

CAREER COUPLE

WOMEN AND ALCOHOL

RESTLESS LEGS

Outlook



Washington
University in St. Louis
SCHOOL OF MEDICINE

SUMMER 2008

PATHWAYS

The Division
of Biology and
Biomedical Sciences
crosses boundaries
once again



Gender-specific research

A micrograph reveals an *E. coli* bacterium (in green) that is part of a community of bacteria known as a biofilm. Researchers are investigating the roles biofilms play in urinary tract infections at the School of Medicine's new center for Women's Infectious Disease Research. The center, which officially opened on April 24, will focus on the study of infectious diseases that preferentially affect women, which can reveal information that is helpful in a much broader range of diseases affecting both women and men.

SCOTT HULTGREN, PH.D., JOHN HEUSER, MD, ROBYN ROTH

OUTLOOK • VOLUME XLV • NUMBER 2 •
SUMMER 2008 • ISSN 1042-2897

Published quarterly by Washington University School of Medicine
Office of Medical Public Affairs, Campus Box 8508, 4444 Forest Park Ave.,
St. Louis, MO 63108. © 2008

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Periodical postage paid at St. Louis, MO.
Address changes: Circulation, Outlook, Campus Box 8508,
4444 Forest Park Ave., St. Louis, MO 63108

Outlook

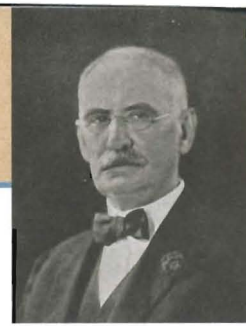
A continuing need for scholarship support

Turn this card for the inspiring story of a generous legacy that still helps students at the School of Medicine.



*Support for today's students
means a future of beneficial care
and scientific breakthroughs.*

See page 36



Jackson Johnson

His generosity lives on

"Under the will of the late Jackson Johnson, the sum of \$250,000 was donated to the School of Medicine, the income of which is to be used to aid worthy and desirable students in acquiring and completing their medical education."

With this brief item in the 1930 Washington University School of Medicine *Bulletin*, so began the endowed Jackson Johnson Scholarship Fund.

Jackson Johnson was president of International Shoe Company, the largest shoe manufacturer in the country early in the 20th century. He was elected to the Washington University Board of Trustees in 1919 and served until his death in 1929. He endowed the Jackson Johnson Scholarship Fund in memory of his son, Jackson Johnson Jr., who lost his life in "the Service of the United States during the Great War."

Coming during the Great Depression, these resources were critical in making it possible for aspiring young students to pursue their medical educations. And for over 70 years, this scholarship fund has continued to do just that. Since its inception, more than 700 young men and women have received about \$1 million in financial assistance.

To maintain its reputation for excellence, Washington University School of Medicine must continue to attract the most promising and best qualified students. Many of these exceptional students will require financial assistance, and the need for scholarship support is growing faster than available resources can sustain.

**To learn more about how you can
make an impact, please contact the
Office of Medical Alumni and Development
at (314) 935-9691.**

Outlook

Washington University School of Medicine
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COVER The Division of Biology and Biomedical Sciences offers a dynamic, interdisciplinary environment for scholarship and science. To learn more about the Division's illustrious past — and promising future — please turn to page 16.

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26 Nature lovers

The platypus appears a strange breed, as if come to life from one of those children's books that mixes up all the different animal parts. The platypus genome reveals a diverse heritage, spanning parts of the evolutionary tree now considered distinct.



What's the recipe for a platypus?

bird + reptile
+ mammal

An international consortium of scientists, led by Washington University School of Medicine, has decoded the genome of the platypus, showing that the animal's peculiar mix of features is reflected in its DNA. An analysis of the genome, published in the May 8, 2008 issue of the journal *Nature*, can help scientists piece together a more complete picture of the evolution of all mammals, including humans.

The platypus, classified as a mammal because it produces milk and is covered in a coat of fur, also possesses features of reptiles, birds and their common ancestors, along with some curious attributes of its own. One of just two mammals that lays eggs (the other is the spiny anteater), the platypus sports a duck-like bill that holds a sophisticated electrosensory system used to forage for food underwater. Males possess hind leg spurs that can deliver

pain-inducing venom to foes competing for a mate or territory during the breeding season.

"The fascinating mix of features in the platypus genome provides many clues to the function and evolution of all mammalian genomes," says Richard K. Wilson, PhD, director of the university's Genome Sequencing Center and the paper's senior author. "By comparing its genome to other mammalian



The platypus represents the earliest offshoot of the mammalian lineage some 166 million years ago from primitive ancestors.

genomes, we'll be able to study genes that have been conserved throughout evolution."

The platypus represents the earliest offshoot of the mammalian lineage some 166 million years ago from primitive ancestors that had features of both mammals and reptiles. "What is unique about the platypus is that it has retained a large overlap between two very different classifications, while later mammals lost the features of reptiles," says Wesley C. Warren, PhD, assistant professor of genetics, who led the project.

The researchers compared the platypus genome with those of the human, mouse, dog, opossum and chicken, finding that the platypus shares 82 percent of its genes with these animals. They also found genes that support egg laying, a feature of reptiles, as well as lactation, a characteristic of all mammals.

The researchers also attempted to determine which characteristics of the platypus were linked to reptiles at the DNA level. When they analyzed the genetic sequences responsible for venom production in the male platypus, they found it arose from duplications in a group of genes that evolved from ancestral reptile genomes. Amazingly, duplications in the same genes appear to have evolved independently in venomous reptiles.

Piwnica-Worms named first Gerty T. Cori Professor

Four professorships honor WU Nobelists

Helen Piwnica-Worms, PhD, has been named the first Gerty T. Cori Professor at the School of Medicine.

The announcement was made by Larry J. Shapiro, MD, executive vice chancellor for medical affairs, the Spencer T. Olin Distinguished Professor and dean of Washington University School of Medicine.

The Gerty T. Cori Professorship is named in honor of a university faculty member and biochemist who shared the Nobel Prize for Medicine with her husband and fellow faculty member Carl Cori in 1947. They received the prize for their studies of the control of sugar metabolism.

Cori was the first female scientist to receive the Nobel Prize in medicine. This past April, she and three other U.S. scientists were recognized for their significant accomplishments on a set of U.S. Postal Service stamps. (See back cover of this magazine.)

“Gerty Cori was one of the most preeminent female scientists of the 20th century,” says Piwnica-Worms, who also is a Howard Hughes Medical Institute investigator. “It is a tremendous honor to be awarded a professorship named in her honor. I can only hope that my work will have a fraction of the impact that her pioneering discoveries had in biomedicine.”



Helen Piwnica-Worms, PhD

The professorship is endowed as a component of the Washington University BioMed 21 initiative, an effort dedicated to the rapid translation of scientific discoveries into new approaches for patient diagnosis and treatment. It is one of four profes-

sorships established by John F. McDonnell and the JSM Charitable Trust to support BioMed 21, all of which are named for Nobel Prize-winning faculty members from Washington University.

“Helen’s studies focus on the very basic inquiries into the life cycle of the cell, and she’s proven herself adept at applying the insights she gains in cancer treatment and other critical areas of clinical research,” says Shapiro.

Piwnica-Worms’ research has helped show how mechanisms known as checkpoints interface with the cell cycle machinery to delay the cell’s progress through its life stages. The delays provide cells with important opportunities to inspect their DNA for damage. If damage is detected, cells can attempt repairs or self-destruct to prevent that damage from leading to cancer.



BOB MARKEIN

ADRC tour Norman Seay, left, member and former chairman of the university’s Alzheimer’s Disease Research Center’s African-American Advisory Board, gave a tour of the center to U.S. Rep. William “Lacy” Clay on May 5 to emphasize the continued need for federal funding for research. With Seay and Clay are, left to right, Bernice Thompson, chairwoman of the African-American Advisory Board, Ida Goodwin-Woolfolk, African-American Advisory Board member, and Consuelo Wilkins, MD, assistant professor of medicine in the Division of Geriatrics and Gerontology.

Three faculty named Loeb fellows

Thomas M. De Fer, MD, James J. Fehr III, MD, and Mary E. Klingensmith, MD, are the 2008–09 Carol B. and Jerome T. Loeb Teaching Fellows at the School of Medicine.

The fellowship program was established in 2004 by a gift from the Loeb family to advance clinical education and to honor local physicians committed to clinical excellence. Strengthened by a gift from the Barnes-Jewish Hospital Foundation, the program enables the fellows to take time from their regular duties to teach clinical medicine to students and residents.

De Fer, associate professor of medicine, will develop, roll out and evaluate an easy-to-use, computer-based clinical skills curriculum for third-year students in the Internal Medicine Clerkship.

Fehr, assistant professor of anesthesiology and of pediatrics, will develop a simulation curriculum for pediatric acute-care scenarios that will better prepare students and pediatric residents to evaluate and manage acutely ill children.

Klingensmith, associate professor of surgery, will act as primary instructor for medical students in the Clinical Simulation Center and assist in further development and delivery of expanding the curriculum. She also plans to launch a pilot project to develop and hold patient-safety briefing sessions with Barnes-Jewish Hospital involving medical students, house staff, fellows, nurses and ancillary personnel.

2008–09 Loeb Fellows

- Thomas M. De Fer, MD
- James J. Fehr III, MD
- Mary E. Klingensmith, MD

Disaster averted Quick thinking by Alexis M. Elward, MD, assistant professor of pediatrics at the School of Medicine and an infectious diseases specialist at St. Louis Children's Hospital, recently led to an international investigation. After two patients undergoing kidney dialysis at Children's had sudden, life-threatening reactions, Elward and a team of 15 people posted warnings about the reactions on several pediatric and dialysis listservs and reported the event to state and federal agencies, who continue to investigate. Reports from other dialysis centers led to concerns about heparin as a cause of the reactions. Elward was commended for her extreme commitment to patient safety, as were the skill and strength of the infection-control teams from Children's and the BJC Infection Control Consortium.



School to lead pediatric lung transplant research trials

Improving outcomes for children

A five-year, \$3.9 million grant from the National Institute of Allergy and Infectious Diseases will allow the School of Medicine to head an international research effort designed to improve outcomes for children undergoing lung transplants.

The School of Medicine and St. Louis Children's Hospital will lead the first Pediatric Lung Transplant Research Network. The network consists of six pediatric lung transplant programs that will work cooperatively with investigators in pediatric kidney and heart transplantation to carry out immunologic clinical research as part of the NIH's Clinical Trials in Organ Transplantation in Children consortium.

Pediatric Lung Transplant Program

- established 1990
- first such program in U.S.
- 300+ lung transplants, the most worldwide

The pediatric lung network will study respiratory viral infections that often strike these patients after transplant using state-of-the-art techniques to identify the viruses and to study the underlying immune mechanism in the lungs that would contribute to these complications, says Stuart C. Sweet, MD, PhD, associate professor of pediatrics and medical director of the pediatric lung transplant program at the School of Medicine and principal investigator of the lung transplant network. "Pinpointing respiratory viral infections and immune responses will allow us to design new ways to predict a patient's risk of infection and to improve the outcomes of children who have lung transplants."

School, programs highly ranked

Washington University School of Medicine is rated No. 3 in the nation among research-based medical schools, according to the 2008 *U.S. News & World Report* rankings of graduate and professional programs.

Individual programs at the School of Medicine also received top rankings: The Program in Occupational Therapy tied for the No. 1 rating, the Program in Physical Therapy tied for the No. 2 spot, and the Program in Audiology and Communication Sciences is No. 5.

Other academic areas in the School of Medicine were in the top 10. Pediatrics tied for a No. 7 ranking after being rated No. 9 in 2007. Internal medicine (No. 8) retained its top 10 standing.



The Program in Occupational Therapy celebrates its No. 1 ranking. From left to right: student Ryan Bailey, director M. Carolyn Baum, PhD, Dean Larry J. Shapiro, MD, student Catherine Roche and student Eliza Prager.

Reiss named Fox professor

Craig K. Reiss, MD, has been named the Sam and Marilyn Fox Distinguished Professor in Medicine. Reiss, a cardiologist, directs the Washington University Cardiology Consultants and the Heart Care Institute at Barnes-Jewish West County Hospital.

The professorship is the second named for Sam and Marilyn Fox, both prominent civic leaders in the St. Louis community. In 2006, the couple established a distinguished professorship in the Department of Orthopaedic Surgery.

In his clinical practice in general cardiology, Reiss has special interest in valvular disease, congestive heart failure, cardiomyopathy, arrhythmia, coronary artery disease and preventive cardiology.



Craig K. Reiss, MD



Future scientists

Latricia Wallace, center, outreach associate with the Genome Sequencing Center at Washington University, works with Jessica Doshi, left, and Angelique Jacobs, students at McKinley Classical Junior Academy in south St. Louis, to extract DNA from strawberries. Faculty and staff from the Genome Sequencing Center visited McKinley in April to talk with students about National DNA Day. Celebrated on April 25, DNA Day was created in 2003 to commemorate the completion of the Human Genome Project and the 50th anniversary of the discovery of DNA's double-helical structure.

