

Outlook

 Washington
University in St. Louis
SCHOOL OF MEDICINE

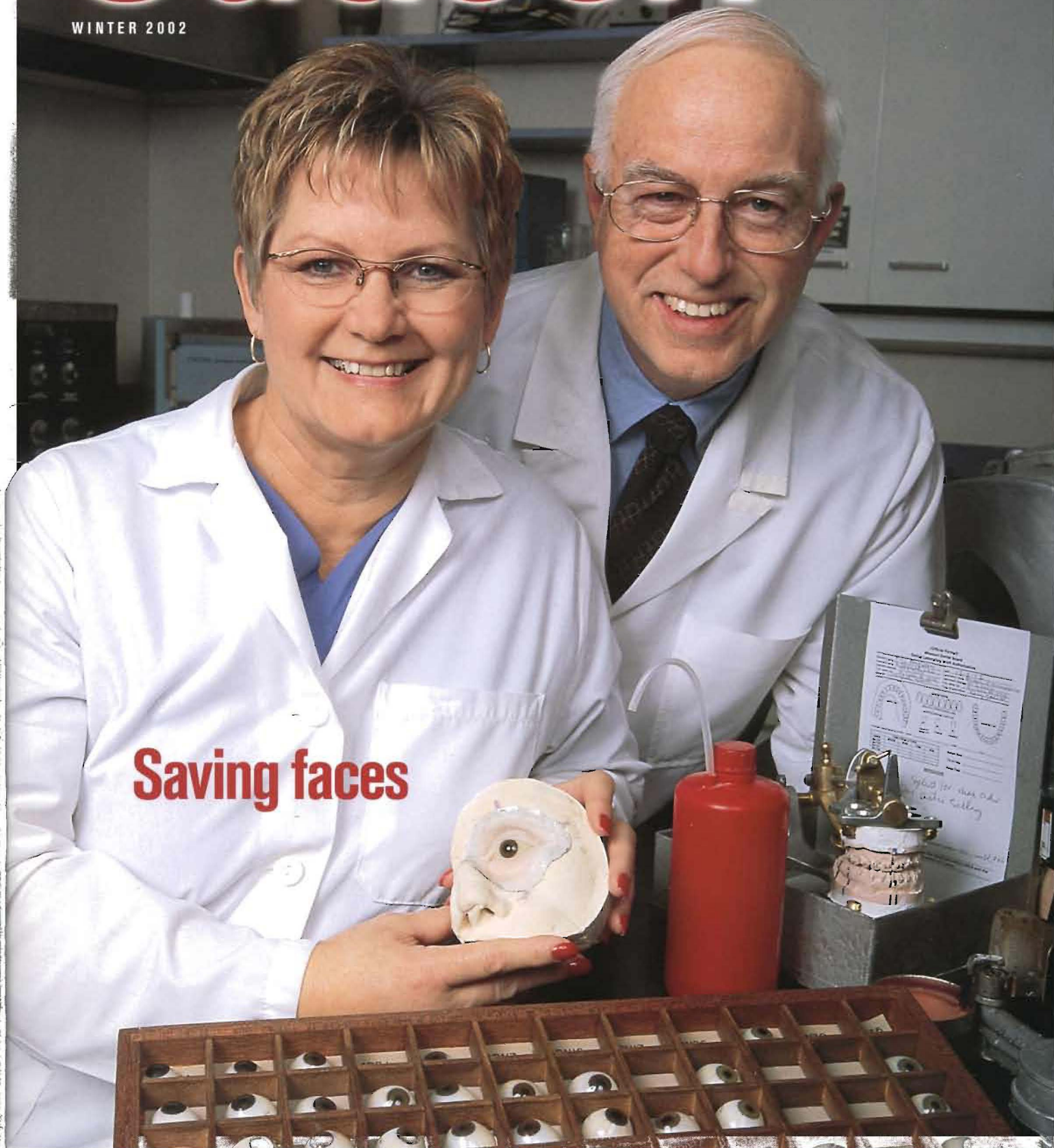
WEST NILE VIRUS

DIABETIC FEET

PEDS OVERGROWTH

WINTER 2002

Saving faces

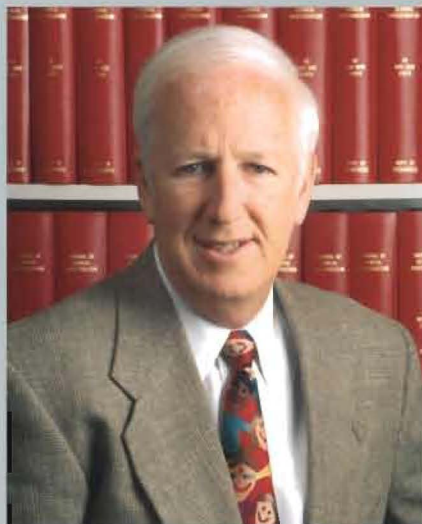


Shapiro to be next executive vice chancellor for medical affairs and dean of the School of Medicine

LARRY J. SHAPIRO, MD—an internationally renowned research geneticist and pediatrician associated with the University of California, San Francisco, School of Medicine—will become executive vice chancellor for medical affairs at Washington University in St. Louis and dean of the School of Medicine on July 1, 2003, according to Chancellor Mark S. Wrighton.

Shapiro will succeed William A. Peck, MD, who will retire as dean and executive vice chancellor on June 30, 2003. Peck—a worldwide osteoporosis expert and recognized leader in academic medicine—was the first person to serve as both medical school dean and executive vice chancellor for medical affairs, a dual appointment he has held for 13 years. Peck will lead an effort to establish a center for health policy at the university and will continue as the Alan A. and Edith L. Wolff Distinguished Professor in Medicine.

“I am delighted that a person of Larry Shapiro’s stature and experience will assume the role of executive vice chancellor and dean of one of the world’s leading schools of medicine,” Wrighton says. “He is an accomplished teacher, a groundbreaking scientist and a strong administrative leader. I know he will build upon our strengths in



LARRY J. SHAPIRO, MD

biomedical research and clinical care and upon the progress made under the leadership of Bill Peck.”

Shapiro currently is the W.H. and Marie Wattis Distinguished Professor and chair of pediatrics at the University of California, San Francisco (UCSF) and has been the chief of pediatric services at UCSF Children’s Hospital since 1991.

“I am extremely grateful to be given this opportunity to work on behalf of an institution that has contributed so much to the advancement of science and medical care,” says Shapiro. “I look forward to interacting with the dedicated and extraordinarily talented faculty, the optimistic and intellectually challenging students and trainees,

and the hardworking and gifted staff that comprise the Washington University School of Medicine. I am inspired by their commitment not to rest upon past accomplishment, but to accelerate efforts that will result in the betterment of health for all.”

Shapiro has been internationally recognized for his significant research in human genetics, molecular biology and biochemistry. His contributions to academic medicine include patient care, research, teaching and administration.

Shapiro is a member of the National Academy of Sciences’ Institute of Medicine and of the American Academy of Arts and Sciences. He is a Fellow of the American Association for the Advancement of Science. Shapiro has served as the president of the American Society of Human Genetics, the American Board of Medical Genetics, the Society for Inherited Metabolic Diseases, and the Society for Pediatric Research. He is president-elect of the American Pediatric Society.

The search committee that recommended Shapiro was chaired by Richard H. Gelberman, MD, the Fred C. Reynolds Professor of Orthopaedic Surgery and head of that department.

Learn more about Shapiro at outlook.wustl.edu

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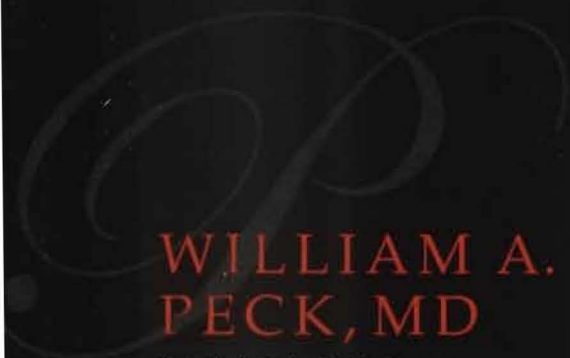
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Outlook

Support
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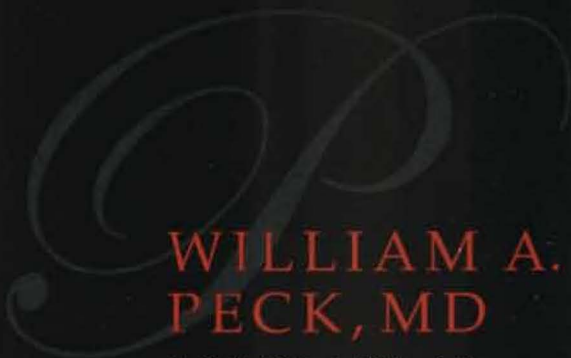


**WILLIAM A.
PECK, MD**
SCHOLARS IN
MEDICINE

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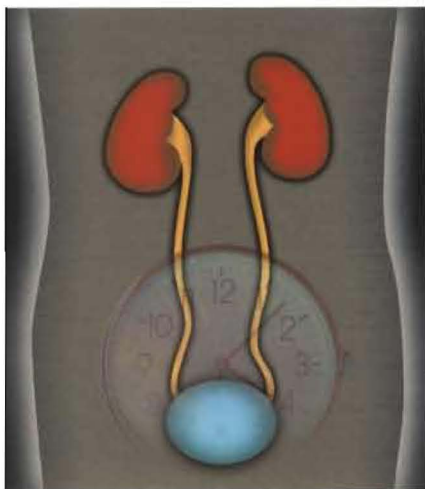


**WILLIAM A.
PECK, MD**
SCHOLARS IN
MEDICINE

Outlook

Washington University School of Medicine
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COVER W. Donald Gay, DDS, associate professor of otolaryngology, and technician Ann Vitale run the School of Medicine's maxillofacial prosthetics laboratory, where they rebuild the faces of people with congenital defects or who have suffered traumatic injury or the ravages of cancer. For more on this story, please turn to page 12. Photo by Robert Boston



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FEATURES

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Amputation is often the result of diabetic foot ulcers. School of Medicine researchers aim to avoid this drastic measure, focusing instead on healing and prevention.

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Whether sculpting an ear or fabricating an eyeball framed with lashes, the maxillofacial prosthetics team helps its patients to feel better about the way they look.

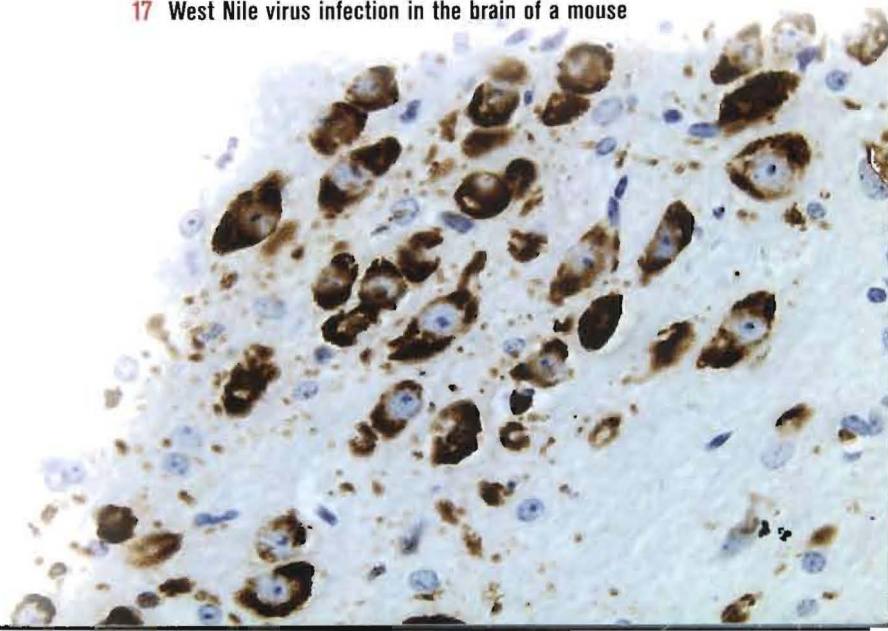
17 Silent Summer BY CANDACE O'CONNOR

The West Nile virus is slowly making its way around the world, and it hit hard this past summer in the American Midwest. Immunotherapy may be what stems the tide.

20 Understanding Overgrowth BY DARRELL E. WARD

A clinical/basic science collaboration examines the complexities of Simpson Golabi Behmel Syndrome, a pediatric overgrowth condition linked to the X chromosome.

17 West Nile virus infection in the brain of a mouse



"I believe if we are going to continue to attract the best students and to ensure a diversity of ethnic and socioeconomic representation... we've got to deal with the cost."

William A. Peck, MD

Scholarship initiative serves students, honors Peck

The School of Medicine has launched a \$5 million fund-raising campaign to honor William A. Peck, MD, executive vice chancellor for medical affairs and dean, who will be concluding his deanship in 2003 after 14 years at the helm.

The Peck Scholars in Medicine campaign will provide four-year scholarships to medical students, significantly adding to the 240 students receiving scholarship support and continuing the school's tradition of selecting highly qualified applicants regardless of their ability to pay tuition.

"I believe if we are going to continue to attract the best students and to ensure a diversity of ethnic and socioeconomic representation—so important from the standpoint of health care delivery and research—we've got to deal with the cost," says Peck.

"One way to do that is through expanded scholarships. I can think of no better honor than to see a significant growth in the School's scholarship program."

Rising costs of medical education and increasing debt loads affect students and graduates. Annual tuition for School of Medicine first-year students is \$35,780, and last year's graduates who borrowed to cover these costs left the university with an average indebtedness of about \$91,000, including undergraduate debt. These figures for tuition and debt are similar to those at other medical schools.

"I think the fear of indebtedness not only skews the nature of the student body, but also it deflects people away from certain kinds of careers," says Peck. "I worry that it may keep them away from

research, primary care or fields with longer training periods."

By helping the university continue to recruit top-notch students, the scholarship effort also could enhance the flow of students into the ranks of the School of Medicine faculty, notes Peck, and others will stay and serve the St. Louis community in other capacities.

"It's win-win," says Peck.

One medical school alumnus already has made a personal commitment to the effort. Floyd Bloom, MD '60, first met

Peck as a medical student, and the two served as house officers together at Barnes Hospital in the 1960s. Bloom is chairman and professor of the Department of Neuropharmacology at The Scripps Research Institute and also serves as chairman of the Board of Directors of Neurome, Inc.



