman in 1950. My classmates and I were enthusiastic but concerned about what was ahead of us. Our journey through medical school was guided by a superb faculty who taught us to be caring physicians in the broadest sense of the term. My training sustained me through my years of clinical practice in urology.

Now, 40 years later, I am once again a freshman of sorts. I am honored to accept this appointment as director of alumni affairs and eager to represent the alumni/ae of our school. My new journey will be guided by Nick Spinelli, who has given new life to alumni affairs with his enthusiasm and perception. He will be a hard act to follow but has agreed to serve as a consultant for as long as necessary.

Physically, the medical center has changed dramatically from the time I was a student. The Memorial Unit has been expanded to include the sites of the former church, convent and the Howard Avenue dormitories. Plans call for a new children's hospital to replace the old St. John's parochial school, which later housed the School of Nursing. The old dental building has been converted into lecture halls with direct access to the anatomy wing and renamed the Jane Ellen Hope Building. The driveway at the Howard Avenue entrance to the New Haven unit was removed to expand the hospital to the sidewalk on Howard Avenue, and the Yale Physicians Building replaced part of the parking lot and residents' housing across the street.

The new Yale Psychiatric Institute now operates across from the Hope Building, and our new Center for Molecular Medicine on College Street and Congress Avenue is nearing completion. This beautiful facility is architecturally striking and will contribute profoundly to the medical school research mission. The library too has undergone a major renovation; the Harvey Cushing/John Hay Whitney Medical Library offers much expanded stacks, exciting new computer capabilities and other improvements without having altered the beauty of the reading room or the reference

Remarkable progress has occurred since many of us left New Haven. But with all the change, the sense of continuity remains. The students I have met are intelligent, eager and appear happy. The Yale System — including the thesis requirement — remains in place and is endorsed by the students and faculty. A major concern is the current cost of attending medical school and the severe debt burden a large percentage of the students must assume. It is hoped that we can find means to support these future Yale graduates with increasing alumni support. The students are very much part of the medical school family and continue to represent our legacy.

Alumni Weekend in June was once again well planned and executed. Stephen C. Joseph, M.D. '63, M.P.H., was the keynote speaker and presented an excellent address titled "Public Health and Public Policy in the Age of AIDS." Dr. Joseph also participated in a symposium moderated by William L. Kissick, M.D. '57, M.P.H. '59, Dr.P.H. '61, which discussed the weekend's theme, the "Ethos of Public Health: A Challenge for Medicine in the Twenty-First Century." Susan Addiss, M.P.H. '69, and Lawrence Crowley, M.D. '44, added significantly to the panel.

Dr. Thomas Kugelman, '60, president of the Association of Yale Alumni in Medicine (AYAM), presided at the annual meeting. A plaque for record alumni giving to the medical school campaign was accepted on behalf of alumni donors by Dr. John Ogilvie, '34, chairman, Medical School Alumni Campaign. A special presentation to Jack was made by Dean Leon E. Rosenberg. The AYAM by-laws amendments were approved. Nominees for the AYAM executive committee for 1990 included Drs. Sanford G. Bluestein, '46, (renominated for a second term); Bennett L. Blitzer, '73; Harold D. Bornstein, '53; Michael Kashgarian, '58; Forrester A. Lee, '79; and William A. Whalen Jr., '53.

Class reunion seminars were again well attended and provocative. The Class of 1965 discussion, "Twenty-Five Years Later: Yale and Beyond," was chaired and moderated by Dr. John Seashore; the Class of 1960 presented "Medicine in the Public Arena,"

moderated by Dr. Jerrold R. Post. The Class of 1945 appointed Dr. Richard Breck to lead a discussion of "Wine, Women and War." Class dinners arranged by individual classes offered the opportunity to renew old friendships, reminisce about old times and plan for future meetings. A dinner at the Graduates Club honoring the Classes of 1940, 1935 and 1985 climaxed a busy and stimulating weekend.

Dr. Kugelman will continue to serve as president of our alumni association. He has been an active and assertive leader of our executive committee. It will be a privilege to work with him.

Students and residency candidates have been welcomed and hosted by alumni during their out-of-state interviews. We keep a 'host' list of those of you who can help. Let us know if you are available. We will continue to support Dr. Leonard Kemler, alumni fund chairman, and Dr. Samuel Kushlan, co-chairman, bequests and endowments, in their efforts. Student loan funds must be increased to encourage a continuing active alumni association.

The office of alumni affairs represents all Yale medical school alumni. We welcome your suggestions, concurrence and criticism. Please communicate your ideas to us, especially regarding alumni weekend, regarding both format and scheduling. While our office is based in New Haven, we hope to involve alumni from beyond the Connecticut, New York and Massachusetts areas.

I look forward to assuming my responsibility as director of alumni affairs.

*Dr. Arthur C. Crovatto, '54
Director of Alumni Affairs*

ALUMNI NEWS

Dr. Alice Whittier, '25, of Portland, Maine, retired from pediatric practice in 1978 at the age of 80. She is a past president of the New England Pediatric Society and served through the 1950s as Maine Medical Center's chief of pediatrics.

Dr. Samuel Albert, '30, has been practicing medicine for the past 45 years for Americans who have served in the armed services. He has an outpatient practice in Manhattan where he is affiliated with the U.S. Department of Veterans Affairs.

Dr. Arnold S. Relman, '46-'49 HS, editor-in-chief of the *New England Journal of Medicine*, will retire in June 1991. Dr. Relman was appointed editor in 1977 and became editor-in-chief in 1988. He plans to devote more time to writing, teaching and public policy debates on American health care.

Dr. Cecil G. Sheps, '47 M.P.H., professor emeritus at the schools of medicine and public health at the University of North Carolina at Chapel Hill, was awarded the American Public Health Association's 1990 Sedgwick Memorial Medal for Distinguished Service in Public Health.

Dr. James M.A. Weiss, '51 M.P.H., '50-'53 HS, the first professor of psychiatry at the University of Missouri and founding chairman of the department at the University Health Sciences Center in Columbia, will retire Dec. 31, 1990. He will continue as a full-time research professor at Missouri in the medical school.

Drs. Paul Calabresi, '55, physician-in-chief in the department of medicine at Brown University, and **David J. Kupfer, '65**, professor and chairman of psychiatry at the University of Pittsburgh Medical School, are newly elected members to the Institute of Medicine.

Dr. Eiji Yanagisawa, '56-'59 HS, clinical professor of otolaryngology at Yale, won the World Festival of Cinematography and Videography Silver Medal at the September meeting of the 14th World Congress of Otorhino-Laryngology and Head and Neck Surgery held in Madrid, Spain. His winning videotape demonstrated the contribution of aryepiglottic constriction to ringing voice quality



During Alumni Weekend 1990, John B. Ogilvie, M.D. '34, received a framed drawing of the Sterling Hall of Medicine and the thanks of Dean Leon E. Rosenberg for serving as medical alumni chairman of the school's successful capital campaign.

using videolaryngoscopic documentation with acoustic analysis.

Dr. Robert W. Wroblewski, '58, after serving as director of oncology at Akron General Center and Medina General Hospital in Ohio, is now director of medical oncology at Good Samaritan Hospital in Vincennes, Ind.

Dr. Robert C. Wallach, '60, has left his position as departmental director of obstetrics and gynecology at the Beth Israel Medical Center to become the director of gynecologic oncology at the New York University School of Medicine. He also is a professorial lecturer at the University of Puerto Rico School of Medicine.

Dr. Thomas B. Kirsch, '61, clinical associate professor of psychiatry at Stanford University, is president of the International Association for Analytical Psychology, the professional organization of Jungian psychoanalysis.

Dr. Robert L. Johnson, '63-'64 HS, associate clinical professor at the University of California San Francisco and chief of otolaryngology at the Children's Hospital, is a lieutenant colonel in the U.S. Army Reserve and a consultant at Letterman Hospital in San Francisco. He also guest lectures at the University at Jodpur in Rajastan, India.

Dr. Anthony Robbins, '66, professor of public health at Boston University, directs the International

Commission of Physicians and Environmentalists to Investigate the Health and Environmental Consequences of Nuclear Weapons Production. The commission plans a comprehensive review of the 1957 Kyshtym accident in the Soviet Union, where a high-level waste storage tank exploded. He also is treasurer of the International Physicians for the Prevention of Nuclear War.

Dr. Joan L. Venes, '67 HS, professor of surgery (neurosurgery) and pediatrics at the University of Michigan, was awarded a 1990-1991 Robert Wood Johnson Foundation Fellowship in Health Policy to serve as part of a one-year orientation and work experience program in Washington, D.C.

Dr. John J. Kelly Jr., '69, '69-'70 HS, professor of neurology at Tufts Medical School, is senior neurologist and director of neuromuscular service and the electromyography laboratory at New England Medical Center in Boston.

Frederick G. Adams, D.D.S., '70 M.P.H., Connecticut state health commissioner, has been chosen to advise federal expenditures in dental research. He serves on the 17-member panel of the National Institute of Dental Research's National Advisory Dental Research Council.

Dr. John C. Lee, '70-'72 HS, has been appointed associate dean for research and graduate studies at the Virginia-Maryland Regional College of Veterinary Medicine.

Dr. John A. Daeley, '71 M.P.H., retired from the federal service in January 1990 to Arlington, Tex., after 42 years of combined military and civil service. He served as director for Region VI, department of health and human services since 1981. Dr. Daeley received the Federal Emergency Management Agency's Outstanding Public Service Award in recognition of exemplary service as a regional emergency management team director.

Dr. John P. Fulkerson, '72, professor of orthopaedic surgery at the University of Connecticut School of Medicine, was named director of sports medicine at the UConn Health Center and as a physician for the Hartford Whalers hockey team. He is secretary-elect of the Arthroscopy Association of North America, and is a member of the American Orthopaedic Society of Sports Medicine and the Sports Medicine Committee of the American Academy of Orthopaedic Surgeons. He received the Bantam Award of Trinity College in Hartford for his care of athletes.

Matthew A. Kurs, '75 M.P.H., received the American Medical International (AMI) 1989 Special Achievement Award. He is president and chief executive officer of AMI St. Joseph Hospital at Creighton University in Omaha, Neb. He was previously chief operating officer of AMI's Florida region and AMI's central region in Denver.

Dr. Mary Lake Polan, '75, former associate professor of obstetrics and gynecology at Yale, has been appointed chair of the department of gynecology and obstetrics at Stanford University School of Medicine and as chief of gynecology and obstetrics services at Stanford University Hospital.

Dr. Carol L. Epstein, '76, was appointed vice president of medical affairs and chief medical officer of ImmunoGen, Inc., a biotechnology company based in Cambridge, Mass., specializing in the treatment of cancer. Prior to this appointment, Dr. Epstein was vice president and director of clinical affairs for Immunex Corp. and assistant director of anti-inflammatory metabolism and cardiovascular research at Ayerst Laboratories.

Dr. O'dell M. Owens, '76, a member of the University of Cincinnati board of trustees, visited hospitals in Moscow, Leningrad, Kharkov and Tbilisi during two weeks in July and August in a program to evaluate laser surgery in the Soviet Union.

Dr. Dennis D'Arcy Banks, '77, teaches freshman composition at the University of Arizona while pursuing a Ph.D. in English, with a concentration in Native American Indian literature and poetry. He also has received a law degree and was a visiting scholar at Harvard Law School.

Dr. Stephen E. Levick, '77-'82 HS, began full-time private practice in August 1989 at the Institute of Pennsylvania Hospital where he also is medical director of outpatient evaluation services.

Dr. Richard D. Bey, '79, clinical assistant professor of neurology at Bowman Gray School of Medicine and managing partner of Southeastern Medical Imaging, has a private neurology practice in Winston-Salem, N.C.

Robert V. Levine, '80 M.P.H., has been appointed a member of the board of directors of the Queens, New York, chapter of the American Lung Association.

Dr. David S. Weiss, '81, has been named orthopaedic consultant to the Juilliard School dance division. In April, he delivered Grand Rounds at Yale to the department of orthopaedics and rehabilitation entitled "Scientific and Practical Aspects of Knee Rehabilitation Following Anterior Cruciate Ligament Reconstruction."

Dr. David P. Norton, '83, is part of a pediatrics group practice in Marin County, Calif., and attends and teaches at San Francisco General Hospital. He also is a clinical faculty member at the University of California San Francisco.

Jeanne P. Martin, '83 M.P.H., is the executive director of the Hospice Programs of Visiting Nurses and Hospice of San Francisco, which have been widely recognized for their cost-effective and innovative care to persons with HIV disease.

Gary F. Spinner, '83 PA, physician assistant at the Hill Health Center in New Haven, received the American Academy of Physician Assistants' Outstanding Physician Assistant of the Year Award at its June annual conference in New Orleans.

Dr. Edwin Trevathan, '82-'84 HS, recently left his position at the Centers for Disease Control to become medical director for the department of neurophysiology and director of the pediatric epilepsy program at Scottish Rite Children's Medical Center in Atlanta.



Dr. Duncan K. Fischer

Dr. Charles M. Zacks, '84, has an ophthalmology practice with a subspecialty in cornea and external disease at the Maine Eye Center in Portland.

Dr. Greg A. Sachs, '85, is assistant professor of medicine at the University of Chicago after finishing fellowships in geriatrics and medical ethics.

Dr. Duncan K. Fischer, '86, a neurosurgery resident at Baylor College of Medicine, has won a \$30,000 American College of Surgeons Scholarship for his research on human brain tumor antigens and the production of monoclonal antibodies.

Michael P. Krusch, '86 PA, is pursuing an M.D. degree at the University of Chicago Medical School.

Dr. Glenn Isaacson, '88, has been appointed director of pediatric otolaryngology at St. Christopher's Hospital for Children in Philadelphia and assistant professor of otolaryngology and pediatrics at Temple University School of Medicine.

Drs. Joni Hansson, '89, an intern in the department of medicine, and **Kathleen Stewart**, '88-'90 HS, junior assistant resident in the department of medicine, received Samuel D. Kushlan Awards for their contributions to patient care during rotation through the community medical service.

STUDENT NEWS

Second-year students **May Chen** and **Marlene Corujo** were selected by their classmates to receive the CIBA-GEIGY Award for outstanding community service. The students co-direct the Yale chapter of Students Teaching AIDS to Students, a national group of medical students who teach high school pupils about preventing the disease.

Sonya Erickson, a fifth-year medical student, has been selected as the student member of the American Association of Medical Colleges' Liaison Committee on Medical Education for the 1990-1991 academic year. As a member of the committee, Ms. Erickson will participate in the review and discussion of medical school accreditation survey reports and will take part in survey visits to medical schools each year.

Terence L. Geiger, an M.D., Ph.D. graduate student in the section of immunobiology, has been named the second recipient of the Miles Scholar Award. Dr. Geiger's research centers on how the immune system learns to distinguish foreign bodies, such as bacteria and viruses, from its own organism. The award covers tuition, supplies and other costs, as well as a two-year stipend.

Hughes Institute Funds Scholarships

The Howard Hughes Medical Institute (HHMI) has awarded nearly \$400,000 to the School of Medicine for graduate training in the biomedical sciences. The school will distribute money from the grant, determined by the excellence of graduate students working with HHMI-supported researchers, into three programs to nurture graduate research.

The HHMI grant will contribute \$122,400 to establish six new graduate student fellowships, including three for the new Neuroscience Graduate Program; \$265,400 will go to raising biomedical graduate student stipends to \$12,900; and approximately \$10,000 will help develop and support computer-based facilities to promote communication among graduate students at scattered campus locations.



(Above, from left) Madeline Cordero, Amy Freeman and Marisol Pagan were among 16 minority high school students from New Haven who spent most of July and August doing laboratory research at the side of some of the nation's leading scientists. The School of Medicine's 11th annual Summer Research Apprenticeship Program offered stipends to 13 students thanks to the National Institutes of Health/Public Health Service Division of Research Resources; the medical school itself funded three stipends. Researchers from the School of Medicine, epidemiology and public health, and the John B. Pierce Laboratory took part in the program. Class of 1992 medical students William Rodriguez and Adetokunbo "Toki" Ayelese coordinated the weekly lecture series attended by the high school students.

(Below) Matthew Lemer, '91, was one of eight Wilbur G. Downs Fellows from the medical school and EPH to pursue research outside the United States during 1990. Mr. Lemer gathered data on the relationship between malaria and anemia in a pediatric population in Kenya, the subject of his M.D. thesis.



COMMENCEMENT 1990



Four generations bask in the joy of Mark Miller's graduation.



Jennifer Mark and her proud father, Richard Mark.



Dr. Charles A. Janeway Jr., professor of immunobiology, biology and in the Cancer Center, received the 1990 Bohmfalk Prize for teaching basic science; Dr. Margaret J. Bia, associate professor of medicine, won the Bohmfalk Prize for clinical instruction.



Stacy Wills (left) and Christina Wypijewski share in the anticipation of receiving their M.P.H. degrees.



M.D. graduate Ron Ennis poses with his son, Ariel, a candidate for the School of Medicine Class of 2013.

Ali Uhmed Ajani leads a contingent of graduating EPH students up the stairs of the Yale Repertory Theater. Mohammad Zahid Ansari follows a step behind.



DEVELOPMENT REPORT

The Kresge Foundation Challenges YSM Alumns

The Kresge Foundation of Troy, Mich., has awarded a \$1 million challenge grant to the School of Medicine to support construction of the Center for Molecular Medicine (CMM). The award is contingent on 1) Yale's ability to raise the remaining \$5.45 million needed to complete the \$35.4 million project; 2) an increase in the percentage of YSM alumni/ae donors to the School of Medicine Alumni Fund to 55 percent, from the current 43 percent.

When the CMM opens next year, it will represent one of Yale's most significant investments in basic scientific research. More than 40 laboratories will help sustain leadership in molecular genetics and expand the scientific horizons in such fields as neurobiology, oncology and cardiovascular research. Biomedical scientists at the center will explore new directions in research outlined in the work of Drs. Leon E. Rosenberg, George Palade and other pioneers in molecular and cell biology.

The School of Medicine has launched a campaign of intensive fundraising to meet the goals set by the foundation's grant. Over the next year, the school will seek the support from its alumni and friends, as well as from corporations and foundations in an effort to complete funding for the CMM. Already, progress has been made toward increasing the percentage of contributions from alumni/ae; at least 50 corporations and foundations have been contacted as potential donors, as well.

The Kresge Foundation joins an array of organizations which have supported Yale in this venture. The W.M. Keck Foundation, the Ira W. DeCamp Foundation, the Lucille P. Markey Charitable Trust and the Howard Hughes Medical Institute have committed funds for the center's construction and its research programs.

Established in 1924, the foundation has received gifts from Yale students, private foundations and personal gifts of

Sebastian S. Kresge. The foundation supports institutions of higher education, health and long-term care, arts and humanities, social service, science and environment, and public affairs. Its grants fund projects involving construction or renovation of facilities and purchase of major capital equipment or real estate.

The Gesell Institute Endows Professorship

Dr. Arnold Gesell, founder of child development at Yale and the creator of the institution which became the Child Study Center, has been honored by the creation of the Arnold Gesell endowed professorship for an assistant or associate professor in the Child Study Center. The chair is made possible by a major gift from the Gesell Institute and marks the reintegration of the work of Arnold Gesell and his collaborators into the Child Study Center and Yale University.

Arnold Gesell came to Yale in 1911 after earning his Ph.D. degree at Clark University and starting medical school at the University of Wisconsin. His first appointment was as assistant professor of education. In 1915 he earned his M.D. degree from Yale and was rapidly launched on creating a new discipline, spanning the emerging fields of child psychology, pediatrics and mental hygiene.

For the next four decades, he and his closest collaborators, including Frances L. Ilg, M.D., and Louise Bates Ames, Ph.D., laid the foundations for the scientific study of the maturation of behavior, through their rigorous testing of normal and developmentally impaired infants and children. Their pathbreaking work was reported in a series of books and reports translated into many languages for professionals, parents and social policy planners. The Gesell method became the framework for all subsequent approaches to developmental assessments.

Dr. Gesell and his collaborators left Yale at the time of his retirement

in 1948 and organized the Gesell Institute for Human Development in New Haven. The Gesell Institute began providing a range of services, primarily for younger children, including a nursery school and developmental clinics. In addition, the institute offered a national lecture series and psychological consultation to schools throughout the United States. This work continued after Dr. Gesell's death in 1961.

Over the last two years, the board of the Gesell Institute, chaired by Howard Kahn, Ph.D., and with the scientific guidance of Dr. Louise Bates Ames, conducted a review of the institute's policy. This led to the decision to emphasize the national lecture series, and to scale back clinical programs in New Haven. Toward these ends, the Gesell Institute has sold its two buildings to Yale, where the institute retains offices. Some proceeds from the sale have gone to create the Gesell professorship, to assure the long-term continuation of the academic and clinical work in the spirit of Dr. Arnold Gesell.

Fulton Book Fund Established at Yale

The Lucia P. Fulton Book Fund, an endowed book fund in memory of Mrs. John F. Fulton, has recently been established at the Harvey Cushing/John Hay Whitney Medical Library. Mrs. Fulton, who died in April 1989, was the widow of Dr. John F. Fulton. She was a devoted supporter of the Medical Library and the History of Medicine at Yale.

Following Dr. Fulton's death in 1960, she continued for three decades to extend her hospitality to faculty and students at Mill Rock, her home in Hamden. Contributions to this book fund may be sent to Ms. Bella Berson, director, Harvey Cushing/John Hay Whitney Medical Library, 333 Cedar St., P.O. Box 3333, New Haven, CT 06510.

Samuel P.W. Black

Samuel P.W. Black, M.D., one of the founders of the University of Missouri Medical School, died of a heart attack on June 9 at his home in Cornwall, Conn. He was 73.

Dr. Black, professor of neurosurgery at the University of Michigan from 1955 until his retirement in 1982, continued his research and writing about aneurysms as professor emeritus.

A native of Barboursville, Ky., Dr. Black graduated from Choate School in 1936, Yale University in 1940 and Johns Hopkins School of Medicine in 1943. After active duty in the Pacific during World War II, he returned to Yale for his residency in neurosurgery and joined the Yale faculty in 1950. Five years later he helped found the University of Missouri Medical School.

He authored and co-authored more than 40 journal articles and was a past president of the Missouri State Neurological Society. Among his medical society memberships were the American College of Surgeons and the American Association of Neurological Surgeons.

A skillful mountaineer, Dr. Black had been on climbing expeditions all over the world.

He is predeceased by his wife, Betty Lohman Black. He leaves two daughters, Susan Norling and Nancy Montgomery; two sons, John and Samuel; and six grandchildren.

Contributions may be sent to the University of Missouri Medical School, 1 Hospital Dr., Columbia, MO 65212.

Henry Brill

Henry Brill, M.D., former director of the Pilgrim State Psychiatric Center in West Brentwood, Long Island, died of cancer on June 17 at the Good Samaritan Hospital in West Islip, Long Island. He was 83.

A psychiatrist and authority on drug addiction, Dr. Brill helped introduce the use of tranquilizers in New York State mental hospitals to foster the early release of patients. He was the first deputy commissioner of the state's Department of Mental Hygiene, its regional commissioner for Long Island and later a consultant.

He was a clinical professor at the Downstate Medical Center in Stony Brook, Long Island, and for decades served as a drug consultant for many state and federal agencies, including the American Medical Association, the

OBITUARIES

National Academy of Sciences and the World Health Organization.

During his career he served as chairman of the New York State Drug Abuse Advisory Commission and president of the American College of Neuropsychopharmacology. Dr. Brill repeatedly warned of the hazards of marijuana and opposed its legalization.

A native of Bridgeport, Conn., Dr. Brill earned his bachelor's and medical degrees at Yale, in 1928 and 1932. He interned at Pilgrim State Mental Institution and was its clinical director for eight years before his promotion to director.

He is survived by his wife, Wenonah Beale Brill; a son, Michael; two daughters, Helen Broxmeyer and Jean Hough; and four grandchildren.



Dr. Fred Collier

Fred Collier

Fred Collier, M.D., died April 19 at the age of 66.

A native of Topeka, Kan., Dr. Collier earned a B.S. degree from Sheffield Scientific School of Yale University in 1944 and an M.D. degree from Yale School of Medicine in 1946. He interned at the Medical College of Virginia and served pathology residencies at Yale, New Britain General Hospital and the Cleveland Clinic. He was a private first class in the medical administrative corps during World War II.

In 1956, he was associate pathologist at the Hospital of the University of

Pennsylvania and from 1957 to 1961 served as professor of surgical pathology at the University of Alabama Medical Center. He went on to become a clinical professor of pathology at New York Medical College; director of clinical laboratories in Ramsey, N.J.; corporate medical director of Becton Dickinson and Co. in Rutherford, N.J.; and adjunct professor of pathology at Farleigh Dickinson University in Teaneck, N.J.

Dr. Collier was a member of the American Association of Pathologists and Bacteriologists, the International Academy of Pathology, American Society of Clinical Pathologists, and the United States and Canadian Academy of Pathology, Inc. He also was a member of the Pathology Advisory Committee of the Southeastern Cancer Chemotherapy Study Group; the board of directors for the Harkins Medical Research Foundation and the subcommittee on neonatal hypothyroidism of the National Committee for Clinical Laboratory Standards.

Dr. Collier retired in July 1989 to pursue his interests in writing, sailing and traveling.

He is survived by his wife, Rosalie; two sons, Wade and Fred; and one daughter, R. Samantha Collier.

Ward J. McFarland

Ward J. McFarland, M.D., an orthopaedic surgeon, died April 6 at Lawrence and Memorial Hospital in New London, Conn. He was 75.

A native of Caspian, Mich., Dr. McFarland graduated from Yale College in 1936 and from the School of Medicine in 1939. He interned at New Haven Hospital and served residencies at Newington Children's Hospital and Grace-New Haven Hospital. He was a captain in the Army Air Force during World War II.

Dr. McFarland was chief of the medical staff and orthopedic surgery at Lawrence and Memorial Hospital in New London for more than 20 years and was in private practice from 1949 until his death. He also was a consultant for Uncas-on-Thames Hospital in Norwich, Conn., and the U.S. Coast Guard Academy Hospital in New London.

A diplomate of the American Board of Orthopaedic Surgery and a fellow of the American Academy of Orthopaedic Surgery, Dr. McFarland was honored with the American Medical Association's Physician's Recognition

Award in 1973 and 1976. He was a member of the American Medical Association and the Alumni Association of Newington Children's Hospital.

He was predeceased by his wife, Mary Luise Henry, and is survived by a son, Dr. Ward J. McFarland Jr.; a daughter, Natalie M. Black; and three grandchildren.

Memorial contributions may be made to Hospice of Southeastern Connecticut, c/o Lawrence and Memorial Hospital, 325 Montauk Ave., New London, CT 06320.

Arnold B. Rilance

Arnold B. Rilance, M.D., died of cancer on May 13 at the Potomac Valley Nursing Home in Maryland. He was 82.

A native of Montreal, Dr. Rilance became a U.S. citizen in 1942 and was a practicing physician in New Haven from 1944 until his retirement in 1986. He also was an attending physician at Yale-New Haven Hospital and the Hospital of St. Raphael. A 1931 graduate of McGill University Medical School, Dr. Rilance worked as an assistant resident at Trudeau Sanitarium and as a senior physician at Laurel Heights Sanitarium until 1944.

During his career, Dr. Rilance served as associate clinical professor of medicine at Yale University and acting director at the Bureau of Tuberculosis Control, Department of Health, New Haven. He was a fellow and governor for Connecticut's American College of Chest Physicians; past president of the American Trudeau Society; and a member of the American, New Haven and Connecticut medical societies. In 1963, he was the first recipient of the David Russell Lyman Memorial Trophy, presented annually by the Tuberculosis and Health Association of the New Haven Area Inc.

He was predeceased by his wife, Edith Marshall Rilance. He leaves three daughters, Jane Keefer, Nancy Rilance and Janet Rilance; and a granddaughter.

Lewis A. Scheuer

Lewis A. Scheuer, M.D., died of colon cancer May 26. He was 87.

Dr. Scheuer, a 1928 graduate of the School of Medicine, completed an internship at Grace Hospital and a pediatric residency at the New York Foundling Hospital, where he remained as a staff member. He maintained a practice in New York for more than 50 years.

OBITUARIES



Dr. Milton J.E. Senn

Milton J.E. Senn

Milton J.E. Senn, M.D., an expert in child psychiatry, died on June 8 of bladder cancer at the Connecticut Hospice. He was 88.

Dr. Senn was chairman of the Yale pediatrics department from 1951 to 1964 and director of the Child Study Center from 1948 to 1966. After retirement in 1970, he remained as Sterling Professor Emeritus of Pediatrics and Psychiatry at Yale and became vice president for child studies of the Field Foundation of New York City.

An activist for children's issues, he helped found the Children's Defense Fund and traveled extensively to gather firsthand evidence of child hunger and ill health for Congress and compiled an oral history of the child development movement for the National Library of Medicine.

A native of Milwaukee, Wis., Dr. Senn was a 1925 B.A. degree graduate of the University of Wisconsin and a 1927 graduate of its medical school. He became a fellow in pediatrics at Washington University in St. Louis and in 1939 was named professor of pediatrics and psychiatry at Cornell University Medical College and director of the Institute for Child Development at New York Hospital. Eight years later he became attending pediatrician at New York Hospital and the following year became attending

physician at Grace-New Haven Community Hospital, where he served as pediatrician-in-chief for nine years.

He was the author of more than 70 scientific publications and two books. In 1964, the American Academy of Pediatrics bestowed on Dr. Senn the first C. Anderson Aldrich Award in Child Development and in 1970 the American Psychiatric Association honored him with its Agnes Purcell McGavin Award for his outstanding contributions to the prevention of emotional disorders in children.

He is survived by a daughter, the Rev. Corelyn Senn, and two grandchildren.

Contributions may be made to the Children's Defense Fund, the Nature Conservancy or Connecticut Hospice.

Rudolph E. Vandever

Rudolph E. Vandever, M.D., died June 25, 1989, in the Health Science Center in Syracuse, N.Y. Dr. Vandever, who died of injuries suffered in an automobile accident, was 83.

A native of Detroit, Mich., and resident of Winter Park, Fla., Dr. Vandever was a graduate of Staunton Military Academy, the University of Michigan and a 1932 graduate of the Yale School of Medicine. He served his internship at Harper and Children's Hospital in Detroit, pediatric residence at Ford Hospital and Keifer Contagious Children's Hospital and his allergy residency at New York Hospital of Cornell University. He became a fellow of the American Academy of Pediatrics in 1943 and of the American College of Allergists in 1944.

Prior to his retirement in 1981, Dr. Vandever was a pediatrician/allergist associated with Dr. John Hoes in Rome, N.J. He was affiliated with Rome Hospital, past president of the Oneida County Medical Society and the Central New York Academy of Medicine, and a member of the Central New York Pediatric Club and the American Medical Association. Dr. Vandever also was a member of the Rome Board of Education, on which he served as president for two years.

He is predeceased by his wife, Ellen. He leaves three sons, Lauren, Peter and James; and eight grandchildren.

Harold T. Vogel

Harold T. Vogel, M.D., a retired pediatrician from Queens, N.Y., died May 19 of a heart attack at South Nassau Community Hospital in Rockville Centre, Long Island. He was 90 years old.

Dr. Vogel graduated from Yale School of Medicine in 1924 and was a charter member of the Queens Medical Society. He joined the Flushing Hospital staff in 1930 and served as director of pediatrics from 1946 to 1966. He also was a board member of the hospital. He retired at 78.

He was predeceased by his wife, Madeleine Bauer. He leaves two daughters, Karen Vorhees and Carla Leon; seven grandchildren, and a great-grandchild.

John J. Wolfe

John J. Wolfe, M.D., died April 21 at the age of 86.

A native of Dublin, Ireland, Dr. Wolfe practiced in Louisville, Ky., as a maxillofacial plastic surgeon from 1946 until his retirement. A graduate of the Royal Dental Academy in London, he also attended Columbia University Dental School and taught at New York University Dental School. He graduated from Yale School of Medicine in 1933.

In 1933, Dr. Wolfe began work for the Rockefeller Foundation's School of Medical Nursing and Research and in 1939, practiced and taught in missionary hospitals throughout South India and served on the staff of the Bijay Singh Hospital in Bikaner, Rajasthan. During World War II, Dr. Wolfe joined the 10th Air Force and was instrumental in bringing Chinese troops to India. Upon his discharge as a colonel, he was awarded U.S. citizenship.

He served as head of the department of plastic surgery at the University of Louisville Medical School, and was a member of the American Board of Plastic Surgery, the American College of Surgeons, the American Society of Maxillofacial Surgeons, the American Society of Plastic and Reconstructive Surgery and the Kentucky Medical Association.

He is survived by his wife, Jill, and a daughter, Julia.

Memorial contributions may be made to the Yale University School of Medicine, Office of Development, Parkinson's Disease Research, P.O. Box 3333, 350 Congress Ave., New Haven, CT 06519.



Grillwork at the Yale Medical Historical Library

IN MEMORIAM

Howard A. Wood November 22, 1989	'25 M.D.
Samuel J. Stabins January 27, 1989	'26 HS
Robert I. Rubinstein May 1, 1990	'28 M.D.
Lewis A. Scheuer May 26, 1990	'28 M.D.
Harold E. Harrison October 2, 1989	'31 M.D.
Paul E. Huston November 21, 1988	'39 M.D.
Ward J. McFarland April 6, 1990	'39 M.D., '49 HS
Lawrence P. Shea February 13, 1990	'47 M.D.
Arne G. Haavik January 1, 1990	'56 M.D.
Douglas W. Johnston November 30, 1989	'64 M.D., '66 HS

Memorials

Deceased medical alumni and friends may be memorialized by a gift to the School of Medicine Alumni Fund endowment in the name and class of the person so honored. The next-of-kin of a deceased medical alumnus/a is advised about this In Memoriam Program by mail sometime after the School of Medicine receives notification of the death. The letter of information includes a copy of the Testament of Remembrance in which the names of all persons so memorialized are listed in the medical section by class, thus establishing a lasting memorial. Donors receive a personally penned note of appreciation from the In Memoriam Program director.

Deceased alumni and friends so honored in 1989-1990 were:

Donato Anthony D'Esopo, '24

Albert Jablonsky, '27

Robert I. Rubinstein, '28

Vincent A. Doroszka, '30

Robert Watkinson Huntington Jr., '33

Francis P. Guida, '34

Ward J. McFarland, '39

Arthur S. Tucker, '39

Joseph P. Kriss, '43

Paul E. Molumphy, '44

Charles Sheldon Judd Jr., '46

Richard G. Britton, '47

Edward Foord, '47

Lawrence C. Perry, '47

Russell J. Barnett, '48

Boy Frame, '48

Class of 1950 Scholarship Fund

John Currier Gallagher, '58

Robert Joseph Polackwich, '73

David J. Kreis Jr., '77

Hans Graichen (faculty)

Mrs. Bieggi (friend)

Richard G. Jordan

Director, In Memoriam Program

ALUMNI WEEKEND



An Alumni Weekend panel on the "Ethos of Public Health" included (from left) Drs. Burton H. Singer, Lawrence Crowley, Stephen Joseph, and Susan Addiss, M.P.H.

This year Medical Alumni Weekend attracted nearly 400 alumni/ae. A most extraordinary dedication ceremony of the new Harvey Cushing/John Hay Whitney Medical Library ushered in the weekend on Thursday afternoon, June 7. The ingeniously expanded space contains the technology for the most sophisticated computer systems for medical informatics. It deserves inspection by every alumnus/a.

The reunion keynote speaker, Dr. Stephen C. Joseph, '63, commissioner of health for New York City from 1986 to 1990, drew a record attendance on Friday. The detailed description of his attempts to move public policy to control the rapidly proliferating AIDS epidemic in New York City provoked lively audience questions and dialogue. He explained the shifting character of the epidemic, which is affecting more women and children as a consequence of increasing drug abuse. [See "Public Policy in the Age of AIDS," page 5]

Reunion 1990 celebrated the 75th anniversary of the School of Medicine's department of epidemiology and public health (EPH) and saluted the University's commitment to strengthening education in this field. Dr. Joseph's talk highlighted the political, economic and social factors which are crucial to

function in the field, and are thereby required as elements in the curriculum.

Dr. Joseph joined the panel on the following morning to discuss the theme: "The Ethos of Public Health: A Challenge for Medicine in the 21st Century." Also on the panel was Dr. Burton H. Singer, recently appointed EPH chairman, who described newly articulated plans for broadening and integrating training in medicine, nursing and public health to meet the challenges of a new century.

Dr. William L. Kissick '57, as moderator, presented the dramatic history of his three decades as a physician in public health. The revival of the ethos of public health is crucial if medicine is to fulfill its promise as a profession.

Ms. Susan Addiss, M.P.H. '69, reviewed the distinguished history of public health at Yale. As a working professional in the field, she described her own role as "continuously defining the unacceptable"; she added that her hope for the years ahead in community health, was to be able to conquer the "unacceptable."

Dr. Joseph, in describing the harrowing "second epidemic" of drug abuse complicating HIV infection, detailed the politics of poverty, with

special emphasis on women and children. He painted an intriguing picture of public health challenges which are global and ecological, including not only infections (HIV, malaria) but also environmental pollution (global warming), problems which require professionals whose vision has no boundaries.

Dr. Lawrence Crowley, '44, former chancellor and dean of medicine at Stanford University, outlined the emerging need for settings other than tertiary care hospitals for training tomorrow's physician. Ambulatory settings of varied character are needed to address many of the issues posed by the other speakers, and in a setting where nurses, public health workers, as well as physicians, work together in improving the health of patients. He presented as examples the University of Washington School of Medicine and the pediatrics program at North Carolina at Chapel Hill. This was a sobering and thought-provoking hour.

The faculty lectures on Saturday morning presented varied subject matter. Best attended was the seminar in psychiatry. Dr. Eric J. Nestler described the ways in which molecular chemistry and physics are entering the arena of clinical medicine and psychiatry, including treatment for drug addiction. Dr. Robert B. Innis also gave a fascinating presentation about how new imaging techniques are helping redefine the function and malfunction of the living brain. His laboratory team is paying special attention to the molecular chemistry and genetics of schizophrenia.

Presentations by Drs. Henry R. Black and Barry L. Zaret outlined major research in the treatment and prevention of heart disease. Dr. Black summarized the identification and modification of cardiovascular risk factors; his talk featured investigations of hypertension and hyperlipidemias which have led to effective preventive measures.

Dr. Zaret described a projected cardiovascular rehabilitation hotel, with construction planned to begin in 1991. This 400-unit facility, known as the Vivat Pavilion, should provide scientifically based behavior modification programs with attention to both nutrition and exercise. This center

will combine the medical center's scientific expertise with private enterprise resources to offer preventive measures to individuals who manifest risk factors for future disease.

The session moderated by Ms. Merle Waxman, director of the Office for Women in Medicine, was attended by a capacity audience. Alumnae who spoke included: Drs. Alice Shepard Cary, '45, (35 years of primary care practice in Kyoto, Japan); Margretta Seashore, '65, (20 years in academic practice of pediatrics and genetics at Yale); and Jane Carter, '85, assistant professor, department of anesthesiology. Reflections on their medical education and subsequent careers provoked lively dialogue among members of the audience. The issue of integrating successful marriage and parenting with practice and teaching dominated the discussion. The problem of ascending the promotional ladder in academic medicine was also a major topic. Susan Baserga, M.D., Ph.D., '88, presented a history of coeducation at the medical school. The popularity of this presentation suggests it might warrant repetition at future reunions.

Dean Rosenberg's "State of the School" report at the AYAM annual meeting on Saturday described the spectacular and moving dedication of the recently completed Harvey Cushing/John Hay Whitney Medical Library. Dedication of the Yale Psychiatric Institute took place this past winter; and progress on construction of the Center for Molecular Medicine continues, with its dedication scheduled for June 6, immediately prior to next year's reunion. The architects responsible for each of these three facilities are of international renown, and the buildings will become landmarks in American architecture.

Major expansion of Yale-New Haven Hospital is planned and will include a new children's hospital facility. The involvement of a distinguished commercial urban developer in the community contiguous to our medical center promises to change the face of our campus and to provide an attractive, unified architectural plan.

Recent ambitious and crucial investments in the future of the School of Medicine have required the support of its friends and family as never before. To date it has received such assistance in record fashion. Dr. John B. Ogilvie, '34, chairman of alumni contributions for the Campaign for the Yale School of Medicine, reported that 65 percent of

our graduates contributed, providing more than \$15 million of the total \$155 million raised. Dr. Ogilvie unveiled a bronze plaque recording names of major alumni donors; this will be placed at the entrance of the newly completed medical library. For his dedicated performance as chairman, Dr. Ogilvie was presented a framed painting of the Sterling Hall of Medicine.

Dr. Martin Gordon, chairman of the nominating committee, presented the nominees for appointment to the executive committee of AYAM, and as delegates to AYA. They were unanimously elected by the assembly and include: Executive committee: Bennett L. Blitzer, M.D., '73; Harold D. Bornstein, M.D., '53; Michael Kashgarian, M.D., '58; Forrester A. Lee, M.D., '79, HS '81; William A. Whalen Jr., M.D., '53, HS '59; AYA: Martin E. Gordon, M.D., '46; Marie-Louise T. Johnson, M.D., '56.

The second annual reunion dialogue and tea held in the historical library was particularly engaging this year. The speakers, Drs. Howard Spiro and Shirley McCarthy, with Dr. Arthur Ebbert as moderator, skillfully established the intended dialogue and engaged the audience in discussion. The topic, "Humanism in an Era of High Technology," evoked wide-ranging comments about the apparent erosion of the doctor-patient relationship in an age of increasingly complex knowledge. The difficulties in teaching "humanism" in any era were also discussed.

The reunion dinners, in various locations, were well received, particularly the Friends of the 50th dinner for the Class of 1940; the classes of 1935, 1930 and 1985 were honored at this party as well. With more than 100 guests at the Graduates Club, the group was greeted by Dean Rosenberg. A record 12 members of the 50th reunion class attended. Also present were Dr. John Mendillo and Dr. Knox Finley, celebrating their 60th reunion; and Dr. Samuel Kushlan, celebrating his 55th. Toastmaster Lawrence Pickett, '44, paid special tribute to Dr. Lee Sannella of the 50th-reunion class, whose family had presented a scholarship fund honoring his late father, Dr. Salvatore Sannella, of Springfield, Mass. Dr. Lee Sannella's mother, Mrs. Susan Sannella, age 94, was present and was saluted by all those assembled. Representing his Class of 1985, Dr. Fred Santoro, the class agent, extended greetings from the 30 guests assembled at their fifth reunion.

While overall attendance this year averaged that of 1989, attendance at each scheduled event was nearly double that of past years. The reunion class programs were exceptionally well structured and the panel discussions superlative. Efforts to improve certain factors, such as faculty attendance, will continue to be pursued. Foremost, because almost all participants seemed to enjoy basking in nostalgic reminiscence, the primary goal of the weekend was achieved.

*Dr. Nicholas P.R. Spinelli, '44
Former Director, Alumni Affairs*

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Muriel D. Wolf, M.D. '59,
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Michael Kashgarian, M.D. '58,
HS '63
Forrester A. Lee, M.D. '79, HS
'81
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'53, HS '59

Representatives to the Association of Yale Alumni

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Lycurgus M. Davey, M.D. '43
Martin E. Gordon, M.D. '46
Marie-Louise Johnson, M.D. '56
Kristaps J. Keggi, M.D. '59
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R. Leonard Kemler, M.D. '43
*Chairman
Medical School Alumni Fund*

DISTINGUISHED SERVICE AWARDS



Dr. A. John Anlyan

A. John Anlyan, M.D. **Class of 1945**

It is 50 years since you were transplanted from Alexandria, Egypt, to Yale and to its medical school for your education. You have been a devoted alumnus of Yale for half a century.

You graced the medical Class of 1945 with your individualistic and continental wit and manner for which you were famous on campus. Completing medical school as an AOA graduate, you commenced practice as a thoracic surgeon in San Francisco after educational pauses at the Memorial Sloan-Kettering Institute in New York, Ohio State University and the U.S. Navy.

With your beloved wife, Betty Ann, you have been active among our California alumni contingent since the 1950s. Your loyalty and generosity to our school has been constant and extraordinary. The Anlyans have repeatedly hosted social events in the Bay area of California as gracious ambassadors of the Yale School of Medicine. You have been a role model of the distant alumnus leader who provides a regional and national identity for our medical center.

It is for your unwavering and always positive response to every request your school has made of you, and for your wise and witty counsel to leaders of the School of Medicine, that the Association honors you.

Louis J. Kaplan

The faithful and dedicated service you rendered to the graduates of the School of Medicine as associate dean for alumni affairs during the years 1971 through 1985 is warmly and gratefully remembered today.

You skillfully and wisely guided the leadership of our Association and helped to build an organization which has become an important source of support for the school, its students, and alumni/ae. In a brief decade, you earned the affection and respect of our alumni throughout the country. Many came to know you especially well at their annual reunions. They responded in 1985 by electing you an honorary member of the Association of Yale Alumni in Medicine for your lifetime.

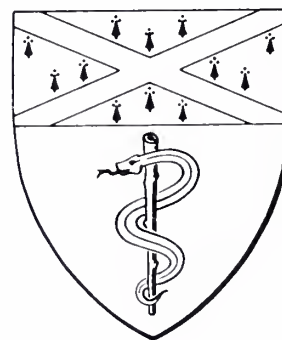
With the passage of time, the value of your directorship grows ever more apparent as our Association continues to mature. For your enduring counsel and contributions to this process we honor you.

Harry M. Zimmerman, M.D. **Class of 1927**

Drs. Harvey Cushing and Milton Winternitz were your teachers and mentors at Yale over 60 years ago, and you proceeded to forge a brilliant career as a pioneer in the field of neuropathology. Your extraordinary talent as a teacher of pathology was to make you a legend among the graduates of Yale Medical School during the two decades you served as a faculty member. Although your career brought you distinguished posts at two prestigious medical schools thereafter, the affection and respect of your Yale students has brought you back to New Haven and to your students' reunions almost annually as their guest. You have continued to be our teacher and school historian.

As you approach your ninth decade of life, you continue to teach with the same energy, charisma and wonder of your youth. Your former students now number in the thousands throughout the world. September 1990 will find you lecturing to some of them in Kyoto, Japan.

For your abiding love and service to Yale and her alumni we thank you.





Louis J. Kaplan (left) with Dr. Nicholas P.R. Spinelli, a 1988 Distinguished Service Award recipient. Dr. Spinelli received a plaque at this year's award ceremony, citing his service as YSM director of alumni affairs. He retired in October.

Dr. Harry M. Zimmerman (center) flanked by his wife, Miriam, and Dr. Knox H. Finley, '30.



REUNION REPORTS

Photos by Harry Bishop



Dr. Lee Sannella, '40, (center) pauses from his conversation with classmates Richard Durmont and John Haley.

1940

50th-year reunion

by Dr. Donald G. Johnson

It is a great pleasure to have the opportunity to report to you all on the 50th reunion of our class. In spite of the losses in our class roster, illness, and other reasons for not attending, there were 16 members of our class who were able to make it. Of these, 14 came to the "Friends of the 50th" dinner held at the Graduates Club on Elm Street in New Haven.

It was awesome to see how New Haven has grown — not always as some might have liked it to — but grow it has. And so has the medical school area. It was a thrill to see the new Cushing/Whitney Library, which was dedicated on Thursday, June 7th.

Two individuals in our class came to a reunion for the first time — **Dick Dormont**, recently retired, from Minot, N.D., and **Ike Lefevre**, who left his general medicine practice in Coeymans, N.Y., just outside Albany. It was good to see them both after 50 years. Ike's charming wife, **Helen**, came with him.

The dinner the medical school gave in our honor also was attended by alumni from classes before us — and I guess to show what 50 years will do for

and to you — the Class of 1985 was also in attendance. How young they seem! The highlight of the evening was the recognition of **Lee Sannella's** family for their contribution of \$50,000. Lee, of course, was present and so was his 92-year-old mother, who seemed to be having a ball! It is a great thing that the Sannella family has done, and I am sure the entire class joins me in expressing our gratitude.

The following came to the dinner on Saturday evening: **Ron Beckett**, still active at Hartford Hospital, brought **Eunie Wells**, who reports on Jack in a nursing home with Alzheimer's. **Dick Dormont** also attended. **Jack and Rosemary Haley**, who now live in Wallingford, Conn., semi-retired (Jack does some office gynecology); both look great and have changed ever so little since our last encounter. **Hank and Ellen Humphrey** are just fine; he loves retirement, both have time to do what they want, which includes visiting grandchildren. Henry is better since surgery for the spinal problem. **Stu Irons** came from Florida. He's doing well in retirement; his wife died some time back.

It was good to see **Bill Lee** again, who has retired to Bath, Maine. He still plays a mean game of tennis, I'm told. **Ike Lefevre** has not as yet completely

retired but is heading rapidly in that direction, he says. **Jack MacAllister** came, and it was good to renew contact with him. He and I drove back to Portsmouth, N.H., where he now lives in the Strawberry Banke area in a charming old restored house. **Pat Emerson** is now remarried to a Yale graduate, Sheffield, and medical school Class of 1943. Pat and **Wes** now live in Cotuit on Cape Cod. It was just great to see **Helen Haury Woods** again. **Dick** has been laid low with his chronic hepatitis and seems a bit frail. Helen also has been having trouble with the spinal stenosis problem. Although Dick didn't make the dinner, both came to Jim's brunch on Sunday.

It was great to see **Eddie and Martie Martin**. Eddie is still practicing in New Britain. Both look wonderful and have changed little, if at all, in the past 10 years. **Jim and Iz Ferguson**, both their usual selves, were hosts for the Sunday quiche brunch, and delicious it was. We all had a marvelous time. "Old Ferg" seems to be doing well, although his back is a bit troublesome and he has had to curtail his strenuous athletic endeavors. The honorary member of our class, **Gene Fitzpatrick**, and his wife came to the brunch and it was great to see them both again.

As for me, your class amanuensis, I continue my volunteer jobs with the Red Cross, with local AIDS education endeavors, and have finished a tour of duty on a committee to advise the commissioner of human services in Maine regarding AIDS. Despite some prostatic surgery, I manage to get around, bogged down by excess weight and the attendant dietary indiscretions.

I am planning to send to all members of the Class of 1940 an update of things I could not include in this column because of lack of space; so bear with me. Best Wishes.

1945

45th-year reunion

by Dr. Frederic M. Blodgett

The School of Medicine held its 45th reunion June 8th and 9th. We began on Friday, the 8th by attending the class seminar in the Beaumont Room. There we heard from Drs. Atwood, Breck,

Gardam, Reiner, Laupus and **Alice Shepard Cary**, and were reminded that our class has come to play a significant role in today's world-wide medical care system. We toured the fine, amply expanded Cushing/Whitney Library. We sat in on many other seminars and grand rounds in the Hope Building and the hospital. A highlight was the alumni association meeting, where **John Anlyan** was awarded a Distinguished Service Award for his generous support of the school. Making this meeting all the more special was the same award for Professor **Harry Zimmerman**, one of our most respected teachers.

Our banquet was held at the Colony Inn. Topped off with John Anlyan's keen humor and enriched by **George Naumburg's** gift of Seyval Blanc table wine from his Hudson River region vineyard. George was unanimously voted Honored Vintner of the Yale School of Medicine. The deaths of **John Flynn** and **Ray Lesser** were recognized and deeply regretted. **Bobbi Morin**, widow of **Larry Morin**, was the guest of **Dick** and **Natalie Dyer** and made the reunion more complete.

Some of the class were absent because of prior commitments, but sent regards. **Mark** and **Margaret Lindsey** were traveling in Europe. **Ken** and **Nicki Steele** were at Dartmouth for Ken's 50th-year reunion; **Bob** and **Ruthie Easton** were in California for grandchildren's celebration and other reasons. All of our absent classmates were missed. Those who did attend were: **John** and **Betty Anlyan**; **Fred** and **Phyllis Blodgett**; **Louise Burr**; **Sandy** and **Claudene Cockerell**; **Dick** and **Natalie Dyer**; **Alice Dershimer** and **Joseph**; **Jim** and **Dorothy Gardam**; **Herb** and **Jean Harned Jr.**; **Bill** and **Majorie Jenny**; **Mike Lau**; **George** and **Michelle Naumburg Jr.**; **Sam May**; **Joe** and **Mary Stanton**; **Al Atwood**; **Dick Breck**; **Alice Shepard Cary**; **Edward** and **Hadassah Daniels**; **Sid Feuerstein**; **Ray** and **Pat Gagliardi**; **Phil Good**; **Roger (Tex) Hollan**; **Lee** and **Barbara Jones**; **Bill Laupus**; **Tim Reiner**; and **Chick Sherwood**.

Don't forget about the Big 50, 1995! Put it on the calendar now.



Class of 1950 graduates reminisce (from left): Drs. William Bucher, Margaret Lyman and Claude Delia.

1950

40th-year reunion

by Dr. Claude W. Delia

I am very pleased to report the activities of the Class of 1950 at the alumni reunion in New Haven in this our 40th year. There was a remarkable turnout for this occasion despite the fact that we are spread out from coast to coast. Our class has 43 members, and 23 were present at the 4 p.m. welcoming speeches. In all, 53 percent of our class attended the reunion.

In addition to the scheduled events, there were several impromptu dinners on Thursday evening which ended in the early morning hours in our class hospitality suite in the Colony Inn. Our dinner on Saturday night was preceded by a reception in the same suite. Here the classmates came together with spouses and friends to renew old acquaintances and forge new friendships.

Our dinner at Paolo's restaurant was made very enjoyable by the good food and wine, the efficient service, the large attendance, and the presence of our special guest from the faculty, **Dr. Rocko Fasanella**. There were 42 of us who sat at six round tables, an arrangement that allowed family-style service and conversation.

Those present were: **Russell** and **Joan Anderson**; **Lyal** and **Bonnie Asay**; **Jane (Baldwin)** and **Clare Shumway**; **Bill** and **Ida Bucher**; **Bill** and **Jeanne Delia**; **Kent Ellis**; **Lloyd**

and **Peg Felmlly**; **Daniel** and **Anita Fine**; **Lawrence** and **Rina Friedman**; **Carl** and **Marjorie Gagliardi**; **Naomi** and **Sara Golden**; **Sidney** and **Karen (Pat)** and **Amy Lee**; **John Leroy**; **Sylvia (Levine)** and **Robert Axelrod**; **Margaret Lyman**; **Harold** and **Julia March**; **Orlando** and **Dorothy Miller**; **Harry** and **Sheila McClelland**; **Charles** and **Margaret Nugent**; **Robert** and **Ruth Sturman**; **Robert** and **Phoebe Sceery**; and **Myra Tyler**.

The banquet lasted four hours, during which time there was a serious interlude when we remembered our deceased classmates. **Sid Lee** reminded us of our class commitment to the memorial fund as well as our needed support of the Yale endowment. Many of those who were not present sent messages by mail, telephone and we were even "faxed" once. In fact, there were only five classmates whom we did not hear from. Finally, **Jane Baldwin Shumway** was elected by acclamation as class secretary and correspondent for the next five years.

We trooped back across the street to our hospitality suite to regroup and plan for the final event, which was a delightful Sunday brunch at Margaret Lyman's brand new country home in Middlefield. Here many of us bid farewell to our best reunion so far.

On our way back to South Carolina, **Jeanne** and I learned that we were the grandparents of an 8 pound, 9 ounce girl — **Carson Mackenzie Diltz**, born early evening on the 11th of June. She is our reunion baby!

1955

35th-year reunion

by Dr. William E. Lattanzi

The medical school Class of 1955 held a class dinner at the Quinnipiac Club in New Haven on June 9. To those of you who did not attend, I extend my condolences; a marvelous time was had by all.

A few of us have now retired and those in that category who attended were the **Petersons** (Florida), **Dave Kessler** (San Francisco) and the **Atwaters** (Michigan). The **Bravermans**, the **Landaus**, the **Camilleris**, the **Peters** and the **Lattanzis** are all still in New Haven. **Paul Gonick** is still in practice of urology but spends time being a part-time bicycle tourist. **Ed Brennan** practices psychiatry in Greenwich when he is not scuba-diving. **Bob Kramer** has left the medical directorship of the Newington Children's Hospital and is now a fund-raiser for the proposed Children's Hospital in Hartford. **Paddy Burns** is practicing psychiatry in Boston. **Jay Bobruff** is in gastroenterology, practicing in New London and announced his upcoming marriage to his charming fiancée. **Dave Nelligan** is also in New London in the pathology department at Lawrence and Memorial Hospital. At this 35th class reunion, conversation has changed from what we are all doing in our busy careers to the status of our grandchildren.

It was sadly noted that four of our class members are deceased: **Bill Powell**, **Gill Leib**, **Ed Coppola** and **Jim Miles**. After this wonderful evening, we are all looking forward to our 40th.

1960

30th-year reunion

by Dr. Jerrold M. Post

The 30th reunion of the Class of 1960 was a splendid affair. The troika of **Vic Altshul**, **Tom Kugelman** and **Jerry Post** planned a very full weekend, and some 34 classmates and significant others were in attendance. On Friday our class sponsored a reunion seminar on "Medicine in the Public Arena." **Jerry Post** presented a paper on "The Captive King: Effects of Ill Health and Disability on Political Leadership," and **Paul Friedman** addressed "Is The

a Decline in Research Ethics?" In addition to Class of '60 attendees there were a large number of attendees from other classes.

On Friday evening, there was a lovely supper at **Vic Altshul's** graceful Victorian home, which the class was reluctant to leave. After the traditional Saturday reunion seminars and luncheon, Saturday evening the class continued their celebration at the New Haven Lawn Club, with a cocktail reception and dinner. Songs from our 1958 class skit were resurrected by **Vic** and **Jerry**, and as has become their tradition, **Bob Wallach** and **Al Ross** once again regaled us with their off-beat senses of humor. Several members of the class have retired or are contemplating retirement in the near future, a staggering concept.

In attendance were: **Vic** and **Laura Altshul**, **Donna** and **Gerry** (recently retired) **Cimmino**, **Paul** and **Clare Friedman**, **Gene Gaenslen**, **Jim Gilman**, **Dan** (recently retired from the military) and **Carolyn Jones**, **Rick** and **Marilyn Kindwall**, **Sue Kleeman**, **Tom** and **Alice Kugelman**, **Al** and **Barbara Newcomb**, **Fred** and **Ruth Palace**, **Jerry** and **Carolyn Post**, **Nancy Rolick Power** and **Orlo Power**, **Al Ross**, **Dan Rubin** and **Lina Swisher**, **John** and **Ann Schrogie**, **Fred** and **Ann Stargardter**, **Gus Voyagis** and **Bob Wallach**.

1965

25th-year reunion

by Dr. John H. Seashore

Believe it or not, our class celebrated its 25th reunion. Since **Phil Manfredi** was unable to attend, he asked me to write a summary of this historic occasion. We gathered on Friday afternoon for the class seminar to hear talks by **Mohandas Kini**, **John Parrish**, **Dave Williams**, **Carl Hunt**, **Greta Reed Seashore** and **John Seashore**. That evening we had dinner at the Seashores' and on Saturday night the class dinner was held at the New Haven Medical Association building. Twenty-four classmates (about one-third of the class) attended one or both dinners: **John** and **Nancy Austin**, **Phil Askenase**, **Paul** and **Susan Balter**, **Phyllis Hurwitz Duvdevani** and **Ilan**, **Bob Finkel**, **Frank** and **Donna Grady**, **Gary** and **Betsy Gross**, **Bob Gryboski**, **Reid** and **Ellie Heftner**, **Dave** and **Gretchen Hill**, **Carl Hunt**, **Ginny Burnham Johnson**, **Ron** and **Jane Karpick**, **Mohandas** and **Joanne Kini**, **Walter** and **Joyce Noll**, **Larry** and **Linda Ossias**, **John** and **Joan Parrish**, **Bob** and **Mary Pickens**, **John** and **Greta Seashore**, **Alan** and **Jeri Stone**, **John Titus**, **Bob** and **Sue Weiner**, and **Dave** and **Carol Williams**.

For entertainment on Saturday we enjoyed (or suffered through) a tape and slides of that timeless classic, our senior show, thanks to the foresight of **John Austin**, who has saved these



Dr. Paul Friedman and 1960 classmates celebrate 30 years in the healing arts.

memorabilia all these years. Everyone agreed that we all look exactly the same! We all had a grand time renewing friendships and recalling our glory days at 333 Cedar St. I think we would have had even a bigger turnout except that many of our classmates had children graduating from high school or college that weekend. A good many also live in California and apparently felt it was too long a trip, but they were put to shame by Dave Williams who came all the way from Alaska, mainly, I think, to play a round at the Yale golf course with Alan Stone. Frank Grady won the prize for the youngest child — his wife Donna arrived with their 5-month-old in arms. Frank must still be searching for the fountain of youth.

All in all it was a great weekend. We missed those of you who couldn't come and hope to see you all at our 30th.

1970

20th-year reunion

by Dr. Robert M. Rosa

Our 20th reunion was held at Mory's and was a delightful evening of conversation and reminiscence. In addition to spouses and guests, those present included **Scott Peterson**, who made the dinner arrangements and who directs a large private practice of ophthalmology out of Waterbury, Conn.; **Anne Curtis**, chief of chest radiology at Yale and professor of radiology; **Rick Edelson**, recently appointed chairman of dermatology at Yale; **Jay Hoofnagle**, who is at the NIH and directs the division of digestive diseases; **Norm Coleman**, professor and chairman of the joint center for radiation therapy at Harvard; **Jonathan Katz**, who practices anesthesia in Bridgeport, Conn.; **Michael Danzig**, a cardiologist in Fort Meyers, Fla.; **Jim O'Brien**, a plastic surgeon in Norwood, Mass.; **Karl Wustrack**, who came all the way from Oregon where he is engaged in plastic surgery; **John Blanton**, still in New Haven, where he is a pediatrician; **Rick Solomon**, who is moving to the New England Deaconess Hospital as chief of clinical nephrology; **Jonathan Ecker**, a psychiatrist in Syracuse; **Lynn Whisnant Reiser**, a psychiatrist in New Haven; **Paul Hessler**, a radiologist in Rhode Island; **Mark Korsten**, who is at Mt. Sinai in New York and is also an accomplished guitarist and sailor; **Meg DeLano**, now a stepgrandmother; and **Bob Rosa**, your class secretary, who is



Graduates of the decades meet: Dr. Margaret Delano, '70, (left) converses with Dr. Leon Sweer, '80, and his wife Karen Sweer.

at the Harvard Medical School, where he is associate director of the clinical research center at the Beth Israel Hospital.

During the evening, letters were read from **Bob Janco** (Vanderbilt), **Dave Dueker** (University of Missouri-Columbia), **Bill Mueller** (Ohio), **Ken Khoury** (California), **Phil Steeves** (Massachusetts), **Joe Chosid** (Milwaukee), **Henry Chessin** (Wisconsin), and **Stuart Shorr** (Washington). In addition, **Harvey Fernbach** called during the dinner to extend his best to everyone and to apologize for his absence, which was unavoidable. We sincerely hope that everyone will congregate for our 25th reunion.

1975

15th-year reunion

by Dr. Mary Jane Minkin

Our 15th reunion may not have been the best attended, but we all did have fun. It was wonderful seeing **Vivian Reznick**, and her husband **Andy Ries**, '74 — Andy was able to pass on lots of gossip about his class, too. Vivian is on the faculty in pediatric nephrology at UC San Diego (Andy is there in adult pulmonary medicine). They were also able to share exploits of their three kids with **Henry Cabin** and **Florence Comite**, '76, who have two kids in the

same age group. Henry is still an adult cardiologist at Yale, and Florence holds a joint appointment in pediatrics, ob-gyn and medicine. Your reporter is still in private practice, ob-gyn, in New Haven, and on the clinical faculty for the medical school (and eagerly awaiting the birth of her and mathematician husband **Steve**'s second kid).

We did receive a few updates from class members in the mail. **Lana Holstein** and **Dave Taylor** are in Arizona, doing family practice and caring for their family of two kids. **Dave London** is in San Francisco, enjoying private practice radiology. **Doug Zusman** is in California as well, as a cardiac surgeon. **Fred Rosenfelt** is an oncologist in Los Angeles, and unfortunately couldn't make the reunion because of an adventure travel trip.

All of us at the reunion were sorry that more of our classmates didn't attend. Vivian and I had a particularly good time laughing at our first-year pictures outside the pathology offices (a good locale) in Brady. Hopefully, you all will try for the 20th.



Classmates catch up on each other's news from the five short years since graduation.

1980

10th-year reunion

by Dr. Patricia C. Brown

The YSM Class of 1980 enjoyed its 10th reunion with good food and cheer at Bruxelles restaurant in the heart of downtown New Haven. The turnout was good with a total of 29 attending, including 17 classmates and 12 spouses and companions. A summary of their activities follows.

Claudia Dinan is practicing pulmonary medicine and living in Orange, Conn., with her husband **Attilio Granata**, '77, and their son, **Vince**. **Larry Young**, cardiology faculty at Yale, is married to **Lynn Tanoue**, '82. **Eric Nestler**, Yale faculty in psychiatry and pharmacology, and his wife **Sue** have two children, **David** and **Matthew**, and are expecting a third. Also local are **Deborah Desir**, rheumatologist at the Community Health Care Plan, and **Gary Desir**, nephrologist at Yale. They have three sons: **Carl**, **Matthew** and **Christopher**. Nearly local are **Marc Glickstein**, director of MRI at Hartford Hospital, and wife, **Sylvie**, who live in Glastonbury, Conn., and have a baby boy, **Sam**.

A number of people dropped in from New York City, including **Carl Schiff** and wife **Sara**. Carl practices ophthalmology in Brooklyn. **Alan** is a program director of cardiology at St. Vincent's

Hospital, joined the reunion with girlfriend **Jill Nathanson**. **John Jacobs**, Cornell faculty and medical director of their clinical AIDS program, is married to **Carolyn Douglas** and they are expecting in August. Also from New York, but the other end of the state, is **Patricia Brown**, who has finished a residency in dermatology after training in pathology.

Massachusetts is home to many attendees including **David Adelberg**, married to **Linda Britto** and busily engaged in private practice orthopedics in South Dartmouth. **Judy Garber**, cancer epidemiologist and clinical oncologist at Dana Farber, is married to **Myles Brown** with whom she has a girl, **Jenifer**. **Marty Silverstein**, business consultant in health care, is married to **Andy Haas** with whom he has a baby girl, **Amy**. **Ethan Lerner**, dermatology faculty at Brigham and Women's, and wife **Lisa** have a baby boy, **Max**.

Leon Sweer arrived from Hershey, Penn., where he is finishing a pulmonary fellowship. Leon is married to **Karen** and they have two children, **Ryan** and **Kevin**. **Steve Rosenfeld** and wife **Lisa** flew in from Boca Raton, Fla., where he practices ophthalmology. They have two children, **Michael** and **Julie**. **Todd Garvin**, urology faculty at University of New Mexico, travelled farthest, from Albuquerque, where he lives with wife **Dianne** and their three children, **Samantha**, **Marissa** and **Alayna**.

1985

5th-year reunion

by Dr. Fred E. Santoro

Members of the Class of 1985 attended the "Friends of the 50th" dinner hosted by the Class of 1940 at the Graduates Club. **Michael Gilbert** and **Susan McClintic** came to New Haven accompanied by their children, **Megan** and **Kevin**. Mike is a family practice physician in Irvine, Calif. **Brian Lombardo**, whose wife **Tracy** was unable to attend, took some time off from his busy family practice clinic in Minneapolis. **Guy Fish**, along with his wife **Kim** and children **Nicole** and **James** came from Delaware, where Guy is in solo practice in internal medicine. **JoAnne Burger** has continued her training at Yale where she is a developmental pediatrics fellow. Her husband, **Michael Kaplan**, and daughter, **Rebecca**, also participated in the weekend activities. **Ted** and **Joyce Love** drove down from Boston, where Ted is a cardiology fellow at the Massachusetts General Hospital. **Carol Farver**, now a pathology fellow at Brigham and Women's Hospital, and **Robert Needelman**, who is developmental pediatrics fellow at Boston City Hospital, also made the trip down the coast. They are the proud parents of a daughter, **Grace**.

Peter Rubin is completing an ophthalmology fellowship and will be joining the staff at the Massachusetts Eye and Ear Hospital. **Fred Santoro**, after completing a one-year fellowship in adolescent medicine, joined another pediatrician in private practice in Groton, Conn. His wife, **Anne**, and son, **Thomas**, have settled down in East Lyme. Also in Connecticut are **Susan Moore** and **Albert Gobel** and their son **Wade**. Susan has been continuing her training, now with the department of laboratory medicine at Yale. **Kimball** and **Janet Woodward** have settled in Westport where they have a one-year old son, **Richmond**. Kim is just completing a one-year fellowship in vitreo-retinal surgery at Manhattan Eye, Ear and Throat Hospital, where he plans on staying as a resident instructor and to work in the private practice of retinal surgery. **Marnin Merrick** joined us from Philadelphia where he is a hematology-oncology fellow at the University of Pennsylvania.

We are all looking forward to the 10th, where hopefully more of us can catch up with each other.

1989-1990 ALUMNI FUND REPORT

Message from the Dean

Today's students become tomorrow's alumni/ae; no one understands this better than Dr. Nicholas P.R. Spinelli, '44, the school's immediate past director of alumni affairs. During the past five years, he has worked closely with our students, encouraging them to recognize just how vital they are to the future of their alma mater.

As a tribute to Dr. Spinelli's success, many of these students and recent graduates have displayed their dedication to Yale in charitable giving. By doing so, these new and future physicians, biomedical scientists and public health professionals — most of them of modest means — have provided much needed financial support to Yale medical and public health students as the cost of higher education continues to climb.

The medical school Class of 1990 provides a good example of this spirit of generosity. More than 90 percent contributed to the School of Medicine Alumni Fund. Class members also conceived of, and provided initial funding for, the new student lounge in Edward S. Harkness Hall. At their request, we have dedicated this handsome space to Dr. Spinelli.

The spirit of generosity also manifests itself as your school gives of itself as an institution. We continue to give the highest quality education to our students; our students, faculty and staff still volunteer countless hours to support the New Haven community, including many not-for-profit organizations that require our help more than ever during these unsettled economic times.

Last year, the School of Medicine received richly, too, including major gifts from Belle Morse, the Mathers Foundation, the Sanella family and the Kresge Foundation challenge. Finally, we are most grateful for the record donations of \$656,000 from medical alumni/ae and \$135,500 from our EPH graduates.

I urge you as medical and EPH alumni/ae to continue in this great Yale heritage of generosity. Your gifts support the education of a generation of young people who

through their scholarship, idealism and dedication to community service are already helping to build a healthier future for humanity.

*Leon E. Rosenberg, M.D.
Dean*



Dr. Leonard Kemler, '43, addresses the 1990 AYAM assembly.

From the YSM Alumni Fund Chairman

The train of alumni giving is back on track. We had set a goal of \$650,000 for the academic year 1989-1990. Thanks to the efforts of our loyal class agents and to Drs. Sam Kushlan and William Collins (representing house staff and bequest and endowments), we not only achieved our goal, but surpassed it. A record \$656,000 was pledged or given to the School of Medicine Alumni Fund this past academic year. We congratulate our class agents and thank all our alumni donors.

During the 1989-1990 fiscal year, our percentage of participation remained the same—43 percent—but this will have to increase during the current year if we are to meet a challenge from the Kresge Foundation. If we raise our

percentage of participation to 55 percent, the foundation has agreed to donate \$1 million toward the completion of the Center for Molecular Medicine. If those of you who have not given recently make even a small contribution this year, the School of Medicine will benefit forever. The size of your contribution is not as important as your participation. All gifts, large or small, will be gratefully accepted. We can do it.

We are also planning special programs for reunion classes beginning this year. Dean Rosenberg is particularly interested in this project. Those of you who will have a 1991 reunion will hear from your reunion chairperson during the course of the year. Any suggestions or ideas will be welcomed by the reunion committee, and volunteers to work on this nostalgic event are encouraged to come forth.

No report would be complete without heartfelt thanks to our alumni fund Director, Monica Robinson, and her staff. This year's success would not have been possible without their consistent efforts and help. Also, special thanks to those agents whose classes achieved a 75 percent or greater alumni fund participation, as listed below.

We look forward with enthusiasm to our coming campaign. Best wishes for a happy and healthy year.

*Dr. R. Leonard Kemler, '43
Chairman*

%	CLASS	CLASS AGENT
100	1923	William Cohen
100	1924	David Raskind
91	1931	Michael D'Amico
75	1934	John Ogilvie
76	1941	Charles Cheney
75	1946	Thomas Whelan
78	1947	George Barnes

School of Medicine Alumni Fund Class Participation

CLASS	AGENT	1988-1989		1989-1990	
		TOTAL	% PART.	TOTAL	% PART.
1922 and prior		\$ 1,811	100	2,011	100
1923	William Cohen	642	100	686	100
1924	David Raskind	10,284	100	11,334	100
1925	Alice Whittier	531	56	5,473	50
1926	Maxwell Bogin	542	60	1,720	60
1927	Harry Zimmerman	1,038	67	1,136	63
1928	Lewis Scheuer	53,518	60	3,580	60
1929	Paul McAlenney	1,358	67	1,376	67
1930		12,957	53	147,690	71
1931	Michael D'Amico	4,494	79	3,426	91
1932		5,865	63	2,339	50
1933	Franklin Foote	1,607	57	2,103	69
1934	John Ogilvie	4,389	62	4,652	75
1935	James Haralambie	6,454	57	6,780	52
1936		23,677	23	3,991	34
1937	Wilbur Johnston	1,904	50	2,289	64
1938	Nelson Ordway	2,136	56	1,346	72
1939	Rebecca Solomon	19,301	71	4,131	69
1940	James Ferguson	9,178	58	16,441	65
1941	Charles Cheney	4,702	66	4,593	76
1942	Walter Burdette	3,829	56	3,600	64
1943A	Dorothea Peck	4,232	67	6,743	74
1943B	S. Brownlee Brinkley	<u>3,399</u>	5	<u>5,930</u>	54
		7,631	59	12,673	64
1944	Nicholas Spinelli	46,770	73	10,131	65
1945	Richard Breck	3,850	53	10,573	67
1946	Thomas Whelan	9,196	52	8,800	70
1947A	George Barnes			6,834	78
1947B	W. Roy Breg	<u>7,764</u>	57	<u>2,653</u>	64
				9,487	71
1948	Paul Koehler	7,288	46	7,675	56
1949	Daniel Elliot	5,951	70	3,930	60
1950	Margaret Lyman	12,523	64	74,952	71
1951	Lowell Goodman	8,479	45	10,581	59
1952	Harvey Young	5,770	40	4,275	42
1953	Vincent Gott	6,355	51	8,710	55
1954	John Rose	8,237	70	6,034	60
1955	Robert Kramer	6,405	63	6,932	58
1956A	John Gardner	10,346	54	4,862	47
1956B	Donald Dalessio			<u>3,235</u>	53
				8,097	50
1957A	Harry Briggs	2,975	59	3,575	57
1957B	Howard Minners	<u>3,515</u>	61	<u>4,575</u>	64
		6,490	60	8,150	61
1958A	Andrew McGowan	7,414	68	9,702	53
1958B	Paul Rudnick	<u>3,985</u>	58	<u>4,820</u>	52
		11,399	63	14,522	53
1959A	Asa Barnes	7,094	64	7,222	61
1959B	Muriel Wolf	<u>5,798</u>	59	<u>4,474</u>	57
		12,892	62	11,696	59
1960A	Eugene Gaenslen	3,536	50	5,333	57
1960B	Thomas Kugelman	<u>4,275</u>	52	<u>6,500</u>	57
		7,811	51	11,833	57
1961A	Robert S. Briggs	3,575	54	3,305	51
1961B	Warren Widmann	<u>3,925</u>	54	<u>4,610</u>	57
		7,500	54	7,915	54
1962A	A.R. Pschirrer	1,580	34	4,090	60
1962B	Frederic Cantor	<u>2,527</u>	38	<u>3,051</u>	39
		4,107	36	7,141	50
1963	Craig Llewellyn	7,971	35	6,984	32
1964A	William J. Houghton	4,360	51	2,185	41
1964B	Robert Lyons	<u>9,800</u>	71	<u>10,650</u>	68
		14,160	61	12,835	55
1965	David Hill	5,544	47	13,299	50
1966A	Mary Alice Houghton	2,775	51	2,975	57
1966B	Gary Townsend	<u>1,885</u>	42	<u>3,400</u>	52
		4,660	47	6,375	55
1967	James Dowaliby	4,204	57	3,428	54
1968	Anthony Lovell	<u>5,935</u>	76	<u>5,715</u>	74
		10,139	67	9,143	64

CLASS	AGENT	1988-1989		1989-1990	
		TOTAL	% PART.	TOTAL	% PART.
1968A	Frank Lucente	3,627	43	9,053	45
1968B	Donald Lyman	<u>3,852</u>	64	<u>4,830</u>	58
		7,480	53	13,883	52
1969	Adrian Schnall	11,088	63	7,602	52
1970	James Missett	4,922	38	5,823	46
1971A	John Cieply	3,438	52	3,468	43
1971B	Barbara Kinder	<u>4,175</u>	57	<u>5,725</u>	44
		7,613	44	9,193	44
1972	Harry Malech	10,108	47	9,835	47
1973A	Lee Goldman	1,425	39	1,766	48
1973B	John McQuade	3,740	39	2,015	39
1973C	Jerrold Rosenbaum	<u>1,725</u>	46	<u>1,691</u>	43
		6,890	40	5,472	43
1974A	Amy Schechter	1,955	49	1,755	49
1974B	Robert Schechter	<u>1,385</u>	32	<u>3,800</u>	37
		3,340	40	5,555	43
1975A	Daniel Passeri	1,410	23	1,570	31
1975B	Mary Jane Minkin	<u>1,304</u>	18	<u>1,179</u>	20
		2,714	20	2,749	26
1976A	William Levy	2,540	32	3,000	35
1976B	Glenn Gorlitsky	<u>2,275</u>	46	<u>1,260</u>	36
		4,815	36	4,260	36
1977A	Attilio Granata	610	24	2,420	24
1977B	Ronald Vender	<u>1,205</u>	44	<u>2,527</u>	47
		1,815	34	4,947	36
1978A	Duke Cameron	2,325	26	1,770	22
1978B	Seth Powsner	415	33	325	27
1978C	Thomas Smith	<u>280</u>	50	<u>115</u>	25
		3,020	30	2,210	25
1979A	Jeffrey Kaine	1,190	40	685	34
1979B	Cynthia Sherman	<u>1,245</u>	31	<u>1,900</u>	24
		2,435	35	2,585	29
1980A	Eduardo Alfonso	1,020	29	2,375	35
1980B	Steven Rosenfeld	<u>725</u>	30	<u>1,056</u>	27
		1,745	30	3,431	31
1981	Anthony Urbano	1,125	23	1,645	20
1982A	Muriel Cyrus	95	7	650	12
1982B	Jed Gorlin	330	44	300	35
1982C	S. Wolf-Rosenblum	<u>335</u>	29	<u>470</u>	38
		760	23	1,420	28
1983A	Michael Tom	324	16	276	9
1983B	David Schwartz	<u>205</u>	26	<u>330</u>	30
		529	20	606	20
1984A	Hingge Hsu	675	32	485	26
1984B	Jay Kostman	<u>385</u>	18	<u>500</u>	19
		1,060	25	985	23
1985A	Greg Sachs			695	26
1985B	Fred Santoro	<u>786</u>	32	<u>190</u>	23
		786	32	885	25
1986A	Eric Bernstein	95	7	230	16
1986B	Clinton Lindo	220	7	95	11
1986C	Eric Suan	<u>60</u>	14	<u>35</u>	7
		375	9	360	12
1987A	Barry Weinstock	237	26	261	20
1987B	Subba Gollamudi	2,070	22	50	17
1987C	Mindy Schuster	175	23	100	14
1987D	Mark Widmann			<u>70</u>	11
		2,552	21	411	17
1988A	Michael Mockovak	59	26	57	19
1988B	Susan Valley	90	17	145	17
1988C	Hedi Zaghi	<u>149</u>	16	<u>20</u>	8
		298	20	222	15
1989A	Stephen Bharucha	110	20	110	13
1989B	Lewis Lipsey	245	20	245	24
1989C	Melissa Myers	50	10	50	11
1989D	Roger Widmann	<u>35</u>	10	<u>35</u>	13
		440	15	440	15

CONTRIBUTORS 1990-1991

The names and data included on the following pages were provided by the Yale School of Medicine Alumni Fund and reflect contributions made between July 1, 1989 and June 30, 1990.

MEDICAL SCHOOL ALUMNI

1906

Charles R. Mitchell*

1908

Michael A. Parlato*

1912

Walter Clark Tilden*

1913

Ralph Emerson Taylor*

1916

Ernest Russell*

1919

Willys M. Monroe*

1920

Oscar Brenner*

1922

Maurice Grozin*
Chester E. Hurwitz*
Helen P. Langner

1923

William Cohen
Julius Anthony Olean*
Hyman W. Weinstein*

1924

John J. Batchelor
Donato Anthony D'Esopo*
David M. Raskind
Myron A. Sallick*
Harold T. Vogel*

1925

Dorence S. Cowles
Waldo F. Desmond*
William E. Hall
Samuel Reback
Eli Hyman Rubin*
Alice A. S. Whittier
Howard Asa Wood*

1926

Stanton T. Allison*
Louise Baker
Maxwell Bogin
William H. Hahn*
Joseph L. Hietzel*
Joseph T. Matteis

1927

Wallace Robert Bostwick*
Henry Irwin Fineberg*
John Martin Freiheit*
Donald I. Gibson*
Albert Jablonsky*
Nathan Levy*
William H. Meredith
Arthur C. Berg
and (unintelligible)
Thomson H. Sells
(unintelligible) (unintelligible)

1928

Max Alpert*
Sheldon A. Jacobson
Edward P J Kearney
Ralph E. Knutti
R. Harold Lockhart
Edward W. Ludwig*
Nathan E. Ross
Robert I. Rubinstein*
John M. Russell*
Alvin A. Schaye*
Lewis A. Scheuer*

1929

James Rae Arneill Jr.*
John M. Bailey*
John W. Cass Jr.
Olive Gates
George S. Goldman
Alexander O. Haff*
John A. Hangen
Paul F. McAlenney
Tony Liebman Rakieten*
William Frederick Roth Jr.*
Russell B. Scobie
Robert Tennant
Newell Raymond Washburn*
Julius G. Weiner*
Mabel Wilson

1930

Samuel Alpert
Daniel N. Beers*
Frederick Fitzherbert Boyce
Charles A. Breck*
Lewis Dickar*
Vincent A. Doroszka*
Knox H. Finley
J. Roswell Gallagher
Leonard Greenburg
Amy H. Hunter-Wilson
Edmund L. Kitzmeyer
Paul H. Lavietes
Moses D. Lischner*
James Merriman Lynch*
John C. Mendillo
Paul Watson*
Charles L. Wood

1931

Henry H. Briggs Jr.
Benjamin Castleman*
Michael D'Amico
Helen R. Gilmore
Paul A. Harper
Morris Heller*
Thomas C. Jaleski
Rhoda M. Mickey
Nelson Newmark
Abraham J. Schechter
James A. Stringham
Max Talfel

1932

Louis K. Alpert
Reginald V. Berg
Frank Carroll
Clement C. Clarke
Hester B. Curtis
Joseph P. Donnelly
Lee E. Farr
Thomas E. Farthing*

Conrad R. Lam

Elizabeth M. Ramsey
Benjamin N. Tager
Myron E. Wegman
Roland T. Wehger*

1933

Myron J. Adams*
Fred W. Buse
Warren P. Cordes
Franklin M. Foote
Jack Greenberg
Daniel Foster Harvey*
George K. Hirst
Robert Watkinson
Huntington Jr.*
John G. Martin
Raymond E. Miller
Ashley Pond III*
Edwin B. Seelye*
Sidney Stringer*
John J. Wolfe
Francis M. Woods

1934

Frederick Beck
Joseph Budnitz
Francis P. Guida*
Derick Algernon January*
Knowles B. Lawrence
Herbert C. Miller
Edward Thomas O'Donnell*
John B. Ogilvie
Lucien M. Pascucci
Harry Sherman
Wedgwood P. Webber
William R. Willard
George Zalkan*

1935

Walter E. Barney
George A. Carden Jr.
Edgar S. Childs
H. Hoffman Groskloss
James Quintin Haralambie
W. Howard Horner
Mildred Hartshorn January
Samuel D. Kushlan
Donald P. Morris*
Norman E. Peatfield
Milton Rose*
Clark P. Searle
Walter A.L. Thompson
1935 Classmates

1936

Lester W. Burket
Albert W. Diddle
Margaret C. L. Gildea
George A. Hahn*
Louise G. Hutchins
Philip M. LeCompte
Donald F. Marshall
Stephen F. Nagyfy
Frederick A. Post
Margaret Sommers
Morris Tager

1937

Edmund R. Blower
William G. Cooper Jr.
David A. Dolowitz
D. Crosby Greene

Wilbur D. Johnston

Alfred E. King
Dunham Kirkham
Julia Mehlman
James P. Morrill
T. Dennie Pratt
Alan A. Rozen
Morgan Sargent
Edward J. Shaw
Albert D. Spicer
John M. Thomas
Jean Wells

1938

Roy N. Barnett
Henry L. Carideo
S. Charles Kasdon
Benjamin E. Lyons
John J. McGillicuddy
Edward Nichols
Nelson K. Ordway
Charles J. Petrillo
Edward W. Pinkham Jr.
James Radcliffe Jr.
George E. Roberge

Theodore W. Steege Lester J. Wallman

1939

Stephen W. Collins Jr.*
Harold H. Coppersmith
Norman L. Cressy
William H. Druckemiller
Robert Goodfellow Ernst*
John P. Ferguson Jr.
S. Jerome Greenfield
Arthur E. Laidlaw
Margaret A. Lennox
Ward J. McFarland*
James Peter Murphy
Russell Nahigian*
Douglas S. Riggs
Roger N. Ryley
Ernest L. Sarason
Rebecca Z. Solomon
John D. Tobin
Darrell G. Voorhees
Douglass W. Walker
John H. Wentworth
Malvin F. White

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Malvin White, M.D. '39
R. Leonard Kemler, M.D. '43
Nicholas P.R. Spinelli, M.D. '44
William McClelland, M.D. '47
Paul Koehler, M.D. '48
Lowell I. Goodman, M.D. '51
Harold Bornstein Jr., M.D. '53
Herbert Hurwitz, M.D. '54
Robert Kramer, M.D. '55
Robert Donahue, M.D. '58
William Waskowitz, M.D. '57
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David Hill, M.D. '65
John Foster, M.D. '71
Sharon Bonney, M.D. '76

FUND OFFICERS 1989-1990

Medical School Alumni Fund

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Chairman

J. Roswell Gallagher, M.D. '30
Bequest & Endowment Co-chairman

Samuel D. Kushlan, M.D. '35
Bequest & Endowment Co-chairman
Former House Staff Chairman

EPH Alumni Fund

Stephen Skorcz, M.P.H. '70
Chairman

1940

Theodore E. Allen
Joseph V. Baldwin
Ronald S. Beckett
Jack S. Blaisdell
Philip S. Brezina
David Crocker*
Wynant Dean
Richard E. Dormont
Robert M. Dunlap
James F. Ferguson Jr.
Eugene J. Fitzpatrick Jr.
Henry D. Humphrey
H. Stuart Irons
Donald G. Johnson
Ira D. LeFevre Jr.
John D. MacAllister
Paul D. MacLean
Edward Martin
Maurice Ross*
W. Norman Sears*
Joseph E. Sokal*
J. Champneys Taylor
Patricia E. Wanning
Helen H. Woods

1941

Robert H. Alway
Robert H. Areson
W. Randal Bell
Knute E. Berger
William A. Carey
Joseph P. Carson Jr.
Charles B. Cheney
Herbert W. Diefendorf
Robert F. Dine*
Peter A. Duncan
Lloyd D. Flint
John Franklin
Robert L. Gilbert
Frederick P. Glike
Sidney L. Lasell
William Lee
Bjorn Lih
F. Eugene Martin
John R. McDermott*
Willys M. Monroe
Malcolm C. Murfitt
Jean E. Neighbor
Edward B. O'Connell
Robert W. Ollayos
Gioacchino S. Parrella
David V. Pecora
Edwin D. Rogers
Leslie Simmonds

1942

William E. Bloomer
James M. Bunce
Walter J. Burdette
Robert E. Carroll
Donald S. Childs Jr.
Vincent J. Collins
Eugene M. de Hostos
David G. Decker*
Hendrik DeKruif
Davitt Felder
Elihu Friedmann
Allan V.N. Goodyer*
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Wilson E. Hughes
Leo Kellerman
John R. Lincoln
Patrick S. Mullins*
Dean Nichols*
Charles F. Scholhamer
Richmond W. Smith Jr.
Carter Stilson
Edgar B. Taft
Maurice Tulin
Francis P. Vose*
Irving Norman Wolfson
1942 Classmates*

1943A

Ralph D. Alley
John R. Brobeck
Lycurgus M. Davey
Donal L. Dunphy
R. M. Fasanella
Gerard Fountain
Edward Douglas Horning*
R. Leonard Kemler
Jonathan Trumbull Lanman*
Douglas Lindsey
J. Philip Loge
Henry E. Markley
Walter J.J. Nero
Dorothea R. Peck
Earl J. Rhoades
Henry A. Riedel
Bernard R. Rowen
Marcus E. Sanford
Robert A. Sears*
Edward Hersey Soule
Hilliard Spitz
Nicholas M. Stahl
Robert J. Staub
Sophie Trent Stevens
Oliver G. Stonington
Frederick A. Waldron
John J. Weber
Robert H. Wyatt

1943B

Richard N. Abbott
John R. Almklov
David G. Borden
James L. Bradley*
S. Brownlee Brinkley
Henry B. Bruyn Jr.
Thomas L. Bucky
Jane B. Cadbury
Philip B. Chase
Hunter H. Comly
Norman I. Condit
Ronald W. Cooke
Joseph I. Epstein
Robert H. Furman
Victor C. Hackney
Frank R. Hurlbutt Jr.
Henry H. Jones
Joseph F. Kell
Sawyer E. Medbury
Hoyt B. Miles Jr.
Benjamin R. Robinson Jr.
Donald W. Seldin
Francis A. Spellman*

1944

Carl E. Andrews
Joseph Ciola*
Edward J. Conway
John C. Coolidge
George B. Corcoran Jr.
Frank W. Countryman
Charles H. Crothers
Lawrence G. Crowley
John H. Doherty
Robert W. Frelick
Carol Goldenthal
Charles A. Hall
Howard B. Hamilton
Robert I. Hinkley
Ward S. Jenkins
Edith M. Jurka
John Weaver King
Frederick F. Krauskopf
Elias J. Marsh
Katharine Hawley Martin
Joseph Massaro
A. Reese Matteson
Paul E. Molumphy*
Russell R. Monroe
Lawrence K. Pickett
Haynes W. Sheppard
Sarah P. Sherwood
Nicholas P.R. Spinelli
Mrs. Gertrude Spinelli*



Roy B. Sauberman celebrates his graduation with grandfather Nathan Sauberman, a retired engineer. (Commencement photographs throughout this section offer a reminder that contributions to the School of Medicine and EPH alumni funds, unless otherwise directed by the donor, support student financial aid.)

Priscilla Dienes Taft
Anthony Varjabedian
Calvin Watts Woodruff*
Reuben Zucker*

1945

George Howard Allison
Albert S. Atwood
Frederic M. Blodgett
Richard W. Breck
Louise H. Burr
Alice Shepard Cary
Sanford F. Cockerell
Jay B. Cohn
Thomas P. Cotter
Edward M. Daniels
Richard R. Dyer
Robert S. Easton
Sidney S. Feuerstein
Alice Dershimer Friedman
Raymond A. Gagliardi
Philip S. Good
Herbert S. Harned Jr.
Paul W. Hoffer
O. Roger Hollan
Hans R. Huessy
Leland W. Jones
Michael W. Lau
William E. Laupus
Raymond E. Lesser*
Mark McD Lindsey

James R. Mason
Charles E. McLean
George W. Naumburg Jr.
Fitzhugh C. Pannill
Richard M. Peters
Elliot R. Reiner
Charles E. Sherwood
Joseph R. Stanton

1946

Margaret J. Albrink
William G. Banfield Jr.
Franklin C. Behrle
Sanford G. Bluestein
Linus W. Cave
Thomas J. Coleman
James F. Cooney*
George C. Cusick
Thomas A. Doe
Edward F. Edinger
Gregory E. Flynn
Martin E. Gordon
Charles Sheldon Judd Jr.*
Ruth S. Kempe
Benjamin F. Kitchen Jr.
James A. Kleeman
Vincent J. Longo
Richard Hess Mann*
Thomas J. Mathieu
Hugh J. McLane
Joe D. Morris

John H. Morton
John F. Neville Jr.
Laura W. Neville
Harry Dickson Patton
Vincent Pepe
Francis G. Reilly*
David H. Riege
Phillips E. Roth
Julian A. Sachs
Donald P. Shedd
Richard G. Sisson
Colby S. Stearns
Robert R. Wagner
William J. Wedemeyer Jr.
Thomas J. Whelan Jr.
Hugh R. Williams*
Elihu S. Wing Jr.

1947

George R. Barnes Jr.
Albert W. Bostrom Jr.
John E. Bowers
W. Roy Breg Jr.
Richard G. Britton*
David L. Brook
Rocco A. Calandrucchio
John C. Carpenter
Charles R. Cavanagh Jr.
Roland G. Chambers
Arthur Harry Chapman
Robert A. Chase



(From left) Beverly Stoute enjoys the afternoon with Tracy Nelson and Laurie-Ann Nesseralla.

1947 (cont.)

Amoz I. Chernoff
William F. Collins Jr.
Bradford S. Colwell
Robert P. Darrow
Archie L. Dean Jr.
Jean H. Dougherty
Owen W. Doyle
Franklin Harold Epstein
Edward Foord*
Richard K. Friedlander
Frank L. Golbranson
Frank H. Horton
Robert J. Kerin
Don F. Kimmerling
Richard P. Levy
Brock Lynch
Victor A. Machcinski
Charles L. Mache Jr.
William K. McClelland
Robert F. Newton
Myron K. Nobil
Lawrence C. Perry*
Philip H. Philbin
Olive E. Pitkin
Irving Rudman
Alvin Somberg
Igor Tamm
Patricia B. Tudbury
Ellis J. Van Slyck
M. Henry Williams Jr.

1948

Russell J. Barnett*
George F. Batten
Edith M. Beck
Jonathan S. Bishop
Allyn G. Bridge
Richard Steele Buker Jr.
Arthur L. Coleman Jr.
Ruth F. Cortell
G. Robert Downie
Victor A. Drill*
Elizabeth Fuller Eiskner
Albert A. Fisk
Boj Frame*

Emil Frei III

Julian Frieden
Paul S. Goldstein
Allan Green*
B. Herold Griffith
Sylvia Preston Griffiths
Richard M. Hannah
Ross R. Harcus
Paul B. Koehler
Patrick J. McLaughlin Jr.
C. Arden Miller
Lewis P. Rowland
Benjamin F. Rush Jr.
Gabriel A. Saviano*
Jerome H. Shapiro
Jessie Parkinson Spear
Anne G. St. Goar
Paul Talalay
Wallace W. Turner
Paul Woodbury Weld

1949

William G. Anlyan
Jonathan S. Bishop
Mary Pucci Couchman
Phillip G. Couchman
N. Joel Ehrenkrantz
Daniel W. Elliott
Gunnar O. Eng
Albert A. Fisk
Eleanora C. Gordon
Frederic W. Gray
Jackson Harris
Frederick R. Hine
Halsted R. Holman
Benjamin A. Johnson
Orval I. McKay
Timothy F. Nolan Jr.
Julian I. Pichel
Edmund L. Piper
Charles L. Rennell Jr.
Murray Z. Rosenberg
Daniel Rudman
Lawrence E. Shulman
Martha Vaughan
Vernon T. Watley
Mary-Agnes P. Wine

1950

Russell N. Anderson
Sylvia L. Axelrod
Malcolm A. Bagshaw
John E. Borowy
William H. Bucher
Alvin Davis
Claude W. Delia
Marie C. Duncan
Kent Ellis
Thomas J. Ferraro Jr.
Daniel Fine
Lawrence R. Freedman
Carl A. Gagliardi
Archie James Golden*
Melvin H. Kaplan
Sidney S. Lee
Janus C. Lindner
Margaret S. Lyman
Harold March
Harry L. McClelland
Marina P. Meyers*
John H. Meyers
Robert Edward Quinn*
Robert T. Seecy
Cynthia B. Shimm
Jane B. Shumway
Martin E. Smith*
John S. Strauss
Robert H. Sturman
B. Lionel Truscott
Myra D. Tyler
Frederick Edward Vultee*
1950 Classmates

1951

Karel Bedrich Absolon
W. Robert Adams
Frank R. Allen
Thomas T. Amatrua Jr.
Stanley D. Ardell
Eleanor Clay Bigley
John J. Egan
Lawrence R. Freedman
Sidney S. Furst
Joseph M. Garland

Lowell I. Goodman
John T. Groel
Robert N. Hamburger
Carroll K. Iverson
William Kiekhofer
Jocelyn S. Malkin
Francis L. Merritt
Paul D. Millikin
Walter S. Morgan
Albert R. Mowlem
Richard S. Munford
Ismail Nik Nevin
Charles A. Nugent Jr.
Gerard B. Odell
Jose Felix Patino
Arthur A. Pava
Majic S. Potsaid
Robert G. Small
Bradley R. Straatsma
William A. Taylor*

1952

Siegried A. Centerwall
Willard R. Centerwall
Frank R. Coughlin Jr.
Robert P. Gerety
Arthur P. Hustead
James Kent Luce
N. Karle Mottet
Robert L. Nolan
Sidney Nathan Paly
Robert G. Petersdorf
Leonard Rush
Elizabeth M. Rush
Mary Wheatland Schley
Donald H. Schultz
Robert B. Schultz
John H. Wagner Jr.
John L. Wolff
Harvey L. Young
Robert Zeppa

1953

Jonathan Barry*
Claude Bloch
Harold D. Bornstein Jr.

William R. Chaffee
Allen Chetrick
Rex B. Conn
James P. Dunn
Donnell Dencil Etzwiler
Vincent Lynn Gott
A. Daniel Hauser
George L. Hoffmann
Peter Biggs Hukill
Richard Robert Knowles III
Preston Lee Leslie
Hildegard Mueller Leslie
John Dutch Lord
Robert N. Melnick
Harvey Martin Peck
Warwick Potter Jr.
Paul G. Quie
Jose Ramirez-Rivera
Irwin K. Rosenberg
Barbara F. Rosenberg
Virginia C. Saft
Richard Andrew Sinnott Jr.
Ora K. Smith
Howard Willis Smith
Lynn Cortland Stoker
William Junior Vandervort
William August Wilson
James Frederic Young

1954

Frank P. Berg
Richard J. Bouchard
George N. Bowers Jr.
Ralph K. Campbell
John R. Cole
Arthur C. Crovatto
Donald D. Davis
Walter J. Freeman
John A. Gariepy
Edward J. Gerety
Samuel T.J. Giammona
Frank L. Gruskay
Robert P. Hatch
Walker R. Heap Jr.
Eva H. Henriksen
Herbert S. Hurwitz
Robert F. Hustead
Robert J. T. Joy
Donald S. Kornfeld
Richard Lamb
Harry C. Miller Jr.
Paul N. Neufeld
James J. Nora
Lowell E. Olson
Anthony V. Piccirillo
Richard D. Pullen
Jacques M. Quen
John Keith Rose
Elihu M. Schimmel
Leonard M. Silverman
Robert L. Stein
Martin B. Vita

1955

John B. Atwater
John C. Bailar III
George E. Becker
E. Edward Bittar
Joseph I. Boylan Jr.
Irwin M. Braverman
Edward Noel Brennan
Padraic Burns
Nicholas A. Coassin
Edward D. Coppola*
Milton Corn
Pasquale James Costa
Robert G. Crounse
John G. Daley
Fred Wendell Doyle
Leroy Engel
F. Robert Fekety Jr.
Edwin G. Fernand
Mahlon V.R. Freeman
James Conway Garlington
Paul Gonick

Ion Gresser
John H. Hodge
D. Franklin Johnson Jr.
Harry O. Kendall
David R. Kessler
Robert A. Kramer
James Lum
Joseph S. McGuire Jr.
Robert C. Nodine
James P. Nolan Jr.
Gloria C. Onque
Edward J. Ottenheimer Jr.
John C. Pace Jr.
Robert H. Peters Jr.
Gregory Peterson Jr.
Robert A. Reich
Paul J. Robinson
F. Brantley Scott Jr.
Clement B. Sledge
Alan A. Stone

1956

Alan E. Apfel
Peter Blos Jr.
Levon Z. Boyajian
Thomas M. Brown
Rosalie A. Burns
Donald J. Dalessio
Chandler Dawson
S. Evans Downing
Gilbert M. Eisner
Thomas F. Ferris
John H. Gardner III
Sumner Gochberg
Joan Marasco Hardenbergh
John Herd Hart
Robert L. Hill
William H. Hindle
George T. Kammerer
Jerome O. Klein
William V. Lewit
Preston C. Manning
Elmer T. Mitchell Jr.
Norman F. Moon
Donald J. Nalebuff
A. Frederick North Jr.
David A. Page
George W. Paulson
Stewart E. Pursel
Robert Lee Scheig
Edward C. Senay
Benjamin A. Shaver Jr.
Donald William Sherrick
Daniel R. Silbert
Donald R. Sperling

1957

F. Calvin Bigler
Jack Norman Blechner
Richard I. Breuer
Harry C. Briggs
Carl A. Brinkman
John P. Carey
Louis Z. Cooper
Harold Dick Cross
Thomas H. Danaher

James R. Dorr
Salvatore Falbo
Harold J. Fallon Jr.
Robert E. Fishbein
Ronald H. Fishbein
James R. Fitzgerald
Anthony L. Fons III
Elizabeth H. Forsyth
Robert H. Glass
Anne H. Good
Jack Peter Green
Gilbert F. Hogan
Warren R. Johnson
Richard Lee Kahler
Stanley E. Kilty
William L. Kissick
Willard A. Krehl
Jack Levin
Bennett F. Markel
Mark D. Marshall
Howard A. Minners
Robert K. Modlin
George Albert Nelson Jr.
Herbert A. Newman
Thomas Francis O'Brien Jr.
Raymond E. Phillips
Clifford B. Reifler
Melville P. Roberts Jr.
Arnold Schoolman
Kenneth A. Simon
Gilbert B. Solitare
Donald C. Stahl
William J. Waskowitz
Herbert Winston
James G. Zimmer

1958

George K. Aghajanian
Don P. Amren
Joseph E. Angelo
Gerard N. Burrow
Benjamin Bursten
John A. Carlston
Robert J. Donohue Jr.
Donald A. Duncan
Joel C. Eberlin
Michael E. Fishman
John Currier Gallagher*
Marcia Kraft Goin
William M. Gould
James Greenwald
Charles A. Hall Jr.
Stanley Harris
Michael Kashgarian
Haskins K. Kashima
Jay Ward Kislak
Theodore W. Lieberman
Myron Lotz
Andrew Joseph McGowan Jr.
Richard Charles Miller
Albert Muggia
Robert S. Newirth
Carol F. Phillips
William B. Radcliffe
Paul A. Rudnick
Thomas R. Shea

Bruce H. Sklarew
Edward Lloyd Socolow
Raymond W. Turner
Margaret Smith Wenzel
Joseph P. Wierzbinski III
John Patrick Wood
Pauline B. Wood

1959

Scott Ingram Allen
Robert M. Amick
Asa Barnes Jr.
Francis A. Beer
Jack F. Bowers
Edwin M. Clayton
Sidney M. Cohen
Ronald C. De Conti
Gerald Fenichel
Robert L. Fisher
Paul Jay Friedman
Robert J. Gonyea
Gerald B. Gordon
W. Keith Hadley
H. Rodney Hartmann
William H. Heydorn
C. Richard Hinckley
Leonard Inker
John J. Jasaitis
Edvardas Kaminskas
Herbert J. Kaufmann
David W. Kingsbury
Myron S.S. Lee
Kathryn Huxtable Lewis
Brian J. McGrath
James A. O'Neill Jr.
Robert H. Ostberg
Nicholas M. Passarelli
Charles A. Phillips
Lincoln T. Potter
James D. Prokop
James R. Ralph
Joseph D. Saccio
Constantine J. Sakles
Marc D. Schwartz
Richard M. Senfield
Owen A. Shteir
Sanford P. Solomon
Gene W. Spector
James J. Stagnone
John S. Strauss
Lois W. Tice*
Leo H. Von Euler
Muriel D. Wolf

1960

Victor Altshul
Jack D. Barchas
Stuart P. Bowne
Ormond V. Brody
Donald P. Buebendorf
Stanley M. K. Chung
Gerald N. Cimmino
Jon E. Courtney
John M. Davis
Malin Dollinger
David Paul Dunn*

Caldwell B. Esselstyn Jr.
Warren H. Fisher
Paul Jay Friedman
Eugene C. Gaenslen Jr.
James I. Gilman
Roland H. Ingram Jr.
Daniel M. Jones
William S. Kaden
Eric P. Kindwall
Frank J. Kleeman
Susan T. Kleeman
Thomas P. Kugelman
Edward R. Lang
Thomas Lau
Eugene G. McCarthy Jr.
Donald L. Miller
Allan W. Newcomb
Buford L. Nichols Jr.
Fred Palace
Nancy Rolick Powell
Albert Matthew Ross
Daniel J. Rubin
John J. Schrogie
Fred Stargardier
Constantine M. Voyagis
Robert C. Wallach
May Yung-Fun Woo Wang
Ronald A. Yankee
1960 Classmates

1961

Kenneth A. Arndt
Earl L. Baker
Frank H. Baker
Albert A. Bechtoldt Jr.
Robert S. Briggs
Orson R. Dee
Paul David Deiter
Ronald A. Dierwechter
Jon Dudley Dorman
T. Wayne Downey
John E. Fenn
Norbert Fleisig
Edward C. Gilbert
Robert Sterling Gillcash
Louis D. Hunt
Richard L. Keefe
Robert Isaac Levy
George M. Lordi
Hugh James Lurie
Joseph Richard Lusby
Sally Lockwood Marchesi
Vincent T. Marchesi
David B. Matloff
Joseph W. McDaniel
Anoush Miridjanian
Richard Allen Moore
Norman I. Moss
John Curtis Parker
Elaine Pitt
Roy E. Ronke Jr.
Thomas H. Sakoda
Stanley G. Schade
Robert N. Taub
Hugh C. Thompson III
Franklin H. Top Jr.

David E. Weaver
Warren D. Widmann
John R. Woodward

1962

Charles B. Anderson
Frederic P. Anderson
Spencer J. Brody
Fredric K. Cantor
Thomas Newell Chase
Richard N. Collins
Oliver Townsend Dann
Arnold Joel Eisenfeld
I. Bruce Elfenbein
John W. Foreman
Anthony V. Furano
John N. German
David H. Groth
Patricia C. Hassakis
Gary Jacobson
Glenn L. Kelly
David E. Knoop
Manuel J. Lipson
John P. Lynch
Malcolm A. Martin
Allan L. Mattern
Stanley E. Matyszewski
David J. McConnell
William A. Miller
Malcolm S. Mitchell
David D. Nicholas
A. Richard Pschirrer
Joseph Ross
Edward L. Spencer Jr.
James A E Spencer
Larry Lee Stewart
Seth Thaler
Sherwood Waldron Jr.
William Farnsworth Weber
Stewart R. Wright

1963

Miguel R. Alonso
John E. Conte Jr.
Andrew Edin
John P. Eliopoulos
William T. Friedewald
Alexander R. Gaudio
Lee D. Goldberg
Peter B. Gregory
Benjamin Keith Harris
Harold P. Kaplan
Constantine D. Kyropoulos
William B. Lehmann
Peter B. Livingston*
Craig H. Llewellyn
Herbert Meltzer
Robert E. Mueller
Sheldon R. Pinnell
Jay M. Pomerantz
Lee Bland Talner
Peter V. Tishler
Lawrence Tremonti
Peter G. Weiner
Jerome Allen Winer

	1988-1989				1989-1990			
	NUMBER SOLI- CITED	NUMBER CONTRI- BUTED	PERCENT PARTICI- PATION	TOTAL	NUMBER SOLI- CITED	NUMBER CONTRI- BUTED	PERCENT PARTICI- PATION	TOTAL
Alumni	3,687	1,609	46	\$ 484,848	3,735	1,630	44	\$ 607,960
Former House Staff	1,002	276	28	31,436	2,112	221	10	28,932
Parents/ Friends	432	88	20	12,256	432	69	16	7,946
Interest/Miscellaneous	—	—	—	11,558	—	—	—	11,337
TOTAL	5,121	1,973	39	\$ 522,698	6,279	1,920	31	\$ 656,175

1964

William A. Alonso
Berton W. Ashman
Leland S. Berger
Philip Blume
Robert M. Briggs
Thomas A. Cardella
Joseph F.J. Curi
Anthony Ferrante
Norman C. Fost
John F.B. Haney
Gene I. Higashi
Lawrence Horwitz
William J. Houghton
Lewis Landsberg
Richard V. Lee
Thomas L. Lentz
David B. Leof
James S. Levine
Richard Murray Linburg
Robert W. Lyons
Andrew E. MacMahon
William F. Matchett
Robert L. Mitchell
Alan H. Morris
James J. Murphy
Donald A. O'Kieffe Jr.
William B. Pratt
Jack S. Rice Jr.
Norman Scher
Robert L. Shelton
Donald G. Skinner
A. Thomas Snoke
Lyll C. Stulp II
Lee Van Lenten
Charles Vogel
Stephen Waltman
Oscar Wand

1965

Susan A. Aoki
Thomas T. Aoki
John H.M. Austin
Paul Balter
Thomas B. Caldwell III
David G. Campbell
Robert M. Cohn
Michael J. Cummings
David S. Fedson
Robert I. Finkel
Christopher C. Gates
Frank J. Grady
Robert Andre Gryboski
James K. Gude
Reid R. Heffner Jr.
David A. Hill
Carl E. Hunt
Ronald J. Karpick
Mohandas M. Kini
Sandra Chook Levine
Mark W. Lischner
Philip D. Manfredi
Walter W. Noll
A. Lawrence Ossias
John A. Parrish
Robert L. Pickens
William A. Renert
Gene A. Robinson
George B. Rowland
John H. Seashore
Margretta Ann Reed
Seashore
David M. Shames
David P. Simmons
Harlan Spitz
Alan William Stone
Robert G. Weiner
Bert Yuan Shu Wong

1966

Blume
Houghton
Linburg
Lyons
MacMahon
Matchett
Mitchell
Morris
Murphy
O'Kieffe Jr.
Pratt
Rice Jr.
Scher
Shelton
Skinner
Snoke
Stulp II
Van Lenten
Vogel
Waltman
Wand

Philip Bernstein
James Edward Brown
Eugene Patrick Cassidy
Joseph A. Donadio
Marvin A. Eisengart
Peter M. Fitzer
Robert N. Frank
Robert C. George
Peter D. Gibbons
J. McLeod Griffiss
Robert A. Gunn
Stuart T. Hauser
Jay G. Hayden
Mary Alice Houghton
Bruce W. Jackson
Gordon R. Kelly
Stuart M. Kotler
Wilbur L. Kukes
David C. Law
Lynne L. Levitsky
John Stephens Melish
Harold Mellin
Eli H. Newberger
Edward J. O'Keefe
Neil J. Peterson
William D. Peterson
James D. Slavin Jr.
Parker J. Staples
Gary L. Townsend
Jon S. Wayland
Joan T. Wayland
Arne S. Youngberg
Richard B. Yules

1967

Daniel L. Arons
Arthur L. Beaudet
Daniel J. Booser
Gary C. Burget
Mary Williams Clark
Kenneth F. Crumley
Cynthia Rapp Curry
Marian C. Davidson
James J. Dineen
James M. Dowaliby II
John A. Drews
Peter R. Egbert
Dennis Grant Egnatz
Herbert W. Felsenfeld
Richard J. Hart Jr.
Richard L. Heppner
George P. Herr
David L. Ingram
Anthony P. Lovell
Laura Kirchman Manuelidis
Stephen W. Miller
William J. Mitchell
Joseph L. Morris
Jennifer Robinson Niebyl
John Northup Jr.
John O. Pastore
William E. Perkins
Brian F. Rigney
Robert I. Roy
Jonathan L. Savell
Alfred Q. Scheuer
Stephen C. Schimpff
Sidney C. Smith Jr.
Lewis S. Solomon
Robert S. Steinberg
Richard B. Sweet
M. David Tilson III
Robert A. Vogel
Robert A. Vollero
Joseph F. Walter
Martin Wand
Robert J. Winer
Robert S. K. Young
Peter M. Zeman

1968

Philip L. Barry
Daniel I. Becker
Grace Jordison Boxer

William Catalona
Donald R. Coustan
Rutledge W. Currie
Barbara Mayer Egbert
Alan G. Finesilver
Richard A. Getnick
Mark Gilbert Grand
Leonard Grauer
Ralph S. Greco
Kevin N. Hennessey
John R. Hill II
Peter Jokl
Jeffrey S. Lee
Marc E. Lippman
Frank E. Lucente
Donald O. Lyman
Stephen I. Marglin
Rodrigo Martinez
David P. Millett
Richard P. Mills
Richard M. Morehead Jr.
John A. Ogden
James W. Ogilyie
Jackson B.E. Pickett III
Ralph Jerome Rauch
Joseph L. Renda
Gordon H. Sasaki
Jacob J. Schlesinger
Bruce Stuart Schoenberg*
Frederick C. Sherman
Elizabeth M. Short
Howard W. Siegel
Gerald L. Springer
Lee H. Strohl
Per Henrik Wickstrom
Creed W. Wood

1969

Charles S. Angell
David G. Ansel
David W. Barry
Robert E. Belliveau
Donald H. Buchholz
Richard J. Daly
Charles A. Dinarello
Douglass T. Domoto
Ralph J. Falkenstein
Gary S. Farnham
Steven A. Frankel
William H. Frazier
Anna S. Gail
Royal J. Gay
Sander G. Genser
Robert O. Gordon
Thomas C. Howard
Lee M. Jampol
Joel Mark Kaufman
Paul H. Kelker
Lynn G. Lagerquist Jr.
Elliot M. Livstone
Robert L. Marier
Arnold F. Mazur
Ellen B. Milstone
Bruce K. Nagle
Lionel M. Nelson
Nancy Olmsted
Deborah A. Putnam
N. Burgess Record Jr.
Joseph M. Rochford
David J. Sahn
Lutz H. Schlicke
Adrian M. Schnall
David J. Schulak
Gerald J. Smallberg
Michael S. Toren
David L. Upton
Robert J. Walat
Stephen R. Webb

1970

Richard A. Charlata
Henry Chessin
Michael J. Chusid
C. Norman Coleman

James E. De Lano Jr.
Margaret W. DeLano
W. Montague Downs
Jonathan Ecker
Richard L. Edelson
Robert Alan Epstein
Bruce A. Fabric
Thomas H. Gouge
Paul C. Hessler
Jay H. Hoofnagle
Jonathan D. Katz
Mark A. Korsten
Thomas L. Lewis
Robert B. Litman
Anne W. Lucky
Roger A. Mason
James R. Missett
William K. Mueller
W. Scott Peterson
Bruce A. Reitz
Robert M. Rosa
Dennis E. Shield
Stuart S. Shorr
Richard A. St. Onge
Daniel A. Symonds
Ray W. Tripp III
Brian Weiss
C. Bruce Wenger
Joellen Werne
Daniel Wuensch
Karl O. Wustrack

1971

Judith L. Bader
Laurie J. Bleicher
Bruce Block
Willard Cates Jr.
John L. Cieply
Frederick L. Cohn
Andrew D. Cook
Michael Cynamon
Leonard I. Eisenfeld
Harvey Fembach
Fred Finkelman
John W. Foster Jr.
Jerold Alan Haber
Michael J. Hart
William W. Hay Jr.
N. Timothy Jette
Robert M. Kessler
Barbara K. Kinder
William L. Krinsky
Gary M. Lande
David H. Lippman
Richard Albert Moggio
Martin Paris
John A. Patti
Barry Bruce Perlman
Michael C. Piercey
Anthony V. Proto
Barry S. Rand
Irving G. Raphael
Douglas R. Schmidt
John Smiarowski
James P. Southwick
Daniel R. Synkowski
Richard D. Travers
Paul A. Vignola
Robert B. Vranian
Albert Carl Wehl
Daniel G. Wright

1972

Robert D. Arbeit
R. Michael Buckley Jr.
Michael A. Catalano
Leonard H. Cohen
Philip L. Cohen
Gloria Cummings*
Robert F. DeBlasi
Norman M. Dinerman
William H. Druckemiller Jr.
M. Felix Freshwater
John P. Fulkerson

Robert B. Geehr
Robert D. Glassman
Robert F. Goodman
Bruce B. Haak
Andrew E. Hoover
Thomas L. Horn
Vernon H. Humbert Jr.
Fred Hyde
Anthony H. Jackson
Jesse B. Jupiter
Philip W. Lebowitz
Theodore M. Levin
Paul A. Lucky
Harry L. Malech
Jeffrey S. Menkes
David B. Moyer Jr.
James A. Nathanson
John P. O'Grady
Edward J. Olinger
William L. Risser
David H. Romond
Philip M. Rothfeld
John S. Smolowe
Frederick D. Stockwell
Lawrence P. Temkin
Philip J. Weyman
Michael W. Yogman

1973

David A. Adler
David Nelson Bailey
Clement R. Boland
Mary Ann Brunstetter-Shafer
Robert W. Bucholz
James N. Campbell
Marvin M. Chassin
F. Sessions Cole III
Joseph M. Connors
Christopher M. Doran
Jane H. Ferguson
Richard J. Fingerioth
Robert A. Florin
Lee Goldman
Gary V. Gordon
Gary T. Grimes
Howard S. Honig
Andrew G. Kadar
Lynne M. Liptay
Mark G.F. McCormick
John F. McQuade III
Jerry Nagler
John Frederick Neil*
Claes M. Nilsson
David E. Peach
David Pickar
Robert Joseph Polackwich*
Charles F. Reynolds III
James S. Robertson
Thomas J. Romano
Jerrold F. Rosenbaum
Robert A. Sirota
John R. Stratton
James F. Sullivan
Thomas F. Sweeney
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Ross R. Harcus '48
Paul Talalay '48
William G. Anlyan '49
Daniel W. Elliott '49
Eleanora C. Gordon '49
Jackson Harris '49
Frederick R. Hine '49
Benjamin A. Johnson '49
Timothy F. Nolan Jr. '49
Julian I. Pichel '49
Martha Vaughan '49
Russell N. Anderson '50
John E. Borowy '50
Alvin Davis '50
Carl A. Gagliardi '50
Cynia B. Shimm '50
Jane B. Shumway '50
John S. Strauss '50
Robert H. Sturman '50
B. Lionel Truscott '50
Stanley D. Ardell '51
Eleanor Clay Bigley '51
Sidney S. Furst '51
Joseph M. Garland '51
Carroll K. Iverson '51
Jocelyn S. Malkin '51
Albert R. Mowlem '51
Ismail Nik Nevin '51
Arthur A. Pava '51
Majic S. Potsaid '51
Donald H. Schultz '52
John H. Wagner Jr. '52
John L. Wolff '52
Robert Zeppa '52
William R. Chaffee '53
A. Daniel Hauser '53

Richard Robert Knowles III '53
Hildegard Mueller Leslie '53
Jose Ramirez-Rivera '53
Richard J. Bouchard '54
Donald D. Davis '54
John A. Garipey '54
Edward J. Gerety '54
Eva H. Henriksen '54
Herbert S. Hurwitz '54
Robert J. T. Joy '54
Paul N. Neufeld '54
Richard D. Pullen '54
Jacques M. Quen '54
George E. Becker '55
Padraic Burns '55
Milton Corn '55
Robert A. Kramer '55
James Lum '55
Joseph S. McGuire Jr. '55
Robert H. Peters Jr. '55
F. Brantley Scott Jr. '55
Alan A. Stone '55
Levon Z. Boyajian '56
Thomas M. Brown '56
Rosalie A. Burns '56
Donald J. Dalessio '56
Thomas F. Ferris '56
John H. Gardner III '56
Sumner Gochberg '56
Joan Marasco Hardenbergh '56
John Herd Hart '56
George T. Kammerer '56
Jerome O. Klein '56
William V. Lewit '56
Donald J. Nalebuff '56
George W. Paulson '56
Robert Lee Scheig '56
John P. Carey '57
Louis Z. Cooper '57
Anthony L. Fons III '57
Anne H. Good '57
Richard Lee Kahler '57
Jack Levin '57
Bennett F. Markel '57
Robert K. Modlin '57
Thomas Francis O'Brien Jr. '57
Clifford B. Reifler '57
George K. Aghajanian '58
Joseph E. Angelo '58
John A. Carlston '58
Stanley Harris '58
Michael Kashgarian '58
Jay Ward Kislak '58
Theodore W. Lieberman '58
Thomas R. Shea '58
Edward Lloyd Socolow '58
Asa Barnes Jr. '59
Francis A. Beer '59
Sidney M. Cohen '59
Gerald Fenichel '59
Robert J. Gonyea '59
H. Rodney Hartmann '59
William H. Heydom '59
C. Richard Hinckley '59
Leonard Inker '59
John J. Jasaitis '59
Myron S.S. Lee '59
James A. O'Neill Jr. '59
Sanford P. Solomon '59
Muriel D. Wolf '59
Jack D. Barchas '60
Stuart P. Bowne '60
Donald P. Buebendorf '60
Jon E. Courtney '60
Malin Dollinger '60
Roland H. Ingram Jr. '60
Daniel M. Jones '60
Frank J. Kleeman '60

Edward R. Lang '60
Donald L. Miller '60
Allan W. Newcomb '60
Fred Palace '60
Nancy Rolick Powell '60
Daniel J. Rubin '60
Fred Stargardter '60
Robert C. Wallach '60
May Yung-Fun Woo Wang '60
Ronald A. Yankee '60
Earl L. Baker '61
Robert S. Briggs '61
Orson R. Dee '61
Ronald A. Dierwechter '61
John E. Fenn '61
Richard L. Keefe '61
George M. Lordi '61
Joseph Richard Lusby '61
John Curtis Parker '61
Elaine Pitt '61
Stanley G. Schade '61
Hugh C. Thompson III '61
Charles B. Anderson '62
Fredric K. Cantor '62
Thomas Newell Chase '62
Oliver Townsend Dann '62
I. Bruce Elfenbein '62
John W. Foreman '62
Anthony V. Furano '62
David E. Knoop '62
Allan L. Mattern '62
Stanley E. Matyszewski '62
William A. Miller '62
Edward L. Spencer Jr. '62
Larry Lee Stewart '62
Miguel R. Alonso '63
Andrew Edin '63
John P. Eliopoulos '63
Peter B. Gregory '63
Benjamin Keith Harris '63
Harold P. Kaplan '63
Peter B. Livingston '63*
Lee Bland Talner '63
Peter V. Tishler '63
William A. Alonso '64
Berton W. Ashman '64
Thomas A. Cardella '64
Anthony Ferrante '64
Lawrence Horwitz '64
Lewis Landsberg '64
Richard V. Lee '64
David B. Leof '64
James S. Levine '64
William F. Matchett '64
William B. Pratt '64
Robert L. Shelton '64
John H.M. Austin '65
Robert M. Cohn '65
Robert I. Finkel '65
James K. Gude '65
Carl E. Hunt '65
Sandra Chook Levine '65
A. Lawrence Ossias '65
John A. Parrish '65
Gene A. Robinson '65
John H. Seashore '65
Margretta Ann Reed Seashore '65
David M. Shames '65
Eugene Patrick Cassidy '66
Robert N. Frank '66
J. McLeod Griffiss '66
Stuart T. Hauser '66
Lynne L. Levitsky '66
John Stephens Melish '66
Richard B. Yules '66
Daniel L. Arons '67
Arthur L. Beaudet '67
Mary Williams Clark '67
Herbert W. Felsenfeld '67
Joseph L. Morris '67
John Northup Jr. '67
John O. Pastore '67

Stephen C. Schimpff '67
Sidney C. Smith Jr. '67
Robert S. Steinberg '67
Richard B. Swett '67
Robert A. Vogel '67
Martin Wand '67
Robert J. Winer '67
Philip L. Barry '68
Richard A. Getnick '68
Peter Jokl '68
Jeffrey S. Lee '68
John A. Ogden '68
Gordon H. Sasaki '68
Frederick C. Sherman '68
Creed W. Wood '68
Richard J. Daly '69
Anna S. Gail '69
Royal J. Gay '69
Sander G. Genser '69
Thomas C. Howard '69
Lionel M. Nelson '69
Nancy Olmsted '69
Deborah A. Putnam '69
David J. Sahn '69
Lutz H. Schlicke '69
Gerald J. Smallberg '69
Michael S. Toren '69
Stephen R. Webb '69
C. Norman Coleman '70
James E. De Lano Jr. '70
Jonathan Ecker '70
Jay H. Hoofnagle '70
Robert B. Litman '70
William K. Mueller '70
W. Scott Peterson '70
Bruce A. Reitz '70
Robert M. Rosa '70
Richard A. St. Onge '70
Brian Weiss '70
Karl O. Wustrack '70
Judith L. Bader '71
Bruce Block '71
Andrew D. Cook '71
William W. Hay Jr. '71
Martin Paris '71
Barry S. Rand '71
Irving G. Raphael '71
Douglas R. Schmidt '71
John Smiarowski '71
Richard D. Travers '71
Paul A. Vignola '71
Robert B. Vranian '71
Albert Carl Wehl '71
Michael A. Catalano '72
Bruce B. Haak '72
Thomas L. Horn '72
Vernon H. Humbert Jr. '72
Fred Hyde '72
Jesse B. Jupiter '72
David Nelson Bailey '73
Robert W. Bucholz '73
James N. Campbell '73
John F. McQuade III '73
Jerry Nagler '73
David Pickar '73
Randall M. Zusman '73
Stephen B. Arnold '74
Irving M. Asher '74
Bruce David Blumberg '74
Ancil A. Jones '74
Amy S. Schechter '74
Robert J. Schechter '74
James A. Strom '74
Carol C. Teitz '74
Edward M. Wolin '74
Sharon L. Bonney '75
William S. Bush '75
Rodney J. Butch '75
Mary Jane Minkin '75
Robert G. Nankin '75
Pauline Y. Chao '76
John A. Eleftheriades '76
Glenn A. Gorlitsky '76
Norman V. Kohn '76

William K. Levy '76
Jon S. Morrow '76
Susan H.K. Ryu '76
Charles R. Swenson '76
Susan Firestone '77
R. Andrew Packard '77
Alan S. Penziner '77
Richard E. Peschel '77
Ronald J. Vender '77
Emily A. Fine '78
Caroline R. Taylor '78
Marcia J. Wade '78
David E. Ness '79
Cynthia Anne Sherman '79
David E. Adelberg '80
Michael W. Champeau '80
Michael M. Chang '80
Todd J. Garvin '80
Mark J. Ratain '80
Hillel D. Skoff '80
Sherri L. Brown '81
Thomas J. Brennan '82
Keith L. Gladstien '82
Saul Sadka '84
Angela Grant '85
Jennifer Franklin Bock '89

Former House Officers

Phillip R. Aaron
Renato Armas
Adel H. Ayoub
Larry Berte
Christine Brahney
Dennis J. Card
Edward Dunn
Lawrence B. Eisenberg
Richard Webster Finner
Alberto R. Guinazu
Richard U. Hausnecht
Richard U. Hausnecht
Michael D. Heafner
William H. Heydom
Eric A. Hyson
Henry G. Jarecki
Douglas Key
Boonsri Kosarussavadi
Joseph A. Kovarik
Eugene Kuchner
Donald Natibuff
Ronnie G. Schlesinger
Daniel W. Shapiro
Thomas J. Spackman
Stephanie S. Spangler
James W. Thompson
Bernard Tsai
George Wharton
Steven M. Zamore

Parents and Friends

Willibald H. Conzen
Frederick H. Dill
Gerald Wilfred Friedland
Mr. Boris Kliot
Henry S. Sanematsu
Naomi Goldfarb Solomon
Prof. & Mr. Lubert Stryer

PUBLIC HEALTH ALUMNI FUND

1921
Ira V. Hiscock*

1926
John J. Batchelor

1930
Ruth E. Grout

1933
Miriam M. Campbell
Eunice Nickerson Tyler

1934
Amy H. Hunter-Wilson
Iwao M. Moriyama

1935
Franklin M. Foote
Almeda King

1936
M. Allen Pond

1937
Lidie V. Dyer
Howard West
William R. Willard

1938
Willard H. Boynton
Richard K.C. Lee
Katharine Hawley Martin
Lucy S. Morgan

1939
Carl I. Cohen
Frances S. Miller

1941
Roslyn L. MacNish
Margaret Hyde Moore
Marion Redmond
Alexander Witkow*

1942
Henry F. Canby
Leonard Parente
Arthur B. Robins
Charles D. Spangler

1943
Carolyn S. Koffler
Eric W. Mood
Muriel Bliss Wilbur*

1944
Massimo Calabresi*
Jean F. Heston
Jane Y. Parker

1945
Roslyn R. Billford
Naomi Barer Golden
Joe Bales Graber
Lois M. Jund

1946
Dorothy B. Hamilton
D. Patricia Nelson

1947
Sidney S. Chipman
Archie I. Fulton
William L. Kornik
M. P. Plater
Paul M. Plater
C. M. Plater

From the Public Health Alumni Fund Chairman

The 1989-1990 campaign has been a resounding success! We reached 298 percent of our goal — raising \$135,523 — the most successful public health campaign ever. This was made possible in no small measure by the impressive sum of nearly \$101,000 raised by the Class of 1948 and its class agent, Sam Herman.

Of course, I am pleased to acknowledge the contributions made by all 597 of our alumni/ae donors, 27 percent of those solicited. While proud of our accomplishments, I would like our percent of participation to increase. Almost 10 years

ago, we achieved a participation of 37 percent of alumni/ae. That will be our goal for next year!

The meaning is simple — we can't rest on our laurels. Please try to emulate those classes who passed our target goal of \$1,000 per class. Special thanks to the classes of '59, '78, '79 and '86, who have been added to this list since last year.

Thanks again to all of our donors. Without you we would have no fund at all!

Stephen Skorcz, M.P.H. '70
Chairman



Stephen Skorcz, M.P.H.

AMOUNT	CLASS	AGENT(S)
\$100,885	1948	Samuel S. Herman
1,680	1967	James M. Malloy
1,670	1976	Elaine P. Anderson
1,570	1979	Catherine Norton/ Ralph Tartaglione
1,540	1971	John Bihldorff
1,340	1969	Robert L. Young
1,330	1973	Gary Dean Sax
1,250	1959	Dorothy M. Wilson
1,235	1970	Susan W. Balter
1,210	1978	Ann T. Freedman
1,177	1975	Linda K. Broker
1,135	1986	Indu B. Ahluwalia/ Aric T. Wilt
1,085	1968	Francis J. Greaney

1948
John B. Dibeler
Mary Margaret Fitzgerald
Joseph Hanford Gerber
Samuel S. Herman
Barbara L. Holman
Richard E. Johnson
Beatrice H. Kaasch
Dorothea S. LaBelle
Hiram Sibley

1949
Edgar L. Geibel
Eleanor P. Kostant
Hilda H. Kroeger
Christine R. Owre
Elizabeth D. Robinton
Matilda Rudnick
Ernest M. Sable

1950
Dorothy Reese Bloomfield
Henry G. Brickman
Ida M. Bucher
Helen P. Cleary
Austin J. Evans
Jerome M. Glassman
Martha P. Jayne
Frances K. Reynolds
Nathan M. Simon

1951
Clarissa E. Boyd
Norton G. Chaucer
Joanne E. Finley
Homer P. Hopkins Jr.
Robert L. Johnson
Leonard F. Menczer
Jessie Parkinson Spear

James M A Weiss
Walter Wenkert
John J. Zugich

1952
Mary O. Gabrielson
Joanna Adele Henry
Malcolm C. Hope
Charles Holway Lawrance
Sidney S. Lee
Helen Kardys Loria
Yolande F. Lyon
Hannah Eileen MacHenry
Jeanne Ellen Paty

1953
Jeanette Averill
Abraham Cutcher
William H. Hermann

Laurence K. Rainsford
Milton H. Sisselman

1954
Calvin P. Hatcher
Ruth M. Taber

1955
Amy L. Cawley
Evelyn S. Farnsworth
Morris London
Mary Mc C. Mogan
Helen K. Moore*
Frances R. Ogasawara
Gerald Rosenblatt

*Deceased

1956

David D. Boyd
Kathleen H. Howe
John E. Ives
Paul C. Kaufman
John F. Mullett
Julia R. Nole
Mary K. Ochiai
Alice M. Wagner

1957

Janet Beach
Lee De Cady Jr.
William A. Clermont
Edward R. DeLouise
Gaston Jules Deslouches
Sheldon Selig King
Edna May Klutas
Shirley T. Steidel
Patricia A. Viscosi

1958

Edward Bronstein
Helen H. Davenport
Thomas T. Flynn
Normand E. Girard
Mary K. Spiker
Thomas P. Weil

1959

William L. Kissick
Marvin A. Lavenhar
Hugh J. Maher
Lee J. Podolin
Ellwyn D. Spiker
Mattie Lee D. Wade

1960

Gyla E. Brooks
Kathryn L. D'Amico
Wouter Ekker
Maxine Geeslin
Rose A. Iannotta
Katharine Anna Keppel
John J. Kwasnowski
R. John C. Pearson
Hannah Clark Russell

1961

Gordon R. Beem
Martin Donabedian
Helen M. O'Connell
Margaret P. Parker
Angela M. Russo
William R. Slivka
Harold W. Wicks

1963

Raul R. Cuadrado
David Dolins
C. DuVe Florey
Edward M. Kenney
Jean M. Maynard
Samuel B. Webb Jr.

1964

Katherine Maria Detre
John S. T. Gallagher
Linda F. George
Neal L. Maslan
Theodore Rosenberg
Estelle Siker
Monroe W. Spero
Claudewell Sidney Thomas

1965

Robert M. Edwards
Edgar W. Francisco III
H. Patterson Harris Jr.
William C. Harvey
James F. Jekel
Michael E. Kove
Peter J. Levin
Francia M. Pagano

Elliot A. Segal
Viola J. Spinelli
Sarah L. Turner
David S. Weiner

1966

Barbara L. Brody
Allen Cohen
Patricia R. Colenback
Robert C. Lowrie Jr.
Nancy Alfred Persily
Raul Walder

1967

Carlos E. Alvarez Herrera
Gerard M. Barber
Caroline Fong-Cheng
Ann Gomez
Steven Jonas
Joel Kavet
Patricia D. Mail
James M. Malloy
Nancy Ruth Phillips
Brigitte Prusoff
Bruce J. Steinhart
Beth M. Whelan
Irma Willner, R.N.
Robert L. Woodward
Peter T. Wotton

1968

Sonia M. Colon
Joseph L. Dorsey
Robert R. Everett
L. Carol Fernow
Michael J. Geaney Jr.
Francis J. Greaney
William D. Harkins
Chester H. Johnson
R. Elizabeth Leif
Jean C. MacCorison
Robert F. Morisse
Arnold R. Saslow
Elizabeth Schwartz Small-
Elliot
Martha F. Steel
Sheila W. Wellington

1969

Susan S. Addiss
Janet A. Albrecht
James M. Dawson Jr.
Catherine E. Hanley
Gerald R. Harpel
Sylvia N. Holtzberg
Samuel P. Korper
Suchitra Nimmannitya
Samuel D. Rowley
Marva Serotkin
Wanda Vierthaler
Robert L. Young
Chester W. Zarnoch Jr.

1970

Susan W. Balter
Arthur A. Berarducci
Michael B. Bracken
Ruth C. Edelson
Walter M. Gawlak
Robert S. Gureasko
Martin James Kandes
Shirley O. Labrum
Scott W. Lite
C. P. Noel McCarthy
Andrea W. Nevins
Saro Palmeri
William L. Pedersen
Charlotte F. Schwartz
Stephen Skorcz
Joseph A. Zaccagnino

1971

John Bihldorff
Evelyn J. Bromet
Willard Cates Jr.
Katrina H. Clark
Karen S. Cohen
John A. Daeley
Harvey Fernbach
Anne-Marie A. Foltz
Wanda J. Hatmaker
Mohamed Ismail Johnson
William P. Koughan
Mark J. Magenheimer
Joan L. Martinez

Eugene S. Mayer
Nancy P. Mogielnicki
William C. Okulicz
Wan Hin Ooi
David A. Osgood
Carol L. Paul
Jane Silver
Walter O. Spitzer
Robert E. Steele
Barbara R. Stoloff
Judith Whitcomb

1972

David P. Barone
Catherine A. Connolly
Daphne deJ. Gemmill
Dorothy N. Lewis
Steven M. Lipsius
Sergio Ruschel
Jo Ann K. Silverstein
Laurence A. Tanner
Joyce R. Waksman

1973

Emily M. Barclay
Eva Danielsson Cohen
Bernice E. Coleman
A.R. Taylor Denues
Ellen B. Doft
Helen B. Hubert
James L. Mason
Dennis P. May
Dwight N. McNeill
Marjorie E. Nelson
Gary Dean Sax
Janet B. Schoenberg
Alice S. Stark
Thomas J. Stranova
Irene Trowell-Harris
Bonnie C. Yankaskas
Carl J. Zack

1974

Rose Salisbury Beer
Thomas A. Benoit
Ian B. Berger
Olga Brown-Vanderpool

Carl A. Cappello
Beth G. Crocker
J. Breckenridge Eagle
Roberta Lawrence
Evelyn B. Mostow
Deborah Rose
Shelley S. Shanok
Abigail L. Smith
Myrna M. Weissman

1975

Edith N. Baum
Ralph E. Binder
Gerald E. Bisbee Jr.
Linda K. Broker
Linda K. Demlo
Jack A. Eiferman
Gerard R. Goulet
William J. Grego Jr.
Rosemary M. Johnson
Barbara R. Unterman Jones
Philip D. Kennedy
James E. Knoben
Stuart L. Lefkovich
Laurence F. McMahon Jr.
Mary W. Palshaw
Dale P. Sandler
Nancy E. Stroup
Raymond Chiu-Ping Tang
Thomas J. Trudell
Franziska U. Ulrich
Vera B. Walline
Pat Boylston Whitt

1976

Elaine P. Anderson
William F. Appicelli
Frances L. de Peyster
Joanna M. Erikson
Paul H. Etkind
Robert H. Frazier
Annette B. Garofalo
Gail Iles Genvert
Karen A. Gordon
Janet Heinrich
Robert T. Kauer
Cleve Lee Killingsworth

Instant rapport: Dr. Burton Singer welcomes home New Haven native Dr. Benjamin Spock.





A graduate focuses on Dr. Benjamin Spock's EPH commencement address.

1979

Bruce S. Anderson
Virginia P. Bainbridge
Gertrud S. Berkowitz
Marianne Berwick
Marna P. Borgstrom
Ralph J. Coburn
Susan De Renzo
Frances D. Dwyer
Elizabeth Feuer
Lynn Fielden-Smith
Judith B. Gancher
Debra Haffner
Candice C. Haslegrave
Bruce H. Heckman
Shelley Helfer-Amira
Joseph D. Henn-DeMayo
Phillip S. Katz
Karen Kmetzo
Paul Anthony Kowalski
Benjamin Krevsky
Renee S. Leary
Mary Elisabeth Lorenzi
Osvaldo Marrero
Patricia J. Moore-Pastides
Marcia C. Richardson
Lisa K. Rosenfeld
George B. Rowland
William E. Schweizer
Ralph Tartaglione Jr.
Elizabeth Tedder
Ilene B. Wachs
Jonas Zucker

1980

Phillip R. Aaron
Gary J. Aboff
Frederick R. Aronson
Diane Denis Aye
Antoinette M. Brooke
Richard L. Buck
Gary L. Busack
Barbara H. Granger
Ellen B. Greif
Irwin J. Halperin
Samuel S. Hamilton
Virginia S. Humphrey
Helen E. Kelly
Yee-Lean Lee
LeRoy F. Ludwig
James S. Marks
Jane Ungate O'Connor
Ann L. Prestipino
Nancy Maguire Rhoades
Norman M. Schlossberger
Lydia A. Selling
Marsha L. Silverman
Carolyn K. Wells

1981

Harold J. Burdo Jr.
Rebecca L. Calderon
Rollin C. Chew
Angelo J. De Vita
Brian J. Foley
Richard T. Forsley
Ellen M. Gallagher
Peggy A. Gallup
Marie F. Gavula
Joan Urquhart Goodman
Diane E. Goren
Cindy F. Kleiman
William J. McLaughlin
Blackford Middleton
Marlee D. Mooney
Barbara Gaugler Pennebaker
Frederick V. Peterson Jr.
Maureen T. Power
Gerald W. Robinson Jr.
Elizabeth N. Shapiro
Susan M. Stoecker
Karin Swanson
Keith D. Tait

1982

Jamie L. Amaral
Gretchen Dieck
Biemesderfer
Martha Livingston Bruce
Francis L. Crowley
Kathleen K. Devine
Denise Heinemann
Ann Storms Kloter
Linda F. Mc Caig
William F. McKeon
Susan G. Rice
Lisa E. Stone
Carol L. Vander Wal
Nancy K. Wander
Sandra Michaelson Warren
Maud Helen White
Alvin C. White
Jill Okrent Zaheer

1983

Barbara W. Abraham
Dean S. Archibald
Dalia Castillo-Aguilar
Mark L. Dembert
Robert A. Duncan
Susan Faris
James N. Gaito
Ellen M. Ginzler
Virginia C. Hiland
Margaret M. Kolb
Allen F. Levy
Cynthia M. Meyer
Scott K. Mock
Shinsuke Morio
Jeannee Parker-Martin
Keith A. Radcliffe
Nano G. Rush
Paul M. Schur
Elizabeth C.H. Stevenson
Patricia C. Weber

1984

Jean L. Freeman
Carolyn H. Grantham-Millman
Penny H. Hausser
Marcia Lipkind Hirsch
Sarah M. Horwitz
Gregory R. Huth
Mehrdad Jalali
Georgia Jennings
Jean G. Larson
Cathy Nager
Grael M. O'Brien
Julie A. Russem
Stephen Marc Schwartz
Dennis G. Shrauger
Gerald L. Springer
Marie Ann Tobin

1985

Rene S. Cabral
Joan M. Cleary
Susan M. Coakley
Suzanne Mary Cooney
Jerald A. Fagliano
Katherine Santella
Fitzpatrick
Barbara K. Gottlieb-Ware
Shirley J. Lee
P. Douglas McConatha
Rona Janis Mogil
Adrian J. Pinsince
Eric Scalettar
Marcia Shapiro
Shirley J. Tirrell
Terry Martin Zingman

1986

Indu B. Ahluwalia
Clare F. Averbach
Andrea Lee Boissevain
Louise M. Brenner
Debra Jean Brown
Marijane L. Carey
Marie Irene Ciacco
Reid M. Davis
Joe Tom Easley
James R. Ferguson
Nancy E. Fithian
Stephen B. Gruber
Roxanne Kapikian
William J. Malone
Catherine McQuilkin
Daphne M. Nielsen
Joseph M. Pajor
Elizabeth G. Pelz
Philip O. Renzullo
Denise Amy Riedel
Eric Triffin
Tracey E. Virgin
Virginia M. Westra
Lynn D. Wilson

1987

Maureen E. Brady
Hilda C. Chaski
Woan-Ru Chen
Bridgid M. Garrison
Sara A. Holdcroft
Timothy A. Jacobs
Michael T. Koff Jr.
Catherine A. Leda
Barbara J. Moggio
Joseph J. Napolitano
Judith Ann Natale
Pamela Fitzgerald
Pomputius
Anita A. Roth
Mubashar R. Sheikh
Joel A. Wasserman

1988

Ellen Elizabeth Banach
Elaine P. Berger
Sylvia Hillary Blackburn
Francesca Marie Cook
Ellen Lucy Kraftsow
Mark William Legnini
Paul Alan Linda
Saifuddin Taiyeb Mama
Virginia Alicia Pittman-Waller
Carrie A. Redlich
Lawrence Vincent Silvia
Carol Ann Strycharz
Darlene Uten Zimmermann

1989

Judy Gardner Audette
Daniella Duke
Mary Beth Durkin
Elizabeth Harrison Hadley
Marcella Perez Jones
Mary Jo McGinley
Mary D. H. Miller
Deena Beth Myers
David Dean Peete
Elizabeth Ann Platz
Marie V. Roberto
Robert P. Sbriglio
Joy Misako St. Germain
Joseph Thevenin Jr.
Sophie Helene Tworkowski
Maureen McBride
Whitehurst

FRIENDS

U. Robert Merikangas

Robert A. Knauf
Janina Levy
Robert C. Marquardt
Gino A. Nalli
James B. Rokos
Robert Risdon Schwarz
Mary Jo Shepard
Marcia A. Testa
Thomas S. Wingardner Jr.

