Second-year medical student Letitia Bridges, left, explains the anatomy of the human heart to McCluer High School students Renada O'Neal, center, and Krystal Scarbrough. O'Neal and Scarbrough participated in the Health Professions Recruitment Exposure Program, sponsored by the Student National Medical Association. The program, which took place in February, teaches area high school students about medicine and other health-related fields.
The Cover

The image shows a microscopic view of the intestinal wall in transgenically altered mice. The fingerlike projections are intestinal villi — which are coated in cells that absorb nutrients from digested food. The blue tissue is normal; the white tissue can be engineered to lack the functional form of a protein called cadherin, important in cell adhesion. MSTP student Michelle Hermiston devised the approach to look at cadherin function in mice. For more on Hermiston's work, and that of other MSTP students, see the story beginning on page 8.

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Wayne M. Yokoyama, M.D.

**Yokoyama Directs Rheumatology**

WAYNE M. Yokoyama, M.D., has been named director of the division of rheumatology at the School of Medicine and director of rheumatology for Barnes-Jewish Hospital. In addition, he is the first occupant of a new endowed chair, the Sam J. and Audrey Loew Levin Professor of Arthritis Research, made possible by a bequest from the estate of Audrey Loew Levin.

Yokoyama comes to St. Louis from Mount Sinai School of Medicine in New York, where he was an associate investigator of the Howard Hughes Medical Institute (HHMI) and an associate professor of medicine, microbiology and molecular biology. At Mount Sinai, Yokoyama was involved in formulating a new Ph.D. program in immunology and in the institution of a new immunology center.

Yokoyama studies a component of the immune system called natural killer cells, or NK cells. NK cells have the ability to kill tumor cells and infected cells but generally do not attack normal body cells.

Yokoyama's group is credited with several major discoveries that help explain how NK cells recognize their targets.

Under Yokoyama's direction, the division of rheumatology will expand its basic and clinical research. New efforts will focus on understanding the cause of autoimmune diseases, such as rheumatoid arthritis, in which the body launches an inappropriate immune response against its own tissue. The division's expansion is intended to ensure that Washington University is at the forefront of basic and clinical research in this area.

**Student Liaison**

NEIL M. Olsen, a fourth-year medical student, has been selected to serve as a student membership liaison for the American Academy of Family Physicians (AAFP) for the 1995-96 school year.

One student is selected from each of the nation's 125 medical schools to fill this volunteer leadership position. The student liaison is responsible for promoting the specialty of family practice to his or her fellow students. Olsen will serve as the AAFP's official on-campus representative for student membership in the organization and will work directly with other medical students who have an interest in family practice.

Following graduation, medical students who are interested in family practice enter a three-year residency training program in which they receive training that will enable them to treat the whole patient within the context of his or her family. Family physicians are medical specialists trained to treat 90 percent of their patients' medical problems for all ages and both sexes.

The AAFP is the national medical organization for the specialty of family practice, representing 82,000 family physicians, residents in family practice and medical students nationwide.

**Guze Wins Sarnat Prize**

SAMUEL B. Guze, M.D., Spencer T. Olin Professor and head of the Department of Psychiatry, has received the fourth annual Rhoda and Bernard Sarnat Prize in Mental Health.

The Sarnat Prize recognizes individuals, groups or organizations for outstanding achievement in improving mental health. The prize is given by the National Academy of Sciences' Institute of Medicine.

Guze was selected because of his pioneering work in the diagnosis of psychiatric disorders. He was part of a group at Washington University that created a scientific medical model and introduced a biological approach to the diagnosis and treatment of mental illness.

The idea was to diagnose and treat psychiatric patients in the same way that other physicians approach patients with physical illness.

Guze and colleagues believed that mental illness should be diagnosed using specific criteria. They helped create the American Psychiatric Association's DSM-III (Diagnostic and Statistical Manual of Mental Disorders), which was first published in 1980.

Guze's work over the last three decades has helped lead to a return to the medical roots of clinical psychiatry. His research also has spawned great interest in the genetics of psychiatric disorders. In addition, his work has resulted in widespread recognition of the importance of epidemiological understanding and knowledge concerning mental illness. His research contributed key knowledge regarding genetic vulnerability to alcoholism as well as other conditions including schizophrenia and affective disorders.
Cole Assumes Vice Chairmanship

F. Sessions Cole, M.D., professor of pediatrics and of cell biology and physiology, has taken over as vice chairman of the Department of Pediatrics for regional pediatrics at Washington University and regional medical director for pediatrics for St. Louis Children's Hospital.

Cole is responsible for assuming leadership for the Department of Pediatrics in the absence of Alan Schwartz, M.D., Ph.D., Alumni Endowed Professor of Pediatrics and head of the department. He also will develop and coordinate all pediatric physician activities at St. Louis Children's Hospital and other hospitals within BJC Health System. Cole works closely with Burl Stamp, vice president of ambulatory and clinical services development at St. Louis Children's Hospital.

"I am enthusiastic about the great potential for significant improvements in health care for children that are available through the partnership of Washington University School of Medicine and BJC Health System," says Cole, who will continue to direct the division of newborn medicine in the Department of Pediatrics.

Cole joined Washington University in 1986 as an associate professor of pediatrics and of cell biology and physiology. The same year, he was named director of the division of newborn medicine and in 1989 was promoted to professor of pediatrics. He was named professor of cell biology and physiology in 1994.

Cole is a member of many professional organizations, including the American Academy of Pediatrics, the American Association of Immunologists and the Society for Pediatric Research. He also serves on the community advisory board of the St. Louis Child Health Initiative and the Missouri Medicaid Managed Care Physicians' Task Force.

Inventor Of The Year

Wayne M. Barnes, Ph.D., has been named 1996 Missouri Inventor of the Year by the Patent, Trademark and Copyright Section of the Bar Association of Metropolitan St. Louis.

Barnes, an associate professor of biochemistry and molecular biophysics at the School of Medicine, improved a method — called polymerase chain reaction, or PCR — for repeatedly copying small amounts of DNA to obtain sufficient quantities for analysis. Forensic scientists use this method to prepare evidence from crime scenes for DNA fingerprinting. It also is widely used by virologists, molecular biologists and gene mappers.

"The invention is such a significant advance in the art that Dr. Barnes stood out from the other candidates," says G. Harley Blosser, a patent attorney with Senniger, Powers, Leavitt & Roedel and chairman of the Patent, Trademark and Copyright Section. "Also, it is difficult for someone who doesn't have the backing of a large corporation to make it in the patent field, so we wanted to recognize that achievement."

Barnes' solution copies DNA 10 to 20 times more accurately and copes with 10-fold larger pieces — up to 35,000 base pairs. He calls the method LA (long and accurate) PCR.

Six companies have used Barnes' method to improve their PCR kits. The pharmaceutical giant Hoffmann-LaRoche Inc. was the first licensee, in February 1994.

Shure Is First Woman To Preside

Deborah Shure, M.D.

Deborah Shure, M.D., FCCP, associate professor of medicine, was inaugurated as president of the American College of Chest Physicians, a 16,000-member international medical society. She is the first woman to hold the position.

Shure was inaugurated during the college's 61st annual international scientific assembly in New York. The college promotes the prevention and treatment of diseases of the chest through leadership, education, research and communication.
Teaching Award Honors Lang

A TEACHING award has been established at the School of Medicine to honor longtime faculty member Stanley Lang, Ph.D., professor emeritus of cell biology and physiology.

Lang, who retired from active teaching in 1982, served as a role model and mentor for young faculty members and was instantly popular with medical students, says Philip D. Stahl, Ph.D., Edward Mallinckrodt Jr., Professor and head of the Department of Cell Biology and Physiology. Lang served as course master for the physiology course, and it was there that he made his major contribution to the medical school, Stahl says. Students voted Lang Teacher of the Year in 1974, 1976 and in 1983. He also was honored for his teaching skills at the annualFounders Day.

Lang came to the Medical Center in 1955 as physiologist to the Department of Surgery at the former Jewish Hospital of St. Louis, and was appointed to the part-time faculty at the medical school in 1959.

The award, which was presented for the first time last December to Dana Abendschein, Ph.D., will be given annually to a junior faculty member when Professor of the Year Award winners are named.

U.S. News Ranks Medical School No. 4

The School of Medicine climbed to No. 4 in the nation among research-oriented medical schools in the 1996 U.S. News & World Report rankings.

In the magazine's seventh annual guide to "America's Best Graduate Schools," the School of Medicine was ranked behind Harvard University, Johns Hopkins University and Yale University, respectively. Last year, the School of Medicine was ranked No. 5.

"We are pleased to move up to No. 4 in the rankings. It is indeed an honor to be considered one of the top medical schools in the country," says William A. Peck, M.D., executive vice chancellor for medical affairs and dean of the School of Medicine. "This is a testimony to a truly outstanding faculty and student body."

In addition, the Department of Internal Medicine was ranked No. 5 following internal medicine departments at Harvard University, Johns Hopkins University, the University of California at San Francisco and Duke University.

U.S. News bases its rankings on criteria that include measures of student selectivity, placement success, faculty resources, research activity and surveys of institutional reputation.

Student Awards Presented

Third-year medical student Marleen A. Cousins, left, received the Dr. Helen E. Nash Academic Achievement Award at the 1994-95 Student Awards luncheon in December. Cousins, shown here with Nash, who is professor emeritus of clinical pediatrics, was among 28 first-, second- and third-year medical students recognized at the event. Other awardees were: Arielle D. Stanford, Jason L. Evans, Kathleen Mooney, Jennifer Wetmore, Heather L. McGuire, Allen M. Doezie, Laxmeesh Mike Nayak, Michael Ohi, Ryland Melford, Susan H. Yang, Michael E. Bowdish, Kevin L. Ferguson, Ericka V. Hayes, Katrina L. Lee, Petros C. Karakousis, Kathleen R. Page, Josh Moosikasuwon, Jennifer Thomure, Amy E. Bane, Amy Zarrin, Tony Tsai, John C. Madden, Valerianna Amorosa, Robert A. Bane, Kimberly A. Uhles, Jennifer S. Gold and Deborah S. Lindes.
HAP Celebrates 50th Year

Stephen M. Shortell, Ph.D., A.C. Buehler Distinguished Professor in the J.L. Kellogg Graduate School of Management at Northwestern University, talks with students in the Health Administration Program. From left, students are Maureen Gunn, Gina Holmes, Liz Stockmyer and Jeannie Tobin. Shortell was the keynote speaker for the second annual Executive Lecture Series, sponsored by HAP.