CARDIOPULMONARY GENOMICS

African Americans: Gene prolongs life after heart fails

About 40 percent of African Americans have a genetic variant that acts like a natural beta blocker, according to research conducted at the School of Medicine and collaborating institutions.

Having that variant can protect a person after heart failure and prolong his or her life. In heart failure, decreased blood flow from the struggling heart ramps up the body's secretion of adrenaline, which increases heart rate. Beta blockers suppress the action of adrenaline, slow heart rate and lower blood pressure to decrease the heart's workload.

Clinical studies of beta blockers have shown the drugs have clear benefits for Caucasians with heart failure, but the evidence of benefit for African Americans has been ambiguous. The current study, reported online April 20, 2008, in *Nature Medicine*, identified one particular variant

of the GRK5 gene that seems to account mechanistically and biologically for these indeterminate results.

Led by Gerald W. Dorn II, MD, professor of medicine, associate chairman for translational research and director of the Center for Pharmacogenomics at Washington University, the research team found that 41 percent of African Americans have a GRK5 gene variant that more effectively suppresses the action of adrenaline than the more common version of the gene and has an effect that mimics beta blocker drugs. The gene variant is very rare among Caucasians.

People with the variant have a natural protection after heart failure. The researchers, including three equally contributing co-authors: Stephen B. Liggett, MD, professor of medicine and physiology at the University of Maryland School of Medicine and director of its cardiopulmonary genomics program,



A variant gene in African Americans proves helpful to the heart.

Sharon Cresci, MD, assistant professor of medicine in the Cardiovascular Division at Washington University and a cardiologist at Barnes-Jewish Hospital, and Reagan J. Kelly at the University of Michigan, showed that heart failure patients with the genetic variant have about the same survival rate even if they don't take beta blockers as heart failure patients who do take the beta blockers.

Other institutions collaborating in the study are the University of Cincinnati, Thomas Jefferson University and the University of Missouri-Kansas City.



Put on a happy face First-years Josiah Gerdts and Isabelle Chumfong played the leads in “Bye Bye Birdie,” the spring musical produced by School of Medicine students. Four performances of this whimsical comedy — which revolves around the antics of rock and roll superstar Conrad Birdie — were held in April at the Whelpley Auditorium on the St. Louis College of Pharmacy campus.

Michalski heads radiation oncology

Jeff M. Michalski, MD, professor of radiation oncology, has been named interim head of the School of Medicine’s Department of Radiation Oncology.

Michalski replaces Simon N. Powell, MD, PhD, who has taken a position as head of radiation oncology at Memorial-Sloan Kettering Cancer Center in New York. A search committee has been formed to seek a permanent replacement for Powell.



Jeff M. Michalski, MD

“Jeff Michalski, a long-serving member of the faculty, is an outstanding clinician, teacher and clinical investigator,” says Larry J. Shapiro, MD, executive vice chancellor and dean of the School of Medicine. “He will be an excellent leader. I’d also like to recognize Simon Powell, who spearheaded a faculty expansion in the biology, physics and clinical divisions and the creation of a new bioinformatics and outcome research division.”

As interim head, Michalski intends to advance these and other initiatives Powell began during his tenure, such as a prototype proton beam facility, the first of its kind in the world. The facility is slated to open in 2009.

Michalski specializes in genitourinary and pediatric oncology. He also conducts clinical research on the use of radiation therapy for the treatment of prostate and other types of cancers.

A long tradition of celebrating the science of medicine

The St. Louis Society of Internal Medicine

A century ago, eight St. Louis physicians — all School of Medicine faculty members, keenly interested in research — signed articles of incorporation for a new organization: the St. Louis Society of Internal Medicine. Its purpose would be to “foster, encourage and promote the science of medicine... but not for pecuniary purpose.”

Through dramatic medical and social changes, this Society has prospered, with an invitation-only roster of up to 35 local physicians, plus retirees who attend as honorary members. Some things have changed: Black tie is no longer required at meetings and, since 1973, women also have belonged. But the monthly meetings are still hosted by a member who arranges for dinner and makes a presentation on a research project or interesting clinical case.

On the occasion of the Society’s 100th anniversary, Harriet Arey Davidson — a historian with several books to her credit and the wife of John D. Davidson, MD, a 40-year Society member — wrote a slim volume tracing its rich history. Its records came to her in 1987, well-organized by the Society’s late historian, Barrett Taussig, MD.

They tell of such speakers as one-time medical school dean George Dock, who gave a 1911 lecture on pellagra, Carl V. Moore, revered head of internal medicine, who spoke in 1963 on “iron metabolism,” or researcher John Atkinson, who discussed autoimmunity in 1995.

That list also shows the Society is not limited to Washington University faculty. Beginning in 1911, it took in members — up to half the roster today — from the Saint Louis University staff.

Why is the Society so important to its membership at a time when there is no shortage of postdoctoral classes? For one thing, members enjoy presenting their findings to faculty colleagues, all experts in their fields, not just to respectful medical students. And it is even nicer to do so in a warm, collegial atmosphere.

The Society is also a venerable one, older than the American College of Physicians and one of the oldest of its kind in the country, says John Davidson. For 100 years, every chairman of both universities’ departments of internal medicine have been members. “But most of all, I enjoy getting to know these people,” he adds. “We like each other; we become fast friends.”

“The list [of Society speakers’ topics over the decades] shows how medicine has evolved. What was a hot topic in the 1930s is common knowledge now.”

HISTORIAN HARRIET AREY DAVIDSON

Bearing fruit Members of the School of Medicine community flocked to Health Happening '08, an event sponsored by the School's Wellness Council. Held in March at the McDonnell Pediatric Research Building on the medical school campus, the all-day event offered participants information on managing their health, making good food choices, reducing stress and developing a fitness routine. School of Medicine specialists, including physicians, dietitians and nurse practitioners, were on hand to answer individual health questions and provide screenings, while a farmer's market offered quality produce at a reduced cost.



ROBERT HUSTON

GENETICS

Gene patch fixes fish embryo mutation; hope for humans?

By injecting a customized "genetic patch" into early-stage fish embryos, School of Medicine researchers were able to correct a genetic mutation so the embryos developed normally.

The research, published in the March 11, 2008 issue of *Proceedings of the National Academy of Sciences*, could lead to the prevention of up to one-fifth of birth defects in humans caused by genetic mutations.

Erik C. Madsen, first author and an MD/PhD student in the School of Medicine's Medical Scientist Training Program, made the groundbreaking discovery using a zebrafish model of Menkes disease, a rare, inherited disorder of copper metabolism.

Children with Menkes disease have seizures, extensive neurodegeneration in the gray matter of the brain, abnormal bone development and kinky, colorless hair. Most die before age 10.

Madsen and Bryce Mendelsohn, also an MD/PhD student, wondered if they could prevent the Menkes-like disease in zebrafish by correcting genetic mutations that impair copper metabolism during the brief period in which organs develop. Both worked in the lab of former faculty member Jonathan D. Gitlin, MD, now the James C. Overall Professor and chair of the Department of Pediatrics at Vanderbilt University School of Medicine.

The researchers used zebrafish with two different mutations in the ATP7A gene, resulting in a disease in the fish that has many of the same characteristics of the human Menkes disease. Each mutation was corrected with morpholinos, synthetic molecules that modify gene expression. The zebrafish embryos were injected with the customized therapy during the critical window of development, and the researchers found that the zebrafish hatched and grew without any discernable defects.



Zebrafish develop similarly to humans; their transparency allows researchers to observe embryonic development.


The genetic mutations Madsen and the researchers worked with are caused by splicing defects, an interruption in genetic code. The morpholinos prevent that interruption by patching over the defect so the gene can generate its normal product.

Up to 20 percent of genetic diseases are caused by splicing defects, Madsen says, so the treatment method could potentially be used for many other genetic diseases. The work is an important step toward personalized medicine, which can tailor treatment to an individual's genetic makeup.



SLEEP DANCING

BY CANDACE O'CONNOR

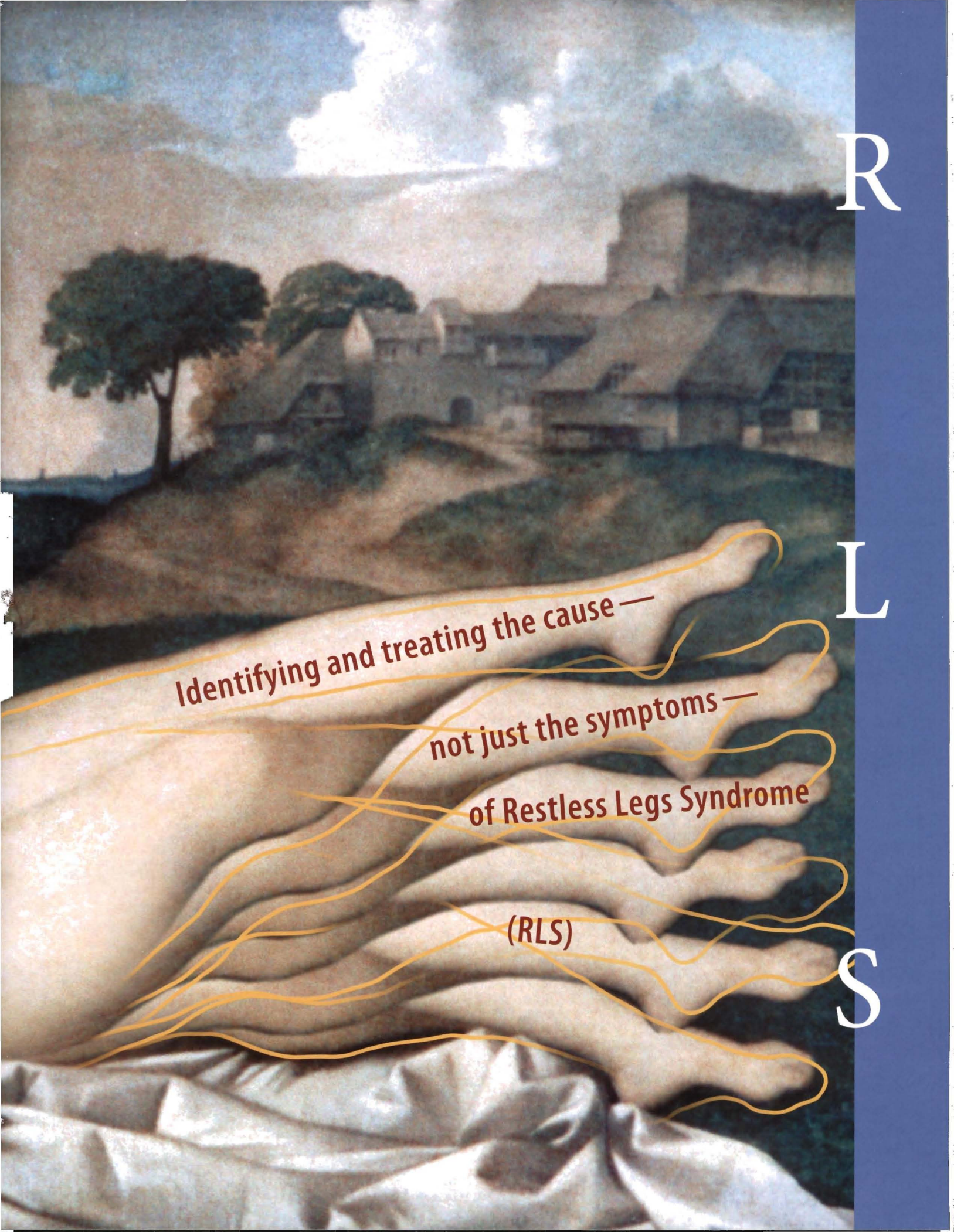


NIGHT AFTER NIGHT, Molly Roberts climbed into bed knowing she wouldn't get any rest. Once asleep, she would begin "river dancing," as she calls it, with flailing legs and restless kicking that resembled the high-stepping Irish style of dance. Every morning, she would get up tired, muscles aching, wondering what was wrong. Her own physician decided she was suffering from too much stress.

"I thought I might have to live with this," says Roberts, 27, an office manager for a St. Louis real estate development firm. "I believed I just wasn't a good sleeper. And I didn't see any end to it in sight."

Then one evening, she saw a television commercial that gave a name to her problem: Restless Legs Syndrome (RLS). With that, Roberts began an online search that led her to Leonard B. Weinstock, MD, clinical associate professor in the Departments of Internal Medicine and Surgery, who was engaged in some intriguing research on RLS, irritable bowel syndrome (IBS) and the link between them and small intestinal bacterial overgrowth (SIBO).

For several years, Weinstock had been interested in RLS, which occurs in 7 percent to 15 percent of the population, particularly older adults and pregnant women. It comes in two forms: primary RLS, with an unknown cause; and a secondary type, connected to some 20 neurologic, metabolic, rheumatologic or gastrointestinal conditions. Altogether, it may account for up to 25 percent of insomnia in the United States.



