Digital Surgery
Human skill, high-tech precision
The Healing Power of Laughter

Dana R. Abendschein, PhD, and Diana
Patty clown around for Jalen Johnson, a
9-month-old patient at St. Louis Children's
Hospital. Abendschein teaches a course
called Medicine of Laughter, which is
now offered to first-year students. In it,
students review the current medical
literature about how the body responds
to positive emotions. Abendschein is an
associate professor of medicine and of
cell biology and physiology.

Cardiac surgeon Ralph J. Damiano Jr.,
MD, is shaping the operating room of
the future now. In it, he uses tiny high-
tech tools to travel inside the body
with dexterity and precision beyond
imagination. Damiano is one of a few
physicians using computer assistance
and robotic tools in an attempt to
revolutionize heart surgery—and set
a new standard in minimally invasive
surgery. To learn more about this
technology, please turn to page 16.
Maximize Your INCOME with a Washington University Charitable Remainder Unitrust

See page 36

Class Notes

Update Yourself!

Your classmates would like to hear what you’ve been doing. Please take a moment to complete the postage-paid reply card on page 36.
Neurosurgery in Nairobi by Linda Sage
A team of St. Louis physicians and nurses volunteers its time and talents to treat brain and spinal cord problems in East Africa.

Shining Stars by Gila Reckess
Students and Teachers As Research Scientists (STARS) invites St. Louis' best and brightest high school teachers and students into the research arena.

Digital Surgery by Candace O'Connor
Cardiothoracic surgeons here are shaping the operating room of the future by using robotic tools that will set a new standard in minimally invasive surgery.

First-Year Journal by Sarah Cook
Second-year medical student Sarah Cook shares a personal and poignant essay about her journey through the halls of medicine.
Unanue receives Gairdner Award

EMIL R. UNANUE, M.D., the Mallinckrodt Professor and head of the Department of Pathology and Immunology, is among five distinguished international researchers to receive this year’s Gairdner Foundation International Award for Achievement in Medical Science. The scientists will be honored at an awards dinner Oct. 26 at the University of Toronto.

Unanue is being recognized for his seminal discoveries about how the immune system distinguishes between the body's own healthy cells and diseased or infected cells.

In the 1970s, immunologists discovered that a collection of proteins called the major histocompatibility complex (MHC) contributes to the recognition of diseased cells. But the molecular basis of this process was unknown.

Unanue and his colleagues, including Paul Allen, PhD, the Kroc Professor of Pathology, discovered that certain immune system cells internalize damaged or foreign cells and fragment their proteins into peptides. The peptides then bind to newly generated MHC class II molecules on the cell surface. This was the first demonstration that MHC proteins were peptide-binding proteins, which helps explain their role in the immune system’s defense against microbes, tumors and transplanted tissue.

The other three recipients of this year’s awards are: Alain Townsend, MD, PhD, of the Institute of Molecular Medicine at the John Radcliffe Hospital in Oxford, England; Jack Hirsh, MD, Hamilton Civic Hospital Research Centre; Roger Kornberg, PhD, Stanford University School of Medicine, and Robert Roeder, PhD, The Rockefeller University of New York. Roeder was on the School of Medicine faculty from 1971 to 1982.

Lin keeps Nobel company

YIING LIN, an MD/PhD student at the School of Medicine, was among 36 American graduate students selected by the U.S. Department of Energy (DOE) to attend the 50th Anniversary meeting of Nobel laureates in June in Lindau, Germany. Graduate students in biology, physics and chemistry were selected for the event which involved spending a week with 66 Nobel Prize winners.

Since 1951, laureates in chemistry, physics, or physiology and medicine have met in Lindau to discuss important issues in their fields with students from around the world. This year, some 600 students from Europe, Africa, Asia and North America listened to lectures and participated in daily small-group discussions.

Lin was the only participant from Missouri. He is doing his doctoral research in the laboratory of Gary D. Stormo, PhD, professor of genetics. The group is developing new tools for classifying the working parts of genomes—the DNA instructions for building an organism. The main focus is on regions called promoters, which regulate gene activity and protein production. Through statistical analysis, Lin aims to determine the structure of some known regulatory sequences to obtain key information for recognizing unknown promoters in genomes. This approach also might produce new tools for fine-tuning gene expression.

"Yiing has been in my lab for only eight months, but he has quickly advanced our project, improving on the techniques we were using and moving in some new directions," Stormo says. "His combined MD and PhD degrees and his expertise in computational methods will make him a rare scientist with unlimited potential for biomedical research in the coming years."
Frieden and Waksman named to professorships

CARL FRIEDEN, PHD, has been named the Raymond H. Witcoff Professor of Biochemistry and Molecular Biophysics. Frieden is head of the Department of Biochemistry and Molecular Biophysics. Gabriel Waksman, PhD, replaces Frieden as the Nummi Professor of Biochemistry and Molecular Biophysics.

The Raymond H. Wittcoff Professorship was established in 1989, when Wittcoff was president of the St. Louis-based Transurban Corp., which built and managed office buildings. He and his wife, Roma Broda Wittcoff, now are trustees emeriti of the university.

Frieden's research focuses on how proteins, which begin as long strings of amino acids, fold into their correct shapes, given that there are millions of possible 3-D configurations. He uses a variety of techniques to explore the structures of intermediates that arise during folding and is exploring a number of different protein systems.

Frieden came to the medical school as a postdoctoral fellow in 1955 and has been on the faculty since 1957. He served as interim head of the Department of Biological Chemistry from 1986 to 1989 and of the Department of Biochemistry and Molecular Biophysics from 1995 to 2000. He directed the university's Medical Scientist Training Program from 1986 to 1991 and co-directed the same program from 1978 to 1986.

Waksman joined the faculty in 1994 after spending a year at the School of Medicine as a visiting professor. He uses X-ray crystallography and other techniques to obtain 3-D structures of proteins. He is particularly interested in interactions among proteins, especially proteins that transmit signals between the cell surface and cell interior, those that assemble cellular components and those that replicate DNA. His detailed images reveal how proteins recognize and interact with other molecules and how these interactions affect protein conformation.

Waksman also directs the protein structure and macromolecular graphics core of the Alvin J. Siteman Cancer Center. The core provides graphics systems for modeling the structures and behaviors of proteins involved in cancer.

Carl Frieden, PhD, and Gabriel Waksman, PhD

For expertise and leadership

FOUR FACULTY members have been recognized by the Department of Internal Medicine for their medical expertise and leadership in the areas of scientific investigation, clinical care and medical education.

Recipients of this year's Internal Medicine Leadership awards are: Timothy J. Ley, MD, Alan A. and Edith L. Wolff Professor in Medicine and professor of genetics; Joanne E. Mortimer, MD, professor of medicine; Kenneth Ludmerer, professor of medicine; and David H. Alpers, MD, William B. Kountz Professor of Medicine. Ley was recognized for scientific investigation, Mortimer for clinical care, and Ludmerer and Alpers for medical education.

The awards were established by Gustav Schonfeld, MD, professor of medicine and immediate past head of the Department of Internal Medicine, to recognize the outstanding accomplishments of the faculty in each of the critical areas of the department's tripartite mission as an academic department of internal medicine.

Awardees are nominated by their peers, and their nominations are accompanied by letters of support from division chiefs, faculty colleagues, residents, medical students and community physicians. Nominations are evaluated by a committee of faculty peers.
Cathay Award goes to Marshall

GARLAND R. MARSHALL, PHD, professor of biochemistry and molecular biophysics and a member of the newly established Center for Computational Biology, was recognized with the Cathay Award. The citation praised "his pioneering contributions to peptide science, particularly in molecular design and peptidomimetics."

The Cathay Award, sponsored by the H.H. Liu Educational Foundation of Shanghai, recognizes two scientists in the field of peptide research, one working in China, the other outside it. Marshall shared the award with Gui-Shen Lu, a professor at the Chinese Academy of Medical Sciences. Both were honored at the 6th Chinese Peptide Symposium held in Mr. Huangshan, China, in July.

Marshall is internationally known for his work on peptides, medically important chains of amino acids. He has been hailed by fellow researchers as one of the major figures in peptide research in the second half of the 20th century, and one of the pioneers of conformational analysis of peptides.

Beebe oversees vision research group

A WASHINGTON UNIVERSITY ophthalmology professor is the new president of the Association for Research in Vision and Ophthalmology (ARVO), the largest vision research organization in the world.

David C. Beebe, PhD, the Jules and Doris Stein Research to Prevent Blindness Professor of Ophthalmology and Visual Sciences, became president April 30 at the association’s annual meeting and scientific sessions in Fort Lauderdale Florida.

Beebe is director of the Cataract Research Center at the School of Medicine, one of the largest groups in the world working on the biology and pathology of cataracts, the No. 1 cause of blindness in the world. Each year, Medicare alone spends more than $3.4 billion on cataract surgery, the most common surgical procedure performed in the United States. Treatment of secondary cataracts, a condition that frequently occurs following cataract surgery, also is very common.

Beebe, who is also a professor of cell biology and physiology, will serve as ARVO president for one year.

Influential genes keep smokers smoking

RESEARCHERS KNOW that environment plays a major role when young people experiment with cigarettes. But new evidence suggests genes exert more influence on whether a person continues to smoke regularly.

The research is published in the journal Behavior Genetics. Pamela A.F. Madden, PhD, research assistant professor of psychiatry, is lead author. She analyzed data from interviews with more than 20,000 pairs of twins from Australia, Finland and Sweden.

"Identical twin pairs share 100 percent of the same genes. So, if one smokes and the other does not, environmental factors have to explain the difference," Madden says. "Non-identical twins share only about half of the same genes, so their similarities and differences are explained by both genetic and environmental influences."

Madden says that genetic factors appear to play an important role through all stages of cigarette use. But they become more influential after a person becomes a regular smoker.

The investigators analyzed questionnaires given to sex-matched twins 18 to 46 years of age. They determined that in women genetic factors made up about 40 percent of the influences when a woman started smoking regularly, with environment accounting for the rest. In men, genetics were estimated to account for more than 50 percent of the risk of becoming a regular smoker.

The researchers concluded that up to 35 percent of the genetic variance for smoking persistence in young men and 30 percent in young women might be explained by genes that also contribute to the risk of becoming a regular smoker.
Raichle receives Pasarow Foundation Award for research

Marcus E. Raichle, MD, co-director of the division of radiological sciences, has received the Pasarow Foundation Award for research contributing to the understanding of neuropsychiatric disease.