1977
Edward A. Bortnichak
Richard B. Burford Jr.
Patrick F. Carone
Terry Dwyer
Gerard J. Foley
Travis K. Hedrick
Ellen D. Jaslow
Rhona Kantor Kershner
Ronald F. LaPensee
Wendy K. Letkovich
Polly W. Marvin
Martin K. O'Connor
James Pastides
Loren Mendelsohn Pottern
George A. Rice
Mindy Rothschild
Annamaria V. Sardinas

Carroll Schilling
Gail M. Sullivan
Virginia R. Towle
Marian Troyer-Merkel

1978

Vijaya V. Bapat
Kathleen M. Berman
Robert J. Fensterheim
Ann T. Freedman
Janice F. Gold
Cynthia R. Gross
Jane E. Hill
David W. Houck
Christopher M. Maylahn
H. James Myers
Marguerite Nelligan
Peter F. O'Connor
David W. Osborne
Ellen J. Reifler
Ellen D. Rothberg
Robert E. Schwartz
Roberta Jo Shapiro
Marie Stoeckel
Bernadette S. Vissani
R. Bradford Walker
Lucy Ellen Weiger

EPH Alumni Fund Class Participation

CLASS	AGENT	1988-1989		1989-1990	
		TOTAL	% PART.	TOTAL	% PART.
1941 and prior		\$ 1,829	2,499	62	
1942	Eric Mood	260	60	525	80
1943	Eric Mood	396	45	301	18
1944	Eric Mood	790	50	226	33
1945	Stephen Skorcz	25	54	125	33
1946	Stephen Skorcz	75	29	75	29
1947	Stephen Skorcz	140	35	145	30
1948	Samuel Herman	1,185	50	100,885	56
1949	Edgar Geibel	360	25	480	35
1950	Eric Mood	765	52	590	43
1951	Robert Johnson	460	32	590	40
1952	Yolande Lyon	1,010	37	445	33
1953	Milton Sisselman	280	25	185	25
1954	Eric Mood	50	14	45	14
1955	Frances Ogasawara	360	50	370	47
1956	David Boyd	365	47	520	42
1957	Edward DeLouise	395	40	520	45
1958	Philip Hallen	955	41	350	22
1959	Dorothy Wilson	725	30	1,250	22
1960	Gyla Brooks	515	39	350	39
1961	Joseph Prekup	660	47	425	41
1962	Thomas Mayhugh	80	20	0	0
1963	David Dolins	795	30	650	30
1964	Estelle Siker	590	27	760	36
1965		780	38	725	41
1966	Allen Cohen	145	15	135	23
1967	James Malloy	1,545	36	1,680	38
1968	Francis Greaney	1,505	33	1,185	36
1969	Robert Young	1,305	38	1,340	33
1970	Susan Balter	1,245	27	1,235	32
1971	John Bihldorff	2,015	48	1,540	44
1972	Dorothy Lewis	415	24	395	21
1973	Gary Sax	1,120	25	1,330	30
1974A	Thomas Benoit	435	26	350	30
1974B		<u>510</u>	32	<u>275</u>	20
		945	29	625	25
1975	Linda Broker	1,952	26	1,178	27
1976	Elaine Anderson	1,020	24	1,670	30
1977	Dorothy Rice	735	19	740	24
1978	Ann Freedman	815	21	1,210	24
1979A	Catherine Norton	960	28	1,010	34
1979B	Ralph Tartaglione	<u>550</u>	36	<u>560</u>	36
		1,510	32	1,570	35
1980	Christina Quinn	830	24	820	22
1981A	Angelo DeVita	640	24	485	21
1981B	Barbara Pennebaker	<u>260</u>	29	<u>255</u>	33
		900	25	740	27
1982A	Constance Jarowey	380	22	265	12
1982B	Jean Milton	<u>495</u>	37	<u>470</u>	26
		875	28	735	19
1983A	Jeffrey Hughes	475	23	475	22
1983B	Marybeth Mc Nerney	<u>230</u>	23	<u>245</u>	20
		705	23	720	21
1984A	Anthony Alberg	105	11	235	18
1984B	Leslie Balch	<u>180</u>	16	<u>205</u>	17
		285	13	440	18
1985A	Joan Cleary	40	5	205	13
1985B	Katherine Fitzpatrick	<u>330</u>	26	<u>305</u>	21
		370	14	510	17
1986A	Indu Ahluwalia	365	14	625	25
1986B	Aric Wilt	720	33	510	24
		1,085	24	1,135	25
1987A	Hilda Chaski	620	25	458	15
1987B	Elizabeth Wennar	<u>180</u>	16	<u>300</u>	8
		800	21	758	12
1988	Joseph Della Puca	321	22	425	15
1989	Joy St. Germain			370	21

	1988-1989				1989-1990			
	NUMBER SOLI- CITED	NUMBER CONTRI- BUTORS	PERCENT PARTICI- PATION	TOTAL	NUMBER SOLI- CITED	NUMBER CONTRI- BUTORS	PERCENT PARTICI- PATION	TOTAL
EPH Alumni	2,161	598	28	\$36,388	2,267	597	26	\$135,523
Interest/Miscellaneous	—	—	—	3,125	—	—	—	869
TOTAL	<u>2,161</u>	<u>598</u>	<u>28</u>	<u>\$ 39,513</u>	<u>2,267</u>	<u>597</u>	<u>26</u>	<u>\$136,392</u>

THE LAST WORD



Dr. Thomas P. Duffy, professor of medicine, delivered the 1990 medical school commencement address. An excerpt follows:

"We are now poised to unlock the mysteries of life, and as scientists, have entered a grove where it has become literally possible to alter the very nature of nature. No restraints will completely stifle this quest; what has been thought cannot now be unthought. But someone must take responsibility for the manner in which society utilizes the knowledge which will be uncovered. That someone includes people such as yourselves, individuals trained as physicians — scientists with knowledge encompassing the vast terrain of the molecular and the patient. You must be the stewards who will guarantee that science is applied in the service of humanity and not humanity in the service of science."

CONTINUING MEDICAL EDUCATION AT YALE

- Friday**
Nov. 9, 1990
- UPDATE IN CEREBROVASCULAR DISEASES** (A)
- Director: Lawrence M. Brass, M.D.*
- For practicing neurologists, internists and surgeons. Will focus on the latest advances in stroke diagnosis, prevention and treatment.
- Saturday**
Nov. 10, 1990
- SOFT TISSUE WORKSHOP FOR THE DERMATOLOGIST
TO IMPROVE OFFICE SURGICAL SKILLS** (B)
- Director: David J. Leffell, M.D.*
- For the practicing physician and the dermatology resident who anticipate a surgically oriented practice. Designed to meet the needs of the office-based dermatologists and structured to address a broad range of skills and interests.
- Friday-Saturday**
Nov. 16-17, 1990
- VISITING LECTURE SERIES IN OPHTHALMOLOGY** (C)
- Director: David E. Silverstone, M.D.*
Speaker: Jerry A. Shields, M.D.
- Ocular tumor update.
- Friday-Saturday**
Nov. 30-Dec. 1, 1990
- VISITING LECTURE SERIES IN OPHTHALMOLOGY** (D)
- Director: David E. Silverstone, M.D.*
Speaker: Marshall M. Parks, M.D.
- Pediatric ophthalmology and strabismus update.
- Wednesday**
Dec. 5, 1990
- HOT BABIES: HOW MUCH OF A WORK-UP?** (E)
- Director: John M. Leventhal, M.D.*
- Recent advances in pediatrics.
- Monday-Thursday**
Dec. 10-13, 1990
- DIAGNOSTIC ULTRASOUND IN OBSTETRICS** (F)
- Director: John C. Hobbins, M.D.*
- Didactic lectures and workshops in the morning; video presentations and patient scanning in the afternoon.

CIRCLE THE APPROPRIATE LETTER(S) ON THE ATTACHED POSTCARD TO OBTAIN MORE INFORMATION ON CONFERENCES DISCUSSED IN THIS ISSUE. PLEASE BE SURE TO INCLUDE YOUR NAME AND ADDRESS.

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Bulletin of the School of Medicine

Spring 1991

*Blueprint for the '90s:
The Dean's Address
Center for Molecular Medicine:
The 21st Century Debuts*

3 YALE MEDICINE Interview: Are Living Wills Necessary?

What should physicians do to fulfill the wishes of patients regarding life support when patients cannot speak for themselves? For an informed opinion, YALE MEDICINE turns to Angela R. Holder, clinical professor of pediatrics (law).

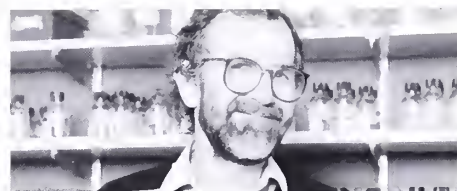


5 Blueprint for the '90s: the Dean's Address

In his faculty address delivered on Dec. 17, Dean Leon E. Rosenberg presented the School of Medicine's academic plan and announced, among other items of note, that YSM will construct a clinical sciences building and a new home for the Yale Comprehensive Cancer Center.

13 Yale Immunobiologists Get Down to Basics

Not quite three years old, the School of Medicine's section of immunobiology, headed by Richard A. Flavell, Ph.D., is forging ahead in its quest to understand the sophisticated defenses of the human immune system.



18



Center for Molecular Medicine: the 21st Century Debuts

As the June 6 dedication of the \$38 million Center for Molecular Medicine nears, the scientists who will serve its four programs are preparing to write an exciting new chapter in the history of biomedical research. Discover how the center will be integrated into the School of Medicine.

- | | | |
|----------------------|------------------|-----------------------|
| 1 Letters | 33 New Books | 39 Student News |
| 27 Gallery | 33 Faculty News | 40 Obituaries |
| 28 M.L. King Jr. Day | 36 Alumni Report | 42 In Memoriam |
| 30 Scope | 38 Alumni News | 43 Development Report |

On the cover: Framing the main entrance to the Center for Molecular Medicine, twin pillars do more than recall Egyptian Revival architecture. They also serve as air shafts for the center's ventilation system. (Photo by Harry Bishop.)

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Dr. Michael Kashgarian, professor of pathology, is editor of YALE MEDICINE. The tri-annual magazine is produced by the Office of Public Information; Helaine Patterson, director; Gregory R. Huth, publications editor; Diane Loupe, staff writer; L. Rosalind D'Eugenio, staff assistant; and Claire Bessinger, senior administrative assistant. Production: Hoblitzelle Graphics; printing, E. H. Roberts Co.

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LETTERS TO THE EDITOR

Thanks to Elizabeth Morgan

To the editor:

This letter represents my second attempt to thank you for publishing Dr. Morgan's article deploring the medical profession's long-standing denial of the incidence and impact of child abuse ("My Perspective on Child Abuse," Summer 1990). Because her article moved me deeply for personal reasons, my first attempt grew too long, too revealing, and perhaps too painful, for me to share in a professional journal. But I did finish that letter for myself because I needed to finish the work of my heart which Dr. Morgan's article had begun within me — grieving again for my lost mother, once a creative and intelligent but unhappy young woman who received prescriptions for amphetamines and barbiturates from physicians rather than appropriate treatment for the adult sequelae of severe abuse she had suffered as a child; experiencing again the terror, rage and shame engendered by her physical and sexual abuse of me, abuse that was certainly exacerbated by the addiction physicians eased her toward; longing painfully again for the physician-father whose selfless dedication to his patients was admirable but who left his own children without much protection against violence.

In this second letter I would like to emphasize that my own life has turned out much happier than my mother's primarily because increased awareness of child abuse has made successful treatment available to me. I have not had to revisit my own abuse on my children, as my mother did; on the contrary, I enjoy parenting immensely and my children seem to be thriving emotionally. I also know the deep pleasure of a long and honest marriage because my husband's love for me has encompassed a willingness to learn about child abuse since our student days together at Yale medical school. What we have learned has changed the way we both practice medicine and has definitely helped out patients. Like Dr. Morgan, we are convinced that child abuse causes or prolongs many



YALE MEDICINE Fall/Winter 1990-1991

illnesses later in life. Since much child abuse is preventable and many adult sequelae are now treatable, a physician who cannot recognize child abuse and its sequelae today and refer these problems appropriately is, in essence, denying treatment to patients and may even be exacerbating the problem, as happened in my own family. Dr. Morgan rightly insists that all physicians, whatever their specialties, need to educate themselves about child abuse. Thank you again for publishing her excellent article.

Elizabeth Michel, M.D. '75
Encinitas, Calif.

Kudos

To the editor:

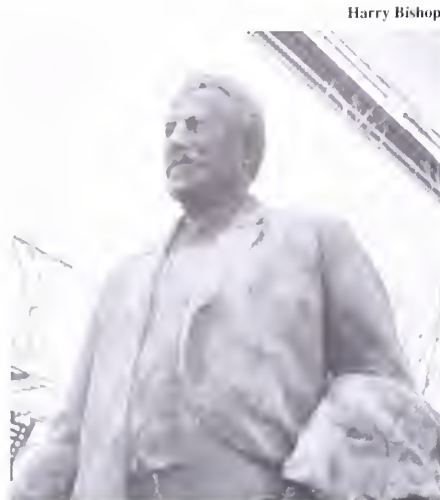
Congratulations on the EPH 75th anniversary edition of YALE MEDICINE — This is a nicely balanced and very readable issue.

Patricia D. Mail, M.P.H. '67
Rockville, Md.

To the editor:

Congratulations on the Fall/Winter issue of YALE MEDICINE. The whole issue is excellent.

Rosemary A. Stevens
M.P.H. '63, Ph.D. '68
Philadelphia, Penn.



Philanthropist John B. Pierce

Winslow Inaugurated Pierce Laboratory

To the editor:

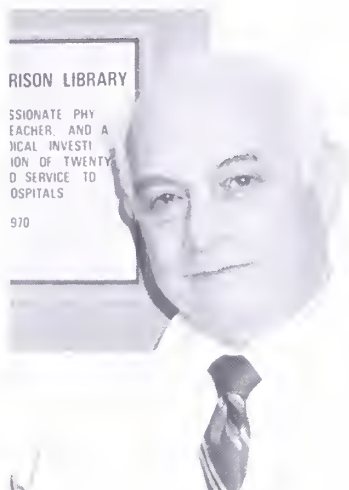
Your recent article about EPH celebrating its first 75 years was informative and thorough, emphasizing appropriately the medical school's renewed attention to the integration of clinical medicine and public health.

I wish to expand upon your description of the important role that the John B. Pierce Laboratory has played in the department since the founding of the laboratory in 1933. C.-E.A. Winslow, the father of public health at Yale, was also the first director of the Pierce laboratory. Some of his best known and most often cited research was done at the Pierce laboratory. Professor Winslow initiated at the Pierce laboratory a unique interdisciplinary basic science approach to the study of responses to different environmental stimuli. Pierce laboratory research over the years has provided important information on such public health and environmental issues as new means to assess indoor air quality and the details of biological responses to various airborne contaminants. Basic environmental variables currently under study at the Pierce laboratory include microwave radiation, temperature, humidity, oxidants in general and a number of air pollutants.

Today nearly all of the Pierce laboratory's scientific staff participate in the teaching program of the EPH's division of environmental health science. Through this symbiotic relationship, we are able to bring specialized knowledge to new generations of researchers and public health practitioners.

The close ties that have developed between the Pierce laboratory and EPH in recent years are partly responsible for the renewed vitality of the department. The department's vigor insures that it will continue to contribute to the field of public health and to the health of the School of Medicine.

*Ethan R. Nadel, Ph.D.
Director, John B. Pierce Laboratory
Professor of Epidemiology
(Environmental Health) and
Cellular and Molecular Physiology*



*Harold E. Harrison
M.D. '31, '31-'35 HS*

Harold Harrison Remembered

To the editor:

It wasn't long after Harold Harrison and I first met, more than 60 years ago, that we learned we'd been born on the same day. The symbolism was right on target, for the friendship that followed had many parallels and many intersections.

Harold was a year ahead of me in medical school, and I quickly learned to look with awe on his towering intellect. Like him, I did internship in pediatrics with Grover Powers, whom we both revered, and I quickly discovered that Harold was a tough taskmaster. But what I learned from him stuck with me. In fact, Harold's extraordinary clinical acumen meant more to me in those years than his scientific and research brilliance that I later learned to appreciate.

We did so many things together while we worked on the same service: our first trip "abroad," to eastern Canada, eating dust in an open roadster

owned by a mutual friend; double dating with our future wives whom we'd both met at Yale. Our marriages took place less than a month apart, and we kept in touch as we went our separate ways. It was while I was staying with Harold and his wife Helen, when I came to New York from Puerto Rico during the war, that I was able to find the sublet that made it possible for me to reunite our young family.

When, just a few years later, we both came to head pediatric services, his advice helped me over some rough spots. And in 1951 we had a memorable week in New Orleans with Harold as a visiting professor. There he showed his teaching skills to Louisiana practitioners and demonstrated to them and the pediatric faculty the logic and potential of oral rehydration long before it achieved international recognition.

What a thrill it was to watch the steadily increasing recognition of Harold Harrison's scientific preeminence and, particularly, to be among the cheering multitude present at the crowning glory of the joint Howland Award to Helen and Harold — an extraordinary couple. Despite all this praise and appreciation of his talent, Harold never lost his humility or his likelihood to deprecate the relative significance of his own contribution.

Harold's was a marvelously productive life; he was still remarkably active after so-called retirement, making it seem even more unfair that he was cut off prematurely. In fact, however, Harold's major contribution has not been stopped at all. Important as the new knowledge, the new ideas, the new approaches have been, his major legacy is the corps of younger persons whom he developed and nurtured. It will be the succeeding generations that will make Harold Harrison's influence truly enduring.

I am proud to have been his friend.

*Myron E. Wegman
M.D. '32, '32-'36 HS
Ann Arbor, Mich.*

Correction

The inside cover of the Fall/Winter 1990-1991 YALE MEDICINE incorrectly listed Stephen C. Joseph M.D., M.P.H., as a graduate of the department of epidemiology and public health. While not an EPH graduate, Dr. Joseph did receive his M.D. degree from the School of Medicine in 1963.

YALE MEDICINE INTERVIEW: ARE LIVING WILLS NECESSARY?

James Anderson

Editor's note: Last summer, the U.S. Supreme Court issued one of its more controversial decisions of recent years in the case of *Nancy Cruzan vs. William Webster*. The court ruled that neither family nor physician could terminate life support for a comatose patient without written documentation of the patient's intent. As a result of this decision, inquiries have drastically increased to organizations such as Concern For Dying, which offers "living wills" to specify such intent. In a related development, administrators of hospitals, nursing homes and other health care institutions have welcomed a recently passed federal law which, as of Jan. 1, 1991, requires such institutions to read patients a medical "Miranda warning" of their right-to-die options. In response to these developments, Rosalind D'Eugenio, staff assistant at the School of Medicine Office of Public Information, interviewed Angela R. Holder, LL.M., clinical professor of pediatrics (law) at Yale and past president of the American Society of Law and Medicine.

In light of the Cruzan vs. Webster decision, do you feel a living will is necessary to uphold a patient's wishes?

Some form of written instruction may be required in some states, but a formal living will is much too complicated. You can't ask somebody who's not sick to decide under what circumstances he or she would not want treatment. From the legal perspective, two things ought to happen about advance directives. First, instead of having people fill out forms, doctors ought to realize that they have the responsibility to talk to patients in general terms about how they feel about life-saving interventions. Second, if they're treating a person for a disease that's terminal, they ought to get concrete about what the patient wants while the patient can still speak up.

Is a document needed to represent a patient's intent in court?

Not a single state in the country requires any specific form of documentation of somebody's wishes. A note from a doctor's office chart saying "I talked to the patient about these issues, and this is what the patient reported that she or he would want," is good enough for the courts in any state. The other thing that most lawyers advise people to do is to sign a durable power of attorney, which appoints a given person to make the decision in a real situation.

Would that be a family member?

Or a friend. It should not ever be the doctor who's taking care of the patient. States vary about how formal these have to be, but in all states, they need evidence of intent. Some states now have statutes that say that the next of kin can make these decisions without having to go to court. It's just appalling that one of the saddest parts of a family's life has been made into a



Angela R. Holder: "Talk to patients in general terms about how they feel about life-saving interventions."

legal circus. I can't imagine anything worse than having to go to court to let a loved one in my family die. There may be times when there's serious conflict within a family that no amount of negotiation can solve, and in very rare instances it makes sense to go to court, but I've never encountered one.

Is there a living will that would apply in all states, or would it be different from state to state and country to country?

From country to country there are wide variations. For example, there's no such thing in France as the law of informed consent. You can't sue a physician for not telling you something; the whole professional patient or client relationship is different. But within the United States, although each state may have a statute saying a living will or a durable power of attorney has to have three witnesses, you merely need to demonstrate the intention of the person who signs it. People have been dying since before lawyers were invented, and it's not necessary to make a legal maneuver of this. Doctors and patients and families can work these things

out by talking before the crisis occurs. Of course, there are situations where that just can't happen. If I take off in my car and have an accident in a place where nobody's ever seen me before, then you can't fault somebody for not having talked to me. And I certainly am not going to carry my living will in my overnight bag, either. But, if I have a relationship with a physician, then it strikes me that he or she has an ethical obligation at appropriate times to bring up this subject.

What do you think about the new law that requires medical institutions to advise prospective patients about living wills at or before admission?

The law is a good idea for nursing homes, but how many hospital admissions clerks are capable of explaining the consequences of a durable power of attorney to a patient? It's absurd. There are probably not a lot of doctors that know enough about it themselves. If a state wants to do living wills on a mass basis, they ought to do it like they do organ donations, with driver's licenses. That takes it out of the medical context so the person who's going to the hospital to have a healthy baby doesn't think somebody knows something she doesn't when she gets a living will in the mail.

When is the right time to write a living will?

As far as I know, the patient can write out on a piece of stationery, "If I can't speak up, ask my friend Jane," sign it, date it and give it to the doctor to put in the doctor's office chart, and that will solve 99 percent of the problems that may come up later. The "clear and convincing evidence" a court requires doesn't necessarily mean a formal legal document.

Therefore, a durable power of attorney is more important than a living will?

The most important thing is for doctors to encourage patients to express themselves about what they want in general, since no one knows about particulars. Then doctors should help patients figure out who they want to make the medical decisions and then document these wishes in some way. The main thing the doctor must know is exactly how the patient wants to be treated and if he or she isn't able to speak, who should speak for the patient.

What if a relative contests the decision of the patient?

If a daughter comes in after her mother can't speak up and says, "I want my mother treated," when the mother has made it clear up to this point that she doesn't want treatment, the physician might feel that he has to go get a court order. But that's the reason to have the patient's wishes documented. A doctor is perfectly legally correct in saying, "This is what your mother wanted. We discussed it. I have this note in my chart that your mother countersigned, and I'm going to do what my patient wants even though she can't speak up at this point." That's absolutely legally correct. The problem is that the unconscious patient can't sue, and the daughter can, so most doctors would pay more attention to the daughter than they're legally required to.

This brings us back to the issue of a living will or some other document regarding the patient's wishes.

In the best of all worlds, you go to a lawyer and either get the lawyer to draft a statement for you or tell you what the state's requirements are so you can comply with them. A lot of bar associations do volunteer work in nursing homes and retirement homes helping people with these documents.

Have you seen any particular outline for a living will that you would recommend?

Concern for Dying, an organization in New York which actually started the living wills, has the best. It's very short and just says "If I'm terminally ill, I don't want heroic treatment." There is a problem defining those terms though. What is a "terminal illness?" And I have no idea what "heroic treatment" is. It's hard to say whether you want something or not when you don't know in what circumstances you'll ever need it. That's why it's better to say, "I don't know what's going to happen to me, but I trust 'X.' And I want 'X' to decide on the facts that occur at the time."

You clearly recommend assigning a power of attorney rather than writing a living will?

Yes. Don't try to figure out what you will want in a situation; try to figure out some person that you trust to make decisions for you. It's not that your values change, it's that your life changes. Some things become more important, while others become less important. To say that for all time you can fill out a form about when you want invasive diagnostic tests is just ludicrous. It makes the whole process too complicated. **YM**

For More Information

Information about living wills and on durable power of attorney may be obtained through the following:

Concern for Dying

250 West 57th St.
New York, NY 10107
(212) 246-6962

"The Medical Directive"

Harvard Medical School Health Letter
164 Longwood Ave.
Boston, MA 02115
(\$5 for two; \$10 for five;
bulk order prices available)

American Bar Association

"Health Care Powers of Attorney"

stock #D-13895
c/o AARP Fulfillment
1909 K St., NW
Washington, DC 20049
(202) 331-2200.

BLUEPRINT FOR THE '90S: THE DEAN'S ADDRESS

Editor's note: *On December 17, 1990, as he addressed members of the School of Medicine's faculty and administration, Dr. Leon E. Rosenberg commented on the medical school's academic plan and outlined plans for his second term as dean. An edited version of his address follows.*

When I last addressed you in 1984, I assessed the state of our school. I reminded you of our proud institutional heritage and of the prowess of our distinguished faculty. I described our scale and scope, speaking of such things as the size of our faculty, our national standing in NIH grant awards, our growth in clinical earnings. I forecast changes of many sorts and said that these changes represented a challenge we must accept, for in the challenge of change lies the opportunity to soar and to excel. I exhorted you to do more and do it better.

You — and I genuinely mean all of you — have responded magnificently. You have done more of everything — teaching, research and service — and you've done it better. My admiration for your collective efforts is equalled only by my pride in your personal achievements.

You have responded so magnificently to the call of your dean, your chair, your school and your profession that I have brought you together today to ask for still more. During the past three years we have responded to a request from President Schmidt and provosts Nordhaus and Turner to develop an academic plan for the School of Medicine in the 1990s. This plan and its counterparts from the Faculty of Arts and Sciences and from each of the other professional schools are currently being molded into an academic plan for the entire University. In turn, this academic blueprint will serve to define and direct the upcoming \$1.5 billion capital campaign for Yale.

The School of Medicine's planning effort has been multifocal and iterative. It has included five-year plans from all departments, autonomous sections and centers; digestion and discussion of those plans at a retreat of deans and chairs; further appraisal of the departmental plans and a presentation of a related institutional vision by the dean's operating group, consisting of the school's deans and other key administrators; and finally a draft text prepared by our marvelous deputy dean, Bob Donaldson, and myself with the valuable input of key faculty members. The draft was then read by the Provost, the President, the Yale Corporation and the chairs of the school. You now have the revised final plan as submitted to the corporation in November 1990.

Academic Leadership

The introduction to our school's plan sets the tone and presents the vision. The words are largely those of Bob Donaldson. The spirit, I hope, is all of ours.

This plan charts a strategic course for the School of Medicine in the 1990s: to establish Yale as the unquestioned academic leader in making science-based and humane

medicine responsive to the needs of society as a whole, not just the needs of individuals.

Since World War II, the technological advances of biomedical research have revolutionized the care of seriously ill patients. Thousands of people now survive ailments which in the past were uniformly fatal. At the same time, the vineyards of academic medicine have yielded vintage after vintage of highly specialized physicians skilled in the use of sophisticated methods for diagnosing and treating diseases.

Despite all this success — and in some instances because of it — the consequences of disease and its treatment have come to impose a growing economic burden on the public. The nation finds itself confronting burgeoning epidemics of costly disorders rooted in substance abuse and poverty, in the special needs of a rapidly aging population, and in the major fiscal commitments required by technology-intensive medical care.

Instead of the praise and appreciation it used to hear, medicine now finds itself the target of constant complaints: It's too impersonal; it's unevenly distributed; it neglects minorities and the poor; it's too concerned with dramatic, occasional cures and not concerned enough with prevention; it doesn't worry enough about maternal and infant survival; and most of all, it costs too much. U.S. Sen. Albert Gore recently summarized the public's frustration as follows: "We are the richest nation in the world, our medical expertise and accomplishments are the envy of the world, and yet our inability to meet the basic health needs of our citizens is an embarrassment."

Too often, medical schools and academic health centers have tended to set themselves apart from society's needs and dissatisfactions by limiting the size of medicine's playing field. Medicine, according to this argument, cannot make people happy, eliminate slums or feed the hungry; it can only apply its increasingly powerful tools to those individuals whose afflictions are definable in biological terms.

This academic plan for the Yale School of Medicine asserts that these limits are too narrow and that the school, together with Yale-New Haven Hospital, West Haven Veterans Affairs Medical Center and its other partners, must take advantage of its highly developed research and educational programs, not only to cope with complicated illnesses in individual patients, but also to address broadly the urgent health care needs of the public. We agree that medicine cannot keep drunks from driving cars, crack dealers from entering school yards, addicts from sharing needles or cheats from operating Medicare mills.

However, academic medicine can and should assign a high priority to research and educational efforts directed at the fundamental causes, prevention and treatment of alcoholism, addiction, AIDS, afflictions of the elderly and other diseases of increasing public concern. Moreover, academic health centers must increasingly bring their resources to bear upon pressing policy issues, including the costs of medical care, strategies for disease prevention, access to primary care and quality assurance.

Yale School of Medicine is ideally positioned for a leading role in meeting these difficult challenges this decade. It is situated in a city large enough to provide the variety of settings necessary to examine the nation's complex ills, yet small enough not to be overwhelmed by them. Moreover, the school is most fortunate in having Yale-New Haven Hospital as its academic partner. This modern, multi-faceted health care facility with its busy emergency room, trauma center and 825 beds not only provides dedicated and outstanding medical care to the community but also commits itself to excellence in clinical research and education. The West Haven VA Medical Center provides similar partnership opportunities for research and education concerned with the special health care needs of our rapidly aging population of veterans.

Other affiliates of the School of Medicine provide diverse health care "laboratories" in which Yale can develop innovative approaches to diseases and health issues of escalating national concern. These affiliates include two community-based ambulatory clinics for indigent patients and 10 community hospitals in southern Connecticut. The School of Medicine is able to take full advantage of these diverse settings, thanks to its major program in public health and a strong, academically oriented School of Nursing, a key component of Yale-New Haven Medical Center.

Building upon the school's many strengths, this academic plan envisions new investigative, educational and service initiatives. It recognizes the social, legal, economic and ethical implications of health and disease. But it goes further. This plan also articulates the school's unique opportunity at this point in its history to produce physicians and scientists who will be prepared to solve the myriad health maladies of our society which will only worsen without soundly conceived and aggressive intervention.

To Better Serve Society

I want to return to the first sentence which defines the strategic course of the plan: "to establish Yale as the unquestioned academic leader in making science-based and humane medicine responsive to the needs of society as a whole, not just the needs of individuals."

I doubt that anyone would see this vision as trivial. I hope all will mark it as bold. As importantly, I hope you agree with me that it is realistic for our school to aspire to be the unquestioned leader in the coming decades. The foundation for leadership is here:

- a great university led by a president who cares deeply about medicine and who says repeatedly that he is energized by the health field because of its significance in today's world;
- a city which has, in microcosm, all of our nation's social, political and health problems and which looks to our University for model answers to major problems;
- excellent health care facilities in which to perfect our attempts to prevent, diagnose, cure and understand illness and, thereby, promote health and reduce suffering;
- a faculty and staff of sufficient size, quality, diversity, energy and dedication to accomplish almost any reasonable goals.

This mission statement is worthy of all of us because we are worthy of it.

The plan then expands on this vision in the form of 10 major goals [see "Goals," page 7] and a considerably larger number of specific aims. Taken together, the goals amplify and buttress the key words in the plan's first sentence: academic, science, humane, society, individuals. Concerning the ordering of these goals, the plan's first three goals are of the highest priority because they are the most general and, therefore, of the broadest significance to the plan as a whole and to the faculty as a group. Goals 4 through 10 are not arranged in any order of importance. Each is significant in its own right; each reflects an institutional need to build on strength and to correct weakness. Now, I'd like to comment in some detail on the first three central goals.

Goal 1: Reaffirm our central mission as an educational institution.

This goal is placed where it belongs — at the very top of the list. We are, first and foremost, a medical school, and our central mission is and must continue to be the education of those who will succeed us — those who will be our professional heirs. Parenthetically, the recent birth of my first grandson makes this metaphor particularly gratifying to me.

Three years ago, I asked Dr. Edward Benz to chair a faculty task force that would evaluate our medical school curriculum. That group made many important recommendations which have been incorporated into the plan. Its central message was that we must "find ways to elevate the status of teaching as a treasured activity within the medical school." We must place it higher on the marquee, the task force said.

Some of you might question the validity of this conclusion because there is abundant evidence that we have done rather well as an educational institution over the years. We continue to attract many of the most able students in the country. They come here because of you, a superb faculty providing them with exceptional instruction, exciting research opportunities, personal attention and clinical excellence. They come, as well, because of the "Yale System" of education which holds that self-education is the best education when it is guided by small group seminars and conferences, when it allows progress at an individual's own pace, when it stresses learning principles rather than memorization of facts, when it eliminates competition for grades, when examinations are mainly for the student's benefit, and when close personal relationships between faculty and student are emphasized.

Thanks to Bob Gifford, our splendid associate dean for education and student affairs, and his fine staff, the superb students we attract are also among the happiest and most satisfied in the nation.

Rewards for Teaching

And yet, a number of forces, some external, some internal, threaten our commitment and performance in medical education. One is the perception — the all too common perception — among our faculty that good teaching is not appropriately recognized or rewarded here, that our coin and kudos go to those who produce income for the school through research grants or clinical activities. We must rid our school of this perception because it threatens us at our very core. How to do this?

First, we must make teaching performance a significant prerequisite for appointment or promotion to senior rank in our school. The appointments and promotions committee has already begun to make this point by obtaining much more information from candidates for promotion about teaching

responsibilities and by pressing department chairs for a detailed appraisal of teaching performance. But we need a more objective system of teaching performance based on input from students and peers, and serious efforts in this regard are underway.

Second, we must convince the chairs, and they in turn must convince their faculties, that the institutional funds they receive each year recognize their teaching responsibilities. I have changed the name for this institutional allocation from "general appropriations," or GA, to "educational appropriations," or EA, to emphasize this point. I urge and expect chairs and section chiefs to use these funds explicitly in support of the teaching time and responsibilities of their faculty members.

Third, we must reward our truly outstanding teachers. Through the generosity of the Bohmfalk bequest, we have recently established two new teaching prizes of \$5,000 each. These are awarded annually to one member of the faculty in the basic science departments and another in the clinical departments whose teaching performance has been deemed stellar by a committee composed of students and faculty. More such accolades are needed.

A second force which impinges on our educational purpose is the dramatic increase in our knowledge base concerning both basic biology and its application to health and disease. The explosion of new information in medical science is so great that neither our faculty nor our students can organize or absorb it all. Equally dramatic changes have occurred in clinical practice. The capacity of physicians and surgeons to intervene on behalf of sick people has burgeoned in a sometimes breathtaking way. The Benz task force said that we needed a new way to respond to these dramatic changes — that our structure for curriculum evaluation and modification was inadequate.

Hence, two years ago we established the educational policy and curriculum committee (EPCC) as a standing committee of the school reporting directly to the Board of Permanent Officers (BPO). This committee, under the strong leadership of Emile Boulpaep, has already accomplished much, thereby convincing me and others that medical education is not as mired in maintaining the status quo as many in our country proclaim.

Let me recount the progress:

1. A three-week required clerkship in clinical neuroscience has been inserted into the curriculum for third-year students;

2. All directors of required clinical clerkships must now provide students with a syllabus which identifies a core body of knowledge and skills that students are expected to master;
3. In recognition of the changing demographics of clinical practice, each required clerkship must now contain an ambulatory component;

Goals of the 1990 Academic Plan For the Yale School of Medicine

1. Reaffirm our central mission as an educational institution.
2. Strengthen Yale's position of leadership in basic biomedical research.
3. Integrate the complementary disciplines of clinical medicine and public health.
4. Lead a University-wide initiative toward prevention and cure of disabling diseases of the brain.
5. Strengthen and broaden programs aimed at understanding, controlling and eradicating infectious diseases.
6. Secure a leading role in the prevention, detection and cure of cancer by strengthening Yale's Comprehensive Cancer Center.
7. Expand academic programs devoted to maternal health and the well-being of children.
8. Develop novel approaches to the prevention and treatment of vascular diseases affecting the heart, brain and kidney.
9. Make curative transplantation strategies safer and more available.
10. Integrate and strengthen programs aimed at the prevention, treatment and rehabilitation of musculoskeletal disorders.

4. Eleven interdepartmental, systems-oriented faculty/student study groups are meeting regularly to analyze the curriculum of the first two years, to seek greater integration and coordination and to minimize unwanted redundancy and duplication; and,
5. Yale is one of 12 schools in the country (out of more than 70 which applied) to be awarded an 18-month planning grant from the Robert Wood Johnson Foundation as part of its program to catalyze change in medical education in our country. We hope to be among the six to eight schools that will receive larger, longer-term support next year.

A third powerful force affecting medical education concerns the shifting ecology and sociology of clinical practice and of health care needs. Medical practice is moving increasingly to ambulatory settings.

Moreover, the locus of unmet health needs of our poor, our disadvantaged minorities, our homeless resides in our cities and our neighborhoods. The hospital, then, can no longer be the only — or even the preferred — site for clinical instruction. Yet our required clerkships are almost entirely inpatient-oriented, focusing on the most seriously ill patients who require high-technology and intensive care. It is, therefore, possible for a student to complete medical school with a distorted, myopic view of the clinical arena.

If we are to prepare our students to grapple with the societal ills that are so much the antecedents of poor health; if we are to encourage more of our graduates to follow career paths in primary care; if we are to prepare our students for the kind of medicine they will practice after leaving us, we must identify and use new teaching settings and new teachers. Such settings must include the Yale Physicians Building, the Yale Health Services Center, the Hill and Fair Haven health centers, our affiliated community hospitals, and the offices of our voluntary faculty members.

This will not be easy to do. HMOs are under great financial pressure to be efficient, and teaching is inefficient. Community health centers must be responsive to the concern that they not be places for students to “experiment” on those groups who already feel discriminated against. Our practicing physicians feel the pinch of competition, the threat of litigation and the heavy hand of regulation. Nonetheless, we must meet this challenge, and I must ask you — full-time and part-time faculty alike — to recognize your responsibilities to take students into your clinical settings.

Being a faculty member at this school is a privilege earned by individuals in recognition of their commitment to enhance our academic programs. It is not a right conferred by membership on a hospital staff, inclusion in a directory of alumni or alumnae, or geographic proximity to our institution. Willing participation in teaching is a necessary but not sufficient condition of achieving and retaining faculty status.

Goal 2: Strengthen Yale’s position of leadership in basic biomedical research.

Here, I can be brief because none of you doubt either my personal or our institutional commitment to this central mission. This faculty excels in basic research. Very few institutions match either our breadth or our strength. Our basic science departments are second to none, but they are not the only sites at which outstanding fundamental research is conducted. Our clinical departments have superb programs as well.

Further, as evidenced by our soon-to-be-completed Yale Center for Molecular Medicine, we are neither limited to departmental organization of science nor to artificial and often simplistic designations of research as being either fundamental or applied, basic or clinical. It is, in fact, from the purposeful blurring of these designations that exciting progress toward understanding disease mechanisms will continue to come.

other, interdepartmental programs. Only by doing this can we both expand and decompress internal medicine space and, thereby, the other clinical departments in which research aimed at ferreting out basic secrets of pathobiology is carried out. Planning for this new building began in September. Hopefully, construction will begin in less than two years. Other research facilities needs will be noted in relationship to their respective goals.

Our faculty has been very successful in competing for federal research funds, particularly from the National Institutes of Health. Your entrepreneurial spirit in this regard is to be applauded and appreciated. Moreover, you’ve become increasingly effective at securing funds from the for-profit sector to supplement and complement dollars from federal and non-federal, not-for-profit agencies.

Our capabilities in research will be influenced by our national climate for research, which has been unusually stormy during the past year, warranting a brief digression. I feel compelled to clarify my own position about the current state of biomedical research because I’m afraid I’m being misunderstood. The United States has and will, for the foreseeable future, continue to have the pre-eminent biomedical research program in the world. It has achieved this enviable position during the past 40 years through the following actions:

- a generous, sustained investment of public funds;
- distribution of the vast majority of those funds to investigators at academic institutions;
- a nationally accepted and supported mechanism for awarding funds through peer review;
- appreciation of the value of a mixed support program composed of individual project grants, center grants and training funds;
- vesting considerable leadership authority in the director of NIH. If we are to retain our position of pre-eminence, these facets of our system must be recognized and reaffirmed. Although we are currently experiencing serious problems in the leadership at the federal level and in the management of federal funds, I have no hesitation in saying to you, “Press on and be resolute.”

I remain convinced that our country will continue to invest in health-related research because it is the most cost-effective investment in health that we have. I remain certain that a stable, rewarding career in science is achievable here and will continue to be. I remain committed to this School of Medicine retaining its unified stance in

support of research and not succumbing to the we-they dissonance of scientist versus institution, or Ph.D. versus M.D., or “working” scientist versus Washington-based organizations that has characterized recent discourse.

Goal 3: Integrate the complementary disciplines of clinical medicine and public health.

American medicine and public health are each experiencing fundamental pressures to change. The aspirations of the American people to enhance the public’s health and to enrich their personal lives through improved functioning have become compelling considerations for the

Student Enrollment

	1983-84	1990-91	% Change
M.D. candidates	417	478	+15
Ph.D. candidates	208	300	+44
M.D., Ph.D. candidates	47	55	+17
M.P.H. candidates	206	149	-28
Dr.P.H. candidates	7	18	+157
P.A. candidates	44	43	-2
House officers	360	407	+13
Postdoctoral fellows	437	504	+15
Total	1,726	1,954	+13

To retain our position as leader, we must continue to provide resources in the form of people, space and money. We can compete for the best people if we have adequate space and the required funds. The space must come from a combination of new construction and renovation. We’ve done a lot of both in the past six years, but we must do more.

Support for Research

Regarding new facilities, the top priority in our plan calls for a new clinical sciences building to house the fine research program of our department of internal medicine, as well as

health policies we develop as a nation and for the health practices we follow as individuals. These aspirations have also challenged the health professions to broaden their traditional biomedical paradigm by incorporating into it the socio-cultural and behavioral influences on health and human functioning.

Although Yale has developed programs of international distinction in these areas, neither we nor the other great universities have created the interdisciplinary approaches of research and education that are needed. Accordingly, we propose the following objectives to enable Yale University to provide national and international leadership in crucial decisions concerning the health of both the public and its individual members:

Objective 1. *Infuse the ethos of public health into the teaching programs of the medical school and integrate biomedical knowledge into the teaching programs in the School of Public Health.*

This objective must be viewed as encompassing the full scope of medical education and public health. It can only be accomplished with the full participation of our clinical, basic science and public health faculty. Educational content must emphasize previously neglected areas such as nutrition, health promotion and disease prevention, screening for cancer and other chronic disorders, and deciding when treatment does more harm than good. These programs must be merged and fully integrated among participating groups throughout Yale.

Objective 2. *Acquire new knowledge about the bio-behavioral interactions which determine good health and optimal outcomes of illness.*

In developing this knowledge, we need to learn how psychosocial, economic and behavioral conditions, as well as large-scale environmental conditions, influence health. Much work still needs to be done in understanding the role these factors play in health outcomes.

Objective 3. *Acquire new knowledge about vulnerable populations.*

In bringing together the research and educational approaches of traditional biology and clinical medicine with those of public health, our focus must be on the needs of special groups across the life span, including not only the very young and the very old, but also adolescents and those who have reached mid-life. Studies of vulnerable populations cannot be complete, of course, unless we continually integrate the special considerations of those disadvantaged by race, poverty, social class or by exposure to occupational hazards.

Objective 4. *Construct interdisciplinary educational curricula involving students and faculty in the schools of medicine, nursing and public health.*

Such curricula are urgently required because we cannot hope to enhance the health of the public unless we broaden the educational scope of the conventional biomedical curriculum. Students in all of these disciplines need to understand the ethos, concepts and evidence that guide research and influence clinical decisions and health policy. Moreover, major health-related topics such as the influence

of poverty on health, the role of genes in the expression of disease, the importance of nutritional principles on health, and the problems of substance abuse and teen-age pregnancy cut across the arbitrary boundaries that tend to separate the disciplines.

The Kellogg Foundation has recently decided to fund a major program combining such health professions' educational partnerships with a second partnership — namely, between an academic institution and a community health center. Yale is one of 15 institutions to have received a highly competitive planning grant for this endeavor. Large-scale funding for six or more of these institutions will be announced in a few months. I hope that our proposal, prepared by a team led by Ralph Horwitz of the department of internal medicine and including Burton Singer, chair of EPH, and Judy Krauss, dean of the School of Nursing, will be found meritorious.

Facilities Highlights: 1984-Present

Research

- 80,600 nsf of incremental laboratory space through new building construction (Magnetic Resonance Center, Yale Psychiatric Institute, Yale Center for Molecular Medicine)
- 61,000 nsf of incremental laboratory space through renovation and modification of existing buildings (Fitkin, Tompkins, Winchester, Sterling Hall of Medicine)
- Three-fold increase in funds expended annually for renovation and infrastructure improvement (\$3.0 million in 1983-1984; \$10.8 million in 1989-1990)

Education

- 33,000 nsf expansion/renovation of Cushing/Whitney medical library
- Renovation of Fitkin Amphitheater

Clinical Service

- Construction of 59,400 nsf Yale Physicians Building
- Construction of 41,000 nsf Yale Psychiatric Institute
- Construction/renovation of 13,000 nsf Yale Eye Center

Objective 5. *Provide objective foundations for policy decisions affecting the health of society and the individual.*

Through the forcefulness of its science and the persuasiveness of its faculty, Yale can achieve leadership in health policy by developing exciting new programs of research and education that become models for the nation. The integrated efforts of Yale's traditional biomedical and public health programs must be designed to:

- improve clinical care in all of the health services at Yale and throughout the country, by basing decisions firmly on valid scientific evidence;
- take into account important demographic changes, particularly the rapid aging of the population in developed countries;
- promote national health care policies which trumpet the crucial goal of universal access and which address quality and cost by providing the evidence and intellectual framework to guide public policy makers;

- integrate into a comprehensive health policy agenda those elements of economic social policies that influence health.

Goals 4 through 10 are, though less general than goals 1 through 3, surely no less important to the school and to groups among you. I will comment briefly on them.

Goal 4: Lead a University-wide initiative toward prevention and cure of disabling diseases of the brain.

Yale is blessed with a very large and excellent group of neuroscientists. Most of them are on the faculty of our school. Our challenge is to integrate, to coalesce, to cohere. This must be done in research, education and service.

The vehicles for such integration are being put in place. They include: a University-wide graduate program overseen ably by Bill Agnew from cellular and molecular physiology and Martha Paton from biology; a neuroscience steering committee chaired by Pasko Rakic; and a commitment on the part of the school to erect a new facility — a Yale Brain Center — which will house key components of the program and community. Yale must respond aggressively during this Congressionally designated “Decade of the Brain.”

Faculty Profile

Category	Number		% Increase
	1983-84	1990-91	
Full-time			
Academic track			
Tenure	171	188	10
Term	230	337	47
Clinical track			
Continuing	34	60	76
Term	88	92	5
Research track	169	247	46
Total full-time	692	924	34
Voluntary	1,492	1,672	12
Grand total	2,184	2,596	19

Goal 5: Strengthen and broaden programs aimed at understanding, controlling and eradicating infectious diseases.

Plagues continue to befall humankind. Yale scientists have contributed much in such areas as poliomyelitis, infectious mononucleosis and Lyme disease. We have not been among the leaders in AIDS, at least in part because of a decision 20 years ago to dismantle the department of microbiology. We badly need a basic science unit in this field and have requested from the Yale Corporation approval to reinstitute an autonomous section of microbiology as of July 1991. Although this is not an easy time either in terms of finances or of available space, to add new academic organizations, we must do so when necessary. A free-standing section of microbiology will act in synergy with our increasingly strong section of immunobiology and with programs in EPH, internal medicine, laboratory medicine and pediatrics. We shall all prosper as an outcome.

Goal 6: Secure a leading role in the prevention, detection and cure of cancer by strengthening Yale's Comprehensive Cancer Center.

We are most fortunate to have one of 24 National Cancer Institute-designated comprehensive cancer centers in the United States. We are fortunate, too, that it is remarkably well led by Alan Sartorelli. It is time to take the next step and build a facility which will house the center's offices, its ambulatory care programs and some research activities. This construction is necessary if we are to be an effective referral center for patients with malignancies still responsible for more than 500,000 deaths in this country annually.

Goal 7: Expand academic programs devoted to maternal health and the well-being of children.

Because children don't vote, they are regularly overlooked by politicians. We must be advocates for and champions of children and their families. Yale has a proud tradition through its Child Study Center, its department of pediatrics and other programs aimed at protecting and improving child health. As our partner, Yale-New Haven Hospital, erects its new Children's Hospital, so we must join in promoting laboratory, clinical, epidemiologic and psychosocial research aimed at understanding the vulnerable child — whether that child be the premature infant of a drug-abusing teen-age mother or a baby destined to a life of chronic illness due to cystic fibrosis.

Goal 8: Develop novel approaches to the prevention and treatment of vascular diseases affecting the heart, brain and kidney.

Cardiovascular disease remains the number one killer of American adults. We are on the verge of making truly dramatic strides toward prevention of disease resulting from our identification of such major risk factors as smoking and hypercholesterolemia. We have much to contribute here already. We will do more when we initiate our cardiobiology program in the Center for Molecular Medicine and as we expand our vascular biology research efforts and our clinical care efforts in internal medicine, surgery, neurology, diagnostic radiology and elsewhere.

Goal 9: Make curative transplantation strategies safer and more available.

Among the clinical marvels of our age, organ and tissue transplantations stand out because of their proven capability to cure disease. Parenthetically, this essence of high-technology care is consonant with our emphasis on public health: first, because transplants are unquestionably cost-effective; second, because they depend on public support through organ and tissue donors.

In the past decade we have assembled a superb group of surgeons and physicians, basic scientists and clinical investigators, who now enable us to offer transplants of heart, lungs, pancreas, liver, kidney, cornea, bone and bone marrow. We must provide these clinicians and scientists with the hospital and associated resources they need to make us a true center of transplant excellence.



Pencil drawing of Dean Leon E. Rosenberg composed for YALE MEDICINE and copyright © 1991 by Gerald York.

Goal 10: Integrate and strengthen programs aimed at prevention, treatment and rehabilitation of musculoskeletal disorders.

About 20 percent of all Americans have their quality of life impaired by significant and chronic dysfunction of the musculoskeletal system. As our population ages, lost productivity resulting from these conditions will increase as will monetary and human costs. Our research and clinical programs aimed at arthritis, metabolic bone disease, skeletal trauma and sports injuries are both multi-departmental and strong. To them must be added a focus on rehabilitation, which is currently underdeveloped. Hopefully, this can be accomplished by establishing a major partnership with Gaylord Hospital and by asking our department of orthopaedics and rehabilitation to be a lead agency in our programs.

That outlines this academic vision for our school in the decade ahead. It cannot be accomplished unless every one of us plays a part in it. Consider it a working document which will change with time and circumstances; none of it is carved in stone.

Some may wonder whether this plan is achievable and whether it's realistic given today's tough economic climate. Of course, it will not be easy to meet the many goals and aims I've articulated. But being a great institution is never easy. It requires courage, character, discipline, integrity, leadership and lots of good luck. Before any of you begin to worry about whether we've overreached, let me remind you that it is during the toughest economic times — not the easiest ones — that the soundest and most creative institutions outdistance the competition. Yale University built more buildings, added more endowment and launched more programs during the Great Depression than during any other decade in the University's history.

Recent Accomplishments

Furthermore, our own recent history should make us optimistic about our future. In the short 6 1/2 years that I've served as dean, this institution has accomplished a great deal.

Since 1984, more than 400 people have been added to our faculty, largely due to growth in the full-time ranks where

we've experienced a 34 percent increase in all components: tenure, continuing, term; and in all three ladders: academic, clinical and research. [See "Faculty Profile," page 10.] The largest fractional increase has occurred among those with continuing appointments in the clinical track — attesting to our commitment to greater clinical excellence. The voluntary faculty has grown less. This reflects a widespread view that this segment of the faculty is too large, and that its very size tends to diminish the significance of carrying the Yale name.

I am particularly pleased to note that the number of tenured women on our faculty has more than doubled since 1984 — from 10 to 21. Women with term appointments have also increased nearly two-fold. This positive step toward equitable diversity among us has, disappointingly, not yet been achieved for members of disadvantaged minorities. They remain distinctly underrepresented, and there has been no fractional increase in their presence in our tenured or term faculty ranks. Clearly, there is more to be done here.

Our student body, too, has increased significantly in size — now numbering 1,954. [See "Student Enrollment," page 8.] We educate no fewer than eight categories of students. To those of you who express concern regularly about our numbers of graduate students and postdoctoral fellows, I ask you to be cognizant of the robust growth in these categories. Further, and of greatest importance, there is every reason to believe that the quality of our students in all categories has been sustained or even improved.

- 61,000 nsf of incremental laboratory space through renovation and modification of existing buildings (Fitkin, Tompkins, Winchester, Sterling Hall of Medicine)
- a more than three-fold increase in funds expended annually for renovation and infrastructure improvement (\$3 million in 1984; \$10.8 million in 1990.) These data clearly reflect our commitment to and capability for providing the physical resources commensurate with our missions and vision. They are a symbol of vigor.

Let me conclude this brief survey of resources by saying something about money. [See "Financial Highlights."] Since 1984 the total operating budget of the school has more than doubled in actual dollars, corresponding to a 53 percent increase in constant dollars. This denotes a 7.3 percent compounded annual real growth — a most impressive figure. Since nearly 90 percent of our income is earned from research grants and contracts and from clinical programs, it follows from what I've just said that those programs would have to grow, and they have: 37 percent real growth in grants; 64 percent real growth in clinical earnings. Tuition income has increased too, though not nearly as much. That is as it should be if you're as worried as I am about the increased indebtedness that our M.D.s carry with them upon graduation.

Please take note of the impressive growth in the school's endowment base, from \$70 million in 1984 to \$194 million in 1990. This financial underpinning is enormously important to us; its growth reflects both generous philanthropy and excellent management of the portfolio. Finally, I'd like to mention that corporate support for our research programs has increased markedly. It is still small compared to our federally derived support, but it is now respectable. That's a good omen.

Finally, a word about fund-raising. Thanks to Sue Dorn and now Will Melton and an excellent staff, we're raising more than twice as much private money each year now than we did in 1984. This increase has been seen in gifts as well as in grants.

In this connection, I am truly delighted to announce a very special, recent financial commitment to the school: a \$10 million naming construction gift for the Center for Molecular Medicine (CMM) from Professor and Mrs. Herb Boyer of San Francisco. Herb was a postdoctoral fellow in Ed Adelberg's laboratory many years ago. He is a member of the National Academy of Sciences and one of three people ever to win both the National Medal of Science and the National Medal of Technology. Many of you know him as the co-discoverer of recombinant DNA technology and the co-founder of Genentech. This magnificent gift is the largest single contribution by an individual in this school's history.

If you believe as I do that the best way to project the future of a person, group or institution is to assess the recent past, then we have every right to address our future and our innovative academic plan with confidence; confidence strengthened by knowing that what we want to do is in the public interest.

YM

Financial Highlights: 1983-1984 to 1989-1990 (Dollars in millions)

Parameter	Dollars		% Increase		% Compound Annual Growth	
	1983-84	1989-90	Actual	Real	Actual	Real
Operating budget	143.6	295.6	105.8	52.8	12.8	7.3
Grants/contracts	76.5	141.6	85.1	37.4	10.8	5.4
Clinical programs	53.2	117.8	121.4	64.3	14.2	8.6
Tuition	7.0	11.1	58.6	17.7	8.0	2.8
Endowment income	2.8	6.9	146.4	82.9	16.2	10.6
Endowment principle	69.7	194.0	178.6	106.6	18.6	12.9
Corporate support	1.8	6.7	272.2	176.2	24.5	18.5

New Facilities, Financial Growth

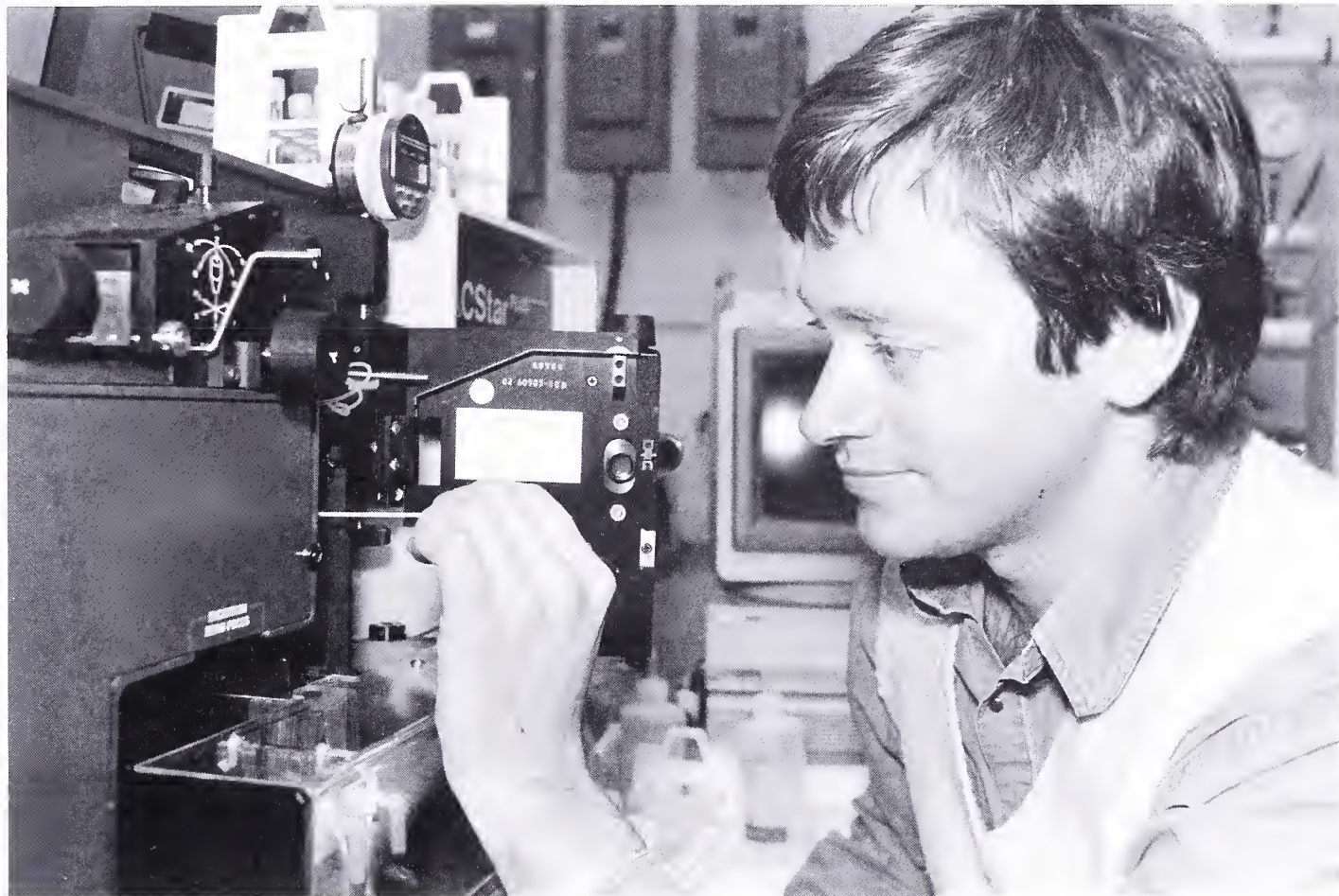
Next, some remarks on facilities. [See "Facilities Highlights," page 9.] We've made remarkable strides in improving the quality and quantity of our educational, clinical and research space: Of the now nearly 700,000 net square feet (nsf) devoted to our three missions, nearly 300,000 — 42 percent — have been built since 1984.

Highlights of this facilities expansion and improvement program include:

- a 33,000 nsf expansion and renovation of the Cushing/Whitney medical library;
- construction of the 41,000 nsf Yale Psychiatric Institute;
- construction and renovation of the 13,000 nsf Yale Eye Center;
- 80,600 nsf of incremental laboratory space through new building construction in the Magnetic Resonance Center, Yale Psychiatric Institute and Yale Center for Molecular Medicine;

YALE IMMUNOBIOLOGISTS GET DOWN TO BASICS

Photographs by James Anderson



Using a Fluorescence Activated Cell Sorter (FACS), I. Nicholas Crispe, Ph.D., can monitor 2,000 cells per second. The \$200,000 machine can sort with 99 percent accuracy using six different parameters, including four fluorescing signals and two cell sizes.

by Diane E. Loupe and Gregory R. Huth, M.P.H. '84

A laser beam's ethereal blue light cuts through what appears to be a strand of monofilament fishing line. A microscope, however, reveals the line to be a fine stream of drops whizzing by.

Some of the drops contain T cells, specialized white blood cells that form the front line of defense in the human immune system. I. Nicholas Crispe, Ph.D., assistant professor of immunobiology, has chemically labeled some of those cells with fluorescing molecules and is sorting them with a Fluorescence Activated Cell Sorter (FACS). When the FACS laser beam hits a drop bearing a labeled cell, an electric charge deflects the cell into a test tube. Unlabeled cells drop into another tube. A video monitor nearby glows with a computer count of the labeled cells.

This article was written by Diane E. Loupe, staff writer at the medical school office of public information (OPI), with the assistance of Gregory R. Huth, OPI publications editor.

Using FACS, Dr. Crispe can sift through 2,000 cells a second with 99 percent accuracy, an impressive feat considering that 20,000 such cells could fit on a pinhead. FACS exemplifies the powerful tools of molecular, cellular and genetic research that Dr. Crispe and other faculty in the medical school's section of immunobiology use to understand better the human immune system.

Ever since Louis Pasteur introduced the germ theory in the late 1800s, medical researchers have sought to understand how the body defends itself against the relentless invasion of microscopic agents that can cause disease. Richard A. Flavell, Ph.D., professor and section head of immunobiology, says that every day, discoveries in his field are providing more answers.

Immunobiology, as Dr. Flavell explains with a British accent flattened by his years in the United States, "interfaces with the study of infectious diseases, autoimmunity and transplantation. Some of the key unsolved problems in all of these areas are related to the immune system."

When Dr. Flavell arrived in July 1988 to launch the section, he fulfilled the dream of the late Richard Gershon,



Richard A. Flavell, Ph.D.

M.D., a noted researcher in immune response regulation. As a professor of pathology, Dr. Gershon's broad-based approach helped shape immunology research at Yale. He also advocated forming an autonomous section of immunobiology.

The fruits of Dr. Gershon's advocacy can be seen in the growing section's laboratory space on the fourth floor of the Fitkin Memorial Building. Here immunobiology's five primary faculty members work in conjunction with approximately 20 graduate students, 40 post-doctoral fellows, four faculty members with joint departmental appointments and other faculty collaborators. The quality of the section's research attracted support from the Howard Hughes Medical Institute (HHMI), which largely underwrote laboratory renovations and the purchase of equipment. Four of the section's faculty members, including Drs. Flavell, Bottomly, Janeway and Bothwell, share appointments with HHMI and the University.

Immunobiologists study how the immune system develops and how it is marshalled to destroy pathogens, the viruses, bacteria and other microorganisms that can make us ill. Some of the scientists focus on why the immune system sometimes induces autoimmunity — an assault on the body it is supposed to protect — causing such diseases as diabetes, multiple sclerosis and lupus.

A Constant Engagement

Key to the immune system's ongoing vigil against microscopic invaders are white blood cells called lymphocytes. Like immunological sentries, lymphocytes cluster in the body's checkpoints, the lymph nodes. As lymph nodes filter fluids flowing from the body's tissues, white blood cells monitor for pathogens.

Each lymphocyte is a specialist, trained to recognize and kill a single infiltrator called an antigen — usually a protein from a pathogen, foreign to the body. Lymphocytes recognize antigens by using cell surface molecules called receptors that fit to an antigenic molecule like a key fits a lock.

Only when a lymphocyte's receptor key fits into an antigen's lock does it swing into action to destroy that antigen. Since each lymphocyte reacts to only one kind of invader, the body develops a repertoire of such cells with different receptors to battle a wide array of antigens.

Lymphocytes come in two varieties: T cells, so named because they form in the thymus, and B cells, which are formed in bone marrow. B cells are responsible for eliminating pathogens, such as bacteria and other microorganisms, that appear outside cell walls; T cells fight other pathogens, such as viruses, that hide inside cells.

Like immunological arms factories, B cells manufacture antibodies, Y-shaped molecules that circulate in the blood. Antibodies are "trained" to kill antigen. Some attack and kill pathogens by binding to them and punching lethal holes in the invading cell's surface. Other antibodies bind a pathogen and introduce it to the surface of macrophages, large cells which then engulf and devour the invader.

The mission of T cells is even more subtle than that of their B cell counterparts. Since T cells attack pathogens that lurk inside cells, these immunological defenders must identify infected cells without entering them, a process that would destroy healthy cells.

Enter the "spies," major histocompatibility complex (MHC) proteins, to help T cells with their task. An MHC molecule comprises a chain of amino acids folded into what in graphic renderings resembles an intricate wire sculpture. In one of its tangles, the MHC molecule has formed a deep cleft in which it can clutch a bit of antigen.

Once it snares some antigenic prey, the MHC protein brings it to the cell surface, where T cells can chemically sense the antigen. Upon detecting antigen, T cells punch holes in the surface of the infected cell, causing an influx of water that bursts the cell, thus killing the invading pathogen.

At the Microscopic Ramparts

When the elaborate defenses of the immune system malfunction and begin attacking a person's own, or "self," cells, a wide range of autoimmune diseases can result. Yale's immunobiologists are undertaking the basic research that may lead to better treatments for these diseases and others with autoimmune components, including AIDS.

Some of the section's researchers are learning more about how cells communicate with each other to signal destruction of infected cells; their studies could lead to more effective bone marrow transplants. Still other Yale immunobiologists are experimenting with new recombinant — genetically engineered — vaccines against Lyme disease.

The molecular research of Adrian C. Hayday, Ph.D., associate professor of biology and immunobiology, touches on one of medicine's most debated issues: how stress may be related to immune response. Dr. Hayday and his team study

gamma delta T cells, many of which are located on the body's barrier surfaces, such as the skin, intestines, mouth and genitals.

Dr. Hayday thinks that gamma delta T cells may sometimes start killing self cells because of an unfortunate coincidence. Gamma delta T cells can respond to proteins switched on during physical or immunological stress, what Dr. Hayday calls the "molecular equivalent of cries for help." These proteins include ones that resemble proteins expressed by mycobacteria which cause tuberculosis and other diseases, a likeness which may trigger an autoimmune attack.

"This raises the question of whether there's a relationship between various types of stress and susceptibility to disease," affirms Dr. Hayday. To explore this, he plans to test genetically whether molecules in the brain known to be affected by mental and emotional stress will disrupt immune function.

Section scientists, in addition to addressing questions of general autoimmunity, also study individual autoimmune diseases. For example, the laboratory of Charles A. Janeway Jr., M.D., is researching the role of T cells in such diseases as insulin-dependent diabetes, multiple sclerosis and systemic lupus erythematosus. Using strains of mice bred to exhibit symptoms of these diseases, Dr. Janeway, a professor of immunobiology and HHMI investigator, is trying to discover how T and B cells communicate with other cells.

Toward this end, his laboratory was one of the first to clone T cells. Dr. Janeway and his colleagues are focusing on how these cellular soldiers recognize antigen, how they distinguish between self and non-self cells, and what spurs the T cells to action.

Dr. Janeway's T cell research may contribute to the fight against the Human Immunodeficiency Virus (HIV), the AIDS virus. HIV disables the immune system by infecting and killing T cells which bear molecules called CD4 on their cell surfaces. Dr. Janeway's team discovered why T cells which bear CD4 molecules recognize one of two major forms of MHC, class II. T cells link to an antigen-bearing MHC molecule through both a surface receptor and a CD4 molecule.

"CD4 binding to MHC class II makes the cell a hundred to a thousand times more sensitive to antigen, enabling the T cell to respond efficiently to very low amounts of antigen," Dr. Janeway explains.

Dr. Flavell's research team is also accumulating evidence that HIV infection may be linked to autoimmunity. HIV-infected cells may shed the protein gp120, which binds to the CD4 molecule. Shedding gp120 renders the cell a target for killer T cells, says Dr. Flavell, who is studying this interaction.

Another aspect of Dr. Flavell's work, his decade-long research into MHC genes, may help determine why some people are susceptible to diabetes and other autoimmune diseases. To pursue this question, his team fashions transgenic mice by inserting foreign — in this case human — genes into embryonic animals which then express the genes.

"People who have a certain type of MHC II gene have a likelihood that they're going to get diabetes. People who have a protective kind of gene, which is an MHC class II gene in mice, are likely not to get disease," notes Dr. Flavell.

There also may be an autoimmune component to Lyme disease, Dr. Flavell suggests. Lyme disease is caused by a spirochete, a spiral-shaped bacterium. Patients displaying neurological symptoms of the disease have antibodies in their cerebrospinal fluid that cross-react with an antigen of the spirochete. Dr. Flavell speculates that "if this antibody binds to neurons, that might be part of the cause of the damage."

Delving into Diabetes

Four years ago, Professor of Medicine Robert S. Sherwin, M.D., a blood sugar metabolism researcher, took an unusual sabbatical. Passing up a chance to study in Denmark, he stayed at home to work in the laboratory of another Yale researcher, immunobiologist Charles A. Janeway Jr., M.D.

Their collaboration has led to a major research project regarding the immunological progression of insulin-dependent diabetes mellitus. The \$6 million project, supported by the National Institutes of Health, began Sept. 1. It involves 10 Yale medical school researchers who are studying the cell biology, immunology and molecular biology of diabetes. The scientists plan to conduct clinical studies, as well.

Scientists believe diabetes develops after T cells make a serious mistake — they attack and destroy the insulin-producing beta cells of the pancreas until insulin production slows or stops. Researchers think this error occurs because beta cells cloak themselves with an antigen that T cells may mistake for an invading organism.

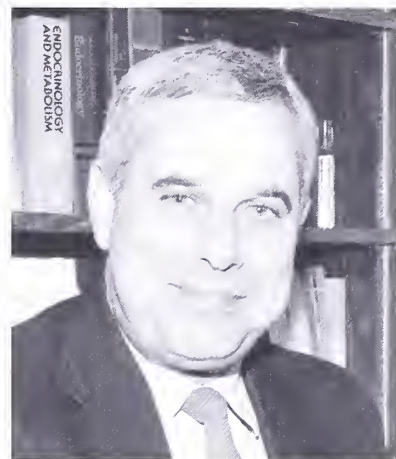
Dr. Sherwin, together with associate research scientist Eva-Pia Reich, Ph.D., and Dr. Janeway, identified T cell cloned lines that could induce diabetes in experimental mice. With this discovery, the scientists had developed an animal model that could help them pursue answers to some of the most basic questions about the disease.

For example, does MHC interact with antigens that attack beta cells? To find out, Dr. Richard Flavell's laboratory fashioned a gene that will be inserted into diabetic mice. He hopes the gene will induce production of MHC II molecules targeted by T cells. If this gene hastens the disease's progression, Dr. Flavell will have evidence that MHC II plays a role in diabetes etiology.

Another question involves identifying which antigens on beta cell surfaces are targets of autoimmune attack. Should the laboratories of Drs. Janeway and Flavell succeed in identifying these antigens, it might lead to immunotherapies for diabetes.

Do cytokines, which often initiate immune responses, play a role in the disease? To find out, Dr. Nancy Ruddle is examining the impact of cytokines on insulin-producing cells. And Dr. Adrian Hayday wants to elucidate the interaction between the T cells and the pancreatic tissues that they destroy. His team is trying to clone the genes for T cell receptors and then insert them into cells that don't recognize beta cells. This will help test whether these receptors trigger an autoimmune attack.

For his part, Dr. Sherwin is working to understand how T cell clones attack beta cells and whether beta cell activity influences the attack. Pleased with his ongoing collaboration with the immunobiologists, he calls their section "a lively, energetic place where there's a lot of learning going on."



Robert S. Sherwin, M.D.



Paula Kavathas, Ph.D., discusses with Dr. Flavell about recent findings from her research involving CD8 molecules.

Yale Scientists Progress In Cracking the Genetic Code

Immunobiological research at Yale reflects a growing emphasis on understanding genes. With ramifications for a wide range of biomedical issues, genetic research benefits from an interdisciplinary approach, as reflected in the work of three of the section's researchers:

- Paula Kavathas, Ph.D., assistant professor of laboratory medicine, human genetics and immunobiology. She works with mutant CD8 molecules on the surfaces of some T cells. By studying the mutant CD8 cells, she hopes to learn how they bind to MHC class I molecules on nearby cells and signal T cells to destroy pathogenic cells. She also is studying a chemical secreted by the immune system which appears to interact with both immune and nervous system cells. This chemical interaction may be responsible in part for nervous system changes during illness.
- Nancy Ruddle, Ph.D., associate professor of epidemiology, biology and immunobiology. She works with genes cloned for two related cytokines called lymphotoxin and tumor necrosis factor (TNF). Manufactured by T cells, cytokines can kill some cells while spurring replication of others. Dr. Ruddle thinks TNF and lymphotoxin may contribute to the myelin destruction and interrupted nerve transmission characteristic of multiple sclerosis. HIV-infected T cells also appear to be much more sensitive to these cytokines than non-infected cells. "It's becoming more and more clear that TNF and lymphotoxin are important co-factors in AIDS, in stimulating virus replication and in killing cells," she says.
- David Schatz, Ph.D., a Massachusetts Institute of Technology researcher who will join the section as the sixth primary faculty member in July. He studies two genes important in the assembly of T cell receptor and antibody genes. Dr. Schatz cloned the genes called RAG-1 and RAG-2 which appear to produce an enzyme that shuffles genes around to recombine and produce the body's vast repertoire of antibodies and T cell receptors. But Dr. Schatz has also found evidence that the genes appear in the nerve cells of the brain, which may lead to further insights into brain function.

Sounding the Battle Cry

As some section scientists look into newly discovered Lyme disease, others' research may help manage a parasitic scourge known for millennia, what modern medicine calls leishmaniasis. This sandfly-borne disease affects 12 million people worldwide. Experiments by Kim Bottomly, Ph.D., associate professor of immunobiology and associate investigator with HHMI, are focusing on how the body eliminates various pathogens, such as those leading to leishmaniasis and other diseases.

She notes that the mode of defense the immune system deploys might make the difference between resistance or susceptibility to Leishmania. If one hand, CD4 T cells activate antibodies to fight the Leishmania parasite, this paradoxically is associated with susceptibility and leads to leishmaniasis, often characterized by fever, fatigue and secondary infections. If, on the other hand, T cells activate macrophages, then the body is better able to resist the parasite.

Dr. Bottomly's laboratory has identified two kinds of CD4 T cells: helper T cells, which help B cells secrete antibody, and inflammatory T cells, which activate macrophages. Hence, the type of helper cell that responds may influence the severity of leprosy and other diseases. Concludes Dr. Bottomly: "If we understood the mechanisms that determine the type of cellular response, we might be able to switch on or trigger the more favorable response."

In their work with vaccines, Yale immunobiologists employ yet another strategy to strengthen immune defenses. Vaccines induce a protective immunity which works like the natural, lifetime defenses one develops after conquering such childhood diseases as measles or chicken pox. In effect, vaccines train the body to defend against a disease without having to suffer its effects.

Most vaccines stimulate antibody production by using disease-causing agents that have been killed or greatly weakened. In a small number of cases, however, such vaccines actually cause disease. Such is the drawback of the currently available Lyme disease vaccine for animals, which uses killed bacteria.

In an attempt to produce a safer result, Dr. Flavell's team has developed an experimental recombinant vaccine using a mouse model developed by Stephen W. Barthold, D.V.M., Ph.D., professor of comparative medicine. Dr. Flavell and Erol Fikrig, M.D., a post-doctoral fellow in infectious diseases, created the vaccine in collaboration with Fred S. Kantor, M.D., the Paul B. Beeson Professor of Medicine, by splicing the gene for a protein from the surface of the Lyme disease bacterium into a harmless, common bacterium. Their vaccine protected mice from an experimentally induced form of the disease.

Eventually, this research may lead to a better diagnostic test for Lyme disease, a more useful animal vaccine, and perhaps even a human vaccine. Dr. Flavell's work also could help efforts to develop a vaccine for syphilis, which is caused by a spirochete, as well.

Complementing such research into protective immunity, the scientists in Dr. Bottomly's laboratory are helping to define the mechanism of immunological memory, the way one's body can recognize and fight diseases which previously ran their course, sometimes many years earlier. In 1988, Dr. Bottomly's team was the first to identify markers for naive cells, T cells which have not encountered antigen, and memory cells, T cells which have.

She has evidence that receptors on the surface of memory T cells are better organized and are located closer together than those on naive cells. This better organization apparently leads to more efficient signalling. Now Dr. Bottomly is trying to find out which genetic signal orders reorganization of those receptors.

Knowledge of T cells is advancing as well in the laboratories of Alfred L. Bothwell, Ph.D., an associate professor and associate HHMI investigator. With Dr. Bothwell as his advisor, third-year graduate student Alfred Slanetz has developed a water soluble T cell receptor. Researchers hope to deduce this protein's molecular structure using x-ray crystallography.

Dr. Bothwell also is leading research into how B cell memory strengthens immunity after a second encounter with a microorganism — the effect induced by a booster vaccination. Dr. Bothwell and colleagues are using certain mutations in B cells to trace the development of immunologic memory.

Welcoming the Ally

Basic research by Yale immunologists may improve the outlook for the growing number of bone marrow transplant patients. In this area, the challenge is to help patients rebuild their compromised immune systems.

A physician who transplants bone marrow to treat a leukemia patient presents two windows of opportunity for pathogenic invaders. The first is opened by drugs which suppress the immune system to counter rejection, the second by the destruction of the patient's own bone marrow. Since marrow generates lymphocytes, its destruction leaves patients even more vulnerable to infection.

Dr. Crispe's studies of stem cells may lead to better methods of bone marrow transplantation by offering insights

into lymphocyte development. Adult bone marrow and the fetal liver produce stem cells, which eventually become T and B cells, red and white blood cells and macrophages. Preliminary work in his laboratory suggests that stem cells develop into T cells after they enter the thymus.

Refining such knowledge may even allow physicians to develop treatments for leukemia that would obviate the need for marrow transplants. Observes Dr. Crispe: "Knowing how stem cells get their orders to become T cells may help in the understanding of diseases where T or B cell development goes wrong, such as some types of leukemia or lymphoma."

Given the enormous clinical implications of this and other research pursued by the section, Dr. Flavell sees possible commercial applications on the horizon. This potential will benefit from his experience in private industry as the former president and chief scientific officer of Biogen Research Corporation in Cambridge, Mass.

Dr. Flavell comments: "It behooves us to make sure that transfers of technology occur smoothly from academia to industry, to make sure that our society benefits from innovation in basic science. This can reward the University financially and help the development of important new products in the private sector."

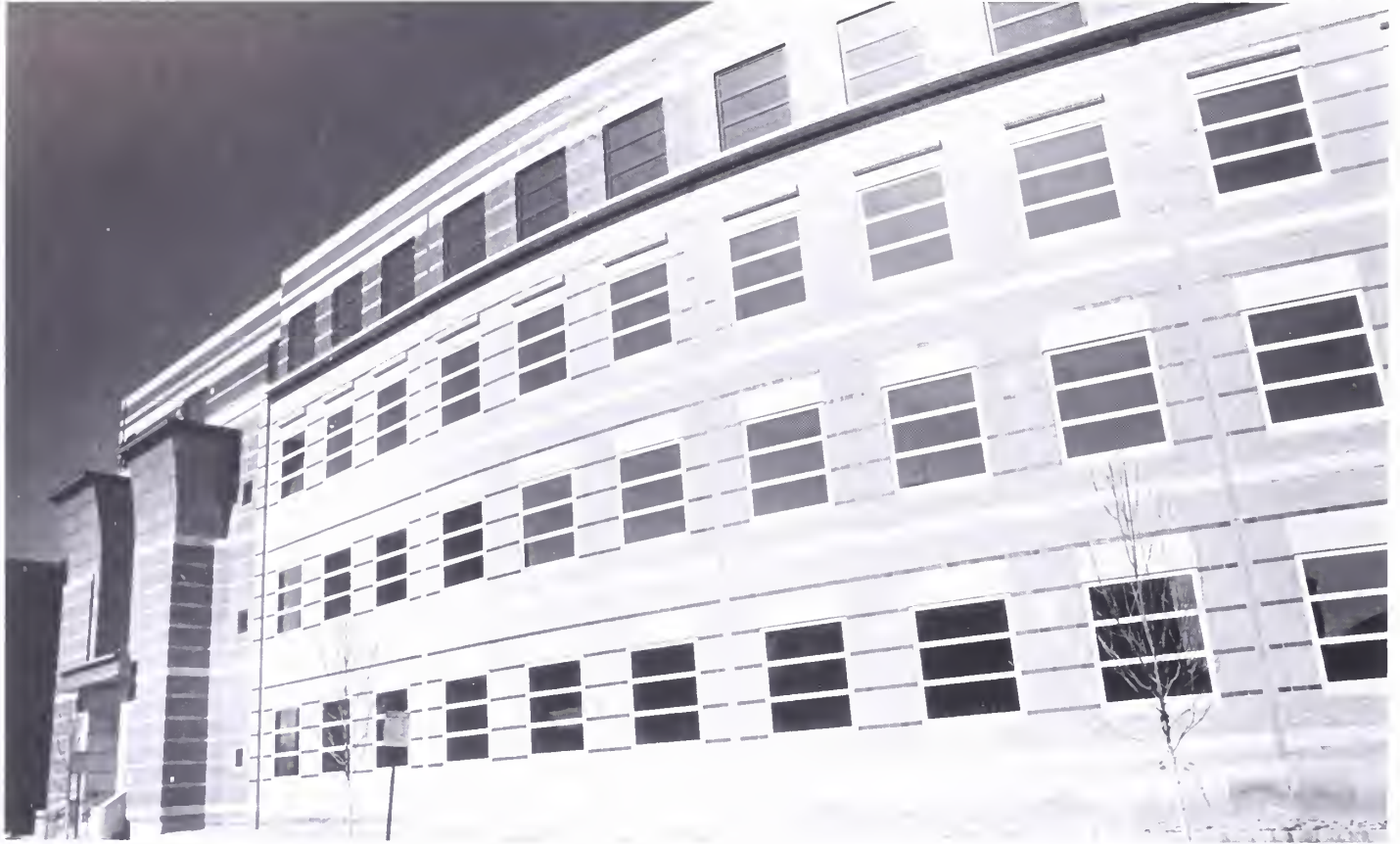
He adds, on a cautionary note: "It is, however, important to remember that while industry concerns itself with product development, our role in the University is to teach and advance knowledge through basic research." **YM**

Working under a sterile hood, Kim Bottomly, Ph.D., separates memory from virgin CD4 cells using a specific antibody developed in her lab. She coats a petri dish with antibodies that bind strongly to naive cells; memory cells do not bind strongly to the antibody and can be washed from the dish.



CENTER FOR MOLECULAR MEDICINE: THE 21ST CENTURY DEBUTS

Harry Bishop



Adding 30,000 net square feet of laboratory space to the School of Medicine, the Center for Molecular Medicine will bear the family name of Herbert W. and Marigrace Boyer to recognize their \$10 million gift to the center, the largest-ever family donation to the School of Medicine.

by Gregory R. Huth, M.P.H. '84, and Diane E. Loupe

From its conception seven years ago through the completion of its \$38 million edifice this year, Yale's Center for Molecular Medicine (CMM) has displayed the momentum of an idea whose time has come. CMM's June 6 dedication, scheduled to coincide with Alumni Weekend, culminates an effort that has transformed a vision for modern medical science into programs that promise to usher Yale into the next century at the vanguard of biomedical research.

CMM's story begins in the summer of 1984. As Dr. Leon E. Rosenberg exchanged the mantle of department chair of human genetics for that of medical school dean, he presented the CMM concept to Dean Emeritus Robert W. Berliner and

other respected faculty members such as Drs. George E. Palade and Samuel O. Thier.

Dr. Rosenberg, the first scientist to describe patients with a genetic defect in vitamin B-12 metabolism, realized how the cooperation of colleagues from other disciplines had strengthened his own research. He also was aware of how the human genetics department speeded the delivery of scientific discovery to patients by encouraging its basic scientists to work closely with clinical researchers.

Why not apply these principles on a grand scale, he reasoned, and do so employing the most advanced tools modern biomedical science had to offer? Notes Dr. Rosenberg: "As the fields of cell and molecular biology, genetics and immunology had burgeoned in the last decade, it seemed that the opportunities for understanding disease in molecular terms were enormous."

His faculty advisors agreed. Enthusiastically. So the dean proceeded to form a planning committee comprising some of the medical school's leading basic and clinical researchers. [See "Steering Committee Governs CMM," page 23.] The quest had begun to transform a dream into steel, brick and mortar.

In this article, Gregory R. Huth, publications editor at the School of Medicine's office of public information (OPI), reported and wrote about historical and programmatic developments regarding the Center for Molecular Medicine; Diane E. Loupe, OPI staff writer, reported and wrote about scientific issues.

During CMM's planning stage, a development in the not-for-profit sector provided an invaluable boost. In March 1986, the Howard Hughes Medical Institute (HHMI) embarked on a major reorganization in which it dramatically increased research funding in five areas: genetics, immunology, cell biology and regulation, neuroscience and structural biology. This emphasis so closely meshed with the one envisioned by CMM's planners that they wasted no time in contacting HHMI.

The outcome of subsequent talks exceeded the committee's hopes; HHMI committed itself to pay for the construction of roughly half the center's research space. Furthermore, the institute agreed to appoint investigators in two of CMM's four research programs, molecular neurobiology and molecular genetics, from among faculty nominated by the University.

HHMI's support initiated an avalanche of fund-raising success. A major gift from the Lucille P. Markey Charitable Trust established CMM's third research program, molecular oncology and development. Molecular cardiobiology emerged as CMM's fourth and final program; the medical school is negotiating with a major pharmaceutical company as a possible sole corporate sponsor for this floor.

Meanwhile, other organizations committed to biomedical research and education added major support for construction and program. These included the W.M. Keck Foundation, the Ira W. DeCamp Foundation, and the Walter J. and Lillie A. Berbecker Scholarship Fund.

One potential funding source, the S.S. Kresge Foundation, offered a \$1 million challenge grant, with the proviso that the medical school: 1) match this gift with \$5 million in subsequent fund raising; and 2) increase the level of alumni/ae giving to the School of Medicine Alumni Fund to \$450,000 and achieve 55 percent participation.

At the close of 1990, in dramatic fashion, Herbert W. Boyer, Ph.D., and his wife, Marigrace, met the first part of the Kresge Foundation challenge. A 1966 post-doctoral fellow in the laboratory of Professor Ed Adelberg, Dr. Boyer had gone

on to invent recombinant DNA technology and then develop it commercially by founding Genentech, Inc., in California. The magnitude of his success — and of his gratitude to Yale — was reflected in his family's \$10 million donation to CMM. In recognition of this gift, the largest ever bestowed on the School of Medicine by individuals, the CMM will bear the Boyer family name. [See the Development Report, page 43.]

Building on Experience, Nurturing Innovation

The medical school's success in garnering support for CMM not only testifies to careful planning; it also reflects Yale's strength in human genetics and in cellular and molecular research. Dean Rosenberg himself proved to be an important asset. His leadership in genetic research had earned him membership in the National Academy of Sciences and the Institute of Medicine — important credentials when seeking support in the tens of millions of dollars. Moreover, this former president of the American Society of Human Genetics had proven himself in molecular research through studies which have helped advance understanding of and treatments for several metabolic diseases characterized by selective deficiency of mitochondrial enzymes.

Yale's case was bolstered as well by the distinguished faculty members who will administer the center. In July 1989, the Yale Corporation named Vincent T. Marchesi, M.D. '63, Ph.D., the Anthony N. Brady Professor of Pathology, Cell Biology and Biology, as CMM's first director. A National Academy of Sciences member and former president of the American Association of Pathologists, Dr. Marchesi has conducted pathbreaking studies into the structure of membrane proteins in red blood cells.

CMM's program heads also presented impressive credentials. Joan A. Steitz, Ph.D., professor of molecular biophysics and biochemistry (MB&B), an HHMI investigator, had been chosen to head molecular genetics. In addition to her membership in the National Academy of Sciences,

National Academy of Sciences member Vincent T. Marchesi, M.D. '63, Ph.D., serves as CMM's director.



Harry Bishop



Herbert W. Boyer, Ph.D., completed his post-doctoral fellowship at Yale in 1966 and went on to found Genentech Inc., thus helping to launch the biotechnology industry.

Dr. Steitz's laurels include the National Medal of Science and the Warren Prize, which more than once has presaged the Nobel Prize. Her basic research involving RNA function and her discovery of at least six new essential cellular components have clinical implications for the treatment of lupus and cancer.

At the helm in molecular oncology and development is Sherman M. Weissman, M.D., Sterling Professor of Human Genetics, Medicine and MB&B. Dr. Weissman also has an appointment in the Yale Comprehensive Cancer Center. Elected to the National Academy of Sciences by virtue of his leadership in gene structure analysis, he also has developed new approaches for studying the organization of DNA.

Spyridon Artavanis-Tsakonas, Ph.D., at age 44, represents the youngest of CMM's program heads. This professor of cell biology and biology, an HHMI investigator, will move from Yale's Science Hill to oversee molecular neurobiology. Dr. Artavanis-Tsakonas' research has led scientists to identify a key group of genes which allows embryonic tissue to segregate neural from epidermal cells.

Although a head for molecular cardiobiology — the last of the four programs to be identified — has not yet been announced, the program's focus has been determined. This floor's researchers will study endothelial cells, which line the heart and blood vessels. Learning more about these cells is vital to improve treatments for heart disease, stroke and other vascular diseases.

Once the full complement of scientists is aboard, the center will house 25 to 30 faculty researchers, with six to eight on each of its four floors. Dr. Marchesi reports that CMM's

eight-member faculty steering committee, which he chairs, is recruiting the center's junior faculty from candidates with several years of post-doctoral or residency experience.

In addition to the Yale faculty's leadership in genetic research, funding sources were attracted to CMM's unique, interdepartmental approach, designed to encourage collaboration. Moreover, clinically oriented basic researchers were mandated to play key roles in each program, to speed the discoveries of basic science to the bedside.

In fact, the entire CMM has been carefully integrated into the mainstream of medical school. As Dr. Marchesi explains: "The center idea outside New Haven is often one in which an elaborate structure is created within a medical center. Usually it's isolated and reserved, a province for a small number of people. That's not what we're trying to achieve here. CMM researchers will be Yale faculty who happen to work in that location."

Every CMM researcher will have a primary departmental appointment at the School of Medicine; Dr. Marchesi says that he hopes to establish as wide a distribution among departments as possible. He emphasizes that though "the center is neither a department, nor a kind of 'mega-department', nor four departments, one for each floor. . . its researchers are in every way members of the Yale faculty."

In addition to their research responsibilities, the center's faculty will play an important teaching role. As in CMM research programs, training at the center will be designed to foster connections within the medical school.

Hence, trainees will not be limited to graduate-level fellows assigned to the center. Intramural programs will fund medical students, residents and clinical fellows who may wish to rotate in CMM for periods ranging from three months to several years. Small grants also will be available to support collaborative research projects between CMM and University research groups based outside the center.

The medical school's emphasis on intraschool cooperation also is evident in the pains planners took in making CMM accessible. To facilitate pedestrian traffic between CMM and the rest of the medical school, a pedestrian bridge connects the center with the Jane Ellen Hope Building. Easy access from across Cedar Street is assured by a second bridge, which has been constructed between the second floors of the Hope building and Brady Memorial Laboratory.

Cracking the Code

Walking from the Hope building into CMM, one enters the head space, or shared facility, where a small auditorium and a common room will serve the entire medical school. CMM administrators will occupy the first floor.

The top two floors of the head space will house the W.M. Keck Foundation Biotechnology Resource Laboratory. This core service will consolidate the six labs of the Yale Protein and Nucleic Acid Chemistry Facility, which have been dispersed among the departments of MB&B, human genetics, cell biology and in the Membrane Center.

With a full-time staff of 12, the Keck Foundation laboratory will put \$1.6 million worth of high-technology instruments to work analyzing protein and DNA samples and providing such sophisticated products as custom-designed peptides as well as DNA and RNA oligonucleotides. Kenneth R. Williams, Ph.D., an adjunct professor in MB&B and senior associate of HHMI, serves as the laboratory's director. He reports, "In 1990, we served 132 researchers at Yale, and 114 others from the National Institutes of Health and 64 institutions around the world."

Complementing the laboratory's broad clientele is a wide base of support, which reflects the pervasive effect molecular science is having on modern medicine. In addition to the Keck Foundation and the departments listed above, the laboratory has received funds from the National Institutes of Health, the National Science Foundation, HHMI and the Yale Comprehensive Cancer Center, among other sources.

Moving from CMM's headpiece into the graceful curve of the building which sweeps along where Congress Avenue meets College Street, one encounters the laboratories for the center's four programs; each program has been assigned its own floor. Programs will share a common interest in DNA's double helix and its key component, genes. All CMM researchers will work on some aspect of these minute building blocks of life.

In the molecular genetics program, located on CMM's ground floor, scientists will study how genes produce proteins and how they sometimes trigger disease — knowledge essential to all the center's researchers. Investigators on other floors will study specific gene functions. Molecular oncologists, for example, will study the genetics of normal cell development, in hopes of understanding what goes wrong to cause the growth and spread of cancers. Molecular neurobiologists will investigate how genes affect nervous system development, while cardiobiologists will study developmental aspects of the cardiovascular system.

For faculty in the HHMI-sponsored molecular genetics program, research questions arise from the fundamental steps leading to protein synthesis; stated simply: DNA makes RNA, which in turn manufactures proteins.

"These basic steps go on in every cell in order to get the information out of the genome and into the various proteins that make one kind of cell different from another," comments Dr. Steitz. "Everybody who's involved in the program is doing research that's targeted at some aspect of this basic pathway."

Dr. Steitz studies an early part of the molecular path: how DNA assembles messenger RNA (mRNA). In gene expression, DNA unzips its strands and constructs a mirror image of itself. This copy — mRNA — directs the production of proteins.

A key aspect of Dr. Steitz's work dates back to when Associate Professor and Assistant HHMI Investigator Michael R. Lerner, M.D. '81, Ph.D. '81, was a graduate student doing research in her laboratory. It was then that she and Dr. Lerner discovered subcellular particles involved in mRNA synthesis. They dubbed the particles small nuclear ribonucleoproteins, snRNPs, and nicknamed them "snurps." Later research revealed that snRNPs perform many vital cell functions; Dr. Steitz aims to discover the individual tasks of the approximately 15 snRNPs that have been identified.

Some snRNPs appear to be crucial in rearranging the gene segments that make up mRNA. Dr. Steitz explains that the DNA of higher organisms contains large regions of "junk," called introns, which do not produce proteins. Introns' protein-producing counterparts are called exons. Some snRNPs identify boundaries between introns and exons. Other snRNPs then aid in chopping out the introns and reconnecting exons so that these protein-making genes can organize sequences of amino acids into mRNA.

Once the DNA and snRNPs create mRNA, the latter leaves the nucleus and enters the cytoplasm. With this exodus begins the research of Sandra L. Wolin, M.D., Ph.D., assistant professor of cell biology, an associate HHMI investigator. Dr. Wolin works with ribosomes, complexes of RNA and protein in the cytoplasm that interact with mRNA to assemble amino acids into proteins.

Strands of mRNA comprise sequences of three nucleotide bases, and each of these triplets codes for a particular amino acid. Ribosomes roll along mRNA, both decoding it and stringing together amino acids, which later become proteins.

James Anderson



Joan A. Steitz, Ph.D., and Michael R. Lerner, M.D. '81, Ph.D. '81, have been collaborating on research into small nuclear ribonucleoproteins — snRNPs — since Dr. Lerner was a graduate student working in Dr. Steitz's laboratory.

Dr. Wolin studies the features of mRNA that affect ribosomes' ability to do this job.

Studies led by Arthur Horwich, M.D., begin at the home stretch of the pathway of protein synthesis. Dr. Horwich is associate professor of human genetics and pediatrics, and an associate HHMI investigator. He is discovering how newly made strings of amino acids are folded into complex three-dimensional structures. These structures are the functional forms of proteins.

Dr. Horwich has identified a specialized protein that serves as a folding "machine" that can recognize the unfolded strings of amino acids and carry out the origami-like steps that turn them into folded proteins. Understanding how such machinery works may allow better methods of producing biologically important proteins, or might allow genetically altered proteins that don't fold properly to be corrected.

Another aspect of Dr. Horwich's work may have implications for babies born with defective hearts. He is analyzing a strain of mice in which a defect in a single gene causes the visceral organs to become exactly reversed in their left-right position. Included is the heart, which becomes

positioned on the right instead of the left, and is often abnormal in structure. This mouse model of congenital heart disease resembles many types of human disease, and understanding how this gene works may offer new avenues of diagnosis or treatment of the human diseases. In addition, the model may help solve one of the body's fundamental riddles — how it knows its right from its left.

The research of Stephen T. Reeders, M.D., assistant professor of medicine and human genetics, further illustrates the clinical potential of CMM's basic research. This assistant HHMI investigator seeks to pinpoint genes that cause inherited kidney diseases, the most common of which is polycystic kidney disease (PKD). One in 1,000 Americans suffers from PKD, in which fluid-filled cysts replace healthy kidney tissue, often leading to renal failure.

Dr. Reeders and his colleagues are studying large numbers of patients and their families in order to track the disease-producing mutations. Their goal is to identify the PKD gene and a means to characterize and match each mutation with the pattern of disease it produces.

HHMI: Modern Medicine's Medicis

A *Washington Post* writer recently drew a parallel between what the Howard Hughes Medical Institute (HHMI) is doing for today's medical research and what the Medici family of Florence, Italy, did for 15th-century art. Just as the Medicis used their wealth to nurture the genius of Michelangelo, da Vinci and Botticelli, the writer suggests, HHMI is putting to work its \$6 billion endowment to advance the biomedical sciences.

Founded by the late aviator-industrialist in 1953, the Howard Hughes Medical Institute has become one of the world's wealthiest philanthropies and the largest private supporter of biomedical science in the United States. It conducts research at some 52 medical centers, hospitals, universities and other research institutions around the country.

Yale has been an HHMI beneficiary since the institute's founding, and has received generous support for both capital and program development. Most recently, HHMI announced that it will help Yale construct a new molecular biology and biophysics building on the central campus next to Kline Biology Tower, where four HHMI investigators now work.

HHMI agreed to appoint investigators in two of CMM's research programs, molecular neurobiology and molecular genetics. This includes paying their salaries and funding the research in their laboratories. HHMI also supports four investigators in the immunobiology section [see "Yale Immunobiologists Get Back to Basics," page 13].

Yale's 15 HHMI researchers are among approximately 200 HHMI investigators who work at more than 50 sites nationwide. Unlike many biomedical funding sources, the Bethesda, Md.-based institute is an independent medical research organization, employing scientists rather than giving them grants — a distinction crucial to HHMI's organizational structure and tax status. HHMI investigators do, however, hold faculty posts at their universities.

Hughes institute support at Yale extends beyond salaries and capital improvements. Some Yale medical students and graduate students in the biomedical sciences have received fellowships through HHMI's grants program. And each year since 1988, the institute has made awards to the University to



Purnell W. Choppin, M.D.

recognize the support HHMI investigators receive from graduate students working in the laboratories of the HHMI scientists. To link researchers and students across campus, HHMI underwrites a computer bulletin board, electronic mail and the "Bio-Med Express," a bus that shuttles between the medical school and Science Hill.

Of the CMM, HHMI President Purnell W. Choppin, M.D., says he is "confident that from this multidisciplinary center we shall see the emergence of important new insights into fundamental biological processes and disease mechanisms, and the application of that knowledge to the treatment and prevention of serious diseases." He adds, "We at HHMI are pleased and proud to be collaborating with Yale University in this magnificent new endeavor."

In another project, Dr. Reeders has cloned the gene for one of the collagen molecules that are critical structural components of glomerular basement membrane — an extracellular membrane in the kidney that divides the blood from the urine. This collagen molecule is frequently absent in the basement membranes of patients with Alport syndrome, a sex-linked degenerative kidney disease. The gene product is also the target of autoantibodies in Goodpasture's syndrome, a rare autoimmune cause of acute kidney failure and lung hemorrhage. Dr. Reeders hopes that knowledge of the molecular structure of the target of Goodpasture antibodies will shed light on the mechanism of autoimmunity in this disease.

A vital complement to the floor's — and the center's — research will be provided by Paul B. Sigler, M.D., Ph.D., professor of MB&B, and his skills in protein crystallography. In this process, Dr. Sigler, an HHMI investigator, targets a section of DNA, binds protein molecules to it and crystallizes the protein. He then creates an atomic blueprint of the protein's molecular structure by interpreting how the crystal scatters x-rays.

Dr. Sigler comments, "These aren't wiring diagrams, these are detailed molecular structures that indicate how the molecule works in chemical terms. That's exciting to me."

Some of Dr. Sigler's research is based on x-ray crystallography analysis of the "trp" repressor-operator complex, which regulates the genes in bacteria that produce tryptophan, an amino acid essential in human nutrition. He's also working to describe how DNA interacts with steroid hormone receptors and with the proteins of human papilloma virus, a virus implicated in cervical cancer.

Cellular Communication Sans Satellite

In neurobiology, the HHMI-sponsored program on the second floor, Dr. Artavanis-Tsakonas and his colleagues will work with genes that control the development and function of the nervous system. Among the issues these scientists will explore are those of cellular long-distance communication.

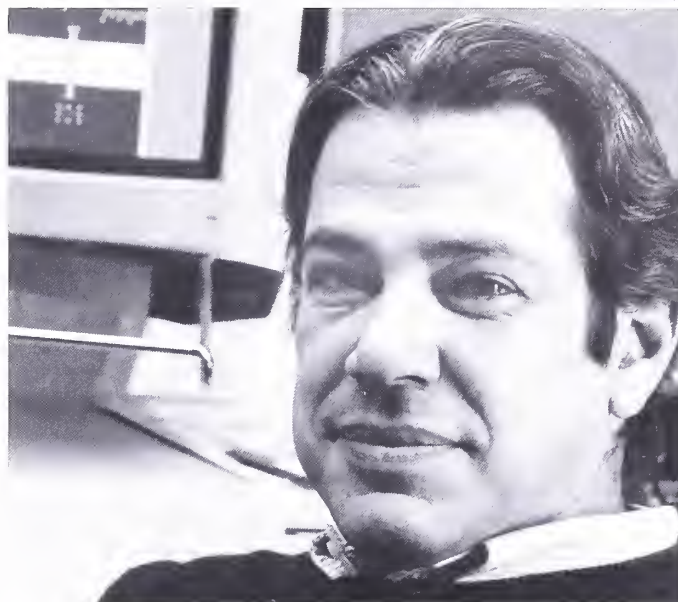
Dr. Artavanis-Tsakonas explains: "Nerve cells have to communicate with other cells that are far away. One is in your head and the other is in your toe, and they are in constant communication. That poses a number of very specific problems that other cells may not be facing."

He cites, for example, the question of how nerve cells "wire" the body. How do embryonic nerve cells lengthen, follow their elaborate path and connect in a pattern that is virtually identical within species? Surprisingly, for answers, Dr. Artavanis-Tsakonas turns not to the human genome but to that of an insect that is barely visible to the naked eye.

His diminutive subject is *Drosophila melanogaster* — the humble fruit fly. Scientists study fruit fly genes that affect nerve cell development. Because the animal kingdom displays dramatic similarities at the genetic level, understanding how nerves develop in these tiny insects may one day help researchers learn to regenerate nerves in human patients with spinal cord injuries.

"There's an incredible conservation of basic biological mechanisms that essentially transcends species barriers," says Dr. Artavanis-Tsakonas. "So, there's an enormous overlap in things that we're looking at in flies or in mice or in humans."

These biological similarities will help CMM programs transcend disciplinary boundaries, both within the center and with the rest of the medical school.



Spyridon Artavanis-Tsakonas, Ph.D., joins the other program heads on the CMM steering committee. At full complement, the committee will include 10 members.

Steering Committee Governs CMM

Members of CMM's steering committee serve for overlapping three-year terms. Current members include:

Spyridon Artavanis-Tsakonas, Ph.D., professor of cell biology and biology, an HHMI investigator

Edward J. Benz Jr., M.D., professor of medicine, human genetics and in the Cancer Center

Richard A. Flavell, Ph.D. professor and chairman of immunobiology, an HHMI investigator

*Gerhard H. Giebisch, Sterling Professor of Cellular and Molecular Physiology

*Vincent T. Marchesi, M.D., Ph.D., Anthony N. Brady Professor of Pathology, Cell Biology and Biology (committee chairman)

*Joan A. Steitz, Ph.D., professor of molecular biophysics and biochemistry, an HHMI investigator

*Joseph B. Warshaw, M.D., professor and chairman of pediatrics

*Sherman M. Weissman, M.D., Sterling Professor of Human Genetics, Medicine, and Molecular Biology and Biochemistry and in the Cancer Center.

** Asterisks denote those who served on the CMM planning committee. Other current faculty members who worked on the planning committee include:*

Emile L. Boulpaep, M.D., professor of cellular and molecular physiology

Edwin C. Cadman, M.D., Ensign Professor of Medicine and in the Cancer Center, chairman of internal medicine

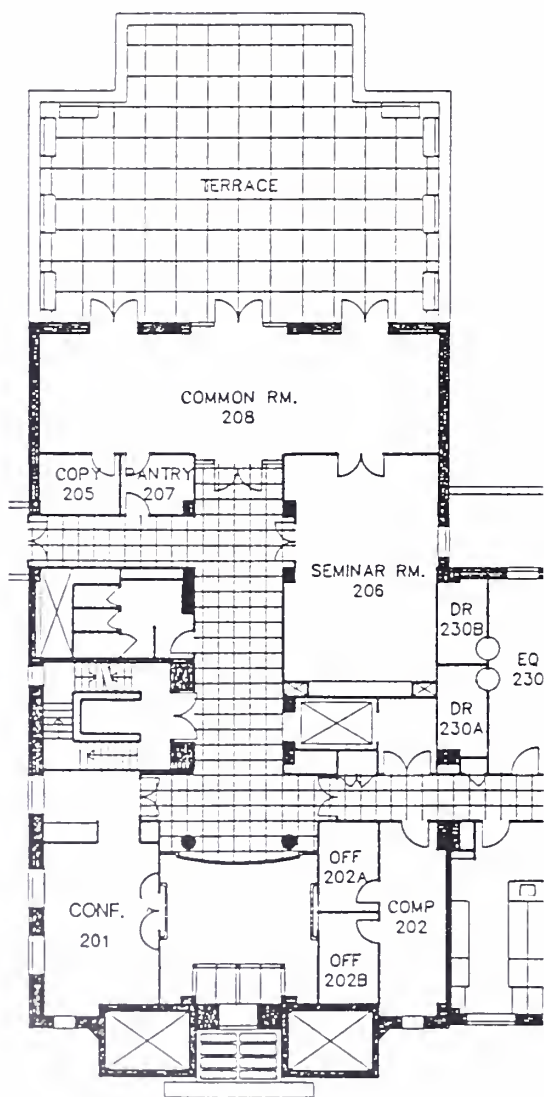
Bernard G. Forget, M.D., professor of medicine and human genetics.

Continued on page 25

CMM Design Embodies Integration

Cesar Pelli's Center for Molecular Medicine (CMM) joins Frank Gehry's Yale Psychiatric Institute (YPI) and Philip Johnson's Laboratory of Epidemiology and Public Health (LEPH) in the medical school's — and the University's — tradition of commissioning projects by leading architects.

Argentine-born Pelli's CMM design incorporates a dramatic curve, evident not only in the building's exterior, but also inside, in its main corridors. These hallways separate CMM's 40 research laboratories facing the street or "south" side, from the interior, which includes faculty and fellows' offices, and support facilities such as controlled-temperature rooms and tissue culture laboratories. Each south-side laboratory offers 750 square feet of space. In hallways and stairwells, built-in oak benches invite researchers to converse and exchange ideas.



A diagram of the headpiece's second floor. CMM's architect, Cesar Pelli, served as dean of the Yale School of Architecture from 1977 to 1984. General contractor for the project is Turner Construction Co. of New York City.

Even as CMM's exterior commands a dominating presence, the elegance and strength of its curve complements the center's urban environment. By defining the intersection of College Street and Congress Avenue, the building's bold sweep completes the gateway to the medical center heralded by LEPH on the Oak Street connector.

The Center for Molecular Medicine offers a contemporary interpretation of the styles exhibited by two of its venerable neighbors — the Jane Ellen Hope Building and the Brady Memorial Laboratory — to which CMM is linked via pedestrian bridges. The center's red brick also evokes industrial buildings from New Haven's manufacturing era. Such considerations, too, are reflected in Mr. Pelli's other recent projects: the World Financial Center, Carnegie Hall Tower and the Museum of Modern Art addition, all in New York City.

Because of the sophisticated, rapidly evolving research that Yale and HHMI scientists will conduct at the center, CMM's services, including electricity, heating and cooling, plumbing and ventilation, have been designed with an eye to meeting the needs of 21st-century science. These mechanical elements represent approximately one third of the \$38 million cost of the 125,000 gross-square-foot building, which itself has been likened to a finely tuned, high-technology instrument.

In some instances, addressing CMM's mechanical needs required form to serve function in inventive ways. For example, Mr. Pelli's associate, project manager Bruce W. Sielaff, '59 M.ARCH., points out that the flared, copper-covered pillars which frame the main entrance on Congress Avenue do more than support a canopy to protect the porch below. Though the pillars may recall Egyptian revival style, their hollow interiors serve as intake shafts for an advanced ventilation system which draws fresh air into the sub-basement for delivery throughout the building. The pillars' flare is also functional: to reduce turbulence and noise.

Walking between the pillars one enters CMM's headpiece, or shared facility. On the headpiece's third and fourth floors, core laboratories for protein chemistry, protein synthesis, and DNA synthesis and sequencing will centralize facilities now scattered throughout the medical center. The headpiece offers different kinds of shared facilities on the second floor, with a seminar room and a comfortably furnished common room. Located in the headpiece and elsewhere in the center are three conference rooms, plus lunch/break rooms for each of the four program's floors.

A subtle emphasis on integration comes from the second- and third-floor outdoor terraces, from which one can view the weathered copper dome of Sterling Hall of Medicine and the new arc-shaped information room of the Cushing/Whitney medical library. Another recent architectural project, the library renovation and addition, was designed by Alexander Purves with New Haven architect Allan Dehar, who also collaborated on YPI.

Finally, architect Pelli has integrated the Center for Molecular Medicine by including the two pedestrian bridges which unite CMM with teaching and research facilities located in the rest of the medical school. The first, a bi-level bridge, connects the center's headpiece with the Hope building. The second, a single-story structure, overarches Cedar Street to link Hope and Brady. Through this bridge's series of square windows, the School of Medicine unfolds before the observer's eye — just as will the mysteries of DNA in the mind's eye of scientists who soon will animate the newest addition to Yale's architectural treasures.

Dr. Artavanis-Tsakonas observes: "We're all using different experimental approaches, but in many ways, this is breaking down the traditional barriers between the various disciplines: molecular biology, developmental biology, neurobiology and cell biology. Our people in neurobiology will have a lot in common with the molecular genetics floor, with the oncology and development floor, and even with the cardiobiology floor."

He points out, for example, that cardiobiologists won't be the only scientists with a stake in understanding angiogenesis, how cells develop into blood vessels. This process may also interest molecular oncologists, since a cancer can survive only if nourished by blood. If one could stop the blood vessel from reaching the cancer, the tumor should starve.

Similarly, CMM cardiobiologists will want to know how cells communicate to fuse extracellular material and create a blood vessel. Such knowledge could help treat some forms of heart disease as well as aneurysm, stroke and other vascular diseases.

The work of one CMM neurobiologist further illustrates the potential for inter-program collaboration. Building on his earlier work with Dr. Steitz, Dr. Michael R. Lerner, associate professor of molecular neurobiology and associate HHMI investigator, studies how scientists might employ one particular snRNP in splicing new forms of mRNA.

In other research, Dr. Lerner, like his colleagues in neurobiology, turns to a perhaps surprising branch of the animal kingdom to benefit human health — in this case, amphibians. He uses frog pigment cells to screen new drugs for efficacy.

Current screening methods lack quick, simple ways to evaluate chemicals that trigger production of cyclic adenosine monophosphate, (cAMP), which helps regulate heart rate, blood sugar levels and air flow in the lungs. Since cAMP also allows certain frogs to adapt their skin color to changing environments, Dr. Lerner is trying to use frog pigment cells to identify chemicals that trigger cAMP production.

"The beauty of this test is that it would harness a naturally operating system already in place," says Dr. Lerner.

Genes of still other animals, including chickens, will guide many scientists in the molecular oncology program on the third floor. Dr. Weissman is recruiting researchers who will study the genetics of normal cellular growth and development, hoping that this will help explain how tumors form and grow.

"We recognize that the genes involved in controlling growth during differentiation are a significant portion of the genes that may be involved in cancer," reports Dr. Weissman.

Here researchers will compare the varying effects that the same gene can produce in humans and other organisms. For example, they will study how the "rel" oncogene, which directs immunoglobulin production in humans, can mutate to cause cancer in chickens, and how this same gene controls body development in the fruit fly. Scientists will move even further down the evolutionary scale to investigate the human neurofibromatosis gene, an analog of a yeast gene that helps regulate cAMP.

The first faculty member recruited for the floor, Michael J. Stern, Ph.D., currently a postdoctoral fellow at the Massachusetts Institute of Technology, studies the development of *Caenorhabditis elegans*, a roundworm as tiny as a comma. Specifically, he studies how a pair of cells in the developing worm migrate to their final positions. Understanding this may lead to approaches to control the abnormal migrations of metastatic tumor cells in humans.

To spur such research, Dr. Weissman's laboratory is improving methods for mapping genomes, whether human or those of other organisms. Dr. Weissman already has introduced several such techniques, including chromosome jumping, in which one cuts a length of chromosome, loops it and joins its ends. By sequencing the ends, researchers save many hours in identifying genes. He and colleagues now are attempting to sequence large pieces of DNA by quickly identifying all of the mRNA that the DNA encodes.

Dr. Weissman also studies the processes by which the body switches from producing fetal hemoglobin to adult hemoglobin. His work may advance treatments for such blood disorders as sickle cell anemia, thalassemia and leukemia.

Fulfilling the Dream

Dean Rosenberg is confident that CMM's interdisciplinary structure will nurture such crucial research in all four of the center's programs and throughout the medical school. He also points out the CMM's strategic importance to the School of Medicine's ongoing quest to maintain a leading faculty in basic research.

Comments the dean: "You can't get the best people without facilities that are good enough to attract the best. Bart Giamatti once said that if you're going to be the best, you have to be able to afford it. Part of affording the best in science has to do with the facilities."

Citing the state-of-the-art CMM laboratories which soon will come to life, he adds: "This is a project about which I'm extraordinarily excited, proud and hopeful." **YM**



Sherman M. Weissman, M.D.

*Symposia Honoring the Dedication of the
Boyer Center for Molecular Medicine*

June 6, 1:30 p.m.

Constructing a National Agenda for Biomedical Research

Mary S. Harkness Memorial Auditorium
Yale University School of Medicine

The Honorable Lowell P. Weicker, Jr.
Governor, State of Connecticut

Leon E. Rosenberg, M.D.
C.N.H. Long Professor of Human Genetics, Medicine, and Pediatrics
Dean, Yale University School of Medicine

P. Roy Vagelos, M.D.
Chairman and C.E.O., Merck & Company, Inc.

Dick Thompson
Chief Science and Medicine Correspondent
Washington Bureau, TIME Magazine

June 7, 9:00 a.m.

Perspectives in Molecular Medicine

Commemorating the Four Programs in the
Boyer Center for Molecular Medicine:
Molecular Genetics, Molecular and Developmental
Neurobiology, Molecular Oncology and Development,
and Molecular Cardiobiology

Mary S. Harkness Memorial Auditorium
Yale University School of Medicine

Introduction: **Vincent T. Marchesi, M.D., Ph.D.**
Anthony N. Brady Professor of Pathology, Cell Biology, and Biology
Director, Boyer Center for Molecular Medicine

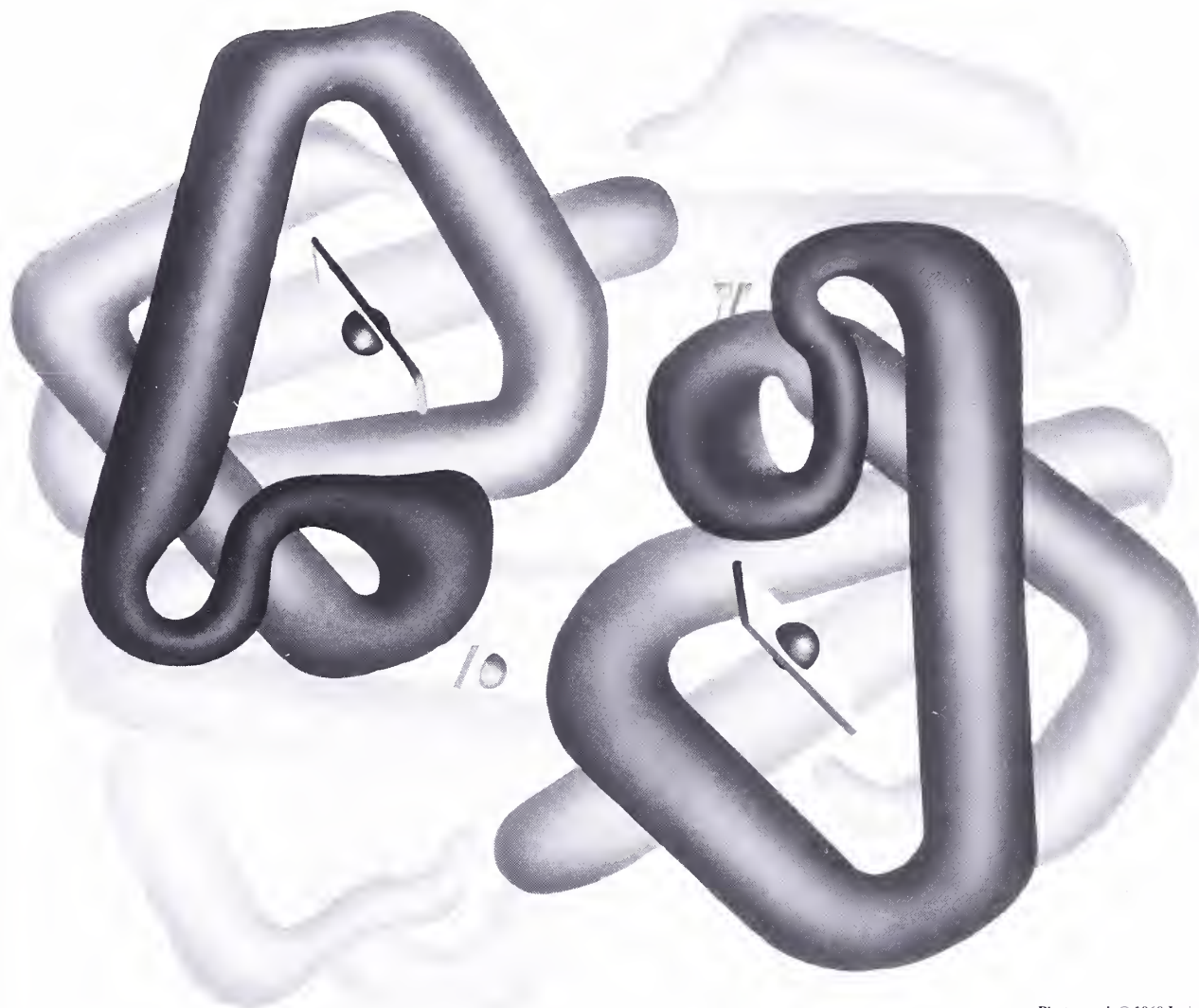
"Ribonucleoproteins in the Amphibian Oocyte Nucleus"
Joseph G. Gall, Ph.D.
Department of Embryology
Carnegie Institution of Washington

"The Accumulation of Chemoreceptors at Developing Synapses"
Gerald D. Fischbach, M.D.
Nathan Marsh Pusey Professor and Chairman of Neurobiology
Department of Neurobiology
Harvard Medical School

"Regulating the Transcriptional Regulators"
David Baltimore, Ph.D.
President
The Rockefeller University

"How Cells Control Cholesterol"
Joseph L. Goldstein, M.D.
Professor and Chairman
Department of Molecular Genetics
University of Texas
Southwestern Medical Center at Dallas

GALLERY



Photograph © 1969 Irving Geis

“Hemoglobin Molecule” by Irving Geis

This graphic depiction is based on a photograph derived from x-ray crystallography — a technique widely used by Yale biomedical researchers. This technique involves mathematically reconstructing submicroscopic structures using data from x-ray diffraction — scattering x-rays off minute crystals and recording the resulting patterns. In this drawing, American artist Irving Geis uses such an image to create a three-dimensional tubular form with peculiar-looking bends which represents the myoglobin fold (hemoglobin is comprised of four myoglobins). In 1957, myoglobin was the first protein molecule to be visualized using x-ray crystallography.

The hemoglobin molecule consists of four chains of amino acids and comprises 10,000 atoms. Oxygenated blood is red due to four iron atoms located at the center of

a cluster of atoms called heme. These are depicted here as the four hovering spheres embedded in rectangular plates. The width of the molecule is 64 angstrom units — 100 million angstrom units make up a centimeter.

Irving Geis has been a scientific illustrator for more than five decades. He has illustrated and authored numerous textbooks, exhibited widely and lectured on molecular structure. He combines a knowledge of science with artistic acumen in his conception and execution of structures that normally elude the human eye. His rendering of hemoglobin exemplifies the evolving association between the advancements of medicine and art.

*Janice Braun, Historical Library
Harvey Cushing/John Hay Whitney Medical Library*

MARTIN LUTHER KING JR. DAY, 1991



John Dow Jr., Ph.D., superintendent of the New Haven public schools (left) joins Warren A. Andiman, associate professor of pediatrics, epidemiology and laboratory medicine, and Linda Mayes, M.D., the Arnold Gesell Associate Professor of Child Development, in exploring "Drug Abuse as it Affects Children."



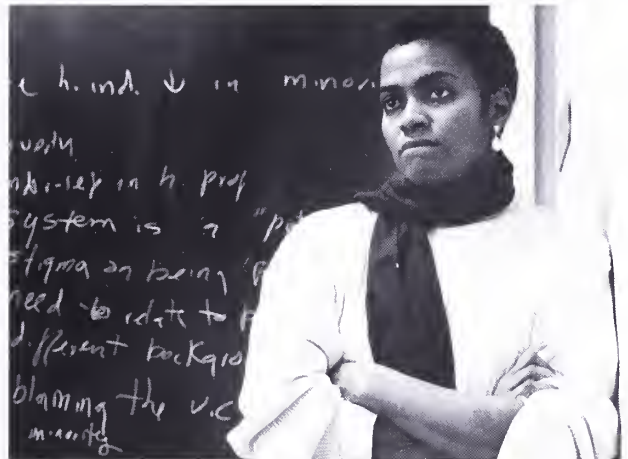
Ronald Scott, M.P.H. '68, director of the Hill Health Center, presiding over one of the afternoon's many discussion groups.



Maxine Whitehead, director of minority affairs, is flanked by Therman E. Evans, M.D., corporate medicine director and vice president, CIGNA Corp., and Olivia Cole, stage, screen and television actor. Dr. Evans and Ms. Cole made presentations that drew standing ovations at Harkness auditorium.



The Youth Department Connecticut Mass Choir of New Haven performs in Harkness auditorium.



Phyllis Harris, a second-year M.P.H. student, led one of the discussions held in the Hope building's Ebbert lounge.



William King Jr. (left) and Dee Dockery demonstrate a role-playing technique used with New Haven public school students in the Adolescent Substance Abuse Prevention (ASAP) program. Mr. King coordinates ASAP with Joanna Rosen, also a second-year medical student.

New MB&B Building To Grace Science Hill

Construction has started for a new building on Science Hill that will house the department of molecular biophysics and biochemistry. The four-story, 90,000-square-foot structure, scheduled for completion in 1993, marks the first new construction on Science Hill since 1965.

The estimated \$22.2 million construction project is partially funded by a \$4.5 million contribution from the Howard Hughes Medical Institute. The building, designed by Kallmann, McKinnell & Wood Architects Inc. of Boston, will connect with the Sterling Chemistry Lab and the Josiah Willard Gibbs Research Laboratories, and will be adjacent to the Kline Biology Tower.

Vascular Center Debuts at Yale

The new Yale Vascular Center taps into the medical school's knowledge in a variety of disciplines to provide high quality, convenient care targeted at atherosclerosis and other diseases affecting blood vessels. The center is located in the Yale Physicians Building.

"Atherosclerotic cardiovascular disease and its complications will kill or disable the majority of our population," states Dr. Henry R. Black, professor of internal medicine, director of the Preventive Cardiology Program and co-director of the center.

Explains co-director Dr. Richard J. Gusberg, professor and chief of vascular surgery, "As our aging population increasingly confronts the complications of atherosclerosis, advances in knowledge and technology have made the management of vascular disease both more effective and more complicated."

Drs. Gusberg and Black established the center to keep pace with such medical advances and to insure that patients benefit from them in a convenient way. The center's multi-disciplinary team includes specialists from internal medicine, vascular surgery, neurosurgery, plastic surgery,

neurology, radiology, laboratory medicine and anesthesiology.

These specialists offer a wide array of non-invasive vascular diagnostic studies, sophisticated lipid profiling, nutrition counseling, ambulatory blood pressure monitoring, magnetic resonance imaging and complete angiographic capabilities. These services augment, and do not replace, care provided by a patient's personal physician. Dr. Black emphasizes.



Linda Berganzi

WHO official Ilona S. Kickbusch, Ph.D., at the collaborating centre dedication.

WHO Centre Focuses On Health Promotion

The World Health Organization (WHO) has designated the department of epidemiology and public health as a WHO Collaborating Centre for Health Promotion Policy and Research, the first such WHO-sponsored organization.

Burton H. Singer, Ph.D., professor and chairman of epidemiology and public health, explains that the new centre melds research, service and teaching. "EPH faculty members, with the help of other Yale faculty, will foster cooperation in research between health policy experts, epidemiologists, environmentalists and biostatisticians," says Dr. Singer.

Lowell S. Levin, Ed.D., M.P.H., professor of public health, will direct

the new centre. He comments, "By collaborating with the WHO and other global- and country-level institutions on programs of education, research, information exchange and consultation, the centre will help formulate and implement health-promotion policies and research."

Key to this effort will be establishing a global information/problem-solving network, using teleconferencing to link 23 Yale experts with scholars in WHO-member states throughout the world. Economists, environmentalists, epidemiologists and planners in fields as diverse as agronomy and virology will contribute their expertise.

Also, through the centre, visiting scholars will collaborate in research with Yale faculty and learn how to apply teleconferencing methods in graduate education.

Pulsed Dye Laser Removes Birthmarks

Both adults and children can now be treated at Yale for vascular tumors of the skin, thanks to the new pulsed dye laser acquired by the School of Medicine and Yale-New Haven Hospital.

This laser — the only one of its kind in the region — treats port-wine stains as well as other blood vessel tumors and broken blood vessels. Port-wine stains, like the purplish-red birthmark on the forehead of Soviet President Mikhail S. Gorbachev, occur in three out of every 1,000 newborns.

David J. Leffell, M.D., assistant professor of dermatology, explains that the highly sophisticated laser emits yellow light, a complementary color to the red blood vessels that make up the tumors. Because the laser's heat is absorbed only by the blood vessels, which are destroyed, and not by the surrounding tissue, scarring is rare.

The laser unit, about the size of a small washing machine, uses fiber-optic cable to conduct the laser energy. Patients require no anesthesia for the treatment, which feels like the snap of an elastic band. In most cases, vascular tumors can be permanently removed, although several treatments may be required.

Yale Clinic Begins Genetic Counseling For Kidney Disorders

People with a relatively common hereditary disorder that fills their kidneys with cysts — often leading to kidney failure — can now receive genetic testing and counseling, thanks to a new clinic at the Yale Physicians Building. The Hereditary Renal Disease Clinic, which opened in February, is the first of its kind to offer genetic testing and counseling specifically for people with such renal diseases as polycystic kidney disease (PKD), notes Gregory G. Germino, M.D., instructor of medicine.

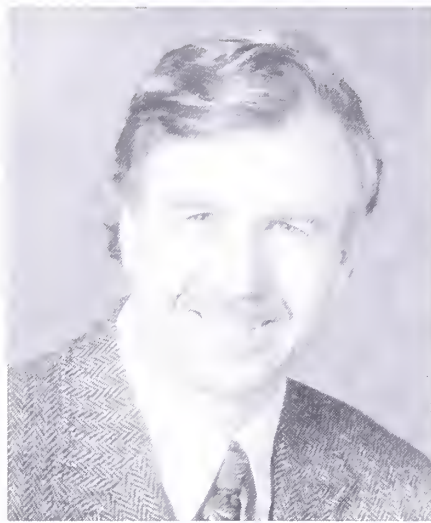
Counseling helps people with a family history of PKD to make informed choices about health care, childbearing and the possibility of receiving a donated organ, explains Dr. Germino, who co-directs the clinic with Margretta R. Seashore, M.D., professor of human genetics and pediatrics. Although no therapy can prevent PKD, some of its symptoms, like hypertension and recurrent kidney infections, can be managed.

Notes one of the clinic's scientific advisors, Stephen T. Reeders, M.D., "PKD is one of the most common genetic diseases in Caucasians." Dr. Reeders, assistant professor of medicine and human genetics, and an assistant investigator of the Howard Hughes Medical Institute, estimates that one in 1,000 Americans suffers from PKD.

Medical Informatics Center Opens at YSM

To keep itself at the forefront of the computer age, the School of Medicine has established a Center for Medical Informatics. Perry L. Miller, M.D., Ph.D., associate professor of anesthesiology, has been named its first director.

In announcing this new multidisciplinary center, Dean Leon E. Rosenberg, states: "The center will provide intellectual leadership in the creative application of computers in biomedicine. Through Dr. Miller's efforts, the center will focus on the emerging field of biomedical information technology, incorporating patient care, research, medical education, scholarly information, and computing and communications."



Perry L. Miller, M.D., Ph.D.

Dr. Miller comments: "Medical knowledge is in constant flux as new drugs and diagnostic tests are developed, new studies performed, new scientific research published. The computer has the potential to make this information available in an up-to-date form to practitioners, researchers and students anywhere."

From its office at 350 Congress Ave., the new center will:

- Focus on basic research into the creative use of computers to support clinical medicine, molecular biology, biomedical research and medical education.
- Support and coordinate collaborative research projects involving medical school faculty, as well as faculty in computer science and other departments at Yale.
- Serve as a focal point for training the next generation of researchers in this field.

New Center To Research Child Development

The School of Medicine will establish a Child Health Research Center where pediatricians and scientists will advance the understanding of normal and abnormal child development.

The Yale center is one of seven new Child Health Research Centers funded by the National Institute of Child Health and Human Development, part of the National Institutes of Health. Each center will receive a maximum of \$400,000 annually for five years and will then compete for additional funds.

Dr. Joseph B. Warshaw, chairman of the department of pediatrics, serves as the center's program director. He explains: "Senior pediatricians, scientists, cellular and molecular biologists, neuroscientists and geneticists will teach basic science to pediatric researchers in training. These young scientists will bring fresh ideas to the technology of modern basic science. Their innovative thinking will improve our understanding of normal development and the abnormalities that result in injury, handicaps and death to children."

Eight pediatric faculty, including Dr. Warshaw, will train four young faculty researchers yet to be selected. In addition, Yale medical faculty members in several departments, including internal medicine, human genetics, cell biology, pathology, and molecular biophysics and biochemistry, and the sections of anatomy and immunobiology, will provide support and resources for the young faculty.

CMHC Celebrates 25 Years of Service

The Connecticut Mental Health Center, (CMHC) a collaborative program of the State Department of Mental Health and Yale University, will hold a 25th anniversary celebration on Sept. 20 and 21.

Speakers will include former and current faculty who will highlight the center's role as a model mental health care system for the public and as a liaison in clinical programs, research and education. They also will discuss various challenges facing mental health professionals today.

"We hope that all former faculty and staff, especially those who trained at CMHC, will return to New Haven to participate in this celebration and to see our growth and accomplishments in mental health care," says Dr. Ezra E.H. Griffith, CMHC director and professor of psychiatry.

Connecticut Gov. Lowell P. Weicker Jr. is scheduled to be the keynote speaker Sept. 21 in Yale Commons at a dinner and ball that are part of the anniversary events.

For further information about the CMHC 25th anniversary celebration, call (203) 789-7290.

Dr. Griffith Addresses Transracial Adoption

In a lecture he delivered at the University of Maryland Medical Center in Baltimore, Ezra E.H. Griffith, M.D., associate professor of psychiatry and African and Afro-American Studies, presented his perspective on black children being adopted by white parents. He noted that despite the 20-year stand against such transracial adoption taken by the National Association of Black Social Workers, "the scientific data show that black children involved in transracial adoptions generally adapt well, and do not have more behavioral and school problems than children who are adopted by couples of the same race."

Dr. Griffith said that opponents of transracial adoption who are concerned with such issues as black children losing their racial identity, should acknowledge that their opinion is a political rather than a scientific judgment. Minority children in America have historically been more difficult to place in adoptive homes than have white children, and while race cannot legally be considered in adoptions, Dr. Griffith points out that white couples are often discouraged from adopting black children.

Dr. Griffith is director of Connecticut Mental Health Center, a collaborative program of Yale University and the State of Connecticut. He delivered his remarks as the Dana African-American Visiting Professor of Psychiatry during Martin Luther King Jr. Day activities at the Maryland medical center.

Second-hand Smoke Tied to Infections

Two School of Medicine pediatric researchers have produced evidence that ties cigarette smoking in the home with serious infections in children. Anne T. Berg, Ph.D., associate research scientist, and Eugene D. Shapiro, M.D., associate professor of pediatrics and epidemiology, reported in a January edition of the *American Journal of Epidemiology* that they were looking for a possible association between enrollment in a day-care center and the risk of incurring a serious infection. They found none. Instead, they discovered that children exposed postnatally to household smoke had

approximately a four times-higher risk of being hospitalized for a bacterial or viral infection than youngsters who were not subjected to passive smoking.

Foundation Funds Research Equipment

The New Haven Foundation has awarded the department of internal medicine, section of rheumatology, \$37,000 to further research and treatment of Lyme disease and arthritis. The grant funds the purchase of diagnostic laboratory equipment to aid in the search of patients' tissues and fluids for evidence of the bacterium that causes Lyme disease. This research will help scientists elucidate how the disease process comes about and hopefully aid in diagnosis.

"Grants such as this one, to fund equipment, are difficult to come by, which makes it of special value," states Dr. Stephen E. Malawista, M.D., professor of medicine, whose laboratory benefits from the grant. The grant comes from the foundation's Josephine Burgess Fund, which supports arthritis projects.

Study Questions How Indoor Air Affects Mothers, Children

The National Institute of Environmental Health Sciences has awarded the John B. Pierce Laboratory and the School of Medicine a \$3.5 million grant to study how indoor air pollutants affect the respiratory health of infants and their mothers.

Brian P. Leaderer, Ph.D., an associate fellow at the Pierce Laboratory and associate professor of epidemiology (environmental health) at Yale, directs the five-year study. He also heads the division of environmental health sciences of the department of epidemiology and public health.

Researchers suspect that children exposed to indoor concentrations of gases from such sources as tobacco smoke, cleaning chemicals, and kerosene and gas heaters have increased risk of acute or chronic upper and lower respiratory symptoms.

The researchers plan to study 900 infants and their mothers from the New Haven area in a variety of environments to determine whether indoor pollutants

contribute to increased coughing, wheezing, runny noses or breathing problems. They also will test whether pollutants affect the mothers' lungs.

Co-investigators are Michael B. Bracken, Ph.D., professor of epidemiology and obstetrics and gynecology; William S. Beckett, M.D., a Pierce Laboratory associate fellow and associate professor of occupational medicine and of epidemiology (environmental health); Theodore R. Holford, Ph.D., professor of public health (biostatistics); and Kathleen Belanger, Ph.D., associate research scientist in epidemiology, obstetrics and gynecology.

Scientists Study Cocaine-alcohol High

A chemical formed when cocaine and alcohol are consumed together may contribute to both the euphoria, or "high," and to the sometimes fatal toxic effects cocaine users experience, School of Medicine researchers report.

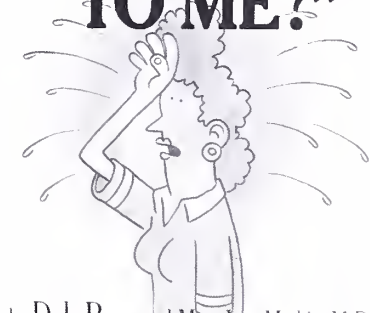
In a late autumn presentation at the annual meeting of the Society for Neuroscience, John D. Elsworth, Ph.D., research scientist in psychiatry and pharmacology, described chemical changes akin to a drug-induced euphoria in laboratory rats that were given cocaethylene, a compound apparently formed in people who consume cocaine and alcohol together.

"Cocaethylene appears to have cocaine-like effects on brain chemistry," reports Dr. Elsworth. The findings could aid researchers to develop drugs to help wean addicts from cocaine.

The findings may explain why cocaine abusers say they can prolong their "high" by drinking alcohol, suggests Robert H. Roth Jr., Ph.D., professor of psychiatry and pharmacology, an author of the research report. Half of cocaine abusers are estimated to drink alcohol while imbibing cocaine.

Comments co-author Peter I. Jatlow, M.D., professor and chairman of laboratory medicine and professor of psychiatry, "Some cocaine abusers have reported that drinking ethanol with cocaine lessened the dysphoria," or "crash," after a cocaine high. He is quick to add, however, that despite this salutary effect, cocaethylene also may contribute to sudden death and the cardiac problems that sometimes occur in cocaine abusers.

"WHAT'S *stopped* HAPPENING TO ME?"



by Dale Burg and Mary Jane Minkin, M.D.
Illustrated by John Kerschbaum

What's Stopped Happening to Me? by Dale Burg and Dr. Mary Jane Minkin, assistant clinical professor of obstetrics and gynecology, Lyle Stuart (New York) 1990.

NEW BOOKS

Treatment of Retinopathy of Prematurity, ed. Dr. Joseph W. Eichenbaum, '73, Mosby-Year Book Co. (St. Louis) 1990.

Parent vs. Parent: How You and Your Child Can Survive the Custody Battle, by Dr. Stephen P. Herman, assistant clinical professor of psychiatry, Pantheon (New York) 1990.

Your Aching Back: A Doctor's Guide to Relief, rev. edit., by Dr. Augustus A. White, '63-'66 HS, Simon and Schuster Inc. (New York) 1990.

The Triune Brain in Evolution, by Dr. Paul D. MacLean, '40, Plenum Press (New York) 1990.

Pediatric Trauma, 2nd edit., ed. Dr. Robert J. Touloukian, professor of surgery and pediatrics, Mosby-Year Book Co. (St. Louis) 1990.

A Year-Long Night: Tales of a Medical Internship, by Dr. Robert Klitzman, '85, Penguin Books (New York) 1989.

Assisting Pediatric Practice: A Clinical Study, by Dr. Raymond S. Duff, '52, '59 M.P.H., Health Administration Press (Ann Arbor) 1990.

FACULTY NEWS

Donald J. Cohen, M.D., the Irving B. Harris Professor of Child Psychiatry, Pediatrics and Psychology, received the 27th Annual Strecker Award sponsored by the Institute of Pennsylvania Hospital in Philadelphia. He was honored for his research into the treatment of autism and Tourette's syndrome in children.

Evan H. Dillon, M.D., assistant professor of diagnostic radiology, presented a paper, entitled "Achilles Tendon Healing: MRI Evaluation," at the Radiological Society of North America annual meeting held in November in Chicago.

Alfred S. Evans, M.D., M.P.H., the John Rodman Paul Professor Emeritus of Epidemiology, was honored by the American Public Health Association with the 1990 Abraham Lilienfeld Award for his contributions to the teaching of epidemiology.

Myron Genel, M.D., associate dean for government and community affairs and a 1957 graduate of Moravian College in Bethlehem, Penn., was honored by his alma mater with the 1990 Comenius Alumni Award. The award recognizes his outstanding contributions to society. Dr. Genel also is president of the newly formed Connecticut United for Research Excellence (CURE), a coalition of colleges and universities, hospitals, voluntary health organizations, professional health societies and industries. CURE was established to promote public understanding of biomedical research.

Nicholas M. Greene, M.D., professor emeritus of anesthesiology, was presented the American Society of Anesthesiologists Distinguished Service Award at its annual meeting in October. The award is given for meritorious service and achievement during a career in anesthesiology.

Richard H. Greenspan, M.D., professor of diagnostic radiology and associate dean for clinical affairs, was honored with the Gold Medal of the Association of University Radiologists Society. The article he co-authored on *in vivo* magnification angiography, published in *Investigative Radiology* in

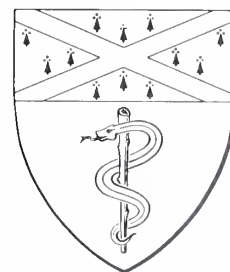
1967, was cited as one of the 12 best articles published during the journal's 25-year history.

Robert J. Levine, M.D., professor of medicine, has been lecturing on ethical issues at several international conferences. Over the past months, he has spoken at the Menendez Pelayo International University in Santander, Spain, on ethics of research involving human subjects; at the Pan American Health Organization's "Regional Consultation on AIDS, Human Rights, Ethics and Law," in Santiago, Chile; at the Council for International Organizations of Medical Sciences' meeting, entitled "Development of International Ethical Guidelines for Epidemiological Research and Practice," held in Geneva, Switzerland. He also spoke on scientific integrity at the annual meeting of the American College of Neuropsychopharmacology in San Juan, Puerto Rico.

James Merikangas, M.D., attending physician at YNHH and assistant clinical professor of psychiatry at the School of Medicine, has been named to the editorial board of the *Annals of Clinical Psychiatry*, where he will edit a special treatment section.

Bernard S. Siegel, M.D., assistant clinical professor of surgery, has been named honorary chairman of the newly organized National Wellness Coalition. The coalition works with Congress and officials from the White House, U.S. Department of Health and Human Services and the National Institutes of Health to shift the focus of national health policy from illness to wellness.

Juan Rosai, M.D., professor of pathology and director of anatomic pathology, presented the 1990 Arthur Purdy Stout Memorial Lecture in October at the American Society of Clinical Pathologists fall meeting. The lecture was entitled "Head, Neck and Mediastinal Pathology Related to Branchial Pouch Derivatives: A New Histogenetic and Pathogenetic Proposal."



Pathology, EPH Chairmen Named

In an appointment that culminated a national search, Jon S. Morrow, M.D., Ph.D., professor of pathology, has been named chairman of the School of Medicine's department of pathology and chief of pathology at Yale-New Haven Hospital. Dr. Morrow, who received his M.D. degree from Yale in 1976 and completed his internship and residency at YNHH, has been a faculty member and attending pathologist since 1981. He succeeds Vincent T. Marchesi, M.D., Ph.D., director of the Yale Center for Molecular Medicine.

Dr. Morrow's pioneering work has helped define the structure and function of the cell cytoskeleton, the microscopic filaments which serve as a foundation for the outer layer of cells of all bodily tissues, called epithelial cells. His studies have helped scientists delve into the molecular level to identify the origin of several inherited blood diseases in children. His recent research has focused on how disorders of cytoskeleton structure can disrupt the central nervous system and cause epithelial diseases, including certain forms of cancer.

Beyond these basic science endeavors, Dr. Morrow headed the team that designed and installed the pathology department's computerized patient information system. This system has become a national model used by a number of institutions.

Medical school Dean Leon E. Rosenberg noted Dr. Morrow's "significant contributions" to the School of Medicine and added, "In his new position as chairman of pathology, he will lead this well-established department to even greater accomplishments."

Soon after Dr. Morrow's appointment was announced, Dr. Rosenberg made public the reappointment of Burton H. Singer, Ph.D., professor of public health and statistics, as chairman of the medical school's department of epidemiology and public health (EPH). Dr. Singer's three-year term will begin at the completion of his initial, two-year term as chairman in July 1991. He will continue to serve as associate dean for public health.

As he announced Dr. Singer's reappointment, Dean Rosenberg said: "During the past year, under his inspired leadership, the department of epidemi-

ology and public health has reorganized its academic program and launched several new initiatives that bridge public health with forestry, law and other disciplines and that encourage public health, medical and nursing students to work together. This reappointment will allow Dr. Singer to continue enhancing Yale's long-standing tradition of excellence in public health."

An expert in tropical diseases, Dr. Singer is chairman of a World Health Organization steering committee for social and economic research in the tropical disease program.

