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Record

Aug. 22, 2003

Volume 28 No. 2

Treasuring the Past



Washington University in St. Louis

Shaping the Future

Celebrating 150 Years

Bladder infections

Biofilms may be responsible for recurring cases

By Darrell E. Ward

Bacteria that invade bladder cells and grow into structured colonies known as biofilms may be responsible for many recurrent urinary tract infections (UTIs), according to School of Medicine researchers.

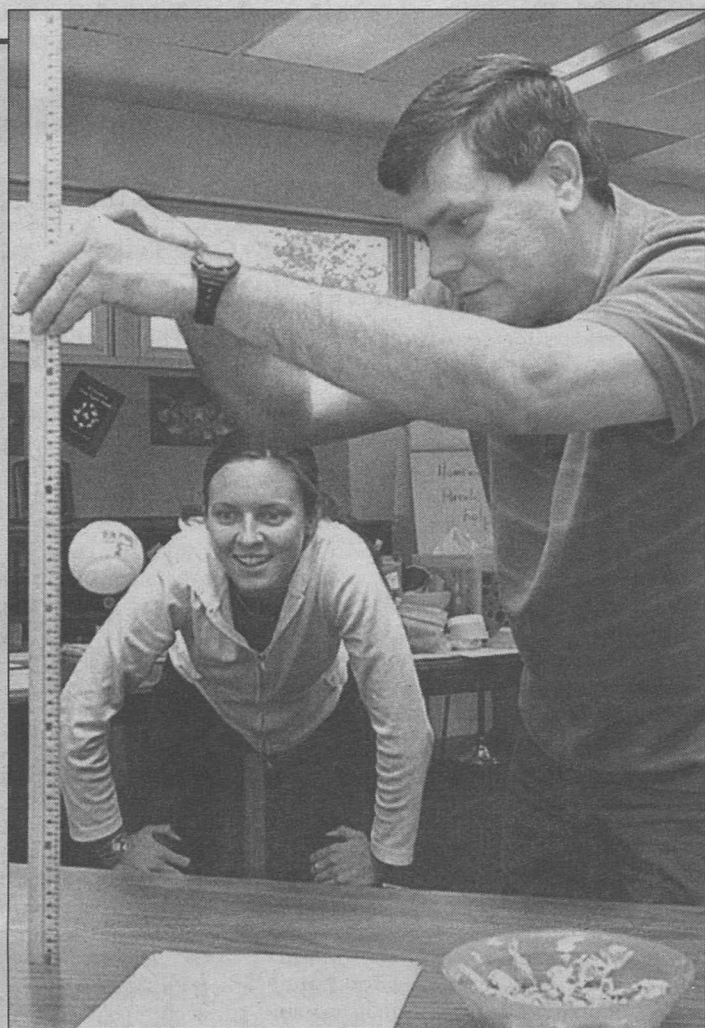
The findings, based on animal studies, offer a new explanation for recurrent UTIs and why the body's defenses or antibiotic treatments often don't cure the infections. The study is the first to report disease-causing biofilms inside of cells and may provide new insight into other recurring infections such as ear infections, or otitis media.

The findings and a commentary about their implications were published in a recent issue of *Science*.

For decades, doctors have believed that UTIs are acute infections caused by bacteria that are introduced repeatedly into the urinary tract. Sexual intercourse is associated with UTIs, as is poor hygiene.

"But it's very frustrating for women who know they are practicing good hygiene but still have these recurrent infections," said principal investigator Scott J. Hultgren, Ph.D., the Helen Lebrink Stoeber Professor of Molecular Microbiology. "Our work may explain why urinary

See UTIs, Page 6



DAVID KILPER

Don't drop the ball on test scores Middle-school mathematics teachers Katie Laramie of the Maplewood-Richmond Heights School District and Scott Hageley of the Webster Groves School District perform an experiment that will help their students better understand linear equations at a workshop held recently in Webster Groves, Mo. Middle-school mathematics teachers met this summer to strengthen their curricula thanks to the University's Science Outreach program, which created the St. Louis Math and Science Partnership (MSP). Designed to meet the challenges set forth by President George W. Bush in the No Child Left Behind Act, the St. Louis MSP supports teachers in raising student test scores in math and science. Supported by a five-year, \$6.5 million National Science Foundation grant, the St. Louis MSP involves five local school districts, Washington University, the St. Louis Science Center, the Saint Louis Zoo, the Show-Me Science Center, the Cooperating School Districts and WestEd.

U.S. News rankings

WUSTL joins nation's top 10

By Neil Schoenherr

Washington University — consistently ranked among America's 20 best national universities — is now ranked in the top 10.

The University is tied with Dartmouth College for ninth place in undergraduate programs among the United States' best national universities, according to *U.S. News & World Report* magazine. It is the highest-ranked national university in the Midwest.

WUSTL rose from last year's tie for 12th among the 249 national universities rated by *U.S. News*. The tie for ninth is the best undergraduate ranking of the University by *U.S. News* since the publication began its rankings in the 1980s.

"It is rewarding to see the recognition of the outstanding quality of our university," Chancellor Mark S. Wrighton said. "The talented and creative students, faculty and staff are the key. Importantly, we have been supported and guided generously by those who preceded us and by those who are leading and supporting the Campaign for Washington University."

"I am excited about this year, our 150th anniversary, and I look forward to continuing our efforts to enhance the quality of the University and its value to the society we serve."

The *U.S. News & World Report* undergraduate rankings are derived from peer assess-

See Rankings, Page 6

Road construction work creates new challenges

By Andy Clendennen

As if moving back into a residence hall or preparing to start another school year of work wasn't challenging enough, many returning to the University this semester will get a close look at the construction and traffic disruptions for the first time.

But there is some good news — everything is progressing as planned.

The work along Forsyth

Boulevard, where a new roadway will connect the South 40 to Forsyth, is nearing completion. The traffic signal for that new intersection has been ordered and is scheduled for installation in October.

In addition, the Houston Way and Chauvenet Way entrances were permanently closed in late July to increase safety along Forsyth.

And although it might not

See Roads, Page 6

150th anniversary polo shirts available free to faculty, staff

By Andy Clendennen

What better time to show your school colors than the 150th anniversary of the founding of the school?

What? You don't have any school colors? Not to worry — the University will be handing out shirts later this month and in early September to all benefits-eligible faculty and staff members in recognition of the Sesquicentennial celebration.

The shirts are a polo-style, WUSTL red and have the Sesquicentennial logo stitched in green on the left chest. The shirts come in sizes small through triple-extra large.

"The Sesquicentennial celebration opening event is the 150th Washington University Birthday Party on Sept. 14," said Ann Prenatt, vice chancellor for human resources. "We are looking forward to getting these shirts in the hands of our faculty and staff members

so they can be worn on this day, and throughout the coming year."

Faculty and staff on the Hilltop Campus can pick their shirts up in Brookings Hall, Room 300, and those on the Medical Campus can get their shirts on the second floor of the Eric P. Newman Education Center at the following times:

- Aug. 26, 7 a.m.-1:30 p.m.
- Aug. 27, 11 a.m.-5 p.m.
- Aug. 28, 11 a.m.-2 p.m.

West Campus staff can pick up their shirts in Room 2128, the Multipurpose Room, on:

- Sept. 3, 7 a.m.-1:30 p.m.
- Sept. 4, 11 a.m.-5 p.m.

However, regardless of where you work, you may pick up a shirt at any of the listed locations.

You must present a University identification card to get a shirt. The Office of Human Resources has established a database of all eligible faculty and staff to track distribution.



Treasuring the Past
Shaping the Future

Volunteers needed for 150th Birthday Party

Faculty, staff, students, alumni and friends of the University, age 16 and over, are invited to participate in the Sesquicentennial celebration by volunteering at the 150th Birthday Party Sept. 14.

Thousands of St. Louisans are expected to visit the University for the all-day celebration, but we can't do it without you. We need hundreds of volunteers from the University family to help welcome guests to our home.

Sign up today to volunteer — the special volunteer form may be found on the Web at aisweb.wustl.edu/Chancellor/150thVolunteer.nsf/signup?OpenForm.

Choose your role (usher, greeter, welcome tent, information booth or page) then choose your preferred time to work (morning, afternoon or evening). Later this month, you will receive detailed information about the role and time for which you have volunteered.

For more information on the 150th Birthday Party, look for stories in upcoming issues of the *Record*, or go online to 150.wustl.edu/birthday.

STARS program helps prepare next generation of research scientists

By Tony Fitzpatrick

Michael Boever and Lance Cai are two of 39 "beautiful minds" that participated in the Solutia Inc. Students and Teachers as Research Scientists (STARS) program this summer.

Thirty-four students — local area high-school juniors- and seniors-to-be — and five high-school teachers worked with nearly 70 professor mentors in varying areas of science and engineering at Washington University, Saint Louis University and the University of Missouri-St. Louis.

Co-sponsored by the National Science Foundation and Solutia, STARS pairs students and teachers with faculty researchers while educating students about professional opportunities in science and technology. There is plenty of hands-on laboratory work as well as a paper and presentation at program's end.

In addition, STARS exposes young scholars to the many science and technology opportuni-

ties available in St. Louis.

Boever and Cai actually dived into serious problems with game theory — and beyond — made popular by *A Beautiful Mind*, the award-winning book and movie about John Nash.

See STARS, Page 6

This Week In WUSTL History

Aug. 22, 2001

A revamped curriculum for Arts & Sciences students was implemented with the beginning of the fall semester. With its first comprehensive revision in more than 20 years, the curriculum features course clusters, increased opportunities for small-group learning, "capstone" experiences and renewed emphasis on writing and quantitative analysis.

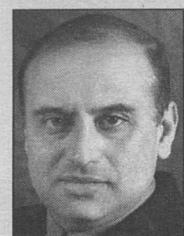
This feature will be included in each 2003-04 issue of the *Record* in observance of Washington University's 150th anniversary.

Thakor named Simon professor

By ROBERT BATTERSON

Anjan V. Thakor, Ph.D., has been named the John E. Simon Professor of Finance in the Olin School of Business, Dean Stuart I. Greenbaum, Ph.D., announced.

Thakor joins the Olin School from the University of Michigan, where he served as the Edward J. Frey Professor of Banking and Finance from 1996-2003 and as the chair of the finance department from 2000-03.



Thakor

Thakor also served on the Indiana University faculty from 1979-1996. There he served twice as chair of the finance department (1989-1990 and 1992-96); was the INB National Bank Professor of Finance (1992-94); and was the NBD Professor of Finance (1994-96).

In 1987-88, Thakor was a visiting professor at the University of California, Los Angeles, and from 1983-85 he was a visiting associate professor at Northwestern University.