T HE Health Administration Program at the School of Medicine celebrates the 50th anniversary of its founding this year with several special events — two already have taken place — and an upcoming graduation reception on May 16.

The program, established in 1946, was one of the earliest formal educational efforts in hospital administration in the country. The first class of seven students — six of whom are still living and retired — followed a nine-month, on-campus curriculum and a 12-month administrative residency in a hospital. At that time, the program was operated through the administration of the former Barnes Hospital, and its faculty was all part-time.

The program came to be known as the Health Administration Program (HAP) in 1978. Today, it is ranked among the top 70 accredited programs in the United States and Canada. The program accepts 25 to 30 full-time students every year, and to date has graduated 1,166 men and women. Currently, there are five full-time faculty including James O. Hepner, Ph.D., professor and director of the program since 1967, and Stuart B. Boxerman, D.Sc., associate professor and deputy director. The program awards a masters of health administration (MHA) degree upon completion of a two-year, 60-semester-hour course of study. A postgraduate administrative fellowship also can be selected.

In addition to the MHA, the program offers dual degree programs with other Washington University schools such as law, business, engineering and applied science and social work.

The stature of the program is reflected in its graduates, some 35 percent of whom are chief executive officers or presidents of health care organizations. Several hundred graduates hold executive leadership positions in a variety of private and not-for-profit health care settings.

Hospitals Tie The Knot

B ARNES Hospital and The Jewish Hospital of St. Louis — recognized as two of America's premier medical institutions — have merged, creating Barnes-Jewish Hospital.

The new Barnes-Jewish Hospital will streamline operations and apply its combined resources and capabilities to achieve even higher levels of patient care and service. As one institution, Barnes-Jewish will be staffed by a single, fully integrated medical staff made up of Washington University faculty members and community-based physicians in private practice. Plans also call for realigning clinical services to ensure the delivery of high quality, cost-effective medical care. In addition, an ambulatory care and cancer care center will be constructed on the north end of the Kingshighway campus to meet the growing regional demand for such outpatient services.

William H. Danforth, M.D., former chancellor of Washington University, and Lee M. Liberman, former chairman and chief executive officer of Laclede Gas Co., together will serve as co-chairmen of the Barnes-Jewish Hospital board and as directors-at-large, representing the St. Louis community. William A. Peck, M.D., executive vice chancellor for medical affairs and dean of the School of Medicine, will serve as an ex-officio member of the hospital's 29-member governing board.

Barnes-Jewish Hospital is one of 15 hospitals operated by the BJC Health System, which also runs six nursing homes and is affiliated with 35 other hospitals and health care systems throughout the region.
Reversing Physical Frailty

Researchers at the School of Medicine have been awarded a $6 million grant to study the effectiveness of exercise in reversing physical frailty in the elderly.

The grant, given by the National Institute on Aging, part of the National Institutes of Health, establishes a Claude D. Pepper Older American Independence Center (OAIC) at the School of Medicine. The purpose of such centers is to increase independence in older Americans by providing support for research to develop and test clinical interventions.

Washington University will conduct two research studies over the next five years. The principal investigator is John O. Hollosz, M.D., professor of medicine and director of the division of geriatrics and gerontology. Geriatrics and gerontology is a division of the Department of Medicine and is based at Barnes-Jewish Hospital.

Hollosz says the studies will build on 20 years of research already completed by his team in this area. "In the past, we have worked with men and women in the 60-to-72-year-old range," he says. "We think there is now sufficient evidence as to the benefits of exercise in this age group." Next, the Washington University researchers will investigate the effects of exercise in those over the age of 78 years. The studies will examine whether specialized programs of exercise training and/or hormone replacement therapy can improve physical function and prevent or reverse physical frailty in the elderly.

"Our goal is to develop interventions that can help the elderly retain their independence and stay out of nursing homes," says Hollosz. "In the new studies, we will look at how the elderly respond to exercise training, and whether this response reduces frailty. We also will be studying exercise training in conjunction with hormone replacement therapy (HRT) and its role in reducing frailty."

Using the information obtained from these studies and others conducted by OAICs around the country, researchers hope to design practical exercise programs for the elderly. Another function of the OAICs is to train new investigators in gerontological research with the goal of preventing or reducing frailty.

Costly Drug Extends Lives, Saves Money

A new study shows that a potent but expensive stroke-preventing drug works better and is more cost-effective for certain high-risk patients than aspirin, which also is used to prevent strokes and costs only pennies a day.

In the study, high-risk patients were those with an irregular heartbeat, called atrial fibrillation, who also had two or more additional risk factors for stroke, including hypertension, diabetes, heart disease or previous strokes. Atrial fibrillation affects an estimated 2.2 million Americans and causes some 80,000 strokes each year.

Despite costing 80 times more than aspirin, the blood-thinning drug warfarin saves money because it prevents more strokes, thereby reducing hospitalization, physician and rehabilitation costs, says lead investigator Brian Gage, M.D., assistant professor of medicine. The cost of treating a stroke is estimated at $25,000 for the first year.

The researchers also found that over a 10-year period, 65-year-old patients at high risk of stroke survived an average of three months longer if they received warfarin over aspirin, and six months longer if they received warfarin over no treatment at all.

Warfarin, an oral drug also known by its brand name Coumadin, costs about $800 a year. The cost includes the expense of monthly blood monitoring because a major complication of the medication is hemorrhaging. Aspirin costs about $10 a year.
Collaborating To Identify Genes

To speed the identification of genes related to human diseases and to aid in the understanding of basic biological processes, the Howard Hughes Medical Institute (HHMI) and the School of Medicine are collaborating to identify and partially sequence the majority of mouse genes.

Researchers plan to generate up to 400,000 partial sequences of genes that are expressed during the embryonic and fetal stages in an effort to survey the entire set of mouse genes. The availability of these gene fragments, or expressed sequence tags (ESTs), should accelerate the rate at which HHMI researchers and other biomedical scientists find disease-related genes as well as genes that control normal cell function.

The two-year project will be conducted and directed by Robert H. Waterston, M.D., Ph.D., James S. McDonnell Professor and head of the Department of Genetics.

Waterston's research group will begin the mouse EST project with gene libraries that contain samples of nearly all embryonic and fetal mouse tissues. The libraries will provide a source of genetic material in which individual messenger RNAs are copied to form complementary DNAs (cDNAs). Waterston's research team will sequence segments of the individual cDNAs to create the ESTs.

Once the sequences are completed and verified, they will be made available immediately via the Internet.

The ESTs will come from throughout the entire mouse genome and can subsequently be used to create genetic "milepost markers" that notify scientists where genes are located.

Daniel E. Goldberg, M.D., Ph.D.

Inhibiting Malaria

Researchers have solved the puzzle of how the malaria parasite transforms toxic remains from its food into harmless solid waste, a process that is blocked by the most commonly used antimalarial drugs. The finding should hasten the search for compounds to replace the drug chloroquine, which has become ineffective because of drug resistance, says Daniel E. Goldberg, M.D., Ph.D., associate professor of medicine, who conducted the research with lead author David J. Sullivan, Jr., M.D., a postdoctoral fellow.

Malaria is one of the most devastating infectious diseases in the world, with an estimated 300 million people infected.

The parasite, Plasmodium, feeds on the red pigment hemoglobin inside of red blood cells. But like a gourmet who dines on a delicacy with a poisonous part, Plasmodium must avoid being killed by heme, which is toxic when freed from hemoglobin.

Sullivan and Goldberg showed that an enzyme, HRP II, catalyzes heme polymerization. They found that chloroquine inhibits HRP-mediated polymerization and therefore may cause the parasite to be killed by the heme from digested hemoglobin.
Students Mastering The Art And Science Of Medicine

In the community of academic medicine, researchers and clinicians play distinct but complementary roles. Researchers seek knowledge that brings new therapies to light; physicians apply medical expertise to put new therapies to use.

For 26 years, Washington University's Medical Scientist Training Program (MSTP) has been dedicated to training those who want to bridge the gap between the laboratory bench and the bedside. Students in the program earn an M.D. and a Ph.D., in preparation for a dual career as a biomedical researcher and a physician. Ideally, the program's goal is to turn out graduates who focus on performing basic biomedical research oriented toward solving clinical problems.

"We feel that the broad training our students receive in both biomedical research and medicine prepares them for productive careers," says Stuart Kornfeld, M.D., professor of medicine and academic director of the MSTP.

BY JULI LEISTNER
MSTP graduates leave the program with in-depth knowledge of the methods and tools of modern biomedical research — critical for conducting basic research. By also learning the art of patient care, graduates can enrich their research in many ways.

For example, physician/scientists can bring firsthand knowledge of medical problems to bear in the laboratory, says Ellen Li, M.D., Ph.D., associate professor of medicine and of biochemistry and molecular biophysics, and a graduate of Washington University's MSTP.

"Actually caring for patients gives you a clear understanding of what the clinical problems are," she says. "A lot of people use that insight to focus their research on a clinical problem." In addition, the physician's perspective makes spotting the clinical relevance of new research findings an easier task, Kornfeld adds.

The MSTP curriculum is rigorous. Typically, its students complete the first two years of medical school, then perform at least three years of original research. The program ends with a final year of clinical training that corresponds to the third year of medical school. Professionally, graduates usually dedicate about 80 percent of their time to research and 20 percent to patient care, says Brian Sullivan, the program's administrative director.