Raichle's long-term collaborator, Michael I. Posner, PhD, at Cornell Medical College in New York, also was recognized. He is a psychology professor and director of the Sackler Institute for Developmental Psychobiology at Cornell.

Raichle, who is a professor of radiology, neurology, psychology and neurobiology, helped develop many of the basic experimental strategies used worldwide to map the human brain with positron emission tomography (PET) and functional magnetic resonance imaging (fMRI). His PET and fMRI studies have revealed how brain activity relates to behavior and how health problems such as stroke, depression and Parkinson's disease affect brain function.

Raichle, who has been a member of the medical school faculty since 1971, has received numerous other awards and is a member of the National Academy of Sciences, the Institute of Medicine and the American Academy of Arts and Sciences.

Expediting collaborative research

A NEW RESEARCH ALLIANCE between five major academic medical centers that will streamline the approval process of joint research projects has been approved by the National Institutes of Health. Named the Multicenter Academic Clinical Research Organization (MACRO), the new partnership will improve efficiency and reduce redundancy of effort between academic health care centers across the United States while preserving important protections for patients.

The five institutions are: Washington University School of Medicine, the University of Pennsylvania, Vanderbilt University, Baylor College of Medicine and Partners HealthCare System, a Massachusetts-based health care delivery network that includes Harvard-affiliated Brigham and Women's and Massachusetts General hospitals.

MACRO's goal is to expedite the research review process for multicenter projects. Under MACRO's guidelines, one of the five institutions will be designated as the lead review group for any given proposal. The Institutional Review Board (IRB) at each participating center will receive comprehensive review documents, but only the lead group's IRB will perform a full review. The other five participants will complete abbreviated administrative reviews.

MACRO will address research proposals that require only IRB approval. It will not involve itself at first in trials that require additional review procedures such as genetics, cancer and AIDS.
**Promoting research, training surgeons**

**Institute for minimally invasive surgery opens**

THE NEWLY EXPANDED Washington University Institute for Minimally Invasive Surgery (WUIMIS) celebrated the opening of its new, state-of-the-art facilities in late October. The educational and research institute—one of the largest of its kind in the world—is located on the first floor of the Clinical Sciences Research Building.

The institute's renovations, funded by a seven-year, multimillion-dollar grant from U.S. Surgical, give WUIMIS the latest in research facilities: two new operating room suites, fully integrated with advanced technology supplied by Karl Storz Co. Using a touch screen next to the operating table, the surgeon will control everything in the room, from the laparoscopic instruments to the overhead lighting.

The institute also has an exciting educational component: a six-table operating room suite, in which groups of surgeons can learn laparoscopic techniques simultaneously. From all three new suites, any procedures can be transmitted by video directly to the Eric P. Newman Education Center, where visiting surgeons can view them as they take place.

WUIMIS was founded in 1993 by Nathaniel J. Soper, MD, and Ralph V. Clayman, MD, now co-directors of the center, who had already pioneered important minimally invasive procedures, including the world's first laparoscopic kidney removal. "It was apparent that this kind of surgery would become increasingly important, and we wanted to be leaders in this area," says Soper. "So we decided to band together as many surgeons as possible who were interested in these techniques."

With funding from corporate partners—especially Ethicon Endosurgery, which supported the program from 1993 to 2000—they established WUIMIS to promote research and to train surgeons, residents and fellows from around the United States. To date, they have conducted some two dozen courses, and they plan to expand their educational outreach once the new facilities open.

Today, 12 Washington University surgeons from nine surgical disciplines take part in WUIMIS, meeting every four to six weeks to discuss new minimally invasive techniques. So far, they have worked out ways to perform some 20 new operations in a research setting, before they are translated into clinical treatment for humans.

"WUIMIS is allowing surgeons to work together, from different angles, to solve problems in the application of minimally invasive techniques which have markedly improved the outcome of patients requiring surgical treatment of their disease," says Soper.

Surgeons who would like more information on upcoming WUIMIS courses should call Donna Luttmann, WUIMIS research coordinator, at (314) 362-8357.

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**Evers to preside over anesthesiology group**

ALEX S. EVERS, MD, the Henry Eliot Mallinckrodt Professor and head of the Department of Anesthesiology, is the new president of the Association of University Anesthesiologists (AUA).

He began a two-year term as AUA president in May at the organization's 47th Annual Meeting and Scientific Sessions in Salt Lake City.

Evers also is a professor of internal medicine and of molecular biology and pharmacology. He is known for his research on the molecular mechanisms through which anesthetics depress the nervous system.

The AUA has more than 700 members in the United States and Canada. It was founded in 1953 to advance the art and science of anesthesiology.

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**Dacey becomes officer**

RALPH G. DACEY JR., M.D., the Edith R. and Henry G. Schwartz Professor and head of neurological surgery, has been named secretary of The American Board of Neurological Surgery.

The board is responsible for devising the curriculum for neurosurgeons in training and certifying the neurosurgeons who meet its requirements. It has 14 directors, each serving for six years. Dacey became a director in 1999.

Dacey is a past president of the Congress of Neurological Surgeons. He now sits on committees of that association, the American Association of Neurological Surgeons and the American Heart Association.
Wax wins Rudin Glaucoma Prize

MARTIN B. WAX, M.D., has been awarded the 1999 Lewis Rudin Glaucoma Prize by the New York Academy of Medicine.

Wax, a professor of ophthalmology and visual sciences, was chosen for the prize after authoring a series of scientific articles that demonstrated a role for autoimmunity in glaucoma. The papers, published in the American Journal of Ophthalmology, Investigator Ophthalmology and Visual Science and Archives of Ophthalmology, provided evidence of mechanisms in glaucoma by which the eye can mount an immune response against its own tissues and damage neurons in the optic nerve.

Glaucoma affects more than 3 million adults in the United States. It often involves an increase in pressure within the eye that damages the optic nerve. As the damage progresses, glaucoma patients first lose peripheral and then central vision.

Most patients with primary open angle glaucoma (POAG) have high pressure in the eye, but Wax's studies have particular relevance to patients suffering from normal pressure glaucoma (NPG). NPG patients do not benefit from standard glaucoma therapies that lower intraocular pressure. In addition, NPG patients suffer from higher rates of other autoimmune diseases such as lymphoma and Addison's disease. In several studies, Wax found that patients with NPG make antibodies that can react with proteins in the eye. Those antibodies react with proteins on retinal ganglion cells that are affected by glaucoma.

HAP taps Boxerman as interim director

STUART B. BOXERMAN, DSC, has been named interim director of the Health Administration Program at the School of Medicine.

Boxerman, who also is an associate professor of health administration, replaces James O. Hepner, PhD, who retired on June 30, after directing the program for 33 years.

In addition to his responsibilities as interim director, Boxerman will teach courses in statistics, operations research and information systems. He also will continue researching process improvement and error reduction in health care delivery systems.

Boxerman joined HAP as an assistant professor in 1974. He was named associate director in 1983 and deputy director in 1991.

HAP was founded in 1946. The graduate program provides students with a firm foundation in management integrated with a solid understanding of the health care field and its current delivery systems. Its more than 1,000 graduates hold positions in a variety of settings including health systems, hospitals, long-term care facilities, group practices, hospices, home health care facilities and consulting firms.

A Rite of Passage

First-year medical student Annie Lee dons her white coat with assistance from Will R. Ross, MD, associate dean and director of the Office of Diversity Programs, at the annual White Coat Ceremony on Aug. 17 in the Eric P. Newman Education Center. At the event, Lee and 121 other first-year medical students were presented with their white coats, long a symbol of the medical profession.
AFTER THREE MONTHS IN HOSPITAL, 14-year-old Daniel had completely lost the use of his legs. After nine months, 45-year-old Harrison could barely move any limb. But thanks to the East Africa Neurosurgery Mission, Daniel is beginning to walk, Harrison can move his hands and legs, and the brain of a 4-year-old girl no longer protrudes through the back of her head.
The St. Louis neurosurgical team makes its way to the East African hospitals.

THE EAST AFRICA NEUROSURGERY MISSION, organized by Carl Lauryssen, MB, ChB, an assistant professor of neurological surgery, sent a team of St. Louis neurosurgeons and nurses to Nairobi, Kenya, last May. For two weeks, the team treated brain and spinal cord problems at Aga Khan Hospital, Nairobi Hospital and Kenyatta National Hospital, which serve about 40 million people. The St. Louisans also helped educate local nurses and neurosurgeons and transported $400,000 worth of surgical devices donated by American companies. “The entire trip was a life-altering experience for many of us,” Lauryssen says.

Lasting impressions include the hospital staff’s devotion to patients and receptiveness to new knowledge. Camaraderie between the Americans and their African counterparts also is high on the list. But there also is the incredible poverty in Kenya, the lack of money for health care (about $8 per person per year is spent), the difficulty of getting patients to hospitals or making arrangements by phone, the overwhelming number of sick people, and the months of waiting in a hospital bed for an operation so as not to lose a place in line. “On top of that, if you have a condition like hydrocephalus [fluid on the brain] that requires a shunt, you have to purchase the device yourself,” says Jeffrey G. Ojemann, MD, an attending surgeon in neurosurgery. “So parents show up with a shunt in a paper bag.”

Working side by side with the Kenyan surgeons, the St. Louis neurosurgeons operated on 25 cases—babies’ heads that were twice the normal size, tumors that preyed on the brain and spinal cord, spina bifida and many other congenital malformations. About 70 percent of the patients were children, like the 4-year-old girl with the occipital encephalocele. “The back of the brain had not formed normally, and a large part of it extruded from the head,” Ojemann says. “The MRI scan showed it was going to be very difficult to close, but we were able to do it.”

Spina bifida occurs when the tube that forms the spinal cord fails to snap shut. By the time such babies get to a hospital in Kenya, they usually are several months old, and many die from infection before surgery can be performed. In the United States, spina bifida is much less common and is corrected soon after birth.

Moreover, tumors often grow to an enormous size in Kenya before they can be treated. Michael R. Chicoine, MD, an assistant professor of neurological surgery, helped remove a meningioma (a tumor of the membrane around the brain) so large it had damaged the optic nerve, causing irreversible blindness. Harrison’s tumor, which Lauryssen removed, snaked for three inches along the upper spinal cord. Daniel already had undergone one operation to remove the tumor in the lower part of his spine. But because of the difficulty of obtaining good radiological images, the Kenyan surgeons had operated at a different level, and the tumor had continued to flourish. “It was a benign tumor, a neurofibroma,
but Daniel would have become a quadriplegic and probably would have died if it had not been treated,” Lauryssen explains.