Thakor received the Outstanding Senior Faculty Research Award

at Michigan and the Master of Business Administration Teaching Excellence Award at Indiana.

For his research, he has received numerous grants from agencies and foundations, including the U.S. Department of the Treasury, the Prochnow Education Foundation, the Garn Institute of Finance, the Federal Home Loan Bank Board and the Bank Administration Institute.

Thakor has served as an executive education consultant to many corporations including Whirlpool Corp., Allison Engine Co., Citigroup, RR Donnelley, Dana Corp., Anheuser-Busch Cos., Zenith Corp., Lincoln National Corp., J.P. Morgan, CIGNA, Reuters, The Limited, AT&T and Takata Corp.

"Anjan Thakor is an award-winning scholar, teacher and academic leader of global renown. He is a true franchise player, and we couldn't be more proud to have him join the Olin team and Washington University."

STUART I. GREENBAUM

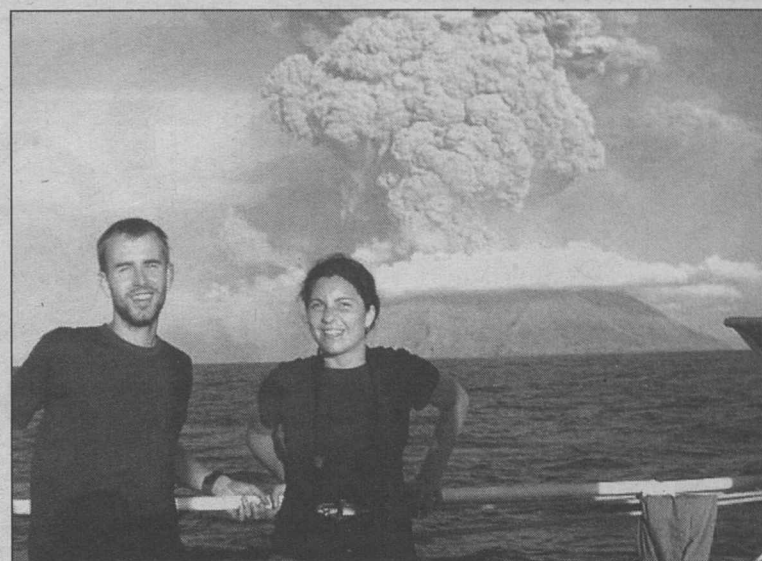
demic leader of global renown," Greenbaum said. "He is a true franchise player, and we couldn't be more proud to have him join the Olin team and Washington University."

Thakor is the editor of the prestigious *Journal of Financial Intermediation* (founded by Greenbaum), and is the author of four books including *Contemporary Financial Intermediation* (with Greenbaum, 1995) and *The Value Sphere: Secrets of Creating and Retaining Shareholder*

Wealth (with John Boquist and Todd Milbourn, 2000).

Thakor holds a doctorate in finance from Northwestern University.

He and his wife, Severina, and their two sons, Richard and Cullen, reside in Clayton. Richard is an undergraduate at WUSTL.



PATRICK SHORE

Brian White and Sara Pozgay, graduate students in earth & planetary sciences in Arts & Sciences, have seaside seats for the recent unexpected eruption of the Anatahan volcano in the Northern Mariana islands.

Unexpected Pacific isle volcanic eruption recorded by scientists

By GERRY EVERDING

University geophysics faculty and students were fortunate to observe the unexpected recent eruption of a long-dormant volcano on the uninhabited island Anatahan, part of the U.S.-administered Commonwealth of the Northern Marianas in the western Pacific.

A seismograph they had deployed on Anatahan, about 200 miles north of Guam, only a few days before the eruption captured a trove of important seismic data — a detailed chronology of pre- and post-eruption rumblings.

"It is possible that this information could prove valuable in the development of models for more accurate prediction of future volcanic eruptions and other seismic activity in the region, which is one of the world's most active areas," said Patrick Shore, Ph.D., a research scientist and lecturer in earth and planetary sciences in Arts & Sciences.

The University research team, headed by Douglas Wiens, Ph.D., professor of earth and planetary sciences, is working with collaborators from the Scripps Institution of Oceanography and the Saipan Emergency Management Office (EMO) to install earthquake sensors in the Northern Marianas for an experiment funded by the National Science Foundation (NSF).

Designed to study the source regions of magma that erupts from the Mariana island arc, the joint U.S.-Japan Mariana Subduction Imaging Experiment requires the deployment of 20 land seismographs and 58 ocean-bottom seismographs.

Shore directed the installation of seismographs on various Mariana islands with assistance from University graduate students Brian White and Sara Pozgay. While the team's primary focus is exploring the tectonic forces in the region, the chance capture of detailed volcanic eruption data may offer new avenues of research, perhaps providing tools to help access volcanic and seismic hazards to the people of the Marianas.

"We were able to capture a few days of data from the quiet period before the eruption, which is important for comparison purposes, and we have been capturing excellent data on the eruption ever since," Shore said.

The people of the Northern Marianas have been anxious for improved seismic monitoring systems since 1981, when the eruption of another volcano on the island of Pagan forced many residents to migrate into the urban center of Saipan. Before the Anatahan eruption, pressure had been mounting for the government to authorize the resettlement of islands previously ruled

off-limits due to a threat of volcanic activity.

The Northern Mariana island chain lies adjacent to the Mariana trench, the deepest place on the surface of the Earth. The islands are exposed volcanoes that form due to the subduction of the Pacific Plate beneath the Philippine Plate.

The Northern Mariana islands were of great strategic importance during World War II, when the United States gained control of them. In 1978, residents of the islands voted to form a commonwealth in political union with the United States; they are U.S. citizens but do not vote in federal elections.

A historic first

Anatahan is a tiny island with a rugged, densely vegetated landscape dominated by a large volcanic crater. White and Allan Sauter, Ph.D., a seismology specialist at the Scripps Institution of Oceanography in San Diego, had no clue that an eruption was imminent when they were dropped off on the island the morning of May 6.

The research team's base ship, the *Super Emerald*, then traveled two-and-a-half hours to the nearby island Sarigan to drop off Shore, Pozgay and other team members. If the volcano had erupted while White and Sauter were on Anatahan, they would have been stuck there until the ship could return.

"When the volcano erupted, winds pushed most of the ash and debris toward the western side of the island where we had installed the seismograph," White said. "If we had been trapped there, we would have probably tried to make our way to the other side of the island."

"Since the jungle is very thick, it would have been almost impossible to make our way around over land. We happened to have snorkeling gear with us, so our best bet might have been to swim around to the other side."

After installing the Anatahan equipment, the NSF team spent four days traveling on *Super Emerald* and deploying stations on five other islands. Then, on the evening of May 10, as the team cruised back toward home base in Saipan, the researchers witnessed brilliant bursts of lightning above Anatahan.

As dawn broke, the small crew of researchers was astounded to see a pillar of volcanic ash and steam billowing some 30,000 feet above the shoreline. They were witnessing the first eruption in recorded history of the Anatahan volcano.

Pozgay was the first team member to notice lightning from the eruption.

"It was the most amazing thing I've ever seen in my life," Pozgay said later in an interview with The

See **Volcano**, Page 5

Volunteers sought for annual Service First Aug. 30

By NEIL SCHOENHERR

The fifth Service First will take place Aug. 30 when more than 1,100 students, including most of the new freshman class, will help clean, update and renovate 13 St. Louis, University City and Riverview Gardens public schools.

Volunteer support from faculty and staff to help supervise and organize students for the project is welcomed.

"This year's event should be the biggest and best so far," said Stephanie Kurtzman, coordinator for community service and women's programs and organizer

of Service First. "It's really become a wonderful way for us to welcome new students to the University and introduce them to the St. Louis community, as well as provide a taste of what we hope becomes an ongoing commitment to service."

The annual project began in 1999 with about 600 student volunteers helping to clean and beautify scenic trails. This original Service First event won national recognition as one of seven "Exemplary Practices and Model Programs" from the National Association of Campus Activities. The award recognized higher education institutions that

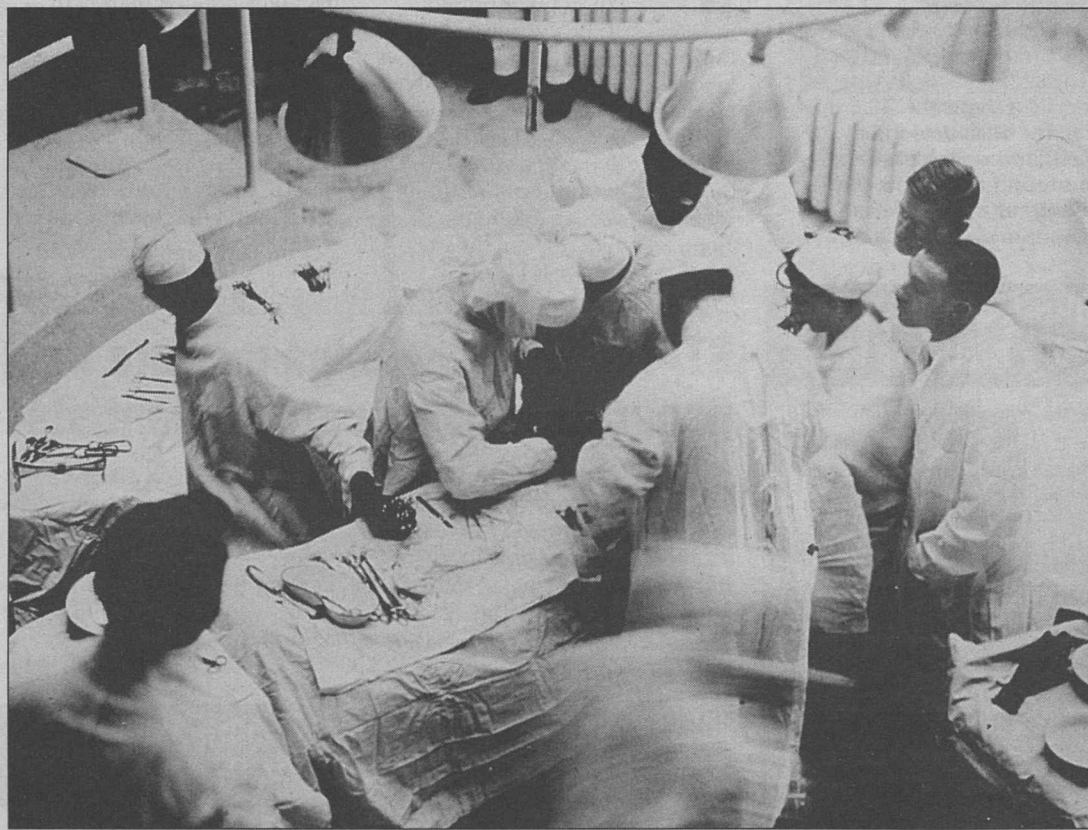
have successfully addressed a contemporary issue in student affairs with exemplary skill, creativity and resourcefulness.