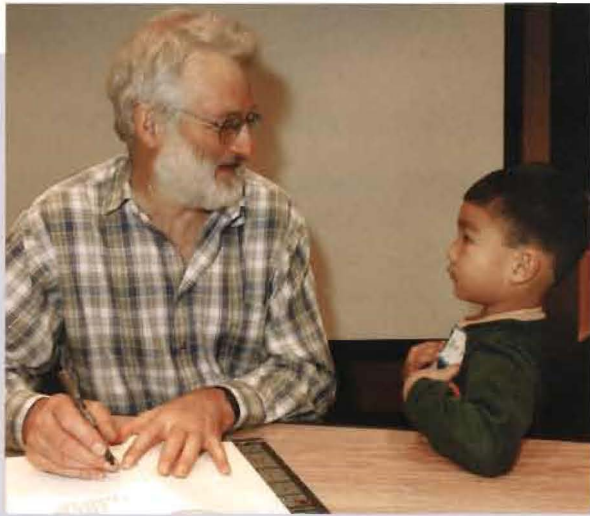
William A. Peck, MD

"Bill and I both see the need to attract and retain the best students in our School of Medicine as the most important contribution to the future of our great medical center," says Bloom, who is a university trustee and chairs the national council for the School of Medicine. "It's my great pleasure to help sustain Bill's many contributions to the medical center by helping his dream of the Peck Scholars to be realized."

The endowment fund-raising initiative, slated to run through June 30, 2003, targets outright gifts, multiyear pledges up to five years, and bequest commitments.

Details on the Peck Scholars in Medicine are available by contacting David Shearrer in the Office of Medical Alumni and Development at (314) 286-0027.

WILLIAM A. PECK, MD
SCHOLARS IN MEDICINE



Future scientist Human Genome Project researcher and 2002 Nobel Prize-winner Sir John Sulston took time out from signing his book, *The Common Thread: A Story of Science, Politics, Ethics and the Human Genome*, to chat with young admirer Alex Hu at a book signing sponsored by the school's Genome Sequencing Center.

Orthopaedic surgeon Bridwell is new president of Scoliosis Research Society

KEITH H. BRIDWELL, MD, the Asa C. and Dorothy W. Jones Professor of Orthopaedic Surgery, is the new president of the Scoliosis Research Society. Bridwell, who is chief of pediatric and adult spinal surgery, has been president-elect of the SRS for the last year.

As president, Bridwell plans to continue to support spine research. He has written more than 110 peer-reviewed scientific publications and has received the

Walter P. Blount Award and the John H. Moe Award for his research. He is a three-time recipient of the Scoliosis Research Society's Russell L. Hibbs Award for best basic science paper.

Bridwell currently serves as deputy editor of the journal *Spine*, has served on the editorial board of the *Journal of Spinal Disorders* and is a reviewer for the *Journal of Bone and Joint Surgery*. In addition, he served

as co-editor-in-chief of the first and second editions of *The Textbook of Spinal Surgery*.

The mission of the Scoliosis Research Society is to foster optimal care for patients with any disorders that may affect the shape, alignment or function of the spine. The SRS works to accomplish that goal through education, research, advocacy and ethical practice.



Keith H. Bridwell, MD

Pediatric AIDS Clinical Trials Unit opens

AREA CHILDREN AND TEENS WITH HIV no longer have to travel across the country to participate in HIV clinical trials. The School of Medicine's new Pediatric AIDS Clinical Trials Unit (PACTU) offers local access to clinical trials for HIV-infected children and teens from eastern Missouri and southern Illinois.

Previously, children in the region who were infected with HIV, the virus that causes AIDS, had to visit the National Institutes of Health in Washington DC, to participate in clinical trials.

"We've always had a complete clinical program to treat children with HIV infection," says Gregory A. Storch, MD, director of the new unit and professor of pediatrics, medicine and molecular microbiology. "Now we offer a full range of HIV-related clinical trials to pediatric patients."

Clinical trials offered by the PACTU focus on testing drugs and drug combinations to fight the HIV virus. Some studies track the course of the disease in children taking medication and test the effectiveness of drugs and therapeutic vaccines in boosting the body's response to HIV.

The School of Medicine's pediatric infectious diseases program follows about 50 patients under age 21 who are infected with HIV, most of whom are older children or teenagers, says Kathleen A. McGann, MD, associate professor of pediatrics and PACTU co-director.

The dramatic drop in very young patients is due to the success of drug treatments that prevent transmission of HIV from mothers to their infants. In addition, for many people, the introduction of combination drug therapy in 1996 has changed HIV infection from a terminal illness to a chronic illness.

But children with HIV still face an uncertain future. "The biggest challenge now is that children may develop viruses that are resistant to the medications," says McGann. "Our hope is that new drugs will be developed in time to help them."



Gregory A. Storch, MD



Kathleen A. McGann, MD

Fisher to head two national programs for Robert Wood Johnson Foundation

EDWIN B. FISHER, PHD, professor of psychology, medicine and pediatrics, has been selected to direct two newly created national programs for the Robert Wood Johnson Foundation, the largest U.S. foundation devoted to improving the health and health care of all Americans.

Both programs will be coordinated in the School of Medicine's Diabetes Research and Training Center (DRTC) and division of health behavior research and will support projects to improve diabetes prevention, self-management and treatment.

Although medical advances have greatly enhanced diabetes treatment, individuals with the disease remain responsible for managing it every day of their lives. Advancing Diabetes Self-Management, a \$3.2 million



Edwin B. Fisher, PhD

program, will provide up to six 15-month grants to demonstrate and evaluate improved ways of integrating multicomponent diabetes self-management programs into primary care settings.

The second program, Building Community Supports for Diabetes Care, will offer up to eight 12-month grants totaling \$3.1 million to develop and evaluate partnerships among health provider organizations and other community groups to encourage and reduce barriers to diabetes management in people's daily lives.

UROLOGY

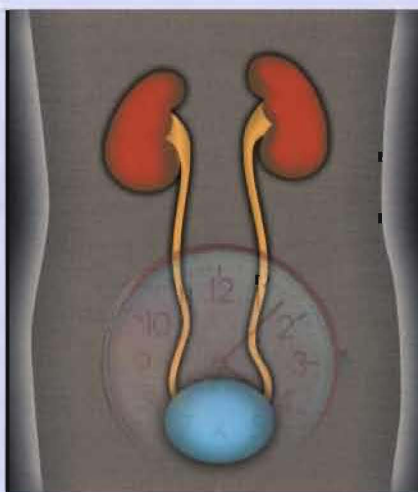
Superficial bladder cancer returns sooner with each occurrence

The number of months between recurrences of superficial bladder cancer progressively shortens with each recurrence, according to a study by researchers at the School of Medicine. The study, published in the September 15, 2002 issue of the journal *Cancer*, also identified two proteins in tumor cells that may help predict the risk of a first or second recurrence.

"Our findings may improve guidelines doctors use for follow-up care for superficial bladder cancer," says lead author Yan Yan, MD, PhD, assistant professor of surgery. "They also could lead to a better understanding of why these tumors recur."

Doctors will diagnose some 56,500 new cases of bladder cancer this year, according to the American Cancer Society. About 80 percent of those cases are superficial, cancer that has not yet invaded the deeper layers of the bladder wall. The disease recurs in more than half of diagnosed patients and is fatal 20 percent of the time.

"Little is known about the biology of multiple sequential recurrent tumors or



about which patients are most at risk for sequential recurrence," says Yan, who also is a member of the cancer prevention and control program at the Alvin J. Siteman Cancer Center at the School of Medicine and Barnes-Jewish Hospital.

The study involved 270 patients with superficial bladder cancer who were treated between January 1994 and April 1999. Of these patients, 47 percent had one or more recurrences. The average time from initial treatment to first

recurrence was 23 months; the time to second and third recurrence averaged 15 and 13 months respectively.

The researchers also tested each patient's tumor tissue for several tumor markers, proteins that often are associated with cancer. Patients whose original tumor tested positive for the marker Ki-67 had a 49 percent higher risk for a first recurrence than did patients whose tumors lacked the marker. Tumors that recurred and tested positive for the p53 protein were at 173 percent greater risk for an additional recurrence.

"The finding that Ki-67 is important for the first recurrence and p53 is important for a second recurrence came as a surprise," says Yan. "It raises questions that might lead to a better understanding of the mechanics of recurrence."

Yan now plans to examine the timing of follow-up visits for patients with superficial bladder cancer. In light of the current findings, doctors may need to see some patients more often to adjust for the progressively faster recurrence pattern.

Recovering from traumatic brain injury

A BRAIN INJURY CAN BE DEVASTATING, both for the injured person and for family and friends. But most people do get better.

In fact, of the 1.5 million Americans who suffer brain injuries annually, only about 100,000 are disabled to the point that they cannot return to their former jobs. The question facing the other 1.4 million: When are they sufficiently recovered to go back to work?

Now, researchers in the School of Medicine are studying that question in a rehabilitation laboratory called the Occupational Performance Center. The project is a cooperative effort between the medical school's Program in Occupational Therapy and national rehab-care provider HealthSouth. The center, housed at the Rehabilitation Institute of St. Louis, is coordinated by Leonard N. Matheson, PhD, associate professor of occupational therapy and of neurology.

"Ideally, we'd like to get people back to work within a few months," Matheson says. "We may have to modify the job slightly, but even if it has to be at a lower level of productivity than before the injury, we believe most people can be productive and can continue their rehabilitation while they're working."

Matheson and his colleagues test patients in one of several treatment suites that allow them to perform tasks and deal with problems similar to those they will face in



Leonard N. Matheson, PhD, occupational therapy student Rose Dunphy, and occupational therapist Mary Seaton manipulate the computerized strength-testing system designed to help brain injury patients recover.

their particular workplace. The Occupational Performance Center includes an area designed to mimic an office environment, complete with furniture and tasks typically performed by office workers; another area is designated to prepare craftspeople who work with power tools to return to work. Matheson hopes to have nine workplace suites operating when the center is fully functional.

NIH grant funds program to increase African-American blood donations

MISSOURI'S CHILDREN WITH SICKLE CELL DISEASE may benefit from a National Institutes of Health (NIH) grant that expands an African-American blood donor program statewide.

"We predict that the number of African-American blood donors in Missouri will increase by 300 percent over the next three years," says Michael R. DeBaun, MD, assistant professor of pediatrics, staff physician at St. Louis Children's Hospital and the principal investigator of the \$987,440 grant awarded to the School of Medicine.

The grant will expand the Charles Drew Blood Donor program, a joint effort with Saint Louis University/SSM Cardinal Glennon Children's Hospital and the University of Missouri-Kansas City/Mercy Children's Hospital to increase blood and cord-blood donations in Missouri.

The Charles Drew Blood Donor Program came to fruition in the summer of 1999 when DeBaun and the

American Red Cross Missouri/Illinois Region established the Charles Drew Community Blood Donor Program honoring the African-American scientist who pioneered the field of blood plasma preservation and storage.

The impact of the initial Charles Drew campaign in St. Louis has been significant. In the early 1990s, African-Americans donated only 1,200 units of blood annually. Now, approximately 9,000 units of African-American blood are collected every year.

Through the new grant's community awareness program and educational efforts, DeBaun's team aims to increase cord-blood donations from African-Americans by at least 10 percent in the St. Louis region. The grant also will allow DeBaun's team to expand programs such as Sickle Cell Sabbath, a faith-based outreach program that encourages African-American churches to educate and increase awareness about sickle cell disease.



Soccer anyone? Phillip V. Bayly, PhD, associate professor of mechanical engineering and biomedical engineering, heads a soccer ball in the Human Performance Laboratory at Barnes-Jewish Hospital during the 40th Annual New Horizons in Science Briefing. The helmet-like device allows researchers to assess head damage that may occur while playing soccer.

University hosts annual science briefing

MORE THAN 140 SCIENCE WRITERS, SCIENTISTS AND SCIENCE JOURNALISM EDUCATORS from America and Canada attended the 40th Annual New Horizons in Science Briefing held in St. Louis on October 27–30, 2002.

Washington University hosted the event, an ongoing program of the Council for the Advancement of Science Writing (CASW), a New York-based, non-profit educational corporation run by distinguished journalists and scientists to increase public understanding of science.

The annual briefing aims to enhance the quality of medical and science reporting and improve the relationship between scientists and the press. The purpose of the briefing is to keep scientists and science communicators educated about science and medical topics that will be newsworthy in the near future.

Science reporters mingled with some of the nation's top freelance writers, authors and public-information specialists from universities and laboratories. Stories were filed on the spot, interviews were conducted between sessions, and notes and manuscripts were kept for future reference.

Eighteen faculty members from the hilltop and medical campuses joined with other presenters to participate in plenary sessions and laboratory tours.

Klein, Semenkovich appointed division directors in Department of Medicine

TWO NEW DIVISION DIRECTORS have been appointed, effective January 1, 2003, in the Department of Medicine. Samuel Klein, MD, will direct the division of geriatrics and gerontology; Clay F. Semenkovich, MD, will direct the newly named division of endocrinology, metabolism and lipid research, a combination of two former divisions. Klein and Semenkovich replace longtime administrators Philip E. Cryer, MD, John O. Holloszy, MD, and Gustav Schonfeld, MD, who are returning full time to research and teaching.

Klein, the Danforth Professor of Medicine and Nutritional Sciences, also is director of the university's Center for Human Nutrition, associate program director of the 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 School of Medicine faculty in 1994, Klein has developed several new clinical and research programs aimed at prevention and therapy for nutrition-related disease. His research activities focus on the regulation of fat metabolism in obesity.

Semenkovich, a professor of medicine and of cell biology and physiology, has served as associate director of the division of atherosclerosis, nutrition and lipid research and as assistant program director of the General Clinical Research Center. He also is the founding director of the Building Interdisciplinary Research Careers in Women's Health Program.

Semenkovich's research has focused on connections between diabetes and heart disease. He has studied genes in muscles to look for clues about what happens during exercise, and he has been able to use genetic techniques to create a strain of mice that doesn't exercise and can eat a high-fat diet without gaining weight or developing insulin resistance, the precursor to diabetes.



Samuel Klein, MD



Clay F. Semenkovich, MD

Academic Women's Network honored for its commitment to women in medicine

THE 2002 WOMEN IN MEDICINE LEADERSHIP DEVELOPMENT AWARD from the Association of American Medical Colleges (AAMC) was given to the School of Medicine's Academic Women's Network at the AAMC's annual national meeting held in San Francisco.

The award recognizes a woman or organization for outstanding contributions to the development of female leaders in academic medicine.

"AWN is honored to receive this prestigious award from the AAMC," says Janet Rader, MD, associate professor of obstetrics and gynecology and AWN president. "It has been through the outstanding efforts from the women of AWN that improvements have been made in the professional environment of women and men in academic medicine at the medical campus."

From its inception in 1991, the Academic Women's Network has made it a priority to work with medical school administration on issues of concern, including family leave, gender pay equity and the composition of search committees.

"AWN has made major contributions to the School of Medicine," says William A. Peck, MD, executive vice chancellor for medical affairs and dean of the medical school. "The many changes it has crafted and promoted and the services it has provided have enhanced significantly the quality of faculty life and raised our consciousness of the crucial importance of increasing substantially the representation of women on our faculty, particularly at the most senior levels. AWN richly deserves our thanks and our congratulations for this most prestigious award."

