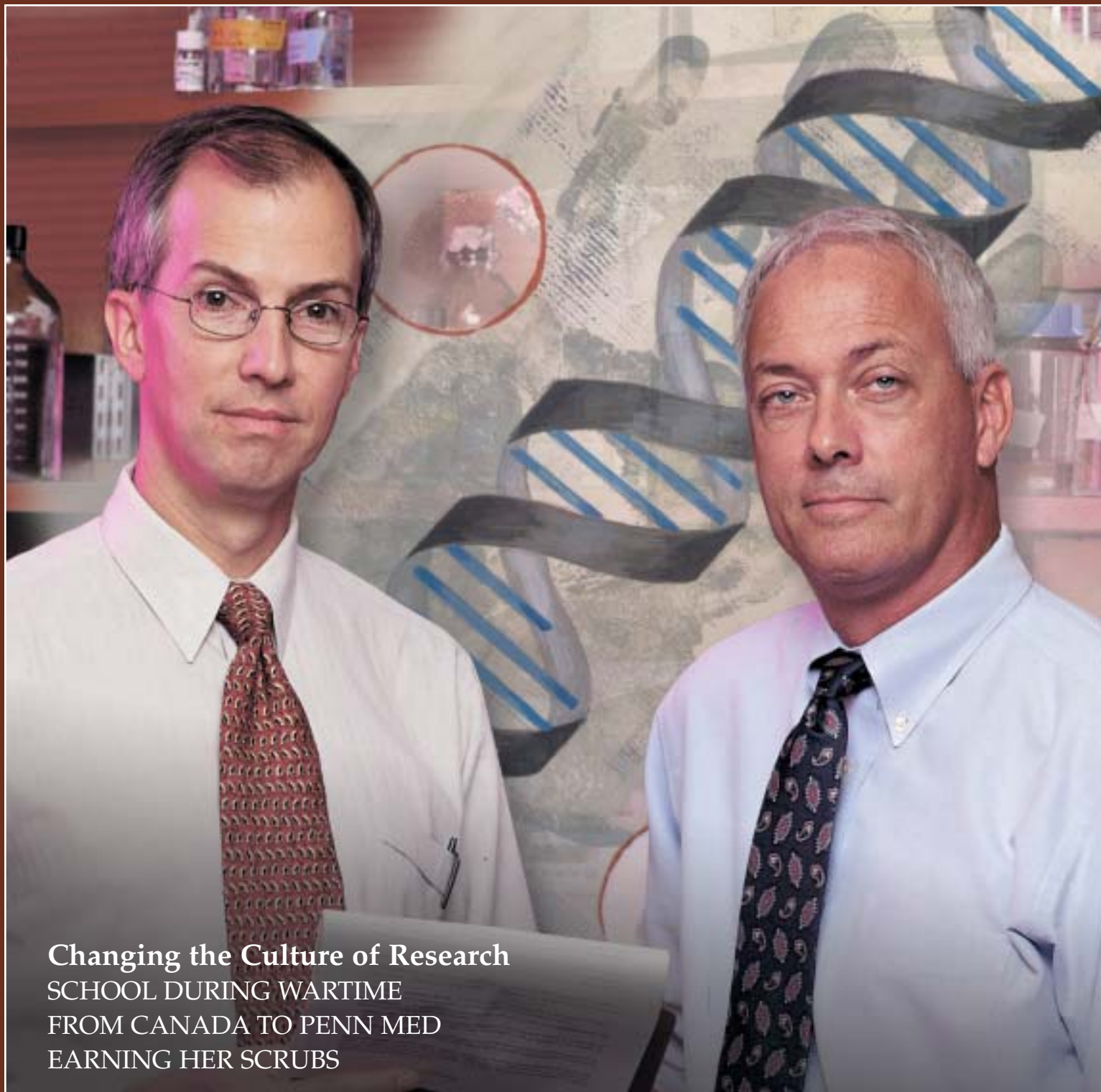


PENN MEDICINE

UNIVERSITY OF PENNSYLVANIA MEDICAL CENTER ■ FALL 2002



Changing the Culture of Research
SCHOOL DURING WARTIME
FROM CANADA TO PENN MED
EARNING HER SCRUBS

White Coats and Honored Alumni

The contrast on the stage of Dunlop Auditorium was striking. To one side, the 148 incoming medical students took turns being helped into their first white coats, then briefly told the audience about themselves. Sitting at the other side of the stage, two senior alumni of the School of Medicine observed the proceedings. The first-year students, who had begun their orientation that same week in August, represented the new blood and fresh idealism that sustains the medical profession. The alumni, with their extensive experience and range of achievements, represented the great tradition of Penn medicine, and it was clear that that the organizers of the event meant them to serve as exemplars for the Class of 2006. There was also a middle ground in the persons of three current administrators and faculty members: Arthur H. Rubenstein, M.B., B.Ch., dean of the School of Medicine and executive vice president of the University of Pennsylvania for the Health System; Gail Morrison, M.D. '71, G.M.E. '77, vice dean for education; and Michael D. Cirigliano, M.D. '90, G.M.E. '93, associate professor of medicine. Each of them welcomed the new students in his own way.

According to Morrison, the ceremony of the white coats is "symbolic as well as reflective." The coats are "the official attire" whenever medical students interact with patients. For both Morrison and Rubenstein, the emphasis of the ceremony was on humanism. In his remarks, the dean referred to the "unprecedented challenges" of today that threaten to undermine the doctor-patient relationship; a professional commitment on the part of the physician is necessary and leads to benefits for everyone involved. Cirigliano, taking a lighter, more ironic approach, showed slides from Gary Larson's *The Far Side* and Dante's *Inferno* while running through "some problems in medicine." But he also



The School of Medicine honored two alumni during the White Coat Ceremony: Sylvan Eisman, right, and F. William Sunderman.

showed a slide from that least ironic of illustrators, Norman Rockwell: it showed an all-American family visiting an all-American doctor. A copy of this sentimental painting, Cirigliano mentioned, hangs in his office, where he can see it every day and be reminded of the values inherent in it. A life in medicine, he promised, would be "a wild ride – a *wild* ride."

After the students received their coats, it was the turn of the alumni to be spotlighted. Truman G. Schnabel, M.D. '43, G.M.E. '47, the C. Mahlon Kline Emeritus Professor of Medicine and the Distinguished Emeritus Professor of Medicine, was one of the recipients of the Lifetime Humanism Award. Schnabel, former director of the Institute on Aging, was unable to attend the ceremony because of prior commitments. The other recipient of the award was Sylvan Eisman, M.D. '41, G.M.E. '45, the Distinguished Emeritus Professor of Clinical Medicine. (It is no coincidence that Cirigliano, described by




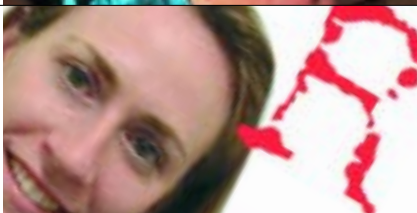
Morrison as a physician who "represents the humanistic tradition," received the School of Medicine's Sylvan Eisman Outstanding Primary Care Physician Award in 1998.) Having witnessed the multitude of women and minorities in the Class of 2006, Eisman noted how different it had been with his class: it had only four women, no people of color, no Asian-Americans.

F. William Sunderman, M.D. '23, Ph.D., the medical school's oldest living alumnus, was presented with the Lifetime Achievement Award. In Morrison's words, Sunderman has been "truly a Renaissance man": a former professor at Penn and other Philadelphia medical schools, he once was chief of clinical pathology for the Centers for Disease Control; he founded the Association of Clinical Scientists; he is renowned as a violinist; and he has won prizes for his photography. Perhaps most surprising, at 104 years old, Sunderman continues to work in the Institute for Clinical Science, which he founded, based at Pennsylvania Hospital. "You have entered the noblest of all the professions," Sunderman told the first-year students, gesturing emphatically from his wheelchair. As doctors, he said, they would relieve the suffering of many patients, "but in the end, like all physicians, you will fail, because your patients will die." Despite this inevitability, the mission of the doctor, he continued, is "to comfort the dying patient."

Joseph S. Gordon, M.D. '53, the current president of the Medical Alumni Society, also greeted the incoming class. In his class, he reported, there were seven women, one African-American, and no Asian-Americans. Harvey Rubin, M.D., associate dean for student affairs, then led the new students in reciting the Hippocratic Oath. The last words were Morrison's, who told the Class of 2006 that their journey would be "exhilarating, memorable, and challenging." ■

John Shea

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LETTERS

THOUGHTS ON ADDICTION

Read the *Penn Medicine* article on addiction [Summer 2001] with great interest. As a retired anesthesiologist I have seen many colleagues' careers cut or destroyed by addiction.

I would like to share the story of a friend and partner who used to send Thorazine and Sparine samples to a priest in the Far East. The good father was treating addiction of large numbers of narcotic addicts, their addiction fostered by the local government. My friend got a call from the priest on one of his infrequent visits to this country saying he no longer needed the drugs to be sent to treat the addiction, that he had found something infinitely more effective – acupuncture! Don't know if any PET scans have been done on that subject, or if it has been tried in a research setting, but it might be interesting.

*Kenneth J. Simpson, M.D., G.M.E. '63
KenSmp@aol.com*

A STREETCAR OF DIFFERENT NAMES

The streetcar James Grifone, M.D. '51, spoke of riding to clerkships at Graduate, Pennsylvania, and Children's Hospitals was the Route 40 [Letters, Spring 2002]. Between his class and my husband's, the Tennessee Williams play came out that led them to call the #40 "A Streetcar Named Disease."

*Elinor S. Prockop
Wife of Darwin J. Prockop, M.D. '56
Philadelphia*

INSTRUCTORS AS PATIENTS

I read with interest the article "Performing as Patients," a program started at Penn in 1997, in the spring issue of *Penn Medicine*. I enthusiastically embrace this program. I would like to bring to your attention a program I initiated

more than twenty years ago at Rutgers Medical School in a course I taught to third-year medical students entitled "Clinical Correlation." However, instead of using standardized patients as subjects, I as the physician instructor acted as the patient. Since diagnoses are made on the basis of the medical history, I emphasized careful history-taking over the physical examination, which came later. Students had to ask questions in lay language rather than in the medical jargon they used among themselves. My students loved my



teaching exercise as part of their student training. I continued this course for many years until I retired from the active practice of internal medicine. I published my observations in an article entitled "The Professor as Patient – A Teaching Model Whose Time Has Come" (*J.Med.Education*, Vol. 63, 804, Oct. 1988). Perhaps the variation I used with myself as the patient could be incorporated in your program of teaching medical students.

*Ellis P. Singer, M.D. '53
Emeritus Professor of Medicine, University of Medicine & Dentistry of New Jersey, Robert Wood Johnson Medical School
Piscataway, N.J.*

BRAIN INJURY

At the Institutes for the Achievement of Human Potential, we have seen many hundreds of young people who have traumatic brain injury. I am certain that reading the article "Brain Injury: A Silent Epidemic" [Spring 2002] would be as enlightening to the staff as it is for me.

*Leland J. Green, M.D., G.M.E. '64
Wyndmoor, Pa.*

A Recognition of Excellence

The School of Medicine again fared very well in two of the annual surveys of academic medical centers. In March, the National Institutes of Health issued its annual funding totals to academic medical centers, and Penn was ranked second for Fiscal Year 2001. Penn's total award figure – including grants for research, training, fellowships, R & D contracts, and other awards – was \$318,796,754, behind only Johns Hopkins University School of Medicine. This is the fourth year in a row that Penn has ranked second among all U.S. academic medical centers in NIH grants. Penn received nearly \$49 million more than in the previous year, an increase of 18 percent. Because the NIH is the primary funder of biomedical research and training in the nation, its annual rankings are generally considered an important barometer of research strength.

Penn had two departments ranked first in NIH funding: Dermatology, and Radiology, which combines the departments of Radiology and Radiation Oncology. Nine other departments were in the top five: Genetics, Medicine, Neurology, Obstetrics and Gynecology, Ophthalmology, Orthopaedic Surgery, Pathology and Laboratory Medicine, Physiology, and Psychiatry. Penn had 11 departments in the top five of their respective fields, second only to Johns Hopkins.

In addition to Johns Hopkins and Penn, the top 10 recipients of NIH funding are: the University of California at San Francisco, Washington University in St. Louis, Yale, the University of Washington, Baylor, Duke, the University of Michigan, and the University of California at Los Angeles.

In April, *U.S. News & World Report* released its annual rankings of graduate and professional schools. For the second year in a row, Penn's medical school was ranked fourth in the research-oriented category. *U.S. News* has now ranked

Penn's School of Medicine among the nation's top five medical schools for five years in a row. In the second major category, schools focused on primary care, Penn was also ranked, in a tie for 35th place.

The top ten schools of medicine in the research category are: Harvard, Johns Hopkins, Washington University in St. Louis, the University of Pennsylvania, Duke, the University of California at San Francisco, Columbia University, the University of Michigan, Yale, and the University of Washington.

The criteria used in the magazine's survey of 125 accredited medical schools included faculty resources, research activity, and selectivity. Overall reputation was assessed as well, based on the results of two questionnaires. The first questionnaire was distributed to medical school deans and senior faculty, the second to directors of intern-residency programs. The raw scores were converted to weighted percentiles and combined for an overall score.

U.S. News also ranks eight specialties, for which medical-school deans and senior faculty members nominate the top programs. This year, Penn was cited in four of the specialties: Drug/Alcohol Abuse (6th), Internal Medicine (4th), Pediatrics (2nd); and Women's Health (3rd).

The Hospital of the University of Pennsylvania was also nationally recognized this year.

For the sixth consecutive year, *U.S. News & World Report* named HUP to its annual "Honor Roll" of hospitals. In its issue of July 22, the magazine listed HUP as one of only 17 hospitals in the nation – and the only one in the Delaware Valley region – to be recognized as an "Honor Roll" hospital for exceptional performance in selected specialty areas. This year, HUP moved up a slot to 13th among the Honor Roll hospitals.

HUP was cited in 14 of the 17 medical specialties ranked by the magazine: Cancer (12th); Digestive Disorders (20th); Ear, Nose, and

Throat (9th); Eyes (16th); Geriatrics (25th); Gynecology (20th); Heart and Heart Surgery (28th); Hormonal Disorders (24th); Kidney Disease (12th); Neurology and Neurosurgery (9th); Psychiatry (16th); Respiratory Disorders (14th); Rheumatology (28th); and Urology (17th). In the Pediatrics specialty, HUP was not listed, but the members of Penn's Department of Pediatrics practice at The Children's Hospital of Philadelphia, which was ranked second in the nation.

To qualify for the U.S. News Honor Roll, hospitals had to score well in at least six of the 17 specialties. This year, the five hospitals ranked highest were: Johns Hopkins Hospital, Baltimore; the Mayo Clinic, Rochester, Minn.; the Cleveland Clinic; Massachusetts General Hospital, Boston; and UCLA Medical Center, Los Angeles. ■

For New Chair of Medicine, a Return

Andrew I. Schafer, M.D. '73, a nationally recognized hematologist, was named chair of the Department of Medicine and the



Frank Wister Thomas Professor of Medicine. Schafer had been chair of medicine at the Baylor College of Medicine in Houston and the Bob and Vivian Smith Professor of Internal Medicine. Stanley Goldfarb, M.D., had been serving as interim chair of Penn Med's largest department.

After graduating from Penn's School of Medicine, Schafer took his residency at the University of Chicago. Following clinical and research fellowships at Harvard and the former Peter Bent Brigham Hospital, he became an associate physician at Brigham & Women's Hospital and then joined the faculty of Harvard Medical School.

Schafer moved to Baylor in 1989, simultaneously becoming adjunct professor of biomedical engineering at Rice University. At Baylor, he served as associate dean of the School of Medicine and vice chair of the Department of Medicine from 1989 to 1996. From 1998 until coming to Penn, Schafer was chair of the Department of Medicine at Baylor and chief of the internal medicine service at the Methodist Hospital in Houston.

Schafer's clinical and research areas of expertise are in thrombosis, hemostasis, coagulation, platelet function, and vascular cell biology. He is the author of more than 180 original articles in the field and has edited or co-edited five textbooks. He has served on NIH and VA research study sections in hematology. A member of the executive committee of the American Heart Association, he currently serves as treasurer of the American Society of Hematology and formerly served as secretary/treasurer of the American Society for Clinical Investigation. In addition, he is on the Board of Extramural Advisors of the NIH and serves on the editorial board of several major journals.