Although the team shortened the hospitals’ waiting lists by several months, it could make only a small dent in the enormous number of cases waiting for attention. Therefore, education was its main goal. The neurosurgeons taught their counterparts basic neuroanatomy, how to do a neurological exam and how to care for patients after surgery. “The physicians had received good training, but there were some things they had not been exposed to,” Ojemann says.

The six neurosurgeons, anesthetist, four nurses and Kathleen Kumanomido, the medical secretary who monitored every last detail, paid their own fares and used up personal vacation time. Washington University School of Medicine, DePuy Acromed and Synthes Spine helped finance the trip, and the Kenyan government subsidized the accommodations.

The team hopes to return to Nairobi every year and to bring Kenyan nurses and surgeons to the United States. “We want to share the recent, rapid developments in neurosurgery with the highly trained, highly educated surgeons in Kenya,” Ojemann says.

Lauryssen also wants to share simpler advances in medical care. “If we could provide folic acid to Kenyan women of childbearing age, we could decrease the number of pediatric neurosurgeries by about 70 percent because spina bifida results from lack of this vitamin,” he says. “We therefore would like to find funding for a public health program.”

Back in St. Louis, the team is appreciating the many things they used to take for granted—sterile techniques, machines that work, unlimited supplies of aneurysm clips, and only one patient per bed. “We can become blind to the luxuries we have,” Schuessler says. “But the trip to Kenya was an eye-opener. I am so grateful for the care we can offer in St. Louis.”
FACING PAGE  Far left: A Kenyan nurse changes a dressing on a post-operative patient. Center: A post-operative patient after surgical insertion of a shunt for hydrocephalus. Right: Raema Howell, operating room nurse at Barnes-Jewish Hospital, center, teaches Kenyan OR nurses sterile techniques.

THIS PAGE  Sunlight through a window aids physicians in reviewing CT and MRI scans. Right: A typical operating room at Kenyatta National Hospital.

THE EAST AFRICA NEUROSURGERY MISSION

WASHINGTON UNIVERSITY SCHOOL OF MEDICINE,
BARNES-JEWISH HOSPITAL
AND ST. LOUIS CHILDREN'S HOSPITAL

Michael R. Chicoine, MD
Assistant professor of neurological surgery (skull-base surgery)

Kathleen Kumanemido
Medical secretary

Carl Lauryssen, MB, ChB
Assistant professor of neurological surgery (complex spinal surgery)

Carl H. Nielsen, MD
Associate professor of anesthesiology

Jeffrey G. Ojemann, MD
Attending surgeon in neurosurgery (pediatric neurosurgery)

Dawn Schuessler
Nurse coordinator in neurosurgery

BARNES-JEWISH HOSPITAL
Raema Howell
Operating room nurse

Janet Ochoa
Operating room nurse

SAINT LOUIS UNIVERSITY SCHOOL OF MEDICINE
Armond Leon Levy, MD
Resident in neurosurgery

Connie Pickering
Nurse practitioner (adults)

Kenneth R. Smith Jr., MD
Professor of neurosurgery and director of the Division of Neurosurgery

MICROSURGERY AND BRAIN RESEARCH INSTITUTE
SAINT LOUIS UNIVERSITY SCHOOL OF MEDICINE
Paul H. Young, MD
General neurosurgeon, Microsurgery and Brain Research Institute
Clinical professor of anatomy and neurosurgery, Saint Louis University

Outlook  Fall 2000

Neurosurgery in Nairobi  11
JAYA JACOB PEERS DOWN HER MICROSCOPE as she slices a tissue sample with the raw edge of a glass knife she made earlier that morning. But despite her impressive sea of slides, Jacob does not rank among the School of Medicine's graduate students or postdocs. In fact, the 17-year-old doesn't even have her high school diploma.

Jacob is one of 30 high school students participating in this year's Students and Teachers as Research Scientists (STARS) program in St. Louis, sponsored by the National Science Foundation (NSF) and Solutia Inc.

Evolved from the NSF Young Scholars program, STARS provides high school students and teachers with the opportunity to participate in scientific research at one of St. Louis' distinguished academic institutions — Washington University's Hilltop Campus, its School of Medicine, Saint Louis University's Frost Campus and School of Medicine, and the University of Missouri - St. Louis.

But this innovative program extends beyond the laboratory, as do the talents of its participants.

For six weeks over the summer, a carefully selected group of scientifically gifted and motivated students ready for their junior or senior year of high school embark on the academic experience of a lifetime. With help from their university mentor, each student completes a research project, and later submits it in written form and via oral presentation to the STARS organizers.

If completing a research project from start to finish in only six weeks sounds daunting, imagine attending lectures and organized programs on top of your long laboratory hours. Add planned social activities to the calendar and you'll understand the exhaustingly fulfilling summer of a STARS participant.

Two half-days each week, students attend lectures about topics ranging from ethics of scientific interrogation to PowerPoint presentations.

Kenneth R. Mares, PhD, co-director of STARS, is particularly proud of the "career confab" series, which allows students to hear testimonials from professionals in careers that represent almost every possible application of science: from academia to computer science; from chemistry to mathematics; from forensic pathology to law enforcement. Seminars, which are offered in a wide range of fields, help students understand the integration between science and society and introduce them to the diverse tapestry of career opportunities available for bright, enthusiastic minds.

Two years ago, Mares and his co-director, Charles R. Granger, PhD, began recruiting high school teachers to participate alongside their students. Though some students enroll without a companion teacher, those who do take advantage of the team component are privy to additional benefits. "It gives them added support in the lab and somebody who is familiar to work with," says Tony Kardis, senior program adviser. This year, 18 teachers committed their summer vacation to undertake the STARS challenge.

Similar programs exist throughout the country, but the STARS organizers believe the St. Louis experience is special. With a lecture series, professional training seminars and top-notch research opportunities on six reputable campuses, STARS integrates a wider range of opportunities than any other program of its kind, says Kardis.

William A. Peck, MD, executive vice chancellor for medical affairs and dean of the School of Medicine, supports the program and says it is the responsibility of the medical school to enhance science education.

"We are delighted to participate in the partnership of the STARS program," says Peck. "It is an ideal opportunity to further our commitment to research and help prepare the next generation of research scientists."
When Jo Holt, PhD, research assistant professor of biochemistry and molecular biophysics, first decided to participate in the STARS program, she was somewhat hesitant. "I wasn't sure if I could explain my work to somebody in high school," she says. And the time commitment puts an additional strain on the typical university summer.

But three students later, Holt sings high praises for the program and its participants and is eager to enroll for another year. "You get a lot back from the program," she says. "Training students is a catalyst for creative thought — it takes you back to your roots, back to where you were when you got interested in this whole crazy business."

To ensure that her students leave Washington University satisfied with their first taste of academic research, Holt has developed a short program that allows each participant to try several stages of research and incorporates fallback positions in case the experiment goes awry — a common occurrence in laboratory research. She finds that this optimizes the restrictively short experience and enables each student to complete his own laboratory experiment.

J. Gail Neely, MD, professor of otolaryngology, accommodates the brevity of the program with a different tactic perfected during his six years of participation with STARS. "The key is to pick a project that's a spin-off, or a little piece, of your ongoing work that can be accomplished in a short period of time and let the student run with it," he says.

His theory must work — of Neely's five previous students, three have published their research and two are pending publication.

From his own experience, the success of the teens is not surprising. "These students are motivated. They're exciting to teach, and they perform independently and at a level that is astonishing. You have to actually concentrate on remembering that they're high school students," he says.

Both Neely and Holt agree that the one-on-one nature of this customized academic experience allows students an early glimpse into the world of research in science, an opportunity typically reserved for graduate-level training.
For Bijoor, STARS has solidified her interest in biomedical engineering and opened her eyes to the world of academia. “I’ve really learned what it is to be a researcher. There’s much more to it than experimentation.”

But not all of this year’s STARS students flew across the country for the summer. In fact, of the 30 students participating during summer 2000, Bijoor is the only one from out of state.

Her local colleagues have had similarly positive experiences. Jaya Jacob of Parkway South High School says, “I now understand more about the research field and how much hard work it is. I never realized there’s so much more to it than research.”

In the past 14 years, Lutheran North High School biology teacher Michael Grupe has had only three summers off. His commitment to teaching and his scientific curiosity have drawn him to programs like STARS. And now he’s hooked.

“It’s important to keep teachers up-to-date, to keep us motivated, to give us new directions. We get stagnant if we sit around,” he says.

Science teachers rarely receive laboratory experience as part of their training. According to Grupe, the subsequent cost is significant. “If we’re teaching science, then we need to have an idea of what science is and how it’s done. When you’ve experienced it, then you can communicate that to your students.” And that is what Grupe has done. One of his students this
The summer research program in St. Louis has evolved drastically from its modest beginnings at the University of Missouri–St. Louis in 1988, now incorporating students and teachers, research and seminars, and social and academic adventures.

Donivan Foster, learned a lot about himself and about his interests in science and academia through the STARS program, thanks in large part to Grupe's presence in the lab. "We were all able to come together with ideas," he says, "which was nice, because it's easier to ask him questions."

Leah Livo, Grupe's second student co-participant this year, has enjoyed her experience so much that she is now interested in attending Washington University as an undergraduate next year. Previously dubious about choosing a college in her hometown, the STARS experience has made her feel more comfortable in these surroundings. "It has made my goal of becoming a doctor seem possible," she explains.

Donivan Foster receives his white lab coat at the STARS graduation ceremony in late July. Kenneth R. Mares, PhD, co-director of STARS, is at right.

In fact, some STARS participants, such as Nilofer Umar, return to the university even before they graduate from high school. Umar worked as a research assistant in Neely's laboratory for the summer. Other alumni have attended prestigious universities, such as Stanford, Harvard, Duke and the Massachusetts Institute of Technology. Some go on to medical school, some become teachers, some follow an entirely different path, with the memory of their summer experience tucked confidently by their side.

But regardless of their ultimate direction, these young hopefuls have been given an interactive glimpse into the opportunities that await. "These are the kids who are going to go out and become leaders," says Neely. Particularly in this age, when technology overrides personal communication and time is hard to come by, "we need to invest in our future with the highest commodity we have — ourselves."

In fact, a STARS participant such as Nilofer Umar has made her goal of becoming a doctor seem possible.
Digital Surgery

Computer-assisted techniques promise to extend the cardiac surgeon's reach— even beyond the O.R.