NEUROLOGY

Researchers report first case of late recovery from spinal injury

More than seven years after a severe injury to his spinal cord, actor, director and activist Christopher Reeve has achieved what was thought impossible.

As reported in the September 2002 issue of the *Journal of Neurosurgery: Spine*, Reeve has regained sensation over about 65 percent of his body, enabling him to feel pin pricks and the light touch of a cotton swab. He also is able to move some of his joints without assistance and reports improvement in his overall health.

The case study is the first documented account of partial recovery more than two years after traumatic spinal cord injury.

"In light of science's perception of spinal cord injuries, it's remarkable to recover any sensation or movement long after the injury has occurred, particularly in those most injured," says the study's lead author, John W. McDonald, MD, PhD, medical director of the school's Spinal Cord Injury Program and assistant professor of neurology and neurological surgery.

"IN LIGHT OF SCIENCE'S PERCEPTION of spinal cord injuries, it's remarkable to recover any sensation or movement long after the injury has occurred."

JOHN W. MCDONALD, MD, PHD

Reeve suffered complete paralysis in a 1995 horseback riding accident. Unlike most spinal cord injury patients, he began an aggressive exercise program while still in rehabilitation. In 1999, he began working with McDonald's team, undergoing a series of evaluations that took place at the School of Medicine, Barnes-Jewish Hospital and the Rehabilitation Institute of St. Louis. Based on the evaluations, Reeve's therapy regimen was adjusted to promote recovery; he began to show slow but progressive results the following year.

The School of Medicine's approach to spinal cord rehabilitation has three main goals: to help paralyzed individuals exercise and thereby receive the strength and cardiovascular benefits of physical activity; to help any undamaged nerve cells function as best they can, and to encourage new cell growth. To achieve these, the team combines several therapies, including functional electrical stimulation (FES), bone density treatments and aquatherapy.

Reeve uses an FES bicycle to help his legs move and to prod intact spinal cord cells to "remember" movement. He practices aquatherapy (physical therapy under water) at the Gaylord Rehabilitation Center in Connecticut. He has successfully reversed his previously severe osteoporosis and now has normal bone density.

Regaining the ability to feel has had the greatest impact on Reeve's daily life. That, combined with a dramatic drop in life-threatening complications, has allowed him to commit to work projects and to participate more fully in life.

Avoiding diabetic foot ulcers

ONE STEP

Common medical wisdom says diabetic complications often lead to foot amputation.

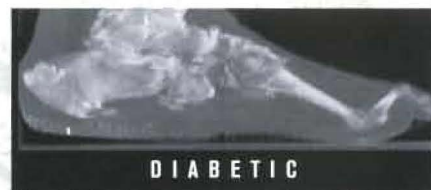
Diabetes is a growing health problem in America, and more people with diabetes means more people with foot ulcers, a common side effect of the disease. It's an unfortunate complication that often leads to amputation. Now, research conducted at the School of Medicine may keep people with diabetes on their feet.

People with diabetes are 15 times more likely to undergo amputation than members of the general population. Peripheral neuropathy, a loss of feeling in the extremities, renders these individuals unaware of sores that develop on their feet until the wound becomes infected. Then, because of other diabetes-related complications, the infection often defies healing and eventually leads to amputation.

"The overwhelming majority of nontraumatic amputations in the United States are due to diabetes—about 85 percent," says David R. Sinacore, PT, PhD, associate professor of physical therapy and of medicine.

In a series of groundbreaking research projects, Sinacore, Michael J. Mueller, PT, PhD, associate professor of physical therapy, and Jeffrey E. Johnson, MD, associate professor of orthopaedic surgery, have concluded that these amputations are avoidable. They believe that with some imaginative techniques and high-tech devices, foot ulcers can be healed and even prevented.

BY BETSY ROGERS



Lacking sensation in their feet, patients with neuropathy can't feel trouble when it starts. The top color images show external pressure points (red) corresponding to internal bone deformities—and reveal hot spots for ulceration. Below, these side views likewise show pressure points beneath a diabetic foot; the control image shows healthier pressure distribution.

Background (green): Computer modeling helps researchers better understand foot dynamics.

AT A TIME

But “smart shoes” and surgeries could minimize what was once thought inevitable.



The shoe features a sensory pad wired to a data recorder.

Michael J. Mueller, PT, PhD, and David R. Sinacore, PT, PhD, along with graduate student Katrina Maluf, review data collected from the sensory shoe.

Amputation resulting from diabetes complication is a problem that is difficult to overstate, not just for individuals who have lost limbs, but for the nation. The cost of treating these foot ulcers is about \$5 billion annually. At any given time, there are 800,000 ulcers on American feet, with 200,000 new cases each year.

Physical therapists Mueller and Sinacore focus on neuropathic ulcers, those that develop because patients can't feel pressure on the foot. Under the neuropathy umbrella, various deformities of the foot are often the culprits in skin breakdown. A bunion, for instance, presses against the shoe—first raising a blister and then becoming an open wound susceptible to infection.

Healed wounds are likely to recur. “This population is characterized by having ulcerations. They close, reulcerate, and then open again,” Sinacore says. “It’s hard to heal these things and keep them healed.”

That is beginning to change.

“David and Michael have brought a real shift in the treatment of diabetic foot ulcers,” says Susan S. Deusinger, PT, PhD, director of the School of Medicine’s Program in Physical Therapy. “We used to ask: ‘How can we manage amputations?’ Now, we are working to prevent amputations. These are life-and-limb-saving strategies.”

A dozen years ago, the researchers published results from a clinical study that showed the effectiveness

of total contact casting in healing foot ulcers. By distributing weight evenly over the surface of the foot, the cast takes excessive pressure off the ulcer. Research showed that 95 percent of neuropathic ulcers will heal using this method. Unfortunately, once the cast is removed, a large percentage reulcerate.

Now Mueller and Sinacore are looking at some new ways to tackle the ulcer problem. One key to their success is the interdisciplinary nature of their work: Orthopaedic surgeon Johnson heads the clinical team and refers his patients for physical therapy study; faculty from the Departments of Radiology, Electrical Engineering and Mechanical Engineering also are active participants.

New approaches to an old problem — researchers “get smart” (shoes, that is)

Together with Johnson, Mueller and Sinacore began looking at other approaches to prevent or heal wounds. One that has yielded good results is a surgical technique to lengthen the Achilles tendon. In an NIH-funded trial, Johnson performed a procedure in which he lengthened the heel cord in a group of diabetic patients with foot ulcers. The trial has shown that the reulceration rate for those patients who underwent surgery was only one-fourth that of a control group.

The reason for that, the team concluded, was that patients with the lengthened heel cord had more range of motion at the ankle and a greater percentage of pressure on the heel. They then pushed off less with the ball of the foot, taking pressure off the forefoot where ulcers are most common. Johnson notes, however, that in a few cases the surgery weakened the calf muscle excessively so that patients then developed ulcers at the harder-to-heal back of

the foot. Therefore, calf muscle strengthening and appropriate diabetic footwear are essential to the success of this treatment.

Enter computer technology. Mueller, Johnson, and members from the Department of Radiology, Douglas D. Robertson Jr., MD, PhD, and engineers Kirk Smith and Paul Commean, have developed methods for visualizing and measuring foot structure from spiral X-ray computed tomography (SXCT). Now, in a second major NIH-funded project, they are combining SXCT imaging methods and the pressure analysis into a mathematical model to quantify the links between internal structures and external pressures on the foot.

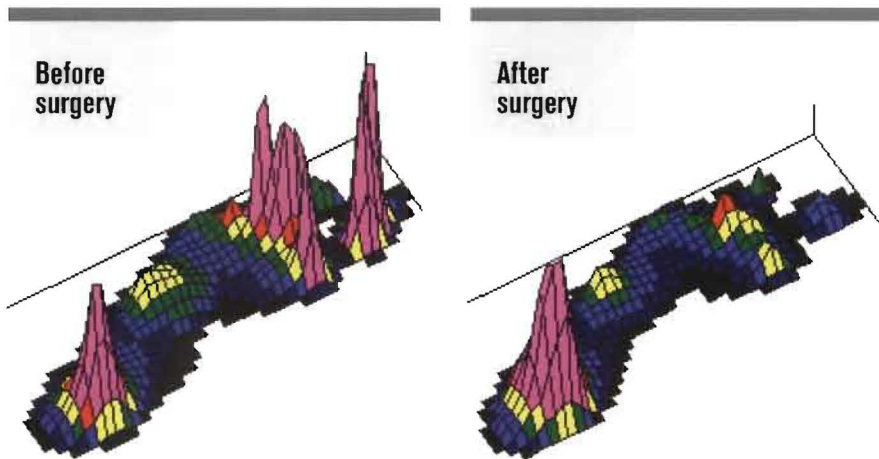
Mathematical models are a promising avenue of investigation. “We just had a research retreat with Ricardo L. Actis, DSc, and Barna A. Szabo, PhD, in the Department of Mechanical Engineering to plan a

finite element analysis of the foot,” Mueller says. “The computational model will combine the structure of the foot, the material properties of its soft tissue and the pressure on the bottom of the foot.”

Using these models, the researchers hope to determine how the foot responds to stress, allowing for the development of software that would apply computer-assisted design technology to the production of orthotic devices and custom shoes. Mueller adds: “In four years we should be able to indicate the optimal characteristics of the insole—the shape, the location of different kinds of loading patterns, and the material properties.”

In another project, also funded by the NIH, the team worked with Robert E. Morley Jr., DSc, associate professor of electrical engineering, to develop a data collection unit (DCU) to gather information from sensors in a shoe. The DCU measures, records and analyzes a variety of conditions, including vertical force and temperature and humidity inside the shoe. Via a radio signal, it provides feedback to a unit the patient wears on a belt. Though now the DCU straps to the calf, Joseph Klaesner, PhD, a biomedical engineer in the Program in Physical Therapy, has obtained funding to miniaturize it so it can fit inside the shoe. Eventually, the team plans to add audible or pulsing alarms to signal risky conditions.

“We’re calling this the ‘Get Smart’ shoe,” Mueller says with a grin. “We’re hoping to have something that the patient can wear for an extended period of time that will collect information and provide feedback when the patient is at risk



A patient walks in the lab while researchers gather data on pressure distribution. The graph above, typical of someone with advanced diabetes, peaks in purple. In fact, this patient already had developed ulcers in the highest pressure areas. Researchers advised trying a new surgical strategy that could reduce stress on the foot.

The surgery, a tendon-lengthening procedure (described on the next page), produced dramatic results. When the test was repeated afterward, the proof was in much less purple—forefoot pressures had been reduced dramatically. Most importantly, these lowered pressures now will help to reduce the chance of ulcer recurrence.

for skin breakdown." A signal would alert patients to get off their feet.

People with diabetes will not be the only beneficiaries of the research. The "smart" shoe, Mueller says, "will be useful for anyone who needs ongoing feedback. This device would be like a virtual physical therapist." The obese or elderly, for instance, could use it to prompt exercise.

"It takes 10,000 steps a day to be healthy, to reduce the risk of

gaining weight and having high blood pressure," Sinacore notes. "These kinds of devices could lend themselves to meeting those prescriptive recommendations for health."

All of the approaches to heal open ulcers, however, are concerned fundamentally with adjusting pressure on the unfeeling foot. "If pressure is the key thing that breaks the skin down and keeps the ulcers open, then if we can reduce the

pressures they should be able to heal and heal very quickly," says Sinacore, who currently is leading the team in an NIH-funded clinical trial to determine the optimal methods of reducing pressure using total contact casting or removable walking boots.

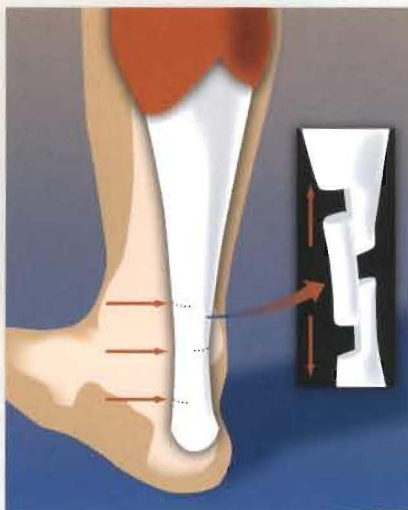
All of the research projects that change the care of the feet of diabetic patients could potentially save thousands of limbs and millions of dollars in health care costs. □

Surgery assists wound healing in patients with diabetic foot ulcers

As a clinician, orthopaedic surgeon Jeffrey E. Johnson, MD, routinely faces the frustration of trying to heal foot ulcers in his diabetic patients. Even when healed, patients' feet tend to reulcerate, particularly in those individuals who also experience tightness in the muscle located just above the Achilles tendon.

One way to relax the muscle is to perform tendo-Achilles surgery, a procedure that lengthens the Achilles tendon, or heel cord, thereby relieving pressure on the forefoot, where ulcers are most common. Surgeons have been lengthening the heel cord in this manner—and seeing improvement in their patients—for many years, but it wasn't until recently that the surgery's results were compared to a traditional healing method.

Five years ago, Johnson met with physical therapy researchers Michael J. Mueller, PT, PhD, and David R. Sinacore, PT, PhD, to outline the design of a study to examine the issue. The team initially received funding for a pilot study from the Washington University Diabetes Research and Training Center which led to a grant from the National Institutes of Health (NIH) to conduct a five-year, randomized, prospective study.



Surgical strategy: Lengthening the Achilles tendon can minimize recurrent foot ulcers.

The research followed two groups of patients; all had diabetic foot ulcers and a limited range of ankle motion. One group was treated in the traditional manner, with the application of a total contact cast to distribute weight evenly over the foot and take pressure off of the ulcer. The other group first underwent the tendo-Achilles lengthening procedure and then received the total contact weight-bearing cast.