The MSTP began in 1969 and is one of the oldest and largest of its kind. A total of 215 students have completed the program. Its graduates are highly successful; nearly all have gone on to careers at academic or research institutions such as the National Institutes of Health (NIH), the Spencer T. and Ann W. Olin Foundation and the Monsanto Fund.

Kornfeld believes the MSTP has had a major impact on the school. "I think Washington University medical school is a different place because of this program," he says. Part of the impact, he explains, is that MSTP students provide a driving force for performing clinically relevant research.

"There are 140 students currently enrolled in this program — active in biomedical research and interested in medicine. That sets a tone for the entire institution."

In addition, Washington University's program and others like it have been a rich source of medical school faculty — particularly for clinical departments — across the country. At present, the School of Medicine faculty includes 20 graduates of Washington University's MSTP and many graduates of other M.D./Ph.D. programs. Such physician/scientists play a major part in strengthening basic research efforts in clinical departments, Kornfeld says.

Washington University's MSTP is considered to be among the nation's best for a number of reasons, including its internationally renowned research programs, collaborative research environment and emphasis on clinical training. But perhaps the key ingredient to its success is the exceptional students it attracts.

The stories of four students' experiences as M.D./Ph.D. candidates exemplify the mission of the MSTP; even before completing their degrees, each has made major research contributions that hold promising implications for understanding human diseases.

Exploring The Role Of Cadherins In The Intestine

Michelle Hermiston has developed an animal model for human inflammatory bowel diseases, the origins of which are not known. Her work sheds light on how these diseases may develop and provides an invaluable tool to help researchers learn more.

Exploring The Role Of Cadherins In The Intestine

Michelle Hermiston began her graduate work hoping to learn about a fundamental aspect of human biology. By exploring the role of proteins called cadherins in the intestine, she has developed an animal model for human inflammatory bowel diseases, the origins of which are not known. Her work sheds light on how these diseases may develop and provides an invaluable tool to help researchers learn more. Her work was reported in the November 17, 1995, issue of the journal Science.
Cadherins are known to help glue together cells in the intestine. Hermiston wanted to know why cadherins were important to normal intestinal function. "I was interested in finding out whether cadherins play a role in how cells divide or whether cells live or die. But we ended up finding out much more," she says.

Hermiston, working in the lab of Jeffrey Gordon, M.D., alumni professor and head of the Department of Molecular Biology and Pharmacology, genetically engineered two lines of transgenic mice whose intestines had patches of tissue that lacked functional cadherins. One line of mice lacked functional cadherin in the intestinal villi — the cells that absorb nutrients from digested food. In the other mouse line, cadherin function was disrupted in villi and in crypts — the cell factories that generate villi cells.

Hermiston found that mice lacking functional cadherins in both types of cells developed a condition similar to human inflammatory bowel disease. She and Gordon suspect that altering cadherin function weakens the glue that normally binds together intestinal cells, thus weakening the intestine's barrier against infectious agents in food or the bacterial flora. It is likely that infectious agents are infiltrating this barrier in Hermiston's mice and triggering an inflammatory response from the immune system, she says.

Her work suggests that Crohn's disease and other human inflammatory bowel conditions may occur when the barrier function of the intestinal wall is weakened. She now is trying to map out the steps in this inflammatory process.

Her work also shows a link to cancer. Mice with both mutations developed tumors, suggesting that cadherins might play a role in tumor development. Although cadherins are suspected of helping cancer spread during the late stages of disease, Hermiston's work is the first to show that these proteins also may contribute to the early stages of cancer development.

**Linking A Leukemia Gene To Childhood Disease**

eventy percent of infants who develop leukemia before the age of one have an abnormality in a gene called MLL. Although the correlation is clear, MLL's precise role in the disease is unknown.

Research by M.D./Ph.D. student Ben Yu helps to explain what role the normal MLL gene plays in the body. In the process, he has uncovered clues to how abnormalities in MLL may contribute to childhood leukemia. His work was published in the November 30, 1995, issue of the journal Nature.

Yu conducted his work in the laboratory of Stanley J. Korsmeyer, M.D., professor of medicine. Korsmeyer's group identified the MLL (mixed lineage leukemia) gene several years ago. Yu began exploring MLL's role by genetically engineering mice that were missing either one or both copies of the gene, and then studying their development. By observing what went wrong without MLL, he hoped to learn what job the gene normally performs when it is functioning properly.

The mice lacking both copies of MLL died as embryos — a clear signal that the gene is critical for life. But mice with just one normal copy provided a more important clue to MLL's function. These mice showed abnormalities only a few weeks after birth; more interesting for Yu's purposes was the observation that these animals had slight skeletal abnormalities that resemble defects linked to a gene family called Hox.

Hox, a family of 38 genes, is known to play a key role in embryonic development. Hox regulates the pattern of formation from head to tail. For example, Hox genes ensure that spinal vertebrae in the embryonic neck acquire the characteristics of neck vertebrae, and that vertebrae in the thoracic region actually become thoracic vertebrae, and so on.

"It's thought that Hox genes act as a developmental map that tells the cell how far it has come in development and how far it needs to go," Yu says.

Because defects in this MLL-deficient mice were so similar to defects already linked to Hox, Yu suspected that the genes' functions were somehow related. To learn more, he went back to his MLL mice. Using a staining technique, he found that the activity of the Hox gene was below normal in mice with only one normal MLL gene and that Hox activity was completely shut down in mice with two abnormal MLLs.

"It became a very clear picture: If you don't have MLL, the Hox gene is turned completely off," Yu says. The results show that MLL is likely to play a key role in development by regulating Hox genes, he explains.

This work may help explain MLL's contribution to leukemia. Many researchers suspect that Hox genes act as a biological clock to control maturation of blood cells. It is possible that a defective MLL,
through its action on Hox, indirectly disrupts normal blood cell development.

Yu's next step is to learn more about how MLL works. With more information, it eventually may be possible to treat leukemia with drugs that block or reverse the unwanted effects of faulty genes.

Pursuing A Messenger In The Immune System

Interferon-gamma is a protein that regulates the immune system. It is a member of a family of signalling proteins called cytokines. MSTP students Andy Greenlund and Anand Dighe have uncovered key details of how and where this cytokine works. Their research sheds light on the immune system's role in cancer, inflammatory diseases and infection. Both students performed their research in the laboratory of Robert Schreiber, Ph.D., professor of pathology and molecular microbiology.

Greenlund's work explains for the first time how interferon-gamma stimulates immune cells to perform their protective function. He defined several early key steps in a long cascade of events that lead to immune cell activation. More specifically, his work explains how interferon-gamma helps to "turn on" a cellular protein called Stat1, which then acts as the intracellular messenger that induces immune cell activation.

For these studies, Greenlund created artificial versions of key proteins to investigate interferon-gamma's actions. He learned that after interferon-gamma binds to its receptor on the cell surface, a docking site for Stat1 is formed on the receptor. After Stat1 binds to this site, Stat1 undergoes its own chemical change that in turn stimulates the immune cell. An exciting outcome of his work is that other cytokines now are known to use a similar mechanism to produce their stimulatory effects on the immune system.

Greenlund's work holds implications for understanding diseases involving inflammation and damage from overactive immune responses. By learning more about interferon-gamma's actions, researchers may find ways to block the immune system's destructive forces, he says.

Dighe's work focuses on a separate question regarding interferon-gamma: Which cells does it target to accomplish its various duties? In the past, researchers have had difficulty answering that question because interferon-gamma has so many potential targets; every cell in the body has a receptor for this cytokine and, therefore, has the potential to respond to it.

Dighe is the first to overcome this hurdle. He identified the type of cell that interferon-gamma targets to accomplish two critical functions:

- Boosting resistance to bacterial infection and revving up cellular immunity — the main line of defense against invaders inside cells.
- Dighe genetically engineered mice in which specific immune cells were unable to respond to interferon-gamma. By studying them, he learned that macrophage cells were interferon-gamma's target in both cases.

His work also sheds light on interferon-gamma's role in tumor rejection. He developed tumor cells that were unable to respond to interferon-gamma. The cells, when implanted into mice, were abnormally fast-growing and resistant to rejection. The work suggests that under more natural conditions, interferon-gamma acts on tumor cells to make them more visible to the immune system. By learning more about interferon-gamma's role in tumor rejection, researchers eventually may be able to use this cytokine to help break down tumor cells' defenses.
T HE BODY'S IMMUNE SYSTEM IS designed to ward off disease. When it encounters invading organisms, it attacks and attempts to destroy them. B-cells, T-cells and other lymphocytes unite to mount a defense and kill the interlopers. But the cells appear to grant a special status to some organs and tissues.

Called immune-privileged sites, organs such as the brain, the testes and the eye are protected from normal immune responses. For more than 100 years, scientists have discussed the immunologic privilege of the eye, but now researchers at the School of Medicine are learning more about how immune privilege works at the molecular level.

Recently, they identified a molecular control that eliminates immune traffic into the eye. Their findings, which were published in the November 17, 1995, issue of the journal Science, not only clarify one of the mechanisms at work in immune privilege but may eventually lead to ways to create it and thereby block the amplified immune responses that can lead to rejection of transplanted organs.

"Without immune privilege, even minor episodes of inflammation in the eye could damage the cornea or retina, causing impaired vision or even blindness if the inflammation proceeds unchecked," says Thomas A. Ferguson, Ph.D., assistant professor of ophthalmology.

BY JIM DRYDEN
and visual sciences and pathology.

As key immune cells make their way into the eye, cells within the eye are able to snuff out the infiltrators and orchestrate a preemptive strike, leading the immune cells to commit suicide, Ferguson says. On their surfaces, the immune cells carry a membrane protein called Fas. Cell death occurs through apoptosis when the Fas protein encounters a Fas ligand (FasL), which is a protein expressed on tissues throughout the eye.

"The cells communicate, and at some point the cell carrying the Fas ligand delivers a hit to the Fas receptor protein on the immune cell, and the activated immune cell is destroyed," Ferguson says.

