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WASHINGTON
UNIVERSITY
IN ST. LOUIS

Vol. 19 No. 7 Oct. 6, 1994

Historic grant bolsters science education

Washington University is one of 62 U.S. universities to receive a portion of \$86 million from the Howard Hughes Medical Institute (HHMI) to improve the quality of science education for American students.

The \$86 million represents the largest series of grants by a private organization in U.S. history. The grants expand an initiative begun in 1988 and known as the Undergraduate Biological Sciences Education Program. Since then, HHMI has awarded \$290 million to 213 colleges and universities to change the face of science education at college campuses and K-12 schools nationwide.

Washington University will receive \$1.4 million over four years to provide wide-ranging services and support for undergraduate and K-12 science education. Sarah C.R. Elgin, Ph.D., professor of biology,

directs the Washington University Undergraduate Biological Sciences Education Program. The University also was awarded a five-year grant of \$1.7 million as part of the program in 1992.

Washington University will use the grant to support:

- an undergraduate resource learning center in the natural sciences, and increased opportunities for interdisciplinary student research;
- laboratory experiences for high school seniors, in-service teacher training, such as a hands-on science course for K-8th grade school teachers, equipment and supplies for K-12th grade school teachers, and greater access for teachers to regular undergraduate science courses;
- renovation of and equipment for advanced teaching laboratories in such

areas as protein biochemistry, DNA manipulation, and microbial genetics, and computers for simulations and modeling.

The program is the largest of several HHMI initiatives to improve science education from elementary school through postgraduate training. Founded in 1953, the institute is the nation's largest private philanthropy.

"This program is sparking an historic change in how young Americans learn science," said Purnell W. Choppin, M.D., HHMI president. "The institute is helping large numbers of students, including many women and minorities, to carry out research in modern facilities. We think students learn science best by *doing* science instead of just reading about it."

"We are extremely pleased to continue in this valuable endeavor sponsored by the

Howard Hughes Medical Institute," said Chancellor William H. Danforth. "This support helps bring the excitement of research and discovery to students of all ages, and it gives our faculty the opportunity to work with elementary and secondary science teachers in the area, which benefits science education greatly."

The Howard Hughes Medical Institute, established in 1953, employs scientists in cell biology, genetics, immunology, neuroscience and structural biology. Hughes investigators conduct medical research in HHMI laboratories at outstanding academic medical centers and universities nationwide, including Washington University. Through its grants program, HHMI supports science education in the United States and a select group of research fellows abroad.

University collaborates with U.S. government on fiber optics project

Washington University has joined forces with major players in the telecommunications industry to explore high-speed electronics and fiber optics technology that will boost greatly the capacity of the Information Superhighway.