Identifying and treating the cause —

not just the symptoms —

of Restless Legs Syndrome

(RLS)

R

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S

“RLS is a major problem, but it is still under-recognized and even trivialized,” says Weinstock. “It was first described in 1685 as ‘The Watching Evil,’ then given its current name in 1945. Now it’s a household term because of advertising, but those drugs treat the effect of the disease rather than the cause — and that is what I am looking for.”

Weinstock also was looking at the role of SIBO in a range of gastrointestinal problems, including IBS, which causes abdominal pain, bloating and gas. Following the lead of studies by earlier researchers, he began treating IBS patients with antibiotics, combining them with motility drugs to combat slow intestinal muscle activity. In 2005, the introduction of the antibiotic rifaximin, which targets the small intestine, proved a major step forward.

But identifying patients with SIBO was a problem, so in 2005 Weinstock acquired a gas chromatography machine, which tests for bacterial content using a breath test. It measures gases produced by small bowel bacteria which consume intestinal nutrients, ferment them and alter the digestive process. Bacteria also attach to the intestinal lining, causing inflammation.

Why do people develop SIBO and then IBS? The pieces of that puzzle were coming together for Weinstock, who heard colleagues at a California conference say that 20 percent of IBS patients

remember exactly when it started: a case of food poisoning, often acquired during travel. Just then he had a patient with IBS and Restless Legs Syndrome, which had begun on a trip 14 years earlier.

“This was the exciting link: Something had happened during that exposure to food poisoning that caused IBS, and the researchers in California showed that these patients had SIBO,” Weinstock says. “So I began thinking about my patient who had a clear-cut case of post-infectious IBS, as well as a case of post-infectious RLS. Could that patient have post-infectious SIBO, too?”

In that case, treatment with rifaximin showed quick, dramatic and continuing relief of symptoms. Immediately, Weinstock did breath tests on 254 other patients and discovered 13 with SIBO and RLS. With Stephen P. Duntley, MD, associate professor of neurology

and an RLS expert, he published a study in the May 2008 issue of the journal *Digestive Diseases and Sciences* showing that 10 patients had up to 80 percent improvement. Among eight followed long-term, five had a complete end to their symptoms.

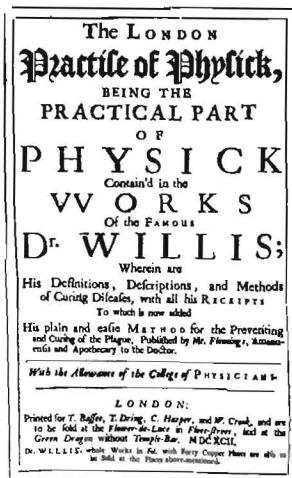
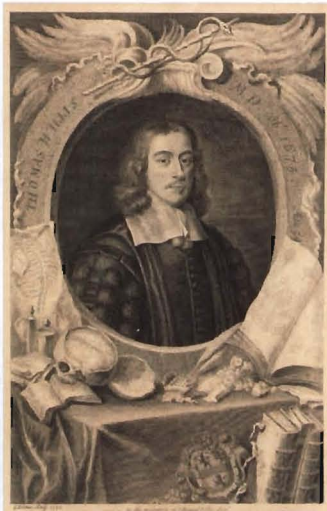
“RLS can have severe negative effects on a patient’s quality of life, with new evidence pointing to cardiovascular health consequences,” says Duntley, who also is director of the Sleep Medicine Center. “Since we do not know its cause in most patients, cure is not possible, and we treat RLS

“Gastroenterology is full of detective work, and that is one of the reasons I was drawn to it.”

Leonard B. Weinstock, MD

A BRIEF HISTORY

From “The Watching Evil” to the modern identification of RLS



Wherefore to some, when being a Bed they betake themselves to sleep, presently in the Arms and Legs, Leapings and Contractions of the Tendons, and fo great a Restlessness and Tossings of their Members ensue, that the diseased are no more able to sleep, than if they were in a Place of the greatest Torture.

A condition like a torture that prevented its sufferers’ sleep was first described by Dr. Thomas Willis in 1685. “The Watching Evil,” or insomnia, was the result of “a great restlessness” of the arms and legs. While the disorder was given its modern title, Restless Legs Syndrome, by Karl-Axel Ekbom in a Swedish journal in 1945, it remains largely undiagnosed today.





Leonard B. Weinstock, MD, uses a breath analyzer to measure internal bacterial content. Following two courses of antibiotics to treat an overgrowth of bacteria, patient Molly Roberts says her episodes of Restless Legs Syndrome are gone — she is *restful* once again, her energy level returned to normal.



ROBERT BOSTON

symptomatically. But, if further research confirms the link between chronic intestinal infection and RLS, a cure may be possible for some patients.”

Body iron stores are often low in patients with RLS and this exacerbates their symptoms, says Duntley. While the deficiency’s cause remains unknown, he believes that the inflammation of the small intestine, caused by bacterial overgrowth, affects the iron regulatory hormone hepcidin and leads to this iron deficiency.

Meanwhile, Weinstock has since treated 14 other RLS patients, recording their data. He has a chart showing the effect of antibiotic therapy on them, using the standard RLS severity scale. Overall, the impact has been significant: The score dropped an average of 65 percent in nine patients with one course of antibiotics and completely in two patients who received a second round of antibiotics after initial lack of response. An additional patient was cured after discovering that she had celiac disease and started on a gluten-free diet.

“Gastroenterology is full of detective work, and that is one of the reasons I was drawn to it,” says Weinstock. “To be able to say that I now understand why a patient can have a syndrome for

14 years and then, with a short course of therapy, reverse all the symptoms, is exciting.”

Weinstock and Duntley are undertaking a new double-blind study, intended to recruit 30 patients with RLS: Twenty will receive antibiotic treatment and 10 will get a placebo. They hope to conclude the study by this fall and, if results are positive, seek major funding for a national project.

Weinstock also is branching out into studies of SIBO and Crohn’s Disease, SIBO and chronic prostatitis, as well as an increased risk of RLS in patients with celiac disease. He says he would like to foster a new appreciation for the role of SIBO in many unexplained conditions. “SIBO is a common phenomenon and can present in subtle ways, yet affect the body significantly,” he says.

As for Molly Roberts, she found that she did indeed fit the RLS profile, since her 10-year history of the disease had begun with a case of food poisoning when she was a teenager. In Weinstock’s office, she underwent one course of antibiotics, then a second — and now believes she is cured. “I have so much more energy than I have had in years,” she says. “I am amazed at what I have been able to accomplish.” □

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A photograph of two wine bottles. The bottle on the left is dark, likely red wine, and the bottle on the right is clear, likely white wine. Both bottles have black labels with a white rectangular area. The bottles are set against a dark background with a subtle red glow. The text 'a woman' is printed in a large, white, serif font in the upper right corner.

a woman

Amid cultural shifts toward parity, women are also gaining in alcoholism.

The question is, why?

BY STEVE KOHLER

S ~~in~~ dependence

HE'S A COMMON CHARACTER in American movies and low-brow fiction — the scruffy, middle-aged, alcoholic man who looks back on a mountain of disappointment through the bottom of a cocktail glass. Think Ray Milland in “The Lost Weekend,” or, if you’re younger, Nicolas Cage in “Leaving Las Vegas.”

Trouble is, he’s an anachronism. Today, the real-life, alcohol-dependent American is increasingly likely to be a woman. At least she’s catching up quickly to take her place alongside the timeworn stereotype, says Richard A. Gruzca, PhD, assistant professor of psychiatry. “What an alcoholic looks like has changed,” he says.

Two recent studies by Gruzca and his colleagues reveal startling shifts in the epidemiology of alcoholism.

“Although we might not think of a 35-year-old woman as the template for alcohol dependence, heavy alcohol use at younger ages, combined with greater alcohol use by women, means alcoholics are different now than in the past,” Gruzca says.





Research conducted by Richard A. Gucza, PhD, and Karen E. Norberg, MD, research instructor in psychiatry, shows an increase in alcohol use by women.

The first study by Gucza looked at groups at the same point in their lives but with birth dates 10 years apart. The data came from large, national epidemiological surveys, one conducted in 1991 and 1992, and the second a decade later. Statistical examination of results from the two surveys revealed that though men showed only slight increases in their rates of drinking and alcohol dependence, women showed a significant increase in drinking and problems with alcohol.

Specifically, the results say that women born later, particularly those born after 1944, were 1.2 times as likely to drink as women born before them and, more strikingly, those who drank were at 1.5-fold higher odds to become alcohol dependent at some point in their lives compared with the women born earlier. Essentially, the results show that the gender gap as it relates to alcohol use and abuse is narrowing.

Provocatively, the timing of the increase coincides largely with the advent of the so-called “Baby Boom” generation and with many of the advances made by women. “There’s been a great deal of social, economic and political progress for women in the years since World War II,” says Gucza. “It seems there also may be a downside to some of the advances in terms of the risk for problems such as alcohol dependence.”

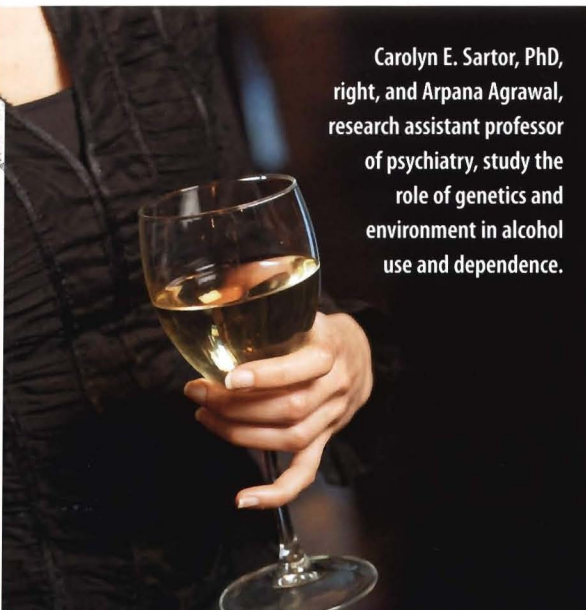
He points to troubling indications that women may not be seeking treatment for their addictions as

diligently as they might. Also of concern are serious health effects of alcoholism specific to the female gender. It’s possible, Gucza says, that because of their generally lower body weight, women may have more serious health consequences from excessive drinking. In addition, they have lower levels of alcohol dehydrogenase in their digestive tracts, which means they are not able to metabolize alcohol as quickly or efficiently as men. Women alcoholics also have been shown to lose more years of life to their addiction than men. And, perhaps most alarmingly, alcohol use is an established risk for developing breast cancer. He says the information about increased alcohol use among women has consequences for health care providers who need to pay attention to the alcohol intake of their young, female patients.

Gucza’s study also showed that the increase in drinking among women born in the 1940s was not simply a spike but persisted into the next age cohorts as well, diminishing only slightly among those born most recently.

Interested in understanding the mechanics of the increases, Gucza went back to the surveys to examine data for the reasons why. “We’ve known for a long time that the earlier you start drinking, the higher your risk of developing alcohol dependence,” he says. That marker, known as the age at onset of drinking (AOD), became the focus of his next study.

And the results of the analysis were consistent. In fact, women born before 1944 pretty consistently began to drink at roughly age 20 if they drank at all. But for the generation born immediately after World War II — the early Baby Boomers again — the AOD dropped precipitously, by slightly more than three years to approximately age 17. From other studies, Gucza says, it’s widely accepted that if a person begins drinking at 21 or older, his or her risk of becoming



Carolyn E. Sartor, PhD, right, and Arpana Agrawal, research assistant professor of psychiatry, study the role of genetics and environment in alcohol use and dependence.



age, genes or environment?

Post-World War II generations began drinking earlier, and teen brains respond differently to alcohol than those of adults.

In separate work exploring the question of the relative importance of genetics and environment as causal in alcohol use and dependence, Carolyn E. Sartor, PhD, and her colleagues have shown that the influence of genetics increases as young women transition from taking their first drink to becoming alcoholics. Sartor, a postdoctoral research fellow, says that although environment is most influential in determining when girls begin to drink, genes play a larger role as women advance to problem drinking and on to alcohol dependence.

Sartor's team studied female twins, ages 18 to 29, to ferret out the influences of genes and environment through the many stages of drinking behavior. Environmental factors shared by the twins (exposure to conflict at home or alcohol use among peers, for example) exerted the largest influence on initiation of alcohol use. But the results also show that all transitions in drinking behavior were attributable in part to genetic factors, increasing from 30 percent for the timing of the first drink to 47 percent for the speed at which they progressed from problem drinking to full-blown alcohol dependence.

But genetics did not explain everything. "Even when genetic factors were most influential, they accounted for less than half of the influence on drinking behavior, Sartor says. "That's good news in terms of modifying these behaviors and reducing the risk of developing alcohol dependence. Genetics are not destiny, and our findings suggest that there are opportunities to intervene at all stages of alcohol use."