During a normal immune response in other parts of the body, Fas and FasL regularly interact, but in the eye, the interaction occurs immediately, Ferguson explains. "During normal immune responses, it appears that FasL enters the scene much later, probably as a way to limit the immune response. Fas ligand is expressed constitutively throughout the eye, regardless of whether activated immune cells are present."

Ferguson has found FasL in the cornea, retina and iris. In unpublished experiments, he also has found it in the brain, joints, adrenal gland and other tissues that are considered immunologically privileged.

Ferguson and his colleagues were the first to find that FasL is expressed perpetually in the eye. But it is not the only mechanism of immune privilege. The eye manufactures other proteins which also control inflammation and suppress immune responses. The aqueous humor — the fluid that occupies the space between the lens and the cornea — expresses a protein called transforming growth factor beta (TGF β) that can inhibit inflammation. Neuropeptides in the eye can do the same thing.

"What's so striking about Fas ligand is that when it's not functioning, the immune cells go wild. We know it is only one of the mechanisms of immune privilege, but it may be the most important one found so far. It's so new that we don't know for sure," Ferguson says.

The Fas-FasL Interaction

Ferguson and his colleagues discovered the Fas-FasL interaction through a series of experiments that first involved injecting the herpes simplex virus into the eyes of mice. In normal mice with functional FasL, a massive immune response followed exposure to the virus, but the immune cells were destroyed before they could damage the eye. In a second group of mice that lacked functional FasL, infiltrating immune cells survived, causing damage to the eye. A similar event was observed in a third group of mice that lacked Fas.

"Our experiments show that you need both Fas and FasL to destroy the invading immune cells," Ferguson says. "In mice without these key proteins, activated immune cells spread unchecked throughout the eye, and there is a tremendous amount of damage."

Ferguson notes that much of the eye damage was not directly caused by the herpes simplex virus, but rather from the immune system's inflammatory response.

In the group of mice that did not express functional FasL, immune cells spread throughout the eye, causing damage in the cornea, retina, optic nerve and in other areas of the eye where inflammation from a herpes infection would not normally occur. The loss of FasL, they concluded, resulted in the loss of a substantial amount of immune privilege in the eye.

Explaining Transplant Success

Ferguson believes perpetual presence of FasL in the eye is key to the success of corneal transplantation. Corneas can be transplanted between unrelated persons without the need for potent anti-rejection drugs, and success rates exceed 90 percent.

A transplanted cornea expresses FasL and so does the eye of the recipient. When the recipient's immune system recognizes the foreign tissue, the FasL in both the transplanted cornea and in the recipient's eye bind to Fas located on immune cells, enabling the recipient to fight off rejection without immunosuppressive drugs, Ferguson infers.

He suspects the same natural process could theoretically make immunosuppressive drugs obsolete in other organ transplant patients. "If you could engineer the production of FasL in organs such as
kidneys and hearts, which don't express FasL continuously, and transplant those organs, they might function in the recipient without immunosuppressive drugs," Ferguson says.

Richard Duke, Ph.D., assistant professor of medical oncology and immunology at the University of Colorado School of Medicine, has found that in certain situations FasL protects transplanted organs from the immune system of the host. In his laboratory in Denver, Duke and his colleagues transplanted testes from mice into the kidney capsules of other mice. The grafts survived. They then attempted to do the same experiment with mice that express functional Fas but not functional FasL. The grafts were quickly rejected.

“Our conclusion is that Fas ligand protects grafts as long as the recipient is capable of expressing functional Fas. When the recipient’s immune system reacts, Fas-bearing lymphocytes are killed when they encounter the Fas ligand-bearing graft,” says Duke, whose findings were reported in the October 19, 1995, issue of the journal Nature.

Duke and Ferguson say there are other aspects of immune privilege that must be in place to avoid transplant rejection.

“If you take a cornea, which has abundant

Fas ligand, and transplant it onto another eye, it generally is accepted, even in our mouse models. However, if you try to transplant a mouse cornea onto the skin of another mouse, it will be rejected,” says Ferguson. “That tells me that the Fas ligand in the cornea being transplanted is not the only factor involved in the immune response. The site of the transplant is important, too. We would like to learn whether continual expression of Fas ligand at the site where the organ is transplanted might help eliminate rejection.”

Duke suspects the interaction may be important in autoimmune diseases such as rheumatoid arthritis, insulin-dependent diabetes and lupus erythematosus. “It appears that Fas and FasL play an important role in regulating immune responses against ‘persistent’ self-antigens,” he says. “Mice and humans who lack Fas or FasL have very messed up immune systems.”

Ferguson also is investigating the role of FasL in the induction of tolerance — the inability of the immune system to respond to certain antigens.

“We’re finding that if you don’t get the induction of cell death by Fas ligand, you don’t get tolerance,” Ferguson explains. “When an inflammatory reaction occurs in the eye, or immune cells are placed directly into the eye, the cells die, and that leads to an induction of tolerance. If we could prevent the cells from dying or kill the immune cells through a different mechanism so that they can’t die through apoptosis, we don’t get tolerance. We have a lot of data to support that, and now we’re investigating how and why that’s the case.”

Ferguson sums up the work by saying, “We’ve shown that this is potentially a major mechanism in immune privilege. I believe it is one reason why corneal transplants have such a high rate of success, and it could be important for retinal transplantation in the future. If we could use this mechanism in other organs — well, it’s not that simple, but using Fas or Fas ligand to protect organs could be a big boost for transplantation, but we have a lot to learn first.”

The retina of a mouse with functional FasL, top, is protected from potential damage following an injection of herpes simplex virus. The retina of a mouse that lacks functional FasL, bottom, shows damage from infiltrating immune cells in response to an injection of herpes simplex virus.
Joseph H. Ogura: A Defining Force For Otolaryngology (1915-1983)

On any Saturday morning in the 1960s and '70s, more than 100 patients would line a single corridor of Queeny Tower. They had come from all over the world to consult Joseph H. Ogura, M.D., head of the School of Medicine's Department of Otolaryngology and a legend in his field, whose surgical innovations had forever changed the treatment of laryngeal cancer.

by Candace O'Connor
Donald G. Sessions, M.D., professor of otolaryngology and one of a legion of residents trained by Ogura, still sees some of his mentor's former patients. "They loved and honored him not only because he was able to cure them, but also because he allowed them to have normal speaking function. To them, he was not just a doctor: he was a phenomenon," he says of Ogura, who died in 1983 at age 67.

One grateful patient was comedian Shecky Green, who bragged on The Tonight Show with Johnny Carson about "my St. Louis doctor." Another was St. Louis businessman Arthur R. Lindburg, who established an endowed professorship which Ogura filled from 1966 until his death.

During a distinguished career spanning nearly 40 years, Ogura did more than improve surgical technique and patient care. He was a prolific researcher who published nearly 300 articles, contributed to some 20 books and delivered more than 100 lectures around the world. His widow, Ruth, who lives in St. Louis, recalls that his staff used to call him "the TWA professor of otolaryngology."

Ogura also changed the direction of his field by moving it — sometimes in the face of strong opposition from his colleagues — into territory long claimed by general and plastic surgery. "Now programs around the country are doing this work, but he was a national pioneer in pushing otolaryngology into more advanced head and neck surgery," says Stanley E. Thawley, M.D., associate professor of otolaryngology who also was trained under Ogura.

Much honored for his achievements, Ogura was only the third physician in the history of the American Laryngological Association to receive its coveted "triple crown": the James Newcomb Award in 1967 for laryngeal research, the Casselberry Award in 1968 for nasopulmonary work, and the DeRoaldes Gold Medal in 1979 for career accomplishment. He belonged to some 30 professional societies, including the prestigious Alpha Omega Alpha; he received medals from India, England, Finland and Yugoslavia. Presidents Nixon and Ford both appointed him to the National Cancer Advisory Board, where he served for eight years.

On the School of Medicine faculty from 1948 until his death, Ogura headed his department from 1966 to 1982. Here, too, he left a lasting mark. "He built a very strong department, with wonderful faculty and an excellent residency program," says William H. Danforth, M.D., chairman of the Washington University Board of Trustees. "He gave it an international reputation; in fact, he really helped define what a department of otolaryngology should be."

"Joe Ogura was the essence of the academic physician; a leader who had the talent, drive, standards and personality to make a lasting positive impact on patient care as a clinical pioneer and as a mentor-teacher," says William A. Peck, M.D., executive vice chancellor for medical affairs and dean of the School of Medicine. Ogura may have seen his own most important role as that of teacher.

Ogura, seated right, with the Japanese ENT Alumni Association in 1980.
Outlook, Spring 1996

Colleagues picture him proudly leading his close-knit corps of residents and fellows down hospital hallways. As he once put it, "Our true role as teachers, clinicians and investigators is to try to produce people who will surpass us."

Satoru Takenouchi, M.D., of the Takenouchi E.N.T. Clinic in Kyoto, Japan, worked with Ogura as a research fellow from 1963 to 1967. "He was a superior teacher," he says, "who had the rare ability to stimulate us to achieve our best. He taught us the spirit of challenge and achievement in research work. He was one of the greatest teachers in my life."

Out of some 27 Japanese otolaryngologists who trained with Ogura, Takenouchi adds, fully half are heads of otolaryngology departments at major medical schools across Japan. Ogura-trained doctors, says Takenouchi, "with many valuable papers were highly esteemed at the faculty meetings in which new chairmen of the department were chosen."

"He raised a generation of physicians that was surgically superb," says Gershon J. Spector, M.D., who was hired by Ogura as a staff member in 1971 and is now professor of otolaryngology. "They could operate with the best in the country, right away. People were begging for our residents because they needed no prompting; they would take over a unit and within a few years it would be large. They

Ogura, center left, with the Japanese Broncho-oesophological Society in 1971.

...continued...
had learned how to do it."

In his personal life, Ogura was a complex and sometimes contradictory figure. His hallmark, for example, was a worn pipe, which he carried with him constantly. Yet it was empty. With characteristic decisiveness, he had quit smoking cold turkey after a benign spot showed up on one of his lungs.