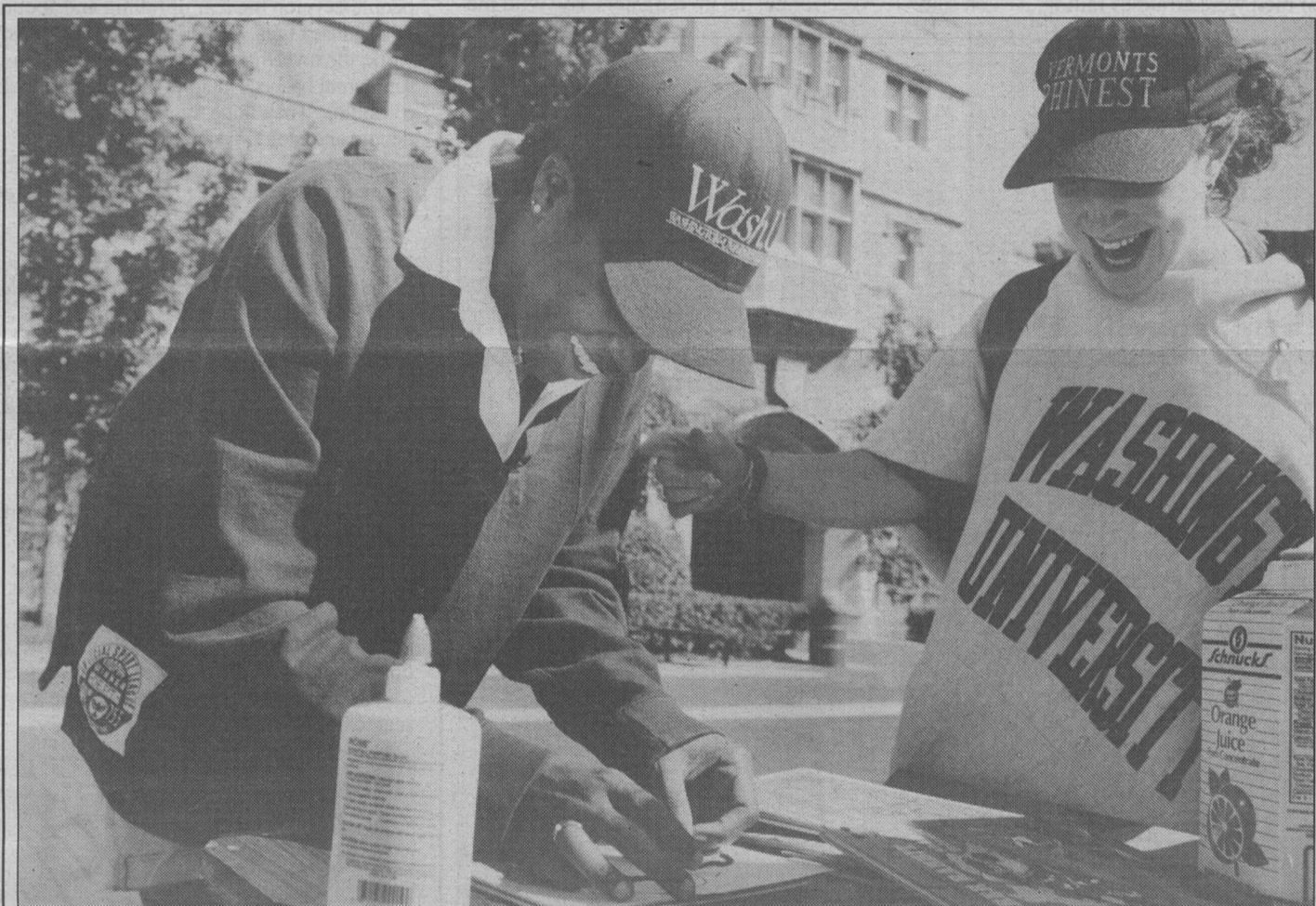
Washington will provide its internationally renowned expertise in ultra-fast fiber optic switching systems architecture and computerized medical imaging as part of the U.S. government's Technology Reinvestment Program (TRP). The campuswide Washington University program exploring the possibilities of such systems is called Project Zeus.

Administered by the Advanced Research Projects Agency, the TRP is one of President Clinton's initiatives to bolster investments in technologies that have both commercial and military applications. Total funding for this project is \$14.2 million over four years beginning in September 1994. The Washington University amount comes to approximately \$800,000 over four years.

Partners with Washington University in the collaboration are AT&T Bell Laboratories, Bellcore, Rockwell, Southwestern Bell Technology Resources Inc. and Tektronix. The collaboration involves demonstrating a network of the future called Synchronous Optical NETWORK, or SONET OC-192, within the framework of a fail-safe structure called a Self-Healing Ring. The testbed will operate at 10 gigabits (one gigabit is one billion bits) per second (Gb/s) — four times the fastest speed of today's available SONET systems. It will be used to carry Asynchronous Transfer Mode (ATM) based applications.

Telecommunications capabilities of this magnitude will be needed to send such

Continued on page 6



Members of the Delta Gamma sorority and other volunteers recently made toys for the blind. Above, senior Heather Lawrence, left, and sophomore Elizabeth Faltischek create coloring books for blind children by gluing yarn to the outline of pictures.

Mission to Mars

Junior engineering student contributes to next NASA voyage

One of the most intriguing features of the next NASA mission to Mars (1996) will be robots that scavenge the Red Planet for rock samples.

Receiving computerized instructions from Mission Control at the Johnson Space Center in Houston, the robots will reach down into Red Planet soil and with their mechanized "arms" actually pick up Martian rocks for real scientists to study.

But robots on Mars won't be able to function without the work of a junior mechanical engineering student at Washington University.

