So How's Your Proprioception? Amy Zarrin, MD, PHD student, left, tests the proprioception of Monica Williams, a student at Central Visual and Performing Arts High School, a magnet school in north St. Louis. Proprioception is the term to describe how the brain knows where the parts of the body are and what position the limbs are in. In the experiment, high school students learned how their proprioception could be subverted with a simple muscle stimulator applied to a limb, such as an arm, elbow or leg. Zarrin was visiting the school as part of the School of Medicine's Young Scientist Program.
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Team Players by Jim Dryden
Sports medicine specialists in the Department of Orthopaedic Surgery do what it takes to keep St. Louis' professional athletes in the game.

Science Fare by David Linzee
Medical students are introducing inner-city high school students to a smorgasbord of scientific careers through the Young Scientist Program.

To Market, To Market by Linda Sage
The university's technology transfer program puts research results to good use by making them available to the public.

Breaking the Language Barrier by Candace O'Connor
Barnes-Jewish Hospital's Refugee Health Services provides interpreters and facilitates health care for St. Louis' growing refugee and immigrant populations.
Glycobiology society honors Kornfeld

STUART A. Kornfeld, MD, a professor of medicine and biochemistry and molecular biophysics, received the Karl Meyer Award from the Society for Glycobiology.

Kornfeld, who also co-directs the division of hematology, has made groundbreaking discoveries about how sugar chains direct protein movement within cells. These antennae-like attachments allow proteins to be routed to their correct destinations the way an address determines where mail is sent.

Kornfeld's early research uncovered the structure of many sugar chains and the steps involved in forming sugar chains that are linked to the amino acid asparagine. He is best known for discovering how these patients develop secondary hyperparathyroidism, which can produce bone disease. This condition results from irregularities in the metabolism of calcium, phosphorus and vitamin D and elevated levels of parathyroid hormone in the blood.

Slatopolsky helped discover that secondary hyperparathyroidism and bone disease could be controlled — and even cured in some patients — through tight regulation of levels of phosphorus in the blood. He now is determining how this regulation occurs at the molecular level. In addition, he is studying how analogs of vitamin D influence secondary hyperparathyroidism.

Slatopolsky directed the School of Medicine's Chromalloy American Kidney Center from 1967 to 1997.

Damiano joins heart team

RALPH J. Damiano Jr., MD, is the new chief of cardiac surgery within the division of cardiothoracic surgery at the School of Medicine and Barnes-Jewish Hospital.

Damiano comes to St. Louis from Pennsylvania, where he served as professor of surgery and chief of the division of cardiothoracic surgery at Penn State's Hershey Medical Center. He also was co-director of the university's cardiovascular center and a professor of cellular and molecular physiology.

Damiano is a pioneer in the development of robotically assisted cardiac surgery and endoscopic coronary artery bypass grafting. He performed the first robotically assisted coronary artery bypass graft procedure in North America in 1998. He also completed the world’s first clinical trial for robotically assisted endoscopic coronary artery bypass grafting.

In addition, he has been at the forefront of developments in beating heart surgery. These procedures allow the surgeon to perform coronary artery bypass grafting while the heart is still beating instead of stopping the heart and putting patients on cardiopulmonary bypass machines. He directs a training center for teaching surgeons beating heart surgery techniques.
AAAS taps Schlesinger and Ternberg

MILTON J. Schlesinger, PhD, professor emeritus of molecular microbiology, and Jessie L. Ternberg, MD, PhD, professor emeritus of pediatrics and surgery, were honored in February by becoming fellows of the American Association for the Advancement of Science (AAAS).

Schlesinger was recognized for his work on heat-shock proteins and protein modification. In 1978, he discovered the first examples in vertebrate cells of heat-shock proteins, which are produced when normal proteins unfold as a result of high temperature or other stressful conditions. Heat-shock proteins refold the damaged proteins, helping the cell survive.

Schlesinger also uncovered the first example in nonbacterial cells of a glycoprotein that can be modified by the addition of a fatty acid group. It now is known that many cellular proteins can be modified by fatty groups and that such molecular editing may guide proteins to membranes or modulate interactions between membranes and proteins.

Ternberg was honored for her contributions to the practice and teaching of pediatric surgery and for her role in mentoring students.

Ternberg joined the School of Medicine faculty in 1959 as an instructor of surgery. She became chief of pediatric surgery in 1972, and, in 1975, was named professor of surgery in pediatrics. During this time, she studied free radicals using electron spin resonance and was able to show their presence in viable tissues as well as to demonstrate that differences existed between normal and diseased tissues.

A nationally recognized pediatric surgeon, she was the first female surgical resident at Barnes Hospital, the first female surgeon on the medical school faculty and the first woman elected head of its faculty council.

Among Ternberg's numerous awards are the Washington University Alumni Award, the International Women's Year Award for Health Care, and membership in Alpha Omega Alpha. In 1998, former pediatric surgical residents and colleagues established the Jessie L. Ternberg Award, to be given annually to a female medical school graduate.

Five PT students receive scholarships

FIVE students in the Program in Physical Therapy have received scholarships funded by physical therapy alumni. The students, and the scholarships they received, are:

Andy Choi, first-year, Steven J. Rose Minority Scholarship; Carrie Joyce, second-year, Robert J. Hickok Merit Scholarship; Jennifer Modelski and Jill Taylor, both second-year, Kathleen Dixon Book Scholarship; and Karen Rood, second-year, Guebert-Lake Scholarship.

The students were recognized at a reception late last fall.
Reich recognized with lifetime achievement award

THEODORE Reich, MD, the Samuel and Mae S. Ludwig Professor of Psychiatry and professor of genetics at the School of Medicine, has received the Lifetime Achievement Award from the International Society of Psychiatric Genetics.

Reich was honored for his pioneering research on the genetic aspects of mental illness. He has been studying the genetics of psychiatric illness since he began his career in academic medicine in the late 1960s and is considered one of the founders of modern psychiatric genetics.

"Since the beginning, we have attempted to develop scientific methods to study psychiatric genetics and to train young scientists in those methods," says Reich. "Many students have come through and enriched our efforts while others have gone elsewhere and built groups of their own and research of their own. That's made us very influential in the field."

Over the past 30 years, Reich has participated in numerous genetic studies of schizophrenia, bipolar disorder, alcoholism and other illnesses and has contributed to cutting-edge discoveries in these fields. Since 1989, he has been the national co-principal investigator of the Collaborative Studies on the Genetics of Alcoholism (COGA) project. Recently, investigators led by Reich received $11.2 million in grants to continue their study of the genetic causes of alcoholism and bipolar disorder.

Reich also is a principal investigator for a National Institutes of Health-sponsored project called the Collaborative Genomic Study of Bipolar Disorder, which involves searching for genes that put people at risk for manic depressive illness. Recently, Reich and his colleagues received a $2.3 million grant from the National Institute of Mental Health to continue this work.

Illinois woman is no longer breathless...

Lung transplant program celebrates milestone with 500th procedure

WHILE everyone else was gearing up for the new millennium, Mary Pennington was catching her breath. Pennington, 61, of Odin IL, underwent a bilateral lung transplant Dec. 7, 1999, at Barnes-Jewish Hospital. It was the hospital's 500th lung transplant.

The School of Medicine's lung transplant program at Barnes-Jewish Hospital is believed to be the first program to reach this transplant milestone. With more than 200 additional pediatric lung transplants at St. Louis Children's Hospital, the Washington University program is the most prolific lung transplant program in the world.

Alec Patterson, MD, the Joseph C. Bancroft Professor of Surgery, performed the milestone six-hour operation. Pennington, a mother of four, recovered quickly and was discharged from the hospital Dec. 18. She returned to the hospital daily for monitoring and pulmonary rehab through mid-January.

Pennington had suffered from emphysema. In 1993, she became just the 12th person to undergo lung volume reduction surgery at BJH. The procedure, which was developed by the School of Medicine thoracic surgery team at BJH, is used to treat end-stage emphysema. The surgery helped restore Pennington to a near-normal lifestyle for several years, until her emphysema progressed to the point that she needed a lung transplant.

The lung transplant program was begun in 1988 by Joel Cooper, MD, the Evarts A. Graham Professor of Surgery. Cooper performed the first successful human lung transplant in 1983 at the University of Toronto.

After moving his program to St. Louis, Cooper and his team continued to innovate and develop surgical techniques and medical regimens that are acknowledged as the gold standard in lung transplant and thoracic surgery.

Some of these innovations include: bilateral lung transplant, in which both donor lungs are transplanted separately, rather than in a single block; the use of lung transplant to treat cystic fibrosis, an incurable, hereditary disease; and lung volume reduction surgery.
Ley named Wolff Professor

TIMOTHY J. Ley, MD, has been chosen to fill a new professorship, the Alan A. and Edith L. Wolff Professorship in Medicine, in the Department of Medicine.

The professorship honors Edith Wolff and her late husband, Alan, who have supported medical research for many years. Edith is a dedicated community volunteer, philanthropist and president of Wolff Construction Co., a real estate investment and commercial leasing and management company.

Ley, a professor of medicine and genetics, studies ways to prevent graft vs. host disease (GVHD), a major problem in bone marrow transplants that involve donated marrow. Genetic differences between a donor’s tissue and a recipient’s tissue can incite the donor’s immune cells to attack the recipient’s tissue, causing organ damage or even the patient’s death.

Ley also studies factors that control the switch in humans from fetal to adult hemoglobin, the oxygen-carrying protein in blood. He recently was awarded a MERIT status grant from the National Institutes of Health (NIH) to continue this work, which might suggest therapies for people who cannot produce normal adult hemoglobin.

Ley received the Alumni/Faculty Award in 1998 from the Washington University Medical Center Alumni Association and is a past president of the prestigious American Society of Clinical Investigation.

WUSM and BJC unite to improve patient access to clinical trials

To enhance access to potential advancements in medicine, the School of Medicine and BJC Health System have teamed up to develop clinical trial programs at BJC member hospitals and health centers.

The programs will offer prospective patients the opportunity to participate in leading-edge clinical trials through an expanded group of physicians and at a variety of convenient locations within BJC Health System.

Washington University’s Center for Clinical Studies (CCS) was established in 1996 to help support the more than 250 new corporate-sponsored clinical studies at the university each year. The CCS provides ongoing administrative and database support to physicians participating in clinical trials, oversees screening and enrollments of study participants, and arranges for any necessary ancillary services such as laboratory or radiology tests.

“By taking part in these studies, patients gain access to the latest in medical treatment while making a real contribution to humanity,” says Daniel P. Schuster, MD, associate dean for clinical research. “It’s the only way to finally prove the new treatments will work. This new agreement is a terrific chance to extend this opportunity to our patients and their physicians.”

A variety of clinical studies will be offered at various BJC facilities over the next several years. Last December, a patient recruitment center called Volunteer for Health opened in the lobby of Barnes-Jewish Hospital south. Missouri Baptist Medical Center, Barnes-Jewish West County Hospital and University Care have satellite centers.

Clinical trials are under way in the areas of arthritis, asthma, cancer, heart disease, pain control and women’s health.

Establishing Partnerships

Last December officials from the United Arab Emirates University in Al-Ain, visited the School of Medicine and Barnes-Jewish Hospital to discuss ways the institutions can work together to improve medical education and health care. Pictured from left: Sehamuddin Galadari, PhD, associate dean of research at United Arab Emirates University; William A. Peck, MD, executive vice chancellor and dean of the School of Medicine; Douglas Voth, MD, dean of the United Arab Emirates University School of Medicine; and Daniel K. Mueller, PhD, BJC/WUSM International Healthcare Services.
A MOTHER’S immune system must be kept in check so that it does not attack her baby, which contains foreign genetic material. Yet no comprehensive explanation has emerged about how this process, called fetomaternal tolerance, occurs.