While Gruzca's and Sartor's studies have sounded alarms, boosting awareness of these causal factors and avoiding risky behaviors could limit or reverse this unhealthy trend. ☐

Jim Dryden contributed to this article.

alcohol dependent is about one in 10. For those who begin to drink at age 17 or younger, the lifetime risk more than triples, to roughly one in three.

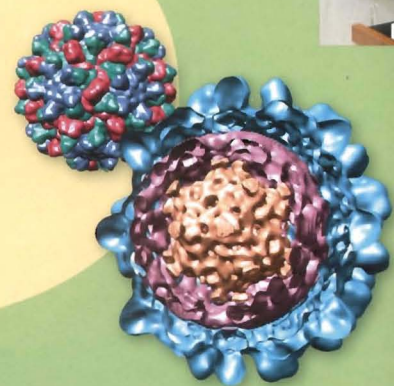
Gruzca warns not to think of early AOD as a direct cause of developing alcohol dependence. The causes are complex and include influential genes mixed with environmental factors, a propensity for impulsive behavior, and an emerging theory in the neuroscience community that says that when an adolescent's brain, which is still developing, is exposed to alcohol, the results are different from those in an adult, with permanent effects on addictive behavior. It's also important to note that 29 states lowered their drinking ages between 1970 and 1975, when many of the women in these studies were taking their first drinks.

But something important is going on, because, as Gruzca explains, age at onset changed over a short period of time and so did dependence, and in the same people. "And genes don't change that fast," he says. Offering hope for intervention, he adds, "Whatever it is that leads to alcohol dependence has been changing. And whatever the causal factors are, if they're changing, they can be modified."



35 Years

1,000 PhDs





Scientific breakthroughs are at once products of discipline, training and, most elusively, creativity. So building an educational infrastructure that fosters innovations while also providing a solid grounding for the rising scientists who will make them requires a balance of instinct and logic, foresight and experience. That challenge doesn't deter leaders in the Division of Biology and Biomedical Sciences (DBBS) at Washington University, a widely emulated graduate training framework that, at age 35, is reinventing itself.

The Division of Biology and Biomedical Sciences united two campuses and revolutionized biomedical training and research. Now it charts a bold new direction for the 21st century.

Founded in 1973 by educational visionaries William Danforth, P. Roy Vagelos, Max Cowan and others, the DBBS originally set a radically new direction for teaching biological science. Core departments relinquished their individual graduate training programs to participate in the centralized DBBS structure. And a key tenet was that cross-

departmental intellectual pollination benefits students and mentors alike, providing fresh perspectives on problems. "A place with few barriers to working together," chancellor emeritus Danforth has called it. The Washington University model was so successful that it became the international standard for teaching the biological and biomedical sciences. "We inspired other programs that have become our competitors," says David Van Essen, PhD, head of the Department of Anatomy and Neurobiology and chair of the DBBS Executive Council.

BY STEVE KOHLER

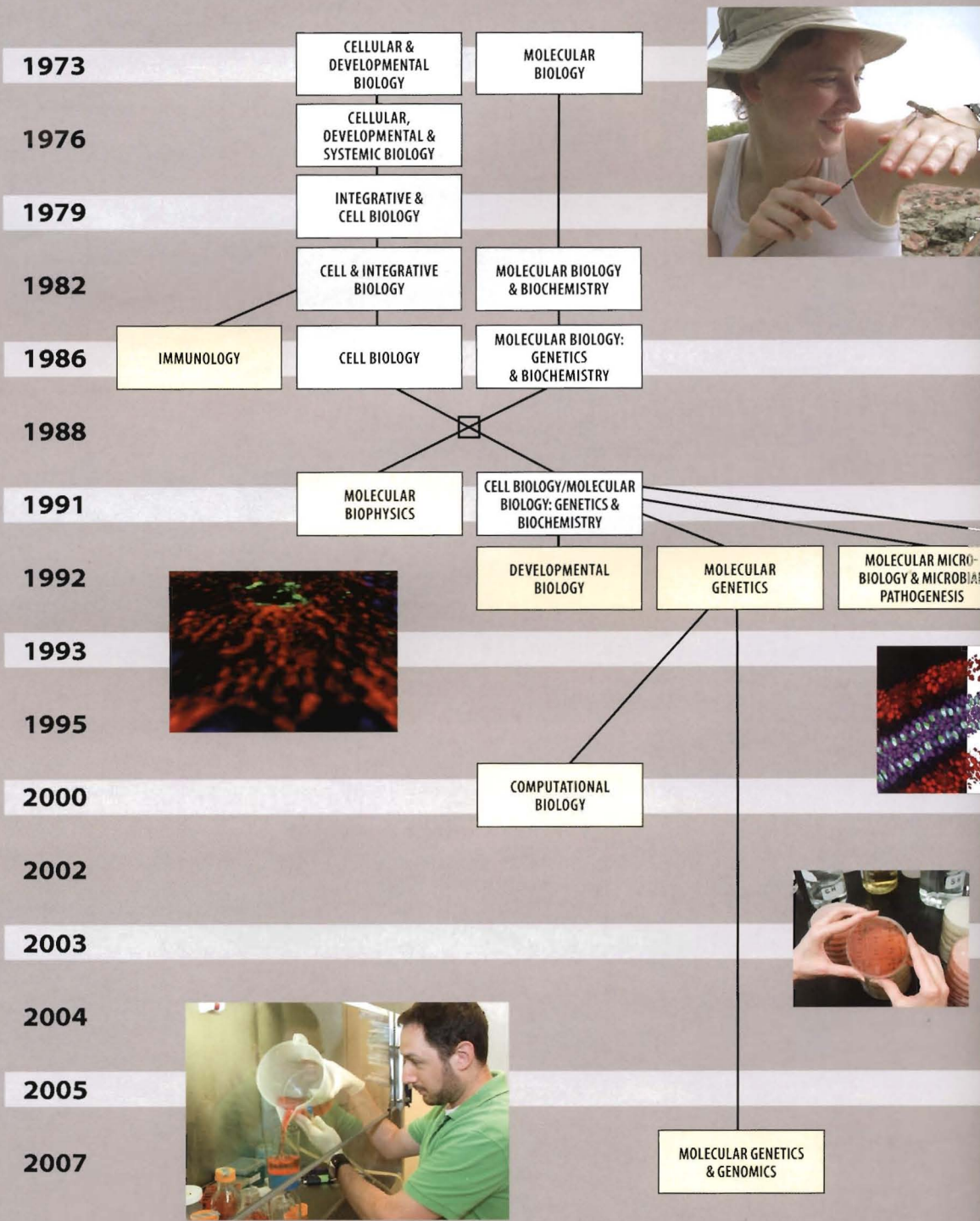
DBBS

Anatomy of an evolution

Since 1973, architects of the Division of Biology and Biomedical Sciences have consistently reshaped training programs to address changing needs and fields of study within the life sciences. Students have benefited through participation in the latest directions of scholarship, researchers through a focus on emerging disciplines, and the scientific community through 1,000 PhDs well-prepared for future challenges.

CURRENT PROGRAMS

FORMER PROGRAMS





NEURAL SCIENCES

PLANT BIOLOGY

POPULATION BIOLOGY & ECOLOGY

POPULATION BIOLOGY

NEUROSCIENCES

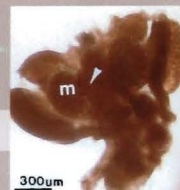
EVOLUTIONARY & POPULATION BIOLOGY



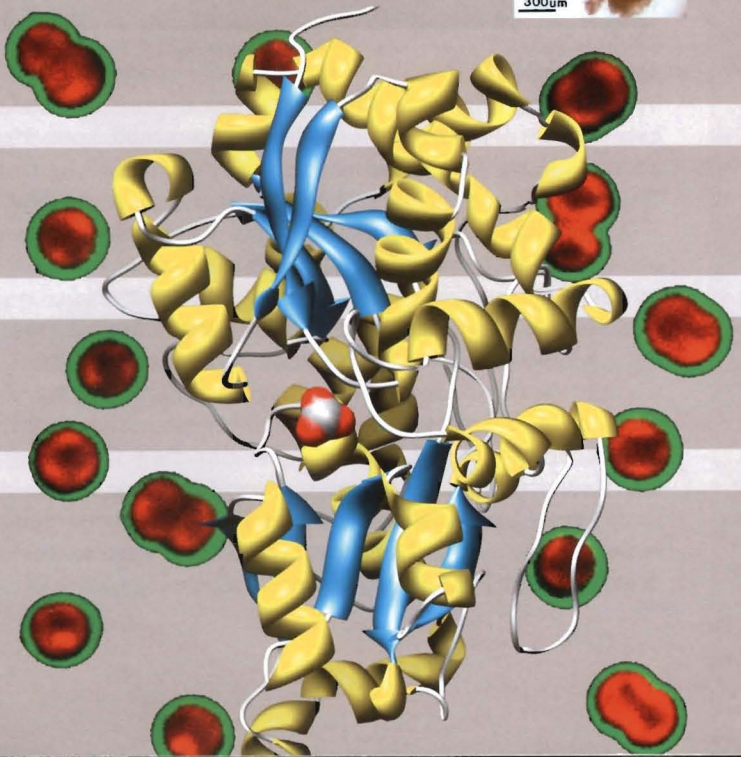
CELL BIOLOGY & BIOCHEMISTRY

MOLECULAR CELL BIOLOGY

BIOCHEMISTRY



BIORGANIC CHEMISTRY

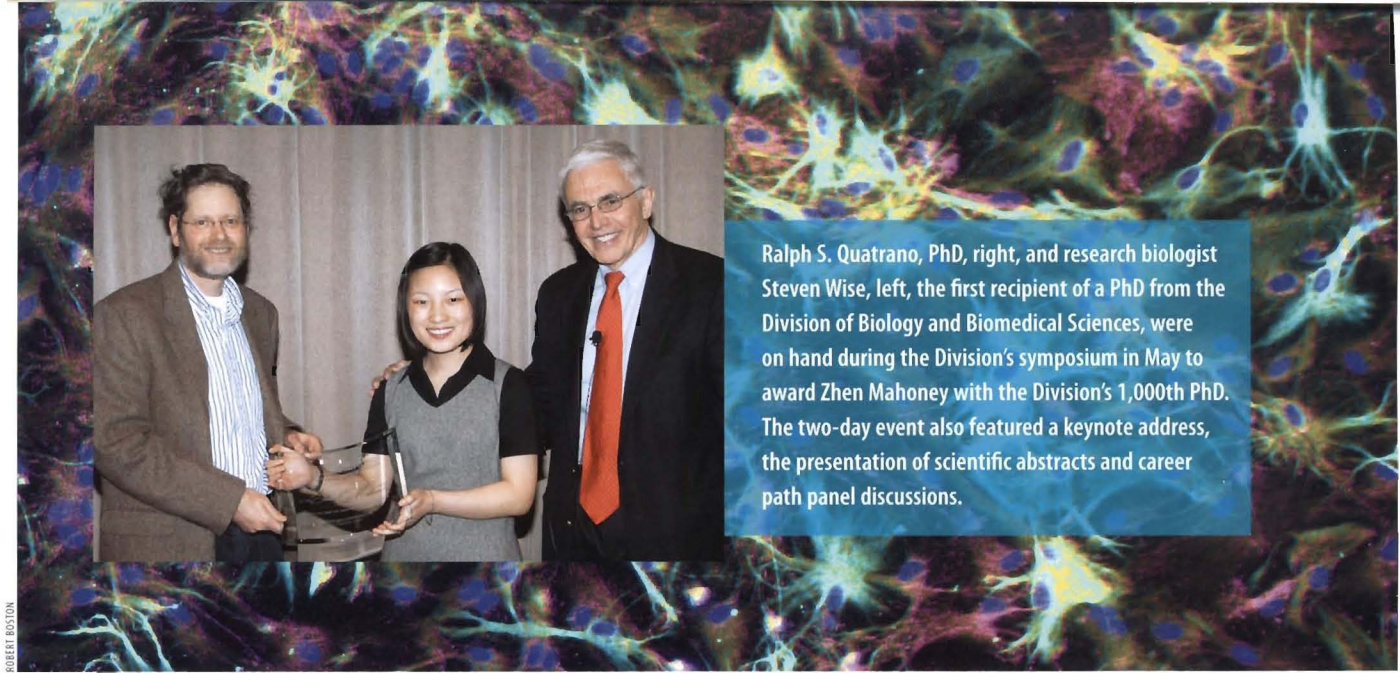


EVOLUTION, ECOLOGY & POPULATION BIOLOGY



QUANTITATIVE HUMAN & STATISTICAL GENETICS

HUMAN & STATISTICAL GENETICS



Ralph S. Quatrano, PhD, right, and research biologist Steven Wise, left, the first recipient of a PhD from the Division of Biology and Biomedical Sciences, were on hand during the Division's symposium in May to award Zhen Mahoney with the Division's 1,000th PhD. The two-day event also featured a keynote address, the presentation of scientific abstracts and career path panel discussions.