Last summer, Jennifer Herron, a Houston native, designed a key part of the robotic arm allowing the machine to work without a human attendant by its side. She spent 11 weeks at Johnson Space Center on a grant from the Missouri Space Grant Consortium. The consortium, established in 1991, is directed by Raymond E. Arvidson,

Ph.D., professor and chair of earth and planetary sciences. Funded by NASA, the consortium draws together Washington University, the Columbia, Rolla and St. Louis campuses of the University of Missouri, Southwest Missouri State University and the St. Louis Science Center to support and extend space science and aerospace engineering teaching and attract potential scientists and engineers, especially women and minorities, to these disciplines.

Herron worked as an employee of McDonnell Douglas and rubbed shoulders with veteran McDonnell Douglas and NASA mechanical engineers, planetary scientists and mathematicians at the fabled site of the robotic project, a key component of planned missions to Mars and the Moon later in the decade.

In that brief span, Herron redesigned an existing piece of the robotic arm (NASA term, "end-effector") so that it would

connect smoothly with a piece called a grapple fixture and a spectrometer that measures rock radiation wavelengths. The wavelengths signal computer operators as to what types of rocks they are viewing.

By the end of her stint in Houston, on Aug. 8, NASA and McDonnell Douglas engineers successfully tested the redesigned robot in an experiment conducted from Mission Control.

"It works very well, and it was a real thrill knowing I had that much input," Herron said. "Of course, it's not as effective as a real hand in picking up samples. A hand would be much simpler."

When Herron arrived at Johnson Space Center at the end of May, the existing design of the piece, done by McDonnell Douglas mechanical engineers, was a jaw-like component attached to the arm.

"All the end-effector did was scrape

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Medical Update

Fear of falling may contribute to frailty, depression in elderly

When an elderly person falls and breaks a hip, the result can be a spiraling decline in physical and mental health. But, according to researchers at the School of Medicine, merely the fear of such a fall can have a far-reaching negative effect on life.

In a study of 890 people over age 65, the researchers found that a significant number of elderly Americans fear injuring themselves in a fall, and that this fear tends to be accompanied by depression, frailty and a reduction in activity. Their findings illustrate the need for better ways to prevent or limit the consequences of falls in the elderly, said lead author Cynthia Arfken, Ph.D., research assistant professor of medicine. The results appear in a recent issue of the *American Journal of Public Health*.

It has long been recognized that one outcome of a bad fall in an elderly person can be the fear of falling again. Researchers suspect this fear can lead some people to cut back on physical activity, a move that is known to cause weakness and may increase the likelihood of a fall. Yet few studies have examined the fear of falling and its effects in detail.

For example, the incidence of this fear in the general population is not known because previous studies have measured it only in

select groups of the elderly — namely, residents of nursing homes or other special housing. Arfken's study is the first to measure its prevalence among older people living on their own in the community. Past studies have found links between fear of falling and specific physical traits such as mobility and balance. In this study, Arfken and her colleagues take the first look at a broader issue: whether fear of falling is associated with a lower quality of life or an increase in frailty.

The researchers studied older people living in the St. Louis area who had reported a fall to a hotline. They contacted participants once a month for a year to ask whether any additional falls had occurred. At the end of that year, they conducted detailed in-home interviews to assess mental and physical health, frailty, fear of falling, prevalence of falls and level of physical and social activity.

Although most study participants were not afraid of falling, 10 percent reported having a strong fear. Overall, women were more likely to be afraid than men; 35 percent of women reported having some level of fear, compared with 15 percent of men. Fear increased with age so that by age 80, roughly half the women and 21 percent of men were afraid of falling, Arfken said.

Of the people who were very fearful, a startling 25 percent were depressed. Compared with others in the study, the very fearful subjects also were much more likely to report dissatisfaction with life, to avoid leaving the house, to be frail and have poor balance, and to have experienced additional falls during the yearlong study.