A research team now has evidence that an immune system protein called Crry (complement receptor-related gene Y) is crucial for fetomaternal tolerance in mice. Its absence unleashes a destructive attack by the immune system. This causes the developing fetus to be dismantled and its tissue to be reabsorbed by the mother, which is equivalent to a miscarriage in humans.

Hector D. Molina, MD, assistant professor of medicine and pathology and principal investigator of the study, led the School of Medicine team that performed the research.

The rodent Crry protein regulates a branch of the immune system, called the complement system, which helps destroy foreign material such as infectious organisms. Crry prevents complement proteins called C3 and C4 from marking cells for immune-system destruction.

Molina’s team found that mice that should have given birth to some offspring lacking Crry had smaller litters instead. When the researchers examined similar mice during their 19-day gestation period, they detected complement activity in Crry-free embryos. On the seventh day, outer embryo cells and cells of the developing placentas bore activated complement proteins. Moreover, immune cells called neutrophils had invaded these complement-bound tissues and were entering the Crry-free embryo.

Similar embryos analyzed on the ninth and 10th days of gestation also were undersized, as were the placentas, which are partially derived from embryonic tissue. By the 10th day, there were fewer embryos that lacked Crry. This suggested that the protein’s absence had permitted the immune system to destroy embryos, leading to miscarriage.

Two placental proteins perform Crry’s duties in humans: decay accelerating factor and membrane cofactor protein. Their role in miscarriage has not been addressed previously. “Using the mouse studies as a framework, we can jump to human studies and see whether miscarriages in women also involve complement regulation,” Molina says.

The effort will focus on women with autoimmune diseases such as lupus erythematosus and multiple miscarriages. Molina’s team and investigators elsewhere will try to determine whether the women have diminished levels of the Crry-like regulatory proteins and thus might benefit from supplemental therapy.

### Sneak a peek

THE Office of Medical Public Affairs has a video detailing the $320 million multiyear Campus Integration Project taking place at the Medical Center. The project includes construction of the new Ambulatory Care Center, which will house The Alvin J. Siteman Cancer Center.

For a free copy of the video, call (314) 286-0120.

### Student Awards

Fourth-year medical student Ramsey A. Ellis, left, received the Jessie L. Ternberg Award, which is presented to a woman who best exemplifies Ternberg’s indomitable spirit of determination, perseverance and dedication to her patients. Pictured with Ternberg, Ellis was among 31 medical students recognized at the annual awards event. Other awardees were: Judson A. Brewer, Robert H. Brophy, Lauren A. Burwell, Ryan P. Callan, Grace P. Chen, Kenneth C. Cummings, Kimberly J. Easom, Felix Y. Feng, Kristin M. Feley, Anat Gal-Or, Adam F. Gatz, Norah H. Henry, Dora Y. Ho, Scott A. Josephson, Carol I. Kaplan, Kabinya R. Kimani, Jeffrey A. Magee, Kathryn E. May, Edward C. Miner, Scott A. Mitchell, Margaret A. Ogden, Jennifer Patterson, Joel D. Schilling, Jeffrey P. Simons, Gabriel E. Soto, Victor H. Vanberkel, Heidi Weilbach, Lauren L. Woodruff, Hannah Wunsch and Laura H. Zemany.
Klein becomes Danforth Professor

SAMUEL Klein, MD, professor of medicine and director of the Center for Human Nutrition at the School of Medicine, has been named the Danforth Professor of Medicine and Nutritional Science. Klein also serves as associate program director of the university’s General Clinical Research Center and medical director of both the Washington University Weight Management Center and the Barnes-Jewish Hospital Nutrition Support Service.

Since joining the faculty at the School of Medicine in 1994, Klein has developed several new clinical and research programs aimed at the prevention and therapy of nutrition-related diseases. He recently received a five-year, $4.8 million grant from the National Institutes of Health to establish a Nutrition Research Center at Washington University.

In 1995, Klein established the Washington University Weight Management Center, which provides long-term medical and surgical therapy for obesity. His research activities focus on studying the regulation of fat metabolism in obesity, and he has received several awards for his work.

Eberlein to direct Siteman Cancer Center

TIMOTHY J. Eberlein, MD, a renowned academic surgeon and clinical expert in the management of breast cancer and other cancers, has been named director of The Alvin J. Siteman Cancer Center, which is operated jointly by the School of Medicine and Barnes-Jewish Hospital. Eberlein has been interim director of the cancer center for the past 22 months.

Eberlein will continue to serve as Bixby Professor and head of the Department of Surgery at the medical school and surgeon-in-chief at BJH.

New treatment approach may prevent serious complications of liver disease

CHILDREN with the most common genetic cause of liver disease are at increased risk of developing life-threatening liver disease and emphysema. Using mice, researchers here have identified a new treatment approach that could prevent the serious complications of the disease, called alpha-1-antitrypsin deficiency.

“This approach eventually could prevent these patients from needing liver or lung transplants,” says senior author David H. Perlmutter, MD, the Donald Strominger Professor of Pediatrics and professor of cell biology and physiology.

Perlmutter and his colleagues reported their findings in the Feb. 15 issue of Proceedings of the National Academy of Sciences.

Alpha-1-antitrypsin ordinarily functions as an inhibitor of enzymes that can degrade connective tissue. People with alpha-1-antitrypsin deficiency make an abnormally folded version that gets retained inside liver cells instead of being secreted into body fluids.

Emphysema is believed to result when the protein’s absence from lung fluid allows degradative enzymes to wreak havoc. Liver injury is thought to be caused by the toxicity of the retained mutant protein.

In the study, Perlmutter and colleagues demonstrated that a drug called 4-phenylbutyric acid (PBA) improved secretion of mutant alpha-1-antitrypsin in a model cell culture system. The drug also increased levels of alpha-1-antitrypsin by 20 to 50 percent in a transgenic mouse model. PBA belongs to a class of compounds called chemical chaperones, which get into cells and reverse protein misfolding. It already is approved by the FDA for other therapeutic purposes.

Perlmutter says the results demonstrate that the effects of chemical chaperones, particularly PBA, satisfy many of the criteria required for prevention of liver and lung injury in alpha-1-antitrypsin deficiency. One trial in humans with alpha-1-antitrypsin deficiency has begun, and Perlmutter believes these studies will lead to several more.

Scientists also have identified many more human diseases in which chemical chaperones might be useful for treatment. Perlmutter says a similar approach might help patients with diseases such as Alzheimer's, Parkinson's and Huntington's.

“I think this approach could ultimately have a major impact on a number of disorders,” he says.
RICK W. Wright, MD, is relaxing at his home on a Friday evening. The assistant professor of orthopaedic surgery has just finished watching on television as the St. Louis Blues beat the Chicago Blackhawks. He and Matthew J. Matava, MD, assistant professor in orthopaedic surgery, are the Blues' team physicians.

The team is preparing to fly home from Chicago when Wright's phone rings.

"Al MacInnis still doesn't feel very well," says the voice on the other end of the line. "He'd like to see you in the morning."

MacInnis is injured, but it doesn't sound like an emergency, so Wright schedules an appointment for Saturday morning.

Wright heads to Barnes-Jewish Hospital West early Saturday and takes X-rays to determine whether MacInnis might have rib damage, muscle problems or back difficulties. What he discovers, however, is that the Blues defenseman has a collapsed lung.

By afternoon, MacInnis is resting comfortably, the lung re-inflated in a procedure performed by Joel D. Cooper, MD, Evarts A. Graham Professor and head of the division of cardiothoracic surgery at the School of Medicine.

Cooper prescribes rest and restricts MacInnis from two activities, scuba diving and flying in airplanes. He was lucky the flight
home from Chicago was short. Cooper expects MacInnis to miss about a month of play, but hockey players tend to heal quickly. Less than two weeks later, MacInnis is back on the ice.

More than 45,000 people crowd Busch Stadium on an early October night. It's the final weekend of the season, and the St. Louis Cardinals and Chicago Cubs are battling. Mark McGwire and Sammy Sosa are squaring off in part two of their epic home-run race.

But while the fans in the stands cheer their heroes, George A. Paletta Jr., MD, assistant professor of orthopaedic surgery, watches on television. He's in the trainer's office, next door to the locker room. It's a part of the ballpark where the smells of hot dogs, cold beer and popcorn are replaced by sports creams, pine tar, dirt and sweat socks. Paletta is going over charts with Barry Weinberg, the team's trainer.

"Bottenfield ... conditioning," Paletta says.
"Right," Weinberg responds.
"Bragg is ACL rehab. Davis ... rotator cuff rehab. Kennedy I haven't talked to yet, but he needs to work on strengthening his left shoulder where he had the injury. McEwing I talked to ... nothing. Mohler I talked to, and everything's fine. Morris, throwing program. ..."

And so it goes. With the crowds outside cheering the final games of 1999, Paletta and Weinberg sow seeds for the next season, discussing therapy and exercise programs they hope will make the Cardinals a healthier, more successful team in 2000.
**For the love of the game**

Paletta, Wright, Shively and Matava, all sports medicine specialists, are faculty in the Department of Orthopaedic Surgery at the School of Medicine and on staff at Barnes-Jewish Hospital. They look at knees, ankles, shoulders, elbows, pulled muscles and pinched nerves and do whatever is medically necessary to get athletes back to the highest level of performance in as short a time as possible.

Doing such means they spend a lot of time with their teams. For Paletta with the Cardinals, it means every home game as well as spring training. Shively stays with the Rams from the start of training camp through every game and practice during the season. Wright and/or Matava are present at all home games during the Blues’ regular season. They also travel with the team during the play-offs.

"It's very time consuming," Shively says. "In a successful season, we're on duty from the first of July through the end of January, and we work seven days a week."

Not that he's complaining. A former football player and wrestler at the University of Illinois, Shively says he wouldn't do it if he didn't love it.

"I've been doing this sort of thing for 25 years at high schools, colleges and now, in the pros. If I wasn't providing medical coverage, I'd probably be at a lot of those games anyway," he says.

Although they work with the teams in the evenings and on weekends, the physicians also manage a full patient load during the day. On a typical game day, Wright and Matava see patients or are in surgery until 5 or 5:30 p.m. One, or both, get to the Kiel Center by 6 for a 7 p.m. game, which gives them about 30 minutes to see players and deal with any medical problems prior to warm-up. One of them will remain at the Kiel Center for 30 to 45 minutes after the games, which usually end about 10. Then it's back to patients and surgery at 7:30 a.m.

Wright says hockey players often play with injuries that would keep many out of the game. And, Matava adds, when they get stitches, most refuse a local anesthetic unless the cut is especially long or deep.

"From a team physician's standpoint, the easiest team to take care of is a hockey team in the play-offs," Wright says. "It really doesn't matter what they have, they're going to play. Now, some injuries are too serious, and we won't allow them on the ice. But guys will play with stable finger and toe fractures. They play with pain and fight through it. They're tough!"

Paletta says being a team doctor is the "best of both worlds." He gets to work with elite athletes and help keep the rest of his patients active.

"Not everybody's a professional athlete, but you don't have to be a pro to play tennis every weekend. And I like the idea of getting someone back to an active lifestyle after an injury," he says. "On the other hand, the pinnacle of sports medicine is taking care of professional athletes. And I get to do that too."

"I often tell people that the advantage of this job is that I haven't had to give up the locker room," Shively says. "Once they finish their high school or college careers, most players are just fans. Well, I'm a fan, but I also get to be around a team."

**So all may benefit**

The constantly evolving field of sports medicine pays dividends both for elite athletes and for the rest of us, says Richard A. Gelberman, MD, Fred C. Reynolds Professor and head of the Department of Orthopaedic Surgery.