ROBERT BOSTON

For 35 years, the DBBS regularly added new programs and adjusted others to remain focused on current questions in biology. But recently, an unblinking self-evaluation combined with large and fast changes in the nature of science prompted DBBS leadership to determine that the organization needed further modernizing.

"The self study made the strong recommendation that the Division should be open to all faculty of the university with research programs and an interest in the life sciences," says Ralph S. Quatrano, PhD, former head of the Department of Biology, immediate past chair of the Executive Council, and now interim dean of the faculty of Arts & Sciences.

That advice dovetailed with an awareness that the pursuit of bioscience was expanding to link what were previously thought to be unrelated disciplines. "Science is evolving rapidly; many areas require more expertise than one faculty member or student can bring. Collaborations are vital," Van Essen says.

John H. Russell, PhD, associate dean for graduate education at the School of Medicine, explains the fundamental change this way: "In the '80s and '90s, science was heavily reductionist; either black or white, with little gray. Now we see the need to understand how molecules interact, not just how they are characterized. We saw cancer as a linear disease — cells dividing too prolifically. Then we learned that regulation of cell death is just as important, and the problem got much bigger. We used to look at snapshots of molecules in isolation; now we're making movies of molecules interacting with each other in real time."

The DBBS' response to these concerns has been, first, to make it possible for a faculty member from any department in the university to apply to become a member of the Division. The primary prerequisites are a significant and relevant research program plus the qualifications to be an effective mentor. A great benefit to being a member, Quatrano says, is that members gain access to about 80 outstanding students admitted each year who can rotate through their labs and who are initially supported by the DBBS.

The second response by the DBBS has been to initiate a program of special emphasis pathways to "break out of the silos we've grown up in," Russell says. By piercing the boundaries between schools and colleges of the university, the pathways expand and refresh the original DBBS concept of crossing departmental lines. This broader reach better positions the Division to contribute to the genomic revolution, the BioMed 21 initiative and to help lead university research as a whole. For example, Van Essen, whose interest in brain mapping has grown increasingly relevant to the clinical realm, is exploring how the DBBS and the university's rapidly expanding emphasis on clinical and translational research can interact effectively. The organic nature of the



DBBS members gain access to about 80 outstanding students admitted each year.

pathways allows the DBBS to maintain its responsiveness. Van Essen says, "It's hard to predict where opportunity and excitement will spring up next. The pathways model provides a fertile ground for good ideas to grow into action, a mechanism for pulling people together and channeling resources."

Now numbering seven — in various stages of development — the pathways offer students opportunities to gain refreshed perspectives as they interact with other fields, each with its own language and angle of attack to problems. For example, one of the more mature pathways, Cognitive, Computational and Systems Neuroscience (CCSN), recognizes the blurring of traditional lines between brain-related research in psychology, biology and engineering. CCSN created a curriculum that prepares students to become leaders in this new interdisciplinary science. The CCSN curriculum includes three core and two advanced courses open to students pursuing PhDs in neuroscience, psychology or

DBBS

biomedical engineering. Russell says the goal of the pathway is nothing short of learning to understand cognition.

Newer is the Imaging Sciences Pathway, open to graduate students in the DBBS, chemistry, physics and engineering. With more than 60 mentors from 17 departments on the Danforth and medical campuses, the pathway prepares graduate students to pursue imaging technology developments and their application to the visualization of human diseases.

All of the curricula are challenging, and students still must fulfill the requirements of their home departments and programs to earn their degrees, but the added value that the pathways generate provides an advantage in recruiting the best students and outstanding faculty. "Students are no longer pigeonholed," Russell says. "They get a broad background that serves them well in their future careers."

The Division also is expanding its renewed emphasis on interdisciplinarity to undergraduate education. Quatrano says a founding vision was that faculty would be involved with undergraduate education as a way of "priming the pump." His recent undergraduate seminar exposed freshmen to 12 faculty members' thinking about the development and application of new imaging techniques. Such efforts teach the various languages students will need and thereby cut the time needed to obtain their degree, Russell says.

Funding to organize and develop the pathways has been provided by private foundations and government agencies, in part because the DBBS provides structure and support, Van Essen says. But funding entities often expect the university to pick up the tab for ongoing operations, which is more difficult to procure. Strengthening graduate education should become a high priority for the university, the Division leaders say, calling for a commitment similar to that which drove the university's recent ascendancy in undergraduate excellence.

The need is especially acute considering that DBBS aims to expand from 80 incoming students per year to 100 in connection with cutting-edge programs. Moreover, the stipends paid to students need to increase in order to remain competitive with programs at other top institutions. To meet these needs, the leaders estimate that the endowment must double.

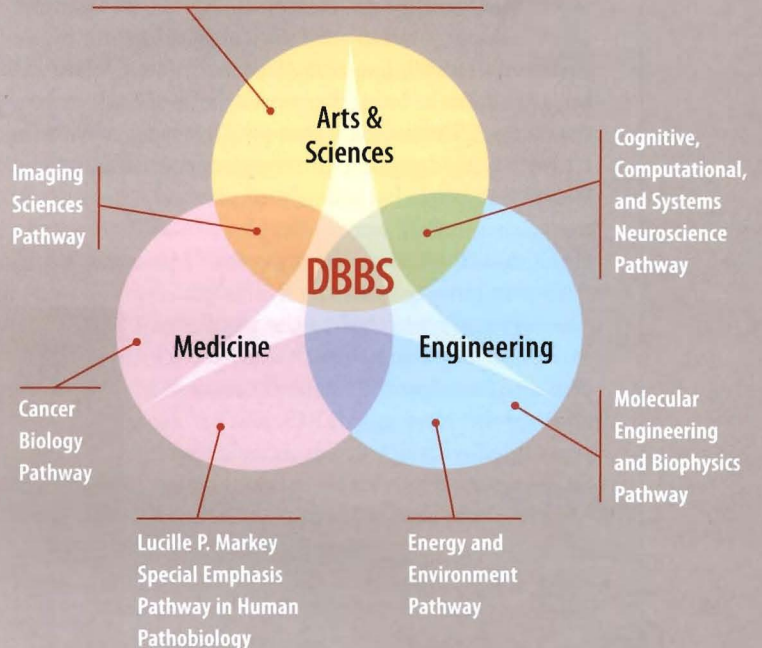
Beyond finances, Van Essen says the keys to success lie in balance: "We must capitalize on our highly collaborative nature, sustain our excellence in basic science, build on new opportunities and develop innovative ways to prepare our students for leadership in 21st-century biomedical research."

The benefits that will accrue and the prospects for remarkable breakthroughs can be extrapolated from the "bookends" on display at the recent DBBS symposium, where Steven Wise, PhD, the recipient of the first PhD awarded by the Division and now a research biologist at the National Institute of Mental Health, awarded Zhen Mahoney — a former student at Peking University, a McDonnell Academy Scholar School partner — with the Division's 1,000th PhD. □

Specialized interest pathways

The Division of Biology and Biomedical Sciences offers Special Emphasis Pathways to provide supplemental, specialized training undertaken as part of the PhD student's regular course work. This training further exposes students to interdisciplinary and translational aspects of their fields.

Kauffman Fellowship Pathway in Life Sciences
Entrepreneurship (DBBS + Business + Law)





Dorothy Glahn Herweg, RN 47

50 years' service

Familiar faces played roles in history of the medical center

BY CANDACE O'CONNOR

AS A CRISPLY TURNED-OUT GRADUATE of the Washington University School of Nursing, Dorothy Glahn Herweg, RN 47, was hoping for a job in the Surgical Ward at St. Louis Children's Hospital — and drew the Infants' Ward instead. But it didn't take long, she recalls, before "I fell in love with the babies." The moment that John Herweg, a Washington University medical student, stepped into Children's Hospital to begin his junior-year clerkship, he sensed that the place and field were perfect for him. "There was an aura about that institution," he says now. "I thought, 'Eureka!'"

Dottie Herweg's nursing life lasted 12 sweet years, warmed by the wordless innocence of those babies. As pediatrician and later associate dean for student affairs, John Herweg, MD 45, had 39 years filled with sick children and eager medical school applicants, personal tragedy and quiet heroism. Altogether, the Herwegs spent two entire careers, more than 50 years total, at Children's Hospital and the School of Medicine.

"John Herweg was a superb clinician — a caring, highly skilled man," says pediatrician and longtime faculty colleague Lawrence Kahn, MD. As head of the admissions committee, "he put the roots of a great tree in the ground, planted and nurtured it, and the resulting graduates are the foliage." And Dottie Herweg? "She had the toughest job in the hospital but did it with great panache."

Both Herwegs came from happy but modest backgrounds. Dottie was the daughter of a Lutheran minister in tiny Evansville IL, and the first in her family to aim for a medical career. The son of a Midwestern salesman hard hit by the Depression, John finished a premedical program at Drury College in three years and began medical school during the blistering 1942 St. Louis summer. The tuition was right for a struggling student: \$250 a semester.

"There was a viewing balcony in the surgical suite, so during Orientation several of us stopped by," recalls Herweg. "We had never seen surgery — and who should be operating but thoracic surgeon Evarts Graham? He looked up and asked, 'Who are you?' A little abashed, we told him — and he said he would explain what he was doing, step by step. We sat there enthralled, listening to probably the No. 1 surgeon in the United States!"

Over the years, Herweg and his classmates were taught by five faculty members who were later named Nobel Prize winners: Carl and Gerty Cori, Joseph Erlanger, Edwin Krebs and Alfred Hershey. At graduation, their diplomas were signed by a sixth: Chancellor Arthur Holly Compton. But pediatric head and superb teacher Alexis Hartmann Sr., MD, was Herweg's mentor and inspiration.

That admiration must have been mutual. When Herweg finished medical school, graduating first in his class (with Samuel Guze, later a renowned psychiatrist, a close second), he applied for an internship at Yale-New Haven Hospital — and received a telegram saying that he had been accepted. Excited, he dashed to Hartmann's office and showed him the message.

"The next thing I knew he was tearing the telegram up," says Herweg. "He said, 'Well, Yale is a fine place, but you are staying here.' And if Dr. Hartmann said I was staying here, then I was staying here."

Meanwhile, Dorothy Glahn had finished nursing school during the lean World War II-era years. Only a year later, she became head of the 32-bed Infants' Ward at Children's Hospital. In her snowy uniform, she watched over her tiny charges, some dying and others recovering with the hearty resilience of youth.

"Many times people would ask: 'How can you work here with all these babies crying?' Well, you don't hear them



John Herweg, MD 45, left, receives a lifetime service award from C. Alvin Tobin, former president of St. Louis Children's Hospital.

— you only hear them when they are in pain and the cries change. That is what comes through to you,” she says.

Her role model was exemplary head nurse Elizabeth O’Connell. Today, O’Connell recalls Glahn’s nursing skill, her unflappable calm and her gracious demeanor. Privately, Glahn was a classical music aficionado. When someone donated a stereo to the Infants’ Ward, she played gentle music during the children’s nap time, from 1 to 2 pm.

“You could go up to that ward, Dottie would have a record on and you wouldn’t hear a single baby crying,” says O’Connell.

“It was a toss-up as to whether it was more soothing to the babies or to the hospital staff.”

Herweg’s residency was interrupted by two years of military service before he could return to St. Louis to finish training and join the faculty in 1951. By this time he had a wife: fellow pediatrician Janet Scovill. During his last year of medical school, he had contracted mumps and Scovill, a house officer at Barnes Hospital, had taken care of him. They married in 1946 and soon had four children.

Then tragedies struck, three in a row. The Herweg’s eldest child, Judy, fell ill with leukemia and died; Herweg’s father passed away suddenly; and Janet, who had undergone X-ray treatment for acne as an adolescent, developed multicentric breast cancer and died in 1958. She was just 39 years old.

Like other nurses, Dottie Glahn knew Janet and the Herweg children. Within a year after Janet’s death, Herweg married Glahn, having persuaded her to retire from nursing, saying “it was a lot less work to take care of three children than 32.” That number increased to four when the Herweg’s had a daughter, Jan Marie.

Despite his losses, Herweg carried on stoically, becoming associate dean in 1965 while teaching pediatrics and serving as pediatrician to the children of many medical students and staff physicians.

Altogether, the Herwegs spent two entire careers, more than 50 years, at Children’s Hospital and the School of Medicine.

As admissions head, he was known for his fairness. There was never a hint of an ethnic or religious quota under his leadership and never any preference for “legacies”; rather, the Admissions Committee weighed students’ academic and personal qualities: their integrity, ability to relate to patients, interest in helping others.

He also nurtured current students when problems

occurred. “As a sophomore, one medical student had an accident in which he was paralyzed from the waist down,” recalls Kahn.

“His parents asked John Herweg about his chances of completing his medical education, and John replied: ‘We admitted him to earn his degree in medicine, and unless

he changes his mind, that is what he will do.’ That young man later became a chief resident in pediatrics.”