Driven, Ogura often spent 15-hour days at the hospital. He could be impatient — even brusque — in his manner. At grand rounds on Thursday mornings, he routinely sat next to the light switch in the auditorium. If speakers took longer than planned, Ogura began switching the lights off and on to urge them to shorten their remarks.

Once a student with laryngitis went to the clinic, where Ogura found him and looked at his larynx. "You have laryngitis," said Ogura, "you're on voice rest," and walked out of the room. But the student wanted to know more and ran after him. "Dr. Ogura, does that mean I shouldn't talk?" Ogura's reply was brief and to the point: "Shut up."

But at times he could be gentle and reassuring. If a resident whispered to him that a patient was having problems accepting his illness or that a relative had died, he was the soul of compassion. "When he walked into the room of that patient, you saw a different Dr. Ogura," says Thawley.

With his students, he may have simply hated to accept mediocre performance. "He set a high standard for them, which most were willing to achieve," says Hugh Biller, M.D., professor of otolaryngology.
Ogura was born in 1915 in San Francisco. Just four years old when his father died, he worked summers in the salmon fisheries to put himself through college. He graduated from the University of California-Berkeley in 1937 and received his M.D. from the University of California at San Francisco in 1941.

After Ogura had spent a year as a resident in pathology, war fever struck the West Coast and Japanese-Americans — including some of Ogura’s relatives — were moved to “relocation camps” for internment. Joseph and Ruth Ogura, newly married, had to leave California suddenly; at Cincinnati General Hospital he did a year’s training in pathology, followed by two in internal medicine.

Switching fields a second time, he moved to St. Louis in 1945 where he did a three-year residency in otolaryngology, then joined the School of Medicine faculty. During this time, Ogura’s specialty was undergoing a kind of identity crisis. Its traditional work in ear infections and tonsil problems had decreased with the advent of antibiotics, and it needed a new focus. Ogura and a few colleagues across the country decided the field should expand into head and neck surgery.

Soon he was using brilliant operating-room technique to modify existing surgical procedures and pioneer new ones. In patients with cancer of the larynx, he helped develop partial laryngeal surgery in which he conserved speech by leaving part of one of the two vocal cords intact.

“He was a superior clinician, an extremely astute diagnostician and a superb technical surgeon who knew the physiology of the larynx and the upper airway as well as any basic scientist alive,” says Biller.

Three days a week were reserved for surgery. Pairs of residents and attending physicians were assigned to three operating rooms, while Ogura sat in a nearby endoscopy room examining new cancer patients and mapping their surgery. “Between cases he would run into the operating rooms to see how everything was going,” says Specter. “When you hit a critical part of the surgery, he’d come in and take the resident or attending through it, or do it himself.

“Three rooms with three cases a day in each, plus 13 or 14 endoscopies in the side room — a total of 27 or 30 primary cancers per week,” he adds. “That’s huge — the largest volume in the world.”

With the sterling reputation of his program, Ogura had his pick of residents. Because he gave them an unusual amount of responsibility, they had to be scrupulously honest. “And he wanted the brightest kids here,” says Specter. “He didn’t care if they were white, black or green. He had Jewish residents at a time when they couldn’t get into other programs. He didn’t care — it was all merit.”

Ogura showed his students what it meant to be a tough competitor. Donald Sessions recalls a game of tennis he played with Ogura. “I was a pretty good tennis player, and the first time I served against him I aced him,” he says. “He looked me straight in the eye and called it out.”

Sometimes he also would test their endurance. On surgery mornings, he arrived for work at 6 a.m. and expected the residents to be there too. But one day he came in at 5:30. So the next day they came in at 5:30 — and he had been there since 5:00. The game went on until they were all arriving at 5:30, when the residents declared that Ogura had won. Then they all went back to 6 a.m.

In their research, he also held them to high standards. Toshio Ohnishi, M.D., director of the Department of Otolaryngology at St. Luke’s International Hospital in Tokyo, was a research fellow for Ogura from 1966 to 1969. Ogura believed that chronic sinus disease could cause impaired lung function, and he asked Ohnishi to test this theory in animal experiments.

“Although the results of my experiments were not conclusive, I learned how close I could reach to impossible by attempting every possible way to attain my goal,” says Ohnishi.

Tough on his students, Ogura was hardest on himself. Once he went to Australia to give a lecture, recalls his wife, Ruth, and made the trip there and back in only five days. The morning after his return, he was up at 4:30 and performing surgery as usual.

When he died suddenly of a heart attack in 1983, after hospitalization for bleeding ulcers, he left his widow and three children: John, Peter and Susan. The Department of Otolaryngology’s library is now named for him, along with its prestigious annual Ogura lectureship, established in 1977.

Today, his photograph hangs in the offices of most of his former residents, whose careers have been shaped by his influence. “He was more than a person; he was a force,” says Sessions, “and everyone around him got a sense of that. He could be abrupt or polite, but what he was after was to have us be the best that we could be. And that is the source of our love for him.”

Outlook, Spring 1996
Guided By The Light

Chris Stephens gets an emotional lift watching the sun glisten off the snow, and she will stay up until 2 or 3 in the morning to take in a full moon over water. She says the day that Daylight Saving Time kicks in is her favorite "holiday," and she looks forward to the sun-drenched days of summer like a schoolgirl.

SAD Sufferers
Weather Changing
Seasons & Behaviors

Stephens, who has gravitated toward light for as long as she can remember, is one of an estimated 5 million adults in the United States who suffer from seasonal affective disorder, or SAD. The syndrome, which is often treated with light therapy, causes extreme changes in mood, energy, social activity, sleep, appetite and weight when days are shorter and less natural light is available, such as during winter months.

SAD is a severe form of seasonality, or the tendency to show seasonal changes in mood and behavior. Experts say 14 percent of the adult population suffer from seasonality. Recently, researchers at the School of Medicine have found a biological basis for seasonal mood changes. They report that some 30 percent of the risk for seasonal changes in behavior is due to inherited biological factors.

"I think I had noticed symptoms or light-seeking behaviors most of my life," says Stephens, 51, who asked that her real name not be used. "There was always something strange in the way I thought about the year — it was like I was still on an academic year. I found summer exciting and different, but I would always find the approach of shorter days depressing — even by early fall I was dreading November. I was very conscious of the length of the day, and it affected my activity level."

Pamela Madden, Ph.D., has found that seasonal changes in behavior may be due to genetics.
During the winter, Stephens would leave work to go home and "crash," becoming a fixture on her sofa for the evening. She slept in on the weekends and she had difficulty getting up in the mornings during the week. She gained weight when she gave in to her heightened craving for pasta and potatoes, and she found it increasingly difficult to concentrate at the office.

She first learned about SAD while reading the newspaper. "It occurred to me that what I was reading about was very much like my own behavior. I thought perhaps my problems also might have a lot to do with the effect of light," she says.

About three years ago, Stephens, who lives in the Washington, D.C., area, volunteered for a series of SAD studies at the National Institute of Mental Health (NIMH). It was there that she was diagnosed and began receiving light therapy to minimize her symptoms.

A SAD Discovery
To gauge genetic influences on seasonal changes in mood and behavior, Pamela Madden, Ph.D., research instructor in the Department of Psychiatry, and co-investigators Andrew C. Heath, Ph.D., associate professor of genetics and psychiatry; Norman Rosenthal, M.D., director of seasonal studies at the NIMH; and Nicholas G. Martin, Ph.D., senior principal research fellow at the Queensland Institute of Medical Research, evaluated 4,639 adult twins from Australia. The study, the first formal look at whether seasonality as a trait is genetically inherited, was conducted in Australia because seasons there are reversed from those in the United States. This enabled researchers to distinguish the so-called 'holiday blues' that occur around Christmas and New Year's from the 'winter blues,' or a mild form of seasonality. The term 'winter blues' was coined by Rosenthal.

"We were very interested in whether seasonality runs in families, and if so, if this is due to genetic factors," says Madden. "Australians were found to experience winter blues and have some problems with seasonality."

Thirteen percent of the twins in the sample reported having problems with seasonality, but the number who actually had symptoms was even higher. Some 17 percent reported that they suffered from mood changes, weight gain and sleep problems during the winter. Only 2 percent of the sample reported the extreme degree of seasonality described by patients with SAD.

The sample included both identical twins, who share 100 percent of their genetic material, and fraternal twins, who share about half. Madden says the researchers expected to observe different levels of risk in identical and fraternal co-twins in twins who reported seasonal changes, if seasonality was due in part to genetic factors.

"We found that when one fraternal twin complained of symptoms of seasonality, it was more likely that their co-twin would be affected than the random twin, but with identical twins, the link was even stronger, which suggests that genes play an important role in determining whether someone experiences seasonality," she explains.

Though Madden and her colleagues found a "significant genetic influence" on seasonality, they say that environmental factors are important. Madden estimates that about 70 percent of the risk for seasonality is due to environmental influences.

Rosenthal, who first described SAD in 1984, says Madden's findings confirm what has been conjectured. "We've long suspected a genetic component because of the high prevalence of family members with seasonal problems," says Rosenthal, who also suffers from SAD. "But this is the first study to nail down a genetic component to seasonality. It's an important finding because through the genetics of seasonality will come ways to modify it. Treatments are helpful to a point, but down the road this is a very important direction to go."

Lighting the Way
"It explained a lot when I found out I had SAD," says Chris Stephens, who has received light therapy during the winter months for about three years. "Looking back, I think my father may have shown symptoms, and I have a niece who thinks she may be affected. I am more conscious of its impact, and I think it affected me more as I got older — symptoms seemed more pronounced."

Stephens, who has her own light box for in-home therapy, starts each day by sitting in front of the light for one hour. During that time, she may read, watch television, sew on missing shirt buttons or balance her checkbook, whatever she chooses. The illumination of the light measures 10,000 lux, the equivalent of a sunny day.