By Candace O'Connor
In a research laboratory at the School of Medicine, Ralph J. Damiano Jr., MD, professor of cardiac surgery, is in the midst of a dramatic surgical simulation—but the scene in no way resembles traditional heart surgery. Damiano is not wearing the special glasses that magnify his patient's coronary vessels or the headlight that illuminates his surgical field. He is not holding any of the tiny scalpels, scissors or clamps that make microsurgery possible. Most strangely, he is not even standing at the operating table.

SIX FEET AWAY, Damiano is seated at a computer console, staring at a monitor that displays the vessels within an animal heart, at 10 to 15 times their normal size. He is wearing a headset fitted with a microphone; his hands grasp joysticks with handles that mimic surgical tools. And looming over the nearby operating table is a space-age instrument: a robotic device with three giant arms. One holds an endoscope—a camera and light that illuminates the heart’s interior; the other two hold minute instruments for stitching, grasping and cutting the coronary vessels.


While Damiano’s voice directs the endoscope, his hands deftly work the controls for the other two robotic arms. In real procedures—any one of the 20 coronary bypass procedures he did in 1998–1999 as part of a groundbreaking clinical trial, while he was on the faculty at Penn State University—he has used these arms to perform the surgical work, while studying the monitor carefully to gauge his progress.

“Robotically assisted surgery” is what most people call this remarkable new technology but Damiano—concerned that people will picture autonomous, “Star Wars”-style robots—prefers the term computer-assisted surgery. Either way, he says, this technology effectively takes a surgical instrument and splits it in half. Between the handle (which he holds) and the instrument tip (inside the patient) is a computer using sophisticated software to digitize the surgeon’s maneuvers and relay them in real time to the robot arms. By digitizing the movement, the computer can be used to perfect each surgical maneuver.

This new form of surgery, Damiano says, represents nothing less than a surgical earthquake that will send shock waves throughout the entire field over the coming decade. As robots improve and become less expensive, more disciplines will adopt these computer-assisted techniques and find exciting new ways to use them—transforming current procedures and developing new ones, even on a cellular level.

The School of Medicine will be at the forefront of this revolution, with a research program in computer-assisted surgery that will become one of the most active in the United States. Damiano has just received Food and Drug Administration approval when he receives institutional approval, probably by early November, he will begin a new round of clinical trials on coronary bypass patients using robotically assisted techniques. In November, he will teach them to other surgeons in his first course at the new Washington University Institute of Minimally Invasive Surgery which opened in late October.
"This is surgery meeting the information age," says Damiano, chief of cardiac surgery within the division of cardiothoracic surgery at the School of Medicine and Barnes-Jewish Hospital. "For the first time, we are integrating computers into the operating room. While the information technology revolution has totally changed American business, it has not had a dramatic impact on the technical performance of surgery — until now. What we're seeing is the early days of a revolution that may transform the way surgery is done."

**Bypassing conventional surgery**

Conventional coronary bypass surgery has several limitations. To reach the heart, surgeons must make an 18-inch incision or "median sternotomy," dividing the patient's breastbone; to avoid the problems of operating on a beating heart, they place the patient on cardiopulmonary bypass, using the heart-lung machine. These procedures mean some pain during recovery, a risk of surgical morbidity — and a month or two of recuperation.

To move toward more minimally invasive surgery, cardiac surgeons have recently tried two strategies: decreasing the size of the incision and operating "off-pump," on the beating heart. But a large scar — and the attendant recovery problems — still remain. So nearly four years ago, Damiano and several colleagues around the world began looking at ways to perform bypass surgery endoscopically, though a series of small "ports" in the chest, none wider than the diameter of a pencil.

To do that, they would need long instruments, some 12 to 18 inches in length — a far cry from the usual 4- to 5-inch instruments, so easily cradled in the hand. These long instruments, they found, augment even the faintest tremor. Since coronary arteries are the size of strands of spaghetti, eliminating any extra motion is extraordinarily important.

"Heart surgeons all have steady hands, but it's impossible to hold these long instruments steady when you are working on really small vessels," says Damiano. "To date, performing endoscopic coronary artery surgery by hand has been totally impossible — beyond the limits of dexterity of any heart surgeon in the world."

But a robotic arm, assisted by computer technology, does not face these same limitations. In fact, a computer can filter out high-frequency motion from the electronic signal, thus removing all traces of tremor — and increasing the surgeon's dexterity. At the same time, it also can scale the surgeon's motions, so that Damiano and others can perform microscopic motions at high magnification — but still perceive them as gross, easy-to-perform movements.

"While surgical loupes typically give us from 2.5x to 3x magnification, this robotic endoscope/camera gives us 10x to 20x magnification, which enhances our visualization of anatomical detail. We also can get that visualization right down into the surgical field," says Damiano. "And the camera is being held by a robotic arm that never gets tired and is under direct voice control."

The robotic system that Damiano has been helping to test and develop is the ZEUS Robotic Surgical System, made by Computer Motion, Inc., of Santa Barbara CA. Another model is the Da Vinci telemanipulation system, made by Intuitive Surgical, Mountain View CA, and now in use at several European centers.

Damiano and his colleagues at Penn State were among the first in the world to begin actively working with this technology. For two years, they honed their
Endoscope

Needle Driver
Holds suture line

Grasper Tool
Stabilizes artery

techniques on inanimate objects, then moved to cadaver models and animal studies. Finally, they received FDA approval for a trial on 10 patients, the first in North America to undergo endoscopic bypass grafting. The results were so successful that they received approval to perform 10 more; this time, two other centers joined them, with an additional 13 patients.

“In our series, we had no complications related to using the robotic system. Also, postoperative angiograms showed that all the grafts were open at two months without any significant stenosis, so we were very happy with the results,” says Damiano.

Surgical hyper-evolution

Still, FDA restrictions in those trials prevented Damiano from using fully endoscopic procedures with any of his patients. He could use computer-assisted technology to do bypass surgery on a single vessel, the left anterior descending coronary artery (LAD). But most needed bypass grafts on other arteries as well, so Damiano had to operate on them using standard open-heart techniques, including a median sternotomy and cardiopulmonary bypass.

During this next clinical trial at the School of Medicine and Barnes-Jewish Hospital, which will also include eight to 10 other major U.S. centers, Damiano expects that the FDA will still impose strict guidelines. But as each trial offers new evidence of the technology’s safety and efficacy, he says, the patient base will broaden. In Canada and Europe, where regulations are less strict, medical centers have already begun doing bypass on more than one coronary vessel with excellent results.

Damiano is enthusiastic about the future prospects for this technology. For patients, it may mean a faster recovery, less pain — and three small scabs on the chest rather than a long incision. For surgeons, sitting at a console means less physical exhaustion, while eliminating high-frequency motion may mean a longer active surgical career. And a surgical expert in a different medical center — even another country — could easily assist in a procedure through satellite or fiberoptic links. The School of Medicine plans to become a major player in this kind of “tele-mentoring,” Damiano says.

Right now, computer-assisted technology is still evolving, as companies work to incorporate three-dimensional visualization and even the sense of touch, so important to many surgeons. Doctors must learn to access vessels other than the LAD and even explore applications in heart valve surgery. The price of this equipment must also come down to make this technology affordable and cost-effective.

But endoscopic procedures still have the potential to transform cardiac surgery, just as they have already revolutionized gallbladder removal, some urological procedures and many orthopaedic excisions, through arthroscopic techniques. According to “Moore’s Law,” says Damiano, “computer processing power doubles every 18 months.” If a computer is interposed between a patient and surgeon, he adds, the surgeon’s technical ability also may increase exponentially as well.

“I call this a ‘surgical hyper-evolution,’” he says. “We’ll do an operation, then suddenly our technical ability will dramatically improve and that operation will become obsolete as we discover better, less invasive ways to do the same procedure. As a surgeon, I find that tremendously exciting because we will no longer be shackled by our physical limitations. Soon our surgical horizons may only be limited by our imaginations.”
FIRST-Year Journal

Beginning a Life in Medicine

From her first day in anatomy lab to the exploration of a Midwest city to a summer externship in the Maine woods, 27-year-old Sarah Cook shares her personal diary—and reveals the mind and heart of a first-year medical student.

PART I

Lifting the Robin

BY SARAH COOK

ILLUSTRATIONS BY ERIC YOUNG
MY MEDICAL EDUCATION

at Washington University School of Medicine officially began today! Along with many new friends and many classmates whom I have yet to meet, I participated in the Class of 2003 White Coat Ceremony on August 13, 1999.

As I entered the Eric P. Newman Education Center this morning, I could feel the energy of the first-year class. Everyone was excited about receiving his or her first white coat—a tangible symbol of the fact that we are now one step closer to being physicians. Unfortunately, I have to confess that as I entered the auditorium, the idea of the white coat didn’t really thrill me in the same way. I had already been wearing a white coat for two years as a clinical research coordinator in the Massachusetts General Hospital Cancer Center and had come to think of it as a mere layer of protection from blood and bodily fluids.

As Dr. Lefrak spoke on “Professionalism,” I realized that the student oath we had written as a class in the preceding days echoed his words. I began to recognize that the white coat I would soon wear would not be like any other white coat I had worn before. This white coat represented my pledge to accept the privileges and responsibilities of a future physician, to live my life in an altruistic manner.

I received my white coat from Dr. Dodson. It felt different. It felt right.

I looked down at my ID and saw the words medical student under my picture. My journey has begun and it feels incredible.

AUGUST 19

I am beginning to feel torn. Friends and family call to catch up and ask how I am faring in St. Louis. New friends call to make plans to go to dinner, go swing dancing, go running... I have reading and studying to do. I know that I need to prioritize and balance, but that is easier said than done.

I am leaving tomorrow for the weekend. My friend Kristen is getting married on Lake George in Upstate New York. I am excited to share this special day with her and many other close friends. But, the first-year class will be going on a float trip over the weekend. I feel as though I am missing an important bonding experience.

This is pitiful—I am complaining about the fact that I have too many options! I should be grateful! I realize that I have chosen a life that will require sacrifices. The fact is that I chose a life in medicine. This is my dream.

AUGUST 23

Kristen and Dan’s wedding was beautiful, but I spent the majority of the weekend between JFK and Albany International Airports, being bumped from one canceled flight to the next. Two nights without sleep and the frigid weather in upstate New York brought on a nasty cold.

The bonus—I couldn’t smell anything this morning. We began gross anatomy today. And then, we met our cadaver—a 92-year-old woman who died earlier this year of arterial sclerotic heart disease. We started the dissection right away. I asked if I could be the first to “cut,” thinking that it would be best to jump in before fear, anxiety, or any other of the myriad of emotions that surrounded anatomy took over. Surprisingly, I did not find the first incision difficult. Maybe I had adequately prepared myself. Maybe I had distanced myself sufficiently from the notion that the body before me was a living, breathing woman just five months ago. As I reflect on the day, I wonder whether this separation is respectful or necessary.