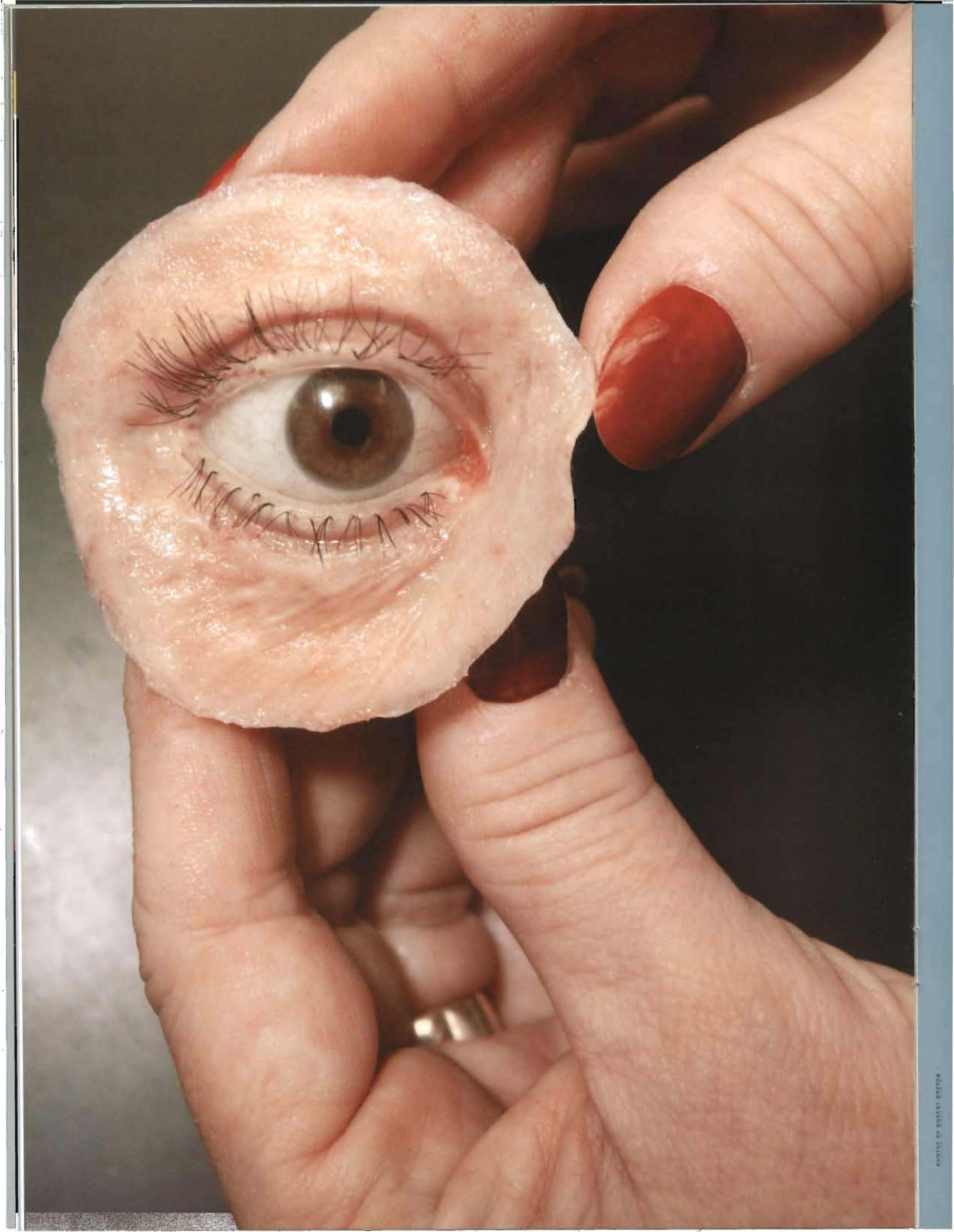
The surgery is a short, outpatient procedure. Johnson makes three small incisions on alternate sides of the Achilles

tendon, partially cutting the tendon, but leaving its surrounding sheath intact. The foot is then pushed up into a stretch, creating a controlled rupture of the Achilles tendon, thereby lengthening it. The cast prevents the tendon from overlengthening.

Patients were followed for two years after surgery. The researchers found that healing of the ulcers occurred at the same rate in both groups studied. However, they found that the ulcer recurrence rate was much lower in the group that underwent the heel-cord-lengthening surgery.

Johnson believes the lengthened Achilles tendon helps to restore the normal balance of muscles in the leg and also has a positive affect on pressure distribution on the sole of the foot. Further studies are underway to pinpoint specific reasons why patients who have the heel-cord-lengthening surgery experience fewer reulcerations.

Others in the field are taking notice. This summer, Johnson, with his physical therapy colleagues, submitted a paper on the procedure at the annual meeting of the American Orthopaedic Foot and Ankle Society. It was selected as outstanding clinical paper of the meeting, and Johnson was honored with the society's prestigious Roger Mann Award. — HOLLY EDMISTON



MAKING Faces

ON ANN VITALE'S FIRST DAY AT WORK in the School of Medicine's maxillofacial prosthetics laboratory, a 16-year-old girl walked in with a hole in her face—one of her eyes and the cheek below were missing after surgery to remove a cancerous tumor.

"Right then, I knew this was going to be a challenging job," says Vitale, a maxillofacial prosthetics technician. "You really help to give people their lives back. After all surgical avenues have been explored, and surgeons have done what they can to save the patients' lives, we do what we can to preserve their social acceptance."

For 22 years, W. Donald Gay, DDS, associate professor of otolaryngology, and Vitale have worked as a team to rebuild the faces of patients ranging from 3 to 80 years old. In a lab with beaker-lined shelves, a plaster-mixing machine and a high-speed grinder, they craft artificial ears, noses, eyes and dental devices for patients with birth defects or those who have lost part of their faces because of cancer surgery or injury.

"We take kids who don't feel normal, and we help them become normal," says Gay, a maxillofacial prosthodontist. "And we help adults who can't be normal adults—they can't work or socialize—and we make it possible for them to resume those activities."

BY DIANE DUKE WILLIAMS



Jean Cohen models her latest prosthetic eye, after the finishing touches of Ann Vitale's steady hands, facing page.

**Science meets sculpture
to mask injuries,
congenital defects and
the ravages of cancer.**

Four years ago, surgeons worked 13 hours to remove a rare cancer that was pressing on Jean Cohen's left eye and making it bulge. The procedure required the removal of the eye, left eye socket and part of her sinuses, leaving a deep cavity.

"I wasn't concerned about dying or having cancer," says Cohen, a 70-year-old retired surgical head nurse from Creve Coeur MO. "I was concerned about how my grandchildren would view me."

While her incision healed and she underwent radiation treatment, Cohen covered the site with a black patch. Acquaintances and strangers questioned her everywhere she went, and the patch made her grandchildren uncomfortable. If it slipped, they would say, "Grandpa, tell Grandma to fix her patch."

But Cohen's life changed after she visited the maxillofacial prosthetics laboratory and received a custom-made facial prosthesis. "I've been able to blend more into society and feel more comfortable," says Cohen, who volunteers at a local hospital and baby-sits her grandchildren. "I was concerned that my appearance might shock Dr. Gay or Ann, but they're very professional and warm," she says. "They make me feel totally at ease and have a great sense of humor."

The School of Medicine's maxillofacial prosthetics laboratory is one of approximately 150 similar prosthetics labs in the United States, most of which are affiliated with medical centers. The Washington University laboratory is unique because while most prosthetic technicians specialize in one type of prosthesis—eyes, ears, noses or

dental devices—Vitale, under the supervision of Gay, makes them all.

The facial prostheses are constructed of silicone, and the goal is to make them unnoticeable to the casual observer from three to six feet away. Most are attached with a medical adhesive each morning and worn until bedtime. They normally last two to three years.

In a relatively new development in the maxillofacial prosthetics field, implants in facial bones now enable some patients—about 10 percent—to snap on their prostheses. More patients might opt for these devices, called bony implants, if Medicare paid for them, says Gay.

In 1990, surgeons placed a bony implant on the side of John Sharp's head. Born without a left ear, he spent his youth growing his hair long to cover the defect, always conscious that he was a little different. Now 47, he snaps on his prosthetic ear each day and says the prosthesis has made a tremendous improvement in his life.

"I look more symmetrical and more normal," says Sharp, who works for the U.S. Postal Service in Peoria IL. "I'm much less self-conscious and can wear glasses and sunglasses now."

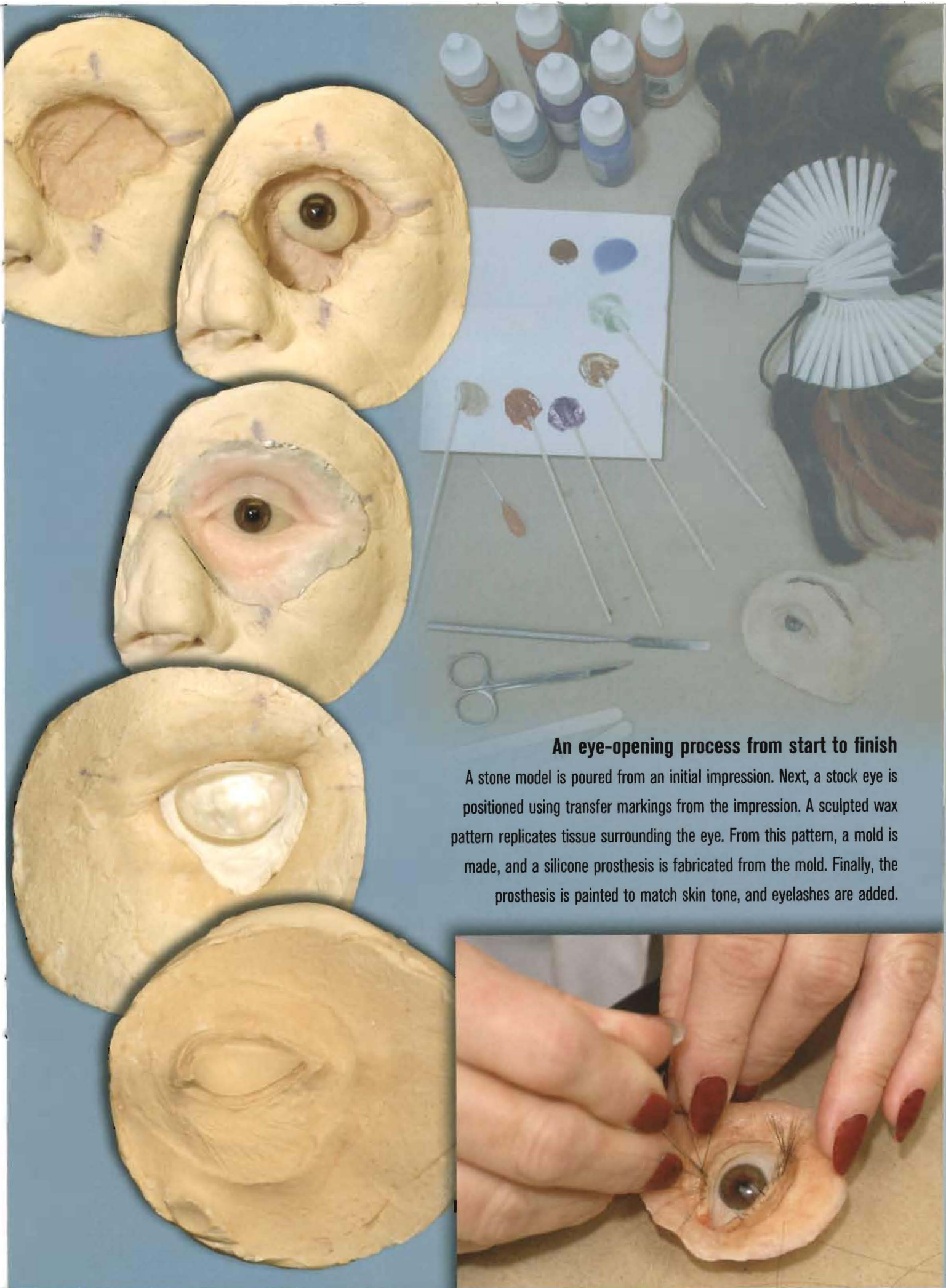
After five years as a general dentist in the U.S. Army, Gay decided to

specialize in prosthodontics, which includes crowns, bridges, dentures and partial dentures, and maxillofacial prosthetics—eyes, ears, noses and inside parts of the mouth. He has no regrets. "I'm so glad I took the road I did, because it's been extremely rewarding," he says.

During an initial consultation, Gay makes the first impression of a patient's face. To craft an eye or an



W. Donald Gay, DDS, and maxillofacial prosthetic technician Ann Vitale working in the laboratory.



An eye-opening process from start to finish

A stone model is poured from an initial impression. Next, a stock eye is positioned using transfer markings from the impression. A sculpted wax pattern replicates tissue surrounding the eye. From this pattern, a mold is made, and a silicone prosthesis is fabricated from the mold. Finally, the prosthesis is painted to match skin tone, and eyelashes are added.



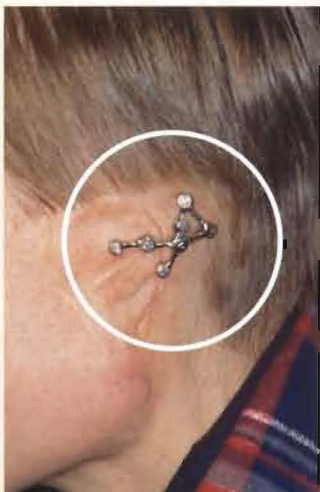
ear, he uses a reverse image of the intact portion of the face to measure for the prosthesis and then passes that information on to his technician.

Vitale joined the lab 22 years ago after graduating from the dental technology program at Southern Illinois University at Carbondale. Blending art with science, she creates two to three finished facial prostheses each month. The painstaking process requires her to not only understand the science of metals, acrylics and silicones, but also to spend many hours sculpting and painting.

"This is a process that's done by tiny increments and adjustments," says Vitale. "Every little bit of wax that I add and then may have to take off can make the difference between a patient being extremely happy or just moderately happy."

New "bony" implants allow snap-on prostheses

Born without a left ear, John Sharp endured unsuccessful surgeries that attempted to make a substitute from living tissue. Later, a snap-on prosthesis created by W. Donald Gay, DDS, and Ann Vitale provided a successful solution. Sharp's right ear was sculpted in wax in reverse (right.) Following the placement of an implant framework (below), Sharp snaps on the implant. Now he can wear glasses.



"Making these is definitely an art... I was amazed by the creativity of the lab."

SHAWN HALL

Vitale spends hours with patients, tweaking the wax patterns for their prostheses or trying to tint the skin tone perfectly with her palette of paints. If she's working on an eye prosthesis, she chooses from a large selection of prosthetic eyes to match the person's iris color. This stock eye is then incorporated into the final prosthesis.

Vitale and Gay must also address patients' emotional concerns. Many of the patients they see are depressed

when referred to the laboratory. Patients with supportive families usually adjust to their prostheses, but patients without a solid support system often struggle. "They're the ones who are the hardest to rehabilitate, because you can do everything physically and technically, but you have trouble getting through to the psyche," says Gay.

Shawn Hall's wife has been by his side from the very beginning, when he first noticed a loose tooth in the top left side of his mouth. On his 30th birthday, he had the tooth pulled, and his gum would not stop bleeding. Almost a month later, on his first wedding anniversary, Hall found out he might have cancer. He did—an extremely aggressive bone cancer of which there have been only 200 reported cases in the past 50 years.

Six months later, following intensive chemotherapy to shrink the tumor and save his left eye, Hall had surgery, not knowing whether he would still have his eye when he awoke. Doctors did have to remove the eye, some cheekbone below it, and part of the inside of his mouth.