"My dose of light wakes me up in the morning," says Stephens. "I've always had trouble getting to work on time, but this has significantly changed my (internal) clock. I am much better about getting up and out for exercise before I go in to the office. I never thought I would be getting up at 6 in the morning, but I do every day now."

Stephens began this round of light therapy at the end of last December after fulfilling her obligations in an NIMH study; she has no need for light therapy during the summer. Although initially she was instructed to use the light box for 45 minutes in the morning and again in the evening, she has re-adjusted the schedule to meet her needs. Experts say light therapy is most beneficial when received between the hours of 6 a.m. and 9 a.m., and 6 p.m. and 9 p.m.

Stephens says light therapy has made a world of difference to her existence. "I've always considered myself an active person, but in the wintertime I would just shut down and I never knew why," she says. "Today, I feel better than I have in the last five years."
Parallel Paths

This is an excerpt from the first Landau Lecture which was presented by William H. Danforth last October.

It is an honor to give the first Landau Lecture, for Bill Landau is a highly valued colleague and friend. Since he asked me to talk about myself, I will admit that sometimes I have asked myself, “What has a physician been doing masquerading as the chancellor of Washington University?” Perhaps a better question might be, “Why is the chancellor pretending to be a physician?” Actually, I can pretend no longer, for recently my life changed in a major and, for me, unexpected way. I am no longer licensed to practice medicine. Continuing education required too much time. I feel unfrocked, as if I have lost a most admirable part of myself, for I have always admired those who care for their fellow human beings. The story that led to my fall from grace began in 1965 when I became vice chancellor for medical affairs and continued after I agreed to serve as chancellor late in 1970. Between that time and July 1971, when I assumed the role, I felt depressed about leaving medicine. I consoled myself with the thought that, after perhaps three to five years, I could go back to something more in keeping with my tastes and abilities.

Surprisingly, I found the job of chancellor very rewarding. I believe, in large part, because the life of a physician had been great preparation. I highly recommend such a switch to any interested physician or medical academic. You are probably much better prepared than you might think.

Let me support that idea by pointing out some parallels between the life of a physician and the life of a chancellor.

Medicine taught us to work hard for long hours. We all learned early not to regard our time as our own. The time of a physician belongs to the profession, primarily to his or her patients. This lesson has stood me in good stead. Chancellors, like physicians who give their time away, must depend on an understanding family for happiness and peace of mind. I repeatedly give thanks for my wife, Libby, who has been a partner in every sense.

Physicians enter deeply into the lives of their patients, often at their most trying and difficult times. There are few better ways to learn about what is of greatest importance to your fellow creatures or to understand human frailties and vulnerabilities. A chancellor relates somewhat differently to others, but sees the same human attributes played out in action. Faculty, students, alumni and staff are like our patients and like ourselves, prone to all the glories and the frailties of our species. An observant physician internalizes what everyone knows intellectually,
that is, all are born, all are susceptible to disease and eventually all die.

Physicians deal with all types, young and old, rich and poor, bright and dull, selfish and altruistic, and people of all ethnic and religious groups. They are well-prepared to see human beings beyond all differences in outward appearances. I sometimes believe that the one quality that stood me in best stead was the ability to appreciate talent in all types of people. It was not so much the ability to recognize talent in women as well as men or in people of different ethnic, racial or national groups, for to do so is not difficult, but rather the ability to recognize talent in people with different types of personalities. Many people have great trouble recognizing quality in people whose personalities are different from theirs. Liking and admiring people always came easy to me; I believe in large part due to my background in medicine.

There's another important parallel: All sorts of people project their own hopes and fears on physicians and chancellors. Students and faculty, parents and alumni develop strong feelings about their chancellor. Sometimes the emotion is anger, sometimes affection. In addition, most seem to care what the chancellor thinks because the chancellor stands for the institution. Physicians have the same kind of experiences. We are symbols who try to be worthy of what we represent and never confuse ourselves with the symbol.

What human qualities do people want from the chancellor on whom they project their hopes and fears? They want the same qualities they hope to find in their physicians, parents and spouses, that is, competence and moral virtue.

People want someone who will do what should be done and do it very well. They want a person with a sense of duty — someone who will do the right thing no matter how tempting the alternative, someone who will drag himself or herself out of bed at 3 a.m. to relieve suffering or comfort those in need. Chancellors, like physicians, are human with all the normal human selfishness and failings, but living up to the hopes and expectations of others does help to bring out one's best.

Taking on responsibility for an institution is like taking on a permanent responsibility for a single, rather complicated, patient — a responsibility that once assumed is hard to abrogate. You will have a new responsibility that takes precedence over duties to your patients or your friends. Like medicine, the job will impinge on your personal and family life. Physicians feel at home with the kind of responsibilities that never seem to end.

There is another part of the job for which physicians are well prepared, that is making sensible decisions in the face of uncertainty. Physicians are practiced in marshaling evidence, understanding probabilities and knowing when it is time for a decision. Chancellors make some difficult decisions, but those tend to be easy after having dealt with those that may result in life or death.

Physicians have recognized their personal and professional limitations and the fallibility of all human judgments. Even the greatest make imperfect and sometimes wrong decisions. Remember Loeb's dictum, "When the patient is doing well, continue doing what you are doing."

Chancellors need restraint. One of my colleagues, Mike Sovern, president of Columbia University, phrased an idea parallel to Loeb's dictum this way, "Don't just do something. Stand there."

There are some differences that one has to get used to. For example, most of the important satisfactions are vicarious. A chancellor does not do the real work of the university — the teaching or the research or the caring for patients.

One's pleasure comes from the successes of others. On bad days, I could think of the wonderful teaching, research and patient care in our institution and immediately my spirits would lift.

Bill Landau and I have lived in a golden age in which learning and teaching have flourished. We have played a part in the evolution of one of the greatest of American universities.

It has been an honor for this one-time physician to work for Washington University. I entered medicine planning to relieve suffering and heal the sick. Along the way, I was sidetracked and saw a chance to make a different kind of contribution. Now I am an unfrocked chancellor as well as an unfrocked physician. Retirement is wonderful. I recommend it, but only if you have a great successor like Mark Wrighton.

Editor's Note: William H. Danforth is chairman of the Washington University Board of Trustees and co-chairman of the Barnes-Jewish Hospital Board of Directors.
Raising Health Awareness In Immigrants: One Student's Attempt

by Susan S. Sheu

Hepatitis B, but in general also have a "lower health awareness." Past research data have shown a lower-

Another could be a lack of time and energy. Many immigrants must devote their time to adjusting to a new lifestyle, and they cannot be as concerned as others about health awareness and disease prevention. Language is also a barrier for immigrants. Despite the wealth of information that exists in various brochures found in most clinics, hospitals and physicians' offices, problems with a new language make it difficult, if not impossible, for immigrants to comprehend and absorb such resource material.

Coming from an immigrant background, I understand the problems, especially the difficulty in making medical information understandable and accessible. It became apparent to me that I could contribute to the health awareness of the immigrant population by gathering the necessary information, putting it into language that could be easily understood and disseminating it. Since I was familiar with the Chinese language and culture and had some contact with Chinese immigrants through volunteer experiences, I focused on Chinese immigrants.
It became apparent to me that I could contribute to the health awareness of the immigrant population by gathering the necessary information, putting it into language that could be easily understood and disseminating it.

... distribute the information to the Chinese immigrant population. I contacted a number of Chinese newspaper and magazine publishers based in Los Angeles to discuss the possibility of printing an article. In the end, I worked with The International Daily News, a newspaper that has a long-standing readership in Asian communities across the United States and in parts of Canada and Latin America. The company published my work in eight consecutive articles beginning in September 1994.

... When someone asks about my experiences, I usually like to say that it’s good when an idea can be realized; I also would like to think the articles have made a difference in someone’s life by raising his or her health awareness. My future goal is to publish the information in booklet form so that families can have a permanent resource. My hope is that the information on disease prevention and health promotion reaches all members of the immigrant family, making health awareness a part of each person’s everyday life.

I believe that similar work could be done to raise health awareness in other sectors of the population — other immigrant groups or certain socioeconomic groups — based on their particular needs. Through such efforts, we can make a positive difference in the thinking of someone who is unaware or under-informed medically.

Editor's Note: Susan S. Sheu is a third-year medical student from San Marino CA.
Philpott Family Challenge Boosts Annual Giving To The Medical School

ALUMNI and friends received information last December about the Philpott Family Challenge program. The School of Medicine hopes to set new benchmarks for participation in the Annual Giving Program and in the William Greenleaf Eliot Society.

A gift of $250,000 is offered by the family to increase participation in the Annual Fund Program. The purpose of the challenge is to increase unrestricted support for the School of Medicine and to build an even stronger William Greenleaf Eliot Society, the University’s premier donor recognition organization.

Terms for the challenge follow:
- To current and past Eliot Society members, a 1-for-1 match to renew their memberships.
- To current donors who are not Eliot Society members, a 1-for-1 match to join the Eliot Society.
- To those who are not donors to the School of Medicine, a 2-for-1 match for their gifts (in any amount) to the Annual Fund.

“The School of Medicine wishes to extend its deep appreciation to the Philpott family for its foresight and generosity in helping to enhance the Annual Fund Program of the School of Medicine this year through the Philpott Family Challenge,” says William A. Peck, MD, executive vice chancellor for medical affairs and dean.

Eliot Society Gathering

Local members of the School of Medicine’s Eliot Society gathered in December for a holiday reception hosted by William A. Peck, MD, and his wife, Patricia. More than 200 alumni and friends of the school attended the reception at the Eric P. Newman Education Center. From left are: Barbara Kodner, Ira Kodner, MD, Susie Philpott and Gordon Philpott, MD. Drs. Kodner and Philpott are Eliot Society co-chairmen for the School of Medicine.

Endowed Professorship Honors Flances

THE Rosemary and I.J. Flance Professorship of Pulmonary Medicine has been established in the Department of Medicine and will support research in the division of pulmonary and critical care medicine. The chair is funded largely by a gift from the estate of the late Sam J. Golman, a St. Louis-area businessman who was a longtime supporter of Washington University Medical Center institutions.