SEPTEMBER 1

I spent last Friday night working at the immunization drive. The clinic was packed with children needing immunizations before starting school this week. We were able to provide MMR, Polio, Hep B, Hib, DTP and Varicella vaccinations for MANY uninsured kids. I was impressed with many of the children. They were well-behaved and extremely brave as they quietly received as many as six shots! It felt good to help these children and their families.
On Saturday the first-year class went to a ropes course out by Six Flags. It was a blast!!! We broke up into small groups and visited various stations on a low ropes course with challenges such as trust falls. Our group worked exceptionally well together.

On Sunday morning, I ran the Chubb Trail in Lone Elk Park with Rachel. Despite the heat, it was nice to run on dirt trails outside of the city. We saw a white-tailed deer and found a rope swing on the river! I spent Sunday afternoon studying and preparing for my first quiz in Molecular Foundations of Medicine.

SEPTEMBER 11
I have been terrible about writing in this journal. My only excuse is that it is a definite indicator of how busy I've been!

I was relieved to have done well on my first MFM quiz. I have been working like a maniac to keep on top of everything—yes, I am still planning on making it to Sheila and Riz's wedding! The amount of information that we have been presented with is overwhelming. I am finding that my head is spinning and I am not sleeping well as a result!

Rachel and I have been running every day. Our times are improving and we have gotten in a few long runs. We are thinking about running the Chicago Marathon in October as a training run. I think that running is allowing me to maintain some semblance of sanity.

I was selected to work on a clinical study at St. Louis Children's Hospital screening adolescents seen in the ER. I will probably start working on that this coming week. I am really excited, but I think that I need to be careful about overextending myself.

SEPTEMBER 30
Family practice really interests me! I think that the diversity of the field is exciting! Not to mention, I could live in a rural area much closer to decent fly-fishing! City life is not for me. It is ironic that I can feel so lonely and isolated in the middle of such a dense population, and yet feel surrounded by a caring community in the middle of nowhere.

OCTOBER 2
I met my little sister, Cierrah, through the Pediatric Outreach Program (POP). She is 13 and in that stage where she wants to distance herself as much as possible from her mom and siblings. She was extremely quiet around her mom and I could really sense the tension. I am not sure that Cierrah actually wants to be involved with the program. I think that this is Mom's choice. We'll see how it goes.

OCTOBER 9
Sheila and Riz's wedding was beautiful. Although I am incredibly stressed by the fact that I haven't been able to study this weekend, I know that I made the right decision in being there. This was an important memory to make. Hopefully, I will survive next week. Anatomy on Monday, MFM on Tuesday, and Histology on Thursday. I am diving in!

OCTOBER 17
I survived! Mom came to St. Louis over the weekend. We had a great time and it was wonderful to relax. I am so fortunate to have a family that provides never-ending love and support.

Mom brought a present for me—actually a gift from a stranger that she met in Logan Airport in August. Mom and my stepdad, Charlie, were on their way to England, but their flight was canceled due to mechanical problems. My Mom has a gregarious personality and makes friends with strangers in a matter of minutes. Apparently, she started talking to a young guy from Maine on his way to Europe. In the course of their conversation, he pulled out a picture of himself fly-fishing with his dog. Mom told him about me and the fact that I love to fly-fish. They then discovered that this stranger and I had incredible similarities. And so, Mom pulled out her pictures. As they parted ways, the stranger reached into his bag and pulled out a fly—a Princess Di #4. He handed this to my Mom along with his e-mail address and asked her to give it to me.
OCTOBER 21

Yesterday, the topic in my selective class, Ethical Issues in Clinical Research, was research involving terminally and seriously ill patients. I was pleased that my experience at the MGH Cancer Center enabled me to contribute significantly to the class. The topic did, however, bring back a flood of memories and remind me of the words that I wrote in my medical school application essay.

"...Despite all that I witness on a daily basis, I do not begin to comprehend the stalking fear of facing a terminal disease. I only know that compassion and careful thought are received as blessed gifts by a patient. In the presence of a struggle for both future life and quality of present life, I recognize that a balance between medical technology and human dignity must be achieved. I have been privileged to observe the altruism and tender compassion of some of the finest oncologists in the world and honored to learn from my patients."

I wrote to the stranger to thank him for thefly. His name is Dave. He lives in a small town called Ashland. I don’t know why, but I feel as though I may have met my soulmate without even really meeting him. I don’t know if I will ever meet him in person, but it is fun to have a pen pal and his e-mails take me away from St. Louis to the backwoods of Maine, if only for a brief moment.

NOVEMBER 22

Grandma’s birthday. I miss her so much. It is hard to believe that she has been gone for almost seven years now. In celebration of her birthday, I spent the day in labor and delivery. I observed three cesarean sections. Each was different.

In the first case, mom was born with a congenital heart defect called tetralogy of fallot. We learned about this in anatomy and the effects of this birth defect were becoming clearer as we studied cardiovascular physiology. I held the mother’s hand and tried to calm her as the anesthesiologist performed an epidural. The surgery went well and a healthy baby boy made his way into the world. Mom was taken to the cardiac ICU to be observed carefully for postpartum complications associated with the stress and blood loss of delivering her son.

The second case was planned. This was mom’s third and final child—she was having her tubes tied! Dad was present and the atmosphere in the operating room was upbeat. A beautiful 10-pound baby girl was born. During the delivery, we received word that an emergency C-section would be performed in the adjacent OR in a few minutes.

The third mom had gone into labor prematurely at 28 weeks. Her amniotic fluid was infected and they had lost the baby’s heart beat. The NICU team from St. Louis Children’s Hospital had come over with special equipment to support the baby. The atmosphere was tense and mom lay alone on the operating table with a look of terror. Dad had been called, but was almost two hours away at work. I held mom’s hand and did my best to comfort her. Within moments, we heard a tiny cry from the other side of the curtain. One of the neonatologists wheeled an incubator laden with equipment and tubes toward mom.

She reached out and took the tiny hand of her 2-pound baby boy. The doctors explained that he had been unable to breathe on his own and so they had inserted a breathing tube. He was taken to the NICU at Children’s. And then, mom was alone with the steady beep of her heart monitor. Shortly after, I received an e-mail that the struggling baby had passed away. I cried.

NOVEMBER 28

Thanksgiving break was amazing! My friend Julie came to spend the holiday. Julie is an orphan and my family “adopted” her not long after we became roommates back in Boston. She arrived on Thanksgiving morning and we went directly to Casey and Nancy’s house to start preparing dinner. Casey’s brother and sister were both visiting too. The six of us were inseparable all weekend. We spent Friday walking around the zoo and Forest Park. On Friday night, Julie and I went to see Macey O’Parker at Mississippi Nights with Rachel and her husband, Victor. The music was great and we danced off all the weight that we had gained the day before! On Saturday morning Julie and I went to a kickboxing class before we went out to Casey and Nancy’s place to polish off the Thanksgiving leftovers. It was a great relief to not even open a book for four days; more importantly, it felt good to have created our own “family” in St. Louis.

Despite all that I witness on a daily basis, I do not begin to comprehend the stalking fear of facing a terminal disease. I only know that compassion and careful thought are received as blessed gifts by a patient.
Immediately, I assumed that someone had cheated on the take-home exam and that we were all in for a lecture on the honor system. I never imagined the weight that would be dropped on our class within the next few minutes.

DECEMBER 8
It is the last week of class in the first half of my first year of medical school. This must be some sort of milestone! My life has become consumed with studying, particularly head and neck anatomy. Nine more days to the completion of Anatomy and Molecular Foundations of Medicine! Although the first semester has gone quickly, I can't wait to go home for Christmas! Imagine—friends, family, two weeks without books...

DECEMBER 18
I survived!!! We finished our first semester yesterday! I spent this morning at the Saturday Neighborhood Health Center, a free clinic operated by Washington University medical students. The fourth-year medical student with whom I worked and I saw two patients. Both had diagnoses of hypertension, congestive heart failure and COPD. One of the patients had a heart murmur that I was able to hear. I will follow up with these patients to make sure that they have established regular health care when I return to school in January.

JANUARY 11
The first-year class held a service of remembrance and gratitude for the individuals who had donated their bodies to our anatomy class. A candle was lit in memory of each of the cadavers that we had come to know so intimately. Dr. Conroy read a poem written by one of our cadaver donors just prior to his death. He had been a surgeon and understood what we had experienced in anatomy. More importantly, he reminded us of the lives of these heroic people who had given so much so that we could learn. He reminded us of their love, their dreams, their hope and their humanity.

JANUARY 18
I felt like today was going to be a good day. I woke up early and even got in a couple of hours of studying before class. A dusting of snow had fallen overnight and the trees sparkled with ice. When I arrived at our 8:30 Genetics class, something seemed amiss. Drs. Peck, Kahl and Whelan stood at the front of Moore Auditorium. Immediately, I assumed that someone had cheated on the take-home exam and that we were all in for a lecture on the honor system. I never imagined the weight that would be dropped on our class within the next few minutes. The worst kind of tragedy had occurred—five of our friends had been in a car accident traveling home from Chicago. Two of them, David Kawamura and Stanley Chan, had been treated and released from the hospital. But Adam El-Kishin, Danny Lee and Candice Lin had been killed. Shock swept over us and the stabbing pain erupted into tears of anguish. This didn't make sense. How could God have taken the young lives of three amazing people? They had the potential to do so much good and it had been wasted... Nobody knew what to say or do and so we huddled together in the King Center, let the tears flow and stared out over Forest Park.

JANUARY 21
A memorial service was held tonight in the Eric P. Newman Education Center. Portraits of Adam, Candice and Danny stood before us. Each time that I had closed my eyes in the past week, I had seen their faces. Adam's quirky grin, Candice's gentle eyes and beautiful smile, and Danny's youthful face that somehow portrayed an impossible number of years of wisdom. The service was beautiful and truly captured the personalities of each of our extraordinary friends. We laughed and cried and thought if only we had more time together...Leaving was the most difficult part. Somehow it felt like a final good-bye and I don't think that anyone was ready to let go.
JANUARY 23
I wrote to Dave last week to ask about some of the National Health Service Corps sites in Maine. The summer externship application that I completed last week asks applicants to list preferences. I had simply specified rural, but I thought that I would get the inside scoop in the event that I may be given an option later. We ended up deciding that it would be easier to talk on the phone and so Dave called this afternoon. We spoke for hours! It has been incredible to get to know him without any of the usual pressures of a male-female friendship.