Projects this year will range from painting murals, inspirational messages and playgrounds, to decorating bulletin boards, to gardening and landscaping.

Upon returning to the University after a day of work, the students will participate in a Community Service Fair and barbecue featuring more than 30 student-run organizations that focus on community service. Student bands will also perform.

For more information, call Kurtzman at 935-5994.

PICTURING OUR PAST



WUSTL ARCHIVES

Professor and Chief of Surgery Fred T. Murphy performs the first operation, an appendectomy, at Barnes Hospital on Dec. 14, 1915. Five years earlier, the School of Medicine, which was established in 1891, had entered into an agreement with Barnes Hospital and St. Louis Children's Hospital that allowed the medical school to conduct clinical research and appoint staff members at both hospitals. At that time, Johns Hopkins University was the only American medical school to conduct its clinical work in this fashion. Today, the School of Medicine continues as one of the premier medical schools in the world. In *U.S. News & World Report's* 2003 rankings, the School of Medicine tied for second place with Johns Hopkins University and Barnes-Jewish Hospital ranked No. 8 in the nation.



Washington University is celebrating its 150th anniversary in 2003-04. Special programs and announcements will be made throughout the yearlong observance.

School of Medicine Update

Antidepressant drugs may protect brain from damage

By JIM DRYDEN

Studying women with histories of clinical depression, School of Medicine investigators found that the use of antidepressant drugs appears to protect a key brain structure often damaged by depression.

Previous research has shown that a region of the brain involved in learning and memory, called the hippocampus, is smaller in people who have been clinically depressed than in those who never have suffered a depressive episode.

Now, researchers have found that this region is not quite as small in depressed patients who have taken antidepressant drugs.

The study, led by Yvette I. Sheline, M.D., associate professor of psychiatry, of radiology and of neurology, appears in the August issue of the *American Journal of Psychiatry*.

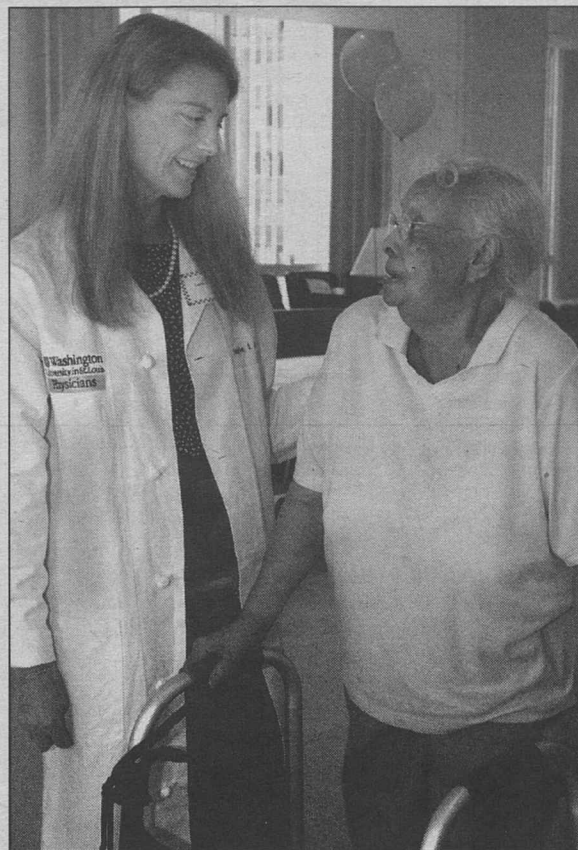
The hippocampus is a part of the brain's limbic system, a group of structures important to emotion and motivation. Using high-resolution magnetic resonance imaging, Sheline's team measured hippocampal volumes in 38 women who had experienced an average of five episodes of major depression in their lifetimes. Only some of those episodes had been treated with antidepressant drugs.

"In addition to their brain scans, each woman was interviewed on two occasions by independent interviewers to determine how long each depressive episode lasted and how much, if any, of that episode was treated with antidepressants," Sheline said.

The team compared hippocampal volumes to the number of days on or off treatment. The researchers found that on average, hippocampal volume was smaller than normal in depressed women, and that the less time a woman had spent taking antidepressants, the smaller her hippocampus.

"Our results suggest that if a woman takes antidepressants whenever she is depressed, depression would have less effect on the volume of her hippocampus," Sheline said. "It is the untreated days that seem to affect hippocampal volumes."

Animal studies also have demonstrated that antidepressant drugs can protect against stress-induced decreases in hippocampal volumes. Why the hippocampus shrinks is not clear. It may be that brain chemicals released during depression, such as cortisol, damage brain cells. Or it could be that depression damages the connections between nerve cells, resulting in a smaller volume. But



Yvette Sheline, M.D., professor of psychiatry, treats 94-year-old Cleordia Young, a longtime patient who has been treated for depression at the School of Medicine for more than 40 years.

however the damage is done, Sheline said it is clear from this study that antidepressant drugs

can limit volume loss.

"We've shown in other studies that people with hippocampal damage also have problems with certain memory tests," she said. "And large epidemiology studies have shown that major depression is a risk factor for the later development of Alzheimer's disease. So it seems clear that volume loss in the hippocampus can have very negative effects, not to mention the devastating problems caused by depres-

sion itself."

Sheline and colleagues did not look at specific antidepressants to

compare whether one was better than another at preserving hippocampal volumes, but any antidepressant seems to protect the brain better than no treatment.

Sheline said because volume loss in the hippocampus appears to be cumulative — that is, the more episodes of depression, the more volume loss — it is important to recognize and treat depression right away to prevent damage. It also may be worthwhile for patients to continue taking antidepressants between episodes of depression.

"Many psychiatrists already recommend that some patients who are prone to depression remain on antidepressants permanently to protect against depression," Sheline said. "These apparent neuroprotective effects provide a further argument for at least strongly considering remaining on antidepressants."

Currently, Sheline's team is looking at whether antidepressant drugs prevent damage to hippocampal neurons or whether they may potentially restore previously lost volume. It is unclear whether drugs can restore volume that was lost, but she said this research demonstrates that without treatment, hippocampal volume loss in depressed patients was more extensive than it was in those who took antidepressant drugs.



Global get-together (From left) T.S. Park, M.D., the Shi H. Huang Professor of Neurological Surgery and professor of pediatrics; international case manager James Lee; and physical therapist Karen Good throw a party for a group of cerebral palsy patients from around the world who annually come to the School of Medicine for extended treatment and care. At the party, international patients from Portugal, Iran, Switzerland, Holland and the United Kingdom enjoyed cake and ice cream and the chance to get to know each other.

Lengthening Achilles tendon reduces diabetic foot ulcers

By NICOLE VINES

Some people with diabetes struggle with ulcers forming on the bottom of their feet; worse yet, many of these ulcers come back after treatment. A School of Medicine study demonstrates that a surgical procedure to lengthen the Achilles tendons of patients with diabetes significantly reduces the risk of ulcer recurrence.

The findings appear in the August issue of the *Journal of Bone and Joint Surgery*.

Bear Cub Fund aids invention development

The deadline for applications for the Bear Cub Fund is Sept. 1. The fund, which was founded to help support the development of new inventions, was established by the Office of Research to help University inventors attract investment interest. For more details, contact Tom Hagerty at 747-0926 or hager tyt@wustl.edu.

"The return of ulcers has been a key concern for patients and their clinicians," said principal investigator Michael J. Mueller, Ph.D., associate professor of physical therapy. "If these wounds don't heal there's a greater risk that a patient will have to have a portion or all of the foot amputated. This study shows that lengthening the Achilles tendon can have a dramatic effect on the problem of ulcer recurrence."

Because many patients develop nerve damage as the disease progresses, they often don't recognize an injury until the skin breaks down and becomes infected, which may result in an ulcer.

An estimated 15 percent of people with diabetes develop foot ulcers. To treat them, clinicians put a cast on the infected foot to keep pressure off the wound and allow it to heal.

Mueller and colleagues divided 64 participants into two treatment groups. All patients had an ulcer on the ball of the foot and had no amputations. One group received a foot cast, while the other group

received both a cast and the lengthening procedure.

To lengthen the Achilles tendon, Jeffrey E. Johnson, M.D., associate professor of orthopaedic surgery, anesthetized the skin and made three nicks through the skin and into the tendon. The patient's foot was adjusted to stretch the tendon and then was immobilized for six weeks to heal.

After seven months, those who received Achilles tendon lengthening surgery were 75 percent less likely to have an ulcer recurrence than those who received only a cast; at two years, they were 52 percent less likely to have a returning ulcer.

"Lengthening the tendon causes some weakness in the calf muscles, which can cause unsteadiness, but can be improved with calf strengthening exercises," Johnson said. "Patients also must be cautioned about increased stress on their heel. Nonetheless, we believe the procedure is useful in preventing ulcer recurrence in patients at high risk for skin breakdown and foot amputation."

Bone-loss drug triggers first case of drug-induced osteopetrosis

By GILA Z. RECKESS

A drug used to treat bone loss associated with diseases such as osteoporosis has caused a child to develop an unhealthy, dense skeleton characteristic of osteopetrosis, or marble bone disease.

The boy had been given a bisphosphonate compound to treat weak, painful bones. This is the first reported case of drug-induced osteopetrosis, which typically is a genetic disorder.

"The medical literature suggests that, in uncontrolled studies, these drugs are beneficial for many pediatric bone diseases and carry no significant side effects," said lead investigator Michael P. Whyte, M.D. "But this case documents that excessive doses can result in osteopetrosis. Our findings emphasize that it is essential to carefully monitor this type of medication, especially when given to children."

Whyte is a professor of medicine, of pediatrics and of genetics and is the medical-scientific director of the Center for Metabolic Bone Disease and Molecular Research at Shriners Hospitals for Children.

The case report appears in the July 31 issue of *The New England Journal of Medicine*.

Even in adulthood, healthy bones reflect a constant balance between skeletal formation and breakdown. In diseases such as osteoporosis, bone typically is broken down faster than it is made. In contrast, osteopetrosis results when bone is made faster than it is broken down, resulting in bones that are abnormally dense and, by encasing existing cartilage, are weaker and more susceptible to fractures.

Before referral, the boy in this study had been given increasing dosages of pamidronate (Aredia) from about age 8 to 10 in an effort to treat his mysteriously painful bones. This potent bisphosphonate drug blocks skeletal breakdown and is increasingly being used to treat children with several bone conditions, including the genetic

form of osteoporosis.