Still, Hall remains upbeat. "The day I got my prosthesis from the lab was awesome," says Hall. "Making these is definitely an art, and I was amazed by the creativity of the lab."

Although he had to quit his job after he was diagnosed with cancer, Hall recently returned to school and is studying database administration.

Whenever Vitale sends a patient like Hall out of the laboratory with a new prosthesis, she feels lucky that her job is to help people feel normal again. "I'm motivated by the fact that these patients can walk down the street, and, to the casual observer, look no different than you or I." □



SILENT SUMMER

**A not-so-new threat—
the West Nile virus—
takes America by storm**

BY CANDACE O'CONNOR

IN 1937, A WOMAN FELL ILL in Uganda's West Nile Valley, and scientists identified the cause—a brand-new virus that soon began to spread, picking up speed and scope as it went. By the 1990s, this "West Nile virus" was popping up in Romania, parts of the former Soviet Union and Israel, where it affected geese and humans. Late in the summer of 1999, it reached the United States, sickening 62 people in New York, killing seven, and devastating the crow, blue jay and hawk populations. Since then, it has moved swiftly south and west, and in 2001, it reached the Midwest.



In 2002, there were some 3,500 U.S. cases of West Nile virus—161 in Missouri and 741 in Illinois—with as many as 200 deaths. In many places, the skies have grown more quiet as birds have fallen victim. *Science* magazine estimated recently that as many as 100,000 crows may have died of the disease through this past summer and early fall. Horses, rodents and other birds, including zoo species, also have been affected.

“This year was a very big one for transmission, with West Nile moving all the way to the states of Washington and California,” says Michael S. Diamond, MD, PhD, assistant professor of medicine, molecular microbiology and pathology and immunology. “By next year, it will be in every one of the 48 contiguous states, then we expect it to move south into Mexico, very soon hitting Central and South America.”

The widening impact of the virus has sparked a wave of scientific detective work. The Centers for Disease Control and Prevention (CDC) has been charting its progress; so has the National Institutes of

Health (NIH), which has labeled the West Nile virus a priority organism. And a handful of infectious disease researchers are studying the molecular roots of the disease, hoping that this understanding will translate into effective new agents for its prevention and treatment.

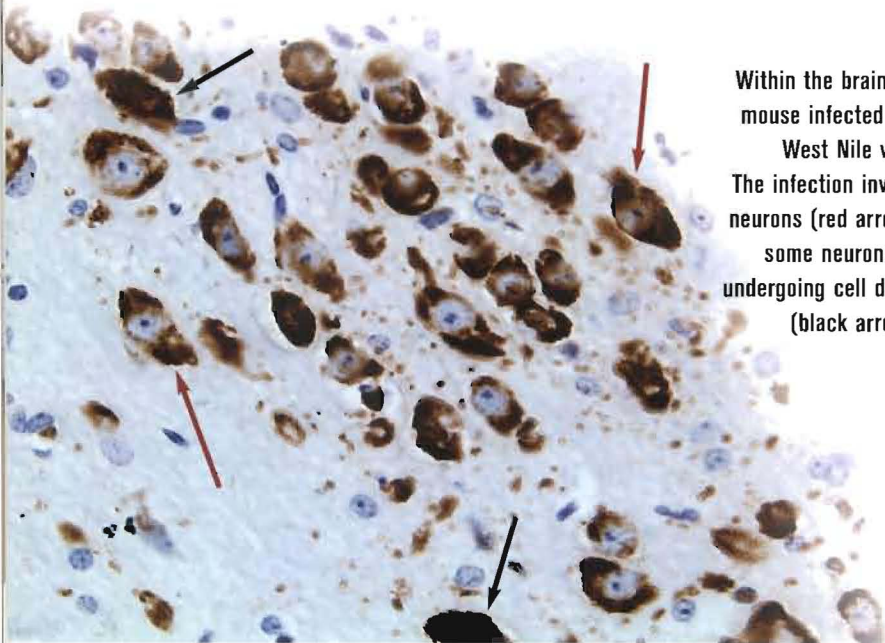
Michael Diamond is one of them. Since joining the School of Medicine faculty in July 2001, he and his research team—associate Mike Engle, postdoctoral fellows Bimmi Shrestha and Brian Geiss, graduate student Erin Mehlhop and technician Anantha Marri—have been targeting West Nile virus, asking a series of questions. On a cellular level, what does the virus attack and how? Is a piece of the immune system malfunctioning, keeping mice and humans from fighting the virus? And if, as they now believe, the answer is a particular antibody, will administering that antibody—either in the form of pooled gamma globulin or humanized monoclonal antibodies—help prevent humans from getting the disease or help those who are already ill?

Only one in 100 people bitten by a disease-bearing mosquito will become sick enough to go to the hospital; 70 percent never have symptoms at all, while 20 percent have mild, flu-like disease. From epidemiological studies, the team also knows that people over 50 are at increased risk for the disease, as are those with compromised immune systems, such as transplant, HIV, cancer or kidney failure patients. But why are some affected while others are not? And why is age an evident risk factor?

Diamond and his group are actively pursuing these questions, spending 80 percent of their time on West Nile. Backed by grants from the NIH, CDC, Pharmacia and the Ellison and Mallinckrodt foundations, they do their work in a special laboratory containment facility with specific air pressure and security requirements. And they draw expertise from collaborators in related areas—infectious disease, immunology, virology and neurobiology—who have helped them get started with their research.

At first, the group established a mouse model in immunocompetent mice, inoculating them with the virus by injecting it, mosquito-style, just under their skin and watching the infection disseminate. The disease process in these mice closely mirrored what appears to occur in humans. After a few days, the virus moved to their spleens and lymph nodes, then into their brains and spinal cords. But just as in people, only a small number got severely ill, showed evidence of paralysis or died.

In examining the brains of these mice under a microscope, researchers saw that the virus had damaged their neurons—but why? To study this



Within the brain of a mouse infected with West Nile virus: The infection invades neurons (red arrows), some neurons are undergoing cell death (black arrows).





Michael S. Diamond, MD, PhD

question, they obtained mouse embryonic stem cells and embarked on the difficult task of differentiating them into neurons. And they found that, while the stem cells themselves were resistant to West Nile infection, the neurons were easily infected and quickly died.

“That suggests,” says Diamond, “that the virus is actually getting into the cells themselves, replicating and causing injury directly. So one part of our lab has begun to try to understand what the mechanism of injury is in the neuron.”

Some mice did not die; instead, they became immune to the disease. Why were they able to combat the virus effectively, while others were not? If we take away a certain piece of the immune system, the researchers wondered, will that prevent the mouse from combating infection? To look further, they began working with genetically engineered “knock-out” strains of mice that are genetically identical except for one specific aspect—such as a particular T or B cell—of immune system function.

When they used mice deficient in B cells and antibody, those mice became extraordinarily susceptible

to disease. Even when they received only minuscule doses of virus, 100 percent got sick. This finding, they speculate, could shed some light on why older people are more likely to be affected by West Nile virus, since studies have shown that as people age, their antibody function changes and antibody dysfunction may even set in.

“In the mouse model, we know that if you don’t have antibodies you are in big trouble,” Diamond says. “In people over 50, a subset may have dysfunctional antibody responses, and those people could be more likely to have a disseminated West Nile infection that goes into their brain.”

Next, the researchers began pre-clinical trials in mice: taking serum containing antibody from wild mice who survived infection and were now immune to West Nile virus, and giving that antibody to B-cell-deficient, knock-out mice. The serum protected those deficient mice completely, making them entirely resistant to West Nile infection.

How would that work in humans? With the West Nile outbreaks in Israel, some people there have developed immunity to the virus and have antibodies in their blood streams; when they donate blood, those antibodies go into the pooled blood supply used to make gamma globulin. A year ago, an Israeli woman, sick with West Nile, received a shot of gamma globulin—and recovered from the disease. One report is far from conclusive, but to Diamond’s team it was suggestive.

So they have obtained Israeli gamma globulin and tested it in both the normal and B-cell deficient mice to see if it prevents them from becoming ill with West Nile virus. The results have shown that it has been protective, though the concentration of antibodies in the serum is rather low. As a next step, they are beginning to test gamma globulin as a therapeutic agent, used to cure mice that have fallen sick.

Ideally, says Diamond, the researchers would like to have a less diluted source of antibody, and one way would be to create monoclonal antibodies from mouse cells—purifying several antibodies that could be combined into a potent antibody “cocktail” that may work better than gamma globulin. If it does, those mouse antibodies would then have to be genetically “humanized” for use in people.

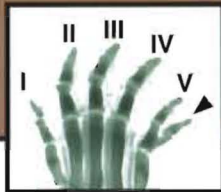
But the monoclonal antibody phase of their work is just beginning, he cautions. Even if it goes smoothly, human agents from this work are still several years away. But it is possible that they could some day be used as a short-term way to prevent the most susceptible population from getting the virus, and possibly as therapeutic agents once people are infected.

“I believe that immunotherapeutics may have some basis for prevention or treatment,” says Diamond. “It looks promising, and we are optimistic, but in science you can do 10 experiments and have most of them not work, so we will have to see how these studies go before we know for sure.” □



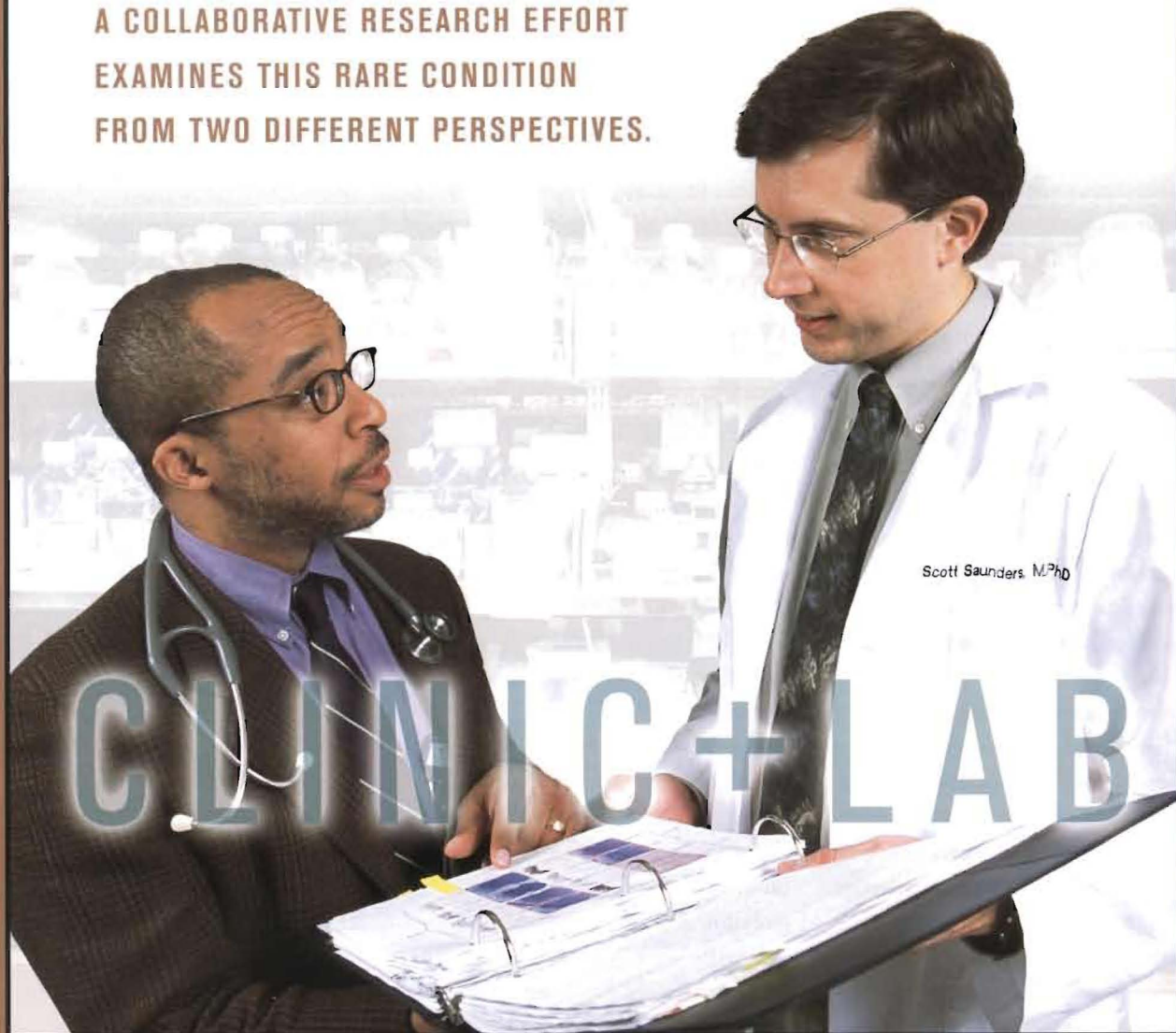
IN 2002, THERE WERE SOME 3,500 U.S. CASES OF WEST NILE VIRUS.

understanding



ADDITIONAL OR OVERGROWN BODY PARTS ARE HALLMARKS OF LITTLE-UNDERSTOOD **SIMPSON GOLABI BEHMEL SYNDROME**.

A COLLABORATIVE RESEARCH EFFORT EXAMINES THIS RARE CONDITION FROM TWO DIFFERENT PERSPECTIVES.



Scott Saunders, M.Ph.D.

CLINIC + LAB

OVERGROWTH

BY DARRELL E. WARD

Early in their careers, physician-scientists typically choose a disease to study. For Scott Saunders, MD, PhD, assistant professor of pediatrics and of molecular biology and pharmacology, however, the disease found him. It happened when another School of Medicine scientist linked a mutated gene to a rare congenital condition known as Simpson Golabi Behmel Syndrome (SGBS).

That finding redirected Saunders' research and eventually led to a fruitful collaboration with Michael R. DeBaun, MD, MPH, assistant professor of pediatrics, and to the establishment of the first clinic and registry for families coping with SGBS.

Included in that group are Patti and Robert Valentine of O'Fallon IL, whose son Justin was born in 1991—five weeks premature, but weighing 8 lbs, 7oz. The baby couldn't eat or swallow well, his sucking reflex was poor, and his overall muscle tone was weak.

The root of his problems was a mystery. After Justin's birth, Patti, a former nurse, stood with her newborn son's pediatrician at the hospital nurse's station paging through medical books trying to identify his condition. Nothing quite fit.

The pediatrician referred Patti and her husband, then an Air Force lieutenant stationed in Great Falls MT, to a medical geneticist in Helena. He was able to diagnose Justin with Simpson Golabi Behmel Syndrome (SGBS), one of several so-called overgrowth syndromes that are characterized in part by babies with large head and body size.