JANUARY 27
We had an incredible class yesterday. Two sets of parents came to talk to our class about their experiences with having children that were born prematurely with life-threatening birth defects. Their stories were terrifying and tragic, but they provided a lot of insight into the thoughts of patients and their families. I probably learned more in those two hours than I learned all of last fall.

Dr. Misler talked to us last week about facing death as a physician. His words were beautiful.

In a sense, many physicians face death daily. How does one deal with that situation? The best way I can relate that to you is to say that physicians are in the unenviable position of having to face death while trying to preserve life. But they are also in the unique position of being able to actively memorialize life as a way of mourning death, and that is by doing something that is really quite proactive. I think that is what probably sustains all of us. I don't know whether I've ever shared with you the Emily Dickinson poem:

If I can stop one heart from breaking,  
I shall not live in vain.  
If I can ease one life's aching or  
cool one pain  
or lift a fallen robin to its nest again,  
I shall not live in vain.

I think that is something that all of us as physicians ought to realize, part of our mission is to lift that fallen robin to its nest again.

FEBRUARY 14
Valentine's Day! Dave and his black lab, Dyer, sent me an incredible bouquet of yellow roses! I have been told that yellow roses mean friendship. I am relieved that we are able to take time in developing our relationship and impressed by the fact that he is so aware of such things! His support, like that of Casey and Nancy, has made all of the difference in the world! And I am going to meet Dave face to face in March! Casey and Nancy and I are going home to Hingham on March 9. Nancy's parents also will be flying in from South Dakota. Wow, my Mom's little house is going to be full!

FEBRUARY 23
With very mixed emotions, Cierrah and I have decided that she be paired with another POP big sis—someone who has had similar life experiences. I introduced her to my friend and classmate Rachel. It went well—Rachel really knows a lot more about Cierrah's life and interests. They talked about music and rappers... all kinds of things that I knew nothing about. I think that Cierrah has decided that Rachel is pretty cool. Better yet, Rachel is not going to be a pushover. She was really clear about the fact that she will not tolerate some of Cierrah's past behavior. Although I am sad about being "littlesibless," I know that this is really about what is best for Cierrah.

MARCH 1
Exciting news! I was offered a summer externship in Maine through the National Health Service Corps and the Maine Ambulatory Care Coalition. I do not know where I will be sent in Maine, but I am excited about the program. It will be a terrific opportunity to experience the life of a rural family practice physician.
The 50th year alumnae memento conveyed congratulations from Washington University "commemorating a 50-year journey, begun with hope, accomplished with skill and compassion, remembered with joy and gratitude."

Toni Zeigler, Class of 1945, thanks Benjamin Milder, MD '39 for entertaining the group with his humorous verse. Milder previewed his soon-to-be-published book, titled Oops! and Other Mad Medical Misadventures.

Some March 1950 classmates (from left): Bernice Nakakura Oshita, Honolulu, the alumna who traveled farthest to attend; Rita Questell Singman, Margaret Myers Davis, Frankie McLean Botts and Rosie Sandling.

The earliest graduates who attended were (from left): Mary Hooper Watson, Class of 1936 (her classmate, Dorothy Oates Mendens, is shown in another photo), Mildred Weiss Miksick and Edna Maxwell Roberts, both from the Class of 1939, Ruth Kennedy McCarty and Yvonne Bost Pickett, both from the Class of 1938.
Thirty-one alumnae celebrated their 50th reunion.

Kim Donermeyer, Alumni Relations Coordinator, presents Dorothy Mendonsa, Class of 1936, with one of the attendance prizes (one of Milder's books of light verse) given to the earliest and the most recent graduates who attended.

The most recent graduates who attended were (seated, from left): Jean Ritchie from the Class of 1968, Joan Burns, Barbara Gehringe and Laura Bell, all from the Class of 1962; (standing, from left): Joyce Dees Brockhaus and Carolyn Kirk Shapiro, both from 1968.

Jean Graham Whipple from the Class of 1951 watches while Pat Wallace Leigh and Louise Cooper Underwood from the Class of 1950 share a hug.

Millie Lehman Hill and Shirley Rimby Schacher from the Class of 1953 revisit their yearbook.
Kornfeld named Farrell Professor in Medicine

STUART A. KORNFELD, M.D., has been chosen to fill a new professorship, the David C. and Betty Farrell Professorship in Medicine.

David C. Farrell is the former chairman and chief executive officer of The May Department Stores Co. A member of Washington University's Board of Directors, Farrell also has been active on the boards of the local council of Boy Scouts of America, the Saint Louis Community Foundation, The Saint Louis Art Museum and other organizations. In addition, he chaired campaign efforts of such organizations as the United Way of Greater St. Louis, the Salvation Army and The Arts & Education Council of St. Louis.

Betty Farrell is a dedicated community volunteer. Among other activities, she helped lead a fundraising effort for an archeology project at the university, has been a board member of the Sheldon Arts Foundation and has served on a commission for the Missouri Botanical Garden.

"We thank the Farrells for the new professorship, and are pleased to have their names associated with the School of Medicine in this manner," says William A. Peck, M.D., executive vice chancellor for medical affairs and dean of the School of Medicine. "It is also a pleasure to have this distinction bestowed on Stuart Kornfeld, one of the world's great scientists."

Kornfeld co-directs the division of hematology and is a professor of medicine and of biochemistry and molecular biophysics. He has made groundbreaking discoveries about how sugar chains direct protein movements within cells. Sugar chains can serve as antennae-like attachments that allow proteins to be routed to their correct destinations the way an address determines where mail is sent.

Stuart Kornfeld is best known for discovering how lysosomal enzymes are routed to lysosomes, cellular structures that serve as garbage disposals. He identified two enzymes that add a specific sugar marker onto lysosomal enzymes.

Kornfeld has received numerous honors, including the Passano Award in 1991 and the Karl Meyer Award from the Society of Glycobiology in 1999.

An author or co-author of more than 200 scientific articles, he is a member of the National Academy of Sciences, the Institute of Medicine and the American Academy of Arts and Sciences.

Alumni network online with new services

Moving to a new city and looking for helpful alumni? Curious about where your former classmates live? Have we got a resource for you!

With your alumni ID number, you can click into the new password-protected, flexible and free Washington University alumni directory. Launched in March, the alumni directory contains current contact information that you can access from the homepages of either Washington University www.wustl.edu or the School of Medicine www.medicine.wustl.edu. One click on Washington University, then another click on alumni and another click on Alumni Directory, and you’re there. Instructions will guide you through registration.

You will have the ability to control what information is listed. (For example, you may want to include your e-mail address but not your phone number.) Should you wish to remove your name from the directory, simply notify us. We'll handle your request.
Annual Fund breaks participation records with a substantial increase in giving

THE SCHOOL OF MEDICINE’S ANNUAL FUND has completed its strongest year ever with more than 46 percent of MD alumni making gifts. This impressive participation rate tops all previous years, according to Emily Smith, MD ’68, Annual Fund chair. “It is wonderful to see such great loyalty,” says Smith. “The support of alumni strengthens the school in so many ways, particularly scholarships and student life.”

This year’s success is due, in part, to a challenge grant from Gordon Philpott, MD ’61, and his family. The Philpotts offered to match all gifts to the Annual Fund to encourage increased overall participation. In particular, they hoped to encourage young alumni to make first time gifts. For those who graduated between 1987 and 1999, the rate of participation jumped to 41.5 percent from last year’s 33.3 percent. “We are especially grateful to the many young alumni who made their very first gifts to the School,” says Philpott. “Knowing that they struggle with student loans, residents’ salaries, and the expenses of young families, we greatly appreciate their participation.”

Giving among former house staff also increased significantly during this past year. In an effort chaired by Phillip E. Korenblat, MD, FHS ’65, a record 1,112 former house staff gave to the school and its departments and divisions. This reflects a 37 percent increase over 1999. “Ten years ago, there were 239 former house staff donors,” says Korenblat. “We have made great strides over the last decade and an impressive beginning to the next.”

Altogether, giving to the Annual Fund for the year ending June 30, 2000, totaled over $1.5 million with more than 7,000 donors contributing to the School of Medicine, Program in Occupational Therapy, Program in Physical Therapy and Health Administration Program.

Pohlman takes over as Medical Center Alumni Association president

THOMAS R. POHLMAN, MD, ’76, assumed leadership of the Washington University Medical Center Alumni Association (WUMCAA) on July 1, 2000.

Pohlman, a nephrologist, has been in practice in St. Louis for 17 years. He was on the Washington University faculty from 1981 to 1983, serving as an instructor in medicine at the medical school and as assistant attending physician and medical director of the hemodialysis unit at Jewish Hospital. Currently, he is on the medical staff of St. Luke’s Hospital and St. John’s Mercy Medical Center.

Pohlman says one of his goals for the coming year is to rally his classmates from 1976 into becoming more involved in WUMCAA and attending their 25th reunion in May 2001. “I want to see that the alumni association remains financially sound so that we can continue to provide resources such as accredited CME, online services, contact with former classmates and house officers, and updates on medical school development to alumni all over the country, as well as to St. Louis community physicians and private practitioners,” says Pohlman.

In addition, Pohlman says the alumni association must continue to provide student scholarships and support for students’ extracurricular activities.

“I’ve been refreshingly surprised with the diversity of the current student body and the tremendous number of opportunities and responsibilities they have in addition to being medical students,” he says. “It’s most important that we provide program support for their activities and financial support for those in need.”

Pohlman received his undergraduate degree in chemistry summa cum laude from Saint Louis University. After graduating from medical school, he completed an internship and residency in internal medicine at the University of Kentucky Medical Center. He completed a fellowship in nephrology at Washington University and Barnes Hospital.

He is certified by the American Board of Internal Medicine and the American Board of Nephrology, and is a member of numerous professional societies.
IT WAS GOING TO BE DINNER at St. Louis' Ritz Carlton Hotel, then home with her husband, Edward. But instead, Stella Darrow—a woman whose generosity has surprised many unsuspecting students—got a big surprise herself.

In the hotel dining room were three medical school alumni and one medical student and their families gathered to honor the woman whose kindness and foresight supported their medical education.

From Seattle to Madison, the physicians and their families came to toast Darrow—and her special brand of personal philanthropy. "I was shocked," says Darrow, who received her bachelor's degree from Washington University in 1931. "Just thrilled to see everyone."