The Herweg’s, now celebrating 49 years of marriage, marvel at how much the hospital — and the field of medicine — have changed since they began. The advent of penicillin and other antibiotics has allowed physicians to “work miracles,” says Herweg; leukemia, a death warrant in his daughter’s day, is often curable now. And some of the harsh rules — especially one that restricted parents to visits only on Sunday afternoons, unless their child was critically ill — have mercifully vanished.

“If you think back to the 1940s, the transformation has been almost magical,” he adds. “It is gratifying to think that Dottie and I played a small part in it.” □

Birds of a feather: A shared interest in medicine has given way to a new hobby in retirement. The Herweg’s are avid birders who enjoy the view behind their home.



ROBERT BOSTON

Results are in!

MATCH DAY WAS HELD MARCH 20, 2008, and 113 of the 117 graduating medical students took part in the National Resident Matching Program. During the annual ceremony, senior medical students in the United States learn which residency programs they will enter. School of Medicine graduates are highly successful in obtaining competitive training programs. In 2008, 35 percent of the graduating class selected a primary care field and 24 percent matched into highly competitive fields, including ophthalmology, neurosurgery, urology, orthopedic surgery, plastic surgery, otolaryngology, dermatology and radiation oncology.



Holding the future in her hands: Baby Sophie helps mom, Andrea, MD 04, and dad, Ian Hagemann, MD/PhD 08, celebrate his match in pathology at the Hospital of the University of Pennsylvania.

CALIFORNIA

Los Angeles

UCLA Medical Center

- ANESTHESIOLOGY**
Andrew Tibor Leitner
- INTERNAL MEDICINE**
Jeremy Elliot Orr

Oakland

Kaiser Permanente Medical Group

- PEDIATRICS**
Tia Suzanne Curry

San Diego

Scripps Mercy Hospital

- INTERNAL MEDICINE**
Stacy Rebecca Hood

University of California-San Diego

- DERMATOLOGY**
David Nicholas Lortscher
- GENERAL SURGERY**
Michael George Sacerdote
- INTERNAL MEDICINE**
Charlene Ann Ellsworth
John Paul Ying-Ching Shen

San Francisco

University of California-San Francisco

- EMERGENCY MEDICINE**
Annemarie Noelle Sheets
- INTERNAL MEDICINE**
Eric James Nordsieck
- ORTHOPEDIC SURGERY**
Scott Patrick Kaiser
- PATHOLOGY**
Soo-Jin Cho

PEDIATRICS

Ajay Kamal Bhatia
Sunitha Vemula

Stanford

Stanford University Programs

- INTERNAL MEDICINE**
Victor Manuel Villalobos

COLORADO

Denver

University of Colorado

- ANESTHESIOLOGY**
Kristin Anne Vanderploeg
- INTERNAL MEDICINE**
Christopher Joseph Sumeiy

DISTRICT OF COLUMBIA

Washington

Children's National Medical Center

- PEDIATRICS**
Robert Sheppard Nickel

George Washington University

- ORTHOPEDIC SURGERY**
Elaine Jean Ahillen
Sean Coenen Peden

FLORIDA

Tampa

University of South Florida

- DERMATOLOGY**
Jeremy Robert Etzkorn
- OTOLARYNGOLOGY**
Robert Daniel Wong

GEORGIA

Atlanta

Emory University

- ANESTHESIOLOGY**
Anna Woodbury

ILLINOIS

Chicago

Northwestern University-McGaw Medical Center

- DIAGNOSTIC RADIOLOGY**
Sarah Gidan Kovnar

Rush University Medical Center

- RADIATION ONCOLOGY**
Wesley Alan Russell
- SURGERY-PRELIMINARY**
Vinaya Krishna Puppala

University of Chicago Medical Center

- INTERNAL MEDICINE**
Michael Ryan Klein

INDIANA

Indianapolis

Indiana University School of Medicine

- DERMATOLOGY**
Katherine Bao-Shian Lee
- DIAGNOSTIC RADIOLOGY**
Anthony Jerrod Rowe

KENTUCKY

Lexington

University of Kentucky Medical Center

- NEUROLOGY**
Steve-Felix Belinga

MARYLAND

Baltimore

Johns Hopkins Hospital

- DIAGNOSTIC RADIOLOGY-RESEARCH**
Anthony Frank Fotenos
- UROLOGY**
Ifeanyi Chukwu Ifeyinwa
Megwalu

Johns Hopkins University-Bayview Medical Center

- INTERNAL MEDICINE**
Ramin Sedaghat Herati

Bethesda

NIH-National Cancer Institute-National Capital Consortium

- RADIATION ONCOLOGY**
Aparna Hemant Kesarwala

MASSACHUSETTS

Boston

Beth Israel Deaconess Medical Center-Scholars Track

- DIAGNOSTIC RADIOLOGY-RESEARCH**
Mai-Lan Ho

Brigham and Women's Hospital

- EMERGENCY MEDICINE**
Shada Amelia Rouhani

INTERNAL MEDICINE

James Chalmers Hudspeth
Robert Coleman Lindsley Jr.

- INTERNAL MEDICINE-PRELIMINARY**
Cheryl Ann Gray

Children's Hospital

- PEDIATRICS**
Melody Gayle Duvall
Andrew Alexander Grimm

Harvard Longwood Training Program

- PSYCHIATRY**
Frances Wen-Hui Lee

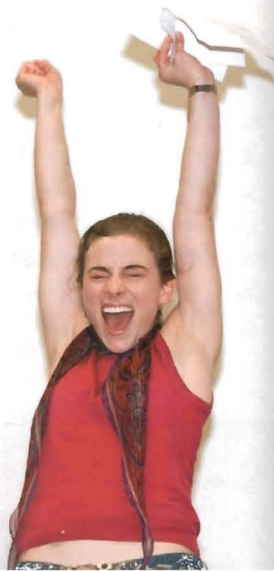
Massachusetts General Hospital

- INTERNAL MEDICINE**
Franklin Wei Huang

NEUROLOGY
Michael David Fox

- PATHOLOGY**
Ricard Masia

Yippee!! Clare Ridley, MD 08, seems pleased with her match.



MICHIGAN

Detroit

Henry Ford Health Science Center

DIAGNOSTIC RADIOLOGY

Brent David Griffith

MINNESOTA

Minneapolis

University of Minnesota
Medical School

PSYCHIATRY

Lori LaRiviere

MISSOURI

St. Louis

Barnes-Jewish Hospital

ANESTHESIOLOGY

Clare Haverty Ridley
Tracey Hope Wagner

DERMATOLOGY

Heather Marie Ciliberto
Ilana Shaina Rosman

DIAGNOSTIC RADIOLOGY

Elizabeth A. Fowler
Ting Y. Tao
Daniel Christian Zurcher

GENERAL SURGERY

Kathryn Jean Bitter
Eugenia Catarina Garvin
Isaiah Richard Turnbull

INTERNAL MEDICINE

Roger Barto Cole
Man Chun Jeffrey Lau
Kory Joshua Lavine
Sara Cecilia Martinez
Andrew Rex Reinink

NEUROLOGY

Leah Rose Givens
Suzanne Elizabeth Schindler

ORTHOPAEDIC SURGERY

Kathleen Elizabeth McKeon

OTOLARYNGOLOGY

Sunitha Sequeira

OTOLARYNGOLOGY-RESEARCH

Oluwafunmilola Okuyemi

PLASTIC SURGERY

Noopur Gangopadhyay

St. Louis Children's Hospital

PEDIATRICS

Jacqueline Marie Ahillen
Brian Jesse DeBosch
Nico Dosenbach
Bao Thu Nguyen
Noor Riaz
Kari Lynn Schneider
Ashley Lynn Steed
Yamini Vikas Virkud

Saint Louis University
School of Medicine

OPHTHALMOLOGY

Jennifer Nicole Thompson

Washington University
School of Medicine

NEUROLOGICAL SURGERY

Terrence Fletcher
Holekamp

OPHTHALMOLOGY

Arsham Sheybani

POSTDOCTORAL FELLOW

Joel Charles Geerling

NEW JERSEY

Camden

UMDNJ-Robert Wood
Johnson Program

GENERAL SURGERY

Michael Edward Kwiatt



All smiles: Adam Meadows, MD 08, takes in the good news as his girlfriend, Theresa Mamah, looks on.

NEW YORK

New York

Einstein-Montefiore
Medical Center

FAMILY MEDICINE

Anjani T. Reddy

New York Presbyterian
Hospital-Weill Cornell
Medical Center

DIAGNOSTIC RADIOLOGY

Jennifer Shih

EMERGENCY MEDICINE

Dana Lin Sacco

New York University
School of Medicine

INTERNAL MEDICINE

Nathan Robert Cox
Rishikesh Pradip Dalal

NEUROLOGICAL SURGERY
Russell Glenn Strom

UROLOGY

Eugene Whan Lee

NORTH CAROLINA

Chapel Hill

University of North Carolina

INTERNAL MEDICINE

Andrew John MacLennan

Durham

Duke University Medical Center

PEDIATRICS

Rebecca Jean Chancey

OHIO

Cincinnati

Cincinnati Children's Hospital

PEDIATRICS

Rachel Marie Engen



Yin and Yang: Kari Wanat, MD 08, and Steven Sperry, MD 08, express Match Day joy: full tilt vs. understated exuberance.

OREGON

Portland

Oregon Health and Science
University

OPHTHALMOLOGY

Shandiz Tehrani
Daniel Chen Tu

PENNSYLVANIA

Philadelphia

Children's Hospital of Philadelphia

PEDIATRICS

Jeffrey David Roizen

Hospital of the University
of Pennsylvania

DERMATOLOGY

Karolyn Ann Wanat

DIAGNOSTIC RADIOLOGY

Neil Vikrant Bhamb
Avani Patel

INTERNAL MEDICINE

Margaret Marie Garin
Anjali Gopalan

NEUROLOGY

Danielle Kaye Sandsmark

OTOLARYNGOLOGY

Steven Matthew Sperry

PATHOLOGY

Ian Sean Hagemann
Grant Edward Nybakken

PSYCHIATRY

Adam Christopher
Meadows

Pittsburgh

University of Pittsburgh
Medical Center

EMERGENCY MEDICINE

Andrew Marshall King

OBSTETRICS AND GYNECOLOGY

Michelle Helena Moniz

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Southwestern Medical School

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Julie Ellen Rose Walcutt

UROLOGY

Jessica Duan Lubahn

Houston

University of Texas Medical School

DERMATOLOGY

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San Antonio

University of Texas
Health Science Center

NIH POSTDOCTORAL RESEARCH

Joseph William Villard

VIRGINIA

Falls Church

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Sherwin Shiu-Cheung Chan

INTERNAL MEDICINE

Daniel Thomas Graesser

OTHER

Deferring Residency Training
Kristin Kay Wenger

Outstanding in their fields

Restoring human health and nature

Gary and Penny Shackelford, both MD 68, rise early to cut brush, weed out invasive plants and measure water quality in a stream near their home — a typical day on their land in southern Wisconsin.

Their restorative land efforts complement their healing work at Washington University School of Medicine, where they provided care for patients and educated the next generation of physicians. Since retiring in 2002, the Shackelfords' mission is to restore their 380-acre property to its pre-colonial state. They are working with forestry experts, wetlands botanists and wildlife conservationists to reverse the impact of the European settlers and their descendants on the ecology of their land, which they call Fair Meadows.

"We're passionate about restoration," Gary says. "It's about taking land that doesn't look precisely beautiful — a jewel in the rough — and bringing it back to its former diversity."

Penny's father, who lives just six miles from Fair Meadows, is largely responsible for Penny's love of the outdoors. "He managed farms in this area when I was child, and he also taught me a lot about science and the natural world," she says.

Gary's parents both grew up on farms in Illinois. His father was an avid flower gardener.