"As we develop these repair and rehabilitation methods, we apply the principles to all of our patients, so everyone benefits," Gelberman says.
Even using the latest techniques, however, athletes reap the benefits a bit more quickly.

"Professional athletes get paid for rehabbing themselves," Shively says. "Most people don't get paid to rehab a knee. They can't do it six hours a day, five days a week. And truth be told, that person's knee probably won't demand the same level of rehabilitation as somebody who is going to try to catch Isaac Bruce or tackle Marshall Faulk or block Kevin Carter."

But if an injury or an athlete's medical condition is outside the purview of a sports medicine doctor, that player has quick access to all of the Washington University physicians at Barnes-Jewish Hospital.

"If a player has a hand problem, I send him to Richard Gelberman," Shively says. "If it's a neck problem, we'll see if Dan Riew in orthopaedics or Carl Laurysen in neurosurgery can help."

Consider the case of Blues center Pierre Turgeon. He had an injured thumb, so Wright and Matava referred him to Gelberman. When Cardinal catcher Eli Marrero had thyroid cancer, Washington University surgeons and oncologists took care of him. And it was neurologists and neurosurgeons who convinced former Rams quarterback Chris Miller to retire after a series of concussions several years ago (though Miller resurfaced briefly last season as a backup quarterback in Denver).

"You have people in each department that you know work well with athletes and that you can lean on to make sacrifices in their schedule or 'squeeze in' a player on short notice," Wright says.

The team physicians also help coordinate care for the wives and children of professional athletes.

"This system is a great example of close cooperation between the School of Medicine, Barnes-Jewish and the BJC Health System," Gelberman says. "We provide top-level physicians and outstanding consultancy services for the athletes and their families."

Gelberman believes that the connection to all of St. Louis' major sports teams has what he calls a "halo effect" on the reputation of the orthopaedics department, the medical school and the hospital. And the longer these physicians care for the teams, the greater the effect will be.

"It's a difficult thing to measure, but I think the impact builds," Matava says. "The longer you do it, the more visible you become. And that certainly doesn't hurt referrals."

Nor does it hurt the department's national reputation. Six years ago, U.S. News and World Report did not rank orthopaedics at Washington University and Barnes-Jewish Hospital in its top 50. But it became a department when Gelberman arrived in 1995, and as new faculty have been added — including Wright and Paletta — the department has gained noticed. In 1999, the publication ranked the department 12th in the nation.

"And I believe it's a lot better than that," says Gelberman. "To my knowledge, there aren't any other programs in the United States that assume care for all of the professional teams in their region. The fact that we do is a tribute to the quality of medical care at Washington University and Barnes-Jewish Hospital."

For more information, visit the department's website: http://www.surgery.wustl.edu/Orthopaedics/
"ASK A SCIENTIST," says Thomas Woolsey MD, faculty adviser to the Young Scientist Program at the School of Medicine, "and they can tell you a story about how they got hooked on science. It almost always involves a personal interaction."

Youths from disadvantaged backgrounds don't often get chances to meet scientists, but the Young Scientist Program is working to change that. The three-pronged, student-run program takes science into city high school classrooms with teaching teams, invites selected students to work in medical school laboratories during the summer, and strives to improve the science literacy of grade school and high school students via the Mad Scientist Network on the world wide web. A new program geared toward St. Louis city high school teachers begins this summer.

Teaching teams are made up of graduate students and medical students who go into city high schools to give science demonstrations. Stephanie Strand, PhD student in microbiology and graduate student coordinator who oversees the YSP, says, "We try to enrich science for everybody. But we're especially hoping that students with an interest will see us as role models. We're
young. We connect with them in a different way than teachers do. They think, 'Oh wow, here's a graduate/medical student not much older than I am, doing what I want to do.'"

One day last winter, the YSP's neuroscience teaching team visited Robin Kyles' freshman biology class at Central Visual and Performing Arts High School, a magnet school in north St. Louis. There was no lecture. Instead, the six graduate and medical students drew the high school students into demonstrations designed to show them how science exists in our everyday world. Some of the high school students threw balls at a target; the challenge came when they donned prism goggles that distorted their vision and threw off their aim. Gradually their aim improved, and the purpose of the demonstration — that the brain can override the eye in directing the arm — was clear.

At the same session, other students were discovering a sense they didn't know they had.

"Proprioception" is the term to describe how the brain knows where the parts of the body are and what position the limbs are in. In this experiment, students learned how their proprioception could be subverted with a simple muscle stimulator applied to a limb, such as an elbow, arm or leg.

Student responses to the exercises varied. When offered the chance to hold a human brain some students thought it gross. But for most of the class, the demonstrations worked as intended. Students gave the team a rousing round of applause at the end of the session.

Drew Syder, PhD student in molecular cell biology and the current head of teaching teams, says it takes practice to feel comfortable and capture the attention of a group of high school students. He clearly remembers the first time he went out with a genetics teaching team.

"The students were bored and disorderly," he says. "And none of us had a lot of practical experience working with such a large group."

But Syder quickly got the hang of it. He selected the largest, loudest boy — the class clown — and gave him the demonstration's starring role. The student threw himself into the part, the class got interested, and the lesson in genetics came across. "Moments like that make it all worthwhile," Syder says.

Other teaching teams cover microbiology, human anatomy and chemistry. "It's easy to get people to teach," says Melanie Leitner, PhD student in neuroscience and co-head of teaching teams. "But getting people to make the phone calls to set up the session is something else."

Arranging a school visit can be a logistical challenge. The team leader has to assemble the equipment, juggle the schedules of busy graduate/medical school students, and coordinate all of that with the public school system, which takes time.
Medicine administrators as well as to the Howard Hughes Medical Institute, which last summer awarded the program a four-year, $325,000 grant.

He believes that the YSP has a twofold purpose. The first is to raise the level of interest in science among American youth. “It’s important for citizens to not be afraid of science. They should be willing to use it as a tool in making decisions on important issues,” he says. The program also strives to encourage scientifically inclined youth to pursue their interest. “It’s like a baseball team,” says Woolsey. “You’ve got to get youngsters into the farm system if you want major league players.”

The YSP’s equivalent of a farm team is Summer Focus, in which students who have completed their junior year in high school spend the summer working in a School of Medicine laboratory. Some students apply to the program because a teaching team visit sparked their interest. Others are guided by their science teachers.

Teresa Elliott of Central Visual, who was selected to participate in the Summer Focus program in 1999, says that her biology teacher, Robin Kyles, urged her to apply. Students must apply to the program, and only eight of 40 applicants are chosen. But once a student is accepted — those accepted are known as YSP scholars — everything possible is done to build their confidence and aid their success.

Medical and doctoral students tutor the YSP scholars for six weeks before they begin lab work. “They learn the concepts behind the work they will be doing,” says Strand, who was head of Summer Focus before she took over the YSP. “We make sure the students are ready when they come here, because we speak a different language from the outside world.”

Each YSP scholar also works with a lab mentor, whose first job is to design a project, creating the best possible match between the student’s interests and the lab’s needs. Jonathan Matsui, PhD student in neuroscience who currently heads the summer program, recalls that one of his students was inspired by a neuroscience teaching team visit. Matsui tried to match him with a lab that does that kind of work.

Mentors meet with YSP scholars regularly during the summer session, monitoring their work. “Some are overwhelmed by the depth of science, these ideas they’re expected to be able to hold in their heads,” says Strand. “Mentors work with them and they generally thrive.”

Strand says the summer program wouldn’t exist without investigators who are willing to find space in their labs and time in their schedules for the students. Teresa Elliott, who studied plasma leptin/cerebrospinal fluid leptin in children, met weekly with investigator, Michael Landt, MD.

Elliott says her favorite part of Summer Focus was touring Barnes-Jewish Hospital and the School of Medicine. She also heard talks linking scientific research to medical treatment, and discussions about other careers in health care, such as nursing and physical therapy.

Students from the city schools attend these events with students from high schools throughout St. Louis County who also spend the summer working in labs. “The program provides an opportunity for student interaction that would likely never take place otherwise,” says Woolsey.

Summer Focus concludes with a symposium, at which each student briefly talks about his or her research project before an audience of friends, family, lab members and teachers. “The students have butterflies,” says Matsui. “There’s a lot of pacing.” But their mentors work feverishly with them until they can recite their talks backward and forward, and operate the microphone and slide projector like seasoned lecturers.

“We try to make the talks understandable, but jargon can be impressive,” jokes Leitner. “A lot of parents say, ‘I have no idea what my child has been doing, but I’m so proud!’” Immediately following the symposium, there is an awards banquet.
At summer’s end, some students continue to work part-time in their labs. Many eventually apply to Washington University. They also keep in touch with their mentors and tutors. Matsui corresponds with one of his former students, who is now a senior in high school, and is helping him prepare his college application essays.

YSP scholars regularly go on to greater glories. Teresa Elliott was accepted on early-decision by her first choice, the University of Missouri at Columbia. In 1996, Bart Bartlett from Metro High School won his division at the Greater St. Louis Science Fair. Bartlett is now studying chemistry at Washington University. In 1999, the Science Fair awarded Albert Vinson, from Central Visual, a scholarship to Saint Louis University. Other YSP scholars are continuing their scientific studies at universities all across the nation.

MAD SCIENTIST NETWORK

The component of the Young Scientist Program with truly global reach — and probably the best-known — is the Mad Scientist Network <http://madsci.wustl.edu>. It was started in 1995 by former MSTP student Lynn Bry to improve the science literacy of grade school and high school students in St. Louis. Today, about 9,000 computer users worldwide log on to the site every day, almost half of them from outside of North America. The site has won awards from OMNI and Popular Science magazines and the BBC and has been featured by AOL.

Visitors can ask questions about branches of science from astronomy to zoology. Moderators — five graduate students at Washington University — joined by others around the world (including founder Bry, who still logs on from her current post as a medical resident at Brigham & Women’s Hospital in Boston) sort through the questions and direct them to more than 500 scientists at universities, government agencies such as NASA, and private industry. The majority of questions are answered in less than a week.

The site has a large library of stored queries and responses, as well as tools to search through them. A casual browser encounters such questions as “Why do baby ducks follow their mother?” and “Why do electrons speed up approaching the nucleus?” The latter query brought a lengthy response that began with: “Without knowing it, you’ve asked a very complex question that will lead to a set of answers you didn’t expect.”

The site also features information on science museums, libraries both virtual and physical, and search engines for locating other science sites on the web. Another part of the site, “Edible/Inedible Experiments,” describes science projects children can do at home with ingredients found in most kitchen cupboards.

Elizabeth Millard, PhD student in molecular cell biology, recently became manager of the site, which was previously run by Joe Simpson, who has since graduated from the MSTP.
Science benefits society through university’s technology transfer program

BY LINDA SAGE

IF YOU’RE TRYING TO stop smoking, thank the University of California, Los Angeles, for the nicotine patch. If you get thirsty when you’re working out, thank the University of Florida for Gatorade™. But if you’re in an emergency room with chest pains and need a diagnosis, Washington University in St. Louis should get your thanks.

Two tests that quickly determine whether a person is having a heart attack accounted for one-fifth of the university’s $8.3 million license income in fiscal year 1999. These tests can pick out the one person who needs urgent care from the four others who are having indigestion or panic attacks.

The tests resulted from the research of Jack Ladenson, PhD, professor of medicine and pathology. In the 1980s, Ladenson isolated an antibody that recognizes a protein that leaks into the bloodstream from heart muscle during a heart attack. In 1986, the university secured the first nonexclusive license for this protein — creatine kinase-MB — and the product reached the market in 1988. Ladenson then developed even more specific tests based on antibodies for the muscle proteins troponin I and myoglobin.