FACULTY NEWS

Brenda Bigland-Ritchie Receives Humboldt Award

Dr. Brenda Bigland-Ritchie has received an international Humboldt Research Award for senior U.S. scholars, recognizing her achievements in neurophysiology. Dr. Bigland-Ritchie is adjunct professor of pediatrics and lecturer in neurology, a fellow at the John B. Pierce Laboratory and a professor of biology at Quinnipiac College.

The award, given since 1972 by the Alexander von Humboldt Foundation, based in Bonn, Germany, is one of 100 presented annually to foster cooperation between foreign and German researchers and their institutions. Recipients are invited to conduct research in the Federal Republic of Germany.

Dr. Bigland-Ritchie's prize of 95,000 Deutschmarks (approximately \$62,000) will allow her to spend 12 months throughout the next five years with Dr. Albrecht Struppler, director of neurology and clinical neurophysiology at the Technical University of Munich, who studies causes of neuromuscular diseases.

In Munich, Dr. Bigland-Ritchie will employ microneurography to record nerve impulses during muscle contraction to determine how information about changing muscle properties is transmitted to the brain during muscular fatigue. She also will stimulate the human brain directly with magnetic pulses. By combining these techniques, she hopes to gain new insights about information processing by the brain during physical activity.

Six Yale Researchers Win Wakeman Award For Spinal Cord Research

Six Yale researchers were numbered among 17 scientists who shared the 1990 Wakeman Award for Research in the Neurosciences. The 17 won the award, one of the highest honors in the neurosciences, as co-authors on a study on methylprednisolone, a steroid drug that can help people paralyzed by spinal cord injury recover some sensation and movement.

The researchers received their award at a ceremony held last fall at Duke University in Durham, N.C. They include: principal investigator Michael B. Bracken, Ph.D., professor of research in epidemiology and obstetrics and gynecology; co-principal investigator William F. Collins, M.D., the Harvey and Kate Cushing Professor of Surgery (Neurosurgery), chairman of the surgery department; Theodore R. Holford, Ph.D., professor of public health (biostatistics); Linda Leo-Summers, M.P.H., project manager in epidemiology and public health; Joseph M. Piepmeyer, M.D., associate professor of surgery (neurosurgery); and Mary Jo Shepard, M.P.H., associate research scientist in epidemiology and public health.

Dr. James P. Comer Wins McGraw Prize

James P. Comer, M.D., M.P.H., associate dean for student affairs and the Maurice P. Falk Professor of Psychiatry and in the Child Study Center, was awarded the Harold E. McGraw Jr. Prize in Education, which carries a cash award of \$25,000. Judges cited Dr. Comer's contributions to urban public education.

Two decades ago, Dr. Comer introduced a method for improving urban public schools, an approach that encourages parents, teachers, administrators and other school employees to work as a team. Because of the approach's success in New Haven and other cities, last year the Rockefeller Foundation of New York City announced a multi-million dollar initiative to introduce Dr. Comer's method nationwide.

Dean Elected To National Post

Dean Leon E. Rosenberg has been elected chair-elect of the Council of Deans, part of the governing structure of the Association of American Medical Colleges (AAMC).

Dr. Rosenberg's election came in October at the council's annual business meeting, held as part of the AAMC's 101st annual meeting in San Francisco. The dean, who will continue to serve on the AAMC executive council, succeeds Robert E. Tranquada, M.D., dean of the University of Southern California School of Medicine, who becomes Council of Deans chairman.

The AAMC represents the 126 U.S.-accredited medical colleges, 16 accredited Canadian medical schools, more than 400 major teaching hospitals, including 72 Department of Veterans Affairs medical centers; more than 90 academic and professional societies, and the nation's medical students.

Leading the organization of deans of the nation's medical schools, Dr. Rosenberg says, strengthens his service to Yale. "By interacting with the leadership of the AAMC and medical educators throughout the country, I hope to help address the many problems found by clinicians and health scientists," the dean states.

Dr. Jay Katz Named Endowed Professor

Jay Katz, M.D., professor (adjunct) of psychiatry, was named the first Elizabeth K. Dollard Professor in Law, Medicine and Psychiatry by University President Benno C. Schmidt Jr. The chair was recently established by the Elizabeth K. Dollard Trust and honors the 1939 Law School graduate.

Dr. Katz, an outspoken advocate of patients' rights, was among the first researchers to explore the problems created by experiments on human beings and to bring about changes in rules and procedures to protect subjects. In 1984, he authored the book, *The Silent World of Doctor and Patient*, which documents the practice of physicians withholding information from their patients and omitting patients from decision-making. He also is co-author of *The Family and the Law and Psychoanalysis, Psychiatry and Law*.

A member of the Institute of Medicine of the National Academy of Sciences, Dr. Katz has been honored for his contributions to the fields of legal psychiatry and health law teaching by the American Psychiatric Association, the American College of Physicians, and the American Society of Law and Medicine.



Michael Marstrand

Bella Z. Berson, M.A.L.S., has retired as associate university librarian and director of the Harvey Cushing/John Hay Whitney Medical Library. She was a 21-year Yale library staff member. During the past six years, Ms. Berson led the medical library through an extraordinary period of development, culminating with a \$10 million renovation and expansion which was completed in June. R. Kemy Fryer, M.L.S., head of Medical Library Reference Services, now serves as acting director of the medical library.

Linda Mayes Named First Gesell Professor

Yale University has named Linda C. Mayes, M.D., the first Arnold Gesell Associate Professor of Child Development at the School of Medicine. A medical school faculty member since 1985, Dr. Mayes is a developmental pediatrician whose work is in the tradition of Dr. Arnold Gesell, a pioneer in the field of child development.

Dr. Mayes' work parallels that of Dr. Gesell in her focus on the development of normal infants and children. Most recently, she has applied various procedures and conceptual models that she has developed to study the effects

of prenatal cocaine exposure on infants' and young children's development. This fall, Dr. Mayes began a five-year longitudinal study of children first seen at birth who have been exposed prenatally to cocaine. She and her colleagues are examining the effects of cocaine exposure on young children's attention and curiosity.

A native of Winchester, Tenn., Dr. Mayes received a B.A. degree in 1973 from the University of the South and an M.D. degree in 1977 from Vanderbilt University School of Medicine. She completed residency training in pediatrics and a fellowship in neonatology at Vanderbilt. In 1982, she came to Yale as a Robert Wood Johnson General Academic Pediatrics Fellow. She was also a fellow to the National Center for Clinical Infant Programs from Yale.

Among her professional honors, she received the Amos Christie Award in pediatrics from Vanderbilt University, a research and teaching award from the Ambulatory Pediatrics Association in 1985, the advanced pediatric research award from the Johnson & Johnson Foundation in 1984 and 1985, and from 1986 to 1991 holds a William T. Grant Faculty Scholars Award. In 1989, Dr. Mayes was named the Elizabeth Mears and House Jameson Assistant Professor of Child Development at the Yale Child Study Center.

Dr. Reich Receives Diabetes Awards

Dr. Eva-Pia Reich, associate research scientist in immunobiology, has received the Juvenile Diabetes Foundation International (JDF) Career Development Award and the Greenwall Foundation Award for her research on insulin-dependent diabetes mellitus (IDDM), also called juvenile diabetes type I.

The three-year JDF award, which carries a \$45,000 prize, will support Dr. Reich's project entitled "Role of T Lymphocytes in the Pathogenesis of Diabetes." Dr. Reich's research focuses on why certain white cells, T lymphocytes, from patients with IDDM selectively attack and destroy insulin-producing beta cells of the pancreas.

Her research, conducted in collaboration with Dr. Robert S. Sherwin, professor of medicine, uses the non-obese diabetic mouse model which spontaneously develops type I diabetes. Dr. Reich says the researchers isolate lymphocytes from pancreatic tissue

ALUMNI REPORT

Seven years have passed since publication of the *School of Medicine Alumni Directory*. An update of this volume has been a high priority for me since my appointment as director of alumni affairs. In spring of 1992, another, more impressive edition of the directory will debut. It will include more than 11,000 medical school, public health and physician associate alumni/ae, as well as former house staff and post-doctoral fellows. Also featured will be school codes, specialty codes and specialty sections to enhance the volume's utility as a professional reference.

The Bernard C. Harris Publishing Company, Inc. will produce our directory. Harris Publishing soon will begin compiling data gathered from you, our graduates, via a mailed questionnaire. Your cooperation in providing this information will help us publish an accurate, comprehensive directory.

Harris Publishing guarantees the confidentiality of this database and takes steps to safeguard against any inappropriate use of it or the directory. Nevertheless, if you prefer not to be listed, and hence, not to be contacted by Harris Publishing, please communicate with the medical school alumni office in writing as soon as possible at: Office of Alumni Affairs, Yale School of Medicine, 333 Cedar St., P.O. Box 3333, New Haven, CT 06510-8055.

We are eagerly anticipating the alumni office's relocation to new quarters in the former Lee High School — now known as 100 Church Street South — in late spring or early summer. This space has been designed for efficiency and comfort by Herbert S. Newman Associates of New Haven. We invite alumni/ae to visit us and to see our new office. The new facilities emphasize the importance of our relationship with you by providing an easily accessible and comfortable place for us to interact.

A continued concern for medical school students as future alumni occupies the attention of this office. Nick Spinelli has volunteered to help organize class secretaries and agents before they leave the medical school for postgraduate training.

We cannot rely alone on the fine teaching of our superb faculty to engender student loyalty to their alma

mater. Students must know that we, the medical school faculty, staff and alumni, care about them as individuals and colleagues. This more than anything reinforces students' desire to consider themselves as part of the medical school family after they graduate.

In this spirit, the alumni office has agreed to student council requests for assistance with various projects. To mention a few, our office supported the efforts of the annual dance,

affectionately known as the Cadaver Ball, held in January at the Grassy Hill Country Club in Orange. In February, the alumni office hosted a student-faculty tea in the Beaumont Room. We also helped to advertise and promote the second-year student show, which was presented in March.

Alumni, who share an open invitation to such events, have responded, but the students welcome even greater participation. This invitation is no formality; students are eager to talk with the alumni about their own medical school experiences, and to learn from their predecessors about their life lessons. You will be favorably impressed with these bright, dedicated young people, who surely will evoke memories of your own student days.

Another chance to reminisce and catch up with old friends presents itself at our annual Alumni Reunion Weekend, to be held on June 7 and 8. Dedication of the new Boyer Center for Molecular Medicine will take place on Thursday, June 6, so that returning alumni/ae may share in the festivities. Our related theme for the weekend: "Clinical Medicine in an Age of Molecular Medicine."

We encourage all alumni/ae to attend; quinquennial reunions (celebrated every five-years) will be held for classes ending in the years "1" and "6." Medical class reunion seminars will be followed by our keynote speaker, Nobel laureate George E. Palade, M.D., Sterling Professor Emeritus of Biology at Yale and dean of scientific affairs, University of California, San Diego, School of Medicine. He will discuss "The Medical School Curriculum and the Rapid Expansion of Biomedical Sciences." At surgical grand rounds on June 8, moderator William F. Collins

Jr., M.D., chairman of surgery, will discuss recent advances in this field.

Faculty seminars include: 1) "Recent Advances in Disorders of Pigmentation," moderated by Jean Bologna, M.D. '80; 2) "Lyme Disease: State of the Art," moderated by Daniel W. Rahn, M.D. '76; 3) "The Pain Experience," moderated by Luke M. Kitahata, M.D., Ph.D.

Dr. Vincent T. Marchesi will moderate a panel discussion entitled "Yale Center for Molecular Medicine — Program for the Future." Center faculty members will discuss upcoming molecular research programs in genetics, cardiobiology, neurobiology, and oncology and development.

The medical reunion dialogue and tea/sherry will conclude the scientific program. Arthur Ebbert Jr., M.D., professor emeritus of medicine, will moderate a discussion between Alvan R. Feinstein, M.D., professor of medicine and epidemiology, and Joseph Warshaw, M.D., professor and chairman of pediatrics, entitled "Fundamental Scientific Challenges in Clinical Care." We encourage you to attend these thought-provoking sessions.

Finally, I would invite alumni who have not contributed this year to the School of Medicine Alumni Fund to do so now. The Kresge Foundation Challenge will provide a \$1 million donation to help complete the Center for Molecular Medicine if Alumni Fund participation rises from last year's 43 percent to 55 percent in 1990-1991. Alumni Fund giving also must reach \$450,000 before the fiscal year ends June 30. As usual, your Alumni Fund dollars will support medical student financial aid unless you stipulate otherwise.

If you did not support our Alumni Fund last year, please help us increase the percentage of participation with your gift. If you did contribute last year, it is vital for you to do so again this year to help maintain the base of participation on which we are building. Remember, every contribution counts.

*Arthur C. Crovatto, M.D. '54
Director of alumni affairs*

***Highlights: Alumni Weekend
June 6-8, 1991***

Thursday, June 6

- 1:30 p.m. Boyer Center for Molecular Medicine Dedication
"Constructing a National Agenda for Biomedical Research"

Friday, June 7

- 8:00 a.m. Registration, Sterling Hall of Medicine rotunda
- 9:00 a.m. Perspectives in Molecular Medicine
- 1:00 p.m. Class reunion seminars (concurrent)
- I. Class of 1941 — 50th reunion
 - II. Class of 1946 — 45th reunion
 - III. Class of 1951 — 40th reunion
- 4:00 p.m. Special address: "The Medical School Curriculum and the Rapid Expansion of Biomedical Sciences," George E. Palade, M.D., dean, scientific affairs, University of California, San Diego, School of Medicine
- 5:00 p.m. Dean's reception

Saturday, June 8

- 9:00 a.m. Surgical grand rounds
- 9:15 a.m. Concurrent faculty seminars: dermatology, rheumatology, immunobiology, neuroanatomy, pharmacology, anesthesiology
- 10:30 a.m. Yale School of Medicine Reunion Symposium:
"Center for Molecular Medicine — Program for the Future"
- 11:45 a.m. Annual meeting of the Association of Yale Alumni in Medicine, Distinguished Service Award presentation
- 1:00 p.m. Sherry and buffet luncheon
- 2:45 p.m. Guided tours: Yale Center for British Art, historic sections of New Haven, Center for Molecular Medicine
- 3:15 p.m. Yale medical reunion dialogue and tea/sherry:
"Fundamental Scientific Challenges in Clinical Care"

ALUMNI NEWS

Dr. Paul D. MacLean, '40, senior research scientist at the National Institute of Mental Health, presented the John F. Fulton Lecture on "Planning and Remembering the Future: Frontal Lobe Functions and John Fulton's Continuing Contribution" at the 296th meeting of the Beaumont Medical Club held in November at the medical school.

Dr. Robert Schwartz, '47, professor of pediatrics at Brown University Program in Medicine and a member of the division of pediatric endocrinology and metabolism at Rhode Island Hospital, was awarded the American Academy of Pediatrics 1990 Nutrition Award for Research. The academy noted Dr. Schwartz's research into the metabolism of carbohydrates in newborns and the mechanisms that control blood sugar levels in infants of diabetic mothers.

Dr. Robert N. Hamburger, '51, was named professor emeritus at the University of California, San Diego, School of Medicine, in July, after more than 30 years as professor and head of the pediatric immunology and allergy division.

Dr. Robert G. Petersdorf, '52, president of the Association of American Medical Colleges, was one of four of this year's recipients of the National Medical Association Scroll of Merit. The award, which recognizes outstanding contributions to medicine, was given to Dr. Petersdorf for his efforts in support of minority medical education and the improved health status of minority Americans.

Dr. Robert Zeppa, '52, was awarded the American College of Surgeons (ACS) Distinguished Service Award in recognition of his clinical and surgical research on liver and portal circulation diseases. The award also cited his dedication to the University of Miami School of Medicine, where Dr. Zeppa has been a faculty member since 1966. Dr. Zeppa, the Lucille and Dewitt Daughtry Professor and chairman of surgery, is a former chairman of the ACS Graduate Medical Education Committee and a member of the ACS Committee on Trauma.



Robert Zeppa, M.D. '52

Dr. Harry C. Miller Jr., '54, professor and chairman of urology at the George Washington University Medical Center, was elected president of the mid-Atlantic section of the American Urological Association. He also is secretary and treasurer of the American Association of Clinical Urologists.

Dr. Paul Calabresi, '55, professor and chairman of the department of medicine at Brown University, was elected a member of the Institute of Medicine of the National Academy of Sciences. Dr. Calabresi also is physician-in-chief at Roger Williams General Hospital and director of the Roger Williams Center for Cancer and Related Diseases.



Paul Calabresi, M.D. '55

Dr. Joseph S. Pagano, '57, was elected president of the International Association for Research on Epstein-Barr Virus and Associated Diseases, Inc. He is the Lineberger Professor of Cancer Research, professor of medicine and microbiology and immunology, and director of the Lineberger Comprehensive Cancer Center of the University of North Carolina at Chapel Hill.

Dr. Joseph D. Ferrone, '62, clinical professor of orthopedic surgery at Tufts University School of Medicine and senior orthopedic surgeon at Tufts-New England Medical Center, was appointed to the Dean Junior College board of trustees.



Helen L. Smits, M.D. '67

Dr. Helen L. Smits, '67, director of the John Dempsey Hospital at the University of Connecticut Health Center and professor of community medicine at the UCONN School of Medicine, was elected chairman of the board of commissioners of the Joint Commission on Accreditation of Health Care Organizations. Her one-year term began Jan. 1.

Dr. Anthony V. Proto, '71, professor and chairman of radiology at the Medical College of Virginia, Virginia Commonwealth University in Richmond, delivered the annual oration in diagnostic radiology on chest at the 76th Scientific Assembly and Annual Meeting of the Radiological Society of North America (RSNA). His lecture focused on understanding newer observations seen on conventional chest radiographs to strengthen accuracy of diagnoses. Dr. Proto chairs the RSNA scientific exhibits committee and is an associate editor for *Radiology*.

Dr. Robert H. Posteraro, '73, professor and chairman of radiology at Texas Tech School of Medicine, was appointed commander of the 829th Station Hospital U.S. Army Reserve Unit in Lubbock.

Francis S. Collins, '74 Ph.D., a Howard Hughes Medical Institute associate investigator at the University of Michigan Medical Center, received a Gairdner Foundation International Award for his contributions to the identification and analysis of the cystic fibrosis gene. The molecular techniques developed by Dr. Collins and his colleagues also will facilitate the study of other genetic diseases.

Dr. Thomas W. Smith, '75, recently gave his 75th lecture to residents and practicing ophthalmologists at the Eye and Ear Institute of the University of Pittsburgh. Dr. Smith, clinical associate professor of ophthalmology at the Pittsburgh School of Medicine, has lectured for more than 10 years and also is a member of Keystone Eye Surgeons in Dubois, Penn.

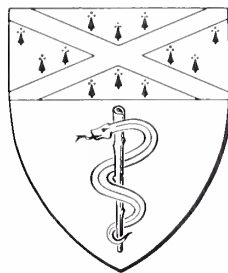
Dr. Christopher E. Attinger, '81, was appointed assistant professor of surgery, division of plastic surgery at Georgetown University Medical Center in July. He specializes in extremity reconstruction.

Dr. David H.W. Wohns, '81, currently in practice at Butterworth Hospital in Grand Rapids, Mich., was elected a fellow in the American College of Cardiology.

Margarita Acosta, '82 M.P.H., is assistant administrator at Saint Peter's Hospital in Olympia, Wash.

Marie Ciacco-Tsivitis, '86 M.P.H., is the infection control coordinator at Memorial-Sloan Kettering Cancer Center in New York.

Stacey Wills, '90 M.P.H., of Washington, D.C., works at the Employee Benefit Research Institute, a private non-profit organization that provides research and education to business, government and the public. She concentrates on state initiatives to cover the uninsured and on health care finance policy issues.



STUDENT NEWS

Irene M. Hegeman, a fourth-year medical student, was awarded a \$2,500 Rock Sleyster Memorial Scholarship by the American Medical Association to encourage her interest in psychiatry.

Bill Rodriguez, a second-year student, competed on the New York Ultimate team in the National Ultimate Frisbee Championship held in November in West Palm Beach, Fla. Mr. Rodriguez's team is the defending U.S. national and world ultimate frisbee champion, having defeated teams from 13 other countries in a July tournament in Norway. Ultimate frisbee is akin to soccer, with seven-member teams competing on a 70-by-40-yard field. Players pass the flying disc among themselves and score by whirling it into the goal, located in the opposing team's end zone.

Medical Students Offer Youngsters Health Talks

Seventh-graders at Roberto Clemente Middle School in New Haven stared wide-eyed at the lung specimens displayed by second-year medical students Joe Esherrick and Linda Keyes, who explained that smoking was responsible for the black spots evident on one lung. Meanwhile, across town at the Career Education Center, second-year students Valerie Vanhoutte, Julie Miner and Emily Davidson stood in front of a classroom of high school students and talked with them about AIDS.

The students are volunteering in two programs sponsored by the American Medical Students Association (AMSA), based in Reston, Va. The first program, Adolescent Substance Abuse Prevention (ASAP) is one of 10 two-year pilot projects sponsored by AMSA. Students Teaching AIDS to Students (STATS), the second program, is part of a

national high school AIDS education program initiated in 1988.

Approximately 35 medical students have joined the ASAP effort, meeting weekly with Clemente seventh-graders during science class. The program includes sections on the physical changes brought on by drugs, alcohol and tobacco; ASAP also presents ways to resist peer pressure to try drugs.

During the STATS program's first two years, Yale students have spoken about AIDS to more than 2,000 teenagers from New Haven high schools and middle schools. About 60 students from the School of Medicine, the department of epidemiology and public health and the School of Nursing have volunteered.

Minority Conference Targets Health Care

Leading health professionals and political leaders presented their views on "Bridging the Gap in Health Care: Availability vs. Access" when the New England region of the Student National Medical Association (SNMA) held its annual conference Feb. 15 and 16 at the School of Medicine. More than 70 students from the nine medical schools in the region and 150 undergraduate premedical students attended.

"Our program focused on problems encountered in health care for minorities, and we explored ways to increase awareness of and access to health care," reports Ellis L. Webster, a fourth-year medical student who chairs the SNMA's Yale chapter, founded in the early 1970s.

On Saturday, the 16th, the School of Medicine and the Yale chapter of the SNMA hosted the annual recruitment day conference for undergraduate minority students interested in attending the School of Medicine. Dr. Woodrow A. Myers Jr., New York City's health commissioner, gave the keynote address, highlighting disease trends in the '90s and outlining the concerted effort needed to control these problems. Other speakers included New Haven Mayor John C. Daniels; Cornell Scott, M.P.H. '68, executive director of the Hill Health Center; and Marie Spizey, chief of the Connecticut Bureau of Community Health.

Based in Washington, D.C., the Student National Medical Association is the nation's oldest and largest organization for black, Latino and native American medical students.

Agnes V. Bartlett

Agnes V. Bartlett, M.D., died Aug. 7 at Hanover Terrace Healthcare in Vermont. She was 79.

A native of Kyoto, Japan, Dr. Bartlett graduated from Mount Holyoke College and in 1938 from Yale School of Medicine. Following residency training in obstetrics and general practice, she served as a medical officer in relocation centers in Arizona and California during World War II.

After the war, she moved to Thetford Hill, Maine, and began a general practice with Dr. William Putnam. She later undertook specialty training in Hanover and was in private practice in Springfield, Vt., and Concord, N.H. From 1964 until her retirement in 1976, Dr. Bartlett practiced at the Veterans Administration Hospital in White River Junction.

She was a director of the Brookhaven Home for Boys in Chelsea and a volunteer parole officer.

Memorial contributions may be made to the Norwich Public Library, Norwich, VT 05055.

Daniel S. Egbert

Daniel S. Egbert, M.D., died April 28 at his home in Fort Dodge, Iowa. He was 84.

A native of Nebraska, Dr. Egbert graduated from the University of Nebraska Medical School in 1931 and interned at San Diego General Hospital. He served on the house staff from 1932 to 1935 in pathology at Yale and later set up practice in Atlanta. From 1940 through 1945, Dr. Egbert served as a medical officer in the U.S. Army and as a commanding officer of a portable surgical hospital unit in the Chica Burma-India area. In 1945, he established a practice in Fort Dodge, where he stayed until his retirement in 1983.

Dr. Egbert was a charter member of the American Society of General Practitioners, a charter diplomate of the American Board of Family Practice, and served a term as president of the Webster County Medical Society.

He leaves his wife, Helen; a daughter, Nancy; two sons, James and Thomas; and six grandchildren.

Memorials may be made to the Dr. Daniel S. Egbert Memorial Cancer Library established at Trinity Regional Hospital. The library serves families and friends of cancer patients.

OBITUARIES



Charles T. Flynn Jr.

Charles T. Flynn Jr., M.D., died Sept. 11 in Fairview General Hospital, Cleveland. He was 72.

Dr. Flynn was former chairman of the medical board and chief of staff at Meriden-Wallingford Hospital in Connecticut. He also was an orthopedic surgeon in Meriden for 33 years. He retired in 1984 but remained as director of the hospital.

A native of Connecticut, Dr. Flynn was a graduate of Providence College and a 1943 graduate of Yale School of Medicine. During World War II, he served in Europe as a major in the Army Medical Corps.

He leaves his wife, Martha; two sons, Stephen and Thomas; seven daughters, Barbara, Debora, Ann, Joan, Donna, Martha and Christine; and eight grandchildren.

Francis J. Kenney

Francis J. Kenney, M.D., died Aug. 13 in Cincinnati, at the age of 62.

A Connecticut native, Dr. Kenney was a 1951 graduate of Harvard University and a 1955 graduate of Yale School of Medicine. He trained in general and thoracic surgery at Harvard and the University of Michigan and was a diplomate of the American Board of Surgery and the American Board of Thoracic Surgery. Following a career in clinical practice, Dr. Kenney worked in the pharmaceutical industry until his retirement in 1989.

He leaves his wife, Jane; two daughters, Jane and Elizabeth; and two sons, Francis Jr. and Edward.

Donations may be made in Dr. Kenney's name to the Harvey Cushing/John Hay Whitney Medical Library, P.O. Box 3333, New Haven, CT 06510, or to the Choir Fund at Old St. Mary's Church, Over-the-Rhine, 123 E. 13th St., Cincinnati, OH 45210.

Laura Kuckes

Laura Kuckes, M.D., died Aug. 5 in a boating accident in Admiralty Bay, Alaska. She was 29.

A native of New Jersey, Dr. Kuckes was a 1982 graduate of Cornell University and a 1988 graduate of Yale School of Medicine. She spent one year before entering Yale working in Washington, D.C., for the Union of Concerned Scientists. Dr. Kuckes interned at the Mary Imogene Bassett Hospital in Cooperstown, N.Y., and later practiced for the North Slope Borough in Barrow, Alaska. Under a grant from the Yale International Student Fellowship Program, Dr. Kuckes studied blood-brain barriers using electron microscopy at the Institute of Cell Biology in Romania.

At Yale, Dr. Kuckes extended her schooling one year to pursue her thesis work and to become associated with the playwriting program at the Yale School of Drama. There she co-authored two plays and wrote a musical, which were produced at the Yale Cabaret. She also received the medical school's Marguerite Rush Lerner Creative Writing Prize.

Dr. Kuckes organized the medical school lecture series on nuclear war and was a delegate to the International Physicians for the Prevention of Nuclear War congresses for three years, during which she produced a multimedia show entitled "Snap-shots with the Red Army."

Dr. Robert H. Gifford, associate dean for education and student affairs, who spoke at her memorial service, said, "During her years as a medical student, Laura hoped to combine her dramatic writing skills with her medical thesis work. . . She realized the close relationships that could be forged between medicine and psychiatry through playwriting, and became acutely aware of how much art and medicine inform each other. Laura had a natural ability to transfer enthusiasm to those around her. . . She lived with a zest and passion that captured our hearts and has left us full of fire and excitement for adventure and full of hope for a better world."

Dr. Kuckes leaves her parents, Arthur and Haralyn Kuckes; a sister, Niki; and a brother, Dylan.

Memorial contributions in Dr. Kuckes' name may be made to Physicians for Social Responsibility, 1000 16th St., NW, Suite 810, Washington, D.C. 20036.

Bernard F. Mann Jr.

Bernard F. Mann Jr., M.D., died Nov. 4 in Fairplay, Colo. He was 76.

A native of Maine, Dr. Mann graduated from Bates College in 1936 and from Boston University School of Medicine in 1940. He served in the U.S. Navy for six years in the Pacific on the destroyer U.S.S. Case and at naval stations in Williamsburg, Va., and Bremerton, Wash.

Dr. Mann was a Fulbright Professor of Pathology in the Medical School of the University of the Philippines in Manila. He served as assistant clinical professor of pathology at Yale School of Medicine from 1904 through 1971 and also was associate pathologist at the Hospital of St. Raphael in New Haven. Following work in surgical pathology and cytopathology at the New England Deaconess Hospital, Boston, and teaching at Harvard University Medical School, Dr. Mann spent five years as chief of pathology services for the Arabian American Oil Co. in Dhahran, Saudi Arabia.

He leaves his wife, Martha; two daughters, Nancy and Constance; and one son, Donald.

Contributions may be sent to the Camden Area Y.M.C.A., Camden, ME 04843.

James W. Reed

James W. Reed, M.D., died July 10 at the Franklin Memorial Hospital in Farmington, Maine. He was 85.

A native of Maine, Dr. Reed graduated from the University of Maine and received an M.D. degree from Yale in 1931. He interned at New Haven Hospital and served residencies at the Boston Dispensary and the Franklin County Memorial Hospital.

In 1934, he established a radiology practice in Farmington and later affiliated with Rumford Community Hospital. From 1942 to 1945, he served as a radiologist for the Maine General 67th Hospital Unit in England.

Dr. Reed coached the Farmington State Teachers College track and cross-country teams and the junior boys ski team of Farmington Ski Club for several years. He also served on the Farmington school board and the board of the Girl Scout Camp Kirkwold.

He leaves his wife; a daughter, Carol; a son, James; and two grandchildren. Memorial gifts may be made to the Franklin Memorial Hospital, 1 Hospital Drive, Farmington, ME 04938.

Knute Berger

Knute Berger, M.D., died Dec. 24 at age 75.

A Seattle native, Dr. Berger received a B.S. degree in chemistry from the University of Washington in 1937 and an M.D. degree from Yale in 1941.

Dr. Berger began his career as a surgeon but later chose to meld his passion for art with his devotion for medicine. For many years he worked as a medical illustrator, photographer, sculptor and exhibit designer. He also developed teaching models for use in medical school classes. Dr. Berger was the creator of the syndicated cartoon series, "Mr. Quiddity," for the New York and Illinois state medical associations and was co-author of the children's book, *A Visit to the Doctor*.

He was a captain in the U.S. Army Air Force during World War II, later working at Virginia Mason Hospital and at hospitals in South Carolina and Peru. He served as medical director at John Slade Ely Center for Health Education Research in New Haven.

In 1961, he joined the research team of Dr. Lester Sauvage at the Hope Heart Institute at Providence Medical Center in Seattle, where he served for more than 20 years as head research pathologist. He is credited



"Blue Embassy," box art by Knute Berger, M.D. '41.

for such advances as improved blood-vessel grafts and attachment mechanisms for artificial heart valves.

He retired in 1982 and, with his wife, Margaret Haseltine Berger, formed Island Cupboard, a company that marketed gift cards featuring his photography and Mrs. Berger's poetry.

He is survived by his wife, two daughters, Barbara and Kari; a son, Knute; and two grandchildren.

Paul H. Laviertes

Paul H. Laviertes, M.D., died Dec. 27 in his home in New Haven. He was 83.

Dr. Laviertes, a native of New Haven, received his bachelor's and medical degrees from Yale in 1927 and 1930. He completed his internship at Sinai Hospital, Baltimore, and his residency at New Haven Hospital. He also was a Saxe research fellow in metabolism at Yale from 1932 to 1933.

Dr. Laviertes served as a captain in the U.S. Army at the Center for Tropical Disease, Treatment and Research in Swannanoa, N.C., for three years. From 1933 through 1981, he was an attending physician at Yale-New Haven Hospital. Beginning his career at the School of Medicine in 1933 as an instructor, Dr. Laviertes became an assistant professor, clinical assistant professor and later clinical associate professor until 1984. He also served as a clinical associate professor of public health from 1968 through 1981.

Dr. Laviertes was in private practice of internal medicine in New Haven for

25 years until he became the founding medical director of the Community Health Care Plan in 1971, a position he held until his retirement in 1981.

He was a consulting physician at Fairfield Hills Hospital, the Veterans Administration Medical Center in West Haven, Meriden-Wallingford Hospital and Laurel Heights Hospital.

Dr. Laviertes was a member of the Society for Clinical Investigation and a founding editor of the *Medical Letter of Drugs and Therapeutics*; he served on the publication's advisory board from 1959 through 1964. He also was a board member of Gaylord Hospital in Wallingford and on the medical advisory committee of the Jewish Home for the Aged from 1968 through 1986.

He leaves his wife, Ruth Sweedler Laviertes; a son, Marc; a daughter, Sylvia; and three grandchildren.

Memorial contributions may be made to the Jewish Home for the Aged, 169 Davenport Ave., New Haven; or the Yale School of Medicine, Development Office, P.O. Box 3333, New Haven, CT 06519.

OBITUARIES



Conrad Lam, M.D. '32

Conrad Lam

Conrad Lam, M.D., died May 14 in Farmington Hills, Mich. He was 84.

A native of Michigan, Dr. Lam was a 1927 graduate of Hardin-Simmons University, Texas, a 1932 graduate of Yale School of Medicine and a 1938 graduate of the University of Michigan, where he received an M.S. degree in surgery.

Dr. Lam served as a thoracic and cardiac surgeon for 50 years at the Henry Ford Hospital until his retirement in 1983. In 1950, in collaboration with Dr. H.H. Aram, Dr. Lam conducted one of the first heart-valve transplant surgeries. In 1956, he performed Michigan's first open-heart operation using total heart-lung bypass. He also developed methods to close holes in the heart and to stop the heart during intracardiac operations. In 1980, he was recognized by Shiley Laboratories as one of the "Ten Pioneers of Cardiac Surgery."

In 1987, Dr. Lam received a Distinguished Service Award from Yale School of Medicine. He also was honored by Hardin-Simmons University with the Keeter Alumni Award, the University's most prestigious alumni award; a Distinguished Alumnus Award and with an honorary doctorate. The Henry Ford Hospital has established a cardiac and thoracic surgery lecture series in his honor.

Author of more than 200 journal articles and co-author of a hiatus hernia textbook, Dr. Lam was a member of the American Association for Thoracic Surgery, the American Surgical Association and the Central Surgical Association.

He is survived by his wife, Marian; two daughters, Marjorie and Janet; two sons, Richard and Douglas; and nine grandchildren.

Contributions may be made to the Cowboy Band Foundation at Hardin-Simmons University in Abilene, TX 79604, or to the Franklin Community Church, 32473 Normandy, Franklin, MI 48025.



Grill work, historical library promenade, Harvey Cushing/John Hay Whitney Medical Library.

Walter L. Kulp

Walter L. Kulp, Ph.D., died July 18 in Storrs, Conn. He was 99.

Dr. Kulp retired as chairman of the bacteriology department at the University of Connecticut in 1955. He also served as director of the Windham Hospital Laboratory, and before his appointment at UConn, taught at Yale School of Medicine.

A Pennsylvania native, Dr. Kulp was a 1911 graduate of Allegheny College and a 1923 Ph.D. graduate of Yale University.

He leaves his wife, Lula Casler Kulp; a daughter, Carol Beagley; three grandchildren and five great-grandchildren.

IN MEMORIAM

Crutcher McClure	'21 HS
Ben Klotz <i>April 25, 1990</i>	'26 M.D.
Amy H. Hunter-Wilson <i>July 7, 1990</i>	'30 M.D.
Henry Brill <i>June 17, 1990</i>	'32 M.D.
Conrad R. Lam <i>May 14, 1990</i>	'32 M.D.
Lester Q. Stewart <i>March 10, 1990</i>	'33 M.D.
W. Howard Horner <i>September 9, 1990</i>	'35 M.D.
Emir A. Gaw <i>July 23, 1990</i>	'36 M.D.
Willis Thayer <i>March 28, 1990</i>	'36 M.D.
Agnes V. Bartlett <i>August 7, 1990</i>	'38 M.D.
Dorothea H. Scoville	'38 M.P.H.
Nathaniel Kenigsberg <i>November 22, 1989</i>	'39 M.D.
John F. Marchand	'40 M.D.
Frederick A. Waldron <i>August 17, 1990</i>	'41 M.D.
David G. Decker <i>July 17, 1990</i>	'42 M.D.
C. Thomas Flynn Jr. <i>September 20, 1990</i>	'43 M.D.
Rex P. Dannebaum <i>February 21, 1990</i>	'49 M.D.
Guy W. Steuart <i>June 20, 1990</i>	'53 M.P.H.
John B. Fine	'56 M.D.
Lawrence J. Biris	'79 M.D., '80 M.P.H.
Gary F. Velat <i>August 1, 1990</i>	'80 M.P.H.

DEVELOPMENT REPORT

Gift of Noted Alumnus To Name Yale's CMM

University President Benno C. Schmidt Jr. has announced the largest individual gift ever received by the School of Medicine. A \$10 million contribution from Dr. and Mrs. Herbert W. Boyer of Mill Valley, Calif., will provide construction funding for the Center for Molecular Medicine (CMM). The center, which will be dedicated on June 6, will bear the Boyer family name.

President Schmidt said, "The Boyers' generous gift for the center is especially meaningful because this marvelous new research facility is built around an educational core; medical students, post-doctoral fellows, graduate students, and medical residents will benefit from its teaching programs. It is fitting that the Boyer name will always be associated with this building, for it will inspire young people to strive for scientific excellence and for innovation and discoveries that can benefit mankind."

From 1963 to 1966, Dr. Boyer undertook a post-doctoral fellowship in the laboratory of Edward A. Adelberg, Ph.D., professor of genetics, today, a deputy provost of the University. Dr. Boyer then joined the faculty of the University of California, San Francisco, where he is currently professor of biochemistry. A native of Derry, Pennsylvania, and a graduate of Saint Vincent's College and the University of Pittsburgh, Dr. Boyer ushered in a new era of genetic science when he and Dr. Stanley Cohen of Stanford University invented the first recombinant DNA technology.

After being awarded the National Medal of Technology in 1989, Dr. Boyer was invited to the White House in November 1990 to receive the National Medal of Science, thus making him one of only three persons to receive both of the nation's highest research awards.

As co-founder of Genentech, Inc., in 1976, Dr. Boyer helped launch the biotechnology industry. In less than 15 years, Genentech has grown into a company with annual revenues of more than \$400 million from the development of such bioengineered pharmaceuticals

as Protropin, a human growth hormone, and Activase, an anticoagulant for the treatment of heart attack.

Over the years, the Boyers have remained active in Yale affairs; their son, Ethan, graduated from Yale College in 1990. Dr. Boyer serves as chairman of the Dean's Council of the School of Medicine. The council, a volunteer group comprising leaders from business, science, medicine and private organizations interested in the field of medical science, advises Dean Leon E.

Rosenberg on matters related to the school's planning and development. In commenting on this gift, Dean Rosenberg said, "From the earliest days of my deanship, Dr. Boyer has been a source of wise counsel and encouragement. I rejoice in this gift from two splendid friends of Yale."

Kresge Foundation Challenge Update

The School of Medicine moved a major step closer to earning the Kresge Foundation's \$1 million challenge grant when Dr. and Mrs. Herbert W. Boyer announced their magnificent gift (see accompanying article). Dr. and Mrs. Boyer's gift enabled the school to double the amount required by the first of the challenge's three terms: to raise \$5 million toward the construction of the Center for Molecular Medicine. School of Medicine Alumni Fund totals also show impressive progress on the second and third terms of the challenge, which include:

- raising \$450,000 in current-use support;
- reaching 55 percent participation.

These terms must be met before June 30, the end of the fiscal year. Because 55 percent participation requires more alumni to support the school than in any other year, the development office and Kresge Challenge Chairman John B. (Jack) Ogilvie, '34 M.D., have organized a series of phonathons in which alumni and students have contacted as many alumni as possible.

Alumni who wish to contribute specifically to support the Center for Molecular Medicine can join other major donors by making a gift to name

one of the center's rooms. In addition, those who contribute \$5,000 or more to the alumni fund before June 30 will be included on the dedication plaque which will be prominently displayed in the center. If you are interested in naming a room in the CMM, please contact Jay Angeletti, Office of Development, Yale School of Medicine, P.O. Box 3333, New Haven, CT 06510-8055, (203) 785-5576.

Alumna Bequest Benefits CMM and Public Health

Amy Hunter-Wilson, '30 M.D., '34 Dr.P.H., has made a major bequest to support the School of Medicine's Center for Molecular Medicine and the Department of epidemiology and public health. Dr. Hunter-Wilson, who made two significant gifts during the last two years of her life to establish endowed scholarships in medicine and public health, died July 7, 1990.

Dr. Hunter-Wilson, known professionally as Dr. Hunter, was born in 1898 in New York City. A 1921 graduate of Vassar College, she earned a master's degree in nutrition from Cornell University. Dr. Hunter then came to New Haven where she earned her two Yale degrees. Later, she served her residency at the Children's Community Center in New Haven and was clinical instructor in pediatrics at the School of Medicine. In 1935 she became the director of the Bureau of Maternal and Child Health within the state of Wisconsin Board of Health. She served in that position with great distinction until she retired in 1961.

In recognition of Dr. Hunter-Wilson's bequest, the school will name for her one of the Center for Molecular Medicine's state-of-the-art laboratories, and will establish an endowed research fund for young faculty in the department of epidemiology and public health. Dr. Hunter-Wilson's husband, Mr. Frederick Wilson, now age 103, is the retired forestry division chief of the state of Wisconsin agency that was known during his tenure as the Conservation Commission. In addition to her husband, Dr. Hunter-Wilson is survived by a niece and two nephews.

CONTINUING MEDICAL EDUCATION AT YALE

- | | | |
|--|--|------------|
| Friday
June 7, 1991 | Yale Alumni in Ophthalmology
<i>Director: Robert L. Lesser, M.D.</i> | (A) |
| Friday-Sunday
August 16-18, 1991 | Thrombosis, Thromboembolism and Thrombolysis
<i>Director: Michael D. Ezekowitz, M.D., Ph.D.</i>

Will provide the practicing clinician basic knowledge on the pathogenesis and treatment of various disease processes in which the predominant pathology is thrombosis and/or thromboembolism. | (B) |
| Thursday-Saturday
Sept. 26-28, 1991 | Methods and Application in Molecular Medicine
<i>Director: Stephen Reeders, M.D.</i>

Will acquaint fellows and physician-researchers in internal medicine specialties with new techniques in molecular biology, molecular genetics and cell biology. | (C) |
| Friday-Saturday
Sept. 27-28, 1991 | Visiting Lecture Series in Clinical Ophthalmology
<i>Director: David E. Silverstone, M.D.</i>
<i>Speaker: Melvin Rubin, M.D.</i>

Will focus on the update of ophthalmic optics. | (D) |
| Friday-Saturday
Oct. 25-26, 1991 | Neurobiology of Affective Disorders
<i>Director: George K. Aghajanian, M.D.</i> | (E) |
| Thursday
Oct. 31, 1991 | 3rd Annual Cardiology Update
<i>Director: Lawrence S. Cohen, M.D.</i> | (F) |

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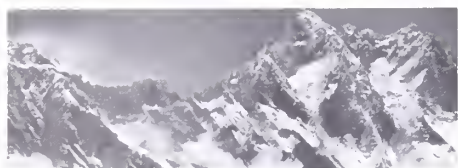
Summer 1991

Now being admitted to
the high calling of the
physician, I solemnly
pledge to consecrate my
life to the care of the sick, the
promotion of health, and the
service of humanity...

Commencement 1991

**AIDS Research at Yale:
Shifting into High Gear**

2



Climbing the Himalayas: A Call to High Adventure

In an article relating how a passion for mountaineering became his avocation, Richard Wohns, M.D. '77, gives his answer to the call of the wild — medical research at 21,500 feet.

6

The Physician as Citizen

Delivering the medical school commencement address, James P. Comer, M.D., M.P.H., exhorts the Class of 1991 to help build a brighter future for America through all her children.

9



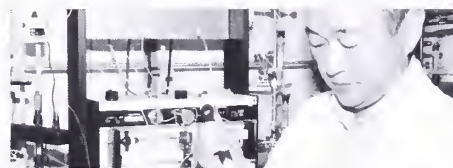
African-American Students: YSM's Unfolding Legacy

Graduating physician Daryl Daniels reveals the fascinating — though not unbroken — 137-year history of African-American medical students at Yale.

14

AIDS Research at Yale: Shifting into High Gear

As the diagnosis of America's first AIDS patients marks its 10th anniversary, the medical school has set its sights on becoming a leader in this area of basic and clinical research.



20

1991 Lerner Award

In a series of three poems, Christopher Fey, '93 Med., displays why the 1991 Marguerite Rush Lerner Award was not the first of his many honors for poetry writing.

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30 Commencement

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40 Alumni News

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44 Obituaries

On the cover: School of Medicine Chaplain Alan C. Mermann, M.D., composed a physician's oath for graduating medical students, combining elements of the Hippocratic Oath with selections of contemporary oaths used by other leading medical schools. For the complete text, turn to page 33.

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Dr. Michael Kashgarian, professor of pathology, is editor of YALE MEDICINE. The tri-annual magazine is produced by the Office of Public Information: Helaine Patterson, director; Gregory R. Huth, publications editor; Diane Loupe, staff writer; L. Rosalind D'Eugenio, staff assistant; and Claire Bessinger, senior administrative assistant. Production: Hoblitzelle Graphics; printing: F.H. Roberts Co.

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LETTERS TO THE EDITOR

Lesbian/Gay Network

To the editor:

I am writing on behalf of the Lambda Health Alliance, a new group for lesbian, gay or bisexual health professionals at Yale, in our attempt to form an alumni network.

In its first semester, the group has had much success and support, having held numerous meetings, a rap session and a potluck. We are looking forward to many more activities in the coming semesters, such as a dance, film screenings and sensitivity-raising seminars. Graduates interested in our alumni/ae network should write:

Lambda Health Alliance
Yale School of Medicine
c/o 1101 Sterling Hall of Medicine
P.O. Box 3333
New Haven, CT 06510-8012.

Kyle Herbold, '94 Med.

Living Wills

To the editor:

As a Yale College graduate ('42) and attorney with 35 years of practice, I would like to comment on the Spring 1991 interview with Angela R. Holder, L.L.M., entitled "Are Living Wills Necessary?"

In the Cruzan case, the U.S. Supreme Court held that the Constitution did not prevent Missouri from requiring clear and convincing evidence of the comatose patient's wishes concerning the withdrawal of life-sustaining treatment. In other words, it is up to the state involved to set the standards. When the case was returned to the Missouri court, further evidence, though not written documentation, was produced; the state withdrew its case, and Nancy Cruzan was allowed to die, although she never had a living will.

In Hawaii, where I live, the 1991 state legislature passed a bill to expand the present Hawaii living will statute to provide that a living will could become effective when a person was in a persistent vegetative state, even though death was not likely to happen in a short time. The bill also provides that artificial

feeding and hydration may be withdrawn like other medical practices.

This bill is important because it specifically protects the doctors and health care facilities who follow the desires of the the patient as expressed in the living will from suits by members of the family and from criminal prosecution. The Hawaii statute, however, does not provide for a durable power of attorney being given to a family member or other person to decide on medical care when a patient is incompetent. This renders the naming of such in a living will or other document probably a good idea, but of dubious legal effectiveness.

It is not clear under such a statute that a doctor or care facility would be protected just because the person named in a durable power of attorney by the patient approved what the doctor or care facility did. Hopefully, the statute can be further amended, but until then, it would appear advisable to make a living will that will stand on its own as the expression of the desires of the maker.

What I have said applies primarily to Hawaii, but the principles may be applicable to other jurisdictions.

*(Mr.) Page M. Anderson
Honolulu*

Ms. Holder's reply:

I believe Mr. Anderson overreacts in his concern about the threat of a malpractice claim from which physicians need protection. There has never been a malpractice case in the United States involving a "Do Not Resuscitate" order, disconnection of a respirator or ending artificial feeding, as long as the patient's wishes were known or the family made the decision. If the family agrees, there is no one else with legal standing to sue. (On the other hand, there have been at least two successful suits against physicians who refused to disconnect respirators.) In 1983, the California Court of Appeals dismissed the only criminal case ever brought against physicians for withdrawal of life support, holding that these decisions cannot be the basis of prosecution.

Angela R. Holder, LL.M.

Most Famous Alumnus?

To the editor:

If someone were to ask who is the best-known recipient of a Yale medical degree, the answer might come as a surprise when I mention the name of Alfred Carlton Gilbert, '09.

Although A.C. Gilbert never practiced medicine, some of his accomplishments include winning an Olympic medal, holding more than 150 U.S. patents and, of course, inventing and then manufacturing more than 150 million Erector sets, which must make his name a household word to almost every American male over age 40.

I wonder if YALE MEDICINE readers might be interested in an article on this remarkable 1909 graduate.

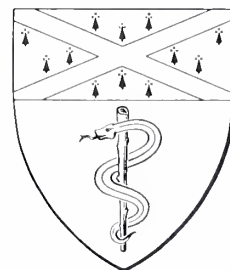
*William McKeon
North Haven, Conn.*

Editor's reply:

Thanks for this fascinating lead. Our editors will seriously consider developing such an article.

Corrections

Two captions require correction in the Fall/Winter 1990 edition of YALE MEDICINE. On page 31, Deputy Dean Robert M. Donaldson's first name was listed incorrectly. On page 37, renovation of the Morse Periodical Room at the Harvey Cushing/John Hay Whitney Medical Library was made possible by a \$1 million gift by Mrs. Belle Morse in memory of her husband, Carl A. Morse, a 1925 Sheffield Scientific School graduate, and their son, Stephen I. Morse, '51 M.D., Ph.D.



CLIMBING THE HIMALAYAS: A CALL TO HIGH ADVENTURE



Himalayan majesty: Mount Everest and its sibs, Nuptse and Lhotse.

Photographs courtesy of Richard Wohns, M.D.

by Richard Wohns, M.D. '77

My eight trips over the past 17 years to various regions in the highest mountains of the world have transformed the Himalayas from a distant, unfathomable, even mystical realm into a place of comfortable familiarity. "Going high" has become my passionate escape into the beauty, challenge and secrets of another world.

My mountaineering career began as a hiker and scrambler while at Harvard College, then quickly progressed to an interest in peaks that were higher than Vermont's White Mountains. In 1973, Mt. Kilimanjaro in Africa introduced me to the world of thin, cold air. Himalayan odysseys began while I was at Yale School of Medicine.

In 1974, I was fortunate to receive a Wilbur Downs fellowship to travel and study retinoblastomas in Sri Lanka, formerly known as Ceylon. This eye tumor, relatively rare in the Western world, occurs more commonly in the Sinhalese and Tamils of that now troubled land. I feel lucky to have lived in Sri

Lanka at a time when civil war did not preclude outsiders from experiencing this wonderful country and its people.

Prior to my return to Yale from Sri Lanka, I traveled through Kashmir. My visit to the Vale of Kashmir involved a mountaineering excursion to the Gangabal Glacier, which provided an exciting combination of glacier and rock climbing, plus superb high-altitude lake trout fishing.

While on Kilimanjaro and on the Gangabal Glacier, I suffered severe headaches, insomnia, Cheyne-Stokes "tidal" respirations and nausea. It wasn't until I returned to Yale that I learned I had experienced symptoms of acute mountain sickness (AMS). AMS, along with high-altitude physiology in general, became pet subjects of mine, and have since developed into serious field research interests. Initially, I was simply interested in how to continue high-altitude sojourns without suffering AMS symptoms. Then, as my professional interests became focused on neurosurgery, a natural inclination to study high-altitude cerebral pathophysiology evolved.

At the School of Medicine, I was able to complement my medical education with my interest in travel and mountaineering by arranging accredited clerkships abroad. Travel time opened up thanks to credit Yale granted me for the courses in

Richard Wohns, M.D., is a neurosurgeon in private practice in Tacoma, Wash.

neurophysiology and biochemistry I had taken at Harvard Medical School during my undergraduate days.

I would have finished medical school in three years were it not for my Yale advisor, Etsuro Motoyama, M.D., an associate professor of anesthesiology, who dissuaded me from this "fast track." I am forever indebted to him for this sage advice. Dr. Motoyama, today, the vice chair of anesthesiology at the University of Pittsburgh medical school, not only guided me intellectually and professionally but also shared a keen interest in the mountains.

We found common ground in other areas, as well, including opera, flying, Japanese culture and cuisine, and skiing. Dr. Motoyama introduced me to Marie Lauritano, the woman I married, and is the godfather of Nicolai, my third child.

The story of my medical school climbing experiences concludes with a 1975 trip back to Kashmir, where I worked as a medical student clerk in the outpatient clinic and emergency room at University Hospital in Srinagar. This location allowed me further access to the Kashmiri Himalayas. This second Himalayan encounter continued into the Khumbu, or Everest, region of Nepal, where I completed the classic trek to Everest's base camp and Kala Patar, an 18,400-foot "hill" with spectacular views of several 8,000-meter peaks, including Everest, Lhotse and Nuptse.

Life After Yale

While in the Khumbu region, I had met a British physician who worked at the High-Altitude Trekkers' Aid Clinic in Pheriche, on the route to Everest. He offered me the opportunity to work at the clinic following medical school graduation in 1977, thus initiating my plans to return to Nepal. In anticipation of this trip, my remaining days in medical school included a self-directed training program for maximum high-altitude performance.

This exercise regimen proved to be as demanding as were clerkships and thesis research. Warm weather workouts involved 100-plus miles of jogging per week, bicycle commutes between the Mt. Carmel section of Hamden and New Haven, plus weekend rides of 30 to 50 miles. Wintertime brought cross-country skiing in Sleeping Giant State Park and in various locations in Vermont. New Haven's East Rock Park was my favorite place for jogging up hills. Tennis continued as my social sport; I fondly remember my matches at the Yale indoor courts with classmate Doug White.

Medical school and the exercise program allowed little time to climb, except for several weekend trips to Mt. Washington and Cannon Mountain. At the recommendation of Dr. Motoyama, however, I did make time for a five-day ice and snow climbing seminar on Mt. Rainier in Washington state. This course took place at Camp Muir (10,000 feet) and included a summit climb. In addition to ice and snow climbing, we practiced crevasse rescue, rope travel and technique, and belaying. In the evening, the camp fire brought out "war stories" shared between students and our instructor, the famous mountaineer Lou Whittaker.

The leader of my rope team on our summit climb was Gombu, the Nepalese Sherpa who had accompanied Lou's brother, Jim Whittaker, during the first American ascent of Mt. Everest in 1963. Gombu humbled us all by climbing the last 200 meters up Mt. Rainier backwards while smoking a cigarette!

Before starting my internship and neurosurgery residency at the University of Washington, I returned to Nepal. I was clearly at my peak physically. I also thought this trip might mark the end of my ability to maintain adequate fitness and

have the opportunity to travel to the Himalayas, given the grueling nature of a neurosurgery residency.

I arranged to meet Dr. Motoyama in Nepal, as he and several fellow mountaineers were climbing up the Arun and Barun Valleys to several high passes east of Everest at the same time that I was planning to climb Island Peak — my first 20,000-foot summit. Our routes were very close to each other.

On arrival in the Everest area, I hired several Sherpas and proceeded to acclimatize myself by trekking up Gokyo Peak (18,500 feet), then across a pass back to the Khumbu Valley, then up the Imja Valley to Island Peak and the Amphu Lapsa Pass. There the rendezvous with the Motoyama party was to occur. Only, I was given a message on a match book cover while in the Khumbu Valley that their party encountered severe weather and treacherous climbing conditions. One of their porters had died of a head injury.

Our meeting location was changed to Dingboche in the Imja Valley, from which Dr. Motoyama and I trekked up toward Island Peak. He had met representatives from Mountain Travel, Inc., in Katmandu, who had been looking for a doctor to accompany the first commercial group permitted by the Nepali government to circumnavigate the Annapurna Range, over the Thorong La Pass (18,400 feet). Dr. Motoyama could not join this group but suggested that I go with them instead. As a "rugged individualist," I was prejudiced against commercial trekking or climbing groups; but luckily, I recognized this opportunity as an offer I couldn't refuse.

The "Around Annapurna" trip has since become a classic Himalayan voyage, world-renowned for its awesome exposure to a wide variety of Nepali and Tibetan people, villages and fabulous peaks, including the 8,000-meter summits of Dhauligiri, Annapurna and Manaslu, and regions of subtropical, desert, alpine and glacial character.



Dr. Richard Wohls at the Baltoro Glacier in Pakistan.

After leaving Dr. Motoyama in the Imja Valley, I proceeded to climb Island Peak, return to Katmandu, then travel to Pokhara for a few days of bird watching at Fishtail Lodge, again with Dr. Motoyama. The Mountain Travel Around Annapurna group convened thereafter, and we departed for our trip together.

At the Thorong La Pass, I made a first ascent of the south summit of Thorongtse (21,500 feet) with two of our Sherpas. The Mountain Travel group consisted of the president and vice president of the company, plus a number of fascinating individuals from the United States and England. I ran daily clinics for the group members, Sherpas and porters, and also treated the local people, since there were no medical facilities or professionals in the vicinity.

I do not encourage medical treatment of indigenous people by doctors on expeditions or trekking groups, because care can only be offered in a cursory way. However, in this circumstance I considered it to be appropriate and worthwhile. We were, essentially, the first Westerners seen by most of the populace, and it was very difficult to withhold simple health care and provisions.

Physician Ascending

Toward the middle of my internship, the vice president of Mountain Travel, Dick McGowan, called and invited me to be the doctor for an expedition to Pakistan that he and his wife were to lead during the summer of 1978. This involved an extremely rigorous approach up the Baltoro Glacier to K2, the second-highest mountain in the world.

Considered by many to be the most spectacular mountains in the world, the western-most portion of the Himalayas, the Karakorum, proved to be the fabled "kingdom of the mountain gods." From the confluence of the Baltoro Glacier with the Godwen-Austin Glacier at Concordia (15,100 feet), we viewed the Karakorum giants of K2, Broad Peak, Gasherbrum, Masherbrum and Chogolisa.



An emergency appendectomy at 10,000 feet.

We climbed up to 21,000 feet on K2, following the route that Chris Bonington's British expedition had just abandoned due to an avalanche that killed noted climber Nick Estcourt. We also visited the grave of Art Gilkey of Charlie Houston's historic 1952 American K2 expedition and communed with one of the world's greatest climbers, Reinhold Messner, and Japan's mountain hero, Babaguchi.



Dr. Ensuo Motoyama (left) meets up with Dr. Wohns in Nepal's Imja Valley in 1977.

Baltistan and the Karakorum were exceedingly remote, which signalled to me the need to be medically self-sufficient. Recalling the jocular motto developed at Yale among my circle of friends: "Always be prepared for everything," I had packed my medical kit with sterilely packaged surgical instruments for performing burr holes, abdominal procedures, and for treating lacerations and orthopedic injuries. To these I had added a multiplicity of medications, intravenous fluids, oxygen and anesthesia equipment. Such planning proved crucial: on this expedition, we experienced numerous medical emergencies, including a porter with a ruptured appendix and peritonitis.

I performed an appendectomy on him alongside the Braldu River, which flows down from the Baltoro Glacier. After we ran out of antibiotics and fluids, we were fortunately aided by Bonington's doctor, who gave us his surplus supplies and radioed for a helicopter.

Prior to the helicopter evacuation (our "Medivac" arrived a week later) the several doctors with Jim Whittaker's American K2 expedition "made rounds" during the postoperative period and provided extra help. The porter, Mohammad Ali, met me in Scardu after our expedition returned from K2. I brought him a hearty curry lunch, since he had lost a lot of weight!

Back at Flashman's Hotel in Rawalpindi, Pakistan, I mentioned to our liaison officer, Capt. Zafar, that I was a friend and Harvard classmate of Benazir "Pinkie" Bhutto, the daughter of the imprisoned Pakistani President Zulfikar Ali Bhutto. Asking the hotel desk clerk about Pinkie's whereabouts, we found that she was under house arrest in our hotel.

I spent the next afternoon with Pinkie reminiscing about Harvard, cautiously discussing Pakistani politics, and then with true mortal fear, talking about her father's impending execution. Under the circumstances, I never would have imagined that Pinkie herself would become Pakistan's president one day. During our tete-a-tete, we were surrounded by her personal guards, but also by several Pakistani Army detention officers. I was surprised to find that our expedition's liaison officer, a captain in the Army, was very pro-Bhutto.

Everest: The Ultimate Challenge

The following years revolved around marriage, children and my neurosurgery residency, until 1981, when an invitation arrived to join a Mt. Everest expedition in the spring of 1984. The team desired a climbing physician who could also direct a high-altitude research program. I had written several papers on mountain medicine and related subjects and had become active in the field of high-altitude physiology, and had further continued climbing locally in the Cascades of Washington state. Thus, I leapt at the chance of joining this expedition.

Our group, composed of climbers from the northwestern United States, had been given permission to climb the northeast buttress and northeast ridge of Mt. Everest. The approach required travel through China and Tibet, then up the classic 1920s British route to the summit.

This was the route where the famous British climbers, George Mallory and Andrew Irvine, disappeared just beneath the summit. Mallory left for posterity his famous answer to the question: Why climb Everest? "Because it's there." He took to his death the secret of whether he and Irvine ever reached the summit.

Our expedition's research would focus on the role of cerebral dysfunction in AMS, high-altitude cerebral edema, high-altitude pulmonary edema and retinal hemorrhages. There had never been an expedition whose research was neurologically oriented; thus, we pioneered the use of cortical evoked potentials at extreme high altitude and demonstrated a correlation between symptoms of AMS and increased latency of visual evoked potentials.

We also carried out a double-blind, randomized, controlled study on the drug Dilantin and its potential prophylactic effect against AMS. Other research protocols involved the use of ambulatory EEGs, pulmonary impedance plethysmography, and retinal photography. Better treatment and prevention of AMS and high-altitude edema resulted from our studies.

Our research was funded by grants from the U.S. Army and the Dreyfus Foundation, plus private contributions and involved a sophisticated base camp research station at 18,000 feet. We used a Weatherport tent to shield our computers and other sensitive bioelectric equipment against the harsh environment of Everest's north side, where winds often exceeded 60 miles per hour and temperatures plummeted well below 0 degrees Fahrenheit. A Kohler gas generator provided power. The research tent doubled as a clinic and mini-hospital, where I treated our climbers with AMS symptoms and several British Everest North Face Expedition members injured in an avalanche.

After completing the base camp research protocols, we moved our research equipment to 21,500 feet in a tent under the North Col, which is a saddle on the northeast ridge. Here, we became the first to monitor climbers' evoked potentials before and after extreme high-altitude exposure. It also was in this tent that another world's record of sorts was set — the highest altitude hemorrhoidectomy ever recorded — by an ophthalmologist, no less, on the podiatrist in our expedition!

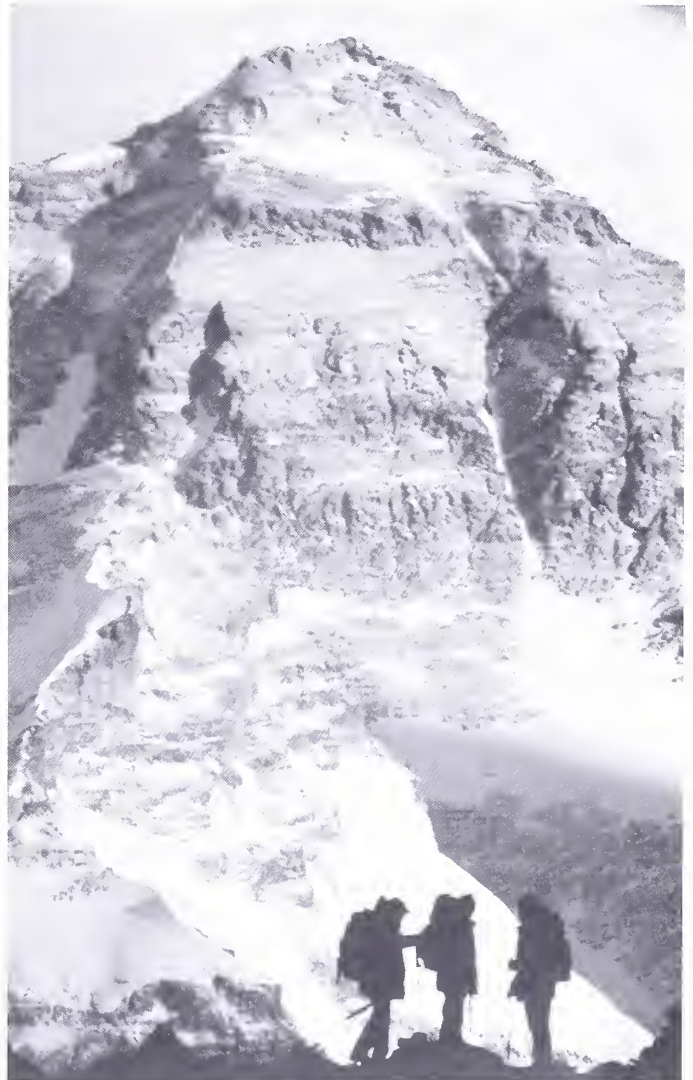
Our group did very well on Everest but missed reaching the summit by 800 feet due to porter problems. We had carefully planned our load to include enough food, tents, climbing supplies and oxygen for several summit approaches; but when the high-altitude porters quit unexpectedly, only two of our climbers were within reach of the summit. The climbers were without a tent and didn't have enough food and oxygen for a bivouac on the descent. Lacking such support, they wisely elected not to take the exceedingly high risks in trying to become the first Americans to summit Everest from the north side.

I expended so much time and energy in preparing and executing the expedition, and in the subsequent data analysis, scientific paper writing and slide presentations, that I actually lost interest in climbing for several years. I continued to hike and ski extensively in the Cascades with family and friends, but I "retired" from high altitude until Dr. Motoyama and I traveled to Nepal again in 1989.

At this time, we accomplished the crossing of a high-altitude pass in a remote area of Nepal near the Tibetan border. The Ganja-La Pass connects the upper Langtang Valley with the Helambu Valley and provided a first-class adventure for us.

Over the years, I have become an avid mountaineering book collector and especially enjoy the classic Himalayan expedition books. A collection of maps of the Himalayas and south-central Asia also complements my library. My avocation of mountain medicine has been formalized, as I am now vice president of the International Society of Mountain Medicine. The society was founded several years ago in Switzerland to promote scientific research related to high-altitude physiology and mountain rescue. For 1992, I have organized a high-altitude neuroscience research expedition. Once again, I plan to travel far and high.

YM



Dr. Wohns and colleagues profiled against Everest's legendary North Face.

THE PHYSICIAN AS CITIZEN

by James P. Comer, M.D., M.P.H.

Editor's note: Dr. Comer delivered the commencement address to the Class of 1991 on May 27. He dedicated his remarks to the memory of Peter A.T. Gramum, M.D., associate professor of obstetrics and gynecology, for his "combined commitments to professional excellence, social justice and citizenship."

I'd like to take just a few minutes to talk about an aspect of the life of a physician that is given too little attention, that is, the physician as citizen.

There is every reason to believe that you will become fine physicians. You have had the best medical education available in the world. And while medicine is changing, it still is and always will be one of the most honored professions in the world. It will bring you great personal satisfaction, and at the same time enable you to serve an appreciative patient population and public.

It has a kind of inherent excitement that will command your interest and time. Thus, there is a tendency among physicians to feel, "My citizenship responsibilities are met through my dedication to my profession." But while important, our professional contribution is not enough, particularly at this point in our history.

We live in a remarkable time, in a remarkable country...one of the most successful and best countries in the world. But we are in trouble — economic, educational, social, even spiritual trouble. And whether you attend your 30-year class reunion in an America that is vibrant and successful, or not, depends a great deal on whether you and other leaders of today and tomorrow adequately address citizenship tasks beyond your profession. But how can I suggest that we are in trouble after two of the most exciting and promising years of the 20th century — perhaps any century — a period when totalitarian governments fell and much of the world called for democracy. And the democracy everyone wants has survived in large part because America had the courage and the strength to destroy Nazism two generations ago; and had the generosity to rebuild the economies of its former enemies; and several months ago had the courage to crush the forces of a cruel dictator. Also, America had the know-how that launched the scientific and technological age which created the affluence that most of us enjoy, and which undermined the claims of Communism.

But we ignored, or didn't understand, the implications of the post-World War II science- and technology-based economy we put in place. Before the 1950s, heads of households didn't need an education to hold living wage jobs and meet their adult responsibilities — to support themselves and their families, rear their children, and serve as responsible citizens. As late as 1950, only 20 percent of all Americans over 25 years of age had finished high school. But we will need a 90 percent high school graduation rate by the year 2000. And almost one-

third of all new jobs created between now and the year 2000 will require a college degree. Fewer than 10 percent of the nation's existing jobs are open to low- or unskilled laborers.

A Turning Point

To develop people so that they can acquire the high level of education needed today, a society must invest in its people — must promote high-level family functioning, adequate health care and good education. Most of the industrialized countries of the world — especially Germany and Japan, those nations we put back on their feet after World War II — invested in their people.

America, by contrast, while helping others, permitted large numbers of her own families to be closed out of the economic mainstream, to experience debilitating poverty and stress. And now, too many of those families are unable to give their children the kind of preschool experience that would enable them to succeed in school. As school dropouts and underachievers, they are much more likely to participate in the underground economy of drugs and crime and to strain the nation's social service systems. Their reactive behavior lowers the quality of life of every one of us.

Of particular significance to medicine, poor women are more likely than other women to deliver low birth-weight babies, to be exposed to AIDS, and to experience prenatal drug exposure that impairs fetal development and precipitates miscarriage and premature birth. Poor children under six are more likely than other children to have growth retardation and anemia, lead poisoning and accidental injury — with all the attendant social and financial costs.

At this moment, 30 percent of all poor children under age 6 have no health insurance whatsoever, even though many of their parents work every day — the working poor. And though blacks, Latinos and native Americans have been disproportionately affected because of their more traumatic social histories, 42 percent of the five million poor children under 6 are white.

Neither have children of the affluent escaped the effects of our inattention to the support of family functioning and development. Suicide, violence and vandalism, alcohol and other substance abuse problems are significant among our most affluent young people. The National Governors Association and the White House have proposed a set of national goals for the year 2000. One is to have our students rank first in mathematics and science. But in the most recent international assessment of 13-year-olds across 12 nations, American students ranked last in mathematics and ninth in science. The average Japanese student scored higher than the top 5 percent of American students in college preparatory mathematics.

Without a healthy, better educated work force, we will not be able to compete economically with Germany, Japan, Sweden and the like. And, in turn, we will not be able to afford even our present level of health and education services. We will be on a downhill course as a nation.

While we need a better educated worker, nearly one-third of the work force in the year 2000 will be made up of minority group young people, disproportionately poor and underserved by our present educational system. Some of the people who

Dr. James P. Comer, the Maurice Falk Professor in the Child Study Center and in Psychiatry, is associate dean for student affairs at the School of Medicine.

look at demographics and note the high percentage of minorities feel that the nation does not have the talent needed to remain competitive. In fact, a *New York Times* op-ed page article — couched in the argument of reducing the deficit — suggested that we must import our future work force. Not only is that immoral and unfair to the nations that have invested in the education of their people, it is unfair to the American children and families in which this nation has not invested. Such a policy would make all of our current social problems much worse. More importantly, the argument is simply wrong. Of course we have the talent.

A Personal History

To make my point, I'd like to tell you the story of a poor, African-American lady named Maggie. Maggie was born in 1904 to a poor but caring, responsible sharecropper in rural Mississippi. But he was killed by lightning when she was 6 years of age. And because there were no support systems, a cruel stepfather came into the lives of his widow and five children. The stepfather was abusive in every way and would not allow the children to go to school. As a barefoot girl working in the cotton field, it occurred to Maggie that the way to a better life was through education. And at 16 years of age, she ran away to try to get an education.

She was unable to do so. When she was forced to give up her dream, she declared that if she ever had children, she would make certain that all of them got an education. And then she very, very, very carefully set out to find a husband. Her husband, Hugh, from rural Alabama had a sixth-grade education. Maggie worked as a domestic and Hugh worked as a steel mill laborer. And when Hugh died early, Maggie carried on. Eventually, the five children of Maggie and Hugh obtained a combined total of 13 college degrees.

Hugh was my father, and Maggie is my mother...I'm delighted to tell you that two weeks ago she received an honorary doctorate degree from Wheelock College. Our family story, and that of many others, is the source of my conviction that our nation has the talent needed to survive and thrive in the 21st century. But we must clearly do some things differently. For, while my family was succeeding in the high socioeconomic, predominantly white school we attended, the three black youngsters I went off to elementary school with all went on a downhill course. One died early of alcoholism, one spent a good part of his life in jail, and the other has been in and out of mental institutions all of his life. And most of their children and grandchildren have not succeeded. Yet, my three friends were as bright as anybody in my family and anybody in our school. No nation can sustain this kind of loss of potentially productive people on an ongoing basis and expect to thrive.

The difference between my friends and our family was that our parents had the ability to give us the kinds of experiences at home that allowed us to succeed in school, and my mother had the kind of skill that made it possible for her to interact with school people in a way that encouraged them to be supportive of our ambitions.

Many people will say, "That's the problem. There are too few Hugh and Maggie Comers among the poor families in America today." Not true.

Because I was so greatly concerned about the fact that my friends were on a downhill course at the time I finished medical school, I decided to try to understand what the behavior was all about. And after voluntary work in poor communities, I decided to pursue a career in psychiatry, child psychiatry, and preventive psychiatry in schools rather than follow my initial plan to become a general practitioner in my hometown.



Dr. James P. Comer

Dr. James P. Comer — Dedicated to the Children

Dr. James P. Comer, the Maurice Falk Professor in the Child Study Center and Psychiatry and associate dean for student affairs, has developed techniques for making schools in urban communities work better for at-risk children. A member of the Yale faculty since 1964, Dr. Comer is well-known for his work in school improvement, some of which was pioneered in New Haven schools.

The pathfinding work of this Yale child psychiatrist stresses the importance of a child's psychological preparation for school and emphasizes the collaboration of school staff and parents in the child's academic and social development. More than 150 schools use Dr. Comer's methods, and through major support from the Rockefeller Foundation, his approach is being introduced to even more at-risk students nationwide.

A native of East Chicago, Indiana, Dr. Comer holds an A.B. degree from Indiana University, an M.D. degree from Howard University College of Medicine, and an M.P.H. degree from the University of Michigan School of Public Health.

With the insight from my personal experience and my training as a psychiatrist, we eventually developed a program in two inner-city schools of New Haven that brought student achievement from 32nd and 33rd out of 33 schools in 1969, to tie for third- and fourth-highest levels of achievement among the 26 remaining schools in the city in 1984; from the worst attendance record to first and second in attendance five of the previous six years; from the worst behavior to good citizenship; from school staff that burned out quickly to highly successful professionals; from single-parent welfare recipients, angry and alienated from the school and society, to energized, excited parents, some of whom went back to college and became professional people themselves; still others took employment they previously believed they could not manage. The approach we developed is now being used in more than 150 schools across the country.

Our work and that of others shows that our nation has the talent. Last year, the National Commission on Children appointed by the President and the Congress and headed by Sen. John Rockefeller visited one of our schools. They were delighted by the success and the excitement they found among the parents, students and staff. But they were disturbed by the stories of drug use and abuse and related violence that the 9- and 10-year-old children they talked with experienced on a daily basis. They were rightfully concerned that many of these parents and children who care and want to succeed are trapped by conditions that may well prevent them from ever contributing their talents to the good of American society. They asked, "How can we make it possible for all of our children to contribute their talents to the well-being of society rather than end up on the social problem side of the ledger, undermining our nation's future?" That question brings me back to the issue of the physician as citizen.

The danger to American democracy today is not as apparent as swastikas and stomping boots, or bombed-out cities — though some sections of our cities look as if they have been devastated by war. Thus, there is no sense of urgency. Nor is there any foreign savior for America. You and me, and the rest of our most thoughtful, best educated and most responsible cit-

izens are America's saviors. We must call the attention of the nation to our country's needs and to the urgency with which they must be met.

Wherever you go from this day forward, you will be among the best educated, most respected leaders in the community. Your authority, attitudes, and opinions as physicians will influence public policies and practices beyond your area of expertise. In fact, people listened to my school improvement ideas, in part, because I am a physician. That gives us a great opportunity and an even greater responsibility — again, in our professional areas, but also as citizens.

But to be helpful, we must be open and informed and not burdened by the stereotypes, myths and rationalizations that have contributed to our problems. And as individual physicians, we have the power to treat all our patients with the kind of respect that simultaneously enhances their self-esteem and positively influences their health and citizenship behavior. (For those of us who have been more fortunate, it is sometimes difficult to understand how some of our behaviors — disrespect, disdain and abuse—add to the burden of the poor.) As a professional group, your generation will have an opportunity to create a health system that is fair to physicians and patients alike; to all patients, affluent and poor alike. And I don't for one moment hold physicians largely responsible for the inequities in our present system. But we can help correct them.

As powerful and leading citizens we must, through the democratic process, make it possible for all of our young people to live in families which will give them the start that will enable them to obtain the education needed to participate in the mainstream of society — as successful workers, family members, child-rearers and citizens. We must contribute some of our time and resources to programs that will prevent serious social problems.

Altruistic, maybe, but hardly. The families and children we enable to function well will not over-tax our own pocketbooks, or our education, health and social service systems. They will produce the goods and services that will eliminate our deficit and enable us to compete with Germany, Japan and Sweden in such a way that the America of 2021, your 30th-anniversary year, will be affluent, vibrant and strong — still the most powerful force for democracy and fair play in the world.

Let me close with an apocryphal story I appropriated from a graduation speaker I heard recently: Several teen-agers wished to belittle an elderly Greek philosopher. One youngster held a bird behind his back in his fist, and asked, "Old man, is the bird dead or alive?" If he had said that the bird was alive, the youth would have crushed it to death. If he had said "dead," he would have opened his hand and allowed the bird to fly away. The philosopher, wise in the ways of mischievous youths, paused thoughtfully, and then said, "My sons, the decision about the life or death of that bird is in your hands."

To the Class of 1991, I say to you, the future of medicine, the future of America, and the future of democracy is in your hands and in the hands of young men and women like yourselves across the country. If you carry out your professional and citizenship responsibilities with the dedication and talent you have demonstrated to date, America will survive and thrive in the 21st century. Your 30th-class reunion will not only be in a vibrant and strong America, but a better America than we have today.

I wish you — and all assembled with you — much success in medicine, in your personal lives and as citizens. I am pleased to have shared this important day with you. **YM**

1991 Brings Dr. Comer 14 Honorary Degrees

This year, 14 colleges and universities will have recognized the distinguished career of Dr. James P. Comer by presenting him honorary degrees. These institutions include: Indiana University, Bloomington, D.Sc.; Indiana University, Gary, D.Sc.; Wabash College, Crawfordsville, Ind., D.Sc.; Wheelock College, Boston, Ed.D.; University of Connecticut, Storrs, LL.D.; State University of New York at Buffalo, L.H.D.; New School for Social Research, New York City, L.H.D.; Rhode Island College, Providence, D.Ped.; Amherst College, Amherst, Mass., D.Sc.; John Jay College of Criminal Justice, New York City, L.H.D.; Wesleyan University, Middletown, Conn., L.H.D.; Princeton University, Princeton, N.J., D.H.; Northwestern University, Evanston, Ill., D.Sc.; and Worcester Polytechnic Institute, Worcester, Mass., D.Sc.

AFRICAN-AMERICAN STUDENTS: YSM'S UNFOLDING LEGACY

by Daryl Daniels, M.D. '91

As I walked down the aisle to receive my Yale medical diploma on May 27, I became the 183rd African-American to do so. I was among 12 black Americans to graduate with an M.D. degree from the Yale School of Medicine this year, continuing a long and fascinating history of African-American presence at YSM. It is important to view that presence in context of the times.

Chartered by the Connecticut Assembly in 1810, the Medical Institution at Yale College awarded the M.D. degree to Courtlandt Van Rensselaer Creed in 1857, eight years before the end of the Civil War. On that occasion, Dr. Creed became the first African-American to earn a degree from the institution, and Yale became one of the first medical schools in the United States to admit, educate and award a degree to people of his race.

The Town

Circumstances surrounding Dr. Creed's admission to Yale reveal an important period of transition in demography and race relations in New Haven. Though a small city by today's standards, with just over 20,000 people, New Haven had a decidedly urban character. A strong manufacturing base, mostly carriage and firearms factories, was supported by the city's emergence as a regional transportation center, offering both a major harbor and strategic railroad access to New England.

In spite of its industrial character, New Haven's social structure remained essentially as it had been in the colonial era. Society and the city government were dominated by a few aristocratic families with close ties to the local clergy, especially those associated with Center Church on the Green. Below these families on the social pyramid was a growing middle class, mostly artisans and skilled workers, followed by a base of unskilled manual laborers.

African-Americans in New Haven, freed by the provisions of the state's Gradual Emancipation Act of 1784, were numbered about 1,000, and were the least privileged citizens. While not utterly deprived of their civil rights, they were set apart from the rest of society in undesirable parts of the city where land was too poor for farming.

Most lived in "New Libera," a run-down area on lower Chapel Street between the old waterfront and factories; some in the area surrounding Congress and Washington streets, known then and now as the Hill; others lived on "Negro Lane" which was that part of State Street east of the original nine squares. Later, quite a few settled in "Poverty Square," the area around lower Dixwell Avenue. Living in substandard housing and working at the most menial of jobs for which they received the poorest wages, almost half the black population was employed as servants; the remainder took whatever jobs they could find. A few were highly skilled and worked as artisans in shoemaking, woodworking and other trades. Some worked aboard ocean vessels. Service jobs, such as barber or

Gregory R. Huth



Dr. Daryl Daniels

Daryl Daniels, M.D. '91: Making History by Pursuing It

As a second-year student in 1989, Daryl Daniels began his M.D. thesis research into the story of African-American medical students at Yale. Among his important discoveries, he traced the history of black Yale medical students back to 1854; a 1970s medical school brochure had mistakenly stated that YSM's first African-American student graduated in the Class of 1949. Dr. Daniels was one of five fourth-year students to give oral presentations at Student Research Day, held in May. Curtis L. Patton, Ph.D., professor of epidemiology (microbiology), served as his advisor.

Dr. Daniels has begun a general surgery residency at the University of New Mexico School of Medicine.

waiter, were the most desirable and held by members of the "best" African-American families.

Documents show that African-Americans in New Haven were unwilling to play the role of bystander watching a city prosper and move ahead. They made stunning efforts to improve their lot early in the last century. They organized political, benevolent and religious societies.

The first clerk of a group organized in 1824 as the African Ecclesiastical Society was Prince Duplex, a well known African-American and Revolutionary War veteran. With the help of Simeon Jocelyn, a member of Center Church on the Green, a run-down building on Temple Street between Crown and George Streets was purchased. On Aug. 25, 1829, the group was recognized by the Western Association of New Haven County and became the Temple Street Congregational Church, renamed after its move the Dixwell Avenue Congregational Church, the first African-American Church of this denomination in the country.

With the church as their base, they opened a small day school, the first school in the city for African-American children. Vashti Elizabeth Duplex, Prince Duplex's daughter, was the teacher, the first black school teacher in New Haven. Although plans for a black college were squelched by a hostile press, cooperation, mutual and white support brought gains in education and employment. A small and significant African-American middle class had begun.

An Historic Turning Point

In the summer of 1839, a series of events would begin to unfold with profound ramifications for New Haven and the nation. The stage was set as the *Amistad*, a Spanish schooner, was captured in Long Island Sound. It had sailed from West Africa for Cuba with a shipload of 54 Africans to be sold as slaves. Led by a man who came to be known as Joseph Cinque, the kidnaped Africans, members of the Mende tribe, seized control of the ship and instructed the crew to return them to Africa. The crew resisted by taking a zig-zag course, steering the ship towards Africa by day and pointing it back to America at night under overcast skies. The *Amistad* was intercepted off Montauk by the United States Navy and towed to New London. The captives were transported to New Haven to await prosecution on charges of piracy.

At first, the fate of these Africans seemed hopeless, especially since they spoke no European language. But Josiah Willard Gibbs, an intrepid abolitionist professor at Yale, located a Mende interpreter on the docks of New York. When details came to light of how the defendants were kidnaped, a great outpouring of public support followed. The *Amistad* case became a *cause celebre* for the abolitionist movement. Thanks in part to the efforts of the people of New Haven, the captives were eventually freed and returned home by a U.S. Supreme Court decision.

In addition to rekindling the national abolitionist movement, the *Amistad* affair generated public sympathy for African-Americans in New Haven. Indeed, in this supportive atmosphere, a fledgling well-to-do class developed among New Haven blacks. They bought property, saved money, provided for their poor and their young. Under the leadership of Theodore Dwight Woolsey, an abolitionist and proponent of African-American education, who in 1846 was chosen ninth president of Yale, the College became a hotbed of anti-slavery sentiment. Yale, then the largest college in the nation, was the school of choice for many northern and southern students.

The Medical Institution appears to have been caught up in the abolitionist fervor. In 1849, it awarded an honorary M.D.

degree to Dr. Ezekiel Skinner of Ashford, Conn., for his work in Liberia, a new American colony in Africa for emancipated slaves. This abolitionist sentiment, coupled with the news that black students were being accepted at other medical schools in the Northeast, may have provided the impetus at Yale to admit its first African-American.

An Ideal Candidate

Courtlandt Van Rensselaer Creed was the son of John William Creed, a middle-class African-American who worked as a waiter and steward at Yale College and a caterer in business for himself. Dr. Creed's mother was Vashti Elizabeth Duplex, the first black teacher in New Haven and a member of a highly successful family. They named their son for Courtlandt Van Rensselaer, B.A. 1820, a Presbyterian minister who was dedicated to helping African-Americans. There are reasons to believe that Van Rensselaer befriended and perhaps tutored Creed when he was at Yale.

Young Courtlandt Creed, a lifelong New Haven resident, was qualified to attend Yale in accordance with state law. He prepared at the Lancasterian School, located at Orange and Wall streets, the precursor to Hillhouse High School. Moreover, his family could afford the tuition and had connections at Yale and in the community. Courtlandt's namesake was a friend and classmate of President Woolsey and Dr. Charles Hooker, dean of the Medical Institution. They had a close relationship with the Rev. Leonard Bacon. This politically powerful rector of New Haven's Center Church was a Yale Corporation member who along with Woolsey was a founder of the New Haven African Improvement Society.

In 1854, Courtlandt Creed entered the Yale Medical Institution. Unlike at Harvard, where three African-American students were forced to leave four years earlier as a result of protests from white students, there is no record of any such negative responses to his attendance. Why this contrasting reception? Perhaps Yale had the advantage of having a relatively small medical school of about 30 local young men, while the medical school at Harvard was perhaps twice as large and attracted students from North and South.

As was practice at the time, Courtlandt Creed entered the Medical Institution out of secondary school and spent three years earning his degree. His M.D. thesis, entitled "On Blood," was a study on the chemistry and physiology of blood in health and disease. His oral examinations took place in January 1857 before representatives of the Connecticut Medical Society, the faculty of the Medical Institution and President Woolsey. On Thursday evening, Jan. 16, 1857, Courtlandt van Rensselaer Creed and 10 other members of his class received the M.D. degree in the college chapel.

Triumph and Tragedy

After graduation, Dr. Creed opened an office in his father's house on Chapel Street, and soon developed a large and prosperous practice. Neither professional success, nor happy marriage, nor births of four sons would portend the difficult years ahead for the family.

On April 12, 1861, Confederate troops fired on Fort Sumter. At the outbreak of the Civil War, Dr. Creed wrote to the governor of Connecticut asking for a commission to serve as a surgeon in the state militia but was refused because of his race. As the war dragged on, however, it became clear that African-Americans would be needed for the Union cause. In the fall of 1863, the governor issued a call to arms to Connecticut's African-American men. Dr. Creed wrote the governor again, this time to thank him, declaring, "On every side we behold

[Connecticut's] colored sons rallying to the sound of 'Liberty and Union.'"

Dr. Creed enlisted on Jan. 29, 1864, and was appointed acting surgeon of the 30th Connecticut Volunteers, a company of African-Americans. They trained at Grapevine Point in the Fair Haven section of New Haven during the winter and spring of 1864. On June 4th of that year the Army deployed the volunteers to Cold Spring, Va., where they joined other companies to form the 31st U.S. Colored Infantry.

Dr. Creed did not remain with the 31st. Toward the end of hostilities, he was detached to the Army's Department of the East. Before he was mustered out on Nov. 7, 1865, Dr. Creed also may have served with the 13th Connecticut Volunteers and the 55th Massachusetts Colored Infantry.

During the war, the fortunes of the Creed family had begun to deteriorate. After Dr. Creed's father died, the family began to deplete the resources of his estate; they auctioned off what remained of the family's property to pay debts following his mother's death in 1879. Dr. Creed eventually returned to live in New Haven and practice medicine but never attracted the number of patients he had before the war. Poverty and illness dogged him during the last decade of his life. He died on Aug. 8, 1900, of Bright's disease, a spectrum of kidney and heart ailments, at the age of 65, and was buried in the family plot in Grove Street Cemetery in New Haven.

Sixteen years after Dr. Creed graduated, Bayard Thomas Smith and George Robertson Henderson transferred to Yale from the Medical Department of Lincoln University in Pennsylvania, the nation's first historically black college. Lincoln's Medical Department, founded in 1869, was poorly funded and closed after four years. It did not graduate any students; those

who did complete their studies did so at other schools. Although there were less expensive and less rigorous medical schools, Smith and Henderson entered Yale in 1874.

Their decision may have been indirectly influenced by Dr. Creed. Dr. Elmore C. Hine, M.D. 1861, a white physician and the dean of Lincoln University's Medical Department, studied medicine at Yale when Dr. Creed was practicing in New Haven. Although no record of direct communication between Dr. Hine and Charles Lindsley, then dean of medicine at Yale was found, it is a reasonable speculation that their relationship helped the two students from Lincoln transfer to Yale. Dr. Smith completed his studies in one year, graduating in 1875. He returned to his home state of Delaware to practice. Dr. Henderson graduated in the spring of 1876 and began a practice in New York City; he moved to Brooklyn in 1888 where he died of an accidental morphine overdose at the age of 45.

A Period of Leadership

The year 1888 opened a remarkable period for what had become the Yale Medical School. During the 15 years that followed, Yale would graduate eight African-Americans, with at least one present in the school during this entire period. While perhaps not impressive by today's expectations, their presence represented a strong commitment to African-American education at a time when only a few of the white northern medical schools admitted blacks, making Yale a leader in African-American medical education.

The first black physician to graduate during this period was Dr. Henry Floyd Gamble, born in slavery in North Carolina, Jan. 16, 1862. He took his education very seriously and even employed a tutor to ensure the quality of his early learning. Working as a steward, he managed to save enough money by age 20 to begin studies at Lincoln University, graduating with honors in 1888. He entered Yale Medical School that fall and worked long hours at night as a janitor and waiter. My commencement marks the centennial year of Dr. Gamble's graduation with honors.

Dr. Gamble moved to Charleston, W. Va., where he became widely known for his skills as a surgeon. His publications include papers on thoracic aneurysm and caesarean section. His contributions to medicine, medical education and civic organizations were many and significant. He organized the West Virginia State Medical Association and in 1912 was elected president of the National Medical Association (NMA). He died in September 1932.

The year after Dr. Gamble graduated, Dr. George Henry Jackson received his M.D. degree from Yale. His remarkable life would seem to justify the praise of his contemporary, the Rev. A.C. Powell, who described him as an "all-round genius." Born in 1863, in Natick, Mass., he spent his early life working as a French interpreter and as a manager in a shoe factory. From there he went to Madison Seminary, now Colgate University, graduating in 1887. He earned the Bachelor of Divinity degree in 1889 and an M.D. degree in 1892 from Yale. He also earned an M.A. degree from Shaw University in Raleigh, N.C. He was ordained and became the pastor of Immanuel Baptist Church in New Haven.

Dr. Jackson traveled to the Congo Free State as a medical missionary, returning to New Haven in 1897. Two years later he headed overseas again, this time to France as the United States Consul to Cognac and La Rochelle. While in France, Dr. Jackson started a successful import-export business. In 1928 he published *The Medicinal Value of French Brandy*. He retired in 1935 and died eight years later from a stroke, in Los Angeles.

Continued on page 13

George Henry Jackson, M.D. 1892, documented the therapeutic value of moderate wine intake in his 1928 book.





Although this photograph has been handed down without documentation, the two African-Americans in the back row meet the description of Arthur Leslie Howard and William Fletcher Penn of the Class of 1897. The year 1895 painted on the soles of the shoes of students in the front row implies that this may have been an early portrait of the class.

1888–1903: 15 Years of Leadership In African-American Medical Education

At the turn of the 20th century, Yale Medical School took a leading role in educating African-American physicians. Numbered among them were:

Isaac Napoleon Porter, '93. A native of Summit Bridge, Del., Dr. Porter remained in New Haven after graduation. From a house on Dixwell Avenue, he started a practice which soon grew into one of the largest in the city. He served on the New Haven Board of Aldermen, the Chamber of Commerce, the Historical Society, the Connecticut Medical Society and the American Medical Association.

Arthur Leslie Howard and William Fletcher Penn, '97. Dr. Howard was the son of a wealthy New York merchant and a favorite of his classmates. After graduation, he went to England where he died of an unknown illness at the age of 28. Dr. Penn, who claimed to be a descendent of William Penn, the founder of Pennsylvania, had a long and distinguished career in surgery. He practiced originally in Atlanta, but in 1926 moved to Tuskegee, Ala., where he gained wide regard as the chief of surgery at the Tuskegee Veterans Administration Hospital.

Charles William Snyder and William Houston Wright, '00.

Dr. Snyder, of Hartford, came to Yale from Fisk University, where he had earned a B.A. degree in 1896. After medical school, he practiced in New Albany, Ind., and Louisville, Ky., where he was active in the National Association for the Advancement of Colored People. Dr. Snyder's classmate, Dr. Wright, attended high school in Bridgeport, Conn. No record of his undergraduate education was found. He interned at Freedman's Hospital in Washington, D.C., one of only three programs in the country open at that time to African-Americans. Dr. Wright practiced in the Baltimore area. In 1908 he was elected president of the National Medical Association. He also served as president of: the Maryland Medical, Dental and Pharmaceutical Association; the Board of the Maryland School for Girls; the local and national YMCA; and the local and national Urban League. An avid sports fan, he became chief umpire for the National Tennis Association.

Cleveland Ferris, '03. The last African-American to graduate from Yale during this period, Dr. Ferris was born Dec. 27, 1877, in Philadelphia. He attended Peekskill Military Academy in New York and before entering the Yale Medical School in 1899, he attended Phillips Andover Academy. After Yale, Dr. Ferris went to Lincoln Hospital in New York City where he practiced urology. He was admitted to the American Medical Association and was elected a fellow of the New York Academy of Medicine. He died suddenly of blood poisoning in 1913, at the beginning of his career.

Cleveland Ferris, M.D. '03, graduated from what had then become the Yale University School of Medicine; it would be 41 years before the next African-American would receive a degree from the school. There are several reasons for this hiatus. The decades following the end of Reconstruction gave rise to nationwide racial intolerance, as marked by the virtual abandonment of African-Americans by the Republican Party and the legalization of segregation in the South. What is more, rapid industrialization opened the doors of the country to unprecedented numbers of Roman Catholic and Jewish immigrants from Europe. As much as America would benefit from their labors, many in the United States would have preferred that the "wretched refuse" never left their teeming shores.

The Ku Klux Klan resurfaced in 1915 to reaffirm the superiority of white Protestants. By 1924, New Haven, once a hotbed of abolitionism, claimed Connecticut's largest Klavern with some 2,000 members. This wave of intolerance had a dramatic effect on Yale as well as on its host city. The College made a deliberate and concerted effort to limit the number of matriculants of certain ethnic and religious groups in the 1920s, a trend evident in many of the northeastern universities. In 1920, the dean of Brown University submitted the topic "The Limitation of Jews and Negroes" for discussion at a meeting of deans of New England colleges.

In New Haven, the School of Medicine followed the lead of Yale College. By 1935, the medical school's official admission policy stated, "the number of women is restricted...as are some racial groups including Europeans, South Americans, Hebrews and Orientals." Perhaps the most blatant example of documented racial discrimination at Yale during this time period occurred in 1941, when School of Nursing Dean Effie J. Taylor denied a student entry because of her race.

In the ensuing controversy, it was revealed that the medical and nursing schools had adopted an "unwritten policy" of racial exclusion. The purported basis for this policy was the fear that white patients at New Haven Hospital would find black students unacceptable on the wards. When details of the unwritten policy became public, Yale President Charles Seymour had it stopped. African-Americans were admitted once again. Backlash from white patients never materialized. Yale, it would seem, had been frightened by a ghost.

Yale Returns to its Ideals

Immediately after the "unwritten policy" was discontinued, Beatrix Anne McCleary, M.D. '48, was admitted, becoming the first African-American woman to graduate from the School of Medicine.

Today, Dr. McCleary G. Hamburg practices pediatrics in New York City. After Dr. McCleary, a black student was admitted to the medical school every two or three years. This trend continued until the civil rights movement rocked the country in the mid-1960s and demands to increase minority enrollment grew.

Much of the support for increased minority admissions came from the school's African-American faculty; Drs. James P. Comer and Augustus White, for instance, joined the admissions committee. During this activist time, Courtland Wilson, a researcher in the physics department, picketed in one-man demonstrations to demand increased minority admissions. He later became a lecturer in public health and coordinator of the medical school's Committee for the Recruitment of American Black and Spanish-speaking Students. The School of Medicine admitted nine African-Americans in the fall of 1969, the

largest number up to that time. Since then, about 10 black students have enrolled in each class.

Nearly two decades later, the medical school took its next steps toward advancing the cause of minority student enrollment and faculty recruitment. On Sept. 8, 1988, in a convocation speech to Yale's incoming graduate and professional students, Dean Leon E. Rosenberg exhorted the University to renew its dedication to minority medical education and advancement. [See "America's Disadvantaged Minorities: Rekindling The Torch," *YALE MEDICINE*, Fall/Winter 1988-1989.]

At the School of Medicine, the dean acted according to his own call. Beginning in January 1989, Martin Luther King Day celebrations have included a school-wide forum to explore minority social and health-care issues. The Office for Minority Affairs was established that same year with the appointment of Ms. Maxine Whitehead as its first director. In recent years, the number of African-American students entering the school has increased. For example, the Class of 1993 includes 12 African-Americans, the Class of 1992, 13. As the School of Medicine looks forward to graduating its 200th African-American physician, it is appropriate to reflect not only upon its historical role in the education of black physicians, but its commitment to the future as well. Yale can be an important beacon for the nation; in the words of Dean Rosenberg, "to rekindle the torch." **YM**

Courtesy Edmund S. Crelin, M.D., Sc.D.



Beatrix McCleary Hamburg, M.D. '48, shown here in a first-year portrait, was the first African-American to be admitted to the medical school in 40 years and the first black woman ever to graduate from the School of Medicine.

Editor's note: Special thanks to Curtis L. Patton, Ph.D., professor of epidemiology (microbiology), for reviewing and helping edit this article.

AIDS RESEARCH AT YALE: SHIFTING INTO HIGH GEAR

by Diane E. Loupe

Eight-year-old "Bobby," dressed in Army fatigues, shoots at imaginary enemies with his fingers as he frenetically spins around in a swivel chair in a Yale Physicians Building waiting room. The irony of such child's play is not lost on Bobby's pediatricians; they suspect that his hyperactivity is due to his AIDS, which has begun to erode Bobby's memory and may be giving him delusions.

The devastation this disease has wreaked on Bobby's family is no delusion, however. AIDS has killed his mother, two brothers, stepfather and uncle. His father, recently released from prison, contracted the virus through intravenous drug use and then transmitted it sexually to his mother. In a grim family legacy, she passed the virus on to Bobby and two other sons at their birth, and through sex to Bobby's stepfather.

Although chronic pneumonia has left the child with cardiac and respiratory problems, his grandmother, with whom he now lives, will not allow an oxygen tank into her apartment. Already, bullets have chipped the brick exterior of her building; she fears that a stray shot might smash through a window, strike the tank and trigger an explosion.

To help them cope, Bobby and his grandmother have found an ally in Warren Andiman, M.D., associate professor of pediatrics, epidemiology and laboratory medicine. He and his colleagues in the Pediatric AIDS Program have treated Bobby since 1985, two years before the pediatric AIDS clinic opened. Treatment extends beyond Bobby's physical needs; the boy's spirits have been buoyed by program staffers who have arranged such outings as picnics, parties, trips to amusement parks and summer camp.

As medical director of the AIDS Program at Yale, Dr. Andiman oversees the clinical care of about 220 children born to women infected with the human immunodeficiency virus (HIV), the agent that causes AIDS. This number includes 63 or more infected children. The adult clinic cares for approximately 750 people infected by HIV.

Bobby's case illustrates the social problems that lend a sense of urgency to the work of up to 75 researchers and clinicians at Yale University and the School of Medicine who are trying to understand and defuse the AIDS virus. Approximately \$6.4 million in federal and private grants and contracts support the medical school's studies, which include examining the natural history and pathogenesis of infection in women and children, developing and testing anti-retroviral pharmaceuticals, clinical investigations into new treatments, and studying chemical and cellular interactions of HIV. Other Yale physicians and scholars are focusing on ethical and social issues.

When AIDS first appeared in the early '80s, no one in the medical establishment — including the School of Medicine —

had foreseen the appearance of such a destructive virus. With mass immunization bringing the decline of polio, smallpox and measles, it seemed as if the age of infectious diseases had ended. That assumption proved tragically wrong.

As AIDS emerged as the next great epidemic, the medical school rued the day in the 1960s when it had phased out its department of microbiology. Moreover, there was little coordination among those Yale scientists who were doing AIDS research.

Under the leadership of Dean Leon E. Rosenberg, M.D., the School of Medicine is embarking on a course to strengthen its AIDS research and clinical programs. Among those steps are:

- coordinating research efforts through a University-wide consortium of faculty studying medical, psychological, social and economic aspects of the disease;
- recruiting a major AIDS researcher, Gerald H. Friedland, M.D., to lead this consortium. [See "Pioneer AIDS Researcher Comes to the University," page 17.]
- moving AIDS care into expanded facilities in the Nathan Smith Clinic and increasing the number of clinicians treating AIDS patients;
- establishing a section of microbiology;
- opening a virology laboratory at the Laboratory of Epidemiology and Public Health (LEPH) to serve as a core facility providing state-of-the-art biological containment.

Comments Acting Dean Robert M. Donaldson, M.D., "I think that there will be more interdisciplinary research to advance knowledge about AIDS and a greater awareness in the University community about the challenge of AIDS. Both of those should combine to facilitate new advances for people with AIDS."

Quiet Crusaders

From its advent, AIDS riveted Dr. Andiman's attention because it seemed to comprise an "encyclopedia of infectious diseases." Patients were getting illnesses he had never seen before, such as *Pneumocystis carinii* pneumonia (PCP), and Kaposi's sarcoma, a sometimes aggressive skin tumor. Other opportunistic pathogens — cytomegalovirus (CMV), a herpes virus; *Toxoplasma gondii* protozoa; and the *candida* fungus — ravaged people with HIV-weakened immune systems.

As he worked with AIDS patients and their families, Dr. Andiman discovered that he had to consider their social difficulties just as seriously as their medical problems.

"All of society's ills — poverty, discrimination, drug abuse — are reflected in this disease," he asserts. "It seemed like an extraordinary opportunity to really think about the social, political and ethical aspects of medicine."

B. Joyce Simpson, R.N., a research nurse and coordinator of the pediatric AIDS program, notes that discrimination against people with AIDS so frightens parents that they often

Diane E. Loupe is staff writer at the medical school's office of public information.

will not let infected children know that they, the children, harbor HIV. To protect the secret, some parents avoid taking their children to AIDS clinics for care and counseling; others decline home visits from nurses in fear of attracting the attention of neighbors.

Brian W. Forsyth, M.D., assistant clinical professor of pediatrics, affirms: "The stigma exists and exists dramatically. Mothers tell us stories of people crossing the street saying, 'Don't go near them, they've got AIDS.'"

To help families cope with such problems, Dr. Forsyth and colleagues have started the Comprehensive Support Program for HIV-Infected Children. In the program, family support workers offer mothers or other caregivers of HIV-infected children such services as delivering diapers or food, arranging a ride to the clinic, or providing emotional support. Dr. Forsyth serves as its medical director.

The program's social services director, Steven F. Nagler, M.S.W., points out that providing social support to the family of an HIV-infected child can save money by reducing unnecessary hospitalizations. Citing a 1988 study published by Dr. Forsyth and colleague Kathy Kemper, M.D., Mr. Nagler notes that more than 30 percent of the days HIV-infected children spent in Yale-New Haven Hospital during 1987 were due to such non-medical problems as not having a responsible adult available to care for the children upon discharge.

Prenatal Challenges

Such research into social support complements basic and clinical studies being undertaken by medical school scientists. Some pediatric AIDS researchers, for instance, are trying to determine how and when mothers transmit the virus to their babies during pregnancy or childbirth.

Although all babies born to HIV-infected mothers carry antibodies to the virus, most lose the antibodies within six to 15 months after birth and never develop the disease. Dr. Andiman, Ms. Simpson and colleagues found that only about 25 percent of HIV-infected women giving birth at Yale-New Haven Hospital transmit the virus to their children. Studies elsewhere show rates of 15 to 40 percent.

Why some babies get the disease and others do not presents one of the most perplexing questions facing pediatric AIDS researchers. In the course of caring for approximately 200 HIV-infected pregnant women since 1984, Richard Viscarello, M.D., assistant professor of obstetrics and gynecology, and Nancy DeGennaro, R.N., M.P.H. '91, have studied 12 pairs of twins born to infected mothers. They found three babies who were infected when their twins were not.

Most infected babies acquire the virus before or during birth, Dr. Viscarello says, but researchers are not sure how often the virus is transmitted via two major routes, across the placenta or through contact with secretions during birth. Physicians advise HIV-infected women not to breast feed, to eliminate this occasional route of infection.

To try to identify HIV-infected children early in life — before birth if possible — Drs. Viscarello, Andiman and George Miller, the John F. Enders Professor of Pediatric Infectious Disease, are perfecting several screening tests.

Dr. Viscarello notes that if physicians could determine earlier which babies will become sick, it might be possible to start preventive treatments, such as prophylactic antibiotics or antiviral drugs, sooner. Developing an accurate prenatal test of fetal infection would also be helpful. He adds, "Women who knew their babies would become infected could make informed decisions about terminating their pregnancies."

Dr. Andiman's group has determined that when a baby's

Some Facts Regarding AIDS

- An estimated 1.5 million of the world's people have had AIDS; half of them have died.
- As of May 1, the U.S. Centers for Disease Control (CDC) listed 174,893 Americans who have had AIDS; 110,530 have died.
- The World Health Organization estimates that by the year 2000, 40 million people will be HIV-infected, including more than a million U.S. residents.
- In fiscal year 1991, the U.S. government will spend \$1.152 billion on AIDS research and treatment.
- Connecticut health officials estimate that 1 in 200 residents is infected with HIV, roughly the same as the national rate.
- As in other states, Connecticut's AIDS cases are concentrated in urban areas. New Haven has an estimated 2,800 residents infected with HIV and one of the nation's highest cumulative incidences of children with AIDS.

Photographs by James B. Anderson



Dr. Warren Andiman and Joyce Simpson put one of their young patients at ease.

blood contains high levels of antibodies that prevent cells from fusing, the infant is likely to develop a more benign form of the disease, one associated with longer life. The researchers attribute this to the fact that white blood cells infected with the AIDS virus tend to spread infection by fusing with uninfected cells. If scientists could develop a vaccine to elicit a similar antibody response, it might inhibit the spread of the virus.

In another study of 31 women, Dr. Viscarello's group found that HIV-infected women whose blood carried antigen from the HIV core protein p24, became progressively sicker after delivery or abortion, while women who lacked the antigen remained clinically stable. In another study, they found that infection appeared more often in babies born to antigen-positive women than in babies born to HIV-infected women without this antigen. Testing for the presence of the protein might warn physicians that an HIV-infected woman is at risk and should be observed closely, or that a newborn is more likely to develop AIDS, he suggests. The researchers also have discovered that

The guidelines were adopted in the fall of 1990 by a group of prominent AIDS researchers, patients and community activists meeting in New York.

Dr. Levine has also worked on developing national and international policy governing the use of human subjects in AIDS research. He directs the World Health Organization's project for developing guidelines for testing of HIV drugs and vaccines. Among other groups, Dr. Levine advises the Council for International Organizations of Medical Sciences, the Pan American Health Organization and the AIDS Program Advisory Committee of the U.S. Department of Health and Human Services.

Drugs Plus Sex: A Dangerous Combination

Although homosexual men still make up the largest category of U.S. AIDS sufferers, increased infection among heterosexual drug abusers is amplifying sexual infection of women, the fastest growing population of AIDS patients, and through child-

birth, their children. This paradigm tends to concentrate the spread of the disease in poor urban areas. [See "Public Policy in the Age of AIDS," YALE MEDICINE, Fall-Winter 1990-1991.]

The fact that three of every 10 AIDS patients in New Haven are women — triple the national rate — reflects the spread of AIDS among drug abusers. Nearly all of these women either have used intravenous drugs or had sexual intercourse with an IV-drug abuser, observes Dr. Viscarello, who also runs a program to treat substance-abusing pregnant women.

In a study, Dr. Viscarello's group has treated 32 pregnant women with

zidovudine, or AZT, the first federally approved AIDS medication. AZT slows HIV's progression by interfering with reverse transcriptase, an enzyme crucial to the virus' reproductive process. [See "Making Viral Replication Crystal Clear," page 18.] Dr. Viscarello's preliminary evidence suggests that the drug usually does not adversely affect the fetus and may improve maternal health.

To treat both male and female HIV-infected substance abusers, Thomas R. Kosten, M.D., associate professor of psychiatry, and Marc Rosen, M.D., instructor in psychiatry, are directing several studies of drugs to improve mental function. They have conducted a small study evaluating peptide T, an analog of a key neurotransmitter, in IV-drug users with AIDS. The compound, by binding to the same site in brain cells attacked by HIV, appears to relieve the dementia that can



Dr. Richard Viscarello counsels a pregnant patient.

irregular PAP smears in seropositive women progress much faster to invasive cervical cancer than in uninfected women.

Such differences in disease progression are one reason women, including pregnant women, should be included in more clinical trials of AIDS medications, argues medical ethicist Robert J. Levine, M.D., professor of medicine and chairman of the medical school's human investigation committee.

"Clinical trials should include populations which are often excluded, such as women who could become pregnant, intravenous drug users, prisoners, racial and ethnic minorities, and patients taking other AIDS medications and with other illnesses," he says.

Dr. Levine has co-authored national guidelines urging researchers to involve persons with AIDS and other community members in the design of tests of new AIDS treatments.

afflict AIDS patients. Dr. Kosten is also testing Ritalin, a central nervous system stimulant that has shown promise in improving mental functioning in HIV-infected patients.

In pursuing the source of cognitive problems, Scott W. Woods, M.D., associate professor of psychiatry and diagnostic radiology, and Chris van Dyck, M.D., postdoctoral fellow, have used SPECT — single photon emission computerized tomography — to detect increased blood flow in the brains of infected individuals, a possible signal of neurological problems. Dr. Kosten believes SPECT offers a valuable tool in monitoring patients for early signs of mental dysfunction.

The Quest for New Treatments

While many physicians use AZT to slow the progression of HIV, the drug harbors serious problems. Among these are bone marrow suppression and the tendency of patients to develop a tolerance to the drug. Yale researchers are among the many clinicians, pharmacologists and virologists trying to create, test and evaluate treatments to improve on or supplement AZT.

One such promising experimental drug is dideoxythymidine, or d4T. William H. Prusoff, Ph.D., professor of pharmacology, and Tai-shun Lin, Ph.D., senior research scientist in the department of pharmacology, have discovered that d4T, like AZT, blocks reverse transcriptase and effectively suppresses some symptoms associated with HIV infection. Moreover, slight chemical differences between the two drugs may mean that d4T will fight the virus even after a patient has developed AZT tolerance. Keith A. Joiner, M.D., professor of medicine and chief of the infectious diseases section, and Dr. Friedland are directing a clinical study of d4T, in collaboration with Helen Brett-Smith, M.D., AIDS fellow; Yung-chi Cheng, Ph.D., the Henry Bronson Professor of Pharmacology, who is affiliated with the Yale Comprehensive Cancer Center; and John W. Mellors, M.D., associate research scientist in medicine.

AIDS patients at Yale-New Haven Hospital are also receiving dideoxyinosine, ddI, another promising nucleoside analog. Frank J. Bia, M.D., associate professor of medicine in the infectious diseases section, and Thomas F. Patterson, M.D., assistant professor of medicine, have been co-directing the Yale segment of a 12-center study comparing ddI with AZT in AIDS patients who are not responding well to AZT.

In still other drug research, Dr. Patterson is conducting a clinical study of a new way to administer the antifungal drug amphotericin B to patients with cryptococcal meningitis, an opportunistic infection. The compound is packaged in liposomes, lipid vesicles that deliver the drug with less toxicity.

An unwelcome side effect of such analogs as dideoxycytidine (ddC) and d4T, and to a lesser extent ddI, is peripheral neuropathy, or numbness and nerve inflammation in the legs or arms. When these symptoms first appeared in AIDS patients taking ddC, Samuel Broder, M.D., director of the National Cancer Institute, turned to his colleague, Dr. Cheng, at Yale.

Because of the way neurological symptoms first appeared, Dr. Cheng suspected that the drugs were acting on target organs to selectively inhibit the synthesis of DNA of mitochondria, small bodies in the cytoplasm which produce the cell's energy.

Dr. Cheng and colleagues have developed a compound closely related to ddC which they call S-ddC, for thia-dideoxycytidine. In cell cultures, the drug seems to inhibit HIV replication but not mitochondrial DNA synthesis. Pharmaceutical companies are now undertaking animal studies on this agent.

Other anti-HIV compounds in Dr. Cheng's lab are likely to come from an unorthodox source: traditional Chinese herbal

Continued on page 19



Dr. Gerald Friedland

Pioneer AIDS Researcher Comes to the University

Gerald H. Friedland, M.D., professor of medicine, who will facilitate Yale's AIDS research and clinical programs University-wide and at Yale-New Haven Hospital, is a national expert on HIV transmission modes. Working in New York at the Montefiore AIDS Center, which he co-directed, Dr. Friedland was the first to document that the virus is not spread by casual contact.

In 1982, Dr. Friedland and colleagues also were among the first to alert the public that AIDS could be transmitted heterosexually and from mother to child. Later, they described the importance of intravenous drug use in fueling the epidemic.

Dr. Friedland studies the complex interactions among behavior, gender, socioeconomic status, race and HIV infection. He has developed Montefiore's model multi-disciplinary AIDS program, involving physicians, nurses, social workers, drug counselors, nutritionists, mental health workers, clergy and others.

A Brooklyn native, Dr. Friedland earned an A.B. degree from Columbia College in 1959 and an M.D. degree from the New York University School of Medicine in 1964. He was professor of medicine, and epidemiology and social medicine at the Albert Einstein College of Medicine.

Comments Dr. Friedland, "My vision for Yale and New Haven is to provide superior, comprehensive clinical care for individuals with HIV infection and their families, to establish programs to train physicians, nurses and other health care workers in caring for HIV-infected patients, and to develop large scale epidemiologic studies, and clinical trials of experimental therapies."

Making Viral Replication Crystal Clear

Basic research into cell function may lead Yale researchers to new or improved drugs that will thwart HIV by exploiting the peculiar way it reproduces. Normally, a cell's DNA produces a negative copy of itself called RNA, a nucleic acid which directs the manufacture of vital proteins. But HIV, a retrovirus, uses the enzyme reverse transcriptase to transfer genetic information from RNA into DNA.

Since retroviruses have reverse transcriptase but human cells do not, researchers in the department of molecular biophysics and biochemistry (MB&B) are trying to learn about the enzyme's structure to help develop anti-retroviral chemicals. The Yale scientists are studying reverse transcriptase and the chemical structure and function of other HIV proteins under a 5-year, \$4.6 million National Institutes of Health grant with support from the Howard Hughes Medical Institute (HHMI). One of the program's early successes has been the growth of crystals of reverse transcriptase suitable for x-ray

crystallography. Using this technique, Thomas A. Steitz, Ph.D., professor of MB&B and an HHMI investigator, will be able to determine the enzyme's molecular structure by studying the patterns of x-rays scattered by the crystal.

"Nobody's been able to get suitable crystals to solve the structure until now," explains Dr. Steitz.

If successful, Dr. Steitz and his collaborators will be the first to determine a structure for reverse transcriptase, information that will help develop medications to block reverse transcriptase, thus halting HIV with minimal side effects.

His collaboration with Donald M. Crothers, Ph.D., the Alfred E. Kemp Professor of Chemistry, has uncovered information about how a fragment of the HIV protein, called transactivator protein, or tat, may trigger viral replication. William C. Summers, M.D., Ph.D., professor of therapeutic radiology, human genetics and MB&B and in the Cancer Center, made a clone that mass produces reverse transcriptase in bacterial cell cultures.

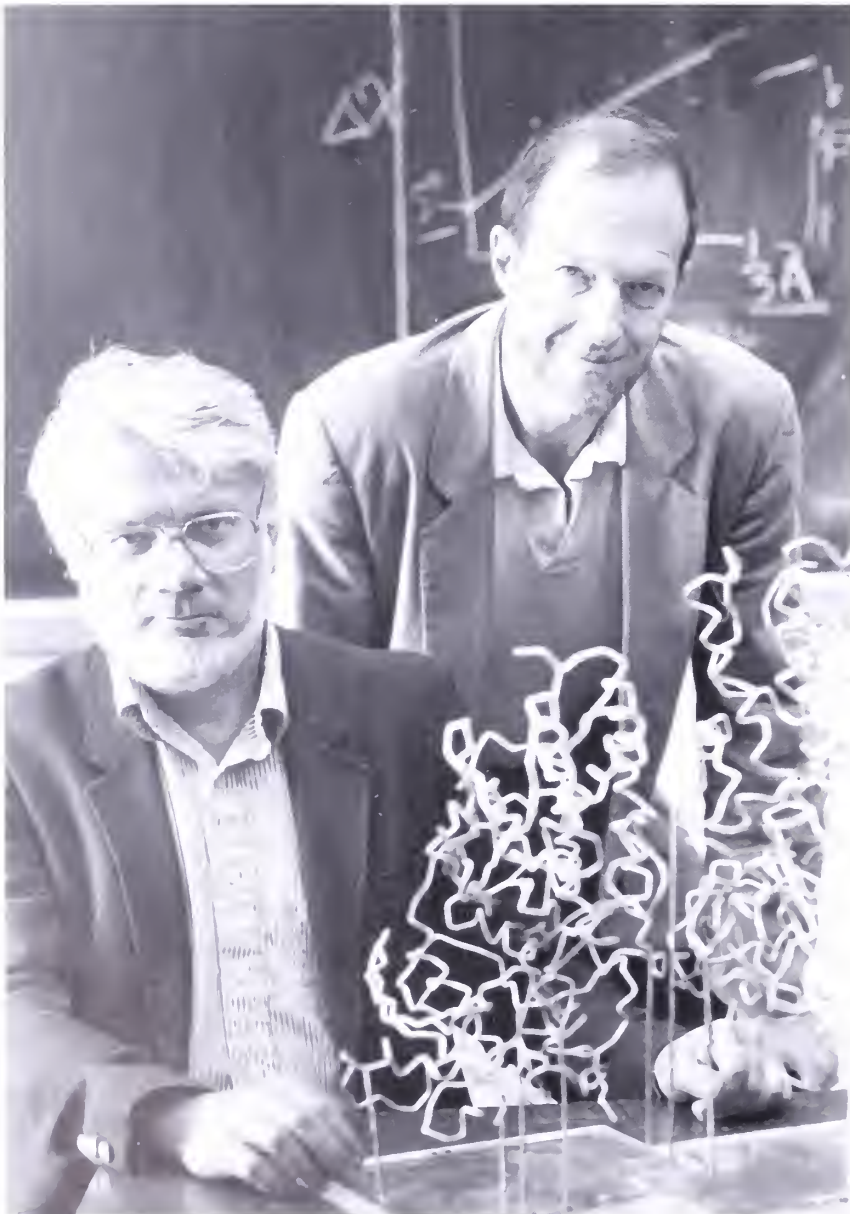
The coordinator of MB&B's NIH grant, Donald M. Engelman, Ph.D., professor and chairman of the department of MB&B and professor of biology, is collaborating with Frederic M. Richards, Ph.D., the Sterling Professor of MB&B, to study how the lipid membrane enveloping HIV fuses with white blood cell membranes. This fusion allows the virus to inject genetic particles into the cell and spread infection.

The culprit, Dr. Engelman thinks, is glycoprotein 41, which is found in the membrane enveloping the virus. Dr. Engelman and his group are working to develop a way to screen drugs that would block the aggregation of gp41, thereby preventing HIV's spread.

Outside of the MB&B projects, medical school researchers are seeking information about HIV genetics. For instance, I. George Miller, M.D., the John F. Enders Professor of Pediatric Diseases, has spliced genetic segments of two HIV strains, one that seems to reproduce rapidly and one that does not. Dr. Miller hopes the resulting recombinant virus will help him locate the HIV gene that controls rapid replication.

In another project, Dr. Miller, who also has appointments in epidemiology, MB&B and in the Cancer Center, is working with John K. Rose, Ph.D., professor of pathology and cell biology. Dr. Rose's laboratory has developed an intracellular trap for a critical HIV surface protein. HIV normally binds to the CD4 molecule found on the surfaces of white blood cells called T cells. Dr. Rose and Linda Buonocore, P.A., associate in research pathology, have genetically crafted a T cell that also contains a mutated CD4 molecule retained inside the cell. In theory, this CD4 will prevent production of infectious AIDS virus in these cells by trapping the critical surface protein of the virus inside the cell.

All these scientists are contributing to a deeper understanding of basic virology, not just HIV, observes Dr. Engelman. "We'll undoubtedly learn something about the basic structures of viral enzymes," he comments. Adds Dr. Steitz, "We're putting a lot of effort into reverse transcriptase, however, because of its importance in HIV."



Drs. Thomas A. Steitz, Donald M. Engelman and a model of RNA.

Continued from page 17

remedies. After screening more than 150 such remedies for antiviral and anti-cancer properties, Dr. Cheng and colleagues identified about two dozen plants which seem to block reverse transcriptase. Now they are trying to identify the active substances in three herbs with apparent anti-HIV potential.

In yet another project, Dr. Cheng is collaborating with Dr. Mellors to learn how HIV strains become resistant to antiviral compounds. Dr. Mellors conducts his research at the Department of Veterans Affairs Medical Center in West Haven.

A colleague of Dr. Mellors' at the West Haven VA, Marie L. Landry, M.D., associate professor of laboratory medicine and medicine, directs the Virology Reference Laboratory, which includes a retrovirus diagnostic section directed by Brigitte P. Griffith, Ph.D., associate professor of laboratory medicine. The section serves the VA system nationwide as a resource for testing for the antibody, antigen and infectious virus in clinical specimens. The laboratory of Drs. Landry and Griffith was the second in the U.S. to recover HIV-2 from a patient's blood sample. Dr. Griffith and her colleagues also actively develop new improved tests for the laboratory diagnosis of retroviruses.

Also at the VA, G.D. "Edith" Hsiung, Ph.D., professor emeritus of laboratory medicine and a research career scientist,

draws upon her experience developing accurate, rapid diagnostic techniques to evaluate compounds against HIV and cytomegalovirus (CMV) infections. She uses an electron microscope to identify new antiviral drugs that can interact at the cellular level to prevent AIDS virus from entering and infecting healthy cells. She also uses guinea pigs to evaluate new drugs for the treatment of CMV infections in humans.

Another opportunistic infection under scrutiny on the School of Medicine campus is PCP, *Pneumocystis carinii* pneumonia. Martine Y.K. Armstrong, M.D., a research scientist in epidemiology, says the organism responsible for PCP is difficult to study because it grows poorly outside the body. Its sticky properties also make the organism difficult to purify in any quantity. She and her colleagues are working to develop a short-term culture system that will facilitate the search for better PCP medications.

These varied research projects will be enhanced by University-wide efforts to coordinate work in AIDS. Says Dr. Friedland, "The broad and deep expertise at Yale in the social sciences as well as the biologic sciences offers a special opportunity to study the epidemic in all its varied manifestations. We are still at the beginning of the HIV epidemic; its full force has yet to be felt. It's imperative to make this a central focus of scholarly work." **YM**



Dr. Yung-chi "Tommy" Cheng is investigating potential anti-HIV agents among traditional Chinese herbal medicines.

1991 LERNER AWARD

The Depression Man

1931

I knew a Depression man who could
dream flavor into his soup, through iron cauldrons;
You have seen him in the newsreel breadlines:
his dreams, his dreams of cigarettes and dimes

He walked the mudfield, flowering velvet
roses from useless rosehips
And there was a tune whistled on his lips to which
marigolds would boing from the tired earth

When hunger rang in him, his spirits jangled too:
a scrap filled him like a loaf of bread
Or if it rained and he stood there a wilting rabbit
then a sunbeam would seem to gild his head

He stubs a toe and wincing
pirouettes in exquisite pain
holding it, or if it rained,

He had a luxury of thoughts, he hummed,
a rhapsody in dustbowl
He relished watery coffee and stews
He sang with bright the blues
and yellows

Hey brother hey remember his
sinewy Rockwell frame and trousers aluff
in the field, the sour circus

on a field of smiling mud when he
vacuumed sunlight into a tin cup

Tell the lost coins that call for him
he cannot wait,
I cannot forget the Depression man
in the thirties with the hate, the hate



Christopher Fey

***Christopher Fey, '93 —
Medical Student as Poet***

Christopher Fey began writing poems in high school in Suffern, N.Y., and in his junior and senior years won his school's poetry prize. Majoring in English at Amherst College, he attended the Breadloaf and Wesleyan writers conferences and won the Rolfe Humphries poetry prize at graduation. He is attracted to several fields of medicine, particularly cardiology. With an interest in medical ethics, Mr. Fey is considering the pursuit of a law degree in addition to his training in medicine.

Editor's note: *The 1991 Marguerite Rush Lerner Prize for creative writing by a medical student was shared by 1993 classmates Christopher Fey and Lisa J. Nelson. Because of the outstanding quality of their entries, a selection of each submission will be featured in YALE MEDICINE, with Ms. Nelson's work appearing in the Fall/Winter 1991-1992 issue.*

To a Dying Man, Once Like a Tree

Merely a bed holds him now, spoiled rind of a giant;
Once my Goliath, a spectre masquerades in human flesh.

"Many things charade as truth," he would say,
And so had taught suspicion: this a superficial
Film, that a crude veneer.
Those are pages turning before his sunken eyes:

The pastel plates of a children's book,
A giant man stitched to the ground;
A Victorian house near a giant triple-tree,
Then grasses ameliorate with their softness the
Scene and what is said;
Thickets knit to restrict what once were paths,
Trellises curl with thorns,
Paint falls away from the wood in peels.

Those are pages turning before his eyes — or only
Truth shrouded in hope — truth colored with my desire.
See what has descended — indestructible quiet;
A quilt of breezeless solitude.

The tree lush and heady has now folded,
Its iron limbs have soaked, cracked,
Fallen from the famous triple-trunk:
One sister bows, one is broken, one stands, still,
Wanting only collapse.

"You should not want melancholy here," we say,
For the trickle of the stream is now swollen,
Its brown banks are soft as cake —
Perhaps some light glazes the wet trunk.
You should not ask for melancholy here, as if
A river would form as if
A new tree were promised rise.

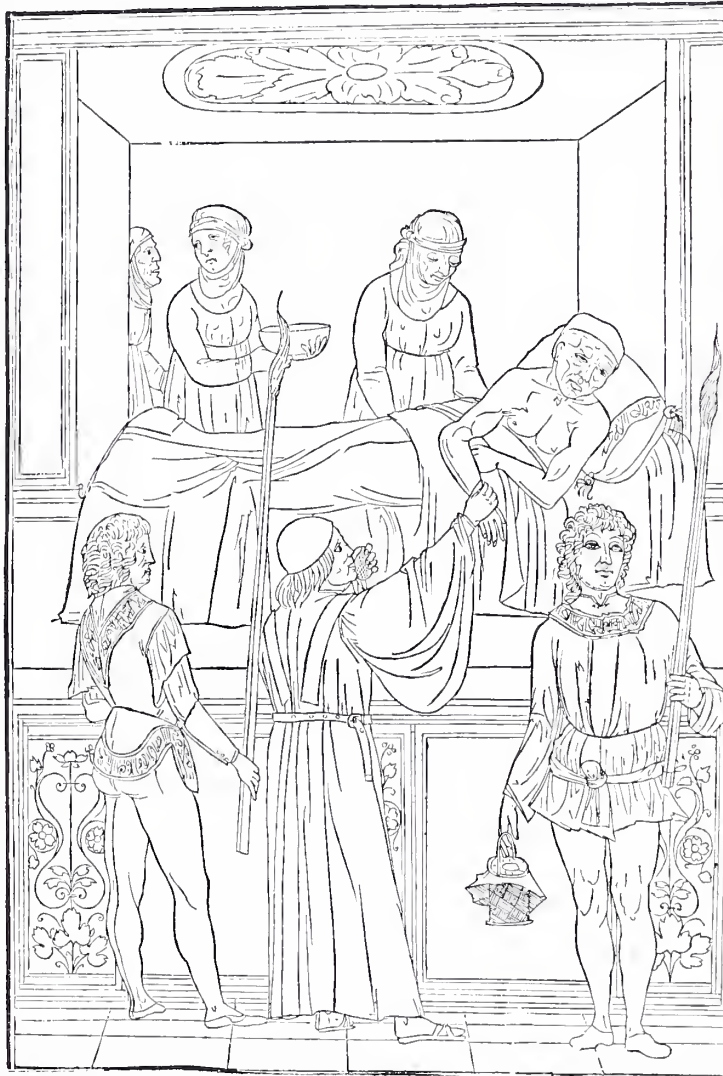
As if one could want anything of a new tree.

— Christopher Fey, *Med.* '93

YM

GALLERY

Plague scene from Johannes de Ketham's Fasciculus medicinae



Yale Medical Historical Library

In the 14th century the bubonic plague, also known as the Black Death, destroyed from a quarter to a half of Europe's population. Plague epidemics continued to devastate Europe into the 17th century.

This woodcut, which appeared in Ketham's *Fasciculus medicinae*, shows a physician attending to a plague victim whose opulent surroundings reveal his prosperity. The doctor holds a vinegar-soaked sponge or pomander to his nose to ward off infection while taking the pulse of the moribund patient. According to Robert S. Gottfried in *The Black Death* (1983), plague specialists were either incompetent or unestablished doctors who nonetheless earned a respectable income because of the danger of their practice.

Fasciculus medicinae, first published in 1491 in Venice, was one of the earliest printed medical books and is considered to be the first showing anatomical illustration. The above illustration did not appear until a 1493 edition. The book contains several full- and partial-page woodcuts, which are lavishly hand-colored in the copy in the Yale collection. The artist is unidentified, although attributions have been made to Venetian painters Gentile Bellini (c.1429–1507) and Andrea Mantegna (1431–1506), based on the characteristic style of the illustration.

Janice Braun, Historical Library

Harvey Cushing/John Hay Whitney Medical Library

STUDENT RESEARCH DAY

Photographs by Harry Bishop



Bernice Kafui Glover explains to Dr. John M. Leventhal her findings on the relationship between previous benign biopsies and subsequent malignant melanoma.

Opening Remarks

The health of student research at this medical school is excellent. The best evidence for this is the 52 scientific posters you have just been viewing at the Fifth Annual Student Research Day. I applaud the scientific output and the student-faculty collaboration that they vividly display.

Another measure of the health of student research is the growth in the number of students receiving competitive funding for their research. At the time of our first poster session five years ago, 92 students received stipends totalling \$184,000. This year, 188 students received competitive funding totalling \$471,000. This entire increase has resulted from external grants, from agencies and gifts from donors.

We now have named research fellowships in honor of Edith Hsiung, James Hirsch, Vernon Lippard, Richard Hirschfeld, Etta Chidsey and Richard Gershon. The Student Research Program has received external grant support from the American Heart Association, National and Connecticut affiliates; the Connecticut Cancer Society, four grants from the National Institutes of Health, as well as the Howard Hughes Medical Institute and the Juvenile Diabetes Foundation.

I want to acknowledge the valuable help of our thesis committee. In addition to serving as the prize committee, these individuals have been of major assistance to our office in raising the external grants to support student research.

Finally, I want to recognize the excellent art work done by biomedical communications, particularly by Linda Seigneur and Gail Beamon. Dean Gifford and Betsy Winters continue to give considerable effort and support to the program. Our special thanks today goes to Nancy Dometios, who, for the fifth year, has organized this day and run our office. Every grant, student application, poster, even every paycheck generates volumes of paper, phone calls and work, and Nancy handles it all.

I would also like to welcome Dr. Lee Farr and Mrs. Farr, the sponsors of the lectureship, who are with us from California.

*John N. Forrest Jr., M.D.
Professor of medicine
Director, office of student research*

Abstracts

Immunology of Human Peripheral Nerve and the Response to Nerve Transection in a C3H/HeJ Mouse Model

by James Edward Stanislaw

Advisor: Thomas Trumble, M.D., associate professor
Chief, hand surgery service, department of orthopaedics
University of Washington, Seattle

Research in limb reconstruction using peripheral nerve tissue has been hampered by tissue rejection. Animal models of peripheral nerve transplantation have exhibited significant rejection reactions leading to poor outcomes. The reactions have occurred despite cross-matching the nerves for MHC (major histocompatibility complex) Class I antigens. Other research has shown MHC II antigens to be instrumental in graft rejection, perhaps more important than the role of MHC Class I antigens. Despite claims that MHC Class II antigens are not present in peripheral nerve, this study attempted to define the immunology of peripheral nerves with respect to the presence of MHC II antigens. The presence of such antigens could add to the explanation of nerve graft rejection.

The specific aims of this study are: 1) search for MHC class II antigens on peripheral nerve; 2) determine what cell type expresses the antigen if present; and 3) using a mouse model, investigate changes in the antigen concentration after trauma.

In order to provide more information on the immunology of peripheral nerves, 35 specimens (26 from seven cadavers and nine from surgical biopsies) were analyzed for the presence of MHC Class II antigens using monoclonal antibodies raised against HLA-DR, HLA-DP, and HLA-DQ (human leukocyte antigen is the human synonym for MHC) and an avidin-biotin enzyme complex with chromogen. MHC II antigens were noted in all human nerve specimens and the percentage area under light microscopy of positive staining by computer analyzed immunohistochemistry were significantly higher (3.82 percent \pm 1.01 percent) than negative controls (0.05 percent \pm 0.02 percent) ($p=0.01$).

S-100 double staining techniques as well as electron microscopic tissue fixation were used to identify cell types.

A C3H/HeJ mouse model was used to evaluate the effect of nerve transection (trauma) on the presence of MHC II antigens. Monoclonal anti-IA antibody was used in the same method of light microscopic, computer analyzed immunohistochemistry as performed in the human study. Fifteen to 21 days after transection of the sciatic nerve in 10 mice, there was a statistically significant increase ($p=0.05$) in the presence of MHC Class II antigens in the distal portion of the nerve (4.49 percent \pm 0.78 percent) versus samples from eleven mice that had exposure of the nerve without transection (1.44 percent \pm 0.21 percent) or in nerves from 17 mice that had no surgery (1.02 percent \pm 0.21 percent) in that limb.

Clinical relevance: The presence of MHC Class II antigens could require more complex cross-matching for tissue transplantation. Nerve grafts which have undergone Wallerian degeneration may actually be more prone to rejection than other peripheral nerve tissue transplants, depending upon the length of time of degeneration.



Paul Isenbarger displays his hypermedia computer program, designed to provide interactive instruction in cardiac magnetic resonance imaging.

The Image of the Woman Physician in 10 Victorian American Novels

by Sonya S. Erickson

Advisor: John Harley Warner, Ph.D.
Associate professor of the history of medicine

Between 1871 and 1886, in the midst of sweeping changes in the status and representation of women, at least 10 novels featuring female physicians and medical students were published in America. Their authors were generally well-known to Victorian American readers and included Mark Twain, Henry James, Louisa May Alcott, and Harriet Beecher Stowe. Despite the differences among both their creators and their stories, these heroines had a great deal in common. In general, they were constructed as "American" figures, meaning they were young, single, attractive, white, middle- to upper-middle class, and blessed with a long-standing New England pedigree. Veritable pictures of health, they followed the dictates of the contemporary dress-reformers and moved freely throughout their surroundings.

Their respective career paths were similarly uniform, beginning with their mutual childhood interest in the art and science of healing. Having received their formal medical training in American and European universities, the heroines proved capable of carrying out a variety of tasks, including ligating arteries, compounding remedies, and easing a patient's final days.

The medical heroines' unconventionality, however, had its limits. While fully aware of the women's rights movement and grateful for its achievements, for example, they maintained a respectable distance from the organization. Though society in general was depicted as unsupportive of their plans, the characters who knew them best approved of their professional goals wholeheartedly, a sign that readers and critics should applaud the heroines' actions as well.

Available reviews and letters indicated that many contemporaries did so, often arguing that the heroines were "real" in the process. The representation of and response to the woman doctor in Victorian American fiction raise questions about the impact her monolithic image had on contemporary society. As the numbers of women doctors, both real and imaginary, increase again, such questions remain relevant today.



David J. Eisenman answers Dr. Joseph Warshaw's question about his research into chronic hypoxia in developing rats.

Steroid Hormonal Effects on Cholecystokinin Binding in the Central Nervous System; Potential Role in the Control of Appetite

by Jeanne B. Ackman

Advisors: Neil J. MacLusky, Ph.D.

Professor of obstetrics and gynecology

Toronto General Hospital

Frederick Naftolin, M.D.

Professor and chairman of obstetrics and gynecology

Among cholecystokinin's (CCK's) multiplicity of physiological roles is its role as an appetite suppressant. The purpose of this study was to determine the effects of two kinds of steroid hormones known to influence feeding behavior and body weight, namely estrogens and glucocorticoids, or "stress hormones," on CCK receptor levels. Particular attention was given to their effect in the ventromedial nucleus of the hypothalamus (VMN), a neural center of feeding and reproductive behavior.

Experiment 1(a) was performed to determine if the sex difference in rat feeding behavior is borne out in a differential response of CCK binding to estrogen treatment in males and females. Male and female rats were gonadectomized and adrenalectomized (ADX) and, after 7 to 10 days of rest, were implanted subcutaneously with Silastic capsules containing either cholesterol vehicle or 10 percent estradiol. The animals were weighed pre- and post-treatment and sacrificed after three days of treatment. Specific binding of [¹²⁵I] CCK-8S was determined in this experiment and in the ones that follow after *in vitro* incubation of frozen brain sections, autoradiography, and quantitation of the images with computer-assisted densitometry. Experiment 1(a) revealed a sex difference in CCK binding in response to estrogen treatment — while estrogen caused down-regulation of CCK receptors in females ($p=0.0001$), it had no effect on CCK binding in males. The regional specificity of this effect in females (VMN and cingulate cortex) was suggested by this experiment and confirmed in a subsequent study. The suggestion of higher overall levels of CCK binding in the female cingulate cortex and VMN when compared with males was also confirmed in this subsequent study. The fact that only males showed a decrease in body weight gain on estrogen therapy that approached statistical significance ($p=0.07$) can be explained by the typical 4 to 6 week post-cas-

tration hyperphagia that exists only in females. Both males and females have been shown repeatedly to lose weight on estrogen therapy (when unopposed by progesterone).

Experiment 1(b) was performed to determine if the effect of estrogen on CCK binding is exerted locally in the VMN or more proximally in the neural chain. Female rats were ovariectomized, given at least 8 days of rest, and then bilaterally implanted by stereotactic means with 23-gauge steel guide tubes over the VMN. Three days after intracranial surgery, the hormonal/cholesterol treatments were begun via 30-gauge internal cannulae. The animals served as their own controls, receiving 1.0 percent estradiol (diluted with cholesterol) on one side and cholesterol vehicle on the other side. After three days of treatment, the animals were sacrificed. Cannula placement was histologically verified. No effect of local estrogen treatment on CCK binding was noted (no difference between left and right VMN CCK densities was observed). Hence, the effect of estrogen on CCK binding in the VMN appears to be indirect.

Experiment 2 was performed to determine if dexamethasone, an essentially pure glucocorticoid, also affects CCK receptors levels. Male rats were partitioned into three groups: the experimental group was ADX and treated with daily morning subcutaneous dexamethasone (DEX) injections at a "stress" dose=200 ug/kg body weight in a vehicle (10 percent ethanol, 10 percent propylene glycol, 80 percent normal saline); one of the control groups was ADX and injected with vehicle only; and the other control group (SHAM) was etherized but not ADX and injected with vehicle only. Each group was caged separately and all animals were weighed pre- and post-treatment. After three days of treatment, the animals were sacrificed. All DEX-treated animals showed decreased CCK binding ($p=0.01$) and decreased body weight ($p=0.001$) when compared with the control groups.

In summary, the above results suggest a sexually dimorphic distribution of CCK receptors in rat brain and a role for estrogens and glucocorticoids in modulating these receptors. Several proposals are made within this medical doctorate thesis: 1) estrogen is proposed as a feedback signal of body adiposity to the VMN; 2) CCK is proposed as the neural arm of both estrogens and glucocorticoids in the CNS; and 3) CCK is proposed as an instrumental neuropeptide at the interface between stress, feeding and reproductive behavior.

African-Americans at the Yale University School of Medicine: 1810 to 1960

by Daryl K. Daniels

Advisor: Curtis Patton, Ph.D.

Professor of epidemiology (microbiology)

African-Americans have had a long and interesting history at the Yale School of Medicine. Through extensive researching of primary and secondary sources, this history is documented for the first time. The first African-American known to have graduated from the School was Dr. Courtlandt Van Rensselaer Creed. Because of strong abolitionist sentiment at Yale and in New Haven during the 1850s and his family's prominence in New Haven, Dr. Creed was able to matriculate at the School of Medicine in 1854. He graduated in 1857 and practiced in New Haven. He also served as a surgeon in the Civil War.

Two more African-Americans graduated from the Yale School of Medicine in 1875 and 1876. These students, Dr. Bayard T. Smith and Dr. George R. Henderson, transferred to Yale from Lincoln University.

In 1888 the School of Medicine became a leader in African-American medical education, graduating eight African-Americans in 12 years. Many of these people made significant contributions to medicine and their community. This lead was lost when a rise in intolerance caused Yale's schools of medicine and nursing to adopt an "unwritten policy" of racial exclusion. The policy was disclosed in 1941 when an African-American applicant applying to the School of Nursing was turned away due to her race. In the controversy that followed, the policy was rescinded and African-Americans were again allowed to attend the medical and nursing schools. In 1948 Dr. Beatrix A. McCleary became the first African-American woman to grad-

uate from the School of Medicine. African-Americans continued to graduate from the school at a rate of approximately one every other year until 1960.

By using this history as a guide, it is thought that the Yale School of Medicine can better recognize the contributions made by its African-American students and take steps to regain its leadership role in African-American medical education.

Transcriptional Regulation of Apolipoprotein Gene Expression

by Agustín Melián

Advisor: Andrew Stewart, M.D.

Associate professor of medicine (endocrinology)

Apolipoproteins are the polypeptide subcomponents of the lipoprotein lipid transport system. They play a vital role in the transport, delivery and metabolism of cholesterol and triglycerides. Variations in lipoprotein levels correlate with risks for arteriosclerosis and heart disease. Variations in individual apolipoproteins also are associated with various disease states.

In an effort to understand the mechanisms controlling apolipoprotein synthesis at the level of gene expression, we examined the 5' regulatory regions of these important hepatically expressed genes. We identified a similar cisacting sequence element (C3P element) in the proximal promoters of the apo CIII, apo B, apo AI and apo CII genes. In each case this element maintains a highly conserved sequence, activates transcription in hepatic cells and binds a common protein, AF-I. We demonstrate that the C3P element activates transcription in hepatic specific gene expression and suggests a method by which the production of functionally related proteins might be regulated.



Back row (from left): James Stanislaw, Sonya Erickson, Agustín Melián, Jeanne Ackman and Daryl Daniels. Front row: Drs. Robert Gifford, Sidney Altman, Leon Rosenberg and John Forrest. Dr. Altman, the Sterling Professor of Biology and a 1990 Nobel laureate, delivered this year's Lee Farr Lecture.