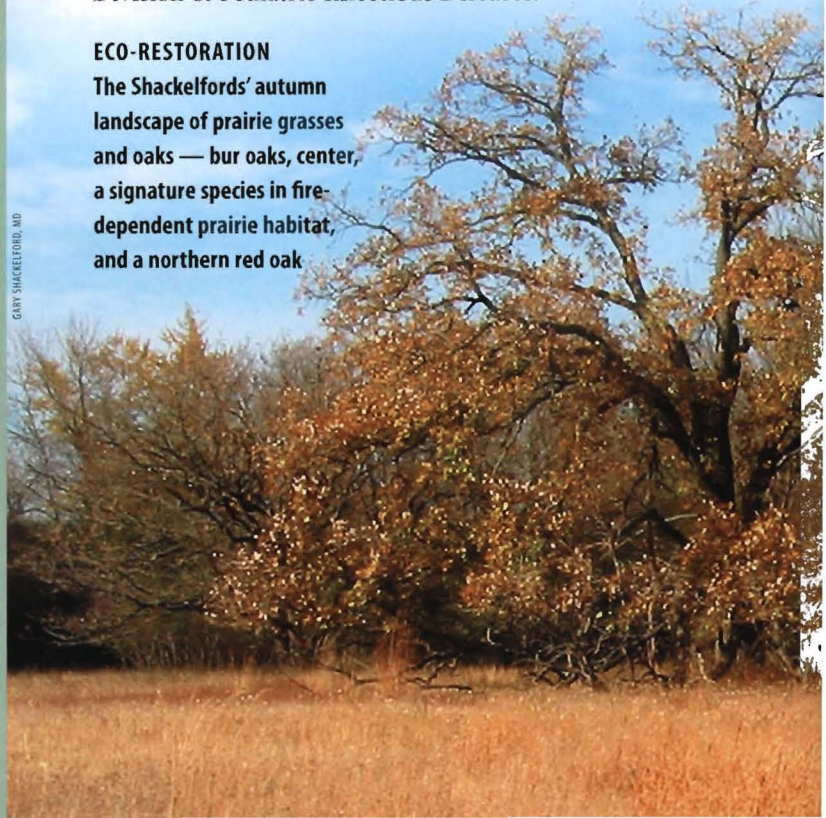
The Shackelfords' first foray into nature together was at the School of Medicine, when they began birding with their physiology professor, Gordon Schoepfle, MD. When their class asked him if he would hold an exam review session on a spring Saturday, he said he couldn't because it was warbler migration season. The couple, who married halfway through medical school, have been hooked on birding ever since.

But an appreciation of nature isn't all the Shackelfords share; they both spent their careers on the School of Medicine faculty. Penny specialized in pediatric infectious diseases, while Gary practiced as a pediatric radiologist.

After graduating from the School of Medicine, Penny completed her pediatric training at Babies and Children's Hospital in Cleveland and at St. Louis Children's Hospital. Following a fellowship in infectious diseases, also at Children's Hospital, she joined the medical school faculty in 1972, rising through the ranks to professor of pediatrics in 1991. From 1993 to 1998, she also served as director of the Division of Pediatric Infectious Diseases.

ECO-RESTORATION

The Shackelfords' autumn landscape of prairie grasses and oaks — bur oaks, center, a signature species in fire-dependent prairie habitat, and a northern red oak



GARY SHACKELFORD, MD

“You realize how your own efforts are part of an ongoing process...”

—PENNY SHACKELFORD, MD

Gary and Penny Shackelford, both MD 68, visited the Missouri Botanical Garden on a recent trip to St. Louis.

A sandhill crane amid native wildflowers on a Shackelford prairie



GARY SHACKELFORD, MD

Gary interned at University Hospitals at Case Western Reserve University School of Medicine after graduation and then returned to St. Louis to complete a residency in diagnostic radiology at Mallinckrodt Institute of Radiology. He joined the School of Medicine faculty in 1972 and was named professor of radiology in 1982 and professor of radiology in pediatrics one year later.

The Shackelfords' years at Washington University were an important part of their lives, and they say it's thrilling to see the institution moving forward.

“You realize how your own efforts are part of an ongoing process of making people healthier and understanding how biology works,” says Penny, who studied children's response to infection and helped to develop a successful vaccine for meningitis. By the end of her career, she and colleagues saw very few cases of the disease. “I have a 2-year-old grandchild, Isabel, and I'm so grateful she can benefit from something like this,” she says.

The Shackelfords' gratitude for their School of Medicine careers and for the scholarships they received as medical students has motivated them to endow a student scholarship through their estate.

“We could not have attended Washington University if it weren't for our scholarships,” Penny says. “We want to give other students the same opportunities we had.”

Gary says his professional roots will always be at the university. “I hope that I was somewhat successful in passing on my knowledge to the next generation of doctors — as I stood on the shoulders of the people before me,” he says.

Penny likes to read and swim; Gary enjoys photography and running. But the couple also spends many hours on their “second career.” They talk to community groups about land restoration and host tours on their property, which was recently named a Wisconsin State Natural Area. Both are members of the Lake Koshkonong Wetland Association, The Prairie Enthusiasts and the Wisconsin Woodland Owners Association. And when they visit Isabel in the Miami area, they spend the day with her — outdoors.





fun for
everyone

The 2008 MD Reunion, held May 9 and 10, brought more than 400 alumni back to St. Louis to celebrate anywhere from 10 years to 65 years post-graduation. Including the many guests, students and faculty members who attended reunion events, approximately 80 people participated in the continuing medical education sessions, social events and walking tours that took place over three days of activities at both Washington University Medical Center and the Ritz-Carlton Hotel.

*Photos by
Robert Boston
and
Mark Beaven*

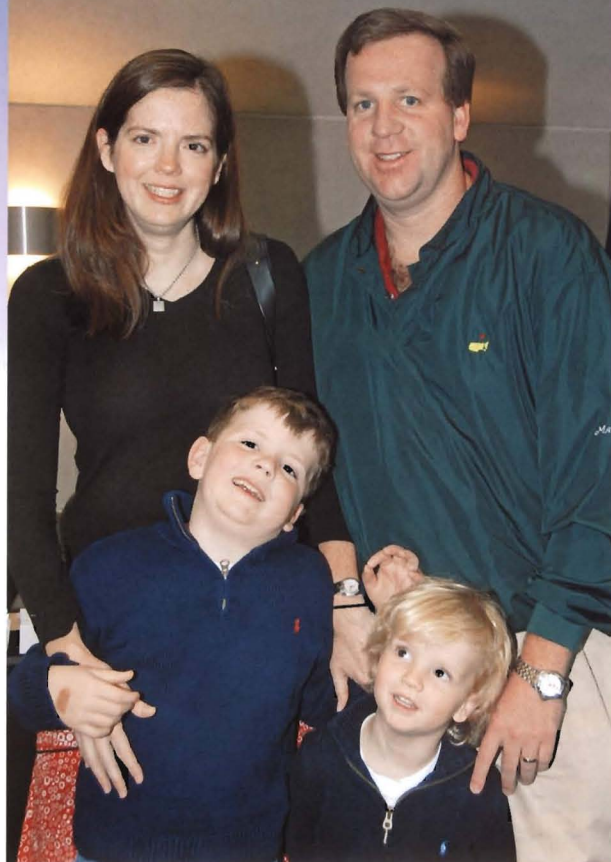
**Class of '98 graduates
Arielle Stanford and
Kaye Reid Lombardo**



Gloria Lubowitz
and Herbert
Lubowitz, MD 58



Kelly Klinger Newhall,
MD 98, with her
husband, Scott Newhall,
and their sons



William T. Shearer, MD 70, catches up with 55th reunion
celebrant Charles W. Parker, MD 53.

Participants are engrossed in a continuing medical education event.



Roger Nelson, MD 53,
and Jan Nelson



Distinguished Service Award honoree and
long-time faculty presence Jack Pierce, MD,
chats with Roger Nelson, MD 53.



Lynn Cornelius, MD,
associate professor of medicine



Bob Schmitz, MD 78



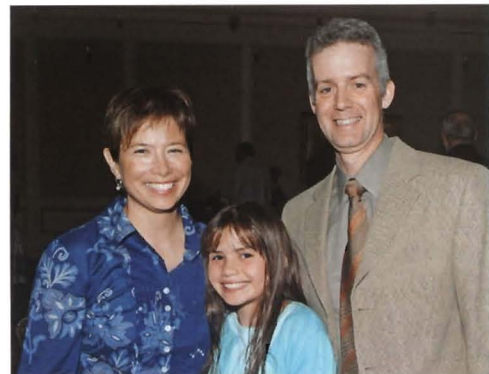
First of many! The 10th Reunion class had a great turnout, including, from left, Julie Steiner, MD 98, Ericka Hayes, MD 98, Kara Rysman, MD 98, Anne Tuttle, MD 98, and Tony Tsai, MD 98.



David Melamed, MD 83, John Harsch, MD 83, and Robert Swarm, MD 83



Brenda Kitchen, MD 88, right, and Miles Maxey learn about SPOTS, a featured student initiative.



Allison Landes, MD 89, and Andy Landes, MD 88, with their daughter, Emma



Marianna Heeb and Max Heeb, MD 53

The Saturday Family Picnic was a highlight of the weekend, especially for the under-10 attendees!





Award recipients, from left: John (Jack) A. Pierce, MD, Eugene H. Rubin, MD, PhD, Alexander Gottschalk, MD, R. Edward Coleman, MD, Charles O. Elson III, MD, Jacques U. Baenziger, MD, PhD, and James P. McCulley, MD.

An esteemed assemblage of awardees

The School of Medicine honored seven exceptional alumni and faculty at the MD Reunion 2008 Awards Banquet. Their accomplishments were applauded by alumni, faculty, family and friends who gathered to commemorate these physicians for their outstanding contributions.

Alumni Achievement

R. Edward Coleman, MD 68, is vice chair and professor of radiology and director of nuclear medicine at Duke University.

Charles O. Elson III, MD 68, is vice chair of research in medicine at the University of Alabama in Birmingham and the Basil I. Hirschowitz Chair in Gastroenterology.

Alexander Gottschalk, MD 58, is professor of diagnostic radiology at Michigan State University in Lansing.

James P. McCulley, MD 68, is the David Bruton, Jr. Professor and Chair of ophthalmology at University of Texas Southwestern.

Alumni/Faculty

Jacques U. Baenziger, MD 75, PhD 75, is professor of pathology and of cell biology and physiology at Washington University School of Medicine.

Eugene H. Rubin, PhD 77, MD 78, is vice chair for education in the Department of Psychiatry at Washington University School of Medicine.

Distinguished Service

John (Jack) A. Pierce, MD, is professor emeritus of internal medicine at Washington University School of Medicine.



The 60th Reunion Class was very much in the spirit of things, including, from left, Elfred (Al) Lampe, MD 48, Sarah Arpe Malin, MD 48, and Mary Lampe.



Margie Tippet and Jack Tippet, MD 53



25th-Reunion celebrant Megan Taylor, MD 83, with Joseph DeSantola, MD 81



Children of alumni had a fun time at the Saturday Family Picnic, as shown by the daughter of Jennifer Jones, MD 98, who shows off her face and body painting.



Marge Uhlemeyer



Henry Uhlemeyer, MD 43

More than medicine: Dick Bohannon, MD 58, talks with a fourth-year medical student and saxophonist for the medical school musical.



R. Edward Coleman, MD 68, center, celebrates with his family: Matthew Coleman, Emily Puckett, Irma Chriscoe, Katie Helmer and Andy Helmer.



Edwina and Tom Apostle, MD 58, traveled from Virginia to celebrate his 50th Reunion, where they found time to talk with Russ Aufderheide, MD 43.



Dean Larry J. Shapiro, MD 71, has some fun with Jeffrey Milbrandt, MD 78.

'til next time

Charlene Ellsworth Reed, MD 08, and Roland Reed



1940s

Harry E. Lichtwardt, MD 43

After retiring from a career specializing in urology in 1983, Lichtwardt served for 17 years on the Board of Directors of the American Urological Association. He recently received an AUA Certificate of Achievement award for 10 years of service as an AUA historian. Lichtwardt lives in a retirement community in Novi MI, with his wife, Genevieve. His hobbies are photography and historical reading.

Carl Woolsey, MD 43

Woolsey is retired from his obstetrics and gynecology practice and resides in Park City UT. He enjoys spending time gardening, duck hunting and working as an election judge. For a number of years, he had served as president of the Kimball Art Center, Park City's art gallery and teaching facility.

Richard Huck, MD 48

Huck retired from a career specializing in internal medicine in 2000. He is pleased to be able to volunteer his time doing clinical work and enjoys attending as many conferences as possible. He resides in St. Louis with his wife, Dolly.

J. Neal Middelkamp, MD 48

As professor emeritus of pediatrics at Washington University School of Medicine, Middelkamp continues to conduct interviews for residents and fellows in the training program. He resides in St. Louis and enjoys spending time with his four children and nine grandchildren.

1950s

Charles E. Brodine, MD 53

Brodine has retired from a career in internal medicine and currently lives in Gaithersburg MD. He enjoys traveling with his wife, Lois. He serves on the Board of Consultants for the Surgeons General of the Armed Forces as well as on the Medical Advisory Board for the American Red Cross. He also is a member of the White House working group on International Health.

Max Heeb, MD 53

Heeb is a semi-retired surgeon living in Sikeston MO. He is the author of two books: *Max the Knife, The Life and Times of a Country Surgeon* and *Surgical Imposter*, now in publication. He is the past president of both the Missouri Division of the American Cancer Society and the Missouri State Surgical Society. He enjoys traveling with his wife, Marianne.

Richard A. Bohannon, MD 58

Bohannon is president of the Association of Northern California Oncologists (ANCO). He volunteers on the Board of Directors for Sutter Visiting and Hospice Foundations and is also a trustee for the San Francisco Conservatory of Music. Bohannon recently took his entire family of 17 on an Alaska cruise to celebrate his 75th birthday.