In 1978, Darrow decided to honor her late father, Albert F. Koetter, MD, with a gift to his alma mater. (Koetter was a member of the class of 1892 of the Missouri Medical College, which merged with the Washington University Medical Department in 1899. Thereafter, all alumni were treated as Washington University School of Medicine graduates.) Koetter was on staff at Barnes and St. Louis Children's hospitals. A gifted otolaryngologist who was known for his compassion, he died when Darrow was only 8 years old. So when Darrow later inherited his share of a family business, the Pearl Brewery in Pearl TX, she created a gift that paid tribute to him and benefited the place he loved most, the medical school.

From the beginning, Darrow had definite ideas about the gift. For one, she wasn't interested in pooling money in a scholarship fund. "I wanted to do something very much in his name," she says. "And something personal."

After some pondering, Darrow suggested a scholarship fund that supported one student through medical school at a time. Each student, known as a Koetter Scholar, would be selected based on a superior academic record and a dedication to extracurricular activities. "I thought, 'What could be better than using the money to actually turn out doctors?'" she says.

The Koetter Scholarship, given to one student every four years, was the first scholarship of its kind at the medical school. Since, it's gone on to set the standard for personal philanthropy.

"We've patterned other scholarships after hers," says John Walters, assistant dean, student affairs, at the medical school. "But hers was the first."

Thus far, six students have received the scholarship. One student, Lukas Wartman, a member of the Class of 2003, is currently enrolled as a Koetter Scholar.

No doubt, a full scholarship is appreciated. But what has grown to be equally important is the friendship that inevitably develops between Darrow and the Koetter Scholars. As students, they start the friendship by attending annual luncheons with her, and keeping her Koetter Scholarship recipients and their spouses, from left, Lukas Wartman, donor Stella Darrow, Laura Rokusek Cain, MD; back row, from left, Robert Benedett, MD, Ruth Benedett, Edward Darrow, Mark Lucarelli, MD, Heidi Lucarelli, and Steve Cain.
abreast of their progress. "It's very personal this way," says Darrow.

So personal, in fact, that Koetter Scholars keep in touch with Darrow after they graduate.

Mark J. Lucarelli, MD, an oculoplastic surgeon and assistant professor at the University of Madison-Wisconsin, sends Darrow news releases, his school's annual report—anything that highlights his work. He finds her interest in the Koetter Scholars heartwarming.

"It's so gratifying that she's taken a genuine personal interest in my family and my career," he says. "It wasn't about her giving money to the school. It was about her helping people."

Benedett and his wife, Ruth, were thrilled to attend the party honoring Darrow. Without the scholarship, Benedett says he would not have been able to afford medical school. A native Minnesotan, he is the son of a farmer and a nurse, and the family's first doctor.

Darrow's ties to the Washington University community are long and deep. As a girl, she lived on Pershing Place in St. Louis and has fond memories of her father's involvement at the medical school. She went on to graduate from Washington University as well, receiving her degree in English in 1931. Afterward, Darrow spent 10 years working as a librarian for the St. Louis Public Library.

She has enjoyed a life of travel, having gone around the world five times. Her trips have been leisurely, 90 days on a ship, docking at one port after another. It was during one of those trips, at one of those ports—Hong Kong—that she met her future husband, Edward Darrow.

Edward is a native New Yorker and spent years as vice president of the Macy's retail chain. But when he fell in love with his wife, he also fell in love with St. Louis. They now have a home in Clayton and spend winters in Palm Desert CA.

In fact, it was Edward who suggested Darrow consider giving a medical gift.

"Edward's mother was a nurse and he always appreciated her work in the medical field, and he knew how I appreciated my father's," she says.

For Darrow, the beauty of the gift lies in its namesake, but also in the intimacy of the gift. "I just so enjoy knowing that the gift helps one student all the way through medical school and at the end, there is a doctor, ready to help," she says.

Like others at the surprise party, Laura Cain, MD, says she is overwhelmingly grateful for Darrow's generosity.

"This scholarship gave me the opportunity to attend an outstanding medical school," she says. "At the dinner, it was hard for me to find words adequate to express how much this scholarship meant to me."

Cain, too, keeps Darrow informed of her post-graduation activities. She now serves as the Puget Sound Medical Director for Boeing Co., overseeing four on-site clinics that provide occupational and urgent care to the company's 75,000 area employees.

"I was thrilled when I heard about the reunion for Mrs. Darrow, and I was so happy to have the opportunity to thank her and recognize her contribution to all her students and the university."
Robert J. Meyer, MD '55, MPH, writes that he is "pleased and somewhat chagrined to have my first grandchild arrive finally; with six children I might have expected more!" Meyer continues to serve as clinical professor of pediatrics and public health at the University of Washington, where he recently helped create an annual pediatric lectureship honoring practitioners. He says that raising money for the university, the Seattle Symphony and a local land trust has become a "late-developed talent that keeps me off the streets." He also works with the Rotary Club and the Academy of Pediatrics to create children's health facilities overseas.

Zelig H. Lieberman, MD, HS '57, was awarded the 50-Year Lifetime Achievement Award from Tulane School of Medicine at a ceremony in New Orleans in May. Lieberman is chief of surgical oncology at Baylor University's Sammons Cancer Center and president of the Dallas Chapter of the American Cancer Society. In 1998, Baylor University named a new medical research building in his honor. He has also been honored as "Dallas' Father of the Year." He and his wife, Marilyn, have been married for 45 years and have three children.
Randall E. Dalton, MD '76, was appointed to a three-year term on the Board of Directors of the Medical College of Virginia Commonwealth University Health System Authority, effective July 1, 2000. The appointment was made by the Speaker of the House of Delegates of the Commonwealth of Virginia and confirmed by the General Assembly. Dalton is also a member of the Board of Directors of Richmond Eye and Ear Hospital and is entering the second year of a two-year term as president of the Richmond Medical Society. In addition, he recently assumed the presidency of the medical staff of Bon Secours Richmond Community Hospital. Dalton is an otolaryngologist/head and neck surgeon engaged in solo private practice in Richmond.

Margaret A. Mahony, MD '84, recently published a book, Saving the Soul of Medicine, elucidating the impact of managed health care practices. Published by Robert D. Reed Publishers in San Francisco, the book is a collection of actual patient stories, interviews with allied health personnel and hospital employees, and essays on the impact of managed care on the physician. It concludes with possible solutions to the problems described. Mahony lives in San Jose CA.

Mark Boguski, MD, PhD '86, is senior vice president of research and development at Rosetta Inpharmatics, Inc. of Kirkland WA. He was formerly at the National Institutes of Health, where he was one of the founding members of the U.S. National Center for Biotechnology Information, a division of the National Library of Medicine which has worked to systematize government and academic efforts to map and understand the human genome. He has been an organizer of the Cold Spring Harbor Symposium on DNA Mapping, Sequencing and Biology since 1998.


Michelle Michaelis Aylor, PT '87, works three days per week at an outpatient facility in Lincoln NE. She and her husband, Mark, have four children, ages 2 to 9 and keep busy with work and kids' activities.


Neil Worrall, MD '91, has finished his cardiothoracic residency at Brigham and Women's Hospital in Boston and moved his family to Spokane. He has joined The Heart Institute of Spokane, where he will be doing adult and pediatric cardiac surgery. He and Dawn have two children, Emily, 7, and Peter, 5, and are looking forward to exploring the Northwest.

Misti L. Timpson, PT '92, is staff physical therapist in neurological rehabilitation at the LDS Hospital in Salt Lake City. She and Mathew Timpson have been married for a year and spend "all the vacation time they can afford" scuba diving in Mexico. Timpson volunteers each summer in Haiti treating pediatric patients.

Deborah Perry Neff, OT '95, and her husband, Todd, are proud to announce the birth of their daughter, Mackenzie Rose, on June 7, 2000.

Jason Linder, MD '96, and his wife, Nina, announce the arrival of their daughter, Kara Elizabeth, on May 24, 2000. They live in Indianapolis, where he is staff emergency physician at the Indiana School of Medicine.

Raphael B. Merriman, MD, HS '96, has moved from St. Louis to San Francisco, where he will work in the division of gastroenterology at the University of California.

Yuen Michael Chau, MD '96, and Natasha Leacock-Chau, MD '97, have moved to Toppenish WA, where she is a pediatrician and he practices OB/GYN.

Charles K. Lee, MD '97, married Nayyung Kim, MD, on June 18, 2000, in Chicago. He began his fourth year of plastic surgery residency at the University of Chicago in July.

Carmen M. Grewe Bolt, OT '98, was married to John D. Bolt on April 29, 2000. They live in St. Louis.

Paul Melsness, PT '98, is employed at Long Island Jewish Hospital in New Hyde Park, Queens NY, "a perfect location, only 30 minutes from some good beaches and golf courses on Long Island, yet 30 minutes from Manhattan."

Rebecca Jean Badura Smith, PT '92, and husband Glen announce the birth of Adam Robert Pilialoha on November 14, 1999. Becky continues to work at the Hammond Clinic in Munster IN as a senior physical therapist. She became a board-certified clinical specialist in orthopaedic physical therapy in 1999.

Trey Long, HA '93, has been promoted to regional manager of managed care for Pediatrix and Obstetrix National Medical Group.

Tom Tressler, PT '93, and his wife, Sally, announce the arrival of their first child, Matthew, born Sept. 8, 1999, in Cincinnati OH. They welcome e-mail at tressler@one.net.

Stacy Scott Brisco, OT '94, of Noblesville IN, married Michael Brisco in September 1994. They were blessed with a son, Noah Michael Brisco, born on March 7, 1999.
D. Greg Farwell, MD '94, began a faculty appointment at the University of Washington in Seattle on July 1, 2000. He is assistant professor of otolaryngology, head and neck surgery.

Susan Tax Tomica, PT '95, married Dan Tomica on Oct. 16, 1999. She works in an orthopaedic/sports medicine clinic in Novi MI. Melissa Curtis, PT '96, works in an outpatient orthopaedic clinic in Grand Blanc MI, following several years at a back care center. She and her husband celebrated their first wedding anniversary on May 1, 2000.

Vineet Arora, MD '98, is a second-year internal medicine resident at the University of Chicago. Charles R. Darwin, HA '98, and his wife have a new daughter, Abigail Kathleen, born March 10, 2000.

Angela Wong, MD '99, writes that she keeps busy with her internship at the University of California at San Francisco; but she and husband Lawrence manage to find some time to explore and hike in the Bay area.