Linked to the X chromosome, SGBS occurs predominantly in males. First described in 1975, half of children with SGBS die at birth, probably due to heart defects. Those who survive can have a range of conditions including an enlarged tongue, widely spaced eyes, cleft palate, bone abnormalities such as extra or fused fingers and toes, and organ abnormalities that can involve the heart, kidneys,

bladder and intestines. In addition, children with SGBS are at high risk for three childhood cancers: Wilm's tumor, which affects the kidneys, neuroblastoma and liver cancer.

Patti left the geneticist's office with Justin's diagnosis and a thin folder of information containing most of what was then known about SGBS. Over the next nine years, the family was transferred three

times. In each new location, Patti had to find new doctors for Justin and often found herself educating them about the obscure syndrome.

In 1999, she found DeBaun. While searching the Internet for information, she found a web page devoted to another overgrowth condition, Beckwith Wiedemann Syndrome. The site mentioned SGBS and included a picture of DeBaun.

"He looked like a nice guy, so I e-mailed him," Patti recalls. To her surprise, DeBaun replied within minutes—he had been checking his e-mail when her message arrived. He informed her about the Washington University SGBS clinic and registry at St. Louis Children's Hospital. A few months later, the Valentine family attended the clinic.



Scott Saunders, MD, PhD, and Michael R. DeBaun, MD, MPH, at left and with SGBS registry members.

X SGBS

**Linked to the
X chromosome,
SGBS occurs
predominantly
in males.**

The Saunders/DeBaun collaboration began in the late 1980s, when Saunders was studying a group of little-understood molecules known as heparan sulfate proteoglycans (HSPGs). HSPGs, which consist of proteins with sugars attached to them, are now known to be essential for guiding development and growth of bones and organs in embryos.

In 1997, Saunders joined the faculty at Washington University. The year before, David Schlessinger, PhD, then a researcher in the Department of Genetics, had discovered a mutation on the human X chromosome that linked an HSPG gene to Simpson Golabi Behmel Syndrome. The gene, known as glypican 3 (*gpc3*), was related to the HSPG genes that Saunders had been studying. When he learned about Schlessinger's discovery, he refocused his research on the *gpc3* gene and its relation to SGBS.

"Physician-scientists like myself rarely have the opportunity to see our research directly help the types of patients we care for," says Saunders. "HSPGs were the focus of my laboratory research, so when I learned that *gpc3* caused birth defects in children—the focus of my clinical practice—I had to change directions."

To investigate how the *gpc3* mutation causes SGBS, Saunders first engineered a strain of mice that was missing the *gpc3* gene. The mouse model showed many of the same features as SGBS.

As it turned out, Saunders' laboratory was only about 50 feet from DeBaun's on the 11th floor of St. Louis Children's Hospital, and a collaboration was begun.

DeBaun is a pediatric oncologist and epidemiologist interested in syndromes that predispose children to cancer, such as Beckwith Wiedemann and SGBS. He'd started a Beckwith Wiedemann registry six years earlier, and the experience equipped him to efficiently

organize an SGBS registry. Saunders, a neonatologist with expertise in birth defects and molecular biology, had knowledge that could help reveal the biological mechanism behind the cancer-causing syndrome.

The two investigators held their first yearly multidisciplinary clinic in 2000, after the SGBS registry was up and running. Families have come to the clinic from as far away as Canada and Argentina. Some have attended all three years because they find it helpful to meet other children with SGBS and to share experiences.

"Most pediatricians have never heard of SGBS, let alone seen a child with the syndrome," says DeBaun. "No one knows what the risks are for the various cancers, or even the spectrum of medical problems that occur in SGBS patients."

In time, Saunders and DeBaun hope to answer these questions through the yearly clinic and the registry. "By keeping in touch with the families and their

A GALLERY OF OVERGROWTH

People born with SGBS often exhibit a range of signs, some more subtle than others. Characteristic features can include a large head, widely spaced eyes, a cleft in the lip and tongue and extra nipples.



pediatricians,” says Saunders, “we will develop experience about the kinds of things we need to watch for.”

Saunders and DeBaun also have developed a test that confirms which patients have the *gpc3* mutation, which they believe is present in 30 to 40 percent of SGBS patients. But they believe other mutations also must be involved because children with the syndrome show a range of severities.

“Why are some children more likely to develop cancer than others, and can we do anything to prevent those cancers?” asks DeBaun. “Such questions require years, if not decades, to answer. This is just the first step of a long process.”

Ultimately, the researchers hope to develop a genetic test that will determine which children will have a more or less severe form of SGBS. Hundreds of patients are needed for such analyses, and after three years, the registry includes just 17 families. “That is far more than anyone else has seen,” says DeBaun, “but we need more to learn what we’d like to learn.”

Fortunately, important clues about SGBS also will come from Saunders’ mice. Studies of the mice, for example, will help to identify the other genes and mutations that are believed to influence the severity and course of the syndrome.

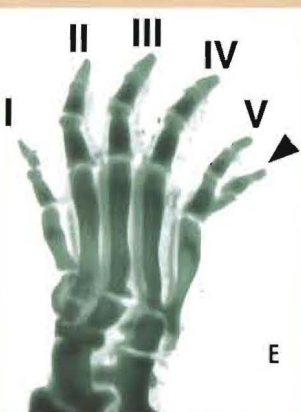
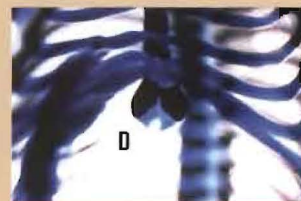
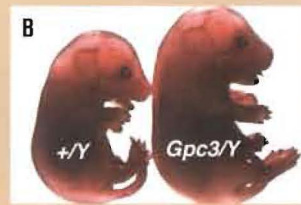
Already, study of the mice has provided insight into changes that might occur in human patients. For example, research by others has suggested that the mice might undergo immune-system changes that make them susceptible to certain infections. “If we can verify that similar changes do occur in humans,” says Saunders, “we can help patients and their families by telling them that they may be at risk for certain infections.”

And patients and families can provide researchers with clues about changes they should look for in the mice. During this year’s SGBS clinic, one mother commented that her son and the other children in the waiting room all seemed to have knobby knees. A post-doctoral student in Saunders’ lab had a short time earlier reported that the knees of the mice looked overly broad.

“That mother’s casual observation made us rethink some of the studies we were doing and may help us ask better questions about what is happening in the bones of the mice,” says Saunders. “As we learn more, we share it in the scientific literature. This helps other geneticists, who may have an infant in the neonatal intensive care unit, as they try to determine if their patient has SGBS.” □

Manipulating mouse genes mimics human overgrowth syndrome

- A** A section of mouse kidney with characteristic cysts (arrowhead).
- B** Same-age mouse embryos, normal size (left) and with the syndrome.
- C** Abdomen showing lack of structure in the abdominal wall. Humans with SGBS also can show abnormalities of the abdomen.
- D** Skeletal malformations—the tip of the sternum in a normal mouse (top) and a clefted tip caused by overgrowth syndrome.
- E** Mouse foot with little toe malformed as two digits—another feature that can occur in humans with SGBS.



MEDICINE *in* *times of* NEED

Generations of WUMC personnel have blended medical and military service. One young surgeon explains why.



James Shih-Kong Wu, PhD, MD '86

BY HOLLY EDMISTON

*Historical information provided by
Paul G. Anderson, PhD, archivist,
Bernard Becker Medical Library*

FOR SCHOOL OF MEDICINE ALUMNUS James Shih-Kong Wu, PhD, MD '86, serving his country is a personal matter.

Wu's call to military service was inspired by several people close to him. His godfather immigrated to the United States from China and served during World War II as an interpreter. His wife, Michelle Inkster, PhD, MD, comes from a family of men who served their native Australia in both World Wars.

But the most important influence on Wu was his father, Carl, also a Chinese immigrant, who attempted to enlist in both the Marine Corps and the Army during World War II, but was turned down because of a physical ailment. According to James Wu, his father never got over being excluded.

"When I was much younger, I asked my father why it was so important to him, given that he might have been killed had he been fortunate enough to be accepted. He put it to me this way: 'By serving, a person earns for himself and his family the rights and privileges of citizenship.'"



A patient is delivered to the 21st General Hospital. Naples, Italy, 1944.

A WWII medical mission

The 21st General Hospital, a medical unit affiliated with Washington University and Barnes Hospital, was called to action in 1942. After training in Fort Benning, Georgia, its doctors, nurses and other medical staff were sent to the European theater—stationed first in England, then North Africa, on to Naples, Italy, and finally,

Mirecourt, France. The 21st compiled some impressive statistics in its nearly three years of overseas service: 65,503 patient admissions, 33,440 surgical operations, 69,375 dental treatments, 246,805 laboratory tests, and 11,258 blood transfusions. In that time, more than 2,200 medical personnel served as members of the unit.

Wu is a colonel in the U.S. Army Reserve Medical Corps and is attached to the 21st General Hospital based in St. Louis. He spent the summer of 2002 at Kandahar Airfield in Afghanistan, treating American and allied troops and ministering to Afghani nationals and citizens.

His mission to Afghanistan marked the second time he has been called to active duty. In the winter of 2000, he served for three months at Camp Bondsteel, Kosovo, as part of the peacekeeping force. In 1998, he served briefly in Guatemala on a humanitarian mission to rebuild dikes blown away in Hurricane Mitch.

Although military service affects his colorectal surgery practice, Wu feels as strongly today about his commitment to the Medical Corps as he did when he first made it nearly 10 years ago while still a resident at Washington University.

He credits his employer, The Cleveland Clinic Foundation in Ohio, for its strong support of his military commitment. The institution was founded by soldiers, and its administration remains morally financially supportive of those among its ranks who choose to serve their country, Wu says.

Wu is quick to point out that he and his fellow Army Corps surgeons have it much easier today than in the past. In earlier decades, physicians on reserve were often mobilized for years. Today the Army offers young doctors financial incentives and shorter tours of duty.

But there is an altruistic aspect to signing on, says Wu. “No amount of money makes a person join the military when you know you can be called to a conflict.”

“We were well protected,” says Wu, who has been attached to both the 101st Airborne and 82nd Airborne divisions. “These elite Army units are highly motivated and have a great love of country. It was an honor for us to serve with them.”

Capt. Francis Richard Crouch, MD '36, closes a gunshot wound in the orthopaedic surgical dressing room at the 21st General Hospital in Naples, Italy, 1944, assisted by nurse Eleanor Brinkmeyer.



The Honorable Continuum

BY RUTH BEBERMEYER

Highlighting the accomplishments of students, medical graduates, current and former house staff, and faculty who embody the School of Medicine's unbroken tradition of excellence.

R. Christie Wray Jr., MD '63

LAST MAY, R. CHRISTIE WRAY JR., MD '63, was elected president of the American Association of Plastic Surgeons, the oldest and arguably the most prestigious plastic surgery organization in the world. Fewer than 10 percent of plastic surgeons practicing in the United States are selected for membership.

Positions of responsibility are commonplace for Wray, who is professor and chief of the hand and upper extremity service at the Medical College of Georgia in Augusta, a position he has held since 1998. Previously,



R. Christie Wray Jr., MD '63

he spent 14 years as professor and chairman of the division of plastic surgery at the University of Rochester in New York and, following plastic surgery residency at The Johns Hopkins Hospital, 12 years on the faculty at Washington University School of Medicine. He is a past president of the

Association of Academic Chairmen in Plastic Surgery and of the Western Trauma Association, and a senior member of the American Society for Reconstructive Microsurgery. He has been director and vice-chairman of the American Board of Plastic Surgery and is now a senior examiner for the board.

He notes, "When I chose plastic surgery for my life's work, it was a reconstructive speciality and included little or no cosmetic (aesthetic) surgery... it consisted of the care of patients with burns, head and neck cancers, hand injuries, and difficult wounds... I particularly enjoy the geometry of moving flaps from one location to another for difficult wounds." Satisfying as that is, Wray says, "Teaching residents and medical students has been and will be the most rewarding aspect of my professional life until I retire."

Wray met his wife, Margaret Rothwell ("Rockye"), during residency at the University of Virginia, where she was a nursing student. They have three children, Robert

Christie III, a computer contractor; Anne Maury, an MBA student at Duke; and Carter Davidson, a third-year student at the Medical College of Georgia. Rockye is active in the Augusta Symphony Guild and the Augusta Choral Society.

Away from work, Wray keeps fit by running (he has been doing several miles a day for 35 years), and he likes to golf and ski.

Andrea Pennington, MD '98

ANDREA PENNINGTON, MD '98, says, "It's fun to let other docs and medical students know that we really can do more than just see patients nonstop for 40+ years." She always expected to pursue multiple interests and is successfully combining medicine, media and more.

While earning an undergraduate degree in biology at Georgia State University, Pennington was general manager of Georgia State TV, produced shows for campus and cable TV, and performed in professional theatre, TV and independent films.

At Washington University School of Medicine, she found a "rich environment" where she met people who "have more to offer than book smarts... friends who will be with me for life."

Pennington did a pediatric internship at Georgetown University Hospital, focusing on neonatal intensive care and cardiology. After a year at Helios Health, Inc., an Internet start-up company, she moved to the Discovery Health Channel and discoveryhealth.com, where she is medical director and spokesperson. She oversees website and TV content, covering many diseases and conditions, as well as nutrition, fitness, alternative medicine and mental health. As spokesperson, she hosts several TV programs, among them "Amazing Baby Videos" (Mondays at 8 p.m. and 8:30 p.m. ET and PT, 7 p.m. and 7:30 p.m. CT), and does nightly "Newsbreaks," one-minute reports on the latest health and medical news from around the world.

Pennington volunteers every week at the Spanish Catholic Center, serving an immigrant Latino population. She sees pediatric patients and has started a free



JOHN SPALDING

Andrea Pennington, MD '98

weekend weight management clinic there. This winter she is expanding her clinical practice by opening The Pennington Institute for Health and Wellness in Silver Spring MD, offering clients a “holistic experience” in addition to traditional medicine. (She recently completed an Acupuncture for Physicians course at UCLA.) Her community service also includes counseling assistance to preteen girls from a low-income community in Maryland.

Meantime, Pennington is writing a book based on a five-step motivational plan that she uses in her practice to teach people how to overcome health challenges. She is also having “huge fun” working on a screenplay for a short, independent movie. A self-described “Jane of all trades,” she also enjoys singing and songwriting and has “two dogs who are my favorite companions!”

Ulrich B. Jacobsohn, MD '54

HIS EARLY EDUCATION was unusual preparation for medical school, but Ulrich B. Jacobsohn, MD '54, has had a distinguished career as a psychiatrist, recently garnering a Lifetime Achievement Award from the Maine Psychiatric Association. He was the first psychiatrist to serve as president of the Maine Medical Association, which gave him a Distinguished Service Award.