One of Schafer's priorities will be to encourage collaborations between clinicians and researchers, "in the pursuit of knowledge that will have a positive impact on patient care." As an educator, he be-

lieves that students, residents, and fellows should be introduced to the practical applications of theoretical principles. ■

Institute on Aging Has a New Leader

John Q. Trojanowski, M.D., Ph.D., professor of pathology and laboratory medicine, has been appointed director of Penn's Institute on Aging. Trojanowski had been serving as interim director of the Institute since the departure of Risa Lavizzo-Mourey, M.D., M.B.A., last year to become a senior vice president of the Robert Wood Johnson

for Neurodegenerative Disease Research when it was established in 1992, serving with Virginia M.-Y. Lee, Ph.D. In 1998, Trojanowski, Lee, and Michel Goedert shared the Potamkin Prize for Research in Pick's, Alzheimer's, and Related Diseases. Recipient of a MERIT Award from the National Institutes of Health, Trojanowski has also received the Metropolitan Life Foundation Award for his research on Alzheimer's disease. The National Alliance for Research on Schizophrenia and Depression honored him with its Established Investigator Award.

Lee has also taken on more re-

Penn's Center for Bioethics and the Emanuel and Robert Hart Professor of Bioethics, was named chair of the new department.

The Center for Bioethics, created in 1993, "is Penn's voice to the world," says Caplan. "But to effectively have a presence within the medical school and Health System, it is important, especially for teaching purposes, to have a department base. With the growth of our medical-school teaching, the Master's Program, and the prospect of a large program in continuing education, it became critical to have a department home for bioethics at the medical school." Currently, the center has more than 20 full- and part-time faculty (senior fellows and associates) with appointments in many schools and departments, including medicine, law, nursing, business, education, philosophy, psychology, sociology, religious studies, and public policy.

According to Caplan, establishing an official department to work in tandem with the Center for Bioethics offers a number of benefits. Among them is the opportunity to initiate a Ph.D. program, although Caplan estimates that this decision is still a year or two away. In the meantime, some faculty "are shifting into the new department and others will seek secondary appointments in medical ethics." ■



Foundation. (This summer, Lavizzo-Mourey advanced to president and CEO of the foundation.) Trojanowski's main research/clinical interests as a senior fellow at the Institute are neurodegenerative diseases, dementia, and memory loss. He becomes director of an institute whose mission is to improve the physiological, psychological, and social well being of older persons through state-of-the-art interdisciplinary research, education, and clinical services.

A member of the School of Medicine faculty since 1981, Trojanowski became co-director of the Center

responsibility, appointed director of the Center for Neurodegenerative Disease Research. Trojanowski serves as associate director. ■

School Establishes Ethics Department

The creation of a new Department of Medical Ethics, effective July 1, reflects the growing national importance of bioethics among the lay public, in the health-care community, and — increasingly — in the medical-school curriculum. Arthur L. Caplan, Ph.D., director of

The School of Medicine's seventh annual *Awards of Excellence* banquet is scheduled for Thursday, November 19, at the Chinese Rotunda and Upper Egyptian Gallery of the University of Pennsylvania Museum. Each year, the School of Medicine honors faculty members who have performed outstandingly in research, clinical care, and education. Tickets are \$80. For more information or to attend, call Medical Alumni Relations at 215-898-5298.

The Gurs Find Some Scientific Truth for a Gender-Based Cliché

For several years, the Penn research team of Ruben C. Gur, Ph.D., and Raquel E. Gur, M.D. '80, Ph.D., has been conducting research on the differences in how men and women think, how their brains differ, and other related themes. Although their work is scientifically rigorous, its implications have also brought them wide coverage in the popular media. In the mid-1990s, for example, their research was featured in a cover story in *Newsweek*, and David Letterman and Jay Leno did their share of jokes about the Gurs' finding that men lose brain tissue as they age faster than women do. This fall, the Gurs, both professors of psychiatry at Penn, have released a new set of neurological findings on another trait that, in the popular mind at least, differentiates the sexes: aggression.

Using magnetic resonance imaging scans, the Gurs' research team compared the relative sizes of two sections of the brain: the amygdala, which is involved in emotional behavior related to arousal and excitement, and the orbital frontal region, which is involved in the modulation of aggression. The researchers found for that, after adjusting their measurements to allow for the difference in physical size between men and women, women's brains had a significantly higher volume of orbital frontal cortex in proportion to amygdala volume than did men's brains.

Published in a recent issue of the *Journal of the Cerebral Cortex*, the findings provide a new research path for therapies that may eventually help psychiatric patients control inappropriate aggression and dangerous patterns of impulsive behavior. They also bolster previous work by the Gurs demonstrating that although some gender differences develop as result of adaptive patterns of socialization, other distinctions are biologically based and probably innate.

"As scientists become more capable of mapping the functions of activity in various parts of the brain, we are discovering a variety of differences in the way men and women's brains are structured and how they operate," says Ruben Gur, first author of the study. "Perhaps the most salient emotional difference between men and women, dwarfing all other differences, is aggression." The new study, he continues, "affords us neurobiological evidence that women may have a better brain capacity than men for actually 'censoring' their aggressive and anger responses."

Underpinning the Gurs' work

dorsolateral frontal area), and under the temples (the parietal and temporal cortex). The Gurs' study measured the ratio of orbital to amygdala volume in a sample of 116 right-handed, healthy adults younger than 50 years of age; 57 subjects were male and 59 were female.

"Because men and women differ in the way they process the emotions associated with perception, experience, expression, and most particularly in aggression, our belief is that the proportional difference in size in the region of the brain that governs behavior, compared to the region related to impulsiveness, may



are established scientific findings that human emotions are stimulated and regulated through a network that extends through much of the limbic system at the base of the brain (the region encompassing the amygdala, hypothalamus, and mesocorticolimbic dopamine systems), and then upward and forward into the region around the eyes and forehead (the orbital and

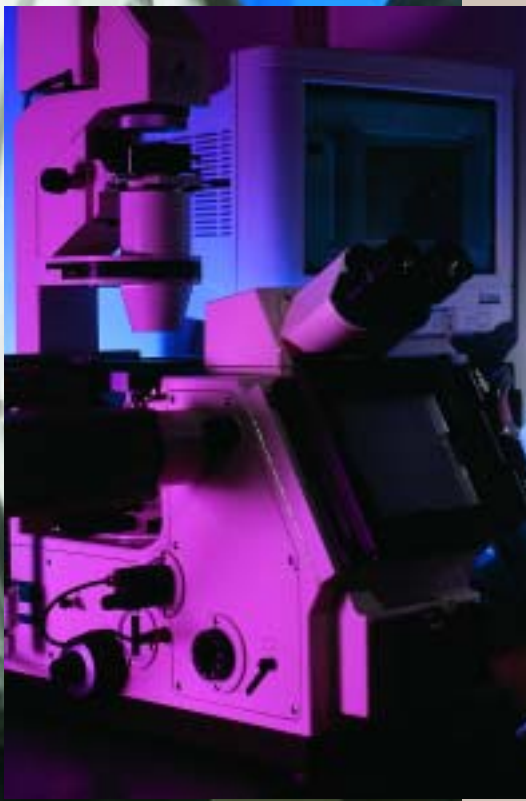
be a major factor in determining what is often considered 'gendered-related' behavior," says Raquel Gur.

Others Penn investigators participating in the study were Faith Gunning-Dixon, Ph.D., and Warren B. Bilker, Ph.D., of the Department of Biostatistics and Epidemiology. ■

— Ellen O'Brien

Changing the Culture of

By Jennifer Baldino Bonett



Photographs by Addison Geary

f Research

After the death of a patient in a gene-therapy trial, the University of Pennsylvania made a commitment to improve the way clinical trials involving humans are conducted and regulated. At Penn and elsewhere, the standards are now more rigorous.



Medical investigator Carl June, M.D., left, welcomes Penn's "long-term commitment" to improve the conduct of research. Glen Gaulton, Ph.D., above, is one of the administrators following through on that commitment.

Carl June, M.D., whose research has focused on developing immunotherapy for cancer, spreads out an organizational chart comparable to that of a small company. It is for a feasibility study he is conducting in his lab at Penn. The chart illustrates a careful system of checks and balances for the protocol, including several University offices, prominent administrators, and a sizable full-time staff dedicated to the study. The chart also illustrates something greater: the remarkable changes in the research culture at Penn that are setting the standard for a nationwide transformation in the conduct of academic medical research.

In the aftermath of patient deaths in clinical trials around the country, the federal Food and Drug Administration has conducted investigations and called for shut-downs of clinical research at several premier institutions across the nation. The first high-profile case of this kind began at Penn in September 1999. Jesse Gelsinger, an 18-year-old patient in a Phase-I clinical trial conducted by the Institute for Human Gene Therapy, died as a result of gene therapy for ornithine transcarbamylase deficiency. Investigators in the institute immediately notified the FDA. In January 2000, the agency, which had oversight for the trial, issued a set of "inspectional observations" (known as Form 483) and closed down all clinical trials at the Institute for Human Gene Therapy. The FDA cited "numerous serious deficiencies in the procedures in place for oversight and monitoring of the clinical trials conducted by investigators." From the outset, representatives of the University expressed sadness and sympathy to the Gelsinger family. Although the University later conceded some lapses in the conduct of the clinical trial and settled a lawsuit with the Gelsinger family in November 2000, its position remains that the death was not foreseeable based on informed medical judgment and the best scientific information available at the time. Nevertheless, researchers and administrators alike realized that changes were necessary.

After the Gelsinger case and similar cases at other institutions, academic medical research came under close governmental scrutiny and, according to clinical investigators, it has been forever altered. Research involving human subjects is being held to new standards nationally, and members of Penn's faculty and administration believe Penn has taken the lead in responding. With a mandate from the University's leadership, Penn has developed a deliberate approach to medical research and — equally important — an infrastructure to support it. The aim is to guide researchers through the new requirements and ensure the safest possible conditions for research involving human subjects.

"If Penn hadn't handled things, I'd be out of here," says Carl June, professor of pathology and laboratory medicine and director of translational research programs at the Abramson Family Cancer Research Institute. According to June, "There are other pre-eminent institutions that have had warning signs, and I know for a fact by talking to investigators at those places that they've had Band-Aid fixes." He points to his organizational chart: "I am very happy when up here, at the top of my diagram, it says Neal Nathanson" — the University's vice provost for research. "I think Penn really made it happen. That doesn't mean it's perfect, but there's an effort and, I think, a long-term commitment. Anything short of that is never going to work."

The commitment emanates from the top of the University, with support from the president, Judith Rodin, Ph.D., and the provost, Robert L. Barchi, M.D., Ph.D. In January 2000, Rodin charged an internal committee, led by Barchi, with "reviewing carefully and completely all aspects of Penn's research using human subjects." The work of that committee and other efforts by faculty and administrators involved in research at the University, particularly in the School of Medicine, have generated unprecedented change in Penn's research infrastructure and culture.

But it has not changed Penn's commitment to moving research from bench to bedside. "What we're uniquely positioned to do," says the provost, "having one of the foremost integrated health-care delivery systems in the country, is research at the interface between basic science and clinical care."

Barchi, who once chaired two departments at Penn, Neurology and Neuroscience, adds, "I see clinical research as being a very important part of our research portfolio and an area to which we should be very definitely committed in the future."

Neal Nathanson, M.D., a former chair of Penn's Department of Microbiology, agrees. Clinical research, he asserts, is a "public service," and it is "critical" to the training of young physicians. Nathanson also believes that it is worth the cost to maintain regulatory compliance in medical research. The cost is growing exponentially: at Penn, the price tag is currently \$3 million a year.

In December 2000, Nathanson returned to Penn as vice provost for research from the National Institutes of Health, where he had directed the Office of AIDS Research for two years. Now he has policy and administrative oversight for the University's \$500 million research endeavor. He handles policy issues regarding the conduct of research, including human research and clinical trials; plays a central role in strategic planning for research; and assists in technology transfer. He chairs the Provost's Council on Research, which helps formulate and implement research policies at the University level, and he also oversees the Office of Regulatory Affairs, which is responsible for Penn's program of compliance in human subjects and animal research.

Nathanson and Barchi, both with distinguished records in research, use the same word to describe changes in clinical research today: *revolution*. To protect the safety and rights of research subjects, the monitoring of trials and the level of documentation have become much more rigorous for researchers at academic medical centers. "Part of the issue is the

fact that, now, every single individual is being held to every single letter of the law and every single footnote of the regulations in a way that was simply not the case in years past," Barchi says. "Re-

search at the academic level in institutions like ours is being held to a standard that was usually only applied to industrial research in pharmaceutical companies. We were simply not prepared with the



Marcia Markowitz-Karp, left, serves as director of clinical research development in the Office of Human Research.

Changes at the IHGT

In May 2000, the University of Pennsylvania released a report by an independent committee that had been charged with conducting a comprehensive review of the Institute for Human Gene Therapy in the aftermath of the death of Jesse Gelsinger. The panel, chaired by William H. Danforth, M.D., chancellor emeritus and vice chair of the board of trustees at Washington University in St. Louis, was made up of distinguished research scientists and academic scholars from around the country.

Among its specific recommendations, the committee suggested that the workload of the University's institutional review boards be decreased and that the IRBs have more expertise – or have ready access to more expertise – pertinent to the clinical trials. The University "should carefully evaluate the process of ethical decision-making" in the course of the clinical trials and should review its policies on conflict of interest. The committee also stressed the importance of en-

sureing that informed consent "is properly attained." Another point raised was the benefits of "a mechanism, internal or external, whereby the IHGT or any similar intramural operation is evaluated on a regular basis with open discussion and free criticism by knowledgeable people, and the results made available to the University and other interested parties."

Touching on the IHGT's very foundation, the committee questioned having "an entire Institute devoted to gene therapy. . . . Would it, for example, make more sense to reconfigure the Institute as support groups for scientists?"

Since that time, the University has been refocusing the Institute for Human Gene Therapy. That same year, it announced that it was limiting the scope of the IHGT to molecular, cellular, and animal-model experimentation; the institute would no longer sponsor clinical trials involving humans. In the spring of 2002, Arthur H. Rubenstein, M.B., B.Ch.,

appropriate infrastructure to make that happen, and our investigators can't do it by themselves."

As Barchi and others point out, Penn is not alone. Institutions such as Johns Hopkins, Harvard, and Duke have faced research shut-downs for failures in research oversight and regulatory compliance. A healthy patient at Johns Hopkins University died in a clinical trial investigating the lung's response to asthma, leading the federal Office for Human Research Protection to close down virtually all of the institution's federally supported research involving human subjects for five days. In 1999, there were three deaths in a gene-therapy trial at a Harvard-affiliated hospital; they were not reported to the NIH until long after they occurred. Although no patients had been harmed, Duke was cited for widespread administrative failures to

follow regulations that safeguard patients in clinical studies. Other programs that were closed down temporarily for comparable reasons include those at Virginia Commonwealth University, the University of Illinois, and Rush Presbyterian Medical Center. Greg Koski, Ph.D., M.D., director of the OHRP, was quoted in *Newsweek* as calling the clinical-trials system "dysfunctional."


The root of the problem, suggests Glen N. Gaulton, Ph.D., vice dean for research and research training in Penn's School of Medicine, is this: Academic medicine is "discovery-based," which implies that application of potential products does not typically move directly from the laboratory to the public without interface with private industry. "So nationally there was a *laissez-faire* attitude about the necessity to adhere to existing stan-

dards that the FDA had established for human research in an academic environment." No longer.

The first step in eradicating that thinking, according to Gaulton, has been to educate clinical investigators in their roles and responsibilities in an era in which academic faculty are increasingly involved in direct product testing. A professor of pathology and laboratory medicine whose research focus has been on understanding the molecular processes that regulate the development and pathogenesis of T lymphocytes, Gaulton says he has found misunderstanding among faculty in some critical areas: what it means to sponsor a trial, what the role of the institutional review board (IRB) is, and how a violation of the FDA regulations can become a patient-safety issue. When Gaulton and his colleagues spoke about regulatory responsibilities to faculty members who are sponsoring trials, he says, "most of them were in shock."

Of the more than 4,000 protocols under way at the School of Medicine at a given time, clinical trials make up between 10 percent and 25 percent of the total. Several dozen of the clinical trials are faculty-sponsored – that is, without a sponsor from private industry. Since this group of investigators is at the highest risk regarding regulatory issues, Gaulton and his colleagues focused on educating them first. But, he says that is "the tip of the iceberg. . . . We have to slowly branch out and do this in all human research."