“Licensing has made the technology much more widely available and more easily utilized throughout the world than the procedures we originally published in scientific journals,” Ladenson says. “It also allows useful procedures and reagents to be rapidly and effectively utilized by the clinical and research communities.”

Putting research results to good use is the goal of the university’s technology transfer program. “One of our missions is public service,” says Theodore J. Cicero, PhD, vice chancellor for research, associate vice chancellor for animal affairs, associate dean of the School of Medicine and professor of psychiatry and neurobiology. “I think there can be no better way of doing that than by making sure that our basic technologies and research developments get out to the public in the most efficient way possible.”

Tech transfer received a major boost in the United States in 1980 with the passage of the Bayh-Dole Act, co-sponsored by Senators Birch Bayh, D-Ind., and Robert Dole, R-Kan. The act allows universities to take title to inventions arising from their federally funded research and to license these technologies to companies that wish to bring them to market. Before it was passed, fewer than 250 patents were issued to American universities each year. Among the many products that have resulted...
from university discoveries are Internet search engines, faster modems, tests for early prostate cancer and feline leukemia, and safer highway guardrails. Moreover, the biotechnology industry is based on gene-splicing research done at Stanford University and the University of California in the 1970s, and the Internet owes much to supercomputing research at the University of Illinois during the 1980s.

A recent survey by the Association of University Technology Managers (AUTM) attributed more than $33.5 billion in economic activity and 280,000 jobs to the commercialization of academic research in 1998. That fiscal year, AUTM member institutions generated 4,808 new U.S. patent applications, obtained 3,668 new licenses and contributed to the formation of 364 companies across the United States.

Establishing tech transfer
Washington University obtained its first patent in the 1920s, but its formal tech transfer program was established in 1971 by the late Edward L. MacCordy, PhD, then vice chancellor for research. In 1982, the university signed the Monsanto-Washington University agreement, one of the first significant research collaborations between an American university and industry.

"Technology transfer is a significant part of the university's responsibilities," Chancellor Mark S. Wrighton says. "Our distinguished faculty and researchers are exceptionally creative and innovative. Our technology transfer effort is focused on bringing the benefits of discovery to society and doing so as rapidly as possible."

Since 1997, immunologist Andrew Neighbour, PhD, associate vice chancellor and director of technology management, has headed Washington University's Center of Technology Management, which Cicero oversees. In fiscal year 1999, the center's 15 staff members completed 157 licenses, a significant increase from the 50 or so per year that were executed in the mid-1990s. The staff also evaluated 104 new inventions and filed 109 U.S. and foreign patent applications last year.

The process begins when a faculty member contacts the office about a research finding and the university decides to take title. Whether a technology is patentable — it must be new, useful and not obvious from prior work — is one factor affecting the university's decision. But the major question is whether a breakthrough would meet a need in the marketplace. "That is where the business experience of our staff comes in," Neighbour says. "They have a sense of what diagnostics, pharmaceutical, electronics and communications companies are looking for today."

Through extensive research and networking, the Center of Technology Management tries to match an invention with a company so licensing can begin. Companies also learn about new technologies from scientific meetings or journals. Most of the university's inventions are not directly useful to the general public, however. More likely, they provide companies with tools to develop their own products. For example, Glaxo Wellcome is using a mouse model of prostate cancer developed by Jeffrey I. Gordon, MD, the Alumni Professor and head of molecular biology and pharmacology and professor of medicine, to look for potential prostate cancer drugs.

Once a technology is licensed, the inventor or inventors receive 45 percent of the annual income after expenses have been met. An additional 15 percent feeds back into the tech transfer program, and the rest is divided among the faculty member's lab, department and dean. There also may be companion research agreements, which generated $21.7 million for the university in fiscal year 1999. Such agreements support labs and postdocs for collaborative projects and can facilitate faculty research by providing access to private-sector expertise, databases and tools.
The university also encourages faculty in their own commercial ventures.

"Entrepreneurial faculty should have the opportunity to see their ideas reach fruition in the public sector without having to leave academia," Cicero says. "So we are interested in encouraging them to spin off small companies. We have a fertile territory here for the university to make an impact on the local community."

Several faculty have taken this route, and Garland R. Marshall, PhD, professor of molecular biology and pharmacology, has even founded two companies. Tripos Inc., develops computational tools and combinatorial libraries for drug discovery, and MetaPhore Pharmaceuticals Inc., focuses on metals in medicine.

Neighbour says it is unrealistic to expect the university's program to have a major impact on the local economy, though it certainly creates jobs and wealth. Moreover, licenses and research agreements can account for only a small proportion of the university's annual operating revenue, which totaled about $1.1 billion in fiscal year 1999. But the program's long-term goals don't center on income.

"Our main role is to provide service to faculty and to facilitate public use of our discoveries," Neighbour says. "We want to make money along the way and return value to the university and inventor. But when a deal is done, we want to step back with pride because our program has recognized an opportunity, structured the best relationship with the best company and, as a consequence, helped bring that product to the marketplace. That is our ideal."

For more information about the university's technology transfer activities, visit the program's web site at http://ctm.wustl.edu.
Pediatrician and microbiologist Joseph St. Geme, MD, and St. Louis University collaborator Steven Barenkamp, MD, have identified proteins that might be useful as vaccines against *Haemophilus influenzae*, an important cause of middle-ear infections, sinusitis, bronchitis and pneumonia. These proteins allow the various bacterial strains to stick to airway cells, a crucial first step in infection. In 1997, the university licensed these proteins to Aventis Pasteur Limited, a Canadian pharmaceutical company. St. Geme independently discovered another protein that enables *H. influenzae* to both adhere to and enter cells of the upper respiratory tract, where it can hide out for weeks. In 1999, the university licensed this protein to Wyeth-Lederle Vaccines and Pediatrics in New York. Both companies are funding further research by St. Geme.

While at Harvard University, microbiologist Stephen M. Beverley, PhD, developed techniques for genetically modifying the tropical parasite *Leishmania*. He then used these techniques to produce a strain that is incapable of causing disease. Because *Leishmania* infects white cells called macrophages, this mutant may be able to deliver therapeutic proteins specifically to those cells if given to patients by injection. After joining Washington University in 1996, Beverley helped found Symbiontics Inc., and now is the company's chief scientist. Initially, Symbiontics is focusing on lysosomal storage diseases, in which the cellular compartment that disposes of waste products lacks one of several enzymes. Because *Leishmania* lives inside this compartment, mutants that carry the gene for a missing enzyme should be able to restore that enzyme to macrophages, which scavenge the body for waste. Eventually, Symbiontics hopes to develop a range of genetically engineered microorganisms for delivering therapeutic proteins to specific sites in the body.

Molecular biologist Steven F. Dowdy, PhD, has devised a way to get large proteins into cells, a long-held dream of the pharmaceutical industry. Dowdy attaches proteins to a molecular passport known as a protein transduction domain (PTD). This PTD can slip through cell membranes and, when fused to other proteins, it takes its cargo with it. Earlier this year, Dowdy's group used the PTD to smuggle a protein more than 200 times as big as the average drug into the cells of living mice. The protein was able to function, and it even got into cells in the brain, which normally is protected by the blood-brain barrier. The university has licensed Dowdy's protein transduction technology to Idun Pharmaceuticals of La Jolla CA and Life Technologies of Rockville MD.

*Lifeline Technologies*, a start-up company in St. Louis, is developing better ways to reduce cholesterol absorption using natural food components called plant sterols. This venture is based on the research of Richard E. Ostlund Jr., MD, in the Department of Medicine. He showed that plant sterols mixed with a small amount of lecithin reduce cholesterol absorption from the intestine, thereby lowering the level in the bloodstream. Until the advent of the modern diet, plant sterols in unrefined foods performed this function. So adding them back to foods could mimic a natural mechanism that might benefit public health. None of the drugs currently available for lowering blood cholesterol works by blocking cholesterol absorption. A clinical trial of plant sterols is in progress at the School of Medicine and several other centers.
IN THE FALL OF 1996, one by one, Kurdish refugees who had just arrived in St. Louis began to break out in red itchy spots — a mini-epidemic of adult-onset chicken pox. Barbara Bogomolov, RN, manager of Refugee Health Services at Barnes-Jewish Hospital (BJH), was stunned by the development. During their initial health screening at BJH, the Kurds had answered countless questions about their medical history, yet no hint of this susceptibility had come up.

Then she got to the root of the
problem. Her own team of interpreters, who are well trained in medical terminology, had not handled the translating in this case. These 160 Kurds, fleeing from Iraqi bombs, had settled in St. Louis so suddenly that Bogomolov could not hire a staff member for the job. Instead, she had to use bilingual members of the Kurds’ own group.

“They did not know the word chicken pox, so they asked whether anyone had ‘pox.’ And the Kurds thought we were crazy because people died of smallpox,” she says. “A while later, we found a doctor from that community, showed him pictures of the disease and asked if he knew what it was called. Of course, he said — to Kurds it is known as ‘the disease of the red bandana.’”

How do you say “chest X-ray” in Kosovar, “tuberculosis” in Somali or “cardiovascular disease” in Russian? This kind of translation is the special realm of Bogomolov’s 28 interpreters, who work full-time, part-time or occasionally, depending on the need for the languages they speak. Each month, they supply the translation for some 2,500 patient/doctor encounters, about half over the telephone and half onsite in clinics, examining rooms and hospital suites around the Washington University Medical Center campus.

Among them, they can handle a breathtaking array of languages. By far the greatest demand is for Bosnian, Russian, Spanish, Somali, Arabic, Kurdish and Kosovar. But there is also a steady call for Farsi, Ethiopian, Eritrean, Mandarin or Cantonese, Hmong, Cambodian and a host of little-known dialects. These days, says Bogomolov, one of the least-needed languages of all is French.

Year by year, their workload has increased dramatically. In 1997, her team chalked up 15,000 patient encounters; in 1998 that number had risen to 24,000. During 1999 they handled a record 29,000 encounters — and requests continue to pour in daily.

“The Refugee Health Services program is very important for Washington University School of Medicine (WUSM) and BJH,” says James Schreiber, MD, Elaine and Mitchell Yanow professor and head of the Department of Obstetrics and Gynecology. “It gives us wonderful opportunities to educate our students and residents about local, national and international health issues. It also helps us fulfill our commitment to our city and region by providing health care for these new members of the community.”

At Peace Hill Settlement House in north St. Louis, interpreter Nuhi Mehmeti hurries back and forth between examining rooms, assisting physicians who are screening two families of new Kosovar refugees. Not all refugee health care takes place at BJH: much of the primary care goes on at community clinics affiliated with hospitals in the BJC health care system.

In this case, the news is good, and none of the family members has serious medical problems. They have been through enough already, sighs Tefik Dullovi, 18, the eldest son of a family from Kaganik, a small Kosovo village. With 100 others, they had spent two months hiding in the mountains. Early one morning, they spotted Serb forces heading toward Kaganik. Later Tefik slipped back home and found 11 people dead. “I buried them with my own hands,” he says. “They were my friends.”

A CULTURAL BRIDGE TO CARE

Quietly but dramatically, the demographics of St. Louis have been changing. Thanks to its low cost of living and plentiful supply of jobs, St. Louis has become one of the top 10 refugee resettlement sites — and second-largest Bosnian site — in the nation. Now city neighborhoods, especially those south of Grand Avenue, contain a diverse mix of refugees and immigrants from 80 ethnic groups around the world. In fact, the 2000 census is expected to show that 12 percent of St. Louis families do not speak English as their primary language at home.
Often these new residents have been uprooted from their homeland by conflict, then crowded into refugee camps that can — at best — provide rudimentary health care. The Dulovi family, for example, only reached St. Louis after five weeks in a Macedonian camp, followed by a stopover at Fort Dix NJ for processing.