After two years on high doses of this drug regimen, the patient developed abnormally dense and misshapen bones. The drug eventually was discontinued, but the pain remained unexplained. Eighteen months later, at age 12, the boy was referred to Whyte for evaluation, at which point he was diagnosed with acquired osteopetrosis.

In 1996, Whyte and his colleagues reported a way to help distinguish individuals with osteopetrosis from those with other types of dense-bone disease by measuring blood levels of an enzyme called creatine kinase brain isoenzyme (BB-Ck).

Although Steven Mumm, Ph.D., assistant professor of medicine, found that the boy in this study lacked genetic abnormalities that can lead to osteopetrosis or several other heritable bone diseases, the patient's blood did have detectable levels of BB-Ck and elevated amounts of another enzyme called acid phosphatase, which also accumulates in the bloodstream during osteopetrosis.

These findings, combined with bone biopsy specimens showing encased cartilage and skeletal changes seen on X-rays, documented that the boy had developed osteopetrosis.

"In light of our findings, the diagnosis of osteopetrosis is unequivocal, and the development of the disease matches perfectly with the time course of his pamidronate therapy," Whyte said. "The question now is how long his marble bone disease will persist now that he is off this drug."

According to co-investigator Deborah Wenkert, M.D., staff pediatric rheumatologist at Shriners Hospitals, when pamidronate leaves the skeleton, it can then redeposit and affect bone cells once again. Even after two years off pamidronate, this patient's X-rays still look like those of a child with osteopetrosis.

University Events

Mars Exploration • I Have A Dream

"University Events" lists a portion of the activities taking place at Washington University Aug. 22-Sept. 4. Visit the Web for expanded calendars for the Hilltop Campus (calendar.wustl.edu) and the School of Medicine (medschool.wustl.edu/calendars.html).

Exhibits

History of Adult Education at Washington University, 1854-2004. Through May 31. January Hall, Rm. 20. 935-4806.

Lectures

Thursday, Aug. 28

4:15 p.m. Earth & Planetary Sciences Colloquium. "The 2003 Mars Exploration Rover Mission: Spirit and Opportunity." Raymond E. Arvidson, James S. McDonnell Distinguished University Professor and chair of Earth

& Planetary Sciences. Wilson Hall, Rm. 112. 935-5610.

7 p.m. "I Have A Dream" Roundtable. Discussion commemorating 40th anniversary of Martin Luther King Jr.'s famous speech. Women's Bldg. Formal Lounge. 935-5576.

Friday, Aug. 29

9:15 a.m. Pediatric Grand Rounds. "Dr. McCoy Meets Stanley Kubrick: The Intersection of Ethics and Medical Informatics." Barry P. Markovitz, assoc. prof. of anesthesiology. Clopton Aud., 4950 Children's Place. 454-6006.

Wednesday, Sept. 3

11 a.m. Public Interest Law Speakers Series. "Multiculturalism, Reparations, and the Politics of Memory." Gerald L. Early, Merle Kling Professor of Modern Letters. Anheuser-Busch Hall, Bryan Cave Moot Courtroom. 935-4958.

Thursday, Sept. 4

2-4 p.m. Lifelong Learning Institute Fall Address. "Why Does the U.S. Government Object to the International Criminal

Court?" Leila Nadya Sadat, prof. of law. Gallery of Art. To register, call 935-4237.

4:15 p.m. Earth & Planetary Sciences Colloquium. "Mantle Convection with Realistic Rheologies." Viatcheslav (Slava) Solomov, assoc. prof. of physics, N.M. State U. McDonnell Hall, Rm. 362. 935-5610.

Friday, Sept. 5

1 p.m. Chemistry Lecture. "Regulation of Gene Expression by Synthetic Ligands." Peter B. Dovan, California Inst. of Technology. Uncas A. Whittaker Hall, Rm. 100. 935-6530.

And more...

Thursday, Aug. 26

8:30 a.m.-4:30 p.m. Center for the Application of Information Technology Workshop. "Business Requirements Management." (Also 8:30 a.m.-4:30 p.m. Aug. 27-28.) Cost: \$1,395. CAIT, 5 N. Jackson. To register, call 935-4444.

WUSTL selected to participate in Kauffman Campuses Initiative

BY BARBARA REA

Washington University is among 15 universities across the country selected by the Ewing Marion Kauffman Foundation of Kansas City, Mo., to participate in its "Kauffman Campuses Initiative," a new program aimed at making entrepreneurship education a common and accessible opportunity campus-wide.

The Kauffman program builds on an emerging trend at colleges and universities — expanding entrepreneurship education and experiences beyond business schools to the institution's other schools and academic departments and to students of diverse disciplines.

WUSTL will use a \$50,000 planning grant awarded by the Kauffman Foundation to help fund development of a proposal to be presented in December. The foundation will award five to seven challenge grants of up to \$5 million at that time, based on demonstrated ability to:

- Make entrepreneurship a common and accessible experience for all students.
- Infuse entrepreneurship into campus culture.
- Adopt a unique, innovative and potentially breakaway approach.

• Provide support from top University leadership.

• Position Washington University to serve as a model for other colleges and universities.

"We believe deeply in the potential of entrepreneurship education across all disciplines and majors to open doors and change lives, and we welcome the opportunity to play a leadership role in making such learning accessible to all students at Washington University," Chancellor Mark S. Wrighton said.

"It is an honor to be chosen as a finalist by the Kauffman Foundation, a national leader in the advancement of entrepreneurial education. We regard this invitation as a testament to the high quality of our interdisciplinary programs and our innovative approaches to learning.

"The Kauffman Campuses Initiative provides us with an outstanding opportunity to build upon the strengths of our entrepreneurship initiatives, which were created through the generous investment of Robert and Julie Skandalaris," Wrighton added.

Several components of the Skandalaris Entrepreneurship Program have been funded through an endowed gift from the Skandalaris.

"It is an honor to be chosen as a finalist by the Kauffman Foundation ... We regard this invitation as a testament to the high quality of our interdisciplinary programs and our innovative approaches to learning."

MARK S. WRIGHTON

Impressive literary archive Merrill collection expanded

BY ANDY CLENDENNEN

In a move to bolster its already impressive literary archive of poet James Merrill (1926-1995), University Libraries recently purchased 240 additional letters, manuscripts, rare books, signed first editions and other items from Christie's auction house.

The items came from the estate of Jonathan Goodwin, a book collector who was a neighbor of Merrill's in Stonington, Conn. Goodwin died earlier this year.

"While Merrill donated the bulk of the Merrill collection while he was alive, we have at times purchased things from book and manuscript dealers or from friends of Merrill's who held additional material," said Anne Posega, head of Special Collections. "We are trying to make the collection as complete as possible, so although we don't normally buy at auction, it was the only way to get this particular group of materials."

The lot includes a poem he wrote for the 10th wedding anniversary of some friends; a poetry collection that, written at 16 while in high school, was published privately by his father; poems written while attending Amherst College; and several letters he wrote in the 1940s to Amherst classmate William Burford.

Additionally, the collection features manuscripts of one of Merrill's most celebrated works, the 1982 trilogy *The Changing*

Light at Sandover.

"These revised typescript drafts will complement what we already have," Posega said. "They will fill in gaps in Merrill's creative process of writing and revision. In addition, the books and broadsides in this acquisition include some very scarce pieces."

University Libraries established the Merrill archive in the 1960s. It now includes approximately 35,000 items, including thousands of pages of notebooks, galley proofs and revised worksheets.

The Merrill archive is a cornerstone of the libraries' Modern Literature Collections, which contains works created or collected by some 125 20th-century American, English or Irish writers.

In 1956, Merrill — the son of Charles Merrill, co-founder of the brokerage firm Merrill Lynch — used a portion of his inheritance to found the Ingram Merrill Foundation, which has since awarded grants to hundreds of artists and writers.

Merrill's awards include two National Book Awards in Poetry, for *Nights and Days* (1965) and *Mirabell* (1978); the Bollingen Prize for *Braving the Elements* (1972); a Pulitzer Prize for *Divine Comedies* (composed with the help of a Ouija board; 1976); the National Book Critics Circle Award for *The Changing Light at Sandover* (1982); and the first Bobbitt National Prize for Poetry awarded by the Library of Congress for *The Inner Room* (1988).

"These revised typescript drafts will complement what we already have. ... In addition, the books and broadsides in this acquisition include some very scarce pieces."

ANNE POSEGA



Students in this file photo revel in the fun of New Student Orientation. This year's program runs through Aug. 26 and allows new students to have fun as they get further acquainted with and explore the University. Departmental open houses, meetings and discussions with faculty members and social events are among the highlights.

A learning opportunity: New Student Orientation

BY NEIL SCHOENHERR

The Class of 2007 has barely set foot on campus, and these students already have homework. Fortunately, it's more stimulating than it is stressful.

A new initiative for New Student Orientation 2003, which runs through Aug. 26, is a program called "Faculty Perspectives," which gives freshmen the opportunity to engage in a lively discussion with a faculty member about a book of common readings that each freshman received this summer.

"We are quite excited about this program," said Karen Levin Coburn, assistant vice chancellor for students and associate dean for freshman transition. "It's a wonderful way for students to begin thinking about the college experience before they arrive and it also gives them a chance to meet with a professor in an informal setting."

Early in the summer, each incoming freshman was sent a copy of the *Sesquicentennial Book of Common Readings*, which was developed by a group of faculty and administrators with contributions from faculty, staff and students across the University.

The book includes pieces by renowned authors, faculty members and current students and is aimed at helping freshmen think about what a university is, what it means to learn and discover in the university setting and what it means to be an educated person.

Each section of the book includes questions that students are encouraged to consider and

present written answers during the Faculty Perspectives sessions from 6-8 p.m. Aug. 25. Excerpts of these responses will be posted on a board in Mallinckrodt Student Center.

"We hope reading the book and discussing it will provide a common intellectual experience for students and will introduce them to the spirit of inquiry that is such a big part of the Washington University experience," Coburn said.

Orientation officially kicked off Aug. 21 with residence hall floor meetings and Convocation, Chancellor Mark S. Wrighton's opportunity to welcome all new students and parents to the University.

An array of departmental open houses is scheduled for today. The open houses give students an opportunity to meet with representatives from the faculty and staff to learn more about the curriculum. Various placement exams, financial aid meetings and campus ministry dinners will also take place today.

The closing event is the Club 40 Dance at 10 p.m. in the South 40 Clock Tower Plaza.

Aug. 23 will feature the annual Bears intrasquad football scrimmage at 8 a.m. Deans' meetings and receptions fill out the day.