Gaulton and his colleagues realized that they needed to heighten faculty awareness, educate, and provide support services to help investigators conduct their trials according to the new regulatory standards. The question they asked themselves, he says, was: "What's the entity that does this? And there wasn't any." The answer, they feel, is the newly created Office of Human Research. Under the leadership of M. Gregg Fromell, M.D., the OHR assists researchers in developing protocols and completing documentation that adhere to federal guidelines. A specially



dean of the School of Medicine and executive vice president of the University for the Health System, announced in a memo that James M. Wilson, M.D., Ph.D., would step down as director of the institute. In the memo, Rubenstein noted that a faculty committee was charged in August 2001 to review the institute's organization and focus as well as "to review the current state of gene therapy research in order to optimize the potential of gene therapy and related fields at Penn." The committee's recommendations have much in common with those of the Danforth committee: The faculty report concludes that "along with gene therapy, cell-based science will contribute importantly to the next generation of novel therapies. To be successful, these areas require not only strong basic science, but also dedicated efforts in translational medicine. To this end, the committee has recommended that the institute broaden its scientific focus to include cell-based therapies, as well as stem

cell biology and molecular virology." Rubenstein has accepted the recommendation.

Although it played an important role in establishing gene therapy at Penn, the IHGT was not the University's only sponsor of gene-therapy trials. Several trials have continued, including some very promising ones. For example, Katherine A. High, M.D., the William H. Bennett Professor of Pediatrics, has shown that hemophilia can be corrected in dogs through gene therapy. Her team also has had encouraging results with humans. Jean Bennett, M.D., Ph.D., associate professor of ophthalmology, led a Penn team that helped develop a gene-therapy protocol that restored sight in dogs afflicted with a variation of Leber congenital amaurosis, a severe form of retinal degeneration that, in humans, renders infants permanently blind. ■

— John Shea

trained staff of 13 works with researchers on regulatory compliance and monitoring of their trials, development of clinical research, and education about research regulations. Its budget is about \$1.5 million. As Fromell puts it, the office has a “seamless” relationship with the University’s IRB program, which oversees and approves the conduct of research at Penn. In offering direct support to researchers, says Fromell, “we’re at the leading edge.”

“Investigators are experts in the science, and we’re experts in the regulated environment,” says Deborah A. Waltz, who came from private industry to direct the research compliance and monitoring section of the Office of Human Research. “It’s a full-time job keeping current with your area of expertise. We spend hours and hours and hours reading the regulations. But it’s more than reading the regulations and knowing what they say. It’s knowing how they’re being applied. It’s watching the environment, watching the enforcement actions that are taking place, and looking into our own environment and saying, ‘Are we exposed here? Do we have those risks?’ ”

Fromell points out that the OHR aims to provide support for investigators, not to police their work. He likens reviewing and refining protocols to repairing a laceration: “You don’t just sew it up. You want to probe around, make sure there’s nothing in there, clean it out, make sure there’s no broken bones. So you do have to probe a little deeper, and sometimes that hurts. But the point is you’re really trying to protect the patient, and then you can go and repair the injury” – in this case, that means implementing a plan to correct the error, ensure compliance, and continue with the study.

The Office of Human Research is a crucial part of the infrastructure being refined by the University and the School of Medicine to support researchers in their work. Other pieces include educational programs and on-line training for investigators and clinical coordinators, newly developed standard operating procedures for sponsor-

investigators, refinement of the University’s conflict of interest policies, and a mandatory certification program for all principal investigators and key personnel working on a protocol.

Developed at the School of Medicine, the Patient-Oriented Research Certification Program is the first of its type in the nation. The NIH now requires every individual conducting human subject experimentation to be trained and certified in patient-oriented research. Since the summer of 2000, some 1,600 researchers have completed the School of Medicine’s certification program, which includes video presentations, tests for each module, and a certificate of completion for the researcher to send, as required, to the NIH.

“There are a lot of people doing human research who think they are doing everything fine,” Gaulton says. “We’ve got to ensure that education and awareness are brought together with the right tools and support to empower researchers to conduct their work in a more compliant fashion with less effort on their part.”

Steven M. Albelda, M.D., the William Maul Measey Professor of Medicine, emerged from a two-year hiatus from a cancer-related gene therapy trial that was halted when the FDA closed down all clinical trials at the Institute for Human Gene Therapy in January 2000. “I think the structure we’ve got now is going to make it a lot easier for things to move ahead,” says Albelda, who is director of lung research and co-director of the thoracic oncology laboratories. “People can’t say anymore, ‘I didn’t know what we had to do.’ The bar is much, much higher.”

Stephen L. Eck, M.D., Ph.D., formerly an assistant professor of medicine who specializes in hematology-oncology, holds a similar view. “There is only going to be one standard,” says Eck, who recently joined Pfizer, the pharmaceutical firm. “This isn’t going to be: ‘You can stay at the Ritz-Carlton or you can stay at Motel 6.’ ”

Albelda and Eck agree that the quality of research will likely improve because of the higher, uni-



Deborah A. Waltz, director of research compliance monitoring and maxillofacial surgery.

form standards, and they suggest that the changes may prompt researchers to focus on what Eck calls “projects that matter.” They also believe that the more dedicated and better trained researchers will flourish, forcing out investigators who, as Carl June puts it, “cut corners.”

While they feel Penn is working to make the new, strict regulatory environment easier on researchers, seasoned investigators like June, Albelda, and Eck are concerned that the exacting federal regulations will hamper clinical research. Although “good trials are what you need,” June says, “this way doesn’t ensure better science, it ensures safer science.”

June is concerned that over-regulating science will squeeze out all investigators but those with the most time, the most money, and the best-laid plans. He worries that clinician educators and junior investigators – those with the least time and money to focus on research and experimentation – will suffer as a result of costly, stringent federal requirements.

“My one fear is that a viable research career depends on how arduous it is to stay in line,” says June. “You have to see the paperwork — it’s horrible.” Though he used to spend 80 percent of his time in his lab and 20 percent on documentation, he says the time is now reversed.



ing, meets with Peter D. Quinn, M.D., D.M.D., chair of oral

“A lot of investigators are going to be discouraged,” says Albelda. “It takes a Herculean effort to get something from bench to bedside.” For his field of cancer research, where patients have a limited life expectancy, he calls these regulatory hurdles “a shame.”

No matter the number or quality of the standards in place, says Eck, it is important to remain realistic about the “inherent” risks of research. “Medical advances, particularly when you’re dealing with those areas that are very novel, come with risks,” he says. Adverse events, he emphasizes, “are going to continue. It’s natural in a technology-driven society. We introduce new things into our environment constantly and they cannot be perfected before they are introduced.”

To minimize risk to patients and to protect researchers, the University is aggressive in identifying and rectifying problems in human research protocols. The Office of Human Research aims to resolve problems before they start: The staff meets with every researcher beginning a new clinical trial (some 600 annually at Penn) and with researchers whose protocols come up for FDA audits, which is standard practice. They review the study, checking for regulatory compliance, with the aim of pinpointing and correcting any errors before the trial begins or before the audit. Gaulton offers this example:

A researcher inadvertently enrolls a patient who is over the age for inclusion in a study; when the researcher realizes the error, the patient has already started to receive therapy and it would be harmful to stop. What should the researcher do? The OHR can help the researcher develop a “corrective action plan,” says Fromell, which maintains the integrity of the study and pleases the government agency. At first, it might feel a little like “being sent to the principal’s office,” Fromell acknowledges, but the reviews are now a standard part of conducting clinical research at Penn, so he hopes researchers will take them in stride and see them as beneficial.

Serious non-compliance issues are rare, Fromell says, and would generally include patterns or repeat issues that can adversely affect the trial or its patients. If serious problems occur (like the death of a patient), institutional and government regulations require reporting them to the University IRB or a government agency. Fromell emphasizes that reporting does not inevitably imply scientific misconduct or malicious intent, but rather owning up to a mistake. In working with researchers to ensure their protocols meet regulatory standards, Fromell and his colleagues have most frequently found minor problems that have been successfully – and often easily – corrected. An example: An investigator identifies an additional risk during a trial, so a new patient consent form is required. IRB approval of the new form can take weeks, which can affect the trial. An acceptable resolution is to permit the investigator to inform patients orally about the newly discovered risk and document it in the chart until the IRB approves the new form.

The concepts of internal protocol reviews and corrective action plans are new to most researchers and not universally welcomed with open arms, Gaulton acknowledges, but they are necessary to protect researchers and their patients. And Penn takes the charge seriously. “If there is resistance from the faculty in an instance of serious regulatory

violation,” says Gaulton, “their chairs, the deans, and people like me will say: ‘That’s not tolerated.’” And it is not. “When we find something required by the regulations to report,” Gaulton says, “we do report. It’s our institutional responsibility.” Helping members of the faculty appreciate that this obligation is ultimately in their best interest as well, he says, “is perhaps the most difficult operational challenge.”

In some measure, the changes in clinical research at Penn have come as something of a culture shock to investigators in the changing world of medical research. The new approach led to the departure of one faculty member, says Gaulton candidly. But many researchers have been appreciative. “They didn’t know what their responsibilities were, and it scared them,” Gaulton says, but the educational efforts have “really changed” the way they think about their work.

Other institutions are looking to Penn as a model. “We have one of the biggest research enterprises of its kind in the country, and we had to face up to some difficult problems,” says Provost Barchi. “Because of that, we’ve been especially aggressive in dealing with these problems and working them through. We feel that we are well ahead of most of our peer institutions in providing solutions for our investigators and supporting our investigators in these areas. In fact, other institutions are coming to us to ask us how we are dealing with the problems of human research and how we are dealing with institutional review board issues, and how we are dealing with medical-legal infrastructure that’s required of a research operation of this magnitude.”

The scientists interviewed say they feel the changes at Penn are largely positive and that the University remains committed to the research enterprise. “Penn hasn’t changed academically,” June says. “Research is in our core mission. Penn is going to be doing translational research and actually trying to affect human diseases. I’m proud of that, and that’s why I’m here.” ■

A cartoonist for *The Scope* captured some of the dreary routine of wartime school.



A WARTIME STUD

We began medical school on April 5, 1943, in an accelerated wartime program, four nine-month years, with no summer vacations. In Physiology we were welcomed by Professor Henry Bazett, who said in his English accent that none of us would amount to anything because the best of the faculty was away at war. Too bad he can't learn now how wrong he was. The class did very well, and Lou Sokoloff received a prestigious Lasker Award for his work in Bazett's own field of physiology, for basic science that led to the development of the PET scan.

We were civilians in the Army or Navy medical reserve. This was a government stratagem to keep us from being drafted while in medical school. Nine weeks later the plan changed. We were given a

choice: resign our commissions and enlist as privates or midshipmen with all medical school expenses paid, or keep our commissions and pay our own way. Almost everyone selected the first option.

The entire medical school went into uniform at the same time. Those of us in the Army were put on a train and did not know our destination until we arrived there. It turned out to be Indiantown Gap Military Reservation in Pennsylvania, where we were processed and issued uniforms. We returned to the campus after several days, except for a few in our group who had to wait for shoes that fit. We wore our uniforms from then on – to class, in the clinics, on and off campus.

Back at school we met our commanding officer, Capt. Irving

Slonim, a mild-mannered assistant district attorney from New York. His aide-de-camp was First Sergeant Hamer from Central Casting – strong of face, physique, and personality. We were assigned to barracks (fraternity houses). Ours had about 40 students (four in my room) and seemed to have but one bathroom reached only by walking through our room. The flush was going all night long, and I faced the prospect of never sleeping again while in medical school. I visited Capt. Slonim and told him the problem. He said I could move if I found a better place that was vacant. In another fraternity house I found a room with four beds and only two students, both from Philadelphia – who went home every night. A serious problem solved.



ENT REMEMBERS

by Robert W. Miller, M.D. '46

The midshipmen in their well-tailored uniforms looked splendid, while those of us in the Army looked olive-drab. Students in almost all other medical schools, and the midshipmen at our school, were given monthly allowances for housing and subsistence. They could make their own arrangements. We did not get these allowances, because the University arranged for our bed and board. After roll call each morning, we marched to the Palestra for breakfast, and we found our own way there for lunch and supper. Tables had been bolted to the beautiful floor where basketball had been played. Meals were catered by Horn & Hardart, known for its chain of automats. (There was reason to believe that we were given the restaurant left-overs.) The milk



The author's photograph in the 1946-47 *Scope*.

was often curdled, and gastroenteritis struck groups of us from time to time. I was the most sensitive and, as such, served as an indicator to my classmates of things to come.

The Palestra was crowded with military trainees gifted in the study of foreign languages and military

government, among other subjects of wartime need. Their programs were terminated suddenly and, in a tragic turn of events, they were sent overseas in time for the Battle of the Bulge, where they suffered heavy casualties.

Classroom and Faculty

We had two exceptional auditors at our lectures. One was a St. Bernard dog that followed us around, including to the lectures. The other was a thin, worn-out elderly man. It was said that he had been in the Dean's class in medical school and had fallen into ruin. Now he wanted to return to medicine to help the war effort. He asked the Dean if he could be readmitted to the school and was told no, but he was permitted to audit our classes.

Although the war was raging in other parts of the world, the teachers taught us with no change in content, at their usual pace, and many were wonderful. O. H. Perry Pepper was a showman with a great fund of knowledge about internal medicine. John H. Stokes, the dermatologist and syphilologist, had a frightening way of questioning us. During his two-hour sessions, part of the class examined patients in the pit of the amphitheater for case presentations at the end of the morning, while another part of the class made rounds in the pit. Meanwhile, Stokes briskly questioned the remainder of the class who were in their seats. Joseph Stokes, no relation, led the teaching of pediatrics, which was good, but we had only two weeks on the children's service, as was usual at the school. I knew Mitchell I. Rubin, associate professor of pediatrics, only from his teaching, but he became my mentor when he moved to Buffalo Children's Hospital. He accepted me for a residency when almost all slots throughout the country were filled by returning veterans.

Robert D. Dripps, then a young man, was just launching his famous career in research and the practice of anesthesiology. He was much admired, and his example was one reason several members of my class were attracted to anesthesiology and eventually became leaders in the field. Other young faculty members became well known – for instance, Jonathan E. Rhoads and C. Everett Koop. Koop had just returned from Boston, where he had learned about pediatric surgery from the only two people in the field, Ladd and Gross.

Douglas Power Murphy, an obstetrician, told us of his survey studies that linked small head size and mental retardation in 32 newborn infants to X-ray therapy given to their mothers early in pregnancy. This lecture played a substantial role in my career because a decade later I was able to extend his findings to children exposed *in utero* to the A-bombs in Hiroshima and Nagasaki when I worked at the

Atomic Bomb Casualty Commission in Hiroshima (1953-1955). It also sparked my interest in environmental causes of birth defects, as well as the relation of genetic defects to high risk of cancer.

Julius H. Comroe Jr. was a young innovator in pharmacology, well liked by the students. In 1976 he and Dripps summarized in *Science* (192: 105-111) their two-volume government publication (#913-837 and #913-876), "The Ten Top Clinical Advances in Cardiovascular-pulmonary Medicine and Surgery between 1945 and 1975: How They Came About." It was through the basic science of anesthesia and blood circulation, the development of the EKG and anticoagulants, and other advances that open-heart surgery became possible. In 1977 Comroe published a collection of essays on how basic science led to major discoveries in medicine, not just with regard to cardio-respiratory diseases (*Retrospectroscope: Insights into Medical Discovery*, Van Gehr Press, Menlo Park, Calif., 182 pp.).

These works reflect the essence of the medical school's approach to clinical medicine: founding it on the basic sciences. We learned by reason, not by rote, and this made possible novel thinking about disease and health. We were well prepared for careers in research and practice in any field.

The teaching of embryology was deficient, but not because of the war. It was important in my career with regard to the link between teratology and cancer. Knowledge about human genetics was just beginning, and we learned only about the genetics of ABO and Rh blood groups. We had a few lectures on biostatistics given by an instructor from the Wharton School. I thought they were wonderful, but only 6 of the 130 members of my class attended. Teaching of medical procedures was downplayed with the statement that we would learn that in the first week of our internships. And we did.

Despite Professor Bazett's prediction, we did not sense the loss of other outstanding faculty who were serving, for example, in the University of Pennsylvania military

unit (the 20th General Hospital) based in Assam, India, or as consultants in Washington.