Thus, many come to St. Louis already suffering from such things as hepatitis, internal parasites or tuberculosis. Soon after they arrive, resettlement agencies see them for an initial needs assessment, in which they declare their health “stable” or “unstable.” They refer stable patients to any of several public or private primary care sites, and they send the unstable to BJH — the only hospital in this area with such extensive interpretive support — for primary and acute care.

Along with their medical needs, the health care team also must cope with cultural differences and emotional wounds. Bogomolov’s staff can help here too, serving as “cultural bridges” to care. They can translate the feelings of an elderly woman from rural Tajikistan, who is terrified by the electric bed in her hospital room. Or a Burundi woman, who had seen three grandchil-dren killed by machete-wielding soldiers, and describes as “nothing,” the merely physical pain of her heart attack.

Without these skilled translators, says Megan Wren, MD, director of the primary care internal medicine residency for WUSM and BJH, it would be impossible to get an adequate medical history or explain the patient’s condition and treatment. Enlisting the help of English-speaking family members doesn’t work nearly as well. One well-meaning woman, not knowing the word for “gallbladder,” frightened her family by telling them the patient would have his “pancreas” removed.

“And translators here are wonderful,” she adds. “If someone has to have surgery or go to cardiac catheterization or deliver a baby, they will stay by that patient’s side throughout the long procedure. They also are available in the middle of the night if something comes up. So they really do cover a lot of territory at this medical center.”

Fadumo Hagi came to St. Louis early in 1999 from war-torn Somalia. Her husband had been killed in the fighting; she was left with six children: Saqawe, 15; Amina, 14; Fadumo, 11; Mohammed, 10; Khadro, 9; and Hassan, 5. Today, they live in a small, simply furnished south St. Louis apartment; the next-door neighbors are Chinese, and down the street are immigrants from other African countries.

Before making their way to the United States, they spent months in a Kenyan refugee camp, where conditions were “very bad, unhealthy,” Fadumo Hagi says. Still, her children seemed fine, but at St. Louis Children’s Hospital three tested positive for tuberculosis and needed treatment. Now interpreter Ahmed Hassan checks in with them twice a week to make sure the children take their pills and are otherwise healthy.

**AN EXPANDING PROGRAM**

Refugee Health Services is known around the Medical Center by a number of different names. “If you are a doctor at 2 a.m. in the Emergency Department, you see us as the Interpreters’ Service,” says Bogomolov. “But if you are that same doctor, five hours later, trying to find out why the patient seems so non-compliant, then you’re asking for Refugee Health Services and a transcultural consultation.”

In 1898, the service was called the “New American Program” when it was established by the former Jewish Hospital to help Jewish refugees. When Barnes and Jewish hospitals merged in 1996, BJH preserved the

![The children of Fadumo Hagi, from center front counterclockwise, Mohammed, 10; Hassan, 5; Saqawe, 15; Khadro, 9; Amina, 14; and Fadumo, 11. The family fled war-torn Somalia with their mother after their father was killed in the fighting.](image-url)
program as a mission to the whole refugee community.

But it only took its current expanded shape in 1989, when a major new wave of refugees and immigrants began flooding into the United States. First came Russian Jews, then Russian evangelical Christians; with the dissolution of Yugoslavia, Bosnians began to arrive. Armenians joined the mix during the Armenian-Georgian conflict, and other nationalities soon followed.

"The resettlement agencies heavily selected BJH as the site they wanted to send folks to for care," says Bogomolov. "Our numbers went up astronomically and now, on any given day, we have maybe 10 to 15 languages represented in what we are doing."

A nurse by training, Bogomolov has been with BJH for 17 years, originally in critical care. In 1989, she took over management of the Jewish Hospital clinics, just at the time when the refugee influx hit.

Over the years, she and her staff have worked to expand their role into transcultural consultation and education. In partnership with the St. Louis Suburban School Nurse Association and the BJC School Outreach Program, they recently conducted a workshop — "Of Toys, Terror and Triumph: Refugee Children in St. Louis Schools" — which drew more than 100 school nurses.

Now they are working through the Metropolitan Hospital Association to send a wake-up call to area medical centers and Missouri legislators. Policy makers have not fully worked out who is responsible for providing and financing interpreter support, says Bogomolov. While Medicaid officials admit there is a need for the service, they do little to track its quality or availability. In the future, she says, providers and officials must recognize that Missouri is a major resettlement site and take steps to ensure that refugees — often frightened and confused — have reliable access to translating services.

"It’s not easy for them. Each one has a dramatic story to tell," she says. "It’s very rare to find someone with the designation ‘refugee’ who hasn’t been to hell and back again."

Exactlly 10 years ago, Yefim Gilman, now 70, arrived with six family members from the Ukraine, where he was a highly respected physics and technical drawing teacher. Many times he had faced discrimination because of his Jewish faith, but the real crisis came when he entered a synagogue on Yom Kippur to pick up his mother after services. An acquaintance spotted him, and

he very nearly lost his job over the incident. Everyone knew he was a Jew, he says, but they now believed he was a "religious Jew." They assumed that if he had a Jewish child in his class he would surely play favorites.

So he managed to leave and come to St. Louis under the aegis of the Jewish Federation. Now he lives in the Skinker-DeBaliviere area where he heads the local Russian-Jewish Club. His health has been a worry to him; a few years ago he had a heart attack. Now he is the patient of Keith Mankowitz, MD, himself an emigre from South Africa, who can empathize with the difficulties of immigrants. Today, with Igor Krits translating, Mankowitz pronounces Gilman in fine health.

Gilman muses about what might have happened had he stayed in the Ukraine. Anti-semitism has diminished somewhat with the downfall of communism, but health care remains unsatisfactory. He thinks he would be dead by now if he had not come to the United States.

"I want to say something to you," he adds. "This is the one hospital in the area that has a translating group. I would like to express my gratitude to the person who developed the idea of such a program. I would like to find that person and thank them — I would like personally to shake their hand."

Editor's Note: Barbara Bogomolov would like to hear from bilingual St. Louisans who are interested in training as interpreters. For more information, please call Refugee Health Services at (314) 747-5683.
Evens responds when opportunity knocks

by Steve Kohler

WHEN he had been on the job as president of Barnes-Jewish Hospital for just a month, Ronald G. Evens, MD, had one of those small experiences with broad, symbolic implications: Leaving campus for an appointment, he noticed that the escalator from the hospital's underground parking garage was not working. When Evens returned an hour later, it still was inoperative, so he called maintenance to report the problem.

"It turned out that the only reason the escalator was out of service was that no one had reported it. Nothing was broken; a simple reset button had to be pushed. It took 15 minutes, total," he says.

The event stayed with Evens for several reasons. One: It was an annoyance that directly affected patients at the hospital for which he is newly responsible, and Evens stresses that patients come first among the institution's many constituencies. Two: Strictly speaking, seeing to the repair of the escalator was not Evens' job, but he believes that the hospital will only achieve its potential if everyone involved does more, not less, than the job requires. And three: Although the hospital is not now running as well as it should, it can.

Evens stops short of saying that the ease with which the escalator was repaired in any way represents the size of the challenge at Barnes-Jewish. He knows that is not the case.

About 15 years ago, Evens assumed the leadership of St. Louis Children's Hospital at a time when financial problems threatened. By applying the classic fixes of increased efficiencies and business building — as well as expanding philanthropy and cultivating support from Jefferson City — he successfully turned the hospital's fortunes in just three years, bringing the bottom line $8 million into the black and underscoring his reputation as a medical businessman and administrator.

When Peter Slavin, MD, last year resigned the Barnes-Jewish helm after two years, the hospital required a new president. Time was critical, in part because the institution was making significant progress on the $320-million campus integration project and simultaneously was being stung by increasing financial pressure.

Evens was offered the position of president, and it took him "less than two weeks to accept." Now 60, he says he had decided not long before to enjoy life and play more golf while remaining in his roles as head of the Department of Radiology, director of Mallinckrodt Institute and chairman of the Faculty Practice Plan's board. But the challenge was almost immediately irresistible to him. "I had considered similar jobs around the country for 10 years," he says, "so I was experienced at evaluating complicated opportunities. However, I always ended up staying here because of family or my allegiance to Washington University and St. Louis."

Assessing the job facing him now, Evens says "this will be tougher" than the remake of Children's. "Because it's bigger, with bigger issues. And it's adults as patients, not children, which makes it more difficult to raise both interest and funding. And most importantly, because the environment has changed."

He explains: "There is a new intensity over cost, with managed care constraints adding to cuts in Medicare and Medicaid. So we are in the middle. Patients demand and deserve the best. Doctors need the finest facilities. Academic medical centers must do more
than community hospitals. While smaller hospitals care for patients today, we must be a source of care both for today and tomorrow. We must plan for the future and shape it, training new people and developing new technology. All of those expectations have their prices. But everybody wants to cut costs."

Evens asserts that Barnes-Jewish faces unprecedented financial challenge. "We used to have $30 to $40 million left on a smaller annual revenue than today's. This year, on $700 million in revenue, we will have only $4 to $5 million left, well less than 1 percent," he says.

To overcome such challenges, Evens has set three specific objectives for his first year, all interdependent.

First on the list is improved patient satisfaction. "That’s mandatory, and there’s no way to do it without improving employee morale," he says. He will continue what he calls his "steep learning curve" as he talks with employees to hear their concerns. Through the BJH Cares program and new initiatives, it is his goal to improve employee satisfaction and teamwork. "I’d like to see more smiling faces," he says, and more people who take the initiative when escalators stall. In the design Evens lays out, more satisfied employees will lead directly to more satisfied patients.

Second, he aims to build business. "There are many patients who need care, and our doctors want to do more. We can do much more if we improve our efficiency," he says.

In that way, Evens hopes to gain the third step: a bottom line. "We must increase our net operating excess," he says, "in order to stay competitive, advance technology and provide more resources."

It is natural for Evens to view the School of Medicine as a partner in his plans for the hospital; it is his alma mater (class of 1964), and, for 30-plus years, he has been among the school’s leaders. But he makes clear that his allegiance now is to the hospital and its constituencies. His concerns include specifically those community physicians who serve as voluntary members of the faculty. He retains only such a voluntary faculty appointment, having resigned his other positions with the school.

The marriage of the two institutions can be made stronger, Evens believes. "A better partnership is very important in these challenging times. There is no fundamental reason why we should not be a team, and lots of reasons why we should. The hospital’s doctors are faculty members, and most of the physicians’ teaching, care and clinical research take place at the hospital," he says.

"Our shared challenges should create closeness."

For that to occur, Evens says, change will be required. "Each institution must recognize that it is essential to the other. And each must know that the other has separate interests and constituencies to address," he says.

He adds, "We also must work as a team in systems and actions on projects such as the Ambulatory Care Center, the Siteman Cancer Center, and the creation of an electronic medical records system."

There are models for the two entities to work seamlessly, Evens points out, naming as particular successes the internal telecommunications organization and the campus integration plan. Specific challenges he identifies include scheduling, registration, billing and parking.

Despite the challenges and complications that Evens identifies, his passionate belief is that Barnes-Jewish is a great hospital poised to become better. "This is one of the best health care centers in the country. The medical school is one of the top five; the hospital is one of the top 10. Put that together and add the great advantages of the rest of the community — the BJC System and our community physicians — and we should be the very best," he says, with an obvious enthusiasm for making it true. !
The Honorable Continuum

"The Honorable Continuum" highlights the accomplishments of some of the students, medical graduates, current and former house staff and faculty who embody the School of Medicine's unbroken tradition of excellence.

by Ruth Bebermeyer

From swordsman to surgeon

DURING his internship at Vancouver General Hospital, David G. Murray, MD, took a saber left over from his undergraduate days on the Saber Team at Cornell and, on a lark, entered the Northwest International Fencing Tournament. To his surprise, he won a trophy and found himself the subject of an article in the city daily newspaper titled "Doc Sharp with Long Knife." (He says that his saber career went rapidly downhill thereafter.)