Highlighting the evening will be "Choices 101 — An Introduction to the First Year Experience," presented by upperclass students. A discussion will follow. The presentation will be at 7 p.m. and again at 8:30 p.m. in Edison Theatre.

Aug. 24 will open with worship opportunities. The day consists of a full schedule of adviser meetings for all incoming students. From 7-8 p.m. and again from 8:30-9:30 p.m., students can attend "The Date," an interactive theatrical presentation that examines the issues of sexual assault and alcohol on college campuses. A discussion will follow.

Aug. 25 will feature peer advising and more campus orientation. "Freshmen Foundations," which will run from 2:30-3:30 p.m. and on Aug. 26 at the same time, will take place in Rebstock Hall, Room 215. "Foundations," presented by Richard J. Smith, Ph.D., the Ralph E. Morrow Distinguished University Professor of physical anthropology in Arts & Sciences, will provide an opportunity for students to gain an insider's view of how to succeed in the classroom while at the same time creating a healthy balance outside the classroom.

Students will have the chance to explore one of country's top interactive science museums from 9 p.m.-midnight during an "Evening of Fun at the Science Center."

The Aug. 26 schedule includes meetings, a barbecue, a picnic and receptions. An outdoor movie will be shown from 9-11:30 p.m. in the South 40 Swamp.

Also scheduled during the week are a variety of events designed especially for international, commuter and transfer students.

For more information, call 935-6679 or go online to orientation.wustl.edu.



Hollywood comes to St. Louis (From left) Head University athletic trainer Rick Larsen observes director David Anspaugh (*Rudy, Hoosiers*) and technical director and former U.S. national soccer team member Eric Wynalda on the set of Anspaugh's newest movie, *The Game of Their Lives*. Larsen served as athletic trainer for the film, which was being shot at Soldan High School in St. Louis. The movie is a true account of the 1950 U.S. soccer team, which defeated world power England, 1-0, in Brazil in World Cup play. The film is scheduled for release later this year.

Astrobiology grant

University scientists experiment on origins of organic compounds

By TONY FITZPATRICK

Bruce Fegley, Ph.D., professor of earth and planetary sciences in Arts & Sciences, is a member of the National Aeronautics and Space Administration's Goddard Astrobiology team.

The University was recently selected as one of 12 new nodes on NASA's Astrobiology Institute (NAI) for the next five years. Fegley will oversee the University research, which is funded for \$350,000 over five years.

He and his colleagues in the Planetary Chemistry Laboratory here will conduct experiments on the origin of organic compounds in the solar nebula, the cloud of gas and dust from which the sun, Earth and other objects in the solar system formed. Fegley's group will use the experimental results and other data to model how impacts by comets and asteroids may have supplied organic materials to Earth during its early history.

Current thinking suggests that such impacts provided some of the organic compounds necessary for the origin of life.

Some of Fegley's prior work suggests that at least some of the organic compounds in comets and asteroids were formed by reactions called Fischer-Tropsch reactions, which produce organic compounds from hydrogen and carbon monoxide gas using catalysts such as magnetite, an iron oxide. The presence of magnetite in primitive meteorites formed from the solar nebula suggests that magnetite was present in the solar nebula.

The Germans used Fischer-

Tropsch reactions to produce gasoline in World War II and the same process is used to produce gasoline in South Africa today. Fegley and his group want to see if conditions were right in the inner solar nebula billions of years ago for the organic compounds to form and be incorporated into asteroids and comets.

The NAI research will combine laboratory experiments, observations with ground-based telescopes and spacecraft, and sample comet and asteroid material to discover how organic molecules are created in interstellar clouds and later are modified in the gas and dust disks around young stars. These disks, called protoplanetary disks, form when an interstellar cloud collapses.

While collapsing interstellar clouds are busy building solar systems, lumps of ice and dust (comets) form in the cold, outer regions of the protoplanetary disk that surrounds a newly forming sun. Like "dirty snowballs," comets trap large amounts of organic molecules in their ices as they form a protoplanetary disk.

Astronomers think the newly created Earth was subjected to a fierce bombardment of comets about 4 billion years ago, when the protoplanetary disk that created our solar system was thick with swarms of newborn comets. The rain of comets was so intense that it could have supplied a large portion of the water in Earth's oceans.

The NAI is a virtual institute, in which collaborations and communication of results will be con-

ducted by videoconferences over the Internet, as well as at scientific conferences. Workshops at Goddard Space Flight Center and the University of Maryland will share results with educators and students under the Minority Institution Astrobiology Cooperative.

The interdisciplinary team includes researchers in earth science, space science and instrument development at Goddard, as well as scientists from around the country and the world.

Institutions with scientific co-investigators include NASA's Goddard; the University of Maryland; the California Institute of Technology; Johns Hopkins University's Applied Physics Laboratory; the SETI institute, Mountain View, Calif.; Eckerd College; the University of Massachusetts; and the University of Washington.

Institutions with scientific collaborators include the Carnegie Institution of Washington, Washington, D.C.; NASA's Ames Research Center, Moffett Field, Calif.; the University of California, Santa Cruz; The Catholic University of America; and Rowan University.

International collaborators include scientists from the University of Paris; and Leiden Observatory, the Netherlands.

The NASA Astrobiology Institute is an international research consortium with central offices located at NASA's Ames Research Center in California's Silicon Valley. NASA Ames is the agency's lead center for astrobiology, the search for the origin, evolution, distribution and future of life in the universe.

Volcano

— from Page 2

Associated Press. The incredible lightning display, she told the AP, was caused by movement among particles swirling in the towering volcanic clouds.

Just before dawn, it became clear to Pozgay that Anatahan was actually erupting. Jose Kaipat, an EMO seismologist, woke the rest of the team with the exciting news. Cameras in hand, they hurried on deck to glimpse the natural spectacle.

As the researchers watched the volcano rage, they realized that the seismograph installed on Anatahan just days before might now be capturing important seismic data. If recoverable, the data might help EMO seismologists seek better methods of predicting where and when the next deadly eruption might strike the Marianas.

The waiting game

The big question: Had the Anatahan seismograph survived the blast?

The station's state of health is related, via satellite, back to the United States. Although no seismic data is transmitted, the station does sporadically report whether it is still working. These reports were received by the team in Saipan a few days after their return from the deployment trip.

The first report indicated, surprisingly, that the station was still running and collecting data. They could tell that the station was running low on power, because the solar panels were covered with volcanic ash. However, no sense of whether the sensor itself was still working was sent, and it was not known if the data being recorded was valid and usable.

Although anxious to return to Anatahan, researchers were forced to play a waiting game. The volcano gained force, making it impossible for anyone to set foot on the island for several days.

"The emergency management officials were very interested to learn that we had visited the island just days before the eruption because we could confirm that the island was indeed uninhabited at the time of the eruption," White said. "Otherwise, emergency officials would have been forced to consider sending rescue teams to the island during a very dangerous phase of the eruption."

Shore, Pozgay and White waited in Saipan, the main urban center of the Marianas, where they were soon joined by Wiens, who had just installed seismographs on Guam. Hoping to gain some sense of the Anatahan seismograph's fate, Wiens arranged to fly along on an emergency management helicopter mission over the island May 13.

From the air, it was clear Anatahan had been hit hard — about six inches of volcanic dust and debris already covered the small, uninhabited village where the seismograph had been deployed. Luckily, the eruption produced no lava, so the only hazard to the seismic station was the blanket of ash, which blocked the solar panels and cut off its

source of power.

"The island was still erupting, but with less intensity than on May 11," Wiens said. "Large boulders (volcanic bombs) were observed flying high in the air over the crater region. The whole western side of the island was now covered with ash, including the seismograph site."

The helicopter was unable to land on Anatahan due to the danger posed by the loose ash. It did land on nearby Sarigan and recover data from a seismograph deployed there.

Preliminary analysis of the Sarigan data revealed that the Anatahan eruption was preceded by intense seismic activity starting at 1 p.m. local time May 10. The eruption probably began around 9 p.m. that same day.

More than a week passed before *Super Emerald* was able to return to the island with Shore, two vulcanologists and three representatives from the local emergency management office. The vulcanologists had flown from the United States on the chance that there would be an opportunity to visit the island.

Because the volcano was still erupting and a typhoon was thought to be approaching, the team was motivated to work quickly. They managed to dig out the station, recover the data, clear the solar panels and steepen the angle of the solar panel brackets. The hope was that with a steeper angle, the typhoon rains would wash the still-accumulating ash from the solar panels.

Shore's visit revealed that the seismic station had not suffered any damage, and the highly sensitive sensor was still collecting good, quality data. Wiens got the good news May 21.

"They got all the volcanic ash off of our instrument and found it has been working fine (on its batteries) the whole time," Wiens said. "We have great seismic recordings of the entire eruption."

Since the eruption, the research team has been working closely with Mariana emergency management officials to make use of eruption data now in hand and to plan for the re-deployment of an extensive real-time seismic monitoring system on the islands.

Ironically, the commonwealth had previously installed such a system on Anatahan and other islands in the chain, but it was disabled last year due to a lack of funding. Thus, the seismographs installed for the NSF experiment are the only ones to have captured vital data on the recent eruption.

While much analysis remains to be done, White is optimistic that data captured by the team's seismographs could eventually help develop an eruption early warning system for Anatahan and similar islands in the chain.

"We think it's possible that it may someday be possible to monitor seismic activity and provide advance warning that an eruption is imminent," he said.

If so, the residents who once inhabited Anatahan and the neighboring volcanic islands may one day be able to return to their homes and live with at least some sense of safety.

Sports

Football players receive preseason honors

The University's football season has yet to officially begin but the accolades have already started to pile in, as sophomore wide receiver Brad Duesing and junior defensive back John Woock were named to the Division III Pre-Season All-America team as chosen by *Don Hansen's Football Gazette*. Woock was named to the

second-team after picking up the University Athletic Association Defensive Player of the Year Award last fall. He started every game at cornerback and safety, finished third on the team with 79 tackles (50 solo), recorded four forced fumbles, notched three interceptions and registered five pass break-ups. Duesing was named to the third-team after an outstanding freshman campaign in which he set the school record

with 1,073 receiving yards, and tied the Bears record for receptions (69). Duesing finished 15th in Division III averaging 107.3 receiving yards per game. The Bears take the field for their 2003 season opener Sept. 6 at Simpson College.