Although we covered four years of medical school in three years, we had the same number of class hours as peacetime classes did. We were free on nights and weekends except for Saturday morning. We did not have to work to pay our expenses and only a small number of my classmates were married. Also there was no television to dis-



The shoulder patch of the Army Specialized Training Program.

tract us. In our junior and senior years some of us went over the wall at night to Philadelphia General Hospital to watch patients being admitted, a stimulating way to add to what we learned about medicine during the day. On Sundays I went to PGH to watch autopsies.



Sergeant "Bulldog" Hamer



Military Movements

One day, without warning or ceremony, Capt. Slonim was suddenly gone, replaced by Capt. Foster. Capt. Foster was there so briefly I do not remember him. Major Urban, who carried a riding crop, replaced Capt. Foster, and Sgt. Hamer overlapped for a short while with his successor, Sgt. Barney. They lectured to us occasionally on such topics as military courtesy, sexually transmitted diseases, and map-making. None of our regular courses included military medicine, except for Public Health, taught by Col. Hitchins, the only faculty member in uniform.



In the entryway to our barracks hung two memorable posters. One had the caption "Loose Lips Sink Ships," and the other said of an apparently well-bred young woman, "She May Look Clean — But," and went on to warn that "you can't beat the Axis if you get V.D." Several times we had memorable inspections. After we had been moved to dormitories, we had to line up in the small quad for Major Urban to inspect the heels of our shoes. He walked behind us, as we bent a knee to show the heel, which he tapped with his riding crop to signal approval and that it was time to show the other heel. We had occasional "short-arm" exams for evidence of gonorrhea.

One evening my chest was itching, and when I finally looked at it, I discovered a widespread rash. Scarlet fever. I went to Student Health where I was admitted to one of its in-patient rooms. Two days later the Army ordered me to its hospital at Valley Forge to serve out the 21-day quarantine, according to regulation. The military ambulance that picked me up already had a sick, moaning soldier in it, hidden by the darkness of night.

At Valley Forge Army Hospital there was deep snow, leading me to wonder if it had been there ever since Washington's arrival in 1777. I entered a large admitting room occupied by several medical personnel, and one of them called out, "What's wrong with you, soldier?" When I said scarlet fever, everyone shrank as far from me as possible. After confirming the diagnosis, the doctor ordered me to be isolated, on complete bed-rest, and treated with a sulfa drug. A nurse told me to lie very still to avoid cardiac complications. I felt not the least bit sick and left 19 days later. Thinking back on it now, I realize how excellent the staff and the hospital were. It was similar to our University Hospital, except for following military medical regulations with regard to record-keeping, treatment, isolation, and length of stay.

At school we were in the Army Specialized Training Program, and in 1944 we were given yellow shoulder patches that showed a blue lamp of knowledge (called by the students a flaming urinal). Depending on the perspective, the badge meant we were special – or that we were not "real" soldiers. Some students sewed snaps onto the place for the patch so that they could quickly put it on or take it off, depending on where they were going. Today, a web site for military insignias shows that ours was used only from 1944 until 1946.

Off campus, we saw how the country was changed by the war. The train to New York, for example, sometimes had cars that looked as if they had been used since the early days of the railroad. Newer cars were used to transport troops. Passenger trains were crowded with

people standing for the entire trip. Twice elderly women, presumably concerned about my future, offered me their seats.

At school, however, we had no real sense of being in the Army. We felt our military status most acutely when we left the campus and people treated us as they did all other men and women in uniform. On city streets we often encountered military police. One Christmas break I was in Washington, D.C., crossing the busiest street, as huge crowds flowed in each direction. It followed that as the crowds passed one another, there were some military officers among them. To me, that meant that all officers moving in both directions would have to return salutes at every crossing. I did not know the rule and guessed that saluting en masse was not required. Not so: An MP stopped me and took my name and address. To avoid a repeat, I began to salute everyone everywhere, including Salvation Army personnel ringing bells at their Christmas pots. To no avail. An Army major emerged suddenly from a doorway and passed me. It was too late to salute him. Another citation. On returning to school, I was the subject of lectures on military courtesy, threatened with being sent to the front lines if I did it again, and restricted to the campus for a month.

Convenience of the Government Discharge

At the end of our third year (July 1945), we were given physical examinations to see if we met the requirements for officers. We were told that if we flunked, we would have to leave medical school to serve in the non-commissioned ranks, where less stringent health requirements applied. I had been given a waiver after I failed the eye exam at Indiantown Gap. As I reached the life-threatening eye-chart this time I saw that the top letter was an E. So I took off my glasses, covered one eye, and said, "E." The doctor said, "Now walk up until you can see it." I walked halfway and saw that it was an H. No waiver this time,



Top: Major Urban, one of the commanding officers

but, as it turned out, no one had to leave medical school. The threat had been made to discourage malingering.

I went by train with students from other Philadelphia medical schools who had failed the exam. This time we got off at Camp George G. Meade near Baltimore, where we joined troops who had enough points from action overseas to be discharged before the war ended. Marked by their experience, they tended to be quiet and mature, and some of them were jittery. We were uneasy in their presence because they had borne the worst of the war, while we had not experienced the high risk of combat. Our yearbook contains a short history of our class during the war, called "The Battle of 36th and Spruce." Even at our 50th class reunion, there was still talk about not having served.

Inducted Again

My career in the Army did not end when I was discharged after my third year of medical school. I continued as a civilian at my family's expense. In 1951, during the Korean War, physicians who had served less than two years were

drafted. Time at medical school did not count, of course, and waivers were generously given for health impairments that were not disabling. Some doctors in established careers were drafted because they had served for a day or two less than two years.

After receiving a draft notice, I went into the Army for almost two years. Since graduation from medical school I had been trained in pediatrics and had learned in the course of a fellowship about the adverse health effects from exposure to ionizing radiation. I was able to make use of this information in my Army assignment to the Atomic Energy Project of the University of Rochester and in my career thereafter.

My discharge was scheduled for two days before I had served two years. I was ordered to Fort Jay on Governor's Island, reached by ferry from the tip of Manhattan. Fortunately, I knew the pediatrician at the base, and he agreed to delay my discharge by those two important days if I covered the pediatrics clinic while he was inundated examining the top-rated applicants to West Point.

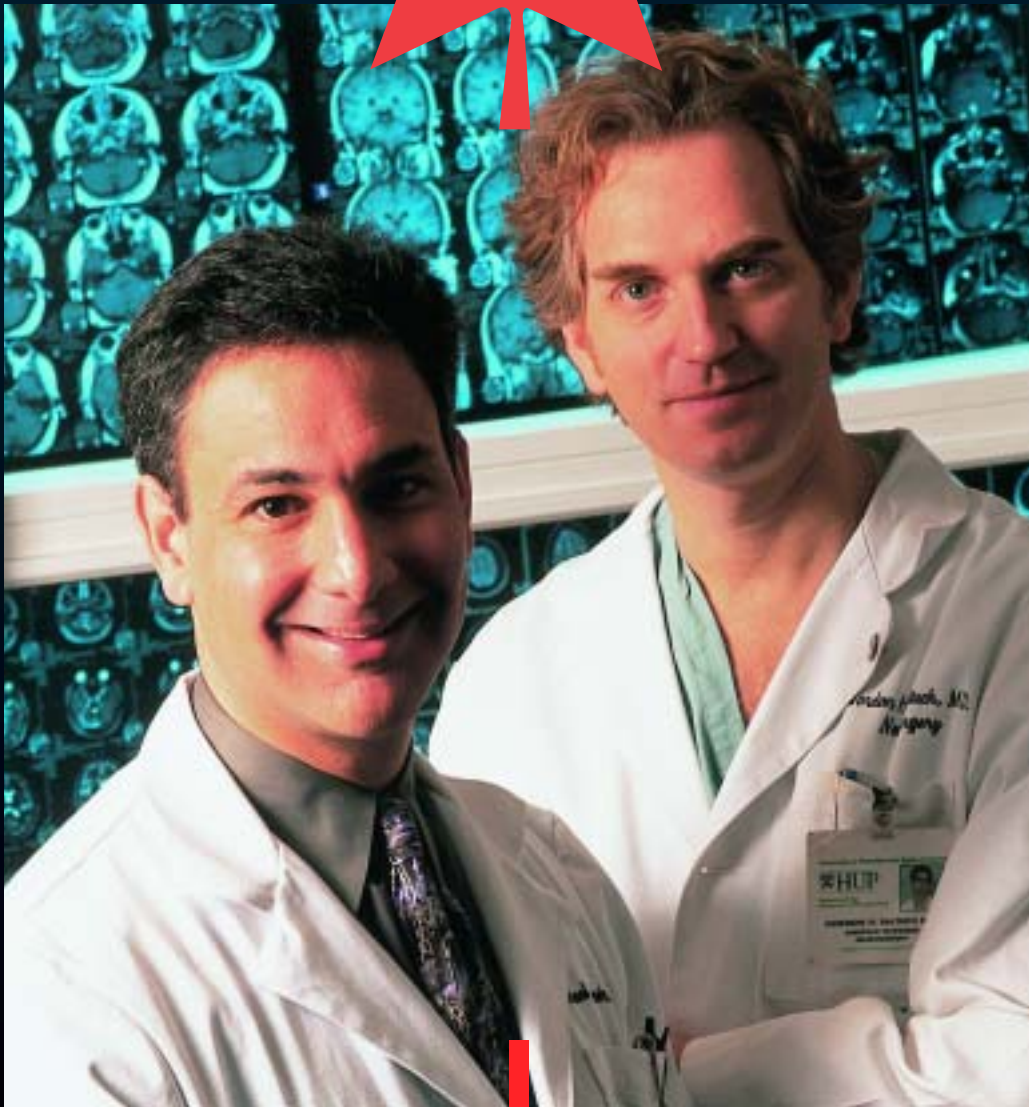
The clinic turned out to have a spectacular patient, a normal-looking 11-year-old boy whose mother merely said that he had a cold. At first I suspected that the visit was more social than medical. But when I examined the boy, I found that he had no femoral pulses. He proved to have coarctation of the aorta – and in 1953, he was close to the age beyond which operating was difficult. Following my brief stay at Fort Jay, I kept in touch with the pediatrics nurse and learned that the defect was subsequently corrected at Walter Reed Hospital. After my discharge from the Army, I walked to the ferry that would take me to Manhattan. I passed a colonel, saluted imperfectly, and continued on my way.

Since then, there has been no draft of physicians who have already served. ■

Dr. Miller, College '42, M '46, Scientist Emeritus at the National Cancer Institute, is one of this year's recipients of the School of Medicine's Distinguished Graduate Award. (See pp. 23-24)

Out of Canada

By Carole Bernstein



For a neurologist
and a neurosurgeon
from Up North,
HUP is now home.

In messy, white, hand-painted letters it reads: "Dr. Bubba Ruckenstein." "That was from Memphis," says the Canadian-born Ruckenstein with a chuckle, referring to his three years on faculty at the University of Tennessee. "One particular colleague there wanted to help me fit in, so she cut off a piece of her fence and made a sign for me to hang up as a shingle. I've kept it ever since."

How does a young surgeon from Canada find his way to Tennessee – and then to the University of Pennsylvania? Ruckenstein, whose specialty is neurotology (the medical and surgical care of the ear, temple bone, and associated structures in the skull base), was born and raised in Montreal. He received both his undergraduate degree in honors physiology and his M. D. degree at McGill University. After taking his residency in Toronto in otorhinolaryngology and head and neck surgery, he moved on to a two-year fellowship in San Diego in otology, neurotology, and skull-base surgery. The Memphis years followed, and in the summer of 1998 he was recruited by HUP.

For Ruckenstein, the decision to accept an offer at HUP was not difficult at all – "When Penn comes calling, you generally listen" – but he may have had a bit more incentive based on a chance encounter. As it turned out, an old friend from his McGill medical-school Class of '86, neurosurgeon Gordon H. Baltuch, was already on staff at HUP. Baltuch had arrived at HUP in 1996 from a position in neurosurgery at McGill. Accidentally meeting each other again after 12 years, and in the United States, was a surprise to both men. As Ruckenstein recalls, "I was being interviewed by a neurologist, David Solomon, a member of our balance center here. He stopped to talk to Gordon about something and then said, 'Oh, I should introduce you two.' We said, 'You don't have to,' and we talked again later." Says Baltuch, "I'm not sure if I influenced him in coming here, but I told him it was a terrific place."

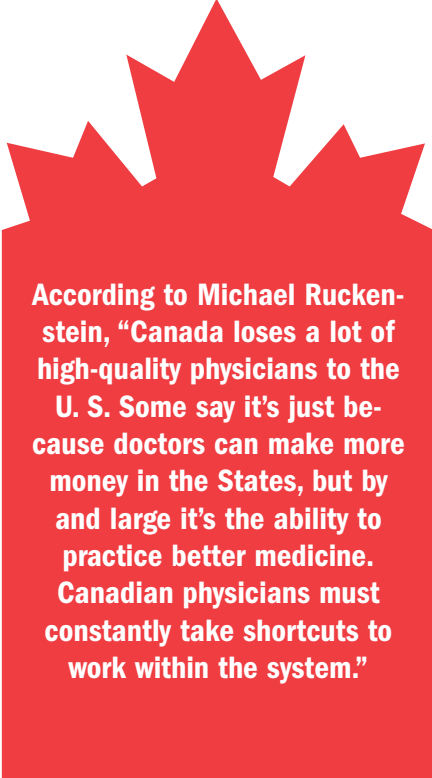
Today, the fellow Canadian expatriates work in HUP's Silverstein Pavilion right across the hall from each other. Sometimes they find themselves in the OR together, collaborating to remove tumors called acoustic neuromas. This intricate and challenging surgery requires a team approach of a neurotologist and neurosurgeon.

Acoustic neuroma is a tumor of the eighth cranial nerve, a combined

"When things go well, we're able to preserve both facial function and hearing." On his collaboration with Baltuch, Ruckenstein comments, "It's very gratifying these days to look across the OR table and see not only a colleague whom you know is superb, but a friend."

Baltuch, who heads Penn's adult epilepsy service, has several other notable projects. In 1998, he brought a new procedure to this country from France, used for treating Parkinson's disease, one of the most common causes of neurological disability in America. The procedure, called deep brain stimulation (DBS), involves placing wires deep into the brain and attaching them to a pacemaker device under the patient's collarbone. The pacemaker sends electrical signals to the brain, modulating its activity. DBS offers a new option to the many Parkinson's patients for whom drug therapy is no longer effective. "We've done about 50 or 60 cases now and it's been very exciting," says Baltuch. "I believe that deep brain stimulation is the biggest step in the treatment of Parkinson's in 40 years." He reports that his surgical group is currently doing a national cooperative study with both the Veterans Administration and the National Institutes of Health. Baltuch and his colleagues have also started to treat epilepsy using DBS: they performed three of the first cases in this country and now have an NIH grant to pursue national cooperative trials with Stanford and Johns Hopkins. For Baltuch, seeing a procedure that he helped introduce into the U. S. approach the mainstream of therapy has been a source of great satisfaction.

Among Ruckenstein's major areas of expertise is cochlear implant surgery. Performing this procedure, which actually restore hearing to the deaf, is particularly gratifying to Ruckenstein. "Each cochlear implant patient has a miraculous, fascinating story of what it means to them to hear again," he says. "My first implant patient here was a woman who was an equal part-



According to Michael Ruckenstein, "Canada loses a lot of high-quality physicians to the U. S. Some say it's just because doctors can make more money in the States, but by and large it's the ability to practice better medicine. Canadian physicians must constantly take shortcuts to work within the system."

nerve of hearing and balance. Although the tumor is benign, its location, unfortunately, is not. "It can push on your brain stem and cause hearing loss," explains Baltuch.

"Often people who have the surgery already have marked hearing loss in one ear. And the surgery is a very delicate one because the tumor is close to the facial nerve. The big risk is that the patient might be left with permanent facial weakness."