Murray’s surgical career, in contrast, has done nothing but ascend since his graduation from the School of Medicine in 1955. Now Distinguished Service Professor and chair of the Department of Orthopaedic Surgery at the State University of New York (SUNY), Murray is widely regarded as a national leader in his profession.

His association with SUNY dates back to 1958, when, after completing a stint in the United States Navy as part of Operation Deep Freeze in the Antarctic, Murray went to Syracuse for a surgical residency. He credits surgeon C. Barber Mueller, MD '42, who had moved there from Washington University, as most influential on his career. Murray did his orthopaedic surgery residency at the University of Iowa, then joined the SUNY faculty. Four years later he became department head; he modestly says that nobody else applied for the job. He built the department into a strong one with some 25 full-time faculty and a first-rate residency program, of which he is especially proud.

Colleagues describe Murray as an extraordinary individual, an innovative educator, a tireless worker who leads by example, and a superb clinician much beloved by his patients. SUNY recently endowed the David Murray Chair of Orthopaedic Surgery in his honor.

Murray’s leadership extends beyond Syracuse. He was a founding member of the Association for Academic Surgery, which presented him their Distinguished Service Award in 1976. He has been president of the American Academy of Orthopaedic Surgeons, the Orthopaedic Research and Education Foundation, and the Knee Society. He has chaired the Board of Regents and been president of the American College of Surgeons, chaired an NIH study section and the Food and Drug Administration’s Medical Advisory Board on Orthopaedic Devices and Implants Panel. Features of a variable axis knee replacement prosthesis which he patented in the 1970s have been incorporated in later designs. In January, he received an Honorary Fellowship in the Royale College of Surgeons of England.

To remind himself of a "not totally misspent youth," during which he would work summers on an Iowa farm, Murray owns an antique John Deere Model B tractor he uses to mow—"irregularly" he admits—the little piece of scrubland he owns.

Murray and his wife, Judy, a litigation lawyer, have three sons. They enjoy vacationing on the island of Tortola in the Caribbean and hope to spend more time there after he steps down as department chair on July 1.

A marriage of medicine and music

IT IS probably a safe bet that Joe and Joella Utley, both MDs, are the only School of Medicine alumni who can speak authoritatively about zinks, cornophones, schediphons and double-belled euphonia. Those instruments are part of a splendid collection of more than 500 brass musical instruments assembled by the Utleys and recently donated to America’s Shrine to Music Museum in Vermillion SD. The Utley collection tells the story of
brass instrument-making during the past 400 years.

That medicine has been accompanied by music in the Utley's lives is not surprising. Joe played cornet and trumpet at Oklahoma City University as well as professionally in dance bands. He also has played trumpet with the Spartanburg Symphony Orchestra. Joella earned a BA degree in music at Oklahoma City University, has been a church organist, and is pursuing a master's degree in musicology at Converse College in Spartanburg. They married after finishing college and Joella taught piano and second grade while Joe completed medical school. Together they have performed organ and trumpet repertoire at churches wherever they have lived. They also build harpsichords and natural trumpets.

Their medical accomplishments are equally impressive. Joe received his MD degree from Washington University School of Medicine in 1960, and, after his internship, spent three years as a flight surgeon with the United States Air Force at Whiteman Air Force Base in Missouri. He is a licensed pilot. Meanwhile, Joella was completing pre-medical training at Central State Teachers College in Warrensburg MO. They returned to St. Louis where Joe did his surgical residency and Joella earned her MD degree from the School of Medicine, graduating in 1967. Residencies followed at the University of California in San Francisco — in cardiac surgery for Joe and in radiation oncology for Joella.

In 1972, the Utley's moved to the University of Kentucky, where Joe was professor and chief of the division of cardiothoracic surgery and Joella was associate professor of radiation medicine. They also became parents: their son and daughter, Benjamin and Jennifer, were born during their stay in Lexington. In 1977, they accepted similar appointments at the University of California in San Diego, staying until 1983, when they moved to Spartanburg SC. Joe became chief of cardiac surgery at The Heart Center at Spartanburg Regional Medical Center (SRMC) and clinical professor of surgery at the University of South Carolina in Columbia. Joella became professor of radiation oncology at SRMC. Both Utley's were appointed clinical professors at the Medical University of South Carolina in Charleston. They also held appointments at the University of South Carolina School of Nursing, where they founded the Roy and Nora Utley Nursing Endowment.

While both Utley's taught medical students and residents and conducted research, Joe developed new surgical techniques, among them a procedure to control hemorrhage from the innominate artery into tracheostomy now known as the "Utley Maneuver." He pioneered the development of an operation to remove chronic blood clots from the lung using hypothermia and total arrest of the circulation.

Both Utley's have been active in professional societies and have numerous publications in professional journals. Joella served on the Radiation Study Section of the NIH. Joe has edited and written for three volumes of Pathophysiology and Techniques of Cardiopulmonary Bypass. He currently is president of the Cardiothoracic Research and Education Foundation, a non-profit organization he founded in 1979.

Joe has been a visiting surgeon and/or lecturer throughout the United States and Europe, as well as in Japan, Singapore, Australia, Indonesia, Canada and Mexico.

As if medicine and music were not enough, Joe earned a master's degree in business administration from the Fuqua School of Business at Duke University in 1991. In 1997, Wofford College in Spartanburg awarded him an honorary doctor of science degree.

Now retired from medicine, the Utley's continue to devote time and effort to community service and church activities. Both have been members of the board of directors of the Spartanburg Music Foundation. Joe serves on the board of trustees of the Brevard Music Center in North Carolina, where the couple attends summer concerts. Joella is a founding member of the Spartanburg Symphony Guild and editor of its newsletter.

The Utley's plan further collaboration with the Shrine to Music Museum in the publication of a definitive history of high brass instruments and the establishment of the Utley Institute for Brass Studies which will serve as an international center for brass performance and scholarship.

Besides music, the Utley's leisure time activities include backpacking, bicycling, sailing and skiing.
WUSM students teach adolescents about AIDS and abstinence, participate in Operation Smile, demonstrate CPR to people in underprivileged areas and instruct mothers-to-be about healthy pregnancies. They teach new parents about the value of reading with their children, perform hypertension screening in medically underserved communities, hold health fairs in the Chinese, Vietnamese and Latino communities, conduct bone marrow drives and organ donor awareness projects — and this is only a partial list of their service activities.

As in past years, grants from the Washington University Medical Center Alumni Association provide support for these student efforts and for student organizations such as the American Medical Association, the American Medical Student Association, the American Medical Women’s Association and the Student National Medical Association. The executive council of the alumni association allocated $211,878 at its fall 1999 meeting, all of which comes from gifts from alumni and former house staff and directly benefits students.

In addition to financial support, alumni also support students by volunteering their time and expertise as preceptors for electives and summer experiences, by allowing students to visit their offices, sharing information about specialties and residency programs, and by providing “bed and breakfast” to students on residency interviews.

**Philpott Challenge: A resounding success**

RESPONSE to the Philpott Family Challenge was overwhelming during the last three months of 1999. The challenge was established to encourage alumni, former house staff and friends to participate in annual giving in any area of the School of Medicine. As of December 31, 1999, more than 2,200 alumni and former house staff gave to the Annual Fund — an increase of 49 percent over last year.

One of the goals of the challenge was to encourage Annual Fund participation among young alumni, graduating in the years from 1987 to 1999. More than 400 alumni who graduated during this time gave to the school’s Annual Fund — an increase of 78 percent.

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**GRANTS WERE AWARDED TO THE FOLLOWING:**

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<tr>
<th>Amount</th>
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<tr>
<td>$142,000</td>
<td>Distinguished Alumni Scholarship Fund</td>
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<td>$8,000</td>
<td>Primary Care Summer Preceptorship Program</td>
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<td>$5,000</td>
<td>Academic Societies</td>
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<tr>
<td>$6,652</td>
<td>Humanities Retreat for third-year students</td>
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<td>$5,000</td>
<td>Forum for International Health and Tropical Medicine to award five “Jonathan Mann Alumni Fellowships in International Health” to students doing overseas electives</td>
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<td>$425</td>
<td>Initiation fees for new student members of Alpha Omega Alpha</td>
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<td>$6,000</td>
<td>Reception for the graduating class and their families</td>
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<td>$1,500</td>
<td>Social activity funds for first- and second-year classes</td>
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A Distinguished Gathering: First-year Distinguished Alumni Scholars and the alumni for whom the scholarships are named, from left, are: Stuart Weiss, MD, ’54; Alexander “Alex” Sierk; Mark Stover; Robert S. Karsh, MD ’52; Mary L. Parker, MD ’53; Joanna Fair; Gary A. Ratkin, MD ’67; and Patrick Brady.
Calling all general internists, family practitioners and pediatricians

Family medicine electives need preceptors

by Ruth Bebermeyer

ALUMNI who are primary care and family practice physicians are helping WUSM students enjoy expanded opportunities to learn about those specialties. But more alumni volunteers are needed to serve as preceptors for three different experiences.

First-year students can apply for an eight-week summer clinical experience in the primary care preceptorship program. The students' activities consist mainly of observing the preceptor and speaking with patients, as well as learning from non-physician members of the health care team. Preceptors may be physicians in family practice, internal medicine or pediatrics anywhere in the country. Students may spend the entire period in one office or two four-week experiences may be arranged. Leslie Kahl, MD, associate dean, supervises the program. The Medical Center Alumni Association provides funds for four students to participate.

Third-year students can elect family practice clerkships which allow them to spend a one-month block rotating with community family physicians in the St. Louis area. This clerkship is now directed by Walton Sumner, MD, assistant professor in the division of general medical sciences in the Department of Medicine. Sumner is a diplomate of the American Board of Family Practice and a member of the American Academy of Family Physicians. This gave students an opportunity to witness firsthand some of the growing pains that are occurring as family practice evolves into a research-driven specialty. Students learned about the research interests of primary care providers which included such wide-ranging topics as randomized trials of new therapies for asthma, observational studies of features of difficult diabetic cases, and pilot studies of errors that occur in medical practice. They also got information about practice-based research networks and the views of primary care providers about the applicability of tertiary care center results to their practices. Future clerkship enhancements may include introducing students to primary care research networks by having them collect data on a few patients.

Through funding from the Institute for Urban Family Health, a family physician is available to students one-half day per week to discuss family practice and answer questions about residency programs. H. Bryan Rogers, MD '65, has been named to this advisory role. Rogers is medical director of Barnes Care Corporate Health Services and a clinical instructor at the School of Medicine.

A third option in family practice is an “away” elective for fourth-year students, which can be done in the United States or abroad. An increasing number of students choose to go overseas for such an experience, finding the exposure to other health care systems valuable. This program is coordinated by Kelly Noll, director of the curriculum office, under the supervision of Alison Whelan, MD, associate dean.

Alumni interested in becoming preceptors for any of the three student experiences are encouraged to contact Ruth Bebermeyer, senior director of alumni and constituent relations. She can be reached by e-mail at bebermer@msnotes.wustl.edu, by phone at (314) 286-0020, or by mail at the Office of Medical Alumni and Development, Washington University School of Medicine, 4444 Forest Park Ave., Suite 6500, St. Louis, MO 63108.
Herman and Betty Wichman:

Leading the way so others may follow

by Kleila Carlson

A BOTTLE of Coca Cola™, a rat’s tail and a mock courtroom drama brought them together more than 50 years ago. He was an innovative and creative law student in his senior year, looking to win a moot trial case that had never been won. She was a stunning and bright first-year drama student, recruited by her drama coach to act as his traumatized plaintiff in the case.