Assistant SID named

Nick Povalitis has been named the assistant sports information direc-

tor. Povalitis comes to the University after spending the past year at Northwestern University. Povalitis' responsibilities will include handling all publicity for baseball, cross country, men's soccer, swimming and diving, track and field, volleyball, women's basketball and women's tennis. During his time at Northwestern, Povalitis served as the primary contact for fencing, men's soccer, men's tennis and wrestling. As a

media services intern, he also acted as the publications coordinator toward the end of his term. Povalitis, a Rockford, Ill. native, graduated from the University of Illinois in May 2002 with a bachelor's degree in news-editorial journalism. While at Illinois, Povalitis served as a student assistant in athletic public relations for one semester after working nearly two years as a sports reporter at the student newspaper.

UTIs

— from Page 1

tract infections are such a problem. We show that the bladder itself may be a reservoir for bacteria that are protected and emerge periodically to cause recurrent infection."

UTIs are the second most common bacterial infection in humans after respiratory infections. They are thought to account for 100,000 hospital admissions, 8 million physician office visits and \$1.6 billion in medical expenditures annually in the United States.

They affect mainly women, 50 percent of whom are thought to experience at least one UTI during their lives. Of these, 20 percent to 40 percent will develop one or more recurrent infections. The bacterium *Escherichia coli* (*E. coli*) accounts for about 80 percent of all UTIs.

The investigators inoculated the bladders of normal and immune-deficient mice using *E. coli* known to cause UTIs in humans. They found that the bacteria first pass beneath a protective layer consisting of a substance known as uroplakin, which coats the surface of cells lining the bladder.

Upon invading the cells, the bacteria multiply and form a loose colony of rod-shaped microbes. The colony grows until it forms a pod that bulges from the cell's surface and is covered by an impermeable layer of uro-

plakin.

As the pod develops, the thousands of bacteria within take on a smaller, rounded shape. They also produce a meshwork of fibers that anchors them to the surrounding matrix and to each other. This kind of organization is the hallmark of biofilms formed by bacteria in the lungs during cystic fibrosis and of biofilms in bodies of water around the world.

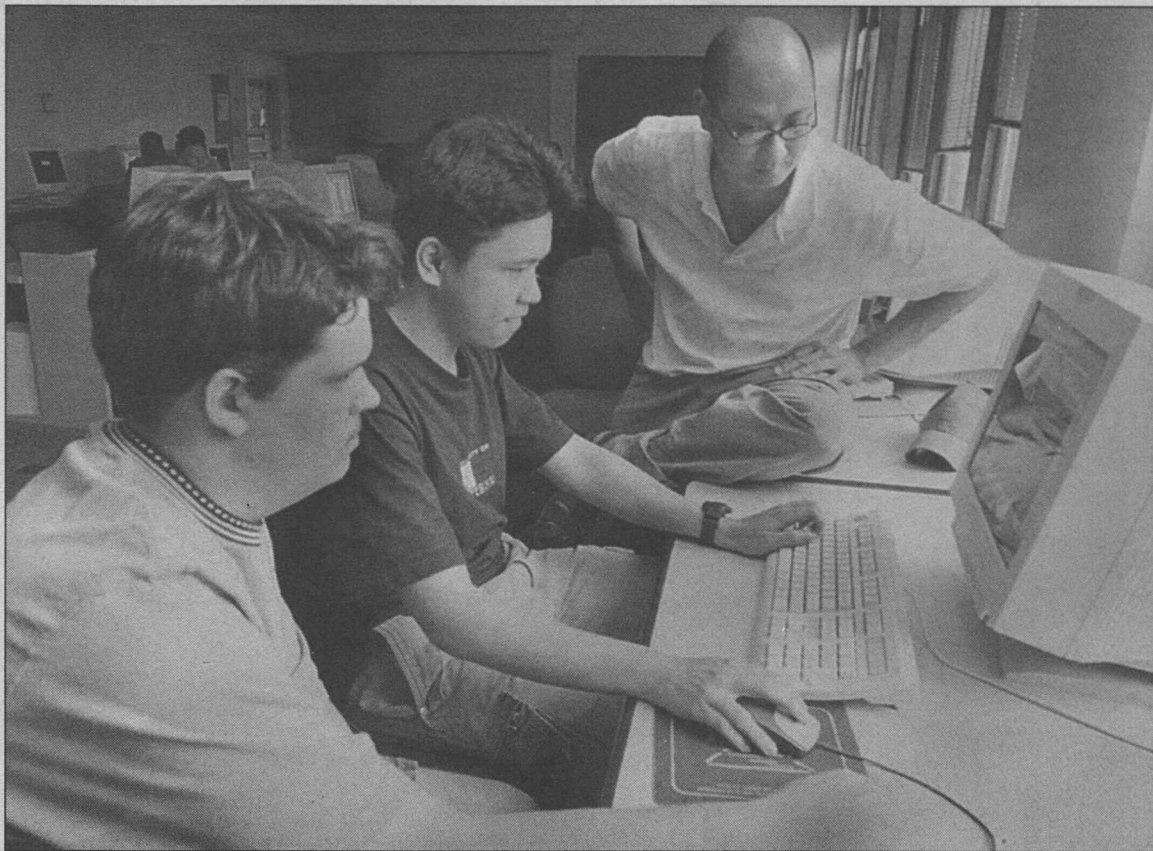
"The bacteria rest in the matrix like eggs in an egg carton," said Joseph J. Palermo, M.D., Ph.D., a fellow working in Hultgren's laboratory and a co-author of the report.

The covering of uroplakin protects the biofilm like an eggshell and shields the bacteria from immune-system defenses and antibiotic therapy.

"The bacteria then begin detaching from the biofilm and leave the cell to re-initiate an acute infection in the urinary tract," said lead author Gregory G. Anderson, a graduate student in Hultgren's laboratory.

Hultgren's colleagues are now designing new therapies that will attack the biofilm as well as studying how the host responds to the infection.

Hultgren, in collaboration with other researchers at the University and at the University of Washington, is also researching the genetic and molecular basis by which *E. coli* cause UTIs and is initiating studies that should determine whether UTIs in humans also involve formation of pod-like biofilms.



Ron Loui, Ph.D. (right), associate professor of computer science in the School of Engineering & Applied Science, oversees the work of Michael Boever (left) and Lance Cai at the Center for Engineering Computing. Boever, from Maplewood-Richmond Heights High School, and Cai, from Marquette High School, were among 34 area high-school students participating in the Solutia Inc. Students and Teachers as Research Scientists program this summer. Loui was their mentor.

STARS

Future scientists train with faculty mentors

— from Page 1

Ron Loui, Ph.D., associate professor of computer science in the School of Engineering & Applied Science, mentored Boever, a junior at Maplewood-Richmond Heights High School, and Cai, a senior at Marquette High School. Boever began his work with Loui developing strategies and learning computer code for a baseball game simulator that has been used in the artificial intelligence classes at Washington University.

Boever, a shirt-tail relative of former St. Louis Cardinals pitcher Joe Boever, tried to improve the simulator so that programs could automatically search for the best lineup as well as distinguish between good and bad lineups. Eventually, he created an interface where a human could play the best lineup game that the computer is trying to play.

While that project launched Boever, it wasn't at a point where Boever could write a 20-page paper and present a 15-minute oral report, which are STARS requirements. Loui steered him toward another one: He had Boever painstakingly break down the computer encodings of various entertainment files — MP3, PDF, jpeg, mov, qt, to name a few — and find a tiny string of information that distinguishes it from background digital traffic. Such information is very useful for intellectual property applications.

"It's like automatic watermarking," Loui said of the identifying technology. "It's a measurement discipline. He's come up with very valuable statistical information that some day will go into a handbook."

While Boever has gathered a kind of data that is very useful, Cai pushed the boundary of understanding negotiation. He worked on a model for negotiation between two "players" who are making progress toward agreement in a negotiating environment.

He wrote a simulator that collects data from a large number of negotiations and compiles that into a matrix of games with various outcomes. This is called a "meta payoff matrix" — a visual tool that shows every possible negotiation policy and how the agreement is reached, providing a wide range of good and bad outcomes.

"Lance used the computer to visualize something that probably

no one's ever seen before, what the payoff matrix looks like at a most abstract level," Loui said. "He's actually modernizing the view of negotiation beyond game theory's way of looking at it."

Cai said, "I came into STARS (as) a blank slate, but the possibility of doing this grabbed me right away. I'd seen *A Beautiful Mind* and knew there were lots of ways to model behavior, but I didn't know I'd be doing it."

"Lance is very special," Loui said. "He clearly has an aptitude for programming and will make many contributions. Mike has a really good grasp of the whole picture. He's representative of many young people interested in computer science these days. He's got a flair for things like routing and networking but doesn't find programming all that appealing."

"One of the things I love about the STARS program is that I get an advanced notice of what will happen to our curricular needs in the future based on our students' interests and backgrounds. I've had numerous STARS students over the years, but this is the first time I've had two."

"It was great having a team. We've found in the engineering school that teams solve problems better, design better and build skills better."

Loui praised the organization of the University of Missouri-St. Louis.

"They do a great job of running this at UMSL," he said. "They pretty much provide the infrastructure, lectures and social activities so that we can really concentrate on the ideas here. They give them what's needed to write their paper and provide a healthy sort of peer pressure so that the students are always on task."

"Peer pressure sets the pace. They want to make a great pres-

entation, write a solid paper."

On Monday and Wednesday mornings, students heard lectures on various topics, mainly at UMSL, which gave them insights into science careers. They had social committee meetings.

Afternoons were devoted to research in the laboratory. Most of their work at Washington University was from 10 a.m.-5 p.m. on Tuesdays, Thursdays and Fridays. They also worked at home.

"We didn't have to carry a centrifuge home," Cai said. "We could do a lot of computation at home."

They visited places like Boeing and sites at Washington University and Saint Louis University. They attended a ballgame at Busch Stadium; out of that experience Boever and Loui came up with ideas for improving the baseball simulator.

"I really enjoyed the lab experience," Boever said. "It boosted my desire to go into computer science. We were very fortunate to work with Dr. Loui."

Cai also liked the laboratory experience at the Center for Engineering Computing, in Lopata Hall, Room 407.

"I gained so many skills over the summer," he said. "The experience broadens your idea about the various fields in science and technology. That gives you a leg up on what's happening."

UMSL instructor Kenneth Mares, Ph.D., organized the program again this year. He has had a long relationship with STARS, which has been a part of science and technology summer programs for highschoolers since 1988.

"We are delighted that senior faculty from Washington University provide summer research opportunities for the STARS students," Mares said. "They are helping to prepare the next generation of research scientists."

Rankings

Engineering now 38th; business stays at No. 14

— from Page 1

ments by university chief executive officers, provosts and admissions deans, as well as from data gathered from each institution. This data is broken down into categories and assigned a weight reflecting the magazine's judgment about which measures of quality matter most.

This year's results, to be published in the *U.S. News* issue due out the week of Aug. 25, rank the University as third in financial resources, 11th in faculty resources and ninth in both selectivity and alumni giving.