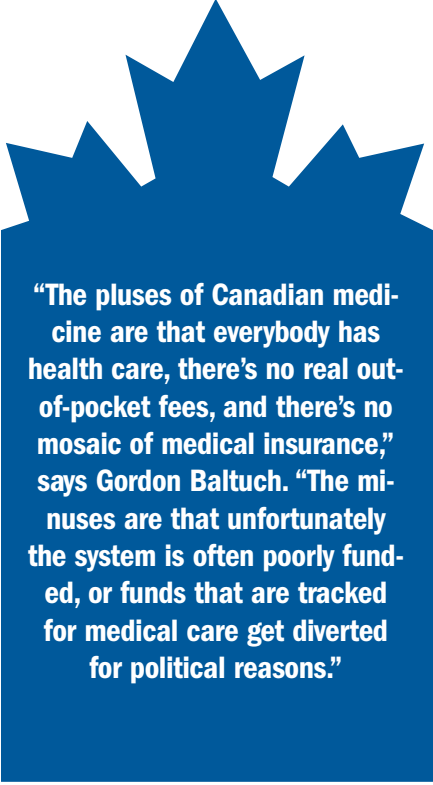
"Depending on the tumor and the approach you use, it can take anywhere from three or four hours to twelve hours," adds Ruckenstein.

ner in a family business with her husband. She had been functionally deaf for a number of years but had not fully admitted it. Both she and husband will tell you that her cochlear implant saved the business and the marriage.” says Ruckenstein. Another woman, he continues, “told us she loved to dance and had never heard music before, only the bass beats in her feet. We have a patient who’s in medical school, and another who called to say she’d heard the Passover prayers for the first time.”

The question may arise: Why aren’t these two talented physicians from up north working their miracles in a Canadian hospital? In Ruckenstein’s case, part of the reason is his dissatisfaction with how cochlear implants are done in his home province – which reflects his dissatisfaction with the entire government-run health-care system in Canada. According to Ruckenstein, “In Quebec they’ve dictated, for political reasons, that all cochlear implants be done in Quebec City, the state capital. Everyone who wants or needs a cochlear implant in Quebec – including everyone in Montreal, a far larger city – has to be able to make multiple trips to Quebec City to be evaluated, operated on, and rehabilitated. Furthermore, there’s only a limited amount of money available so there’s a huge waiting list, with elderly people at the bottom. We, on the other hand, have patients in their 80s – we had one lady who was 88 years old. Why subject her to an implant? Well, although she was doing her own gardening, cooking, and cleaning, her children wanted to move her to a nursing home because she wasn’t able to hear a siren or fire alarm. We restored her quality of life and empowered her to remain at home. These stories are not unique.”

Speaking out of evident frustration, Ruckenstein finds the fact that he and Baltuch are practicing in the United States to be part of what he calls a “cautionary tale” about the failures of the Canadian

system. In Quebec and to varying degrees throughout Canada, says Ruckenstein, there is a lack of adequate MRI scanning, cardiac care, and ICU facilities, as well as a shortage of primary-care physicians. On a personal level, Ruckenstein believes that the heart attack his father suffered several years ago might have been prevented had there not been a long wait in Canada for a diagnostic test con-



“The pluses of Canadian medicine are that everybody has health care, there’s no real out-of-pocket fees, and there’s no mosaic of medical insurance,” says Gordon Baltuch. “The minuses are that unfortunately the system is often poorly funded, or funds that are tracked for medical care get diverted for political reasons.”

sidered routine in the United States.

“I’ve worked in both places, as has Gord, and as a trainee in Canada you get wonderful experience because the patient volumes are so high and the variety of pathology so great.” But, Ruckenstein asserts, “Canada loses a lot of high-quality physicians to the U. S. Some say it’s just because doctors can make more money in the States, but by and large it’s the ability to practice better medicine. The Canadian program only responds to emergencies, and physicians must constantly take short-

cuts to work within the system.”

For his part, Baltuch does not see as sharp a division at the border as Ruckenstein does. “It all depends whether you see the cup half full or half empty,” says Baltuch. “The pluses of Canadian medicine are that everybody has health care, there’s no real out-of-pocket fees, and there’s no mosaic of medical insurance. The minuses are that unfortunately the system is often poorly funded, or funds that are tracked for medical care get diverted for political reasons. The health system in the U. S., on the other hand, has the funding to develop true excellence and unsurpassed, state-of-the-art medical care. The negative aspect is that ‘managed care’ is really managed costs. So although you may live in a country with the best medical system, your health-insurance plan may actually be delivering you sub-par care.

“Ultimately, though, I think the medicine in both countries is terrific,” says Baltuch, “and my choice to come here had nothing to do with the comparative medical systems. It was more personal opportunity.” Originally from Montreal, Baltuch attended college at Harvard, but returned to Canada for medical school and specialized training. He followed that with a fellowship in Lausanne, Switzerland. Baltuch says he never intended to leave Canada but the Penn position offered “a chance to work at one of the premier medical institutions in the world.”

So, through somewhat different routes and for different reasons, Penn today has the benefit of these gifted Canadian practitioners. As Ruckenstein puts it, “Gord and I were doing a procedure recently and I said, ‘Who would’ve thought, when we entered medical school in 1982, that we’d someday be sitting in an OR in the University of Pennsylvania dissecting out brain tumors together?’” ■

Carole Bernstein is a Philadelphia free-lance writer.

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By Deborah A. VanAllen

To most people, shades of green and blue conjure up images of springtime blooms, bottomless oceans, sunny carefree skies, or other wonders of nature. To a medical student, however, these colors mean only one thing: scrubs. Yes, scrubs — those ubiquitous one-size-doesn't-quite-fit-everyone garments that make up the bulk of the wardrobe of our young doctors-in-training.

As someone who recently began her third year of medical school, I am no exception to the rule. Having finished half my core clinical rotations, I have amassed a collection of no less than eight pairs of scrubs so that I may continue upon my quest for knowledge unimpeded by the rigors of choosing and ironing my own clothing. But I have one particular pair of scrubs that stands out from its ugly, ill-fitting brethren. Although this pair is objectively among the finer by virtue of its sky-blue color and lack of pen, coffee, or blood stains, the reason that I value this pair is far more intangible.

Early in March of last year, as what could be considered the most difficult portion of Penn's pre-clinical course was winding down, I found myself at The



To show that today's medical students are not pampered and whiny, one of the students surprises herself by asking to observe a lung harvesting.

Philadelphia Club for a dinner sponsored by the Agnew Surgical Society. I walked in with a fellow student and we were somewhat awed by our surroundings. We managed to blend in well enough by finding some other med students to mingle with, but we were acutely aware of the accomplished Penn surgeons all around us. Nibbling the hors d'oeuvres was not a problem, but when we were called to sit for dinner, we students were suddenly like a herd of deer caught in headlights. Where would we sit?

There was no assigned seating, and there were no tables left open for students only. It was clear that we would have to split up and sit among the surgeons. Being perhaps the boldest of the group — or the most naïve — I led us to a long table that had some free seats. Remembering how dogs are known to smell fear, I was determined to hide our ineptness as much as possible and took the spot next to the last filled seat.

With our arrival, the conversation seemed to stop abruptly. I smiled

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and made our introductions. The surgeons responded appropriately, but within moments their small circle had closed again. We didn't know whether to feel snubbed or feel relieved. I don't know how the other two students in my group felt, but because I formed the buffer zone between students and experienced surgeons, my nerves were on edge.

Perhaps my heightened sense of intimidation was due to the fact that I was the only female in the room. Even the wait staff was all men and I dare say there wasn't a woman in any of the portraits lining the walls. I'll never really know what possessed me as dinner wore on that night, but what it led to was an increased assertiveness that surprised even me.

At some point, I was able to join in some of the conversation with the surgeons anchoring our table. I learned they were all either cardiac or thoracic surgeons or fellows in those divisions. They mused about how easy medical school had become and how pampered and spoiled Penn's students are. Again, my nervousness surged. Could they be right? Back then, I had not yet begun my clinical rotations, so I had no way to know — and no leg to stand on if I had wanted to make an argument either way. Instead I listened closely to their conversation and answered questions or added comments when possible.

As I listened, what I wanted most was for them to know that I wasn't like what they were describing. I wasn't spoiled or whiny, I didn't feel entitled. I knew, however, that my words would mean nothing to them, and I resolved that when I did my surgery rotation I would not be the type of student they had described. I would prove

to them that my interest was genuine and I was not looking for an easy way out of anything.

Suddenly the conversation was interrupted by the shrill beep of a pager. The thoracic fellow at the table answered the page and returned with the news that he would likely have to travel to a nearby hospital later in the evening to harvest a lung for transplant. He moaned a little about his impending sleepless night, and I saw my chance. Before I had time to think better of it, I asked him point blank if I could go with him and the team. He seemed a little dumbfounded. "Are you serious? . . . We are going to be gone all night if we end up going. . . . You really want to go?" Yes, of course I wanted to go. Of course I knew there was no grade attached to it, and of course I could handle one measly sleepless night. He believed me, and I scratched my number down on a little yellow piece of paper that he stashed in his pocket. He said that he would call if they did in fact end up going.

Shortly after dessert and coffee were served, the crowd began to thin. The surgeons left one by one, until it was just the students left with the open bar, comfortable chairs, and pool table. When we left the club around 11:30 p.m., it was pouring rain. I caught a cab. I felt strangely let down when I arrived home, and I was certain that the thoracic fellow would not actually call. I was halfway ready for bed when the phone rang and he told me to meet the team at the hospital by 12:30 a.m. I quickly dressed and rushed to the hospital through the rain.

I arrived drenched, still in disbelief that I had been taken seriously enough to warrant a call. I was thrilled as only an inexperienced first-year medical student could be

at the prospect of what the night would bring. We left in an ambulance and I sat quietly, knowing my place in the hierarchy was lower than low and that any nuisance I caused would be most unwelcome.

I won't bore you with all the details of the evening, except to say that I got my favorite sky-blue scrubs and not a minute of sleep that night. I stayed up while the surgeons and the third-year student caught some much-needed sleep on abandoned stretchers during our wait at the host hospital, and I woke them when the OR and the brain-dead patient were readied for the harvest. All in all, I watched, I stayed out of the way, and I helped when I could.

When we arrived back at HUP, I opted to stay to watch the lung reach its final destination. It was 6:00 in the morning by that time, and I stood quietly out of the sterile field and watched while one of the surgeons who had had the harshest comments about today's med students the previous evening worked. Toward the end of the surgery, he invited me to scrub in so that I could get closer.

The surgery ended shortly thereafter, and I left the OR with the attending surgeon. I was surprised by his congeniality, given my interaction with him just hours earlier. It was then that I realized that as ordinary an event as scrubbing in may be to med students on a day-to-day basis, to me on that early morning it was a sign that I had earned at least a small amount of respect. I don't know if any of those surgeons would ever remember the night that a crazy first-year medical student invited herself along, but I'll never forget it.

Deborah VanAllen delivered a version of this account earlier this year at a reception at the Lotus Club for alumni in the New York City area.

Photographs by Robert H. Clink



The Kimmel Center hosted the School of Medicine's Commencement for the first time.

HONORING PENN'S OWN ...AND

This year's Commencement ceremony took place in a dazzling new venue, the recently opened Kimmel Center in the heart of Philadelphia, but for most of Medical Alumni Weekend, things proceeded according to tradition. And there's a reason for that – it works, and those participating give every evidence of enjoying it.

As in years past, the School of Medicine presented the Distinguished Graduate Awards. These honor graduates of the school and its training programs for outstanding service to society and to the

profession of medicine, as well as for notable accomplishments in biomedical research, clinical practice, or medical education. This year, as Arthur H. Rubenstein, M.B., B.Ch., dean of the school and executive vice president of the University of Pennsylvania for the Health System, put it at the ceremony, the presentation of the first award "is an occasion for both sorrow and celebration." The recipient, John M. Eisenberg, M.D., M.B.A., died of a brain tumor on March 10, and the award was presented to his wife Dd instead.



OTHERS



Robert W. Miller, M.D. '46, top, and James C. Thompson, M.D., G.M.E. '59, each received a Distinguished Graduate Award. Bottom: Commencement speakers included (left to right) Peter C. Nowell, M.D. '52; Anthony S. Fauci, M.D.; and Dean Arthur H. Rubenstein.

Eisenberg, who once served as chief of Penn's Division of General Internal Medicine, had been director of an influential Federal agency, the Agency for Health Care Research and Quality. According to Dean Rubenstein, Eisenberg "was one of that breed of physicians who looked beyond the traditional boundaries of medicine. Like a handful of others at the time, he moved into the numbers field – turning his attention to such matters as health-care research, evaluating what we do in systematic fashion, taking economics into account in a way most doctors of an earlier time did not." It was while he was taking his residency at Penn that Eisenberg also earned his M.B.A. degree at the Wharton School as a Robert Wood Johnson Foundation Clinical Scholar.

After leaving Penn's Division of Internal Medicine, Eisenberg served as chairman of the Department of Medicine at Georgetown University and physician-in-chief there. From 1986 through 1995, he was a founding commissioner of the Congressional Physician Payment Review Commission and served as its chairman for two years. He was director of the Agency for Health Care Research and Quality from 1997 until his death.

Eisenberg was the first physician to be elected president of the Association for Health Services Research and also served as president of the Society for General Internal Medicine. A member of the Institute of Medicine of the National Academy of Sciences, Eisenberg served on the American Board of Internal Medicine. He was on the Board of Regents of the American College of Physicians and was a Master of the College as well.

During a talk Eisenberg gave at Penn a few years ago, he said, "I am an acolyte of the market's logic." But he went on to say that he believed that the so-called invisible hand that guides the market in Adam Smith's ideal conception does not really exist. Thus, in Eisenberg's view, there will be times when the government must step in to make sure that the market works well. This kind of intervention is particularly vital in health care, where there are both private and public needs that the market will not – or cannot – meet, such as adequate health care for the needy. But Eisenberg also put part of the burden of improving health care on academic medicine and physicians. Academic medicine, he believed, must educate physicians to serve as patients' advocates and provide some moral leadership in the midst of market changes.

The second recipient of the Distinguished Graduate Award was Robert W. Miller, M.D. '46, Scientist Emeritus of the National Cancer Institute. As the dean explained, Miller "pioneered the etiologic approach to the study of disease by the bringing together the principles of epidemiology, genetics, and clinical medicine – which certainly seems to combine health-services research, basic science, and patient care in an unbeatable fashion."

After receiving his M.D. degree from Penn's School of Medicine, Miller took a fellowship in radiation medicine with the U.S. Atomic Energy Commission, which then led him to the Atomic Energy Project at the University of Rochester. While there, he developed his etiologic approach in trying to determine the effects of fluoroscopy on children in the pediatric ward. He noticed that each time an X-ray was ordered for a child, the patient was routinely subjected to fluoroscopy, exposing him or her to high doses of radiation. Miller's intervention led to a change in policy and to a review of the literature on potential hazards of medical radiation to children.

In 1953, Miller became chief of pediatrics of the Atomic Bomb Casualty Commission in Hiroshima, Japan. He continued working with children, studying the environmental and familial factors for illness and the oncogenic effects of treatment. As his interest in epidemiology expanded, he served as chief of pediatrics for the Child Health Survey, a comparative study in Hiroshima and Nagasaki. He also earned an M.P.H. degree in epidemiology and a Doctor of Public Health degree from the University of Michigan.

Miller's subsequent career was spent at the National Cancer Institute, where he served as chief of the Epidemiology Branch and then as chief of the Clinical Epidemiology Branch. Since 1962, he has specialized in linking childhood cancers to birth defects (such as Wilms' tumor of the kidney). His work has helped demonstrate how what are now called tumor-suppressor genes control normal growth of an organ; when they are mutated, they lose control and cancer develops. As Miller notes, "These cancer-malformation syndromes were ready for study years before methods were developed for molecular biology and other laboratory studies that are providing information about pathogenesis, new treatments, prevention, and screening."

Miller helped establish the



Returning members of the Class of 1952 posed in academic robes.

Delaware Valley Combined Tumor Registry, the first population-based cancer registry in the United States. Among his many honors are two from the National Institutes of Health: the NIH Superior Performance Award and the NIH Director's Award. Miller has also received the Outstanding Service Award from the American Academy of Pediatrics.

The third recipient of the Distinguished Graduate Award was James C. Thompson, M.D., G.M.E. '59, the Ashbel Smith Professor of Surgery and professor in the Department of Physiology and Biophysics at the University of Texas Medical Branch in Galveston.

Thompson was back to Penn last fall to help honor Clyde Barker, who had stepped down as chair of the Department of Surgery. At the time, Thompson praised what he called Barker's "truly polymathic career." As Dean Rubenstein put it in May, "When one considers that Dr. Thompson has faculty appointments in surgery, physiology, and biophysics and is recognized as an international expert in gastrointestinal endocrinology and physiology, it's clear that he, too, has had a polymathic career."

A native of Texas, Thompson earned his M.D. degree in anatomy and endocrinology from the University of Texas at Galveston.