RESIDENCY PLACEMENTS 1991

CALIFORNIA

Children's Hospital, Oakland

Stacy Beller, *pediatrics*

Children's Hospital of San Francisco

Ole AAssar, *medicine*

James Hicks, *medicine*

Community Hospital, Santa Rosa

Colleen Foy, *family practice*

Kaiser Permanente Medical Center, Oakland

Narisse Kendrick (Daye), *medicine*

Naval Hospital, San Diego

Symphorosa Williams, *medicine*

Christopher Steevens, *transitional*

University of California, Los Angeles

Daniel Geschwind, *medicine, neurology*

Edward McNellis, *ophthalmology*

University of California, San Diego Medical Center

David Bernard, *anesthesiology*

Elizabeth Bower, *anesthesiology*

Scott Edwards, *obstetrics and gynecology*

University of California, San Francisco

Ole AAssar, *diagnostic radiology*

Jorge Arroyo, *ophthalmology*

Michael Capozza, *anesthesiology*

David Chiu, *medicine, neurology*

Steven Finkbeiner, *medicine, neurology*

Ethan Halm, *internal medicine*

Marc Seltzer, *urology*

Margaret Toth, *internal medicine*

University of Southern California, Los Angeles

Philip Chen, *ophthalmology*

Paul Isenbarger, *diagnostic radiology*

Quoc Nguyen, *otolaryngology*

Veterans Administration Medical Center, Martinez

Bernice Glover, *internal medicine*

Yale-New Haven Hospital

William Andrews, *internal medicine*

Ercem Atillasoy, *medicine*

Mark Barad, *medicine*

Peter Bernstein, *obstetrics and gynecology*

Mark Bianchi, *surgery, otolaryngology*

Donna Brezinski-Caliguri, *pediatrics*

Gaetane Francis, *obstetrics and gynecology*

David Frankfurter, *obstetrics and gynecology*

Gwendolyn Grant, *internal medicine*

Lawrence Hirsch, *medicine*

Michael Leehy, *medicine/primary*

Ellen Markstein, *medicine*

Marc Silverberg, *pathology*

Robert Spillane, *medicine*

Naomi Taylor, *pediatrics*

Marco Verga, *diagnostic radiology*

DISTRICT OF COLUMBIA

Children's National Medical Center

Gonzalo Paz-Soldan, *pediatrics*

George Washington University Hospital

Lauren Rodgers, *obstetrics and gynecology*

Walter Reed Army Medical Center

Betty Kim, *general surgery*

FLORIDA

Jackson Memorial Medical Center, Miami

Pablo Quintela, *internal medicine*

GEORGIA

Emory University, Atlanta

Cargill Alleyne, *neurosurgery*

IOWA

University of Iowa Hospital, Iowa City

Ellis Webster, *surgery, otolaryngology*

MASSACHUSETTS

Baystate Medical, Boston

E. Vivek David, *medicine*

Beth Israel Hospital, Boston

Jean Fraser, *pathology*

Paula Watnick, *internal medicine*

Mindy Wiser, *obstetrics and gynecology*

Boston City Hospital, Boston

Douglas Fleming, *internal medicine*

Andrea Polesky, *internal medicine*

Brigham and Women's Hospital, Boston

E. Vivek David, *diagnostic radiology*

Karen Hsieh, *obstetrics and gynecology*

Charles Lu, *internal medicine*

COLORADO

University of Colorado School of Medicine, Denver

Ngozi Okezie, *psychiatry*

CONNECTICUT

Danbury Hospital

David Bernard, *medicine*

Greenwich Hospital

Jeanne Ackman, *medicine*

Michael Borodkin, *medicine*

Hospital of St. Raphael, New Haven

Elizabeth Bower, *medicine*

Norwalk Hospital

Christopher Hobbie, *diagnostic radiology*

St. Mary's Hospital, Waterbury

James Hartleroad, *general surgery*

Alex Ortiz, *primary care/internal medicine*

St. Vincent's Medical Center, Bridgeport

Edward McNellis, *transitional*

Agustín Melián, *internal medicine*
Brenda Sirovich, *internal medicine*

Children's Hospital, Boston

Bruce Horwitz, *pediatrics*

Massachusetts Eye and Ear Hospital, Boston

Young Kwon, *ophthalmology*

Massachusetts General Hospital, Boston

Jeanne Ackman, *diagnostic radiology*

Robert Spillane, *diagnostic radiology*

McLean Hospital, Belmont

Marc Agronin, *psychiatry*

Mount Auburn Hospital, Cambridge

Jorge Arroyo, *medicine*

Young Kwon, *medicine*

Gina Solomon, *medicine*

University Hospital, Boston

Jeffrey Schechner, *medicine*

MARYLAND

Francis Scott Key Medical Center, Baltimore

Margaret Stevens, *medicine*

MICHIGAN

University of Michigan Hospitals, Ann Arbor

Stephen Bell, *orthopedic surgery*

Funda Meric, *general surgery*

MINNESOTA

University of Minnesota Hospital and Clinics, Minneapolis

James Levine, *internal medicine*

Mayo Graduate School of Medicine, Rochester

Monica McDonald, *general surgery*

MISSOURI

Barnes Hospital, St. Louis

Sarah Davidson, *internal medicine*

Larry Horesh, *general surgery*

Richard Ihnat, *internal medicine*

Robert Orłowski, *internal medicine*

St. Louis Children's Hospital, St. Louis

Denise Ihnat, *pediatrics*

St. Louis University School of Medicine, St. Louis

Jeffrey Carter, *general surgery*

NEW HAMPSHIRE

Dartmouth-Hitchcock Medical Center

Grant Shumaker, *surgery, neurosurgery*

NEW MEXICO

**University of New Mexico School of Medicine,
Albuquerque**

Daryl Daniels, *general surgery*

NEW YORK

Columbia-Presbyterian Medical Center, New York

Lawrence Hirsch, *neurology*

Montefiore Medical Center, Bronx

N. Ruth Harris, *obstetrics and gynecology*

Mount Sinai Hospital, New York

Michael Borodkin, *ophthalmology*

Leacroft Green, *surgery, otolaryngology*

Presbyterian Hospital, New York

Melanie Moses, *medicine*

St. Luke's-Roosevelt Hospital Center, New York

Dale Johnson, *surgery*

St. Vincent's Hospital, New York

Philip Chen, *transitional*

Strong Memorial Hospital, Rochester

Irene Hegeman, *medicine, neurology*

Eric Richard, *internal medicine*

The New York Hospital, New York

Sonya Erickson, *obstetrics and gynecology*

Winthrop-University Hospital, Mineola

Marco Verga, *medicine*

OHIO

University Hospitals of Cleveland

Steven Care, *orthopedic surgery*

Roger Duncan, *anesthesiology*

James Stanislaw, *orthopedic surgery*

OREGON

Emanuel Hospital and Health Center, Portland

Paul Isenbarger, *transitional*

PENNSYLVANIA

Hospital of the University of Pennsylvania, Philadelphia

Kenneth Laughinghouse, *internal medicine*

Eleanor Pollak, *pathology*

Michael Romanelli, *internal medicine*

Steven Ugent, *medicine*

TEXAS

Wilford Hall U.S.A.F. Medical Center, San Antonio

Jonathan Chai, *pediatrics*

WASHINGTON

University of Washington Affiliated Hospitals, Seattle

K. Eric De Jonge, *medicine/primary*

Richard Ingber, *internal medicine*

Mark Price, *general surgery*

Ellen Rosenthal, *internal medicine*

CANADA

McGill Hospital, Montreal

Alain-Marc Werner, *orthopedic surgery*

COMMENCEMENT 1991



William B. Stewart, Ph.D., associate professor of surgery (gross anatomy), was presented the Charles W. Bohmfalk Prize for excellence in teaching the basic sciences. Since 1985, he has directed the anatomy course for first-year students.



In accepting the Bohmfalk Prize for excellence in teaching in the clinical sciences, Richard S.K. Young, M.D., M.P.H., associate professor of pediatrics and neurology, recalled his own Yale medical school days when Dr. James P. Comer brought his children to child development lectures. Dr. Young has continued this tradition by inviting his own son, John, 10, to class.



In a lighter moment, (from left) Dean Rosenberg and faculty members Angela Holder and Drs. Robert Gifford and Alvan Feinstein serenade the graduating class. (To the tune of "Let It Be," with apologies to John Lennon.)

Chorus:
 So we say, now's the day
 To state our hopes that all goes well,
 And give you our best wishes
 Hail farewell, Yale farewell.



M.P.H. graduates Richard Marottoli, Dymphia McGuinness Egglin, Jane Musen and Teryl Hundley joyfully enter into a new phase of their professional lives.

Pamela Carter, M.P.H., proudly stands next to the sign of her alma mater.



(From left) Jennifer Sancho, M.D., receives congratulations from a friend as Helen Roberts, M.D., and Mitchell Tepper, two fellow M.P.H. graduates, look on.



Epidemiology and Public Health (EPH) commencement speaker, Iris R. Shannon, Ph.D., R.N., a former president of the American Public Health Association, speaks on community and public health nursing at ceremonies held outside the EPH laboratory.

Graduating medical students Donna Brezinski-Caliguri (left) and Elizabeth Bower recite the new Yale Physician's Oath, composed by Chaplain Alan Mermann (see facing page).



Betty S.W. Kim was among the medical school graduates who received active duty commissions in the medical corps during ceremonies following commencement. Col. Norman Ream of Washington, D.C., (left) and Ms. Kim's father, Yoon Mo Kim, of River Edge, N.J., congratulate her on becoming a captain in the U.S. Army. She is serving a five-year surgical residency at Walter Reed Army Medical Center in Washington, D.C.

A YALE PHYSICIAN'S OATH

Now being admitted to the high calling of the physician, I solemnly pledge to consecrate my life to the care of the sick, the promotion of health and the service of humanity.

I will practice medicine with conscience and in truth. The health and dignity of my patients will be my first concern. I will hold in confidence all that my patients relate to me. I will not permit considerations of race, religion, nationality, or social standing to influence my duty to care for those in need of my service.

I will respect the moral right of patients to participate fully in the medical decisions that affect them. I will assist my patients to make choices that coincide with their own values and beliefs.

I will try to increase my competence constantly and respect those who teach and those who broaden our knowledge by research. I will try to prevent, as well as cure, disease.

When I am qualified to instruct, I will impart my knowledge gladly, holding my students and colleagues in affectionate though evaluative esteem.

In the spirit of those who have inspired and taught me, I will seek constantly to grow in knowledge, understanding, and skill and will work with my colleagues to promote all that is worthy in the ancient and honorable profession of medicine. I will maintain the honor and the noble traditions of the medical profession. My behavior will be honorable and thoughtful and reflect justice toward all.

If I fulfill this Oath and do not violate it, may it be granted to me to enjoy life and the practice of the Art. This pledge I make freely and upon my honor. May my faith strengthen my resolve.

Cushing/Whitney Library Microfilms Fulton Diaries

Dr. John F. Fulton, Rhodes scholar, scientist, biographer, historian — and Yale professor of physiology at the age of 30 — was a co-founder of the Yale Medical Library in 1939.

Now the Cushing/Whitney Medical Library has microfilmed the 46 volumes of Dr. Fulton's diaries through support from the National Library of Medicine's National Preservation Program for Biomedical Literature. Beginning in 1920 and ending with his death in 1960, the diaries are available to researchers worldwide, reports Janice E. Braun, assistant medical historical librarian, who supervised the project.

Dr. Fulton's diaries reveal a keen intellect and a variety of interests, and his observations about scholars have made the diaries a treasure for biographers. Dr. Fulton, a neurophysiologist, was a respected scientific author and prolific medical historian, writing more than 500 books and articles. He joined Drs. Harvey Cushing and Arnold Klebs to pool their personal collections of medical books and found the Yale Medical Library, renamed for Drs. Harvey Cushing and John Hay Whitney following a major expansion in 1990.

Yale Journal Publishes Cancer Symposia Papers

This autumn, the *Yale Journal of Biology and Medicine* will publish for the third time the proceedings of the Ella Grasso Memorial Conference on gynecological cancer. Advanced planning and cooperation between journal staff and conference organizers allows those attending the meeting to have the text of papers in hand as they are presented. The journal invites other groups who are planning symposia to avail themselves of this service; advanced notice of at least a year is required.

This year the journal will again publish abstracts of M.D. theses submit-

ted by graduating Yale medical students. These abstracts offer a picture of the wide scope of research undertaken by the students. Also, since the journal is indexed by all major reference bodies, the thesis titles will be available to scholars internationally through such services as Index Medicus and Medlars.

A special issue of the journal in late 1991 will be dedicated to the late Arthur J. Viseltear, Ph.D., associate professor of the history of medicine, in recognition of his many years of devoted membership on the editorial board. This issue will feature articles reflecting Dr. Viseltear's deep concern with studies in the history of medicine, his contributions to medical school life, and his dedication to promoting equal access to medical care for all Americans.

Y.A.G. Program Marks 26 Years

Twenty-six years ago, most Connecticut patients with a complicated ulcer had to travel to Boston or New York for treatment. Today, these patients have up-to-date treatment available in many locations throughout their home state, thanks to the Yale-Affiliated Gastroenterology Program (YAGP), which marked its 26th anniversary this spring. The program was the forerunner of many subsequent affiliations between Yale and Connecticut hospitals.

In 1964, Howard M. Spiro, M.D., then chief of the gastroenterology unit at the School of Medicine and Yale-New Haven Hospital, entered into an agreement with Dr. Vincent A. DeLuca Jr., chief of medicine at Griffin Hospital in Derby. They established an experimental residency program in gastroenterology.

Their agreement involved a tradeoff that benefitted both the residents and the Griffin physicians: As the residents trained under the community gastroenterologists, the specialists kept up with the state of the art through their contact with the residents. The arrangement blossomed into a formal program in 1968 under a U.S. Public

Health Service grant.

Today, in addition to Yale-New Haven and Griffin, affiliated hospitals include the Hospital of St. Raphael in New Haven, plus Norwalk, Bridgeport, St. Vincent's and Waterbury hospitals, and the Department of Veterans Affairs Medical Center in West Haven.

Dr. Robert M. Donaldson Jr., deputy dean of the School of Medicine, says one of his "great joys" is interacting with the affiliated hospitals, attending hospital symposia and training YAGP residents. Dr. James L. Boyer, director of the digestive disease section and professor of medicine at Yale, adds he still "learns something every time I go out to consult at participating hospitals."

Comments Edwin Cadman, chairman of Yale's department of internal medicine, "YAGP has had an influence on other programs around the country. Its goal is to provide training for its fellows in broader depth and give experience that the fellows couldn't have gotten at a solely university-affiliated program."

Yale/VA PET Center Opens in West Haven

Connecticut's first positron emission tomography (PET) center and cyclotron made its debut in June at the Department of Veterans Affairs Medical Center in West Haven. The Yale University/Veterans Affairs Positron Emission Tomography Center offers the most advanced technology in providing information about disease processes.

Director of the center is Robert Soufer, M.D., associate professor of diagnostic radiology and medicine, who initiated and developed the \$5 million project over the past five years. As Dr. Soufer explains, "PET offers physicians a highly accurate, non-invasive tool for studying metabolism and blood flow in the heart, brain and other soft tissue." PET distinguishes itself from other diagnostic imaging systems by presenting metabolic data. Such data make possible the diagnosis of various cardiac, neurologic, psychiatric and oncologic diseases with unprecedented

subtlety and precision.

The PET scanner, a large, donut-shaped instrument, gleams its data from the decay of positron-emitting isotopes. An on-site cyclotron prepares isotopes with extremely short half-lives — ranging from a few minutes to approximately two hours. PET technicians use the isotopes to label substances such as glucose or water, which the body metabolizes.

A solution containing the labeled substances is injected into the patient's bloodstream. A computer then translates the resulting signals into images that offer data about the metabolic processes taking place within the targeted organ.

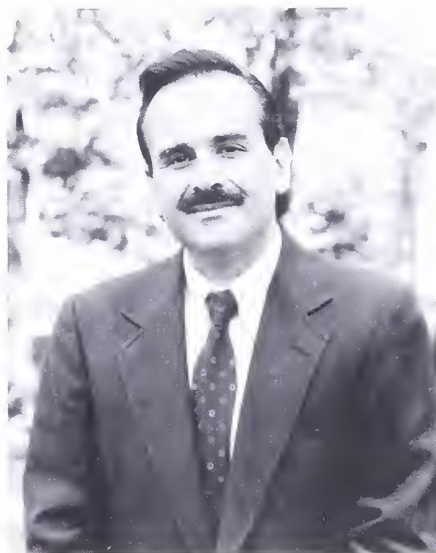
FACULTY NEWS

Michele Barry, M.D., associate professor of medicine, and **Frank J. Bia, M.D., M.P.H.**, associate professor of medicine and laboratory medicine, have been appointed by the United States Pharmacopeial (USP) Convention, Inc., to a new advisory panel of experts in parasitic diseases. During its 1990–1995 term, the panel will help determine the content of the USP data base and advise about clinical aspects of its work in the area of drug standards and information.

Paul G. Barash, M.D., professor and chairman of anesthesiology, was named to the Yale-New Haven Hospital board of trustees.

William F. Collins Jr., M.D., chairman of the department of surgery, has been awarded the American Association of Neurological Surgeons' Cushing Medal. He was presented the medal at the association's annual meeting in April in New Orleans. Dr. Collins, the Harvey and Kate Cushing Professor of Surgery, is past chairman of the American Board of Neurological Surgery, past president of the Society of Neurological Surgeons and of the Neurosurgical Society of America.

James P. Comer, M.D., M.P.H., the Maurice Falk Professor in the Child Study Center and Psychiatry, was honored by the Community Children and Family Services for his efforts on behalf of children and families in education. The "Comer Process," which has been implemented in more than 100 schools throughout the country, emphasizes parental involvement and promotes social skills.



Dr. Robert Soufer, associate professor of diagnostic radiology and medicine, is director of the new Yale/VA PET Center.

Charles B. Cuono, M.D., Ph.D., professor of surgery and director of the Yale Burn Center and Skin Bank, began a two-year term as president of the American Association of Tissue Banks (AATB) Board of Governors on May 1, 1991. The AATB inspects and accredits tissue banking facilities.

Peter J. Hotez, M.D., Ph.D., instructor of pediatrics and epidemiology and public health, was named a Charles E. Culpepper Foundation Scholar in Medical Science for 1991. Dr. Hotez will receive \$100,000 annually for three years to fund his research into the molecular basis and prevention of hookworm disease in children.

Stanley W. Jackson, M.D., professor of psychiatry and history of medicine, will assume the editorship of the *Journal of the History of Medicine and Allied Sciences* as it returns to Yale after 18 years.

Theodore Lidz, M.D., Sterling Professor Emeritus of Psychiatry, has been elected to serve a one-year term as president of the American College of Psychoanalysts. The honorary society is composed of 250 members and fellows in North America.

Paul McCarthy, M.D., professor and section chief of pediatrics, has been honored with the 1991 George Armstrong Award of the Ambulatory Pediatric Association (APA), of which he is past president. The award, named for the 18th-century Englishman considered to be the father of modern pediatrics, honors Dr. McCarthy's outstanding research, teaching and work

to improve health-care services to underserved populations. Dr. McCarthy delivered the Armstrong lecture at the APA's annual meeting in New Orleans.

Marcia McNerney, Ph.D., postdoctoral fellow in immunobiology, has been awarded a postdoctoral fellowship for 1991–1992 by the Juvenile Diabetes Foundation International. The \$28,000 award will support Dr. McNerney's research, which identifies immune cells (T cells) in non-obese mice. The cells may play a role in suppressing the development of diabetes.

James G. McNamara, M.D., assistant professor of pediatrics, will conduct research on HIV infection of fetal T cells through a \$78,000 grant from the Pediatric AIDS Foundation. Dr. McNamara seeks to learn whether the virus' ability to infect fetal cells differs from the way it infects adult cells.

Ethan R. Nadel, Ph.D., director of the John B. Pierce Laboratory and professor of epidemiology and cellular and molecular physiology, delivered the 26th annual Harry G. Armstrong Lecture at the Aerospace Medical Association's annual meeting in May in Cincinnati. Dr. Nadel spoke on "The Physiological Challenges of Human-Powered Flight," based on research he conducted in association with Project Daedalus, which resulted in the longest human-powered flight in history.

William H. Prusoff, Ph.D., professor emeritus and senior research scientist of pharmacology, delivered the Paul Neumann Association for Scientific Research's annual Paul Ehrlich Lecture in July at the 27th International Meeting of Medicinal Chemistry in Caen, France.

Judith S. Rodin, Ph.D., chairman and the Philip R. Allen Professor of Psychology, has been appointed dean of the Graduate School of Arts and Sciences effective July 1, making her the first woman in the University's history to serve at this post. During her five-year term, Dr. Rodin will oversee academic policies involving more than 3,000 graduate students and faculty members.

Gordon M. Shepherd, M.D., D.Phil., professor of neuroscience, has been appointed deputy provost for the biological sciences effective July 1, and will assume the duties in November after a scheduled leave of absence.

Albert J. Solnit, M.D., Sterling Professor Emeritus of Pediatrics and

Psychiatry, has been named commissioner of the Department of Mental Health by Gov. Lowell P. Weicker. With this appointment, Dr. Solnit hopes to find a way to improve the quality and distribution of state services.

John T. Stitt, Ph.D., associate professor of epidemiology and cellular and molecular physiology and a fellow at the John B. Pierce Laboratory, has been awarded a \$868,000 grant by the National Institutes of Health. The grant enables Dr. Stitt to continue his research on the mechanisms by which normal body temperature is altered when the body is invaded by infectious agents.

Peter K. Stys, M.D., associate research scientist in neurology, has been awarded the American Neurological Association's Presidential Award and the Canadian Medical Research Council's Centennial Fellowship. Both awards recognize his research on the effects of lack of oxygen on nerve fibers in the central nervous system and the mechanism by which calcium, normally a vital ingredient for cell life, sometimes floods the cells, damaging or killing them. This research has implications for the treatment of stroke and spinal cord injuries.

Samuel O. Thier, M.D., president of the Institute of Medicine of the National Academy of Sciences and a member of the Dean's Council at the School of Medicine, has been named president of Brandeis University in Waltham, Mass. From 1975 through 1985, Dr. Thier served as professor and chairman of medicine at Yale.

Stephen G. Waxman, M.D., Ph.D., professor and chairman of neurology at the School of Medicine and chief of neurology at Yale-New Haven Hospital, has been appointed to a three-year term on the Institute of Medicine's Board on Biobehavioral Sciences and Mental Disorders. The 12-member board identifies key issues in the fields of mental and addictive disorders and the biobehavioral sciences; develops concepts for activities in these areas that might be appropriate for the Institute of Medicine, and responds to requests for studies and advice from Congress and federal agencies. Dr. Waxman also presented the first Vivian L. Smith Lecture at Baylor College of Medicine in Houston. The lecture, entitled "The Neurobiological Basis of Restorative Neurology of Multiple Sclerosis," began a series to honor the late founder of the Vivian L. Smith Foundation for Restorative Neurology at Baylor.

John H. Warner, Ph.D., associate professor of the history of medicine, received the American Association for the History of Medicine's 1991 William H. Welch Medal for his book entitled *The Therapeutic Perspective: Medical Practice, Knowledge, and Professional Identity in America, 1820-1885*. The annual award is given to the author of "a book of outstanding scholarly merit in the field of medical history." Published in 1986, the book examines medical activity to evaluate shifts in patient care. While underscoring regional variations, it also provides a nationwide view of American medical history.

FACULTY NEWS

Harry Bishop



Linda M. Bartoshuk, Ph.D.

Faculty Honored At Commencement

During the graduation ceremony at the School of Medicine, several awards were presented, including the Charles W. Bohmfalk Prize for excellence in teaching. William B. Stewart, Ph.D., associate professor of surgery (gross anatomy), received the prize in the basic sciences, while Richard S.K. Young, M.D., M.P.H., was awarded the prize in the clinical sciences. Each physician receives a \$5,000 award.

Department chairmen, directors of medical studies and medical students nominate outstanding teachers in each category, and a committee of students and faculty selects recipients. The annual awards, funded by the Bohmfalk

Family Charitable Trust, reflect a renewed emphasis on teaching at the School of Medicine.

Since 1985, Dr. Stewart has served as director of the anatomy course for first-year students. Of Dr. Stewart, students and colleagues comment: "He truly sets the tone of the 'Yale System'....He has an excellent sense of students' wants, needs and anxieties about anatomy and medical school in general....A wonderful teacher, very caring and enthusiastic."

In 1965, Dr. Stewart received a B.S. degree from the University of Illinois and a Ph.D. from Emory University. He started a post-doctoral fellowship in physiology at Yale in 1976. Dr. Stewart joined the medical faculty in 1982 and has centered his research on the sense of smell.

Dr. Young, who joined the medical faculty in 1986, researches the effect of oxygen deprivation on the brain as it develops. In 1973, he received combined M.D., M.P.H. degrees from Yale, after earning a B.A. degree in biology from Stanford University.

Of Dr. Young, students and colleagues state: "He single-handedly revitalized the pediatric component of the Introduction to Clinical Medicine course....He is equally adept at the bedside as in the classroom and has given an abundance of time to the teaching mission....Dr. Young is a gifted and effective teacher."

Other medical school awards and recipients include:

Francis Gilman Blake Award (posthumously) to Peter A.T. Grannum, M.B.B.S., associate professor of obstetrics and gynecology. Established in 1952 by Nu Sigma Nu, the award honors a medical faculty member whom the senior class designates as the most outstanding teacher of the medical sciences.

Betsy Winters House Staff Award to Yvonne Gollin, M.D., resident in obstetrics and gynecology. The award is presented annually to a Yale-New Haven Medical Center house staff member whom the senior class believes has made the most significant contribution toward the medical students' education.

Leah Lowenstein Award to Linda M. Bartoshuk, Ph.D., professor of surgery (otolaryngology), of epidemiology and of psychology. The Office for Women in Medicine presents the award to a full-time faculty member whose work represents the highest degree of excellence in non-sexist education.

Neuroscientists Earn Javits Research Awards

Two Yale University School of Medicine researchers have been named recipients of this year's Senator Jacob Javits Neuroscience Awards given by the National Institute of Neurological Disorders and Stroke (NINDS).

Pasko Rakic, M.D., Sc.D., the Dorys McConnell Duberg Professor of Neuro-science and professor and chairman of neurobiology, received a \$3.5 million award; the award to Leonard K. Kaczmarek, Ph.D., professor of pharmacology and physiology and chairman of the department of pharmacology, totalled \$2.1 million. This is the second Javits Award presented to Dr. Rakic, who was among the first neuroscientists to receive one in 1984, when the program was launched.

NINDS established the awards, which support scientists for seven years, to honor the late U.S. Sen. Javits of New York.

Dr. Rakic, a native of Yugoslavia, joined the Yale faculty in 1977. He is a member of the National Academy of Sciences, the Yugoslavian Academy of Arts and Science, and the Serbian Academy of Arts and Sciences.

Since the early 1970s, Dr. Rakic has studied the basic events of how neurons originate, move and converge to form a "wiring diagram" in the mammalian central nervous system. His work attempts to unravel the individual cellular interactions that lead to the development of the primate brain.

"Understanding the molecular and cellular mechanisms of brain development is widely regarded as one of the central issues in neurobiology, and the field of brain development is one of the most exciting and robust areas of neuroscience," says Dr. Rakic.

Dr. Kaczmarek, a native of the United Kingdom, joined the Yale faculty in 1981. He has co-authored the books *Neuromodulation* and *The Neuron*. His previous honors include the Klingenstein Award in Neuroscience.

Dr. Kaczmarek studies how electrical and secretory properties of neurons control prolonged changes in such animal behaviors as reproduction, eating and sleeping. He and his colleagues work with the nerve cells of a slug-like mollusk, *Aplysia*, also called a sea hare. Scientists can work easily with the mollusk's large nerve cells. By studying electrical changes in nerve cells, they

hope to understand how they translate into behavior changes in animals.

Dr. Kaczmarek has isolated neurons which, when fired, stimulate the mollusk to initiate a number of reproductive behaviors. He is working to understand how biochemical changes affect the electrical properties of these cells.

"Our ultimate goal is to understand how neurons control long-lasting changes in an animal's behavior," says Dr. Kaczmarek.

Other Yale researchers who hold Javits awards include William S. Agnew, Ph.D., associate professor of cellular and molecular physiology; William W. Douglas, M.D., M.B.Ch.B., professor of pharmacology; Dorothy W. Gallager, Ph.D., associate professor of psychiatry and neuroanatomy; Carole M. Choate LaMotte, Ph.D., professor (adjunct) of research in surgery (neurosurgery) and anesthesiology; Robert H. LaMotte, Ph.D., associate professor of anesthesiology and neuroanatomy; and J. Murdoch Ritchie, Ph.D., D.Sc., the Eugene Higgins Professor of Pharmacology.

FACULTY NEWS

Dr. Siegel Awarded Kidney Research Grant

Dr. Norman J. Siegel, professor of pediatrics and medicine and director of the pediatric nephrology section at the School of Medicine, was named an Extramural Grant Program recipient by the Baxter Healthcare Corporation. The award will further his research on the treatment of acute renal failure with thyroxin, a hormone produced in the thyroid gland. Dr. Siegel's studies concentrate on kidney failures due to such impairments as blood flow obstruction or toxic substances in the urinary tract.

Dr. Siegel joined the Yale medical faculty in 1972 as assistant professor of pediatrics and director of the pediatric nephrology section. He is chairman of the National Kidney Foundation Council on Pediatric Nephrology and Urology and a member of the foundation's scientific advisory committee. He also is a member of the medical advisory committee for the Connecticut Kidney Foundation.

Dr. Siegel was one of 11 recipients of the Baxter grants which total \$500,000.

Dean Rosenberg Takes Sabbatical

In May, Dean Leon E. Rosenberg announced that he would begin a six-month sabbatical leave on July 1. He stated: "After seven years in this job, I believe it is both prudent and necessary for me to have this time for reflection, writing, planning and 'doing' science. I fully expect that such a respite will allow me to take up the deanship again with renewed vigor and clear vision.

"I take this leave with a sense of ease knowing that our stellar deputy dean, Bob Donaldson, will ably serve as interim dean and that you will give him the kind of loyal and dedicated support you have always afforded me."

Melville Corporation Supports Comer Program

The Melville Corporation has joined with the Rockefeller Foundation in funding a project which will replicate Dr. James P. Comer's model school development program in a number of inner-city school systems across the country.

A specialty retail company based in Rye, N.Y., the Melville Corporation has made an initial gift of \$250,000 with the expectation of providing continued support over four years to improve urban schools by applying Dr. Comer's concepts.

Dr. Comer, the Maurice Falk Professor in the Child Study Center and Psychiatry at the School of Medicine, has developed educational reforms which address the difficulties of educating low-income and minority children living in cities. Developed in collaboration with the New Haven public school system, the Comer model is being used by 165 schools in 15 districts throughout 12 states and Washington, D.C.

The program focuses on a child's preparation for school and the collaboration between school staff and parents in the academic and social development of children.

FACULTY NEWS



Dr. Howard Pearson and friend.

Yale Pediatrician To Lead Academy

Howard A. Pearson, M.D., professor of pediatrics, has been named vice president-elect of the American Academy of Pediatrics (AAP), a national organization dedicated to promote the physical, mental and social health of children, adolescents and young adults.

Dr. Pearson, who also serves as medical/executive director of Paul Newman's Hole-in-the Wall Gang Camp for children with cancer and blood diseases, will take office as the academy's national vice president in October. He will serve a one-year term as AAP president, beginning in 1992.

With 41,000 members in the United States, Canada and Latin America, the academy is dedicated to advocacy for children, research, public and professional education, and serving as a voice for pediatricians.

In 1968, Dr. Pearson came to New Haven as professor and head of pediatric hematology/oncology at the School of Medicine. Between 1974 and 1987, he chaired the department of pediatrics and organized a continuing education course for practicing pediatricians, now in its 18th year. He continues to care for children with blood diseases.

More than 20 years ago, Dr. Pearson initiated the first comprehensive program for diagnosing sickle cell anemia in newborns, which became a model for the neonatal blood screening programs mandated in more than 30 states and in other countries throughout the world. The National Heart, Lung and Blood Institute used it as the basis for the newborn component of the National Cooperative Study of Sickle Cell Diseases.

An AAP member since 1966, Dr. Pearson wrote a nutrition committee statement on iron, and its recommendations led to the eradication of severe iron deficiency in this country.

Three Faculty Receive Endowed Professorships

President Benno C. Schmidt Jr. announced the appointment of three School of Medicine faculty members to endowed professorships. Carolyn W. Slayman, Ph.D., has been named the Sterling Professor of Genetics; Alvan R. Feinstein, M.D., the Sterling Professor of Medicine; and Burton H. Singer, Ph.D., the Ira V. Hiscock Professor of Epidemiology and Public Health.

Dr. Slayman became the first woman to assume a medical department chair at Yale when she was appointed chair of the human genetics department in 1984. The department she leads plays an active role in the emerging field of gene therapy and in efforts to map and sequence the human genome. During her career, she has centered her research on the proteins that transport nutrients across cell membranes, and the genes that code for those proteins.

Born in Portland, Maine, Dr. Slayman graduated from Swarthmore College in 1958 with highest honors in biology and chemistry. She received her Ph.D. degree in biochemical genetics from Rockefeller University in 1963, and spent the following year as a National Science Foundation (NSF) post-doctoral fellow at Cambridge University. She joined the Yale faculty in 1967 as an assistant professor of microbiology and physiology. In 1972, she was promoted to professor.

Among her numerous professional activities, Dr. Slayman serves on the National Advisory General Medical Sciences Council at the National Institutes of Health. She also is a member of the board of trustees of Bowdoin College in Brunswick, Maine, and of Hopkins

School in New Haven.

Dr. Feinstein, a Yale medical faculty member and an attending physician at Yale-New Haven Hospital since 1962, also is director of the clinical epidemiology unit and of the Robert Wood Johnson Clinical Scholars Program. Since its onset at Yale in 1975, the Clinical Scholars Program has provided a fellowship for training post-graduate physicians working in clinical epidemiology, health care delivery or health policy.

Dr. Feinstein, a Philadelphia native who received B.S., M.S. and M.D. degrees from the University of Chicago in 1947, 1948 and 1952, conducted research on rheumatic fever at Rockefeller Institute and Irvington House. He has developed clinical research techniques that have improved methods for the prognosis and treatment of cancer. For example, he pioneered methods to quantify such phenomena as pain, distress and disability. Dr. Feinstein advocates that clinical epidemiology and clinimetrics be developed as additional humanistic "basic sciences" for clinical practice.

Dr. Singer, associate dean as well as chairman at EPH, is one of the nation's outstanding biostatisticians. During much of his career, he has studied the dynamics of infection in tropical diseases, beginning with his work on malaria in Nigeria. At present, he is working on the social and economic impact of malaria and other tropical diseases as they relate to high-technology drug development and vector control methods in developing countries.

As chairman of a World Health Organization steering committee for social and economic research in the tropical disease program, Dr. Singer has been involved in the international debate concerning the extent that high-technology drugs and vector control methods interrupt disease and improve the health of people in developing countries.

Before joining the Yale faculty in 1985, Dr. Singer had chaired for two years Columbia University's department of statistics. His career also includes 18 years of teaching and research at Columbia and 12 years as an adjunct professor at Rockefeller University.

A native of Chicago, Dr. Singer received B.S. and M.S. degrees from Case Institute of Technology in 1959 and 1961. In 1967, he received a Ph.D. degree in statistics from Stanford University.

ALUMNI REPORT

Many alumni returning for their annual reunion weekend shared in the dedication of the new Boyer Center for Molecular Medicine on June 6 and 7. Symposia were presented before and after the dedication of this fine addition to the medical school campus. Discussants from the academic, governmental and business communities presented their views on "Constructing a National Agenda for Biomedical Research" before a reception and tour of the center on June 6. "Perspectives in Molecular Medicine" commemorated the four programs in the center: molecular genetics, molecular and developmental neurology, molecular oncology and development, and molecular cardiobiology.

Following registration on June 7, class reunion seminars met. The Class of 1941 (50th reunion) heard Willys M. Monroe, M.D., discuss "The U.S. Public Health Service: A Virginia Tradition;" Martin E. Gordon, M.D. '46, who was local 45th-reunion chairman, organized an outstanding program entitled "From Then to Now — Panoramic Views of Medicine: 45 Years of Personal Observation." Ten members of the class read 10-minute papers about topics in their specialty. Thomas Kugelman, M.D. '60, greeted attendees and Dean Rosenberg welcomed the alumni. Nobel laureate George E. Palade, M.D., Sterling Professor Emeritus of Biology at Yale and dean of scientific affairs at the University of California, San Diego, School of Medicine, discussed the "Medical School Curriculum and the Rapid Expansion of Biomedical Sciences." A reception followed at Harkness auditorium. Returning alumni then joined class members at dinners, parties and picnics.

At surgical grand rounds on June 8, moderator William F. Collins Jr., M.D., chairman of surgery, discussed recent advances in this field. Concurrent faculty seminars included: "Recent Advances in Disorders of Pigmentation" by Jean Bologna, M.D. '80, and "Genetic Control of Pigmentation" by Ruth Halaban, Ph.D.; "Lyme Disease: State of the Art," moderated by Daniel Rahn, M.D. '76; "The Pain

Experience," moderated by Luke M. Kitahata, M.D., Ph.D.

Dr. Vincent T. Marchesi moderated a panel discussion entitled "Yale Center for Molecular Medicine — Program for the Future." Center faculty members discussed upcoming molecular research programs and their clinical application.

The medical reunion dialogue and tea/sherry concluded the scientific program. Arthur Ebbert Jr., M.D., professor emeritus of medicine, moderated a provocative discussion between Alvan R. Feinstein, M.D., professor of medicine and epidemiology, and Joseph Warshaw, M.D., professor and chairman of pediatrics, entitled "Fundamental Scientific Challenges in Clinical Care." Lively audience participation ensued.

Friendships were renewed, reminiscences exchanged, family joys and sorrows were shared. Alumni had matured but remain young at heart. Individual classes convened picnics and dinners arranged by New Haven-area classmates. The golden anniversary of the graduation of the Class of 1941 was celebrated at a dinner at the Colony Inn hosted by the Friends of the 50th for class members and spouses. Dr. Gioacchino Parrella presented a paper entitled "The Way We Were — 50 Years Later" to rekindle memories of their four years at Yale. Each returning member of the class spoke briefly. The Class of 1986 returned for their first five-year reunion and were introduced by Dr. John Wysolmerski, dinner chair. Two members of the Class of 1931 and two from the Class of 1936 were introduced.

Dean Leon E. Rosenberg presented a stimulating State of the School Address at annual meeting of the Association of Yale Alumni in Medicine (AYAM) at Harkness auditorium on June 8. The dean cited Dr. Kugelman for outstanding service at the completion of his term as president of AYAM. Muriel Wolf will serve as president for a two-year term. Marie-Louise T. Johnson, M.D. '56, will serve as vice president, and Gilbert Hogan, M.D. '57, as secretary. Elected to the executive committee to replace members who have

completed their term are Frederic K. Cantor, M.D. '62; R. Leonard Kemler, M.D. '43; Michael H. Owens, M.D. '78; and Barbara Ross, M.D. '81. Nicholas M. Passarelli, M.D. '59, has agreed to serve a second term.

Elected as representatives to the AYA are W. Scott Peterson, M.D. '71, and Benjamin E. Lyons, M.D. '38. Andrew S. Wong, M.D. '51, will fill the unexpired term of Marie-Louise Johnson.

We thank Thomas Kugelman for an outstanding term in office. Congratulations are also extended to those members of the executive committee and representatives to the AYAM whose terms have expired.

A Distinguished Alumni Award was awarded to Lowell I. Goodman, M.D. '51, for his accomplishments as chairman of the Yale School of Medicine Alumni Fund. Samuel Kushlan, M.D. '35, a previous recipient, presented Dr. Goodman with a Yale chair after appropriate remarks.

Maxwell Bogin, M.D. '26, received a special citation commemorating 65 years in the practice of pediatrics and long tenure as class agent for the Class of 1926. Nicholas P.R. Spinelli, M.D. '44, presented Dr. Bogin with a framed certificate.

There will be ample opportunity in the coming year for AYAM members to participate in student activities. Each year there is an annual dance in December or January. The association sponsors a student-faculty tea, and we assist with the second-year show. Alumni are welcome to all of these activities. Schedules will be available.

Alumni/student interaction was further enhanced by participation in the Kresge Challenge phonathons. Thirty-two students and 22 alumni were joined by Dean Rosenberg at the alumni fund office on March 19, 20, and 26, 27. The \$33,000 collected will be used by the alumni fund for financial aid and for unrestricted use by the dean.

*Arthur Crovatto, M.D. '54
Director of alumni affairs*

Dr. Hoyt C. Taylor, '40-'43 HS. worked part-time for 10 years in the Lawnwood Regional Hospital emergency room after retiring to Florida in 1980. He continues 40 hours of medical education to retain his medical license.

Dr. John H. Grossman II, '41-'45 HS. has retired from the private practice of gynecology and conducts a weekly one-hour radio talk show in Ansonia, Conn.



Julian Frieden, M.D. '48

Dr. Julian Frieden, '48, chief of cardiology at New Rochelle Hospital Medical Center, was honored in May by the hospital for his more than 35 years of contributions. Dr. Frieden initiated several new programs at the medical center, including a progressive care unit and a cardiac telemetry unit. He also is an attending physician and electrocardiographer at Montefiore Medical Center in New York City and a clinical professor of medicine at the Albert Einstein College of Medicine.

Dr. T. Timothy Crocker, '48-'50 HS, clinical professor of internal medicine (occupational and environmental) at the University of California, San Francisco, was professor of internal medicine (infectious diseases) and cancer research at the University of California, San Francisco from 1950 through 1971. From 1971 through 1990, he served as professor and founding chair for the department of community and environmental medicine at the University of California, Irvine.

ALUMNI NEWS

Dr. Paul Calabresi, '55, professor and chairman of the Brown University department of medicine, was appointed chairman of the National Cancer Advisory Board by President Bush. His five-year term began in January 1991. The 18-member board reviews grant applications of \$50,000 or more made to the National Cancer Institute.

Dr. Joseph P. Wierzbinski, '58, and **Susan S. Addiss, '69 M.P.H.,** have been appointed by Connecticut Gov. Lowell P. Weicker to serve in state health service positions. Dr. Wierzbinski has been named state surgeon general, an appointment which makes him a member of the governor's military staff. Ms. Addiss now serves as commissioner for the Department of Health Services after nine years as chief of the department's bureau of health planning and resource allocation.

Dr. Jack N. Blechner, '57, professor and head of the department of obstetrics and gynecology at the University of Connecticut Health Center, has been named president of the Obstetrical Society of Boston. Dr. Blechner also is associate dean for clinical affairs at the health center's School of Medicine.

Jack D. Barchas, '60, of Westwood, Calif., serves as associate dean for neuroscience at University of California.

Dr. Robert L. Johnson, '60-'64 HS, is clinical professor of otolaryngology at the University of California, San Francisco, and is chief and director of residency training in otolaryngology at Children's Hospital in San Francisco.

Dr. John T. Harrington, '62, governor for the Massachusetts chapter of the American College of Physicians, received an honorary fellowship in May from the Royal College of Physicians of Ireland for his work in renal physiology, nephrology and as editor of *Nephrology Forum* in the journal, *Kidney International*.

Dr. Stephen C. Joseph, '63, has been appointed dean of the school of public health and professor of public health and pediatrics, at the University of Minnesota.

Dr. Donald G. Skinner, '64, professor and chairman of urology at the University of Southern California School of Medicine, has been named the



Stephen C. Joseph, M.D. '63, M.P.H.

1991 Barringer Medal recipient. The bi-annual award given for achievement in cancer research was presented to Dr. Skinner at the American Association of Genitourinary Surgeons' annual meeting held in April in Naples, Fla.

Dr. David S. Fedson, '65, professor of internal medicine and head of the division of general medicine at the University of Virginia School of Medicine, was appointed to a four-year term on the National Vaccine Advisory Committee, beginning in July. He also has served on the U.S. Public Health Service Immunization Practices Advisory Committee, and chaired the American College of Physicians' Task Force on Adult Immunization.

Dr. Charles R. Rosenfeld, '66 HS, has been on the faculty at the University of Texas Southwestern Medical School at Dallas since 1973 and is director of the division of neonatal-perinatal medicine, and professor pediatrics and obstetrics and gynecology. He currently is on an administrative leave, working in the physiology department on vascular smooth muscle alterations in pregnancy.

Dr. Peter N. Herbert, '67, has been appointed chairman of medicine for at the Hospital of St. Raphael in New Haven.

Dr. Donald R. Coustan, '68, has been appointed obstetrician and gynecologist-in-chief at Women & Infants Hospital of Rhode Island and chairman of the department of obstetrics and gynecology at Brown University. In



Donald R. Coustan, M.D. '68

1982, Dr. Coustan joined the hospital staff to establish and direct the division of maternal/fetal medicine and later became director of obstetrics and associate chief of obstetrics and gynecology. He was appointed full professor in 1986.

Dr. Anthony V. Proto, '71, joined the staff of the Medical College of Virginia, Virginia Commonwealth University, in 1984, as professor and director of pulmonary radiology. He served as chairman of the division of diagnostic radiology for three years, and as interim chairman of the department of radiology from July 1989 through October 1990. Dr. Proto has been a consultant for the National Institutes of Health since 1986 and also has served as national civilian consultant in diagnostic radiology to the Surgeon General, U.S. Air Force, since 1980. He was recently honored by the Annual Oration of the Radiological Society of North America.

Dr. Paul Vignola, '71, '71-'74 HS, has been appointed director of the cardiac catheterization laboratory at Mount Sinai Medical Center in Miami Beach.

Dr. Raymond L. Sphar, '72 M.P.H., has been appointed director of medical research service for the Department of Veterans Affairs in Washington, D.C. He retired from the U.S. Navy, where he headed several research units and served as medical research advisor in the Office of the Secretary of Defense.

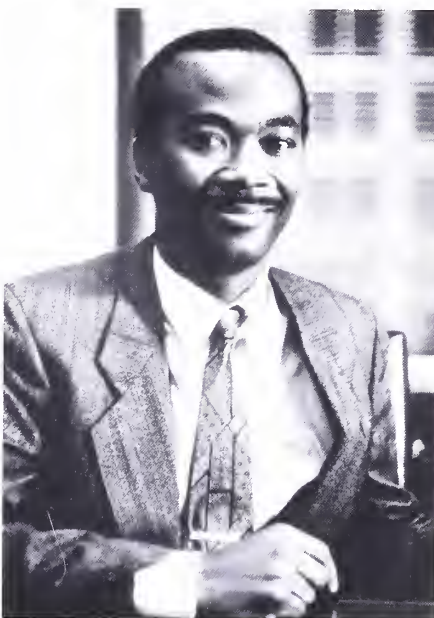
ALUMNI NEWS

Dr. Warren R. Patterson, '72-'74 HS, of Nashville, Tenn., completed a plastic surgery residency in 1986 and became board certified in 1990.

Dr. John H. Grossman III, '72-'75 HS, is professor of obstetrics, gynecology and microbiology and also director of the division of maternal-fetal medicine at George Washington University medical school in Washington, D.C.

Dr. David A. Adler, '73, is chief of adult psychiatry at the New England Medical Center Hospitals and professor of psychiatry at Tufts University School of Medicine.

Dr. Mary Jane Minkin, '75, was honored by the New Haven Rape Crisis Services of the YWCA with its first annual Arnold Markle Award for her aid to rape survivors. The award, named for the late state attorney in honor of his advocacy of sexual assault victims' rights, was presented to Dr. Minkin at a ceremony in January at the New Haven District Courthouse.



Michael H. Owens, M.D. '78

Dr. Michael H. Owens, '78, was appointed medical director for CIGNA Private Practice Plan, CIGNA Healthplans of California. Dr. Owen's responsibilities include physician relations, utilization management and quality assurance of the 12,000-member health care delivery system, which

serves the Los Angeles area. Before his appointment, Dr. Owens served as executive vice president and chief health officer for the Watts Health Foundation, Inc. and United Health Plan, where he was responsible for the organization's health delivery systems.

Dr. Wayne E. Julian, '81 HS, foreign service medical officer for the United States Department of State, has been assigned as regional psychiatrist for South America, and will be posted at the U.S. embassy in Santiago, Chile.

Dr. David S. Weiss, '81, was inducted as a fellow of the American Academy of Orthopaedic Surgeons during the academy's 58th annual meeting in March in Anaheim, Calif.

Dr. Aswine K. Bal, '86 M.P.H., completed a residency in pediatrics at Beth Israel Medical Center in New Jersey and is a fellow in pediatric infectious diseases at Yale-New Haven Hospital.

Michael Huncharek, '86 M.P.H., graduated from Boston University School of Medicine and has accepted a resident position in radiation oncology at Massachusetts General Hospital.

Lorraine M. Almo, '90 M.P.H., is employed at Indian Health Service Community Health Nursing in Fort Defiance, Ariz.

Stacey Wills, '90 M.P.H., is a researcher at the Employee Benefit Research Institute in Washington, D.C., where she examines health care cost issues, particularly insurance, and publishes reports on current policy agendas in Congress, state governments and private businesses.

Christina Wypijewski, '90 M.P.H., works on prevention policies and programs for the federal Office of Disease Prevention and Health Promotion, Department of Health and Human Services.

NEW BOOKS

Child and Adolescent Psychiatry: A Comprehensive Textbook, Dr. Melvin Lewis, professor of pediatrics and psychiatry, Williams & Wilkins (Baltimore) 1991.

The Treblinka Virus, Dr. Robert B. Litman, '72 HS, The Ivy League Press, Inc. (New York) 1990.

STUDENT NEWS

John B. Houston and **Jonathan E. Sears**, third-year students, were selected to participate in the Juvenile Diabetes Foundation's 10th annual Medical Student Workshop. The workshop, entitled "Introduction for Potential Investigators," was held in April in Bellevue, Wash., and introduced students from 65 universities in the United States and Canada to progress made in the treatment of diabetes complications, islet transplantation, diabetic nephropathy, and insulin treatment. Mr. Houston also was selected by the Howard Hughes Medical Institute to participate in the Cloister Program, a National Institutes of Health Research Scholars program which allows him to perform research in an NIH laboratory of his choice for one year.

Dr. Steven Herber, who is completing his first year of plastic surgery residency at Yale, has been selected as a 1991 recipient of the American Medical Association (AMA) Burroughs Wellcome leadership award based on a commitment of community service and interest in organized medicine. He has a keen interest in international medical service and accompanied Dr. Gary Price to Guatemala, where they performed reconstructive operations for congenital and acquired deformities. Dr. Herber will be attending this year's national AMA House of Delegates meetings as a representative of the Connecticut Medical Society.



Joanna B. Rosen and William F. King Jr.

Second-year Students Win Elm-Ivy Awards

William F. King Jr. and Joanna B. Rosen, two second-year medical students, received Elm-Ivy Awards for community service. They and 10 other recipients were feted at the annual Elm-Ivy Awards luncheon held at University Commons on May 24. Each spring, the city of New Haven and Yale honor individuals from the University and the local community who make an extraordinary contribution to New Haven.

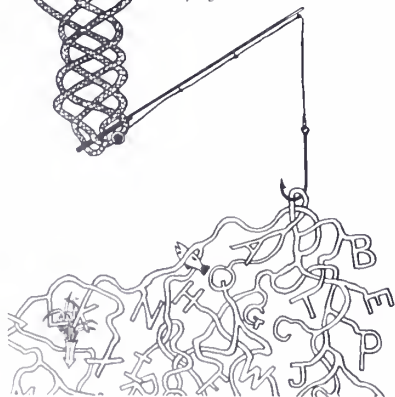
Mr. King and Ms. Rosen organized the Adolescent Substance Abuse Prevention (ASAP) Program, in which 35 Yale medical students educate seventh-grade children from the Roberto Clemente Middle School in New Haven about the hazards of drugs, alcohol and tobacco. Their program is one of 10 two-year ASAP pilot projects nationally, sponsored by the American Medical Student Association.

For their efforts through ASAP, Mr. King and Ms. Rosen were selected by their classmates to receive the 1991 CIBA-GEIGY Award for outstanding community service.

DIVERTICULUM



Yale Medical School
Literary Magazine
Spring 1991



Diverticulum: 1991's medical student literary magazine was edited by first-year student James Ahn.

Miles Scholar Award Recipient Selected

Shalina Mahajan, a graduate student in human genetics, is the third annual recipient of the Miles Scholar Award established by Miles Inc., a health care company headquartered in Elkhart, Ind. Two years ago, Miles Inc. created the award at Yale to encourage graduate study in the biomedical sciences by students with high potential to achieve research excellence.

Ms. Mahajan conducts research on oogenesis, the formation and development of mature eggs, called oocytes, in the fruit fly. She studies the

transport of nutrients and molecules between cells to learn how cells communicate with each other during development. Molecular disruptions in this process may result in abnormal egg production. "This research is a genetic approach to understanding the molecular basis of intercellular transport by studying specific mutations or disruptions," states Ms. Mahajan, who in 1989 received an A.B. degree in biology from Smith College.

The Miles Scholar Award provides tuition, supplies and other costs, plus a two-year stipend. Candidates were selected from second-year Ph.D. and M.D., Ph.D. students in Yale's biomedical sciences program and its biology department.

DEVELOPMENT REPORT

Parkinson Foundation Issues \$500,000 Grant

The National Parkinson Foundation (NPF) has awarded the School of Medicine a \$500,000 grant to establish a basic scientific and clinical research program to advance knowledge about and treatments for this neurological disease. NPF, based in Miami, cited Yale's interdisciplinary approach, which combines basic research with clinical care.

The NPF program will enable the school to expand its comprehensive research activities, especially into the function of the neurotransmitter dopamine. For 20 years, Yale has been a leader in dopamine research. Dopamine, a chemical messenger, provides the communication link between the neurons which degenerate in Parkinson's disease and the cells in the brain which are involved in movement.

Comments Dean Leon E. Rosenberg, "Through NPF's generosity, our depart-

ment of psychiatry, which conducts extensive neuroscientific research, and our department of neurology, which treats patients with Parkinson's disease, will expand their programs."

The National Parkinson Foundation Research Program at Yale University, administered by the department of psychiatry, will be headed by Dr. Ariel Y. Deutch, assistant professor of psychiatry. Dr. Deutch is also the chairman of the scientific advisory board of the National Parkinson Foundation.

This basic research program will be complemented by the National Parkinson Foundation Clinical and Therapeutic Service Programs at Yale University, directed by Dr. Kenneth Marek, assistant professor of neurology. Under his leadership, the department will expand state-of-the-art diagnosis and treatment for patients with Parkinson's disease; physicians and scientists will advance research by conducting clinical studies of new and promising strategies.

Herman Family Gift To Benefit EPH

Samuel S. Herman, '48 M.P.H., '50 Ph.D., and his wife, Liselotte, have donated a remainder interest in their residence to the department of epidemiology and public health (EPH). The funds from the sale of their home will be used to support the work and research of EPH faculty.

Born in Boston, Mass., Dr. Herman attended Harvard College, where he received his A.B. degree. He then came to study at Yale's department of public health, where he earned M.P.H. and Ph.D. degrees. After graduating, Dr. Herman joined the National Institutes of Health (NIH) in Bethesda, Md., where he established research training and fellowship programs for the Eye Institute and the Environmental Health Sciences Institute. He also served as the deputy director for extramural affairs at the National Cancer Institute.

Dr. Herman left the NIH to join Temple University in Philadelphia, as associate vice president for research and graduate studies at the Health Sciences Center, as well as associate dean for research and graduate studies at Temple Medical School. During that time, he directed of a Congressionally mandated study conducted by the National Research Council for the National Academy of Sciences to determine national needs for biomedical and behavioral research personnel.

Since his retirement from Temple, Dr. Herman has established a consulting practice for education and research organizations. His company specializes in Washington representation for these institutions and in biomedical research administration. In this capacity, he serves as a consultant to the Lucille B. Markey Charitable Trust.

Dr. Herman has been an active volunteer on behalf of EPH and the School of Medicine, serving on several boards and as class agent.



Donald S. Hetzel, M.D., vice president of Becton Dickinson and Company, speaks at a reception where he presented a check for \$150,000 to the department of laboratory medicine to help support its Molecular Diagnostics Development Laboratory. Department chairman Peter I. Jatlow, M.D., said the gift will allow basic and clinical scientists to intensify their efforts to clinically apply advances in molecular biotechnology.

Joseph Axelrod

Joseph Axelrod, M.P.H., died March 31 in an auto accident near Guaymas, Sonora, Mexico. He was 74.

Before his retirement, he directed the Yale University Health Plan and had been executive director of the Michael Reese Health Plan in Chicago.

A native of New Haven, Mr. Axelrod was a 1938 graduate of the University of North Carolina and in 1951 received a M.P.H. degree from Yale.

He leaves his wife, Patricia; two daughters, Carol and Janet; three grandsons; four stepchildren; and five step-grandchildren.

Contributions may be made to the Scholarship Committee of Alamos, c/o Elizabeth Nuzum, Calle Comeccio 2, Alamos, Sonora, Mexico 85760.

Walter E. Barney

Walter E. Barney, M.D., a retired general practitioner and anesthesiologist, died Feb. 18 at Willows of Woodbridge Nursing Home in Connecticut. He was 85.

Dr. Barney formerly was chief of staff at Milford Hospital before he retired in 1981 after 50 years in practice.

He was a 1931 graduate of the Catholic University of America and a 1935 graduate of Yale School of Medicine. During World War II, Dr. Barney was a major in the Army.

He is survived by his wife, Mary; a son, John; and two grandsons.

Contributions may be made to the Milford Hospital Memorial Fund, 2047 Bridgeport Ave., Milford, CT.

David H. Clement

David H. Clement, M.D., died March 1 in Yale-New Haven Hospital at the age of 81.

Dr. Clement began his pediatric practice in New Haven in 1946, when he also became a clinical professor of pediatrics at the School of Medicine. At Yale-New Haven Hospital, he served as director of the pediatric hematology laboratory and was associate chief of pediatrics.

He attained the rank of major during World War II and later served in military hospital centers in Naples and Vittel, Italy. He also helped establish a research ward for the U.S.A. Typhus Commission in the Dachau concentration camp, for which he was

OBITUARIES

awarded the Commission Medal.

A native of Buffalo, N.Y., Dr. Clement graduated from Yale College in 1931 and received an M.D. degree in 1935 from Harvard Medical School. For 20 years he was official examiner for the American Board of Pediatrics. He leaves his wife, Constance; and a daughter, Constance. Contributions may be made to the Yale-New Haven Hospital Office of Development, P.O. Box 1849, New Haven, CT 06509.

Wilbur G. Downs

Wilbur G. Downs, M.D., clinical professor of epidemiology, died Feb. 17 in his Branford home. He was 77.

Dr. Downs, former director of the Yale Arbovirus Research Unit, founded the Trinidad Regional Virus Laboratory, now the Caribbean Epidemiology Centre, in Port-of-Spain, in 1952. He served as chief of preventive medicine for the Island Command in Okinawa during World War II, for which he received the Bronze Star. After the war, he directed a malaria control program in Mexico for the Rockefeller Foundation; in 1963, he negotiated to move the foundation's virus laboratory to Yale, where it became the Arbovirus Research Unit. He remained as its associate director.

A New Jersey native, Dr. Downs graduated from Cornell University and its medical school in 1935 and 1938, respectively. In 1941, he received a master's of public health degree from Johns Hopkins School of Public Health and Hygiene.

Dr. Downs was a member and chairman of many public and private organization advisory committees, including those of the World Health Organization, the United States Public Health Service and the National Academy of Sciences.

He leaves his wife, Dorothy; two sons, W. Montague and Thomas; four daughters, Helen Haller, Anne Carroll, Isabel, and Nancy Leedy; and 15 grandchildren.

Contributions may be made to the Downs Student International Travel Fellowship, c/o Elizabeth Young, Yale Arbovirus Research Unit, P.O. Box 3333, New Haven, CT 06510.

Peter A.T. Grannum

Peter A.T. Grannum, M.D., associate professor of obstetrics and gynecology, died Jan. 21 at the Yale Health Service. He was 42.

Dr. Grannum, a native of Barbados, was a graduate of the University of West Indies Medical School and had been director of medical studies for the department of obstetrics and gynecology at Yale since 1979. He was a two-time recipient of the medical school's Francis Gilman Blake Award for outstanding teaching. He also was an attending physician at Yale-New Haven Hospital and a fellow of the American College of Obstetrics and Gynecology.

He is survived by his parents. Contributions may be sent to the Peter Grannum M.D. Fund, Department of Obstetrics and Gynecology, Yale University School of Medicine, P.O. Box 3333, New Haven, CT 06510.

Leona Baumgartner Langmuir

Leona Baumgartner Langmuir, M.D., New York City's commissioner of health from 1954 to 1962, died Jan. 15 in Chilmark, Mass. at the age of 88.

Dr. Baumgartner joined the Department of Health in 1937 and after her appointment as first female commissioner, she was appointed assistant administrator of the Agency for International Development. One of her last achievements as health commissioner was to win a political battle to fluoridate the city's water supply. In 1962, President John F. Kennedy appointed her to head the Office of Technical Cooperation and Research at the United States Agency for International Development, where she established a research advisory council to improve standards in grants for health and welfare programs worldwide. In 1966, she was named visiting professor of social medicine at Harvard Medical School, a post she held until her retirement in 1972.

A native of Chicago, Dr. Baumgartner received bachelor's and master's degrees from the University of Kansas and was a Rockefeller Research Fellow at the Kaiser Wilhelm Institute in Munich before winning a Sterling Fellowship to study at Yale, where she earned Ph.D. and M.D. degrees. Dr. Baumgartner has been honored with 14 honorary degrees and numerous awards, among them the Sedgwick Medal and

Lasker Award of the American Public Health Association, of which she was a past president, and the Public Welfare Award of the National Academy of Sciences. She was an active member of several professional societies, including the Institute of Medicine and the American Academy of Arts and Sciences. She leaves her husband, Dr. Alexander Langmuir, and six stepchildren. Memorial contributions may be sent to the Leona Baumgartner Student Loan Fund, Yale University School of Medicine, New Haven, CT 06510.

Jacob Mellion

Jacob Mellion, M.D., died Feb. 23 at the age of 93.

Dr. Mellion served as the New Britain school system's health director from 1927 until he retired in 1962. He continued as the high school's team physician for 12 years after his retirement. A native of New Haven, Dr. Mellion was a 1923 graduate of Yale School of Medicine and a veteran of World Wars I and II, serving in North Africa and Italy.

He is survived by his wife, Ethel; a daughter, Patricia Allen; and a grandson.

Memorial donations may be made to Hadassah, c/o Mrs. Selma Zager, 231 Lowery Place, Newington, CT 06111.

Brigitte A. Prusoff

Brigitte A. Prusoff, Ph.D., died April 4 at Yale-New Haven Hospital at the age of 64.

A native of Berlin, Germany, Dr. Prusoff had been a member of the Yale faculty since 1961 and was a founder of Yale's Depression Research Unit. She was a research scientist in the genetic epidemiology research unit in the department of psychiatry.

Dr. Prusoff received a master's degree in biometry from the department of epidemiology and public health at Yale in 1967 and a doctoral degree in epidemiology in 1978. Dr. Prusoff was the recipient of the American Psychiatric Association's Foundation Fund Prize and the Anna Monika Foundation Prize. She was an editorial consultant for several psychiatric publications as well as a member of numerous professional organizations.

She leaves her husband, Dr. William H. Prusoff; a son, Alvin; a daughter, Laura; and three grandchildren.

OBITUARIES

Henry K. Silver

Henry K. Silver, M.D., a pediatrician who developed pioneering programs in the 1960s, died Jan. 13 at University Hospital in Denver. He was 72.

Dr. Silver joined the faculty at the University of Colorado School of Medicine in 1957 after teaching at the University of California Medical School and Yale School of Medicine.

He was a 1942 graduate of the University of California at Berkeley Medical School. In 1964 he developed the first national program for nurse-practitioners and also instituted a program at the University of Colorado to train students as physicians' assistants specializing in pediatrics. Since 1978 he served as associate dean of admissions at the University of Colorado Medical School.

In 1985, he conducted a study of abuse of medical students by faculty members and supervisors and in 1990, co-authored a study revealing that 80 percent of the students in one medical school reported some form of verbal, physical or sexual abuse.

He is survived by his wife, Harriet; and a son, Andrew.

Hoyt C. Taylor

Hoyt C. Taylor, M.D., died Jan. 4 at Martin Memorial Hospital in Palm City, Fla. He was 79.

Dr. Taylor, a Connecticut native, was a graduate of Norwich Academy and received his bachelor's and master's degrees from Wesleyan University. In 1938, he received an M.D. degree from Cornell Medical School and served for two years on the house staff at the New York Lying-in Hospital. He transferred to New Haven Hospital where he served a residency and was an instructor in obstetrics and gynecology at Yale.

During World War II, Dr. Taylor served with the advanced amphibious units in England, and upon his return was appointed head of the department of gynecology at Chelsea Naval Hospital, Mass. He later opened his own practice in Meriden, Conn., which he retained for 25 years and was chief of ob/gyn at Meriden-Wallingford Hospital for 15 years. He was a founding fellow of the American College of Obstetrics and

Gynecology and American College of Surgeons and a member of the Connecticut Medical Society, the American Medical Association and the Marting County Medical Society.

He is survived by his wife, Dorothy; three daughters, Deborah Gaffney, Jacqueline Vineis and Patricia Linthicum; two stepsons; four stepdaughters; and 21 grandchildren.

David Weinman II

David Weinman II, M.D., died Feb. 2 at his home in California at age 82.

A native of New Mexico, Dr. Weinman received a B.A. degree from Columbia College in 1929 and an M.D. degree from the University of Paris in 1935.

Dr. Weinman, professor emeritus of epidemiology at the School of Medicine, held positions at Harvard University Schools of Medicine and Public Health, Columbia College of Physicians and Surgeons, and the University of California, San Francisco, Medical Center. He was a consultant to the American Medical Association council on drugs and a member of the World Health Organization Expert Panel on Parasitic Diseases.

Warren H. Weiswasser

Warren H. Weiswasser, M.D., M.P.H., died in his home in Orange, Conn. on Feb. 18, at age 46.

Dr. Weiswasser had been a pediatrician associated with the Community Health Care Plan Inc. in New Haven since 1977. He also served several positions with the Quality Assurance Network Committee, including medical director and chairman.

A native of Detroit, Dr. Weiswasser graduated from Monteith College and the University of Michigan Medical School. He received a master's of public health degree from the University of Washington.

Dr. Weiswasser held a clinical faculty appointment at the School of Medicine and was a member of the Mayor's Task Force on AIDS in New Haven.

He is survived by his wife, Janet; two sons, Charles and Michael; and a daughter, Julie.

Contributions may be made to the Child Development Unit, Yale Child Study Center, P.O. Box 3333, New Haven, CT 06510.

IN MEMORIAM

William Cohen <i>December 3, 1990</i>	'23 M.D.	Edward W. Holland <i>July 5, 1990</i>	'32 M.D.	Frank J. Kenney Jr. <i>August 13, 1991</i>	'55 M.D.
Jacob Mellion <i>February 23, 1991</i>	'23 M.D.	Raymond E. Miller <i>December 25, 1990</i>	'33 M.D.	Charline S. Buck <i>December 5, 1990</i>	'55 M.P.H.
John J. Batchelor <i>January 8, 1991</i>	'24 M.D.	John J. Wolfe <i>April 21, 1990</i>	'33 M.D.	James F. Schwartz <i>October 1990</i>	'56 HS
Wilfred S. Clark <i>September 18, 1989</i>	'25 HS	William R. Sweetman <i>December 3, 1990</i>	'34 M.D.	Robert T. Miller <i>June 3, 1990</i>	'58 HS
Dorence S. Cowles <i>December 13, 1990</i>	'25 M.D.	Edward F. Falsey <i>November 3, 1990</i>	'35 M.D.	Edward H. Futterman <i>March 23, 1991</i>	'59 HS
Ernesto Icaza	'27 M.D.	Frederick A. Post <i>April 1990</i>	'36 M.D.	Edward A. Janasz	'61 M.P.H.
Sander E. Lachman <i>November 2, 1988</i>	'27 HS	Carl J. Tracey <i>August 7, 1989</i>	'36 ex med	Gary Van Galder <i>January 31, 1990</i>	'63 M.D.
George C. Wilson <i>December 28, 1990</i>	'28 M.D.	Byron C. Smith <i>December 5, 1990</i>	'38 HS	Leland S. Berger <i>May 4, 1990</i>	'64 M.D.
John W. Cass Jr. <i>May 10, 1990</i>	'29 M.D.	Howard B. Rindge <i>December 12, 1990</i>	'39 ex med	David R. Stewart <i>October 1986</i>	'65 HS
Lydia G. Dawes <i>December 4, 1990</i>	'29 M.D.	Knute E. Berger <i>December 24, 1990</i>	'41 M.D.	Edward I. Sweet <i>December 21, 1988</i>	'69 HS
Paul H. Laviates <i>December 27, 1990</i>	'30 M.D.	William I. Lourie Jr. <i>September 19, 1990</i>	'41 M.P.H.	Michael L. Stratton	'72 HS
Helen R. Gilmore	'31 M.D.	Samuel W. Budd Jr. <i>January 21, 1991</i>	'42 M.D.	Peter A. Grannum <i>January 21, 1991</i>	'76 HS
James W. Reed <i>July 10, 1990</i>	'31 M.D.	Wilson E. Hughes <i>June 2, 1990</i>	'42 M.D.	Warren H. Weiswasser <i>February 18, 1991</i>	'77 HS
Winfield L. Butsch <i>October 24, 1989</i>	'32 HS	Charles W. Lloyd	'45 HS	Samarjit Ghuman <i>August 1989</i>	'84 HS
		George H. Burke <i>June 1, 1990</i>	'50 HS		



79 YEARS OF SERVICE



G.D. Edith Hsuing, Ph.D., professor emeritus of laboratory medicine, shares a Student Research Day program with second-year student Eileen Deignan. In 1990, Ms. Deignan received the first research fellowship named in honor of Dr. Hsuing, a 36-year faculty member.



EPH registrar Vera Wardlaw checks the commencement schedule with Eric W. Mood, M.P.H., who has been a lecturer in environmental health for 43 years.

CONTINUING MEDICAL EDUCATION AT YALE

**Friday
Sept. 13, 1991**

**The Children's Hospital at Yale-New Haven Hospital Announces
the First Annual Conference on Congenital Heart Disease**

(A)

Director: Michael Dewar, M.D.

**Friday-Saturday
Sept. 27-28, 1991**

Visiting Lecture Series in Clinical Ophthalmology

(B)

Director: David E. Silverstone, M.D.

Speaker: Melvin Rubin, M.D.

Will focus on the update of ophthalmic optics.

**Friday-Saturday
Oct. 25-26, 1991**

Neurobiology of Affective Disorders

(C)

Director: George K. Aghajanian, M.D.

Primary focus will be upon underlying brain mechanisms and the mechanism(s) of action of antidepressant and antimanic drugs.

**Thursday
Oct. 30, 1991**

Third Annual Cardiology Update

(D)

Director: Lawrence S. Cohen, M.D.

**Thursday-Friday
Dec. 5-6, 1991**

Cell Biology and Membrane Transport Process

(E)

Director: Michael J. Caplan, M.D., Ph.D.

CIRCLE THE APPROPRIATE LETTER(S) ON THE ATTACHED POSTCARD TO OBTAIN MORE INFORMATION ON CONFERENCES DISCUSSED IN THIS ISSUE. PLEASE BE SURE TO INCLUDE YOUR NAME AND ADDRESS.

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YALE MEDICINE

Alumni Bulletin of the School of Medicine

Fall/Winter 1991-1992

Bridging the Gap: Pathology at Yale
Leon Rosenberg's Farewell

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Dean's Address: What You Are Doing Here

Dr. Robert M. Donaldson Jr.'s orientation speech to the Class of 1995 offers thoughts about the Yale System as well as some fascinating background about the incoming medical school class.

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Physician Scientists: A Vanishing Breed

Alumnus Francis S. Collins, M.D., Ph.D., discoverer of the cystic fibrosis gene, sounds the alarm about the declining number of young physicians who are turning to careers in basic biomedical research.

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Taste and Smell: Exploring Sister Senses

Medical school researchers are learning more about the physiology of taste and smell, and how these senses allow us to savor our food and warn us about fire and other dangers.

13

CMHC Celebrates 25 Years of Service

As the Connecticut Mental Health Center marks its silver anniversary, *YALE MEDICINE* explores how the center leads in research, teaching and in the care of more than 5,000 New Haven area patients every year.

18

Pathology at Yale: Bridging the Gap

Pathologists work behind the scenes to help make crucial diagnoses. Discover how pathology research at Yale is helping to uncover the secrets of AIDS, cancer and other diseases.



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On the cover: These kidney epithelial cells were grown in tissue culture and stained with an antibody that reacts with cellular microtubules. Note the dividing cell with its microtubules rearranging to form the mitotic spindle; these structures assign the chromosomes to the daughter cells. (Courtesy of Vincent T. Marchesi, M.D., Ph.D.)

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Dr. Michael Kashgarian, professor of pathology, is editor of *YALE MEDICINE*. The tri-annual magazine is produced by the Office of Public Information: Helaine Patterson, director; Gregory R. Huth, publications editor; L. Rosalind D'Eugenio, media specialist; Claire Bessinger, office manager; and Lorna Nixon, senior administrative assistant. Production: Hoblitzelle Graphics; printing: E. H. Roberts Co.

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LETTERS

Leon Rosenberg's Farewell to Yale

Editor's note: *As of August 31, Leon E. Rosenberg, M.D., resigned as medical school dean to begin his new post as president of the Bristol-Myers Squibb Pharmaceutical Research Institute. The following letter, dated Aug. 28, was distributed to the medical school community. For further news about Dr. Rosenberg's departure, turn to Faculty News, page 32.*

To members of the Yale School of Medicine community:

As I prepare to depart after 26 years as a member of the Yale faculty, the leave taking is even more difficult than I anticipated. The unexpected offer from Bristol-Myers Squibb has left little time to prepare emotionally, or even to say goodbye to the many people at Yale who have made these years so rewarding and enjoyable. I will miss the many talented and dedicated people of this school — faculty, students, staff, alumni, friends — who create a richly woven tapestry of competence, humane ideals, and personal warmth.

During the past seven years as your dean I have been deeply moved by the spirit of community demonstrated by so many people. It has enabled us together to build on Yale's tradition of excellence in medicine and to enlist new friends and partners to move this great institution forward. I am proud of our accomplishments. There have been new buildings and programs, of course; even more gratifying is the knowledge that we have added strong new leaders in the departments and offices, recruited superb scientists, teachers, and clinicians, and voiced loudly our support for such values as fairness, decency, tolerance, integrity, and excellence.

What first attracted me to the world of science was the limitless challenge that lies before us. My next assignment will be a fresh approach to that challenge. As president of the Bristol-Myers Squibb Pharmaceutical Research Institute, I will continue to pursue three career-long themes: developing young scientists; using medical science to improve human health; and building a

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strong, cohesive research organization. Further, I hope to take part in creating new avenues of cooperation among industry, government and universities. Our nation's strength in biomedical research is the envy of the world. We must utilize our resources yet more efficiently to improve health and to reduce suffering.

The decision to leave Yale is the most difficult decision of my professional life. My years as a faculty member, department chair, and dean have taught me over and over again what a great center of teaching, discovering, and serving Yale is. This decision turns a major page in my life's book and those of my family. It will also mean changes and challenges for those I leave behind at Yale. Bob Donaldson, the associate deans, the department chairs, and administrative directors will need your cooperation more than ever before. You can depend on Benno Schmidt to lead an exemplary search for my successor. He has always been a great advocate of the School of Medicine and he understands well the importance of this moment in the School's evolution.

Although Diane, Alexa, and I will be moving to Princeton on September 1, we will keep our home in Guilford. That will enable us to maintain close ties to our many friends here. Please know that we are grateful for the many kindnesses you have shown us. Most of all, I thank you for your part in making Yale the special place it continues to be.

Leon E. Rosenberg, M.D.

Corrections

In the Summer 1991 YALE MEDICINE, on page 2, an editing error mistakenly named the White Mountains for the Green Mountains of Vermont. Also, the caption on page 4 misspelled the first name of Etsuro Motoyama, M.D.; our apologies. Harry Bishop should have been credited for photographs appearing on pages 14, 15, 16 and 18. Finally, in Alumni News on page 41, Dr. Michael H. Owens, M.D. '78 is medical director for CIGNA Private Practice Plan, CIGNA Healthplans of California, a 120,000-member health care delivery system serving the Los Angeles area.

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To the editor:

I am a 1951 graduate of the Department of Public Health as it was known when I attended. All these years I have received and read *YALE MEDICINE* and enjoyed it.

The Fall/Winter 1990-1991 issue provokes this note. At no time in the past, at least to my recollection, was so much space devoted to our School of Epidemiology and Public Health. I am greatly pleased and so wished to express.

Many thanks.

*Leonard F. Menczer, D.D.S., M.P.H. '51
Hartford, Conn.*

AIDS Statistics

To the editor:

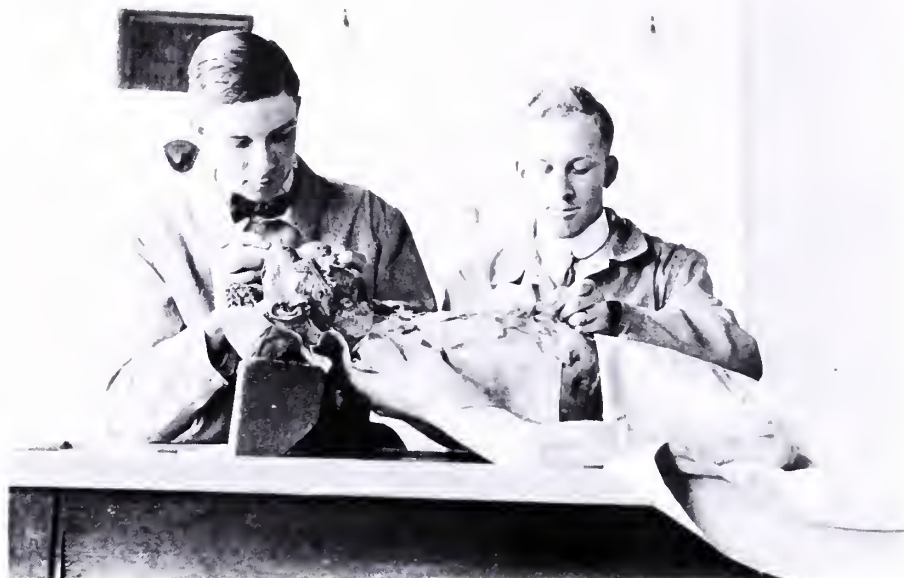
On page 15 of the Summer 1991 *YALE MEDICINE* "AIDS Research at Yale: Shifting into High Gear"), the table mentions "one in 200 Connecticut residents is infected with HIV, roughly the same as the national rate." And then above, "the [Centers for Disease Control] listed 174,843 Americans who have had AIDS..."

Now, 174,893 times 200 equals approximately 35 million — not 250 million Americans. How come? Can it be that the natural incidence of AIDS is closer to one in 2,000?

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

Editor's reply: *Your calculation is invalid because it mistakenly equates the HIV infection rate with the incidence of full-blown AIDS. The CDC statistic provided in the article listed the number of reported cases of symptomatic AIDS in the United States; the one-in-200 figure for Connecticut, quoted from the state Department of Health's "AIDS in Connecticut Annual Surveillance Report," estimates the number of people who have been infected with HIV. With a latency period of up to seven years or longer, not every person who tests positive for HIV antibodies exhibits symptoms of AIDS.*

As for national HIV infection statistics, the National HIV and AIDS Information Service of the American Social Health Association estimates that roughly one million Americans are HIV-positive. Given a population of 250 million, that would put the estimated incidence of HIV infection at one in 250.



A. C. Gilbert (left) in medical school: fascinated by how things work.

Alumnus A.C. Gilbert Recalled at Exhibit

On Sept. 22, the Eli Whitney Museum in Hamden, Conn., opened a nine-month exhibition, "A.C. Gilbert and the Tools of Learning." The museum, located on the site of Eli Whitney's gun factory, is celebrating the legacy of Alfred Carlton Gilbert, M.D. '09, with a display of Erector sets, American Flyer trains, chemistry sets, magic kits and other Gilbert inventions, which were manufactured in New Haven.

Born in Salem, Ore., in 1884, A.C. Gilbert excelled in many fields. As a Yale undergraduate, he was an accomplished athlete, establishing records in wrestling and gymnastics. In the pole vault, he replaced the traditional hickory pole with spineless bamboo and won an Olympic gold medal.

No less skilled at sleight-of-hand, Gilbert paid for his university education by putting on magic shows. In his last year at Yale, he received as much as \$100 per performance, a considerable sum for the time. A few months before he graduated with his medical degree, he and a fellow magician formed the Mysto Manufacturing Company to produce and distribute magic sets. Their modest enterprise presaged far greater things to come.

When A.C. Gilbert earned his degree from the School of Medicine, he intended to start a career as a physical education instructor. Soon after graduation, though, he succumbed to the lure

of invention — especially toys — a passion that dominated the rest of his life. By age 77, when he died, he held more than 150 patents.

In 1916, the inventor parted ways with his partner and the company became his namesake. By the mid-1940s, the A.C. Gilbert Company could boast that it was the world's largest toy manufacturer. At its peak, the company employed 2,500 at its site in the Fair Haven section of New Haven.

Dr. Gilbert's most successful and best known creation was the Erector Set, comprising miniature steel girders that children used to fashion buildings, airplanes, automobiles and other structures. This toy may have been the most popular in history; at the company's 50th-anniversary celebration, employees presented its founder with a gold-plated Erector Set representing the 10-millionth unit sold.

A turning point came when the first "television generation" failed to display the affinity for A.C. Gilbert toys that their parents and grandparents had. The company's sales declined throughout the 1950s. When the great inventor died in 1961, his company passed away with him.

For millions of adults in their middle years and older, however, the name A.C. Gilbert still conjures up the nostalgic sound of a toy train whistle and the image of an Erector Set town diffused in wisps of smoke from an American Flyer locomotive.

William McKeon

WHY YOU ARE HERE

by Robert M. Donaldson Jr., M.D.

What a wonderful day this is for the School of Medicine. What could be more exciting for Dean Gifford and his student affairs office, or more rewarding for the admissions committee, than to see all in one room this group of such marvelous individuals whom they have worked so long and so hard to identify and recruit to Yale.

Let me tell you something about yourselves — and I'm most grateful to Lynne Wootton, director of admissions, for compiling this information. You number 59 men, 41 women. Your diversity is remarkable. There are among you 11 African-Americans, one native American, four Americans of Hispanic origin and 25 Asian-Americans. Your origins are truly international, with families coming from countries on every inhabited continent of this planet.

Nine of you have already received advanced degrees — in disciplines as different as public health, engineering and music. Forty-five of you seriously pursued other endeavors before entering medical school. You have worked as engineers, photographers, bartenders, computer programmers, emergency medical technicians, writers, instructors, security officers, editors, truck drivers, lifeguards, cashiers, secretaries, sales representatives, word processors and phlebotomists. Among you are a management consultant, a financial analyst, a genetic counselor, an architect and a dockmaster.

You have worked in all sorts of settings, from radio stations to children's theaters, even a planetarium. One of you ran his own landscaping business for a decade. Another worked as a health planner and community development specialist for the Muscogee Creek Indian Nation. You have volunteered not only in hospital emergency rooms, but in shelters for battered women, soup kitchens, suicide prevention centers, Headstart programs, and many other programs and facilities for the disadvantaged and underserved. You have helped the homeless, the handicapped and patients with AIDS. You possess a wealth of musical talent and have played in orchestras and chamber groups, and one of you formed a band which had three world tours and two albums.

You have received numerous prizes and honors. One of you was recently elected to serve on the board of trustees of your undergraduate college. You have conducted independent studies in the finest laboratories and research institutes in this country. You have investigated and published on everything from French history, to astronomy, to medical ethics.

You must be very proud of all you've accomplished and, yes, we really are lucky to have you here. What all of us should do right now is simply celebrate. But this is also the real world, a place of hard facts, and before we celebrate, we must get oriented.

I realize how stressful orientations can be. As you confront stark realities that never before entered your mind, I suspect that by now some of you may be asking yourselves, "Is this

where I really want to be? Why am I here at the Yale School of Medicine?"

Let me presume to tell you why. First and foremost, you are here because this school acknowledges your maturity. This means that the responsibility for your education belongs to you and to you alone. Ever since first grade, you have lived with an educational paradigm in which you were provided with a defined body of information and then graded on your capacity to comprehend, retain and regurgitate that information. That educational paradigm no longer applies.

In the first place, the biomedical sciences embrace a rapidly changing database far beyond what even extraordinary talents such as yours can assimilate in four short years. Moreover, medicine is far too important a discipline to be learned merely for the sake of grades, no matter how valid the grading system may be. No, you are here to learn for yourselves, for your future and for your patients.

At the Yale School of Medicine you will not spend four years filling your brains with as many facts as possible. Instead, you will begin a lifetime of study. You will learn how to learn, how to find the information you need, how to judge the quality of data and how to interpret them and, most important, how to challenge the many so-called "facts" you will confront.

This leads me to a second reason why you are here: for the excitement of generating new information, coming closer to the truth and not just passively accepting what we tell you. Most of you will gain this experience from a required doctoral thesis completed during four years of medical school. Judging from previous classes, I would guess that about 20 of you will become excited enough to spend a fifth year on a major project and that 11 of you will be so committed to academic careers that you will invest the several years needed for the combined M.D., Ph.D. degree.

Third, you are here because your marvelous backgrounds and experiences will enrich each other and enrich this place. You will work together in small groups, learning not only from a large and talented faculty, but also from each other. There are in fact among you several talented experienced teachers who have been teaching in elementary schools, secondary schools, colleges, and even in the School of Public Health at Yale. Undoubtedly, the best way to truly master a subject is to teach it, and you will all be teaching each other in a variety of settings from the seminar room to the clinic to the bedside.

What I have been talking about is the Yale System of medical education, which has been with us for more than half a century. Our colleagues at Harvard have recently unveiled what they proudly call "the new pathway;" we are equally proud of our old pathway. Although long with us, the Yale System is unquestionably alive and well.

You should understand one hazard of the Yale System, however. Learning how to learn for a lifetime, learning at your own pace, and being responsible for your own education does not add up to a journey through some sort of educational lotus land. You will, in fact, work very hard to meet very difficult educational challenges.

After all, the fourth reason you are here is because this

This article is based on an address delivered on Aug. 29 by Acting Dean Robert M. Donaldson Jr. to the incoming School of Medicine Class of 1995.

Robert M. Donaldson Jr. Appointed YSM Acting Dean

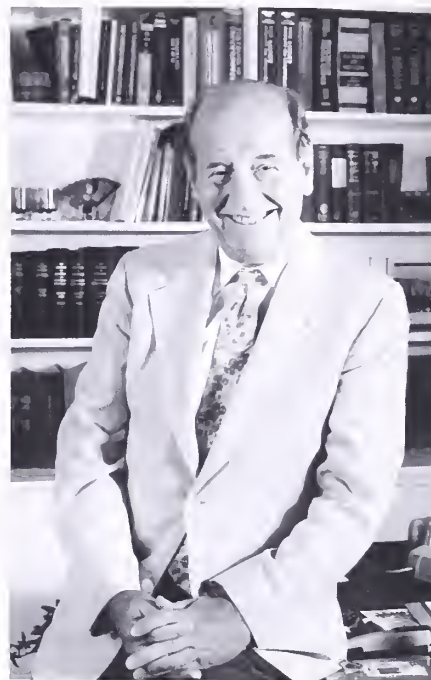
The trustees of the Yale Corporation have approved the appointment of Robert M. Donaldson Jr., M.D., as acting dean of the School of Medicine. Dr. Donaldson, the David Paige Smith Professor of Medicine, succeeds Leon E. Rosenberg, M.D., who resigned, effective Sept. 1, to assume the presidency of Bristol-Myers Squibb Pharmaceutical Research Institute, based in Princeton, N.J.

Yale President Benno C. Schmidt Jr., who heads the faculty search committee to find Dr. Rosenberg's successor, commented: "I am very pleased that Dr. Donaldson will ably lead our medical school as we conduct our search for a new dean. The 16-member search committee which I chair is hard at work on its task, and we hope to appoint a new dean by next July. Yale is fortunate to have an experienced and distinguished physician, scientist and administrator in Bob Donaldson to carry forward the medical school's tradition of excellence during this year."

A gastroenterologist, Dr. Donaldson has served as the medical school's deputy dean since 1987 and on the Yale faculty since 1973. During his career, he has been chief of the medical service at the Department of Veterans Affairs Medical Center in West Haven and vice chairman and acting chairman of internal medicine.

Dr. Donaldson has conducted research on the role of certain bacteria in digestion and in diseases that cause the malabsorption of nutrients. He holds a special interest in the basic mechanisms in the absorption of vitamin B12. The acting dean's clinical studies relate to peptic ulcer disease, chronic liver disease and the ways physicians use diagnostic technology. His research is cited in more than 100 publications.

From 1967 to 1972, Dr. Donaldson chaired the advisory committee for National Institutes of Health (NIH) training programs in gastroenterology and nutrition. There he devel-



Dr. Robert M. Donaldson, Jr.

oped the concept of a clinical investigator (young scientist) award that the NIH would sponsor. For his outstanding contributions to the field of gastroenterology, Dr. Donaldson was awarded the Friedenwald Medal by the American Gastroenterological Association.

Active in scientific publishing, Dr. Donaldson edits the journal *Current Opinion in Gastroenterology* and serves on the editorial board of the *New England Journal of Medicine*. He also edited the jour-

nal *GASTROENTEROLOGY* from 1970 to 1977.

A past president of the American Gastroenterological Association, Dr. Donaldson was elected to the American Society for Clinical Investigation and the Association of American Physicians. Between 1984 and 1990, he was a member of the American Board of Internal Medicine and served on its executive board in 1987.

A native of Wellesley, Mass., Dr. Donaldson received a B.S. degree from Yale College in 1948 and an M.D. degree from Boston University School of Medicine in 1952. He received his clinical and post-doctoral training at the Montreal General, Boston Veterans Administration and Peter Bent Brigham hospitals.

school enjoys an excellent reputation. That reputation is no accident. We identify and recruit students like you who have enormous potential for excellence, mix those students together with a large, first-rate faculty, add in an outstanding library, make available a wide array of patients, and then impose the highest standards of excellence on the outcome. How well you fulfill your astonishing potential for excellence will be a matter of serious concern to you and to this school.

You cannot really learn how to evaluate data without seriously confronting those data. You cannot truly challenge knowledge without the hard work that goes into fully comprehending what it is you wish to challenge. As is true for any enterprise, you will get out of your Yale medical education exactly what you put into it, nothing more, nothing less. I urge you to immerse yourself totally in this exciting educational enterprise. Those who do not run the real danger of getting lost in the shuffle.

The fifth reason you are here is to bring to this place your diverse racial, ethnic and cultural backgrounds. They are essential for the kind of sensitivity and compassion needed to care for the poor and for members of disadvantaged minorities. You will have ample opportunity not only to involve yourself

in the care of such patients, but to heighten everyone's awareness of the special needs of those who are not only ill but who are made especially vulnerable by poverty and bigotry.

Nothing elevates the quality of medical care more than this kind of awareness. Therefore, at the very beginning of your medical school career, you will participate actively in workshops designed to promote awareness of, sensitivity to and respect for cultural differences, attitudes which are absolutely crucial to the credibility of this medical center as a place of healing.

Finally, you are here because this school is situated in a community that will challenge you to grow rapidly and well, both personally and professionally. You will soon find yourselves confronting the serious and complex health needs of New Haven and, like your predecessors, you will meet those needs with innovative solutions.

These, then, are the reasons you are here. You are here in essence to make a real difference — in yourselves, in this school, in this community and ultimately in the nation. These are also the reasons I am so proud to welcome you and to wish you well as you take advantage of the most exciting challenges and opportunities you've ever had. **YM**

PHYSICIAN-SCIENTISTS: A VANISHING BREED

by Francis S. Collins, M.D., Ph.D.

"The physician-scientist is an 'endangered species.'"

An article bearing this disturbing title appeared 12 years ago in the *New England Journal of Medicine*. It was written by Jim Wyngaarden, who subsequently became head of the National Institutes of Health (NIH). In the intervening years, matters have gotten even worse — a decreasing number of physicians are playing a meaningful role in basic science.

To define my terms, I refer to a physician-scientist as someone who runs a laboratory and who has funding from a granting agency. I distinguish this activity from routine therapeutic trials. While acknowledging the latter as crucial, I think M.D.s carrying out such trials are less likely to disappear from our ranks; it is difficult to imagine clinical trials being conducted solely by Ph.D.s. The group I am concerned about are physician-scientists who are involved in more basic research, and who are trying to balance its challenges with the roles of physician and teacher.

A Matter of Style

The gap is widening between research and clinical practice, as is the related rift between Ph.D.s and M.D.s. Although Ph.D.s and M.D.s have traditionally approached basic research from different perspectives, the alienation between the two camps seems to be getting worse.

Inevitably, tensions arise from fundamental differences in job description. By way of illustration, consider the following two vignettes. They might unfold on any day at a leading medical center:

John Doe, M.D., a fellow in hematology/oncology, is working late at night. He has just admitted a female patient with chronic granulocytic leukemia who has gone into blast crisis. She is bleeding, and has a high fever. Wasting no time, Dr. Doe works up the patient and searches for some source of the fever. When he fails to find one, he obtains the appropriate cultures and administers broad spectrum antibiotics, knowing that to wait for a precise diagnosis of the infectious cause is tantamount to signing this patient's death warrant.

Dr. Doe explains to the patient, and later to her anxious family, the seriousness of the situation, the fact that even if the crisis passes, the chances of long survival are bleak. He discusses these issues at length with the family; they pour out their fears and their grief.

Dr. John Doe crawls into bed about 3:00 a.m. feeling thoroughly drained. Though the physician may not thoroughly realize it, however, something important has transpired during the time he spent with the patient and her family trying to sift through these new developments. I'll return to this point later.



Dr. Francis S. Collins

Francis S. Collins, M.D., Ph.D.: Award-winning Geneticist

Dr. Francis S. Collins played a leading role in the discovery of the cystic fibrosis gene, a contribution that won him the 1990 Paul di-Sant'Agnese Distinguished Achievement Award from the Cystic Fibrosis Foundation. A year later, his research group identified the gene for neurofibromatosis. A professor of internal medicine and human genetics at the University of Michigan, he also is an investigator with the Howard Hughes Medical Institute. In 1974, he received his Ph.D. degree in physical chemistry from Yale and in 1977, his M.D. degree from the University of North Carolina. He returned to Yale for a post-doctoral fellowship in human genetics after completing his internship and residency at North Carolina Memorial Hospital.

This article was based on an address Dr. Collins delivered to University of Michigan medical school graduates at the Honors Convocation, May 1990.

Now let's turn to the second vignette:

Little does Dr. Doe know that earlier in the day, in a building adjacent to his hospital, Jane Smith, Ph.D., was hard at work in a research lab, trying to understand the molecular basis of chronic granulocytic leukemia. Dr. Smith is studying the peculiar protein which is produced in this disease when chromosome 9 sequences are fused to chromosome 22 sequences (the Philadelphia chromosome), and a funny hybrid protein that contains part of an oncogene called abl gets produced. She has deduced that this protein works as an unrestrained tyrosine kinase, which means it goes around adding phosphate groups to other proteins.

As Dr. Doe rolls over with a sigh and enters an uneasy sleep, Dr. Smith returns to her apartment after having celebrated the evening with her research team. After years of tedious work, she has finally identified the mechanism that will provide the crucial link in understanding how this translocation, this rearrangement of chromosomes, leads to malignancy.

While it is certainly true that society was well served by both these professionals, I suggest that it would have benefited even more if Drs. Doe and Smith had been the same person in two parts of his or her daily activity. In the first story, it may have been an extraordinary comfort for the family to know that their physician was doing research into the possible cause of their loved one's disease. In vignette two, I suspect that the insights which the Ph.D. obtained in the lab would have been more meaningful — and potentially more immediately translated into therapeutic ideas — if she were also personally familiar with the ravages of the disease.

M.D. Alienation

Our widening gulf between the M.D. physician and the Ph.D. researcher contributes, I think, to the sense that many M.D.s have that they don't belong in basic research. They are not always treated kindly by Ph.D.s, and are often looked down upon in the laboratory as second class. Similarly, Ph.D.s, when they try to understand the clinic, are often not treated kindly.

An insightful article called "Cultures in Conflict: M.D.s and Ph.D.s." appeared in the *New York Times* in April 1990. It was written by Natalie Angier, who has since won the Pulitzer Prize for her medical and science reporting. In the article, Ms. Angier contrasted a Ph.D. molecular biologist, in this case Richard Mulligan at M.I.T., and an M.D. pediatrician, Kenneth Culver, who works in gene therapy at the NIH.

Ms. Angier writes:

Thirty years ago the British scientist and novelist C.P. Snow wrote Two Cultures (about the philosophical gap between the humanities and the sciences). Today another sort of cultural rift seems to deny union or even comity, the gap between the doctor and the scientist. In the biomedical community, physicians and Ph.D.s alike are probing the fundamental mechanisms that underlie human disease, health and development. Sometimes the doctors and the scientists work side-by-side in a research laboratory or at least on the same university floor. But by training, philosophy, motivation and research style, doctors and scientists might as well be from different phyla. And they are forever arguing about which is the more highly evolved.

Though this passage may overstate the case a bit, it does

effectively evoke the differences in mindset that the physician must carry to the hospital ward versus what the scientist takes into the laboratory. Sometimes those mindsets can get in the way of those who are trying to be healers as well as basic researchers.

Note that John Doe, M.D., had to make a decision about treating his patient with antibiotics without really knowing what was going on. The usual situation in clinical medicine, in fact, is that the information one deals with is woefully incomplete and uncertain. It is a rare circumstance indeed where doctors are absolutely sure that they are doing the right thing. Successful physicians eventually learn to live with this uncertainty. It is the best that you can do.

But this is very different from the approach one must take to carry out good science. In that setting, one must never be satisfied with information that is incomplete, inadequate or lacking. Physicians, however, can sometimes stumble when they try to transfer their clinical thought processes into science, as they may be inadequately critical of the data. The data have to be more solid.

Another contrast that emerges from the John Doe–Jane Smith vignettes is the importance of defining precise causation. A physician treating a patient with chronic granulocytic leukemia is usually not concerned with the chromosome 9 to chromosome 22 translocation, no matter that this is the cause of the disease. The physician is not concerned because therapeutically, there is nothing he or she can do about it.

By contrast, to a scientist, fundamental causes are what it's all about. A scientist is driven by the desire to understand for understanding's sake. If that eventually leads to a therapy, so much the better.

The final difference between John Doe and Jane Smith presents itself in their source of satisfaction, and that is to my mind an enormous difference. A physician, at least as I perceive it from my own experience, gains satisfaction primarily from interacting with patients. Even in situations like the one I described, where what is offered therapeutically is far too inadequate for the demands of the situation, the opportunity to enter the lives of patient and family, to interact with them and comfort them, and to explain a frightening event to them, provides an immediate sense of gratification. It is a real gift to be able to share that experience with other people.

Compare this with the scientist's gratification, which is the joy of discovery. A key attribute of this joy is that it doesn't come along every day. In most laboratories like mine, about 75 percent of the experiments are a complete disaster. If you're not prepared for that, you get frustrated rather quickly. It's the 25 percent that partially work that keep you going. If you're fortunate, perhaps 1 percent actually make some new observation, and that's what makes it all worthwhile.

This is different from the clinic, where almost every time that I see patients, talk with them about their diseases, and prescribe some course of treatment, I feel good about it. Physicians who try to play both the roles of healer and basic researcher have to constantly change their mindset to deal with those differences as they don their different hats.

Such adjustments make it difficult for an unprepared physician to enter research. Even when M.D.s do commit themselves to the dual track, the differences in approach and expectations can prove discouraging. Fortunately, most of these problems can be avoided through proper training.

Eluding the Pitfalls

The problem with preparing physicians for research is twofold. First, as I just mentioned, in some ways the thought processes

Office of Student Research Nurtures Physician-scientists

Yale School of Medicine has a long tradition of educating physician-scientists; its M.D. thesis requirement, involving original research, is one of the few such requirements in the country, and dates back to 1839. To facilitate students in writing the thesis, the student research office provides monetary support which comes from private donations and grants as well as from school and departmental sources. More than 150 full-time faculty members serve as mentors for student research activities and provide laboratory space and equipment.

The school's One-year Student Research Fellowship Program, which supports students as they devote an entire year to research, has 14 students enrolled this year. As an added incentive to taking a fifth year, students are not charged tuition for the extra year. Funding for this program comes from government, charitable and private sources.

Another program that encourages students to pursue a career in academic medicine is the M.D.-Ph.D. program, directed by James D. Jamieson, M.D., Ph.D., professor and chairman of cell biology. Since its inception in 1969, enrollment has grown from 14 students to 60.

of the healer and the scientist are different. Second, physicians who try to do bench research often devote insufficient time to their training. No M.D. would dream of going out and practicing medicine after two years in medical school. But many physicians try to do research with only one or two years of experience in the laboratory, and that can be very frustrating.

The issue of adequate training brings to mind the wonderful experience I had last year in meeting Dr. James Shannon, who was the director of the NIH from 1955 to 1969, during its time of enormous growth. Many of the things that we look to with pride in this country's biomedical research stem from Dr. Shannon's vision and insight. He is now 86 years old.

As he reminisced about his time as an assistant professor on a medical school faculty in the 1930s, he painted a dramatically different picture of medicine and biomedical research than we know today. Upon finishing his internship and residency, Dr. Shannon was offered a job in a department of physiology without any significant research training. In the course of six years, he taught himself and published 19 papers, some of which are classics in the study of the glomerular filtration rate. On 17 of those papers he was the sole author.

You would never see that happening in today's world of complicated research. Basic scientists need more people to help them, and the scientists themselves need a more prolonged period of training. We make a mistake, I think, by advising students and new physicians that they can get away with sketchy research training and still make a success of it.

Why does all this matter? Do we really need physician-scientists anyway? Here I will cite a less enlightening experience I had in 1984 at the major meeting of my specialty, human genetics. In the president's address to the society, he asserted that we ought to retire the concept of the physician-scientist. It's an idea whose time had passed, he asserted, impossible to do well. Therefore, it was time to dig the grave and bury the concept forever.

His argument was a practical one, that you just can't do it all and do it well. I must disagree, based on the large number of successful examples I see around me.

In the John Doe-Jane Smith vignettes, I have already alluded to my philosophy on this issue. I would argue that the familiarity that a physician has with the clinical arena is absolutely critical for advancing the course of biomedical research, and brings to every problem a perspective that a basic scientist just will not have.

If you still have doubts, I need only cite the example of Brown and Goldstein, who won the Nobel prize three years ago for their fundamentally important work on the LDL receptor. Joe Goldstein came to that problem initially from a clinical vantage point, trying to understand a disease called familial hypercholesterolemia. The field of receptor-mediated endocytosis and the area of lipid metabolism have been enormously advanced because this physician's training led him to consider a clinical problem and then to investigate it in the laboratory with a healer's perspective.

I could cite many other examples. On a much smaller scale, my own interest in genetic diseases like cystic fibrosis and neurofibromatosis was first and foremost a clinical one. I felt compelled to move into the laboratory to try to understand these puzzling diseases that so ravaged those affected. Had I not had the clinical training, I would have worked on something else.

Not only does clinical training lead to a new perspective in pursuing a problem, but I firmly believe that such training leads to an acceleration in converting new observations into therapeutic advances, which is what biomedicine is aiming for.

Dr. Wyngaarden summarizes this point of view cogently: "The physician-scientist has a very special role, both in posing relevant medical questions and in applying new knowledge to the investigation of disease and the teaching of students. These roles cannot be adequately filled by Ph.D. scientists, however seminal their contributions may be."

Evidence of Crisis

How are we physician-scientists faring? To illustrate briefly, I will quote some statistics that reveal who is receiving federal grant funding in biomedical science.

Financial Support for YSM Student Research

Endowed Research Fellowships

In honor of: Edith Hsiung, James Hirsch, Vernon Lippard, Richard Hirschfield, Etta Chidsey and Richard Gershon.

Student Research Program External Support

American Heart Association (national and Connecticut affiliates), Connecticut Cancer Society, National Institutes of Health (NIH), Howard Hughes Medical Institute (HHMI), Juvenile Diabetes Foundation.

One-year Student Research Fellowship Program (Five-year M.D.)

American Heart Association (national and Connecticut affiliates), the NIH, HHMI, HHMI Cloister Program, Sarnoff Fellowship Award, Pathology Award, private sources.

In 1970, 51 percent of the grants awarded by the NIH were to Ph.D.s, 37 percent to M.D.s, and 6 percent to M.D.-Ph.D.s. In 1987, the proportion given to M.D.s dropped to 26 percent while that to Ph.D.s rose to 66 percent. From 37 percent to 26 percent is a substantial drop, indicative of a real decline in the grant funding that the NIH is awarding to physicians.

This really reflects a decline in submitted grants; if you look at the success rate of M.D.s and Ph.D.s in obtaining grants once they submit them, it has remained about the same over the course of time. Physicians who choose this course are in general no less successful in competing with Ph.D.s.

I should add that there is great concern about the biomedical research enterprise in general and the decrease in the NIH budget. We are in one of those unfortunate downward oscillations which trouble working scientists greatly. I can only say that such oscillations have occurred before, and people have survived them. One of the things that I think we must not do is to terrify students by making the NIH funding crisis sound even worse than it is.

What must we do to remove physician-scientists from the endangered species list? Medical schools need to be sure that they provide visible role models for students to show that it is in fact viable to be a compassionate physician involved with patients and also to run an effective, productive, laboratory research program.

I am happy to report that there are in fact many such individuals at the University of Michigan, where I now serve on the faculty. I commend Yale and other leading medical schools that offer a plethora of physician-scientists as role models.

I would encourage medical students who are interested in possible careers as physician-scientists to study carefully the careers of such people as Joe Goldstein, who made a substantial commitment early on to learning basic research. Look at someone like Stuart Orkin, an enormously productive molecular biologist and hematologist at the Boston Children's Hospital, from whom I have learned much. He took the time to learn firsthand the "ins and outs" of molecular biology.

Secondly, I would recommend to faculty members that we stop complaining so much about how dreadful it is to deal with these responsibilities of being both physicians and researchers. I suspect that probably we enjoy it in some way, or we wouldn't be doing it. Although the research funding situation may seem a bit scary at the moment, it has been scary in the past, and we have survived nicely.

Sometimes we behave like hens who fret so much that they step on all of the eggs. We really must not do that to the next generation of physician-researchers. We should strive to present a more balanced view, and to remind them also of the benefits of this life-style, which I perceive as substantial.

Thirdly, we need to advise students realistically about what's involved in undertaking a career of this sort. One needs to have some serious time protected to learn bench research up close and personal. You can't run a lab in the future which does things that you yourself are not really familiar with. Many M.D. researchers never had the opportunity to learn this lesson, and have gotten into hot water as a result.

Various tracks allow for excellent research training of M.D.s. Certainly M.D.-Ph.D. programs such as those at Yale and Michigan are a wonderful way to approach this problem. To those who were not so sure at medical school application that they wanted to do research, but now are tempted, plenty of

tracks allow protected time to do research.

Although I myself have an M.D. and a Ph.D., I completed my Ph.D. in physical chemistry, quantum mechanics, before entering medical school. I haven't used that part of my training a lot; every bit of what I know about molecular biology I learned as a fellow at Yale in a three-year period after finishing my residency.

As I worked with Sherman M. Weissman, M.D., that fellowship provided excellent clinical training in genetics, and very solid training in bench research. During those three invaluable years, I spent about 80 percent of my time in the laboratory.

At the University of Michigan, I have joined with colleagues in trying to establish a two-year residency program followed by a research-oriented fellowship. Such programs are an excellent way to avoid the problem of physician-scientists finding themselves old and gray by the time they complete their training.

Such an approach would complement a wonderful fellowship program at Michigan in which we immerse new M.D.s in bench research. For three months, 50 to 60 hours per week, these young physicians learn vast amounts about protein biochemistry and molecular biology, carefully overseen by some of our best faculty members. Programs like this ought to spring up at leading schools of medicine nationwide.

A Nurturing Environment

Finally, we in academic medicine have to develop a way to provide better support for people who want to pursue the career of physician-scientist. Most physician-researchers are never going to enjoy the financial perks of someone in private practice. Indeed, if they are going to be successful, physician-scientists must be driven by more than dollars. Nevertheless, with educational costs skyrocketing, medical students who have accrued heavy debts must foresee a good chance of finding employment that will enable them to pay off their loans and live a reasonably comfortable life-style.

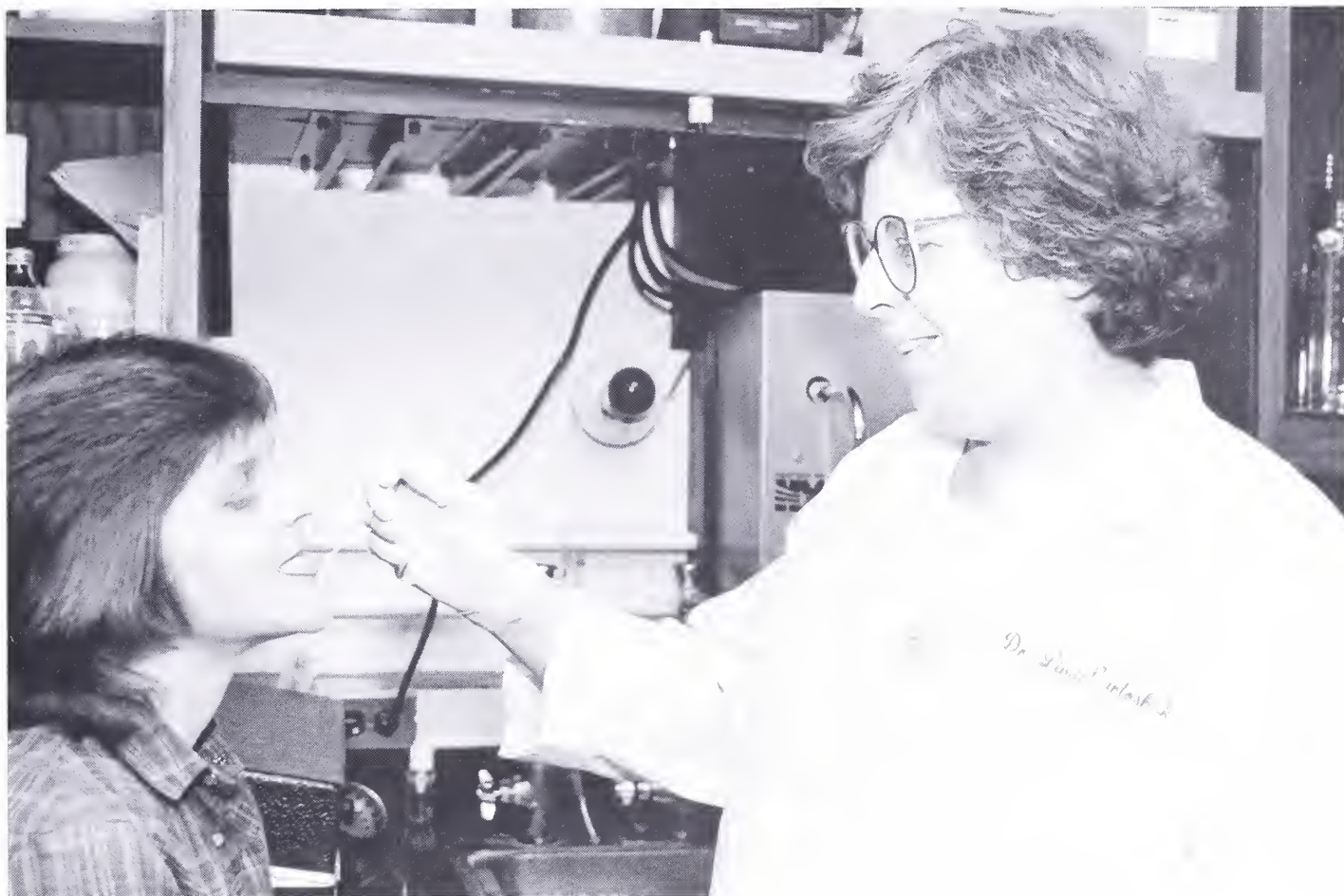
Other support must come in providing protected time for physicians who wish to commit a substantial effort to research. In my view, a physician-researcher cannot really be successful without devoting 60 to 70 percent of his or her time to the laboratory. To do less than that is to run the risk of falling behind and becoming frustrated. Conversely, I do think that it is possible to maintain reasonable clinical competence with 30 percent of your time.

We must protect junior faculty from being swamped with clinical duties, or they will never have the chance to develop. At the University of Michigan, this has been given a high priority, and the fruits can be seen in the many examples of junior M.D. faculty who are enormously productive in research.

When the combination of clinical medicine and basic research does not work due to lack of commitment, lack of training, or lack of support, the result can be discouraging to everyone to behold. When it does work, the benefit to society is spectacular. There is a cost, in dollars, in time demands on personal life, in trying to wear both hats and sometimes feeling as if neither one fits very well. But surely those of us who have the opportunity to experience both the intensely personal challenge of patient care, and the exultation of scientific advance, are among the luckiest of all human beings.

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TASTE AND SMELL: EXPLORING SISTER SENSES



Photographs by Harry Bishop

Dr. Linda Bartoshuk administers a taste test similar to the one that she gave to her mentor, Dr. Carl Pfaffmann.

by Diane E. Loupe

If biomedical science ever begins awarding medals for "Professional Valor in the Face of Personal Adversity," an inaugural candidate should be Carl Pfaffmann, Ph.D.

In the spring of 1988 a bout of herpes zoster oticus — a cranial nerve attack triggered by the activation of a latent chicken pox virus — affected Dr. Pfaffmann's hearing. Most patients would have accepted the bad news that the hearing loss would be permanent and left it at that. But not this professor emeritus and former vice president at Rockefeller University. He viewed his illness as an opportunity to learn more about the human senses.

Having spent his life studying how people taste, Dr. Pfaffmann knew the cranial nerve regulating hearing — the eighth or vestibulocochlear — nestles between the seventh and ninth cranial nerves, which regulate taste. Although he could

still savor his favorite foods, Dr. Pfaffmann suspected that the virus might be subtly affecting his ability to taste.

To test his hypothesis, he contacted a former student, Linda M. Bartoshuk, Ph.D., who studies taste disorders as a professor of surgery (otolaryngology), epidemiology and psychology at Yale. A few weeks later, she appeared in the kitchen of Dr. Pfaffmann's 262-year-old home in Killingworth, Conn., and methodically unpacked her color-coded bottles of salty, sweet, bitter and sour solutions. Thus began a series of experiments which were to greatly expand our knowledge about the physiology of taste.

In the first of these experiments, Dr. Bartoshuk discovered that the left side of her mentor's tongue, affected by the virus, could taste nothing. But the right side remained perceptive. Subsequent tests over the next few months revealed that as taste returned to the left side of Dr. Pfaffmann's tongue, perception waned on the right. This supported findings from another study Dr. Bartoshuk had done which suggested that taste buds on one side of the tongue normally inhibit their counterparts on the other side.

Dr. Bartoshuk's studies are part of a wide array of research

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undertaken by School of Medicine scientists to understand how we taste and smell. Their work ranges from applied clinical studies, such as evaluating taste and smell perception in the elderly, to molecular and cellular research into how odor molecules are translated into brain signals. Among its many applications, this research is helping physicians to diagnose disorders of smell and taste, architects to improve indoor air quality, and safety officials to develop more effective odorant systems to signal the danger of a gas leak.

Tasting Life's Banquet

The relationship between taste and smell is no recent revelation. For centuries, the best cooks have known that a food's aroma enhances its flavor. Only recently, however, have scientists discovered how much more subtle our sense of smell is than our ability to taste.

Our taste buds, tiny, onion-shaped structures embedded in the tongue, can perceive but four flavors: sweet, salty, sour or bitter. Were it not for our sense of smell, all taste would be limited to relatively unsophisticated combinations of these four sensations. We owe more subtle taste perception to our olfactory sense, which allows us to smell thousands of aromas, from roast beef to red wine.

Dr. Bartoshuk's experiments with her mentor have revealed a key interaction between taste and yet another sense, touch. As she painted flavored solutions across Dr. Pfaffmann's tongue, he perceived taste even on the dysfunctional side — as long as the painting began on the good side of his tongue. This revealed the important tie between touch and taste.

Explains Dr. Bartoshuk, "The brain doesn't care where taste is coming from. It doesn't register location in taste. All it cares about is quality and intensity. So you perceive taste to come from the area that's touched. When you chew your food, your whole mouth is filled with this touch sensation."

That's why a person tastes food across the tongue, although "taste receptors are located very precisely in an oval around the edge of your tongue and a little bit in the middle," Dr. Bartoshuk says. "There are almost no taste receptors in the center of the tongue, and there aren't any in other areas of the mouth. But you don't have any subjective awareness of this." That's because of the tactile effect.

Dr. Bartoshuk thinks that temporary, partial taste loss, such as Dr. Pfaffmann's, may be relatively common. Because of the tactile effect, however, most people never notice the deficit.

Other experimental subjects have helped Dr. Bartoshuk learn more about another taste disorder: dysgeusia, a chronic unpleasant taste in the mouth. Such disorders can have a relatively simple cause, such as a medication, or a more serious and complex origin, such as a brain tumor which affects the nerves of taste sensation.

One of Dr. Bartoshuk's subjects was a woman who was left with a chronic salty taste in her mouth after surgeons removed infected bone from near her ear and severed the seventh cranial nerve. In an attempt to relieve the dysgeusia, Dr. Bartoshuk anesthetized the woman's tongue by deadening the ninth cranial nerve, the other nerve that transmits taste signals to the brain.

To Dr. Bartoshuk's surprise, the treatment had a paradoxical effect — the phantom taste doubled. This led her to hypothesize that the ninth cranial nerve inhibits the seventh cranial nerve, where the salty taste originated. She is now conducting experiments to confirm this finding.

Complicating research into taste disorders is the fact that even normal taste sensations can differ widely. "The taste world you live in is not the same as the person who sits next to you," Dr. Bartoshuk explains. Another aspect of her research

explores genetic taste differences.

An important tool in these studies is a drug called propylthiouracil, or PROP, which is used to treat hyperthyroidism. One in four people is incapable of tasting PROP. To others the drug tastes bitter. Researchers think the trait is genetic, inherited recessively.

PROP tasters perceive saccharine both as sweeter and more bitter than do non-tasters. Moreover, graduate student Tracy Karrer, who works with Dr. Bartoshuk, has discovered that tasters are more sensitive to capsaicin, the chemical that puts the zing in chili peppers and cayenne.

Other researchers have shown that non-PROP-tasters have fewer taste buds. Since pain fibers wrap around each taste bud, individuals with more taste buds may have more nerve fibers that can perceive capsaicin's burn. Dr. Bartoshuk also is working with Robert H. LaMotte, Ph.D., professor of anesthesiology and neurobiology, in trying to discover why the irritant capsaicin paradoxically relieves chronic mouth pain in some adults.

A Subtle Interaction

Many taste and smell studies are undertaken at the John B. Pierce Laboratory, which is affiliated with Yale and dedicated to sensory, physiological and environmental research. One Pierce researcher, Joseph C. Stevens, Ph.D., a senior research scientist and lecturer in psychology at Yale, is looking at taste and smell losses in older people.

In one test, Dr. Stevens and his colleagues prepared two batches of carrot soup, one spiced with marjoram the other without. A person "tastes" marjoram as the spice's aroma floats up through the back of the nose. While most young adult volunteers, aged 20 to 32, were able to identify the spiced soup, most subjects aged 35 to 55 could not. This middle-aged group, in turn, performed better than subjects aged 66 to 89.

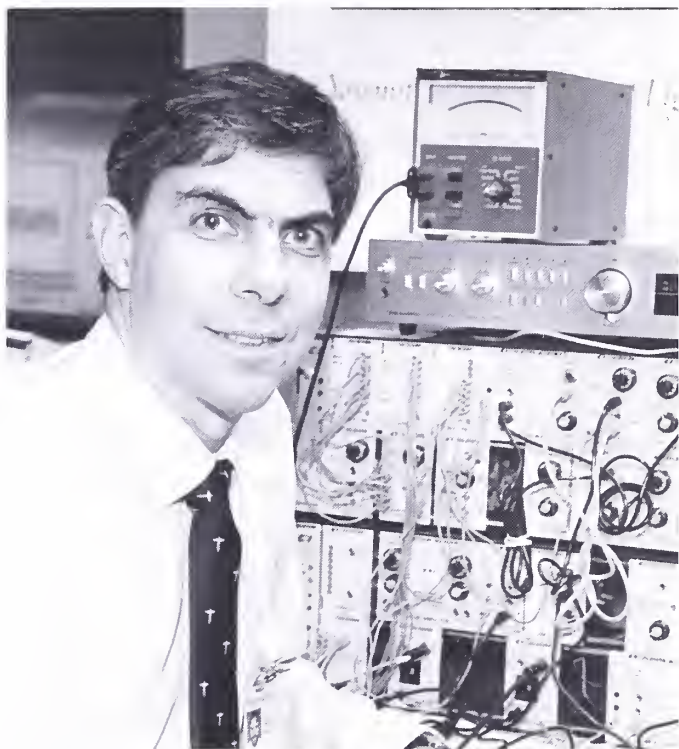
Such studies suggest that the sense of smell declines gradually throughout adulthood. In similar tests using salted tomato soup, Dr. Stevens detected a parallel decline in the sense of taste with age. He notes the potential danger of people at risk for high blood pressure needing to add more salt than younger people in order to achieve the desired effect.

Dr. Stevens points out that a declining sense of smell has ramifications that go beyond the enjoyment of one's food. "Smell is a warning sense as well as a pleasure sense," he notes. Older people are disproportionately represented among fire victims, perhaps because they are not as good at detecting smoke or natural gas odorants.

Dr. Stevens and William S. Cain, Ph.D., professor of epi-



Dr. Joseph C. Stevens displays a bottle he uses for tests of the sense of smell.



Dr. Lawrence E. Marks adjusts some equipment that he uses for auditory experiments.

demology (environmental health) and psychology, collaborate to test the ability of people to detect odorants, such as ethyl mercaptan, which are added to scent naturally odorless propane (LP) gas. Forty-five percent of subjects over age 60 were unable to detect this skunky smelling chemical at levels that met minimum federal safety standards. Ten percent of subjects under age 40 were not able to smell the chemical at this concentration, either.

In ongoing studies, the Pierce/Yale researchers are testing the ability of volunteers of various ages to detect different mixtures and concentrations of gas odorants. Their results will prove useful to gas companies in improving the mixture of scents they use to warn against gas leaks.

Old age and illness are not the only antagonists to our ability to taste and smell. Every year many people lose their sense of smell to accidents, especially head injuries.

Dr. Stevens remarks: "If you hit your head on a dashboard or fall off the back of a truck, you're very likely to shear the olfactory nerve fibers," which thread through small perforations of bone in the skull.

Such injuries can cause anosmia, a complete lack of smell, or hyposmia, diminished olfaction. In either case, the sense of smell returns in about 20 percent of cases, although recovery can take years. Dr. Cain estimates that 1 percent of the population will experience some prolonged loss of smell during their lives. Besides head trauma, smell losses can be caused by exposure to corrosive chemicals, chronic sinus infections, nasal polyps and upper respiratory infections.

The problem is common enough for Dr. Cain to develop clinical tests to measure possible loss of smell. Reliability is critical; in the case of an accident, test results may be used as evidence in lawsuits alleging negligence. How is it possible to determine if someone is faking a loss of olfaction? Dr. Cain meets this challenge in some ingenious ways.

In one of his tests, he asks subjects to taste a variety of sugar solutions, some of which are enhanced with tasteless,

aromatic fruit oils. Although presented as a taste test, the task also measures olfaction; people with normal smell think the fruit-scented samples taste stronger. This helps identify people who exaggerate their loss of smell.

Says Dr. Cain: "It's a very powerful illusion. When I taste that solution with the tutti-frutti odor, it seems like I have more flavor in my mouth, even though I know the ingredients."

Dr. Cain also is helping to develop a test of the ability to smell. Here researchers attach electrodes to a person's scalp to measure electrical changes that may occur as the subject sniffs different odors.

Dr. Cain's interest in indoor air quality also has produced some novel approaches. Surprisingly, for tests to determine whether an airborne substance is an irritant, he recruits people with no sense of smell. Anosmic subjects prove ideal; not distracted by bad odors, their noses do retain what is called the common chemical sense. Controlled by the fifth cranial nerve, this sense perceives such sensations as stinging, irritation, freshness, prickling, piquancy, burning and tingling.

These anosmic volunteers help Dr. Cain determine the pungency of certain chemicals as part of his research into "sick building syndrome." Buildings can make their occupants ill when new carpets, furnishings, paint, office machines or other items introduce noxious fumes into the environment faster than the circulating air can flush them out. Research by Dr. Cain and Yale colleagues have helped improve engineering standards for air circulation to help avoid this problem.

A Molecular Common Denominator

Sensory perception is a psychological as well as a visceral experience, explains Lawrence E. Marks, Ph.D., professor of epidemiology (environmental health) and psychology. Dr. Marks, a Pierce laboratory fellow, submits "certain principles and processes are common to many different sensory systems, despite fundamental differences among them."

To illustrate his point, Dr. Marks poses the question: Which is brighter, a cough or a sneeze? Though this may sound like a conundrum, developmental studies he has conducted indicate that most people, no matter what their age, will choose the sneeze. Cross-cultural studies by other researchers confirm this.

Why? Dr. Marks thinks the nervous system may respond similarly to the frequency of waves whether those waves be perceived as sound or light. In other words, the brain draws parallels between high-pitched sounds and bright colors, each comprised of high-frequency waves, and between low-pitched sounds and darker colors, with their lower frequencies.

"Maybe the nervous system uses the frequency of neural impulses to some extent to encode both pitch and loudness, although in slightly different ways," suggests Dr. Marks.

Such considerations come under the heading of "synaesthesia," in which one kind of sensory stimulation evokes the sensation of another. Throughout history, many artists have reported synaesthetic experiences, observes Dr. Marks in a 1978 book, *The Unity of the Senses: Interrelations Among the Modalities*. Nineteenth-century French poet Charles Baudelaire, in his sonnet "Correspondences," drew analogies between vision, taste and smell when he wrote "There are odors as fresh as children's skin/As sweet as oboes, as green as prairies."

Sir Isaac Newton proposed parallels between musical notes and colors, leading 18th-century Jesuit priest Louis-Bertrand Castel to build a "color organ." This clavichord unfurled colored ribbons that corresponded to different notes; audiences feasted on both the music and the visual display.

"It was all part and parcel of this notion of the unity of the

senses. There were similarities and analogies and relationships," Dr. Marks says.

To explore whether some associations between sound, light and size are innate, Dr. Marks and his colleagues tested children and young adults. They found that even young children perceived sunlight as louder than moonlight, a pebble as higher pitched than a boulder; red was higher pitched than blue but lower than yellow. The researchers also discovered that people respond more quickly and accurately to sensory combinations that are synaesthetic complements, such as white and high-pitched, than contrasting pairs, such as black and high-pitched.

Dr. Marks has constructed mathematical models to help describe these sensory connections. His models may help predict conditions that would maximize performance of aircraft pilots, air traffic controllers and others who monitor complex displays of information. Similarities between tactile perception and hearing could enhance the development of hearing aids that translate sound into vibrations which deaf people can interpret.

Olfactory Neurons: A Basic Analysis

Any synaesthetic connections that the mind creates may reflect cellular and molecular processes involved in perception. Gordon M. Shepherd, M.D., D.Phil., professor of neuroscience, reports that his studies of olfaction have led him to think that, neurologically speaking, organisms smell, see, taste and hear in very similar ways.

He explains, "Smell is a kind of odor image, an image evoked by the pattern of activation set up by the receptor cells and elaborated by the smell pathway in the brain. It functions like an image in a visual system."

When a person sniffs a gardenia, for example, a five-stage molecular relay race lets the brain identify the odor. As the nose inhales the volatile molecules that comprise the flower's fragrance, the race begins. The second leg occurs when molecules dissolve in the mucus covering the cilia, tiny hair-like structures in the nasal cavity extending from the olfactory neuron.

During leg three, protein molecules called receptors, which line the cilia, respond to the fragrance molecules in much the same way as a lock is opened by a particular key. The fourth leg of the race is run as the receptor protein activates a sequence of enzymes that amplify the odor signal. Finally, this produces a second messenger, a protein that completes the race by translating odor molecules into electrical impulses for nerves to pass along to the brain.

Stuart Firestein, Ph.D., assistant professor of neurobiology, studies the tiger salamander to discover how the home stretch of the relay race — the second messenger system — functions. He and his co-workers connect a microscopic electrode to one of the unusually large olfactory cells of the reptile. They then spray the cell with a cocktail of banana, cinnamon and nutlike odors. The odors trigger the opening and closing of tiny channels in the cell's membrane, flooding the cell with ions, atoms with a positive or negative charge. Dr. Firestein measures the resulting electrical change, which the brain interprets as an odor.

Drs. Firestein and Shepherd believe that humans can detect about 1,000 "basic" odors, analogs to the mere handful of basic taste sensations. Using these basic scents as building blocks, the brain builds a repertoire of 10,000 or more conglomerate odors that it can recognize.

"There are smells that evolution could never have put into our noses, like new car smell," observes Dr. Firestein. "And yet, we can perceive that smell as a very distinctive odor."

Dr. Firestein uses an alphabetical analogy to illustrate the theory. Conglomerate smells, he says, correspond to English language words, which are combinations drawn from the let-

ters of the alphabet. Basic smells, by contrast, are like Chinese language ideograms; each symbol represents one concept.

Molecular genetic research is also making its contribution to olfactory research. Earlier this year, Columbia University researchers greatly advanced the field by cloning and decoding the genetic sequence of olfactory receptor proteins. Dr. Shepherd thinks that the Columbia studies confirmed the predictions of some scientists that olfactory receptor proteins belong to the largest family of genes known.

Olfactory proteins also belong to a group of protein receptors that respond to different types of neurotransmitters, small hormone-like molecules used by nerve cells to communicate with each other. Such neurotransmitters as serotonin, dopamine and adrenaline help regulate emotional and physical states.

In recent experiments, Dr. Firestein bathed a salamander's olfactory cells in beta-blocking drugs, thus suppressing the cells' ability to perceive odors. Physicians prescribe beta-blockers, which block human neurotransmitters, to control hypertension. Dr. Firestein's work suggests that the olfactory receptor may resemble these neurotransmitter receptors.

Therefore, the salamander's nose might be useful to scientists who wish to learn more about how cells translate other chemicals into brain signals. This represents only one of many potential contributions that olfactory research may offer to other areas of medical research. For instance, a better understanding of cellular signalling may aid cancer researchers, who know that some forms of the disease are triggered by a signal that tells cells to replicate without restraint.

Dr. Firestein believes that the olfactory receptor cell could have value as a model for other sensory phenomena, such as sensory adaptation. "When you walk into a room with an unusual or unpleasant odor, after a couple of minutes, you no longer sense that odor," explains Dr. Firestein. "But if you walk out and come back in, you smell it again. You know that the odor is still there, but your perception of it has diminished." Drawing a parallel between this adaptation and the tolerance patients can develop toward therapeutic drugs, Dr. Firestein suggests that experiments with olfactory cells may help scientists understand such tolerances and develop ways to limit them.

Even the budding field of nerve regeneration could benefit from research into the sense of smell. Drs. Firestein and Shepherd are among the basic scientists who are trying to describe how olfactory neurons regenerate over long distances. Many nerves will not reconnect after they are severed, but olfactory neurons can regenerate and reconnect with appropriate receptors in the brain, so that the receptor responsible for smelling chocolate doesn't reconnect with the brain receptor for smelling vinegar.

Knowing how these neurons regenerate might enable researchers to stimulate nerve regeneration in other systems, perhaps helping in the far future to restore sight to the blind, hearing to the deaf and feeling and movement to victims of spinal cord injury.

What research trends should soon command the public's attention regarding the sense of smell?

"The olfactory sense in human behavior," replies Dr. Shepherd.

For example, scientists are working on identifying the elusive human pheromones, chemicals similar to those that control mating and social behavior in some insects and animals. Tomorrow, the allure promised by perfumes and colognes may be more than today's Madison Avenue hyperbole. **YM**

CMHC CELEBRATES 25 YEARS OF SERVICE



Photographs by James Anderson

At the celebration of CHMC's 25th anniversary, Abraham A. Ribicoff (left) speaks with chairman of psychiatry B. Stephen Bunney and William H. Sledge, head of CHMC's clinical division.

Editor's note: To protect confidentiality, patient names have been changed in this article.

by Gitta Morris

Twenty-five years ago, at the dedication of the Connecticut Mental Health Center (CMHC), Wilbur Cohen, undersecretary of welfare in the Johnson administration, spoke of a "new era" in the care of the mentally ill. On the same occasion Connecticut Gov. John Dempsey called the new \$5 million facility a "good investment."

Both remarks have proven prophetic. First, CMHC has made significant contributions to an innovative era in which day hospitals, crisis units, specialized outpatient treatments, and residential and vocational services have helped humanize the mental health care system and make it more effective.

Such innovations, in turn, have proven a good investment

by opening the system to more people while helping to control costs. This has allowed CMHC to offer an improved quality of life to most of the 50,000 or more patients who have received treatment here since September 1966.

The great need for CMHC's services became apparent almost from the moment the center opened its doors. During its first two months, CMHC treated 700 patients — twice as many as expected. Last year, some 5,500 people, most of them poor and severely disturbed, found their way into the center's patient care programs. Many others benefit indirectly from the research and teaching that are integral to CMHC's mission.

A Lifelong Struggle

Susan, a 34-year-old woman, has a history of mental illness that is typical of many of the center's patients. Over the past 14 years, she has been admitted 16 times to Connecticut Valley Hospital, a state mental hospital located in Middletown. Four times Susan has entered a private facility for treatment, and three times, CMHC.

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Diagnosed with a schizo-affective disorder, Susan has led a chaotic life, running away from family and from treatment, embroiled in legal problems, arrested for larceny and judged incompetent to stand trial. Ten years ago, she had a baby and gave the child up for adoption.

When at the mercy of her illness, Susan can be paranoid, suicidal and emotionally explosive, living in the streets and involved in petty crime. When her illness is under control, however, she is bright and does her best to live independently. She has a certain appeal that makes people want to befriend her.

For the past year, stabilized by medication and with the assistance of her CMHC case manager, Susan has been able to live in an apartment that is managed by Continuum of Care, a nonprofit provider of housing for psychiatric patients. She is learning computer skills and, although she still must contend with occasional bouts of paranoia, Susan is faring better than at any time since she became ill.



CHMC's anniversary celebration featured a reunion of present and past directors: (from left, back row) current director, Ezra E. H. Griffith, Fritz Redlich, Boris Astrachan; (from left, front row) Morton Reiser and Gerald Klerman.

Susan's progress, and that of thousands of others who have been helped at CMHC, might not have been possible were it not for an informal meeting that took place back in the 1950s in the office of newly elected Gov. Abraham Ribicoff. There Fredrick C. "Fritz" Redlich, M.D., Sc.D., then chairman of the Yale department of psychiatry, and a group from the Connecticut Mental Health Association frankly presented their concerns to the governor. "What do you plan to do about mental health?" they demanded.

"I've only been in office for one day," an embarrassed governor protested. Then the shrewd politician turned the tables on Dr. Redlich. "What does Yale plan to do about mental health?" he asked.

Out of this exchange was born a collaboration between the University and the State to create a mental health treatment, training and research institution. Its foundation was "Action for Mental Health," a report produced by a nationwide coalition of mental health care advocates. The document proposed a national program against mental illness to be fostered by state-supported training and research centers.

Further impetus came with the Community Mental Health Centers Act spearheaded by President John F. Kennedy in the early 1960s, which offered federal support for clinical care within a community context. Construction was launched with

\$4 million in state funds, \$900,000 in federal money and a contribution of \$100,000 from the University.

By way of long-term support, the State maintains the CMHC building and underwrites its overhead costs. Connecticut also pays the salaries of most of the administration and support staff and of about 70 percent of the nurses, social workers and other direct care providers. Finally, the State provides the senior administration, research staff, psychiatrists and some other professionals through a \$7 million contract with Yale.

With an annual budget of nearly \$19 million and 41 inpatient beds (plus 13 beds in the research unit), CMHC is one of the largest psychiatric facilities administered by the Yale psychiatry department. The department also is responsible for Yale Psychiatric Institute and for psychiatric care at Yale-New Haven Hospital and at the Department of Veterans Affairs Medical Center in West Haven.

Only a hint of the University-State relationship manifests itself as one approaches CMHC's five-story brick structure at the corner of Park Street and South Frontage Road; the center's brick facade is more reminiscent of a state government office building than of the Yale buildings on the medical campus.

Appearances aside, extensive collaboration begins at the top level of administration. On the State side, the commissioner of the Department of Mental Health and the regional director of mental health play a major role in setting policy for clinical services. For Yale's part, the chairman of the psychiatry department serves as the designate of the medical school dean to oversee teaching and research.

Reporting to both the State and the University, CHMC Director Ezra E.H. Griffith, M.D., professor of psychiatry, coordinates the center's three areas of activity — clinical service, research and teaching. As he explains it, "My job is to try and hold a sensible balance between and among these aspects of CMHC's mission." He is assisted by associate directors of the clinical, nursing and administration divisions.

Meeting the Challenge

For the past two years, the clinical division has been headed by William H. Sledge, M.D., associate professor of psychiatry. An Alabama accent has survived his 17 years in New Haven, dating back to his psychiatric residency at Yale. He explains that CMHC strives "to provide patients the flexibility to move easily among the center's five clinical units and the many services they offer."

Those units include:

Entry and Crisis. In nearly 2,700 face-to-face encounters and more than 4,000 telephone calls per year, this unit evaluates the nature and urgency of patient concerns and arranges help. This is the sole portal into treatment at CMHC.

Mobile outreach and crisis intervention are extensions of this unit. In mobile outreach, CMHC clinicians go into the community to treat acutely disturbed, sometimes dangerous individuals; caregivers have even been called on to negotiate the release of hostages. Crisis intervention, a short-term outpatient program, serves as an alternative to hospitalization for distressed patients who can be helped by intermittent treatment.

Inpatient service. Offering the most intensive treatment for patients with prolonged, severe psychological disorders, this service is located on CMHC's secure fourth and fifth floors. Patients may stay from a few days to several months.

Acknowledges Martha Mitchell, M.S.N., associate director of nursing since 1982, "In this day and age, anyone admitted to a public sector inpatient unit is impoverished and severely dis-

turbed. There just aren't that many beds anymore. People here are among society's most disadvantaged."

In this setting, nurses play a major role in assuring that patients receive the support and the structure they need to reshape their lives to adapt successfully outside the institution. "There's a sense of trying to do your darndest to get their trust, to be as flexible as possible, to provide the patient with some modicum of control," says Ms. Mitchell.

"It takes a lot of skill to relate to people who are as sick as they can be and denying it. Often their family gives up on them. They have no support system. You can get very attached to these people, and you get very in touch with how chaotic and how resourceless their lives are."

Outpatient services. This aspect of CMHC's treatment program was reorganized by Dr. Sledge. In past years, patients were assigned to an individual therapist. If this therapist happened to be a resident or other trainee, after the rotation concluded, the subsequent caregiver had to start the therapeutic relationship all over again.

Today, each patient is cared for by a team of some 12 to 14 professionals — psychiatrists, psychiatric social workers, nurses, social workers, trainees and other mental health professionals. Each group is coordinated by a team leader, usually a social worker or nurse, who works closely with a CMHC psychiatrist. Though trainees rotate on and off the team, the other team members provide the continuity that minimizes any disruption of therapy.

CMHC offers outpatient services not only at its Park Street headquarters, but also at the West Haven Mental Health Clinic

and the Hispanic Clinic at 1 Long Wharf Drive in New Haven. The latter, explains Dr. Sledge, is to provide Hispanics "a special clinic that is sensitive to them, one that is really theirs."

Day Hospital. Here patients spend six hours each weekday in therapy designed to help them cope with the practical tasks of life, like dressing appropriately for work, shopping for food and clothing, and managing a checking account.

Patients also acquire the social skills that will ease their transition back into the community. Says Dr. Sledge, "The day hospital staff teach about normal, everyday interactions that most of us take for granted, like making eye contact during a conversation or how to ask the bus driver for change."

Other patients benefit from the crisis respite program in the homelike Brownell House. Located in a pleasant residential neighborhood near the day hospital, Brownell House accommodates four patients for an average of 15 days each. Part of a three-year federally funded research demonstration project, the program is a joint venture of CMHC, the State Department of Mental Health and Continuum of Care, with Dr. Sledge as the principal investigator.

By providing a short-term halfway house, the crisis respite program fills the gap between inpatient and day hospital care. The experimental project randomly assigns patient volunteers to either the inpatient hospital or the crisis respite program; researchers then compare for clinical effectiveness and cost efficiency.

Substance Abuse Treatment (SATU). This fifth clinical unit serves as a national model for substance abuse treatment programs. Its immediate past director, Herbert D. Kleber,

Ezra E.H. Griffith — Strengthening a Vital Institution

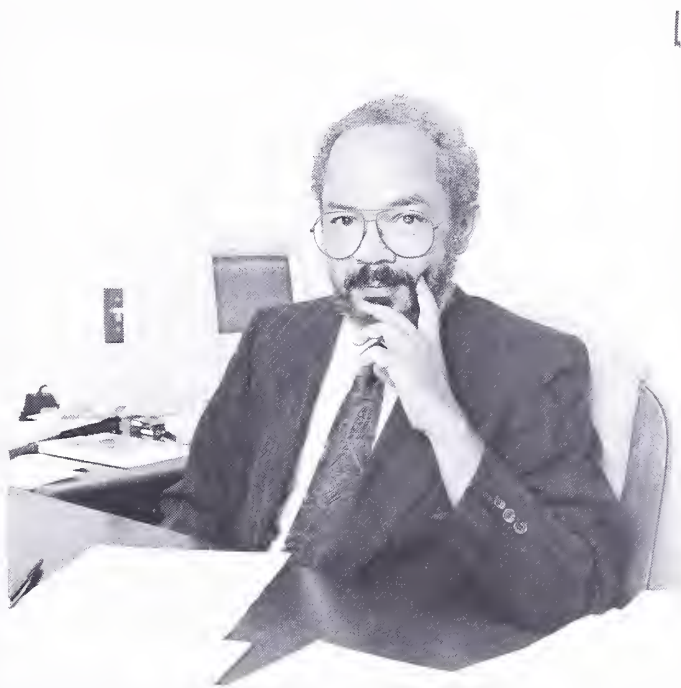
Dr. Ezra E.H. Griffith, CMHC's director for the past two years, is a brusque, outgoing man who is long on self-confidence and comity. His assured air may have something to do with his cosmopolitan past.

Born and raised in Barbados, he came to the United States with his family as a teen-ager. True to the heritage of his homeland, he journeyed to France to earn his medical degree before coming to New York City for residency training at Albert Einstein University. Dr. Griffith's research too reflects his international background; he has studied the therapeutic effects of African-American and Caribbean religious rituals and the cultural aspects of psychiatry.

In 1977, Dr. Griffith came to Yale as an assistant professor of psychiatry and to CMHC as associate director of the inpatient unit. He was named the center's acting director in 1987, and two years later was appointed director.

From the start, Dr. Griffith has put a heavy emphasis on community relations. As soon as he became director, he relates, "I met with community groups and pastors, and was quite shocked when they said they would never come into the center. They saw it as a distant Ivy League, Yale institution and never thought of it as a resource for them and their constituencies. If a member of the congregation was suffering, they would not think to say 'Let me call the CMHC to see if you can get help there.' That bothered me seriously," he acknowledges.

To remedy the situation, Dr. Griffith began meeting with Hispanic and African-American health and social service providers, with pastors and city representatives. "Getting a sense of community," he calls it. During these encounters he explained the mission and the wide range of services available



Dr. Ezra E. H. Griffith

at the center.

Such efforts have had a dramatic effect. When Dr. Griffith assumed the CMHC directorship, the center cared for 3,000 patients. Last year, that number topped 5,500.

Dr. Griffith sees CMHC's faculty, staff and students as a wellspring of expertise that should flow generously into the community. Comments Dr. Griffith, "We have some powerful brains here that reflect on a wide range of health care issues, and their expertise should be made available to the community."

CMHC Teams Row Against Tide of Urban Poverty

"It's very difficult to work in our community in the traditional manner, with patients coming in here to get medication and therapy once a week," observes Kenneth S. Thompson, M.D., assistant professor of psychiatry. "More and more of our patients have a history of having had to be hospitalized at some point in their lives. Now they've been deinstitutionalized to the community. They need a lot of care, especially as conditions in the neighborhoods they live in have become worse and worse. Poverty there is as bad as ever, if not worse, and it's accompanied now with a wave of drugs, violence and disease."

Moreover, many CMHC patients face the challenge of breaking an endless circle: Because they are mentally ill, they cannot find or hold jobs; because they do not work, they remain poor — often with no health insurance — and with nothing constructive to occupy their time.