"I'm very proud of the Arts & Sciences faculty and staff, who have contributed so much to creating an exciting and fulfilling educational experience for our undergraduates," said Edward S. Macias, Ph.D., executive vice chancellor and dean of Arts & Sciences. "With our new curriculum, we've greatly expanded opportunities for our students by enhancing interdisciplinary studies, adding more small-group experiences with faculty, and emphasizing core skills, which are necessary for whatever field or career a graduate pursues."

The Olin School of Business held its ranking as the 14th-best business school among national universities, tied with two other schools. The Olin School ranks fifth in the nation among private business schools.

"We share in the delight of everyone at Washington University to be a top-10 school," said Stuart I. Greenbaum, Ph.D., dean of the Olin School. "In our Sesquicentennial year, it inspires all of us at the Olin School to keep moving, keep growing and be the best."

The School of Engineering &

U.S. News rankings

The top 20 undergraduate programs among national universities, according to *U.S. News & World Report*:

- (tie) Harvard University
- Princeton University
- Yale University
- Massachusetts Inst. of Technology
- (tie) California Institute of Technology
- Duke University
- Stanford University
- University of Pennsylvania
- (tie) Dartmouth College
- Washington University**
- (tie) Columbia University
- Northwestern University
- University of Chicago
- (tie) Cornell University
- Johns Hopkins University
- Rice University
- Brown University
- Emory University
- (tie) University of Notre Dame
- Vanderbilt University

Applied Science is ranked 38th, an increase of six spots.

It is tied with 10 other schools, including Case Western Reserve University, Brown University and the University of Notre Dame.

"Moving up in rankings is only one benchmark among a number of them," said Christopher I. Byrnes, Ph.D., dean of the School of Engineering & Applied Science. "Those include quality and number of applicants, number of patents held by faculty, professional achievements and awards and student achievements, to name a few indicators of the stature of engineering."

For more information, go online to usnews.com.

"Importantly, we have been supported and guided generously by those who preceded us and by those who are leading and supporting the Campaign for Washington University."

MARK S. WRIGHTON

Roads

Construction continues, progressing as planned

— from Page 1

look like it, the intersection of Forest Park Parkway and Forsyth just east of West Campus is on track. The work there will continue for several more months, and it's unlikely that any form of traffic relief in that area will be seen during this academic year.

Forest Park Parkway is now closed from Central Avenue in

Clayton all the way to DeBali-viere Avenue. However, the parkway will remain open from Skinker Boulevard to Throop Drive for University access for the duration of the project. The full parkway will not be completely open to traffic again until late 2005.

The pedestrian overpass by the Power Plant will be replaced next summer by a larger overpass.

Pedestrians will also be able to cross the parkway at Skinker and at Big Bend Boulevard on clearly marked crosswalks.

Notables

Of note

Stanford L. Peng, M.D., Ph.D., assistant professor of medicine, has received a one-year, \$108,263 grant from the Broad Medical Research Program at the Eli and Edythe L. Broad Foundation for research titled "The Roles of NFATS and Innate Immunity in Intestinal Inflammation." ...

Paul F. Austin, M.D., assistant professor of urologic surgery, has received a one-year, \$15,000 grant from the Pfizer Pharmaceuticals Group for research titled "Study of the Signal Transduction Pathways through which Doxazosin Increases p27kip1 levels in Stretched Bladder Smooth Muscle Cells." ...

Washington University has received a one-year, \$35,000 grant from the Robert Wood Johnson Foundation in support of Faith in Action. ...

Walton O. Schalick III, M.D., Ph.D., assistant professor of pediatrics, has received a four-year, \$300,000 grant from the Robert Wood Johnson Foundation for the General Physician Faculty Scholars Program. ...

Jeffrey H. Miner, Ph.D., associate professor of medicine (renal diseases) and of cell biology and physiology, recently received the 2003 AstraZeneca Young Investigator Award from the American Physiological Society Renal Section at Experimental Biology '03 in San Diego. He presented a lecture titled "Laminins in Kidney Development." ...

Paul C. Paris, Ph.D., senior professor of mechanical engineering, is the third recipient of the

Walter J. and Angeline H. Crichlow Trust Prize. The American Institute of Aeronautics and Astronautics presents the prize every four years for excellence in structural design, structural analysis or structural dynamics. Paris' citation for the prize reads "for discovering the fracture mechanics approach for predicting fatigue life, for the impact of this discovery on vehicle structural integrity, and for his continued research and educational contributions toward the acceptance of this approach." ...

Ramesh Agarwal, Ph.D., the William Palm Professor of Engineering and professor of mechanical engineering, has been named a fellow of the American Physical Society. Agarwal was cited "for pioneering development of computational fluid dynamics methods and codes for the aerodynamic analysis of all categories of aerospace vehicles and outstanding contributions to aerodynamics, magneto-hydrodynamics and rarefied gas dynamics." ...

The **Department of Mathematics in Arts & Sciences** has been awarded \$694,000 from the Department of Education as a grant for graduate education. The author of the proposal was John E. McCarthy, Ph.D., professor of mathematics.

Notables policy

To submit Notables for publication in the *Record*, e-mail items to Andy Clendennen at andyc@aismail.wustl.edu or fax to 935-4259.

Legal texts by Epstein garner teaching award

By GERRY EVERDING

Lee Epstein, Ph.D., the Edward Mallinckrodt Distinguished University Professor of Political Science in Arts & Sciences and professor of law in the School of Law, has been recognized with the 2003 Teaching and Mentoring Award from the Law and Courts Section of the American Political Science Association.

The award, which honors "innovative teaching and instructional methods and materials in law and courts," is supported by a

contribution from the Division for Public Education of the American Bar Association.

Epstein and Thomas G. Walker, a professor of political science at Emory University, were recognized with the award for work as co-authors of *Constitutional Law for a Changing America*, a highly acclaimed series of legal textbooks. Now in its fifth edition, the series introduces students to constitutional interpretation and the Supreme Court from the perspective of political science.

Epstein and Walker include carefully selected excerpts from



Epstein

important cases and extensive commentary to help students follow the path of the evolving law, including extensive coverage of Americans' right to the free exercise of religion, freedom of speech, and freedom of the press, discrimination and defendant's rights.

The series emphasizes arguments raised by lawyers and interest groups, including material that brings out the rich political context in which decisions are made. It explores the ideological and behavioral inclinations of justices, the politics of judicial selection, and the impact of public opinion and positions taken by elected officials.

Koff named director of Educational Skills Initiative

By NEIL SCHOENHERR

Robert H. Koff, Ph.D., has been named director of the Educational Skills Initiative in the office of the vice chancellor for students, announced James E. McLeod, vice chancellor for students and dean of the College of Arts & Sciences.

In his new position, Koff will direct an initiative that will focus on ways to expand the intellectual interests and educational skills of undergraduates with a focus on incoming freshmen. Koff will also have teaching and related responsibilities in the College of Arts & Sciences. He started at the University June 1.

"Bob comes to us with a wealth of knowledge and experience," McLeod said. "His expertise will be extremely valuable to us."

Koff previously served as senior vice president of the Danforth Foundation, a post he held for 11 years. There Koff was responsible for overseeing grant initiatives in support of efforts to commercialize St. Louis-based research in the life and plant sciences, community redevelopment in the 500-acre Jeff/Vander/Lou neighborhood in north St. Louis, the award-winning Policymakers Program and the nationally recognized Forum for the American School Superintendent.

Prior to working at the foundation, Koff served as professor of education and psychology and dean of the school of education at State University of New York at Albany.

Koff began his career as a postdoctoral fellow at Oxford

University and then as a faculty member at Stanford University. There he participated in the Study of Undergraduate Education at Stanford, assisted in establishing the Stanford Freshman Seminar Program, and assisted in the design of surveys to assess the effectiveness of faculty instruction.

Koff earned a bachelor's degree in psychology from the University of Michigan in 1961 and a doctorate in clinical psychology from the University of Chicago in 1966. He is a licensed psychologist in California and is registered with the National Council for the Registry of Health Services Providers.

He has authored or co-authored three books and more than 80 papers, book chapters and monographs. His most recent book was *New Ways of Paying for College*, co-authored with Arthur Hauptman in 1991.



Outstanding young scientists Amy Walker, Ph.D. (left), assistant professor of chemistry in Arts & Sciences, and Amy Shen, Ph.D., assistant professor of mechanical engineering, flank Chancellor Mark S. Wrighton during a recent ceremony in his office. Wrighton presented plaques to Walker and Shen from the Oak Ridge Associated Universities (ORAU) in honor of their winning the 2003 Ralph E. Powe Junior Faculty Achievement Award. The award is a highly competitive, peer-evaluated award given to outstanding young scientists. Walker and Shen each received from ORAU \$5,000 research awards, which WUSTL matches.

Leicht wins Frank L. Ashmore Award for service to CASE

The Council for Advancement and Support of Education (CASE) recently named Judy Jasper Leicht, associate vice chancellor and executive director of communications, the recipient of the prestigious Frank L. Ashmore Award for service to CASE and the advancement profession.

Leicht is being recognized for her work as a CASE volunteer leader, as well as her tireless efforts as a mentor for her peers. For nearly a decade, Leicht helped guide CASE's development through her work as chair of CASE District 6, as a member of the CASE International Board of Trustees and then serving a two-

year term as chair of that board.

While serving on the board, she oversaw the creation of a new international headquarters building for the organization in Washington, D.C., and the appointment of a new chief executive to lead CASE's worldwide efforts.

"Judy has a combination of boundless energy, organizational excellence and contagious enthusiasm in her work on behalf of CASE, and has left an indelible mark on the advancement profession," said William N. Walker, vice president for public affairs at Dartmouth College. "The standard she has set in her volunteer

involvement at all levels is inspiring, and one for others to emulate."

The Ashmore award is named in honor of a former executive director of the American College Public Relations Association, a predecessor organization of CASE.

CASE's membership includes more than 3,000 colleges, universities and independent K-12 schools in the United States, Canada, Mexico and 42 other countries. CASE is the largest nonprofit education association in terms of institutional membership, with more than 38,000 advancement professionals on the staffs of its member institutions.

Campus Watch

The following incidents were reported to University Police **July 16-Aug. 4**. Readers with information that could assist in investigating these incidents are urged to call 935-5555. This information is provided as a public service to promote safety awareness and is available on the University Police Web site at police.wustl.edu.

July 19

9:25 a.m. — A Freshman Summer Academy student reported that between 3-8:30 a.m., an unknown person entered her unsecured room in Rubelman Residence Hall and took her black Gap tote bag containing her Sony laptop computer. Total loss is estimated at \$2,030.