The endowed professorship recognizes I. Jerome Flance, MD, clinical professor of medicine, and his wife, Rosemary. Flance has been a member of the clinical faculty for 53 years and has played a part in educating generations of internists and pulmonary disease specialists.

The School of Medicine established the Flance Visiting Professorship in 1976 to honor Flance’s outstanding contributions to teaching. He received the Distinguished Alumni Award in conjunction with Founders Day in 1986 and was given the Alumni/Faculty Award from the Washington University Medical Center Alumni Association in 1990. In 1992, the School of Medicine named a Distinguished Alumni Scholarship in Flance’s honor.

Rosemary Flance, a graduate of the University of Chicago, is an active supporter of the University’s William Greenleaf Eliot Society.

Outlook, Spring 1996
Vageloses Endow Biochemistry Chair

ROY Vagelos, MD, a leading figure in the pharmaceutical industry, and his wife, Diana, will endow a chair in biological chemistry at the School of Medicine.

By the end of 1999, they will have donated a total of $1 million to establish the Roy and Diana Vagelos Professorship of Biological Chemistry in the Department of Biochemistry and Molecular Biophysics. The commitment honors William H. Danforth and his wife, Ibby, on the occasion of their retirement as chancellor and first lady of Washington University.

Vagelos, former chairman and chief executive officer of Merck & Co. Inc., is currently chairman of the board of the University of Pennsylvania and of Regeneron Pharmaceuticals Inc. Vagelos spent nine years at the School of Medicine, where he headed the Department of Biological Chemistry from 1966 to 1975. Building on 10 years of research at the National Institutes of Health in Bethesda MD, he solved the puzzle of how fatty substances called lipids are made in cells.

As an administrator, Vagelos increased options for Washington University students by founding the Division of Biology and Biomedical Sciences, which he directed until 1975. Recognizing that research and coursework often cross departmental boundaries, the division encourages interdisciplinary interactions among faculty and oversees education in the biological sciences at the Medical and Hilltop campuses.

Vagelos left Washington University in 1975 to become senior vice president of research at Merck Sharp & Dohme Research Laboratories in Rahway NJ the research division of Merck & Co. Inc. He joined the company's board of directors in 1984 and served as chairman from 1986 to 1994. From 1985 to 1994, he also was Merck's president and chief executive officer.

Vagelos retired from Merck in November 1994. In October 1994, he became chairman of the board of trustees of the University of Pennsylvania and, in January 1995, chairman of the board of Regeneron Pharmaceuticals Inc., a small biotechnology company in Tarrytown NY that is developing drugs to treat nerve diseases, spinal cord injuries and degenerative brain disorders such as Parkinson's and Alzheimer's diseases.

Reunion Speakers Selected, Award Recipients Named

RICHARD A. Blath, MD, president of WUMCAA, has assembled a stellar group of speakers for the Reunion '96 scientific program. Most are members of the reunion classes. They include: Leonard Berg, MD '49, Washington University; Michael Colvin, MD '61, Duke University; Richard A. Cooper, MD '61, the Medical College of Wisconsin; Louis P. Dehner, MD '66, Washington University; Lowell A. Gess, MD '51, a missionary ophthalmologist now in Alexandria, MN; Phillip A. Hertzman, MD '71, the Los Alamos Medical Center; Susan E. Mackinnon, MD and Gordon W. Philpott, MD '61, Washington University; Richard L. Schreiner, MD '71, Indiana University School of Medicine; and Larry J. Shapiro, MD '71, the University of California at San Francisco.

Scientific program sessions on Thursday and Friday afternoon will be held in the new Eric P. Newman Education Center. All Saturday reunion events will be at the Ritz Carlton, including the alumni breakfast, at which William A. Peck, MD, dean of the School of Medicine, will speak. Other events include the scientific program session, the financial planning luncheon and the banquet on Saturday night.

Several speakers will be among the recipients of alumni awards to be given at the reunion banquet on Saturday, May 11. Lowell A. Gess, MD, and Latty J. Shapiro, MD, will receive alumni achievement awards and Louis P. Dehner, MD, and Gordon W. Philpott will receive alumni/faculty awards. Other award recipients include Gladden V. Eliott, MD, Class of '46, alumni achievement, and Dee Claire Anderson, MD, Class of '71, alumni/faculty. The distinguished service award will be presented to William H. Danforth, MD, chairman of the board of trustees of Washington University.

Distinguished Alumni Scholarship Honorees

FOUR new Distinguished Alumni Scholarship honorees were selected by the WUMCAA Executive Council. Honorees, who are chosen for their outstanding teaching and positive influence on students, are Ronald G. Evans, MD '64, Elizabeth E. Mallinckrodt Professor, head of the Department of Radiology and director of the Mallinckrodt Institute of Radiology; Bernard T. Garfinkel, MD '48, clinical professor of medicine; Benjamin Milder, MD '39, clinical professor of ophthalmology and visual sciences, and, posthumously, Grace E. Berger, MD '43, who was clinical associate professor emeritus of medicine.

The Distinguished Alumni Scholarship Program provides four-year, full-tuition scholarships to 16 outstanding medical students each year. It is funded through gifts from alumni, former residents, friends and grants from the medical school.
CLASS NOTES

'20s

Myrtle Hornbuckle Miller, NU '25, is retired from public health nursing. She writes that she hopes Washington University will one day have a School of Public Health.

'30s

Arthur Steer, MD '32, writes that he is "still managing, albeit with a pair of new knees.

Kenneth M. Amlin, MD '35, is attending continuing medical education lectures at two hospitals. He writes that he is still driving, "but no long trips," and invites classmates to come and see him in the San Mateo CA area.

V. Terrell Davis, Jr., MD '36, writes, "We just had the biggest blizzard of the century here on the East Coast. We in Wilmington DE had over two feet. Though retired, we keep busy with volunteer activities, travel, professional meetings and visiting family coast-to-coast."

Edgar L. Engel, Sr., MD '36 and Curtis Young, Jr., MD, HS '45-'49, who have practiced obstetrics and gynecology together for more than 50 years, have received the St. Mary's Steward of Sr. Vincent dePaul Award from St. Mary's Medical Center in Evansville IN. The award was presented as a tribute to their accomplishments, their extraordinary compassion and service to the community and hospital. Together, they have delivered an estimated 19,000 babies and led the way to provide health care to low-income women and their children.

'40s

Harry E. Lichtwardt, MD '43, retired from the practice of urology in 1983, but keeps abreast of his field by serving on the board of directors of the American Urological Association.

William A. Seidler, Jr., MD '43, has been serving as Audubon-Guthrie County Representative in the Older Iowaan Legislature for the past five years. He is also a member of the State Advisory Council to the Iowa State Department of Elder Affairs and Medical Director of the Za Ga Zig Shrine Temple in Des Moines.

Carlton G. Watkins, MD, '43, a pediatrician, has been honored by the citizens of Charlotte NC, his home of nearly 50 years, with the naming of the Dr. Carlton G. Watkins Center. The center houses preschool services, including assessment, outpatient treatment and day programs for children up to five years of age with emotional, behavioral or developmental problems who are not eligible for school services.

Robert H. Hodge, MD '44, in 1995 became a trustee of the Missouri Chapter of the Nature Conservancy.

John T. Farrar, MD '45, was married to Rowena Bryan Thompson on October 28, 1995. He continues as associate chief of staff at the Martinsburg WV Veterans Affairs Medical Center.

Theodore Smith, MD '46, is preparing to publish a book titled "Full Share," regarding how parents' fears perpetuate through their children.

'50s

Forest D. Harris, MD '51, is medical director and addictionist at Jim Taliaferro Community Mental Health Center in Lawton OK.

Margaret I. Winters, NU '53, reports that her husband, Paul, died suddenly at their home in Brighton IL on October 15, 1995.

Edgar Draper, MD '53, resigned as chairman of the Department of Psychiatry at the University of Mississippi in 1993 and assumed the rank of professor emeritus in 1994.

Patricia A. Melechen, OT '55, reports that during the past year she and her husband, Norman, spent six weeks traveling the backroads of South Africa, enjoying the beauty of the country and meeting people.

Charles Geyer, MD, HS '55, has largely retired but still helps out occasionally in radiation therapy.

A. Robert Arnstein, MD '55, sold his practice two years ago and is enjoying life as a full-time teacher of primary care and internal medicine at Sinai Hospital in Birmingham MI.

JoAnn Jackson Todd, NU '56, writes that she feels very fortunate to be alive, after having survived a cerebral aneurysm two years ago.

She says 1995 was a difficult year because of the deaths of two grandchildren, one age 5 1/2 months and one 4 years old.

Ralph Harder, MD '57, is spending a year in Germany providing primary care to dependents and US Army retirees.

Jerome Robinson, MD '57, and his wife moved to Ft. Worth TX in 1994, after 30 years of private practice in Phoenix. He is now working as an interventional cardiologist for Kaiser Permanente Health Plan of Texas and loving it.

Don and Mary Harkness, both MD '58, are back in Madison WI after 27 months in Hiroshima, Japan, where Don was a director and chief of research at the Radiation Effects Research Foundation (the former Atomic Bomb Casualty Commission). Mary was president of the Hiroshima Women's International Club. Don is back in hematology and director of continuing medical education programs and Mary works part-time at the Social Security Children's Disability Office.

R. Ray Cartwright, MD '58, is practicing outpatient diagnostic radiology in Las Vegas and finding time for golf and flying.
'60s

Ronald B. Miller, MD, HS '62-'63, is helping to plan a national conference for scholars in ethics and reproductive medicine titled, "Ethics of Reproductive Medicine: Responsibilities and Challenges," to be held April 13-16, 1996, at the University of California at Irvine.