CMHC uses a team approach to cope with its burgeoning population of low-income, severely disturbed patients. Dr. Thompson serves as medical attending physician for one such team, which is responsible for some 300 outpatients.

On a recent morning, the team, comprised of 12 to 14 professionals — physicians, psychiatric social workers and nurses, trainees and mental health workers — discussed several patients. Jack, a musician, had made some of the most dramatic progress.

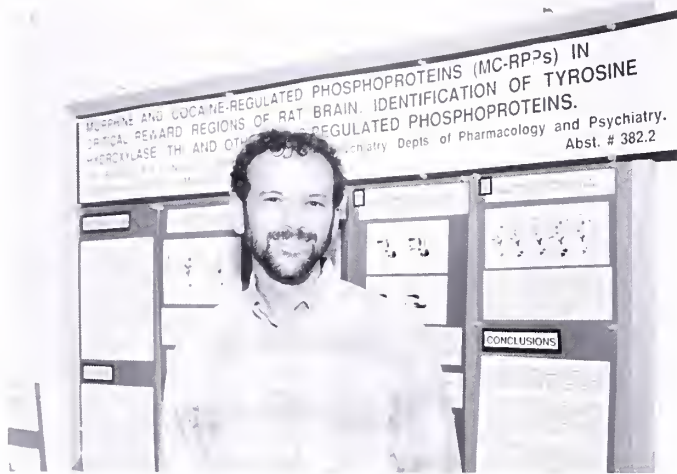
Jack arrived at CMHC two months before, psychotic, depressed and obsessed with his health. Having just learned that he had diabetes, he was convinced that he was dying.

To complicate matters, "we had a terrific time convincing his family to let him go on medication" for his mental illness, Dr. Thompson recalls. "They were very resistant." Team therapist Kate Young, a nursing student at Yale, worked hard and long with the patient and his family. She finally was able to persuade the family to allow Jack to enter treatment at CMHC.

For his first few weekly medication and therapy sessions, Jack showed up overweight, disheveled and miserable. Dr. Thompson is pleased to report, however, that after two months of treatment, "I literally did not recognize him. Jack was clean, he felt better, and was taking care of some issues in his life. It was really a profound change."

Thanks to CMHC's leading role in a statewide managed care system, the center can help patients like Jack from the greater New Haven area and throughout Connecticut. The system, which divides the state into 23 catchment areas, each coordinated by a lead agency, helps the mentally ill make the best use of the many services — from crisis centers to soup kitchens — that are available to them.

As lead agency in Catchment Area 7, CMHC coordinates mental health care in New Haven, Hamden, Woodbridge and Bethany. In these towns 15 agencies provide a wide range of clinical services, residential treatment, vocational rehabilitation and social support. CMHC also works with other lead agencies to help place patients who need inpatient care, but live in catchment areas with no such services, or with inpatient beds that are filled.



Dr. Eric J. Nestler

M.D., was named deputy director of demand reduction for the federal Office of Drug Control Policy. Current director Richard S. Schottenfeld, M.D., associate professor of psychiatry, also is a nationally known drug researcher and clinician.

To help New Haven deal with its epidemic of substance abuse, SATU offers an evaluation and brief treatment unit, an alcohol unit and SATU outpatient services. The cocaine clinic is widely recognized for outpatient cocaine treatment using psychological interventions. In addition, SATU's award-winning research component is one of two major sites for National Institute of Drug Abuse research in the United States.

Where Psyche Meets Soma

In the basic science laboratories, every effort is made to gear research toward possible clinical applications. Comments George Heninger, M.D., professor of psychiatry and director of CMHC's Abraham Ribicoff Research Center, "Many of our scientists are undertaking basic research leading to clinical trials. We're always thinking how we might apply our results to improve the treatment of our patients."

In addition to the work done at the Ribicoff center, CMHC's strength in research comes to the fore at such programs as the Center for the Studies of Prolonged Psychiatric Disorder and the Consultation Center. Together, these programs have advanced psychiatric research, especially into the treatment of depression, schizophrenia and substance abuse.

CMHC's Laboratory of Molecular Psychiatry also focuses on these three areas. Typical is the research of Ronald S. Duman, Ph.D., assistant professor of psychiatry. Dr. Duman studies the biochemical mechanisms that underlie the therapeutic action of antidepressant treatments.

As one approach, his research team is "cloning neurotransmitter receptors from the *locus coeruleus*, a region of the brain which is involved in depression," he explains. The Laboratory of Molecular Psychiatry has recently isolated a cDNA clone for a neuropeptide Y receptor, a protein that has been implicated in depression. Dr. Duman says that improved medications may result from a better understanding of the molecular mechanisms of antidepressant treatments and characterization of neurotransmitter receptors that play a role in depression.

George K. Aghajanian, M.D., the Foundations Fund for Research in Psychiatry Professor of Psychiatry and Pharmacology, is conducting pathfinding studies into how psychoactive drugs affect brain function at a single neuron level. His research, involving lone neurons from minute slices of rat brain, attempts to explain how neurotransmitters pass along the

electrical impulses that are key to brain cells communicating with each other.

Dr. Aghajanian's studies involve two elements:

- how receptor proteins for the brain chemicals norepinephrine, serotonin and opioid peptides work at the molecular level;
- how these receptors induce changes within brain cells that may be relevant for schizophrenia, depressive illness or drug dependence.

Dr. Heninger's studies at the Clinical Neuroscience Research Unit have been based in part on Dr. Aghajanian's findings. Armed with data about the role that serotonin plays in depression, Dr. Heninger and colleagues have been able to develop treatments that regulate this brain chemical to relieve depressive illness. He works closely with Lawrence H. Price, M.D., associate professor of psychiatry, and with assistant professors Wayne E. Goodman, M.D., and Christopher J. McDougle, M.D.

Like Dr. Aghajanian, CMHC scientist Michael Davis, Ph.D., professor of psychiatry and psychology, studies the brains of laboratory rats. Dr. Davis' research is helping to identify the basis of panic attacks and other anxiety disorders. He is discovering how the neural systems involved in learning and memory are affected by fear conditioning.

His studies of the startle reflex — which causes mammals to jump when surprised — are revealing the pathways between the *amygdala*, the brain's fear center, and the brain centers that control breathing and heart rate. Such reactions as rapid breathing or increased heartbeat, useful to defend against physical danger, are maladaptive when evoked by everyday stress. Learning more about the neural pathways involved in the "fight or flight" reaction could lead to improved drug or other treatments for anxiety or panic disorders.

Many CMHC patients find their psychological problems exacerbated by addiction to illegal drugs. Trying to improve drug treatments through basic research is Eric J. Nestler, M.D.,

Ph.D., the Elizabeth Mears and House Jameson Associate Professor of Psychiatry and Pharmacology. His research has revealed some of the biochemical mechanisms by which cocaine and opiates produce addiction in laboratory animals.

Dr. Nestler notes that on an acute level, "these addictive drugs exert very different effects and react with different protein receptors." Still, the various drugs have a similar functional effect — addiction.

This chronic effect may be traced to similar protein changes in the brain's mesolimbic dopamine system, which many scientists believe plays a key role in addictive behavior. This is the area of the brain on which Dr. Nestler's research team is focusing, with the aid of a strain of rats that is more vulnerable to drug addiction.

Dr. Nestler's research may soon offer a direct benefit for CMHC patients. Along with CMHC researcher Thomas R. Kosten, M.D., associate professor of psychiatry, he has applied to the University's Human Investigations Committee to initiate a clinical trial for a drug that may help reduce addicts' craving for cocaine.

Along with encouraging basic research that will result in better treatments for CMHC's patients, center director Dr. Griffith works to insure that the teaching program serves the needs of both patients and students. Last year, 83 professional students were trained at the center, most of whom were psychiatric residents, and predoctoral or postdoctoral fellows in psychology. Other trainees include social work interns, nursing students and chaplaincy interns.

Dr. Griffith points out that as CMHC moves steadily toward treating seriously ill patients with chronic disorders, the center offers students a unique educational challenge. "How many places can you go," he asks, "where you can learn how to develop a treatment program for someone who doesn't have a place to live and no support services?"

As CMHC moves beyond its silver anniversary, the mounting pressures of society — especially on those who are poor and disenfranchised — will make this already difficult charge all the more daunting. **YM**

In a relaxing moment of conversation before dinner, a day-hospital patient is flanked by associate director Edna Aklin, C.I.S.W., (left) and director Jeanne Steiner, D.O.



BRIDGING THE GAP: PATHOLOGY AT YALE



Photographs by Harry Bishop

Assistant professor of pathology Brain West, M.D., (right) examines slides from an ischemic colon. With him are YNHH resident Marc L. Silverberg, M.D., '91, (left) and Joe Esherick, a third-year medical student.

by John Dinolfo

Early afternoon on a typical weekday: In his office on the second floor of Yale-New Haven Hospital's Memorial Unit, Stuart Flynn, M.D., associate professor of pathology, receives a phone call from the operating room. A surgeon has just removed a worrisome growth from the right breast of a 46-year-old woman. Fine needle aspiration of the mass, done the previous week, had revealed atypical cells, raising the specter of breast cancer and necessitating today's biopsy.

By phone, the surgeon advises the pathologist that he has discovered no evidence of a well-defined mass. Dr. Flynn quickly assesses the possibilities: Either the lesion is benign or a diffuse infiltrating neoplasm, a cancer that does not produce a tumor but insidiously penetrates normal tissue.

In the OR, the biopsy, roughly the circumference of a silver dollar, is packed in ice and rushed to a tissue processing lab in

the pathology department, where Dr. Flynn carefully examines the sample for gross evidence of cancer, notably, discolorations or hard irregular areas. Finding none, he dissects the lesion and discovers a 2 centimeter cyst—the site that had been previously aspirated.

He slices two small segments of tissue and quickly passes them to a lab technician who immerses the samples in liquid nitrogen. The frozen tissue section is deftly sliced again, by machine, into sections thinner than a snowflake, then mounted on slides.

Soon after, the surgeon arrives from the OR. He and Dr. Flynn examine the slides under a microscope. "It's benign," Dr. Flynn says with a sigh of relief.

Though happy with the result—and the expected impact the good news will have on the patient—Dr. Flynn has little time to savor the satisfaction of the moment. He returns to his office, where other patients' slides await inspection.

This recent case illustrates how Yale's practicing pathologists help establish a diagnosis, thus playing a key role in

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patient care. These pathologists evaluate an average of five breast biopsies each weekday. Elapsed time for such a frozen tissue section assessment, from initial contact in the OR to the clinical decision, is usually about 10 minutes. Fortunately, most breast biopsies done at Yale-New Haven are benign, Dr. Flynn explains. When a biopsy does prove malignant, the surgical pathologist employs a battery of histopathologic and molecular tests to try to determine cancer severity and spread. Such tests, usually done within a week of the biopsy, typically offer vital insights into the patient's prognosis and likely course of therapy.

Often unknown to the patient, the pathologist plays a key, behind-the-scenes role as a member of the clinical team. "The pathology report is often the most important single piece of information in the patient's chart," explains Jon S. Morrow, Ph.D.'76, M.D.'76, chairman and chief of pathology since September 1990. "There's often very little way to tell until that tissue is removed whether it is benign or malignant. That decision rests on the shoulders of the pathologist."

In addition to assessing breast biopsies, Yale pathologists routinely help to diagnose other potentially malignant conditions. For example, sometimes a cancerous lesion cannot be distinguished from simple inflammation by gross examination, or a tumor margin needs clarification so that a surgeon can tell if all diseased tissue has been removed. In such cases, the pathologist establishes the diagnosis in the laboratory—often before the conclusion of surgery.

Indeed, on a typical work day, pathologists and their staff analyze 20 to 50 frozen tissue specimens. "The rate of error for frozen sections approaches zero," Dr. Morrow points out. If doubt persists as to whether a lesion is malignant, the pathologist errs on the conservative side, deferring diagnosis until more information is available.

Although vitally important, frozen tissue sections are just a small part of the pathology story. This year alone, Yale pathologists will evaluate up to 35,000 scrapings, biopsy samples, fluids or cytologic specimens. Most tissues are sent by colleagues at Yale-New Haven Hospital and the Department of Veterans Affairs Medical Center in West Haven, although every year physicians from as far away as Brazil and Japan turn to Yale pathologists for help in assessing difficult cases.

Autopsies also play a vital part in the work of Yale pathologists, providing a powerful tool for quality assurance and continuing medical education. Up to 30 percent of autopsies reveal information that would have altered clinical care, had the information been known prior to death.

In combining varied clinical duties with research and teaching, Dr. Morrow says that each of his department's faculty members is faced with "a job with enormous responsibilities."

Providing a Keystone

In one sense, every physician is a pathologist; pathology's Latin roots translate as "the study of disease." More than most biomedical disciplines, however, pathology serves as a nexus between basic research and clinical medicine. "The real challenge is to form a bridge so that new developments in the laboratory are quickly applied to clinical studies and vice versa," explains Dr. Morrow. He himself is an expert on the cell's cortical cytoskeleton—the protein infrastructure that supports the cell membrane.

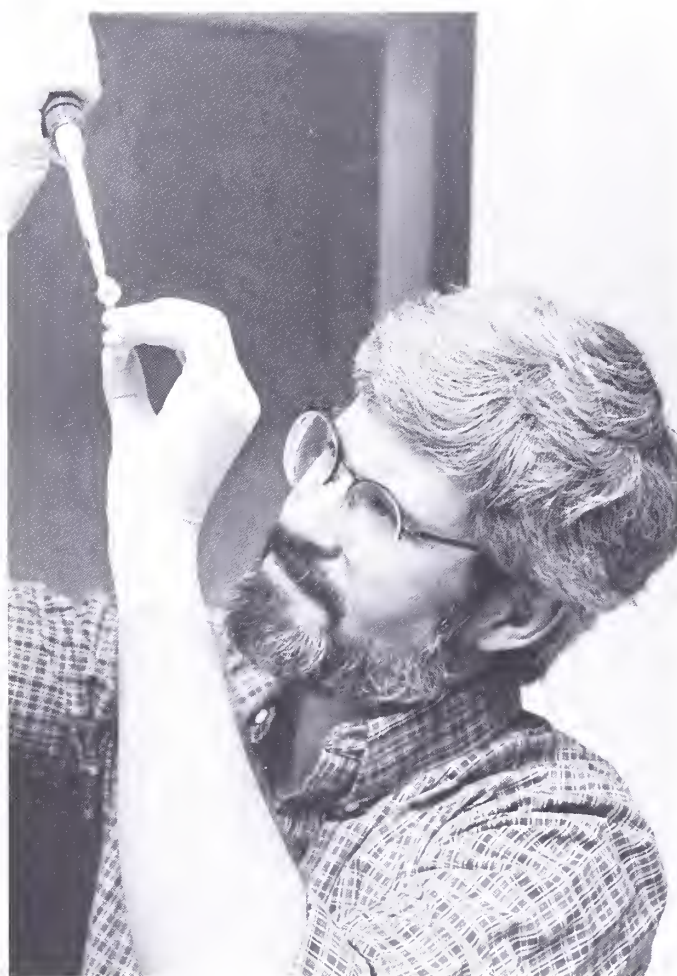
Roughly half of the department's 20 full-time faculty members conduct research into cell growth and differentiation while the other half are engaged in clinical studies designed to improve patient care. Many faculty members undertake both.

Among those engaged in both basic and applied research

High-technology Tools Aid Today's Pathologist

Among the sophisticated technologies used by School of Medicine pathologists are:

- electron, fluorescent and confocal laser microscopy;
- advanced cell-biological and biochemical techniques, including electrophoresis, high-pressure liquid chromatography, and *in-vitro* cell culture;
- molecular genetic and recombinant DNA techniques, including DNA cloning and sequencing, Northern and Southern blotting, RFLP mapping, and *in-situ* hybridization;
- specialized monoclonal and polyclonal antibodies and protein markers;
- the preparation of recombinant proteins in bacteria;
- retroviral mediated gene transfer;
- computer-assisted image analysis;
- flow cytometry, the laser-induced fluorescent analysis of cell cycles.



Stephen L. Warren, M.D., assistant professor of pathology, loads a gel of cells cultured with the c-src oncogene.

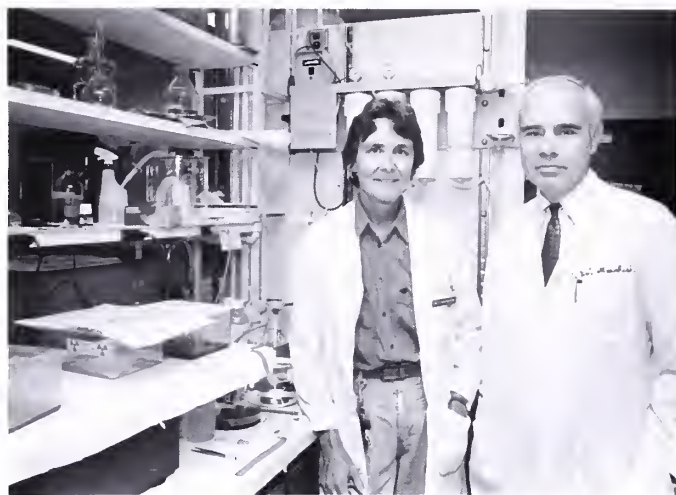
are Vincent T. Marchesi, M.D.'63, Ph.D., the Anthony N. Brady Professor of Pathology, Cell Biology and Biology, and Sally Marchesi, M.D., professor of laboratory medicine and pathology. In collaboration with Dr. Morrow, this husband and wife team have identified cellular and genetic mechanisms in the cortical cytoskeleton that appear to cause hemolytic anemias—hereditary diseases in which red blood cells break down. This research stems from Dr. Vincent Marchesi's pioneering work at the National Institutes of Health in 1968, where as a Public Health Service medical officer he discovered spectrin—the main protein comprising the red blood cell cytoskeleton.

Dr. Vincent Marchesi, director of the new Boyer Center for Molecular Medicine (BCMM), points out that sophisticated molecular tools now allow scientists to study normal and abnormal molecules in a cell at the same time—a dramatic advance since the late 1960s. "It's like having a window instead of trying to look through a brick wall," he observes.

Dramatic views from the window of molecular research have dramatically changed the way inherited anemias are diagnosed. Today, Dr. Morrow explains, it's not enough simply to detect red blood cell shape abnormalities under a light microscope: "Increasingly, you want to know what the molecular defect is, where the mutation is and in which protein."

Yale clinicians have found that genetic mutations affecting spectrin production in the cytoskeleton appear to account for two hemolytic anemias—hereditary elliptocytosis and hereditary spherocytosis. Awareness of such genetic factors has led to improved screening for hemolytic anemias, explains Dr. Sally Marchesi. Because of Yale's expertise in this field, pediatricians from around the nation send blood samples of anemic patients for evaluation of difficult cases.

"If we determine that it is a cytoskeletal defect, it's quite



Drs. Sally and Vincent Marchesi.

clear that splenectomy will improve the patient's hematologic status," Dr. Sally Marchesi says. That alone may normalize a patient's blood counts.

On another front, Professor of Pathology and Biology Michael Kashgarian, M.D.'58, employs his expertise in the pathogenesis of kidney injury and disease. In collaboration with Dr. Morrow, he is trying to identify molecular factors in the renal cortical cytoskeleton that help determine kidney cell polarity—the directional arrangement of proteins within each cell. Dr. Kashgarian explains that restoring the proper polarity is necessary to restore kidney function after acute ischemic damage, in which the organ is deprived of oxygen-rich blood due to a heart attack, traumatic injury or other such event.

"We're also interested in the way that injury initiated in the kidney seems to progress independently after the injury has been removed," Dr. Kashgarian says. "When this secondary injury progresses to end-stage renal disease, the patient must have a kidney transplant." Dr. Kashgarian hopes that research into molecular mechanisms underlying progressive renal failure may lead to improved therapies to arrest the disease.

The Pathologist's Little Black Bag

In the quest to discover the root of a disease, "any tool is fair game if you can bring it to bear," says Dr. Morrow. In roughly 95 percent of cases, evaluation of morbid anatomy or the use of a light microscope provide enough information to make a sound therapeutic decision. Yale's pathologists employ a wide range of molecular tools, from electron microscopes to flow cytometry — the laser-induced analysis of cell cycles — to confirm other, less definitive clinical findings, or to gain a better understanding of the underlying causes of disease. [See "High-technology Tools Aid Today's Pathologist."]

One of the most dramatic of these tools is polymerase chain reaction (PCR), a simple yet powerful biochemical technology. PCR can replicate and harvest unlimited amounts of DNA from the cells of any host, whether alive or dead, even the cells of Egyptian mummies. Capable of duplicating DNA from even a single cell, PCR offers an incomparable window on the world of gene amplifications and rearrangements.

To maximize the use of its advanced investigational tools in the clinical setting and to facilitate disease-related research in the University and throughout Connecticut, the pathology department has recently consolidated many of its activities in the Molecular Diagnostics Laboratory (MDL). The purpose of this facility is two-fold:

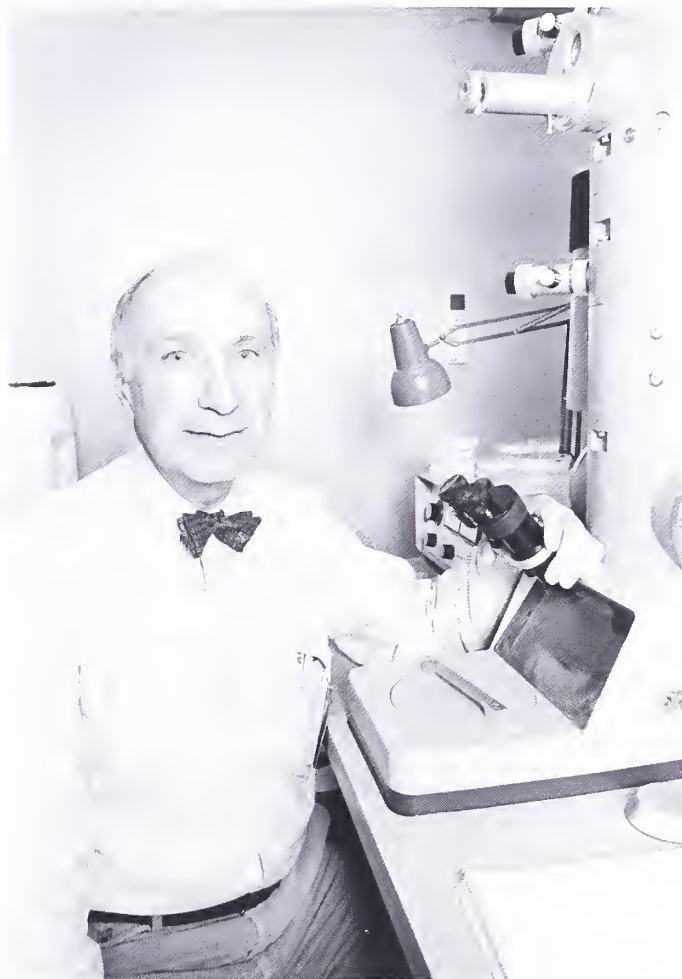
Yale Pathologists Pursue Wide Range of Research

Major research areas within the pathology department include:

- molecular oncology involving breast, skin, ovarian and gastrointestinal cancers;
- the molecular basis of oncogene action;
- control of viral replication and infection (AIDS);
- the molecular basis of neuronal changes in several diseases involving the brain, such as stroke, AIDS, and Alzheimer's disease;
- transplant rejection in heart, liver and kidney and the immunology of the vascular system;
- cell-cycle control and mitotic structure;
- cardiovascular pathology;
- normal and abnormal endothelial and epithelial cell growth and differentiation;
- gastrointestinal and immunological disorders in neonatal, pediatric or geriatric patients.
- cellular and molecular basis of ischemic and anoxic injury.

- 1) to make sophisticated and innovative molecular analyses of patient tissues available on a routine basis to practicing pathologists and clinicians;
- 2) to serve as a resource that can provide patient tissues, and scientific and medical expertise to University scientists who may be working on problems with potential medical applications.

Key areas of focus in the MDL include immunologic and molecular markers that identify specific tumors and the identification of DNA alterations in solid tissue neoplasms. MDL also offers an oligonucleotide synthesis facility, used by researchers throughout the University.



Dr. Michael Kashgarian recently served on an NIH panel which determined that the small amount of mercury used in tooth fillings did not pose a health risk to dental patients.

One aim of the MDL is to serve as a principal resource for in-state hospitals and clinics. "We anticipate that in the next few years, we will become a much larger reference laboratory for the state," Dr. Morrow says. Currently, six faculty and staff scientists participate in the MDL's work; Dr. Morrow envisions that 10 or more faculty members will be directly involved in the laboratory's efforts in coming years.

In research as well as in patient care, cancer remains a primary focus within pathology. Cancer studies illustrate the increasingly interdisciplinary nature of biomedical research.

Take, for example, the use of flow cytometry to detect multi-drug resistance in patients undergoing chemotherapy. Dr.

Flynn has been using various assays to measure expression of a molecule called P-glycoprotein. Using flow cytometry, he has found that elevated P-glycoprotein levels often correlate directly with multi-drug resistance—a finding helpful to colleagues in oncology and pharmacology.

By administering various drugs to modulate the effects of chemotherapy on patients with elevated P-glycoprotein levels, Yale clinicians are attempting to re-sensitize drug-resistant individuals to cancer therapy. Preliminary results of clinical studies have been encouraging. "That keeps us going day after day, because it is so exciting," Dr. Flynn says.

Dr. Flynn is also using flow cytometry in the prognosis of breast cancer with no lymph node involvement. Early findings from flow cytometry studies suggest that breast cancer patients with no evidence of chromosomal abnormalities or increased tumor proliferation may benefit from less aggressive therapy. A long-term follow-up study is now underway.

Other Yale pathologists are trying to improve the chances of surviving breast cancer (the national mortality rate stands at 33 percent) by predicting early in the course of disease which patients will be high-risk. Physicians hope to target chemotherapy and radiation more effectively by minimizing therapy to low-risk patients.

That goal may be closer thanks to recent discoveries about the *neu* (also called *erbB-2*) protein, which represents a large family of oncogene products that are growth factor receptors. This area of research is the purview of David Stern, Ph.D., assistant professor of pathology and an expert in the genetic and molecular mechanisms that direct tumor growth.

Dr. Stern explains that *neu* proteins act as receivers at the cell surface that sense the presence of growth-stimulating hormones, or growth factors, outside the cell. The receptors then initiate a chain of events inside the cell that eventually results in cell proliferation.

Explains Dr. Stern: "Genes encoding proteins that act along this signalling chain are frequently altered in cancers because excessive stimulation of these pathways leads to uncontrolled cell division, a hallmark of cancer cells."

Dr. Stern's laboratory is investigating the exact means by which the signal is transmitted across the cell membrane by growth factor receptors, and the cascade of intracellular events that follows. "Because the basic mechanisms of cell division are similar in unicellular and multicellular organisms," notes Dr. Stern, "we are investigating these problems in yeast, which are amenable to the powerful tools of genetic analysis, as well as in mammalian cells."

Potential improvements in the diagnosis of breast cancer stem from recent findings suggesting that in 15 to 30 percent of breast tumors, the *neu* gene is altered; in these tumors, the gene is present in abnormally high numbers of copies. Drs. Stern and Flynn are studying whether *neu* protein overexpression—in itself, a weak prognostic indicator—may point the way to a more reliable marker for breast cancer.

Toward that end, the researchers are collaborating with Barry M. Kacinski, M.D., Ph.D., associate professor of therapeutic radiology, obstetrics and gynecology. This team is testing specimens from hundreds of patients with breast or ovarian cancer to determine if severity of disease is associated with certain key alterations in the *neu* protein, known as autophosphorylation. These complex biochemical changes may offer valuable insights into the biology of breast cancer.

"There's no doubt in my mind that either receptor autophosphorylation or phosphorylation of receptor substrates will turn out to be strong diagnostic markers," says Dr. Stern. This prospect offers the potential clinical application of improved

screening and more accurate ways to determine the stage of breast, ovarian and other cancers.

Crucial Animal Research

Laboratory animals make a vital contribution to human health through Yale pathology studies. Assistant Professor G. Paolo Dotto, M.D., Ph.D., has bred a line of transgenic mice that expresses key human oncogenes. The animals allow Dr. Dotto to study the production of primary epithelial tumors—cancers that closely resemble human carcinoma of the skin and cervix.

Why not simply use cell cultures to learn about such tumors?

"It is very important to use primary cells, cells freshly prepared from the animal," Dr. Dotto notes, "because if you use cell lines, they probably will have undergone significant changes already. If you don't study all the steps, you might miss some that have already occurred."

In fact, Dr. Dotto's research shows how cell culturing and animal studies complement each other: "You can genetically manipulate the cells in culture, put them back into the animal and study whatever your gene is doing in that situation."

By identifying key genetic signals and protein transformations that occur in the first few minutes of epithelial tumor growth in mice, Dr. Dotto hopes to learn how human oncogenes and tumor suppressor genes, acting in concert, activate epithelial tumors—the bulk of solid tumors seen in humans. His team is also studying how healthy keratinocytes, the principal cell in the epidermis, suppress the growth of primary tumor cells by producing a molecule called "diffusible growth inhibitory factor."

Yale scientists also hope to develop new cancer treatments by studying how tumors are fed by blood vessels. On the vascular front, Joseph Madri, M.D., Ph.D., professor of pathology and biology, is trying to identify key molecular signals that direct the early stages of blood vessel formation in tumors. He is focusing on the role of certain cell surface receptors—proteins that bind to extracellular proteins in lock-and-key fashion, triggering a complex series of biochemical events that result in angiogenesis, the formation of new blood vessels.

By learning how to inhibit or even arrest this process in its very early stages, Dr. Madri hopes to reduce or eliminate the blood supply to tumors and thus rob them of the oxygen and nutrients they need to survive.

"If one could effectively modulate angiogenesis," he says, "one would have a tremendous handle on the neoplasia problem, on metastasis."

Taking the opposite tack, some vascular researchers in the Madri laboratory are learning how key cell surface receptors act to increase blood vessel growth. Dr. Madri speculates that such studies may one day allow scientists to develop improved, long-term skin grafts for bedridden elderly patients with decubitus ulcers and trauma patients with severe burns.

The Madri team is also studying how the endothelial cells that line the coronary arteries react to damage. "If we can better understand the response of the vessel wall to injury, we can design and execute therapies that will allow for a longer beneficial time following injury," Dr. Madri says. The clinical goal: to minimize the risk for blood vessels re-closing after patients have undergone coronary artery bypass grafting or angioplasty.

Some of the department's most novel research involves viruses. Identifying and regulating factors that control viral reproduction is a principal concern of John K. Rose, Ph.D., professor of pathology, cell biology and biology. "He's doing

very novel molecular manipulations in genes, very revolutionary," Dr. Morrow says.

Two years ago, Dr. Rose discovered that a key step in the assembly of the human immunodeficiency virus (HIV) could be blocked by a specifically mutated CD4 receptor molecule. Using molecular genetic tools to alter a part of the CD4 molecule, Dr. Rose has created a soluble form of CD4 which is retained in the cell and binds the HIV glycoprotein before it can reach the cell surface—in effect, blocking HIV proliferation by blocking viral exit from the cell.

Challenges remain, however, before this *in vitro* work can yield an effective gene therapy for AIDS. "One would have to deliver this molecule in some way into a patient's T-cells, probably into stem cells of the bone marrow," Dr. Rose explains. Scientists at Yale and elsewhere are attempting to design a safe and effective delivery system for Dr. Rose's genetically engineered AIDS-blocker, a task that could take years.

A Powerful Data Base

AIDS researchers, cancer investigators and other scientists benefit from Yale's pathology computerized data base, or Co-Path™, which the pathology department has been assembling since 1983. Developed at Yale by a team headed by Dr. Morrow and now marketed nationally, Co-Path is one of the nation's most sophisticated and comprehensive anatomic pathology information systems.

By September 1991, more than 750,000 patient records had been programmed into the data base, representing every patient specimen evaluated by the Yale pathology department since 1915. "We never purge our data," Dr. Morrow says without a hint of overstatement.

Information compiled during the past 50 years provides an especially valuable basis for retrospective or prospective studies in the diagnosis, staging and management of many diseases. The pathology information system also offers direct clinical benefits: Its comprehensive data, when used in conjunction with those of the Yale Tumor Registry, enable the physician to determine whether a patient is experiencing a primary or recurring condition.

A Teaching Mandate

The training of current and future clinicians and medical scientists is one of the primary missions of the pathology department. Toward that end, the department provides:

- a required course for second-year medical students, in which all pathology faculty members participate;
- a graduate course in cancer biology;
- a graduate program with the department of biology, leading to a Ph.D. degree in experimental pathology, and giving the department membership in both the medical and graduate schools. Plans call for interdepartmental collaboration to teach a Yale College course in the biology of disease;
- training for 18 residents preparing for board certification, plus six fellows;
- frequent consultations and conferences for physicians from every major specialty—offering continuing education for practitioners and diagnostic pathologists.



Interdepartmental cooperation: Scott A. Weed (left), a graduate student in cell biology, discusses a sequencing gel with pathology chairman John Morrow. Mr. Weed is conducting research into disease-causing DNA mutations in muscle spectrin.

Pathology's place between basic research and clinical care will again be put to good use as the department takes a leading role in the new Boyer Center for Molecular Medicine (BCMM). It is no coincidence that Dr. Vincent Marchesi, former chairman of pathology, was named the first director of the Boyer center; BCMM is dedicated to interdisciplinary basic research that can be applied clinically.

Many of the Boyer center's 25 full-time faculty members and other scientists will collaborate with pathology researchers

to evaluate molecular mechanisms underlying a range of diseases. During clinical consultations, seminars and other instructional presentations both within and beyond the University, Yale's pathologists will discuss key research and promulgate important findings made by Boyer center scientists.

"Because pathology involves every other clinical activity," says BCMM director Marchesi, "pathology is going to be the unique vehicle by which the center can extend into the clinic, particularly in the areas of oncology and vascular biology." **YM**

YM INTERVIEW: HARRY M. ZIMMERMAN

What was neuropathology like at Yale in the 1930s?

In the early 1930s neuropathology was virtually nonexistent in this country. I graduated from the medical school in 1927 and spent the next two years with Dr. Milton C. Winternitz, dean of the school and chairman of pathology, as a resident and then an instructor in pathology. One day he said to me, "We ought to have a section of neuropathology." There was no one in the country to learn neuropathology from. The best place was Germany, where they had a well-organized department in Munich at the *Deutsche Forschungsanstalt für Psychiatrie*. The head of the institute was a world-famous neuropathologist, Walther Spielmeier. So I wrote to Spielmeier, he accepted me and I left in February of 1929. Dr. Winternitz provided me with a Charles Linaus Ives fellowship to make it possible for me to travel.

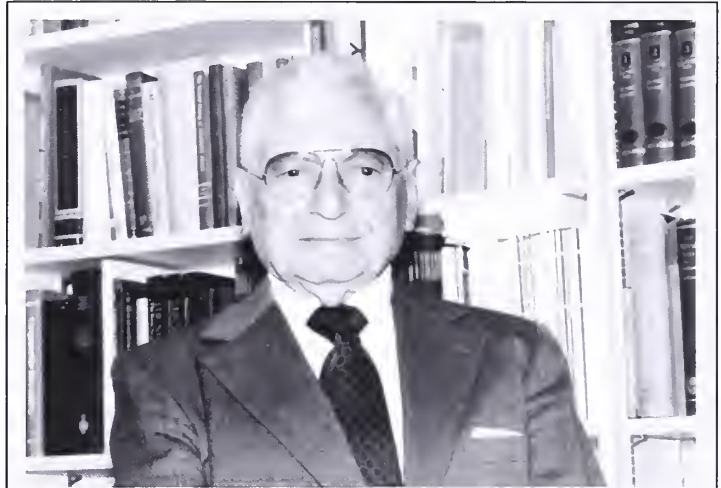
What was it like to study in Munich?

I found in Spielmeier's laboratory a large number of foreign students like me, who were learning neuropathology with the intent of taking the knowledge back to their countries. That is where I met Ko Hirasawa of Japan. He became dean of the medical school of Kyoto University and a few years later became president of Kyoto University. Many of the fellows whom I trained were recommended originally to me for training by Dr. Hirasawa. Altogether, I have trained 88 Japanese men, most of whom are professors or associate professors in Japan. At my 90th birthday, 77 of them signed their business cards and presented them to me in a plaque. I came back from Spielmeier's laboratory to New Haven and began organizing the section, along with my other duties in general pathology. One day, Winternitz said to me, "You're making slow progress. Would Spielmeier be willing to come here and help you get the laboratory organized? Write him, tell him we will give him an honorarium of \$10,000 if he will come to New Haven and work with you a few months." So I wrote to Dr. Spielmeier, who had never been to America before, and he accepted the offer.

What were some of your first studies in the new section?

During the Great Depression in the 1930s, it occurred to me that this epidemic, this crisis in funds and jobs, led to a lot of starvation and produced a lot of neurological disorders like beriberi and pellagra and should be studied experimentally.

I studied the brains of dogs with beriberi produced by a deficiency of vitamin B1 and compared them to the human cases that we were getting because people were dying with these diseases all through the United States, especially in New Haven. There was a city dump where starving people would rummage through and eat the scraps. Eventually they deve-



Dr. Harry M. Zimmerman.

Harry M. Zimmerman, M.D. '27 Right Man at the Right Place

Harry M. Zimmerman, M.D. '27, is the dean of American neuropathology. Born in 1901 in Lithuania, he graduated from Yale College in 1924 and the School of Medicine in 1927. Serving first as a resident and then an instructor in pathology under Dr. Milton C. Winternitz, Dr. Zimmerman studied nearly two years in Munich, Germany, to learn the emerging specialty of neuropathology. Upon his return to Yale in 1930, he established the first full-time neuropathology section in the country.

During World War II, he served in the Pacific as a Commander in the medical corps in a research unit established by Vice Admiral Ross T. McIntire, Surgeon General of the United States Navy. There he became an expert in Japanese encephalitis and helped develop the first vaccine against the disease.

After the war, Dr. Zimmerman was a founder of Albert Einstein Medical College in New York City, and established its neuropathology department. In the process of founding the school, he became a close friend of its famous namesake and was chosen by Dr. Einstein to perform the autopsy on his brain when the great physicist died in 1955.

For decades neuropathology fellows and residents from around the world have come to New York City to study with Dr. Zimmerman. For his role in teaching many of the leading neurologists and neurosurgeons of Japan, in 1973 he was awarded the Order of the Sacred Treasure, that country's highest civilian honor. And in 1981, Dr. Zimmerman became the first neuropathologist to receive the Gold Headed Cane Award from the American Association of Pathologists.

Today, Dr. Zimmerman is an emeritus professor and consultant in the department of pathology at Albert Einstein Medical College/Montefiore Medical Center.

This interview was conducted by Rosalind D' Eugenio, media specialist at the YSM Office of Public Information.

oped either beriberi or pellagra or both. We discovered that if you injected these dogs with a dose of vitamin A, kerotin or thiamine, it resulted in a response within 24 hours, so that a paralyzed animal was able to walk again even if their lesions were not completely healed. These experiments helped support the therapeutic practice of thiamine injections in human beriberi. When affluent times developed in '35, '40, these diseases disappeared, nutrition was adequate. Then I began to work on brain tumors. A friend of mine at the Harvard Medical School produced a brain tumor in a mouse by injecting a chemical carcinogenic agent like methylcolatrete and brought me the slide of the brain to identify. I took over these experiments at Yale and wrote a series of papers which attracted Harvey Cushing's attention and helped bring him to Yale. We had a neuropathology laboratory at New Haven better than any other in America at the time. I was the right man, at the right time, in the right place.

Did you collaborate with Dr. Cushing when he was at Yale?

Dr. Cushing arrived in New Haven with 2,000 brain specimens from all the operations he did in Boston. And with him came a complete transcription of all the clinical records of these 2,000 cases. I looked at many of the specimens and would offer my views on the work. He had a system; on the anniversary of a brain operation that he did, either the patient would appear on a yearly basis or would write a letter describing his or her progress. Many patients appeared in New Haven. Cushing's laboratory adjoined my own and if a patient came to see him that he thought I'd be interested in, he'd knock on the wall. That was a signal for me to come.

In cases that were difficult to diagnose, the patient would be brought before the neurological study unit. The group met weekly and included representatives from neuroanatomy, neurophysiology and neurology, among them Harvey Cushing. Plans for treatment were outlined, and the student body was allowed to come in and listen to what these experts were talking about.

Harvey Cushing lived in a home where his backyard and my backyard were separated only by a fence. Periodically I'd get a call from him to come over and see a new rare book he just got. So I would hop the fence and he would unpack a book that now probably costs well over a million dollars. And he made a world-famous collection which is now at the Harvey Cushing/John Hay Whitney Medical Library.

You performed Dr. Cushing's brain autopsy, didn't you?

Harvey Cushing told me about an illness he had in France in General Pershing's army; while doing an operation, he collapsed and was paralyzed from the hip down. He was shipped back to Boston and was in bed for about four months until he recovered the use of his legs so that he was able to operate again. He always thought that he had a viral infection, a myelitis. Then one day, he said, "I feel numbness in my left hand. I must have a lesion up on the right side of my brain. One day you'll have a chance to look and see if I was right or not." He asked that when he died, if I would do the autopsy.

At his expressed wish I performed a postmortem examination that revealed encephalomalacia of several gyri on the right side. The sudden onset of paralysis while in France was caused by a massive thrombus in the aorta that extended from below the renal arteries to the bifurcation of the iliacs. This old blood clot was already partly calcified. His paralysis wasn't due to a viral infection after all.

While we're on the subject of autopsies, your most famous was of Albert Einstein. How did you get to know him and how were you selected to perform the autopsy of his brain?

I was asked in 1950 by the president of Yeshiva University to help build a medical school. I told him I wouldn't help with a parochial school; I had enough of restrictions in the admissions of women, blacks and Jews, but he said they didn't want a restricted school either. Then I asked if we had to call it Yeshiva University School of Medicine. And they said not if I didn't want to. So I said okay, I will help you build a medical school.

After I had raised \$2.5 million, I thought we had enough money to start building the school. Now, what to call it? One of my advisors suggested calling it the Albert Einstein College of Medicine. I didn't know Einstein, but I had a good friend in New York, Dr. Gustave Bucky, who did and got him to arrange a meeting for me.

That was in January of 1953, on a blustery cold day. As we drove up to Einstein's house, this man with disheveled gray hair came out, no necktie, with a gray woolen sweater, with a hole in one elbow, and no socks. He never wore stockings except on formal occasions.

He greeted us and ushered us into the house. We talked a little while and pretty soon he said to me, "Dr. Bucky tells me you want to ask me something. What is it?" So I told him I was raising money to build a nonsectarian medical school. He liked the idea because he had suffered prejudice as a Jew in Germany and had to go to Switzerland when the Germans wouldn't give him an appointment to the university. "In what way can I help?" he asked. I told him by letting us use his name.

He was truly a modest man. He said, "Dr. Zimmerman, how would it look to the public to know that a non-M.D. is being given the name of a medical school?" So I said, "If you don't let us use your name, then we'll have to call it the Joseph Goldberger Medical School." He said, "Who is Joseph Goldberger?" I said, "If I call this the Albert Einstein College of Medicine, who would call me and say, 'Who is Albert Einstein?'" A twinkle in his eye arose and he turned to Dr. Bucky, and said, "Over the telephone you told me Dr. Zimmerman was an M.D. He sounds like a lawyer to me." Then he gave us the use of his name for the school and we became very good friends.

How were you selected to autopsy his brain?

He asked me to. I agreed to do the autopsy and also to the condition that I didn't write a paper on my findings. After he died and the brain was brought to me here at Montefiore, a reporter from the New York Times came and offered me \$5,000 for a photo of a genius cell from Einstein's brain. I told him I couldn't do it. So he then offered me \$10,000. I told him I couldn't give him a photo of a genius cell because there was no such thing. I could have given him a photograph of Einstein's brain, that's not a genius cell. It's not the way cells look. They don't look any different from anyone else's. It's what they do that makes the difference. He was a genius because his cells were able to do things that neither you nor I can do. I got many letters from children saying they heard I examined Einstein's brain and wanted to know what I found. So finally, the editor of the *Book of Knowledge*, a reference book they publish for children, wrote me and said would you write just a page explaining Einstein's brain and other brains and so forth? So I got permission from the executor of the Einstein estate and did write a small article.



A 1973 photograph of Dr. Zimmerman and his wife, Miriam, at a reception in Japan after he received the Order of the Sacred Treasure, which is visible on his suit coat.

Explain a little of the work you did in the North Pacific Islands on encephalitis and amyotrophic lateral sclerosis (ALS).

In 1943, I was asked by the Navy and by the commanding officer of Naval Medical Research to help set up a research unit in the Far Pacific. All kinds of rumors had arisen as to what tropical diseases our soldiers would encounter. There was no record of what diseases were common, and many were neurological diseases.

Tom Rivers, the chairman of that Naval Medical Research Unit, brought me to the Mariana Islands, where we conducted experimental work with cows, monkeys, dogs, sheep and chickens. We would stop at various islands and the peasants would meet the ships and we frequently gave them a couple of chickens. We'd go back a year or two later and found that they had built chicken coops and it changed their whole economy.

You were promoted to commander quickly. How did that come about?

After our research was well on its way, Tom developed a bleeding ulcer and had to go back to the states. He recommended me to the Bureau of Personnel in Washington to succeed him as the Commanding Officer of our unit, but Dr. Richard Shope, of Princeton, was longer in the service than I and had a higher rank. He would be the natural choice to succeed Tom, but the bureau in Washington solved the problem by my early promotion to Commander.

How did you come to investigate Japanese encephalitis?

I went to Okinawa to establish a laboratory on the beach of Bruckner Bay, and the Army sent in Albert Sabin, professor of virology at New York University, who joined my unit. The Army sent him in because an epidemic of Japanese encephalitis was ravaging the island, and like polio, it involved mostly children. But our troops were going to land on Naha, the southern capital of Okinawa, and they were going to march up and clean out the Japanese that occupied Okinawa to the north end, which was several hundred miles distant. And the Army people got worried that some of our soldiers may come down with Japanese encephalitis.

You and Dr. Sabin developed a vaccine didn't you?

Yes. I was doing autopsies on children who had died from Japanese encephalitis, and I gave Sabin a fresh piece of brain from one such child. He injected the specimen into several hundred white Swiss mice and made a crude vaccine. He inoculated 200,000 American soldiers who were going to go through the island. And not one developed Japanese encephalitis. At that time, nobody really knew the pathology, so I wrote a paper on it during the war and it was published.

What other diseases did you work with during the war?

While I was on Guam I saw patients in the native hospital in Agaña. The Japanese occupied the island and they only had

polished rice to live on, which does away with all the thiamine and all the vitamin A. So the natives who were eating only polished rice came down with beriberi, which I was able to diagnose and treat quickly. I also noticed some of the patients had a fatal paralytic disease like Lou Gehrig had, namely, amyotrophic lateral sclerosis. The incidence seemed unusually high for the total population, so I confirmed the disease at autopsy and sent a report to Washington, alerting them. But the report was stamped "secret" and was not disclosed until after the war.

In 1973, you received the Order of the Sacred Treasure by the Japanese emperor, the highest civilian award bestowed in Japan. How were you selected?

Most of the Japanese who learn neuropathology learn it from me in America; some of the most influential neurologists and neurosurgeons in Japan are former students of mine. So the Japanese government, through the emperor's office in Tokyo, invited me to receive the Order of the Sacred Treasure.

My wife and I went to Japan, and at Hunata airport the stewardess opened the door and a band burst into the "Star Spangled Banner." There was a whole committee to greet me and two small children brought my wife and me flowers. At the ceremony the commissioner of education made a speech and said, "You are hereby given the Order of the Sacred Treasure, second-class." My wife jokingly asked the secretary who gets the first-class. He answered, "Only the emperor. General MacArthur got the Order of the Sacred Treasure, fourth-class. The Japanese hold teachers in higher esteem than generals or almost anybody else."

How has neuropathology changed during your career?

There are fewer and fewer clinicians like neurologists and neurosurgeons and psychiatrists doing neuropathology. It has become technically so complicated with the advent of electron microscopy especially, that if you don't devote your whole time to neuropathology, you don't make any progress. Clinicians have given up the study and especially the teaching and the experimental work in neuropathology. Neuropathology also has become a well-recognized specialty like pediatrics and surgery and medicine. Emphasis has shifted from descriptive morphology to considerations of etiology and pathogenesis of diseases of the nervous system.

What developments have most advanced the field of neuropathology?

Neurovirology has helped greatly in advancing neuropathology, especially in making it possible to work experimentally in areas of etiology. This is also true of electron microscopy, an instrument first employed by metallurgists and in recent years adapted to biology. Molecular biology is another field that has had a mutually beneficial impact on neuropathology.

What do you think currently is the most exciting work taking place in neuropathology?

This is probably in the field of Alzheimer's disease, where the work of Dr. Robert Terry, whom I trained for six years and who is now professor of neuropathology at the University of California in San Diego, is outstanding. He has trained most of the researchers in degenerative diseases. His most recent research has led him to believe that amyloid has nothing to do with Alzheimer's.

A second field of great import is the Parkinson-Dementia-ALS complex that has been advanced by Dr. Asao Hirano, who has been at Montefiore for the past 36 years. And Dr.

Elias Manuelidies at Yale was able to transmit the human Creutzfeldt-Jakob disease to guinea pigs, hamsters and mice. These are just a few examples of some very important advances.

What do you feel is your greatest professional contribution?

My training of all these people. I've got 39 professors in America I've trained, not only Japanese. The only Western country where I haven't got a man trained in neuropathology is in England. In the 2nd World War, much of science in Germany was destroyed, so young Germans came here to learn neuropathology from me and to take it back to Germany. That's the way I paid Spielmeier back, you see.

What other countries have your fellows come from?

The three leading professors in neuropathology in France were trained here by me. An ambassador from Japan wrote me a long letter of thanks on behalf of the French government for training their neuropathologists. Some years ago, I was asked to chair an international meeting in Budapest. I was having lunch with Dr. Briole and my wife when a young man walked up to me and said, "Dr. Zimmerman, I want to introduce myself, I'm your grandson." My wife looked at me in shock. Then the young man realized that he had to explain himself. He said, "You trained Dr. Hassoun and Dr. Hassoun trained me, so I'm your neuropathological grandson!"

Three people in Israel were trained here by me. One of them was even the dean of the medical school in Tel Aviv. I trained two Greek neuropathologists, one Turkish neuropathologist and several from South America, but not as many as from Japan. I now have seven fellows in training for whom the Japanese government supplies funds.

With all the technological advances made in the field, are you still comfortable in neuropathology?

To be frank with you, I haven't got time to think of anything else. In addition to the seven fellows from Japan, I presently have several from this country. I haven't got the opportunity to change my mind because I'm constantly doing more. And I get consultations from different doctors, neurosurgeons, different patients in different parts of the country, who send me in their histories and slides to make the diagnosis. Even if I wanted to get out of neuropathology, the demand on my service is such that I couldn't entirely get out. Unless I told people I am no longer willing to help.

What direction do you think neuropathology is taking, and what would you like to see happen in the field?

I think the concentration will be in basic chemistry, virology to study the mechanism of brain function and nerve cell function. Obviously the functions are different from the glia, which is the supporting structure in the brain. We know practically nothing of what the glial cells really do. And certainly, we don't know what brain ganglion cells do; and that requires ultra-microscopic chemistry, structures that deal not with structures that you can see with a naked eye, even with the electron microscope. It deals with subatomic structures. And that's the function, molecular structure and function, that I think is the future of neuroscience in general and neuropathology as part of neuroscience. YM

GALLERY



Yale University School of Medicine Department of Pathology

Portrait of Milton C. Winternitz and the Yale Pathology Department 1926, photographer unknown

In this portrait taken at the peak of the Roaring '20s, Milton C. Winternitz, M.D., is pictured front and center. In 1926, he was serving his ninth year as chairman of the pathology department and his sixth year as medical school dean.

Born in Baltimore in 1885, Dr. Winternitz worked his way through college and medical school at Johns Hopkins selling penny insurance. Upon graduating with his M.D. degree in 1907, he continued his studies with Dr. William Henry Welch, a Yale College and Columbia medical school graduate who began the first modern pathology department at Johns Hopkins. Dr. Winternitz came to Yale in 1917 to establish the second such department.

Under his leadership as dean, Sterling Hall of Medicine and Lauder Hall were built. He established the Institute of Human Relations to encourage interdisciplinary cooperation within medicine and with the social sciences, an idea

that proved decades ahead of its time. He initiated the Yale System of medical education emphasizing independent study, and in 1923, at his behest, the University founded the Yale School of Nursing.

Among his many accomplishments in biomedical research, in 1933, he initiated a study group on the biology of cancer that laid the groundwork for many subsequent discoveries in the field. In the 1940s, he collaborated with Dr. Max Taffel and others at Yale to isolate elements in nitrogen mustard gas that were used as the first cancer chemotherapy.

Dr. Winternitz completed his deanship in 1935 and retired as pathology chair in 1950. He died in 1959 having left an indelible legacy for his department, the School of Medicine and Yale University. **YM**

Gregory R. Huth, M.P.H.

Scientists Find Sunlight Alters Cancer Gene

By studying New England and Swedish patients, researchers have identified a gene—p53—that they say interacts with sunlight to lead to squamous cell carcinoma, a common form of skin cancer.

In normal skin cells, gene p53 limits cell division. However, the researchers report in the Nov. 15 issue of the *Proceedings of the National Academy of Sciences*, that the sun's ultraviolet (UV) rays alter this gene.

"Our results show for the first time how a common human carcinogen works," says biophysicist Douglas E. Brash, Ph.D., assistant professor of therapeutic radiology and a member of the Yale Comprehensive Cancer Center. He led the eight-member, multidisciplinary research team from Yale, Massachusetts General Hospital, Dermatopathology Associates of New York in New Rochelle, and University Hospital in Uppsala, Sweden.

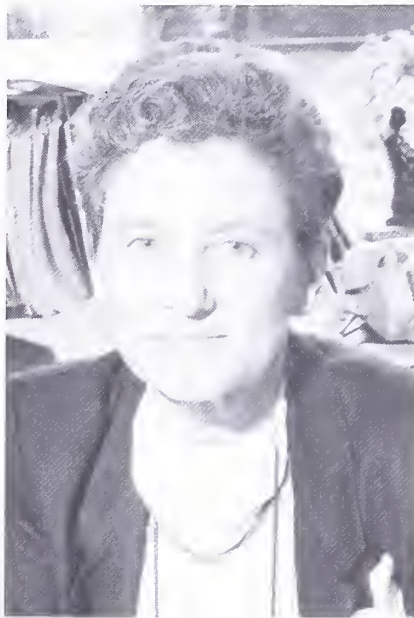
"Sunlight is a carcinogen to which everyone is exposed, and is an example of an 'all-natural' carcinogen," Dr. Brash points out.

Skin cancer, usually caused by overexposure to sunlight, is the most common cancer in the United States. According to the Centers for Disease Control, 632,000 new cases are reported each year, and 8,500 deaths annually result from the disease.

Of 24 patients, 72 percent from New England and 46 percent from Sweden showed changes in the p53 gene, identified by sequencing the gene's DNA. The mutations did not appear to be inherited and did not resemble changes found in cancers of internal organs, such as colon and lung. Instead, Dr. Brash concludes that the mutations resembled those caused by ultraviolet light, a component of sunlight.

The researchers chose p53, originally discovered elsewhere in 1979, as a candidate gene because they knew that the mutated p53 gene causes premalignant lesions in mouse skin. The same gene, p53, is also altered in other types of cancer.

YALE MEDICINE Fall/Winter 1991-92



Dr. Lorraine V. Klerman

Klerman Documents Poverty's Effects On Poor Children

A report authored by Lorraine V. Klerman, Dr.P.H., professor of public health, has documented the adverse influence of poverty on the nation's 5 million poor young children. "Alive and Well?: A Research and Policy Review of Health Programs for Poor Young Children" was released by Columbia University's National Center for Children in Poverty. The review described the many ways that poverty

can be hazardous to children's health.

According to the report, poor children are more likely than other children:

- to be born too early or too small;
- to die in the first year of life;
- to experience acute illness, injury or lead poisoning;
- to experience abuse or neglect;
- to suffer from nutrition-related problems and chronic illnesses — many of which are preventable.

"The reasons for higher levels of health problems among poor infants and children are complex and difficult to analyze," comments Dr. Klerman from her office in the Laboratory of Epidemiology and Public Health. "But they all lead to one overriding and disturbing indicator: that your chances of being healthy increase with your income."

Among the policy strategies suggested by the report to reverse this situation are to expand programs such as Special Supplemental Food Program for Women, Infants and Children (WIC) and Head Start, so that the programs could serve all the poor women and children who could benefit from them. The Klerman report also recommends adoption of a universal health care system and improved financing strategies that would offer adequate reimbursement to private practitioners who serve poor families.

Three-Year Grant Supports Tanaka Study

As part of its Focused Giving Program, Johnson & Johnson has committed \$270,000 over three years to support research that Kay Tanaka, M.D., professor of genetics, will conduct at the Yale University School of Medicine.

Dr. Tanaka will examine the molecular structure of three inherited disorders

of fatty acid metabolism. The project is intended to contribute to the development of new, accurate diagnostic tests and to increase understanding of the diseases.

Johnson & Johnson has awarded previous awards to Yale's department of genetics toward the development of the DNA Diagnostic Laboratory and to Charles A. Janeway Jr., M.D., professor of immunobiology, biology and in the Cancer Center, for studying the function of cells in the immune system.

Lead Hazard to Bridge Workers Studied

Construction workers involved with bridge rehabilitation in Connecticut are the focus of a five-year, federally funded study and surveillance project designed to limit lead exposure hazards.

Yale researchers in the occupational/environmental medicine program are conducting the study in cooperation with other occupational medicine clinics throughout the state, the state departments of health and of transportation, several labor unions and the construction industry.

CRISP, the Connecticut Road Industry Surveillance Project, is supported by \$849,600 from the National Institute for Occupational Safety and Health of the Centers for Disease Control.

This funding comes at an auspicious time, notes Kathleen F. Maurer, M.D., M.P.H., a postdoctoral associate in occupational medicine, because the Connecticut Department of Transportation is midway through a 10-year, \$7.5 billion bridge rehabilitation program involving 3,700 bridges, more than 2,000 of which still are coated with lead-based paint.

Dr. Maurer directs the project under its principal investigator, Dr. Mark R. Cullen, director of the occupational/environmental medicine program and an associate professor of medicine and epidemiology at Yale.

Dr. Maurer explains, "The project will establish a state-wide medical evaluation system to identify and treat workers with lead toxicity from bridge repair." She and her colleagues, including industrial hygienist Irene Smith of Groton, will "propose remedial action for health and safety hazards found at bridge sites, and also establish a computer information system to document occupational disease among construction workers."

Concern over lead poisoning in bridge workers was heightened in the fall of 1989 when the occupational health center at Lawrence and Memorial Hospitals in New London, Conn., which is affiliated with Yale, identified eight construction workers from a single company who tested positive for lead toxicity. Subsequently, the Lawrence and Memorial occupational health care professionals discovered workers from other companies who had high lead levels.

For bridge workers, lead exposure generally comes when layers of old lead-based paint are sandblasted off steel bridges, and the workers inhale or ingest lead dust particles.



Dr. Carolyn W. Slayman

YSM Renames Human Genetics, Neuroanatomy

The Yale Corporation has approved changes in the names of the department of human genetics and the section of neuroanatomy recommended by the School of Medicine's Board of Permanent Officers.

To reflect more accurately its current breadth, the department of human genetics, chaired by Carolyn W. Slayman, Ph.D., becomes the department of genetics. The department encompasses basic research, teaching, diagnostic laboratories, patient care and clinical research in all aspects of genetics.

The section of neuroanatomy, headed by Pasko Rakic, M.D., Sc.D., the Dorys McConnell Duberg Professor of Neuroscience, becomes the section of neurobiology, which has this broader field as its research and educational mission.

The name change also benefits faculty with joint appointments in such areas as anesthesiology, neurosurgery, ophthalmology, otolaryngology and psychiatry. In addition, the change will facilitate research funding and recruitment of faculty and students.

Yale Study Disputes Alcoholism Gene

A gene that has been claimed to cause alcoholism may not be related to the disorder according to a team of Yale researchers. Dr. Joel Gelernter, assistant professor of psychiatry at Yale and chief of the laboratory of psychiatric genetics at the Department of Veterans Affairs Medical Center in West Haven, has shown no association between the D2 dopamine receptor gene (DRD2) and alcoholism.

The gene in question, is really a marker and because the original study indicated that alcoholics have an increased incidence of the marker, scientists felt a link between the actual gene, which codes for a chemical called dopamine, and alcoholism was likely. At issue is whether the presence of a genetic marker known as "A1 allele" on that gene predisposes a person to alcoholism or other behavioral disorders.

A new study has been unable to repeat results indicating a genetic association with alcoholism. "We were not able to replicate the results previously reported," states Dr. Gelernter.

His data does not support an association between a marker for the gene DRD2 (the dopamine D2 receptor gene) and alcoholism.

The authors studied 44 unrelated white subjects diagnosed as alcoholic and a random sample of 68 white subjects. They compared the frequency with which A1 or A2 appeared at DRD2 in the alcoholics and the controls.

The Yale/VA team of researchers lead by Dr. Gelernter include: Stephanie S. O'Malley, Ph.D., associate professor of psychiatry and director of Alcohol and Drug Treatment Unit at the Connecticut Mental Health Center in New Haven; Neil J. Risch, Ph.D., associate professor of public health and genetics; John H. Krystal, M.D., assistant professor of psychiatry and chief of neuropsychiatric studies unite at the VA; Kathleen R. Merikangas, Ph.D., associate professor of psychiatry and epidemiology; Kenneth L. Kidd, M.D., professor of genetics, psychiatry and biology; Henry R. Kranzler, assistant professor of psychiatry and director of the division of addictive disorders at the University of Connecticut.

Harry Bishop

Program Opened For Autistic Adults

Christopher J. McDougle, M.D., assistant professor of psychiatry, and the Yale Child Study Center have started the Yale Adult Pervasive Developmental Disorders Program, one of the first programs dedicated solely to studying and treating adults with autism and related disorders.

The Yale Child Study Center has an internationally known program to study and treat autistic children, which includes studies of autistic adults. In its 30-year history, the center has studied the neurobiology of autism and autistic adults.

Advising the adult program are Child Study Center Director Donald J. Cohen, M.D., the Irving B. Harris Professor of Child Psychiatry, and Fred R. Volkmar, M.D., the Harris Associate Professor of Child Psychiatry in the Child Study Center. Drs. Cohen and Volkmar are professor and associate professor, respectively, of pediatrics, psychiatry and psychology.

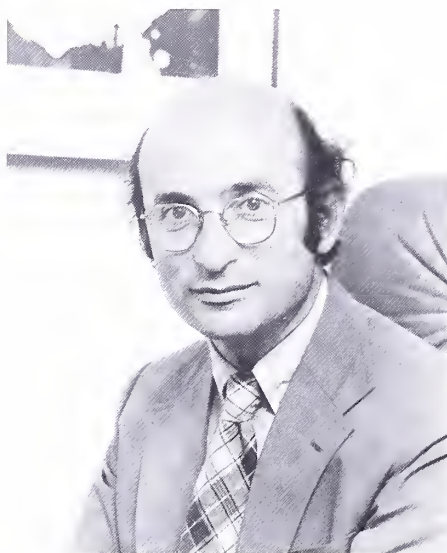
Dr. Cohen comments: "The knowledge about adults with autism that will be gained from the work of Dr. McDougle will shed important light on underlying processes and better ways of caring for autistic individuals as whole people."

To date, most autism research has focused on children. Approximately 1 in 2,000 people suffer from autism, Dr. McDougle estimates. But as autistics grow into adults, their symptoms often change, leading to misdiagnosis, he says. Also, most governmental funding for education and other services for autistic people runs out when they turn 21.

Extending previous work with autistic individuals pioneered by the Child Study Center, Yale's new program began last fall to study and treat adults between the ages of 18 and 70. Participants attend twice monthly outings designed to enhance social skills. A group of 25 autistic adults, all from the New England area, participates in such activities as bowling and shopping. The program has begun a support group in which parents, friends, professionals and others meet monthly to discuss results of ongoing research and new ideas.

In the research program, Yale faculty members are studying the biochemistry of autism, especially the relationship

between autism and serotonin, a potent chemical in the brain that transmits nerve impulses between cells. Serotonin is thought to be involved in controlling mood and social behavior. Child Study Center researchers first noted a link between serotonin and autistic behavior in 1961.



Dr. Donald J. Cohen

Child Study Center Aids Police in New Program

Leaders of the New Haven Department of Police Services and the Yale Child Study Center have announced an innovative, cooperative venture to reduce the impact of violence on the lives of the children of New Haven.

During the past several months, faculty members of the Child Study Center and New Haven Police officers have collaborated to develop:

- a graduate-level course on child development for all police recruits;
- a system for officers in the field to receive consultation about, and referrals for, clinical interventions for at-risk youth;
- a fellowship for selected police officers to learn about available mental health services for children.

The program is funded by a \$50,000 Rockefeller Foundation grant and \$50,000 in private donations and is part of a broader effort by the University, New Haven Police, and the New Haven public school system to coordinate their response to the emotional needs of children exposed to violence.

The program developed out of the

Police Department's community policing program and the Child Study Center's Forum on Education and Society, created this year in response to concerns about children's fears emerging from the Persian Gulf War.

"However," points out Dr. Donald J. Cohen, director of the Child Study Center, "we soon realized that the most immediate sources of trauma for inner city children occurred much closer to home, in the violence they experience in their daily lives."

New Haven Police Chief Nicholas Pastore observes, "The worst victims of violence are children. They are subjected to violence directly and traumatized by their exposure to the violence they must witness in their daily lives. Children, especially poor children in our society, have the fewest resources available to protect themselves," he adds.

Robert Venturi To Design Clinical Science Building

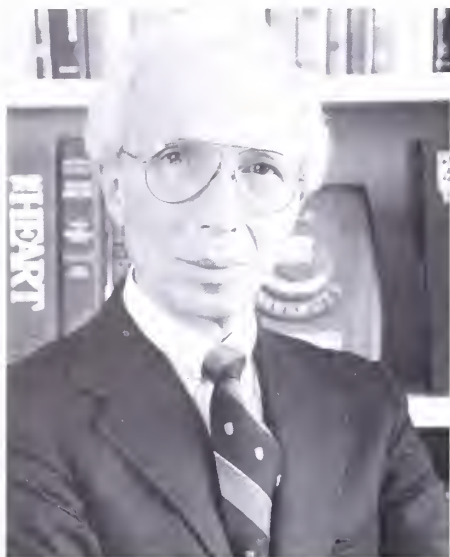
Robert Venturi, winner of the 1991 Pritzker Prize — one of the most prestigious awards in architecture — has been commissioned to design the School of Medicine's Laboratory for Clinical Science. The five-story structure will offer the latest technology to physician-scientists and other basic researchers from a variety of disciplines as they conduct studies to advance clinical care.

Mr. Venturi is principal architect in charge of design at Venturi, Scott Brown and Associates, Inc. (VSBA), based in Philadelphia. VSBA has garnered 80 major design awards since it was founded in 1966.

VSBA's projects include two research laboratories at Princeton University and science buildings at the University of Pennsylvania, Dartmouth College and the University of California at Los Angeles. VSBA will collaborate with Payette Associates of Boston, a specialist in designing laboratory modules inside research buildings.

In announcing the selection, Yale President Benno C. Schmidt Jr. said, "I am tremendously pleased that Robert Venturi will undertake a major commission at Yale at the medical school, where the University in recent years has enjoyed such important and interesting architectural contributions."

The location of the Laboratory for Clinical Science has yet to be determined.



Dr. Lawrence S. Cohen

Lawrence S. Cohen Named YSM Acting Deputy Dean

Lawrence S. Cohen, M.D., a world-renowned cardiologist, research scientist and educator, has been named acting deputy dean of the medical school. Dr. Cohen, the Ebenezer K. Hunt Professor of Medicine and an attending physician at Yale-New Haven Hospital, has been a Yale faculty member for 21 years. He was named to his endowed professorship in 1981.

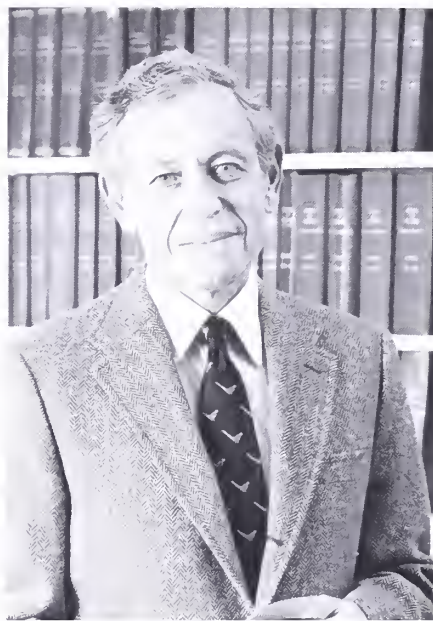
Dr. Cohen is past president of the Connecticut Affiliate of the American Heart Association (AHA) and has been active nationally with the AHA's Council on Clinical Cardiology and the Scientific Sessions Committee. Dr. Cohen's early research focused on cardiac catheterization. In the mid-1960s, at the National Heart Institute, he was one of the first investigators to perform x-rays of the heart's arteries. Subsequently, he developed a major interest in coronary artery disease.

For the past eight years, Dr. Cohen has been a principal investigator at Yale in the area of thrombolytic, or blood-clot dissolving, therapy to treat patients with a kind of heart attack called acute myocardial infarction (MI). He also directs Yale's TIMI clinic program, part of a multicenter study on different aspects of the most appropriate treatment of MI patients using thrombolytic therapy.

A native of New York, N.Y., Dr. Cohen received an A.B. degree in 1954 from Harvard College and an M.D. degree in 1958 from New York University. He completed his internship

and residency training at YNHH. He served as associate professor of medicine and chief of clinical cardiology at the University of Texas (Southwestern) Medical School in Dallas between 1968 and 1970, after which time he returned to Yale as a faculty member.

FACULTY N E W S



Dr. Leon E. Rosenberg

Leon Rosenberg Resigns To Accept Corporate Post

Leon E. Rosenberg, M.D., has resigned as medical school dean to become president of Bristol-Myers Squibb Pharmaceutical Research Institute. Dr. Rosenberg, who had served as medical school dean since July 1984, began his new post on Sept. 1.

Yale President Benno C. Schmidt Jr. named former Deputy Dean Robert M. Donaldson Jr., M.D., a gastroenterologist, as acting dean. Dr. Lawrence S. Cohen, a cardiologist who is the Ebenezer K. Hunt Professor of Medicine, is serving as acting deputy dean. President Schmidt will chair the search committee for Dean Rosenberg's successor.

Dr. Rosenberg commented,

"Throughout my career at Yale, I have endeavored to educate young scientists and to employ scientific methods to understand disease mechanisms and help patients with inherited disorders. I am excited about the opportunity to join a leading health care company whose mission, similarly, is to use science to improve human health. I will be fortunate beyond measure if my years at Bristol-Myers Squibb turn out to be as fulfilling and meaningful as my years at Yale."

An internationally known research geneticist, teacher and clinician, Dr. Rosenberg began his 26-year career at Yale in 1965 as an assistant professor of medicine, and in 1972 was appointed professor and the first chairman of a new department of human genetics. In 1980, he was named C.N.H. Long Professor of Genetics.

During his deanship, Dr. Rosenberg advanced the school's missions in teaching, research and patient care. He provided leadership for the school's capital campaign that raised \$155 million to increase endowment, help meet research and program needs, and provide new and renovated facilities.

Several major construction projects were completed, including the Boyer Center for Molecular Medicine, the Yale Psychiatric Institute, the Yale Physicians Building, expansion and renovation of the Harvey Cushing/John Hay Whitney Medical Library, renovation of the Boardman Building for the Yale Eye Center, and construction of the Magnetic Resonance Center, the latter a joint project with Yale-New Haven Hospital.

An academic plan to chart the school's strategic course in the 1990s was completed, and a department of orthopaedics and rehabilitation, a section of immunobiology and a center for medical informatics were established. An Office for Minority Affairs was also set up.

Said Mr. Schmidt, "Lee Rosenberg is an extraordinary man who has made extraordinary contributions to Yale University and its School of Medicine. His vision, drive and inexhaustible energy have contributed to a remarkable deanship. His years as dean have seen not only significant growth in virtually every critical field of medical education at Yale, but also a great invigoration of the school, its facilities and its program. We will miss him, and we wish him well."

Benno Schmidt Names YSM Dean Search Panel

Sixteen members of the Yale faculty serve on the committee to search for a new dean for the School of Medicine. Yale President Benno C. Schmidt Jr., chairs the committee. Carolyn W. Slayman, Ph.D., Sterling Professor of Genetics and chair, department of genetics, serves as vice-chair.

Other members include:

Thomas N. Byrne, M.D., *associate clinical professor of neurology;*

Edwin C. Cadman, M.D., *Ensign Professor of Medicine and in the Cancer Center, and chair of the department of internal medicine;*

Donald J. Cohen, M.D., *director of the Child Study Center, Irving B. Harris Professor of Child Psychiatry, and professor of pediatrics, psychiatry, and psychology;*

Lawrence S. Cohen, Ph.D., *acting deputy dean of the School of Medicine and Ebenezer K. Hunt Professor of Medicine, ex officio;*

Gerhard H. Giebisch, M.D., *Sterling Professor of Cellular and Molecular Physiology; Dr. Barbara Kinder, professor of surgery and in the Cancer Center, and chief of surgery at the Department of Veterans Affairs Medical Center;*

Forrester A. Lee, M.D., *assistant professor of medicine;*

Vincent T. Marchesi, M.D., Ph.D., *director of the Boyer Center for Molecular Medicine and Anthony N. Brady Professor of Pathology, Cell Biology, and Biology.*

Judith Rodin, Ph.D., *dean of the Graduate School of Arts and Sciences, professor of medicine and psychiatry, and chairman of the MacArthur Foundation Center for Studies of Health and Behavior Psychology;*

Frank T. Ruddle, Ph.D., *Sterling Professor of Biology and Genetics and chairman of the biology department;*

Alan C. Sartorelli, M.D., *Alfred Gilman Professor of Pharmacology and director of the Comprehensive Cancer Center;*

Clarence T. Sasaki, M.D., *Charles W. Olise Professor of Surgery and in the Cancer Center;*

Burton H. Singer, Ph.D., *associate dean for public health, Ira V. Hiscock Professor and chairman of the department of epidemiology and public health, and professor of economics and statistics;*

Joan A. Steitz, Ph.D., *professor of molecular biophysics and biochemistry;*

Joseph B. Warshaw, M.D., *professor and chairman, department of pediatrics.*



Dr. Donald M. Engelman

Donald Engelman Named Acting Dean Of Undergraduates

Donald M. Engelman, Ph.D., professor and chairman of molecular biophysics and biochemistry (MB&B), has been named acting dean of Yale College by Yale President Benno C. Schmidt Jr. beginning July 1 while Dean Donald Kagan is on a year-long leave from the University. The Yale Corporation confirmed the appointment at its November meeting.

Dean Kagan, a historian of ancient Greece, will spend the year at the Institute for Advanced Study in the Behavioral Sciences at Stanford University, where he will work on a long-planned book about the origins of war. Dean of the University's 5,100 undergraduates since July 1989, Professor Kagan plans to return to Yale July 1, 1993, to resume his post as the College's chief academic and administrative officer.

In announcing the selection, President Schmidt stated: "I am very pleased Don Engelman has agreed to accept the important responsibilities of the acting dean of Yale College. He is an outstanding scientist. He is a proven administrator. He has a broad understanding of the values of liberal education. He is devoted to students and has been deeply in the academic and social life of Yale College."

James D. Jamieson Appointed M.D., Ph.D. Program Director

James D. Jamieson, M.D., Ph.D., professor and chairman of the department of cell biology, has been appointed director of the School of Medicine M.D., Ph.D. program.

The program enrolls a limited number of qualified students who complete the first four terms of the med-

ical school curriculum, then a doctoral thesis and clinical clerkships in the department in which the Ph.D. degree is sought. Students pursue a course of study which ultimately leads to joint M.D., Ph.D. degrees in any of the relevant graduate programs of the University.

The M.D., Ph.D. program, which began in 1968 and graduated its first students in 1973, currently enrolls 61 students, 13 percent of students at the medical school.

FACULTY NEWS



Dr. Paul G. Barash

Paul Barash Named Associate Dean For Clinical Affairs

Paul G. Barash, M.D., chairman and chief of the department of anesthesiology at the medical school and YNHH, has been named associate dean for clinical affairs. In his new position, Dr. Barash will administer the comprehensive, specialty outpatient care that Yale faculty physicians provide through the Faculty Practice Plan.

Dr. Barash's appointment, effective July 1, is concurrent with his departmental chair. He succeeds Richard H. Greenspan, M.D., professor of radiology, who will return to teaching, research and patient care.

In announcing the appointment, former medical school Dean Leon E. Rosenberg stated: "Paul Barash has demonstrated his leadership, scholarship and organizational skills at the School of Medicine and Yale-New Haven Hospital. His diverse experience will enhance the administration of the school's clinical programs. We can be assured of a smooth transition from Dick Greenspan's five years of able service to Paul Barash's new and exciting vision for clinical service at Yale."

Dr. Barash came to Yale as an

assistant professor of anesthesiology in 1973, and a decade later was named chairman and chief of the department of anesthesiology. He also serves on the YNHH board of trustees, and between 1974 and 1982 directed the surgical intensive care unit.

His research has centered on patients with cardiovascular disease who undergo surgery, the use of new drugs in anesthesiology, children's responses to anesthesia during surgery, and the pharmacology of cocaine. Twelve years ago, Dr. Barash and colleagues introduced echocardiography to the operating room. This technique uses ultrasound to monitor the heart during surgery.

Dr. Barash has served as president of the Connecticut State Society of Anesthesiologists and president of the Society of Cardiovascular Anesthesiologists. A fellow of the American College of Anesthesiology, he also serves as a senior examiner of the American Board of Anesthesiology, which certifies anesthesiologists.

Dr. Barash is senior editor of the textbook *Clinical Anesthesia* and serves on the editorial boards of the *Journal of Clinical Monitoring* and the *Journal of Clinical Anesthesia*.

A Brooklyn, N.Y., native, Dr. Barash received a B.A. degree from the City College of New York in 1963 and an M.D. degree from the University of Kentucky College of Medicine in 1967. He completed his internship at Kings County, N.Y., Medical Center and residency training at Yale-New Haven Hospital, where he was chief resident.

Genetics Sponsors Visiting Professor

As part of a National Science Foundation initiative to encourage the participation of women in U.S. science and engineering research, Terry Ashley, Ph.D., an adjunct research associate professor at the University of Tennessee-Knoxville, is spending two years in Yale's genetics department. Her research will attempt to transfer techniques for mitotic labeling of DNA sequences for light and electron microscopy to both meiotic chromosomes and nuclei.

Ms. Ashley also will develop and coordinate a series of guest lectures by women in genetics, a series jointly sponsored by the department of genetics and the office for women in medicine.

Ralph Horwitz Named To Hines Professorship

Ralph Horwitz, M.D., has been named the Harold H. Hines Jr. Professor of Internal Medicine and of Epidemiology and Public Health. A leading scholar in the field of clinical epidemiology, Dr. Horwitz came to the University in 1978 as an assistant professor of medicine and co-director of the Robert Wood Johnson Clinical Scholars Program at the School of Medicine. In 1982, he was named associate professor and chief of the section of general internal medicine and in 1983, associate professor of epidemiology.

Dr. Horwitz has made major contributions toward improving the quality of basic data used in clinical research, including the development of rigorous methodologic standards for observational case-control studies and the development of new methods to improve research on the efficacy of therapeutic agents. His methods have been used in studies on the cause-and-effect relationships of estrogen and endometrial cancer, tampons and toxic shock, and anticoagulants and myocardial infarction.

Dr. Horwitz earned his B.A. degree from Albright College in 1969 and his M.D. degree from the Pennsylvania State University College of Medicine in 1973. He served his internship at the Royal Victoria Hospital of McGill University in Montreal and was a fellow of the Robert Wood Johnson Clinical Scholars Program at Yale from 1975 to 1977. He was a senior assistant resident at Massachusetts General Hospital from 1977 to 1978.

A fellow of the American College of Physicians and the American College of Epidemiology, Dr. Horwitz has won several awards for his work, including the C.V. Mosby Award for General Academic Excellence from the Pennsylvania State University College of Medicine (1973) and the Henry J. Kaiser Family Foundation Faculty Scholar Award (1981-1986). In addition to his teaching, research and administrative work, he also serves as a reviewer for numerous medical journals, including the *American Journal of Epidemiology*, the *American Journal of Medicine* and the *Journal of the American Medical Association*.

28 Faculty Members Appointed, Promoted

The Office of the Dean at the School of Medicine has announced the following appointments or promotions to senior ranks, effective July 1. In recognizing faculty members' excellence in teaching, research and patient care, these faculty become members of the Board of Permanent Officers (BPO), the school's governing board which is responsible for major academic decisions.

Five faculty members were appointed to senior ranks with tenure. They include: Peter Cresswell, Ph.D., *professor of immunobiology*; Gerald H. Friedland, M.D., *professor of medicine*; Jordan S. Pober, M.D., *professor of pathology*; Reinhard Jahn, Ph.D., *associate professor of pharmacology*; and Joseph Santos-Sacchi, Ph.D., *associate professor of surgery (otolaryngology)*.

Eighteen faculty members in various departments were promoted to professor, the highest academic rank. They are: William Agnew, Ph.D., *cellular and molecular physiology*; Margaret J. Bia, M.D., *medicine*; Michael B. Bracken, Ph.D., *epidemiology*; Toni Claudio, Ph.D., *cellular and molecular physiology*; Gary S. Kopf, M.D., *surgery (cardiothoracic)*; Jeffery Koscis, Ph.D., *neurology*; Carole C. LaMotte, Ph.D., *surgery (neurosurgery) and anesthesiology*; Robert LaMotte, Ph.D., *anesthesiology and neurobiology*; Brian Leaderer, Ph.D., *epidemiology (environmental health)*; Robert M. Liskay, Ph.D., *therapeutic radiology*; Joseph Madri, M.D., *pathology*; Ira Mellman, Ph.D., *cell biology*; Manohar M. Panjabi, Ph.D., *orthopaedics and rehabilitation*; Richard R. Pelker, M.D., *orthopaedics and rehabilitation*; Richard E. Peschel, M.D., *therapeutic radiology*; Gary Rudnick, Ph.D., *pharmacology*; Sally E. Shaywitz, M.D., *pediatrics and in the Child Study Center*; and Frederick J. Sigworth, Ph.D., *cellular and molecular physiology*.

Five faculty members were promoted to associate professor with tenure, including J.G. Collins, Ph.D., *anesthesiology*; Daniel C. DiMaio, M.D., Ph.D., *genetics*; Susan Hockfield, Ph.D., *neurobiology*; Richard J. Robbins, M.D., *medicine*; and William B. Stewart, Ph.D., *surgery (anatomy)*.

These faculty members may hold joint appointments with one or more of the following institutions affiliated with the medical school: Yale-New Haven Hospital, the Department of Veterans Affairs Medical Center in West Haven and the John B. Pierce Laboratory.

Eleanor R. Adair, Ph.D., senior research scientist and lecturer in psychology and a fellow at the John B. Pierce Laboratory, has been honored by the Institute of Electrical and Electronics Engineers with the United States Activities Board Award for her paper entitled "Currents of Death Rectified." The award recognized outstanding journalistic or other efforts that contribute to the enhancement and expansion of public understanding of the engineering profession.

Edward A. Adelberg, Ph.D., professor emeritus of genetics, was honored with a symposium, "Bacterial Genetics: Past, Present, Future," by the department of human genetics in May.

Frank J. Bia, M.D., associate professor of medicine and laboratory medicine, was selected by the W.K. Kellogg Foundation for its National Fellowship Program. The program, established in

1980, increases individuals' skills in areas outside their chosen disciplines to more effectively handle society's problems.

Edwin C. Cadman, M.D., Ensign Professor of Medicine and chairman of the department of internal medicine, has been appointed to the new Scientific Advisory Board of Argus Pharmaceuticals, Inc. The board consists of seven leading international experts in the fields of immunology, oncology, infectious disease and biochemistry.

Patricia Goldman-Rakic, Ph.D., professor of neuroscience, has been awarded the \$50,000 Lieber Prize by the National Alliance for Research on Schizophrenia and Depression. Dr. Goldman-Rakic is the fifth recipient of the award, which recognizes outstanding achievement in research on schizophrenia.

FACULTY NEWS

Gabor B. Huszar, M.D., research scientist in obstetrics and gynecology and pediatrics, is a member of the Reproductive Biology Study Section, Division of Research Grants at the National Institutes of Health for a term of three years. Study sections review grant applications submitted to the NIH, make recommendations to the appropriate NIH national advisory council or board and survey the status of research in their fields of science.

Michael Kashgarian, M.D., professor of pathology and biology, is a member of a National Institute of Health committee which was formed to examine evidence of risks or side effect from silver amalgam, a material used for dental fillings. They found that mercury used in the fillings had no harmful side effects.

Lorraine V. Klerman, Dr.P.H., professor of public health, has been selected to receive a CAHS Human Services Award by the Connecticut Association for Human Services. The award, which was presented in November, recognizes the outstanding efforts to improve the delivery of human services to the people of Connecticut.

Irvin M. Modlin, M.D., professor of surgery, has received an honorary degree of Doctor of Medicine from the Goteborgs University in Sweden.

David F. Musto, professor in the Child Study Center, psychiatry and the history of medicine, has been selected to participate in two symposia on substance abuse problems and prevention measures. The symposia, entitled "Hard Drugs, Hard Choices in Connecticut," were broadcast on Connecticut Public Television in September.

Pilar N. Ossorio, Ph.D., a postdoctoral associate in the division of infectious disease, was selected by the American Association for the Advancement of Science to participate in a workshop of intensive study on the values and ethical issues associated with science and technology. The workshop, held July 28 to Aug. 3, explored various minority perspectives on science and technology, how they compare to prevailing

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Faculty News

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perspectives, and the different influence that these perspectives can have on scholarship, individual practices, and policy decisions.

Scott A. Rollins, Ph.D., a postdoctoral fellow in the section of immunobiology, has been awarded a 1991 Jane Coffin Childs Fellowship. The \$73,500 award will support his research on the role of the human anti-inflammatory protein CD59, which protects transplanted tissue and organs from rejection.

Frank H. Ruddle, Ph.D., chairperson and the Sterling Professor of Biology and Genetics, has been appointed chairperson of the Genome Study Section, Division of Research Grants by the National Institutes of Health.

Kevin A. Sevarino, M.D., Ph.D., assistant professor of psychiatry, was named one this year's Pfizer Scholars and Postdoctoral Fellows. Ten physician-scientists were honored with awards by Pfizer to pursue clinical or basic biomedical research at U.S. medical schools. Dr. Sevarino conducts research on human psychiatric disorders and focuses on the regulation of known and unknown cellular signal transduction proteins by cocaine.

Albert J. Solnit, M.D., Sterling Professor Emeritus of Pediatrics and Psychiatry, was presented the American Academy of Child and Adolescent Psychiatry's Simon Wile Award, recognizing his outstanding leadership and continuous contributions to child psychiatry. Dr. Solnit is the state of Connecticut's Commissioner of Health.

Jody L. Sindelar, Ph.D., associate professor of public health and of the Institution for Social and Policy Studies, has been selected by the New York State Public Health Department to serve on the independent board (the panel of health economics) to establish hospital rates and trend factors in the state of New York.

Stephen G. Waxman, M.D., Ph.D., professor and chairman of neurology and professor of pharmacology, was presented the 1991 Distinguished Alumnus Award by the Albert Einstein College of Medicine of Yeshiva University in June.

ALUMNI NEWS



Joseph A. Zaccagnino

Joseph Zaccagnino Named President, CEO Of Yale-New Haven

In a joint session on Sept. 16, the boards of trustees of Yale-New Haven Hospital and its parent corporation, Yale-New Haven Health Services, Inc. appointed Joseph A. Zaccagnino, M.P.H. '70, as president and chief executive officer of both of YNH and its parent corporation.

Mr. Zaccagnino, who has served as the hospital's executive vice president and chief operating officer since 1978, assumed the position of president and CEO on Oct. 1, succeeding C. Thomas Smith, who left to become president of Voluntary Hospitals of America in Irving, Texas.

As executive vice president, Mr. Zaccagnino has been involved in the recruitment and development of the senior management team and chiefs of clinical services. He has guided the hospital's strategic and business planning and has been involved in restructuring many hospital services.

Under his direction, effective management systems and financial controls have resulted in significant improve-

ments in YNH's financial position and in upgrading the hospital's credit rating.

Dr. David M. Raskind, '24, has retired from orthopedics and consults for the Hospital for Joint Diseases in New York City. In September, he competed in the age 85 to 90 tennis tournament at Longwood Cricket Club as the oldest competitor in the U.S.A.

Dr. Allan J. Ryan, '43-'45 HS, was elected co-president of the International Association for Dance Medicine and Science, for whom he prepared and presented the first annual meeting in Baltimore in June.

Dr. Morris A. Wessel, '43, and University Secretary Sheila A. Wellington, M.P.H., were honored for their commitment to people with disabilities by Marrakech Inc., at its annual founders' dinner in May.

Dr. Charles A. Hall, '44, was honored with a symposium by the Department of Veterans Affairs and Albany Medical College for his significant contributions to medical education, writing chapters for books and monographs and as a review editor for many scientific journals.

Dr. Richard C. Thompson, '44 HS, inventor of the Thompson Retractor in 1960, has retired for anesthesiology and resides in San Mateo, Calif.

Dr. Martin E. Gordon, '46, clinical professor of medicine and consulting gastroenterologist at Yale-New Haven Hospital and the Hospital of St. Raphael, was awarded the 1991 American College of Physicians' Laureate Award. This award honors senior physicians who are masters or fellows of the college who have demonstrated a commitment to excellence in medical care.

Dr. Francis R. Coughlin, '52, received a J.D. degree in 1988 and seeks to change a federally mandated, state implemented, administrative law system for medical malpractice.

Dr. William O. Minturn, '52, retired after 30 years of general thoracic and vascular surgery in Sun City, Ariz. He was one of the area's "pioneers," opening a medical clinic in 1965. Dr. Minturn was the area's first thoracic and vascular surgeon and the first to perform vascular grafts in heart surgery.

Dr. Robert G. Petersdorf, '52, president of the Association of American Medical Colleges, received an honorary D.Sc. degree from Georgetown University School of Medicine in May. A

member of Georgetown University Medical Center's clinical faculty, he participates in more than 40 professional organizations and has authored more than 400 publications.

Dr. Alan H. Covey, '54, has a cardiology practice in New York with his son, Dr. Alexander G. Covey.

Dr. Eiji Yanagisawa, '56-'59 HS, clinical professor of otolaryngology, has been named president-elect of the New England Otolaryngological Society and vice president of the American Broncho-Esophagological Association.

Thomas P. Weil, M.P.H. '58, Ph.D., has been honored by the University of Missouri-Columbia with the creation of the Thomas P. Weil Distinguished Professorship in Health Services Management. The professorship will honor Dr. Weil for his contribution as an educator, consultant and statesman in the field of health services organization and management.

Dr. Thomas Lau, '60, is a pathology consultant for seven north central Florida medical laboratories, teaches at art and natural history museums and is president of the Yale Club of Gainesville.

Dr. Melvin Dollinger, '60 serves with Cancer Care Associates in Torrance, Calif., and as a clinical professor of medicine at the University of Southern California School of Medicine.

Dr. John K. Pearce, '61, directs The Family Center of Somerville, Mass., and co-edited *Ethnicity and Family Therapy and Family Therapy: Combining Psychodynamic and Family Systems Approaches*.

Dr. David H. Groth, '62, '62-'64 HS, has retired after 24 years from the U.S. Public Health Service at the National Institute for Occupational Safety and Health and has started as pathology consultant in occupational and environmental health.

Dr. John T. Harrington, '62, chief of medicine at Newton-Wellesley Hospital and professor of medicine at Tufts University School of Medicine, was inducted into the Royal College of Physicians of Ireland as an honorary fellow at a Dublin ceremony. He was cited for his excellence in patient care, medical education, clinical research in nephrology, basic research in acid-base physiology and medical editing.

ALUMNI NEWS

Dr. Glenn L. Kelly, '62, associate clinical professor of surgery at the University of Colorado School of Medicine, has a private vascular surgery practice in Englewood, Colo. He also invented the Kelly-Wick graft tunneling device and is president of the Rocky Mountain Vascular Surgery Society.

Dr. Gary L. Tischler, '62-'65 HS, has been appointed professor and executive chairman of the department of psychiatry and biobehavioral sciences and director of the Neuropsychiatric Institute at the University of California, Los Angeles School of Medicine.

Rosemary A. Stevens, '63 M.P.H., Ph.D., was appointed dean and Thomas S. Gates Professor at the University of Pennsylvania School of Arts and Sciences in September.

Dr. David S. Fedson, '65, professor of medicine at the University of Virginia Medical Center Primary Care Center, is a member of the National Vaccine Advisory Committee, created by the U.S. Public Health Service to coordinate government and non-government activity in vaccine research, production and use.

Dr. Melvyn S. Korobkin, '67, from Ann Arbor, Mich., was named a fellow of the American College of Radiology at its annual meeting in September.

Dr. Marc E. Lippman, '68, professor of medicine and pharmacology at Georgetown University School of Medicine in Washington, D.C., and director of Georgetown's Vincent T. Lombardi Cancer Center, has been selected by the Endocrine Society as its 1991 Edwin B. Astwood lecturer for his outstanding basic and clinical contributions to the understanding and treatment of breast cancer. His lecture was entitled "Growth Factor Control of Normal and Malignant Mammary Cell Growth."

Kenneth W. Price, M.P.H. '68, has been named director of radiation safety at the University of Connecticut Health Center. Since 1974, he has served as deputy director of radiation safety at Yale and since 1975, as a lecturer in radiological health. He will remain a lecturer in environmental health at the School of Medicine.

Dr. Lionel M. Nelson, '69, was elected to the board of trustees of Health Dimensions, Inc. and continues to practice otolaryngology in San Jose, teach at Stanford University and serve as an Army reservist, leading medical teams into the Pacific and Asia.

Dr. Anthony V. Proto, '71, became chairman of the department of radiology at the Medical College of Virginia, Virginia Commonwealth University in November 1990.

Dr. Paul A. Vignola, '71, '71-'74 HS, directs the cardiac catheterization laboratory at Mount Sinai Medical Center in Miami, Fla.

Dr. Jesse B. Jupiter, '73, was appointed associate professor of orthopaedic surgery at Harvard Medical School and remains an associate orthopaedic surgeon at Massachusetts General Hospital.

Dr. Donald L. Kent, '72, '73-'76 HS, has been elected vice president of the Long Island Society of Otolaryngology - Head and Neck Surgery for 1991-1992.

Arthur L. Lanckton, '74 M.P.H., of Sarasota, Fla., has served dual careers over the past 50 years as an international business executive and as a professor, administrator and board member in higher education at four colleges and universities.

Dr. Mary Lake Polan, '75, co-chaired the 10-member NIH Task Force for Research on Women's Health at a public hearing in June. Testimony focused on the leading causes of death among women, including heart disease, breast cancer and AIDS, and on conditions that disproportionately affect women, such as osteoporosis, autoimmune diseases, urologic disorders and sexually transmitted diseases.

Lawrence M. Wexler, '76 M.P.H., has been promoted to director of research for the department of orthopaedic surgery, and associate professor of community and preventive medicine at New York Medical College in Valhalla, N.Y.

Dr. Harvey J. Berger, '77, president of Centocor, a biotechnology company, spoke at a workshop in Palo Alto, Calif., sponsored by the National Institutes of Health to obtain a consensus on policies to guide the exchange of research data among scholars.

Robert W. Buckingham, '78 Dr.P.H., has been named dean of the

College of Health and Human Performance at Mankato State University, Minnesota State University System. In his new position, he will be responsible for academic departments, as well as athletics for men and women.

Dr. Michael K. Lindsay, '79, assistant professor in the department of obstetrics and gynecology and a member of the division of maternal-fetal medicine at Emory University Medical School of Atlanta, received an M.P.H. degree from Emory University School of Public Health this year.

Dr. Susan C. Schachner, '81, is an associate attending physician in the department of medicine at the Long Island Jewish Medical Center Affiliation at Queens Hospital Center.

Dr. Robert W. Plant, '82-'86 HS, serves as director for the Anxiety and Depression Program and the Psychiatric Partial Hospital Program at Sterling Institute for Neuropsychiatry and Behavioral Medicine in Stamford, Conn. In April, Dr. Plant spoke at the conference on Hospice Care and the Chemically Dependent AIDS Patient and Family in Norwalk, Conn.

Dr. Jeffrey Satinover, '82-'86 HS, is as co-founder and executive director of Sterling Institute, medical director of the Temenos Institute in Westport, Conn., and president of the C.G. Jung Foundation of New York. He was a keynote speaker at the conference on Hospice Care and the Chemically Dependent AIDS Patient and Family.

Dr. Robert A. Aronowitz, '85, has been named a recipient of the Charles E. Culpepper Foundation Scholarships in Medical Humanities for 1991. This \$30,000 award will fund his research at the University of Medicine and Dentistry of New Jersey/Robert Wood Johnson Medical School, where he is assistant professor of medicine.

Michael S. Huncharek, '86 M.P.H., a radiation oncologist from Boston, wrote a chapter entitled "Asbestos in Buildings and Cancer Risks: Public Health and Public Policy Considerations," which appeared in Sourcebook on Public Health Diseases.

Linda V. Bergonzi, '90 M.P.H., teaches health communications courses at the department of epidemiology and public health at Yale and works on health documentaries with lecturer Alberta Jacoby. She also has her own video company, "Bella Productions."

NEW BOOKS

Coping with Grief, by Robert W. Buckingham, '78 Dr. Ph.H., and Sandra K. Huggard. Rosen Publishing (New York) 1991.

Everyone's Guide to Cancer Therapy, by Dr. Malin Dollinger, '60. Andrews & McMeel (Kansas City, Mo.) 1991.

Exiles From Eden: Psychotherapy From an Evolutionary Perspective, by Kalman Glantz, Ph.D., and edited by Dr. John K. Pearce, '61. W.W. Norton & Co., Inc. (New York) 1989.

Family Therapy: Combining Psychodynamic and Family Systems Approaches (Japanese edition), by Dr.

John K. Pearce, '61, and Leonard J. Friedman. W.W. Norton & Co., Inc. (New York) 1991.

Integrating Pharmacotherapy and Psychotherapy, edited by Dr. Bernard D. Beitman, '68, and Dr. Gerald L. Klerman. American Psychiatric Press, Inc. (Washington, D.C.) 1991.

The Profit Motive and Patient Care: The Changing Accountability of Doctors and Hospitals, by Bradford H. Gray, '73 Ph.D. Harvard University Press (Cambridge, Mass.) 1991.

Treating Personality Disorders, New Directions in Mental Health Series No. 47, by Dr. David A. Adler, '73. Jossey-Bass (San Francisco, Calif.) 1990.

What's New in Medicine, Dr. Ludmil A. Chotkowski, '42. FACP Health Press (Santa Fe, N.M.) 1990

Harry Bishop



At the annual Wilber Downs Fellowship poster presentations held in late October, second-year student Christopher Gilligan talks with first-year students Dan Stolar and Marjorie Rosenthal about his research into Chagas disease in Zimbabwe. Nineteen Downs fellows presented posters about their overseas experiences.

STUDENT NEWS

Kaveh Khoshnood, a graduate student in the department of epidemiology and public health, is a member of AIDS-Busters, a program in which volunteers

distribute bleach packets, condoms and information pamphlets about AIDS testing and drug treatment in parts of New Haven with high concentrations of intravenous drug users.

Carolyn G. Shapiro, a Ph.D. candidate in the history of medicine, has been awarded one of nine 1991 Albert J. Beveridge grants for research in the history of the western hemisphere.

ALUMNI REPORT

Plans for the 1992 annual spring reunion on June 5 and 6 are almost complete. All alumni are invited to attend, especially the quinquennial (fifth-year) reunion classes, those ending with numbers two or seven. This year the Class of 1942 will be honored at the Friends of the 50th festivities. We look forward to a record attendance.

We encourage each reunion class to consider a presentation, featuring class members who offer short papers about their specialties, research or about professional issues. Connie Tolliver, assistant to the director, is available to advise reunion classes about these programs. Connie and our administrative assistant, Patty DiNatale, also will help the local class chair to make reunion arrangements — lodging, class dinner and activities, meeting facilities and so forth. Please do not hesitate to contact us. (Our telephone number and new address are listed at the end of this article.)

Congratulations to our alumni for exceeding the conditions of the Kresge Challenge. Contributions by 56 percent of alumni to the fund exceeded last year's rate of 43 percent. This 13 percent increase allowed us to exceed the 55 percent alumni participation required by the challenge.

Helping greatly in meeting the challenge were the efforts of Leonard Kemler, M.D., outgoing chairman of the alumni fund. Also contributing significantly to our success were Dean Leon E. Rosenberg, alumni and students who joined a series of phonathons. Your alumni affairs director and John Foster, M.D., the new fund chairman, encourage you all to maintain this record of generous giving. It represents a vote of confidence in and expression of loyalty to the school and all it represents.

If you have not received your questionnaire from the Harris Publishing Company for the medical school alumni directory, please contact the alumni affairs office immediately so that we can have one mailed to you. It is imperative that you complete and return the form as soon as possible. An accurate directory depends on the promptness of your response.

The form has been simplified so that only corrections of information need to be recorded. If your biography is unchanged, you need only return the form. Note again that Harris Publishing guarantees the confidentiality of the data base and takes steps to safeguard against inappropriate use of it or the directory. We are eagerly waiting for the completed directory which is scheduled for release in the spring of 1992.

This call for cooperation emphasizes the fact that the office of alumni affairs functions effectively only when alumni are actively involved with their alma mater and alumni association. Such involvement allows us to thank our school for what it has given us in training and education.

Opportunities to serve include the various boards and committees that are open to our alumni. For example, John Foster is actively seeking volunteers to serve on the alumni fund board. The executive committee of the Association of Yale Alumni in Medicine too seeks a working, representative board. In addition, class agents and secretaries play a crucial role in maintaining class identity and in helping to organize reunions.

Nicholas Spinelli, M.D., helps medical students establish a class identity by encouraging them to form into effective class groups that will continue to function after graduation. This process is aided by alumni attendance at student affairs, both academic and social, which is welcomed by the students. We enhance the sense of family within the association by paying early attention to students and continuing our interest after their graduation. The alumni office can provide you with the dates of student events that alumni can attend and benefit from. Call us for details.

Turning to news about our school, Dr. Rosenberg has resigned after a distinguished and outstanding tenure as professor and dean to become president of research at Bristol-Myers Squibb. He leaves an improved physical plant with many new buildings, a distinguished, caring faculty and an institutional concern for societal needs and the humane practice of medicine. His legacy will be the foundation for an ever

stronger and more influential institution.

Dr. Robert Donaldson has been named acting dean. He has been intimately involved in planning the medical school's growth and development, and is superbly prepared to lead YSM as a search committee headed by Yale President Benno C. Schmidt Jr. looks for a new dean. Dr. Lawrence S. Cohen, the Ebenezer K. Hunt Professor of Medicine, has been appointed acting deputy dean.

Finally, the alumni office has relocated to new quarters at 100 Church St. South, the former Lee High School. Except that we are now further removed from the rotunda, we are pleased with our ample, newly renovated space and its modern decor.

Our new mailing address is

Yale University School of Medicine
Office of Alumni Affairs
P.O. Box 7613
New Haven, CT 06519-7613

This is also the mailing address for the Association of Yale Alumni in Medicine. Our telephone number remains (203) 785-4674.

Arthur Crovatto, M.D. '54
Director of alumni affair

Memorials

Deceased medical alumni and friends may be memorialized by a gift at any time to the Medical School Alumni Fund endowment in the name and class of the person so honored. The next-of-kin of a deceased medical alumnus/a is advised about this In Memoriam Program by a mailing from New Haven some weeks after the School of Medicine receives notification of the death. The letter of information includes a copy of the Testament of Remembrance in which the names of all persons so memorialized are listed in the medical section by class, thus establishing a lasting memorial. Donors receive a personally penned note of appreciation from the In Memoriam program director. Your inquiries and interest are welcome.

Deceased alumni and friends so honored in 1990-1991 were:

George Frederick Converse 1887

Jacques D. Soifer '24

Paul H. Lavietes '30

Raymond Miller '33

Walter E. Barney '35

W. Howard Horner '35

Nathan Kenigsberg '39

Arthur Tucker '39

Knute Berger '41

David G. Decker '42

Wilson E. Hughes '42

Joseph P. Kriss '43

Frederick Waldron '43

Charles S. Judd, Jr. '46

Lawrence P. Shea '47

Haavik Arne '56

John B. Fine '56

John Gallagher '58

Leland S. Berger '64

Morris Shultz (friend)

Richard G. Jordan
*Director Emeritus
In Memoriam Program*



Lester W. Burket

Lester W. Burket, M.D., former dean of the University of Pennsylvania School of Dental Medicine, died June 29. He was 84.

A Bozeman, Mont., native, Dr. Burket earned his A.B. and dental degrees from the University of Pennsylvania and in 1932 became a Rockefeller fellow at Yale School of Medicine, where he received his M.D. degree in 1936.

He was an instructor in dental pathology at Yale for one year and later taught at the University of Pennsylvania School of Dental Medicine from 1937 through 1977. He served as dean of the school from 1951 through 1972.

Dr. Burket was named a Sterling fellow in pathology at Yale University and in 1950 received an honorary degree from the University of Antioquia in Medellin, Colombia. He also was named an honorary professor at the National University in Bogota.

In 1948, he was decorated by Queen Wilhemena of the Netherlands for his assistance to Dutch dentists after World War II. He was a consultant to the Army, Navy, Veterans Administration and the U.S. Public Health Service. He also represented the United States in dentistry at the World Health Organization.

Dr. Burket served as president of the American Association of Dental Schools and chairman of the Council on Dental Education and authored the textbook *Oral Medicine*. He was a recipient of the Fons Medal from the Connecticut State Dental Society and the Fauchard Award from the Fauchard Academy.

He is survived by his wife, Grace.

Willard A. Krehl

Willard A. Krehl, M.D., died May 11 at his home in Sun City West, Ariz. He was 77.

Dr. Krehl received an A.B. degree from Cornell College in Iowa, M.S. and Ph.D. degrees in biochemistry from the University of Wisconsin, Madison, and a M.D. degree from Yale School of Medicine in 1957.

A native of Illinois, Dr. Krehl was a fellow in biochemistry at the University of Wisconsin and a fellow in nutrition

at Yale.

Throughout his academic career, he served as associate professor of nutrition and biochemistry at Yale; director of clinical laboratories at Milwaukee County General Hospital; professor of internal medicine and director of the clinical research center at the University of Iowa College of Medicine, University Hospitals; and professor in and chairman of the department of community health and preventive medicine at Jefferson Medical School in Philadelphia.

Dr. Krehl also held positions as vice president of development at Lenz Industrial Testing Laboratory in Kentucky and as medical director for the Federal Reserve Bank in Philadelphia.

He was a member of the American Medical Association and of the Philadelphia College of Physicians.

Contributions may be made to the College of Physicians Library of Philadelphia, 19 S. 22nd St., Philadelphia, PA 19103.

OBITUARIES

Neville Kirsch

Neville Kirsch, M.D., died July 18 at Yale-New Haven Hospital. He was 79.

Dr. Kirsch graduated from Ohio State University and Long Island College of Medicine. He served his internship at Grace New Haven Hospital from 1940 through 1942.

Dr. Kirsch retired from his private dermatology practice in West Hartford in 1984 after 37 years. He also was a clinical professor of dermatology at Yale and a consultant for the Community Health Care Plan in New Haven.

He was a past president of the New England Dermatology Society and the dermatology section of the Connecticut State Medical Society.

Contributions may be made to Yale University School of Medicine, Department of Dermatology, P.O. Box 3333, New Haven, CT 06510.



Harvey L. Young

Harvey L. Young, M.D., died May 25 at age 66.

A Washington native, Dr. Young served with the Navy during World War II and graduated from Washington State University in 1948 and from Yale School of Medicine in 1952. He interned at Deaconess Hospital and had a private practice as a family physician in Spokane Valley from 1953 through 1969.

Dr. Young was a founding member and first chief of staff of the Valley Hospital and Medical Center. He also was president of the Deaconess staff and a clinical instructor at the University of Washington's Spokane Family Practice Unit. In 1977, he was appointed medical director of the Medical Service Corp. of Eastern Washington and served as vice president of the Washington State Medi-

cal Association and as a member of the Spokane County Medical Society's executive committee and board of trustees. In 1978, he was named Doctor-Citizen of the Year by the Spokane County Medical Society.

Dr. Young was named to the Washington State Nursing Home Administrators Board and the State Nursing Home Advisory Council as the State Medical Association's representative. He was director of medical services and vice president of the Madison Convalescent Centers Inc. and director of Spokane Visiting Nurses.

He leaves his wife, Hilda; a daughter, Robin; two sons, Stephen and Roger; and two grandchildren.

Memorials may be sent to Yale University School of Medicine, c/o Alumni Fund, P.O. Box 1890, New Haven, CT 06508.

Charles L. Wood

Charles L. Wood, M.D., pediatrician and educator, died July 20 in Delray Beach, Fla.

A native of New York City, Dr. Wood graduated from New York University and in 1930 from Yale School of Medicine. After serving an internship and as an instructor in pediatrics at New Haven Hospital, and as a resident at Babies Hospital, Columbia Presbyterian Medical Center in New York, Dr. Wood opened a private practice in Manhattan.

In 1962, Dr. Wood joined the staff of the University of Pittsburgh and served as chairman of the department of pediatrics at the Children's Hospital where he was recognized with several teaching awards. He served as an associate clinical professor of pediatrics and an attending physician at Babies Hospital for more than 25 years. In 1989 he was the first recipient of the Babies Hospital Distinguished Alumni Service Award.

Dr. Wood was a lieutenant colonel in the Air Force During World War II.

Dr. Wood is survived his wife, Doris; a son, Charles Jr.; and four grandchildren. Contributions may be sent to the Charles L. Wood J.D. Pediatric Scholarship Fund, School of Medicine, University of Pittsburgh, Pittsburgh, PA 15261.



In Memoriam

Israel E. Blodinger	'22, '25 M.D.
January 24, 1991	
Leonard Greenburg	'23 Ph.D., '23
March 13, 1991	PHSP, '30 M.D.
Davis H. Pardoll	'25 MED
April 8, 1991	
Dominic J. Dell'aguilla	'31 HS
March 1989	
Leonard F. Ciner	'32 M.D.
February 23, 1991	
Edgar W. Warren	'32, '36 M.D.
July 21, 1991	
John H. Lawrence	'34 HS
July 7, 1991	
H. Stuart Irons	'36, '40 M.D.
February 3, 1991	
Ewilym A. Edwards	'39 HS
January 15, 1989	
Jarrett H. Folley	'41 HS
August 11, 1991	
Phillip H. Gates	'41 HS
May 31, 1991	
Sydney E. Sinclair	'41 HS
May 17, 1991	
Robert J. Schaffer	'43 HS
February 24, 1991	
Hoyt C. Taylor	'43 HS
January 4, 1991	
Charles A. Hall	'44 M.D.
July 27, 1991	
Henry G. Brickman	'50 M.P.H.
June 5, 1991	
George A. Cohn	'51 HS
June 11, 1991	
Orman H. Glazier	'51 M.P.H.
April 7, 1991	
Harvey L. Young	'52 M.D.
June, 1991	
Harold R. Bernshock	'53 M.P.H.
April 5, 1991	
Daniel R. Rectanus	'55 HS
September 21, 1989	
F. Brantley Scott, Jr.	'55 M.D.
July 27, 1991	
Richard D. Gerlack	'58 HS
June 27, 1991	
Embree H. Blackard, Jr.	'59 HS
January 3, 1991	
Carmine W. Terraciano	'59 HS
January 18, 1991	
Norman J. Lewiston	'59 HS
August 6, 1991	
Brigitte Prusoff	'67 M.P.H.,
April 4, 1991	'78 Ph.D.
Jeffrey M. Nakamura	'76 HS
January 3, 1991	

OBITUARIES

Harrison F. Wood

Harrison F. Wood, M.D., died July 26 at the Hebrew Home and Hospital in West Hartford, Conn. He was 73.

A native of Chicago, Dr. Wood served seven years during the 1950s as an associate at the Rockefeller Institute for Medical Research in New York where he studied strep infections. Concurrently, he was medical director of Irvington House, a research and treatment center in New York for children with rheumatic diseases. There he participated in a study that found that continuous doses of antibiotics could ward off strep infections and thus prevent rheumatic fever.

Dr. Wood joined the Yale faculty in the 1970s. He taught immunology for eight years and served on the staff of the Veterans Administration Hospital in West Haven.

Dr. Wood received undergraduate and medical degrees from New York University and served an internship at Bellevue Hospital.

He leaves his wife, Nina, and two sons, Stephen and Matthew.

DEVELOPMENT REPORT

Alumni Fund Success Meets Kresge Challenge

On June 7, University President Benno C. Schmidt Jr. named the Center for Molecular Medicine for Dr. and Mrs. Herbert Boyer in recognition of their \$10 million gift in support of the facility's construction. He also expressed his great appreciation for Dr. and Mrs. Boyer's role in satisfying the first term of The Kresge Foundation Challenge — to raise the remaining \$5 million needed to complete the building's construction.

With the challenge's first term satisfied, success then depended on alumni support to satisfy the two remaining terms:

- to raise \$450,000 in alumni fund support for current operations
- to reach 55 percent in alumni fund participation.

Under the direction of The Kresge Foundation Challenge Chairman John B. Ogilvie, '31S, '34 Med., and alumni fund Chairman Leonard Kemler '39S, '43 Med., School of Medicine volunteers put in motion an unprecedented alumni fund effort to secure the Kresge Foundation's \$1 million challenge grant. The alumni fund board, class agents, and alumni and student phonathon volunteers provided additional leadership.



R. Leonard Kemler, M.D. '43, (center) is honored for his five years of outstanding service as chairman of the School of Medicine Alumni Fund. Presenting his award is Acting Dean Robert M. Donaldson Jr., M.D., (left) and the new YSM alumni fund chairman, John W. Foster Jr., M.D. '71.

By June 30, the close of the alumni fund year, alumni had soared past both of the challenge's remaining terms. Alumni fund giving for current operations totalled \$541,427 — a 28 percent increase over the 1989-1990 total. Alumni also exceeded the most formidable term of the challenge, to reach 55 percent participation in the 1990-1991 alumni fund. A total of 2,041

alumni, or 56 percent, did support the fund, and in so doing secured the \$1 million challenge grant.

Highlights of the alumni effort to meet the challenge include the generosity of Sanford Bluestein, '46, who in honor of his 45th reunion offered to match all increased and new gifts up to a maximum of \$45,000. Class agent letters and a four-night spring phonathon helped earn all of Dr. Bluestein's matching gift well before the fiscal year's end on June 30. During the phonathon, 30 callers spoke with more than 1,000 alumni; 323 alumni pledged nearly \$33,000.

In recognition of Chairman John B. Ogilvie's gift in support of the Boyer Center's construction, and of his leadership throughout The Kresge Foundation Challenge, a dining room was named for him at the center. Finally, as the class which achieved the highest percentage of participation among the 10 youngest graduating classes, the Class of 1982 won the Kresge Cup, with 38 percent participation.

1989-1991 Alumni Fund Final Figures

Giving for Current Use

1989-1990	The Kresge Foundation Challenge Goal	1990-1991
\$421,822	\$450,000	\$541,427

Participation

1989-1990	The Kresge Foundation Challenge Goal	1990-1991
45 percent	55 percent	56 percent

Anlyans Donate Estate To School of Medicine

Announcing the largest gift in the history of the School of Medicine, University President Benno C. Schmidt Jr. said that John Anlyan, M.D. '45, a prominent California surgeon, and his wife Betty Jane will donate their entire estate to Yale — a gift valued at \$25 million. Dr. Anlyan, also a member of the Yale College Class of 1942, and Mrs. Anlyan have named the University as sole beneficiary of their joint estate.

Most of the funds will be applied to the School of Medicine — the exact designations of the gift to be determined by the president, School of Medicine dean, and members of the Yale Corporation at the time the funds are received. Some \$2 million will endow a professorship in the humanities, which is Mrs. Anlyan's area of academic interest.

Mr. Schmidt announced the gift at an October 3 dinner in New Haven given by the Yale School of Medicine Dean's Council in Dr. and Mrs. Anlyan's honor.

As Mr. Schmidt awarded Dr. Anlyan a special Yale presidential medal, he said: "Dr. and Mrs. Anlyan's gift is an act of splendid generosity and vision. By providing unrestricted general support for the medical school, this gift will greatly benefit future generations.

The humanities endowment symbolizes and strengthens the close ties between the University and the medical school generally. Everyone at Yale owes Dr. and Mrs. Anlyan a great debt of gratitude."

Said Dr. Anlyan: "This is a thank-you gesture for making my life possible. My wife and I feel that Yale has done very well for us. I came here on a wing and a prayer on August 29, 1939, just days before Hitler marched into Poland, and I could not have made it without Yale's help.

"We feel that all alumni should voluntarily give as much as they can to Yale," continued Dr. Anlyan. "The best thing we can do for the youth of the next generation is to educate them."

Dr. Anlyan was born and raised in Alexandria, Egypt, where he attended Victoria College (an elementary-through-high school level institution), and was admitted to Yale College in 1939. He completed his undergraduate work in three years to begin his pursuit of a medical degree. He finished both courses of study in just six years.

Reflecting on his medical school education, Dr. Anlyan commended the Yale System: "Medical school was a pleasant surprise because of the opening remarks of Dean Milton Winternitz to our class of fewer than 60 students. He said that we were old enough to monitor ourselves. We were not required to

attend classes and we would be treated as adults who wanted to learn."

After a surgical residency at the University of Chicago and at Ohio State — his wife's alma mater and where he received his master's degree in surgery — Dr. Anlyan returned to Yale, serving as instructor in surgery from 1949 to 1951. He then spent three years as a Damon Runyon Fellow at Memorial-Sloan Kettering Institute in New York City, after which he moved to San Francisco and established a practice in cancer surgery. Dr. Anlyan's two brothers, William G. Anlyan, M.D. '49, and Frederick, both attended Yale as well.

The Anlyans have consistently supported the School of Medicine and the Yale Alumni Fund over the years, and have contributed generously to the Campaign for Yale and Berkeley College. In 1986, the Anlyans donated \$1 million to the School of Medicine for renovation of laboratories in molecular neurobiology. That contribution has helped further Yale scientists' research on the structure and function of the brain at the molecular level.

In expressing his appreciation to the Anlyans, Acting Dean Robert M. Donaldson said: "We are immensely proud that the largest gift to Yale University since 1967 has been made by a Yale School of Medicine alumnus and his wife."



Dr. John A. Anlyan (left) and his wife, Betty Jane, with Benno C. Schmidt Jr.

REUNION REPORTS

1926

65th-year reunion

by Dr. Maxwell Bogin

And now the 65th reunion is history. Attendance was double that of the 60th reunion. Present were Dr. **Elizabeth R. Harrison** and myself, the class agent.

Dean Rosenberg's address was very informative and inspiring. He touched on many subjects, including the new construction of the past few years.

My personal observations, while traversing areas that I had trodden before, gave the illusion that the same steps were a bit steeper and the same distances a bit longer. But there are always the memories.



Photographs by Harry Bishop

Nicholas D'Esopo, M.D.'21, and Yolande Lyon, M.P.H.'52

1931

60th-year reunion

by Dr. A.J. Schechter

Abraham J. Schechter and **James A. Springham** attended their 60th reunion, a grand event for both.

Abe has been retired since 1979 when he left New York with his wife, **Vivian**, for the more equitable climate of Los Angeles. Their son, **Robert**, and his wife, **Amy**, Yale School of Medicine graduates of 1974, are responsible for three grandchildren, while daughter **Minda** (Stanford Law 1975) contributed a pair of twins. All are in Los Angeles, which makes this a happy retirement for Abe and Vivian.

Jim is active in the practice of psychiatry in Evanston, Ill. He has spent many years in India and China, combining medical and surgical care with Christian missionary work, aided by his now deceased wife, a graduate of Yale School of Nursing. Jim has seven children who live in various parts of the United States. He has his usual vigor, enthusiasm and good health.

D'Esopo and his wife, **Rose**, and by Dr. **Stephen Nagyfy** and his wife, **Ava**. Dr. D'Esopo received communications with three other classmates who were unable to attend.

The two classmates and their wives enjoyed the reunion weekend immensely. Especially outstanding was the molecular medicine symposium moderated by Dr. **Vincent Marchesi**. The review of Lyme disease was also exciting, and the Friends of the 50th dinner on Saturday night was also much enjoyed. Noteworthy was the large number of returnees for their 50th-year reunion, among them a remarkable number of pediatricians. The occasion has motivated us to attend our 60th-year reunion in 1996!

1941

50th-year reunion

by Dr. Robert W. Ollayos

One word describes the 50th reunion activities of 1941 YSM: great. Seventeen members, 13 accompanied by spouses, attended: **Areson, Bell, Carey, Diefendorf, Duncan, Fenton, Gilbert, Glike, Lasell, Lih, Monroe, Neighbor, O'Connell, Parrella, Pecora** and **Walton**. To attest that the flames of romance still burn brightly, Willys Monroe provided a special extra

with the introduction of his recent bride, the former Dr. **Louise Robertson**.

The consensus was that the group overall looked fit. Evidence of the encroachments of increasing age was small; a few showed of what is usually described as a "more mature figure." Fortunately, all seemed nimble of wit, most have traded stethoscope for rocking chair. Exceptions included Pete Duncan, Sid Lasell, Ed O'Connell and **Ed Rogers**, who still maintain at least part-time medical functions.

Those attending the dedication of the Boyer Center for Molecular Medicine on Thursday were impressed by the magnificence of the facilities, and enjoyed the sociability of the hospitality hour which followed. On Friday, at the class reunion seminar, Willys Monroe presented his paper, "The U.S. Public Health Service: A Virginia Tradition." He represented our class very well, and his paper received much commendation.

For Friday evening **Charlie Cheney** arranged a special class dinner at The Graduate Club. Unfortunately, because of illness, Charlie was unable to attend this and other events of the reunion. Jack Parrella served ably as master of ceremonies. Following dinner, all class members took turns offering a variety of personal reminiscences and commentaries. These provided a lot of fun and climaxed a happy day. Jack Par-

1936

55th-year reunion

by Dr. Nicholas D'Esopo

The 55th-year reunion of the Class of 1936 was attended by Dr. **Nicholas**



Mrs. Esther Diefendorf and Herbert W. Diefendorf, M.D. '41

rella had prepared a brochure containing a series of observations, reflections and reminiscences of the past 50 years. For those unable to attend, a copy will be provided through the office of alumni affairs.

The celebration ended with the "Friends of the 50th" dinner, at which '41M was honored. Attendance was so large that the event had to be held at the Colony Inn. This great dinner concluded with appropriate and interesting comments from representatives of YSM and the office of alumni affairs.

My special thanks to Charles Cheney, Willys Monroe and Jack Parrella for their help in facilitating our class reunion activities, and for providing me a news-line, and to those classmates unable to attend who provided letters of information in response to my inquiries. These letters will form the basis of a more detailed newsletter which hopefully will reach every member of the class.

1946

46th-year reunion

by Dr. Martin E. Gordon

An enthusiastic Class of '46 returned to New Haven in large numbers, and the many activities of their 45th-year reunion earned their meritorious support. After the dedication of the new Boyer Center for Molecular Medicine, an impressive scientific program followed, replete with Nobel laureates. The class met on the steps of 333 Cedar St. for still another classic Hall of Fame photomural, oblivious to the passage of time and the sepia tone. They were then

led to the historical library for a nostalgic reexamination of the plates of Vesalius and other awesome treasures of their Yale experience, including Harvey Cushing's memorabilia, rekindling images of student days.

The class then presented a seminar, "From Then to Now — Panoramic Views of Medicine: Personal Observations," that proved to be a remarkable survey of the progress in medicine, influencing the career developments of 10 class representatives of various specialties. These included **Margaret J. Albrink's** "Triple Threats of Diet, Diabetes and Obesity on Coronary Artery Disease" (lipid research), **Franklin C. Behrle's** "How Small is Too Small" (neonatal progress), **Sanford G. Bluestein's** "Radiology Alters the Scene" (clinical radiology's growth), **Vincent Longo's** "By the Way Doc" (sexual dysfunction), **Joe D. Morris' "Cardiac Restoration: A Half-century of Miracles"** (originating the initial ICU and extracorporeal pump units). An additional presentation included: **Julian A. Sachs' "From General Practice to Emergency Medicine — A Specialist in Spite of Myself"** (the growth of hospital trauma and emergency rooms), **Donald P. Shedd's** "Restoration of Voices Lost—Tea with the Duchess" (advances in head and neck surgery), **Robert R. Wagner's** "Infectious Diseases Then, Molecular Biology Now" (the growth and research aspects of virology), **William J. Wedemeyer's** "The Road to Automation" (technological changes in pathology and laboratory medicine). **Aaron T. Beck**, the "Father of Cognitive Therapy," gave insights into

his pioneering work on depression and suicide.

Vincent Pepe's assessment of a practitioner's role in obstetrics and gynecology and other equally cogent comments from all attending members of the class were followed by the summation by **Martin E. Gordon**, seminar organizer and chairman, who had presented "The Evolution of On-Sight Viewing and Doing—Trends from the Magenkräzer to 3-D Imaging" (gastroenterology/endoscopy and travel medicine).

Class members and companions were then shuttled for dinner overlooking Long Island Sound, followed by a Long Wharf Theatre's production of "Picnic." A specially arranged backstage tour and personalized discussions with the cast completed the memorable evening.

On June 8, the morning scientific programs and the traditional lavish Yale luncheon were followed by an afternoon of warm comradeship, group psychotherapeutic discussions and informal lakeside relaxation at the Gordons' home. The evening's traditional dinner at Mory's conveyed the most intimate and hilarious aspects of the class' versatility. Letters and comments from classmates unable to attend were shared. The impressive accomplishments and stellar achievements of the children of the class were further evident when the biographic summaries were exchanged. Memories of the deceased class members were evoked, in reaffirmation of the close amalgamation of this YSM Class of 1946. Toasts to the past and hopes for at least matching attendance at the 50th brought this reunion to a warm conclusion.

1951

40th-year reunion

by Dr. John L. Sullivan

What a happy weekend. The weather was perfect. Our medical school reunion program concentrating on molecular medicine was outstanding!

The old medical school atmosphere was even better. We rubbed shoulders with the medical students out on the Harkness dormitory courtyard.

Frank and Dolly Allen, Tom and Barbara Amatruda, Paul and Polly Bruch, Sid and Ina Furst, Lowell and Ione Goodman, John and Betty Lou Haxo, Carrol and Luanna Iverson, Jocelyn Malkin, Wally and Pat Morgan, Jim and Jan Riley, Bob and Claudia Small, John and Mary

Sullivan, and Andy and Irene Wong were there. The old boys looked great and the girls were lovely.

The lighter side of the program started at Mory's on Friday evening. We were on the upper floor for cocktails and dinner. It was the old days all over again, casual and spontaneous.

Everyone had a chance to take the floor and reminisce or bring us up to date on classmates not present. The wine flowed, the food was great — it got better and better as the night went on.

Saturday was notable for two events dear to the heart of Class of '51. At the annual business meeting, our own Lowell Goodman received the AYAM Distinguished Service Award. Did you know he was the bantam weight boxing champion of Yale in his undergraduate days? I didn't. His acceptance speech was a highlight of the program.

In the afternoon we went to the dedication of the Tom Forbes study in the historical library. He was a sincere friend and mentor of the Class of '51. We expressed our feeling on **Dr. Forbes** to **Mrs. Forbes**. She remembered our class and sent her love.

Next came the highlight of the weekend, cocktails at Sid and Ina Furst's in Woodmont. Their beach-front home is so pleasant it's better described by the feeling it gives you. We were out on their lawn with a spectacular view of Long Island Sound. We were part of a beautiful, peaceful scene. Nobody wanted to leave for Scribner's restaurant!

But we were glad we did — one of Connecticut's best shore restaurants. We were in the right place. Goodie, our

music minister, brought his tapes of the '40s and '50s. Nostalgia, nostalgia!

Back to Sid and Ina's for after-dinner drinks on the lawn. I suggested skinny-dipping, but there were no takers. Forty years will do it to you.

That was it. Let's all make the 45th.

1956

35th-year reunion

by Dr. John H. Gardner

The weekend of June 7 and 8, was the 35th-year reunion of the Yale School of Medicine Class of 1956. Five of us, mostly with wives, arrived in New Haven early enough to attend a cocktail buffet at my mother's apartment on Thursday. On Friday, many of us attended lectures on various subjects (the Lyme disease discussion was excellent), including the ubiquitous discussion of molecular biology.

Friday night was one of the high points of the reunion and probably the best attended event. Poor **Helen** and **Steve Downing** appeared to have set a dangerous precedent by agreeing to offer Friday night dinners at reunions; we all assembled at their hospitable house in Guilford for an appropriately bibulous evening with catered dinner. It was a wonderful occasion upon which to renew acquaintances, and we are very grateful to our hosts for the thought and effort that they put into the occasion.

Saturday was more formal, not only in terms of the medical school presentations but our class dinner, which we had at Amarante's Restaurant on the

"eastern shore" of New Haven harbor. It was here that the class picture was taken, unfortunately, without those who came only for the Friday dinner. Overall, those depicted do not look too different from times before. There have been some changes in hair and some changes in weight, but overall, we seem fairly hearty.

Don Nalebuff still looks vertically somnolent, quite as in the last picture I took of him. Although many of us form a hard core of reunion attenders, there were some exceptions, and it was particularly pleasant to see **Charlie Zigun** again. I hope that all of us, plus some of those who do not come so often, can attend the 40th reunion. This was a great occasion to get together with very remarkable people.

Twenty-one of us returned to New Haven for part or all of the reunion program. This is 30 percent of our class, which isn't bad, but we hope for even more at the next reunion. Those who attended were the following: **Al Apfel, Leo Boyajian, John Carroll, Joe Cerny, Jim Collias, Don Dalessio, Steven Downing, Mitch Edson, John Gardner, Bob Hill, Bill Hindle, Chuck Hopper, Marie-Louise Johnson, Pres Manning, Dwight Miller, Norman Moon, Don Nalebuff, Fred North, Bill O'Brien, David Page** and **Charlie Zigun**. Most of the above came with a spouse, and so we had a fairly sizable as well as very enjoyable gathering.

1961

30th-year reunion

by Dr. L.T. Chiaramonte

The 30th-year reunion was quieter and more personal than the 25th. My wife, **Ann**, and I enjoyed ourselves by catching up with what has been going on with our classmates. **Sally** and **Vincent Marchesi** hosted a cocktail party Friday evening at their waterfront home in Guilford. I, for one, was impressed with the two of their five children I happened to meet. **Vincent**, who is in charge of developing Yale's new Boyer Center for Molecular Medicine, moderated a seminar on Saturday morning. He also graciously gave us a private tour.

Saturday evening dinner with **John Fenn** and **David Brooks** at our table was stimulating. Imagine talking to the chief of staff at Yale-New Haven Hospital and a psychiatrist at the same time. The quiet recollections of **George Lodi**,

Continued on page 48



Mrs. Helen Forbes and Muriel Wolf, M.D., '59, converse at the dedication of the Thomas R. Forbes Study at the medical historical library.

DISTINGUISHED SERVICE AWARDS



Dr. Maxwell Bogin with (from left) daughter Debbie Cohen, his wife, Edith Bogin, and daughter Abby Kenigsburg.

Maxwell Bogin, M.D. Class of 1926

On the 65th anniversary of his graduation, teacher of clinical pediatrics to generations of students, beloved and conscientious physician to thousands of children, your loyal service to Yale University School of Medicine as class agent and liaison has been exemplary. As a faithful alumnus and son of Yale, we salute you.



The Kresge Foundation Challenge Chairman John B. Ogilvie, '34 M.D., was cited for his leadership in helping to secure the \$1 million grant.



Dr. Lowell I. Goodman (left) with Samuel D. Kushlan, M.D. '35.

Lowell I. Goodman, M.D. Class of 1951

Starting as a farm boy from Indiana, a fifth generation Hoosier, your destiny took you to Yale College, Yale School of Medicine, and to a research career in psychiatry.

Your loyalty and love for our School of Medicine forged a lasting connection to alumni affairs. You assumed an effective leadership role in the exceptional Class of 1951.

Since 1975, you served as class agent for your class in its alumni fund activities. Your efforts were so innovative and fruitful that within five years you were selected to be the national chairman of the Yale University School of Medicine Alumni Fund. You brought the same creativity and energy to this function, personalizing the relationship of the fund and its agents with your personality and good humor.

You met the record challenge of your predecessor in this job by doubling his achievement.

It is not for your material accomplishments, but rather the love for your school and the service to it that you are honored today.

As a distinguished physician, father of a physician, husband of an educator, and loyal alumnus we salute you.

Roy Ronke and **Bob Briggs** never fail to impress me as well as their faithful attendance at every reunion. Roy, in his understated way, told of being one of the first combat medical officers in Vietnam. This impressed me, as one who spent his service time as a weekend warrior with the National Guard.

As for me, a few pounds heavier and several hairs grayer, I have made the mistake of editing a text on food allergy. I have my hands full supervising a new practice dedicated exclusively to people who perceive they are allergic to foods and food additives, in addition to my "normal" activities. If you missed the fun in '91, come alive for reunion 35.

1966

25th-year reunion

by Dr. Arne Youngberg

The Class of 1966 25th-year reunion can be judged a great success. On a beautiful Friday evening on the shores of Long Island Sound we had champagne and a sumptuous spread of hors d'oeuvres at **Clarence** and **Carolyn Sasaki's** beautiful home in Stony Creek. Special surprise guests were Ed and Joy Crelin. Later on, some of us enjoyed pizza, beer and laughs at Sally's in Wooster Square. Saturday brought more beautiful weather, meetings, tours of the campus, and then a class dinner at the New Haven Lawn Club. The highlight of the evening had each classmate give a short biography of his/her years since medical school, and the response was a mixture of admiration, pride and plenty of good laughs. The passing of **Bill Yeagley** and **Bruce Jackson** was sadly noted, and news of classmates who couldn't attend was shared by friends. After some talk about future get togethers, we parted with some wistful goodbyes.

A list of all those attending the weekend festivities includes: **John** and **Lee Baxter** (endocrinology), **Robert** and **Patricia Bazemore** (medicine and psychiatry), **Frank** and **Kathy Bell** (ophthalmology), **Phil** and **Arlene Bernstein** (orthopedics), **Eugene** and **Hollis Cassidy** (pathology), **Donald** and **Phyllis Cohen** (psychiatry), **Bob** and **Betsy Dragon** (general surgery), **Anthony** and **Olive Fappiano** (pathology), **Peter** and **Christine Gibbons** (radiology), **Stanley** and **Nancy Greenspan** (psychiatry), **Mac** and **Helle Griffiss** (infectious disease),

Stuart and **Barbara Hauser** (psychiatry), **Richard Howard** (surgery), **Gordon** and **Barbara Kelly** (ophthalmology), **Stuart** and **Sheila Kotler** (radiology), **Sidney** and **Lynn Lipton Levitsky** (pediatric endocrinology), **Henry** and **Nancy Mann** (psychiatry), **Caroline McCagg** (rehabilitation medicine), **Bob McRoberts** (orthopedics), **John** and **Marian Mateyka Melish** (medicine and pediatric infectious disease), **Tony Robbins** and **Phyllis Freeman** (public health), **James** and **Victoria Sansing** (dermatology), **Clarence** and **Carolyn Sasaki** (otolaryngology), **Joel** and **Cynthia Singer** (plastic surgery), **Larry** and **Susan Toder** (orthopedics), and **Arne** and **Patti Youngberg** (radiology).

Special thanks to **Donald Cohen** and **Clarence Sasaki** for putting the weekend together. For those who couldn't attend, please send me a short biography so we can put together a class newsletter.

The most ironic part of the weekend was that while we were partying, **Stu Kotler's** daughter, Yale Med. '93, was studying for second-year boards....And the beat goes on!

1971

20th-year reunion

by Dr. Barry B. Perlman

"How time flies." This phrase expresses the feeling of the 26 or so members of the Class of '71 who gathered for the 20th-reunion. The class dinner again was held at the beautiful shoreside home of **John** (now professor of neurology at Yale) and **Ellen Ebersole**. Space limitations permit only brief mention of class members but, unfortunately, not of their family members who attended and contributed to the pleasure of the day.

Those living either in the New Haven area or nearby Connecticut included pediatricians **Tom Etkin**, **Dave Rinzler**, **Semeon Tsalbins** and **Lenny Eisenfeld**, whose specialty is neonatology. **Al Wehl** is the director of education in the emergency department at Yale. **Richard Kaufman** practices internal medicine in nearby Branford. **Barbara Kinder**, who was instrumental in making reunion arrangements, is now the director of surgery at the Department of Veterans Affairs Medical Center in West Haven. **John Foster** practices radiology nearby.

Several psychiatrists attended. **Mike Piercey**, the medical director of Four Winds Hospital in Katonah, N.Y., and **Dave Lippman**, who lives in Great Bar-

ington, Mass., were the parents with the youngest children, while **Barry Rand**, who practices in Brooklyn, was the most recently married. **Frank Miller**, at Cornell, and **Jon Stewart**, at Columbia, are both involved in academic research. **Barry Perlman** is director at St. Joseph's Medical Center in Yonkers, N.Y. **Peggy Finston**, living in Prescott, Ariz., just returned to practice; she authored *Parenting Plus: Raising Kids with Special Health Needs*, and is at work on a novel.

Among those travelling long distances to attend were: **Paul Vignola**, who directs the cardiac catheterization lab at Mt. Sinai Hospital in Miami, Fla., and **Bob Vranian**, who practices cardiology in Virginia. **Doug Schmidt** and **Mike Gallant** are both plastic surgeons working in Denver, Colo., and St. Petersburg, Fla., respectively. **Bruce Block**, unfortunately without **Marian**, came from Pittsburgh, where he runs a family practice center for a residency program. Coming from the Midwest were **Jerry Woodhead**, an academic pediatrician in Iowa City, and **Jared Gardiner**, a radiologist in Wichita, Kan. **Allan Graham** cares for "New York City drug addicts in peaceful Vermont." **Richard Moggio** is a cardiac surgeon at New York Medical College in Valhalla, N.Y. **Judith Bader** practices radiation oncology in Maryland after many years at the National Cancer Institute. It was nice to have her return to her first reunion, and we hope others will follow suite for the 25th in 1996.

1976

15th-year reunion

by Dr. Alfredo L. Axtmayer

Greetings from Wallingford, Conn! It's hard to believe that 15 years have come and gone. I am pleased to say that the reunion was attended by 15 of us. It's also hard to believe that those of you who live nearby, i.e. New York and the Boston area, could not drag your bodies back to New Haven at this juncture. I am pleased to report that all of those who did attend look well and are doing great....

Peter Swanson continues in family practice in Shelton, Conn., and has been at that for 12 years. **Charlie Swenson** looked great, perhaps a little less hair on top, but the beard is still going strong. He lives in White Plains, N.Y., and commutes between there and New York City, running a Cornell-affiliated

treatment program for suicidal people. He keeps thinking of family practice.

Rich Kayne made it late to the reunion dinner but continues to practice endocrinology in the Meriden/Wallingford/Cheshire area. He and I work together at the newly named Veterans Memorial Medical Center in Meriden. His children are 12, 9 and 7. **Maria** is still busy with her import/export business.

Florence (Comite) Cabin and her husband, Henry, were also present at our dinner. He is an honorary class member from the Class of '75. Florence is back at Yale in reproductive endocrinology. Their children are **Jonathan**, age 12, and **Mikey**, 7 years-old. They look like they keep a very busy schedule.

Dan Rahn, who has been back on the faculty at Yale University School of Medicine since 1988 directing a clinical program in Lyme disease, is making the big move from the New Haven/Guilford area to a new position as vice chairman of the department of medicine in Augusta, Ga. It will be a big move for **Dan**, **Lana**, **Jaron**, age 9, **Rebecca**, age 6, and **Zachary**, age 4. We wish them well!

Cindy Mann looks great, continues to practice pediatrics in New Haven at Connecticut Health Care Plan. **Ken Dobuler** also is in New Haven, practicing pulmonary medicine in a group with 29 other M.D.s. **Vinny DiCola** also continues in New Haven in cardiology in a group with six others. He has a son age 4 and a daughter age 3.

Bill Levy and **Doug Mann** came from the Philadelphia area. Bill is a little league coach who moonlights as a cardiologist, and Doug practices ear, nose and throat surgery in Media, Penn. He has three children and his wife, **Jane**, is an ophthalmologist. He gets the award for the most physically unchanged appearance since graduation.

Rich Pelker is professor of orthopaedics at Yale but aspires to be a full-time sailor and beach bum. **Norm Kohn** came all the way from Chicago just for reunion dinner. He still lives near the University of Chicago and practices psychiatry there.

The prize for the longest trip for our reunion goes to **Randy Hawkins** and his wife, Penny, who came all the way from San Diego. He is a neurologist with a big group downtown and loves California (as expected). He has extended an invitation for anyone going to San Diego to look him up while they are there. I am sorry to report his hair is shorter and he is playing golf!

I continue to do general orthopedics in Wallingford and am too busy to make it down to New Haven except every five years for reunions!

Best wishes to one and all. Let's hope we can get a bigger crowd for the "20th"!

1981

10th-year reunion by Dr. Barbara Ross

The 10th-year reunion dinner for the Yale School of Medicine Class of 1981, held at the Chart House on June 8 was a big success, with 21 people attending. **Scott Hundahl** made the longest trip, from Honolulu, where he is a surgical oncologist and his wife, **Leilani**, is an internist. East Coast oncologists included **David Lebowitz** (medical oncology), here with his wife, **Sally**, an archivist, and **Yvedt Matory** (surgical oncology fellow), with husband **Randy**, a law professor at Harvard. Both David and Yvedt are at Memorial-Sloan Kettering, along with **Ines Carrasquillo** and **Richard Rodman**.

The three rheumatologists at reunion were **Dean Noritake**, **Stewart Greisman** and **Barbara Roach**. Dean and Lynn came all the way from Pasadena and have two children, **Daren** and **Alison**. Stewart shares a practice in Manhattan with his wife, **Lisa Babitz** (geriatrics), and they have two daughters, **Laura** and **Jill**. Barb practices in New Haven, and she and husband Rick have two energetic toddlers, **Matthew** and **Emily**.

Not surprisingly, the New York area was very well represented. **David Weiss** is an orthopedist in Manhattan — his specialty is dance medicine, so he is at the ballet several times a week. **Dovelet Shashoua** is a pediatric ophthalmologist in New Jersey. Her husband, **Jon**, is a radiologist at Einstein and they have a 2-year-old son. **Donald Moore** practices family and emergency medicine in Brooklyn; he and wife **Christine** have one daughter. **Robert Kenet** is an instructor in cardiology at Cornell, and is president of Vanguard Imaging. His interests include digital imaging in cardiology and dermatology as well as the harpsichord. **Jane Asch** has a private psychiatry practice in New York City, and she is in psychoanalytic training at Columbia. Also representing psychiatry is **Marty Teicher**, who is at Harvard and divides his time between research, clinical work, his two children and speaking to the press about Prozac.

It was wonderful to see so many classmates come back to New Haven for reunion, and we are looking forward to our 15th in 1996!

1986

5th-year reunion

Attendees: **Catherine Ann Arnold**, **Cristina Brunet**, **Amanda Dill**, **Daniel Fierer**, **Cynthia Hall**, **Roberto Lewis-Fernandez**, **Steven Waisbren** and **John Wysolmerski**.



Donald Moore, M.D. '81, and his wife, Christine Moore.

1990-1991 ALUMNI FUND REPORT

From the YSM Alumni Fund Chairman

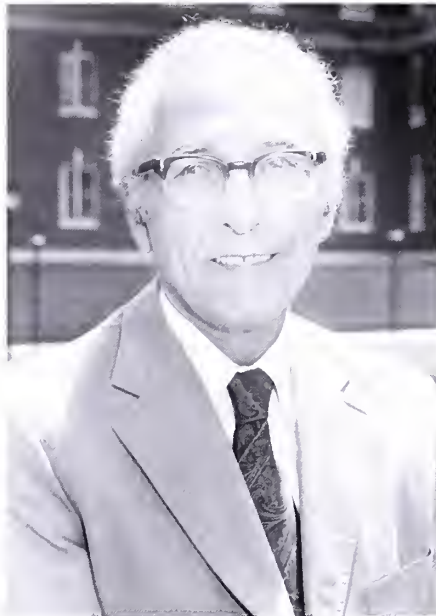
The alumni of the Yale University School of Medicine have much of which to be proud. We have been blessed by being educated in what is recognized as one of the five best medical schools in this country. Our faculty is known throughout the world for its research activities, teaching abilities, and for its unwavering commitment to student education. The Yale System allows for personal growth as well as intellectual scientific achievement. It is no wonder, therefore, that our alumni remain steadfast and loyal in their support of our school. At no time was this more evident than in the 1990-1991 campaign of the School of Medicine Alumni Fund. All previous records were broken. Faced with a \$1 million dollar challenge from the Kresge Foundation, and a \$40,000 challenge from Dr. Sanford Bluestein, you met them both with resounding success.