William Berman, MD '35, died June 9, 2000, in St. Louis a week prior to his 90th birthday. He was emeritus clinical assistant professor of obstetrics/gynecology at Washington University School of Medicine. Three sons survive, John, Tom and William Berman Jr., MD '69.

Marion McNabb Lydon, NU '37, of Corvallis OR, died on May 11, 2000, at the age of 83.

Darwin W. Neubauer, MD '39, died of cancer in Tucson AZ on Feb. 22, 2000, at the age of 85. During World War II he served as a flight surgeon in Europe and North Africa. He moved to Tucson in 1948, where he helped develop Tucson Medical Center into an acute care facility. He specialized in the management of cancer and was a founder of the Arizona division of the American Cancer Society. He created the first medical journal in the state, Arizona Medicine, and served as its editor for eight years. Survivors include his wife, Virginia, to whom he had been married for 62 years, daughters Susan Osborn of Phoenix and Jan Neubauer of Tucson, and a son, William Neubauer, MD '69.

Roland Robert Cross, MD '40, of Downers Grove IL, formerly of Oak Park, died June 17, 2000, at the age of 84. During World War II he served as a captain in the U.S. Army with the University of Illinois 27th Evacuation Hospital in Africa, Italy, France and Germany and with the 132nd Evacuation Hospital. After completing his residencies in surgery and urology in 1949, he established a private practice in the Chicago area in 1950 and was clinical professor of urology at Northwestern University. Later, he was appointed chairman of urology at Loyola University Medical Center, where he also served as acting dean in the mid-1970s, becoming full-time associate dean of admissions in 1979. He served on the admissions committee at Loyola's Stritch School of Medicine until his retirement in 1990. Loyola awarded him the Strich Medal in 1992 in recognition of his outstanding accomplishments. Cross is survived by his wife, Helen Hubbard Cross, and one daughter, Carol Cross Malik. Another daughter, Cynthia Cross Leitner, preceded him in death.

Florence Taylor-Galt, NU '40, died June 28, 2000, in Carlsbad NM at the age of 81. She is survived by three children and three grandchildren.

James Kinder, MD '41, of Cape Girardeau MO, was killed in a car accident near Cartersville GA, on July 1, 2000, at the age of 83. He served as a flight surgeon with the 14th Air Force, assigned to the Chinese-American Composite Wing, during World War II and was awarded the U.S. Air Medal, the Asiatic-Pacific Campaign Medal with two Bronze Stars, and the Breast Order of Tao Ping from the Chinese government. Upon discharge from active duty in 1946, he completed a residency in pediatrics at St. Louis City Hospital and St. Louis Children's Hospital and then opened a private practice in Cape Girardeau. He was instrumental in establishing a neonatal intensive care unit at Southeast Missouri Hospital there. Kinder was active in church, professional and civic organizations, among them the Missouri affiliate of the American Heart Association, of which he was president in 1964-1965, and which gave him the M. Graham Clark Award in 1991. He was a member of state and local boards of United Way, Easter Seals, Missouri Crippled Children's Service, and of various state committees on health issues. He served the Boy Scouts of America in many capacities through the years, receiving the Award of Merit from the Shawnee District in 1971 and the Silver Beaver from the Greater St. Louis Area Council in 1994. In 1965-1966 he served a term on the
William Seidler Jr. MD '43, of Panora IA, died of cancer April 12, 2000. He was a general practitioner in Jamaica IA for many years. During World War II he served in the U.S. Army Medical Corps. He was a member and past president of the Iowa Academy of Family Physicians, a member and fleet surgeon of the U.S. Power Squadron, and past president of the Royal Order of Jesters. Among his survivors are his wife, Mary Milam Seidler, a son and a daughter.

Carlton Watkins, MD '43, died May 26, 2000, of heart failure at age 80 in Charlotte NC. After serving in the Army Medical Corps in World War II he began a private pediatric practice in Charlotte in 1946. In 1973, he left that practice to work in public health at the Mecklenburg County Center for Human Development on behalf of the mentally retarded, developmentally disabled and those with substance abuse problems. The center was renamed in his honor in 1995. Watkins was known for having been a positive force in desegregating the health care facilities and the public schools in Charlotte, and served on the school board from 1966 to 1974. He and his wife, Charlotte Mertcalf Watkins, adopted four children, and he served as legal guardian to some 18 mentally retarded children and adolescents. In 1999, he authored a book, Beyond Parenting: A Century of Parenting and Pediatrics in Charlotte and Mecklenburg County, which combined history with his observations about medical care of children. His wife and children survive.

Samuel B. Guze, MD '45, the Spencer T. Olin Professor of Psychiatry and former head of psychiatry and vice chancellor for medical affairs at Washington University, died July 19, 2000, at Barnes-Jewish Hospital from a fall complicated by polycythemia vera, a bone marrow disease. He was 76. One of the most influential psychiatrists in the world, Guze and colleagues sent shock waves through the psychiatric community in the 1950s with their beliefs that psychiatric illness should be diagnosed just as any other physical illness through use of a scientific medical model and biological approach. Their ideas shaped today's psychiatric practice. Guze's work spawned great interest in the genetics of psychiatric disorders. He was among the first to use twin studies as a means of identifying the role of heredity in psychiatric illness. He and his co-investigators produced key findings about genetic vulnerability to alcoholism and other conditions such as schizophrenia and affective disorders. In 1980, Guze and his colleagues finally received validation of their work by the psychiatric community when they helped create the American Psychiatric Association’s DSM-III (Diagnostic and Statistical Manual of Mental Disorders). The manual immediately became a best seller and is still in use today. With colleagues, he also wrote a textbook for followers of the Washington University approach. Psychiatric Diagnosis was published in 1974 and is considered a classic.

In addition to his scientific accomplishments, Guze led the school as vice-chancellor for medical affairs. He was appointed vice chancellor and president of the Washington University Medical Center in 1971, positions he held until 1989. He was head of the Department of Psychiatry from 1975 to 1989 and again from 1993 to 1997. He also served as psychiatrist-in-chief at Barnes-Jewish and St. Louis Children's hospitals. Guze was born in New York on Oct. 18, 1923. He attended the City College of New York, Washington University and its School of Medicine, receiving his medical degree in 1945. Guze published more than 200 scientific papers and several books. He also received numerous awards and was a member of a number of professional organizations. Guze and his wife, Joy, established the Samuel B. Guze Professorship in Psychiatry in 1998.

Donations may be made to the Samuel B. Guze Research Fund in the Department of Psychiatry at Washington University School of Medicine, Campus Box 8134, 660 South Euclid, St. Louis, MO 63110. The fund has been established to support young investigators’ research. Survivors include his wife of 54 years, Joy Campbell Guze; a son, Jonathan D. Guze of Durham NC; and a daughter, Jeremy Ann Opitz of Danbury NH; and five grandchildren.

John W. Hessing, MD '48, of Harrington NJ, died Aug. 8, 1999. He was a retired internist who had practiced in New York since 1955. During the Korean War he served for a year in the United States Navy, after which he served in the Naval Reserves, retiring as a commander after 28 years.

William R.J. Kilpatrick, MD, HS '53, died Nov. 19, 1999. He was an ophthalmologist and had lived in Paradise Valley AZ. Among his survivors are a daughter and two sons, including William R. Kilpatrick, MD '71.
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— WILLIAM H. DANFORTH, MD
CHANCELLOR EMERITUS

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Here is one example showing the benefits of a Washington University Charitable Remainder Unitrust with a gift of appreciated securities:

<table>
<thead>
<tr>
<th>Description</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Assumed stock valued at</td>
<td>$50,000</td>
</tr>
<tr>
<td>Stock Purchase Price</td>
<td>$25,000</td>
</tr>
<tr>
<td>Dividend Yield</td>
<td>2.5%</td>
</tr>
<tr>
<td>Holding Period</td>
<td>more than one year</td>
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**OPTION A:** Keep the stock.

<table>
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<th>Description</th>
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<tr>
<td>Your income from this stock</td>
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**OPTION B:** Sell the stock and buy bonds.

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<tr>
<td>Selling Price</td>
<td>$50,000</td>
</tr>
<tr>
<td>Capital Gain</td>
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</tr>
<tr>
<td>Federal Capital Gains Tax (20%)</td>
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<tr>
<td>Amount Remaining to Invest</td>
<td><strong>$45,000</strong></td>
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<tr>
<td>Your income from 6% bonds:</td>
<td><strong>$2,700</strong></td>
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**OPTION C:** Benefit four ways from a Washington University Charitable Remainder Unitrust.

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<td>Donation to Unitrust</td>
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<tr>
<td>Capital Gain</td>
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<tr>
<td>Tax on Capital Gain</td>
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<tr>
<td>Amount for Unitrust to Invest</td>
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</tr>
<tr>
<td>Your Income from Unitrust at 6%:</td>
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<tr>
<td>Federal Income Tax Deduction</td>
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<tr>
<td>Federal Income Tax Savings</td>
<td><strong>$6,881</strong></td>
</tr>
<tr>
<td>Total Tax Savings</td>
<td><strong>$11,881</strong></td>
</tr>
<tr>
<td>Effective Payout Rate</td>
<td>7.9%</td>
</tr>
</tbody>
</table>

1 Gain on stock held over 12 months is taxed at 20%.
2 Income from Unitrusts will vary.
3 Donors, husband and wife, both age 75, at the 31% bracket. The Federal Income Tax Deduction is even greater for a Unitrust with only one beneficiary.

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Advice from your tax or legal adviser should be sought when considering these types of gifts.
Washington University in St. Louis

SCHOOL OF MEDICINE

[Form containing options and fields related to creating a Robert S. Brookings "Partner" relationship, calculating benefits, and making a bequest to Washington University School of Medicine]

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MAY 10-12	2001

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Registration materials will be mailed in February.

M.D. CLASSES OF:
'41  '46  '51
'56  '61  '66
'71  '76  '81
'86  '91
Into Africa

A team of physicians and nurses from the School of Medicine and Saint Louis University School of Medicine traveled into Nairobi, Kenya, last May to treat brain and spinal cord problems at three hospitals, which serve about 40 million people. The group of volunteers also spent time educating local nurses and neurosurgeons on developments in neurosurgery techniques.

Here, on the day of departure from Lambert Airport, are some of the team members. Front row, from left, Michael R. Chicoine, MD, Janet Ochoa, RN, Dawn Schluessler, RN; second row, from left, Raema Howell, RN, and Kathleen Kumanomido; back row, from left, Armond Leon Levy, MD, and Jeffrey G. Ojemann, MD.

Washington University in St. Louis
SCHOOL OF MEDICINE