As a researcher, Thompson has been prolific, with more than 1,200 articles and book chapters. His research has been supported by the National Institutes of Health for 41 continuous years. Thompson's many honors include the Distinguished Service Award from the Surgical Section of the National Medical Association, as well as election to the Institute of Medicine of the National Academy of Sciences and to the American Philosophical Society. He has also served as president of the American College of Surgeons and of the American Surgical Association. He has an honorary degree from Sweden's University of Lund and an Honorary Professorship for Life from Beijing University, and he was named an Honorary Fellow by the Royal College of Surgeons. Given his international recognition, it is no surprise that his work has taken him to medical institutions around the world.

Thompson's current research projects are centered primarily on gastrointestinal hormones, Zollinger-Ellison syndrome, hormonal influence of pancreatic function, and the role of apoptosis (programmed cell death) in control of growth of bowel mucosa. His work has contributed immeasurably to the field, and he has been recognized by his colleagues for his ex-



This year's recipients of the Alumni Service Awards were (left) William Schwartz, M.D. '61, G.M.E. '64, and Francis Schumann, M.D. '39, G.M.E. '46.

traordinary dedication to surgical research. Dean Rubenstein cited in particular Thompson's role "as a mentor in the development of young surgical investigators. . . . Dr. Thompson is continuing a great tradition of educating and training the leaders of academic medicine."

The honors traditionally presented during Medical Alumni Weekend include the Alumni Service Awards, established to acknowledge loyal alumni and alumnae of the University of Pennsylvania School of Medicine who have given generously of their time and energy to Development and Alumni Relations efforts. The first recipient for 2002 was Francis Schumann, M.D. '39, G.M.E. '46. During his more than 40-year career as a surgeon, Schumann and his wife Heidi organized the first reunion of the Class of 1939. The class has been meeting every five years since. Later, he and classmate John J. Sayen led the effort to establish the first class scholarship, as a way of giving back to the School and support its students. That idea made such sense that subsequent classes followed the example: Today, there are 25 scholarship funds.

Schumann has been a tireless champion of student financial aid. One year, as Dean Rubenstein pointed out, "Fran personally penned 40 letters to his classmates

urging participation in the scholarship fund." Schumann also served on National Alumni Council.

The second recipient of the Alumni Service Award was William Schwartz, M.D. '61, G.M.E. '64. In the words of Dean Rubenstein, "A pediatrician by trade and a humanitarian by nature, Bill has always lent his abundant skills, warmth, and wit to his service of the School." Schwartz is a former president of the Medical Alumni Society, a long-time member of the Benjamin Franklin Society, and a member of the National Alumni Council. He now serves on the Faculty Annual Appeal Steering Committee.

"Bill's legacy of mentoring medical students is another dimension of his extraordinary service," said Dean Rubenstein at the presentation ceremony. Schwartz founded a health service in Gallup, New Mexico, to minister to the area's Native American population. For years, the program was a clerkship much sought after by Penn medical students. In addition, Schwartz's interest in the School of Medicine's students has led him and his wife Susan to open up their home to host students as part of our Home Hospitality Program. Schwartz has also served on the School's admissions committee.

At this year's Commencement,

126 students received their medical degrees. The graduation speaker was Anthony S. Fauci, M.D., one of the nation's leading physician-scientists. Now the director of the National Institute of Allergy and Infectious Diseases, Fauci has made many important contributions to basic and clinical research on the pathogenesis and treatment of immune-mediated diseases and is particularly known for his work on how AIDS destroys the body's defenses. Fauci has said that he believes one of the greatest threats to humanity is emerging and re-emerging infectious diseases. When it comes to microbes and humanity, he once stated, "There will always be a constant back and forth fighting for survival between the two."

The speaker for the 50 Year Class was Peter C. Nowell, M.D. '52, currently the Gaylord P. and Mary Louise Harnwell Professor of Pathology and Laboratory Medicine at Penn and former chair of the department. Since arriving as a medical student in 1948, he has spent most of his career at Penn. "In that time," said Dean Rubenstein, "he has become a valued colleague and mentor and a symbol of Penn's continuity of excellence."

Nowell is best known for his work in identifying the so-called Philadelphia chromosome, which is recognized as one of the most important steps in showing that cancer has a genetic basis. In 1998, he received the Albert Lasker Medical Research Award for that work, which "provided the first clear evidence that a particular chromosome can lead to a population or clone of identical cells that accumulate in numbers to form a deadly malignancy." Nowell has also investigated chromosomal abnormalities in leukemia and pre-leukemic states, and he helped show that bone marrow could be successfully transplanted to ameliorate radiation damage.

The first director of the University of Pennsylvania Cancer Center, Nowell is a member of the National Academy of Sciences and of the American Philosophical Society. ■

Where They Went

Following graduation in May, members of the Class of 2002 are taking their residencies at the following sites.

CALIFORNIA

Los Angeles

Cedars-Sinai Medical Center
Jennifer McLain, Psychiatry
UCLA Medical Center
Alyssa Ba, Otolaryngology
Julianne Mendoza, General Surgery

Oakland

Kaiser Permanente
Jane Loman, Medicine (preliminary)

Sacramento

University of California at Davis
Medical Center
Sam Jackson, Emergency Medicine

San Diego

University of California-San Diego
Medical Center
Jessica Hill, Emergency Medicine
Sachin Mehta, Anesthesiology
Scripps Mercy Hospital
Jessica Hill, Transitional
Marin Xavier, Internal Medicine

San Francisco

California Pacific Medical Center
Charlotte Dai, Medicine (preliminary)
Kaiser Permanente
Laura Yang, Medicine (preliminary)
University of California-San Francisco
Charlotte Dai, Radiation Oncology
Jade L'Heureux, Surgery (preliminary)
Neal Lischner, Medicine-Primary
Dan Raz, General Surgery
Sunny Wang, Internal Medicine

COLORADO

Denver

University of Colorado School of
Medicine
Laura Yang, Anesthesiology

CONNECTICUT

Bridgeport

Bridgeport Hospital
John Pan, Radiology-diagnostic

Greenwich

Greenwich Hospital
Oliver Mayorga, Medicine
(preliminary)

New Haven

Yale New Haven Hospital
Michal Obrzut, Radiology-diagnostic

Storrs

University of Connecticut
Jeffrey Burns, Orthopaedic Surgery



At the School of Medicine's Match 2002 ceremony this spring, medical students learned of their destinations for the next phase of their training. Among them were, left to right, Sammy Elmariah (destined for HUP); Sonya Gupta (William Beaumont Hospital, Mich.); and Lisa El-Amin (Albert Einstein Medical Center).

DISTRICT OF COLUMBIA

Georgetown University Hospital
Michal Obrzut, Medicine (preliminary)
George Washington University
Joy Shirk, Orthopaedic Surgery
Malcolm Grow Andrews Air Force Base
Benjamin D. Lederer, Transitional
Washington Hospital Center
Kimberly Matchett, Obstetrics-
Gynecology

GEORGIA

Atlanta

Emory University School of Medicine
Hajara Ajabu, Psychiatry
David Lawrence, Pediatrics
Morehouse School of Medicine
Safiyya Shabazz, Family Practice

Fort Gordon

Eisenhower Army Medical Center
Francisco Dominguez, Internal
Medicine

HAWAII

Manoa

University of Hawaii Transitional
Residency Program
Andrew Lam, Transitional

IDAHO

Boise

Family Practice Residency of Idaho
J. Clay Roscoe, Family Practice

ILLINOIS

Chicago

McGaw Medical Center-Northwestern
University
Robinson Ortiz, Internal Medicine

IOWA

Iowa City

University of Iowa Hospital
Brian Sperber, Dermatology

LOUISIANA

New Orleans

Tulane University School of Medicine
Bret Edelman, General Surgery

MARYLAND

Baltimore

Johns Hopkins Hospital
Scott Kim, Internal Medicine
Kamie Yang, Pediatrics

MASSACHUSETTS

Boston

Beth Israel Deaconess Medical Center
Danna Chung, Internal Medicine
Eric Huang, Medicine (preliminary)
Hillary Stern, Internal Medicine
Children's Hospital of Boston
Jennifer Cohn, Pediatrics
Boston University Medical Center
Donna Louzides, Emergency
Medicine
Brigham and Women's Hospital
Jennifer Irani, General Surgery
Aaron Kesselheim, Internal Medicine
Kimberly Matzie, General Surgery
William Peranteau, General Surgery
Joshua Resnick, Emergency Medicine
Massachusetts Eye and Ear Infirmary
Stacey Brauner, Ophthalmology
Massachusetts General Hospital
Brian Forsythe, Orthopaedic Surgery
Andrew Jawa, Orthopaedic Surgery
Tufts-New England Medical Center
Jane Loman, Ophthalmology

Newton

Newton-Wellesley Hospital
Donna Louizides, Medicine
(preliminary)

MICHIGAN**Royal Oak**

William Beaumont Hospital
Sonya Gupta, Radiology-diagnostic

NEBRASKA**Omaha**

University of Nebraska Affiliated
Hospitals
Brian Sperber, Medicine (preliminary)

NEW JERSEY**Livingston**

Saint Barnabas Medical Center
Leester Wu, Transitional

Piscataway

University of Medicine and Dentistry of
New Jersey-Robert Wood Johnson
University
Alexandra Weeks, Emergency
Medicine

NEW YORK**New York City**

Jacobi Medical Center of the Albert
Einstein College of Medicine
Oliver Mayorga, Emergency Medicine
Mount Sinai Medical Center
Brian Choi, Internal Medicine
Kathryn Dortzbach, Surgery (prelimi-
nary); Urology
New York Presbyterian Hospital/ Co-
lumbia Presbyterian Medical Center
Pouneh Fazeli, Internal Medicine
Paul Foley, General Surgery
Lesley Stephens, Pediatrics
Leester Wu, Radiation-Oncology
New York Presbyterian Hospital/
Cornell Medical Center
Kevin Cross, Plastic Surgery
Geoffrey Ku, Internal Medicine
Kristina Kudelko, Internal Medicine
Fredric Pieracci, General Surgery
New York University School of Medicine
Eric Huang, Dermatology
Paul Pelavin, Pediatrics
Florencia Polite, Obstetrics-Gynecology
Amit Saindane, Radiology-diagnostic

Rochester

Strong Memorial Hospital-University
of Rochester
Sarah Paris, Emergency Medicine

NORTH CAROLINA**Durham**

Duke University Medical Center
Lisa El-Amin, Radiology-diagnostic
Henry Tseng, Ophthalmology

OHIO**Cleveland**

Cleveland Clinic Foundation
Heath Mackley, Radiation Oncology

OREGON**Portland**

Oregon Health Sciences University
Hospital
Anna Grosz, Otolaryngology
Samuel MacBride, Family Practice

PENNSYLVANIA**Allentown**

Lehigh Valley Hospital
Kristann Heinz, Family Practice
Sachin Mehta, Transitional

Philadelphia

Albert Einstein Medical Center
Lisa El-Amin, Transitional
Sara Chen, Transitional
James Treat, Medicine (preliminary)
Children's Hospital of Philadelphia
Edward Behrens, Pediatrics
Deborah Palmer, Pediatrics
Joanne Stark, Pediatrics
Hospital of the University of
Pennsylvania
Christina Bales, Otolaryngology
David Bandola, Oral Maxillofacial
Surgery
Sara Chen, Radiology-diagnostic
Robin Cooperman, Psychiatry
Constance Dine, Internal Medicine
Douglas Ditty, Oral Maxillofacial
Surgery
Julie Ducharme, Internal Medicine
Danielle Duffy, Medicine-Primary
Stephen Berry, Internal Medicine
Sammy Elmariah, Internal Medicine
Deana Gazzola, Neurology
Heidi Harvie, Obstetrics-Gynecology
Lily Kernagis, Radiology-diagnostic
David Kessler, Oral Maxillofacial
Surgery
Portia Kreiger, Pathology
Steven Master, Pathology
Susan Matulevicius, Internal Medicine
Giuseppe Militello, Dermatology
Aliza Rabinowitz, Medicine-Primary
Wudbhav Sankar, Orthopaedic Surgery
Richard Scarlett, Orthopaedic Surgery
Janice Scobie, Internal Medicine
Amil Shah, Internal Medicine
Alison Slempp, Plastic Surgery
Michael Smith, Internal Medicine
James Treat, Dermatology
Ravi Ubriani, Medicine (prelimi-
nary); Dermatology
Brent Wiesel, Orthopaedic Surgery
Stephen Wolfe, Otolaryngology
MCP Hahnemann University Hospitals
Michael Dumin, Emergency Medicine
Christopher McCrae, Emergency
Medicine

Pennsylvania Hospital

Gina Ang, Medicine (preliminary)
Michael Friscia, General Surgery
Giuseppe Militello, Medicine
(preliminary)
Henry Tseng, Medicine (preliminary)
Scheie Eye Institute/University of
Pennsylvania
Gil Binenbaum, Ophthalmology
Newman Sund, Ophthalmology
Bairn Walker, Ophthalmology
Saint Christopher's Hospital
Bianca Van Kust, Pediatrics
Thomas Jefferson University
Gina Ang, Dermatology
Presbyterian Medical Center/ Univer-
sity of Pennsylvania
Gil Binenbaum, Transitional
Stacey Brauner, Transitional
Lily Kernagis, Transitional
Amit Saindane, Transitional
Newman Sund, Transitional
Bairn Walker, Transitional
Wills Eye Hospital
Andrew Lam, Ophthalmology

Pittsburgh

University Health Center of Pittsburgh
Umamaheswar Duvvuri, Surgery
(preliminary); Otolaryngology
Jeffrey Rihn, Orthopaedic Surgery

Wynnewood

Lankenau Hospital
Sharon Ben-Or, General Surgery

TEXAS**Houston**

University of Texas at Houston
Medical School
Mark Coker, Pediatrics
Sue Yom, Medicine (preliminary);
Radiation Oncology
University of Texas M. D. Anderson
Cancer Center
Sue Yom, Radiation Oncology

VIRGINIA**Charlottesville**

University of Virginia
Stephanie Pitsilos, Medicine-Primary

Portsmouth

Naval Medical Center
Temujin T. Chavez, Internal Medicine

WASHINGTON**Seattle**

University of Washington Medical
Center and Affiliated Hospitals
Edward Gelber, Psychiatry
Katherine McCallie, Pediatrics
Joanna Phillips, Pathology
Joseph Shieh, Pediatrics

Progress Notes

compiled by Erin Hennessy

Send your progress notes to:
Office of Medical Alumni Relations
University of Pennsylvania
Medical Center
Suite 750
3535 Market Street
Philadelphia, PA 19104

40's

Robert A. Fishman, M.D. '47, emeritus professor of neurology at the University of California at San Francisco, was elected a senior member of the Institute of Medicine of the National Academy of Sciences.

50's

Guy T. Holcombe, M.D. '54, Oxford, Pa., reports that he retired from family practice in June 1990. Since then, he has been traveling, hunting, fishing, and spending time with his four children and six grandchildren.

Robert J. Gumnit, M.D. '57, received the Service Award of the American Epilepsy Society. The award recognizes his service to the "society's mission of promoting research and education for professionals dedicated to the prevention, treatment, and cure of epilepsy." Gumnit is the founder and president of Mincep Epilepsy Care in Minneapolis.

60's

Sidney Pestka, M.D. '61, professor and chair of the Department of Molecular Genetics and Microbiology at the Robert Wood Johnson Medical School, University of Medicine and Dentistry of New Jersey, was one of four recipients to receive the 2001 National Medal of Technology. Presented by the White House, the medal honors Pestka's pioneering achievements that led to the development of the biotechnology industry; to the first

recombinant interferons for the therapy of cancer, leukemias, viral diseases such as hepatitis B and C, and multiple sclerosis; and to fundamental technologies leading to other biotherapeutics. He was also honored for basic scientific discoveries in chemistry, biochemistry, genetic engineering, and molecular biology, from protein biosynthesis to receptors and cell signaling. Much of Pestka's work was carried out at the Roche Institute. According to the award's organizers, "Most scientists in academia do not bring achievements in research directly into commercial products with special considerations to scale-up, environmental impact, economy, efficiency, and efficacy. Dr. Pestka had bridged this gap by making seminal achievements in all these avenues, from concept to basic research and to practical application."

David S. Bradford, M.D. '62, was elected last October to the board of directors at Orquest, Inc., a medical technology company specializing in biotherapeutics for orthopaedic care. He serves as chairman and professor in the Department of Orthopaedic Surgery at the University of California at San Francisco.