William I. Goettman, MD 58

Goettman is a member of the Board of Overseers for the Duke Comprehensive Cancer Center, and he has helped to develop a cancer outreach program in the mountain area in which he lives. He teaches tennis weekly to students from the Crossmore School and Home for Abandoned Children, and he enjoys traveling with his wife, Carol, and spending time with his grandchildren.

1960s

Robert L. Kaufman, MD 63

Kaufman has retired from a career in internal medicine. He enjoys participating in the lifelong learning classes at Washington University. He lives in St. Louis MO, with his wife, Millie, and they spend much of their free time with their son, his wife and three small grandchildren.

Charles D. Leonard, MD 63

Although Leonard is retired, he is still active in medical legal consulting, part-time teaching and administration. He has recently helped to develop an internal medicine program at the New Physician Assistant School in Albuquerque NM, where he lives. In his spare time, he enjoys playing golf, fishing and traveling.

Ernest L. Lewis, MD 63

Lewis is associate dean emeritus of medical education and professor of clinical

urology emeritus at the University of California–Davis. He recently finished a program at the Graduate Theological Union in CA, and was made an ordained clergy member in the Episcopal Church. He now serves at the Episcopal Church of St. Martin in Davis CA, and as Archdeacon of the Episcopal Diocese of Northern California. He enjoys gardening and working for a food bank in the inner city of Sacramento CA.

Hunter Heath III, MD 68

After retiring from Eli Lilly and Company in Indianapolis IN, Heath became founding principal of Hunter Health Consultancy, LLD. In 2007, he was appointed adjunct professor of medicine at Indiana University School of Medicine. He has owned three airplanes (two from 1946 and one from 1966) and hopes to build his own plane soon. He loves to travel and spend time with his son and his family. Heath lives with his wife, Glenna, in Indianapolis.

1970s

Leslie L. Blumberg, MD 73

Blumberg works as an appeal medical director for Health Net of California. She has written four novels and devotes much of her time to writing fiction. Her current writing project recalls her time at Washington University. She lives with her husband in West Hollywood CA.

Michael F. Finkel, MD 73

Finkel is a neurologist with Medical Surgical Specialists at Physician's Regional Medical Center in Naples FL. He works with classmate, **Samuel K. Martin, MD 73**, raising funds for a children's hospital in the malaria belt of western Kenya. Finkel enjoys living in southern Florida where he can grow citrus, mango, avocado and other exotic plants.

1980s

Mina Chung, MD 83

Chung is a staff physician in cardiac electrophysiology and pacing at the Cleveland Clinic's Heart and Vascular Institute in Cleveland OH. She also is an associate

professor of medicine at the Cleveland Clinic Lerner College of Medicine at Case Western Reserve University. Chung lives in Shaker Heights OH with her husband, Clifford Harding, MD 83, and their two boys.

Clifford Harding, MD 83

Harding is professor of pathology, director of the Medical Scientist Training Program, and chair of the Immunology Training Program at Case Western Reserve University in Cleveland OH. He also is a member of the adjunct staff at the Cleveland Clinic Foundation. Harding, who lives with his two boys and his wife, Mina Chung, MD 83, in Shaker Heights OH, enjoys bicycling and tennis.

Larry P. Gassner, MD 88

Gassner is in private practice specializing in internal medicine. He also is chief of staff at John C. Lincoln Hospital in Phoenix AZ. He spends his free time playing the drums and road cycling.

1990s

Naomi Levine Zilkha, MD 93

Zilkha is a general pediatrician in a small private practice on Long Island NY. She also serves as an online volunteer for Sidelines (www.sidelines.org), an organization that helps women with high-risk pregnancies. She lives in Dix Hills NY, with her husband and two daughters.

Allen M. Doezie, MD 98

Doezie is the owner and founder of Mission Plastic Surgery. After completing six years of residency, he is now living in Ladera Ranch CA, enjoying his own practice. He is a board member and the auditor of the California Society of Plastic Surgeons. He also teaches first aid to his son's Boy Scout troop. He has been married to his wife, Kelli, for 15 years. They have one son and three daughters.

Laxmeesh Mike Nayak, MD 98

Nayak is a clinical assistant professor at Saint Louis University. After completing an ENT residency and a facial plastic surgery fellowship, he practiced academic medicine for two years. He has now begun a private practice in facial plastic surgery. Nayak lives in St. Louis with his wife and two children.

2000s

Cara Boyles Doughty, MD 00

Doughty has remained in Houston TX, after finishing a fellowship in pediatric emergency medicine. She is on the faculty at Baylor College of Medicine/Texas Children's Hospital. She and her husband stay very busy with their three children.

Rob Brophy, MD 01

After finishing a sports medicine fellowship at the Hospital for Special Surgery in New York NY, Brophy moved back to St. Louis, where he has joined the Department of Orthopaedic Surgery at Washington University School of Medicine, specializing in sports medicine. He lives in Ladue MO, with his wife and two children.

Emily Engelland, MD, MPH 01

Engelland completed her residency in occupational medicine at the University of Illinois in Chicago in June 2007. She received a master's degree in public health as part of that residency program. She has begun her first postresidency job at Franciscan S. Kemp Mayo Health System in La Crosse WI, where she is a part of a two-physician occupational medicine practice known as Health Services to Business.

Krisi Ruybalid, MD 02

Ruybalid is an anesthesiologist for Kaiser Permanente and enjoys the freedom this gives her. She lives in Tualatin OR, with her husband, Nathan, and their two children.

IN MEMORY

Raymond F. Holden Jr., MD 33

Holden died April 3, 2008. He received both his undergraduate and medical degrees from Washington University. After an internship at Barnes Hospital in

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St. Louis, he became a resident research assistant in physiology at the Rockefeller Institute in New York NY. Later he returned to St. Louis, where he was a clinical instructor at Washington University and began a private practice in internal medicine.

Alfred A. Gellhorn, MD 37

Gellhorn, 94, died on March 24, 2008. His long and distinguished career included serving as first director of the Medical Center and dean of the School of Medicine at the University of Pennsylvania, as director of Medical Affairs for the New York State Department of Health and as vice president for Health Affairs at City College. He wrought far-reaching reforms in graduate medical education, primary care and minority access to education. Predeceased by his wife, Olga, and a daughter, Maria, his survivors include four daughters, five grandchildren and one great-grandchild.

Albert A. Bullock Jr., MD 44

Bullock died on April 1, 2008. After graduating from Washington University School of Medicine, he completed a residency in general surgery in Milwaukee WI. He then moved to Shreveport LA, where he practiced general surgery, much of that time at Willis Knighton Medical Center, until his retirement in 1988. For the next 11 years he was medical director of cardiac rehabilitation at Willis Knighton. He and his wife, Betty, made a life for their children, grandchildren, and great-grandchildren over many years of family reunions.

Eugene W.J. Pearce, MD 49

Pearce died on Feb. 19, 2008, at his home in Merriam KS. He was 82. He is survived by his wife, Lunetta, and his sons, David and Richard, both of St. Louis.

Joseph Levitt, MD 49

Levitt, an internist who specialized in pulmonary care for more than half a century, died on March 30, 2008, from complications of Alzheimer's disease at Garden View Care Center in Chesterfield MO. He was 86. He was on staff at Barnes-Jewish Hospital and the John Cochran VA Hospital and served as a doctor for both the St. Louis and St. Louis County juvenile detention facilities. He ran a private practice in University City for about 25 years and was on the clinical teaching staff at

Washington University School of Medicine. He also directed the internal medicine clinic at Barnes-Jewish Hospital, which has since been named the Dr. Joseph Levitt Medical Clinic. He closed his practice in the late 1970s, but continued to work at local hospitals until retiring in 2004.

E. Grant Murphy, HS 52

Murphy, 86, of Ladera Ranch CA, died on March 3, 2008. After seeing active duty in the U.S. Navy as an intern and medical officer on board ship, Grant completed his training in pathology at Washington University School of Medicine before moving to Flint MI to practice at Hurley, St. Joseph and McLaren hospitals. At 34, he was appointed chief of the pathology department at McLaren Hospital, where he continued to practice until his retirement in 1986.

Malcolm B. Bowers Jr., MD 58

Bowers died on Jan. 13, 2008. After graduating from Washington University School of Medicine, he completed an internship at Fitzsimons General Hospital in Denver CO, and served in the U.S. Army as acting chief of the Clinical Investigative Branch of the Directorate of Medical Research. He completed his residency in psychiatry and postdoctoral fellowships in basic science and psychopharmacology at Yale School of Medicine, later joining the faculty. He was the founding clinical chief of the Research Unit at the Connecticut Mental Health Center, chief of psychiatry at Yale-New Haven Hospital, and director of the department's residency training program.

Charles W. Boren, MD 60

Boren, 73, was killed in a two-car crash in Hanover NH, on March 28, 2008. After graduating from Washington University School of Medicine, he completed a residency in psychiatry at the Institute of Living in Hartford CT. With the exception of serving two years as a staff psychiatrist in the U.S. Navy, he remained at the Institute until his retirement in 1994. During his 28 years there, he served as director of psychiatric education, medical director and, finally, psychiatrist-in-chief. He also was a professor of psychiatry at the University of Connecticut School of Medicine. An avid sports fan, he held deep

loyalties to the St. Louis Cardinals and Boston Red Sox and also was devoted to Larry Bird and the Boston Celtics. A highlight of his retirement years was serving as a consultant to the National Basketball Association's Player Association, where he established close relationships with many former and current players. He is survived by his wife, Shirley, a son, two daughters, a brother and two grandsons.

Gaylord T. Walker, MD 78

Walker died on Sept. 17, 2008, at age 55. After graduating from Washington University, he finished surgical training at the University of South Alabama School of Medicine and completed a surgical fellowship at Memorial Sloan-Kettering Hospital in New York NY. He practiced as a surgical oncologist in Mobile AL for 20 years. He is survived by his wife, Teresa Weeks Walker, and five children.

FACULTY

Minot P. Fryer, HS 49

Fryer died on Feb. 15, 2008, in Evansville IN. He was 92 years old. He practiced at Barnes Hospital and taught at Washington University School of Medicine for 35 years before retiring in 1981 as a clinical professor of surgery. During his residency at Barnes Hospital, he became the protégé of James Barrett Brown, MD, a renowned plastic surgeon and himself a student at Washington University of Vilray Blair, MD, one of the founders of modern plastic surgery.

Carlton C. Hunt

Hunt, who headed the Department of Physiology at the School of Medicine from 1967-83, died on Feb. 8, 2008, in Highlands NC. He was 89. A distinguished neurophysiologist, he made important contributions to the understanding of sensory innervation in muscle. During his 16 years of leadership at the university, he built a department that was nationally recognized for its excellence in neurophysiology, biophysics and cell biology. He is survived by his wife, Marion, five children, six grandchildren and two great-grandchildren.

Scholars in Medicine

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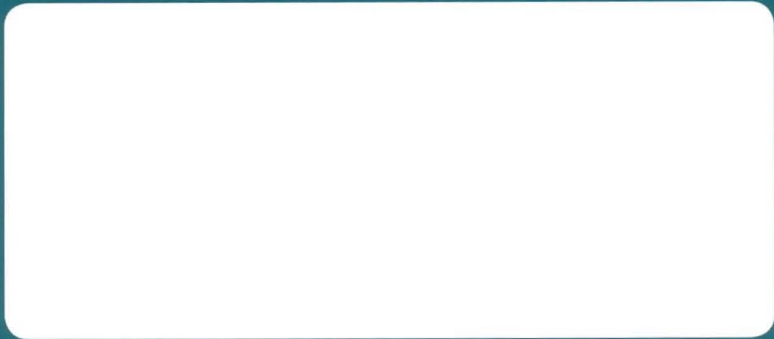
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On the move Faculty in full regalia gathered to honor the 2008 graduates of Washington University School of Medicine on May 16, 2008, at America's Center in downtown St. Louis. Ifeanyichukwu Megwalu, top, and Arsham Sheybani, above, were among the graduates: Eighty-eight students earned the MD degree, 27 earned the MD/PhD degree and two earned the MD/MA degree. Julie Gerberding, MD, director of the U.S. Centers for Disease Control and Prevention, below, delivered the Commencement address. In other areas of the School of Medicine, 101 students earned a master's degree, 10 earned the doctor of audiology degree, 13 earned the doctor of occupational therapy degree and 70 earned the doctor of physical therapy degree.





Signed, sealed and delivered Washington University biochemist and Nobel laureate Gerty T. Cori, MD, was honored recently by the U.S. Postal Service, along with chemist Linus Pauling, astronomer Edwin Hubble and physicist John Bardeen, with a set of postage stamps recognizing their achievements. Cori, who shared the 1947 Nobel Prize in Medicine with her husband and fellow faculty member, Carl Cori, was the first female scientist to win the Nobel Prize in Medicine. Cori's stamp features her portrait and the molecular structure she discovered. (An interesting note: The Cori stamp includes an error in the molecular structure for the Cori ester.) To learn about the recipient of the first Gerty T. Cori Professorship, please turn to page 3.

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