“Betty was highly recommended by the head of the drama department,” says Herman L. Wichman III, JD ’41, recalling how he came to meet his wife while the two were students at Washington University. “Betty performed as my plaintiff, who alleged that upon sipping a soft drink she swallowed a rat’s tail and became physically ill and suffered psychological trauma thereafter.”

Though the jury wasn’t swayed by Betty’s performance — it ruled in favor of Coca Cola™ — Wichman was. The rest, as they say, is history.

After graduating from the School of Law, Wichman, now 81, became a highly successful attorney, corporate executive and entrepreneur. Betty, 77, is an accomplished businesswoman who had a career as an advertising executive and real estate broker, in addition to being a professional singer and dancer.

Complementing their professional achievements, the Wichmans, who live in Indian Wells CA, believe strongly in philanthropy. As such, they have made provisions that the School of Medicine is the sole beneficiary of their estate. Their bequest will establish endowments for research in prostate cancer and non-insulin dependent diabetes.

“Through their estate plans, Wie and Betty Wichman have made an extraordinary commitment to research in diabetes and prostate cancer,” says William A. Peck, MD, executive vice chancellor for medical affairs and dean of the School of Medicine. “We are deeply grateful to them for recognizing this need and providing the resources that will lead to future progress.”

In each city where they have lived — Cleveland, Dallas and San Francisco — the Wichmans have made philanthropy a priority by serving their church, schools and respective branch of the Washington University alumni association.

Herman was a St. Louis resident until 1952 and served as assistant chairman and chairman, respectively, of the St. Louis County Red Cross Fund Campaign.

“We are committed to giving back because we have had long and happy lives,” adds Betty, “and we would hope others might do the same.”

While in St. Louis, Wichman worked briefly for the corporate law firm Buder and Buder, before joining the fledgling McDonnell Aircraft Corp. in 1942 as assistant corporate counsel. By the time he departed McDonnell a decade later, he had risen to vice president, general counsel, corporate secretary and assistant to the president.

Wichman left McDonnell to begin an independent consulting career in Dallas, and in 1953, he formed Wickfield Inc., a company that designed, manufactured and sold innovative ground support equipment for the NASA program and for other firms involved in the space effort.

He later formed the private merchant banking firm of Wickman and Associates, which specialized in major mergers and corporate acquisitions from coast to coast. It continues to operate today. Wichman operated the firm until 1990.

Wichman’s association with Washington University extends beyond his affiliation with the School of Law. His father, Herman L. Wichman Jr., MD, was a fourth generation physician and an 1888 graduate of the St. Louis Medical College, which became the Medical Department of Washington University in 1891.

Wichman says he never considered a career in medicine.

“I was drawn to law and business because they offered a variety of choices,” he says. “I’ve never regretted my decision.”
Myrtle Hornbuckle Miller, NU '25, observed her 96th birthday on Jan. 24, at her home in Sebastopol CA. She writes, “The grounds around my house on one acre are beautiful and taken care of by my gardener, who also supplies me with fresh fruits and vegetables.” Before she retired, Miller spent 25 years in San Francisco as chief nurse for the Veterans Regional Office Clinic of Northern California.

Roberta Stewardson, NU '35, writes that her husband, Dale, is recovering from hip replacement surgery and she now has much improved vision following cataract surgery. Visits from grandchildren and great-grandchildren have been special pleasures. The Stewardsons live in Shelbyville IL.

George L. Rider, MD '45, lives in Visalia CA, and does contract work at the Tulare Community Health Clinic. The Riders have two children and five grandchildren.

Peggy Gruppe Dale, NU '46, writes that her husband, Jim, died on Jan. 17, 2000, in Claremont CA. He had been hospitalized for several months.

Leonore Mueller Stopol, OT '48, a retired judge, teaches legal studies to two adult groups in California despite being legally blind. She earned a JD degree in 1970 after her four children were in school.

Elliot D. Luby, MD '49, received the Career Service and Research Award from the Michigan Mental Health Association in June 1999. The award is given to one mental health professional in the state of Michigan annually. Luby is clinical professor of psychiatry and adjunct professor of law at Wayne State University Schools of Medicine and Law.

Dorothy Feigenspan Walters, NU '52, moved to Tucson in November and is enjoying the mountain and city views there.

Zachary Apfel, MD '57, was honored by the Brooklyn Pediatric Society in October 1999. He retired from active practice on Nov. 1, after 41 years. His son, Dr. Stuart Apfel, has published a book on clinical applications of nerve growth factor.

Marion M. Holtgrewe, NU '67 and '68, PhD, has been selected as one of three notable nursing leaders during the 1960s in the book, *A History of Nursing in the Field of Mental Retardation and Developmental Disabilities* (W. M. Nehring: American Association on Mental Retardation, 1999). Her publications for public health nurses during this period also are described in the book. Holtgrewe is retired from her position as chair of the Department of Community Health Nursing/Nursing Service Administration and coordinator of the graduate major in Community Health Nursing at Saint Louis University School of Nursing.

Rebecca Rush, LA '81, MD, and husband James Peet welcomed Kathleen Elizabeth in July 1999. She joined brother Patrick, S. Rush is a full partner in Auburn Family Medical Center in Auburn WA, near Seattle.

Howard Mahler, MD, HS '83, is a Psychiatrist II at Kingsboro Psychiatric Center, Office of Mental Health, State of New York.

Joan Kneudler Berryhill, OT '84 and '85, married Robert B. Berryhill on May 22, 1999. They are building a home in Norman OK.

James R. Francis, HA '84, has accepted a position as Chief Materials Officer with the Mayo Foundation at the Mayo Clinic in Rochester.
David and Maenmlicent Petersem, both MD '88, enjoy living and working in Charleston SC, where he is in private practice and she practices at the Medical University of South Carolina.

Matt Bruckel, MD '97, married Katy Sandweg in November 1999. He is chief resident in emergency medicine at the University of Maryland Shock Trauma Center. After he completes his residency in June, they will go to Guam for two years, where he will work in the emergency department at the Naval Hospital. They look forward to traveling in Asia on their "two-year honeymoon."

Greg Gorman, MD '97, and wife Beth had a son, Jack, in August, 1999. Greg was deployed to the Mediterranean in February for six months with the 24th Marine Expeditionary Unit on board the USS Trenton, for military exercises in Kosovo, Greece, Turkey, Romania and the Ukraine. He will return to finish his pediatric residency at Walter Reed Hospital and the National Naval Medical Center in late 2000.

Tom Sommers, MD '97, and his wife Kathy are the proud parents of Tommy III, born in August 1999. Tom notes that "being a dad is the best thing I've ever done," and invites those interested to view photos at www.geocities.com/heartland/ridge/3772. He is finishing his family medicine residency at St. John's Mercy Medical Center in St. Louis and expects to begin private practice this summer.

Anjala Vaishampayan, MD '97, sends greetings and says, "I am doing well, finishing up my residency at the Beth Israel Deaconess Medical Center in Boston." She is engaged to Christopher Tess, BA '93, and they plan to marry in May 2000.

**In Memory**

**Burchard S. Pruett, MD'29,** died July 30, 1999, in Prescott AZ, at the age of 93. He was a retired general surgeon.

**Beulah Suter Woodward, NU '31,** died Oct. 4, 1999. She had lived in Longwood FL.

**Harry L. Greene, MD '33,** died Jan. 6, 2000, in Tucson AZ. He is survived by his wife, Helen. They had celebrated their 64th wedding anniversary on Dec. 25, 1999.

**Eugene M. Bricker, MD '34,** died at his home in St. Louis on Jan. 1, 2000, at the age of 91. An internationally respected surgeon, he developed innovative surgical procedures that improved the lives of many cancer patients. He joined the faculty at Washington University School of Medicine in 1938 as an instructor in surgery, attained the rank of clinical professor in 1966 and received emeritus status in 1975. He held appointments at a number of St. Louis hospitals, including Barnes and St. Louis Children's. During his career he also served as chief surgeon, consulting surgeon and associate director of the surgery department at Ellis Fischel State Cancer Hospital in Columbia MO. From 1977 to 1982, he was senior scientist at the Cancer Research Center in Columbia. During World War II, Bricker served in the U.S. Army Medical Corps and was a senior consultant for plastic surgery in the European Theater of Operations. He received the Legion of Merit award for his service, as well as the French Medal of Reconnaissance. He held many leadership positions in professional organizations, serving as president of the American Surgical Association, chairman of the American Board of Surgery, and governor of the American College of Surgeons, as well as president of the Missouri and St. Louis surgical associations. He was invited to lecture throughout the United States, and published a number of articles and book chapters. His contributions to medicine were acknowledged by awards from the American Academy of Science, the Society of Surgical Oncology, the American Association of Plastic Surgeons, the New York Academy of Medicine and the St. Louis Medical Society. Bricker served as a Washington University Trustee from 1964 to 1975, and was the medical school's national chairman for the university's Seventy by Seventy fundraising campaign. Among his honors from the university were an honorary doctorate, the Eliot Society's Search Award, a Founders Day Faculty award and the Alumni/Faculty Award from the Medical Center Alumni Association. He is survived by his wife, Margaret Jones Bricker; a daughter, Cynthia Bricker Sale; and two sons, Robert Bricker, MD, and David Bricker. Memorial contributions may be made to the Eugene M. Bricker Resident Research and Education Fund at the School of Medicine, Department of Surgery.

**Grover A. Rawlins, MD '34,** died June 22, 1999, after a brief illness. He was 91. He practiced ophthalmology and otolaryngology in Alton IL for more than 50 years before retiring in 1991. Survivors include two daughters and a son.

**Richard A. Sutter, MD '35,** a specialist in occupational medicine, died Nov. 15, 1999, at his winter home in Long Boat Key FL at the age of 90. He founded the Sutter Clinic in St. Louis in 1946, one of the first practices in the country specializing in the treatment of work-related illnesses and injuries. Through his efforts, a number of companies established safety programs and provided physical examinations for their employees. Sutter served, by presidential appointment, as
the only physician member on the National Advisory Committee on Safety and Health to the Occupational Safety and Health Act. During World War II, he served in the U.S. Army Medical Corps, earning the Bronze Star and a Presidential Unit Citation. He held an appointment as lecturer in industrial medicine and rehabilitation in preventive medicine at Washington University School of Medicine, where he and his wife, Elizabeth Henby Sutter, in 1993 established an endowed chair in occupational, industrial and environmental medicine. He was medical director of the St. Louis International Airport for 20 years. He was a past president of the St. Louis Metropolitan Medical Society, the American Association of Railway Surgeons and the Central States Society of Industrial Medicine and Surgery. Active in numerous civic organizations, he served on the boards of directors of the St. Louis Mercantile Library Association, the St. Louis Visitors and Convention Bureau, Downtown St. Louis Inc., and the Herbert Hoover Boys Club. At Washington University, he was a charter member of the university's Eliot Society. For many years he chaired his class reunions at the School of Medicine. The Medical Center Alumni Association gave him an alumni achievement award in 1985. In addition to his wife, he is survived by a son, John Sutter, and two daughters, Jane Sutter and Judith Hinrichs.

Lorraine Bedsworth Witt, NU '40, died on Oct. 26, 1999, at the age of 90. She had lived in Glendale CA.