Gerald H. Stein, M.D. '62, Gainesville, Fla., retired after seven years as professor-in-residence at Kameda Medical Center, in Kamogawa, Chiba, Japan. He returns to teaching hospitals throughout Japan several times a year as a consultant in medical education and internal medicine. He maintains faculty appointments at the University of Florida and the University of Hawaii; the latter supports his consultations at the Okinawa Chubu Hospital, Japan. He reports that several medical journals have published his observations about clinical training and practice in Japan.

Nikitas J. Zervanos, M.D. '62, G.M.E. '66, Lancaster, Pa., director of the Family Practice Residency Program at Lancaster General Hospital, received the

Parker J. Palmer Courage to Teach Award. Presented by the Accreditation Council for Graduate Medical Education, the award recognizes program directors for their commitment to education through successful mentoring and program development.

Robert T. McKinlay, M.D. '64, was honored with an appointment to the volunteer DeBakey Brigade at the Uniformed University School of the Health Sciences in Bethesda, Md. He is a clinical associate professor in the Department of Ophthalmology at the Ohio State University College of Medicine.

James J. Leyden, M.D. '66, G.M.E. '70, professor of dermatology at the University of Pennsylvania, has been appointed chairman of the medical advisory board at Astralis. In this role, he will oversee clinical trials on Psoraxine.

C. Thomas Royer, M.D. '67, is president and CEO at Christus Health System in Irving, Texas. A faith-based, not-for-profit health system, it has facilities in Texas, Utah, Oklahoma, Arkansas, Louisiana, Mexico, and Ireland.

Andrew C. von Eschenbach, M.D., G.M.E. '68, a urologist at the University of Texas M. D. Anderson Cancer Center in Houston, was appointed director of the National Cancer Institute. At M. D. Anderson, von Eschenbach was director of the Genitourinary Cancer Center and director of the Prostate Cancer Research Program. He also served as vice president for academic affairs as well as executive vice president and chief academic officer. Before joining M. D. Anderson for a fellowship in urologic oncology in 1976, he had been an instructor in urology at Penn. At the time of his appointment to the NCI, he was president-elect of the American Cancer Society. According to Tommy G. Thompson, secretary of Health and Human Services, von Eschenbach is "one of the nation's leaders in the battle against cancer." The NCI's budget last year

was \$3.5 billion, making it the largest unit of the National Institutes of Health.

70's

Joanna Chapin, M.D. '71, New York City, is assistant clinical professor of psychiatry at Columbia University College of Physicians and Surgeons. She serves on the faculty at Columbia's Psychoanalytic Center for Training and Research and maintains a private practice in psychoanalysis, psychotherapy, and medication management.

Donato LaRossa, M.D., G.M.E. '71, was named director of the plastic surgery division at The Children's Hospital of Philadelphia.

Louis A. Matis, M.D. '75, president of Cellular Genomics, has also become CEO of the company, based in Branford, Conn.

Richard H. Goodman, M.D. '76, Portland, Ore., director and senior scientist in the Voluum Institute and vice chairman of medicine at Oregon Health & Science University, was elected to the National Academy of Sciences.

Barry Miles Belgorod, M.D. '77, a Manhattan ophthalmologist, has written a first-person account of his experience after the terrorist attacks on September 11, a portion of which was published in the November/December 2001 issue of *The Pennsylvania Gazette*. Part of his effort involved getting a specialized slit lamp to the area "to treat the rescuers and victims with eye problems on-site." On his way to the World Trade Center, he stopped at One Police Plaza to treat the eyes of injured police officers: "The police officers that I cared for were still so debris-laden that their uniforms appeared more khaki than blue from the concrete dust and ash. . . . I will never forget their inspiring stories of heroism in the face of extreme danger. As office workers were fleeing,

the uniformed services were running into the buildings, against the flow of evacuees, to heroically do their jobs. . . . On the first day alone, I had the honor of caring for the eyes of probably more than 100 heroes. I eventually lost count. Each and every one just wanted to be treated expeditiously so that he could immediately return to 'ground zero' to help with the search for survivors; to help transform the chaos into some semblance of order."

80's

Raquel E. Gur, M.D. '80, Ph.D., professor of psychiatry at Penn, was elected to the Institute of Medicine of the National Academy of Sciences. She directs the department's neuropsychiatry division.

Mark W. McClure, M.D., G.M.E. '81, Raleigh, N.C., published *Smart Medicine for a Healthy Prostate: Natural and Conventional Therapies for Common Prostate Problems* (Avery/Putnam) last November. A fellow of the American College of Surgeons, McClure is medical editor for *Health & Healing*, a health newspaper in the Research Triangle, N.C. According to McClure, he is the first urologist in the United States who is also board-certified in holistic medicine. He founded Landmark Urology and Complementary Medicine, one of the first holistic urology practices in the country. McClure reports that he is donating five percent of the proceeds from *Smart Medicine* to Penn's urology division.

Paul R. Skolnick, M.D. '81, G.M.E. '85, Sharon, Mass., was appointed director of the Center for HIV/AIDS Care and Research at Boston Medical Center and professor of medicine at Boston University School of Medicine. Previously, he directed the HIV/AIDS research laboratory in the division of geographic medicine and infectious diseases at New England Medical Center as well as the immunovirology

laboratory for the Lifespan-Tufts-Brown Center for AIDS Research grant.

James A. Underberg, M.D. '86, N.Y.C., is on the faculty of the Department of Internal Medicine at New York University Medical School.

Bruce N. Schlakman, M.D. '87, G.M.E. '93, a neurologist/radiologist, serves as medical director of the radiology department at North Shore Medical Center in Miami.

90's

James Kuo, M.D. '91, WG '91, was appointed chief executive officer of Microbiotix, Inc., a biopharmaceutical company based in Worcester, Mass.

Martha A. Ferguson, M.D. '92, has joined Georgia Colon and Rectal Surgical Associates in Atlanta.

Nancy Swartz, M.D., G.M.E. '92, has joined Eye Doctors of Lancaster part time; she also teaches at Wills Eye Hospital in Philadelphia.

Since finishing her residency at HUP in 1996, **Smitha Subramanian Krishnamurthi, M.D.** '93, completed a fellowship in medical oncology at Johns Hopkins University, married Venakatesh Krishnamurthi, returned to Cleveland, and gave birth to a son, Kiran. She currently works at University Hospitals of Cleveland/Case Western Reserve University.

Kristin E. Nesburn, M.D. '95, completed an ophthalmology residency at the University of California at San Francisco in 1999, then joined her father's group practice in Los Angeles at Cedar Sinai Medical Center. She writes, "It is both an honor and a challenge to carry on this family tradition."

After completing his five-year residency in orthopaedic surgery at the University of Florida, **Andrew Petrella, M.D.** '96, started the Citrus Orthopaedic

& Joint Institute in Crystal River, Florida. The *St. Petersburg Times* has run a profile of Petrella.

Madeline J. Robertson, J.D., M.D. '96, is associate professor of health administration and policy at the University of Oklahoma. She is a co-investigator on a grant from the Oklahoma City National Memorial Institute for the Prevention of Terrorism to develop health policy for care of terrorist victims.

After completing her residency in psychiatry at Penn, **Sarah Nemeth Hicks, M.D.** '97, opened a private practice in downtown Philadelphia.

Scott M. Robert, M.D. '99, and Sara Page, M.D., were married on September 22, 2001, in Durham, N.C. Bride and groom are residents at Duke University Medical Center in Durham in pediatrics and internal medicine/pediatrics, respectively.

Chad Tarr, M.D. '99, is pursuing postgraduate work in emergency medicine at Emory University.

00's

John D. Pryor, M.D., G.M.E. '01, was profiled in the September 17, 2001, issue of *The Philadelphia Inquirer* for helping to treat and save a policeman trapped in the World Trade Center collapse. Pryor, a member of the Trauma and Surgical Critical Care Division at Penn, lives in Philadelphia, but he rushed to New York on September 11, hoping to aid victims.

OBITUARIES

Claudius Y. Gates, M.D. '28, Walnut Creek, Calif.; April 19, 2001.

Robert D. Meiser, M.D., G.M. '30, North Manchester, Ind.; July 8, 2001.

Max Rossman, G.M. '31, Allentown, Pa.; October 25, 1995.

Newton C. McCullough, M.D. '32, Tubac, Az., a retired orthopaedic surgeon and emergency services developer; October 9, 2001. After practicing medicine in Pennsylvania, he served in World War II, rising to the rank of major in the U.S. Army Medical Corps. He was also chief of orthopaedic surgery at the Army Hospital in Utica, N.Y. From 1946 to 1970, he practiced orthopaedic surgery in Orlando, Fla. He was chief of the Juvenile Amputee Program for the State of Florida and was instrumental in establishing the basis for modern treatment of snake bite. He retired to Arizona but provided charitable medical services throughout the Santa Cruz Valley for the next 20 years, sometimes on horseback. He helped organize and develop emergency medical services for the area and trained EMTs. He was appointed chairman of the medical management committee of the Arizona Division of Emergency Medical Services. McCullough received the 1985 Citizen of the Year award from the Arizona Chapter of the American College of Emergency Physicians, and in 1986, at the age of 78, he was recognized as the Rural Health Practitioner of the Year by the State of Arizona. Through the generosity of his patients and admirers, the Tubac Regional Clinic was established in 1986 to serve the needs of the Valley. It was renamed the McCullough Regional Clinic at his retirement.

Charles H. Finke, M.D., G.M. '35, Delray Beach, Fla.; August 12, 1998.

Philip M. Gottlieb, M.D. '35, Media, Pa., a retired allergist who practiced in Center City for many years; April 18, 2002. An early specialist in allergies, he published several papers in his area of expertise. He also co-wrote a seminal textbook, *Allergy*, with Erich Urbach, a noted professor at the University of Pennsylvania. Gottlieb grew up in the Logan section of

Philadelphia. He went to Germantown High School and earned both his undergraduate degree and his medical degree from Penn. After completing an internship at the old Philadelphia General Hospital and a residency at Mount Sinai Hospital in New York, he began a long association with Albert Einstein Medical Center, eventually rising to head the allergy department. He also was an attending physician at Sidney Hillman Medical Center, and he taught at the medical schools at Penn and at Temple University. He retired in 1981. A member of several professional associations, he had served as president of the American College of Allergists.

James H. Farrior, M.D., G.M. '36, Montgomery, Ala.; April 11, 1996.

Seymour J. Gray, M.D. '36, Ph.D., Brookline, Mass., a specialist in blood chemistry; October 18, 2001. Also an expert on gastrointestinal diseases, he wrote more than 155 scientific papers and contributed chapters to eight medical textbooks. He developed methods for measuring the amount of blood in the body and for determining the survival time of critical blood components. During World War II, he served in the Navy on the staff at the National Naval Medical Center in Bethesda, Md. As a faculty member at Harvard Medical School, he developed a two-year program of postgraduate education for physicians from developing countries. As a consultant to the State Department, he was chairman of a task force on medical education in Latin America, Africa, and Asia. Gray was also a consultant to the Agency for International Development. In 1975, he became chairman of the Department of Medicine at King Faisal Specialist Hospital and Research Center in Riyadh, Saudi Arabia. He later wrote *Beyond the Veil: The Adventures of an American Doctor in Saudi Arabia* (1983) about his two years spent treating the Saudi royal family.

Leon Schwartz, M.D. '36, Ph.D. '42, Winchester, Mass., a retired cardiologist; August 28, 2001. From 1942 to 1946, he was a lieutenant commander with the U.S. Public Health Service; he later held academic appointments at the University of Pennsylvania, George Washington University, the University of Louisville, Temple University, the University of Southern California, and the University of California at Irvine. A fellow of the American College of Physicians, the American College of Cardiology, and the American Geriatric Society, he pioneered the use of sulfonamides in pneumococcal pneumonia.

Frank A. Mantz Jr., M.D. '38, G.M.E. '42, Overland Park, Kansas, a retired Army officer and pathologist; October 17, 2001. During World War II, he served as a laboratory officer in Port of Spain, Trinidad, in the Central African Base Command, and in the China-Burma-Indonesia Theatre. Following the war, he was chief of the pathology service at Gorgas Hospital, the Panama Canal; Percy Jones Army Hospital, Battle Creek, Mich.; and Fitzsimmons Army Hospital, in Denver. He retired from active duty in 1954 and became assistant professor of pathology at the University of Kansas Medical Center and commander of the 325th Army General Hospital Unit. Upon his retirement from the military in 1972, he joined the Department of Pathology at St. Joseph's Hospital. In 1972, he was named chairman of the Department of Pathology at Menorah Medical Center. He was also chief of surgical pathology at Kansas University Medical Center, where he was named an emeritus professor in 1980. Mantz received the "Golden Apple Award" for excellence in teaching from the Student American Medical Association in 1966 and the Faculty Award for Outstanding Dedication and Teaching Excellence in 1970. He finished his 59-year medical career at Physicians Reference Library in Overland Park in 1997.

Richard D. Schreiber, M.D. '38, Lebanon, Pa.; October 3, 2001. A family physician, he practiced in Lebanon for 60 years. He also served as mayor of Lebanon from 1960-1964.

Robert N. Wilson Jr., M.D. '38, Warwick, Bermuda, a retired obstetrician and gynecologist; August 24, 2001. He held the rank of captain at Walter Reed Army Hospital in Washington. From the mid-1940s until retirement in 1983, he worked at Bryn Mawr Hospital and Lankenau Hospital, delivering more than 4,100 babies in the course of his career. He was a recipient of the Legion of Honor Award from the Chapel of Four Chaplains in Philadelphia.

Ralph W. Alexander, M.D., G.M. '39, Englewood, Fla.; September 17, 2001. He was a college health physician at the University of Pennsylvania during World War II and at Cornell University until 1977.

Charles A. Bikle, M.D. '39, Chambersburg, Pa.; June 12, 2001.

James G. Logue Jr., M.D. '41, Philadelphia, a retired obstetrician and gynecologist; August 8, 2001. He was on the staffs of Germantown, Chestnut Hill, and Roxborough Memorial hospitals for more than 20 years, until he was named chairman of the Department of Obstetrics and Gynecology at Germantown Hospital in 1970. He also served two terms as president of the staff. He delivered almost 10,000 babies in the course of his career. While attending medical school he performed professionally as a magician, a life-long avocation. In World War II he was a Navy doctor at Montford Point, a segregated camp for the first black Marines at Camp Lejeune, N.C. In the 1950s and 1960s he was the obstetrician at the Florence Crittenton Home, at that time a place for unwed mothers. He was a former board member of Stapely Hall, a retirement home in Germantown, and had been a member of the Philadelphia Cricket Club.

John W. Nicholson III, M.D. '41, Medford Leas, N.J.; August 6, 2001. He had a private practice in Moorestown from 1951 until 1995. After serving in the Pacific during World War II, he did additional medical studies at the Mayo Clinic. As president of the Burlington County Medical Society in the 1960s, he was instrumental in creating the position of Burlington County health officer. He was a former president of the Burlington County Heart Association.

Robert C. Helm, M.D. '42, Quarryville, Pa., a retired general practitioner; August 10, 2001. He practiced medicine for 36 years in southern Lancaster County. A veteran of World War II, he served in the U.S. Navy medical corps in the Mediterranean and in Europe during the invasion in 1944, and later in the Pacific.

James G. Kitchen II, M.D. '42, Radnor, Pa.; January 23, 1998.

Richard H. Demaree, M.D. '43, West Long Branch, N.J.; March 6, 2001.

Jack L. Dozier, M.D. '43, Thomasville, Ala.; October 7, 1999.

David T. Jennings, M.D. '43, Williamsport, Pa.; June 26, 2000.

Lynwood V. Keller, M.D. '43, Reading, Pa.; August 16, 1999.

Virginia H. Lautz, M.D., G.M.E. '44, Bryn Mawr, Pa.; September 9, 2000.

Stacy L. Rollins Jr., M.D., G.M.E. '44, Chevy Chase, Md.; July 3, 2001.

William T. Donner, M.D. '45, Jenkintown, Pa., retired chairman of psychiatry at Abington Memorial Hospital; September 14, 2001. He was on the staff of Abington Memorial Hospital for 45 years and was chairman from 1988 until his retirement in 1995. He was also on the faculties of the University of Pennsylvania School of Medicine and Hahnemann University School of Medicine. He served

as board president of Family Services of Montgomery County and as a board member of Montgomery County Emergency Services. An Army veteran, he rose to the rank of captain.