July 21

Noon — A student working in the Power Plant reported that between 6 p.m. July 19 and 10:30 a.m. July 21, an unknown person stole his laptop carrying case from under his desk. Total loss is estimated at \$50.

July 24

11:57 a.m. — A person reported that his license tabs had been stolen from his license plates on his vehicle, which was parked in Millbrook Parking Garage.

July 31

2:34 p.m. — A decorative concrete bench was destroyed in front of the Women's Building. Estimated replacement cost is \$2,500.

Additionally, University Police responded to six reports of property damage, seven reports of larceny, two auto accidents, and one report each of lost article, assault, fugitive arrest and disturbance.

Record

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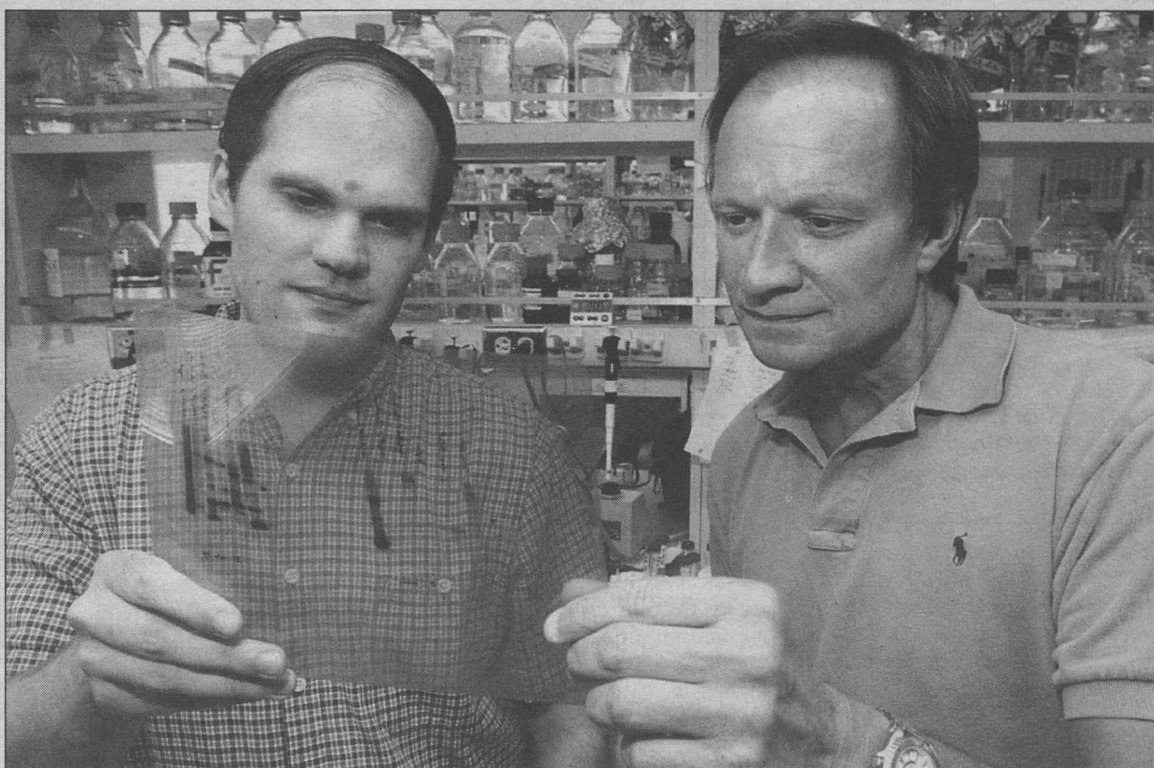
Washington People

Good science requires knowing when to drop bad ideas, explains Michael M. Mueckler, Ph.D., professor of cell biology and physiology.

"You may have worked on something for two or three years," he says. "But at some point, you have to look at the long series of results, use the data to evaluate your original hypothesis and, if necessary, reformulate your ideas and start over."

"Rigorous honesty is key to successful science," Mueckler continues. "It's very easy to get attached to pet hypotheses and then ignore data that contradicts them."

Mueckler has faced the dilemma of a good-idea-gone-bad many times in his 21 years as a



Graduate student Matthew Storck (left) and Michael M. Mueckler, Ph.D., professor of cell biology and physiology, review a Glut11 expression profile. Mueckler says one of the things he enjoys most about the School of Medicine is working with students and young faculty. "Unlike other top medical schools, Washington University nurtures and supports young faculty," he says. "It's not the sink-or-swim policy that exists at some universities."

Unveiling insulin insights

The research of Michael M. Mueckler addresses epidemic problems such as obesity and type II diabetes

molecular biologist, and he's learned from it each time.

The experience has helped him achieve an international reputation for innovative work in the areas of sugar metabolism and diabetes.

As a postdoctoral fellow at Massachusetts Institute of Technology in 1985, Mueckler discovered the first gene and protein that transport glucose into cells. The following year, he was recruited to Washington University, and three years later his laboratory cloned the gene for the glucose transporter 4 protein (Glut4).

The discovery brought new insights into the problems of obesity, insulin resistance and type II diabetes, all of which have reached epidemic levels among Americans.

Another turning point came in 2000 when then-graduate students Haru Murata, M.D., Ph.D., and Paul Hruz, M.D., Ph.D., now an assistant professor of pediatrics, discovered in Mueckler's lab that drugs known as protease inhibitors — which are essential for prolonging the lives of people with HIV — block the action of Glut4. The finding may explain why many people using these drugs experience a loss of fat from the face and extremities, increased risk of heart disease and high rates of type II diabetes.

Most recently, Mueckler, along with Murata and Richard Hresko, Ph.D., research assistant professor of cell biology and physiology, led research that produced the first test-tube system for studying the sequence of events by which insulin triggers changes in cells, a process known as hormone signaling.

"Mike is able to look at the research that everybody is doing, understand its importance and develop clever new ways to approach the question, and he does all this with enormous energy and enthusiasm," says Alan Permutt, M.D., professor of medicine and of cell biology and physiology and director of the Diabetes Research and Training Center. "He's a marvelous scientist and a great colleague."

Destined to be a scientist

Mueckler's interest in science began at age 9 when his parents gave him a microscope for Christmas.

"I was fascinated by the ability to see things that were invisible to the naked eye," he says. "From that time on, I wanted to be a scientist."

A few years later, Mueckler used earnings from a paper route to set up a microbiology laboratory in his basement, complete

mental oncology (the equivalent then to majoring in molecular biology) in 1982.

After his recruitment to Washington University as an assistant professor, he quickly rose through the ranks, becoming a full professor in 1995.

These days, he mostly enjoys analyzing data and designing experiments. He serves as associate director of the Diabetes Research and Training Center and as editor in chief of the *American*

"Mike is able to look at the research that everybody is doing, understand its importance and develop clever new ways to approach the question, and he does all this with enormous energy and enthusiasm. He's a marvelous scientist and a great colleague."

ALAN PERMUTT

with a stove-top autoclave, shelves of chemicals and cultures of bacteria from different environments. He read all he could find on microbiology and science pioneers such as Antonie van Leeuwenhoek, Louis Pasteur, Robert Koch and Paul Ehrlich.

His father, a machinist, died of renal cancer when Mueckler was 13. His mother, a housewife, then returned to work as an executive secretary.

"She was wonderfully tolerant and understanding about the chemicals and laboratory paraphernalia I had all over the basement," he says.

His father never graduated from high school. He dropped out to play semi-pro baseball and was later drafted as a pitcher by the Philadelphia Phillies. Before he could report to spring training, he was drafted to serve in World War II.

"When my father became ill, he made my mother promise that my brother and I received a college education — no matter what," Mueckler says. "She worked very hard to keep her word."

Mueckler entered the University of Wisconsin with several scholarships. He earned a bachelor of arts in microbiology, graduating in 1976 with highest honors.

He remained there for graduate school as a National Institutes of Health predoctoral trainee, earning a doctorate in experi-

Journal of Physiology: Endocrinology and Metabolism. He also enjoys working with students, and he received a Distinguished Service Teaching Award from the University in 2000.

"Mike is highly organized, very smart and pays close attention to detail," says Philip D. Stahl, Ph.D., the Edward Mallinckrodt Jr. Professor of Cell Biology and Physiology and head of the department. "He's also intense and engaging, and he does a good job teaching medical and graduate students. He's fair but has high standards."

"He's also a great colleague and individual, and we're delighted to have him."

At home, Mueckler relaxes by watching movies and reading biographies, especially ones about scientists.

Currently, though, he is reading a biography about Bob Dylan, which isn't surprising because he enjoys listening to music from classical to rock and also plays guitar. He also collects the instrument and owns 10 — seven acoustic and three electric. His personal favorite is an acoustic jaguar-claw mahogany with a cedar top and custom pearl inlay, custom made by Lance McCollum, a well-known California guitar maker.

He and his former wife and now-significant other, Susan Mueckler, enjoy biking and jogging, dancing, travel, gourmet food — and a good vodka martini. They have a daughter,

Alexandra, 19, who studies computer science, and a son, Sam, 17, who plays guitar, writes songs and wants to be a musician.

Unbreakable bonds

Mueckler came to the University because of the research under way in diabetes, endocrinology and cell biology. And he's been pleased with the decision ever since.

"Unlike other top medical schools, Washington University nurtures and supports young faculty," Mueckler says. "It's not the sink-or-swim policy that exists at some universities. At Washington University, department chairs and division heads, for the most part, work hard to help young investigators in their research."

Mueckler credits many senior faculty for helping his career along the way, including Stahl and Permutt. Mueckler says shortly after he arrived on campus, Permutt, then a full professor, spent a year's sabbatical in Mueckler's lab to learn molecular biology, then a relatively new field. At the same time, Permutt taught Mueckler a tremendous amount about diabetes.

"We developed a wonderful synergistic relationship that still exists," Mueckler says. "You don't see interactions like these in many other medical schools, especially between the basic and clinical sciences. Many of my closest collaborators have been clinicians here at the School of Medicine. We sought each other out and formed career-long relationships that hopefully have been helpful for us all."

Michael M. Mueckler, Ph.D.

Title: Professor of cell biology and physiology

Years at the University: 17

Birthplace: Racine, Wis.

Education: B.A. in microbiology, University of Wisconsin, 1976; Ph.D. in oncology, University of Wisconsin, 1982

University positions: Associate director of the Diabetes Research and Training Center

Honors: Boehringer Mannheim/JDFI Diabetes Research Award, 1997; the American Diabetes Association Outstanding Scientific Achievement Award, 1998; the University's Distinguished Service Teaching Award, 2000

By Darrell E. Ward