In the 1990-1991 campaign, we raised \$695,839.37, breaking all previous records for annual giving. Equally as important, however, was that our level of participating reached 56 percent. We share first place with the Law School for the highest percentage of participation among the graduate and professional schools at Yale.

There are many people to thank for this noteworthy achievement. The professional staff, under the guidance of alumni fund Director Monica Robinson, were diligent in their pursuit of our goals. Class agents responded to calls for action promptly and with enthusiasm.

Most of all, thanks must be given to you, our alumni for answering the call of our school so willingly and generously. The board of the School of Medicine Alumni Fund tips its collective hat to all of you.

My term as chairman of the School of Medicine Alumni Fund has come to a close. Personal thanks go to Monica Robinson and her staff, members of the alumni fund board, and to all of the class agents. You have made my job easy by doing all the work, and interest-



Dr. R. Leonard Kemler

ing by being such stimulating people. It has been a wonderful experience.

Best wishes go to my successor, Dr. John Foster. May you enjoy the work as much as I have, and may you break all the recently established records.

*R. Leonard Kemler, M.D. '43
Chairman*

Dean's Message

No task pleases me more as acting dean than to thank the Yale medical and EPH alumni for generously contributing their time, energy and talent to help provide for the continuing needs of their school. I truly appreciate your loyalty and commitment to the well-being of the Yale School of Medicine and its Department of Epidemiology and Public Health.

Medical alumni's total gift of \$695,830 to the School of Medicine Alumni Fund, with 56 percent participation, not only set new records for total giving and percent participation, but exceeded the requirements of the Kresge Foundation Challenge, thus earning a \$1 million donation to the new Boyer Center for Molecular Medicine.

Special thanks go to R. Leonard Kemler, M.D., the outgoing chairman of

the School of Medicine Alumni Fund, and John Ogilvie, M.D., who coordinated the program for meeting the Kresge Challenge. The class agents' work also was crucial to this success. The highlight of the EPH Alumni Fund was the extremely generous gift of \$300,000 over three years by Samuel S. Herman, M.P.H., Ph.D., and his wife, Liselotte. I hope that our alumni continue to vigorously respond to their school's needs.

Because of the ongoing accumulation of debt that medical and EPH students accrue when acquiring their education (medical student debt at graduation averages more than \$49,000, while EPH students' tops \$31,000), Yale will continue to designate your financial contributions to student aid. Our students greatly appreciate your support: helping them meet their financial needs allows the School of Medicine to attract the outstanding talent which we traditionally expect at Yale University.

As we implement the newly adopted academic plan, we intend to integrate curriculum revisions that will enable us to attain the plan's goals within the parameters of the Yale System. The expansion of the school's physical plant, as well as construction of the Children's Hospital at Yale-New Haven, also are essential elements in helping us meet the goals of our academic plan.

Your generous contributions not only represent important investments in the academic plan, but they also support the future clinicians, basic scientists and public health specialists who are needed to address the pressing medical and public health challenges that we will continue to face as we enter the 21st century.

*Robert M. Donaldson Jr.
Acting Dean*



Medical School Alumni Fund Class Participation

CLASS	AGENT	1989-1990		1990-1991	
		TOTAL	% PART	TOTAL	% PART.
1922 and prior		\$ 2,011	100	2,370	100
1923	William Cohen	686	100	1,546	100
1924	David Raskind	11,334	100	12,214	100
1925	Alice Whittier	5,473	50	611	75
1926	Maxwell Bogin	1,720	60	841	75
1927	Harry Zimmerman	1,136	63	1,710	83
1928		3,580	60	2,191	100
1929	Paul McAlenney	1,376	67	1,553	89
1930		147,690	71	70,425	67
1931	Michael D'Amico	3,426	91	3,256	100
1932		2,339	50	2,514	85
1933	Franklin Foote	2,103	69	2,303	113
1934	John Ogilvie	4,652	75	7,028	100
1935	James Haralambie	6,780	52	6,975	100
1936		3,991	34	4,361	61
1937	Wilbur Johnston	2,289	64	2,040	83
1938	Nelson Ordway	1,346	72	1,488	92
1939	Rebecca Solomon	4,131	69	3,869	90
1940	James Ferguson	16,441	65	12,070	95
1941	Charles Cheney	4,593	76	9,776	90
1942	Walter Burdette	3,600	64	5,369	85
1943A	Dorothea Peck	6,743	74	29,174	100
1943B	Brownlee Brinkley	<u>5,930</u>	<u>54</u>	<u>7,092</u>	<u>93</u>
		12,673	64	36,266	97
1944	Nicholas Spinelli	10,131	65	10,297	100
1945	Richard Breck	10,573	67	5,806	94
1946	Thomas Whelan	8,800	70	55,973	79
1947A	George Barnes	6,834	78	5,191	93
1947B	W. Roy Breg	<u>2,653</u>	<u>64</u>	<u>2,444</u>	<u>93</u>
		9,487	71	7,635	93
1948	Anne Godley	7,675	56	8,644	82
1949	Daniel Elliot	3,930	60	3,864	84
1950		74,952	71	8,886	79
1951	Lowell Goodman	10,581	59	15,324	69
1952		4,275	42	5,634	60
1953	Vincent Gott	8,710	55	8,737	72
1954	John Rose	6,034	60	7,435	79
1955	Robert Kramer	6,932	58	6,085	68
1956A	John Gardner	4,862	47	10,262	75
1956B	Donald Dalessio	<u>3,235</u>	<u>53</u>	<u>6,855</u>	<u>74</u>
		8,097	50	17,117	75
1957A	Harry Briggs	3,575	57	7,275	73
1957B	Howard Minners	<u>4,575</u>	<u>64</u>	<u>5,485</u>	<u>67</u>
		8,150	61	12,760	70
1958A	Andrew McGowan	9,702	53	9,746	65
1958B	Paul Rudnick	<u>4,820</u>	<u>52</u>	<u>4,955</u>	<u>66</u>
		14,522	53	14,701	66
1959A	Asa Barnes	7,222	61	8,859	83
1959B	Muriel Wolf	<u>4,474</u>	<u>57</u>	<u>5,051</u>	<u>70</u>
		11,696	59	13,910	77
1960A	Eugene Gaenslen	5,333	57	3,171	59
1960B	Thomas Kugelman	<u>6,500</u>	<u>57</u>	<u>5,375</u>	<u>63</u>
		11,833	57	8,546	61
1961A	Robert S. Briggs	3,305	51	4,650	60
1961B	Warren Widmann	<u>4,610</u>	<u>57</u>	<u>9,425</u>	<u>77</u>
		7,915	54	14,075	67
1962A	A.R. Pschirrer	4,090	60	3,101	66
1962B	Frederic Cantor	<u>3,051</u>	<u>39</u>	<u>3,826</u>	<u>50</u>
		7,141	50	6,927	58
1963	Craig Llewellyn	6,984	32	8,722	50
1964A	William J. Houghton	2,185	41	3,885	48
1964B	Robert Lyons	<u>10,650</u>	<u>68</u>	<u>10,750</u>	<u>79</u>
		12,835	55	14,635	64
1965	David Hill	13,299	50	14,243	53
1966A	Mary Alice Houghton	2,975	57	3,150	59
1966B	Gary Townsend	<u>3,400</u>	<u>52</u>	<u>3,495</u>	<u>55</u>
		6,375	55	6,645	57
1967A	James Dowaliby	3,428	54	3,572	63
1967B	Anthony Lovell	<u>5,715</u>	<u>74</u>	<u>6,390</u>	<u>71</u>
		9,143	64	9,962	67
1968A	Frank Lucente	9,053	45	16,353	58

1968B	Donald Lyman	<u>4,830</u>	<u>58</u>	<u>6,188</u>	<u>75</u>
		13,883	52	22,541	67
1969	Adrian Schnall	7,602	52	11,307	65
1970	James Missett	5,823	46	5,403	50
1971A	John Cieply	3,468	43	5,944	66
1971B	Barbara Kinder	<u>5,725</u>	<u>44</u>	<u>10,450</u>	<u>70</u>
		9,193	44	16,394	68
1972	Harry Malech	9,835	47	10,386	59
1973A	Lee Goldman	1,766	48	1,599	45
1973B	John McQuade	2,015	39	2,831	48
1973C	Jerrold Rosenbaum	<u>1,691</u>	<u>43</u>	<u>2,029</u>	<u>54</u>
		5,472	43	6,459	49
1974A	Amy Schechter	1,755	49	1,745	49
1974B	Robert Schechter	<u>3,800</u>	<u>37</u>	<u>3,040</u>	<u>50</u>
		5,555	43	4,785	50
1975A		1,570	31	1,631	35
1975B	Mary Jane Minkin	<u>1,179</u>	<u>20</u>	<u>1,559</u>	<u>30</u>
		2,749	26	3,190	33
1976A	William Levy	3,000	35	4,570	56
1976B	Glenn Gorlitsky	<u>1,260</u>	<u>36</u>	<u>2,725</u>	<u>40</u>
		4,260	36	7,295	48
1977A		2,420	24	5,910	32
1977B	Ronald Vender	<u>2,527</u>	<u>47</u>	<u>1,570</u>	<u>56</u>
		4,947	36	7,480	44
1978A	Duke Cameron	1,770	22	3,070	42
1978B	Seth Powsner	325	27	350	40
1978C	Thomas Smith	<u>115</u>	<u>25</u>	<u>200</u>	<u>33</u>
		2,210	25	3,620	38
1979A	Jeffrey Kaine	685	34	1,770	51
1979B	Cynthia Sherman	<u>1,900</u>	<u>24</u>	<u>3,160</u>	<u>37</u>
		2,585	29	4,930	44
1980A	Eduardo Alfonso	2,375	35	1,855	40
1980B	Stevem Rosenfeld	<u>1,056</u>	<u>27</u>	<u>1,357</u>	<u>46</u>
		3,431	31	3,212	43
1981	Anthony Urbano	1,645	20	3,703	37
1982A	Muriel Cyrus	650	12	948	23
1982B	Jed Gorlin	300	35	385	50
1982C	S. Wolf-Rosenblum	<u>470</u>	<u>38</u>	<u>970</u>	<u>57</u>
		1,420	28	2,303	43
1983A	Michael Tom	276	9	971	27
1983B	David Schwartz	<u>330</u>	<u>30</u>	<u>585</u>	<u>36</u>
		606	20	1,556	32
1984A	Hinggr Hsu	485	26	620	33
1984B	Jay Kostman	<u>500</u>	<u>19</u>	<u>750</u>	<u>32</u>
		985	23	1,370	33
1985A	Greg Sachs	695	26	807	31
1985B	Fred Santoro	<u>190</u>	<u>23</u>	<u>700</u>	<u>31</u>
		885	25	1,507	31
1986A	Eric Bernstein	230	16	958	28
1986B	Clinton Lindo	95	11	125	20
1986C	Eric Suan	<u>35</u>	<u>7</u>	<u>700</u>	<u>15</u>
		360	12	1,783	21
1987A	Barry Weinstock	261	20	745	39
1987B	Subba Gollamudi	50	17	123	32
1987C	Mindy Schuster	100	14	360	41
1987D	Mark Widmann			<u>725</u>	<u>20</u>
		411	17	1,953	33
1988A	Michael Mockovak	57	19	237	32
1988B	Susan Valley	145	17	168	18
1988C	Hedi Zaghi	<u>20</u>	<u>8</u>	<u>215</u>	<u>28</u>
		222	15	620	26
1989A	Stephen Bharucha	110	13	250	28
1989B	Lewis Lipsey	245	24	175	39
1989C	Melissa Myers	50	11	76	33
1989D	Roger Widmann	<u>35</u>	<u>13</u>	<u>205</u>	<u>50</u>
		440	15	706	38
1990A	Chander Samy			160	36
1990B	Daniel Stryer			75	50
1990C	Jonathan Foster			88	36
1990D	Roberto Soto			5	10
1990E	Thomas Christopher			150	36
1990F	Tracy Nelson				
1990G	Ercem Atillasoy			30	22
1990H	Betty Shin Wun Kim			<u>80</u>	<u>14</u>
				588	29

CONTRIBUTORS 1991-1992

The names and data included on the following pages were provided by the Yale School of Medicine Alumni Fund and reflect contributions made between July 1, 1990 and June 30, 1991.

MEDICAL SCHOOL ALUMNI

1858

T. Beers Townsend*

1887

George Frederick Converse*

1906

Charles R. Mitchell*

1908

Michael A. Parlato*

1912

Walter Clark Tilden*

1913

Ralph Emerson Taylor*

1916

Ernest Russell*

1919

Willys M. Monroe*

1920

Oscar Brenner*

1922

Maurice Grozin*
Chester E. Hurwitz*
Helen P. Langner

1923

William Cohen*
Julius Anthony Olean*
Hyman W. Weinstein*

1924

Donato Anthony D'Esopo*
David M. Raskind
Myron A. Sallick*
Jacques Diamond Soifer*

1925

Waldo F. Desmond*
William E. Hall
Samuel Reback
Eli Hyman Rubin*
Alice A. S. Whittier
Howard Asa Wood*

1926

Stanton T. Allison*
Maxwell Bogin
William H. Hahn*
Joseph L. Hetzel*
Morris Hinenburg
Joseph T. Matteis

1927

Wallace Robert Bostwick*
Henry Irwin Fineberg*
John Martin Freiheit*
Donald F. Gibson*
Ernesto Icaza*
Albert Jablonsky*

Nathan Levy*

William C. Meredith
Alfred F. Seibert
Theodore H. Sills
M. Dawson Tyson
Harry M. Zimmerman

1928

Max Alpert*
Sheldon A. Jacobson
Edward P. J. Kearney
Ralph E. Knutti
R. Harold Lockhart
Edward W. Ludwig*
Nathan E. Ross
Robert I. Rubinstein*
John M. Russell*
Alvin A. Schaye*
George C. Wilson*

1929

James Rae Arneill Jr.*
John M. Bailey*
John W. Cass Jr.*
Frank H. D'Andrea
Robert A. Frisch
Olive Gates
George S. Goldman
Alexander O. Haff*
John A. Hangen
Tony Liebman Rakieten*
William Frederick Roth Jr.*
Russell B. Scobie
Robert Tennant
Newell Raymond Washburn*
Julius G. Weiner*
Mabel Wilson

1930

Daniel N. Beers*
Frederick Fitzherbert Boyce
Charles A. Breck*
Lewis Dickar*
Vincent A. Doroszka*
Knox H. Finley
J. Roswell Gallagher
Leonard Greenburg*
Amy H. Hunter Wilson*
Paul Harold Lavietes*
Moses D. Lischner*
James Merriman Lynch*
John W. Maroney
Paul Watson*
Charles L. Wood

1931

Henry H. Briggs Jr.
Benjamin Castleman*
Michael D'Amico
Paul A. Harper
Morris Heller*
Thomas C. Jaleski
Rhoda M. Mickey
Nelson Newmark
Abraham J. Schechter
James A. Stringham
Max Taffel

1932

Louis K. Alpert
Reginald V. Berry
Frank Carroll
Clement C. Clarke
Hester B. Curtis
Joseph P. Donnelly
Lee E. Farr
Thomas E. Farthing*
Lewis F. Foster
Elizabeth M. Ramsey
Benjamin N. Tager
Myron E. Wegman
Roland T. Wehger*

1933

Myron J. Adams*
Fred W. Buse
Warren P. Cordes
Franklin M. Foote
Jack Greenberg
Daniel Foster Harvey*
George K. Hirst
Robert Watkinson
Huntington Jr.*
John G. Martin
Raymond Everett Miller*
Ashley Pond III*
Paul L. Saffo
Edwin B. Seelye*
Sidney Stringer*
Francis M. Woods

1934

Frederick Beck
Joseph Budnitz
Francis P. Guida*
Derick Algernon January*
Knowles B. Lawrence
Herbert C. Miller
Edward Thomas O'Donnell*
John B. Ogilvie
Lucien M. Pascucci
Harry Sherman
Wedgwood P. Webber
William R. Willard
George Zalkan*

1935

Walter E. Barney*
George A. Carden Jr.
Edgar S. Childs
Edward F. Falsey*
H. Hoffman Groskloss
James Quintin Haralambie
W. Howard Horner*
Mildred Hartshorn January
Samuel D. Kushlan
Donald P. Morris*
Norman E. Peatfield
John D. Preece
Norman P. Ringde
Milton Rose*
Clark P. Searle
Walter A.L. Thompson

1936

Lester W. Burket
Albert W. Diddle

Margaret C. L. Gildea

George A. Hahn*
Louise G. Hutchins
Philip M. LeCompte
Donald F. Marshall
Stephen F. Nagyfy
Frederick A. Post*
Hugh Allan Smith
Margaret Sommers
Morris Tager
Rafael Arrillaga Torrens

1937

Edmund R. Blower
William G. Cooper Jr.
D. Crosby Greene
Wilbur D. Johnston
Alfred E. King
Dunham Kirkham
Julia Mehlman
James P. Morrill
T. Dennie Pratt
Alan A. Rozen
Morgan Sargent
Albert D. Spicer
John M. Thomas
Jean Wells
Lorande M. Woodruff

1938

Roy N. Barnett
Henry L. Carideo
S. Charles Kasdon
Benjamin E. Lyons
John J. McGillicuddy
Nelson K. Ordway
Charles J. Petrillo
Edward W. Pinkham Jr.
James Radcliffe Jr.
George E. Roberge
Theodore W. Steege
Lester J. Wallman

1939

Stephen W. Collins Jr.*
Harold H. Coppersmith
Norman L. Cressy
William H. Druckemiller
Robert Goodfellow Ernst*
John P. Ferguson Jr.
Joseph B. Forman
S. Jerome Greenfield
Nathaniel Kenigsberg*
Margaret A. Lennox
Ward J. McFarland*
James Peter Murphy
Russell Nahigian*

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Daniel L. Arons, M.D. '67
Sharon L. Bonney, M.D. '76
M. Felix Freshwater, M.D. '72
Harry C. Briggs, M.D. '57
James M. Dowaliby, M.D. '67
Alex R. Gaudio, M.D. '63
Herbert S. Hurwitz, M.D. '54
Sidney S. Lee, M.D. '50
Benjamin E. Lyons, M.D. '38
Andrew J. McGowan Jr., M.D. '58
John B. Ogilvie, M.D. '34
Helen L. Smits, M.D. '67
Ronald J. Vender, M.D. '77
Marcia J. Wade, M.D. '78

OFFICERS 1991-1992

John W. Foster, M.D. '71
Chairman

J. Roswell Gallagher, M.D. '30
Bequest and endowment co-chairman

Samuel D. Kushlan, M.D. '35
Bequest and endowment co-chairman
Former house staff chairman

EPH Alumni Fund

Stephen Skorcz, M.P.H. '70
Chairman

Douglas S. Riggs
Roger N. Ryley
Ernest L. Sarason
Bradford Simmons
Rebecca Z. Solomon
John D. Tobin
Arthur S. Tucker*
Darrell G. Voorhees
Douglass W. Walker
John H. Wentworth
Malvin F. White

1940

Theodore E. Allen
Joseph V. Baldwin
Ronald S. Beckett
Jack S. Blaisdell
Philip S. Brezina
David Crocker*
Wynant Dean
Richard E. Dormont
James F. Ferguson Jr.
Eugene J. Fitzpatrick Jr.
Henry D. Humphrey
H. Stuart Irons*
Donald G. Johnson
Ira D. LeFevre Jr.
John D. MacAllister
Paul D. MacLean
Edward Martin
K. Alvin A. Merendino
Maurice Ross*
Lee S. Sannella
W. Norman Sears*
Joseph E. Sokal*
J. Champneys Taylor
Patricia E. Wanning
Helen H. Woods

1941

Robert H. Alway
Robert H. Areson
W. Randal Bell
Knute E. Berger*
William A. Carey
Joseph P. Carson Jr.
Charles B. Cheney
Herbert W. Diefendorf
Robert F. Dine*
Peter A. Duncan
Lloyd D. Flint
John Franklin
Robert L. Gilbert
Frederick P. Glike
Thomas S. Harvey
William Edmund Kenney
William Lee
Bjorn Lih
John R. McDermott*
Willys M. Monroe
Malcolm C. Murfitt
Jean E. Neighbor
Edward B. O'Connell
Robert W. Ollayos
Gioacchino S. Parrella
David V. Pecora
Edwin D. Rogers
Leslie Simmonds

1942

William E. Bloomer
James M. Bunce
Walter J. Burdette
Robert E. Carroll
Donald S. Childs Jr.
Ludmil A. Chotkowski
Vincent J. Collins
Eugene M. de Hostos
David G. Decker*
Hendrik DeKruif
William Fleson
Elihu Friedmann
Allan V.N. Goodyer*
William Harrison Jr.

Wilson E. Hughes*
Leo Kellerman
John R. Lincoln
Patrick S. Mullins*
Dean Nichols*
Samuel Ritvo
Lois Knight Rogers
Richmond W. Smith Jr.
Carter Stilson
Edgar B. Taft
Maurice Tulin
Francis P. Vose*
Arthur A. Ward Jr.
Irving Norman Wolfson
Med. memorial 1942
Classmates*

1943A

Ralph D. Alley
Anonymous
John R. Brobeck
Edward S. Brown
Lycurgus M. Davey
Donal L. Dunphy
R. M. Fasanella
Gerard Fountain
Edward Douglas Horning*
Stuart L. Joslin
R. Leonard Kemler
Joseph P. Kriss*
Jonathan Trumbull
Lanman*
Douglas Lindsey
J. Philip Loge
Henry E. Markley
Walter J.J. Nero
Dorothea R. Peck
Edward F. Rabe
Earl J. Rhoades
Henry A. Riedel
Bernard R. Rowen
Marcus E. Sanford
Robert A. Sears*
Edward Hersey Soule
Hilliard Spitz
Nicholas M. Stahl
Sophie Trent Stevens
Oliver G. Stonington
Robert G. Turner
Frederick A. Waldron*
John J. Weber
Morris A. Wessel
Robert H. Wyatt

1943B

Richard N. Abbott
John R. Almklov
David G. Borden
James L. Bradley*
Robert F. Bradley
S. Brownlee Brinkley
Henry B. Bruyn Jr.
Thomas L. Bucky
Jane B. Cadbury
Philip B. Chase
Hunter H. Comly
Norman I. Condit
Thomas D. Cook
Ronald W. Cooke
Joseph I. Epstein
Robert H. Furman
Victor C. Hackney
Fred M. Haddad
Frank R. Hurlbutt Jr.
Henry H. Jones
Joseph F. Kell
Sawyer E. Medbury
Hoyt B. Miles Jr.
Benjamin R. Robinson Jr.
Donald W. Seldin
Francis A. Spellman*
W. Keasley Welch

1944

Carl E. Andrews
Joseph Ciola*
Edward J. Conway
Robert E. Cooke
John C. Coolidge
George B. Corcoran Jr.
Frank W. Countryman
Lawrence S. Crispell
Charles H. Crothers
Lawrence G. Crowley
John H. Doherty
Robert W. Frelick
Carol Goldenthal
Charles A. Hall
Howard B. Hamilton
Robert I. Hinkley
W. Raymond James
Ward S. Jenkins
Edith M. Jurka
Harvey W. Kausel
Jerome J. Kaye
John Weaver King
Frederick F. Krauskopf
Ronald E. Losee
Ellen P. MacKenzie
Elias J. Marsh
Katharine Hawley Martin
Joseph Massaro
A. Reese Matteson
Paul E. Molumphy*
Russell R. Monroe
Lawrence K. Pickett
Laurence G. Roth
Haynes W. Sheppard
Sarah P. Sherwood
Eugene Smith
Nicholas P.R. Spinelli
Mrs. Gertrude Spinelli*
Priscilla Dienes Taft
Anthony Varjabedian
Calvin Watts Woodruff*
Reuben Zucker*

1945

George Howard Allison
Albert S. Atwood
Frederic M. Blodgett
Richard W. Breck
Louise H. Burr
Alice Shephard Cary
Sanford F. Cockerell
Jay B. Cohn
Richard R. Dyer
Robert S. Easton
Sidney S. Feuerstein
Alice Dersheimer Friedman
James D. Gardam
Philip S. Good
Herbert S. Harned Jr.
Isao Hirata Jr.
Paul W. Hoffert
O. Roger Hollan
John R. Howick
Hans R. Huessy
Leland W. Jones
John A. Knapp
William E. Laupus
Mark McD Lindsey
James R. Mason
Charles E. McLean
George W. Naumburg Jr.
Fitzhugh C. Pannill
Richard M. Peters
Elliot R. Reiner
Charles E. Sherwood
Joseph R. Stanton
Kenneth C. Steele

1946

Margaret J. Albrink
William G. Banfield Jr.
Franklin C. Behrle
Sanford G. Bluestein

Linus W. Cave
Thomas J. Coleman
James F. Cooney*
Thomas A. Doe
Edward F. Edinger
Gregory E. Flynn
Martin E. Gordon
Charles Sheldon Judd Jr.*
Benjamin F. Kitchen Jr.
James A. Kleeman
Vincent J. Longo
Richard Hess Mann*
Thomas J. Mathieu
Hugh J. McLane
Joe D. Morris
John H. Morton
Thomas J. Murphy
John F. Neville Jr.
Laura W. Neville
Harry Dickson Patton
Vincent Pepe
Francis G. Reilly*
David H. Riege
Phillips E. Roth
Julian A. Sachs
Donald P. Shedd
Richard G. Sisson
R. Bruce Thayer
Robert R. Wagner
William P. Walsh
William J. Wedemeyer Jr.
Thomas J. Whelan Jr.
Hugh R. Williams*

1947

George R. Barnes Jr.
Albert W. Bostrom Jr.
John E. Bowers
W. Roy Breg Jr.
Richard G. Britton*
David L. Brook
Rocco A. Calandrucchio
John L. Cannon
M. Richard Carlin
John C. Carpenter
Arthur Harry Chapman
Robert A. Chase
Amoz I. Chernoff
William F. Collins Jr.
Bradford S. Colwell
Robert P. Darrow
Jean H. Dougherty
Owen W. Doyle
Franklin Harold Epstein
Edward Foord*
Richard K. Friedlander
Frank L. Golbranson
Frank H. Horton
Robert J. Kerin
Don F. Kimmerling
Anton N. Lethin Jr.
Richard P. Levy
Brock Lynch
Victor A. Machcinski
William K. McClelland
Robert F. Newton
Myron K. Nobil
Lawrence C. Perry*
Philip H. Philbin
Olive E. Pitkin
Irving Rudman
Lawrence P. Shea*
Alvin Somberg
Igor Tamm
William F. Thompson
Patricia B. Tudbury
Ellis J. Van Slyck
M. Henry Williams Jr.

1948

Russell J. Barnnett*
George F. Batten
Edith M. Beck
Jonathan S. Bishop

Allyn G. Bridge
Arthur L. Coleman Jr.
Ruth E. Cortell
Richard H. Cote
G. Robert Downie
Victor A. Drill*
Elizabeth Fuller Elsner
Albert A. Fisk
Boy Frame*
Emil Frei III
Julian Frieden
Anne Godley
Paul S. Goldstein
Allan Green*
B. Herold Griffith
Sylvia Preston Griffiths
Richard M. Hannah
Halsted R. Holman
Paul B. Koehler
Robert E. Lempke
John P. Morris
John B. Morrison
David E. Morton
James W. Needham
George P. Rostel
Lewis P. Rowland
Benjamin F. Rush Jr.
Gabriel A. Saviano*
Jerome H. Shapiro
Jessie Parkinson Spear
Paul Talalay
Wallace W. Turner
Paul Woodbury Weld

1949

William G. Anlyan
Alfred E. Bacon Jr.
William D. Bevis
Jonathan S. Bishop
Mary Pucci Couchman
Phillip G. Couchman
N. Joel Ehrenkranz
Daniel W. Elliott
Gunnar O. Eng
Albert A. Fisk
Eleanor C. Gordon
Frederic W. Gray
Jackson Harris
Frederick R. Hine
Benjamin A. Johnson
Orval I. McKay
Orlando J. Miller
Timothy F. Nolan Jr.
Julian I. Pichel
Charles L. Rennell Jr.
Murray Z. Rosenberg
Daniel Rudman
Carl M. Russell
William H. Sewell
Martha Vaughan
Vernon T. Watley
Mary-Agnes P. Wine

1950

Russell N. Anderson
Lyal D. Asay
Sylvia L. Axelrod
Malcolm A. Bagshaw
John E. Borowy
William H. Bucher
Class Of 1950*
Alvin Davis
Claude W. Delia
Marie C. Duncan
Kent Ellis
Thomas J. Ferraro Jr.
Daniel Fine
Lawrence R. Freedman
David A. Frucht
Carl A. Gagliardi
Archie James Golden*
Melvin H. Kaplan
Lucian S. Lapinski
Sidney S. Lee

Janus C. Lindner
Margaret S. Lyman
Harold March
Harry L. McClelland
Marina P. Meyers*
John H. Meyers
Orlando J. Miller
Charles A. Nugent Jr.
Robert Edward Quinn*
Robert T. Sceery
Cynthia B. Shimm
Jane B. Shumway
Martin E. Smith*
John S. Strauss
Myra D. Tyler
Frederick Edward Vultee*

1951

Karel Bedrich Absolon
W. Robert Adams
Thomas T. Amatruda Jr.
Stanley D. Ardell
John W. Berg
Eleanor Clay Bigley
John J. Egan
Ferdinand H. Flick
Sidney S. Furst
Joseph M. Garland
Lowell I. Goodman
John T. Groel
Robert N. Hamburger
John V. Haxo
Carroll K. Iverson
William Kiekhof
Robert D. King
Jocelyn S. Malkin
Francis L. Merritt
Paul D. Millikin
Walter S. Morgan
Albert R. Mowlem
Richard S. Munford
Ismail Nik Nevin
Gerard B. Odell
Alfred Owre Jr.
Jose Felix Patino
Arthur A. Pava
Majic S. Potsaid
Robert G. Small
William F. Stephenson
Harold M. Sterling
Bradley R. Straatsma
John L. Sullivan
William A. Taylor*
Andrew S. Wong

1952

John W. Arnold
Maurice L. Bogdonoff
Siegfried A. Centerwall
Willard R. Centerwall
Frank R. Coughlin Jr.
Barbara B. Coughlin
Richard N. deNiord Jr.
John P. Filley
Richard D. Floyd
Robert P. Gerety
Thomas S. Kelly
James Kent Luce
N. Karle Mottet
Robert L. Nolan
Sidney Nathan Paly
Robert G. Petersdorf
Leon A. Phillips
John Macklin Roberts
Leonard Rush
Mary Wheatland Schley
Donald H. Schultz
Robert B. Schultz
John H. Wagner Jr.
Doris L. Wethers
John L. Wolff
Harvey L. Young*
Robert Zeppa



Pictured at the June 6 dedication of the Boyer Center for Molecular Medicine, are (from left) Benno C. Schmidt Jr., Herbert W. Boyer, Ph.D., his wife, Marigrace, their son, Ethan, and Dean Leon E. Rosenberg. This photograph and others in this section, taken at The Boyer Center dedication scientific symposium, celebrate YSM alumni's generosity in meeting the \$1 million Kresge Foundation Challenge. (See the Development Report, page 42.)

1953

Seth F. Abramson
Jonathan Barry*
Claude Bloch
Harold D. Bornstein Jr.
William R. Chaffee
Allen Chetrick
Rex B. Conn
Louis R M Del Guercio
John Leo Doppman
James P. Dunn
Donnell Dencil Etzwiler
Vincent Lynn Gott
Robert Emanuel Hamlich
A. Daniel Hauser
George L. Hoffmann
David Purdy Holman
Peter Biggs Hukill
Alvin Joseph Keroack
Robert Francis Kiley Jr.
Richard Robert Knowles
III
Frederick Martin Lane
Hildegard Mueller Leslie
John Dutch Lord
Robert N. Melnick
Harvey Martin Peck
Warwick Potter Jr.
Paul G. Quie
Jose Ramirez-Rivera
Irwin K. Rosenberg
Barbara F. Rosenberg
Virginia C. Saft
William Lindsay Shepard
Richard Andrew Sinnott Jr.
Ora K. Smith
John Frazier Snyder III
Lynn Cortland Stoker
William Junior Vandervort
William A. Whalen Jr.
William August Wilson
James Frederic Young

1954

Frank P. Berg
George W. Bostwick
Richard J. Bouchard
George N. Bowers Jr.
Ralph K. Campbell
John R. Cole
William D. Cone
Arthur C. Crovatto
Donald D. Davis
Walter J. Freeman
Orlando F. Gabriele
John A. Gariepy
Edward J. Gerety
Samuel T.J. Giammona
Frank L. Gruskay
Nicholas A. Halasz
Katherine H. Halloran
Robert P. Hatch
Walker R. Heap Jr.
Eva H. Henriksen
Samuel J. Hunter
Herbert S. Hurwitz
Robert F. Hustead
Robert J. T. Joy
Donald S. Kornfeld
Lowell A. Kristensen
Richard Lamb
Harry C. Miller Jr.
Paul N. Neufeld
James J. Nora
Lowell E. Olson
William J. Paule
Anthony V. Piccirillo
Richard D. Pullen
Jacques M. Quen
John Keith Rose
Elihu M. Schimmel
Leonard M. Silverman
Robert L. Stein
Martin B. Vita
John W. Vosskuhler

1955

John C. Bailar III
George E. Becker
E. Edward Bittar
Jerome Bobruff
Joseph I. Boylan Jr.
Irwin M. Braverman
Edward Noel Brennan
Padraic Burns
Leo R. Cardillo
Nicholas A. Coassin
Edward D. Coppola*
Milton Corn
Pasquale James Costa
Robert G. Crounse
John G. Daley
Fred Wendell Doyle
Leroy Engel
F. Robert Fekety Jr.
Edwin G. Fernand
Mahlon V.R. Freeman
James Conway Garlington
Barbara W. Gibson
Paul Gonick
Ion Gresser
John H. Hodge
D. Franklin Johnson Jr.
Harry O. Kendall
David R. Kessler
Robert A. Kramer
Edward A. Krull
William E. Lattanzi
James Lum
Alexander Maitland III
Joseph S. McGuire Jr.
Robert C. Nodine
James P. Nolan Jr.
Sherwin B. Nuland
Edward J. Ottenheimer Jr.
John C. Pace Jr.
Robert H. Peters Jr.
Gregory Peterson Jr.

Robert A. Reich
Paul J. Robinson
F. Brantley Scott Jr.
Clement B. Sledge
Phillip W. Smith
Alan A. Stone
Myron P. Walzak Jr.

1956

Alan E. Apfel
Suzanne S. Becker
Alvin D. Benjamin
Peter Blos Jr.
Levon Z. Boyajian
Thomas M. Brown
Rosalie A. Burns
John F. Carroll
Joseph C. Cerny
Edwin L. Child
James C. Collias
Donald J. Dalesio
Chandler Dawson
S. Evans Downing
Mitchell Edson
Gilbert M. Eisner
Thomas F. Ferris
John B. Fine*
John H. Gardner III
Sumner Gochberg
Val Shea Greenfield
Alan R. Gurwitt
Arne G. Haavik*
Armen Charles Haig
John Herd Hart
Robert L. Hill
William H. Hindle
Marie-Louise T. Johnson
George T. Kammerer
Jerome O. Klein
William V. Lewit
Leo Lutwak
Preston C. Manning

Dwight F. Miller
Elmer T. Mitchell Jr.
Norman F. Moon
Donald J. Nalebuff
William M. Narva, MC
A. Frederick North Jr.
William M. O'Brien
David A. Page
James Richard Patrick
George W. Paulson
Stewart E. Pursel
Robert J. Rice
Robert Lee Scheig
Edward C. Senay
Benjamin A. Shaver Jr.
Donald William Sherrick
Daniel R. Silbert
Theodore K.L. Tseu

1957

Donald Agostinelli
Joseph S. Amenta
Jane Barbara Battaglia
F. Calvin Bigler
Jack Norman Blechner
Richard I. Breuer
Harry C. Briggs
Carl A. Brinkman
John P. Carey
Albert K. Chun-Hoon
Louis Z. Cooper
Harold Dick Cross
Thomas H. Danaher
James R. Dorr
Salvatore Falbo
Harold J. Fallon Jr.
Robert E. Fishbein
Ronald H. Fishbein
James R. Fitzgerald
Anthony L. Fons III
Elizabeth H. Forsyth
Edward O. Fox
Gary A. Fry
Robert H. Glass
Anne H. Good
Jack Peter Green
Gilbert F. Hogan
Warren R. Johnson
Richard Lee Kahler
Stanley E. Kilty
William L. Kiskick
Willard A. Krehl
Jack Levin
Edgar H. Levin
Bennett F. Markel
Mark D. Marshall
Howard A. Minners
Robert K. Modlin
Hugh Lamson Moffet
George Albert Nelson Jr.
Herbert A. Newman
Thomas Francis O'Brien Jr.
Joseph S. Pagano
Clifford B. Reifler
Arnold Schoolman
Stanley Simbonis
Kenneth A. Simon
Gilbert B. Solitare
Donald C. Stahl
William J. Waskowitz
Herbert Winston

1958

George K. Aghajanian
Don P. Amren
Joseph E. Angelo
John P. Arnot
Gerard N. Burrow
Benjamin Bursten
John A. Carlston
John A. Creatura
Robert J. Donohue Jr.
Lawrence Dubin
Donald A. Duncan

Joel C. Eberlin
Philip R. Fazzone
Michael E. Fishman
Raymond A. Gaito
John Currier Gallagher*
Marcia Kraft Goin
William M. Gould
James Greenwald
Charles A. Hall Jr.
Michael Kashgarian
Haskins K. Kashima
Jay Ward Kislak
Theodore W. Lieberman
Myron Lotz
Thomas J. Mauro Jr.
Michael J. McCabe
Leo T. McCallum
Andrew Joseph McGowan Jr.

Albert Muggia
Robert S. Neuwirth
David W. O'Keeffe
Carol F. Phillips
David M. Pugh
William B. Radcliffe
Paul A. Rudnick
Bruce H. Sklarew
Richard E. Sled den
Edward Lloyd Socolow
Raymond W. Turner
Margaret Smith Wenzel
Joseph P. Wierzbinski III
John Patrick Wood
Pauline B. Wood

1959

Scott Ingram Allen
Carol J. Amick
Robert M. Amick
Asa Barnes Jr.
Francis A. Beer
Jack F. Bowers
Med. Class Of 1959
Edwin M. Clayton
Sidney M. Cohen
Martin Colodzin
Lyll S. Crary Jr.
Ronald C. De Conti
William L. Donegan
Gerald Fenichel
Robert L. Fisher
Paul Jay Friedman
Robert J. Gonyea
Gerald B. Gordon
David Gowing
W. Keith Hadley
James H. Halsey Jr.
H. Rodney Hartmann
William H. Heydorn
C. Richard Hinckley
Leonard Inker
William J.A. Jablonski
John J. Jasaitis
Edvardas Kaminskis
Herbert J. Kaufmann
Kristaps J. Keggi
David W. Kingsbury
Myron S.S. Lee
Kathryn Huxtable Lewis
Raymond Mark
John C. Marsh
Brian J. McGrath
Peter M. Molloy
N. Ronald Morris
James A. O'Neill Jr.
Robert H. Ostberg
Nicholas M. Passarelli
Charles A. Phillips
James D. Prokop
James R. Ralph
David Pardee Reed
Joseph D. Saccio
Constantine J. Sakles
Marc D. Schwartz

Richard M. Senfield
Owen A. Shteir
David B. Skinner
Sanford P. Solomon
James J. Stagnone
Lisa A. Steiner
John S. Strauss
Lois W. Tice*
Leo H. Von Euler
Muriel D. Wolf

1960

Alan W. Ames
Jack D. Barchas
Stuart P. Bowne
Donald P. Buebendorf
Thomas E. Carson
Stanley M. K. Chung
Gerald N. Cimmino
Francis D. Cogliano
Louis A. D'Avanzo
Malin Dollinger
David Paul Dunn*
March Enders
Warren H. Fisher
Paul Jay Friedman
Eugene C. Gaenslen Jr.
James I. Gilman
Maxwell E. Gottesman
Sylvia D. Grant
Roland H. Ingram Jr.
Daniel M. Jones
William S. Kaden
Eric P. Kindwall
Susan T. Kleeman
Thomas P. Kugelman
Edward R. Lang
Thomas Lau
Thomas L. Lincoln
Donald L. Miller
Richard G. Morrill
Fred Palace
Jerrold M. Post
Martin L. Reite
Charles H. Robinson Jr.
Albert Matthew Ross
Daniel J. Rubin
John J. Schrogie
Ross L. Snyder Jr.
Fred Stargardter
Constantine M. Voyagis
Robert C. Wallach
May Yung-Fun Woo Wang
Ronald A. Yankee

1961

Kenneth A. Arndt
Earl L. Baker
Frank H. Baker
Albert A. Bechtoldt Jr.
Robert S. Briggs
Paul David Deiter
Ronald A. Dierwechter
Jon Dudley Dorman
T. Wayne Downey
Christopher Francis Durham
John E. Fenn
Charles F. Gibbs
James M. Giffin
Edward C. Gilbert
David D. Griffith
J. Dale Howe
Louis D. Hunt
Richard L. Keefe
Thomas Kirsch
Robert Isaac Levy
George M. Lordi
Hugh James Lurie
Sally Lockwood Marchesi
Vincent T. Marchesi
David B. Matloff
Joseph W. McDaniel
Anoush Miridianian

Richard Allen Moore
Norman I. Moss
Roland D. Paegle
John Curtis Parker
John Pearce Jr.
Elaine Pitt
Bruce C. Robinson
William M. Rogoway
Roy E. Ronke Jr.
Shaun J. Ruddy
Thomas H. Sakoda
Stanley G. Schade
Robert R. Springer
John J. St. Andre
Robert N. Taub
Hugh C. Thompson III
Franklin H. Top Jr.
David E. Weaver
John V. Weil
Warren D. Widmann
John R. Woodward

1962

Jon M. Aase
Michael H. Alderman
Charles B. Anderson
Frederic P. Anderson
Dean E. Burget Jr.
Fredric K. Cantor
Thomas Newell Chase
Oliver Townsend Dann
Arnold Joel Eisenfeld
I. Bruce Elfenbein
John W. Foreman
Leroy A. Forstrom
Stephen John Fricker
Anthony V. Furano
John N. German
John A. Godley
David H. Groth
Roderick C. Haff
John H. Hageman
John T. Harrington
Patricia C. Hassakis
Gary Jacobson
Walter Watson Karney
Glenn L. Kelly
David E. Knoop
Bernard Kosto
Allan L. Mattern
Stanley E. Matyszewski
David J. McConnell
William G. Meffert
William A. Miller
Malcolm S. Mitchell
David D. Nicholas
A. Richard Pschirrer
Joseph Ross
James A E Spencer
Nancy Ann Staley
Larry Lee Stewart
Seth Thaler
Sherwood Waldron Jr.
William Farnsworth Weber

1963

Barbara Rosenthal Almond
Richard J. Almond
Miguel R. Alonso
V. Richard Back
Charles W. Carl Jr.
Theodore J. Chu
Andrew Edin
B. Allen Flaxman
David H. Fram
William T. Friedewald
David H. Fulmer
Alexander R. Gaudio
Lee D. Goldberg
Peter B. Gregory
Benjamin Keith Harris
Brian C. Judd
Constantine D. Kyropoulos
William B. Lehmann

Peter B. Livingston*
Craig H. Llewellyn
Edward G. Lund Jr.
Herbert Meltzer
Robert E. Mueller
Sheldon R. Pinnell
Jay M. Pomerantz
Gene R. Profant
Lee Bland Talner
Richard M. Thompson
Thomas W. Tillack
Peter V. Tishler
Lawrence Tremonti
Peter G. Weiner
James G. Wepsic
Jerome Allen Winer
Alfred J. Wise

1964

William A. Alonso
Berton W. Ashman
Leland S. Berger*
Robert M. Briggs
Thomas A. Cardella
Joseph F J Curi
Mary V. Digangi
Alfonso Esguerra
Anthony Ferrante
Norman C. Fost
Peter A. Gross
John F.B. Haney
Christopher W. Hauge
Richard Hockman
Lawrence Horwitz
William J. Houghton
William E. Knight
Lewis Landsberg
Richard V. Lee
Thomas L. Lentz
James S. Levine
Paul R. Lightfoot Jr.
Richard Murray Linburg
Robert W. Lyons
Andrew E. MacMahon
William F. Matchett
Robert L. Mitchell
James J. Murphy
William B. Pratt
Jack S. Rice Jr.
Stanley J. Rosenberg
Jonathan J. Russ
Saul M. Schanberg
Norman Scher
Robert L. Shelton
Diane Shrier
Donald G. Skinner
A. Thomas Snoko
Lyall C. Stulp II
Sigrid L. Tishler
Lee Van Lenten
Charles Vogel
Stephen Waltman
Oscar Wand

1965

Susan A. Aoki
Thomas T. Aoki
John H.M. Austin
Victor J. Burner
Thomas B. Caldwell III
David G. Campbell
Robert M. Cohn
Michael J. Cummings
Phyllis Hurwitz Duvdevani
Carl Ellenberger Jr.
David S. Fedson
Robert I. Finkel
Michael P. Flynn
Christopher C. Gates
Frank J. Grady
Robert Andre Gryboski
James K. Gude
Reid R. Heffner Jr.
David A. Hill

Carl E. Hunt
Virginia Burnham Johnson
Ronald J. Karpick
Mohandas M. Kini
Sandra Chook Levine
Mark W. Lischner
Philip D. Manfredi
Michael B. Mayor
Walter W. Noll
A. Lawrence Ossias
Robert L. Pickens
Alan N. Rachleff
William A. Renert
Gene A. Robinson
George B. Rowland
John F. Schilke
John H. Seashore
Margretta Ann Reed
Seashore
David P. Simmons
Robert T. Solis
Alan William Stone

1966

Patricia Bazemore
Robert P. Bazemore
Philip Bernstein
James Edward Brown
Eugene Patrick Cassidy
Thoburn Aaron Dadisman
Jr.
Joseph A. Donadio
Robert E. Dragon
Robert N. Frank
Peter D. Gibbons
Jeffrey B. Gluckman
Stanley I. Greenspan
J. McLeod Griffiss
Robert A. Gunn
Henry G. Hanley
Stuart T. Hauser
Jay G. Hayden
Mary Alice Houghton
Richard J. Howard
Gordon R. Kelly
Stuart M. Kotler
Wilbur L. Kukes
David C. Law
Caroline O. McCagg
Robert L. McRoberts
David B. Melchinger
John Stephens Melish
John J. Mooney
Eli H. Newberger
Edward J. O'Keefe
Neil J. Peterson
William D. Peterson
James D. Slavin Jr.
Lawrence J. Toder
Gary L. Townsend
Jon S. Wayland
Joan T. Wayland
Arne S. Youngberg

1967

Daniel L. Arons

Arthur L. Beaudet
Richard S. Bockman
Daniel J. Booser
Gary C. Burget
William T. Cave Jr.
Kenneth F. Crumley
Cynthia Rapp Curry
Marian C. Davidson
James J. Dineen
James M. Dowaliby II
John A. Drews
Peter R. Egbert
Dennis Grant Egnatz
Herbert W. Felsenfeld
Richard J. Hart Jr.
Richard L. Heppner
Peter N. Herbert
George P. Herr
David L. Ingram
Mary Jurbala
Melvyn Korobkin
Anthony P. Lovell
Stephen W. Miller
Joseph L. Morris
Jennifer Robinson Niebyl
John O. Pastore
William E. Perkins
Daniel F. Phillips
Brian F. Rigney
Jonathan L. Savell
Alfred Q. Scheuer
Stephen C. Schimpff
Sidney C. Smith Jr.
Helen L. Smits
Lewis S. Solomon
Robert S. Steinberg
Richard B. Swett
M. David Tilson III
Karen H. Tokar
Robert A. Vogel
Robert A. Vollero
Joseph F. Walter
Martin Wand
Robert J. Winer
Robert S. K. Young
Peter M. Zeman

1968

Julius H. Anderson
Philip L. Barry
Daniel I. Becker
Bernard D. Beitman
Stuart J. Brill*
Donald R. Coustan
Rutledge W. Currie
Robert G. Dillard
Edward M. Drury
Barbara Mayer Egbert
Alan G. Finesilver
Richard A. Getnick
Mark Gilbert Grand
Leonard Grauer
Ralph S. Greco
Kevin N. Hennessey
John R. Hill II
Harry S. Holcomb III

Peter Jokl
William F. Keane
Jeffrey S. Lee
Marc E. Lippman
Peter A. Livingston
Frank E. Lucente
Donald O. Lyman
Stephen I. Marglin
Rodrigo Martinez
John Allen McCutchan
Maria S. McCutchan
David P. Millett
Richard P. Mills
Richard M. Morehead Jr.
John A. Ogden
James W. Ogilvie
Margot Onek
Henry F. Panek
Jackson B.E. Pickett III
Charles T. Post Jr.
Ralph Jerome Rauch
Joseph L. Renda
Gordon H. Sasaki
Jacob J. Schlesinger
Bruce Stuart Schoenberg*
Frederick C. Sherman
Elizabeth M. Short
Howard W. Siegel
Gerald L. Springer
Lee H. Strohl
Edmund C. Tortolani Jr.
James L. Weiss
Per Henrik Wickstrom
Creed W. Wood

1969

Charles S. Angell
David G. Ansel
David W. Barry
Robert E. Belliveau
David A. Berkowitz
Donald H. Buchholz
Bruce W. Burleigh
N. Roger Cooke
Leo M. Cooney Jr.
Richard J. Daly
Michael W. Dennis
Charles A. Dinarello
Douglass T. Domoto
Ralph J. Falkenstein
Gary S. Farnham
Lesley Forman Fishelman
Steven A. Frankel
William H. Frazier
Royal J. Gay
David A. Geer
Sander G. Genser
Robert O. Gordon
Steven M. Herzberg
John Frederick Hiatt
Larry C. Horowitz
Thomas C. Howard
Lee M. Jampol
Joel Mark Kaufman
Lynn G. Lagerquist Jr.
Michael R. Liebowitz

Elliot M. Livstone
Robert L. Marier
Arnold F. Mazur
Ellen B. Milstone
Thomas F. Minehan
Bruce K. Nagle
Lionel M. Nelson
Nancy Olmsted
Timothy A. Pedley
Deborah A. Putnam
N. Burgess Record Jr.
Joseph D. Robinson
Joseph M. Rochford
Dennis J. Rudzinski
Lutz H. Schlicke
Adrian M. Schnall
David J. Schulak
Gerald J. Smallberg
David L. Upton
Robert J. Walat

1970

Elissa B. Arons
Gregory W. Bartha
John W. Blanton Jr.
Richard A. Charlat
Henry Chessin
Michael J. Chusid
C. Norman Coleman
James E. De Lano Jr.
Daniel Frizell Dedrick
Margaret W. DeLano
W. Montague Downs
Jonathan Ecker
Robert Alan Epstein
Bruce A. Fabric
Steven L. Fish
Robert D. Gilbert
Thomas H. Gouge
Paul C. Hessler
Jay H. Hoofnagle
Jonathan D. Katz
Kenneth A. Khoury
Ely A. Kirschner
Thomas L. Lewis
Anne W. Lucky
Jay W. Marks
William K. Mueller
James J. O'Donnell
Lynn Whisnant Reiser
Bruce A. Reitz
Robert M. Rosa
Dennis E. Shield
Stuart S. Shorr
Richard A. St. Onge
Robert S. Stern
Ray W. Tripp III
C. Bruce Wenger
Daniel Wuensch
Marc O. Yoshizumi

1971

Judith L. Bader
Laurie J. Bleicher
Bruce Block
Marian H. Block

Willard Cates Jr.
John L. Cieply
Frederick L. Cohn
Edward C. Cottle
Robert B. Diasio
John S. Ebersole
Leonard I. Eisenfeld
Thomas Etkin
Daniel E. Feldman
Harvey Fernbach
Fred Finkelman
Peggy A. Finston
John W. Foster Jr.
Michael C. Gallant
Jared J. Gardner
Richard Gloor
Allan W. Graham
Jerold Alan Haber
William W. Hay Jr.
N. Timothy Jette
Geoffrey P. Kane
Richard E. Kaufman
Robert M. Kessler
Barbara K. Kinder
Michael E. Klein
William L. Krinsky
Gary M. Lande
David H. Lippman
Sten B. Lofgren
Sherry W H Loo
Wallace J. Matthews Jr.
Patrick T. Miniham
Steven H. Moffic
Richard Albert Moggio
Martin Paris
Robert Park
John A. Patti
Barry Bruce Perlman
Stuart B. Phillips
Michael C. Piercey
Anthony V. Proto
Irving G. Raphael
Douglas R. Schmidt
James P. Southwick
Charles J. Sutherland
Daniel R. Synkowski
Richard D. Travers
Semeon G. Tsalbins
Yvonne E. Vaucher
Paul A. Vignola
Robert B. Vranian
Ray C. Walker
Albert Carl Weihl
Jerold C. Woodhead
Burns Woodward
Daniel G. Wright

1972

Robert D. Arbeit
Michael A. Catalano
Michael L. Charney
Alan J. Clark
Leonard H. Cohen
Philip L. Cohen
Gloria Cummings*
Norman M. Dinerman

	1989-1990				1990-1991			
	NUMBER SOLI- CITED	NUMBER CONTRI- BUTED	PERCENT PARTICI- PATION	TOTAL	NUMBER SOLI- CITED	NUMBER CONTRI- BUTED	PERCENT PARTICI- PATION	TOTAL
Alumni	3,735	1,630	44	\$ 607,960	3,735	1,630	44	\$ 607,960
Former House Staff	2,112	221	10	28,932	2,093	207	10	71,366
Parents/ Friends	432	69	16	7,946	432	39	9	10,761
Interest/Miscellaneous	—	—	—	11,337	—	—	—	13,285
TOTAL	6,279	1,920	31	\$ 656,175	6,182	2,287	37	\$695,839

William H. Druckemiller Jr.
 William F. Duke
 M. Felix Freshwater
 Robert B. Geehr
 Robert D. Glassman
 Robert F. Goodman
 Andrew H. Greenhill
 Bruce B. Haak
 Andrew E. Hoover
 Thomas L. Horn
 Vernon H. Humbert Jr.
 Fred Hyde
 Richard J. Inwood
 Anthony H. Jackson
 Jesse B. Jupiter
 Frank M. Kahr
 David L. Kneapler
 Paul A. Lucky
 Harry L. Malech
 Jeffrey S. Menkes
 Jerome H. Meyer
 David B. Moyer Jr.
 John P. O'Grady
 Marc B. Osias
 Peter J. Panzarino Jr.
 John N. Posch
 Louis Reik Jr.
 William L. Risser
 Richard S. Robbins
 David H. Romond
 Philip M. Rothfeld
 Carl D. Sorgen
 Frederick D. Stockwell
 Gary M. Strauss
 Lawrence P. Temkin
 Philip J. Weyman
 Brooke M. Wolf
 John D. Wright Jr.
 Michael W. Yogman
 Steven M. Zeldis

1973

David A. Adler
 David Nelson Bailey
 Mary Ann Brunstetter-Shafer
 James N. Campbell
 Marvin M. Chassin
 George B. Colson
 Joseph M. Connors
 David L. Coulter
 Carolyn G. Dedrick
 Christopher M. Doran
 Jane H. Ferguson
 Richard J. Fingerroth
 Robert A. Florin
 Lee Goldman
 Frederick M. Henretig
 Howard S. Honig
 Andrew G. Kadar
 Michael S. Kramer
 Lynne M. Liptay
 George Lister Jr.
 Douglas E. Mattox
 John F. McQuade, III
 Jerry Nagler
 John Frederick Neil*
 Claes M. Nilsson
 David E. Peach
 David Pickar
 Robert Joseph Polackwich*
 Charles F. Reynolds III
 James S. Robertson
 Thomas J. Romano
 Harry S. Romanowitz
 Jerrold F. Rosenbaum
 John P. Sherck
 Joseph F. Simeone
 Robert A. Sirota
 John R. Stratton
 Charles F. Stroebel
 James F. Sullivan
 Robert J. Ursano

Christine A. Walsh
 Richard S.K. Young

1974

Stephen B. Arnold
 Irving M. Asher
 Leonard I. Banco
 Douglas A. Berv
 Neil Blumberg
 Ronald C. Brown
 Peter J. Buchin
 Bert D. Collier Jr.
 Paul David
 Roger H. Emerson Jr.
 Gerald O. Franklin
 Allan B. Friedland
 Michael A. Gerber
 Ary Louis Goldberger
 David Grant
 Robert F. Hempton
 Robert C. Jimerson
 Marie T. Kelly
 Robert M. Kolodner
 Saul Lande
 Olusegun O. Lawoyin
 Edward L. Marut
 James R. McMonagle
 Daniel A. Moros
 Ronald D. Neumann
 Jerome B. Orlin
 Richard C. Pasternak
 Andrew L. Ries
 David Z. Ritvo
 Daniel I. Rosenthal
 Amy S. Schechter
 Robert J. Schechter
 Frederick S. Shessel
 Alan B. Silken
 James A. Strom
 George H. Talbot
 Carol C. Teitz
 Edward M. Wolin

1975

Donald S. Baim
 Robert M. Bell
 Ralph E. Binder
 Sharon L. Bonney
 William S. Bush
 Rodney J. Butch
 Brendan Clifford
 Stanley W. Gale
 Lana L. Holstein
 Carol L. Kandall
 Kevin Kane
 Bernhard H. Lisker*
 Richard J. Loewenstein
 Yvonne E. Lomax Burnett
 David A. London
 Mary Jane Minkin
 Robert G. Nankin
 Andrew B. Newman
 Edwin G. Olson
 George J. Pardos
 Mary Lake Polan
 Stirling M. Puck
 Vivian Reznik
 Philip J. Rich
 Salvatore V. Romano Jr.
 Fred P. Rosenfelt
 Steven A. Schwartz
 Barbara J. Stoll
 David J. Taylor
 Richard L. Wagner
 Mark F. Wheeler
 David W. Wiltse
 Douglas R. Zusman

1976

Sarah S. Auchincloss
 Alfredo L. Axtmayer
 John C. Bartlett
 William G. Bithoney
 Peter B. Bitterman

Alan B. Bloch
 Helen Y.Y. Chang
 Pauline Y. Chao
 Richard S. Childs Jr.
 Ellen C. Cooper
 Vincent C. Dicola
 Kenneth J. Dobuler
 Gary S. Dorfman
 Thaddeus P. Dryja Jr.
 John A. Eleftheriades
 Leonard Firestone
 Dennis M. Fisher
 Ira H. Gewolb
 Rose Hannah Goldman
 Glenn A. Gorlitsky
 Joel Kabak
 Richard D. Kayne
 Norman V. Kohn
 Richard E. Kremer
 William J. Lederer
 William K. Levy
 Sidney Mandelbaum
 Cynthia F. Mann
 Douglas G. Mann
 Jon S. Morrow
 Richard L. Neubauer
 O'dell M. Owens
 Daniel W. Rahn
 Paul R. Ramirez
 Mark C. Ruchman
 Susan H.K. Ryu
 Lawrence E. Samelson
 Richard S. Schottenfeld
 John T. Sladky
 Charles R. Swenson
 Jacob E. Tauber

Peter M. Ting
 John C. Wiles
 Jerome B. Zeldis
 Carol M. Ziminski

1977

Michael G. Adelberg
 Phyllis August
 John J. Boronow
 Barbara Jeanne Brin
 Stuart Brian Dubin
 Marybeth Ezaki
 Anne H. Flitcraft
 James A. Fox
 Julia B. Frank
 Barbara K. Gehrett
 Steven R. Hahn
 Robert W. Hand
 Bruce L. Innis
 Howard K. Koh
 David J. Kreis Jr.*
 Margaret S. McKenna
 Robert J. Mitchell
 Alan S. Penziner
 Richard E. Peschel
 Theodore M. Pitts
 Jordan S. Pober, PhD
 Leonard A. Rappaport
 Rachel Z. Ritvo
 Steven J. Scheinman
 Susan Bromberg Schneider
 Ricky M. Schneider
 Simeon A. Schwartz
 Kenneth M. Stallings
 Ronald J. Vender
 Steven L. Warsof

Sharon R. Weinstein
 John E. Whitcomb
 J. Douglas White
 Daniel Wohlgelemler

1978

Thomas T. Amatruda
 Michael J. Anderson
 Patricia Bell
 Joann N. Bodurtha
 Booker T. Bush Jr.
 Duke E. Cameron
 Paul M. Copeland
 James N. Dreyfus
 Emily A. Fine
 Maija G. Freimanis
 Arthur M. Gershkoff
 George M. Golenwsky
 Linda J. Hall
 Jerald D. Hansing
 Jeffrey Neal Hausfeld
 Alexandra N. Helper
 Anne A. Knowlton
 Cynthia S. Kretschmar
 Kendrick E. Lee
 Gertrude Wilkins
 Manchester
 Sanford D. Markowitz
 Jose Luis Martinez
 Robert K. McLellan
 Michael J. Mitchell
 Yvette L. Piovannetti
 Barbara H. Pober
 Seth M. Powsner
 Jeffrey David Roth
 Sally Rudicel



Roy P. Vagelos, M.D., chairman and CEO of Merck and Co., Inc.

Neal D. Ryan
Donald C. Simonson
Timothy J. Swartz
Rebecca A. Taub
Caroline R. Taylor
Marcia J. Wade
John D. Wagner
David L. Wessel
Susan Wong

1979

Nancy Berliner
Guthrie S. Birkhead III
David A. Brenner
J. Kenneth Burkus
Roy D. Carlson
Paul E. Collier
Isabel Cunningham
Jeffrey Neil Dombusch
Norman L. Elliott
John A. Fox
Joel I. Franck
John Jay Gargus, Ph.D.
Phillip M. Gendelman
David E. Golan
Bruce Halperin
Edward C. Halperin
Marc Hellerstein
Jonathan H. Holt
Arthur C. Johnson III
Jeffrey L. Kaine
Leslie Jay Katz
Helen H. Kay
Jonathan Kolitz
Wing-Yin Leong
Michael K. Lindsay
Shirley McCarthy
Timothy W. McKeithan
David E. Ness
Barbara Ann Peters
Jean Rosenthal
Lynn K. Rudich
Gary L. Schaefer
Cynthia Anne Sherman
Jill A. Silverman
Gary Vitale
John T. Woo
Jeffrey Work

1980

David E. Adelberg
Eduardo Alfonso
Seth Leo Alper
Frederick R. Aronson
Alan B. Astrow
David Allen August
Jay M. Baraban
Mark S. Bernhardt
Patricia Church Brown
Daryl F. Browne
Michael W. Champeau
Michael M. Chang
Thomas F. Deering
Barbara G. Fallon
Todd J. Garvin
Marc F. Glickstein
David Jay Goldberg
Gary I. Greenwald
Maria White Greenwald
Jonathan L. Jacobs
Barry M. Kacinski
Theodore W. Marcy
Mary Polly McKinstry
Eric J. Nestler
Mark J. Ratain
Neal L. Rosen*
Steven I. Rosenfeld
Alan E. Schlesinger
Gerri A. Schulman
John A. Selling
Jeffrey N. Siegel
Hillel D. Skoff
Kim R. Swartz
Phillip I. Tarr

Howard W. Telson
Walter H. Williams
Mary Hill Wise
Lawrence H. Young
Raphael Zahler

1981

Adaora A. Adimora
Lisa E. Babitz
Alicia Barela
Sherri L. Brown
Stephen Wilson Burgos
Patricia A. Burke
Chee C. Chow
Christine M. Duranceau, Ph.D.
Paula M. Fracasso
Ramona Q. Fung
Robert L. Galli
Laurie J. Gordon
Stewart G. Greisman
Neil D. Gross
Jeffrey A. Gruskay
Stephen R. Harrison
Scott A. Hundahl
Donald Ingber, Ph.D.
Thomas Klevan
Brian K. Kobilka
Elliot Lach
Aiziz Laurent
David E. Lebowitz
Bernard Lewin
Barton N. Milestone
Robert M. Milstein
Richard L. Mogerman
David A. Paly
Robert B. Portney
Susan Burdette Radoux
Barbara A. Roach
Dovelet Shashoua
Martin H. Teicher
Anthony M. Urbano
Alan B. Wagshal
John C. Wong
Frank E. Yeomans Jr.

1982

Sylvia R. Beck
Cathleen R. Belden
Paula K. Braverman
Thomas J. Brennan
David Goldstein
Jed B. Gorlin
Jessica Herzstein
Kenneth M. Huttner
Henry Jampel
Laurie B. Kornreich Katz
Michael E. Katz
Patricia Kellner
Kathleen Anne Nolan
Joyce A. O'Shaughnessy
Christopher N. Otis
Robert Pierattini
Carrie A. Redlich
Steven D. Resnick
Robert J. Rizzo
Christopher W. Roberts
Paula C. Schlesinger
Cary S. Sennett
William M. Sikov
Yuen Tat So
Don L. Stromquist
Paul E. Sylvan
Lynn T. Tanoue
Patrick Toth
Albert L. Ungricht
David A. White
Stephanie Wolf-Rosenblum
Sandra L. Wolin
Jon P. Younger

1983

John Taylor Adams*
Robert E. Bookstein

Michael Brines
Elena Citkowitz
Nancy Kraemer Crocker
Nancy Czarkowski
Anil Mohan DeSilva
James S. Grober
Tammy C. Harris
William Kadish
Robert M. Kotloff
Ana Maria Lamas
David Lindgren
Laurie Margolies
Edouard R. Martin
Miguel A. Martinez
David P. Norton
Dan A. Oren
Victor M. Perez
Augusta S. Roth
Moshe Rubin
Daniel Paul Sabbeth
Daniel M. Sosin
Philip M. Spiro
Kenichi Takeshita
Barbara E. Tardiff
Abby S. Van Voorhees
Pamela Leslie Zeitlin

1984

Martha Ray Arden
Robert W. Arnold
John F. Babich
Leonard Bell
Jessica Berman
Barbara Ann Coda
Leon Eisikowitz
David J. Fillmore
David A. Frank
Robert John Havlik
Sabra Lynn Jones
Emilio J. Juncosa
Jeffrey N. Katz
Michel Klot
Daniel M. Kolansky
Jay R. Kostman
John H. Krystal
John Gerhart Lane
James G. Linakis
Dominic D. Pennachio
Jill S. Ratain
Ronnie G. Rosenberg
Paul B. Rothman
Joshua D. Schor
David A. Shrier
Michael Simons
Paul M. Snyder
Mark Stein
Susan P. Tredwell

1985

Jaime I. Arroyo
Barry D. Bergquist
Jane E. Carter
Calixto E. Dimas
Guy Fried
William D. Gaillard
Richard Bruce Garber
Samuel D. Goos
Marie Hobart
Stuart Neal Isaacs
Susan Korrick
Shirley J. Lee
Ted W. Love
Jeffrey A. Lowell
Anthony Marks
John Jerome Merendino
Robert D. Needlman
Thomas Newton
Leslye C. Pennypacker
Anne Regenstien
Ellen C. Rieur
Maria Suzette Rivera-Mac-Murray
Greg A. Sachs
Fred Santoro

Gary L. Shapira
Timothy Alan Shapiro
Louis J. Tesoro
Kimball Woodward
1985 Classmates*

1986

Catharine Ann Arnold
David Atkins
W. Lee Bailey
Eric F. Bernstein
Cristina M. Brunet
Suzanne D. Conzen
Ian A. Cook
John A. Detre
Amanda B. Dill
Gerard M. Doherty
Daniel S. Fierer
Jay Gates
Michael Grossbard
Gary Hirshfield
Jeremy L. Holtzman
Jay D. Kranzler
Roberto Lewis-Fernandez
Julia Whiteside Michel
Matthew R. Moore
Steven Waisbren
John J. Wysolmerski

1987

Andrew Bazos
Ellen Dolnansky
David M. Fujii
John Michael Gaziano
Laurence Adam Greenbaum
Marian Lee Greenburg
Glenn A. Healey
Hugh C. Hemmings Jr.
Peter T. Ho
Amy Caroline Justice
Rebecca E. Kadish
John F. Keaney Jr.
Joseph Thomas King Jr.
Christopher King
Susan Deborah Kruger
Elliott Levy
John Harlan Meyer
Nancy D. Olson
Patricia M. Powell
Lauri R. Robertson
Seth A. Rosenthal
Patrick A. Ruwe
Mindy G. Schuster
Michael H. Solon
Lynn Street
Richard P. Tierney
Robert C. Urban Jr.
Pradeep Kumar Varma
Leslie Vogel
David H. Weingold
Barry Weinstock
Mark D. Widmann
1987 Classmates*

1988

Kenneth A. Andreoni
Joi Barrett
Susan J. Baserga
John Pieter Belzer
K. Lisa Cairns
Kathleen Carney-Godley
David P. Chelmow
Robert W. Doms Jr.
Joshua E. Freedman
Dean Kedes
Lisa Conrad Larkin
Frederick Long
Michael E. Mahig
Lance Arlen Markbreiter
Peter Alexander Merkel
Theodore Miclau
Michael Emeric Mockovak
Jacqueline G. Pachon

Donna Richman
Michael A. Rothschild
Mitchell J. Sklar
Walter Michael Stadler
Philip Adam Stull
Brent Watson Tatum
Susan Valley

1989

Stephen Bharucha
Maura Jo Brennan
Don H. Chin
David M. Cromwell
William S. Curtis
Alexandra Flather-Morgan
James M. Ford
Susan Garetz
Anita Goodrich
Adam L. Greene
Joni H. Hansson
Kraig E. Humbaugh
Howard Kesselman
Lawrence R. Kleinberg
Zachary Klett
Gregory M. Koshkarian
Marc Levesque
Robert L. Levin
Lewis Lipsey
H. Michael Morris
Lisa Ragen
Viviann Mattson Rubin
Virginia Jordan Sink
Stephen M. Smith
David M. Stier
Andrew Thomas Walker
Dora-Linda Wang
John Thomas Whalen
Roger F. Widmann
Darryl S. Wong

1990

Susan G. Anderson
Nancy R. Angoff
Ercem S. Atillasoy
Thomas J. Christopher
Mark A. Dettelbach
Ronald Ennis
Jonathan Todd Foster
Douglas Marc Freedman
Joanna Mara Girard
Alan Sander Hilibrand
Betty Shin Wun Kim
Kathleen Alexia Kline
Toshiko F. Magnus
Ira Meisels
Erika H. Newton
Jack Parent
Jane E. Rasmussen
Chander N. Samy
Susie K. Sharpe
Neil A. Solomon
James H. Stein
Daniel Stryer
Marko Yakovlevitch
1990 Classmates

FORMER HOUSE OFFICERS

Phillip R. Aaron
William R. Adams
N. Erick Albert
John L. Albrigo
Arthur Ames
William F. Arndt
John P. Arot
John M. Aversa
Adel H. Ayoub
Arnold M. Baskin
Richard Bass
Carl Bennett Bean
Gerald A. Belkin
Norberto A. Belleza
Gregory Kent Bergey
Ralph Daniel Bien

Richard A. Blasband
 Gary Bloomgarden
 Malcolm B. Bowers Jr.
 Christine Brahney
 Ronald W. Braun
 David Braun
 John K. Burkus
 Dennis J. Card
 Claudia Thomas Carty
 Richard S. Casden
 J. Richard Casuccio
 Whei C. Chang
 Richard Allen Chase
 Ryszard Chetkowski
 Chang Song Choi
 Michael Chun
 Ian M. Cohen
 Burton H. Cohen
 David L. Copen
 Leandro Cordero
 Susan Covey
 Sidney L. Cramer
 Robert E. Crootof
 Michael Martin Deren
 Alexander Deutsch
 Philip Sheridan Dickey
 Daniel M. Divack
 Donald S. Dock
 June F. Donnelly
 John I. Dorfman
 William R. Drucker
 Paul Duray
 Stephen A. Edelstein
 David E. Eibling
 Malcolm Mitchell Ellison
 Walter Eitzinger
 Robert A. Feldman
 Jeffrey C. Fernyhough
 Louis B. Fierman
 Richard Webster Finner
 Stephen V. Flagg
 Morris A. Flaum
 Bruce T. Fletcher
 John V. Forrest
 Julia B. Frank
 Daniel J. Friedenson
 Josephine Fuhrmann
 Norman H. Gahn
 Phillip H. Gates*
 David M. Gershenson
 V. Philip Glassman
 Barry Goldberg
 Neal Benjamin Goldberg
 Joel S. Golden
 John W. Goldkrand
 Isaac Goodrich
 Richard Reed Gramse
 Willard F. Greenwald
 Mary Gregg
 Gordon W. Grundy
 Joseph Guaraldo
 Kenneth Gwartz
 Hedda Ann Litowitz
 Ilanig
 Ray V. Haning Jr.
 Richard B. Harvey
 Mary M. Herman
 Karen Hermansen
 Philip D. Herrick
 Douglas P. Hobson
 Robert J. Holmes
 Gregory L. Holmes
 David Smith Hubbell
 Eric A. Hyson
 Robert M. Johnston
 Clifford Joseph
 Juliana Haeng-Cha Kang
 Neil B. Kappelman
 Jill P. Karpel
 Edward Kent
 Stephen King
 Samuel C. Klagshrun
 Arthur H. Knowlton
 Alexander Sandor Koleszar

Thomas J. Koontz
 Boonsri Kosarussavadi
 Eugene Kuchner
 Joel C. Labow
 Sheri J. Lagin
 Pritchard T.C. Lam
 Emmanuel Landau
 Robert Jan Lerer
 Vincent Leung
 Douglas M. Levin
 Arthur L. Levy
 John D. Lewis
 Luke K. Licalzi
 Deborah Lightner
 Walter S. Lockhart
 Dean Lohse
 Kim Margolin
 Stephen Mariani
 Frank Masino
 Richard J. Maunder
 Robert McDonnell
 John P. McGovern
 Janet Meegan
 Thalia Mesologites
 William Metcalf
 John H. Monroe
 Yasmeen A. Moody
 Patrick E. Moriarty
 Sheila M. Moriber Katz
 Lewis B. Morrow
 John Moses
 Hirotugu Munechika
 Seymour Cy Nash
 Ethel H. O'Brien
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I am pleased to acknowledge a \$300,000 donation (over three years) to the department of epidemiology and public health (EPH) from Samuel S. Herman, M.P.H. '48, Ph.D. '50 and his wife, Liselotte.

Born in Boston, Mass., Dr. Herman attended Harvard College, where he received his A.B. degree. He then came to study at Yale's department of public health, where he earned M.P.H. and Ph.D. degrees. After graduating, Dr. Herman joined the National Institutes of Health in Bethesda, where he established research training and fellowship programs for the Eye Institute and the Environmental Health Sciences Institute. He also served as the deputy director for extramural affairs at the National Cancer Institute.

Dr. Herman left the NIH to join Temple University in Philadelphia as associate vice president for research and graduate studies at the health sciences center, as well as associate dean for research and graduate studies at Temple Medical School. During that time, he directed a congressionally mandated study con-

ducted by the National Research Council for the National Academy of Sciences to determine national needs for biomedical and behavioral research personnel.

Since his retirement from Temple, Dr. Herman has established a consulting practice for education and research organizations. His company specializes in Washington, D.C., representation for these institutions and in biomedical research administration. In this capacity, he serves as a consultant to the Lucille B. Markey Charitable Trust.

The funds from a remainder interest in their home will support EPH faculty research. Besides thanking Sam Herman, I thank those classes that passed the \$1,000 per class goal. This helped us reach 97 percent of our goal for \$140,247 from 654 donors.

Thanks to all of you.

Stephen Skorc, M.P.H. '70
Chairman



Stephen Skorc

Class	Agent(s)	Amount
1948	Samuel S. Herman	\$100,575
1959	Dorothy M. Wilson	2,200
1969	Robert L. Young	2,097
1971	John Bihldorff	1,719
1976	Elaine P. Anderson	1,685
1967	James M. Malloy	1,650
1975	Linda K. Broker	1,568
1970	Susan W. Balter	1,350
1980	Christina P. Quinn	1,320
1978	Ann T. Freedman	1,145
1952	Yolande F. Lyon	1,100
1973	Gary Dean Sax	1,085
1986	Indu B. Ahluwalia	
	Aric T. Wilt	1,085
1977	Dorothy A. Rice	1,050

Raymond W. Leonard
Cecil G. Sheps
Oscar Sussman, D.V.M.

1948

John B. Dibeler
Mary L. Ellis
Joseph Hanford Gerber
Samuel S. Herman, Ph.D.
Dorothy S. Hoffmeyer
Richard E. Johnson
Beatrice H. Kaasch
Dorothea S. LaBelle
Hiram Sibley

1949

Edgar L. Geibel
Eleanor P. Kostant
Hilda H. Kroeger
Christine R. Owre
William B. Parsons
Elizabeth D. Robinton
Matilda Rudnick

1950

Dorothy Reese Bloomfield
Henry G. Brickman*
Ida M. Bucher
Helen P. Cleary
Austin J. Evans
Jerome M. Glassman
Dorothy R. Granoff
Martha P. Jayne
Frances K. Reynolds
Elizabeth M. Scully
Nathan M. Simon

1951

Clarissa E. Boyd
Norton G. Chaucer
Joanne E. Finley
Homer P. Hopkins Jr.,
Ph.D.
Robert L. Johnson
Leonard F. Menczer
Jessie Parkinson Spear
James M. A. Weiss
Walter Wenkert
John J. Zugich

1952

Cahit H. Corbacioglu
Howard Dunphy
Mary O. Gabrielson
Joanna Adele Henry
Malcolm C. Hope
Charles Holway Lawrance
Sidney S. Lee
Helen Kardys Loria
Yolande F. Lyon
Hannah Eileen MacHenry
Jeanne Ellen Paty
Brena B. Wolff

1953

Jeanette Averill
Abraham Cutcher
Laurence K. Rainsford
Milton H. Sisselman
Constance B. Thomas

1954

Ruth M. Taber

1955

Amy L. Cawley
Evelyn S. Farnsworth
Morris London
Mary Mc C. Mogan
Frances R. Ogasawara
Gerald Rosenblatt
Daniel E. Ross

1956

David D. Boyd
Marvin H. Burton
Kathleen H. Howe
John E. Ives
Paul I. Kaufman
John F. Mullett
Julia R. Nole
Alice M. Wagner

1957

Anne Anzola
Janet Beach
William A. Clermont
Edward R. DeLouise
Gaston Jules Deslouches
Sheldon Selig King
Edna May Klutas
Shirley T. Steidel
Paul W. Sternlof
Patricia A. Viscosi

1958

Eduardo Anzola
Josephine Blanchett
Edward Bronstein
Helen H. Davenport
Normand E. Girard
Patricia P. Grimaila
E. Field Horine Jr.
Edward H. Noroian
Mary K. Spiker

1959

William L. Kissick
Marvin A. Lavenhar, Ph.D.
Lee J. Podolin
John S. Pullman
Ellwyn D. Spiker
Mattie Lee D. Wade

1960

Bruce A. Barron
Gyla E. Brooks
Kathryn L. D'Amico
Wouter Ekker
Maxine Geeslin
Rose A. Iannotta
Katharine Anna Keppel
John J. Kwasnowski
R. John C. Pearson
Hannah Clark Russell
Else Niebuhr Schulze

1961

Gordon R. Beem
Martin Donabedian
Helen M. O'Connell
Margaret P. Parker
Angela M. Russo
William R. Slivka

1962

Thomas A. Blumenthal
Thomas R. Mayhugh

1963

Raul R. Cuadrado
David Dolins
C. DuVe Florey
Edward M. Kenney
Jean M. Maynard
Samuel B. Webb Jr.

1964

Katherine Maria Detre
Neal L. Maslan
Estelle Siker
Monroe W. Spero
Claudewell Sidney Thomas

1965

Robert M. Edwards
Edgar W. Francisco III

James F. Jekel
Michael E. Kove
Peter J. Levin
Charlotte Miller
Francia M. Pagano
Elliot A. Segal
Viola J. Spinelli
David S. Weiner

1966

Allen Cohen
Anne B. Collart
Richard H. Ferraro

1967

Carlos E. Alvarez Herrera
Caroline Fong-Cheng
Ann Gomez
Joel Kavet, Sc.D.
Patricia D. Mail
Charles J. Petrillo Jr.,
Dr.P.H.
Nancy Ruth Phillips, Ph.D.
Brigitte Prusoff*
Bruce J. Steinhardt
Beth M. Whelan
Irma Willner, R.N.
Robert L. Woodward
Peter T. Wotton

1968

Richard W. Ashton
Sonia M. Colon
Joseph L. Dorsey
Elizabeth Schwartz Elliot
Robert R. Everett
Carl R. Fischer
Francis J. Greaney
William D. Harkins
Susan F. Klein
R. Elizabeth Leif
Margaret J. Lindsay
Jean C. MacCorison
Richard L. Petrelli
Arnold R. Saslow
Sheila W. Wellington

1969

Susan S. Addiss
Janet A. Albrecht
Victor Crown
James M. Dawson Jr.
Beryl I. Ford
Sharon A. Garcia
Catherine E. Hanley
Gerald R. Harpel
Sylvia N. Holtzberg
Charles C. Jeffrey
Samuel P. Korper
Marva Serotkin
Wanda Vierthaler
Carolyn K. Wells
Chester W. Zarnoch Jr.

1970

Susan W. Balter
Katherine Benesch
Michael B. Bracken, Ph.D.
Hamilton B. Brown Jr.
Walter M. Gawlak
Robert S. Gureasko
Shirley O. Labrum
Scott W. Lite
C. P. Noel McCarthy
Andrea W. Nevins
Anthony M. Orlando
Peter Orris
William L. Pedersen
Nancy Norton Reitz
Charlotte F. Schwartz

1971

J. David Amundson
John Bihldorff

Evelyn J. Bromet
William F. Carey Jr.
Willard Cates Jr.
Katrina H. Clark
Dale A. Culp
John A. Daeley
Harvey Fernbach
Anne-Marie A. Foltz
Dennis R. Hamilton
Sara P. Hartman
Mohamed Ismail Johnson
William P. Koughan
Mark J. Magenheimer,
M.P.H.
Joan L. Martinez
Eugene S. Mayer
Nancy P. Mogielnicki
William C. Okulicz
Wan Hin Ooi
David A. Osgood
Carol L. Paul
Marcia Russell, Ph.D.
Jane Silver
Walter O. Spitzer
Robert E. Steele
Barbara R. Stolloff
Judith Whitcomb

1973

Emily M. Barclay
Eva Danielsson Cohen
Ellen B. Dofit

1973

Jerone A. Gamble
Marilyn S. Halper
Dennis P. May
George A. Million
Marjorie E. Nelson
Gary Dean Sax
Janet B. Schoenberg
Alice S. Stark
Thomas J. Stranova
Irene Trowell-Harris
Bonnie C. Yankaskas,
Ph.D.
Carl J. Zack

1974

Thomas A. Benoit
Ian B. Berger
Carl A. Cappello
Beth G. Crocker
J. Breckenridge Eagle
Elizabeth M. Helming
Roberta Lawrence
Heather Maycock Ogilvy
Nils R. Richardson
Abigail L. Smith
Myrna M. Weissman,
Ph.D.
Bienvenido G. Yangco

1975

Edith N. Baum
Ralph E. Binder
Linda K. Broker
Ann C. Cunningham
Linda K. Demlo
Jack A. Eiferman
Joyce H. Glazer

Gerard R. Goulet
William J. Grego Jr.
Donna Brown Grossman
Anne H. Hall
Barbara R. Unterman Jones
Philip D. Kennedy
Amy P. Kentera
Kathy S. Keuning
James E. Knoben
Marion Lee
Stuart L. Lefkovich
Hillary Demby Malafronte
Laurence F. McMahon Jr.
Lois S. Michaels
Edward J. O'Neill
Mary W. Palshaw
Dale P. Sandler, Ph.D.
Edward V. Sargent
Audrey Weiner Solomon
Raymond Chiu-Ping Tang
Franziska U. Ulrich

1976

Elaine P. Anderson
William F. Appicelli
Rochelle Arcus-Ting
Cheryl F. Austein
Joanna M. Erikson
Paul H. Etkind
Robert H. Frazier
Wendy Corn Friedman
Annette B. Garofalo
Karen A. Gordon
Robert T. Kauer, Ph.D.
Cleve Lee Killingsworth
Robert A. Knauf
Eric Malz
Robert C. Marquardt
Gino A. Nalli
James B. Rokos
Robert Risdon Schwarz
Mary Jo Shepard
Gladys A. Williams
Thomas S. Wingardner Jr.

1977

Richard B. Burford Jr.
Patrick F. Carone
Steven R. Cohen
Bruce D. Cummings
Annette T. Eichenbaum
Gerard J. Foley
Henry C. Gift
Travis K. Hedrick, Ph.D.
Rhona Kantor Kershner
Teri J. Klein
Thorsten Kruse
Ronald F. LaPensee
Wendy K. Lefkovich
Polly W. Marvin
Harris Pastides
Linda Mendelsohn Pottern
Dorothy A. Rice
Abby Rothschild
Carroll Schilling
Young S. Shin
Gail M. Sullivan
Virginia R. Towle

1978

Vijaya V. Bapat
Kathleen M. Berman
Alan B. Bloch
Robert W. Buckingham
Ann T. Freedman
Janice F. Gold
Cynthia R. Gross
David W. Houck
Jean Crum Jones
Margaret Long Karis
Rosalynd I. Liss
H. James Myers
Marguerite Nelligan
Patricia Lynn Noeker

Peter F. O'Connor
David W. Osborne
Ellen J. Reifler
Ellen D. Rothberg
Irene Schapiro
Karen C. Schneider
Robert E. Schwartz
Alan J. Siniscalchi
Lucy Ellen Weiger

1979

Bruce S. Anderson
Virginia P. Bainbridge
Gertrud S. Berkowitz
Marianne Berwick
Mama P. Borgstrom
Christopher M. Cannon
James F. Consedine II
Susan De Renzo
Elizabeth Feuer
Lynn Fielden-Smith
Judith B. Gancher
Debra Haffner
Karen G. Hellenbrand
Joseph D. Henn-DeMayo
Lucinda H. Hogarty
Geoffrey P. Kane
Loren R. Kantor
Phillip S. Katz, Ph.D.
Karen Kmetzo
Paul Anthony Kowalski
Benjamin Krevsky
Renee S. Leary
Mary Elisabeth Lorenzi
Osvaldo Marrero
Patricia J. Moore-Pastides
Dolores Pertcet
Marcia C. Richardson
Lisa Klar Rosenfeld
George B. Rowland
William E. Schweizer
Ralph Tartaglione Jr.
Elizabeth Tedder
Mary Jane A. Teta
Jane P. Watkins
Louise Wise
Jonas Zucker

1980

Phillip R. Aaron
Gary J. Aboff
Frederick R. Aronson
Diane Denis Aye
Curtis S. Breslin
Antoinette M. Brooke
Richard L. Buck
Gary L. Busack
Martha G. Dale
Alfred E. Fasulo Jr.
Barbara H. Granger
Ellen B. Greif
Irwin J. Halperin

Samuel S. Hamilton
Virginia S. Humphrey
Helen E. Kelly
Yee-Lean Lee
Robert V. Levine
LeRoy F. Ludwig
Kristina Obom Maldarelli
James S. Marks
Steven Morrow
Jane Ungate O'Connor
Ann L. Prestipino
Nancy Maguire Rhodes
Jeri Ann Rose
Norman M. Schlossberger
Lydia A. Selling
Marsha L. Silverman
Benita J. Sticca-O'Colmain
R. Blake Whitaker Jr.
Philip A. Witman
Marie L. Zanotti

1981

Christopher J. Bevan
Harold J. Burdo Jr.
Carlos Ceballos
Patricia J. Checko
Rollin C. Chew
Angelo J. Devita
Alfred P. Dufour
Peggy A. Gallup
Judy E. Garber
Marie F. Gavula
Joan Urquhart Goodman
Diane E. Goren
Gerlinde B. Kehlenbach
Cindy F. Kleiman
Thomas J. Krause
Katherine M. McCormack
Blackford Middleton, M.D.
Marlee D. Mooney
Mary E. Papke
Ellen Gallagher Parsons
Barbara Gaugler
Pennebaker
Elizabeth N. Shapiro
Susan M. Stoecker
Karin Swanson
Keith D. Tait
Kathleen R. Yager

1982

Margarita Acosta
Jamie L. Amaral
Martha Livingston Bruce
Francis L. Crowley
Doris Gordon
Denise Heinemann
Susan Eberle Levy
Linda F. McCaig
William F. McKeon
David L. Mork
Susan G. Rice

Sally R. Rinaldi
Lisa E. Stone
Carol L. Vander Wal
Michele T. Visconti
Sandra Michaelson Warren
Maud Helen White
Alvin C. White
Amy B. Wilson
Jill Okrent Zaheer

1983

Barbara W. Abraham
Dean S. Archibald, M.D.
Mark L. Dembert
Lorraine DeNicola
Eileen McDonald Egan
Susan Faris
James N. Gaito
Ellen M. Ginzler, M.D.
Daniel A. Graybill
Wendy L. McGill
Cynthia M. Meyer
Scott K. Mock
Shinsuke Morio
Judith F. Nelson
Suzanne Nutt
Jeannee Parker-Martin
Barbra G. Rabson
Keith A. Radcliffe
Nano G. Rush
Lynn Marie Sapphire
Paul M. Schur
Elizabeth C.H. Stevenson
Patricia C. Weber
Vicki L. Wilson
Nancy K. Wright

1984

Laura D. Gibowski
Alexandra H. Giraud
Carolyn H. Grantham-Millman
Kim S. Griswold
Penny H. Hausser
Marcia Lipkind Hirsch
Sarah M. Horwitz
Gregory R. Huth
Mehrdad Jalali
Georgia Jennings
Jean G. Larson
Andrea C. McCrensky-Kremer
Grael M. O'Brien, Ph.D.
Mitchell A. Portnoy
Jessica L. Richer
Julie A. Russem
Gerald L. Springer
Marie Ann Tobin

1985

Rene S. Cabral
Katherine Santella

Fitzpatrick
Shirley J. Lee
P. Douglas McConatha
Mara Natkins
Donna Therese Perla
Adrian J. Pinsince
James V. Soscia
Priscilla A. West
Terry Martin Zingman

1986

Clare F. Averbach
Andrea Lee Boissevain
Lewis P. Bower Jr.
Louise M. Brenner
Marijane L. Carey
Katherine H. Ciacco
Reid M. Davis
Joe Tom Easley
Susan Anne Egerter
Nancy E. Fithian
Stephen B. Gruber
Michael S. Huncharek
Roxanne Kapikian
Wendy Lee
Amy June Lippmann
David C. Lowy
Adrienne Marks
Monica Ann O'Neill
Philip O. Renzullo
Denise Amy Riedel
Eric Triffin
Virginia M. Westra
Katherine Burdick Wilson
Lynn D. Wilson
Aric T. Wilt

1987

Hilda C. Chaski
Margaret D. Corbae
Deirdre A. Darsh
Nicolas N. Doan Van
Meg B. Domino
Robin N. Eastman
Jolie H. Fries
Bridgid M. Garrison
Carol Guardiano
Charlotte Hitchcock
Sara A. Holdcroft
Timothy A. Jacobs
Kastytis V. Kaleda
Michael T. Koff Jr.
Catherine A. Leda
Mary Ann Lillie
Peter James Malloy
Barbara J. Moggio
Maureen Brady Moran
Joseph J. Napolitano
Judith Ann Natale Sabino
Pamela Fitzgerald
Pomputius
Anita A. Roth

Michael J. Testa
Joel A. Wasserman
Elizabeth A. White

1988

Barbara Ellen Andrews
Robert Joseph Anthony
Ellen Elizabeth Banach
Elaine P. Berger
Giselle Charlotte Bleecker
Lydia Jeanne Landis
Mark William Legnini
Paul Alan Lindia
Saifuddin Taiyeb Mama
Carrie A. Redlich
Lawrence Vincent Silvia
Brian A. Triplett
Darlene Uten Zimmermann

1989

Judy Gardner Audette
John K. Cantelmo
Daniella Duke
Michael Joseph Gillespie
Eddie Sim Go
Elizabeth Harrison Hadley
Wen Hsiao
Marcella Perez Jones
Clifton Ping Lee
Angela A. Mattie
Joanne Susan Mosca
Deena Beth Myers
Elizabeth Ann Platz
Robert P. Sbriglio
Nipon Serpanich
Joy Misako St. Germain
Sophie Helene Tworkowski
Maureen McBride
Whitehurst

1990

Sylvia Elaine Bailey
Linda V. Bergonzi
Nicholas A. Daniels
Amy Margaret Davis
Cheryl Lynn Fattibene
Mark Steven Lachs
Lucie Langelier-Wilkins
Janet McCann
Angela B. Miller
Jennifer Jennings Miller
Karyn J. Nair
Charles W. Tornatore
Julie Ann Utroska

FACULTY

U. Robert Merikangas
Arthur J. Viseltar*

* Deceased

	1989-1990				1990-1991			
	NUMBER SOLI- CITED	NUMBER CONTRI- BUTORS	PERCENT PARTICI- PATION	TOTAL	NUMBER SOLI- CITED	NUMBER CONTRI- BUTORS	PERCENT PARTICI- PATION	TOTAL
EPH Alumni	2,267	597	26	\$135,523	2,353	654	28	\$140,248
Interest/Miscellaneous	—	—	—	869	—	—	—	940
TOTAL	2,267	597	26	\$136,392	2,353	654	28	\$141,188

EPH Alumni Fund Class Participation

CLASS	AGENT	1989-1990		1990-1991	
		TOTAL	% PART.	TOTAL	% PART.
1941 and prior	Eric Mood	\$ 2,499	62	2,330	62
1942	Eric Mood	525	80	750	60
1943	Eric Mood	301	18	176	30
1944	Eric Mood	226	33	180	3
1945	Stephen Skorcz	125	33	160	42
1946	Stephen Skorcz	75	29	25	14
1947	Stephen Skorcz	145	30	325	37
1948	Samuel Herman	100,885	56	100,575	56
1949	Edgar Geibel	480	35	450	35
1950	Eric Mood	590	43	750	52
1951	Robert Johnson	590	40	595	42
1952	Yolande Lyon	445	33	1,100	44
1953	Milton Sisselman	185	25	195	26
1954	Eric Mood	45	14	25	7
1955	Frances Ogasawara	370	47	340	50
1956	David Boyd	520	42	390	42
1957	Edward DeLouise	520	45	570	50
1958	Philip Hallen	350	22	620	33
1959	Dorothy Wilson	1,250	22	2,200	22
1960	Gyla Brooks	350	39	625	48
1961	Joseph Prekup	425	41	210	5
1962	Thomas Mayhugh	250	20		
1963	David Dolins	650	30	49	32
1964	Estelle Siker	760	36	625	23
1965		725	41	675	34
1966	Allen Cohen	135	23	160	12
1967	James Malloy	1,680	38	1,650	34
1968	Francis Greaney	1,185	36	960	36
1969	Robert Young	1,340	33	2,097	38
1970	Susan Balter	1,235	32	1,350	31
1971	John Bihldorff	1,540	44	1,719	52
1972	Dorothy Lewis	395	21	525	26
1973	Gary Sax	1,330	30	1,085	27
1974A	Thomas Benoit	350	30	390	23
1974B		<u>275</u>	<u>20</u>	<u>450</u>	<u>26</u>
		625	25	840	25
1975	Linda Broker	1,178	27	1,568	35
1976	Elaine Anderson	1,670	30	1,685	31
1977	Dorothy Rice	740	24	1,050	25
1978	Ann Freedman	1,210	24	1,145	26
1979A	Catherine Norton	1,010	34	670	34
1979B	Ralph Tartaglione	<u>560</u>	<u>36</u>	<u>875</u>	<u>43</u>
		1,570	35	1,545	39
1980	Christina Quinn	820	22	1,320	32
1981A	Angelo DeVita	485	21	565	25
1981B	Barbara Pennebaker	<u>255</u>	<u>33</u>	<u>350</u>	<u>43</u>
		740	27	915	34
1982A	Constance Garowey	265	12	255	12
1982B	Jean Milton	<u>470</u>	<u>26</u>	<u>560</u>	<u>35</u>
		735	19	815	24
1983A	Jeffrey Hughes	475	22	315	17
1983B	Marybeth McNerney	<u>245</u>	<u>20</u>	<u>570</u>	<u>43</u>
		720	21	885	30
1984A	Anthony Alberg	235	18	405	22
1984B	Leslie Balch	<u>205</u>	<u>17</u>	<u>330</u>	<u>16</u>
		440	18	735	19
1985A	Joan Cleary	205	13	40	4
1985B	Katherine Fitzpatrick	<u>305</u>	<u>21</u>	<u>233</u>	<u>21</u>
		510	17	273	13
1986A	Indu Ahluwalia	625	25	655	24
1986B	Aric Wilt	<u>510</u>	<u>24</u>	<u>430</u>	<u>28</u>
		1,135	25	1,085	26
1987A	Hilda Chaski	458	15	740	29
1987B	Elizabeth Wennar	<u>300</u>	<u>8</u>	<u>225</u>	<u>10</u>
		758	12	965	20
1988	Joseph Della Puca	425	15	370	14
1989	Joy St. Germain	370	16	455	18
1990	Jennifer Miller			415	12

TRANSITIONS



Harry Bishop

At of his last functions as president and CEO of Yale- New Haven Hospital, C. Thomas Smith (left) attended the June 6 dedication of the Boyer Center for Molecular Medicine. With him are center Director Vincent T. Marchesi and Mr. Smith's successor, Joseph A. Zaccagnino.



Harry Bishop

At the fall meeting of the Association of Yale Alumni in Medicine, Thomas P. Kugelman, M.D.'60, passed the president's gavel to Muriel Wolf, M.D.'59.



James Anderson

Hundreds of friends and colleagues attended a Nov. 16 reception honoring former Dean Leon E. Rosenberg. He is pictured with (from left) Drs. Robert M. Donaldson Jr. and Donald J. Cohen and Dr. Rosenberg's wife, Diane.

CONTINUING MEDICAL EDUCATION AT YALE

- | | | |
|--|---|------------|
| Saturday-Sunday
March 14-21, 1992 | Immunocytochemistry & Cryosections: A Practical Course
<i>Director: Paul Webster, Ph.D.</i>
For academic, governmental and industrial researchers involved in biological and medical research who want to familiarize themselves with all aspects of the ultrastructural immunolocalization of antigens and gain practical experience of cryosectioning. | (A) |
| Friday
March 20, 1992 | Bone Up On Osteoporosis
<i>Director: Karl Insogna, M.D.</i>
A state of the art approach to diagnosis and management of osteoporosis. | (B) |
| Friday-Saturday
April 3-4, 1992 | Advances in Transfusion Medicine and Immunohematology
<i>Director: Edward Snyder, M.D.</i>
Fourth Annual Yale-Harvard Symposium on advances in transfusion medicine and immunohematology. | (C) |
| Friday-Saturday
April 24-25, 1992 | Visiting Lecture Series in Clinical Ophthalmology
<i>Director: David Silverstone, M.D.</i>
<i>Guest Speaker: George Spaeth, M.D.</i>
Glaucoma management in the 1990s. | (D) |
| Friday-Saturday
May 1-2, 1992 | Visiting Lecture Series in Clinical Ophthalmology
<i>Director: David Silverstone, M.D.</i>
<i>Guest Speaker: James Gills, M.D.</i>
Cataract and IOL surgery update. | (E) |
| Wednesday
May 27, 1992 | Fifth Annual Rheumatology Symposium - Lyme Disease
<i>Director: Robert Schoen, M.D.</i>
Will provide a focused update on all aspects of Lyme disease. | (F) |

CIRCLE THE APPROPRIATE LETTER(S) ON THE ATTACHED POSTCARD TO OBTAIN MORE INFORMATION ON CONFERENCES DISCUSSED IN THIS ISSUE. PLEASE BE SURE TO INCLUDE YOUR NAME AND ADDRESS.

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ORANGE, CT 06477

YALE MEDICINE

Alumni Bulletin of the School of Medicine

Spring 1992

麻瘋的五大敵



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瘋可一倘在勿麻不
有敵用一能心行瘋足
五開手數牢日不雖懼

*International Health:
A Sleeping Giant Rouses*

A Tribute to Wilbur G. Downs

1 President's Message

As political changes across the globe continue at an astonishing pace, University President Benno C. Schmidt Jr. outlines Yale's commitment to leadership as a world university.

4



The Gift of Sight: India's Cataract Camps

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International Health: A Sleeping Giant Rouses

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A Renaissance Man in the Developing World

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On the cover: "The Five Foes of Leprosy," circa 1930, Shanghai. This public health poster borrows techniques from Western advertising, including the use of bright colors, and bold graphics and typography. The five foes include: good nutrition, steady habits, exercise, regular bowel movements and avoiding other diseases. (Courtesy Yale University Medical Historical Library.)

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PRESIDENT'S MESSAGE



Michael Murkland

Henry Luce III and Benno C. Schmidt Jr. discuss the site of Henry R. Luce Hall, which will house the Yale University Center for International and Area Studies. The Henry Luce Foundation Inc. donated \$10 million to the project, to be completed in 1994.

by Benno C. Schmidt Jr.

The world continues to change, and those changes pose special challenges and unprecedented opportunities for American educational institutions, particularly those—like Yale—which are “world universities.” Our institutions of higher education face special challenges because they stand at the leading edge of America’s international competitiveness and as a prime example of the benefits of freedom and institutional pluralism. If America is to maintain its global leadership role into the 21st century, the continued excellence and vibrancy of American universities will be an important reason why.

But our universities have a far more important role to play internationally than simply keeping America competitive. Yale, together with a relatively small number of true “world universities,” will help forge both the intellectual alliances and the strategies that will guide leaders in every country and region.

These “world universities” will be characterized by five features. First, they will stand out for their ability to attract the most distinguished students and scholars from all over the world to their undergraduate and postgraduate programs and professional schools. Second, they will demonstrate special ability to send their faculty and students to study, teach and pursue research throughout the world and particularly to assist in the intellectual reconstruction of universities, governments and the private sector in developing and newly democratized countries.

Third, they will treat international studies as a distinct discipline that cuts across traditional academic and professional fields. They will therefore approach international studies from an interdisciplinary perspective, which will encourage not only the comparative study of the languages, arts, culture, history, and contemporary circumstances of all major regions of the world but also of such distinctively global fields as international health care delivery, international human rights, international political economy, international law and the biosphere.

Fourth, the world universities will place high priority on maintaining libraries, art collections, natural history and anthropological collections, and other materials significant to all major regions and international subjects.

Fifth and finally, the world universities will be distinguished by their close and extensive personal and institutional links with students, faculty, alumni, and administrators from the world’s other leading universities and research entities, as well as governments, foundations, corporations, and intergovernmental organizations.

Yale is committed to playing a special role in forging and maintaining such international educational and intellectual networks and is well-positioned to continue playing an essential role in helping to shape responses to the problems and possibilities of the emerging world order.

LETTERS

Harry Bishop



Dr. Martin Gordon reacts to a question posed to a student presenter at the annual Wilbur Downs Overseas Travel Fellowship symposium and poster session, held in November 1991 in the Jane Ellen Hope Building.

Remembering Wilbur Downs

To the editor:

I understand that the Spring 1992 edition of *YALE MEDICINE* will feature international health. No discussion of this topic as it relates to the medical school would be complete without a tribute to Wilbur C. Downs, M.D., founder of the overseas travel fellowship program that bears his name.

Will Downs' commanding presence was immediately felt by all, not by an overbearing nature, but by his carefully chosen statements that flowed freely of wisdom based on experience. His adroit responses to problems posed by both students, faculty and friends were measured, impressively profound and invariably convincing. This characteristic was conveyed by his totally frank, perceptive observations. Those who were fortunate enough to know this giant came to realize that nothing escaped his keen scientific grasp, surprisingly, in spite of the lifetime narcolepsy that never handicapped his intuitive probing.

He became a fascinated student and then master of countless creatures and subjects of nature. The world of Downs stretched from the sea to the skies while he snatched a flying arthropod, an as yet unclassified species, soon to be meticulously labelled, magnified and categorized. A feisty fish was patiently awaited and successfully hooked by a lure of secret concoction, itself springing from a little-known bird, feathers extracted and hung in the basement for years, waiting its turn for the endowed opportunity. This too was of his disposition, the constant defense of delicate ecosystems' balance, expressed by bringing sense to the nonsense of seemingly glorious solutions to water supplies, the diverting of rivers, and glib changes by the "experts," soon to affect the health and way of life of these hungry, native people.

The feeling of being fortunate to be part of this master's class was shared by students as well as colleagues, imbibing the many personal events of a lifetime of adventurous science, a man of extensive reflection on the universal status, warmly discussing a better path to problem-solving. His passion for "learning by doing" became exemplified by developing the

international travel fellowships, which offer the opportunity to study in a scientific endeavor abroad. This fellowship was named for him because of the profound respect for his vigorous planning and intuitive sensing where the prepared mind will solve worthy problems. The synthesis of the best in a kind, consummate scientist and insightful individual seems to be the persona of Will Downs. Chaucer's observation best expressed this:

"He taughte and first he folwed it himselfe..."

*Martin E. Gordon, M.D., '46
New Haven*

Editor's note: *Dr. Gordon, clinical professor of medicine, a long-time supporter of international health at the Yale University School of Medicine, serves on the medical school's committee on international health. For further coverage of Wilbur Downs, see "A Renaissance Man in the Developing World" by Herbert Sacks, M.D., on page 16.*

A Daughter's Tribute

To the editor:

I write in response to the notes on the 50th-year reunion in *YALE MEDICINE* (Fall/Winter 1991-1992). I am David Pecora's daughter, and I'd like to point out that my dad still works "full time." We are grateful for his good health, which has enabled him to pursue his passion for practicing medicine. Up until October when he turned 75, he was taking calls, working on a trauma team, putting in long hours every day, seven days a week. Now he only takes surgical emergency calls.

My only regret is that our "system" does not recognize and allow individuals like my dad, who are gifted, competent, and devoted physicians to continue to practice as long as they can. More and more, recently, he has been under pressure to retire. The impetus for this has not been a concern for him or his patients, but rather an effort to lessen the competition he represents to his younger colleagues, who often are not so well trained and experienced.

Although I cannot speak for my dad, I can say that it is my impression that one of the reasons medicine is not the respected profession it once was, is that too many of its younger members no longer share the value of dedication to the service of their fellow human beings that the older members took for granted. Medicine today has become a business. As I watch my dad's career drawing to a close, I share his sense of loss, because I think we as a society will never know the likes of him and his generation of doctor. I attribute this sad situation, in large part to a lack of willingness of this profession to hold its own members accountable when they are unethical or greedy.

I also want to register my frustration with the waste that occurs when our society does not allow all of its citizens to be productive. My father is a world-class expert on the treatment and cure of tuberculosis. In addition, transtracheal aspiration was developed by him (*New England Journal of Medicine*, 1985, Vol. 71, page 285). At \$35 per procedure, transtracheal aspiration is less expensive, more accurate, and safer than the much more commonly prescribed bronchoscopy that costs thousands of



Dr. Green during a recent trip to Manyara, Tanzania

Emeritus in Name Only

To the editor:

Readers of *YALE MEDICINE* might be interested in learning that one of the medical school's faculty, though emeritus, keeps himself professionally busy in other ways. Most recently, for example, I completed a one-month stint of teaching in Lusaka at the University of Zambia Medical School where I am Professor of Anaesthetics. The 1400-bed University Teaching Hospital is one of two locations at which I have established Overseas Teaching Programs sponsored by the American Society of Anesthesiologists. The other is at the non-sectarian Kilimanjaro Christian Medical Center in Moshi, Tanza-

nia. The programs at both sites are based on volunteer physician teachers recruited from the United States and Canada to teach, one at a time, in these two pre-existing, structured teaching programs for 12 months a year for four years at Lusaka and for three years at Moshi. Working in, with and for these two programs involves a great deal of time in East Africa and an equally great deal of time recruiting back in the States. The ultimate goal is to improve the quality and quantity of medical care in an area where anesthesia personnel are so scarce that only 15 to 20 percent of the amount of surgery that should be done can be done.

*Nicholas M. Greene, M.D.
New Haven*

dollars per procedure, does not always produce a sterile culture, and is potentially dangerous to patients. Yet, on both counts we ignore the timeliness of our heritage.

The world is facing a rise in the incidence of tuberculosis, and everyone is concerned about lowering the costs of health care. Instead of looking at what we already have, we are going to ransom the next generation's well-being in order to reinvent what the last generation already discovered.

*Ann Pecora Diamond
New Haven*

Corrections

In the Fall/Winter 1991-1992 edition of *YALE MEDICINE*, in the caption on page 18, the first name of Brian West, assistant professor of pathology, was misspelled, as was the first name of Jon Morrow, professor and chairman of pathology, on page 23. To correct an error on page 44, Nicholas D'Esopo is M.D. Class of 1936. Our apologies.

YALE MEDICINE welcomes letters from its readers. Letters will be published at the discretion of the editors and may be edited for length, style and content.

THE GIFT OF SIGHT: INDIA'S CATARACT CAMPS

Photos courtesy of Alexander Gaudio



Surgeons operate in a converted classroom in Mangalore, India.

*by Mohandas M. Kini, M.D., Ph.D. '65
and Alexander R. Gaudio, M.D. '63*

World Health Organization (WHO) data from 1987 estimate that worldwide, 35 million people are blind, of which 65 percent live in Asia and 20 percent in Africa. That number is rapidly increasing with the population explosion in developing nations. By far, the leading cause of blindness is cataracts, affecting an estimated 20 million people, most living in rural areas of developing countries.

As to cataract treatment, health professionals bear both good news and bad news. The good news is that, unlike some of the other causes of blindness, cataracts can be surgically treated. Such operations, with or without intra-ocular lens (IOL) implantation, have proven a safe and effective method of restoring vision in those patients who can be accessed. In the United States, with 100,000 ophthalmologists per person, approximately 1 million cataract operations, most involving IOLs, are performed yearly at a cost of \$3 to 4 billion.

The bad news reflects the status of health care in the world at large. Namely, in developing nations such as those of Asia and sub-Saharan Africa, where the per capita annual health expenditure is only a few dollars, high-technology, high-cost

cataract surgery is out of the question. The problem of limited funds is compounded by a lack of supplies and a minuscule ophthalmologist-to-patient ratio.

This makes it imperative that programs intended to assist developing lands be designed with such limitations in mind. Effective approaches provide for a high volume of cataract operations in a short period of time and at a price that the national health care system, private and governmental, can sustain. During each of the past several years one of us (MMK), has volunteered in one such successful system—the cataract camps of India. In 1987, both of us participated in a camp in Mangalore, organized by Professor C.R. Kamath, M.D., chairman of the ophthalmology department at Mangalore's medical school. For both of us, the experience was emotionally and spiritually exhilarating.

The concept of "ambulatory" cataract surgery that is the current norm in the U.S. has been long prevalent in cataract camps in India, dictated by financial exigencies. With limited resources, a population of 850 million and a ratio of one ophthalmologist for every million people, this subcontinent relies heavily on community involvement in its campaign against cataract-related blindness. Local Indian Rotary Clubs and Lions Clubs and a large cadre of community health workers

contribute magnanimously of their time and effort to the camps which offer, at least to some, the hope of sight.

One can liken a cataract camp to a wheel, the ancient symbol of India which is featured prominently on its national flag. Each camp serves as a wheel's hub, connected to several mobile clinics, which are the spokes. These clinics screen patients and channel candidates for cataract surgery to "the center," in our case the city of Mangalore on the beautiful Malabar coast facing the Arabian Sea.

The Malabar coast has been a thriving trading area for 2,000 years, with Arab ships, called *dhow*s, plying the Indian Ocean to carry on the spice trade with the Middle East and Europe. Vasco Da Gama, the Portuguese explorer, discovered the sea route to India five centuries ago and founded the first Portuguese colony on the western coast of India. Jesuit missionaries soon came and established a successful system of education. The Portuguese influence is still evident in the region, as is the influence of Jesuit schools.

Vegetation here is lush and verdant, a result of the monsoons which bring close to 100 inches of rainfall per year. Agriculture and related industries, the mainstays of the economy, provide a greater level of prosperity than is seen in many other parts of India. In fact, Mangalore is known as the cashew nut capital of the world.

In keeping with this city's relative "prosperity," a well-established medical school offers postgraduate residency programs in all major fields, including ophthalmology. We came to the cataract camp in response to an invitation by Dr. Kamath. He and his colleagues apply themselves indefatigably to the planning and successful operation of camps throughout the area. Their enthusiasm and hospitality made our experience all the more memorable.

Mangalore's approach for the past 17 years has been to send teams of ophthalmologists and technicians to surrounding villages to examine patients for eye pathology, especially cataracts. The team's impending arrival is well-publicized; everyone with ocular or visual problems is encouraged to attend the local clinic. Careful scheduling makes it easy for people to attend; clinics are offered twice a year, at times chosen not to conflict with the planting or harvesting seasons.

Since India has a well-established optical industry, inexpensive spectacles are available to patients who need only corrective lenses. For cataract patients, those who are judged healthy enough are scheduled for surgery in the camp. Patients with a history of hypertension, diabetes, anemia or other significant problems are operated on in the hospital proper.

Camps are under the medical supervision of a faculty member from each of the departments of cardiology and anesthesiology. A cataract camp operations manual sets strict guidelines that emphasize service and high quality. In Mangalore, the cataract camp is scheduled during school vacation, so that schools can be temporarily converted into operating theaters and hospital rooms. Some children returning from break sit down to desks that were used as an operating table only a few days before.

Converting a school into an ambulatory surgical unit is a fascinating process that testifies to Indian ingenuity. After appropriate decontamination procedures, the main classroom serves as the operating room, and satellite classrooms provide

each convenient patient "bedrooms," each accommodating approximately 10 patients and 10 relatives. Their shared bed consists of a blanket on the floor. The operating room has four to six operating tables, so that several ophthalmologists can simultaneously perform surgery.

A typical morning of surgery includes approximately 150 operations, mostly for cataracts, but also for dacryocystitis, pterygia, glaucoma and trachoma. Patients are prepared in an anteroom with dilating drops, lid and retrobulbar anesthetic blocks, and a subconjunctival prophylactic antibiotic injection to supplement antibiotic drops administered several times the day before surgery.



From left, Drs. Gaudio, Kamath and Kini.

Drs. Gaudio and Kini: Partners in Humanitarian Service

Alexander R. Gaudio, M.D. '63, and Mohandas M. Kini, M.D. '65, have collaborated on various academic and clinical projects since 1959, when they were research fellows in pharmacology at Yale. They were co-residents in ophthalmology at the Massachusetts Eye and Ear Infirmary in Boston, and subsequently did fellowships in retinal diseases and surgery. Today, Dr. Gaudio practices in Hartford, Dr. Kini in Boston. At the Mangalore School of Medicine in 1987, the authors served as volunteer eye surgeons for the cataract camp and taught postgraduate students and practicing ophthalmologists. As part of their volunteer work, Drs. Gaudio and Kini garnered easily transportable supplies, such as fine sutures, instruments and ophthalmic medicines. Reports Dr. Kini, "Numerous U.S. companies have been extremely generous in the donation of supplies, in particular Alcon Labs of Fort Worth, Texas, and Johnson & Johnson of Princeton, N.J. In addition, our own hospital, the Massachusetts Eye and Ear Infirmary, has been an extraordinarily generous source of valuable supplies over the past 15 years."

Operations consist of an intracapsular cataract extraction (ICCE) performed with the aid of magnifying loupes; illumination is provided by a single bulb suspended from the ceiling. Prohibitive cost precludes intraocular lens implantation and the microscopic surgery taken for granted in the United States.

Paramedical personnel assist in patient traffic, handling supplies and equipment, and recording the operation. Rotary Club and Lions Club volunteers serve as medical aides, bringing patients to and from the operating table. These local civic groups also help patients with transportation, board and lodging for their stay at the camp.

Patients are admitted on a Saturday, have their surgery performed on Sunday, and are discharged by the following weekend. As is the usual custom in developing nations, close relatives often room with patients during their hospital stay, providing emotional support and custodial care. At each cataract camp, approximately 150 patients receive free surgical and post-operative care.

Daily post-operative checkups are done for five to seven days, followed after one month by checks in the rural villages, where spectacles are provided through the generosity of local opticians. Complication rates have been acceptably low. As most of these surgical patients are blind from "white" mature cataracts, they are grateful for the restoration of vision and happily tolerate the aphakic spectacle correction with their attendant magnification and distortion problems—found unbearable by most patients in the U.S.

Geographic Location Can Contribute to Blindness

In contrast to the United States, where cataracts, glaucoma, diabetic retinopathy and age-related maculopathy are chiefly responsible for legal blindness, in the developing world, the major causes of blindness are cataracts and ocular diseases peculiar to geography. These diseases include: onchocerciasis (river blindness), trachoma and xerophthalmia, with the latter two conditions attributable to poor hygiene and poverty. Onchocerciasis, which occurs mostly in West Africa and in small pockets of Central and South America, is treated by oral ivermectin. Vector control is achieved by spraying the breeding sites of the *Simulium* black fly with larvicide. Along with treating trachoma with tetracycline ointment, community-based health education programs emphasize simple hygiene to prevent intrafamily transmission. Xerophthalmia and keratomalacia are caused by vitamin A deficiency, a major cause of measles-associated blindness of Africa. Treatment consists of oral vitamin A capsules, 200,000 IU, for two consecutive days, along with maintenance supplements. Recent studies have also shown that vitamin A supplements increase childhood survival significantly.

While the "hub-and-spoke" system has been effective in channelling patients to the eye camps, much work remains; though the field clinic and cataract camp attract more than 2,000 patients per session, less than 25 percent of those in the area needing cataract operations receive them. Moreover, the modern era of cataract surgery in the villages surrounding Mangalore awaits the availability of low-cost IOL's and cheaper portable microscopes. For now, the overriding hope of Dr. Kamath and his colleagues, which we share, is the attainment of a "cataract-free" zone in Mangalore and its environs.

What makes this hope seem achievable is the extreme cost-effectiveness of the cataract camp system. The total cost per patient, including surgical and post-operative care, amounts to less than \$20 (U.S.), less than 1 percent of the cost in the United States. These expenses are covered by financial support from local and outside philanthropic agencies.

Non-governmental organizations (NGOs) such as Sight Savers (U.K.) and Operation Eye Sight Universal (Canada) have been extremely important supporters of our cataract camp. Other NGOs that are active in blindness prevention programs both in India and throughout the world are Helen Keller International and the International Eye Foundation (U.S.A.), Foresight (Australia), *Christoffel Blindenmission* (Germany), and *Organization pour la prevention de la cecite* (France).

To the credit of U.S. ophthalmologists and ophthalmologists in advanced nations, many are volunteering their services in developing nations at their own expense. The American Academy of Ophthalmology, under the able guidance of President George E. Garcia, M.D., and Executive Secretary Bruce Spivey, M.D., have started a section on international ophthalmology, emphasizing the commitment of organized American ophthalmology to problems in developing nations.

Does this burgeoning international awareness and the success of India's cataract camps offer a realistic hope of eliminating preventable blindness altogether? In countries such as China and India, which have a reasonable number of skilled personnel, the answer is yes.

In sub-Saharan Africa, however, where the health care challenges can best be described as staggering, prospects are not as bright. In sub-Saharan Africa, despite an annual incidence of 500,000 newly blind people, only 50,000 cataract operations are performed each year, leaving an estimated "cataract backlog" of 3 million. Whereas the challenge in China and India is how to distribute manpower, in sub-Saharan Africa the crisis is the lack of manpower. What is more, the rapid spread of HIV infection, along with ocular complications of AIDS, introduces a menacing new factor in providing ophthalmic care in these nations.

To end on a hopeful note, perhaps part of the worldwide peace dividend promised by the end of the Cold War will be directed toward improving health care in the developing world. In the meantime, developing countries will continue to rely on the critical contribution of skilled Western volunteers. There is much to recommend the volunteer experience. Our feelings upon seeing the quiet, tearful smile that comes to a patient's face when the eye patch was removed for a post-operative check were a mixture of exhilaration, our own tearfulness and gratitude to God. The "goose bumps" still appear when we think about it.

YM

INTERNATIONAL HEALTH: A SLEEPING GIANT ROUSES



Robert Liu, M.P.H. '92, a 1991 Downs International Travel Fellow, assists a community health worker in Patan, Nepal.

by Gregory R. Huth, M.P.H. '84

Outside, the plate glass windows of the University Art Gallery lecture hall impassively defied the cold October rain. Inside, warm and dry, several score graduates who had returned for the Association of Yale Alumni's 39th Assembly listened in rapt attention as Gaddis Smith, Ph.D., led a faculty panel discussing Yale's future as an international university.

As Dr. Smith, director of Yale's Center for International and Area Studies, invited questions from the audience, a venerable, tweed-jacketed alumnus rose and asked whether Yale could be considered an international university even today.

"If you're asking if we should be," said Dr. Smith, "my reply is a definite yes. If you're asking 'are we,' the answer is a qualified yes."

Gregory R. Huth is publications editor at the Yale University School of Medicine Office of Public Information.

Although his response rings true for the Yale School of Medicine (YSM) as well, growing efforts at the school promise to help launch the University into international leadership.

Ever since 1834, when medical missionary Peter Parker graduated with his M.D. and M.Div. degrees and trekked to Canton to establish the first Western hospital in China [see "Gallery," page 27], generations of YSM faculty and graduates have produced leaders in international health. Some of these efforts have been the result of University-affiliated programs, such as the Yale-China Association's founding of Chang-Sha Hospital in 1915 by Yale College alumnus Edward Hume, M.D., and Fu-Chen Yen, M.D. '04.

Historically, other Yale contributions in international health have resulted from federal government initiatives, such as YSM's involvement with the Atomic Bomb Casualty Commission, which began ongoing epidemiological studies in Japan at the end of World War II. Individual efforts too have played a role. For example, since his retirement in 1989, Nicholas M. Greene,

M.D., professor emeritus of anesthesiology, has been making regular trips to East Africa to train physicians in his specialty.

This academic year should prove a hallmark, however, for the international efforts of Yale and its medical school as they coordinate their burgeoning—though heretofore disparate—educational and research resources in this field.

On the education front, 1991-1992 is witnessing the third side of what Gaddis Smith calls, the "Yale Triangle" falling into place. Sides one and two, he explains, were created in 1990 with two joint graduate degree programs. The first was in epidemiology and public health (EPH) and international relations; the second, international relations and forestry/environmental studies. This academic year should complete the triangle with expected faculty approval of a joint program in forestry/environmental studies and EPH. Thus, the University will have laid the groundwork for interdisciplinary cooperation in the areas of health, economic development and the ecology.

Building on this foundation, the international relations center, forestry/environmental studies and EPH have received funding from Yale's new Bass Center for Biospheric Studies to form a Center for Human Ecology, Environmental Change and Infectious Diseases. This cooperative venture will focus on Brazil, especially the destruction of its rain forest.

Referring to the three crucial, related areas of development, ecology and human health, Dr. Smith observes, "Through 40 years of the Cold War, policy makers were so obsessed with the military balance that they ignored other aspects of the international political equation. From now on, universities have to train people who know what the real problems are."

From all indications, Yale and its School of Medicine are rapidly moving to assume their share of that responsibility.

The Big Picture

In recent years, YSM's strength in international health has been growing in all three aspects of its mission: research, education and patient care. Research has been particularly strong, with much of it undertaken at the EPH Laboratory (LEPH).

Department Chairman Burton H. Singer, Ph.D., the Ira Vaughan Hiscock Professor of Public Health and Statistics, has brought to bear his own extensive research experience abroad—particularly in South America—as he shapes and expands the department's international role. As chair of the Steering Committee on Social and Economic Research for the World Health Organization (WHO) Tropical Disease Research Program, Dr. Singer advocates an interdisciplinary approach. He has led EPH in developing joint degree programs and in forming Yale's new Center for Human Ecology, Environmental Change and Infectious Diseases.

Dr. Singer says, "Countries can still do well economically without destroying the ecology." He adds that it's academia's job "to develop a rigorous scientific basis for land-use and health policies in partnership with developing countries."

Dr. Singer is continuing a three decade-old tradition of leadership in international health at EPH which began in 1964, when Wilbur Downs, M.D., and his research team moved to the department from the Rockefeller Foundation. They came to found the Yale Arbovirus Research Unit (YARU). The Rockefeller Foundation, along with the National Institutes of

Harry Bishop



Curtis Patton, Ph.D.

Health and other donors, funded construction of the nine-story EPH Laboratory, which included space for YARU. For years, the Rockefeller Foundation also contributed program funds to YARU, which serves as the World Health Organization (WHO) Reference Centre for Arboviruses.

Directed since 1971 by Robert E. Shope, M.D., professor of epidemiology, YARU comprises 10 faculty members and other researchers who study diseases such as leishmaniasis, dengue and encephalitis, which are transmitted by biting insects and ticks. Such diseases affect millions of people and their domestic animals throughout the world.

Scientists from many countries come to study at YARU, furthering their graduate and post-graduate education. Current students come from lands as diverse as Egypt and Australia, Japan and Peru, Thailand and Brazil. Much of the basic research the scientists learn to perform relates to the interplay of ecology, economic development and human health.

Take, for instance, the groundbreaking work of Rebeca Rico-Hesse, Ph.D., assistant professor of epidemiology. In December 1990, a colleague from Venezuela presented her with a virus that neither had encountered before. Dr. Rico-Hesse and other YARU researchers confirmed that the virus had never been reported in humans.



Lowell Levin, Ed.D.

Scientists determined that the infectious agent was an arenavirus, and named it *Guanarito*, after the town near which it was discovered. The disease the virus caused was named Venezuelan hemorrhagic fever, because it is related to Argentine and Bolivian hemorrhagic fevers.

How does the appearance of *Guanarito* virus in humans relate to the ecology? Dr. Rico-Hesse notes that the disease has arisen in "an area where settlers have been clearing the rain forest for the sake of raising corn and other cash crops."

Dr. Rico-Hesse's studies have led her to conclude that clearing the forest displaced hoards of rats, which moved into the human dwellings that were built on the new cane plantations. Rats carry the virus and shed it in their urine. Sometimes the rodents come in contact with food stored on open bins; simply sweeping a floor tainted by dried rat urine can aerosolize the virus and expose humans to it.

Dr. Rico-Hesse and her YARU colleagues have recently received grants from the National Institutes of Health and the Pan American Health Organization to identify the species of rodent that carries the *Guanarito* virus. The scientists want to determine ways to control the rats or at least to limit human contact with them.

Another YARU researcher, Robert B. Tesh, M.D., professor of epidemiology, explains how cutting down the rain forest in tropical areas of South America has brought about malaria epidemics. "*Anopheles darlingi*, the species of mosquito that carries *Falciparum* malaria, requires open pools of water in which to breed. Clearing the rain forest and its dense canopy increases the number of unshaded pools. This offers new breeding areas for the insects," says Dr. Tesh, even as the number of non-immune human targets in the area increases dramatically with new settlements.

For years, Dr. Tesh has been conducting research on another tiny insect that wreaks major havoc in tropical and subtropical areas—the sand fly. Sand flies spread viral diseases, such as sand fly fever and parasitic diseases, such as leishmaniasis. The latter disease appears in several forms. In cutaneous and mucocutaneous leishmaniasis, the disease can cause severely disfiguring lesions on the nose, mouth and in other mucous membranes. Visceral forms can cause severe anemia and other symptoms which can be fatal.

Dr. Tesh's research into sand fly-borne diseases has taken him to Venezuela, Brazil, other nations in South America and the Middle East. A leishmaniasis study that he has undertaken in Colombia since 1984 has revealed a new organism, *Leishmania colombiense*, which causes a kind of cutaneous leishmaniasis in northern South America. His current work also is focused on how to control the sand fly vector.

A Neglected Branch of Medicine

As a carrier of parasitic as well as viral diseases, sand flies also command the attention of a second major YSM basic research group, the MacArthur Center for Molecular Parasitology, directed by Frank F. Richards, M.D., professor of medicine. Part of the department of internal medicine, the center includes 44 faculty and other researchers who have appointments in various departments, ranging from medicine to EPH, chemistry, pediatrics, and molecular biophysics and biochemistry.

Dr. Richards explains that the center's name comes from the John T. and Catherine D. MacArthur Foundation, which provided start-up funds eight years ago. While the foundation offers continuing financial support under a 10-year agreement, today, major funding comes from the National Institutes of Health, for which the center serves as one of two Tropical Disease Research Units in the United States. The MacArthur Center is one of the largest of a worldwide consortium of 10 research centers on the biology of parasitic diseases.

Dr. Richards observes that while most tropical diseases occur in less-developed countries, most medical research is conducted on the diseases of the First World. Dr. Richards sees hope, however, in research centers such as the MacArthur, which are applying new techniques to solve biological mysteries at the cellular and molecular levels.

Having thrown down the high-technology gauntlet, center scientists must employ every bit of their knowledge and insight to overcome the subtleties of parasitic organisms. Among their most challenging foes are trypanosomes, which are carried by the *tsetse* (which means "fly" in Swahili). These microorganisms, which cause sleeping sickness in man and widespread disease in cattle and other animals, have adapted against host immune responses in an insidious way.

Molecular Parasitology Searches For "Silver Bullet" in RNA Evolution

Researchers applying molecular technology to study such single-celled parasites as *Leishmania* and trypanosomes have produced dramatic results which give scientists hope for discovering new, safer methods of treating parasitic diseases. A key discovery has been the way host organisms have evolved in their use of RNA for protein manufacture, as opposed to parasites, which are lesser evolved.

Explains Dr. Frank F. Richards, director of the MacArthur Center for Molecular Parasitology, "Organisms that live inside larger organisms are often spared the evolutionary pressures to which most living things are exposed. There is no drought, cold or excess heat inside the body. Parasites have, as a consequence, sometimes held onto ancient biological mechanisms since they have not felt the competition to replace them by newer, more efficient mechanisms."

These archaic mechanisms may offer scientists the "Achilles heel" they look for that would allow medications to destroy the invading organisms without harming their hosts. By way of illustration, in the cells of parasites and higher species alike, the formation of proteins—a critical process on which all life is based—takes place in three stages:

- 1) First, DNA is transcribed, or copied, into RNA.
- 2) Next, certain amino acids move along the RNA strand, creating messenger RNA (mRNA). In a process called splicing, the amino acids create an information template, selecting and assembling the genes that the cell will need to make the needed protein.
- 3) Finally, the mRNA template produces the coding information that allows the cell's ribosomes, enzymes and other "biosynthetic machinery" to manufacture the required protein.

Dr. Richards explains that trypanosomes assemble messenger RNA in a different way, using cell machinery that is not present in the host. Some of these organisms make mRNA by stitching together more than one piece of RNA, a process called trans-splicing; others employ "RNA editing," using one piece of RNA to transmit more than one message.

"These differences can be exploited," Dr. Richards says, "by using drugs which affect the parasite cell mechanism, but leave the host unharmed."

Both biologists and disease experts, including some at Yale, have joined in the pursuit of such a therapeutic "silver bullet." Dr. Richards hopes that "it will not be long before the results begin to improve health in the developing countries of the world."

The immune systems of mammals are able to kill off almost all—perhaps more than 99 percent—of the invading trypanosomes by making antibodies to the glycoproteins that serve as an overcoat to each microorganism. Unfortunately for the host animal, the remaining 1 percent of trypanosomes survive by shedding their protective coating, revealing a new, slightly altered protein overcoat. The antibodies custom-made to the old overcoat cannot attack the new one, and while the immune system busies itself manufacturing new antibodies that can destroy the new coat, a window of opportunity opens, providing time for the microorganisms to reproduce.

However, when the immune system finally does produce a set of antibodies to destroy microorganisms with the new overcoat, 1 percent of this generation of trypanosomes survives, and the destructive cycle continues. Trypanosomes can produce up to 1,000 generations of progeny with altered overcoats, more than enough to exhaust the immune system. Without medication, immune exhaustion leads to the death of the host animal.

Alan C. Sartorelli, Ph.D., director of the Yale Comprehensive Cancer Center, and Curtis L. Patton, M.D., professor of epidemiology (microbiology), are two Yale researchers who are leading teams to develop new drugs against trypanosomes.

Explains Dr. Sartorelli, "Trypanosomiasis represents a serious threat to the health of man and domestic animals. We have developed a new class of methylating agents that can cure laboratory mice bearing African trypanosomes. The drug that we have selected for further development, called TSM, is orally active, has a high therapeutic index and is inexpensive to produce. In addition, it has a unique mechanism of action causing differentiation of the parasite to a form which cannot survive in the bloodstream."

Drs. Patton and Sartorelli hope to evaluate the antitrypanosomal efficacy of TSM in African livestock to determine its potential in agricultural use.

EPH's tradition of foreign service goes beyond basic medical and epidemiological research. Since the mid-1940s, for example, EPH lecturer Eric W. Mood, M.P.H. '43, has travelled the globe on behalf of WHO, offering his expertise on environmental health projects. And since November 1989, the Yale-WHO Collaborating Centre for Health Promotion Policy and Research has been providing educational and public health consultations.

Directed by Lowell S. Levin, Ed.D., M.P.H., professor of public health, this WHO centre has played a role in supporting the newly emerging nations of Eastern Europe. As Dr. Levin explains, "WHO asked us to gather data on leading health education programs in the United States for the Czech and Slovak Republic, Hungary, Albania and other countries who were developing new health promotion curricula for their schools."

Dr. Levin and centre associates contacted health educators throughout the United States and asked them to recommend what they thought were America's best programs in the field. He then refined the resulting list and provided descriptive summaries to WHO so that the nations requesting assistance could apply the information in ways that would best suit their own cultures.

WHO also has assigned shorter-term projects to the centre. For instance, within 24 hours of an urgent telephone call from the French Ministry of Health, the centre was able to furnish extensive data about the impact of American anti-smoking regula-

tions. This information helped the French government in their deliberations on anti-smoking legislation.

Hands-on Experience

One cannot discuss the medical school's involvement with international health in any depth without returning to the legacy left by Wilbur Downs. In addition to his role in establishing the Arbovirus Research Unit—in the very construction of LEPH—Dr. Downs' influence continues in the International Health Student Travel Fellowship program named in his honor in 1984.

Dr. Downs began the Committee on International Health in 1966 with a small grant from the Rockefeller Foundation. He served on the committee for the rest of his life, raising funds and building an endowment. More than 233 medical and EPH students have benefited from the travel fellowships, 21 in 1991 alone. Since the late 1970s (except for a brief sabbatical) the committee has been chaired by Dr. Downs' colleague, Curtis

Patton.

As Dr. Patton explains, "Downs fellowships pay for transportation to and from health-related projects, most of them in developing countries, where students assist the permanent staff and gather data for research." Room and board are usually arranged by a Yale or overseas sponsor, in addition to a modest stipend provided by the committee.

Prospective fellows submit proposals for overseas research projects in late winter to the committee. The committee's 24 faculty members evaluate the proposals and award fellowships on merit, based on the amount of funds available for the year. In the autumn following their overseas experience, students present their research in poster sessions; in addition to poster displays, five fellows, whose research represents a cross section of studies undertaken during the year, make oral presentations.

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Student Involvement Grows In International Health

Many international specialists note the similar health challenges facing the people of developing nations and underserved people in the United States—especially low-income minorities—the so-called Third World within our borders. This linkage also is reflected in the makeup of the Task Force on International Health, a new medical student organization at Yale.

The task force is an outgrowth of YSM's Student National Medical Association (SNMA) chapter, an organization of minority students. Currently, the task force is comprised of its chair, Dina Strachan, an African-American; Sylvia Garcia, a Hispanic-American; and Rajen Naidoo, a black South African of Indian descent. All three second-year medical students were 1991 Wilbur Downs fellows.

Ms. Strachan proudly reports that during its first year, the task force has organized a series of four lectures which have been well attended by both students and faculty. Speakers have included experts in international health, tropical medicine and primary care, including H. Jack Geiger, M.D., a professor at City University of New York Medical School, who is renowned for having set up more than 500 community-based health clinics worldwide.

"Our goal for 1992 is to raise \$10,000 so that two or three medical students from developing countries can visit the School of Medicine as part of a clinical exchange program," reports Ms. Strachan.

In recent years, several foreign student exchanges have been arranged through the YSM chapter of Physicians for Social Responsibility. This group has sponsored such exchanges between Yale and medical schools in the Czech and Slovak Republic and other Eastern European lands.



Dina Strachan, M.D. '93, explains her Downs Overseas Travel Fellowship research to Dr. Robert Shope at the 1991 poster session in the Jane Ellen Hope Building.



Drs. Marie-Louise and Kenneth Johnson and friends in front of the Peace Cathedral in Hiroshima, Japan, following a memorial service they attended there in 1966.

Marie-Louise and Kenneth Johnson: 30 Years in International Health

Marie-Louise T. Johnson, M.D.'65, Ph.D.'54, vice president of the Association of Yale Alumni in Medicine, and her husband, Kenneth, M.D., HS '50-'54, are among the YSM alumni/ae who have been leaders in the field of international health.

They began their overseas activities in 1962 as associate professors at the School of Medicine. At that time, the husband-and-wife team travelled to the Bahamas island of Eleuthera, where they helped to establish an ambulatory care facility. In 1963 they implemented a serologic survey of the island's 5,000 inhabitants for the WHO Reference Serum Bank, then directed by noted Yale faculty member, the late John R. Paul, M.D.

In 1964, the Johnsons left New Haven to become the fourth generation of Yale faculty members to work in the department of medicine at the Atomic Bomb Casualty Commission (ABCC) in Hiroshima and Nagasaki, Japan. As ABCC chief of medicine, Kenneth completed several epidemiologic studies on the late effects of radiation in atomic bomb survivors. Marie-Louise, as the first dermatologist assigned to the ABCC, completed the first clinical study on the prevalence of skin conditions in the study population.

In 1968, Kenneth, as director of epidemiologic research at Cornell University, worked with the Jamaica, West Indies, minister of health to establish a primary health care system in central Jamaica. The program eliminated the Kwashiorkor/Marasmus and neonatal tetanus which were endemic among the 17,000 rural residents.

Marie-Louise, then director of dermatology at Bellevue Hospital in New York, helped train Jamaica's first group of community health aides. The Johnsons' continuing interest in international medicine has taken them as consultants to Guam, Micronesia and Ecuador.

Since leaving Japan in 1967, the Johnsons have often returned to ABCC, now the Radiation Effects Research Foundation. In 1990, Marie-Louise made her 25th trip to Japan to consult on a repeat study of skin cancer in atomic bomb survivors.

Today, Marie-Louise Johnson is a clinical professor at the School of Medicine and director of medical education at Benedictine Hospital in Kingston, N.Y. Kenneth is adjunct professor of community medicine at Mount Sinai Medical Center in New York City and senior program consultant with the Robert Wood Johnson Foundation in Princeton, N.J.



Drs. Marie-Louise and Kenneth Johnson

Those who delivered oral presentations at the November 1991 poster session include:

Heather Christian, M.D. '94, Jamaica, three months, sickle-cell anemia (thalassemia). "The aim of my study was to examine patients for hematological and clinical indices in sickle cell-beta thalassemia syndromes," Ms. Christian reports. She searched for subpopulations that may represent different molecular bases.

Annika M. Brown, M.D. '94, Zimbabwe, three months. She gathered information about the attitudes and knowledge on tobacco use in preadolescent children.

Sylvia Garcia, M.D. '94, Venezuela, 10 weeks. Ms. Garcia collected epidemiologic data about the newly discovered strain of hemorrhagic fever virus being studied by YARU.

Christopher J. Gilligan, M.D. '94, Brazil, 10 weeks. This second-year student studied vacuole membrane disruption in host cells infected with *Trypanosoma cruzi*, transmitted by "kissing bugs" which are displaced from the rain forest by human settlements.

Mickey R. and Jay Riggs, both M.D. '92, Southern Africa, 10 weeks. This husband-and-wife team conducted a field evaluation of water quality around Malamulo Hospital, Malawi.

Although other 1991 Downs fellows travelled as far afield as New Guinea, Thailand and India, one student, George R. Bruno, M.D. '94, stayed virtually in Yale's own backyard. Mr. Bruno travelled to St. Kitts in the Virgin Islands to survey the incidence of filovirus infection in a colony of African green monkeys, which are bred there for biomedical research.

Dr. Patton acknowledges that most Downs fellows will not pursue careers in international health. He reminds us, however, that recruiting physicians to overseas service is not the primary purpose of the program.

"Downs fellows learn self-reliance, independent thinking and often must assume great responsibility under extremely challenging conditions," Dr. Patton says.

Thus, the program provides a vital complement to the Yale System of medical education.

A similar educational philosophy underlies the International Health Program (IHP) in the department of internal medicine, co-directed by Drs. Michele Barry, associate professor of medicine, and Frank J. Bia, associate professor of medicine (infectious diseases) and laboratory medicine. Over the past decade, these two faculty members have been establishing sites throughout the Third World and in domestic disadvantaged communities for elective rotations for second- or third-year house officers. Wilbur Downs fellows also conduct research at these sites.

More than 120 residents and faculty have taken part in the program, which offers training sites in Haiti in the West Indies; Tanzania and Zimbabwe in Africa; the Fiji School of Medicine in the South Pacific; and at Zuni and Navajo reservations in the southwestern United States.

Drs. Barry and Bia echo their colleague, Dr. Patton, in pointing out that most residents who do an overseas rotation do not pursue a career in international health. Dr. Barry adds, however, "The program does offer house officers some important new perspectives."

Both doctors say that IHP house officers, like Downs fellows, learn:

- Cost containment in an atmosphere of minimal resources;
- The importance of preventive medicine;
- Humanistic approaches to healing in lieu of high-cost, high-technology treatments;
- Community-based health care;
- Performing physical examinations without the aid of high-technology diagnostic tools. In the words of one recent IHP resident, "It's amazing how much you can learn about a patient just using a stethoscope."

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At the 1991 Downs International Travel Fellowship poster session, Sylvia Garcia, M.D. '94, reports on her epidemiological research into newly discovered Venezuelan hemorrhagic fever.



Foreign Students Bring their Unique Perspective to Medical School, EPH

Students from outside the United States add to the rich mosaic of the medical school and its department of epidemiology and public health. While most of the 16 foreign students at the medical school and 37 foreign students at EPH come from industrialized nations as diverse as Canada, Turkey, Korea and Taiwan, an increasing number come from the developing world, including China, Iran and various countries in Africa.

While some foreign students will succumb to the lure of affluence and high-technology medicine and stay in the United States upon graduation, two students, Rajen Naidoo, M.D. '94, and his brother, Pat, Dr.P.H. '94, are ea-



Rajen Naidoo

ger to return and work in their home country. They are black South Africans with Indian heritage and members of the recently legalized African National Congress (ANC); Pat serves on the ANC's health secretariat.

Last year the brothers returned to South Africa after 10 years of exile. In summer 1991, as a Wilbur Downs fellow, Rajen Naidoo had a glimpse of the challenge that awaits him and his brother upon graduation. His fellowship took him near his hometown of Durban. At the ANC's request, he undertook an epidemiological evaluation of a primary care clinic in a squatter's community.

"Although by and large the clinic functioned effectively," comments Mr. Naidoo, "most of the problems I saw couldn't be solved medically." He cites, for example, inadequate housing and sanitation, and a pit latrine system that polluted the water supply.

Rajen Naidoo sees such conditions as "based in the apartheid system," and foresees no easy or inexpensive solutions to relieving them even as apartheid is phased out in coming years.

Pat Naidoo agrees: "Health care providers in South Africa face the initial task of overcoming the systemic inadequacies of apartheid," he says. Emphasizing the need for international cooperation, he adds, "Developing a non-racial, democratic and equal health care system for South Africa is a challenging task that will require the collective experience of health care systems throughout the world."

Toward that end, the brothers are working with EPH Chairman Burton Singer to coordinate a seminar in developing policies for AIDS and for health care in general for South Africa.

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Just as importantly, Dr. Bia adds, IHP rotations teach "a healthy respect for cultural diversity and the value systems of other cultures." Such awareness is key for physicians who work in urban, tertiary-care hospitals such as Yale-New Haven, where patients come from a variety of backgrounds. That is one of the reasons that YNHH continues paying residents their stipends even while they are away on an IHP rotation.

Drs. Barry and Bia also have brought cross-cultural learning opportunities home for YNHH residents by developing several innovative patient care programs. They include the Southeast Asia Refugee Clinic and the Tropical Medicine and International Traveller's Clinic at the Primary Care Center.

Furthermore, Dr. Barry received funding from the W.K. Kellogg Foundation to train residents in working with the area's homeless population. In this rotation, undertaken with the Hill Health Center, residents help staff a mobile van and work in area soup kitchens.

As Dr. Barry reminds us, referring to New Haven's homeless and underserved people, "It is our moral imperative to care for the Third World that lives in our own backyard."