Until he went to college, Jacobsohn never attended a formal school. His family left his birthplace, Berlin, to escape the Nazis when he was five, eventually settling in Bangkok, where his ophthalmologist father could practice as a nonresident. Ulrich was privately tutored there for 10 years. Through American National Council of Churches sponsorship, he says, “Reed College in Portland OR took a chance on helping a war refugee without citizenship... my first year was almost a disaster, but Reed helped me step by step until graduation... Reed sponsored me to Washington University as that year's candidate in medicine and fortunately, again, a school took a chance.”

It was a chance well taken. After graduation, Jacobsohn went into the U.S. Naval Reserves and

completed his residency at the Oakland Naval Hospital in California, becoming a naturalized citizen in 1959. He joined the staff at Camarillo State Hospital and spent four years as chief of the Psychiatric Emergency Service at the UCLA Neuropsychiatric Institute.

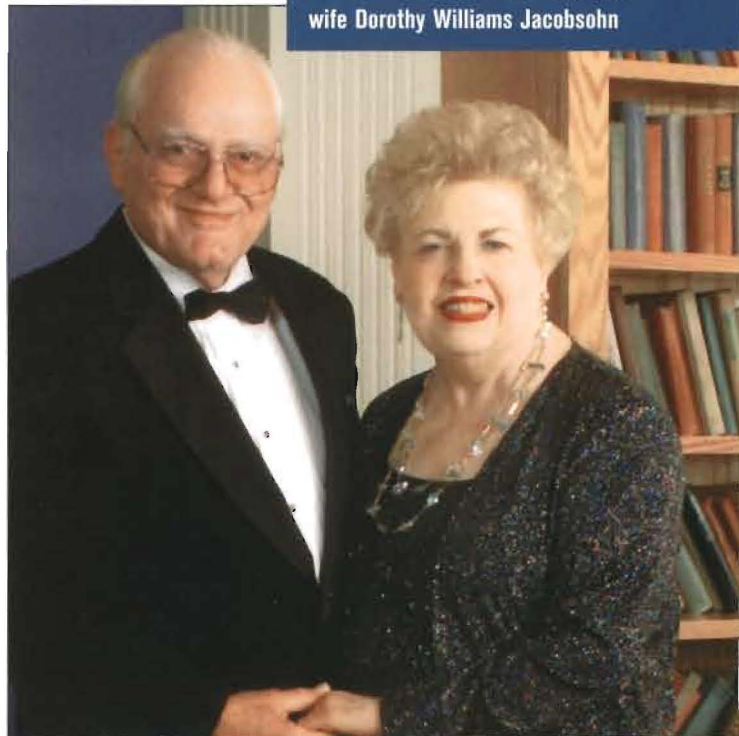
In 1971, Jacobsohn moved to Maine, where he served in state government for 30 years, maintained a private practice, and held academic appointments at both the University of Maine and the University of Vermont. He was clinical director and director of forensic psychiatry at the Augusta Mental Health Institute until 1986, then director of the Maine State Forensic Service. Concurrently, he served seven years as medical director of the Maine Department of Mental Health and Mental Retardation.

Working with the legislature, Jacobsohn led the development of the state's forensic service, which performs psychological evaluations for the courts. He was honored with the Joint Maine Senate and House of Representatives Recognition for Service to the State when he retired in 1998.

In 2001, he received a Spirit of America Award for his volunteer work at the local community theater where his wife, Dorothy Williams Jacobsohn (they met at McMillan Hospital, where she was on the administrative staff) and daughters often performed.

Jacobsohn still does some consulting but “spends all the time I can with my four children and their spouses and five grandsons.”

Ulrich B. Jacobsohn, MD '54, with wife Dorothy Williams Jacobsohn



Nurses' Reunion 2002



Many memorable moments

PHOTOS BY MARK BEAVEN

September saw the return of the nurses. Alumnae of the School of Nursing, which closed in 1969, remain proud of their training and close to one another.



Doris Bunting Darr, NU '51, laughs with Mary Lou Gerhart Childress, NU '51, sporting her original nurse's cap.



Mother-daughter pair Diana Breen Smith, NU '65, and Enid Eddleman Breen, NU '42, celebrate reunion together.



Members of the Class of 1950. Standing are Lois Vahle, Pat Wallace Leigh, Helen Williamson and Zoe Winkler Braner. Seated are Berniece Kase, Alice Layman Roam, Bernadine Bott Shaw and Betty Winkleman O'Heron.



Delores Calame Bafunno, NU '57, Shirley Smith Graham, NU '56, Sue Schultz, NU '56, and Bonny Andrews Poore, NU '56.



Keynote speaker Krista Havlin, assistant nurse manager for the School's General Clinical Research Center, tells of her personal experience with nocturnal dialysis.



Cathy Hanford, NU '46, is all smiles.



Billie Sanders McKenna, NU '47, Dottie Herweg, NU '47, and Edna Dell Weinel, NU '46, greet each other warmly as the reception begins.



Class of 1947 cohorts Ann Fee, Betty Edwards Ashby and Corinne "Cookie" Cullen eagerly wait for others to arrive.



Doris Bunting Darr, Peggy Edwards Barker and Lorraine Allgaier Magee celebrate with other 1951 graduates.



Mildred Weiss Miksicek, NU '39, relaxes during the reception.



Class of 1946 alumnae share lunch with Ruth Bebermeyer, former senior director of alumni and constituent relations. Standing are Bonnie Peabody Gordon, Sue Ann Roni Keck, Bebermeyer and Ethel Metheny Morrison. Seated are Katharine Mueller Kilpatric, Eleanor Parkhurst Higley and Peggy Gruppe Ericson.



Nursing alumnae from the Class of 1952 gather to celebrate their 50th reunion. On behalf of her class, Marty Reid Fredd, second from right, spoke of the pride she feels for Washington University School of Nursing, though more than 30 years have passed since its closing.

Second Century Award recipients honored

THE 2002 SECOND CENTURY AWARDS were presented at a dinner at St. Louis' Ritz-Carlton Hotel on September 28, 2002.

The awards have been presented annually since 1991, and they mark Washington University School of Medicine's entry into its second hundred years of leadership in patient care, teaching and research.

Stuart A. Kornfeld, MD '62, is the David C. and Betty Farrell Distinguished Professor of Medicine and professor of biochemistry and molecular biophysics at the School of Medicine. He also co-directs the division of hematology and its Physician Scientist Training Program.

Kornfeld earned an A.B. degree from Dartmouth College, then completed his medical degree in 1962 and interned in ward medicine at Barnes Hospital. He spent two years as a research associate at the National Institute of Arthritis and Metabolic Diseases before completing his residency at Barnes and joining the School of Medicine faculty in 1966. He has conducted groundbreaking research, often in collaboration with his wife, Rosalind H. Kornfeld, PhD, on how sugar chains direct the movement of proteins within cells. He is best known for discovering how lysosomal enzymes are routed to lysosomes, work that has brought

him numerous honors, including memberships in the National Academy of Sciences, the Institute of Medicine, and the American Academy of Arts and Sciences.

Samuel E. Schechter, MD '41, who retired in 1991, contributed significant time and resources to the medical center over his 40-year career. Now assistant professor emeritus of clinical medicine at the School of Medicine, he still regularly attends the Department of Medicine's Grand Rounds and works in the archives at

Hospital in Chicago, Schechter returned to St. Louis to establish a private practice.

Alvin J. Siteman is chairman and president of Site Oil Company of Missouri and Flash Oil Corporation and president and chief executive officer of the Siteman Organization.

A leader in civic and community affairs, Siteman chairs the Barnes-Jewish Hospital Foundation and is a charter member of the hospital's board of directors. He served on the board of The Jewish Hospital of St. Louis for more than 15 years, and he is an emeritus trustee of Washington University.

Siteman and his wife, Ruth, have been generous supporters of Washington University for many years. Life patrons of the university's William Greenleaf Eliot Society, their contributions have benefited not only medicine but also business, engineering, fine arts and student scholarships.



Recipients of the School of Medicine's 2002 Second Century Award (left to right): Alvin J. Siteman, Samuel E. Schechter, MD '41, and Stuart A. Kornfeld, MD '62.

the Bernard Becker Medical Library.

Schechter completed his undergraduate work and his medical degree at Washington University. After graduation, he began an internship at the former Jewish Hospital of St. Louis, but interrupted his training a year later to serve in the U.S. Air Force during World War II. He was discharged in 1945 and returned to Jewish Hospital to complete his residency. Following a fellowship in gastroenterology at Michael Reese

In 1997, the Sitemans established a cancer endowment fund and an endowed chair in oncology at Barnes-Jewish Hospital. Two years later, they added to those gifts, making an extraordinary total commitment of \$35 million toward the development of the National Cancer Institute-designated Alvin J. Siteman Cancer Center of Washington University School of Medicine and Barnes-Jewish Hospital. Alvin Siteman co-chairs the center's capital campaign.

Eliot Society holds 25th annual kickoff event

THE SCHOOL OF MEDICINE'S ELIOT SOCIETY held its 25th annual meeting on September 25, 2002. Paul A. Mennes, MD '70, chairman of the Eliot Society, hosted the event.

During the meeting, Harry L. Knopf, MD, associate professor of clinical medicine, paid tribute to William A. Peck, MD, executive vice chancellor for medical affairs and dean of the medical school, who will be concluding his tenure as dean in June 2003.

Peck has encouraged Eliot Society membership support since he became dean in 1989. Over the past 14 years, the Eliot Society has grown from 341 to 718 members. "We are fortunate to have so many Eliot Society members who express their confidence in and loyalty to the School of Medicine," says Peck.

Elliot E. Abbey, MD, professor of clinical medicine, reported on the School of Medicine's planned learning and teaching center, designed to create an updated learning environment by replacing outmoded and overcrowded facilities. The new facility will be located at the intersection of Euclid and Scott avenues, adjacent to the North Building. Construction is scheduled to begin in the spring of 2003.



Eliot Society chairman Paul A. Mennes, MD '70, confers with William A. Peck, MD, executive vice chancellor for medical affairs and dean of the School of Medicine, at the Eliot Society's 25th annual kickoff event.

"ELIOT GIFTS ARE HELPING to provide resources to assist educational priorities, to encourage promising research, to attract and retain outstanding faculty and to make scholarships available to deserving students who dream of attending medical school."

WILLIAM A. PECK, MD

MD Reunion 2003

The dates: May 8–10, 2003. The event: MD Reunion 2003. For up-to-the-moment information, please visit the website: medicine.wustl.edu/alumni.

Coming soon to the medical center!

Everyone scheduled to celebrate Reunion 2003 will be hearing from classmates about plans for social events, continuing medical education and other activities.

1943 MARCH Russ AufderHeide, MD, and Ernest Rouse Jr., MD, social chairs

1943 DECEMBER C. Read Boles, MD, social chair

1948 J. Neal Middeldkamp, MD, social chair
Robert Burstein, MD, gift chair

1953 Mary Parker, MD, social chair
Stanley Burris, MD, Joel Siner, MD, and Jessie Ternberg, MD, gift chairs

1958 Richard Bohannon, MD, social chair
Morton Kirsh, MD, Jerry Levy, MD, and Ray Wolff, MD, gift chairs

1963 Glen Pittman, MD, and Thomas Richardson, MD, social chairs
Jerry Meltzer, MD, gift chair

1968 Penelope Shackelford, MD, and Gary Shackelford, MD, social chairs
Joseph Davie, MD, and Emily Smith, MD, gift chairs

1973 Steve Nichols, MD, social chair
Robert Karl, MD, and Barry Milder, MD, gift chairs

1978 Mark Frisse, MD, social chair
Moses Albert, MD, Mark Frisse, MD, and Carlton Pearse, MD, gift chairs

1983 Robert Swarm, MD, social chair
Robert Kramer, MD, and David Pfeffer, MD, gift chairs

1988 Laura Grady, MD, social chair
Vida Kaniecki, MD, and Robert Kaniecki, MD, gift chairs

1993 Robert MacDonald III, MD, social chair
Dan Sewell, MD, gift chair

See you there!

Cementing the bonds of friendship

Schonfeld honored with Samuel E. Schechter Professorship

THE STORY OF THE LONGTIME FRIENDSHIP between physicians Samuel E. Schechter, MD, and Gustav Schonfeld, MD, added another chapter recently when Schonfeld was named the first Samuel E. Schechter Professor of Medicine.

The professorship was established by Schechter, professor emeritus of medicine and a 1941 alumnus.

The new professorship will be used to continue Schonfeld's lifelong research in the field of atherosclerosis (the accumulation of fatty deposits on artery walls) and the prevention of coronary artery disease.

The two men's paths first crossed when Schonfeld's physician father, Alexander, became a medical intern at the university, working for Schechter, then a young internist. The elder Schonfeld had recently immigrated to the United States with his surviving family after the Holocaust in Europe.

"I am enormously pleased and honored to carry the name of the Schechter Professorship, particularly because of the family association with my father being Sam's intern," Schonfeld says.

Schechter also had a World War II connection. While the Schonfelds were being victimized by the Nazis,

Schechter was abroad fighting the war. Having already begun his internship at the former Jewish Hospital of St. Louis, Schechter put his career on hold to enlist in the U.S. Air Force. He trained at the San Antonio School of Aviation Medicine before being sent abroad to help the war effort in London, France and eventually Germany.

After the war ended in 1944, Schechter returned to Germany to help at prisoner-of-war camps along the Rhine River. He then moved back to St. Louis to continue his residency at Jewish Hospital, where he ultimately spent the rest of his career as an attending physician, teaching medical students, interns and residents.

After spending a few months in pathology, Schechter transferred to the Department of Internal Medicine. There, he not only met Schonfeld's father, but also the woman who would later become his first wife, Rena Felstein, a Washington University alumna who worked at the Heart Station at Jewish Hospital.

The Schechters had four children, Leslie, Miriam, Kay and David, the latter three of whom attended Washington University.

Miriam now is a psychiatrist in private practice in Milwaukee and has two sons, one of whom attends Washington University. Kay, a graduate of Washington University's George Warren Brown School of Social Work, is a career-development consultant in St. Louis.

After battling depression for many years, the disease claimed the lives of two of Schechter's children, Leslie, 31, and David, 38. In their honor, Schechter established the David Joel Schechter and Leslie Schechter Memorial Fund for Research in Depression in the Department of Psychiatry at the School of Medicine.

In memory of his first wife, who died of pancreatic cancer at age 72 in July 1995, Schechter began the annual Rena Schechter Memorial Lecture in Cancer Research. In addition to his gifts to the School of Medicine, Schechter established the Miriam Schechter and Kay Schechter endowed scholarships in Arts and Sciences in honor of his daughters. In May 2002, Schechter married longtime friend Norma Bonham.