Leopold Hofstatter, MD, HS '38 - '41, a retired neuropsychiatrist, died of infirmities Dec. 3, 1999, at his niece's home in Jackson MO. He was 97 and had lived in St. Louis. A pioneer in neurosurgery, he spent his life studying the anatomy of the brain. Born in Vienna, he earned his MD degree at the university there, and came to the United States to escape the Nazis. He completed a fellowship at Washington University and later became an assistant professor of neuropsychiatry. In the 1960s and 1970s, he served as superintendent of the St. Louis State School and Hospital, now Bellefontaine Habilitation Center. At the time of his death, he was on the faculty at the Missouri Institute of Mental Health, a research arm of the University of Missouri at Columbia. For the past 20 years, Hofstatter had participated in the research study being done by the Alzheimer's Disease Research Center at Washington University, and he donated his brain to that project. He was the author of three books and numerous articles on his specialty. In 1996, he received the Gold Medal of the City of Vienna for his lifetime achievements in neuropsychiatry and patient care. His survivors include a sister and two nieces.

Harold E. McCann, MD '41, a retired general surgeon, died June 7, 1999, in Belleville I1, at the age of 83. A fellow of the American College of Surgeons and a past president of the St. Clair Medical Society, he had practiced surgery for more than 40 years. His wife, Helen, and four children survive.

Beatrice F. Schulz, PT '42, died May 20, 1999. She had lived in St. Louis.

Jean Fuesch Fields, NU '44, died in St. Louis Jan. 4, 2000. The family requests that memorials be made to diabetic research at the School of Medicine.

Haskell Morris, MD, HS '44, died in Omaha NE on Oct. 3, 1998. He is survived by his wife, Beverly, three daughters and a son.

Ann Ashcraft Dorzweiler, NU '47, died of pneumonia in Kansas City on Dec. 10, 1999, after a long struggle with cancer and Sjogren's disease. She was 75. Her last 18 years of nursing were at the Baptist Medical Center, where she was awarded Employee of the Year in 1989. She is survived by a daughter and two sons.

Burnet W. Peden, MD '47, a retired internist, died Aug. 4, 1999, after a long illness. He was 78 and had lived in University City MO. Before retiring in 1994, he was in private practice. He also taught round dancing through the St. Louis Square and Round Dance Association for 14 years. Survivors include a son and three daughters.

Ted Bowen, HA '48, died on Sept. 29, 1999. He was a member of the Health Administration Program's first graduating class. He joined The Methodist Hospital in Houston in 1948 as assistant administrator and served there for 35 years, retiring as president and CEO in 1983. He is survived by his wife, June, and two children.

Laurence E. Maze, MD '48, died of complications of cancer at Hospice of the Valley in Scottsdale AZ on Dec. 21, 1999. He was a retired obstetrician/gynecologist. He is survived by his wife, Gloria Herald Maze.

Peter L. Hurst, MD '50, MPH, died June 14, 1999, of lung cancer in Portland OR. An avid world traveler, when his illness was diagnosed in mid-April he chose to forego chemotherapy and instead went with his wife of 51 years, Lannie, on a barge tour of Belgium and Holland in May. He was 76. Hurst was born in Munich, Germany, and lived in Switzerland before coming to the United States in 1939. During World War II he served with the 10th Mountain Division and later as a paratrooper medic for the 11th Airborne Division. He was a leading pediatrician at Kaiser Permanente Northwest for 33 years and also was a clinical professor at the Oregon Health Sciences University. During his residency he helped to isolate the symptoms of the rare, fatal disease that is today referred to as Hurst-Menkes Syndrome. Following his retirement in 1987, he worked at the
George Roush Jr., MD '51, died July 15, 1999, in Skokie IL. He was a former director of Monsanto's Department of Medicine and Environmental Health and former professor of medicine at the University of Cincinnati and at Tulane University. Roush once worked with the Dr. Jonas Salk team that developed the polio vaccine, and he was a member of the medical team that performed the first angioplasty in the United States. Among his honors were the Health Achievement in Industry Award from the American Occupational Medicine Association and the Robert A. Kehoe Award of Merit from the American Academy of Occupational Medicine. He is survived by his wife, Elsie Shaw Roush, a daughter, and two sons.

Estelle L. Young, NU '55, of Kimberling City MO, died Aug. 25, 1999, at the age of 82. She is survived by a brother and two nephews.

Alfred W. Ferriss, MD '57, died in Richmond CA, in February 1999, of congestive heart failure. He was a retired radiologist.

Nancy Terry Kerr, NU '57, of Westminster CO, died June 3, 1999. She is survived by her husband, Earl.

Lawrence E. Friedman, MD '65, died in Tucson AZ on Nov. 7, 1999, from complications of cancer. He was 60 and had practiced internal medicine at the Thomas Davis Medical Center for 25 years. He is survived by his wife, Linda, a daughter, two sons and two grandchildren.

Donald W. Goodwin, MD, HS '68, died at the age of 67 on Aug. 16, 1999, at his home. He had been professor and chairman of the Department of Psychiatry at the University of Kansas and was named University Distinguished Professor in 1995. He had published extensively and was known for his research on alcoholism. Among his survivors are his wife, Sarah, three daughters, a son, and his mother.

Francis (Frank) Witkowski, MD '78, died in Edmonton, Canada, in December 1999. He is survived by his wife, Patricia Penkoske, MD '74, and three daughters.

Mark Koler, MD '95, died Dec. 12, 1999, in Phoenix.

Louis V. Avioli, MD, the Sidney M. Shoenberg Professor of Medicine, professor of orthopaedic surgery and director of the division of bone and mineral diseases at the School of Medicine, died at his home on Nov. 21, 1999. He was 68 and had struggled with cancer for more than a decade. Avioli was internationally recognized as one of the country's leading medical authorities on osteoporosis and calcium metabolism. His research led to the recognition of the causes of osteoporosis and the development of widely used treatments for bone loss in postmenopausal women and the elderly. His discoveries also clarified the role of vitamin D in regulating calcium metabolism.

He was an attending physician at Barnes-Jewish Hospital, St. Louis Children's Hospital and a consultant to Shriners Hospital for Crippled Children and St. John's Mercy Medical Center in St. Louis. He was twice selected one of the 120 best doctors in the United States, and he served as contributing editor to eight scientific journals. He received a medical degree from Yale University in 1957, and trained at the University of North Carolina at Chapel Hill. He came to the School of Medicine as an assistant professor of medicine in 1966, and he remained here for the rest of his career. In 1979, he founded the American Society of Bone and Mineral Research, and in 1994, the Association of Osteobiology. He also served on the boards and committees of numerous other professional societies. Avioli is survived by his wife of 44 years, Joan Truax Avioli; five children, Richard Avioli, Gastonia NC; Michael Avioli and Edie Avioli-Sears, St. Louis; Judy Adelman, Falmouth MA; Gregory Avioli, Lexington KY; and 14 grandchildren. Memorial contributions may be made to the L.V. Avioli Young Investigators Fund at Barnes-Jewish Hospital, St. Louis, or Piwacket Theater for Children, 809 Lafayette, Webster Groves MO 63119.
Some 450 friends, School of Medicine faculty and administrators gathered in the Eric P. Newman Education Center auditorium on Jan. 21 to reflect on the lives of three first-year medical students killed in an automobile accident.

Those who died in the Jan. 17 accident were Adam El-Khishin, 20, of Ballarat, Victoria, Australia; Candice Lin, 22, of Rolling Hills Estates CA; and Danny Lee, 21, of Culver City CA. Two other first-year students, Stanley Chan and David Kawamura, suffered minor injuries.

The students were returning from a weekend in Chicago when their southbound vehicle careened on an icy patch of Interstate 55 and rolled. The accident occurred near Bloomington IL.

El-Khishin was born and raised in rural Australia. He majored in biotechnology at Wooster Polytechnic Institute in Massachusetts, where he was an honor student.

Lin was a regent scholar at the University of California at Berkeley. She also was an artist and a fan of Japanese animation films.

Lee graduated with honors from Johns Hopkins University in Baltimore with a degree in biology. As an undergraduate, he was an officer on the student council and received an award for his efforts in multicultural affairs. He was in the MD/PhD program at Washington University.
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If both you and your spouse are .......... age 50
And create a Deferred-Payment Gift Annuity with......................... $10,000
Which will begin paying income to both of you at ....................... age 65
The two of you will receive annual lifetime income of ...................... $1,440
Which is a return of ......................................................... 14.4%
of the amount you transferred.
Your immediate charitable deduction is ...................................... $5,830*

Sample Rates of Return

<table>
<thead>
<tr>
<th>Single Life</th>
<th>Age</th>
<th>Payment Begins</th>
<th>Rates of Return</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>45</td>
<td>65</td>
<td>20.3%</td>
</tr>
<tr>
<td></td>
<td>50</td>
<td>65</td>
<td>15.3%</td>
</tr>
<tr>
<td></td>
<td>55</td>
<td>65</td>
<td>11.6%</td>
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<tr>
<td></td>
<td>60</td>
<td>65</td>
<td>8.8%</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Double Life</th>
<th>Age</th>
<th>Payment Begins</th>
<th>Rates of Return</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>45 &amp; 45</td>
<td>65</td>
<td>19.1%</td>
</tr>
<tr>
<td></td>
<td>50 &amp; 50</td>
<td>65</td>
<td>14.4%</td>
</tr>
<tr>
<td></td>
<td>55 &amp; 55</td>
<td>65</td>
<td>10.9%</td>
</tr>
<tr>
<td></td>
<td>60 &amp; 60</td>
<td>65</td>
<td>8.3%</td>
</tr>
</tbody>
</table>

For a personalized example of these types of life income gifts, complete and return the reply card, call 1-314-935-5848 or 1-800-835-3503 or e-mail us at PLANNEDGIVING@NOTES.WUSTL.EDU.

Advice from your tax or legal advisor should be sought when considering these types of gifts.

*Amount of the charitable deduction may vary slightly.
☐ Washington University is already included in my estate plans — I would like to become a Robert S. Brookings "Partner."

☐ Please send me a personalized, confidential calculation using the following birthdate(s) to illustrate the very attractive benefits that I will receive from a Washington University Deferred-Payment Charitable Gift Annuity.

I prefer to have my payments begin (minimum age 60):
☐ Immediately ☐ When I reach age __________

I would like a calculation based on a theoretical gift of:
☐ Cash ☐ Securities

☐ (minimum $5,000)

$_________ (Cost Basis) $_________ (Acquisition Date)

First Beneficiary Birthdate __________
  Relationship __________

Second Beneficiary Birthdate __________
  Relationship __________

☐ Please send me your booklet on Deferred-Payment Charitable Gift Annuities.

☐ Please send me your booklet on other Life Income Plans at Washington University.

☐ Please send me information on making a bequest to Washington University School of Medicine.

☐ Please have David C. Jones, Paul Schoon, Lynnette Sodha, or Mike Touhey from the Washington University Planned Giving Office call me.

Name ____________________________________________

Address ____________________________________________

City / State / Zip ____________________________

Daytime Phone ____________________________

(Use this postage-paid card to let us know what's new with you. Share your news about awards and honors, promotions, community activities and more. Contact Ruth Bebermeyer at (314) 286-0020 or e-mail bebermer@msnotes.wustl.edu.

Update Yourself!

Name ____________________________________________

Address ____________________________________________

Specialty ____________________________

City/State/Zip ____________________________

Class/HS Year ____________________________

E-mail ____________________________ (May we list your e-mail address in our web page directory?) ☐ Yes ☐ No
Having a Ball: Med Ball party-goers Lara Rymarquis, center front, and three of her classmates, from left, Ann Tilley, Ethan Korngold and Elena Karp. The four third-year students were among some 520 faculty and students to attend the March event held at the Chase Park Plaza.
Batter Up: George A. Paletta Jr., MD, St. Louis Cardinals head physician and assistant professor in the Department of Orthopaedic Surgery at the School of Medicine, discusses athletic conditioning with KMOX-AM sports announcer Jack Buck during the March 11 preseason game in Jupiter, FL. Paletta is one of several sports medicine specialists in the orthopaedic surgery department who provide medical care to St. Louis' professional teams. For more on this story, turn to page 8.