Still other signs of life in the form of new or planned programs, and even new construction, indicate that Yale's giant of international affairs is rousing indeed. This academic year, EPH plans to debut its international health track, developed by a committee that Dr. Shope chairs. As he explains, "With this program, for the first time, M.P.H. and doctoral students will have a formal curriculum—complete with field experience—to prepare them for an international career."

Meanwhile, at the medical school, Drs. Bia and Barry are hard at work raising the funds that would allow Yale to launch the nation's first physician certification program in tropical diseases and international health. This interdisciplinary program will be jointly administered by the medical school, EPH and the Center for International and Area Studies.

Yale University's contribution—and long-term commitment—to the global village will manifest itself in bricks and mortar as the \$10-million Henry R. Luce Jr. Hall is dedicated in 1994 as the permanent home for the Center for International and Area Studies. The three-story, 30,000-square foot building, to be built between Hillhouse Avenue and Prospect Street, will bring under one roof all of the center's programs and provide space for expansion into the 21st century.

What is the University's stake in the future of international studies? Comments President Benno C. Schmidt Jr.:

The world continues to change, and those changes pose special challenges and unprecedented opportunities for American educational institutions, particularly those—like Yale—which are 'world universities....' Yale is committed to playing a special role in forging and maintaining international educational and intellectual networks and is well-positioned to continue playing an essential role in helping to shape responses to the problems and possibilities of the emerging world order."

YM

1991 LERNER AWARD

a cry for comfort

by Lisa J. Nelson

I am sure that the "guagua" is not good for one's health. Can you say stressful? Tension? Adventure in the most disastrous and diabolical sense of the word. I can't decide which aspect of this transportation system from hell is the most amusing. Is it the unpredictable nature of the *guagua*, whereby it may arrive at any time within a wonderfully specific window of an hour and forty-five minutes followed by at least a 30-minute ride to the closest of sites. Or perhaps my daily 50-minute morning ride to the Medical Center from Isla Verde. That is, if there is no need to change *guaguas*. Out the back of one *guagua* and into the gaping mouth of another (when it arrives, if ever)... oh boy, a whopping two hours, same trip, *dos guaguas*. And burning all the while in the pit of my stomach, pounding in my brain behind my eyes, is the knowledge that this could be a 20-minute trip in traffic at rush hour. But time is not my major worry. No, I could deal with a long trip, especially if it were at all regular. If I took the same *guagua* route on the return trip two days in a row. If there were such a thing as a "direct" or "best" route. If you could go back on any given voyage the same way that you came. But these are still not major worries. Major worries are really fears. Fear for my personal safety on random *guagua* stops where a change may be necessary. Fear that my uncertainty may show on my face followed by conversation with men I'd rather not talk to who make rude sucking noise with their tongues and their teeth that I hear are meant to be some sort of vulgar kiss. Everywhere there is talk of attacks, assaults, whispered warnings from women while waiting. Open mouths that I travel alone. "¡Cuidado! Don't wear any jewelry..." and I don't. A bulky blue plastic watch is all. (A feeble attempt to find order or patterns in arrival times at the *guagua*-stop.) "No gold. A woman, just last week, right around the corner...She was wearing a gold watch." *Guagua* by night is to be avoided at all cost unless it is from one bright spot in front of the apartment building to another, like the Fine Arts Center, with no change of *guagua*. I am almost constantly tense, anxious, frozen in an atypical expressionless and silent state, attempting to be invisible in my Anne Rice novel while keeping a careful eye on the surroundings and my proximity to my destination from a small space on the *guagua* seat. The 25-cent recurring nightmare that does not dispel in immediate relief once a particular episode is over. The tension remains behind the eyes and within the stomach.

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Lisa J. Nelson, a third-year medical student, shared the 1991 Marguerite Rush Lerner Award for creative writing by a medical student for a collection of poetry and prose written in Spanish and English. Her essay "a cry for comfort" is part of that collection.



Gregory R. Huth

Lisa J. Nelson with Aaron B. Lerner, M.D., Ph.D., professor emeritus and senior research scientist in dermatology. In 1981, Dr. Lerner established the creative writing award for medical students in memory of his late wife, Marguerite Rush Lerner.

Lisa J. Nelson, YSM '93: Muse among the Children

During the summer of 1990, Lisa Nelson received a Wilbur G. Downs International Health Travel Fellowship to conduct research in Puerto Rico on the relationship between migration and psychiatric disorders in children. Her essay, "a cry for comfort," illustrates the fears that can be evoked by being a young, single woman alone in foreign land. It is part of a collection of poetry and prose, written in Spanish and English, which Ms. Nelson composed in Puerto Rico. As an undergraduate at Yale College, Ms. Nelson majored in psychology and graduated *magna cum laude* with special distinction in her major. She has worked in projects concerning children and their mental health during both her undergraduate and medical studies. In May 1991, as an American Psychiatric Association mini-fellow, Ms. Nelson attended the APA annual meeting in New Orleans. She is considering a career in child psychiatry.

A RENAISSANCE MAN IN THE DEVELOPING WORLD

Really how life gets on is a secret. You only know your memory and it makes its own time. The real time leads you along and you never know when it happens. The best that can be is come and gone.

E.L. Doctorow, Welcome to Hard Times

by Herbert S. Sacks, M.D., HS '52-'55

The mind of Wilbur George Downs (WGD), relentlessly searching, excited by new challenges and fresh discovery, is very much part of us who loved him, lived with him, worked with him, and learned from him. His professional identity as compassionate physician-researcher was not limited to disease entities but had ramifications in his muted anger at political and socio-economic conditions which denied a person's independence and autonomy. He believed that such conditions bred illiteracy, poverty and disease.

Wil was a complicated, versatile man with extraordinary talents, sensitivities and competencies. A brilliant scientist, his reputation as virologist, entomologist, malariologist, epidemiologist, parasitologist, mammalogist and ornithologist brought him many rewards and outstanding professional honors. He was an outdoorsman, expert competitive marksman with rifle and pistol, saltwater and freshwater fisherman with admirable trout fly tying skills. (For a lyrical story of Wil's last fly-fishing expedition, see "Fishing: Stupendous Vulgarities, Delicate Subjects," by Thomas McGuane, *Esquire*, October 1991, pp. 74-77.)

A superb bookbinder, he was also the consummate bibliophile, reading in French, Spanish and Russian. WGD had an insatiable hunger for books scientific and for fiction with themes and plot locations pertinent to his own peripatetic life experience. And to lift his spirits and the spirits of those around him, he played great guitar.

He was, most of all, a mentor for the young—available, patient and motivating, always communicating his passion for new learning. His elective courses and tutorials have inspired a sizable cohort of young people to pursue careers in international health and tropical medicine. Wil was retired at 60 in 1972, but continued, without compensation, to teach, advise, administer projects and conduct research from his office and laboratory at the Yale Arbovirus Research Unit until he died on Feb. 17, 1991.

The editors of *YALE MEDICINE* asked me to write about Wil's role in developing international health at Yale, emphasizing his African experience. His leadership was not a spontaneous event but flowed from a confluence of early-life events, the powerful connection he had with his chemist father, his relationships with medical school teachers/investigators at Cornell



Photographs by Herbert S. Sacks

Dr. Wilbur Downs with a train porter in Africa in 1976.

and accidental career-shaping events which occurred while living overseas much of his life.

Roots of a Legend

Wil, the boy growing up in Saranac Lake, New York, located snapping turtles by dangling his toes in the mud. Harry Fowler, his high school friend, taught him fly-fishing and the mysteries of nature, lessons that would have a lifelong influence. In high school, WGD was determined to become an entomologist.

Perhaps the reader may want to know Wil, the medical student at Cornell, the Rockefeller Foundation fellow, the Pacific Theater malarial control officer who was awarded the Bronze Star? How about Wil, the Rockefeller Foundation malarial control researcher in Mexico? Who will describe him in Trinidad founding the Trinidad Region Virus Laboratory, isolating 35 new viruses and training many of the important arbovirologists of that era?

Why not explore his move to New Haven in 1963, relocating the Rockefeller Foundation's Virus Laboratory to Yale?

John Fuller's book, *Fever* (New York, Reader's Digest, 1974), depicts Wil as the team catalyst playing a crucial role with fellow scientists in isolating and characterizing the Lassa Fever virus from Nigerian patients. The importance of the dynamics of Wil's family life over the years of remarkable scientific productivity would be an engaging saga in itself.

My relationship with this Renaissance man began in 1965. As a senior psychiatric consultant to the Peace Corps since its inception, and then as policy advisor for the agency's North Africa, Near East and South Asia division, I was recruited by the Yale College five-year B.A. program to develop its selection, orientation, evaluation and assessment components. President Kingman Brewster proposed a radical idea for its time: to send Yale College students to contrasting cultures for a year to engage in a broad range of projects under the aegis of responsible researchers and administrators.

The conflation of my experience brought me to medical school Dean Vernon Lippard to argue for an international health committee whose charge would be to pursue overseas research opportunities for medical students and to monitor international health projects independently contracted by medical school faculty. It was an idea whose time had come; indeed, Wil had beaten me to it! With the support of Bob McCollum, then chairman of the department of epidemiology and public health (EPH), Wil had approached Dean Lippard two weeks earlier. And so a faculty committee was established, including George Silver, Albert Evans, Lowell Levin, Byron Waksman, Dorothy Horstmann and myself.

The early years of the Committee on International Health were full of dedication and frustration as we sought funds under Wil's optimistic chairmanship. The Rockefeller Foundation came through with \$5,000, and later, Wil's private campaign began to generate contributions with medical school matching funds. He ran the committee meetings, encouraging debate in a climate of comity with a readiness to entertain ideas presented by accomplished, strong-willed proponents even when his philosophic reservations were substantive.

In 1971, I was approached by a former Peace Corps administrator who had become director of the West and Central Africa desk of the U.S. Agency for International Development (USAID) of the Department of State. The John F. Kennedy Medical Center in Monrovia, built and sponsored by USAID, needed a long-term training, service and research relationship with a respected American medical school. Dean Fritz Redlich declined the opportunity, concerned that students' intense anti-Vietnam war sentiments—combined with suspect USAID activities in Vietnam and with Latin American dictatorships—might disrupt the medical school's educational mission. The medical school had been narrowly spared in the May Day 1970 campus turmoil following upon our incursion into Cambodia and Laos.

Despite this disappointment, Wil's encouragement sent me across town to attempt to weave together an international proposal incorporating health, law, economics and African studies. The provost aborted this early endeavor, citing President Brewster's reluctance to give his imprimatur to Yale-identified overseas projects. As a result, our later projects were not Yale-sponsored, only Yale-based: The principal

Herbert S. Sacks, M.D.— International Psychiatrist

Dr. Herbert S. Sacks, clinical professor in the Child Study Center and psychiatry, practices child, adolescent and adult psychiatry in Westport, Conn. He began his involvement in international health in 1961, as a senior consultant to the Vermont-based student-exchange program, Experiment in International Living, and to the Peace Corps.

"My long consulting experience in the pediatrics outpatient department was invaluable in Africa," Dr. Sacks says, referring to an United States Aid to International Development assignment in 1974 to research the drought in the Sahel. Working with USAID and host government officials, Dr. Sacks sorted through the maze of international and non-governmental organization projects in his operational sector. He sub-contracted with the psychiatry departments of medical schools in Dakar and Abidjan for studies regarding forced internal migration due to governmental planning. He also arranged studies of the consequences of drought-compelled population movements.

Dr. Sacks adds, "I was a member of the research team, deeply involved in and fascinated by the complex group dynamics associated with work-driven professional colleagues and friends. We were given little relief from one another in an unforgiving culture, separated from family and for the most part possessing limited language facility.

"As a psychiatrist designing research and recasting health policy, in a brief moment I could affect the lives of more people in desperate straits than I could in a therapeutic lifetime in my office."

Dr. Sacks is a trustee of the American Psychiatric Association and serves on its Council for International Affairs.



Dr. Herbert S. Sacks

Gregory R. Huth

investigator was WGD; I was co-investigator. Nonetheless, overseas, we were known as the "Yale Group."

During this era, an increasing number of medical and EPH students were sent abroad on summer travel fellowships. (In fact, more than 250 fellows have been sent overseas during the past 27 years.) Mentors with special expertise reviewed and critiqued student proposals. The selection process was refined, and a brief orientation program was created to address potential health and emotional problems. Reports and papers were submitted upon the fellows' return; in the late fall, formal presentations and poster sessions were given by the fellows based upon their modest research in the developing world. Wil assigned the involved staff work to the tactful and devoted Yale Arbovirus Research Unit administrative assistant, Betty Young.

Crisis in the Sahel

In 1974, my USAID friend called with some urgency, asking that I constitute a health team to visit the Sahel, the sub-Saharan nations besieged by the effects of the cyclical drought emergency. The agency suffered from a limited health presence and questioned the reliability of massive requests from the stricken sub-Saharan nations for medicaments and equipment.

Our team's charge was to provide USAID field representatives in Senegal, Niger, Upper Volta and USAID/Washington with back-up expert assistance. We were to assess general health and nutrition proposals under the Sahel Recovery and Rehabilitation Program and to recommend what measures were needed to assure effective delivery of health, medical and nutrition services. Despite the daunting task of mastering the idiosyncratic health care delivery systems of each nation, primarily based on the French colonial model, our study committed USAID to major actions.

Wil, George Silver and I departed for a month's journey to Senegal, Mali, Mauritania, Niger and Upper Volta with side trips to Abidjan and to the World Health Organization (WHO) in Geneva. The trip was enervating, with hours of interviewing health workers: health-post *infirmiers*, regional hospital doctors and government ministers.

During our 18-hour days, we journeyed to nomadic camps. We consulted with USAID officers and dealt with WHO and the United Nations Children Fund. We exhumed voluminous collections of health and health-related data, collaborated with *Institut Pasteur* researchers, reviewed the efforts of myriad European medical and relief organizations, and conferred with hospital officials and colleagues at the University of Dakar and University of Abidjan faculties of medicine. In our hurried quest for information, we drove through dust storms, coloring our hair and clothing carmine. Splashing through rivers, we worried faintly about schistosomiasis.

Wil was at his physical peak, at 61, an imposing figure over six-feet tall, bearded and handsome. His camera at the ready

to photograph migrant birds, his specimen bottles prepared to collect insects for viral studies, his ever-present notebook in hand, Wil swept through the villages. He felt children's spleens, assessed with dismay the inadequate and expired medicaments in deteriorated and fly-specked health posts; he



Making friends during a 1976 trip to the Sahel.

queried *infirmiers* about their training and then read the entries in the *infirmiers*' registers. In his Danish schoolbag, we had gathered a limited supply of pharmaceuticals to repay the *infirmiers* for their exposure to our questions.

During the long, hot drives across Senegal and Mauritania, Wil would frequently cycle between periods of wakefulness and nodding off. He told us of his long history of narcolepsy, a condition exacerbated by the rocking and pitching of the four-wheel drive vehicle. Later I found him asleep at meetings, only to awaken and make the most salient comments of the group.

During the hours of travel and at mealtime, we often recalled our experiences during World War II. WGD was a marvelous raconteur. Wil and his good friend, Dr. Richard Shope (father of Dr. Robert Shope, director of the Yale Arbovirus Research Unit), convinced the military to send them into Okinawa after the first waves of American soldiers and Marines landed. Wil's interest was to make a quick survey of the anopheline mosquito population. He wanted to make rough estimates of the combat effectiveness of Japanese troops and of the exposure of our own men to malaria. Dick's parallel task was to undertake a snail survey and gather evidence of infection referent to schistosomiasis.

Landing under cover of night, they accomplished their work, and as light came up, they drove their jeep in the direction of the American bridgehead. Their mission, however, would not go without incident: Kamikaze pilots looking for targets of opportunity strafed them as Wil's helmeted head bowed in sleep. This encounter only added to Wil's legend: His narcoleptic nap made him a heroic figure, oblivious to enemy fire!

The intimacy of our drought-emergency journey was repeated a decade later, when a series of projects was undertaken by Yale teams in the West African Sahel. For several of us, these weeks became times of self-revelation. Early life memories came to light, often poignant and predictive of the adult char-



A train station along the route to Bobo-Dioulasso.

acters of the storytellers. Family issues, conflicts and deep concerns emerged, provoked by the disastrous climate of drought, and human and animal death. We were dejected by evidences of rampant parasitic and bacterial disease, by scenes of marasmic children clutching at emaciated mothers with no breast milk and by the thousands of displaced nomadic people without their animal flocks but not without their Toureg dignity and pride. But there were moments of high spirits, as well; I can hear Wil leading us in wonderfully obscene World War II songs as we drove over pot-holed dirt roads to our next destination.

A Human Touch

Wilbur Downs had a great capacity to approach people unthreateningly; his warmth and gentleness let him elicit a wealth of impressions and information. He duly noted the names, addresses and phone numbers of his acquaintances in his journal, which he kept from his days as a school boy. Often these connections became networks, invaluable in dealing with large questions emerging from our scientific projects. New alliances spared us the time and pain inherent in clearing scientific equipment through customs, getting liquid nitrogen aboard a jet, banking (hire a *fonctionnaire* to stand in line for you for three hours), competing in the motor pool for USAID vehicles for field trips, reserving space in hostels, and acquiring camping equipment. Wil's spontaneity crossed social class, occupational and racial boundaries.

An example springs from the pages of my journal, dated Nov. 4, 1976:

WGD and I entrained at Gare Treichville. Chemin de Fer-Abidjan-Ongadongou, with our getting off at Bobo-Dioulasso 796 km. and 18 1/2 hours away. Price—\$42 for compartment with climatisé. The OCCGE, a French West and Central African epidemiologic surveillance organization, possessed 6,000 documents of historic and current importance we were charged to review...

The railroad transects the Ivory Coast from Abidjan's green coastland north to Bobo's Sahel. WGD quietly mused upon the ecological transformations in the region: heavy rain forest, the forest, the guinea savannah (baobab and acacia), then Sahel and desert. This ecological profile on a rainfall gradient would unfold itself through the night. He was fascinated with the changing human disease patterns reflective of the rapid ecological alterations over the 796 km. train route.

The train doesn't roar; it pussycats through the forest, gives a muted bellow as it charges into a short tunnel emerging into darkened Dimbroko Station with a neon RAN sign mounted on a yellow brick wall. Three hundred people crowd the platform. In the throng are Ivorian women toting orange, pineapple and banana baskets, babies astraddle their backs. Chaos took on a semblance of order as second- and third-class carriages filled. From the train platform, many secured seats by thrusting packages, food and chickens through open windows. WGD comes to life, leaps off the train followed by me. "Wil, don't get left behind!" I shout at him. He animatedly speaks to a woman vendor who sells him four small oranges for eight cents. As the conductor urges everyone on board, he is asking questions about cerebral malaria.

As a result of our recommendations from that trip to the Sahel, C-130 Hercules aircraft were dispatched with medications, field hospitals, insecticides and fogging machines. What followed was a continuing, promising relationship with USAID which resulted in the agency supporting other institutional research undertakings and culminating in the Senegal River Pilot Health Research Program of 1976 to 1978. In the next six years, our group became the health sector design team of this massive, integrated development project in the Senegal River Basin.

The project's aim was to construct two dams, one at St. Louis in Senegal and the other at Manantali in Mali; the intended outcome was a series of irrigated agricultural perimeters growing three crops a year on both sides of the Senegal River. The project also was to promote livestock, improve farm-to-market transportation infrastructure, and increase river navigability to Kayes in Mali. The relocation of villages and the retraining of fishermen whose forebears had fished for 700 years were project imperatives. Finally, establishing hydro-

electric power would bring with it light industry and, with careful controls, general improvement of the population's health and nutrition.

The development project was funded by the World Bank, USAID, the European Economic Community, the African Development Bank, and the French and British development agencies. Also included were the host countries, the Saudis (enriched by huge oil price increases), the Germans and Canadian AID. As Wil prudently pointed out, each of the participants had its own national self-interest to pursue, which tempered the declared altruistic motives in assisting this drought-stricken region.

To emphasize the importance of careful health planning, we reported:

The proposed dam and irrigation projects in the Senegal River Basin will produce major ecological changes in the affected regions of Senegal, Mali and Mauritania. Experience with similar water projects in other African countries suggest that the newly created lakes and irrigation systems will quickly become infested with aquatic snails, mosquitoes and black flies. As these vector species become more abundant, the prevalence of the diseases that they transmit (schistosomiasis, malaria, onchocerciasis and certain arthropod-borne viral illness) will also increase. Unless appropriate control measures are instituted, these diseases could easily become the major health problems in the region, inhibiting both agricultural and economic development.

Past Yale studies in the Senegal River Basin indicate the following general pattern of human disease: A high prevalence of malaria, schistosomiasis and onchocerciasis in the upper valley; a somewhat lower prevalence of malaria and schistosomiasis and no onchocerciasis in the lower valley. The proposed water development projects will probably adversely affect this pattern, particularly in the middle and lower portions of the valley.

In 1981, we submitted a major \$6 million, six-year proposal to USAID to help minimize the potential deleterious health effects of the massive dam project. Our plan depended on a huge, multinational investment wherein the United States was to contribute \$53 million. The proposal included an American base in a West African university, medical school or other institution with laboratory facilities and experience in public health, parasitology, medical entomology and virology.

Implicit in our proposal was that Yale would be the preferential bidder based upon our prior achievements under Wilbur Downs' leadership. Had the School of Medicine gained the contract, related research opportunities would have opened to Yale's Law School, and the departments of anthropology, economics and African studies.

After a two-year bureaucratic struggle within USAID, however, deeply held personal and policy differences led the agency to decide upon only minor American participation in the Senegal project. The resignation of a senior USAID officer, the one who conceptualized this grand scheme, ended Yale's decade-long involvement with the agency. This story bears a disturbing footnote: Without the strong health component recommended in the Yale proposal, the dramatic increase in water-borne diseases and illnesses caused by arthropod vectors did accompany the development project, problems that continue today. Ten years after our prediction of a Rift Valley Fever epidemic, in 1987 our worst fears were realized.

Despite this setback, Wilbur Downs continued to consult with international health agencies for the rest of his life. He also worked determinedly at Yale to build the endowment for the Committee on International Health, which funds the Downs International Travel Fellowships. Thus, he continued—and continues today—to enrich the lives of Yale students and improve the health of people in developing nations.

Wil's ongoing influence also is felt personally among those of us who knew him well. On a bookshelf in my study, I recently came across a half-dozen books he had given me. And my "WGD Correspondence" folders bear witness that nary a week passed since 1984 when Wil didn't send me a letter enclosing a clipping from *New Scientist*, *The Guardian*, *Nature* or *Science*, or a copy of a recent letter from his daughter, who cared for Rumanian orphans after Ceascesau's downfall. And, of course, there were the thoughtful critiques of African political evolution which would have health sequelae. Often we'd talk of our frustrations with the American bureaucracy and the lack of political will of health professional in government service to foster international health progress.

Even a year after Wil's death, my dream-life, provoked by this writing assignment, reconstitutes vivid African scenes and fragments of WGD conversations. Such is the strength of character of this extraordinary man for all seasons. His legacy lies not in his glowing scientific achievements alone, but even more in his abiding friendships, his gifted leadership in international health, and his remarkable mentorship of students and young faculty.

YM

Harry Bishop



Members of the Committee on International Health carry on the proud tradition of Dr. Wilbur G. Downs.

EAST MEETS WEST: THE YALE-CHINA BOND



Linda Kantor/Yale-China Association

Fred S. Kantor, M.D., the Paul B. Beeson Professor of Medicine, views a tissue sample with Chinese colleagues.

by Sherwin B. Nuland, M.D. '55, HS '55-'61

It is difficult to escape the conclusion that forces of considerable magnitude will retard efforts by the People's Republic of China to develop a scientifically based system of health care. The single most important obstacle appears to be the belief system of a society that has no tradition of science.

Here I must point out several implicit characteristics in any reasonable description of that often misunderstood concept that we call *science*. The word itself is abstract. Attempts to define it in any absolute sense are fraught with the threat of confusion. If you don't believe that, try looking up science in an unabridged dictionary.

Dr. Sherwin B. Nuland, associate clinical professor of surgery, is a member the Yale-China Association board of trustees and is a 24-year member and former president of the Beamont Medical Club. An earlier version of this article appeared in China Update, a publication of the Yale-China Association.

The science that I have in mind has allowed Western medicine to achieve its present accomplishments. This science relies on the experimental method and inductive reasoning. It implies a certain rigor with which observations are made, verified and interpreted. Such are the foundation stones upon which we have built the extraordinary discoveries of the last 250 years, since the scientific method was first propounded in the 17th century.

Chinese culture is imbued with the concept that sickness is part of an inevitable cycle of nature, against which man is foolish to struggle. It is the old story of the fragile reed that survives by bending with the wind, while the great oak resists and falls. Traditional Chinese medicine is, in fact, the medicine of harmonies. The two cosmic forces of *Yin* and *Yang* form the material basis of all creation, and its soul as well; their interaction determines whether the universe is to be disordered or ordered, whether sickness or health is to be the lot of any individual within it. The two forces generate the five elements of Metal, Wood, Water, Fire and Earth, of which all other

things, including the human organs, are made. Everything is related to everything else, is acted upon by everything else, in ways that are both physical and spiritual.

In such a system, it would be self-defeating to separate natural phenomena into their component elements in order to microinvestigate each contributing factor individually and without prejudgment. The Western scientist divides and then subdivides his studies into ever more scrutable parts, attempting to remove them from outside influences that might change the course of the events he is trying to observe in their pure state. His ultimate purpose is to understand nature so that he may influence it wherever he can, in order to make life better. But it is a fundamental teaching of Chinese thought that such separation is senseless, because it frustrates the very principle upon which nature must be understood, the principle that interdependence, harmony and bowing to nature's inexorable will are the true paths to making life better. The Chinese physician has been taught from childhood that mankind does not influence nature — mankind lives with nature's unrelenting rhythms.

I do not argue that the Western way is right and the Chinese way is wrong, simply that they are different. And so different are they, that a culture imbued with the spirit of one has difficulty, no matter the purity of its motivation, in adapting to the other. Even the modern education of a Western-style program in today's China is affected by the subtle authority of 4,000 years of contemplative philosophy.

Although I had been to the People's Republic before, my first visit to the Hunan Medical University (HMU) took place in March of 1989, three months before the Tiananmen Square uprising. I had reviewed the report of the delegation of Yale professors who travelled to China to renew the Yale-China affiliation in 1980. The report is suffused with their enthusiasm about the possibilities that lay ahead. Although it contains a soberly realistic evaluation of the disabilities of the Chinese system and of some factors that might inhibit development, the prospects for a successful exchange program are excellent. An air of optimism runs through the report like a pleasingly recurrent theme.

Perhaps this optimism reflects the *zeitgeist* that characterized much of American thinking about the People's Republic in that yeasty post-Mao period. Emergence from the stultifying effects of the Cultural Revolution seemed certain to bring about not only a political and economic rapprochement with the West, but also to foster an intellectual openness in which partnerships might thrive in such supposedly culture-independent areas as science and health care.

Comments of delegation members convey their excitement about the proposed joint undertaking, an excitement which, seen with the benefit of hindsight, seems to arise less from real evidence than it did from the hopefulness of that period. The generosity of spirit found in the report mirrors, I will guess, the generosity of spirit with which the delegation was welcomed by its Chinese hosts. The pervading atmosphere of genuine amity so characteristic of relationships developed with Chinese colleagues is frequently an unacknowledged influence in decisions that should be made on more substantive grounds.

One of the most realistic cautionary notes in the 1980 report stresses "the need to develop approaches to science and medicine which stress the orderly collection of facts and the

deductive reasoning process rather than relying in the intuitive reasoning that seems to characterize much of the current [Chinese] medicine." The caveat provides a discriminating insight. The reasoning process by which a Chinese researcher or clinician arrives at his conclusions is often quite at variance with the method used by his Western colleague. This fact, well known to those even slightly familiar with China, is often disregarded, as if ancient patterns could be discarded merely by wishing them away.

The way in which most inhabitants of our planet evaluate the evidence of our five senses is determined by a cultural bias so strongly ingrained that it takes a conscious re-training to change it. What a faculty member of a school like HMU views as proof of a proposition is often independent of what his Western colleague would call rigorous logic. This in itself presents a major obstacle to the development of modern medical science in China. What is more, the all-too-frequent failure of Americans to acknowledge this lack of rigor only adds to the obstruction.

Outside Influences

We have failed to take other matters into account, as well. Among them is the Chinese emphasis on appearances, and on the honors that accrue to seniority. Although the 1980 report refers to "the provision of a period of education for the leaders, but most importantly, the younger members of the Chinese medical establishment", in practice it has been the former, and rarely the latter, who have come to New Haven.

Policy conferences between Americans and representatives of the People's Republic confront a dilemma that has existed ever since China decided that the West has some things that might be of value to its national development. The dilemma concerns not only how to adapt Western concepts to Chinese society, but also how traditional Chinese cultural patterns might benefit from improvements in modern technology, and actually contribute to them as well.

In the past, two great impediments blocked the accomplishment of such a goal. First is the understandable Chinese resistance to the West's historical attitude of "cultural imperialism;" second is its polar opposite, our own equally understandable reluctance to be so forthcoming with Western notions that we risk being accused of cultural imperialism. The mix of old and new apprehensions has resulted in a bit of a stand-off, in which neither side is accomplishing as much as it should. In being overly sensitive to each viewpoint, we may have been too insensitive to the job that both sides acknowledge must be done.

I believe in the universality of psychological responses; to me, cultural differences are only the outer layers of a mental machinery driven by the same subconscious forces in Changsha as in New Haven. Cultural differences, I believe, grow out of choices made by societies at various periods in their history. They should not be allowed to obscure psychological dynamics that are the common heritage of all members of our species. This is a roundabout way of saying that I am convinced, perhaps simplistically, that people are the same everywhere; each of us responds to the same unspoken messages that underlie all verbal communication. On some not-quite conscious level we divine the truth about each other.

During our visit to Beijing on the 1989 trip, John Bryan Starr, president of the Yale-China Association, and I met with Dr. Cao Ziyi, at that time the PRC's vice minister of public health. The meeting had been arranged at my request, because I wanted some sense of the central government's priorities in relation to health and medical education. Cao's office is located in the building in which the deposed Emperor Pu Yi lived after he was forced to leave the Forbidden City. It was the perfect setting in which to discuss transitions.

Cao was at the door to greet us. A short, full-faced, rather wholesome looking man of about 45, he wore a neatly tailored navy-blue business suit. The first thing that struck me about him was the golden smoothness of his skin, a quality that made his face appear to beam when he smiled. I watched those smiles carefully throughout our hour-long discussion. Although in general they appeared in response to something John Starr or I was saying, there seemed to be a deeper source as well. I had a vague perception that our conversation was setting off brief trains of thought in his mind, and his smile was sometimes the result of his own inner musings. He struck me as a person who not only listens, but has the ability to analyze and synthesize what he is hearing as he is hearing it. I felt as though we were in the presence of a man whose power comes from an intimidating ability to out-think everyone around him.

Three other officials attended the meeting: Dr. Liu Bingxun, director of China's department of medical education; Dr. Liu Yinsheng, chief of that department's division of science and technology exchange; and Mr. Tan Sui, deputy director of the national medical examination center. Joining John Starr and me was Mrs. Geraldine Kunstadter, who was in Beijing as a member of the Yale-China board of trustees. Geri Kunstadter, who has a degree in electrical engineering from M.I.T., is chairman of the Albert Kunstadter Family Foundation, a philanthropic trust that has long devoted much of its advisory and financial resources to the assistance of developing nations.

Our discussion with the vice minister covered a wide range of areas that relate to health policy and medical education. Of the 133 medical schools in China, 13 have been designated as what are called "key" schools. Five of these are in a category that might be called "superkey," because they are given special funding and other kinds of support. These selections were made in the 1950s and have never been changed. They include two institutions in Beijing, and one each in Shanghai, Guangzhou and Chengdu in West China. A look at the map confirms that geography played a major role in the choice of schools, as did historical development and the quality of the institution at the time of selection.

Obviously, this status of superkey was of considerable concern to us because it does not include HMU, which is merely a "key" school. As we discussed the matter, there occurred one of those brief bits of talk that sometimes provide clues to an entire philosophy. Wanting to know whether there was any possibility that other schools might rise to the category of superkey, I turned to Liu Bingxun, who had not changed his stolid expression even once, and asked if the present designations were meant to continue forever. He delivered up his reply with a face of stone: "Yes, it is forever," he said very firmly, "For now."



Dr. Sherwin B. Nuland

Sherwin B. Nuland, M.D. '55: Encountering China

Dr. Sherwin B. Nuland joined the medical advisory committee of the board of trustees of the Yale-China Association in 1986 and assumed the committee chair in 1988. In that capacity, Dr. Nuland is responsible for shaping the association's work in the field of medicine in China—work that began with the opening of Xiangya Hospital in Changsha in 1906.

Under Dr. Nuland's direction, the association has launched two new collaborative research and training programs that link Yale School of Medicine faculty members with colleagues in two medical schools in China. The focus of the first project, based at Hunan Medical University in Changsha, is pediatric cardiology. The focus of the second project, located at Shanghai Medical University, is the treatment of breast and liver cancer.

Dr. Nuland recently took a leave of absence from his private surgery practice in New Haven to devote more time to his vocation as author and medical historian. His critically acclaimed first book: *Doctors: The Biography of Medicine* (Alfred A. Knopf, 1988) was a Book-of-the-Month Club alternate selection and has been translated into three languages. He is currently at work on a book about the physiology and history of disease and dying, to be published by Alfred A. Knopf. He recently has completed the text for a pictorial history of military medicine.

That small statement exemplifies what I can only think of as a vast undercurrent of pragmatism that runs through all official Chinese policy, and even through areas where there is less policy than Westerners believe. Behind the obdurate posture that government leaders often display to public view lies hidden an unspoken promise to yield just a bit, should there be some visible advantages for China. The apparent inflexibility is more a bargaining position than a fixed reality.

We spoke of many other things—delivering health care to provincial farmers (farmers make up 80 percent of China's population), retraining China's 700,000 "barefoot doctors," providing specialty education for surgeons and internists, enhancing the financial and social status of Chinese physicians. Of course, we also discussed the priority that an overpopulated nation's central government places on medical education and the health care of individual citizens.

Cao took advantage of this part of our discussion to make an obviously political statement: "The first problem to be



Surgeons perform their art at Hunan Medical University.

solved is population control. Without it, all other reforms and constructions are nonsense." He believes, he told us, that if population control can be achieved, every other problem—the economy, agriculture, transportation, energy, population, education—will be easily overcome. Until then, these other areas must remain at a higher level of priority than the health of the people.

The one couple-one child solution has been difficult for many American experts to accept. Not only simplistic, it also risks tearing at the fabric of a culture so dependent on the consanguineal and extended family. Although I was not hesitant to disagree with several other of Cao's views, it would have been senseless to debate a principle that has become such an *idée fixe* of national policy. This is one area of domestic affairs where immovability is as real as it appears.

As the meeting concluded, the two Lius, both Mao-suited men in their mid-60s, asked us whether they might meet again with the three of us that afternoon, at the Sheraton Great Wall Hotel at 2 p.m. At that meeting we reviewed our relationship with HMC and described the new plan of affiliation.

Liu Yunsheng again brought up the old refrain to which we had been exposed so many times—the young are too inexperienced in science to make optimal use of their studies in the West. This time I did dig in my heels and insisted that all the science in the world is of no use to a visiting scholar who is handicapped by poor English. I had by this time concluded that officials who insist on describing their young people as scientifically naive are quite aware of the error of that position. What they are really insisting on is the *gai mianzi*, the privilege due senior people.

We concluded our meeting by discussing one of the most serious problems faced by returning Chinese medical scholars,

the lack of institutional support required for them to use whatever knowledge they have gained. Researchers come home to inadequate laboratories; clinicians find none of the diagnostic and therapeutic equipment they have become familiar with in the West. Based on the statements made by Vice Minister Cao, as well as what the two Lius were now saying, I am not optimistic about a quick fix for this issue.

A Job, Not a Profession

After our meeting with the ministry officials ended that mid-afternoon, John Starr, Geri Kunstadter and I sat down in the hotel lounge to discuss the day's events, over coffee. Listening to these two articulate people, both of them so much better acquainted with China than I, helped to crystallize some of my own emerging ideas.

Perhaps the greatest clarifying element was a single remark of Geri's based on her experiences with medical treatment in China—"They don't seem to care about their patients the way American doctors do." That sentence affirms an observation so readily verified that it is virtually axiomatic. It cannot be explained by invoking the difference in value our two cultures place on individual human lives. And it certainly cannot be explained by any intrinsic character differences between Chinese and American doctors, because every piece of evidence indicates that interpersonal relationships between strangers are distinguished by greater kindness in their country than in ours.

The amount of caring that a healer exhibits toward the sick is determined by complex factors. The outcome of those factors is what we in America call the doctor-patient relationship, a bond that develops for as long as a patient considers a physician to be his or her doctor. In this transaction, two individuals relate to each other on two distinct levels of understanding. The first is personal, and involves the same considerations that determine the tone of transactions between any two people who begin a partnership with certain preconceptions about each other's role.

The second level is societal. The Western physician occupies an elevated position. Call it parental, or authoritative or even magisterial. Call it anything that implies respect for those who, by virtue of their superior knowledge, society allows to make pronouncements and decisions about our lives. In the West, medicine is one of the learned professions.

In the classical sense, a profession has a contract with society. Society provides it with status, privilege, good income, and permission to choose, train and discipline its members without outside interference. Of the profession of medicine, society asks in return only for a guaranteed constant supply of health care; in effect, a kind of beneficent noblesse oblige. Hence, doctors in the West assume a great moral responsibility in return for the special status granted them by society. Upon this basis medicine is a profession—a calling and not a craft.

With no such special contract in communist China, medicine is not, in either the societal or the moral sense, a profession. It is simply a job. The mere fact that it requires more education than most other jobs does not increase its value. There is little privilege, and therefore little assumption by doctor or patient of the healer's willingness to accept extraordinary obligation.

This simple truth, once recognized, explained a great deal of what I had seen in China, and what had been described to me by colleagues who had visited there. Doctors in the People's

Republic work at what is essentially a low-esteem job. Particularly in present-day China, where farmers and factory workers are far better remunerated than healers, the inadequate financial rewards of physicians reflect their inadequate image in society. They do not produce what current Chinese society values most—goods and money.

I was not shy, either in Changsha or Beijing, about asking people what they earn. Having had the question put to me a few times on my previous visit, once by a young man who walked up to me on a Guangzhou street, I did not consider it personal or rude. I found out that the average physician earns less than \$30 a month; the highest paid doctor to whom I spoke did not earn \$1,200 in his best year, and yet his rank and title are at a level that is stratospheric compared to his colleagues.

Regardless of differences in purchasing power, such salaries mean that China's highest ranking physicians live in very small hospital-based apartments without regular hot water; they do not own cars; their vacations, if they can afford to go away, are simple and cheap; they do not have funds to visit foreign countries; the expense of books and journals is beyond them; a translator whose English is no better than theirs earns, at a conservative estimate, five times their salary.

But most countries provide doctors with better rewards than money alone can buy. They include recognition, esteem and trust, with the understanding that doctors, in the words of Robert Louis Stevenson, "stand above the common herd." Neither I nor any American medical or diplomatic visitor to whom

I have spoken has seen evidence of this in China. Doctors are workers. The value of workers is proportional to an output that can be measured in units of money. For doctors, that figure is very low, and for this reason, medicine does not attract nearly as great a proportion of highly motivated, ambitious young people as it does here at home.

And then, there is the other obstacle to modernizing the health care system—neither it nor medical research are very high among the central government's priorities, and they are not likely to rise higher during our lifetime. The United States' recognition of individual health as a basic right simply does not equate in China. What appears to be the same game is played by different rules in the two countries.

Science Confronts Harmony

Having come to this conclusion, what should the medical representatives of a friendly nation consider to be their role? It has been the received wisdom that Americans cannot set goals for other countries, and especially for a country with problems as complex and cultural characteristics as inconsonant with our own as are China's. And yet, our Chinese colleagues seek out exchanges, point with pride to those few medical advances they have managed to make, and in numerous other ways indicate that they want what we perceive them to need—a science-based system of medical education and health care.

Does any kind of assistance fall outside that category of "cultural imperialism" against which we tell each other to be constantly on guard? Perhaps clues present themselves all over the landscape, not only from China, in its history and present situation, but also from the West.

Whether foreign or native, those who wish to modernize China must understand and deal with the traditional belief in totality and harmony. But in their sensitivity to this belief, they cannot ignore that the People's Republic has decided to bring the strengths of modern science to bear on their nation's problems. Although it is no longer fashionable to quote Mao Tsetung, he was articulating his country's fundamental approach to modernization when he said, "Make the past serve the present and foreign things serve China."

What has not served China, at least in the eyes of the West, are the ineradicable memories of the Tiananmen massacre that occurred a few months after our visit. The cruelties of that unforeseeable event and its aftermath have influenced every aspect of our relationship with the People's Republic. Support for cultural and scientific exchanges has waned, and there has been a marked diminution of the optimistic enthusiasm with which Americans approach collaborative efforts with Chinese colleagues. In fact, some of those colleagues have been displaced. Cao Ziyi, for example, was seen as too supportive of the students, and someone else now occupies his office. These are the political facts of life in present-day China.

But the work of the Yale-China Association, though slowed for a time, remains unchanged. In a new mission statement ratified last year, the board of trustees reaffirmed its nearly century-old commitment to "changing lives: Chinese lives and American lives. Teaching and learning are the heart of this endeavor." In order to teach and to learn, it is necessary to make use of every experience we have had since Yale-China founder Dr. Edward Hume first set foot in China in the early 1900s, and



Young physicians: the future of Chinese medicine.

especially the new insights of the years since we resumed our collaborative efforts in 1980. With this in mind, the medical program of Yale-China has been allowed a rapid evolution of perspective, to incorporate the requirements of a relationship that is not only bilateral but symmetrical and mutually beneficial, in a way that circumstances have not previously permitted.

Both sides have now agreed that the focus of Yale-China's attention should be young medical scholars, those most likely to benefit by a program whose mission is to change lives. It is realistic to expect that, in addition to its other virtues, such a policy is likely to result in the forging of long-standing relationships between individuals with similar academic interests in our two countries. We have insisted that the Chinese participants demonstrate English-language ability by achieving a high grade on a standardized examination, so that they make the most effective use of their fellowship time. We have replaced our previous, rather general approach to the character of the visits back and forth. Now we offer a highly organized program in which specific departmental sections are chosen, and the members of those sections plan the objectives of their exchange.

Hunan Medical University leaders have chosen pediatric cardiology as a specialty that particularly needs strengthening at their institution. Dr. Charles Kleinman, director of that section at Yale, will fashion, in meetings with his Chinese counterpart, a program of affiliation in which young scholars come to New Haven for varying periods of time to learn the methods of their specialty as they are practiced at the Yale-New Haven Hospital.

Senior Chinese doctors, even those who have no familiarity with English, are not excluded from participation, but they will fulfill a supervisory role. Visits they may make to New Haven will be relatively brief, and for the purpose of seeing to it that things are proceeding to their satisfaction, as well as to learn about American clinical and research methods.

During the course of a visit to the Shanghai Medical University in 1990, John Starr and I discussed with the leaders of their faculty a new affiliation with that "superkey" school. For reasons of both history and economics, Shanghai is more Westernized than any other city in the Peoples' Republic, and its major medical school is much more advanced in scientific medicine than is our sister school at Changsha. A few months later, Dr. Tang Zhaoyou, the university's president, came to New Haven to set up groundwork for an exchange in oncology.

Meeting with T.S. Ravikumar, M.D., Yale's chief of surgical oncology, and Dr. William Hait, clinical director of the Yale Comprehensive Cancer Center, Dr. Tang outlined the ways in which our two schools might mutually benefit by such a program, and work together on major research projects. On returning from an exploratory visit to the Shanghai Medical University last spring, Drs. Ravikumar and Hait drew up proposals for clinical and research affiliations in breast and liver cancer. By the time this article reaches print, visiting scholars from Shanghai and Changsha will be planning their arrival in New Haven to begin work.

Passing the Torch

One of the lessons of the past 150 years of Western medicine derives from the way in which various medically underdeveloped countries have sent their young physicians off to study in leading foreign centers so that they could return home and develop a form of health care and research that is most suitable to their own culture and national characteristics. Not only knowledge, but ascendancy in medical leadership passed by this process from France to the German-speaking countries to the United States. In each case, a form of biomedical science developed that was indigenous to conditions and precedents in the home country. This is a lesson for China too, and it reflects the pragmatic wisdom of Mao's dictum.

In a classic canon of traditional Chinese medicine called the *Nei Ching*, its alleged author, the mythical Yellow Emperor Huang Ti, conducts a dialogue with a learned physician, Chi Po. At the beginning of Book V, the Yellow Emperor asks Chi Po, "What is the way of medical treatment?" The first sentence of the physician's answer is a classic in itself: "The way of medical treatment is to be consistent."

Perhaps those words convey part of the answer to developing scientific medicine in China—an answer that must accommodate 4,000 years of tradition, as well as the country's need for the most advanced form of biomedicine. This means modification and compromise, and the compromises will have to be made not only in the rigorous applications of Western scientific thinking but also in the rigorous adherence to a tradition that is no longer consistent with China's emerging role in the society of nations. It is not within the power of well-meaning American friends to design the structure of this second kind of compromise: by having signified their wish to modernize, Chinese authorities have made a commitment to go much further than they yet have, to make tradition bend in the interest of their people's well-being.

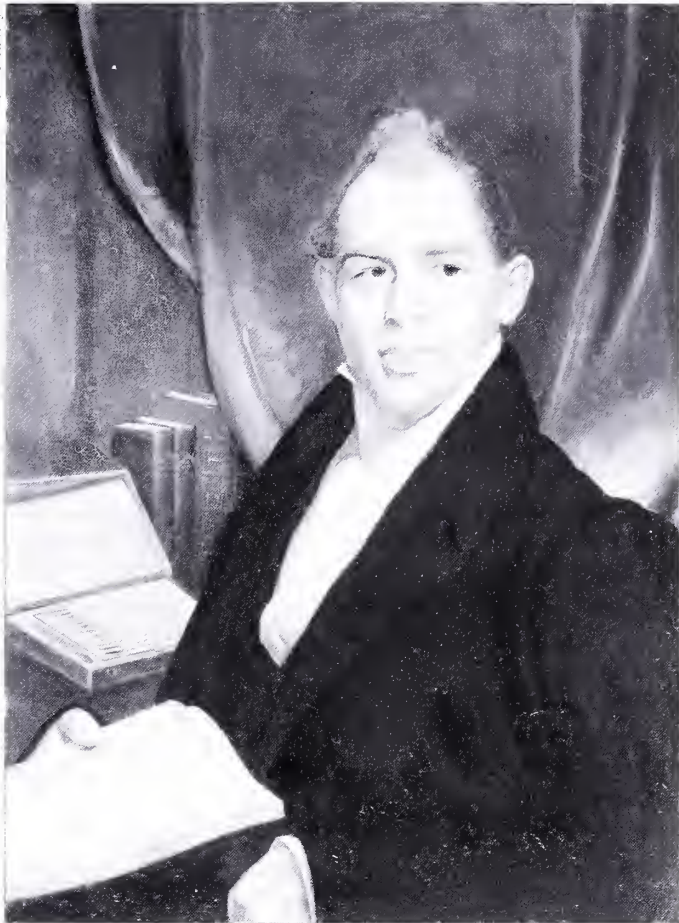
This commitment will require a significant re-ordering of national priorities. A nation's productivity depends in large part on the health of its people. Not only that, but a government's investment in its individual citizens brings with it a return that is incalculable: the strengthened resolve and solidarity that the citizenry feel when their leaders demonstrate an empathetic understanding of basic daily life.

And there is more. It will be necessary (and here compromise guarantees failure) to elevate the societal status of physicians. It is not merely a matter of better salaries; it is a matter of recognition that the nation values the health of its individual citizens enough to put great value also on those who provide their care. There must be found within the cultural framework of Communist society, the ground rules of the social contract that makes medicine a profession.

Young people will have to be given reason to dedicate their lives to healing. In the West, that dedication has always come from society's recognition that medicine is not a job, but a calling. When more of the best youth of China feels itself called and privileged, it will respond to that call and that privilege with the same enthusiastic sense of obligation that has brought a century of medical progress to the United States. **YM**

GALLERY

Yale Art Gallery



Yale Medical Historical Library



Portraits of Peter Parker, M.D., and a Tumor Patient; Lam-Qua, Late-1830s

In the mid-1800s, Chinese artist Lam-Qua painted nearly 200 portraits of Dr. Peter Parker's tumor patients. Lam-Qua did so at no charge, in gratitude for the free medical services Dr. Parker (1834 M.D.) performed for the people of China. A graduate of the Britain Royal Academy, Lam-Qua captured the most intricate medical details of Dr. Parker's patients before and after surgery, often including delicate Cantonese landscapes as backgrounds. Lam-Qua created the images first as sketches on rice-paper and then as a series of Western-style oil portraits. The portraits were used by Dr. Parker on his trips to England and the United States to raise funds for his missionary work. More than 80 of Lam-Qua's portraits are part of a permanent collection in the Harvey Cushing/John Hay Whitney Medical Library at Yale.

Dr. Parker, who graduated with degrees from the medical and divinity schools at Yale, arrived in China in 1834 to establish that country's first Western hospital. With little clinical training, Dr. Parker founded Canton's Ophthalmic Hospital in 1835, and within its first year treated more than 2,000 patients. Although many Chinese did not embrace Dr. Parker's Christian religious teachings, his medical "miracles" so impressed Canton

residents that they formed the Medical Missionary Society to continue funding the hospital.

Dr. Parker devoted more than 20 years introducing progressive medicine and surgery into the Orient. He was the first to train native surgeons, including artist Lam-Qua's nephew, in lithotomy, amputation, cataract removal and other surgical procedures. Dr. Parker also introduced sulphuric ether as China's first anesthetic.

In addition to his medical duties, Dr. Parker served as secretary and interpreter to the Mission of the United States to China. For several years, he served as acting U.S. commissioner to China and in 1855 was named commissioner to the Chinese Empire.

During the Opium War between Great Britain and China, all foreigners were expelled from Canton, and Dr. Parker's hospital was forced to close. A few years later, however, he returned to Canton and reopened the hospital. Dr. Parker stayed until ill health forced him to leave in 1857. He died in 1888 at age 83, after treating more than 52,000 patients in China.

Rosalind D'Eugenio, media specialist

American Cyanamid Supports BCMM Cardiology Program

American Cyanamid Co. has awarded a five-year, \$6 million grant to Yale University to support basic scientific research in the School of Medicine's new Boyer Center for Molecular Medicine (BCMM). With the agreement, which represents one of Yale's largest corporate collaborations, Cyanamid and its Lederle Laboratories will provide basic support for the endothelial cell program in molecular cardiology.

Vascular endothelium, the single layer of cells lining the heart, blood vessels and lymphatic vessels, is thought to play a major role in heart disease. As Cyanamid Executive Vice President Frank V. AtLee explains, the grant "involves Yale's scientists and Lederle's best research talent to produce basic science that may lead to novel therapies for the major medical threat posed by atherosclerotic disease."

Comments Yale President Benno C. Schmidt Jr., "Because of the contributions to the biomedical sciences that the agreement will make possible, Yale's teaching and research programs will advance the frontiers of knowledge and enhance patient care. I am most grateful that our commitment to scientific inquiry and education in the 21st century has received such generous support."

Lederle Laboratories is a research-intensive organization that has produced important therapeutic agents for heart disease, psychiatric illness, infection and cancer. In addition to ethical pharmaceuticals, Lederle manufactures childhood and adult vaccines.

Vincent T. Marchesi, M.D., Ph.D., BCMM director, established the program in molecular cardiology. He has conducted path-breaking studies into the structure of membrane proteins in red blood cells. Dr. Marchesi observes that "Interest in endothelial cells' immune properties and inflammatory reactions is increasing as more scientists work to determine the role these cells play in thrombosis and

vascular disease."

Molecular cardiobiology, directed by Jordan S. Pober, M.D., Ph.D., is one of four programs in the Boyer Center which have been established along programmatic, rather than departmental lines to encourage interdisciplinary collaboration.

Other BCMM programs include molecular genetics, headed by Joan A. Steitz, Ph.D.; molecular and developmental neurobiology, headed by Spyridon Artavanis-Tsakonas, Ph.D.; and molecular oncology and development, headed by Sherman M. Weissman, M.D. Clinically oriented basic researchers will play key roles in each program to speed the discoveries of basic science to the bedside.

Study Finds Dyslexia Occurs in Continuum

A School of Medicine study has challenged the conventional understanding of dyslexia. That view suggests that dyslexia is a specific disorder in which the reading abilities of affected children differ fundamentally from those of other poor readers and do not change over time.

"Dyslexia is not an all or none phenomenon," said the study's principal investigator, Sally E. Shaywitz, M.D., professor of pediatrics. "Dyslexia is much more like hypertension and occurs along a continuum with gradations or degrees."

She reported her results in the Jan. 16 issue of the *New England Journal of Medicine*. Dyslexia, a specific difficulty in learning to read, is believed to be biologically based and can be experienced by people of average to above-average intelligence.

Although estimates vary, some experts believe it affects as many as 12 percent of the nation's students. In the study, which currently is funded by the National Institute of Child Health and



With a \$6 million grant from American Cyanamid Co., all four programs of the Boyer Center for Molecular Medicine are fully operational.

Human Development, the researchers charted the reading development of 414 randomly selected Connecticut children from first through sixth grade. They found that in any given year, as well as from year to year, the children's reading ability varied predictably, fitting a normal distribution curve—a distribution of values that appear on a graph as a bell-shaped curve.

Dr. Shaywitz said the importance of the finding for dyslexia is that it recognizes that reading ability is not constant over time, but rather that there is a predictable variability in reading ability in all children from year to year.

"Current policies for the identification of dyslexic children are based on the belief that dyslexia is invariant over time, that a small group of children can be identified as dyslexic in the early school years and that this group will not change from year to year," said Dr. Shaywitz. She added that educators may need to identify a larger number of children who are "at risk" for reading difficulties.

Unique Art Show Comes To School of Medicine

In December, more than six talented artists from across the nation exhibited their paintings and sketches in New Haven. Only, some of them might not be able to draw a straight line.

How to account for this paradox? These adult artists are autistic savants. Their exhibit, held at the Connecticut Mental Health Center (CMHC), featured pen and ink sketches, oil paintings, wood carvings and bronze sculptures.

Susan T. Naylor, R.N., M.S.N., arranged the exhibit as coordinator of the Adult Pervasive Developmental Disorders Clinic. She explains that the show represents the collaborative efforts of adult autistic in- and out-patients at the CMHC.

"We involved the CMHC patients in planning and presenting this art show," Ms. Naylor says, "to help them normalize their illness and see what it means to be part of society."

New Center To Research Infant Lung Diseases

The National Heart, Lung and Blood Institute has awarded the University a five-year, \$4.3 million grant for an interdisciplinary team of physicians and biomedical scientists to study neonatal lung injury and its long-term clinical consequences.

"Through our pediatric lung center, we hope to generate knowledge that will lead to a better understanding of the events underlying lung injury," says Dr. Joseph B. Warshaw, program director. "This knowledge will be essential before prevention strategies can be rigorously developed and tested."

Dr. Warshaw, chairman and chief of the department of pediatrics, notes that the center will involve nine or more faculty members in the departments of pediatrics, cell biology, epidemiology and public health, and pathology.

"We plan to study both normal and abnormal lung development and to address major questions about

infants' lungs," Dr. Warshaw explains. "Lung injuries are common complications of premature infants; the incidence may be as high as 25 percent," he notes.

Among the fundamental questions Yale physicians and scientists will consider: How do lungs respond to injury? What process repairs the injury? How do lungs develop and function in children? How do lungs expand and contract? What kind of energy is required to breathe? In addition, researchers will advance our understanding of lung illnesses caused by alterations in gene expression.

Others will study the regulation of surfactant—a wet substance the body produces to reduce surface tension—in both injured adult and developing lungs. If immature lungs of premature babies have no surfactant, the lungs may collapse.

Lung injuries may occur in premature babies because their lungs, though fragile, need aggressive treatment, often requiring prolonged hospitalization. Children who survive lung injuries often have chronic infections.

Pneumococcal Vaccine Proves To Be Effective

With a recently completed study, Yale researchers hope to end some of the controversy about the effectiveness of the pneumococcal vaccine that has been used in the United States since 1978. Eugene D. Shapiro, M.D., associate professor of pediatrics and of epidemiology, led the six-year Connecticut study.

"The main purpose of this research," he states, "is to assess the vaccine's effectiveness in a large-scale study. We found that the vaccine has a 61 per cent efficacy in patients with healthy immune systems. We designed this study with internal controls specifically to assure its validity."

The study was published in the Nov. 21 issue of the *New England Journal of Medicine*. Results from the Yale study

may explain some conflicting information previously reported on the efficacy of pneumococcal vaccine.

The researchers, in collaboration with colleagues at the University of Pennsylvania and the National Institutes of Health, proved that the vaccine worked against infections caused by the 23 types of pneumococcal bacteria included in it and did not work against types of the bacteria which were not part of the vaccine.

The vaccine protects against more than 90 percent of pneumococcal infections that produce serious diseases. Vaccination is especially recommended for adults with chronic renal and pulmonary diseases, chronic alcoholism and congestive heart failure. And due to increased risk to serious pneumococcal disease among the elderly, Dr. Shapiro recommends the vaccine be used as a preventative measure for them, as well.

Martin Luther King Jr. Day 1992

Cornell Scott, M.P.H. '68, pictured here with Maxine Whitehead, director of minority affairs, moderated a symposium entitled, "New Haven: A Community Fights Back," which was also the theme of this year's Martin Luther King Jr. Day events. (See photo on facing page.)



Photographs by Harry Bishop



Rita J. Leonard, M.D., associate research scientist in medicine, (foreground) attends one of several lunchtime seminars. In this seminar, Mustafta Abdul-Salaam, director of the New Haven Family Alliance, discussed how his organization works to support and maintain the health and structural integrity of families.



John Kirk, pictured here with fellow second-year student Karen Broder, presents Adolescent Substance Abuse Prevention program (ASAP) t-shirts to Roberto Clemente Middle School students. Mr. Kirk and Ms. Broder co-direct ASAP with Christopher Gilligan, also '93 M.D., and were among 13 medical school and EPH students who were presented awards for community service. (See "Student News," page 36.)

This year's symposium panel featured (from left): Edward H. Kaplan, an associate professor in the schools of organization and management and medicine. He spoke of New Haven's successful needle exchange program, which is slowing the spread of AIDS among IV drug abusers. Gerald Friedland, M.D., professor of medicine, discussed the University-wide AIDS Consortium which he heads. New Haven Police Chief Nicholas Pastore and Donald J. Cohen, director of the Child Study Center, described a new initiative between the medical school and the police department to aid children and families who have suffered from violence.



William H. Gray III, president and chief executive officer of the United Negro College Fund (left), receives the key to the city from New Haven Mayor John Daniels as Acting Dean Robert M. Donaldson Jr. looks on. Mr. Gray delivered this year's Martin Luther King Jr. Day keynote address.

Entertainment by the Yale University Gospel Choir is becoming a tradition at the School of Medicine's Martin Luther King Jr. Day.



FACULTY NEWS

Neuroscientists Earn Javits Research Awards

Two School of Medicine researchers have been presented Javits Neuroscience Investigator Awards by the National Institute of Neurological Disorders and Stroke (NINDS).

Robert H. LaMotte, Ph.D., professor of anesthesiology and neurobiology, and Bruce R. Ransom, M.D., Ph.D., associate professor of neurology and of cellular and molecular physiology, were selected for the award, which recognizes outstanding contributions to neurological sciences. They are among 12 Javits award recipients at Yale.

NINDS established the awards, which support scientists for seven years, to honor the late U.S. Sen. Jacob Javits of New York.

Dr. LaMotte, a native of Washington, D.C., joined the Yale medical faculty in 1977. With the award, he will conduct research on the nerve function of pain and itch and the sensation response that occurs after a skin tissue injury. He also will continue to study the conditions under which changes in the spinal cord neuron can become prolonged and possibly contribute to the suffering of patients with chronic pain that persists long after a tissue injury has healed.

Dr. Ransom, a native of Santa Fe, N.M., joined the Yale medical faculty in 1987 and was named director of the school's outpatient neurology clinic a year later. With the award, he will expand his notable work on the physiology of neuroglial cells, the non-neuronal cells in the brain, and their relationship to neurons. Dr. Ransom is focusing on the effects that glial cells have on ions, positively or negatively charged atoms that play a key role in intercellular communication.



Marion Morra: Longtime crusader against cancer.

NCI Award Named For Marion Morra

The first annual award for outstanding leadership of the National Cancer Institute's (NCI) Cancer Information Service (CIS) was presented to Marion Morra, associate director of the Yale Comprehensive Cancer Center, by Marilyn Quayle, wife of Vice President Daniel Quayle, and Samuel Broder, M.D., director of the NCI, who announced the award henceforth will be named after Ms. Morra. Following the presentation, the Marion Morra Award was also given to Kate Duffy, head of the CIS section at NCI in Bethesda, Md. The presentations were part of a ceremony marking the 15th anniversary of the CIS.

The CIS, through its toll-free number, 1-800-4-CANCER, annually responds to more than 500,000 inquiries about cancer from the American public. It is the largest service of its kind in the world.

In addition to her duties directing the CIS at Yale, Ms. Morra is

responsible for the many communications and outreach activities of the Yale Comprehensive Cancer Center. She also serves as a liaison to local, state and national organizations involved in cancer control and research.

Ms. Morra, associate clinical professor at the School of Nursing, teaches graduate level courses in communications and health marketing. She is also associate research scientist in the department of epidemiology and public health, where she teaches about advances in cancer prevention and control.

Ms. Morra serves on several major committees of the NCI and the American Cancer Society and has written numerous articles, pamphlets and self-help booklets for cancer patients and their families. With her sister, the medical writer Eve Potts, she co-authored *CHOICES: Realistic Alternatives in Cancer Treatment* (Avon Books, 1980; revised edition, 1987); *Understanding Your Immune System* (Avon Books, 1986); and *TRIUMPH: Getting Back To Normal When You Have Cancer* (Avon Books, 1990).

Yale Child Study Center Faculty Named to Endowed Professorships

Two faculty members at the Child Study Center have been named to endowed professorships. Mary E. Schwab-Stone, M.D., assistant professor of psychiatry, was named the Harris Assistant Professor of Child Psychiatry, and Steven Marans, M.S.W., assistant clinical professor of social work, was appointed the Harris Assistant Professor of Child Psychoanalysis.

Dr. Schwab-Stone, who joined the Child Study Center in 1987, is the principal investigator for the Yale Child and Adolescent Psychiatric Epidemiologic Study and the Rural-Urban Study of Child Psychiatric Disorders. Concerned with the problems of inner-city youth, she concentrates her research on the relationship between a child's social environment and psychiatric conditions of childhood

and adolescence. She also researches problems in linking children and families who need treatment with appropriate psychiatric services.

Mr. Marans focuses his research on the role of aggression in children and on methods for studying observations derived from psychoanalytic interviews. He is program coordinator for the Child Study Center/New Haven Department of Police Service Project, a program that arranges counseling for children exposed to violence. This joint venture, initiated last fall, includes a course on child development for all police recruits; a consultation for field officers regarding services for children who are victims or witnesses of violence; and a fellowship for selected police officers to learn about available mental health services for children.

In 1986, Irving and Neison Harris, brothers who graduated from Yale in 1931 and 1936 respectively, donated \$5 million to the Yale Child Study Center to establish these endowed fellowships.

Rosemary H. Balsam, M.D., associate clinical professor of psychiatry and staff psychiatrist at the Yale Health Plan, was appointed training and supervising analyst at the Western New England Institute for Psychoanalysis by the American Psychoanalytic Association in December.

Alexander Baumgarten, M.B.B.S., Ph.D., professor of laboratory medicine, was appointed to the U.S. Food and Drug Administration general and plastic surgery devices advisory panel. The panel met in February to offer advice on the continued use of silicone gel breast implants.

James P. Comer, M.D., M.P.H., the Maurice Falk Professor in the Child Study Center and Child Psychiatry, received a \$50,000 Charles A. Dana Award for using psychiatry's insights into child development to forge a pioneering model of collaboration between parents and teachers in public schools.

Alvan R. Feinstein, M.D., Sterling Professor of Medicine and Epidemiology and co-director of the Robert Wood Johnson Clinical Scholars Program, and **Joann G. Elmore, M.D.**, a Robert Wood Johnson Clinical Scholar, have been awarded a program development grant of \$38,000 by the American Cancer Society to support research on the efficacy of mammography for breast cancer screening.

Gary E. Friedlaender, M.D., professor and chairman of orthopaedics and rehabilitation, will serve a four-year term on the National Advisory Board for Arthritis and Musculoskeletal and Skin Diseases for the National Institutes of Health.

R. Kenny Fryer, M.L.S., head of reference services in the Harvey Cushing/John Hay Whitney Medical Library, was named a distinguished member of the Academy of Health Information Professionals of the Medical Library Association.

Gerhard H. Giebisch, M.D., Sterling Professor of Cellular and Molecular Physiology, was granted the degree of Docteur Honoris Causa in October by the University of Lausanne, Switzerland. Dr. Giebisch studies the cellular mechanism of dissolved substance transport to the kidney. In



Executives from Boehringer-Ingelheim Pharmaceuticals, Inc. (BIPI) meet the first recipient of the Boehringer-Ingelheim Young Investigator Award. Carl Hashimoto, Ph.D., assistant professor of cell biology, received the award for his research into the development of the fruit fly embryo. He studies how the Drosophila embryo differentiates into front and back, a process that has molecular equivalents in other organisms, including humans. (Front row, from left) Alan Rosenthal, M.D., senior vice president scientific affairs, BIPI; Dr. Hashimoto; Acting Dean Dr. Robert M. Donaldson Jr. (Back row, from left) Richard Asch, district sales manager, BIPI; Victor Hartmann, M.D., vice president, medical, BIPI; and Gordon Letts, Ph.D., director of pharmacology, BIPI.

particular, he and his associates have investigated the mechanisms of renal potassium transport. Dr. Giebisch spent a sabbatical year in Lausanne from 1974 to 1975.

Charles A. Greer, Ph.D., associate professor of surgery (neurosurgery) and neurobiology, will serve a four-year term as a member of the Sensory Disorders and Language Study Section, Division of Research Grants, at the National Institutes of Health.

George R. Heninger, M.D., professor of psychiatry, summarized the latest knowledge about affective disorders at the third annual Bristol-Myers Squibb Symposium on Neuroscience Research held at Yale in October.

Charles A. Janeway Jr., M.D., professor of immunobiology and a Howard Hughes Medical Institute investigator, was awarded a Doctor of Medicine Honoris Causa degree in October by the Nicholas Copernicus School of Medicine in Krakow, Poland, for his studies on the activation of T lymphocytes.

Ira S. Mellman, Ph.D., professor of cell biology, will serve a four-year term as a member of the Cellular Biology and Physiology Study Section, Division of Research Grants, for the National Institutes of Health.

Pasko Rakic, M.D., Sc.D., Dorys McConnell Duerg Professor of Neuroscience and chairman of neurobiology, was granted the degree of Doctor Honoris Causa by the Albert Szent-Gyorgyi University in Szeged, Hungary, for his studies on the mechanisms of brain development.

Robert E. Shope, M.D., professor of epidemiology, director of medical studies for epidemiology and public health, and director of the Yale Arbovirus Research Unit, was named an honorary diplomate by the American College of Veterinary Microbiologists for his contributions to this field.

Joan A. Steitz, Ph.D., professor of molecular biophysics and biochemistry, has been awarded the Christopher Columbus Award in Biomedical Research by the National Institutes of Health Christopher Columbus Medical Sciences Committee.

Edward F. Zigler, Ph.D., Sterling Professor of Psychology, was presented the Loyola-Mellon Social Science Award in October, for his contributions to the scientific study of human behavior and the nature of social institutions.

Howard V. Zonana, M.D., associate professor of psychiatry, received the Outstanding Service Award from the American Academy of Psychiatry and the Law (AAPL) at its national meeting in Orlando, Fla., in October, and was elected AAPL president for 1992-1993. Dr. Zonana also spoke at the third International Congress on Psychiatry Law and Ethics held in Jerusalem in November. His address was titled "Voluntary Psychiatric Hospitalization and the Growing Conflict with Patient Rights."

ALUMNI NEWS

Samuel D. Kushlan, M.D. '35, was honored by the School of Medicine's division of digestive diseases with the 23rd annual Kushlan Lecture, "AIDS and the GI Tract," delivered by Marvin H. Sleisenger, M.D., professor of medicine at the University of California at San Francisco.

Rocko M. Fasanella, M.D. '43, was honored by the Italian-American Historical Society of Greater New Haven at its annual distinguished award dinner in December for his more than 40 years of service to the greater New Haven area as an eye surgeon, educator and humanitarian. Dr. Fasanella was a founder of the Caribbean Ophthalmological Society and is also a member of professional societies in the United States, France, Spain and Peru.

B. Herold Griffith, M.D. '48, '48-'49 HS, has retired after 21 years as chief of plastic surgery at Northwestern

University, but continues as a professor of surgery.

Asa Barnes, M.D. '59, '63-'65 HS, clinical professor of pathology at the University of California, Irvine, College of Medicine, has been elected president of the California Blood Bank. He is also president of the boards of directors of the American Red Cross Los Angeles and Orange Counties Regional Blood Center and the greater Long Beach chapter of the American Red Cross. In the latter capacity, he traveled to Cambodia to coordinate medical assistance projects with the Cambodian Red Cross and other agencies.

Alan Lieberman, M.D. '62, serves on the Norwalk Bioethics Committee as a patient advocate, and advises clients troubled by the health-care system.

David M. Holden, M.D. '63, has been appointed to the Accreditation Council for Graduate Medical Education Residency Review Committee for Family Practice as a representative of the American Academy of Family Physicians. He has been professor and chairman of the department of family medicine at the State University of New York at Buffalo School of Medicine and Biomedical Sciences since 1983.



Ian C. MacLean, M.D.

Ian C. MacLean, M.D., '63-'65 HS, was installed as the 53rd president of the American Academy of Physical Medicine and Rehabilitation at its annual assembly held in Washington, D.C. in October. A member since 1967, Dr. MacLean served on the academy's board of governors since 1986. He is also a director of the American Board of Electrodiagnostic Medicine and is the American Medical Association's House of Delegates representative for the American Association of Electrodiagnostic Medicine.

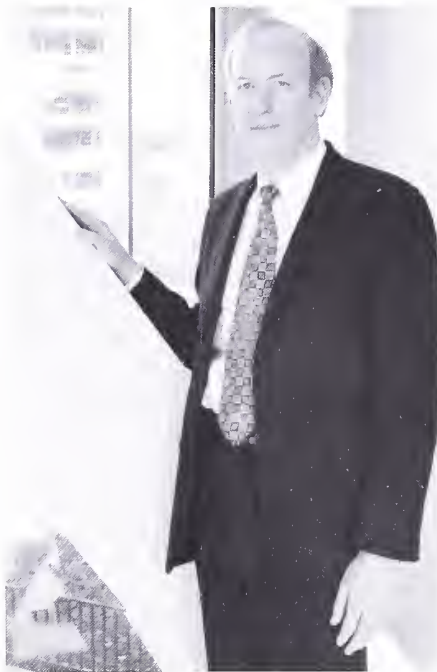
Diane K. Shrier, M.D. '64, has accepted a position as vice chair and director of clinical psychiatric services of the department of psychiatry at Children's National Medical Center in Washington, D.C. She concurrently has been appointed professor of psychiatry and pediatrics at George Washington University Medical School.

Morris B. Mellion, M.D. '70, was elected president of the American Academy of Family Physicians, which represents 71,000 family physicians and medical students. In addition to his private medical practice, Dr. Mellion teaches at the University of Nebraska Medical Center and in the School of Health, Public Education and Recreation at the University of Nebraska, Omaha.

Henry R. Black, M.D., '71-'74 HS, has been named Roberts Professor and chairman of the department of preventive medicine and professor of medicine at Rush Medical College in Chicago, effective April 30.

Albert C. Pottash, M.D. '74, was the recipient of the 1991 Distinguished Alumnus Award from Friends' Central School, Wynnewood, Penn., recognizing his unique contributions to medicine and psychiatry. He is the executive director of seven psychiatric hospitals located in New York, New Jersey and Florida, and also serves as a clinical professor at New York University Medical School.

Alan M. Levine, M.D. '74, '75-'80 HS, was promoted to professor of orthopedic surgery and oncology at the University of Maryland.



Richard B. Burford, '77 M.P.H

Richard B. Burford, '77 M.P.H., vice president for administration at Yale-New Haven Hospital (YNHH) since 1988, joined the medical school's Faculty Practice Plan as executive director in February. For the past 14 years, Mr. Burford has worked in hospital operations at YNHH. He is a past president of the Yale University Hospital Administration Alumni Association. Mr. Burford also is a lecturer in the department of epidemiology and public health, teaching hospital organization and management.

Jordan S. Pober, M.D. '77, formerly of Harvard University, has been named head of the molecular cardiobiology program at Yale's Boyer Center for Molecular Medicine.

Mark J. Ratain, M.D. '80, director of clinical pharmacology and associate professor of medicine for the department of hematology/oncology at the University of Chicago Medical Center, has been awarded the American Cancer Society's Clinical Oncology Career Development Award, which provides financial support for three years to individuals who have demonstrated a serious commitment to an academic career in clinical oncology.

Bernard H. Sehn, M.D. '81, while completing his residency in emergency medicine in Pittsburgh, spent a month at the Shock-Trauma Center in Baltimore. He also traveled to Costa Rica for several weeks as part of an earthquake analysis team after a large tremor in April. In October, he presented a two-day workshop in Korea on emergency medical service development.

J. Mark Blue, M.D., '84 P.A., who received his M.D. degree in May 1991 from East Carolina University in Greenville, N.C., has begun his residency training in orthopedic surgery at the University of Missouri.

W. Lee Bailey, M.D. '86, presented research findings on the molecular mechanisms of restenosis after coronary artery angioplasty at the European Heart Congress in Amsterdam and at the American Heart Association meetings in Anaheim, Calif. He has accepted a position as the Interventional Cardiology Fellow with Dr. Geoffrey Hartzler at the Mid-America Heart Institute in Kansas City, Mo., beginning in June.

Leslie Vogel, M.D. '87, is serving as an instructor in clinical psychiatry at Columbia College of Physicians and Surgeons in New York.

James J. Cullen, '88 M.P.H., has been appointed chief executive officer for the Hospital of St. Raphael in New Haven.

Marcia D. Morris, M.D. '89, a psychiatric resident at New York Hospital-Cornell Medical Center in White Plains, has been selected as one of the 10 American Psychiatric Association/Burroughs Wellcome Fellows for a two-year term. Her husband, **Michael Morris, M.D. '89,** is a resident in ophthalmology at Manhattan Eye, Ear and Throat Hospital.

Stacey H. Wills, M.D., '90 M.P.H., has begun a new position as a clinical research analyst for a consulting firm in Virginia, serving more than 80 pharmaceutical companies worldwide.

NEW BOOKS

GLENN'S THORACIC AND CARDIOVASCULAR SURGERY

Glenn's Thoracic and Cardiovascular Surgery, fifth edition, edited by Arthur E. Baue, M.D., with Alexander S. Geha, M.D., Graeme L. Hammond, M.D., Hillel Laks and Keith S. Naunheim. Appleton and Lange (Norwalk, Conn.) 1991. (Renamed by the editors in honor of senior editor of the fourth edition, William W.L. Glenn, M.D.)

A Fan's Guide to Baseball Fever: The Official Medical Reference, by Thomas Singer, '70 M.D., and Stuart Copans, Eljijim Publication (Mill Valley, Calif.) 1991.

Medicine: The Art of Healing, by Sherwin B. Nuland, '55 M.D., associate clinical professor of surgery. Macmillan Publishing Co. (New York) 1991.

Skeletal Trauma by Alan M. Levine, '74 M.D., co-edited by Drs. Browner, Jupiter and Trafton. W.B. Saunders (Philadelphia, Penn.) 1991.

The Biochemical Basis of Neuropharmacology, by Jack R. Cooper, Ph.D., Floyd E. Bloom, M.D., and Robert H. Roth, Ph.D. Oxford University Press (New York, Oxford) 1991.

The Living Will Handbook, by Alan Liebersohn, '62 M.D., J.D. Hastings House (New York) 1992.

The New Americanism: How the Democratic Party Can Win the Presidency, by Steven Jonas, M.D., '67 M.P.H., with a forward by George McGovern. Thomas Jefferson Press (New York) 1992.

What's a Virus Anyway? The Kids' Book About AIDS, by David Fassler, '82 M.D., and Kelly McQueen. Waterfront Books (Burlington, Vt.) 1990.

STUDENT NEWS

Marlene Corujo, a fourth-year medical student, received the 1991 William and Charlotte Cadbury Award from the National Medical Fellowships, Inc. The honor includes a certificate of merit and \$2,000.

13 YSM, EPH Students Earn Service Awards

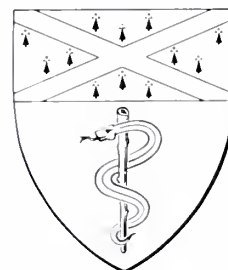
The School of Medicine presented the first Distinguished Community Service Awards to 13 of its students, recognizing their outstanding community service in the city of New Haven. These new awards are to be given annually on Martin Luther King Jr. Day. This year's recipients are:

Second-year medical students: **Karen R. Broder**, **Christopher J. Gilligan** and **John H. Kirk**, leaders of the Adolescent Substance Abuse Prevention program; **Alexandra F. Boer**, **G. Richard Bruno** and **Karen Rosewater**, leaders of the Students Teaching AIDS to Students program; **Lauren L. Plawner**, a trained rape-crisis counselor also working with victims of sexual abuse and incest; **Paul Santiago**, co-president of his class, who

serves on the school's Minority Affairs Committee, the Student National Medical Association and was co-coordinator of the Summer Minority High School Student Research program; **Victoria L. Holloway**, president of the Student National Medical Association chapter at Yale, who also serves on the Minority Affairs Committee, was co-coordinator of the Summer Minority High School Student Research program and developed the new "Cross Culture" program for high school students; **Yamilee O. Bermingham** and **Karen Rosewater**, who established and serve as coordinators of a central student volunteer office, lead a new student tour program for students at Hill Central Elementary School and are developing a community group to provide services to pregnant women from the Women's Center at Yale-New Haven Hospital and the Hill Health Center.

M.D.-Ph.D. student: **Suresh Karne**, who works with the Hillhouse High School Macy program, which introduces students to the medical sciences.

Second-year EPH students: **Luoluo Hong**, who worked with the New Haven YWCA, Rape Crisis Center, Rape Hotline; served as co-facilitator for a support group for victims of incest and sexual assault; and is involved in AIDS-related community outreach. **Elizabeth Chiao**, who worked with the EPH Student Organization Volunteer Committee and is developing a student tutorial program on community service.



HUMAN RELATIONS CODE OF CONDUCT

Editor's note: *Last fall, the School of Medicine broadened its Race Relations Code of Conduct by adopting a Human Relations Code of Conduct, recommended by the Minority Affairs Committee and discussed at length by the committee, departmental chairs, Medical School Council and the School's Board of Permanent Officers. We are proud to feature the complete text for the readers of YALE MEDICINE:*

Yale University School of Medicine is committed to the promotion of personal and professional development of all individuals in its community, and encourages dialogue that will foster the growth, well being and dignity of all its members. In pursuit of these goals, the school is dedicated to maintaining an environment which places the highest priority on collegial relationships, mutual respect, and sensitivity among its students faculty and patients.

An educational community functions best when there is civility and respect for the dignity and worth of each individual. It must be ensured that our school is free from discrimination and acts of intolerance such as those based on race, gender, sexual orientation, religion, national origin, ancestry, age

or physical handicap. This commitment remains consonant with the obligation to protect open and wide-ranging public discourse.

The principle of freedom of expression that might otherwise protect even the most offensive public speech does not protect, nor does it even encompass, a right to threaten the dignity and privacy of an individual. Such personally directed behavior will not be tolerated; it is antithetical to academic values, debilitates its victims, compromises the offenders, and undermines the University's fundamental commitment to individual freedom and respect for all its members. Furthermore, acts of intolerance may destroy the very atmosphere wherein freedom of expression is otherwise tolerated and cherished.

DEVELOPMENT REPORT

Dr. and Mrs. Atkins Endow Paul Beeson Professorship

Two distinguished former faculty members, Dr. and Mrs. Elisha Atkins, have funded a professorship in the department of internal medicine to honor Paul B. Beeson, M.D. Fred S. Kantor, M.D. '62, was named the Paul B. Beeson Professor of Medicine.

Drs. Atkins and Beeson were colleagues at Yale for nearly 10 years. In 1955, Dr. Beeson brought Dr. Atkins, a specialist in infectious diseases, to Yale from Washington University. Dr. Atkins earned the rank of professor in 1967.

Mrs. Atkins was a teacher in Lee High School, where she taught in a special enrichment and remedial program. Her extensive volunteer work earned her the citizen's award by the Cornerstone Organization in 1985.

From 1975 to 1985, upon Dr. Atkins' retirement, Dr. Atkins was the master of Saybrook College at Yale. Upon his retirement, the college established a Saybrook lectureship in their name.

Since 1985, Dr. and Mrs. Atkins have devoted their time to the Habitat Institute for the Environment in Belmont, Mass., a non-profit organization to promote environmental awareness and education which was founded in 1971 on the site of Dr. Atkins' family home.

In 1952, Dr. Beeson became chairman of the department of medicine at Yale. He left Yale in 1965 for Oxford University, as the Nuffield Professor of Clinical Medicine. In 1974, he returned to the United States and accepted an appointment as Distinguished Physician of the United States Veterans Administration in Seattle, Wash.

Dr. Beeson is a fellow of the American Academy of Arts and Sciences and a member of the National Academy of Sciences. He is a master of the American College of Physicians and received the John Phillips Memorial Award of that organization in 1976. In 1972, he received the Bristol Award of the

Infectious Diseases Society of America and in 1973 the Kober Medal, the highest medal conferred by the Association of American Physicians. He has received honorary doctor of sciences degrees from Emory, McGill, Yale and Albany universities and in 1973 was made an honorary knight commander of the British Empire.

He and his wife live in Redmond, Wash, where he continues to write and edit medical articles and journals that address a range of critical issues affecting the current future role of medicine in society.

In commenting on the Beeson professorship, Acting Dean Robert M. Donaldson Jr. referred to both its donor and its namesake: "These outstanding physician-scholars are unassuming, straightforward men who maintain the highest standards of integrity, dignity, and decency. It's no wonder that both of them have successfully served as teachers and mentors for so many young people who themselves have become successful clinical investigators and teachers. This chair is a wonderful tribute to both the donor and the honoree."



An astrolabe from the Streeter Collection

Dr. Spinelli Donates Estate To School of Medicine

Nicholas P. R. Spinelli, '41, '45 M.D., has established his second charitable remainder trust to benefit the Yale School of Medicine. Through his two trusts, Dr. Spinelli will receive an income for life and has ensured that, should he predecease his sister, Viola J. Spinelli '65 M.P.H., she, in turn, will receive the income stream throughout her life. Afterward, the trust's assets will pass to Yale.

A strong advocate of charitable trusts and other life-income gifts, Dr. Spinelli encourages other alumni to investigate such charitable vehicles: "These gifts can provide donors with important up-front tax deductions, significant income for life and, most importantly, enable alumni to leave Yale much more significant gifts than they can make during their lives," Dr. Spinelli said.

When added to the charitable trust Dr. Spinelli created in 1985, this gift will establish an endowed professorship to be awarded at the discretion of the medical school dean. Called the Nicholas P. R. and Viola J. Spinelli Professorship, it is Dr. Spinelli's wish that the dean award the professorship to a distinguished faculty member in the department that most urgently needs such funding at the time the professorship becomes available.

A charitable trust can be funded with stocks, bonds or cash. The donor then chooses a payout rate which, in conjunction with actuarial tables, determines the up-front tax deduction and income stream the donor will receive. The income generated by the trust can be paid to one or more beneficiaries for as long as they live or for a specified period up to 20 years.

Dr. Spinelli, a longtime supporter of Yale College and the School of Medicine, served the medical school as director of alumni affairs from 1985 to 1990. He has made many other gifts to



Dr. Nicholas Spinelli consults with second-year medical students Emil Engels (left) and Constantino Pena during a recent fundraising telethon.

the school, including one which established an endowment in support of student social well-being.

Dr. Spinelli's legacy of support far exceeds his charitable remainder trusts, his ongoing financial and volunteer support for the alumni fund, and even his support for student social well-being. When former patients asked Dr. Spinelli how they could repay him for his extraordinary, compassionate care, he often suggested that they make gifts to the School of Medicine; in addition to several other gifts, one donor, Mrs. Charles E. Nixdorff, astonished Dr. Spinelli by leaving a bequest to Yale of more than \$500,000.

In expressing his appreciation to Dr. Spinelli, Yale President Benno C. Schmidt Jr. said, "I remain deeply grateful for your outstanding personal and financial commitment to the mission of the school. Your loyal support has done much to nourish the school and University, and I thank you for your continuing interest and involvement."

My Gift to Yale, Yale's Gift to Me

Fifty-five years ago, at age 16, I began an 11-year journey through my undergraduate, graduate, and post-graduate (medical residency) education at Yale. As a self-supporting student, the generosity and financial support of Yale University made this education possible. A lifetime later, I can objectively state that the quality of the education I received and observed was unexcelled anywhere in this country or the world. This is a debt that I can never repay materially.

At the twilight of life, I rank education as among the most vital social values to be preserved for our posterity. It is one of the treasured gifts we can bestow upon the future generations of our country. In these sober times, extraordinary efforts and means must be expended to preserve the excellence of Yale; this means

the support of our alumni in unprecedented forms and dimensions. We all have received so much.

It has been, in addition, my God-given privilege to live a lifetime just 20 miles from New Haven. This has afforded me the gift of continued education and stimulation at our medical school, through the tenures of many deans and many University administrations. Throughout, the discipline of excellence has been a gift that Yale has continuously bestowed. It has been a privilege to witness excellence defined in all areas of Yale education and functions, be they music, drama, art, Renaissance literature: in a word, university.

Nicholas P.R. Spinelli, M.D. '44

OBITUARIES



Wilhelm S. Albrink

Wilhelm S. Albrink

Wilhelm S. Albrink died July 28 at Alta Bates Hospital in Berkeley, Calif. He was 75.

A native of Napoleon, Ohio, Dr. Albrink graduated from Oberlin College, received a Ph.D. from Yale University in 1941 and an M.D. from Yale University School of Medicine in 1947. Following a residency in pathology at Yale-New Haven Hospital from 1947 to 1950, he served on the faculty at Yale as associate professor.

In 1961, Dr. Albrink was appointed professor and chairman of the department of pathology at the West Virginia University Medical Center. He was instrumental in establishing a bioethics program and the History of Medicine Society and later served on the Institutional Review Board for Research on Human Subjects.

He is survived by his wife, Margaret J. Albrink, M.D., '46, who retired as emeritus professor of medicine at West Virginia University, three sons, Frederick, John and Peter; two brothers; and two grandchildren.

Contributions may be sent to the Wilhelm S. Albrink Lectureship in Bioethics, WVU School of Medicine Development Office, G-106 HSN, Morgantown, WV 26505.

Russell N. Anderson

Russell N. Anderson, M.D., died Sept. 18 while vacationing in the San Juan Islands. He was 69.

A native of Tacoma, Wash., Dr. Anderson was a graduate of Willamette University and a 1950 graduate of Yale University School of Medicine. He was a World War II physician, and later practiced at Northgate Hospital in Seattle, where he served as chief of staff, a member of the board of governors and president of the board of trustees. He also served on the board of trustees for the King County Medical Society. He was a diplomate of the American Board of Family Practice.

In 1972, Dr. Anderson joined the Joint Commission for Accreditation of Health Care Organizations. He was past-president of Seattle Preschool for the Blind and was avidly involved with environmental organizations.

He is survived by his wife, Jo Ann; three daughters, Margaret, Judith and Elizabeth; three sons, Stephen, Carl and Mark; two stepchildren, Debra and Randall; and nine grandchildren.

Contributions may be made to the Dr. Russell N. Anderson Scholarship Fund, c/o University Congregational Church, Seattle.

Samuel Alpert

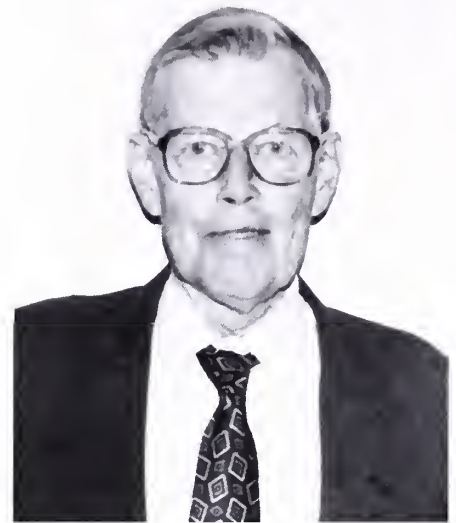
Samuel Alpert, M.D., died Sept. 4 at his home in Riverdale, N.Y. He was 84.

Dr. Alpert specialized in endocrinology and diabetes. He served as chief of medicine and of the diabetes clinic at the Veterans Administration Outpatient Clinic in Manhattan.

A fellow of the American College of Physicians and a diplomate of the American Board of Internal Medicine, Dr. Alpert was a major and a flight surgeon in the Army Air Corps during World War II, serving in North Africa and Italy.

Dr. Alpert attended Yale College and, in 1930, graduated from the School of Medicine.

He is survived by his wife, Dorothy, and a son, Robert.



Charles A. Hall

Charles A. Hall

Charles A. Hall, M.D., died at his home in Loudonville, N.Y., on July 27. He was 71.

A native of Maine, Dr. Hall graduated from the University of Maine and, in 1944, from Yale University School of Medicine. During World War II, he served as a troop physician on Army transport ships.

For 20 years, Dr. Hall was principal medical investigator for the Veterans Affairs Medical Center in Albany and also was the director of the center's Nutrition Laboratory for Clinical Assessment and Research. He held positions as chief of hematology and radioisotope service departments at the medical center and was responsible for the description of Transcobalamin II and other discoveries in enzymatic defects in cobalamin (vitamin B12) metabolism. In May, Dr. Hall was named the VA Medical Center's Physician of the Year.

He was a member of the American Federation for Clinical Research, the American Institute of Nutrition, the Society for Experimental Biology and Medicine, and the International Committee for Standardization in Hematology B12 Panel.

He leaves his wife, Mary; two daughters, Nancy and Christine; three sons, Peter, Andrew and Dominic; and six grandchildren.

Contributions may be sent to the Farano Center, 25 N. Main St., Albany, NY 12203.

Robert H. Areson

Robert H. Areson, M.D., died Oct. 12 on an annual hike at Baxter State Park, Me. He was 75.

A native of Montclair, N.J., Dr. Areson was a co-founder of the Montclair Medical Group, where he specialized in diabetes for 32 years, until his retirement in 1981.

Dr. Areson was a past-president and chairman of the board of Camp Neveda, a camp for diabetic children in Stillwater, N.J. He also was past-president of the New Jersey Diabetes Association.

He served as corporate medical director for Union Camp Corp., a paper company in Wayne, N.J., from 1969 to 1989, where he developed the company's industrial hygiene department and, in 1975, established an employee alcohol and drug dependency rehabilitation program.

Dr. Areson received his B.A. degree in 1937 from Dartmouth College and his M.D. degree in 1941 from Yale. He was a diplomate of the American Board of Internal Medicine. During World War II, he was a lieutenant commander in the U.S. Navy, serving in the Aleutian Islands and the South Pacific.

He also was past-president of the medical staff at Mountainside Hospital in Glen Ridge, N.J., and of the Essex County Medical Society.

He leaves his wife, Lois; three daughters, Nancy, Sally and Susan; three sons, David, Peter and Paul; and eight grandchildren.

Robert M. Lowman

Robert M. Lowman, M.D., professor emeritus at the School of Medicine, died Dec. 4 in Yale-New Haven Hospital. He was 78.

Dr. Lowman was professor of radiology at the School of Medicine for 40 years before he retired in 1983. For 10 years he directed the radiology department at the former Grace Hospital, where he specialized in gastrointestinal radiology and initiated development of a mammography service.

He was past-president of the New

Haven Medical Society and the New England Roentgen Ray Society. A native of Baltimore, Dr. Lowman graduated from Harvard University and the University of Maryland Medical School.

He is survived by a daughter, Gail; a son, George; and two grandchildren.

Memorial contributions may be made to the Yale Alumni Radiology Research Fund, c/o Dr. Robert White, Yale School of Medicine, 333 Cedar St., New Haven, CT 06510.

Charles L. Mache Jr.

Charles L. Mache Jr. died Feb. 3 in Buffalo General Hospital at age 67.

Dr. Mache received a B.S. degree in 1945 from Yale College and an M.D. degree in 1947 from the Yale University School of Medicine. Dr. Mache began his private pediatric practice in 1953 in Snyder, N.Y., and also served on the staff at Children's Hospital.

Dr. Mache was a member of the American Academy of Pediatricians, the American Medical Association and the Buffalo Pediatricians Society.

He leaves his wife, Mary; and two daughters, Cynthia and Cathryn.

Elizabeth Thomson

Elizabeth Thomson died Dec. 29 at Yale-New Haven Hospital. She was 84.

A native of Holland Patent, N.Y., she was a 1931 graduate of Simmons College and received a master's degree from Mount Holyoke College.

She was an editorial assistant for Mount Holyoke College and the National League of Nursing Education before joining Yale in 1945 as an assistant in research at the Medical Historical Library. Between 1951 and 1972, she served as a research assistant and, later, associate in history of medicine.

At the time of her death, she was writing a biography of Dr. John F. Fulton, one of the three founders of the medical historical library at Yale. She co-authored two books with Dr. Fulton: *Benjamin Silliman, 1779-1864, Path-*

finder in American Science; and Harvey Cushing, Surgeon, Author, Artist.

Ms. Thomson served as editor-in-chief of the *Journal of the History of Medicine and Allied Sciences*. She was a member of the board of officers and trustees of the Harvey Cushing/John Hay Whitney Medical Library, and a member of the Beaumont Medical Club and the Nathan Smith Club at Yale.

Memorial contributions may be made to the John F. Fulton Book Fund, Harvey Cushing/John Hay Whitney Medical Library, 333 Cedar St., New Haven, CT 06510.

In Memoriam

Willis J. Snow '26 M.P.H.
September 16, 1991

Samuel Alpert '30 M.D.
September 4, 1991

Charles L. Wood '30 M.D.
July 20, 1991

Edward V. Carvey '35 M.D.
October 17, 1991

Dean Lester W. Burket '36 M.D.
June 29, 1991

D. Crosby Greene '37 M.D.
November 27, 1991

Jean H. Nelbach '38 M.P.H.
September 28, 1991

Robert M. Dunlap '40 M.D.
October 27, 1991

Robert H. Areson '41 M.D.
October 12, 1991

Albert W. Bostrom Jr. '47 M.D.
April 19, 1991

Russell N. Anderson '50 M.D.
September 18, 1991

Bruce W. Jackson '66 M.D.
June 18, 1991

Laura Kuckes '88 M.D.
August 5, 1991

Peter A. Grannum M.D.
January 21, 1991

ALUMNI REPORT

Meaningful communication with alumni/ae is the most important function of the Office of Alumni Affairs. We design our various projects to achieve this goal. At times communication is difficult, however, because of the wide geographic dispersion of our classmates and friends. Class secretaries transfer available information about their peers but busy alumni/ae don't always inform their class secretaries of professional achievements and developments in their personal lives.

The Alumni Office welcomes your letters. We also solicit your ideas on improving the school and the Association of Yale Alumni in Medicine. Are there programs that would make the association more pertinent to you? Inclusion of your suggestions in the plans for the coming year will strengthen our association and help us to represent all of you. Communication can avoid disappointments and misunderstanding.

Our office continues to offer help and expertise in establishing medical student class groups; our goal is to form the structure of a class organization that will be effective immediately after graduation. As part of this process, we encourage the appointment of class secretaries and agents before graduation.

This process of nurturing students as "future alumni/ae" is aided by alumni attendance at students affairs, both academic and social, which is welcomed by the students and enjoyed by the alumni. Increasing numbers of our graduates are attending annual events such as the Cadaver Ball and the Second-year Show. Furthermore, the Medical Student Council has applied for and received a gift from the Yale Alumni Association of Greenwich, Conn., to enhance the quality of student life. The project, named "Recovery Room," will support the badly needed rehabilitation of the basement lounge area in Harkness dormitory.

Returning alumni/ae will share the opportunity to reminisce and catch up with old friends at our annual Alumni Reunion Weekend held on June 5 and 6. All alumni/ae are encouraged to attend. Quinquennial reunions (celebrated every five years) will be held for classes ending in the years "2" and "7." For a preliminary schedule of events, see page 43.

Completion of the 1992 School of Medicine alumni directory is expected in June. Questionnaires and verification of data by telephone are being efficiently completed by the Harris Publishing Company, Inc. We look forward to the directory's completion and inclusion in our library. The Harris Company will solicit your subscription after confirming the questionnaire data to save you a second call.

The new Office of Alumni Affairs, located in the former Lee High School (100 Church Street, South, Suite 213), is spacious and attractive. An area has

been designed especially for use by our alumni volunteers, and plenty of free off-street parking is available. You are welcome to drop by for a visit and tour. Our new mailing address is Office of Alumni Affairs, Yale University School of Medicine, P.O. Box 7613, New Haven, CT 06519-7613. The telephone number is unchanged at (203) 785-4674. We expect to hear from you.

Finally, I would encourage all who have not contributed to the alumni fund to do so. The need for student financial aid and for the dean's unrestricted fund is real. Your response to the Kresge Challenge was superb; our 1992 goal is to maintain or exceed the participation rate of 56 percent and a total gift of \$700,000. Remember, every contribution counts.

*Arthur C. Crovatto, '54 M.D.
Director of Alumni Affairs*



Dr. Arthur Crovatto, director of alumni affairs, and Connie Tolliver, assistant to the director, in their new 100 Church Street South offices.

Highlights: Alumni Weekend June 5 and 6

Friday, June 5

- 8:00 a.m. Registration
- 1:00 p.m. Class reunion seminars (concurrent)
- 4:00 Special presentation
“Changing the curriculum within the Yale System”
Moderator: Robert H. Gifford, M.D.
Associate dean, education and student affairs
- 5:00 Dean’s reception

Saturday, June 6

- 8:00 a.m. Registration
- 9:00 Surgical grand rounds
Introduction: William F. Collins, M.D., chairman, department of surgery
- 9:15 Faculty seminars
- I. “How We Construct a Representative First-Year Class”**
Moderator: Robert H. Gifford, M.D.
Associate dean, education and student affairs
- II. “The Who and the How—The Care of Your Now-Dependent Parents**
Moderators: Leo M. Cooney Jr., M.D.
Humana Foundation Professor of Geriatric Medicine
Ronald Miller, M.D., associate clinical professor of medicine
- III. “The Second Decade of the AIDS Epidemic”**
Moderator: Gerald H. Friedland, M.D., director, AIDS program
Professor of medicine and of epidemiology and public health
Elizabeth Cooney, M.D.
Director of HIV care, West Haven Veterans Affairs Medical Center
- 10:45 Annual meeting of the Association of Yale Alumni in Medicine
- 12:30 p.m. Sherry and buffet luncheon
- 2:45 Guided tours: Yale Center for British Art, historic sections of New Haven

CONTINUING MEDICAL EDUCATION AT YALE

**Saturday
May 16, 1992**

**The Journey of the Contemporary American Family:
New Frontiers**

(A)

Directors: Jane Gross and Janet Stork

This conference will bring together leading authorities in the areas of marriage, child development, parenting and family systems.

**Wednesday
May 20, 1992**

**Comprehensive Care of the Pediatric Patient:
The Acute Abdomen**

(B)

Director: Robert J. Touloukian, M.D.

**Wednesday
May 20, 1992**

Clinical Controversies in Infectious Diseases 1992

(C)

Director: Vincent Quagliarello, M.D.

This symposium commemorates the 50th anniversary of the clinical use of penicillin in the United States at Yale-New Haven Hospital.

**Wednesday
May 27, 1992**

Fifth Annual Rheumatology Symposium - Lyme Disease

(D)

Director: Robert Schoen, M.D.

This symposium will provide a focused update on all aspects of Lyme disease.

**Friday
June 5, 1992**

Yale Alumni/ae in Ophthalmology Symposium

(E)

President: Robert L. Lesser, M.D.

This symposium will deal with the latest advances in excimer laser, glaucoma, retina and ophthalmic plastic surgery.

**Friday-Sunday
August 21-23, 1992**

Thrombosis, Thromboembolism and Thrombolysis

(F)

Director: Michael D. Ezekowitz, M.D., Ph.D.

This course is designed for physicians and other health care professionals faced with treating patients with thromboembolic disease.

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YALE MEDICINE

Alumni Bulletin of the School of Medicine

Summer 1992

*Yale and the West Haven VA
A Partnership Renewed*

*Dr. Gerard N. Barrow
Appointed YSM Dean*



4 America the Beautiful: Who are You Beautiful for?

In his commencement address, Dr. Frank J. Bia asks 1992 Yale medical graduates to prepare themselves for the pressures of a medical system that often devalues the most vulnerable members of society.



6 Yale Orthopaedics: Just Short of Miraculous

Orthopaedists have harnessed the human body's natural healing power to offer new hope to patients with once fatal bone diseases. Discover the latest in orthopaedics and rehabilitation.

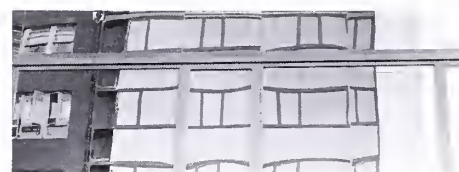
12 Emerging from the Shadows

Dr. P.H. candidate Linda Schwartz, a former Air Force nurse, highlights the rich history of women in the United States Armed Forces—much of it in medical service.



19 A Partnership Renewed

A \$90-million capital renewal project at the Veterans Affairs Medical Center in West Haven serves as the backdrop for cooperation with Yale in patient care, education and research.



27 A Career in Military Medicine

Raymond L. Sphar, M.D., M.P.H. '72, recalls more than 30 years as a physician and research scientist in the Navy, a career that grew up with America's nuclear fleet.

2	Editor's Message	42	Commencement	52	Student News
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34	Student Research Day	50	Alumni News	56	Development Report
40	Residency Placements	52	New Books	57	Continuing Education

On the cover: (From left) Incoming medical school dean, Dr. Gerard N. Burrow, gets a briefing on the progress of construction at the Department of Veterans Affairs Medical Center in West Haven from Norman E. Browne, director; Dr. Colin E. Atterbury, chief of staff; and Dr. Robert M. Donaldson Jr., former acting dean. (Photograph by Harry Bishop.)

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Dr. Michael Kashgarian, professor of pathology and biology, is editor of YALE MEDICINE. The tri-annual magazine is produced by the School of Medicine Office of Public Information: Helaine Patterson, director; Gregory R. Huth, publications editor; L. Rosalind D'Eugenio, media specialist; Claire Bessinger, office manager, editorial assistant; Cheryl Violante, senior administrative assistant; William McKeon, office assistant.

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GERARD BURROW NAMED DEAN

Gerard N. Burrow, M.D., previously vice chancellor for health sciences and dean of the University of California, San Diego School of Medicine, was named dean of the Yale University School of Medicine, effective July 1. Former Yale President Benno C. Schmidt Jr. made the announcement at a press conference in Harkness auditorium on April 15.

Dr. Burrow, a 1958 YSM graduate and a member of its faculty for 10 years, was selected after an international search involving more than 140 candidates. He succeeds Dr. Leon E. Rosenberg, who last September was named president of Bristol-Myers Squibb Pharmaceutical Research Institute, based in Princeton, N.J. Dr. Robert M. Donaldson Jr., now on sabbatical, served as acting dean.

In announcing Dr. Burrow's appointment, Mr. Schmidt said: "We are fortunate indeed that Gerard Burrow is returning to Yale to lead the School of Medicine at this important time. Dr. Burrow will bring to the deanship extraordinary academic and administrative capacity. He is a superb and caring physician who has carried forward important research in endocrinology and other medical areas. He brings unparalleled administrative experience in managing the development of contemporary medical institutions."

Commented Dr. Burrow: "These are the best of times, and these are the worst of times for medicine in the United States. Advances in molecular and cellular biology are causing a revolution in clinical medicine. At the same time, 35 million Americans have no health insurance. This is a historical moment for leadership that can come from a great university medical school. I am

delighted to be back at Yale and look forward to working with the outstanding faculty and students."

At the San Diego medical school, where Dr. Burrow has served as vice chancellor and dean since 1988, he guided a major construction program and has helped recruit an outstanding faculty.

In addition to his leadership in American academic medicine, Dr. Burrow brings to Yale extensive experience in the Canadian health-care system. He spent 11 years in Toronto, Canada. From 1981 to 1987, he was physician-in-chief at Toronto General Hospital, and the Sir John and Lady Eaton Professor and chairman of the department of medicine at the University of Toronto. Prior to that, he was director of the division of endocrinology and metabolism at Toronto General Hospital and professor of medicine at the University of Toronto. He also was professor of obstetrics and gynecology at the University of Toronto between 1978 and 1987.

Dr. Burrow, a Boston native, earned a B.A. degree in 1954 at Brown University and completed his internship and residency training at Yale-New Haven Hospital between 1958 and 1966. He served as chief resident from 1965 to 1966. Dr. Burrow is a member of the Institute of Medicine of the National Academy of Sciences, Society for Clinical Investigation, Association of American Physicians, and Sigma Xi, the national scientific honor society.



Dr. Gerard N. Burrow

Michael Marsland

EDITOR'S MESSAGE

A New Dean, a New Dawn

It takes more to make one sage today than it did to make seven of Greece... Baltasar Gracián

It is not often that I take advantage of my position as editor to write for YALE MEDICINE, but the appointment of a new dean deserves comment. Medicine is facing critical times. Health-care delivery is on everyone's mind. The public desires access to the most modern of diagnosis and treatment but is also acutely concerned with the quality of the care they receive. The benefits of drugs, prosthetic devices, diagnostic procedures and treatments must far outweigh any potential risk. Indeed, our patients expect the very best in results and do not expect adverse effects or misadventures.

Whereas our patients must weigh risk against benefit, employers, insurers and third-party payers are more concerned with cost and efficiency. Health-care costs are escalating, and business and industry are advocating managed health-care systems as a form of medical rationing. Physicians are under constant surveillance with pattern-of-practice review and pre-admission certification. In response to these concerns as well as the constant threat of litigation, they are practicing a brand of defensive medicine which often over-utilizes expensive resources, and ignores the art of medicine.

Biomedical science is also under siege. Basic scientists are no longer viewed as altruistic explorers of nature. The Baltimore and Gallo incidents have raised questions, not only about the validity of new science, but also about the self-serving motives of scientists with inflated egos. The ideas and discoveries of investigators are no longer part of the public domain. Science and scientists are now a commercial commodity. They are the resources for venture capitalists. New offerings are made on Wall Street merely by assembling a scientific advisory board of Nobel prize winners and members of the National Academy. Even the stuff we are made of, our genome, is being patented.

Universities are also under scrutiny. The allocation of the indirect costs of sponsored research has embarrassed the previously hallowed halls of ivy. New forms of resource generation are being sought by medical schools, ranging from expansion of clinical practice to patronage from the biomedical industry. These efforts have raised concern that the true mission of the medical school, education, is being subjugated to more mercenary goals.

This is the unsettled, even hostile environment that we in medicine face today. Our traditional mission here at Yale has been to prepare young men and women to enter the profession of medicine and to give them the knowledge and technical skills essential to clinical practice, teaching and research in biological and medical sciences. Our educational goals must be modified to directly face the problems and concerns of modern medicine in the '90s and in the century to come. The major challenge to medical education now is the integration of a rapidly increasing fund of basic biomedical knowledge into a new pattern of the delivery of medical

care. It calls for a rapid transfer of science and technology from the laboratory to the clinic. It must emphasize ambulatory care and preventive medicine rather than hospitalization. It must be productive and efficient at the same time that it is compassionate and caring. It must use the skilled practitioners of the community as well as the clinician-scientists of the academy to educate our students. Our institution must lead in charting new ways for health-care education and delivery which embody all of these aspects.

This is the challenge that our new dean faces. Gerard N. Burrow, M.D., Class of 1958, is well equipped to meet it. The national search for a dean has succeeded in identifying an individual whose talents and experience are uniquely qualified for the task. Dr. Burrow is a product of the Yale system of medical education. He is both a clinician and a medical scientist. His career has led him through the wilds of the Canadian health system, and he has already tasted the rewards and agonies of being a dean at the University of California at San Diego. He combines the talents of the medical scientist, skilled clinician, effective educator and experienced health science administrator. His leadership will ensure a prominent role for Yale in medicine of the 21st century.

Welcome home, Gerry! We, the alumni of this school, stand ready to support you in every way we can.

Michael Kashgarian, M.D. '58

Welcome Dean Burrow

Editor's note: *The following editorial appeared in the April 26, 1992 edition of the New Haven Register. It is reprinted with permission.*

New Haven should be heartened by the words of the new dean of the Yale School of Medicine, Dr. Gerard N. Burrow. He takes over July 1. At a press conference last week, Dr. Burrow made special mention of the city, saying he intends to have the medical school under his leadership play an important role in inner-city New Haven. Heaven knows New Haven, particularly its poor and ill, can use all the help and attention it can get. Infant mortality, AIDS infection, drug abuse and gunshot wounds are just a few of the crises here that can challenge the Yale School of Medicine, can inspire the institution to look for ways it can help arrest those problems. A dean who makes it clear he's interested in inner-city problems here, before he even starts the job, is a promising signal for New Haven.

LETTERS

Sterling Associates

To the editor:

In the Fall/Winter 1991-1992 edition of *YALE MEDICINE*, two alumni were omitted from the list of Sterling Association members. Sheldon A. Jacobson, M.D. '28, and Jacob E. Tauber, M.D. '76, are both 1990-1991 Sterling Association Fellows. Their commitment does mean a great deal to the School of Medicine and its alumni fund, and I would like to thank Drs. Tauber and Jacobsen again for their gifts.

Monica C. Robinson
Director
School of Medicine Alumni Fund

Future Physicians Still Dedicated

To the editor:

Ann Pecora Diamond's letter, "A Daughter's Tribute," which appeared in *YALE MEDICINE* Spring 1992, was very touching. I am certain that her father is an extraordinary individual and has been a model practitioner for these past 50 years. Ms. Diamond's respect for his work and her admiration of him is very heartwarming.

However, I must take exception to some comments in her letter, as I think that they are somewhat unfair. She indicates . . . "that one of the reasons medicine is not the respected profession it once was, is that too many of its younger members no longer share the value of dedication to the service of their fellow human beings that the older members took for granted. Medicine today has become a business." Let me respectfully say that I have had the privilege of teaching Yale medical students for the past 32 years. I continue to be in awe of their dedication, sense of caring for the poor and underprivileged, and high sense of ethics and morals. Ms. Diamond's comments about the younger members of the

profession do not do justice to a large number of nascent doctors who represent the very best of our young caregivers.

Let me also say that I graduated from medical school 34 years ago. In my class and in the classes of other medical schools of that year, there were a range of individuals. Some of them were very idealistic, and like her father have continued to provide the best of medical care for all of their careers. Others were more interested in the monetary gains in medicine and looked at the profession as a business. Perhaps doctors of a previous generation were not very different from current ones.

So, I think that the issue is not so clear cut as Ms. Diamond makes it to be. Again, I applaud her admiration for her father, but I do feel she has done an injustice to many wonderful young doctors.

Lawrence S. Cohen, M.D.
Deputy dean

Editor's comment:

Yale continues to take pride in producing physicians who can combine the utmost skill with the special art of caring in their practice. The same educational philosophy which produced Dr. Pecora is still in place today. Although our current graduates enter an environment more suspicious, even hostile to medicine than in recent memory, I am sure that they are prepared to exemplify the combination of personal integrity and academic achievement essential for the ideal compassionate physician.

International Progress

To the editor:

Congratulations on the Spring 1992 edition of *YALE MEDICINE*. What a splendid tribute to Yale's growing tradition of commitment to global concerns. The diversity and depth of university interests and talents that focus on matters international is a surprise, even to those of us involved. Sometimes being close to the trees. . .

The welding together of the University through common concerns for our world's health and welfare is just in time to enter the 21st century!

Lowell S. Levin, Ed.D., M.P.H.
Professor of public health

More Warm Memories Of Wilbur G. Downs

To the editor:

Congratulations on the Spring 1992 issue of *YALE MEDICINE*. It is a great issue. I particularly enjoyed the article about Wilbur G. Downs. Let me share a little story about my relationship to Dr. Downs.

During World War II, while in the Army, I commanded the 133rd Malaria Control Unit. At the end of hostilities in Europe I was in Rome, Italy, where I was serving as the public health officer for the U. S. Army in Rome, controlling malaria in the Pontine Marshes and co-operating with the Rockefeller Foundation on the use of DDT.

With the war over in Europe, I was sent to the Pacific with my unit for the invasion of Japan. I arrived in Okinawa, where my unit was assigned to work with Maj. Wilbur Downs, who was the malariologist for Okinawa. Malaria was not a major problem there, but Japanese B encephalitis was, and Wil Downs assigned me and my unit to work on this problem with him. A great experience!

Eric W. Mood, M.P.H.
Lecturer in public health

Corrections

In the Spring 1992 *YALE MEDICINE*, the name of Nicholas M. Greene, M.D., was misspelled on page 3. On page 12, the medical school class year of Marie-Louise Johnson, M.D. '56, was listed incorrectly, as was the class year of Nicholas P.R. Spinelli, '41, M.D. '44.

AMERICA THE BEAUTIFUL, WHO ARE YOU BEAUTIFUL FOR?

by Frank J. Bia, M.D., M.P.H.

Dr. Donaldson, ladies and gentlemen, faculty, students, new physicians and proud families. Welcome to this joyous celebration of so many dreams fulfilled. Today that feeling is electric, and it charges the air around us with fresh hopes and expectations. This is as it should be, so I offer congratulations to all who have been privileged to participate in bringing these dreams to fruition.

Having said that I must ask you to reflect for a few moments on how immeasurably sad it would be if the visions which engaged your minds and spirits were not allowed to reach your horizons and beyond. Our species does not flourish when its individual and collective dreams go wanting. Langston Hughes, the African-American poet, asked us this same question:

*What happens to a dream deferred?
Does it dry up
like a raisin in the sun?
Or fester like a sore
and then run?
Does it stink like rotten meat?
Or crust and sugar over—
like a syrupy sweet?
Maybe it just sags
like a heavy load.
Or does it explode?*

Recent events in Los Angeles, once again, have answered Hughes' question and point to several converging forces which will, most certainly, soon touch your lives. As new physicians you will labor at the interface between the biomedical sciences and this diverse society with which you have formed a social contract today. In so doing you join the fellowship of men and women who have aided the sick for several millennia. In that relationship an unspoken pledge exists, a pledge to do our best for those under our care, regardless of ability to compensate on the part of either the patient or society. Our profession has a tradition of doing this, even under the most adverse circumstances, be our patients refugees from foreign wars or from urban blight.

Many of you have already contributed to the community. I have seen it—medical students teaching about AIDS to high school students, or introducing the biological sciences at Hillhouse High School under Dean Robert Gifford, and a multitude of individual efforts to make this city a better place.

Will you continue to care? The answer, I am afraid, could be "no" if you are not aware of the tide now moving against your very best intentions. Firstly, even your future comfort and status in this society can become a potent narcotic, and under such influences one cannot envy your mission as it takes you into the next century. Secondly, for better or worse, a reversion to 19th-century medical economics has occurred. An increasing proportion of medical care is now being provided by for-profit hospitals and business ventures which, frankly, must make their profits from illness in our society. How long would you expect such enterprises to remain in an environment serving an economically stressed inner city, or fragile families that are no longer "profitable" but increasingly in need. "But doctor," you will hear, "this market is no longer viable." Translation: Your patient population became an economic liability to the very institution or practice in which you work. What will you do?

To make matters more difficult, an increasing number of health professionals now own parts of these new and useful entrepreneurial ventures, such as home intravenous services and centers for specialized care. Where do those without financial resources fit into such a system? You will become a part of these decisions. It begins next month when you receive your first call from an insurance company representative who considers a patient admission unwarranted, or subject to severe restrictions. Welcome to managed care—and you are not necessarily considered the manager.

The dangers of such an environment become clearer when the subtle shifts of our own professional mind set, or *interior milieu*, are understood. The social contract that underlies our respected positions in society erodes when our time and efforts become tied up with institutional profits. Our role in society has clearly been a privileged one based upon a real trust in our advocacy for the patient, who has primacy in all our efforts, regardless of economics.

Twenty-five years ago, Sen. Robert Kennedy spoke rather hopefully in the Bronx at my own college graduation. It was June 1967. That July, the Kerner Commission was convened by President Lyndon Johnson, but it concluded that we ran the risk of becoming two societies "one black, one white—separate but unequal." Senator Kennedy and Dr. Martin Luther King Jr. were both dead before I had even completed my first year of medical school. The '60s were over, but I need not apologize for the aspirations. Since that time our society has become increasingly divided along those very lines which many then hoped to obliterate.

Today we applaud encouraging events in the former Soviet republics and South Africa, as if we are observing from the moral high ground. In fact, our own society slips increasingly into *apartheid* itself. We are divided into haves and have

Frank J. Bia, M.D., M.P.H., associate professor of medicine and laboratory medicine, delivered the 1992 Yale University School of Medicine commencement address.

nots—into affluent suburban and poorer urban citizens based upon unequal educational opportunities, and disparate technological competence in a very complex and demanding world. What makes it so sinister is that we fracture along persistent racial and ethnic fault lines.

So here you are, ready to launch your career into a tempest of intersecting storms. How do you maintain your empathy and compassion in the face of institutional demands to maximize your productivity and minimize that which does not generate profit? Incidentally, teaching, be it in grammar school or medical school, often falls into that same category: No profit, no gain.

Well, it has been said that your best opportunities may come to you disguised as unsolvable problems. What do you do in the meantime? You remember your original goals, and seek a balance. The philosopher, Hillel, asked us:

*If I am not for myself, who will be for me?
If I am only for myself, what am I?
If not now, when?*

What is your real social contract? In essence, to strive to always make a difference for the better. By contributing your gifts equally to all members of this society, you begin to fulfill that vision. Do not simply accept—or even worse—tolerate our ethnic, racial and cultural diversity in your professional lives. This society is not a melting pot, nor should it ever become one. It is a multicultural mosaic, with many diverse pieces, interlocking relationships, all in living colors, which are never static. Revel in it—more importantly, be a constant part of it, and teach your children to do the same.

Societies must be built upon an equal access to that which is good—and that includes you. Remind your health-care institutions, group practices, and even the dreaded third-party payers, that you answer to yourself and to the society which gave them life, along with the freedom to succeed. If you do not do so, you run the risk of also becoming part of the problem, not part of the solution. If, during these expectant days between graduation and internship, you can neither recall what was said here, nor who even said it (as sometimes occurred in medical microbiology), then just hold this single thought.

A child at what passes for an elementary school in today's South Bronx was asked to write a poem to present to Jonathan Kozol, the author of *Savage Inequalities*, during his visit there. No longer wide-eyed and innocent, she lives a life that does not quite match our manufactured television sit-com images of reality. She is rightfully bitter and resentful about her leaking school roof, rotting plumbing, emphysematous heating systems, dangerous environment and poor health care. For they all punctuate the egregious process already beginning to condemn her to the lowest rungs on our social ladder.

Her two-line poem is worth committing to memory for the rest of your professional lives. I offer you her poem and her question as my parting thought for the Class of 1992. She writes:

*America, the beautiful,
Who are you beautiful for?*

The harder you try to answer that question, the better physicians you will become. You have my word on it, but I think *she* really has said it all. YM



Dr. Frank J. Bia

Frank J. Bia: Leader in International Health

Frank J. Bia was born in the Bronx and attended Fordham University, the Jesuit university in New York City. He received his medical degree from Cornell in 1971, and spent the next year in South America and at the Harvard School of Public Health obtaining his M.P.H. degree in microbiology and tropical public health. Following four years of medical residency at the University of Pennsylvania, he came to Yale as a fellow in infectious diseases in 1976, ultimately joining the medical faculty headed by Dr. Samuel Thier.

His initial laboratory investigations centered on the pathogenesis of viral infections. While working with Dr. Edith Hsiung, he isolated and characterized a new herpesvirus of animals while engaged in studies of human cytomegalovirus infections. His career gradually moved him into tropical medicine and international health, while working in Haiti, China and Thailand. He is committed to bringing young physicians into the developing world as part of their clinical training, and he has a particular concern for the Albert Schweitzer Hospital of Haiti.

In 1991, he was one of 45 individuals in the United States chosen by the W.K. Kellogg Foundation of Battle Creek, Mich., as Kellogg National Leadership Fellows for three years. These fellows are felt to have high potential for future leadership in their fields. He lives with his wife, Peggy, who is also a member of the Yale medical faculty, and their two young boys, Jesse and Joshua.

ORTHOPÆDICS AT YALE: JUST SHORT OF MIRACULOUS

by John Dinolfo

To introduce the uninitiated to his specialty, Gary E. Friedlaender, M.D., chairman and chief of orthopaedics and rehabilitation, engages them in a small ritual. Turning to his desk, which is buried under a snowdrift of papers, he pulls out a side drawer and produces a framed print that depicts two gaunt, bearded saints named Cosmos and Damian. In the Brueghel-like painting, filled with images of revival and divine light, the third-century physicians perform an entire leg transplant on a dying nobleman.

"They're orthopaedic surgeons," Dr. Friedlaender suggests with a wry smile. "You can tell by the halos."

All jesting aside, as recently as two decades ago, it would have taken a miracle of similar magnitude to save the leg of 14-year-old "Christy." Her X-rays revealed a tumor forming at the distal end of the femur, the thigh bone near the knee. With a diagnosis of osteosarcoma—bone cancer—the best chance at extending the teen-ager's life would have required amputation above the knee. Even with this drastic treatment, the odds that Christy would live to celebrate her 20th birthday would have been only one in five.

Contrast the scenario today. Because of a range of clinical advances, amputation in Christy's case is unlikely. For instance, improvements in chemotherapy, bone banking and bone transplantation now provide the teen-ager with at least a 70 to 80 percent chance to walk down the aisle at her college graduation—on two healthy legs.

In the orthopaedic surgical unit at Yale-New Haven Hospital (YNHH), Christy's surgeon replaces her distal femur with an allogeneic bone transplant, a frozen femur altruistically donated by another person at the time of death and made available through a national bone bank system. Although her immune system recognizes the dead tissue as foreign and reacts to it, unlike with living, solid organ transplants—such as the kidney, heart or liver—the response is not severe enough to require immunosuppression.

Before Christy leaves the hospital a week later, her blood vessels have begun to grow into the graft and living bone cells are replacing those of the donated tissue, which serves as a kind of template. Implantation of the cadaver-derived allograft not only allows Christy to keep her lower leg; with rehabilitation over the next year, she will regain a remarkable range of function, including up to 90 degrees of flexion of her knee. Within the next five years—thanks to the skeleton's natural self-maintenance—Christy's living bone cells will replace much of the dead tissue of the allograft.

With such results, even saints Cosmos and Damian would have been pleased. For just short of miraculous is the human body's virtuosity in transforming dead, frozen bone into live, viable tissue. This healing ability has been a welcome discovery for the estimated 2,000 Americans affected annually by osteosarcoma, most of whom are between ages 10 and 25.

Many of these young people will join thousands of other Americans who will receive bone transplants to repair defects caused by major trauma or surgery for various cancers or other diseases. This year in the United States, an estimated 200,000 bone transplants or implants of various sizes will be performed—more than 100 of them at YNHH. "The national number is expected to increase fivefold by the end of the decade," notes Dr. Friedlaender.

A former president of the American Council on Transplantation, Dr. Friedlaender performs 10 to 12 large bone transplants each year and scores of other transplants and implants. The vast majority of allografts are done in young or middle-aged patients—those most suited to endure surgery's rigors and many months of rehabilitation. The dramatic increase in bone transplants nationwide in the past decade has followed major advances in bone banking approaches and in chemotherapy to prevent cancer spread or recurrence.

"Our group at Yale has helped to pioneer the bone-banking methodology," explains Dr. Friedlaender, "from the technical aspects of removing the bone to the ethical issues involved in approaching the public."

Bone transplants, however, represent only one aspect of the clinical care provided by the department. Indeed, the faculty has advanced several areas in musculoskeletal medicine.

"It's an exciting time to be in orthopaedics," says Dr. Friedlaender. Medical students from around the world appear to agree. Each year, 400 to 500 apply for five available residency positions offered by Yale-New Haven Hospital.

Dr. Friedlaender himself came to Yale as a resident in orthopaedic surgery in 1971 and progressed through the ranks to become section chief in 1984. When orthopaedics and rehabilitation became a department in 1986, he was appointed chairman.

As a resident physician, Dr. Friedlaender received his primary training in orthopaedic surgery from Wayne O. Southwick, M.D., professor of orthopaedics and rehabilitation, a major force in this field for more than 30 years and Yale section chief from 1958 to 1979 and 1983 to 1984. Currently, Dr. Southwick is director of spine surgery at Yale-New Haven Hospital.

Dr. Friedlaender credits his mentor with laying the groundwork for today's department: "Dr. Southwick taught us to be

John Dinolfo, a free-lance writer, is a frequent contributor to YALE MEDICINE.

Continued on page 8



generalists with areas of interest," he explains. That ongoing tradition has allowed Yale orthopaedics and rehabilitation to contribute to the astonishingly rapid developments that have occurred in the field in the past decade—as reflected in the department's current clinical and research strengths.

Taking the Spine in for Repairs

"Over the years, we've been an international leader in the mechanics of the spine," Dr. Friedlaender notes. "We spend a great deal of effort learning how to hold the spine together once it's injured so that neurologic function will be protected or recover and the bone will heal and restore stability."

In this area, as well, the influence of Dr. Southwick comes to the fore. Since the late 1950s, he and his colleagues have developed a wide range of procedures and spinal fixation devices, including screws, rods, plates and other biofixtures to stabilize the spine during and after reconstruction. For some patients, these devices eliminate the need for a body cast.

Dr. Southwick often collaborates with bioengineer Manohar Panjabi, Ph.D., professor of orthopaedics and rehabilitation and director of orthopaedic biomechanics, whose innovative laboratory tests of cadaver spines have produced a wealth of new information about the types and amount of traumatic force the spine can endure.

"Dr. Panjabi has developed the data to understand how the spine is put together, what happens when it gets injured, and what degree of injury warrants surgical treatment," Dr.

Friedlaender explains. These data have been used to measure spinal instability in patients who suffer severe vehicular accidents or sports injuries and in the many people who suffer from chronic low-back pain.

Total joint replacement is also a major clinical focus at Yale. "It's now possible to reliably replace the hip joint and the knee joint," Dr. Friedlaender points out. "Ninety-five percent of these patients do well."

Part of this remarkable success rate is due to advances in biomaterials—such as porous metals into which bone can grow and which extend the life of synthetic joints. Better techniques to cement metallic prostheses to bone also have advanced the field. In the past decade, Richard R. Pelker, M.D., Ph.D., a professor in the department and director of Yale's total joint replacement services, has made major contributions to the development and evaluation of total knee replacement systems.

Kristaps Keggi, M.D., clinical professor of orthopaedics and rehabilitation, heads the joint replacement service at Waterbury Hospital, illustrating the department's commitment to statewide cooperation in patient care, education and research. Colleagues at Yale, Waterbury and elsewhere are trying to improve the success rate for joint reconstruction of the shoulder, elbow and wrist.

Yale is advancing the management of other skeletal abnormalities, as well. "We are learning how to stabilize fractures very rapidly and effectively, for example, complex pelvic fractures, to mobilize patients so they don't develop complications due to bed rest," Dr. Friedlaender says. Such clinical care and research is the purview of Michael R. Baumgaertner, M.D., assistant professor of orthopaedics and rehabilitation.

Disorders of the foot and ankle are also important to the department, and these responsibilities are shared by Elly Trepman, M.D., assistant professor of orthopaedics and rehabilitation and chief of orthopaedics at Yale University Health Service, and Enzo Sella, M.D., clinical associate professor of orthopaedics and rehabilitation.

A Rapidly Emerging Specialty

Sports medicine, a rising star among orthopaedics and rehabilitation specialties, also shines brightly at the School of Medicine. High school and recreational athletes comprise the largest number of sports medicine patients at Yale, though a growing number are professional and college athletes, including some Olympic hopefuls.

Located at New Haven's Long Wharf, the Sports Medicine Center is a collaborative program with Yale-New Haven Hospital. The center offers the full range of state of the art rehabilitative services, from the care of badly pulled muscles and the fitting of orthopaedic appliances, to advanced arthroscopic surgery—the most important clinical development in sports medicine in the past 10 years.

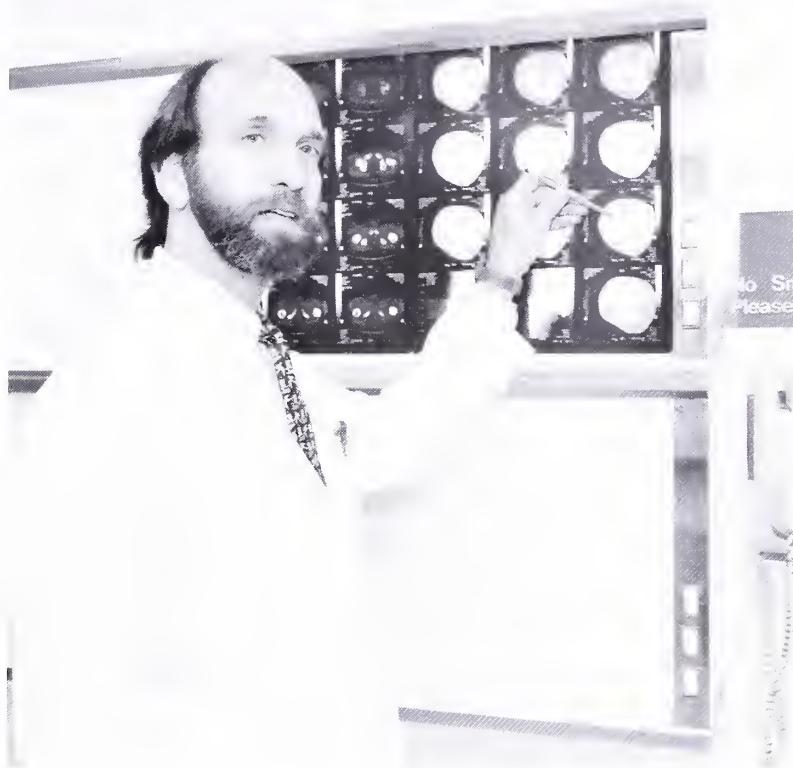
"At one time we used arthroscopy just to look," explains Peter J. Jokl, M.D., professor of orthopaedics and rehabilitation and president of the American Academy of Sports Medicine. "Now we both look and do big operations using that technique. We can perform arthroscopic procedures within almost any joint, thus dramatically reducing morbidity" as compared to other surgical methods.

University Provides Leadership In National Bone Banking System

Yale University is part of a nationwide system of bone banks which involves several universities and medical centers. Participating institutions preserve, catalog and store cadaver bones for grafting. This supply of donor bones is matched with potential recipients according to anatomical size and shape.

The medical history of the donor is carefully reviewed to rule out cancer or infectious diseases, such as hepatitis, AIDS or venereal diseases. Unlike solid organ transplants or blood transfusions, however, which involve living tissue, matching the donor's tissue or blood type is not required. With a bone allograft, the skeleton uses the donated tissue as a template which the body breaks down and replaces with the patient's own cells.

Dr. Gary E. Friedlaender, chairman of orthopaedics and rehabilitation, has been a leader in the bone banking system for nearly 20 years. In the early 1980s, Dr. Friedlaender was principal investigator for an NIH-funded multi-center study into storage methodology, logistics and clinical applications of massive bone grafts.



Dr. Gary Friedlaender answers residents' questions about a 5-year-old boy's recurrent tumor revealed by a CT scan of the proximal femur.

Yale is a major regional site for arthroscopic repairs to knee ligaments. During the last two years, Dr. Jokl and his colleagues have even used arthroscopy to repair tears to the medial meniscus, the gristle-like substance at the end of the tibia that allows the knee and leg bone to work together with a minimum of friction.

In the past, during knee surgery, menisci were usually removed. That practice, however, produced a high rate of premature arthritis. Today, as Dr. Jokl explains, "We try to save the meniscus. If we have to remove any of it, we take out as little as possible to maintain as much function as possible."

In fact, the meniscus has proved so important that Mare T. Galloway, M.D., assistant professor of orthopaedics and rehabilitation, is performing successful meniscal and ligament transplants in animals and in selected human patients. He hopes that these pioneering procedures will soon lead to improved surgical care of athletes whose damaged ligaments or tendons have been removed.

Additional staff at the Sports Medicine Center include John Daigneault, M.D., assistant professor of orthopaedics and rehabilitation, an expert in shoulder injuries. The center also offers the services of clinical faculty members J. Kevin Lynch, M.D., clinical associate professor, and Joseph Wu, M.D., clinical assistant professor.

Comments Dr. Friedlaender: "The Sports Medicine Center has been a model for collaboration of full-time staff and talented community-based clinicians."

Arthroscopic surgery at Yale is also commonly done to repair damage to the shoulder, elbow, hip and ankle. "We're even learning to put arthroscopes into the wrists and small joints of the hand to correct problems," says Dr. Friedlaender, referring to the innovative approaches being developed by Scott Wolfe, M.D., assistant professor of orthopaedics and rehabilitation and director of the hand and upper extremity service.

The Hip Bone's Connected to the...Immune System

In an era of interdisciplinary cooperation, orthopaedists have discovered that their field overlaps with immunology. In recent years, for example, biomedical researchers have uncovered key links between bone cells and immune cells, which both arise from common stem cells of the bone marrow. "We have also learned that many of the signals that direct bone remodeling come from immune cells," says Dr. Friedlaender. "So the immune system not only regulates potential bone graft rejection; it also appears to maintain normal bone homeostasis."

Trying to throw light on these dual features of the immune system is Mark C. Horowitz, Ph.D., associate professor of orthopaedics and rehabilitation and a noted immunologist. Such research is crucial, he points out, because patients develop a detectable immune response to 60 to 80 percent of bone transplants, especially large allografts.



Dr. Wayne Southwick explains the workings of a bone drill to Dieter Lindskog, a Yale undergraduate who is conducting a hip fracture study.

Photographs by James Anderson

"We can demonstrate that there is a real T-cell mediated response directed at the graft," Dr. Horowitz states. In other words, T-cells direct an immune system attack on the foreign cells in the graft as if transplants were foreign instead of self.

What distinguishes grafts that are rejected? In a word, cytokines. In cell culture experiments, Dr. Horowitz and colleagues have found that certain cytokines, specialized proteins made by T-cells, activate osteoblasts—bone-forming cells. Osteoblasts, in turn, stimulate another kind of bone cell called osteoclasts to begin the process of removing dead or decaying bone. This process, called resorption, is a key first step in the remodeling of normal or transplanted bone.

Orthopaedics and Rehabilitation Offers a Cornucopia of Services

Begun in 1958 as a section in the department of surgery, orthopaedics and rehabilitation graduated to full departmental status in 1986, in keeping with the medical school's Strategic Plan to expand services in musculoskeletal medicine. The department currently offers expertise in eight clinical subspecialties:

- spinal disorders, *Drs. Wayne Southwick, Thomas Renshaw, Manohar Panjabi and Trey Crisco;*
- joint reconstruction, *Drs. Richard Pelker, Gary Friedlaender and Kristaps Keggi;*
- molecular, genetic and cellular factors related to bone cancer, osteoporosis, osteoarthritis and other disorders of the skeleton, *Drs. Roland Baron, Gary Friedlaender, Caren Gmdberg, Mark Horowitz and Agnes Vignery;*
- sports medicine, *Drs. Peter Jokl, John Daigneault, Marc T. Galloway, Kevin Lynch and Joseph Wu;*
- disorders of childhood, including congenital and acquired deformities, *Drs. James Marsh and Thomas Renshaw;*
- repair of traumatic defects and fractures, *Dr. Michael Baumgaertner;*
- abnormalities of the hand and upper extremity, *Dr. Scott W. Wolfe;*
- foot and ankle disorders, *Drs. Elly Trepman and Enzo Sella.*

The department includes 17 full-time faculty; 11 focus primarily on clinical research and patient care and also staff a surgical division at the Veterans Affairs Medical Center in West Haven. Six faculty members focus exclusively on basic science—an unusually large contingent for an American orthopaedics department.

"There appears to be a critical balance," Dr. Horowitz says. "Too much cytokine production may induce graft rejection."

To try and prove this contention, he and his team are attempting to identify what level of cytokines are made by T-cells during bone transplantation. Once the researchers accomplish this, they will use advanced biomolecular techniques to determine the appropriate range of cytokine production for successful bone remodeling—and bone graft incorporation.

The Molecular Mechanisms of Bone Resorption

Roland Baron, D.D.S., Ph.D., professor of orthopaedics and of cell biology and director of biological research in the department of orthopaedics and rehabilitation, has been working with a team of 10 investigators on elucidating the molecular mechanisms by which osteoclasts resorb bone.

"The process of bone resorption is not restricted to diseases, such as osteoporosis, cancers or Paget's disease," explains Dr. Baron. "but is a normal process involved in bone growth, bone repair and bone turnover, replacing 20 to 30 percent of the skeletal bone mass every year." Hence, resorption maintains both the quality and the quantity of bone.

A key observation made by this group was published in 1985, demonstrating that osteoclasts secrete acid in order to digest the matrix of bone. Following up on this observation, Dr. Baron's group has now demonstrated that the molecule responsible for this acidification is different in osteoclasts than in other cells, opening new avenues for specific therapeutic intervention in diseases where bone resorption is increased.

Dr. Baron's research also involves the characterization of other ion transporting systems in osteoclasts and their regulation by hormones, growth factors and newly developed drugs, in collaboration with industry. He hopes insights gained in this research will lead to highly specific treatments for diseases of excessive bone resorption—especially osteoporosis. More than 15 million Americans are affected by this disease, most of them post-menopausal women. "Dr. Baron's information could be critical to understanding how to improve the treatment of these patients," Dr. Friedlaender notes.

Agnes Vignery, D.D.S., Ph.D., associate professor of orthopaedics and rehabilitation and cell biology, is discovering how bone cells develop and differentiate to become functional. Dr. Vignery and her colleagues have identified molecules that govern the formation of osteoclasts, and they hope to use genetic engineering to monitor the differentiation of these bone resorbing cells. By so doing, they think that it will be possible to control the number and activity of bone cells and therefore prevent bone loss.

Recently, Dr. Vignery and colleagues have identified molecules that not only inhibit bone resorption, but stimulate bone formation and have potent immunosuppressive effects. They think that these molecules may be the ideal candidates to facilitate not only bone grafts, but organ transplants in general. They are now investigating the role of these molecules in animal models.

In collaboration with Dr. Florence Comite, associate professor of medicine, Dr. Vignery is applying her research to investigate the mechanism by which bone is lost in women suffering from endometriosis. Endometriosis is a widespread and debili-

tating disorder that occurs most commonly in women who are in their 20s and 30s. Dr. Comite discovered that endometriosis is associated with a loss of bone. Drs. Vignery and Comite hope to prevent the further bone loss that may be associated with osteoporosis in these young patients.

Yet another aspect of bone resorption is being pursued in the laboratory of Caren Gundberg, Ph.D., an assistant professor in the department. She is refining ways to gauge serum levels of the bone protein osteocalcin, which is made by the osteoblasts.

"A small amount is excreted directly into the blood, where it can be measured directly," Dr. Gundberg explains. As such, osteocalcin is an important marker for increased bone turnover, a sign that too much bone resorption is occurring.

Dr. Gundberg believes a newly available blood test for osteocalcin will help primary care physicians to diagnose osteoporosis before debilitating fractures occur. The test should also help orthopaedists monitor bone response to drug therapy for osteoporosis, thus eliminating the need for biopsies.

On the Horizon

Dr. Friedlaender's plans for the department include recruiting additional faculty, especially in the areas of spine surgery, hand and upper extremity surgery, as well as physical medicine and rehabilitation. "Dr. Thomas Renshaw, a pediatric orthopaedist and formerly the director of orthopaedics at Newington Children's Hospital, joined our faculty in July to help us expand our commitments to the pediatric population in anticipation of the opening of the new Children's Hospital at Yale-New Haven," he says. Dr. Renshaw will be working with James March, M.D., assistant professor of orthopaedics and rehabilitation.

Dr. Friedlaender envisions a full range of orthopaedic pediatric services, from the correction of minor gait problems to the management of complex multisystem disorders. Such disorders require the collaboration of orthopaedists, pediatricians, neurologists, neurosurgeons and other specialists that only a major center such as Yale can offer.

Dr. Friedlaender also foresees a stronger emphasis on non-surgical services. "The success of our surgical pro-

Dr. Peter Jokl checks on the progress of a patient with a broken foot.

cedures to a large extent is directly related to how effectively we devise rehabilitation programs that suit the needs of patients," he says, adding, "We also look forward to working with our strong alumni group headed by Dr. Robert N. Margolis, clinical associate professor of orthopaedics and rehabilitation. These physicians play a key role in our educational programs." **YM**



Dr. Agnes Vignery in her laboratory.

OUR UNKNOWN VETERANS EMERGE FROM THE SHADOWS

Photographs courtesy of Linda Schwartz



Da Nang, Vietnam, March 1970: Lt. Gen. Lam awards a medal to a Navy nurse serving aboard the hospital ship USS Repose. Women served in all branches of the Armed Forces during the Vietnam War.

by Linda Spoonster Schwartz, R.N., M.S.N.

No one can say if it was planned or a quirk of fate that the 1980 census was the first to ask American women if they had served in the Armed Forces; records on the veteran status of men have been kept since Revolutionary War times. To the surprise of many, more than 1.2 million women told the census yes, they were veterans. Where had these veterans been hiding?

Despite endless references to "our fighting men" during the two centuries and more of U.S. military history, until Operation Desert Storm, one heard little about women in uniform. Women are rarely depicted in the scores of paintings, statues and memorials commemorating America's military. Nor are they generally seen in the parades and ceremonies that honor veterans. "Veteran" is not a word usually associated with women. Some say it is America's best kept secret that women have served in and with our Armed Forces since the time the nation began.

Beyond Molly Pitcher

In the Revolutionary War, women served as nurses, scouts, messengers and effective defenders of lonely, isolated settlements when men were away fighting. One early reconnaissance report advised British forces that "a raid into Connecticut was expected to encounter only rebellious women and formidable hosts of boys and girls." When colonial soldiers caring for their wounded comrades depleted the ranks of fighting men, the Second Continental Congress authorized Gen. George Washington to hire women to nurse the sick.

Legend may have immortalized Molly Pitcher, heroine of the Battle of Monmouth (N.J.) Courthouse, who took over firing her husband's cannon as he lay too badly wounded to continue. But have you ever heard of Debra Sampson? Disguised as a man, her battlefield heroics earned her decorations for bravery at the Battle of Tarrytown (N.Y.)

How about Lucy Brewer? She served three years as a Marine aboard the *USS Constitution* during the War of 1812, at the same time women nurses served on the warship *United States* with Commodore Stephen Decatur.

Women, North and South, played crucial roles in the Civil War. Soon after the outbreak of hostilities, a physician named Dr. Elizabeth Blackwell organized women in towns all over the North to collect much needed medicines, bandages and supplies. These community groups formed the Women's Central Relief Organization, modeled after the Sanitary Commission, which supported Florence Nightingale's efforts in the Crimea. The first such group appeared in Bridgeport, Conn., the day after Fort Sumter surrendered.

Forbidden to engage in combat, at least 400 women disguised themselves as men and fought in battle anyway. Women also served as spies, couriers and military strategists. In a more traditional vein, Superintendent of Female Nurses Dortha Dix, a Boston school teacher, recruited and supervised 3,200 nurses, several of whom served with distinction.

Clara Barton, founder of the American Red Cross, often used her own supplies and food to care for Union soldiers. After the war, Barton was responsible for establishing the first National Cemetery in Arlington, Va. Barton's contemporary, author Louisa May Alcott, served as a volunteer nurse in Union hospitals, describing her work in letters that were later published as the book *Hospital Sketches*.

During the war between the states, Mary Ann Bickerdyke fought so hard for the rights and comforts of the common soldier that she was given the name "Mother" by the men. Gen. William Tecumseh Sherman conceded that she outranked even him when it came to caring for the sick and injured. It took the government 80 years to recognize her devotion by commissioning the hospital ship *SS M.A. Bickerdyke*.

Soldiering wasn't the only role denied women during the Civil War. Female doctors were not allowed to serve the military, either. Mary Walker, M.D., gave up her medical practice to serve with the Union Army as a nurse. Going beyond the call of duty, she volunteered to be a spy, was captured by the South and later exchanged.