Samuel E. Schechter, MD,
and Gustav Schonfeld, MD



Class Notes

40s William Shepley Curtis, MD 40, sends comments prompted by a recent article in *Washington* magazine about the Reserve Officers Training Corps at Washington University. He notes that he was a member of the medical ROTC, which trained officers for Medical Corps personnel. Curtis was inducted in 1941, called to active Army duty prior to Pearl Harbor, and discharged in 1946. He was in private practice of radiology in Denver CO from 1948-53; then he practiced until 1986 at Boulder Medical Center, a multispecialty group founded in 1947 by two Washington University medical graduates, **Howard Houston, MD 19**, and **Christopher Martin, MD 33**. From 1953-96, Curtis also worked at the Colorado University Student Health Service and was on staff at Boulder Community Hospital. In 1992 he received a University of Colorado medal. He is still active in a number of medical societies and was listed in the silver anniversary issue of *Who's Who in the West*.

Dolores Shoulders Moore, PT 48, enjoyed a trip to Bavaria last May and a trip to Ireland in September. She writes that she is "slowing down keeping up with a 3-year-old grandchild."

60s Mary Ellen Coons, DT 60, has retired after 30 years with the U.S. government, 25 of which were spent with the Veterans Administration in St. Louis. She moved to Yancey TX, 60 miles southwest of San Antonio, 10 years ago. She owns a small antique store and spends three days a week there and two, as weather permits, going to flea markets. She writes, "We're just recovering from our second 400-year flood in four years. We enjoy four seasons: December, January, February, and summer! It's not hotter than St. Louis, just lasts for a longer time."

C. Craig Tisher, MD 61, was named dean of the University of Florida's College of Medicine in September, after serving as interim dean for five months. As head of the largest of six colleges in UF's Health Science Center, Tisher leads 800 faculty in Gainesville and 240 faculty in Jacksonville. He headed the division of nephrology, hypertension and transplantation from 1980 to 1997 and was then appointed senior associate dean. Recognized for his research in kidney structure and disease, Tisher has served as president of the American Society of Nephrology and as treasurer of the International Society of Nephrology. He won the American Society of Nephrology lifetime achievement award last January. He also is the founding assistant editor of the medical journal *Kidney International*.

Karen Frederiksen, PT 63, writes that she is "enjoying life" in Spring Lake MI.

Stephen Banko, MD, HS 66, of Mansfield OH, is serving as Richland County's elected coroner, a position he has held since 1996. A pediatrician, he has been on staff at Mansfield General Hospital since 1968. He is active in community affairs and is a director for Raintree, a facility for the mentally retarded and developmentally disabled. Banko and his wife, Suzanne, have four children.

70s Richard M. "Mike" Abell Sr., HA 72, is retired and living in New Port Richey FL.

80s Gwen Fyfe, MD 80, has been promoted to vice president, clinical hematology/oncology at Genentech, Inc. in South San Francisco. She joined Genentech in 1997 as director of oncology in medical affairs and was named senior director in 1999. While at Genentech, Fyfe's responsibilities have included managing the clinical

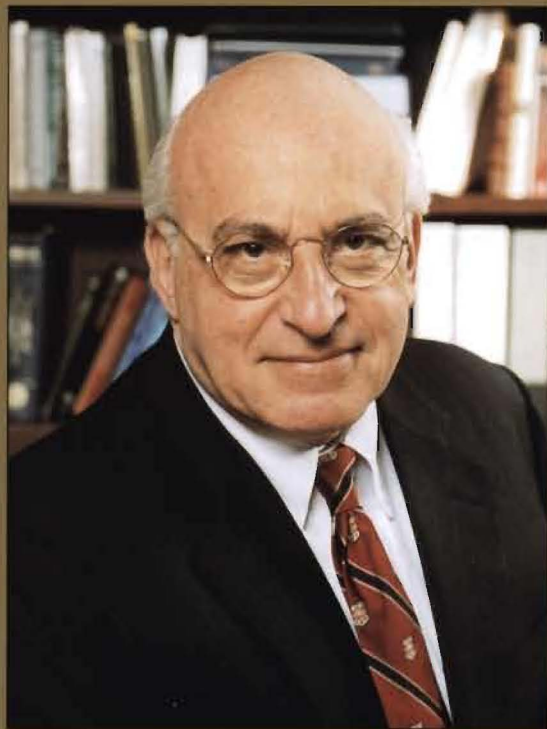
trials that led to the approvals of Herceptin®, a humanized antibody approved for the treatment of HER2-positive metastatic breast cancer, and Rituxan®, the first therapeutic antibody for non-Hodgkin's lymphoma approved in the United States. In her position as vice president, Fyfe is responsible for overseeing Genentech's clinical trials in these two areas. Fyfe did her residency training in pediatrics at the University of California, San Francisco, and postdoctoral fellowship training in immunology at Washington University School of Medicine.

Bruce Bach, MD 81, PhD, an internist and experimental pathologist, has been appointed chief executive officer of Collgard Biopharmaceuticals Ltd. in Boston. Collgard, founded in 1996, is a clinical stage tissue therapeutics company developing technology for managing tissue response to injury that impacts the progression of organ failure, restenosis and certain cancers. Bach previously had been managing director of MTBC Group, a biotechnology venture consulting firm in Atlanta. Before joining the biotechnology industry, he was a member of the Howard Hughes Medical Research Institute and a clinical professor of medicine at the University of California, San Francisco.

Vickie Shannon, MD 83, has been appointed vice chair of the Practice Management Committee for the American College of Chest Physicians. She lives in Houston TX, where she practices pulmonary and critical care medicine.

David R. Karp, MD, PhD 84, has been appointed chief of the rheumatic diseases division in the Department of Internal Medicine and associate director of the Harold C. Simmons Arthritis Research Center at the University of Texas Southwestern Medical Center in Dallas. He also has been named the Harold C. Simmons

Announcing a new endowment to provide four-year scholarships for medical students



Lowering financial barriers and reducing the debt load of graduates
— commitments that ensure the future of medicine and research.

The Peck Scholars in Medicine will assist future generations
of physicians and researchers while paying tribute to
Dean Peck's years of leadership and service.

Please complete the pledge form at right and return it in the enclosed envelope.

WILLIAM A. PECK, MD
SCHOLARS IN MEDICINE

WILLIAM A. PECK, MD

SCHOLARS IN MEDICINE

In recognition of Dr. William A. Peck's 14 years of service to the Medical Center and the Washington University community, please include my gift to the Peck Scholars in Medicine program. I have selected one of the options below:

MULTI-YEAR PLEDGE

I would like to make a pledge of \$ _____ with payments as indicated below.

2003	2004	2005	2006	2007
\$ _____	\$ _____	\$ _____	\$ _____	\$ _____

Name _____

Address _____

City _____ State _____ Zip _____ Phone _____

CURRENT-YEAR GIFT

_____ A check payable to Washington University is enclosed for \$ _____.

_____ Please charge my credit card in the amount of \$ _____.

_____ Mastercard _____ Visa _____ Discover

Card Number _____ Expiration Date _____

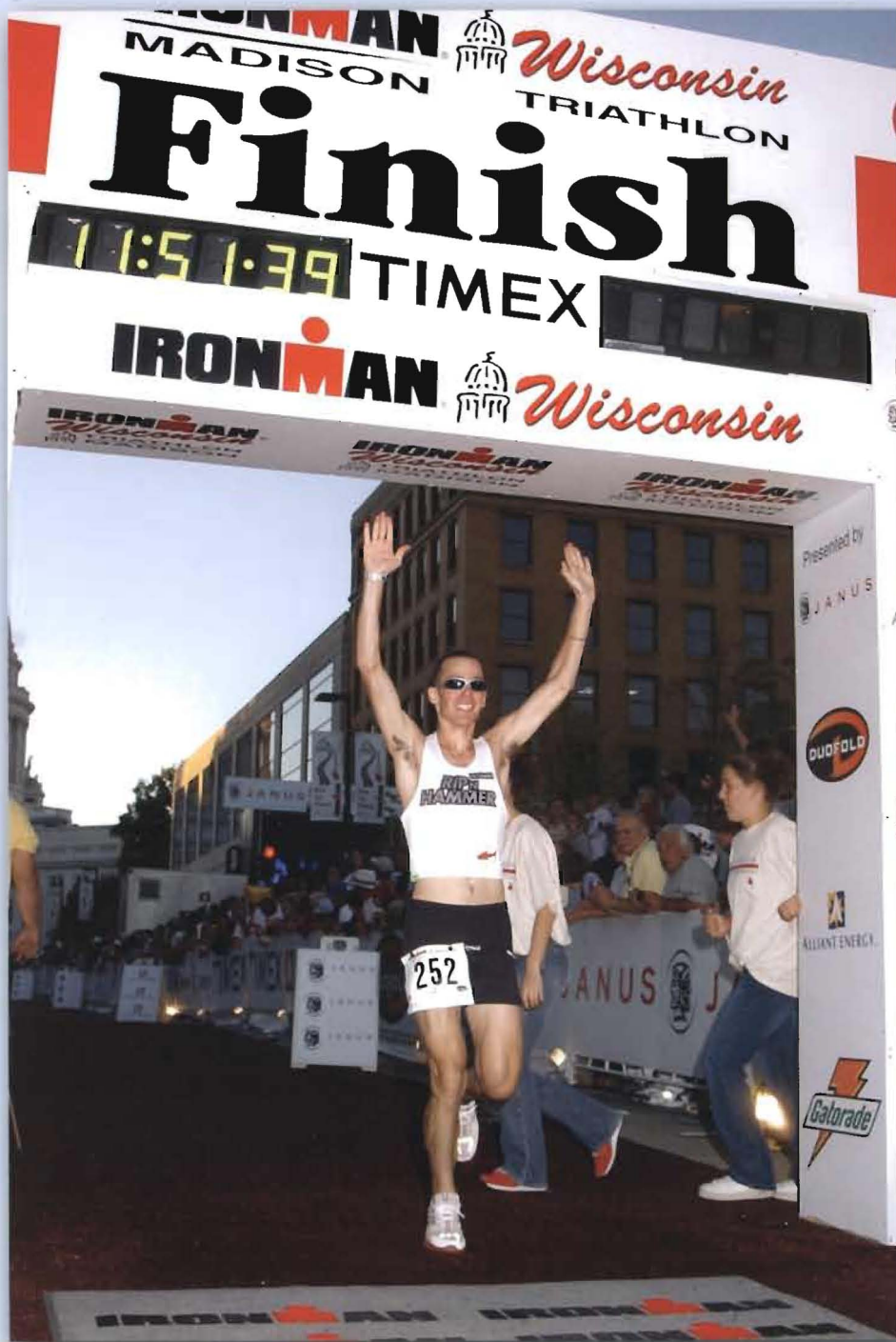
Signature _____

An honor roll of those supporting the William A. Peck, M.D. Scholars in Medicine will be published. Those making gifts will have the opportunity to have their names included. Please publish my name in the Peck Scholars in Medicine Honor Roll. _____ Yes _____ No

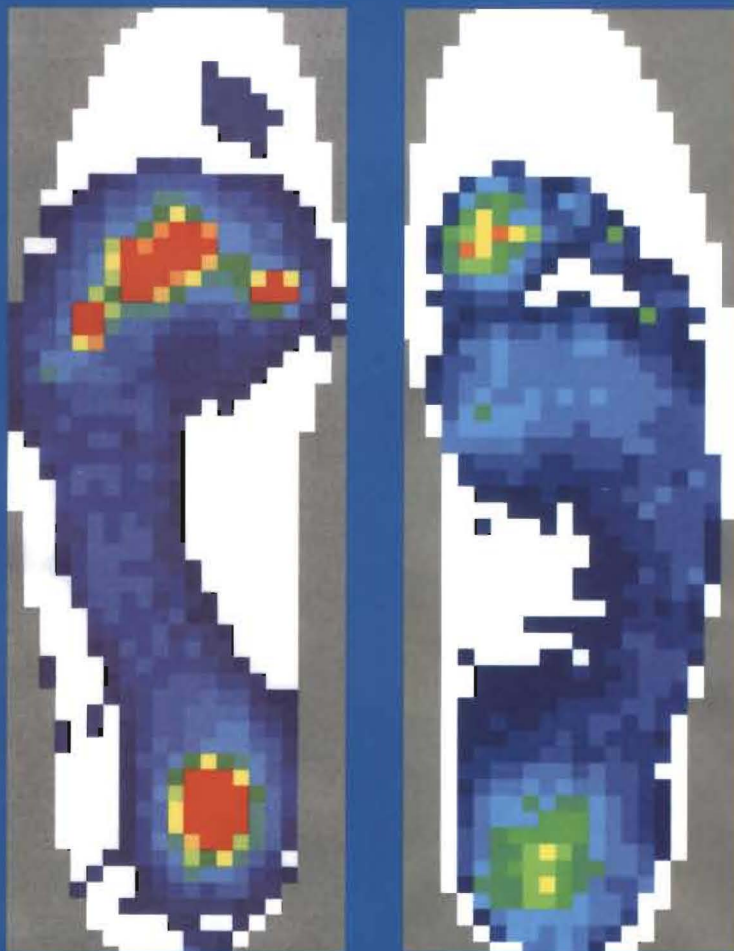
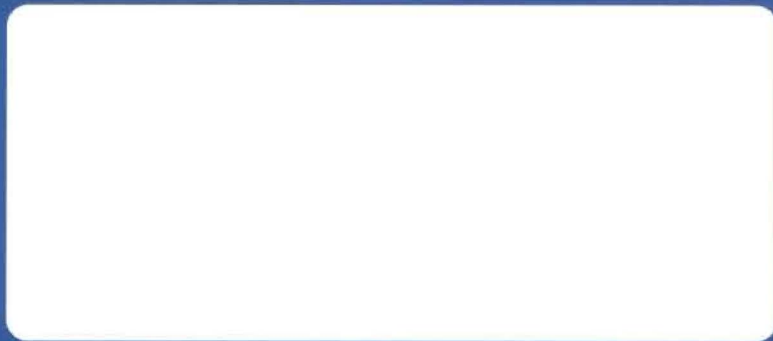
(If yes, please indicate how you wish your name to appear.)

Gifts should be made payable to Washington University and are tax deductible as provided by law. Gifts do not count toward annual fund credit.

If you have any questions, please contact David Shearrer in the Office of Medical Alumni and Development Programs, 314-286-0027 or e-mail shearred@msnotes.wustl.edu.



Born to Run, Swim and Ride Sami Barmada, a fifth-year MD/PhD student in the university's division of biology and biomedical sciences, recently finished his first Ironman triathlon. The race marked the inaugural run of Ironman Wisconsin, held in Madison. Barmada ranked 506th out of 1,802 finishers.



Tread Lightly A diabetic's altered foot structure causes high stress on certain areas, shown left in red, which often leads to ulceration. By comparison, the healthy foot on the right reveals more even weight distribution. Motion research shows that new strategies can help control this common diabetic complication. For more on this story, please turn to page 8.



Washington University in St. Louis

SCHOOL OF MEDICINE

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