Robert E. Gundel, M.D. '45, Houston; August 7, 2001. He was the retired medical director of Savage Laboratories in Houston and the former medical director of Purdue-Frederick Pharmaceutical Company in Yonkers, N.Y. A U.S. Army Medical Corps veteran, he served during the Korean War.

Ralph W. Heffner, M.D. '45, Dunnellon, Fla.; June 2, 2000.

Harvey L. Lehman, M.D. '46, G.M.E. '50, Millersville, Pa.; October 11, 2001. A veteran of the U.S. Navy, he practiced as a family physician in Millersville and as an industrial physician for Armstrong, manufacturers of floors and cabinets. He was a member of medical staff at Lancaster General Hospital. Lehman served on the steering committee of the Lancaster County American Civil Liberties Union and volunteered with the Lancaster County Office of Aging.

Lawrence T. Smyth, M.D. '46, Punta Gorda, Fla.; October 17, 1999.

John Deaver Alexander Jr., M.D. '47, Palm Beach, Fla.; July 10, 2001. He served as a captain and flight surgeon at Brooks Air Force Base in San Antonio, Texas. He was associate professor of medicine at the University of Pennsylvania before establishing a private practice in Coatesville, Pa. He served on the board of the Upland Country Day School from 1959-1972, including two terms as President.

Arnold J. Friedhoff, M.D. '47, New York, N. Y.; February 21, 2001. He was a professor of psychiatry at the New York University School of Medicine and director of the Mental Health Clinical Research Center, the Margaret S. Millhauser Laboratories, and the Barbara

Jonas Center for the Study of Children at Risk. He played a fundamental role in the development of psychiatry as a neuroscience based on modern biochemistry and devoted his professional life to psychiatry, psychopharmacology, and the study of the causes, prevention, and treatments for such illnesses as schizophrenia, Tourette's syndrome, Parkinson's disease, affective disorders, and anxiety disorders. He also conducted research on prenatal factors that might place a child at risk for later behavioral problems, mental disorders, and depression. In the 1960s, with the support of the National Institute of Mental Health, he established a modern laboratory and a research ward at Bellevue Hospital that was considered state of the art. Friedhoff also helped design and develop the Millhauser Laboratories at N.Y.U. He was a founding fellow of the International Society of Neurochemistry and of the American College of Neuropsychopharmacology (ACNP), as well as a founding member of the Psychiatric Research Society. He had served as president of the ACNP, the Society of Biological Psychiatry, the American Psychopathological Association (APA), and the National Tourette's Society. Among the honors he received were the Gold Medal Award and George N. Thompson Founder's Award from the Society of Biological Psychiatry, the Samuel Hamilton Award from the APA, the Paul Hoch Award from the ACNP, and the first Castillo del Pino Prize.

Marshall W. Woodard, M.D., G.M. '47, Asheville, N.C.; September 29, 2000.

Eugene Mendelsohn, M.D. '48, Reading, Pa., an obstetrician and gynecologist; November 14, 2001. He practiced in Reading for 40 years, serving as head of the Berks County Medical Society and St. Joseph's Medical Staff.

Paul R. Noble, M.D., G.M.E. '49, Traverse City, Mich.; July 29, 1989.

Henry G. Wagner, M.D., G.M.E. '49, Washington, DC; October 11, 2000.

Richard Baynard Willingham, M.D. '49, G.M.E. '53, Louisville, Tenn., a retired pediatrician; August 26, 2001. He was stationed at the U.S. Naval Hospital in Maryland from 1951-1953 and moved to Knoxville in 1955.

Esker W. Cullen, M.D., G.M. '50, Lemont, Pa.; 1997.

Theodore Shohl, M.D. '50, G.M.E. '57, Anchorage, Alaska; November 1, 2001. He moved to Anchorage in 1960 and began a surgical practice at Providence Hospital, where he became president of the medical staff. He closed his private surgery practice in 1985 but maintained an active professional life of teaching and medical study; he returned to the operating room as an assisting surgeon until 1996. During World War II, he was a sergeant in the Medical Corps.

C. Thomas Fultz, M.D. '51, G.M.E. '58, Cincinnati; October 19, 1985.

Joseph W. McHugh, M.D., G.M. '51, Naples, Fla.; July 7, 2001.

Galen R. Miller, M.D., G.M. '51, Millersburg, Ohio; February 17, 2001.

Carmalt Benjamin Jackson Jr., M.D. '52, San Antonio, Tex., former NASA physician; August 6, 2001. He served in Europe during World War II, receiving a battlefield commission and three Purple Hearts. After completing his residency, he joined the Air Force and spent 1958-1961 working with Project Mercury, the manned space program, and the first astronauts. He spent most of his career in San Antonio. After retiring from medical practice, he worked as medical director for several companies, including Southwestern Bell, H. B. Zachry Co., and the Tower Life Insurance Co. He also served as administrator of Metropolitan General Hospital. He was inducted into the Texas Science Hall of Fame.

Joseph T. Mallamo, M.D., G.M. '52, Fairmont, W.Va.; February 1, 2001.

William C. Richter, M.D., G.M. '52, Kihei, Hawaii; September 5, 2001. He was an ophthalmologist in Spokane, Washington, until retiring in 1975 and moving to Hawaii. In Spokane, he served on the Whitworth College board of trustees and was a member of the International Physicians for Prevention of Nuclear War. In Hawaii, he served on the boards of the Maui Kokua Service, Maui Mediation Services, Maui Mental Health Center, and Kihei Youth Center. He served as an Army medic in Saipan during World War II.

Wallace S. Sekul, M.D., G.M. '52, Biloxi, Miss.; May 12, 1994.

Lawrence A. Matternes, M.D. '53, Malvern, Pa.; September 1999.

Walker Reynolds Jr., M.D., G.M. '54, Anniston, Ala.; May 17, 2001.

Nathaniel R. Spencer, M.D., G.M. '54, Monroe, La.; 1993.

Mary M. Clift, M.D., G.M. '56, Cincinnati; December 8, 1998.

William K. Harlan Jr., M.D., G.M. '58, Plainfield Township, Pa.; March 11, 2001. He was in private practice in the fields of hematology and medical oncology from 1961 until 1994. He became chief of the hematology-medical oncology division at Easton Hospital. He was a clinical instructor at Hahnemann Hospital and was on the consulting staff at Warren Hospital. He was a Navy veteran of World War II, having served in the Pacific Theatre.

George W. McCrocklin, M.D., G.M. '59, Louisville, Ky.; June 2, 2000.

Paul A. Robinson, M.D., G.M.E. '59, Huntsville, Ala.; December 21, 2000. He practiced orthopaedics in Huntsville from 1953 to 1989.

Albert C. Selke, M.D. '59, Lexington, Ky., a retired professor

of diagnostic radiology at the University of Kentucky Medical Center; February 26, 2002. He served as president and chairman of the board of the Kentucky Medical Services Foundation from its inception in 1978 until he retired in 1995. He had been chairman of the board of Central Bank.

John O. Judge, M.D. '60, Tucson, Ariz.; November 11, 1999.

Archibald Kelly Maness Jr., M.D. '62, G.M.E. '69, Greensboro, N.C.; October 2, 2001. He was a flight surgeon on the U.S.S. *Essex* from 1962 to 1965 and then returned to Greensboro, where he practiced obstetrics and gynecology for 30 years. He co-founded Wendover OB-GYN and Infertility. Active in community and arts organizations, Maness co-founded the Greensboro Opera Company and twice served as president of the Weatherspoon Gallery Association.

Nancy Ratajczak Shuman, M.D. '64, Wyomissing, Pa.; December 29, 2000.

Walter William Tunnessen Jr., M.D. '65, G.M.E. '69, Chapel Hill, N.C., former senior vice president of the American Board of Pediatrics; November 11, 2001. He was on the faculty of the State University of New York Health Science Center at Syracuse and the Johns Hopkins University School of Medicine before returning to the University of Pennsylvania School of Medicine and The Children's Hospital of Philadelphia as associate chair for medical education. An internationally recognized clinical pediatrician and influential figure in pediatric medical education, he received the 2002 Joseph W. St. Geme Jr. Leadership Award from the Federation of Pediatric Organizations. A former president of the Society for Pediatric Dermatology, he published more than 200 papers on pediatric topics, and his book *Signs & Symptoms in Pediatrics* appeared in several languages and editions. He served on the editorial boards of *Contemporary Pediatrics*,

Archives of Pediatrics and Adolescent Medicine, and *Advances in Pediatrics*. He was a member of the Alpha Omega Alpha medical honor society.

James John Cerda, M.D., G.M.E. '66, Gainesville, Fla.; January 24, 2001.

Michael W. Holmes, M.D., G.M. '70, Spartanburg, S.C.; June 17, 1999.

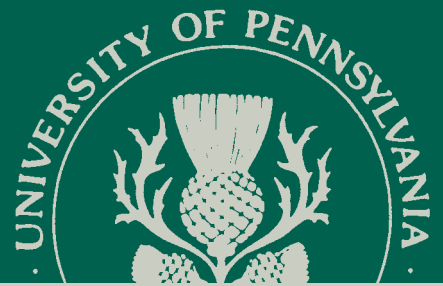
Thomas E. Hobbins, M.D., G.M.E. '72, Baltimore; a specialist in sleep disorders; September 23, 2001. He trained as a specialist in lung disorders and worked for three years at the National Institutes of Health, helping to develop the rubella vaccine. Subsequently he taught at the University of Maryland Medical School and served as medical director of the Maryland Sleep Disorders Center. He was a board member of the Maryland Citizens' Health Initiative and devoted his time to various humanitarian and environmental causes.

Robert Turner, M.D. '74, Lincolnwood, Ill.; September 30, 2001. He had a 23-year career as an obstetrician and gynecologist at Lutheran General Hospital and was also on the medical staff at Lake Forest Hospital. He was an active member of the Jewish Reconstructionist Congregation in Evanston and served as chairman of the education committee of the Ariella Joy Frankel Keshet Day School for special needs children in the Jewish community.

Walter J. Russell, M.D., G.M. '77, Mercer Island, Wash.; February 23, 1999.

Kathryn J. McCormick, M.D. '81, Philadelphia; January 14, 2002. She opened general surgery practices in West Philadelphia and Darby in association with Misericordia and Fitzgerald Mercy hospitals. She was a choir member and cantor at St. Andrew Roman Catholic Church.

Remembering a Gift



Louis B. Flexner, M.D., former chair of Penn's Department of Anatomy, became a world leader in the study of memory. He never forgot the generosity that allowed him to pursue a career in medicine. Arthur K. Asbury, a long-time friend and emeritus professor of neurology, says, "He was interested in helping just as he'd been helped." Flexner's benefactors were his famous uncles, Drs. Simon and Abraham Flexner. After four decades at Penn, he and his wife, Josefa B. G. Flexner, Ph.D., made sure that their relationship with the School of Medicine would not end with their deaths: they left generous charitable remainder trusts and a substantial bequest to fund scholarship support.

Early on, Louis demonstrated an interest in health care. At seven, he won a writing contest on "How I Intend to Earn My Living," detailing his plan to cure leprosy. He earned both his undergraduate degree and his medical degree with financial help from his uncles. Josefa, a native of Spain, earned her doctorate in pharmacy in Madrid and won a scholarship to study at Johns Hopkins in 1930, where she met Louis. The two were married in 1938.

In 1951, Louis came to Penn as chair of anatomy. Soon afterward, he founded the Institute for Neurological Sciences, now the David Mahoney Institute. As a research associate in the Institute, Josefa worked alongside Louis at every point. "She made it all work," Asbury says. "She was the detail person."

The couple lived frugally. "They saved their money, knowing it would go to create this endowment for medical education," says Asbury. They were generous with their time and talent, continuing to work, teach, and publish without pay for nearly 25 years past the mandatory retirement age. Louis died in 1996 at 94; Josefa died in 2000 at 97.

Years before her death, Josefa was quoted in a Penn publication expressing a sentiment that seems to sum up their mutual love of medicine: "We must use our imagination to spend that time between birth and death to do the thing that is most satisfying for us, and, if possible, to give satisfaction to the people around us." The Flexners' planned gifts are just two of many creative gift opportunities that benefit both the School of Medicine and its donors. As you chart your financial future, the Planned Giving Office is ready to assist in developing an appropriate strategy. **Contact Marcie Merz, J.D., Director of Planned Giving, University of Pennsylvania Medical Center, 3535 Market Street, Suite 750, Philadelphia, PA 19104-3309. Phone: 215-898-9486. E-mail: mmerz@ben.dev.upenn.edu.**

Promoting Research Integrity

For the last two years, I have had the privilege of serving as chair of a committee that has been grappling with issues central to medicine and biomedical research. Formed by the Institute of Medicine of the National Academy of Sciences, the Committee on Assessing Integrity in Research Environments came about in response to a request from the Office of Research Integrity of the U.S. Department of Health and Human Services. This summer, our committee released its report. In this space, I would like to touch briefly on some of its major points and recommendations.

Those of us at research institutions are fortunate that, on the whole, Americans have a positive attitude toward science and technology. Yet although we can usually count on their support, they will continue to support science only if they feel they can trust the people and the institutions that are conducting the research. Increasingly, we have seen that biomedical research is the focus of scrutiny, for reasons that are quite understandable: research findings can have important implications for health; research is highly visible; and research receives substantial funding from public sources. In addition, although fabrication and plagiarism are relatively rare, serious errors or misconduct in biomedical research can lead to dire consequences for research subjects.

One of the emphases of the IOM report is that the integrity of the research is just as important as its scientific content. That is, the responsible conduct of research is not distinct from research; on the contrary, competency in research encompasses the responsible conduct of that research and the capacity for ethical decision-making. Educational programs that emphasize this truth should be developed within the context of other relevant aspects of an overall research education program; equally important, the best instruction is likely to be provided by faculty who are themselves actively engaged in



Robert Clink

research related to that of the trainees. The old-fashioned view is certainly valid – the lessons have much more impact when younger investigators see their mentors and senior colleagues practicing what they preach.

Although the committee's report emphasizes the education of graduate and medical students and post-doctoral fellows, this focus by no means suggests that the problem lies solely with them. Rather, it was because our committee feels strongly that the future lies with these younger investigators. At the outset of their careers, they will be the ones who we hope will be most affected by policies and initiatives put into place at our research institutions. We certainly believe that senior researchers, faculty, and administrators can modify their outlook and behavior as well, and educational efforts to encourage integrity in scientific research should be designed to reach all levels at our institutions.

Our first recommendation seeks to address a major deficiency in our knowledge. It became very clear to us early in our work that there are no established measures for assessing integrity in the research environment. Thus, we believe that funding agencies should establish research grant programs to identify, measure, and assess the factors that influence integrity in research. As noted, the HHS already has an Office of Research Integrity in place; but the committee believes it must broaden its current support for research to fund studies that explore new approaches to monitoring and evaluating the integrity of the research environment.

Each research institution should

develop and implement a comprehensive program designed to promote integrity in research, using multiple approaches adapted to the specific environments within each institution. While we acknowledge that federal funding is crucial to our research enterprise, one of the committee's principles is that it is better for the research institutions to confront the issue of research integrity than for the government and other outside agencies to act as arbiters and enforcers. We believe that the individual institutions can perform the task much more effectively and with more flexibility. At Penn, for example, we have several bodies that help regulate research, and these are not static. For instance, in the aftermath of the death of Jesse Gelsinger, our institution established the Office of Human Research to oversee clinical research involving humans more systematically and rigorously.

Our committee also made recommendations about institutional self-assessment, which would help ensure the credibility of the institution's efforts and indicate ways to improve the process. Finally, we recommended that the Office of Research Integrity, which requested the committee's report, establish and maintain a public database of institutions that are actively pursuing or employing institutional self-assessment and external peer-review of integrity in research. Among other effects, such a database could serve as a resource for other institutions while enabling the public to see which institutions are receiving public funding to develop such programs.

The full report, "Integrity in Scientific Research: Creating an Environment that Promotes Responsible Conduct," is available through the Institute of Medicine. A viewable version can be accessed through the IOM's web site, www.iom.edu. ■

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After the tragic death of Jesse Gelsinger, an 18-year-old volunteer in a gene-therapy trial at Penn, the University of Pennsylvania made a commitment to improve the way clinical trials involving humans are conducted and regulated. Both internal and external committees examined Penn's clinical research program and made recommendations. One tangible result is the Office of Human Research, which assists researchers in developing protocols and monitoring the trials. Says one faculty member, "People can't say anymore, 'I didn't know what we had to do.' The bar is much, much higher."

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