Awarded the Congressional Medal of Honor, Dr. Walker became the only woman ever accorded the nation's highest military honor. Ironically, her medal, along with those of several male recipients, was withdrawn in 1917 when the criteria changed. A special act of Congress restored the medal in 1976.

By 1898, as America fought the Spanish-American War, the government began recruiting women nurses to care for the troops. Hired only on a contractual basis, however, Washington did not officially recognize them as part of the military and hence did not provide insurance, pension or emergency assistance, even if a nurse was injured in the line of duty. More than 1,500 such contract nurses served in Latin America, the Pacific and on the hospital ship *Relief*.

Such treatment did not deter many nurses from risking their lives. Clara Maass, for example, assisted with research into yellow fever transmission, studies which paved the way to the development of a vaccine. In volunteering to be bitten by an infected mosquito, she was the last human subject to be used in these experiments, and the only one to die. Unlike the women

nurses before her, she was buried at government expense with full military honors. In 1976, the United States issued a postage stamp in her honor, the only stamp ever to commemorate an individual nurse.

The War To End All Wars

Women's status in the Armed Forces made progress of a sort with the Army Reorganization Act of 1901, which led to the founding of a permanent Nurse Corps. However, the 202 "charter members" of the corps and their sisters in the Navy Nurse Corps, begun in 1908, found themselves with neither clearly defined roles, nor rank, nor military grade.

When the "war to end all wars" broke out in August 1914, the largest organized group of nurses available for duty were 8,000 Red Cross nurses, who supplemented the mere 400 Army nurses and 160 Navy nurses then on duty. This first cadre of nurses was immediately dispatched to serve with the British Expeditionary Forces in Europe.

Recruitment and training of nurses at last became a government priority when America entered the war in 1917. Annie Goodrich, first dean of the Yale School of Nursing, founded the Army School of Nursing to educate the required numbers of nurses. Many of these women saw duty on the front lines and were wounded or gassed. Some were imprisoned by the Germans.

Continued on page 15



Lai Khe, Vietnam, September 1969: Capt. Bernice Scott, Army Nurse Corps, aids a medical team treating a wounded soldier.



Linda Spoonster Schwartz

Linda Spoonster Schwartz: A Voice for America's Veterans

Linda Schwartz, a Dr.P.H. candidate at the department of epidemiology and public health, is writing her doctoral dissertation on the physical health problems of women veterans of the Vietnam War. She received her diploma in nursing from St. Thomas Hospital School of Nursing in Akron, Ohio, is a B.A. graduate of the University of Maryland and received a master's degree in psychiatric nursing from Yale University School of Nursing in 1984.

While in the Air Force, Ms. Schwartz served both on active duty and in the reserves. She earned her senior flight nurse rating while on duty with the 69th and 58th Aeromedical Evacuation Squadron at McGuire Air Force Base, N.J., and the 2nd Aeromedical Evacuation Group at Rhein Main Air Base, Germany. A graduate of the Air Force School of Aerospace Medicine, Brooks Air Force Base, Texas, Ms. Schwartz created the position of Senior Flight Nurse Clinical Coordinator in the European Command. She retired from active duty in 1986 with the rank of Major, Nurse Corps.

In 1985, she was elected president of the Connecticut Nurses Association. During her tenure, the association founded the Connecticut Nurses Foundation (CNF) and secured third-party reimbursement in the state for nurses in advanced practice. In

1986, she became CNF president, and the following year was elected to the board of directors of the American Nurses Association.

Ms. Schwartz, an advocate on behalf of all veterans, has testified before both houses of Congress seven times. In 1985, she was appointed to the Connecticut Governor's Advisory Committee on Women Veterans and in 1989 to the board of trustees of the state Veterans Home and Hospital. In 1989, U.S. Secretary of Veterans Affairs Edward J. Derwinski appointed her to the VA Advisory Committee of the Readjustment of Vietnam and Other Wars Veterans. Two years later, she was appointed vice chairman of the committee.

In 1990, Ms. Schwartz was elected to the national board of directors of Vietnam Veterans of America, Inc. (VVA), the only federally chartered veterans service organization which focuses on the needs of the nation's 9.2 million Vietnam era veterans. In 1991, she was elected VVA's regional director for the New England states. She was also elected president of the Vietnam Veterans Assistance Fund, a non-profit organization that provides financial, educational and research support to improve the status of Vietnam veterans and their families.

Linda Schwartz resides in Pawcatuck, Conn. with her husband, Stanley, a restaurateur, and her 16-year-old daughter, Lorraine.



Ms. Schwartz as an Air Force nurse aboard a medical evacuation flight to the United States during the Vietnam War.

Despite placing their lives in such danger, the nurses, in the eyes of their government, were of lesser status because unlike soldiers, they were not engaged in combat. Therefore, the government docked the pay of the nurses for the time they spent as prisoners of war.

World War I also saw women outside the nursing corps officially in uniform for the first time. Enlisted women, 12,000 Navy Yeomanettes and 305 Marine Corps Marinettes, were assigned mostly as clerks or drivers. Gen. John "Black Jack" Pershing requested telephone operators fluent in French, who were dubbed "Hello Girls." While these women were authorized stylish uniforms and rank, no one was required to salute them because the Army considered them civilians. Despite the fact that these operators served near the front lines, they received none of the insurance or benefits accorded the soldiers with whom they served.

After the close of the Great War, although women had served honorably in Belgium, England, Italy and Russia, their contributions seemed unnoticed and unrewarded. Only the Marine Corps extended servicemen's benefits to women. Most women, especially Army nurses, had difficulty proving eligibility to benefits and care, even when disabled in the line of duty. Women were not even called veterans; they were referred to as "ex-military members."

Inequities were not limited to benefits and care. The 1920 Army Reorganization Act gave nurses "relative rank," a kind of shadow recognition which meant they could wear the insignia but could not enjoy the privileges of that rank. They could not eat with the other officers, did not receive pay equal to men of the same rank, and could not live in the officer's quarters.

Such practices persisted through the early years of World War II. Not until 1942 would women receive pay and allowances commensurate with men. Unequal treatment wasn't limited to privileges and pay, either; it extended to the way the Armed Forces treated married women as opposed to men who were married. It wasn't enough for the Army to make married women ineligible to join its nurse corps; until World War II, marriage was grounds for *dishonorable discharge* from the Corps—a punishment usually reserved for convicted criminals.

When marriage was finally permitted, nurses were not authorized to be stationed with their husbands. Although marriage for women in the enlisted ranks was tolerated, pregnancy was unthinkable. For any woman, married or unmarried, pregnancy was also grounds for a dishonorable discharge.

Serving in a Popular War

With the Japanese attack on Pearl Harbor and America's entry into World War II, demands for military personnel were tempered by the need to maintain production of war materials at home. To free men up for combat duty, women were put to work in factories and at construction sites. They were once again called on as the unofficial national reserve force. While the need was great, the Armed Forces remained reluctant to allow women into military service or to accord them status when they did serve.

This is well illustrated by the short-lived Women's Army Auxiliary Corps (WAAC). Founded in 1942, WAAC was authorized with the understanding that it would not be part of the Army "but shall be the only women's organization authorized to service the Army exclusive of the Nurse Corps." Outraged by this double standard, a year later, Edith Norse Rogers, who was serving the remainder of her deceased husband's Congressional term from Massachusetts, sponsored legislation to disband the auxiliary and create the Women's Army Corps (WAC) as a permanent part of the regular Army.

In a curious bureaucratic twist, however, when the auxiliary disbanded, 15,000 to 16,000 women left the service and did not join the WACs. Hence, women who served only in the auxiliary were not "in the military" and did not qualify for any of the generous veteran entitlements authorized after the war. It was not until 1980, long after the post-war GI Bill had expired, that a special act of Congress corrected this long-standing omission.

Reverse discrimination against men also reared its ugly head during and after World War II. Men in nursing were not eligible to serve in any nurse corps until August 1955, when they were finally authorized commissions in the Army Reserve. These men were not offered regular Armed Forces commissions until the Vietnam War.

Soon after the WAC legislation, the Navy bit the bullet and organized the Women Accepted for Volunteer Emergency Service (WAVES) as part of the Naval Reserve. In an unprecedented move, the Navy turned to academia for help in designing the training program. Mildred McAfee, then president of Wellesley College, was selected the first director and given the highest rank permitted a woman under the law.

Lt. Cmdr. McAfee was at first unwilling to use the acronym for the rather elongated official title of the group. But a Washington newspaper headline declaring "Goblets Come to Town" convinced her that calling the women WAVES was preferable. Sailors soon developed their own translation of the letters: "Women Are Very Essential Sometimes."

In 1942, the Coast Guard, which had taken heavy casualties in the South Pacific, North Atlantic and Aleutian Islands, inducted women as SPARs (*Semper Paratus*—Always Ready). Throughout this period and in succeeding years, the Coast Guard would be the leader in accepting women and offering them equal opportunity for advancement.

At the other end of the spectrum during World War II were the 900 women of the Women's Air Force Service Pilots (WASPs). Organized in 1942 at the request of Army Air Corps Gen. "Hap" Arnold, these women logged more than 60 million air miles. They served as flight instructors and ferried 12,640 airplanes, including high-speed fighters, bombers and P-47 "Thunderbolts," to overseas bases. They also had the dubious privilege of towing targets so fighter pilots using live ammunition could practice on something moving.

Other than their pay, these women garnered no military support and had to pay for their own meals and lodgings even on military bases. Although their duties were directed by the military, the women were not even eligible for medical care or insurance in case of on-the-job injury.

Of the 38 WASPs who were killed in crashes or while towing targets, not one received death or burial benefits. They were buried with no semblance of military honors. Not even a flag to drape on their coffins. Often, their female comrades would have to "pass the hat" to bury them or ship their belongings home. Finally, in 1977, Congress ended this shame by extending veteran status to these valiant women.

During World War II, more than 384,000 women served in the military. Women were injured, wounded, imprisoned and killed in action at Anzio and in the South China Sea. In a seldom told story of heroism, 81 military women were interned for 37 months at the camps of *Santo Tomas* and *Los Banos* in the Philippines. They struggled with primitive conditions to care for the injured, sick and dying. Along with the men, they suffered and starved during their long imprisonment at the hands of the Japanese.

A March 18, 1992, "Salute to American Women Prisoners of War" in Washington, D.C., included a woman who had been imprisoned by the Japanese when she was 10 years old. She recalled the nurses vividly, and said that even the terrors of contending with the enemy, starvation and poor conditions of the camps were not enough to overcome their strength and determination. As long as the nurses were there, the woman said, she had faith that everything would be all right.

Peacetime Recognition, Peacetime Conflicts

Such tales of heroism from World War II led President Harry S. Truman to sign into law the Women's Armed Services Act on June 12, 1948. Truman's pen finally established a permanent place for women in the military. Despite lingering inequities with regard to rank and assignments, this landmark law proffered official recognition to the nearly two centuries of military service women had given the nation. For the very first time, women had reason to envision a military career.

During the Korean War—or as President Truman called it, the "Peacetime Conflict"—the nation once more turned to its women as an untapped military reserve. With so few women in the military, Secretary of Defense Gen. George Marshall formed the Defense Advisory Committee on Women in the Armed Forces to encourage women to join the service. Over the years the committee, which still meets, has evolved into a vigorous advocate for change and innovations for women in the military.

Korea also saw the first combat missions for the fledgling U.S. Air Force and its Nurse Corps and Women's Air Force (WAF) contingents. This was the first time Air Force flight nurses and a structured aeromedical evacuation system were used to airlift casualties from the battlefield to facilities outside the combat area. In a major test of the system, 3,925 patients were airlifted in one day from Korea to hospitals in Japan. Such efficiency virtually eliminated the need for hospital ships to be stationed in waters adjacent to combat areas.

This system also saved countless American lives in the nation's next undeclared war—Vietnam—which dragged on to become the longest war in United States' history. From the Gulf of Tonkin in 1964 to the fall of Saigon in 1975, more than 265,000 women served in the military. While neither the departments of defense (DOD) nor veterans affairs (VA) can

provide reliable data on the number of women stationed in Vietnam, their estimates range from 7,500 to 10,000.

In Vietnam, most of these women served as military nurses. Others worked as physicians or in intelligence, supply, administration, air support and additional areas. Many Americans did not even realize that women were stationed in Vietnam; at times, even the government seemed oblivious.

A tragic example of government insensitivity was visited upon the Orlowski family of Detroit, Mich. in 1967. When they received a telegram informing them of the death of their son in Vietnam, they were confused. They had no son in Vietnam. They did have a daughter, 1st Lt. Hedwig Orlowski, who had in fact been killed in a helicopter crash. Lieutenant Orlowski and seven other women, all military nurses, died in Vietnam. Their names are engraved on the Vietnam Veterans Memorial in Washington, D.C.

Vietnam redefined war. There were no front lines, no safe places, no rules. Even American hospitals were raided by the Viet Cong, who machine-gunned patients in their beds and threw satchel charges throughout the wards. Caring for casualties presented a special emotional challenge because they were so young, the average age of the Vietnam soldier being 19 as compared to the 26-year-old World War II soldier.

Exposure to enemy fire, primitive living conditions and the endless streams of casualties did take an emotional toll on military nurses and other medical caregivers. Yet their proximity to battle—sometimes in the midst of the action—allowed for record numbers of lives to be saved. In Vietnam, less than 2 percent of treated casualties died of their wounds.



Long Binh, Vietnam: Capt. Elizabeth Finn, staff nurse, 93rd Evacuation Hospital, instructs a nun from a local orphanage.

Sadly, this remarkable accomplishment did not boost morale for military nurses. The unpopularity of the war, the devastating nature of the injuries they treated and the empty welcome home left many women disheartened when they returned to America. My own return for a surprise visit in early May 1970 offers a dramatic example.

I had flown home from Japan with a planeload of casualties from Vietnam so that I could attend my sister's college graduation. I arrived in northern Ohio on a beautiful spring day. My father greeted me at the door, expressing the shocked delight I'd hoped for; after all, I hadn't seen my family in 18 months.

When I explained why I'd come home, however, his face fell. There would be no graduation, he said. There had been trouble at my sister's university, Kent State, the day before. Three students had been killed by the National Guard during anti-war demonstrations. The campus was closed.

Still dressed in my uniform, I entered the kitchen where my sister was sitting at the kitchen table with my mother and 8-year-old brother. It was so wonderful to see them. But to my amazement, my sister abruptly stood up, slammed me against the wall and started screaming about the war. It wasn't the homecoming I'd dreamed about.

My sister was not part of the demonstration but had been near the green when the shooting started. Shooting. I knew too well what bullets did to human flesh. I thought about the boys I had come home with—missing arms and legs, missing eyes, missing faces. I thought about how close my sister had come to harm. I thought about American civilians dying at the hands of American soldiers. And I wondered where the war really was.



Long Binh, Vietnam, June 1967: Capt. Faye Ferrington helps a patient of the 93rd Evacuation Hospital feed himself.

For all its horrors, the Vietnam War furthered the cause of women in the military. Combined with a growing feminist movement, the war stimulated such changes as 1967 legislation lifting the ceiling on promotions for women. As a result, the Army saw its first woman general. In 1970, pregnant women were permitted to stay in the military, though, curiously, their condition remained a "service-connected disability" until 1975.

During the Vietnam era, the Armed Forces disbanded the WAC, the WAF and—in tacit admission that women were not just sometimes essential—even the WAVE, and integrated their members into military units. When the draft ended in 1973, the 2 percent limit on the number of women on active duty also came to an end. At that time, women comprised 1.6 percent of the military; by 1991, this increased to 11 percent of the active duty force and 13 percent of the reserves.

In the late 1970s, women doctors began to serve in military hospitals. They were the only women to do so since Mary Walker became the first officially recognized woman military physician during the Civil War.

The last bastion to fall came in 1980, when women were finally admitted to the service academies. These changes brought expanded roles for military women. By 1990, 100 percent of Coast Guard, 98 percent of Air Force, 59 percent of Navy and 52 percent of Army positions were open to women.

Navy and Coast Guard women who command vessels at sea are living proof of the progress made in these branches of the Armed Forces. Navy, Air Force and Army women are rated as test pilots and flight instructors. Some have even been assigned as commanders of aircraft squadrons.

Army women participated in the invasion of Grenada and commanded Army companies in "Operation Just Cause" in Panama. Americans thought they were hearing things when CNN broadcast that a unit of the 988th Military Police Company commanded by Capt. Linda Bray was engaged in a vigorous firefight with 40 members of the Panamanian Defense Forces. Captain Bray is thought to be the first servicewoman to command in combat.

While such responsibilities reveal dramatic progress, they only heralded the dawn of equality. Take, for instance, the Air Force women who flew missions in Grenada and in the action against Libya. Although these women undertook the same missions, performed the same duties—with just as much valor as the men, they were not awarded the same medals because such decorations can only be given in combat situations.

But they *did* engage in combat, you object? In a classic application of Catch-22, these women were denied equal recognition because the law states that they cannot serve in combat. Never mind that the heat of battle brought the hostilities to where the women served; because of the combat law, they could not receive the same medals as the men.

In many respects, military women came into their own during the Persian Gulf War, the first large-scale military operation since the all-volunteer force was established. More than 33,300 women served in key combat support positions, commanding battalions, manning Patriot missile placements, flying reconnaissance and tactical transport missions. Army Lt. Phoebe Jeter distinguished herself as the first woman to "engage the enemy," by directing Patriot missile launches that destroyed

two Scud missiles. Several women were wounded in Operation Desert Storm, six were killed in action, seven others died in the line of duty and three were taken prisoner of war.

Women's difficult path toward equality in the Armed Forces is paralleled by the struggle of women veterans. For many years, a bronze plaque at the entrance to the Veterans Affairs Central Office in Washington, D.C., expressed the perceived mission of the department. Taken from Abraham Lincoln's second inaugural address, the solemn words read: "To care for him who shall have borne the battle."

If the results of the 1980 census raised many questions about this new found entity—women veterans—one conclusion was inescapable. The system was failing the million-plus women veterans who were not utilizing VA benefits.

Along with the census, other dynamics were emerging to awaken the public and Congress to the fact that the VA should be providing better medical care to women veterans. Even as legislation was being proposed to extend benefits to the WASPs and WAACs of World War II, thousands of women were returning from Vietnam.

Many of this new generation of women veterans displayed symptoms of post-traumatic stress disorder (PTSD), yet the VA denied them treatment. To begin with, they were not considered combat veterans; a diagnosis of PTSD was reserved for men who carried guns, not for the women who cared for them when they became the carnage of war.

Such official resistance did not sway these women from their conviction that Vietnam was responsible for their terrifying memories and readjustment problems. They were having multiple miscarriages, stillborns and giving birth to children with cancer. They wanted answers. And they would not be ignored.

Soon after the 1980 census, Congress finally granted veterans' status to the women who had served in the Women's Army Auxiliary Corp (WAAC). Because the GI Bill had expired, some in Congress tried to extend comparable benefits to these women. Although these attempts failed, the controversy only heightened the resolve of the Vietnam veteran women.

One out of five women who served in Vietnam left with a permanent service-connected disability. Although these disabilities qualified them for care in the VA, when they sought such care, they were either turned away or received substandard treatment. The Women's Project of Vietnam Veterans of America (VVA)—funded, ironically, by the Playboy Foundation—lobbied for a General Accounting Office (GAO) study about the matter.

Adding to this momentum, Lynda Van Devanter, an Army nurse who had served in Vietnam, published *Home Before Morning*, a book about her years of struggle to overcome her emotional and physical wounds of war. This book helped other women veterans see that they were not alone with their terrifying memories and illnesses.

A 1982 GAO report, "Actions Needed to Insure that Female Veterans Have Equal Access to VA Benefits," noted:

- A woeful lack of treatment facilities for women veterans;
- Unequal access to treatment programs and medical services;

- Insufficient provisions for privacy;
- Incomplete physical examinations;
- Little or no gynecological care;
- No systematic effort to inform women about their entitlements.

In 1983, the VA established an Advisory Committee on Women Veterans to help revise policies and adapt services to the growing number of women veterans. The VA also directed that all future research of veterans include women. Later that year, in a long overdue tribute, women POWs held by the Japanese during World War II were finally recognized at a Washington reception.

Congressional hearings on women veterans held in 1983 opened many eyes. Women veterans reported that they were expected to use communal showers while being treated in VA hospitals. Some witnesses recounted how they had been examined in full view of male patients; others that they had been denied care altogether because of their gender.

Rising interest in women veterans prompted the VA to commission a 1985 study, "The Survey of Female Veterans," which reported that more than half the women interviewed were unaware of their VA benefits. The study also found that women veterans had twice the rate of cancers than in the general adult female population. Especially disturbing were the high rates of cervical, uterine and ovarian cancers (45 percent). Though initially the VA took exception to some of these findings, the department nonetheless began a vigorous campaign to acquaint women veterans with their benefits.

Coincident with the belated recognition of World War II POWs, WASPs and WAACs came efforts to create memorials to servicewomen. Once again, the Vietnam servicewomen led the way by establishing the Vietnam Women's Memorial Project in 1984. The Women in Military Service of America Foundation debuted in 1987 to raise funds for a memorial to honor all American women who had served in uniform. After making its way through nine years of governmental delays and red tape, the former memorial will break ground on Nov. 11, 1992; the latter is far from that point.

Most recently, 1991 Congressional hearings on VA services to women veterans reported some improvements. Many witnesses, however, repeated complaints voiced during the 1982 hearings. A later GAO report substantiated many of these claims. In short, the struggle continues.

The saga of each succeeding generation of women veterans unfolds like a rich tapestry woven with the finest fibers of American traditions and values. Marvelous stories tell of courage in the midst of the enemy, determination in the face of overwhelming adversity and great devotion and caring for the casualties of war. The spirit and service of these forgotten daughters of America have written some of the most heroic chapters in the history of the nation. These women have contributed to the time-honored tradition of sacrifice made by all American patriots.

It's time that we gave them their due.

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WEST HAVEN VA AND YSM: A PARTNERSHIP RENEWED



Norman E. Browne, executive director of the Department of Veterans Affairs Medical Center.

by Robert A. Hamilton

Visitors to the Department of Veterans Affairs Medical Center in West Haven, Conn., are as likely to hear the high-pitched whine of a power saw as they are the beeping of a doctor's pager, as engineers and contractors scurry around the grounds to complete a six-year, \$90 million capital project.

"Last year we had more than \$22 million worth of construction underway at one time, the largest amount in the VA system," boasts Jeremiah P. Clay, chief of building management.

Modernizing and expanding the 39-year-old facility is adding to the upbeat mood at the West Haven VA, in growing recognition that the medical center is again a leader in the national VA system. This feeling represents a dramatic turnaround.

Only four years ago, when the West Haven VA brought in Norman E. Browne as its director, the institution reflected the distressed state of the national VA system. The physical plant, both inside and out, was crumbling. Only 270 of 456 acute-care beds were in use. The surgical residency program was in danger of losing its accreditation because of low workload.

In fact, so serious was the national VA system's health that in 1988 Congressional hearings, Leon E. Rosenberg, M.D., then

YSM dean, warned that further deterioration threatened the VA's affiliations with leading universities such as Yale.

Three years after those hearings, while the national VA system still struggles with quality issues related to federal cutbacks, the West Haven medical center has blossomed. Today, Mr. Browne notes, the average patient census is 370, with many units running near capacity. And in the last three years, the West Haven VA has seen the largest increase in workload of any facility in the VA system.

What is more, the West Haven VA began several new national programs, and improved others already in operation. Pay scales for physicians, nurses and health professionals have been improved. As a result, the campus that overlooks New Haven from the west is back on the cutting edge of medical science. What brought about the change?

Mr. Browne credits the School of Medicine, especially the leadership of former Dean Rosenberg and Acting Dean Robert M. Donaldson Jr., who for many years has been active at the West Haven VA. "Drs. Rosenberg and Donaldson breathed new life into the system," Mr. Browne says.

Robert A. Hamilton is a free-lance writer.

A 30-year Partnership

The School of Medicine's affiliation with the West Haven VA dates from when the latter opened its doors in 1953. This debut came seven years after Gen. Omar Bradley, administrator of the VA system after World War II, matched the VA's critical need for physicians with medical schools' needs for hospitals in which their students and residents could train.

Nationally, although 103 out of the country's 126 medical schools are affiliated with a VA hospital or medical center, the degree of cooperation varies widely. At one extreme, the affiliation can consist of sending a lone ophthalmology resident for a rotation every semester to a VA hospital 150 miles away. At Yale, by contrast, the affiliation is comprehensive, with the two institutions sharing responsibilities in patient care, education and research.

In fact, all YSM clinical departments except obstetrics and gynecology and pediatrics have VA counterparts to which they are linked. With an increasingly vocal population of more than a million women veterans clamoring for better health care from the VA nationally [see "Our Unknown Veterans Emerge from the Shadows," page 12], a possible program in ob/gyn is under discussion as well.

Perhaps the most obvious example of the close Yale/VA relationship is the fact that West Haven VA staff physicians have Yale faculty appointments. For example, Colin E. Atterbury, M.D., chief of staff at the West Haven VA, is also professor of medicine at Yale and associate dean for veterans affairs. He explains that of 300 physicians contributing to care at the medical center, 80 are paid by the VA, the rest by Yale.



Dr. Colin E. Atterbury, chief of staff at the West Haven VA.

How much time a doctor might spend at the University versus the VA depends on a number of factors. "Some Yale faculty members spend almost all their time out here. Their research is centered here, they supervise patient care here," says Dr. Atterbury. "There are others who may only spend four or five hours a week" as attending physicians.

Although many people think of the VA system simply as a vast patient care network, education and research also play important roles, says Robert H. Gifford, M.D., associate dean for medical education and student affairs at Yale. For 10 years, Dr. Gifford has served at the West Haven VA, first as associate chief of staff and then as chief of medicine. He points out that more than half the nation's doctors received at least some training in the VA system.

"The VA nationally is an extremely important part of medical education, and it's never received the credit it should," Dr. Gifford says. Each year more than 30,000 medical residents and 22,000 students get some training in a VA facility.

In West Haven, both Yale and the VA gain from the partnership. On one hand, the West Haven VA benefits from the services of Yale medical students and residents who bring with them state-of-the-art medical practice. On the other hand, Dr. Gifford notes, the VA offers "one of the most critical parts of our teaching program. The students and house staff have a great deal of responsibility to make decisions, under supervision. There's no way you can learn medicine unless you do it yourself with the proper guidance, and that's what you get at the VA."

Furthermore, the physicians-in-training gain exposure to a different patient mix than they do at other Yale-affiliated hospitals, such as Yale-New Haven Hospital (YNHH). For instance, approximately 60 percent of West Haven VA patients have a chemical dependency, compared to 25 percent at YNHH. Half the beds at the West Haven VA serve rehabilitation patients, compared to one-third at Yale, and more patients at the VA have multiple diseases, due in part to a higher average patient age.

Notes Dr. Donaldson, "Not only is the West Haven VA facility the home of some of Yale's finest physicians and clinical teachers, but the good will and collegiality of its veteran patients make it a wonderfully positive environment in which our students and residents can learn. By offering the best possible supervision, the West Haven VA teaches how to care for and serve disabled people in the best possible ways."

Finally, Yale students and residents learn the hard lessons of cost control on the West Haven campus. Due to federal budget constraints, especially during the 1980s when medical inflation was running at 10 percent or more a year, the VA system was making do with 2 percent annual increases, despite a rapidly growing patient load. Today, as a result, the West Haven VA, with 450 acute-care beds and 90 long-term care beds, has a \$102 million annual budget, less than some non-profit voluntary hospitals in Connecticut that are half its size.

Dr. Donaldson emphasizes that despite such constraints, the West Haven VA Medical Center serves as a "model of excellence" in veterans' care, including service to those of modest means: "In an era when everyone—physicians, patients and healthy people alike—worry about the frightening costs of medi-

Continued on page 24

PET Offers VA, School of Medicine Most Advanced Imaging Technology

Over the entrance to the Yale University/West Haven VA Positron Emission Tomography (PET) Center stands the seal of the Department of Veterans Affairs on the left. On the right rests the School of Medicine's coat of arms. Of equal size, the emblems symbolize the partnership that has brought the latest diagnostic imaging technology to Connecticut. The PET center is the only facility of its kind between New York and Boston.

"The PET center is going to benefit not only veterans, but all the people of Connecticut," says Robert Soufer, M.D., center director, chief of general and cardiovascular nuclear medicine service at the VA and an associate professor at Yale.

Dr. Soufer explains that while traditional imaging techniques—from X-ray to magnetic resonance imaging (MRI)—provide anatomical information, PET yields metabolic data. Here's how PET works at the Yale/VA center:

- An on-site cyclotron prepares isotopes with extremely short half-lives, ranging from a few minutes to approximately two hours. PET technicians use the isotopes to label substances such as glucose or water, which the body metabolizes.
- As the patient lies comfortably on a table attached to the scanner, a solution containing the labeled substances is injected into the patient's bloodstream.
- The table is passed through the opening of the donut-shaped scanner, and the PET device's 1,320 crystals monitor the gamma ray signals.
- A computer translates these signals into images that offer data about the metabolic processes taking place within the targeted organ.

Most PET procedures last from 45 minutes to an hour; total radiation exposure is equivalent to approximately two X-rays.

PET offers physicians an effective tool for early intervention because it can detect metabolic events that precede anatomic changes in many diseases, including cancer. In addition, Dr. Soufer notes, "PET is a tool to ensure the appropriateness of care. PET might not tell you a tumor is cancer. You still need a biopsy to do that. But it can tell you how well the patient will respond to an intervention."

PET also offers data that can avoid unnecessary surgery. For instance, a PET scan can allow a surgeon to determine when *not* to operate on a patient's heart, because the tissue in question is dead. The first papers from the PET center reporting new findings in myocardial metabolism were presented by Dr. Soufer at the International Society of Nuclear Medicine in June in Los Angeles.

How did the VA and the University manage to bring such sophisticated technology to the New Haven area in a time of belt-tightening both within the national VA and at Yale? The two institutions pooled financial resources. The VA authorized a grant of almost \$3 million for the center, says Dr. Soufer, the principal investigator for the VA grant, and Yale raised a similar amount through corporate sponsors.

Yale technical expertise helped the West Haven VA become one of the first medical centers in the VA system to obtain PET technology. At the same time, the VA grant helped Yale obtain its own PET device sooner than would have been possible otherwise, because the state Commission on Hospitals and Health Care had not approved the technology for clinical use.

State permission to collect from third-party payers began in July 1992, in part because of the many clinical applications that PET offers, including:

- measuring the metabolic activity of a tumor to predict how quickly it might spread;
- pinpointing tumor location for surgery;
- measuring ammonia flow and sugar metabolism in the heart to determine the extent of cardiovascular disease;
- predicting the recovery potential of a stroke patient based on glucose uptake in the brain;
- locating the foci of epilepsy in the brain as a prelude to surgery.

A testament to Dr. Soufer's commitment and drive, the Yale/VA PET center's early patient statistics are impressive. During its first eight months, the center served 115 patients. The facility can accommodate six patients a day.



Dr. Robert Soufer examines a patient before performing a PET scan at the Yale/VA center.

PTSD Sufferers Offered Hope Through West Haven VA Center

Although the Persian Gulf War ended more than a year ago, for "Tom," a 28-year-old veteran, the war still rages. A combat veteran, he guarded a compound that was attacked by Iraqi Scud missiles. Daily, he experienced the screaming sirens which warned that the deadly missiles would soon follow.

Now, when Tom is awakened at home by an ambulance siren, he still waits in dread of incoming missiles: Tom suffers from PTSD—post-traumatic stress disorder, a condition in which certain sounds, smells or images evoke traumatic events from the past.

Tom is a patient at the Department of Veterans Affairs National Center for PTSD in West Haven. Several hundred veterans, from World War II to the Persian Gulf War, are served by the center, where treatment includes psychotherapy, group counseling and medication. In an effort to improve treatment of PTSD, the center also conducts a broad spectrum of basic and clinical research involving animal and human subjects in collaboration with scientists at the medical school and its affiliated institutions.

In one of those studies, scientists have discovered that traumatic events may substantially alter the chemistry of the brain, sensitizing PTSD sufferers to adrenaline surges decades later. These surges may account for symptoms of PTSD and panic disorder. Pinpointing how those events change brain chemistry will help therapists develop drug and psychotherapeutic treatments for PTSD sufferers, say the Yale/VA researchers, who work at the Clinical Neuroscience Division of the National Center for PTSD.

The West Haven PTSD center is the only center in the VA system devoted to studying the biology and psychopharmacology of PTSD. One such study is being conducted by Dennis S.

Charney, M.D., neuroscience division director and professor of psychiatry at Yale; Steven M. Southwick, M.D., director of PTSD programs at West Haven and associate professor of psychiatry at Yale; and John H. Krystal, M.D., chief of the center's Laboratory of Clinical Psychopharmacology and assistant professor of psychiatry. This team has discovered that the drug yohimbine triggered panic attacks in about 50 percent of more than 100 PTSD patients who volunteered as subjects.

Yohimbine blocks the action of the alpha 2 receptor, a protein embedded in brain cell membranes, and which helps to regulate activity in the sympathetic nervous system. Yohimbine can boost heart rate and blood pressure and induce feelings of anxiety and panic. Dr. Charney says the Yale/VA research indicates that trauma may alter the brain chemistry in veterans with PTSD by sensitizing them to adrenaline surges.

In other medical school laboratories, and at Connecticut Mental Health Center (CMHC)—a joint program of Yale and the State Department of Mental Health—researchers have identified a brain structure that reduces fear. In studies of mice and rats, scientists have reduced the intensity of fear by activating cells in the amygdala—a part of the midbrain that regulates emotion and memory.

"Clinical disorders such as obsessive compulsive disorder and phobias—as well as PTSD—don't allow people to discriminate fearful from non-fearful situations," explains Michael Davis, Ph.D., professor of psychiatry and psychology at Yale and head of the study. "This research illustrates that reduction or extinction of learned fear is brought about through an active process. We hope that our studies will lead to insights into how PTSD comes about and how physicians may more effectively treat this and other types of anxiety disorders."

Dr. Davis' research, funded by the National Institute of Neurological Communicative Disorders and Stroke, was conducted with colleagues William Falls, a graduate student, and Mindy Miserendino, a postdoctoral fellow.

—*Rosalind D'Eugenio and Diane Lonpe*



Dr. Dennis Charney in an observation room at the West Haven VA PTSD Center.



Addition of a new steel and glass exterior continues at Buildings 1 and 2.

West Haven VA Construction Advances at Rapid Pace

"The patient perception of the quality of care." In commenting on the West Haven VA's six-year, \$90 million capital project, Medical Center Director Norman E. Browne coins the phrase to explain that a well-maintained facility is vital to patients' sense of well-being. He cites studies which show that patients "judge medical centers based on how long they have to wait, how well they believe nurses have treated them, and the appearance of the physical plant."

West Haven VA construction goes far beyond appearances, however; among the first construction efforts to get underway was a \$7.5 million project to bring the buildings up to fire and safety codes, including a quick-response sprinkler system. A new \$1.4 million telephone system ushered the VA into the modern telecommunications era, doubling the old system's capacity. Other projects include improved or increased clinical and research space, such as the new audiology and speech pathology unit, a new outpatient pharmacy and air conditioning in the virology lab.

One of the most difficult problems posed by the aging buildings was the brick exterior of Buildings 1 and 2, the seven- and nine-story towers. Interior brick was mistakenly used by the original contractors, leaving the outer shell vulnerable to Connecticut's extremes of weather. Water seeped between the brick and the structure underneath, and in some cases, freeze-and-thaw cycles caused bricks to dislodge.

A \$12 million project to cover the brick with a new metal and glass exterior is underway on Building 1, and a like amount soon will be spent on Building 2. Meanwhile, work is proceeding on:

- renovation of the surgical intensive care unit (ICU), to support the VA's open-heart surgery program;
- renovation of the cardiac ICU;
- a new Eastern Blind Rehabilitation Center;
- construction of a new 10,000-square-foot outpatient psychiatry building;
- creation of a new laboratory for cancer research.

A \$48-million clinical addition will give the West Haven VA its first building designed for ambulatory care—when the hospital towers were built in 1953, the VA was prohibited from caring for veterans on an outpatient basis. Also underway are renovation and expansion of the operating room suite, a new clinical diagnostic laboratory and a canteen.

Other projects will improve the environment by removing contaminated soils near fuel tanks, and by replacing an incinerator built more than 20 years ago. An electrical reliability project will upgrade the backup power supply, including installation of a second power line, and will bring wiring up to code.

To minimize logistical problems, Jeremiah P. Clay, chief of building management, works with the clinical and research staff to make sure no patient unit is shut down, even for a few hours. "We keep the patient load up, we keep the clinical groups going, and cause as little disruption as possible," Mr. Clay says.

cal care, it is very important that our students and physicians-in-training learn all that they can about the health-care needs of the poor and how we can provide that care in the most cost-effective manner. In this complex arena, the West Haven VA Medical Center continues to lead the way with the strong support of the School of Medicine. That support is one of Yale's best investments and we should never forget that fact."

Cutting-edge Programs

Cooperation in biomedical research between Yale and the West Haven VA is assured because of the joint appointment arrangement between the two institutions. As medical school faculty members, the VA scientists engage in a wide range of basic and clinical studies. Such research helps assure that VA

patients benefit from the latest technology and developments in clinical care.

"Research at West Haven adds an important dimension to the care of patients," says Fred S. Wright, M.D. Dr. Wright is associate chief of staff for research at the VA and professor of medicine and cellular and molecular physiology at Yale. He notes that currently 75 principal investigators are working on more than 300 projects at the VA. Studies range from laboratory investigation in cell and molecular biology to trials of new therapeutic drugs.

In pulmonary medicine, for example, a laboratory group is studying the regulation of genes that code for mediators of lung inflammation. Another group in this section is testing a new treatment for chronic bronchitis: aerosol administration of recombinant human DNase, a product of genetic engineering.

Nearly all of the research activity is directed at solving problems related to disease and disability. Hence, a number of programs that directly support patient care either were started as research projects, or currently have an important research component. Among these are:

- the Virology Diagnostic Laboratory, the only national virology reference laboratory in the VA system;
- the Mycobacteria Diagnostic Laboratory, a reference laboratory for tuberculosis and other mycobacterial diseases;
- the Schizophrenia Biological Research Center, one of three in the VA;
- the National Center for Post Traumatic Stress Disorder clinical neuroscience component;
- the Alcohol and Substance Abuse Center, one of two in the VA;
- the West Haven VA Comprehensive Cancer Center, recently funded and now being staffed;
- the Neuropsychology Laboratory, a diagnostic facility in which electrophysiological techniques are used to locate regions of the brain that are causing seizures.

So close is the relationship between Yale and VA in neurology and neurosurgery, that the distinctions between the two institutions blur. Take, for instance, the Neurological Research Center. In a sharing agreement pioneered two decades ago, civilian epilepsy patients from Yale-New Haven Hospital are eligible for referral to the VA, as well as VA patients from the West Haven campus to YNHH, says Richard H. Mattson, M.D. Dr. Mattson is a professor of neurology at Yale and the principal investigator on a \$3.5 million, five-year National Institutes of Health multidepartmental grant to study epilepsy at Yale and the VA.

He explains, "An MRI (magnetic resonance imaging) or other test might be done at Yale, as well as placing electrodes before brain surgery. The resources at the VA, on the other hand, allow us to provide services patients couldn't get at Yale, either because of overload or because they don't have the specialized equipment such as PET (positron emission tomography)," an advanced diagnostic imaging technology.

Dr. Mattson says the epilepsy program presents the Yale-West Haven VA affiliation in microcosm. On some months,



For years, Dr. Robert M. Donaldson Jr. has been a key player in the Yale-West Haven VA Medical Center relationship. He emphasizes that the collaboration adds an important dimension to the school's community service, especially to low-income people. Says Dr. Donaldson: "Yale School of Medicine takes seriously its responsibility to provide first-rate medical care for the poor. This is an integral part of our overall mission to discover and disseminate biomedical knowledge while establishing the highest standards of clinical excellence. Our partnership with the West Haven VA Medical Center is crucial to meeting these responsibilities and objectives."



University Secretary Sheila Wellington and Dr. Stephen G. Waxman honor James Peters, executive director of EPVA, the Eastern Paralyzed Veterans Association, for his organization's support of neurological research at Yale and the West Haven VA. The Paralyzed Veterans of America (PVA) also has provided major support.

Susan S. Spencer, M.D., professor of neurology and director of the Yale-New Haven Hospital epilepsy unit, conducts rounds at the VA; John S. Ebersole, M.D., professor of neurology, is not only director of the VA unit but also head of the clinical neurophysiology laboratory at Yale. Together, the two units see approximately 400 patients a year from across the country.

"It's evolved to the point where we are one big program," Dr. Mattson said. "There are always logistical problems, because of the nuisance of being four miles apart, but we've been doing it for two decades now and the problems are not insurmountable. It's a model of how two institutions can collaborate to the advantage of patient care and research."

Collaboration in research does not stop at the Yale/West Haven VA partnership. A private, charitable organization supports leading neurological research at the West Haven VA. In 1988, the Paralyzed Veterans of America/Eastern Paralyzed Veterans of America (PVA/EPVA) Center for Neuroscience and Regeneration Research of Yale University opened, thanks to a \$1.5 million PVA/EPVA grant. The center, which also receives ongoing funding from the veterans groups, the VA national research program and other sources, is directed by Stephen G. Waxman, M.D., Ph.D., professor and chairman of neurology.

Dr. Waxman and his colleagues are advancing knowledge about the basic mechanisms of central nervous system development, function, injury and recovery. The center's scientists are not so lost in the minutiae of research, however, that they lose sight of their dreams. "We're doing basic science," comments

Jeffery Kocsis, Ph.D., professor of neurology. "We can't promise to make wheelchair patients walk. But that exciting prospect is always in the back of our minds."

Drug Research Partnership

The West Haven VA pioneered the concept of multi-center studies, now called cooperative studies. One of these early studies, in the 1940s, led to effective drug therapy for tuberculosis. The VA system, because of its network of 172 hospitals and its large, homogeneous patient population, is ideally suited to large multi-center studies. VA researchers have studied, for example, the efficacy of open-heart surgery over and against more conservative treatment in angina patients and the lowest effective dose of AZT in the treatment of AIDS.

Michael D. Ezekowitz, M.D., Ph.D., the West Haven VA's chief of cardiology, is principal investigator for the cooperative study on the efficacy of low-dose warfarin in preventing strokes in patients with atrial fibrillation (AF). The study's preliminary results were made available when President Bush experienced an episode of AF in the spring of 1991. Dr. Ezekowitz is professor of medicine at Yale.

West Haven VA researchers are also conducting studies into clozapine, an anti-psychotic drug for schizophrenics. Dennis S. Charney, M.D., chief of the psychiatry service at the West Haven VA, and Robert A. Rosenheck, M.D., deputy chief, are the principal investigators for a \$5.2 million VA study to determine the full therapeutic efficacy of the drug. Dr. Charney is



Margaret A. Drickamer, M.D., has been named associate chief of staff for geriatrics and extended care at the West Haven Veterans Affairs Medical Center. She also is assistant professor of medicine (geriatrics) at Yale.

professor of psychiatry at Yale; Dr. Rosenheck, clinical professor of psychiatry.

More than 600 participants in the study will be given either clozapine or haloperidol, a standard anti-psychotic treatment. This double-blind study will last 3-1/2 years, compared to six or eight weeks for previous studies. Of the estimated 20,000 patients in the VA system who could possibly benefit from clozapine, less than 100 receive the medication, principally because of its high cost—\$4,000 per patient per year.

For the same reason, up to 500,000 patients in the United States could be helped by clozapine, but only 13,000 receive it. The study is expected to guide policy about who should receive the drug. Other laboratory research at the West Haven VA is seeking new drugs that will have the beneficial effects of clozapine without potential side effects, which include agranulocytosis, a lowering of the white blood cell count.

Even as the School of Medicine and the West Haven VA strengthen their bonds, the relationship continues to evolve. One of the greatest changes the VA must face nationally during the next 20 years will be caring for an aging patient population in the face of continuing federal budget cuts. Despite the lower per patient cost *vis à vis* the private hospital system, the national VA's current annual budget stands at \$14 billion.

Of the 27 million veterans eligible for treatment now, about one-quarter of them—just under 7 million—are 65 or older. Although the number of eligible veterans is expected to decline to 17 million by 2002, the population 65 or older will increase to more than 8 million. This demographic shift will tend to pull

the VA system away from high-technology interventions and towards primary care.

Meanwhile, the national VA's "Mission Commission" has recommended a two-thirds reduction in the number of acute-care beds, and only a one-third increase in the number of long-term beds, over the next two decades.

"It's clear that we can't count on any additional money in the system," Dr. Atterbury says. "There is going to be an increasing emphasis on long-term care, ambulatory care, primary care."

Dr. Atterbury notes that this direction contrasts with Yale's increasing emphasis on high-technology medicine, and adds that programs like the PET Center "will learn to live side by side" with increasing primary care programs. "There's not going to be room for too many more high-technology programs, unless we can prove they're both medically effective, and cost-effective."

Acknowledging the need to control expenses, Robert Soufer, M.D., associate professor of diagnostic radiology and of medicine at Yale, and chief of general and cardiovascular nuclear medicine at the West Haven VA, emphasizes PET's cost effectiveness. He points out, for instance, that PET can save money by reducing unnecessary surgery.

"A physician can be more certain with regard to the appropriateness of coronary artery bypass surgery with metabolic PET imaging," Dr. Soufer says. In other words, because PET provides data about myocardiac metabolic activity, when compared to traditional clinical anatomic imaging such as X-rays and MRI, a PET scan can help physicians avoid operating when heart tissue is dead.

Despite the laudable goal of efficiency, streamlining operations can only go so far before the quality of care begins to suffer, warns YSM alumnus Robert G. Petersdorf, M.D. '52, president of the Association of American Medical Colleges. In testimony this spring before the Congressional Subcommittee on Human Resources and Intergovernmental Relations, he painted a grim picture of the effect that proposed cuts will have on the VA system and on medical education nationwide.

"Individuals across the country express grave concern that inadequate resources are a noticeable threat to VA medical centers," Dr. Petersdorf said. "This could result in the VA becoming a less suitable environment for medical education and training."

"I understand that education and training are primarily medical school matters, but our joint concern is quality," Dr. Petersdorf continued. "Foremost among our concerns is the recurring shortfall in Veterans Health Administration appropriations, which each year Congress has been called upon to correct. The funding shortfalls have a direct impact on patient care. If I had to identify the greatest menace to delivering quality health care in the VA, it would surely be lack of fiscal resources."

Dr. Donaldson concurs: "The West Haven VA Medical Center clearly exemplifies the need for this nation to face up to its responsibilities with respect to the Department of Veterans Affairs and its health-care system. Yale's partnership with the West Haven VA Medical Center is crucial to the School of Medicine's commitment to excellence."

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REFLECTIONS ON A CAREER IN MILITARY MEDICINE

by Raymond L. Sphar, M.D., M.P.H. '72

The first U.S. Navy ship in which I went to sea was a small destroyer equipped for radar patrol duty in the North Atlantic. Fortunately for its crew, on this occasion the ship headed southward from Newport, R.I., its homeport, for the Caribbean and spring exercises. The ship's captain, a salty guy from New Bedford, Mass., took it as his task to indoctrinate this fresh doctor into Navy customs.

"The Navy isn't a job, it's a way of life," he said, words which he would often repeat. His statement proved cogent for the ensuing 28 years of my naval career.

My service began in 1956, during my first year at Jefferson Medical College, during the Korean conflict. Not wanting to have my medical studies interrupted, I joined the Navy's reserve program for medical students. It offered summer clerkships in research and clinical medicine and a chance for me to wear the uniform of naval officer. My reserve status even permitted me an experience I shall always treasure—a ride in a blimp out of Lakehurst, N.J., shortly before the Navy phased out lighter-than-air craft.

By then I was in a civilian internship, at a time when the *Nautilus* and other nuclear-powered vessels had captured the public's imagination. My own interest soared as I read of the Navy's daring journeys beneath the polar icecap. Nuclear power was a revolutionary advance for submarines. The earlier "boats" had changed little in decades. They had limited submergence capability using electrical propulsion from batteries, and diesel engines on the surface.

Nuclear fission, the source of energy in a nuclear ship, supplies heat to generators which provide propulsive and electrical power. Other devices produce oxygen, purify the ship's air and convert seawater to fresh water, making the ship a true submersible. Going to sea in this craft worthy of Jules Verne seemed to me the ultimate in adventure. Since these vessels all carried medical officers, the Navy was exerting a powerful pull on me. I signed on.

Preparing for Life under the Sea

At the time, a fully qualified submarine medical officer received instruction in three areas: diving medicine; submarine medicine—a subspecialty of occupational medicine that focuses on habitability of the submarine environment—and nuclear power. Training took nearly a year and was divided among the Deep Sea Diving School, Washington, D.C., Submarine School, Groton, Conn., and for those who survived an interview with Adm. Hyman Rickover, father of the nuclear navy, one of the land-based nuclear prototypes.



Dr. Raymond L. Sphar

Raymond L. Sphar: Three Decades of Military Service

Raymond L. Sphar, a native of Charleroi, Pa., and a graduate of Westminster College, received an M.D. degree from Jefferson Medical College in 1961 and an M.P.H. degree from Yale in 1972. He served as medical officer on two nuclear submarines, commanded two Navy research facilities, and held a variety of staff assignments in Washington, D.C., including duty in the Navy Surgeon General's office as director, undersea and radiation medicine, and director, research and development. He also served as military assistant to the Secretary of Defense for medical and life sciences research.

Dr. Sphar's military decorations include the Navy Legion of Merit and the Department of Defense Superior Service medal. He retired from the Navy in 1990 and was appointed director, Medical Research Service, in the Department of Veterans Affairs in 1991. He resides in Washington, D.C.

Training at the diving school was physically demanding, particularly for medical personnel who were not built like the typical Navy diver, who often resembles Mr. Universe. My class of 40 M.D.s began each day with calisthenics and then pursued a series of familiarization dives using various diving equipment ranging from SCUBA (self-contained underwater breathing apparatus), which was fun, to the helium/oxygen hard-hat diving suit, which was torture. Outfitted in the latter, with its copper helmet, lead weight belt and enormous boots, I gained a profound appreciation for those who had to work with such an encumbering suit.

My class next faced the challenge of submarine training at Groton, Conn., a naval base shrouded with mystique, its submarines dark and sleek, sliding silently down the Thames River and out to sea. Nuclear power made these vessels all the more intriguing.

After weeks of lectures on submarine systems and operations, my class finally boarded a submarine, a World War II diesel boat used exclusively for training. Surrounded by instructors, each of us got a chance to try our skill at sea, diving and surfacing until we could accomplish this with some competence; in an emergency, the entire crew needed to know how to surface the boat.

Lectures on atmosphere control, personnel selection, emergencies at sea, radiation protection and toxicology comprised the medical part of the course. An escape training exercise followed at the 100-foot tank of water, although we made our "escapes" from the 50-foot level; our instructors knew well the danger of air embolism that stalks anyone who is not able to continuously exhale all the way to the surface. No one had to inform us that this training, while helpful to a submarine crew in shallow water, was moot in deep-depth operations.

Upon graduating from the submarine course, many of us received orders to report directly to operational nuclear submarines. Nine of us proceeded to nuclear power training, somewhat envious of those who were now going to sea.

Before any of us could commence, however, we had to endure yet one more trial: an interview with Admiral Rickover himself. Stories about these legendary exchanges, well-recounted in books about Rickover and the nuclear navy, are often bizarre but probably not apocryphal.

My interview took place in a purposely remote section of the old "Main Navy" buildings on Constitution Avenue in Washington, D.C. After a pre-brief by a staff officer on "dos and don'ts"—do sit down, don't speak until he speaks to you—I was ushered into a small, spartan office, sat down and saw for the first time the famous man, about 65, slender and wiry, with close-cropped white hair and a prominent nose. He was scowling, and I immediately doubted that I would be able to utter a single intelligent answer to his questions.

The only unifying thread to the admiral's line of brusque questioning seems to be the monumental stress that it placed on the person interviewed—who was often seated in a chair with two shortened legs. This was a favorite way of interviewing midshipmen. Perhaps because the admiral didn't deem it necessary to devote a lot of time to grilling medical officers, my interview was intense but mercifully brief. I even got to sit in a chair with good legs. Having thus passed muster, I could finally begin nuclear power training.

Keeping Armageddon on a Leash

West Milton, N.Y.: Of all the unexpected places for naval nuclear power training, our group traveled to Ballston Spa, N.Y., a sleepy, land-locked village upstate, near Saratoga Springs where for security reasons, the Navy operates several full-scale, operational nuclear submarine power plants. Wandering the innards of this enormously complex assemblage of technology was both riveting and daunting. Not only did we have to learn how it worked—we had to qualify as power plant operators!

Admiral Rickover's staff, who directed the training, left no room for foolishness. Worldly activity such as television was firmly discouraged. Keeping up with the course material precluded recreation anyway—there was hardly time for meals—and I kept reminding myself what a unique opportunity I enjoyed.

Despite the challenging workload, we all managed to survive the stress and finished the course. Having earned the white belt of the qualified plant operator, my eight classmates and I were more eager than ever for assignment to a "nuke boat." Sea duty remained a distant dream, however; nuclear-trained physicians were scarce, so the Navy assigned the members of my class to ships that were still being built as Admiral Rickover wanted "nuke docs" on the ships in construction and shakedown.

I received orders to an attack submarine in construction at New York Shipbuilding Co. in Camden, N.J. It would be the second of three that the yard would build. My ship was christened the *Haddo* after a World War II boat whose namesake, following Navy custom, was a fish, the variety of which I had not heard before or since.

Although it could not offer the adventure of the sea, the shipyard did provide much opportunity for on-the-job learning in occupational medicine. This vast industrial complex posed all the hazards attendant with heavy industry; for the only time in my naval career, I wore a hardhat and safety shoes.

My assignment—to establish the ship's medical department, to keep the crew healthy, and to monitor the crew's radiation exposure once the nuclear reactor came on-line—was all quite manageable, though the focus on perfection and timeliness could prove stressful. Admiral Rickover was in constant touch with the ship's prospective commanding officer, Cmdr. Jack Williams, demanding attention to the tiniest detail of ship construction. Although this dogged pursuit of excellence seemed tedious, the time would come when we would learn firsthand just how crucial the details are to a vessel capable of deep dives.

This lesson came soon after *Haddo* lumbered into Delaware Bay and then the Atlantic to make its maiden voyage. Admiral Rickover, as was his custom, conducted the sea trials personally. We knew that Rickover expected a few amenities in his stateroom—a fresh set of khakis, lemon hard-candy, white grapes and a copy of the *New York Times*. Being just the right size, I provided the khaki uniform, which was returned to me after we survived the admiral's trial by water.

Sea trials proved downright scary, with Admiral Rickover repeatedly giving orders for fast dives to considerable depths. As the admiral barked out his orders in a flat, rasping monotone all eyes in the control room were fixed on the depth gauges. Diving a new submarine with an inexperienced crew is risky despite safety tests done before the trials, and as we approached the ship's allowable test depth at a steep angle, I stood riveted in

place, the occasional creaking of the hull reminding me of the sinking of the *Thresher*, a submarine of the same class, just 18 months earlier off the coast of Cape Cod. If the *Haddo* had even a minor flaw in hull construction, neither ship nor crew would have survived.

Although such maneuvers were far from popular with crews and even with some of the top Navy brass, over the years the admiral stared fate in the eye with fast dives of each nuclear submarine he tested. Each time, fate blinked; thanks to superb design and construction, he never lost a submarine in sea trials. The practice of fast diving, however, did contribute to the admiral's forced retirement in 1982, four years before he died.

Soon after *Haddo* was commissioned in December 1964, I received orders to report for duty with the *Thomas Edison*, a Polaris ballistic missile submarine operating out of Scotland. As the primary naval deterrent against the Soviets, each Polaris submarine poised beneath the North Atlantic, its 16 nuclear missiles helping to keep the peace by the threat of horrific retaliation.

To maximize the sea time of these expensive instruments of force, each submarine had two crews, designated Blue and Gold. As one crew patrolled the seas for 60 days, the other

remained at the homeport, engaged in refresher training and spending time with their families; one month was used for "turnover" between crews and for leave. My duty aboard *Thomas Edison* qualified me for the unofficial title of "Blue Nose" for having crossed beneath the ice of the Arctic Circle.

Under the best of circumstances, patrols were medically uneventful, the crew being young and healthy. We could usually count on an outbreak of upper respiratory illness early in the patrol, probably attributable to naive exposure to "Scottish viruses" after three months in the U.S. Under the worst of circumstances, an acute illness or serious injury could jeopardize the ship's mission by diverting it from its intended course to effect a medical evacuation.

During the earlier 36,000-mile submerged circumnavigation by the mammoth submarine *Triton*, a crew member had developed severe pain from kidney stones about halfway through the voyage. The trip was to remain top secret until completion and the necessity to evacuate the patient was potentially compromising to the secrecy and to the record of submergence. Capt. Edward Beach, *Triton*'s skipper, arranged a secret rendezvous with a navy cruiser, broached only the conning tower of the submarine, the rest of the vessel remaining submerged, and the unfortunate man was transferred to the cruiser off the coast of Montevideo. The historic voyage was completed successfully with the ship surfacing off the coast of Delaware, where Captain Beach was picked up by helicopter and flown to the White House lawn to receive the Presidential Unit Citation for the ship's crew from President Dwight D. Eisenhower.

Fresh from the Colonies

In the late 1960s, the British phased out the Royal Navy's air fleet with a view to enlarging their nuclear submarine fleet and sharing patrol responsibilities with the United States; the U.S. provided Polaris missiles for these ships. The Royal Navy's enlarged fleet would require medical officers to be trained, specifically in medical aspects of operating nuclear submarines on lengthy patrols.

By then the U.S. Navy had substantial experience with radiation dose measurement, nuclear plant coolant analysis, and with problems of prolonged submergence, including treatment of medical emergencies at sea. The U.S. agreed to assist in training Royal Navy doctors for similar duty.

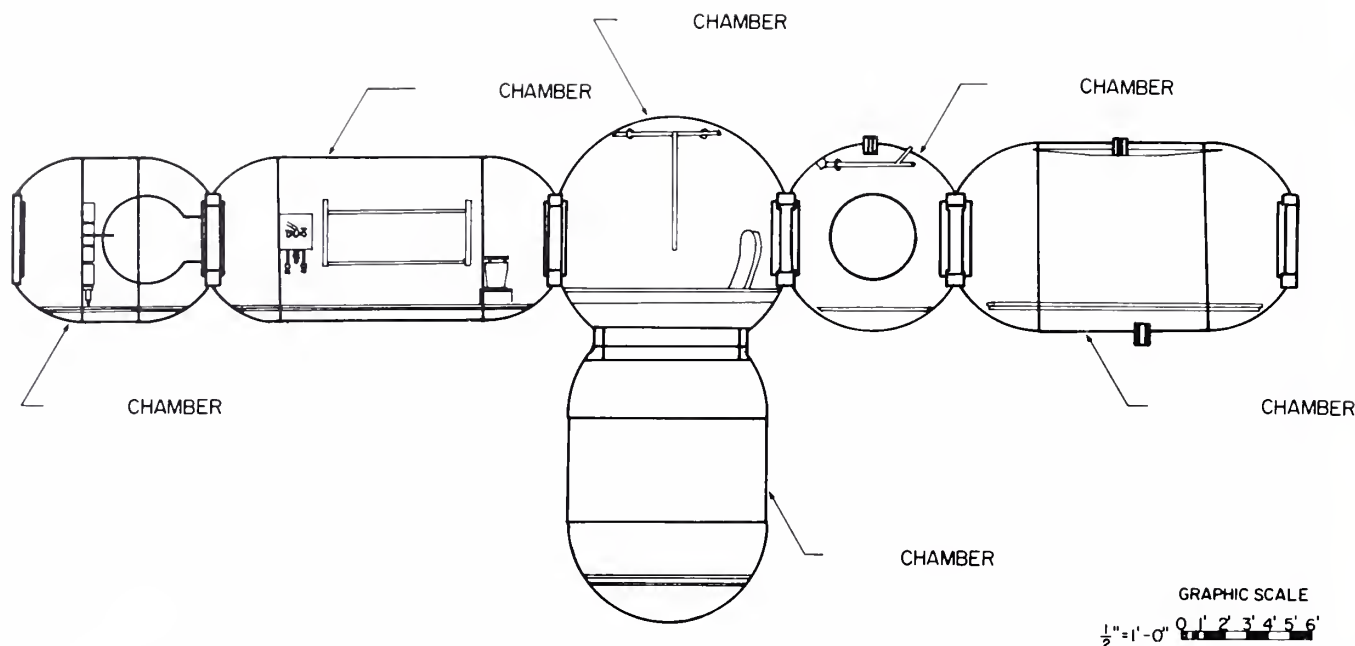
I was selected as the first of a series of exchange officers who would serve with the Royal Navy in an unbroken chain for 25 years. My wife Jean and seven-month-old daughter Christina accompanied me to *HMS Dolphin*, the British submarine base in Portsmouth harbor on the south coast of England. This compact facility, offering a mix of old and modern architecture, housed various naval functions including the headquarters of Flag Officer, Submarines—the admiral who commanded the U.K. submarine fleet. I was assigned to his staff.

The admiral, a tall man of about 50 with salt and pepper hair and steel-blue eyes, was most welcoming and gave me many opportunities to go to sea in both diesel-electric boats and nuclear vessels. By the end of my first cruise aboard a British diesel, I was feeling quite at home, having shared the tiny wardroom with the other officers and now wearing the white wool turtleneck sweater exclusive to the submarine fleet.



Photographs and graphics courtesy of Raymond L. Spar

A fleet ballistic missile submarine.



The hyperbaric complex at the Naval Medical Research Institute, Bethesda, Md., pictured in the above schematic diagram, is among the most technically sophisticated diving research facilities in the world. When the "wet pot," which projects downward from the center of the complex, is flooded with water, it becomes the work site for Navy divers who use the other parts of the habitat for sleeping, eating, exercise experiments and recreation. Each chamber has its own system of pressure valves and gauges for compression and decompression as well as extensive means of monitoring the human subjects. Steel doors between chambers permit isolation of a portion of the complex for treatment of a diving medical problem or for "excursions" to different depth levels. The institute's chamber complex can simulate ocean dives of up to 3,000 feet, but most saturation diving experiments are conducted at the 1,000-foot level.

Located at a site adjacent to Bethesda Naval Hospital, sometimes the hyperbaric complex is used to treat medical emergencies such as carbon monoxide poisoning, bone infections and "the bends," or decompression sickness in civilian divers.

The Royal Navy Medical School, close by *HMS Dolphin*, was the focus for training physicians in submarine medicine. My job was to provide information on U.S. submarine medical practice and coordinate research between the navies. Research issues at the time focused on long-term health effects of prolonged exposure to the submarine environment with its artificial atmosphere and inevitable atmospheric contaminants. In fact, the technology for atmosphere control was remarkably advanced in both navies, keeping carbon monoxide, carbon dioxide, hydrocarbons and freon within permissible limits with relative ease. I also shared in teaching radiation monitoring, air purification and other facets of environmental medicine.

Perhaps the most memorable aspect of the Royal Navy way of life were the social events. Officer messes in England are invariably housed in impressive surroundings—historic build-

ings complete with splendid maritime paintings and panelled mess halls, and the *Dolphin* mess was no exception. Formal dinners were frequent, with black tie uniform mandatory.

Each dinner was governed by a protocol of toasts, and as an American who was a full member of the mess, one of the toasts included the President. I only wished that the President might have shared my hangovers, because after the formal proceedings we adjourned to the bar for more drinks and rowdy games.

Leaving England wasn't easy. I had grown accustomed to riding a horse and to sailing, to drinking Port and even to hearing British English. At least I could look forward to a residency in epidemiology at Yale.

The Navy arranged this residency so that afterwards I could work at the Submarine Medical Research Laboratory at Groton. I chose Yale knowing that the faculty at the department of

epidemiology and public health (EPH) was excellent. Moreover, I hoped to build bridges between EPH and the laboratory in Groton. This seemed logical, given the Navy's interest in long-term well-being of submarine personnel and EPH's expertise in epidemiological research, both for acute and chronic diseases.

The Groton lab was responding to the advent of nuclear-powered submarines, ships that could function underwater for several years—far longer than the human beings who operated them. Early research in this field studied human tolerance to carbon dioxide and hypoxia, reduced oxygen levels.

Groton quickly had established a reputation as the leader in nuclear submarine environmental and behavioral research. For example, the lab had determined that prolonged exposure to 1.5 percent carbon dioxide levels, previously accepted as safe, caused undesirable physiological effects such as increased respiratory rate and a feeling of breathlessness. So the Navy designed carbon dioxide scrubbers capable of maintaining levels below 1 percent. Scientists studying motivation and effects of stress and fatigue recommended that patrol length be limited to approximately 60 days, which became the standard for Polaris patrols.

From the beginning, the Navy recognized that the closed space of a submerged submarine threatened its crew with potential atmospheric contamination. New studies monitored continuous exposure for prolonged periods and took into account the interactions of contaminants—studies which were to have a bearing on “sick building syndrome” in the budding age of sealed office buildings. The lab undertook vision and hearing studies as well, establishing “international orange” as the color that offered maximum visibility at sea.

Finally, the Groton lab had made its mark in diving research. Capt. George Bond conducted early experiments in saturation

diving in which divers can spend extended lengths of time in pressurized chambers at depths even beyond the limits of a submarine. These multi-phased experiments, entitled Project Genesis, extended over six years and led to the Sea Lab project in which divers lived in a seabed habitat and worked in the sea around them, demonstrating the practicality of Bond's concepts.

In 1981, using technology pioneered by Captain Bond, three divers at Duke University breached the 2,000-foot barrier for 50 days in the *Atlantis III* dive. Although record-breaking dives of this type are, in a sense, technological stunts, they also yield important scientific information. Today, Navy divers conduct routine work at greater depths and for longer periods than was ever thought possible 30 years ago, thanks to Captain Bond's pioneering vision of saturation diving.

Such was the milieu of applied research I entered after completing my courses at EPH. Drs. Alfred Evans and Adrian Ostfeld, my EPH mentors, had trained me well for this assignment, and they both served as consultants to the lab on numerous occasions. I soon became involved with a longitudinal study of submariners' health and a seroepidemiological investigation of respiratory illness in submarine crews.

About one year after my assignment to the lab, I was named its commanding officer. While gratified by this appointment, I quickly learned that command did not come without its hazards. My initiation came by way of a *Time* magazine reporter, who upon interviewing a young medical officer and a psychologist from our staff, published a story that infuriated Admiral Rickover.

Painting the worst possible picture of life aboard submarines, the article falsely suggested that crews suffered severe paranoia and often reached the limits of endurance on patrol. The article predicted similarly dire problems for astronauts in the new space program—developments which never occurred. In my



“International orange” became the standard color for emergency equipment, including the inflatable life preserver affectionately named for Mae West. In this photo, circa 1950, the legendary movie star, ever the good sport, visited the lab to thank Groton-based sailors for their tribute.

daily conversations with members of Rickover's staff, the storm subsided. The admiral made it clear, however, that there were to be no more interviews with newsmagazines.

During my second year in Groton, 1973, we began developing a plan to resume diving experiments, the large hyperbaric chamber used by Captain Bond still being fully operational. Despite their depth limitation, 350 feet of seawater, the tanks could still help the Navy understand some important questions.

So our interdisciplinary team of scientists embarked on a series of experiments that sought to determine whether plain air had utility as a breathing gas in saturation diving; the success of dives at greater depths depending on carefully balanced mixtures of oxygen and inert gases. Most diving work is done at shallow depths, and our team was able to show that saturation diving could be done at those depths using air. The lab has remained in the forefront of this research, advancing diving technology for shallow depths as well as our understanding of the human response to the deep-diving environment.

A New Challenge

In 1983, the Navy Surgeon General invited me to lead the Naval Medical Research Institute at Bethesda, Md., as its commanding officer. Bethesda is the Navy's flagship laboratory for basic and applied medical research regarding combat casualty care, hyperbaric medicine, infectious diseases, environmental stress, transplantation immunology and toxicology. The institute began the world's first tissue bank, Navy scientists having pioneered techniques of harvesting and storage.

Moreover, the institute offers a highly sophisticated complex of chambers, allowing for experimental saturation dives at much greater depth—routinely to 1,000 feet—than the dives conducted in Groton. The basic science program focuses on the effects of pressure on mammalian systems, particularly the pulmonary and nervous systems. In applied research, Navy divers serve as experimental subjects for testing diving gas mixtures and decompression schedules, which the Navy continually seeks to improve.

Infectious disease research has focused in recent years on malaria prevention and treatment, developing rapid diagnostic tests for field use, and on AIDS. In 1983, a new detachment of Navy scientists in Peru expanded research into a number of tropical diseases.

As in Groton, my initiation at Bethesda came quickly. After only a week in command, animal activists broke into a research facility and stole several dogs which had been used in experiments. As the second such incident, the break-in affirmed that upgrading security would be my first priority. A sad testament to the times, we installed elaborate security systems at the expense of our research budget, earmarked to protect and save human lives.

Despite this distraction, during this period the institute experienced rapid growth in the team conducting transplantation immunology research, having maintained a strong capability for doing histo-compatibility research over the years. These scientists were among the first to isolate the hematopoietic stem cell—the precursor of white blood cells before they differentiate into cell types—and related growth factors.

About this time I encountered Admiral Rickover again. Having learned that he was a patient in Bethesda Naval Hospital, I paid a courtesy call. As I entered the room I wondered what his mood would be. He was in bed, propped up with pillows, reading. He looked a bit older, but no less feisty. As he greeted me, he actually managed a smile.

The radiation incident at Three Mile Island had occurred a short time before and I opined, "Admiral, if you were in charge of civilian nuclear power that accident would never have happened." With typical modesty he replied without hesitation, "You are absolutely right, Sphar."

In our exchange, the admiral took for granted the exacting standards demanded by the Navy—particularly the nuclear navy. In fact, this vignette illustrates what is common to the naval officer who spends months at a time cruising beneath the sea and a scientist who drives to the laboratory every workday. Selected for independence, intelligence, objectivity and leadership, submarine personnel display qualities that are vital to the research setting. Hence, the discipline I learned from Admiral Rickover's pursuit of excellence served me well in my later assignments in medical research.

After my tour of duty in Bethesda, I served in the Office of the Secretary of Defense, where I had oversight of medical research in all of the military services. This meant participating in NATO meetings in Brussels, London and Paris, where I enjoyed renewing old international friendships. By now, though, almost 30 years had passed since I joined the Navy; I decided it was time to put my uniform in mothballs, as they do the ships of an earlier day.

Today, as a civilian, I continue my career in military-related biomedical science as director, Medical Research Service in the Department of Veterans Affairs. The VA has been one of the leading biomedical research organizations in the world for more than 60 years. The current program is addressing important clinical problems in the veteran population—aging, AIDS, alcohol/drug dependency, heart disease, post-traumatic stress disorder, schizophrenia, spinal cord and brain injury and the health of female veterans, to name but a few areas of research. All of these represent important challenges, and successful results will benefit the general population as well as veterans. The VA has a superb team of intramural investigators, three-quarters of them physicians, and a highly regarded peer-review system, so I am confident that these challenges will be met effectively.

It has been most gratifying to serve my country and the world by improving people's quality of life through biomedical research. The adventure goes on.

YM

GALLERY



Yale Medical Historical Library

Dr. Harvey Cushing and Aviator's Grave Marker, 1918

As a surgeon and professor at Harvard Medical School during World War I, Harvey Cushing, M.D., later professor of neurosurgery at Yale, organized Base Hospital Unit Number 5, one of several units of American medical volunteers that served on the front lines. Dr. Cushing led Unit Number 5 from May 1917 through the Armistice in November 1918.

During these years, he composed a million-word journal, complete with photographs, which is housed today in the Yale Medical Historical Library. The photograph on the left serves as the frontis piece for an edited version of these writings: *From a Surgeon's Journal* (Boston: Little, Brown, and Co., 1936). The second photograph shows an aviator's grave in a makeshift cemetery in France near Belgium, his tombstone fashioned from a shattered airplane propeller.

In the aftermath of the war, January 1919, Dr. Cushing reflected on a former battlefield near the Somme in France:

January 2nd. Hotel Bellevue, Lille, 9 p.m.

One must cross the old strip of No Man's Land and see for himself...the complete annihilation of towns, villages, and the lands between. No description could suffice—the thing itself beggars it, staggers it...

Sand bags rot and rains wash away their contents, leveling the parapets...trenches and shell holes gradually fill in: the openings of abris and dugouts get choked and obliterated: the tangles of wire, bent sheets of corrugated iron, the litter of

abandoned arms and equipment slowly sink in the mud as do the crosses which mark where heroes lie: the derelict skeletons of man and man-made machines—riddled tanks and fallen aeroplanes, demolished gun carriages and upheaved blocks of concrete and rails which once were Boche "pill-boxes"—will slowly disappear in the winter mire of Flanders and in another season or two will be covered with soil, grass-grown and flower-bedecked.

Thus the corpse of the battlefields disintegrates, leaving its rusting and contorted bones of iron and sinews of wire, and even these relics are being eaten away by a swarm of coolies and German prisoners and salvage corps people, like beetles busy over a carcass.

There are many front lines and front lines in many places, but there can be none more appalling—more beggaring of description than...that disconsolate and desolate strip of country which lies between Ypres and the ridge stretching from Paschendaele through Gheheweldt and beyond to Messines.

A riot of demoralization—the fair earth which for centuries had been under the harrow, drenched in the blood of hundreds of thousands, fixed in an agony of despair, abandoned to solitude, torn, beaten, pounded, seared, upheaved, till no man can possibly recognize the acre he has once tilled.

—Gregory R. Huth

STUDENT RESEARCH DAY

Photographs by Harry Bishop



Eric Rashba, M.D. '92, (right) explains to third-year student Ed Gunther how cloned T-cells can prevent insulin dependent diabetes mellitus in experimental animals.

Opening Remarks

Student research, by all medical students and M.D./Ph.D. students, plays a central role in the Yale System of medical education and it is the accomplishments of student research that we celebrate today. The requirement of an M.D. thesis at Yale is unique among American medical schools, and today we celebrate the 153rd year of that tradition.

This year the office of student research will fund over 200 students for short-term research and 18 students who are receiving one-year student research fellowships. This expanded program requires a growth in our funding, and I am very pleased to announce today the establishment of the Paul Lavietes Student Research Fellowship, given in honor of Dr. Lavietes, a beloved clinician and superb diagnostician and teacher in the department of medicine for many years. Funds for the Paul Lavietes Fellowship are given to the school by the Lavietes family, specifically Mrs. Ruth Lavietes, Dr. Lavietes' daughter, Sylvia Lavietes, M.S.W., assistant clinical professor of pediatrics, and his cousin, Raymond Lavietes of Stratford, Conn.

The prize-winning theses that will be presented today, and other research prizes awarded at graduation, are selected by the Thesis Awards Committee, which reviews all theses recommended

for honors by the individual departments. These people are listed in the accompanying table, and we are grateful for their work.

We also want to thank Linda Seigneur, Gail Beamon and Virginia Simon from the office of biomedical communications, who worked so hard on the posters you've just seen. Laura McDonald, who joined us recently as the senior administrative assistant in the office of student research, has done a remarkable job coordinating the events of this day.

Our special thanks this year goes to Dr. Robert Gifford, associate dean for education and student affairs. In addition to all the other things that he does for students, Dr. Gifford has supported the student research program in every possible way, in raising special funds, in providing us space, and in coming to all of our meetings.

*John N. Forrest Jr., M.D.
Professor of medicine
Director, office of student research*

Abstracts

A Prospective Study Assessing Patients after Anterior Cruciate Ligament Reconstruction with Serial Magnetic Resonance Imaging, Genucom, KINCOM and Clinical Evaluations

by Ann M. Smith

Faculty advisor: Peter Jokl, M.D.

Professor of orthopaedics and rehabilitation

Faculty discussants: J. Kevin Lynch, M.D.

Associate clinical professor of orthopaedics and rehabilitation

Chris F. Pope, M.D.

Department of radiology, Maine Medical Center

This prospective study was performed to follow changes in anterior cruciate ligament (ACL) grafts after reconstruction and to judge what role various instrument parameters might have in assessing the success of patellar tendon ACL reconstruction. Thirteen patients were followed after ACL reconstruction with serial testing that included Genucom (ligament laxity testing), KINCOM (muscle strength testing), magnetic resonance imaging (MRI) and clinical evaluations. Muscle strength testing was performed preoperatively and 6 and 12 months postoperatively. Clinical and ligament laxity evaluations were obtained preoperatively, and 6, 12 and 24 months postoperatively. MRI evaluations were performed preoperatively, and 1.5, 6, 12 and 24 months postoperatively. Data from these evaluations were analyzed with multiple regression analysis of variance (ANOVA) and paired T-tests.

There were a number of significant clinical findings in this study. Twenty-four months after ACL reconstruction, all patients had improved from their preoperative state as measured by ability to return to sports ($p=0.0001$). One patient developed significant ligamentous laxity 24 months after reconstruction. Changes in laxity did not correspond with changes in the clinical outcome. KINCOM testing at each of three different speeds, showed the involved quadriceps' strength increased over the follow-up period. A statistically significant quadriceps deficit persisted even 12 months after reconstruction ($p<0.05$). No statistically significant relationship existed between the quadriceps and hamstring strength and the patients' ability to return to athletic activities ($p<0.05$).

There were also a number of significant radiographic findings. All grafts were identified on MR as intact at 24 months. Graft signal intensity was most like normal tendon early after reconstructive surgery while little change in the ACL graft occurred between 6 and 24 months. The clinical outcome could not be predicted either on magnetic resonance signal or overall appearance of the graft. Changes in the patellar tendon (the harvest site) and menisci were detectable on MR.

Although parameters from MRI, Genucom, and KINCOM devices can be used to detect changes after ACL reconstruction; these changes were not predictive of clinical outcome. Further work is still needed to determine their exact roles in management of patients following ACL reconstruction.



Student Research Day oral presenters and colleagues: (front row, from left): Ann M. Smith, Dr. Lawrence S. Cohen, deputy dean, Sydney Brenner, F.R.S., Kelsey Martin. Back row: Dr. Robert H. Gifford, associate dean for education and student affairs, Michael Girardi, Daniel Fitzgerald, John Phillips and Dr. John N. Forrest Jr. Dr. Brenner, director, MRC Molecular Genetics Unit, Cambridge, England, delivered the fifth annual Lee E. Farr, M.D., Lecture.

Thesis Subcommittee (Awards Committee)

Edward J. Benz Jr., M.D.
Emile L. Boulpaep, M.D.
Michael Caplan, M.D.
Dennis L. Cooper, M.D.
John N. Forrest, Jr., M.D. (Chairman)
Robert H. Gifford, M.D.
Robert E. Handschumacher, Ph.D.
James D. Jamieson, Ph.D.
Barry Kacinski, M.D.
M. Stephen Meyn, M.D.
I. George Miller Jr., M.D.
Irvin M. Modlin, M.D.
Coralie Shaw, M.D.
Andrew Stewart, M.D.
Frederick J. Suchy, M.D.
Richard S. K. Young, M.D.



John L. Phillips and his faculty advisor, Arthur B. Dubois, M.D., professor of epidemiology and physiology.

Transport of Influenza Virus Ribonucleoproteins into and out of the Nucleus

by Kelsey Catherine Martin

*Faculty advisor: Ari H. Helenius, Ph.D.
Professor of cell biology, biology and in the Cancer Center
Faculty discussant: Ira S. Mellman, Ph.D.
Associate professor of cell biology*

Influenza is an RNA virus which replicates in the nucleus and buds from the plasma membrane. As such, its ribonucleoproteins (RNPs) must undergo bidirectional transport across the nuclear envelope. This thesis examines the transport of incoming influenza viral RNPs into the nucleus during viral entry and the export of newly synthesized viral RNPs out of the nucleus towards the end of infection.

Upon penetration of the influenza virus nucleocapsid into the host cell cytoplasm, the viral RNA and associated proteins are transported to the nucleus, where viral transcription and replication occur. Using quantitative confocal microscopy, I found that over half of cell-associated nucleoprotein (NP) entered the nucleus with a half-time of 10 minutes after penetration into CHO cells. Microinjection and immunoelectron microscopy experiments indicated that the NP entered the nucleus through the nuclear pore as part of an intact RNP structure and that its transport was an active process. Transport of the incoming RNPs into the nucleus was not dependent on an intact microfilament, microtubule, or intermediate filament network. Subsequent to penetration, the matrix (M1) protein appeared to dissociate from the RNP structure and to enter the nucleus independently of the RNP. I found that 50 percent of penetrated M1 entered the nucleus with a half time of 25 minutes after penetration into CHO cells. Nuclear transport of M1 appeared to occur by passive diffusion. While the entry of incoming M1 into the nucleus was not a prerequisite for infection, the separation of M1 from the incoming viral RNPs was. Amantadine, an antiviral agent which induces an early block in influenza infection, was found to block the dissociation event, and to thereby prevent import of incoming RNPs into the nucleus.

In contrast, I found that export of newly synthesized viral RNPs depended on association with M1. During infection, the export of newly synthesized NP from the nucleus coincided with the onset of M1 synthesis. In cells in which M1 was not expressed, NP remained confined to the nucleus. When the transport of newly synthesized M1 into the nucleus was blocked by cytoplasmically microinjected anti-M1 antibodies, NP remained in the nucleus. By double-label immunocytochemistry, M1 was found associated with newly assembled viral RNPs in the nucleus, at the nuclear pore, and in the cytoplasm. Thus, M1 appeared to bind to the viral RNPs in the nucleus and to escort them through the nuclear pore to their site of budding at the plasma membrane.

Together, the results of this thesis show that M1 modulates the directionality of influenza viral RNP transport into and out of the nucleus.



Third-year student Robert Iannone looks on as fellow students ponder his data about a rabbit model for human T-cell lymphotropic virus type 1 (HTLV-1) infection.

Extracorporeal Photochemotherapy in a Murine Graft-Versus-Host Model of Systemic Lupus Erythematosus: Testing the Anti-Idiotypic T-Cell Vaccination Hypothesis

by Michael Girardi

Faculty advisor: Robert E. Tigelaar, M.D.

Professor of dermatology

Faculty discussant: Charles A. Janeway Jr., M.D.

Professor of immunobiology, biology and in the Cancer Center

Inoculation of B6D2F₁ (H-2^{b/d}) mice with D2 (H-2^{d/d}) splenocytes results in a chronic stimulatory graft-versus-host reaction (GVHR) with the clinical manifestations of systemic lupus erythematosus (SLE). This investigation tested the ability of 8-methoxypsoralen (8-MOP) and ultraviolet A light (UVA)-attenuated D2 cells, primed to contain an expanded population of T-cells with idiotype receptors directed against MHC-II(I-A^b), to treat and/or prevent such SLE-like disease. Vaccination of B6D2F₁ mice with the extracorporeally photochemo-attenuated idiotype cells was postulated to induce an anti-idiotype T suppressor response capable of mediating disease protection. Photochemically attenuated cells from B6D2F₁-primed D2 donors were inoculated into B6D2F₁ recipients weekly (x6-10) either before or after GVHR initiation with normal D2 cells. A

third group of B6D2F₁ recipients were vaccinated weekly x 6 before disease initiation using 8-MOP/UVA-attenuated B6D2F₁-primed D2 cells further stimulated and expanded *in vitro* in the presence of B6D2F₁ targets and IL-2. Control B6D2F₁ mice were vaccinated with 8-MOP/UVA-treated D2 cells primed *in vitro* and/or *in vivo* with C3D2F₁ (H-2^{k/d}) cells.

Only mice vaccinated with 8-MOP/UVA-attenuated D2-anti-B6 cells, secondarily stimulated and expanded *in vitro* exhibited differences from controls when measured by the clinical parameters of ascites formation (0 percent of experimental, 67 percent of control) and mean survival (29.2 ± 1.2 weeks in experimental, 17.0 ± 2.4 weeks in control; $p < 0.025$). Histologic evidence of SLE-like kidney disease was found only in the control group. The groups also differed in mean ANA titer [calculated as $\log_2(\text{titer}/40) + 1$] measured 14 weeks after disease initiation (2.6 ± 0.4 in experimental, 5.3 ± 1.7 in control; $p < 0.05$). Furthermore, in mixed lymphocyte reactions cells from experimental mice suppressed the proliferative response of a CD4-enriched D2-anti-B6 line (idiotype) to B6 targets by 11.4 percent when compared to the proliferative response of the same responder/target combination in the presence of cells from control mice ($p < 0.05$). These results indicate photochemo-attenuated D2-anti-B6 cells primed *in vivo* and secondarily stimulated and expanded *in vitro* are capable of preventing progression of GVHR-initiated SLE-like disease via a mechanism consistent with generation of anti-idiotype T suppressor cells.



Sara E. Dobbs explains her findings about intergenerational patterns of child maltreatment to fellow 1992 classmates Michael Girardi and Nancy Dingott Girardi.

HIV I Nucleocapsid Protein: Zinc Binding and Functional Assays

by Daniel W. Fitzgerald

Faculty advisor: Joseph E. Coleman, M.D., Ph.D.

Professor of molecular biophysics and biochemistry

Faculty discussant: William Konigsberg, Ph.D.

Professor of molecular biophysics and biochemistry and genetics

The nucleocapsid (NC) protein (p15) of the human immunodeficiency virus, HIV, is a small RNA binding protein which coats the HIV genome. NC has been cloned and overproduced (under the control of a phage T7 promoter) in soluble form in an *E. coli* host. The soluble NC protein is a fusion protein containing 15 AA from the T7 gene 10 and 7AA from the HIV p24 protein at the N-terminus to make a protein of 171 amino acids. The plasmid containing the fusion gene is designated p15DF. Based upon the primary sequence of NC, it has been postulated that the NC coordinates two zinc ions and is thus a member of the "zinc finger" proteins. A homogeneous product has been isolated from the induced cells, and when isolated under aerobic conditions contains 0.3-0.5 gm atoms of Zn/mole protein and has only 2 titratable SH groups. On the other hand, if the cells are sonicated in 2 mM CdCl₂ and purified at pH 5.0, an unoxidized

protein containing 2 gm atoms Cd/mole protein is obtained. The Cd(II) ions can be exchanged with Zn(II), Co(II) or ¹¹³Cd(II). The Co(II)₂NC protein shows d-d electronic transitions at 695 nm ($\epsilon=675 \text{ M}^{-1} \text{ cm}^{-1}$ per Co(II)) and 640 nm ($\epsilon=825 \text{ M}^{-1} \text{ cm}^{-1}$ per Co(II)) compatible with regular tetrahedral geometry around both Co(II) ions. The Co(II)₂ and Cd(II)₂NC proteins show intense charge transfer bands in the near UV, 355 nm ($\epsilon \sim 8000 \text{ M}^{-1} \text{ cm}^{-1}$) for the Co(II) protein and 255 nm ($\epsilon \sim 10^4 \text{ M}^{-1} \text{ cm}^{-1}$) for the Cd(II)₂NC protein, compatible with -S⁻ coordination. ¹¹³Cd NMR of the ¹¹³Cd(II)₂NC protein shows two ¹¹³Cd NMR signals at 659 and 640 ppm respectively, each integrating to ~one Cd(II) ion. The downfield chemical shifts suggest coordination of each ¹¹³Cd(II) ion to 3 sulfur donor atoms. The spectroscopic data fully support the prediction that the NC protein binds metal ions to each of the tandem repeats of the -Cys-X₂-Cys-X₄-His-X₄-Cys- sequence contained in the N-terminal half of the molecule. While it is known that the NC nonspecifically coats the HIV genome, a number of other functions have been postulated. Functional assays presented here show that NC increases reverse transcriptase activity by 2.5 fold. Preliminary data also support the hypothesis that NC binds specifically to the psi sequence of HIV and is thus essential for specific packaging of viral RNA into virions.

**Regulation of Cytokine Production
in the Rat Osteoblast
by Transforming Growth Factor-Beta**

by John L. Phillips

*Faculty advisor: Mark C. Horowitz, Ph.D.
Assistant professor of orthopaedics and rehabilitation
and dermatology*

*Faculty discussant: Karl L. Insonga, M.D.
Associate professor of medicine*

Osteoblast activities include bone formation, osteoclast regulation, and the secretion of a class of hormones called cytokines. Osteoblast-derived cytokines include Interleukin-6 (IL-6) and two colony stimulating factors (CSFs): Granulocyte-Macrophage CSF (GM-CSF), and Macrophage-CSF (M-CSF). Osteoblasts secrete cytokines after exposure to several well-characterized mitogens such as lipopolysaccharide (LPS), phytohemafflutinin (PHA), and Interleukin-1. What roles osteoblast-derived cytokines play in normal bone remodeling is unknown.

Transforming Growth Factor-Beta (TGF- β) is a ubiquitous 23-25 kDa homodimeric protein stored in platelets and bone. TGF- β was originally discovered as an inducer of neoplastic

transformation in normal fibroblasts but has since been implicated in matrix homeostasis, immunomodulation, development and hematopoiesis. Bone is the body's largest source of TGF- β and the protein becomes activated after osteoclast bone resorption. No definitive role for TGF- β in bone remodeling is known.

This thesis presents experiments which tested the effect of TGF- β on osteoblast cytokine production and release. Data from *in vitro* cytokine assays of conditioned media suggest that TGF- β upregulates IL-6 and GM-CSF secretion through a novel synergistic interaction with other low concentration molecules including LPS, IL-1, and parathyroid hormone (PTH), as a group referred to here as synergens. M-CSF secretion was unaffected by TGF- β alone or in combination with any synergen. 90 percent of the GM-CSF and IL-6 release observed is achieved between 2.5 and 6 hours after exposure to TGF- β and a given synergen. Furthermore, the synergy between TGF- β and a given molecule is TGF- β -dependent. The osteoblast response was not altered by exposure to indomethacin. RNA analysis suggested that the synergy between TGF- β and IL-1 may involve TGF- β upregulation of the IL-1 cell surface receptor. These observations are the first to implicate TGF- β as a stimulatory molecule for cytokine release from osteoblasts and suggest new aspects of bone remodeling as well as a possible role for the osteoblast in hematopoiesis.



Dr. Robert Gifford (right) shows his affection for G. Edith Hsiung, Ph.D., professor emeritus of laboratory medicine, for whom a student research fellowship is named. At left is Warren A. Andiman, M.D., associate professor of pediatrics, epidemiology and laboratory medicine.

RESIDENCY PLACEMENTS 1992

CALIFORNIA

Kaiser Permanente, Santa Clara

David Lim, *medicine*

St. Mary's Medical Center, Long Beach

Kent Min, *medicine*

Stanford Affiliate Hospital

James Reese, *neurosurgery*

Ping Wang, *general surgery*

University of California, Los Angeles

Howard Cheng, *internal medicine*

Joanna Jen, *neurology*

David Lim, *diagnostic radiology*

University of California, San Francisco

Jonathan Barash, *family practice*

Sara Dobbs, *pediatrics*

Yuly Kipervarg, *medicine*

Samuel Myers, *internal medicine*

Lawr Randall, *orthopedics*

Steven Simon, *internal medicine*

University of Southern California, Los Angeles

Lauren Krieger, *orthopedics*

Andrew Phillips, *ophthalmology*

CONNECTICUT

Greenwich Hospital

Joseph LaRocca, *medicine*

Santiago Villazon, *medicine*

Hospital of St. Raphael, New Haven

Nahum Goldberg, *medicine*

William Sharpe, *medicine*

Norwalk Hospital

Ivan Suner, *medicine*

Yale-New Haven Hospital

Darrick Alaimo, *medicine*

Madeleine Blaurock, *internal medicine*

Samuel Colin, *medicine*

Marlene Corujo, *general surgery*

Jodi Dashe, *obstetrics and gynecology*

Deborah Dillon, *pathology*

Nancy Dingott, *pediatrics*

Michael Girardi, *medicine*

Robert Johnson, *internal medicine*

Alan Jotkowitz, *internal medicine*

Eric Krakauer, *internal medicine*

Francis Lobo, *internal medicine*

Daniel Philbin, *internal medicine*

John Phillips, *surgery, urology*

Mickey Riggs, *psychiatry*

Mary Ellen Savage, *psychiatry*

Jonathan Sears, *medicine, ophthalmology*

Edward Weiss, *internal medicine*

DISTRICT OF COLUMBIA

Georgetown University Hospital

Ted Lin, *surgery, neurosurgery*

Ann Smith, *diagnostic radiology*

George Washington University Hospital

Nathan Schmiechen, *emergency medicine*

FLORIDA

University of Miami/Bascom Palmer

Ivan Suner, *ophthalmology*

ILLINOIS

University of Chicago Hospitals

Peter Marcus, *obstetrics and gynecology*

Elizabeth Roth, *medicine*

Mitch Saltzberg, *internal medicine*

West Suburban Hospital-Illinois, Oak Park

Karen Antell, *family practice*

INDIANA

Indiana University Medical Center, Indianapolis

Gregory Engel, *general surgery*

IOWA

University of Iowa, Iowa City

Ross Zbar, *otolaryngology*

MARYLAND

Johns Hopkins Hospital, Baltimore

James Blaugrund, *surgery, otolaryngology*

Marcus Butler, *internal medicine*

James Yeh, *surgery, otolaryngology*

MASSACHUSETTS

Beth Israel Hospital, Boston

Kent Min, *diagnostic radiology*

Ken Rosenzweig, *medicine*

Boston City Hospital

Kathryn Ryder, *internal medicine*

Daniel Solomon, *internal medicine*

Boston University

Santiago Villazon, *ophthalmology*

Brigham & Women's Hospital, Boston

Douglas Dahl, *surgery, urology*

Jennifer O'Brien, *anesthesiology*

Frederick Welt, *internal medicine*

Children's Hospital, BostonElizabeth Mullen, *pediatrics*Anne Wolf, *pediatrics***Joint Center for Radiation Therapy, Boston**Ken Rosenzweig, *radiation oncology***Lahey Clinic Foundation, Burlington**Mat Massicotte, *urology***Massachusetts General Hospital, Boston**Stacey Berg, *pediatrics*Laura Drabkin, *pediatrics*Dan Fitzgerald, *primary care/medicine*Nahum Goldberg, *diagnostic radiology*Karen Loechner, *pediatrics*Julie Lund, *internal medicine*Mat Massicotte, *surgery*John Schulz, *general surgery*Claudia Showalter, *diagnostic radiology*John Walsh, *anesthesiology***McLean Hospital, Belmont**Karen Loechner, *psychiatry***Mt. Auburn Hospital, Cambridge**Claudia Showalter, *medicine***New England Deaconess Hospital, Boston**Jennifer O'Brien, *medicine*Robin Perlmutter, *general surgery*Sean Roddy, *surgery***New England Medical Center, Boston**Evan Fischer, *orthopedics***MICHIGAN****University of Michigan Hospitals, Ann Arbor**Andrew Griffith, *surgery, otolaryngology***MINNESOTA****University of Minnesota Hospital & Clinics, Minneapolis**M. Wallen-Friedman, *general surgery***NEW JERSEY****St. Barnabas Medical Center, Livingston**Ann Smith, *transitional***NEW MEXICO****University of New Mexico School of Medicine, Albuquerque**Mark Epstein, *emergency medicine***NEW YORK****Columbia University**Barry Birch, *neurosurgery***Lenox Hill Hospital, New York**Ross Zbar, *surgery***Manhattan Eye & Ear**David Eisenman, *otolaryngology***St. Luke's/Roosevelt Hospital, New York**Tobenna Okezie, *orthopedics***Strong Memorial Hospital, Rochester**Eric Rashba, *internal medicine***The New York Hospital**David Eisenman, *surgery*Joseph LaRocca, *anesthesiology***NORTH CAROLINA****Duke University Medical Center, Durham**William Dwyer, *medicine/pediatrics*Doris Iarovici, *psychiatry***University of North Carolina, Chapel Hill**Ada Cheung, *orthopedics*Teresa Wooten, *pediatrics***OREGON****Emanuel Hospital/Health Center, Portland**Andrew Phillips, *transitional*Jivin Tantisira, *transitional***Oregon Health Science University, Portland**Ahmed Abou-Zamzam, *general surgery*Joanna Jen, *medicine***PENNSYLVANIA****Altoona Hospital**Kurt Kubicka, *family practice***Thomas Jefferson University, Philadelphia**Robin Smith, *surgery, urology***University Health Center/Pittsburgh**Jivin Tantisira, *ophthalmology*Neely Anne Towe Egan, *pediatrics***University of Pennsylvania Hospital, Philadelphia**Darrick Alaimo, *neurology*Scott Kasner, *neurology*Nabil Rizk, *general surgery*Chloe Thio, *internal medicine***RHODE ISLAND****Miriam Hospital, Providence**Helena Kwakwa, *internal medicine***Rhode Island Hospital, Providence**Kelly McGarry, *primary care/medicine***VIRGINIA****University of Virginia, Charlottesville**Nancy Harthun, *general surgery***WASHINGTON****University Washington Affiliate Hospitals, Seattle**Charles Charman, *primary care/medicine*William Sharpe, *diagnostic radiology*John Walsh, *medicine*

Residency placement information is provided by the Yale University School of Medicine Office of Education and Student Affairs.

COMMENCEMENT 1992



All in fun: Rolf Towe, J.D. '64, straightens the cap of his daughter, Neely Anne Towe Egan, M.D. '92.



Medical graduates take the Yale Physician's Oath.



Jen Wolf (left) and Jennifer O'Brien rush to the class photo.



Robin Perlmutter invites the photography to begin.



M.P.H. graduate Linda Marc discusses post-commencement plans.



Robert Randall, M.D. '92, celebrates with his family.



M.P.H. candidate Carrie McFadden receives word that the EPH commencement is about to begin.



Jean Flatley McGuire, M.S.P.H., a Pew Foundation Doctoral Fellow at Brandeis University, formerly with the AIDS Action Council, Washington, D.C., delivered the 1992 EPH commencement address.



M.P.H. graduate Sean Buckley promenades with a proud supporter.

Photographs by Harry Bishop



IVF nurse Andrea Laudano, R.N. (right), shares a moment of joy with Michelle Moss-Lerner and her son, Zachary.

In Vitro Program Celebrates 10 Years

This summer, the School of Medicine and Yale-New Haven Hospital celebrated the 10th anniversary of the In Vitro Fertilization Program through which approximately 220 babies have been born.

Parents and children returned to New Haven in June for anniversary festivities complete with picnic fare, a clown, balloons, a puppet show, Babar the elephant and more.

"Through this sophisticated program, we have been able to assist hundreds of couples who otherwise would have had to consider adoption or remain childless," explains Dr. Ervin E. Jones, associate professor of obstetrics and gynecology.

Initiated in 1982, the Yale IVF program includes a team of obstetri-

cians, endocrinologists, nurses and social workers who address the needs of participating infertile couples. On May 25, 1983, the first IVF baby in New England was born at YNHH through this program.

In 1986, Yale became one of the first IVF centers to use the cryopreservation process, allowing couples to save embryos for use in subsequent cycles. In 1987, Yale began a donor egg program to enable women without functioning ovaries to become pregnant. More recently, Yale opened a center for micromanipulation, a process that injects sperm cells directly under the egg covering, offering an even better chance for conception to couples with male-factor infertility.

Recently joining the Yale IVF team is Dr. David L. Olive, associate professor of obstetrics and gynecology and chief of the division of reproductive endocrinology.

Needle Exchange Slows HIV Spread

Yale researchers report new findings consistent with earlier reports that a New Haven needle exchange-program which began two years ago is slowing the spread of HIV among drug users participating in the program.

Robert Heimer, Ph.D., associate research scientist in medicine, presented the results in Baltimore at the annual joint meeting of the Association of American Physicians, the American Society for Clinical Investigation and the American Federation for Clinical Research.

Edward H. Kaplan, Ph.D., an associate professor in the Yale schools of organization and management and of medicine, led the research team. He developed a new needle tracking system to evaluate the effects of the program, in which IV drug abusers anonymously exchange used syringes for sterile needles on a one-to-one basis. The tracking system uses polymerase chain reaction, a sophisticated molecular technology, to analyze returned needles for the presence of HIV.

Other Yale colleagues involved in the study include Bini Jariwala of the department of internal medicine, and Edwin C. Cadman, M.D., the Ensign Professor of Medicine and chairman of the department of internal medicine.

The study not only provides evidence that the New Haven needle exchange program reduces the spread of HIV, but also indicates that offering clean needles does not create a new generation of addicts.

Comments Dr. Kaplan, "Introducing this system has allowed us to provide the first definitive link between the operations of a needle-exchange program and the course of the AIDS epidemic among IV drug users in a given locale. This had yet to be established using traditional evaluation approaches."

Epilepsy Center Receives \$3.5 Million NIH Grant

The National Institute of Neurological Communicative Disorders and Stroke (NINCDS) has awarded the School of Medicine's department of neurology a five-year, \$3.5 million grant to support research into the causes and treatments of epilepsy.

The award marks the 25th year of continuous NINCDS funding for the Yale Epilepsy Research Program. Twenty-three scientists participate in this program to study the factors responsible for the occurrence, frequency and effects of epileptic seizures and how they can be controlled.

"Our research enables us to pinpoint the exact location in the brain where seizures begin," explains Dr. Richard H. Mattson, professor of neurology at Yale and director of the program since 1985. "This ultimately will allow us to provide better treatment and, perhaps, to prevent epilepsy."

The Yale Epilepsy Research Program, jointly based at the School of Medicine, the Department of Veterans Affairs Medical Center in West Haven and Yale-New Haven Hospital, is a consortium of scientists from more than 10 departments and sections, including neurology, neurosurgery, psychiatry, neuroanatomy, pathology, pharmacology, medicine and diagnostic imaging.

The program comprises several projects in which scientists use microscopic, biochemical and neurophysiological examinations to study where and how basic abnormalities occur in epilepsy.

Medical Van Treats New Haven Homeless

Drs. Michele Barry, associate professor of medicine at the School of Medicine and Jeanne Marrazzo, chief resident at Yale-New Haven Hospital (YNHH), have developed a mobile medical community outreach program to provide free medical care to homeless persons at four New Haven soup kitchens.

"We are taking urgent medical care

out to disadvantaged people who may otherwise not be receiving care. At the same time, we are preparing future physicians to treat homeless people in settings beyond health care centers," says Dr. Barry.

The program is supported by a one-year, \$50,700 grant from the W.K. Kellogg Foundation of Battle Creek, Mich. The APT Foundation of New Haven has donated a van which Dr. Barry and her team have stocked with over-the-counter medications and supplies provided free by several pharmaceutical companies.

On the van, an attending physician supervises two medical residents, a pediatric nurse, a substance abuse counselor from the APT Foundation, and a Hill Health Center social worker.

Once a week, the van stops for two hours at each soup kitchen. The team sees an average of 15 patients, with medical problems ranging from nutritional and vitamin deficiencies, to tuberculosis, AIDS, and mental health problems.

YNHH medical residents are now required to take a four-week rotation with the new program as a standard part of their training.

Scientists Seek to Advance Social Phobia Treatment

A new study underway at the School of Medicine could help reveal the basis of social phobia and its relationship to other anxiety disorders.

More than 2.4 million Americans suffer from social phobia, finding themselves involuntarily blushing, shaking, and even having heart palpitations in reaction to everyday social interactions. The phobia can severely impair people's work and social lives, and leave them feeling ashamed, frustrated and overwhelmed.

In the study, researchers compare the effectiveness of a medication versus a placebo for people impaired by social phobia. The non-addictive drug, currently used to treat nausea, previously had been tested on laboratory animals to gauge changes in social interaction. "Administration of this drug to rodents,

which usually stay in dark concealed places, increased their social interaction in open, bright areas," explains Dr. Wayne E. Goodman, assistant professor of psychiatry and principal investigator of the study at the Yale Psychiatric Specialty Center.

Working with Dr. Goodman on this study are Andrew W. Goddard, M.D., director of the Yale Anxiety Disorders Research Clinic; Diane E. Sholomskas, Ph.D., co-director of the clinic; and Karen L. Carrieri, R.N., clinical nurse coordinator.

Researchers Develop New Bone Cement

School of Medicine researchers have developed a synthetic bone substitute cement that can repair and replace facial bone defects incurred from surgery, trauma or infection. The cement, developed in collaboration with researchers at the American Dental Association Health Foundation, is composed of calcium and phosphate, which make up 75 percent of healthy bone.

In September, Yale was the first of three centers in the world to begin using the cement after the U.S. Food and Drug Administration approved it for clinical trials.

Hydroxyapatite cement (HAC) will be used in a variety of craniofacial procedures, such as reconstruction of bone to correct congenital deformities; repairing bone loss due to periodontal disease, and filling holes made during brain surgery.

"When tumors are removed from the skull, there may be leakage of spinal fluid which can be fatal," states Dr. Craig D. Friedman, assistant professor of surgery. "We used to put fat or muscle grafts in the gap, but there were still severe problems. With the HAC mixture there is no leakage at all."

Dr. Friedman and his colleagues have found that the body replaces the artificial substance with natural bone as part of the skeleton's ongoing maintenance process.



Construction proceeds on the new Children's Hospital at Yale-New Haven.

Children's Hospital Rises at YNHH

Yale-New Haven Hospital's facilities renewal project—a \$156 million undertaking which involves construction of the Children's Hospital and renovation of the Memorial Unit (MU)—continues on schedule.

Construction began on the hospital July 20, 1991, with the frame and the walls completed by May 1992. Scheduled to open in the summer of 1993, the Children's Hospital will consolidate most of Yale-New Haven's pediatric services as well as house labor and delivery, and maternity and newborn services, including high-risk maternity

and the Newborn Special Care Unit. "It will be specially designed for children," states YNHH Senior Vice President Marna Borgstrom. "There will be a separate entrance, and dedicated emergency, diagnostic imaging and operating room areas for children. The 11-story building will also house some adult units, and will have a helipad on the roof.

Building for Health, a major capital campaign directed by F. Patrick McFadden Jr., president of the Bank of New Haven, is helping to fund the facilities renewal project. Seeking gifts from several sectors—hospital employees, trustees, the medical staff, corporations and foundations, and the community, the campaign has raised \$6.5 million—57 percent of its goal.

Yale Heart Book Makes its Debut

Twenty-eight Yale School of Medicine and Yale-New Haven Hospital faculty and staff members, from more than 10 departments and sections, have helped write the 429-page *Yale University School of Medicine Heart Book*.

Published by William Morrow Co. of New York, the book's 29 chapters offer state-of-the-art information to the public on the prevention, diagnosis and treatment of heart disease, including easy to understand explanations of the heart and circulatory systems, and of interventional cardiology, including coronary angioplasty. Drs. Barry L. Zaret, Lawrence S. Cohen and Marvin Moser are the book's medical editors.

Progress Made toward Lyme Disease Vaccine

Yale School of Medicine and Harvard School of Public Health researchers have genetically engineered a vaccine for tick-borne Lyme disease that protects mice from being infected. The agent also works as a therapeutic drug, ridding the tick vector—and the animal host—of the disease-causing bacterium.

These results, which offer hope for a vaccine for humans, were published in the June 14 *Proceedings of the National Academy of Science*.

The team discovered that when a tick infected with Lyme disease bacterium fed on a vaccinated mouse, the mouse was protected from infection and that the bacteria living inside the tick was killed by the mouse's antibodies. This finding also provided the researchers with new knowledge of the body's infection-protection mechanism.

The Yale/Harvard team includes Richard A. Flavell, Ph.D., professor and chairman of immunobiology and investigator at the Howard Hughes Medical Institute, director of the Yale study; Erol Fikrig, M.D., Stephen W. Barthold, D.V.M., Ph.D., and Fred S. Kantor, M.D., also at Yale, with Sam Telford, Sc.D., and Andrew Spielman, Sc.D., at Harvard.

FACULTY NEWS

Dr. Roberts Awarded Postdoctoral Fellowship

William L. Roberts, M.D., an instructor in laboratory medicine at the School of Medicine and chief resident at Yale-New Haven Hospital, has been presented a Merck/American Federation for Clinical Research Foundation (AFCR) M.D.-Ph.D. Postdoctoral Fellowship Award.

Dr. Roberts will receive \$50,000 annually for three years to support his research on compounds used to treat leishmaniasis, a parasitic disease transmitted by the sandfly vector. In collaboration with colleagues in the department of epidemiology and public health, he is also studying the mechanisms of parasite resistance, in hopes of developing new treatments.

Martina Brueckner Named Syntex Scholar

Martina Brueckner, M.D., assistant professor of pediatrics (cardiology), has been named a scholar in the 1992 Syntex Scholars Program. The program, sponsored by Syntex Corp., an international health-care company based in Palo Alto, Calif., recognizes scientists who have demonstrated outstanding potential for independent contributions in cardiovascular research. Her award is one of two \$150,000 awards over three years that Syntex Corp. makes to two U.S. academic institutions on behalf of the scholars.

Dr. Brueckner is studying the mouse mutation *inversus viscerum*. The mutation results in an inherited abnormality of left-right asymmetry associated with congenital heart defects. She uses a positional cloning approach similar to that which led to the recent cloning of the cystic fibrosis gene.

Two Faculty Named Endowed Professors

Peter E. Schwartz, M.D., professor of obstetrics and gynecology and in the Cancer Center, has been named the John Slade Ely Professor of Obstetrics and Gynecology, and Joan A. Steitz, Ph.D., professor of molecular biophysics and biochemistry, has been named the Henry Ford II Professor of Molecular Biophysics and Biochemistry.

Dr. Schwartz, who joined the faculty in 1970, is acting chairman of obstetrics and gynecology, and chief of gynecological oncology at Yale-New Haven Hospital. He also serves on the executive committee of the Yale Comprehensive Cancer Center. In an effort to diagnose and treat ovarian cancer at earlier stages, Dr. Schwartz founded the Yale Ovarian Cancer Early Detection Program in 1990.

Dr. Steitz, also a faculty member since 1970, leads the molecular genetics program in the Boyer Center for Molecular Medicine, and is an investigator with the Howard Hughes Medical Institute. She has conducted studies that defined the roles of small nuclear ribonucleoprotein particles in RNA processing in mammals. Through this process, the information in genes (DNA) is expressed in protein molecules.

Paul Sigler Named to National Academy

Paul B. Sigler, M.D., Ph.D., professor of molecular biophysics and biochemistry and an investigator with the Howard Hughes Medical Institute, has been elected to the National Academy of Sciences, one of the highest honors given to an American scientist.

Dr. Sigler, who joined the faculty in 1989, is a specialist on the chemical interactions of proteins and nucleic acids. He uses X-ray crystallography to determine the three-dimensional structure of molecules and how they link with one another. His research focuses on how genetic code is transcribed through selective binding of regulatory proteins to target DNA sequences.



Dr. Richard J. Robbins testifying before the U.S. Senate.

Faculty Members Brief U.S. Senate

Richard J. Robbins, M.D., associate professor of medicine and of obstetrics and gynecology, was one of four speakers to address 60 U.S. Senate staff members at a briefing hosted by the Association of American Medical Colleges, the Association of American Universities, the National Association of State Universities and Land Grant Colleges, and other members of the Coalition for Research Freedom. The briefing focused on the ethical and scientific issues of fetal tissue transplantation research.

D. Eugene Redmond Jr., M.D., professor of psychiatry and director of the Yale Neural Transplant Program, and Myron Genel, M.D., associate dean for government and community affairs, also outlined aspects of the Yale program to key Senate staff before the Senate debate on legislation, which called for restoring federal funds for research in this area. The Senate later approved the legislation, 87 to 10.

The House of Representatives also passed the legislation by a wide margin, but on a vote taken on June 24, could not override a veto issued by President George Bush.

Culpeper Foundation Scholarship Awarded To Peter M. Glazer

Peter M. Glazer, M.D., Ph.D., assistant professor of therapeutic radiology, has received a Charles E. Culpeper Foundation Scholarship in Medical Science for 1992. These scholarships support young physicians of high potential achievement who are committed to careers in academic medicine.

Through this award, Dr. Glazer will receive \$100,000 a year for up to three years to fund his research investigating the possible causes of cancer by examining the damage produced in the hereditary material of mice by exposure to potential carcinogens.

§§§

John C. Baldwin, M.D., professor and chief of cardiothoracic surgery, presented a lecture on the future of heart surgery at the Annual World Congress on Intensive Care held at the University of Brussels in March. In April, he was inducted into the American Surgical Association.

Pravin N. Bhatt, M.D., senior research virologist in comparative medicine, has been elected as an honorary member of the American College of Laboratory Animal Medicine for his contributions to laboratory animal science.

Joseph R. Bove, M.D., professor and vice chairman of laboratory medicine, has been appointed to the national board of directors of the American Red Cross. He will serve on the biomedical services committee which advises the board on issues concerning blood transfusion and tissue transplantation.

Mahboubeh Eghbali, Ph.D., associate professor of anesthesiology, was the keynote speaker at the Cardiovascular Sciences Seminar in Canada in April. She also spoke at the international symposium: "Myocarditis—Dilated Cardiomyopathy Pathogenesis and Clinical Implications" in Germany in May. Both talks focused on "Regulation of Gene Expression in Cardiac

Fibroblasts and their Phenotypic Modulation."

Jack A. Elias, M.D., professor of medicine (pulmonary) and section chief of pulmonary and critical care medicine, has been appointed to the following organizations: the American Society for Clinical Investigation (honorary), board of directors of the American Thoracic Society, the editorial boards of the *American Journal of Physiology, Lung, Cellular and Molecular Physiology*, and the *Journal of Laboratory and Clinical Medicine*.

Francis P. Gasparro, Ph.D., research scientist in dermatology, has been elected to a four-year term as a councilor for the American Society for Photobiology, beginning in July. He also will serve as the editor of the society's newsletter.

Myron Genel, M.D., associate dean for government and community affairs and professor of pediatrics (endocrinology), was re-elected to the House of Delegates of the New Haven County Medical Association (NHCMA) board of governors and will serve as a NHCMA delegate to the Connecticut State Medical Society's House of Delegates.

Thomas J. Godar, M.D., associate clinical professor of medicine, was awarded the Will Ross Medal for distinguished volunteer services by the American Lung Association in Miami Beach, Fla., in May.

C. Carl Jaffe, M.D., professor of diagnostic radiology and medicine, was appointed chairman of the Biomedical Library Research Committee of the National Library of Medicine. Dr. Jaffe was also named the 1992 Samson Feldman Visiting Scholar in Art as Applied to Medicine by the Johns Hopkins University School of Medicine.

Michael Kashgarian, M.D., '58, professor of pathology, was elected secretary of the New Haven County Medical Association (NHCMA) in April. Dr. Kashgarian, a member since 1967, continues to serve as a NHCMA delegate to the Connecticut State Medical Society's House of Delegates and as a member of its board of governors. Chairman of the membership

committee since 1983, he has also served on the health systems planning and long-range planning committees.

Marc I. Lorber, M.D., associate professor and director of surgery (transplantation), was elected to a three-year term on the executive council of the American Society of Transplant Surgeons at the annual meeting in Chicago in May. Dr. Lorber also was reappointed to a two-year term on the scientific advisory committee of the United Network for Organ Sharing, which oversees national transplant-related activities through a contract with U.S. Department of Health and Human Services.

Adrian M. Ostfeld, M.D., the Anna M.R. Lauder Professor of Epidemiology and Public Health and Medicine, has been elected a fellow of the Royal Society of Medicine in London. Recognized for distinguished contributions to biomedical science, Dr. Ostfeld is one of 230 professionals in geriatrics and gerontology worldwide who is a society member.

Gerald I. Shulman, M.D., associate professor of medicine (endocrinology), and lecturer in molecular biophysics and biochemistry, was selected as a member of the Metabolism Study Section, Division of Research Grants, Department of Health and Human Services of the National Institutes of Health, for a three-year term.

Alan P. Siegal, M.D., assistant clinical professor of psychiatry, was installed as national president of the American Association of Geriatric Psychiatry in May. He is also president of the Alzheimer's Resource Center of Connecticut, scheduled to open in October in Southington.

John D. Thompson, M.S., professor emeritus and lecturer in public health, was awarded the Baxter Health Services Research Prize, the highest honor in health-care services research, for developing the diagnosis-related group (DRG) system, which dramatically changed how the government reimburses U.S. hospitals.



Thomas P. Duffy, M.D., professor of medicine and in the Cancer Center, 1992 Bohmfalk Charitable Trust Award winner for outstanding teaching in the clinical sciences, with Michele Barry, M.D., associate professor of medicine, who won the Leah Lowenstein Award for the full-time faculty member who represents the highest degree of excellence in non-sexist education.



Dr. Robert M. Donaldson Jr. presided as acting dean at the 1992 Yale School of Medicine Commencement.



Peter P. Stein, M.D., assistant professor of medicine, and Mary Jane Minkin, M.D., associate clinical professor of obstetrics and gynecology, shared the 1992 Francis Gilman Blake Award as the most outstanding teachers of the medical sciences, as designated by the graduating class.



Shanta E. Kapadia, M.B.B.S., lecturer in surgery (anatomy), won the Bohmfalk Charitable Trust Award as the outstanding teacher in the basic sciences.

ALUMNI NEWS

Hunter College Honors Dr. Helen Langner

Hunter College, the college alma mater of Helen Parthenay Langner, M.D. '22, observed her centenary year by granting her an honorary Doctor of Science degree. Her citation, excerpted below, said much of the life and times of Dr. Langner:

"You came to Hunter College in 1910 to pursue your interest in the natural sciences, a course of study that was not open to you, as a woman, in your home state of Connecticut. After receiving a degree from Hunter in 1914, you taught biology in the public schools and then entered Yale Medical School. In 1922, you were the fourth woman ever to receive a medical degree from Yale. You went on to a residency in the then-new field of psychiatry, and, later, to an active practice.

"Highlights of your career included working with children in community clinics, substitution for psychiatrists called to military service, serving as a school psychiatrist for the New York City Department of Education, teaching clinical psychiatry at Cornell University Medical School, and serving as resident psychiatrist at Vassar College. You also enjoyed an active private practice in New York City and filled important psychiatric posts in several agencies in Milford, Conn. During your long and varied career, you have given generously of your time and money to help patients who could not otherwise afford psychiatric care.

"Last month, you celebrated your 100th birthday. The oldest living member of the Hunter College Hall of Fame, you continue to practice psychiatric medicine, and serve as an attending psychiatrist at Milford Hospital."

At her other alma mater, Yale, Dr. Langner annually attends alumni

Photograph by Harry Bishop



Dr. Helen Langner with Merle Waxman, director of the YSM office for women in medicine, at the 1992 Alumni Reunion Weekend, held in June.

reunion weekend at the School of Medicine, drawn by the scientific symposia and lectures which keep her abreast of current issues in medicine.

In addition to her professional activities, Dr. Langner maintains her lifelong dedication to wildlife and environmental preservation. She is active in many conservation groups, including the Milford Land Conservation Trust, the Nature Conservancy Connecticut chapter, the Milford Marine Institute and Nature Center, and Connecticut Fund for the Environment.

When asked about all the attention that she is receiving during her 100th-birthday year, Dr. Langner replied, "It's pretty overwhelming. I'm just glad that I still have the wit to appreciate everything that's going on."

§§§

Maxwell J. Wolff, M.D., '25 Med., who will celebrate his 95th birthday in November, is practicing dermatology part-time, in Los Angeles.

Eugenio M. de Hostos, M.D. '42, was granted an honorary Doctor of Medical Sciences degree by the Universidad Eugenio Maria de Hostos in Santo Domingo, Dominican Republic. In a January 1992 ceremony, Dr. de Hostos delivered the commencement address to 230 graduate and post-graduate students.

Allan J. Ryan, M.D., '44-'46 HS, was program chairman for the second annual meeting of the International Association for Dance Medicine and Science, held in June in Durham, N.C.

Jerome M. Glassman, '50 PHSP, '50 Ph.D., who retired in 1988 as director of clinical investigations for Carter-Wallace, Inc., is a pharmaceutical industry consultant.

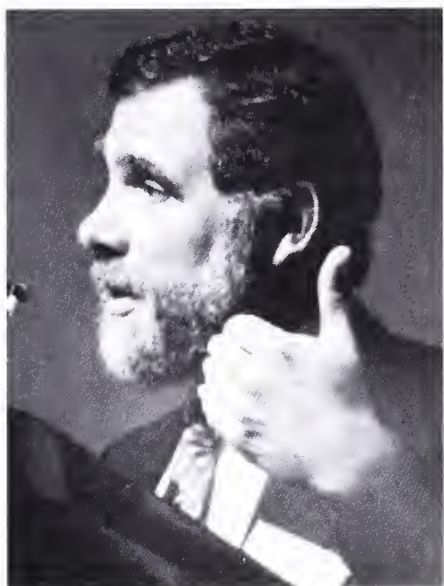
Paul R. Bruch, M.D. '51, a member of the Connecticut Right-to-Life Corp. since its formation in 1973, has been its president since 1988. The educational organization's aim is to amend the U.S. Constitution to protect all life from conception to natural death.

Robert P. Hatch, M.D. '54, who retired in 1984 from his obstetrics and gynecology practice, has become active in town planning, budget activities and volunteer work in his hometown of Alfred, Me. He is also a weather observer for WESH-TV in Portland.

William H. Hindle, M.D. '56, professor of clinical obstetrics and gynecology at the University of Southern California School of Medicine and director of the Breast Diagnostic Center, Women's Hospital, Los Angeles County-University of Southern California Medical Center, has been elected president of the National Consortium of Breast Centers.

Robert I. Levy, M.D. '61, '61-'63 HS, has been appointed president of Wyeth-Ayerst Research, a division of American Home Products Corp., and is responsible for worldwide research and development.

Stephen C. Joseph, M.D. '63, dean of the School of Public Health and professor of public health and pediatrics at the University of Minnesota, has been inducted into the Society of Scholars at the Johns Hopkins University. Created in 1967, the society honors distinguished researchers who were at Johns Hopkins as postdoctoral fellows, junior faculty or visiting faculty. Dr. Joseph was a postdoctoral fellow at Johns Hopkins.



Dr. Stephen C. Joseph

Neal L. Maslan, M.P.H. '64, managing director for Ward Howell International, a national recruiting firm, was profiled as one of America's top 150 executive recruiters in *The Career Makers*, a book recently released by Harper/Collins Publishers. Mr. Maslan specializes in medical, health care, product and technology, and venture capital search assignments.

David H. Shapiro, M.D., '67-'71 HS, was elected president of Morton Plant Hospital, Clearwater, Fla. He has been on the medical staff for 18 years.

John J. Kelly Jr., M.D. '69, '69-'71 HS, is professor of neurology and chairman of the department of neurology

at the George Washington University Medical Center and Medical School in Washington, D.C.

Jan Wallace, M.D., '69-'72 HS, was appointed vice president of clinical and regulatory affairs at Athena Neurosciences Inc. in South San Francisco.

Frederick L. Greene, M.D., '70-'76 HS, professor of surgery at the University of South Carolina School of Medicine, has been elected president of the Society of American Gastrointestinal Endoscopic Surgeons.

Peter J. Panzarino, M.D. '72, has been named chief clinical officer of Vista Health Plans, a not-for-profit Southern California health maintenance organization and employee assistance program specializing in mental health and substance abuse. He will also serve as medical director of Vista Hill Foundation, which owns and operates Vista Health Plans.

William T. Choctaw, M.D. '73, '73-'75 HS, was elected mayor pro tem for the City of Walnut, Calif., and continues to practice surgery full-time.

Francis S. Collins, Ph.D. '74, professor of internal medicine at the University of Michigan and a Howard Hughes Medical Institute investigator, received an honorary Doctor of Science degree from Yale in May.



Dr. Francis S. Collins

John D. Schrumphf, M.D. '74, was elected president of the San Francisco Radiological Society and a fellow of the American College of Radiology. Dr. Schrumphf, who practices at California Pacific Medical Center, is an associate clinical professor at the University of California, San Francisco.

Harvey J. Berger, M.D. '77, is chairman and chief executive officer of Ariad Pharmaceuticals, Inc., a biotechnology company in Cambridge, Mass., which he established in 1991.

Edward C. Halperin, M.D. '79, associate professor of radiation oncology at Duke University School of Medicine, has been named a 1991-1993 fellow of the American Council on Education. He will concentrate on academic administration and policy.

Mark L. Dembert, M.D., '83 M.P.H., is a captain in the U.S. Navy Medical Corps and a staff psychiatrist at the National Naval Medical Center in Bethesda, Md.

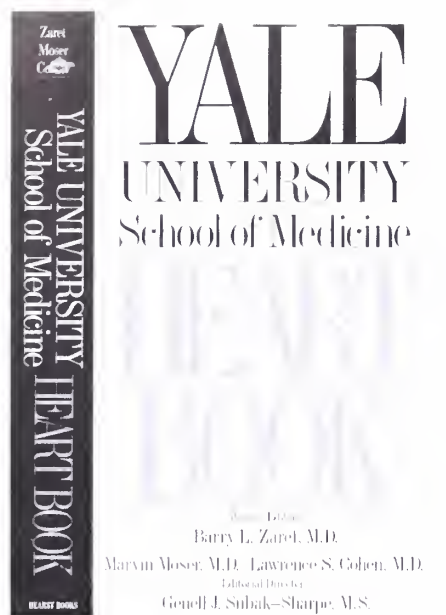
Valerie E. Stone, M.D. '84, has been named medical director for ambulatory care services in the Boston Department of Health and Hospitals (DH&H). She serves as the senior administrative physician for ambulatory clinical care at all DH&H sites, including the Ambulatory Care Center (ACC) at Boston City Hospital. The ACC's 72 specialty clinics average 178,000 patient visits per year.

Harry A. Lebowitz, M.D., '86-'89 HS, a Wilmington, Del., ophthalmologist, and a member of Surgical Eye Expeditions Inc., a charitable organization, traveled to El Salvador in April. In three days, his team of five volunteer physicians performed 120 operations, mostly on people blind from cataracts.

Robert C. Urban Jr., M.D. '87, a fellow in glaucoma at the Massachusetts Eye and Ear Infirmary, Harvard Medical School, has been named assistant professor of ophthalmology at the University of South Florida, Tampa.

Amy V. Kindrick, M.D. '89, a fellow in the Harvard Combined Infectious Diseases Training Program, has completed an internal medicine residency at Brigham and Women's Hospital in Boston.

NEW BOOKS



Yale University School of Medicine Heart Book, edited by Barry L. Zaret, M.D., the Robert W. Berliner Professor of Medicine (cardiology), section chief cardiovascular medicine; Marvin Moser, M.D., clinical professor of medicine; and Lawrence S. Cohen, M.D., the Ebenezer K. Hunt Professor of Medicine (cardiology) and deputy dean. William Morrow & Co. (New York) 1992.

Assessing Pediatric Practice: A Critical Study, by Raymond S. Duff, M.D. '52. Health Administration Press (Ann Arbor, Mich.) 1991.

The Balinese People: A Reinvestigation of Character, by Gordon D. Jensen, M.D. '49. Oxford University Press (Asia) 1992.

Crack: The Broken Promise, by David F. Allen, lecturer in public health, and James F. Jekel, M.D., '65 M.P.H., the Charles E.A. Winslow Professor of Public Health and director of the preventive medicine residency program. St. Martin's Press (New York) 1991.

Effective Care of the Newborn Infant, by John C. Sinclair and Michael B. Bracken, '70 M.P.H., Ph.D., professor and vice chairman, department of epidemiology and public health. Oxford University Press (New York and Oxford) 1992.

Medical Care of the Cardiac Surgical Patient, edited by Stephen C. Vlay, M.D. '75. Blackwell Scientific Publications (Boston, Mass.) 1992.

The Patient: Biological, Psychological, and Social Dimensions of Medical Practice, 3rd edition, by Hoyle Leigh, M.D., lecturer in psychiatry, and Morton F. Reiser, M.D., the Albert E. Kent Professor Emeritus of Psychiatry. Plenum Publishing (New York) 1992.

When Home is No Haven: Child Placement Issues, by Albert J. Solnit, M.D., Sterling Professor Emeritus of Pediatrics and Psychiatry; Barbara F. Nordhaus, M.S.W., assistant clinical professor of social work in the Child Study Center; and Ruth D. Lord, M.A., associate research scientist in the Child Study Center. Yale University Press (New Haven and London) 1992.

A Window to Heaven: How Children See Life in Death, by Diane M. Komp, M.D., professor of pediatrics (hematology/oncology). Zondervan Publishing House (Grand Rapids, Mich.) 1992.

STUDENT NEWS

Third-year students **Yamilee Bermingham** and **Karen Rosewater** were presented Elm-Ivy Awards for their work as the first medical students serving as student volunteer coordinators for the Medical School Council. **Kaveh Khoshnood**, a third-year Ph.D. student in the department of epidemiology and public health, was presented an Elm-Ivy Award for his work in educational outreach programs to curb the spread of AIDS. The annual awards are presented by the University and the city of New Haven to recognize people who help build a positive relationship between Yale and its host city.

Second-year student **Tamer Bourslian** and **Eric Hoffman**, a third-year student, have been awarded predoctoral fellowships from the National Science Foundation.

Marlene Corujo, M.D. '92, is one of two recipients of the 1992 James H. Robinson, M.D., Memorial Prize in Surgery by the National Medical Fellowships, Inc. The prize acknowledges outstanding performance in the surgical disciplines coupled with good academic performance, leadership and social responsibility.

Belinda J. Chan, a third-year student, volunteers her time to the Big Brother/Big Sister program.

Kirk R. Essenmacher, a third-year student, established the SMARTS program, in which medical students go into high school classrooms to talk with students about careers and college.

Second-year students **Barbara M. Garcia** and **Walter O. Jackson** coordinated a weekly lecture series for the medical school's 13th annual Summer Research Apprenticeship Program, which is designed to interest minority high school students in careers in medicine and the biomedical sciences.

Christopher G. Goring, a second-year student, serves as the student coordinator of the Minority Undergraduate Summer Training Program, which is funded by the National Heart, Lung and Blood Institute of the National Institutes of Health.



This summer, second-year students (from left) **Chris Gilligan**, **Greg Licholai** and **Armen Khachatryan** are bicycling the 3,400 miles from Washington State to New Jersey to raise money for the Leukemia Society of America. They hope to raise \$20,000.

ALUMNI REPORT

Alumni returning for their annual reunion weekend on June 5 and 6 enjoyed the opportunity to renew friendships with classmates and to share fond memories.

On Friday, Marie-Louise Johnson, M.D. '56, and vice president of the Association of Yale Alumni in Medicine, greeted attendees with Acting Dean Robert M. Donaldson Jr. A seminar entitled "Changing the Curriculum within the Yale System" was moderated by Robert H. Gifford, M.D., associate dean for education and student affairs. Participants included Emile L. Boulpaep, M.D., professor of cellular and molecular physiology; Timothy L. Vollmer, M.D., assistant professor of neurology; and Charles A. Janeway Jr., M.D., professor of immunobiology and biology, and investigator, Howard Hughes Medical Institute. All panel members serve on the curriculum committee. A reception followed. Returning alumni met with classmates at dinners, parties and picnics.

William F. Collins, M.D., chairman of surgery, discussed recent advances in this field at surgical grand rounds on June 6. Concurrent faculty seminars included: "How We Construct a Representative First-year Class," moderated by Dr. Gifford; "The Who and the How—The Care of Your Now Dependent Parents" moderated by Leo M. Cooney Jr., M.D., Humana Foundation Professor of Geriatric Medicine, and Ronald Miller, M.D., associate clinical professor of medicine (geriatrics); "The Second Decade of the AIDS Epidemic," presented by Gerald H. Friedland, M.D., professor of medicine and epidemiology and public health, director of the AIDS program; and Elizabeth Cooney, M.D., assistant professor of medicine, director of HIV care, Veterans Affairs Medical Center, West Haven. The medical reunion dialogue and tea concluded the scientific program.

Acting Dean Donaldson presented a stimulating state of the school address at the annual meeting of the Association of

Yale Alumni in Medicine (AYAM). Sherwin B. Nuland, M.D. '55, associate clinical professor of surgery, was joined by Ferenc Gyorgyey, historical librarian, and R. Kenny Fryer, head of the medical library reference services, in a presentation entitled "The Yale Medical Library: Yesterday, Today, and Tomorrow." A guided tour of the library followed.

Muriel Wolf, M.D. '59, will continue as AYAM president and Gilbert Hogan, M.D. '57, has agreed to serve another term as secretary. The 1992 slate elected to replace retiring members of the executive committee includes: Harold D. Bornstein, M.D. '53, Leo M. Cooney Jr., M.D. '69, Lycurgus M. Davey, M.D. '43, Michael Kashgarian, M.D. '58, Gioacchino S. Parrella, M.D. '71, and Barbara A. Ross, M.D. '81. Elected as representatives to the Association of Yale Alumni (AYA): John N. German, M.D. '62, and Robert M. Rosa, M.D. '70.

We at the office of alumni affairs thank Dr. Muriel Wolf for her conscientious leadership as president. Congratulations and a warm thank you for a job well done are extended to those members of the AYAM executive committee and representatives to the AYA whose terms have expired.

Distinguished Alumni Service Awards were presented to George A. Carden Jr., M.D. '35, and Walter J. Burdette, M.D. '42, who was celebrating his 50th reunion. Both were honored for meritorious service to the school. Remarks were delivered by Samuel Kushlan, M.D. '35, and Nicholas Spinelli, M.D. '44, after they presented Yale chairs to the honorees.

Helen Langner, M.D. '22, was honored with a citation and a bouquet of roses as our oldest alumna; she just celebrated her 100th birthday. She attends our yearly meeting regularly and still counsels psychiatry patients in her community.

The success of this year's reunion challenges us to improve on our record.

Plans are already in progress for the spring of 1993. Reunion classes ending in 3 and 8 will be hearing from us soon. Our office will be contacting the class secretaries for a list of people interested in helping to plan class seminars and social events. A planning meeting will be scheduled for September. The office of alumni affairs encourages you to communicate with us. We want and need you to be in touch so that we can best represent your interests.

Alumni/student interaction was enhanced by joint participation in phonathons held on March 24, 25 and April 1. Twenty-six students from all classes of the school joined with 10 alumni and alumni fund staff in soliciting pledges for the annual campaign. This wonderful opportunity for students to talk to alumni about financial aid and to compare "then and now" at the school resulted in pledges exceeding \$20,000, with an equal amount anticipated from non-pledged donations. Financial aid for our dedicated students continues to be the principal beneficiary of fund contributions. If you haven't pledged, please do so. It is important to maintain our high percentage of contribution.

The Yale Corporation appointed Gerard N. Burrow, M.D. '58, medical school dean starting July 1. During his previous stay in New Haven as a medical student, house officer and faculty member, he forged a strong constituency within this community. We welcome back this son of YSM with the expectation that our school will increase in strength and remain a leader in teaching, research and the practice of humane medicine responsive to the needs of society as a whole.

*Arthur C. Crovatto, M.D. '53
Director of alumni affairs*

OBITUARIES

John J. Weber

John J. Weber, M.D., emeritus professor of clinical psychiatry at the College of Physicians and Surgeons, Columbia University, died April 11. He suffered a heart attack while fishing near his home in Deep River, Conn. He was 72.

Dr. Weber received international recognition for his "outcome studies" at Columbia from the 1950s through the 1980s, in which he followed the progress of psychoanalysis patients to determine the effectiveness of their therapies.

Dr. Weber received his certificate of psychoanalytic medicine in 1950 from the Columbia University Center for Psychoanalytic Training and Research in 1950. He served as the center's director from 1976 to 1981. Dr. Weber was a director of the Visiting Nurse Service of New York and helped create its Mental Health Advisory Committee in 1985.

Dr. Weber, who also was in private practice in Manhattan, taught and continued his research at Columbia until his death.

Dr. Weber spent 10 years securing the United States publication of Johannes Weyer's *De Praestigils Daemonum*, a seminal study published in 1563 of witchcraft and a rejection of the superstitions surrounding it.

A Newark native, Dr. Weber graduated from Duke University and, in 1943, from Yale School of Medicine. He was a resident in psychiatry at the Payne-Whitney Clinic, New York University-Cornell Medical Center. During World War II, he was a captain in the U.S. Army Medical Corps.

He is survived by his wife, Helen, and two daughters, Vanessa and Melissa.

Olson Mills



Frederic M. Blodgett

Frederic M. Blodgett

Frederic M. Blodgett, M.D., died March 12 at age 71.

A 1945 graduate of the School of Medicine, Dr. Blodgett served his internship and pediatric residency at Massachusetts General Hospital in Boston.

During the 1960s, Dr. Blodgett spent much of his research time identifying "lead belts"—areas with a high prevalence of lead poisoning—in cities throughout the nation. In 1972, he helped develop free erythrocyte protoporphyrin (FEP), the blood screening test for lead poisoning.

Before his retirement after 41 years in medicine, Dr. Blodgett spent 19 years at the Children's Hospital of Wisconsin in Milwaukee. In 1967, he joined the Medical College of Wisconsin faculty where he was a professor emeritus of pediatrics and served as chairman of the department from 1978 to 1983. He was honored with the college's Distinguished Service Award, the highest honor given to its faculty. In 1960, Dr. Blodgett received the Francis Gilman Blake Award for Outstanding Teaching at Yale University School of Medicine.

He founded and was past president of the Ambulatory Pediatric Association and was a long-time fellow of the American Association of Pediatrics. He was the 1984 recipient of the AAP Job Lewis Smith Award for his work in lead poisoning.

Dr. Blodgett is survived by his wife, Phyllis, four daughters and a son. Donations may be made to: Frederic M. Blodgett Memorial Fund, Department of Pediatrics, Account Number 3-35138, Medical College of Wisconsin, 8701 Watertown Plank Rd., Wauwatosa, WI 53226.

David C. Cavicke

David C. Cavicke, M.D., died May 26 in Lawrence and Memorial Hospital, New London, Conn. He was 65.

A native of Somerville, Mass., Dr. Cavicke served as chief resident of neurosurgery at Yale from 1955 to 1958. He then established the neurosurgical practice at Lawrence and Memorial Hospital, a service which he headed until his death. He took a sabbatical in 1967 to teach neurosurgery in India.

In 1948, Dr. Cavicke received a bachelor's degree from Harvard University and in 1952 received his medical degree from Tufts University School of Medicine. He served in the Navy from 1944 to 1945.

Dr. Cavicke was medical staff president at Lawrence and Memorial Hospital in 1972 and chief of neurosurgery for many years. He also was assistant clinical professor of neurosurgery at Yale School of Medicine and a consultant in neurosurgery at Westerly Hospital, Norwich State Hospital, Day-Kimball Hospital, the U.S. Naval Hospital and the U.S. Coast Guard Hospital.

He was past-president of the Connecticut Society of Neurosurgery and the New England Neurosurgical Society.

He leaves his wife, Mary Agnes, and three sons, David, Dana and Matthew.

Contributions may be made to the D.C. Cavicke M.D. Neurosurgical Fund at Lawrence and Memorial Hospital, 365 Montauk Ave., New London, CT 06320.

Robert E. Kaufman

Robert E. Kaufman, M.S., died March 21 at the Cabrini Medical Center Hospice. He was 83.

Dr. Kaufman, a 1929 graduate of Yale College and a 1933 graduate of the School of Medicine, had been in private practice and on the staff of Lenox Hill Hospital for 58 years.

During World War II, he served as battalion surgeon with the 4th Infantry Division for five years. He was awarded both the Bronze and Silver stars for valor in combat in Normandy on D-Day.

A member of the New York County

Medical Society, Dr. Kaufman served on the public relations board for more than 20 years and was chairman of the society's Doctor's Emergency Service for more than 15 years.

Dr. Kaufman appeared in the *Guinness Book of World Records* with the world's largest cigarette collection.

He is survived by his wife, Naida; two sons, Colin and Chris; and two granddaughters, Elizabeth and Molly. Donations may be sent to Lenox Hill Hospital, 100 East 77th St., New York, NY.

Robert M. Lowman

Robert M. Lowman, M.D., died Dec. 4 at Yale-New Haven Hospital at age 79.

A native of Baltimore, Dr. Lowman received his M.D. degree from the University of Maryland in 1936. He spent several years as an instructor in radiology at the Graduate School of Medicine of the University of Pennsylvania and later accepted the position of director of the department of radiology at Grace Hospital in 1942, commencing a 49-year career with Yale. In 1943, he was appointed assistant professor at the School of Medicine and in 1962, became professor of radiology.

He was the author of more than 120 publications and was active in several national, regional and local medical and radiological societies. Dr. Lowman was a counsellor for the American College of Radiology and the Radiological Society of North America, and served as president of the New Haven Medical Society and of the New England Roentgen Ray Society.

Dr. Lowman served as a consultant in radiology at the Veterans Affairs Medical Center in West Haven, where he continued to teach students and residents until his death.

In Memoriam

Lewis F. Foster	'32 M.D.
November 17, 1991	
Robert E. Kaufman	'33 M.D.
March 19, 1992	
Joseph A. Bliss	'38 M.D.
January 1, 1992	
W. Sterry Branning	'39 M.D.
June 8, 1991	
Carl I. Cohen	'39 M.P.H.
April 25, 1992	
John J. Weber	'43 M.D.
April 12, 1992	
Charles L. Mache Jr.	'47 M.D.
February 3, 1992	
Goffredo Accetta	'51 M.D.
January 15, 1992	
John J. Zugich	'51 M.P.H.
March 24, 1992	
Kenneth A. Simon	'57 M.D.
February 13, 1992	
Stephen T. Baker	'72 M.D.
May 8, 1991	'73 M.P.H.

*"Those holding torches will
pass them on to one another."
Plato, Republic, 328a*

*Inscription over the entrance of
Sterling Hall of Medicine
Yale University*

DEVELOPMENT REPORT

Dr. Carroll Establishes Annuity to Mark Reunion

Robert E. Carroll, '38, M.D. '42, has established a charitable gift annuity to benefit the School of Medicine. This gift, which marks Dr. Carroll's 50th reunion year, will support student scholarship aid and research and training in hand surgery in the department of orthopaedics and rehabilitation, and will provide Dr. Carroll and his wife with an income for life.

Dr. Carroll, a prominent hand surgeon and longtime supporter of Yale College and the School of Medicine, was born in Fall River, Mass. After graduating from YSM, he received training in general surgery and orthopaedic surgery at the Massachusetts General Hospital. For a brief time he taught at Harvard Medical School.

Following service in World War II in the Pacific, he moved to New York City. Dr. Carroll established the division of hand surgery at the New York Orthopaedic Hospital, Columbia-Presbyterian Medical Center. He remained there as chief until 1986. The hand service is renowned for its work with congenital hand deformities, as well as tumors and muscle transplantation; during his tenure there, Dr. Carroll helped develop the use of silicone tendons for hand surgery reconstruction.

At Columbia, he established one of the early formal training programs for hand surgery in the United States. Dr. Carroll is known as a leading teacher of hand surgery not only in the United States, but throughout the world, as well. He was honored recently in Paris by membership in the Hand Societies of 16 countries.

In addition to his military service, Dr. Carroll served his country as a consultant to the U.S. Navy, Air Force,



Photograph by Harry Bishop

Dr. Robert E. Carroll

the Veterans Administration and the Public Health Service. He has been president of the Association of Bone and Joint Surgeons and was a founder and president of the New York Society for Surgery of the Hand, as well as a vice president of the American Society for Surgery of the Hand.

Today, Dr. Carroll serves as professor of clinical orthopaedic surgery emeritus, at Columbia University and consultant in

Hand Surgery (Orthopaedics) at the Columbia-Presbyterian Medical Center. He and his wife live in New York City.

In appreciation for Dr. Carroll's gift, Acting Dean Robert M. Donaldson Jr. wrote: "On behalf of the entire school, I am delighted to send you an expression of our gratitude for your loyalty and for your valuable and important assistance."

Jay Angeletti
Senior development officer

CONTINUING MEDICAL EDUCATION AT YALE

Monday September 14	2nd Annual Symposium in Congenital Heart Disease <i>Director: Michael Dewar, M.D.</i> This multi-disciplinary symposium will focus attention on innovative diagnostic and therapeutic techniques in fetal, neonatal and adolescent cardiology, neonatal cardiac surgery and pediatric intensive care.	(A)
Friday-Saturday September 18-19	Topics in Neuro-Ophthalmology <i>Director: David Silverstone, M.D.</i> <i>Guest Speaker: Neil Miller, M.D.</i>	(B)
Wednesday-Thursday October 9-10	8th National Conference on Perinatal Bereavement Fall from the Tree: Perinatal Loss <i>Director: Richard Viscarello</i> This symposium will enhance the scope of comprehensive care given by a multi-disciplinary team for families in crisis, experiencing pregnancy losses from infertility, prematurity, anomalies and stillbirth.	(C)
Wednesday October 21	Cardiology Update 1992 <i>Director: Lawrence Cohen, M.D.</i> This symposium will present the current status of cardiologic frontiers including silent ischemia, interventional cardiology techniques, thrombolysis, sudden death and heart disease in women.	(D)
Friday November 6	Recent Findings from the Neuroscience Revolution Implications for autism, schizophrenia, affective disorders, and more in young children and adults. <i>Director: Enid Peschel, Ph.D.</i>	(E)
Friday-Saturday December 18-19	Topics in the Management of Retinal Disease <i>Director: David Silverstone, M.D.</i> <i>Guest Speaker: Stuart Fine, M.D.</i>	(F)

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