Laura Bell, NU '62, received the 1995 Alumnae Achievement Award from Blackburn University, Carlinville IL, for service to the field of nursing and to civic and church activities. Bell retired as a nurse supervisor from the Veterans Administration Hospital system after 43 years in the profession. During that time, she served as president of the Missouri League of Nursing and as an adviser to the Missouri Student Nurses' Association.

Morton G. Glickman, MD '63, has been appointed associate dean for faculty affairs at the Yale University School of Medicine, where he has been a faculty member since 1973. In his new position, he works with departments on recruiting, appointing and promoting faculty members. He also will be named a fellow of the Society of Urology this year.

H. Michael Jones, MD '66, is serving the fifth year of his term on the Surgical Pathology Committee of the College of American Pathologists. He reports that he has five sons and two grandchildren.

Charles H. Lockhart, MD '66, is chairman of the Department of Anesthesiology at the Children's Hospital in Denver CO, and professor of anesthesiology and pediatrics at the University of Colorado Health Sciences Center. He was on sabbatical from July through December 1995, three months of which were spent in Australia.

David G. Kemp, MD '67, retired in September from the Navy after 27 years. He has taken a position as internal medicine residency program director at Easton Hospital in Easton PA.

James O'Connell, HAP '67, is currently serving as Secretary of Health and Environment for Kansas Governor Bill Graves.

Benjamin Kwan, MD '67, has been promoted to clinical professor of ophthalmology at the University of California at Los Angeles School of Medicine.

Marvin E. Skelton, MD, HS '67-'70, reports that he is "healthy, sailing, studying for International Radiology Boards and practicing with a good group in the Golden Isles of Georgia."

Mary Ladd Cope, PT '69, writes that after a hiatus of 17 years, she sat for state boards in Florida in November 1994, passed and returned to physical therapy in March 1995.

'70s

Steven J. Young, MD, HS '72-'75, is associate clinical professor at Michigan State University College of Human Medicine and program director for psychiatry at the Kalamazoo campus. He has developed a new psychiatry residency training program which has recently received ACGME accreditation.

Dennis A. Bertram, MD '74, is the new program manager of TEMINEX, the technology assessment program for The HMO Group. He still lives in Buffalo.

Clifford B. Saper, PhD, MD '77, the James Jackson Putnam Professor of Neurology at Harvard Medical School, has been named director of the Harvard Medical School Neurology Training Program.

William F. McDonnell III, MD '77, writes that he received a third place for his lima beans at the 1995 North Carolina State Fair.

Nola Mirikitani, MD '78, has been in solo private practice of general internal medicine and family practice for 11 years. She is married and has two sons, ages 5 and 8.

Howard J. Silverman, MD '79, is president of Chemurx Corp., which develops chemotherapy software.

'80s

Steven Malek, MD '81, and his wife, Leanne, have a new son, Marc, born December 12, 1995. He joins brothers Luke, 14, John, 9 and Matthew, 5. Steven works in emergency medicine in Coeur d'Alene ID and Leanne is an urgent care physician for Group Health Northwest.

Theresa Vogel Crouch, MD, HS '79-'83, works as a radiologist for the US Air Force at RAF Lakenheath in Suffolk, England. Her mailing address is PSC 41, Box 338, 48th Medical Group, APO AE 09164.

Mark D. Shiffler, PT '81, is director of physical and occupational therapy at Bryan Memorial Hospital in Lincoln NE. He also chairs the legislative committee of the Nebraska Chapter APTA and serves as program director for Physical Therapy Overseas (Division of Health Volunteers Overseas) for the Vietnam program. He plans to travel to Vietnam this spring with his wife, Penny.

Myron Tanenbaum, MD '81, continues to practice ophthalmic plastic and reconstructive surgery in Miami FL and recently published the third edition of his textbook, "Oculoplastic Surgery."

Kathy Meador, PT '82, writes that she and husband, Steven Meador, MD '81, welcomed their fourth child, Ted, on April 3, 1995, and are enjoying the constant chaos of their household.

Jay Diamond, PT '85, writes, "Lost my job, got married, celebrated our son's second birthday, all in a two-month period. I remain in St. Louis, healthy and happy."
Scott H. Logan, MD, HS '87, is a practicing obstetrician/gynecologist at Lake Forest Hospital in Lake Forest IL. He is married with four children.

Kamil Dostalik, PT '89, has a daughter, Sandra, born on May 8, 1995.

Jeffrey F. Penney, MD, HS '89, is medical director of a mental health facility in Prescott AZ.

'90s

Randall Goskowicz, MD '89 and Maki Goskowicz, MD '90, have finished their residencies in anesthesiology and dermatology, respectively. Randall did an additional fellowship in cardiac and transplant anesthesia and is now assistant clinical professor with the University of California at San Diego. Maki has a private practice in San Diego. They have been busy landscaping and working on the house they purchased a year ago.

Jane Burton, PT '91, works at Children's Hospital in Birmingham AL. She started a cystic fibrosis PT program and is organizing a PT program in the neonatal intensive care unit.

Shawn P. Quillin, MD '90, has joined a 20-man diagnostic radiology team at Presbyterian Hospital in Charlotte NC. He is enjoying the warm weather with his wife, Laura, and daughter, Molly.

Susan Benfield, MD '91, is working at the West Side Health Center, a community health center in St. Paul MN, having finished her residency in family practice. She is also teaching obstetrics to family practice residents at Ramsey Hospital. She has a daughter, Allison, 3.

Melissa Redleaf, MD '91, finished her pediatrics residency in Rochester NY in July '94. She and her husband, Eric, decided to head for the sun, and she joined a group practice in Phoenix AZ. Their son, Adam, born February 17, 1994, “has brought an incredible amount of fun, laughter and joy into our lives.”

Linda Citchen, OT '92, is an occupational therapist for Total Rehab Services in St. Louis.

Angie Wright, OT '92, married Tim Knapp on August 13, 1995. They currently reside at 7502 County Road 53, Lewistown OH 43333.

Maria L. Fernandez, HAP '93, is international business development manager for Covanta, a Bristol Myers Squibb Company. She has responsibility for the infection control product line in Latin America, the Middle East, South Africa and Pacific Rim countries.

Mark A. Velleca, MD, PhD '95, is a resident in laboratory medicine at Yale New Haven Hospital.

IN MEMORY

Dan B. Moore, MD '55, died of cancer on November 11, 1994, in Sacramento CA, at age 65. He was associated with the Permanente Medical Group since 1972, first as a surgeon and later as founding medical director of the South Sacramento Kaiser Permanente Medical Center. He is survived by his wife, Betty, and four sons.

H. Lawrence Allred, MD '46, died on April 7, 1995, in Stockton CA.

Lawrence M. Kottner, MD '38, a retired internist, died May 21, 1995, in St. Louis. He was a former faculty member at St. Louis University School of Medicine. His wife, Selma R. Kottner, and three children survive.

Kenneth W. Whisenand, HAP '68, died of cancer May 26, 1995, at the age of 57. He served as chief executive officer of Sun Coast Hospital in Largo FL, a position he left in 1985 to begin his own business, Media-Health Consultants, Inc. He had been president of the Largo Chamber of Commerce and was a vice president and director of the Florida Gulf Coast Art Center. His wife, Deborah, survives.

Richard E. Johnson, MD, HS '46-'48, died in Columbia MO on June 16, 1995. He is survived by his wife, Lorna L. Johnson.

Russell Nelson Hirst, MD '40, died July 1, 1995, in Ogden UT. He had been in private practice for nearly 50 years before his retirement in 1993. He is survived by a son, Steven T. Hirst.

Carl C. Epstein, MD '39, died on July 6, 1995, after a lengthy illness.

Garland F. Smith, MD '41, died in St. Louis on July 28, 1995, after a long illness. He practiced orthopaedic surgery for 32 years and was the former chief of orthopaedic surgery at St. John’s Mercy Hospital. Among the survivors are two daughters, three sons and five grandchildren.

George W. Blankenship, Sr., MD '38, died July 29, 1995, in Neosho MO. He had suffered a stroke in March. Prior to his retirement, he had been in general practice in Neosho for more than 50 years. Survivors include a son, George W. Blankenship, Jr., MD, HS, who is professor and chairman of the Department of Ophthalmology and Lions Vision and Research Center at the College of Medicine at Penn State.

James Mann, MD '40, died on August 4, 1995, at the age of 81. He graduated from the Boston Psychoanalytic Institute in 1953 and became president of the Boston Psychoanalytic Society and dean of the Institute. In 1954-55, he was acting chairman of psychiatry at the Hadassah-Hebrew University Medical School in Jerusalem. In 1959, he joined the faculty at Boston University School of Medicine. He is survived by his wife, Ida; daughters, Carol (BA '66); and sons, Jonathan (MD '74), Jeremy and Joshua, and 14 grandchildren.
Helmut Stark, M.S., research assistant in radiology, strolls the corridors of the East Building wearing a phased array coil (antenna). The device is used for imaging brain functions including sensation, vision, learning, memory and motion. In addition to the red Cardinals baseball helmet, other elements used to construct the antenna include tuning capacitors, chokes and inductors. Stark spent seven weeks building and adjusting the array, which is designed to further improve functional magnetic resonance images at Mallinckrodt Institute of Radiology.
Star athletes become School of Medicine scholars. From left are: Angela Suarez Serig, a second-year student in the Program in Occupational Therapy; Carla Ainsworth, a first-year medical student; Amy Sullivan, a second-year medical student, and Rachel Knapp, a first-year student in the Program in Physical Therapy. Among their accomplishments, Suarez Serig is a former volleyball team captain for the NCAA Division III Champion Bears and received a Merit Fellowship to study OT; Ainsworth is a three-time NCAA Division III Swimmer of the Year and the sole recipient of the Walter Byers Postgraduate Scholarship; Sullivan, who is president of her medical school class, was also a Bears volleyball team captain and a top 10 national finalist for 1994 NCAA Woman of the Year; and Knapp, who excels in track and cross country, was selected as the 1995 Woman of the Year from Illinois and received a NCAA Postgraduate Scholarship.