Because fear and other problems such as frailty and depression tended to occur in the same people, it seems likely that fear plays a big part in causing these problems and the resulting decline in quality of life, said Helen Lach, MSN, co-investigator in the study. That decline probably goes something like this, she said: "When people restrict their activity, they become weaker and are less able to do physical tasks. That ultimately results in the potential for health problems; they don't get out, they don't get groceries. It can create a whole scenario where people have a functional decline that ultimately can result in more physical problems." With a lack of social activity added to the mix, it is easy to see how depression can develop, added Lach, a clinical-nurse specialist with the School of Medicine's Program on Aging.

But it is not clear whether the decline starts as a result of fear or whether people become fearful after their health begins to deteriorate, the investigators say. With the

issue of frailty, for example, "we don't know which came first: the fear or the frailty," Arfken said.

Rather than being afraid, the elderly can cope better with the possibility of falls by letting common sense guide their activities, Lach suggested. "At some point, people may need to make some adjustments in their activity so that they don't increase their risk of a major accident. But you don't want to restrict normal everyday activities."

Physicians should play an active role in helping their elderly patients deal with the issue of falls, Lach said. Doctors should ask patients about fear of falling, whether falls have occurred, and look for physical reasons for falls. Most importantly, elderly people who are becoming weak or developing balance problems should be referred to exercise or rehabilitation programs, which are known to be effective in people of all ages.

Special attention should also be paid to symptoms of depression, the investigators stress. The illness is under-diagnosed and under-treated in older people, and not something to be taken lightly, they said.

These steps will go a long way toward helping the elderly reduce their risk of falling, the investigators said. But more information is still needed about when and why people develop the fear of falling and about what causes falls, Arfken said. In their latest work, the investigators are looking for environmental hazards that put the elderly at risk for falling. They hope this will help elderly people and their physicians to be better equipped to reduce falls and improve quality of life in older people. — Juli Leistner



Washington University medical students, from left, Aaron Shiels, Heather McGuire and Jenn Wetmore, teach reproductive health to students at Ferguson Middle School. The School of Medicine started the Reproductive Health Education Program in 1992 in an effort to curb high teen pregnancy rates and incidences of sexually transmitted diseases in the Ferguson-Florissant School District.

CenterNet to feature health policy expert

Health policy expert Uwe W. Reinhardt, Ph.D., of Princeton University, will be the next speaker for CenterNet, the Academic Health Center Television Network, at 10:30 a.m. Wednesday, Oct. 12, in Room 601A of the School of Medicine Library.

Reinhardt will address the effect of health market reform on academic health centers. Viewers from medical centers nationwide will be able to ask Reinhardt questions during the video conference.

For more information or to reserve a seat, call 362-2793.

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 **Washington**
WASHINGTON UNIVERSITY IN ST. LOUIS

Female volunteers sought for birth control study

Researchers in the Department of Obstetrics and Gynecology are seeking volunteers for a multicenter study that will evaluate the safety and effectiveness of an investigational low-dose birth control pill.

Researchers are looking for healthy women between the ages of 18 and 50 to participate in the study, which will enroll 1,750 women. Researchers strongly recommend that the study participants be in a monogamous relationship.

The pill being evaluated contains progestin and estrogen — common ingredients in birth control pills that inhibit ovulation. However, the investigational pill contains a lower dose of estrogen than birth control pills available in the United States.

Over the years, pharmaceutical manufacturers gradually have lowered the estrogen content of birth control pills. The lower-dose pills have been proven to be just as effective in preventing pregnancy. Also, the lower-dose pills reduce the incidence — though rare — of complications associated with pills containing higher doses of estrogen, most notably hypertension, heart attack and stroke.

The study will continue for up to three years. Participants will receive free birth control pills and physical and gynecological exams related to the study.

For more information, call Diane Merritt, M.D., at 362-5567.

Free flu shots offered

The School of Medicine Employee Health Service will offer free flu shots for medical school employees and students on the following dates this fall. Bring a valid medical school ID card and wear a loose-fitting shirt.

McDonnell Sciences Building
Seashell Lobby

8:30 to 11 a.m.
Oct. 12
Oct. 19
Nov. 2
Nov. 9
Nov. 16

Clinical Sciences
Research Building
Link
(South End)

noon to 2:30 p.m.
Oct. 26
Nov. 2
Nov. 9
Nov. 19

Washington People

Grant tackles today's thorniest issues

Nancy Grant's earliest memories involve books. As a child, she would sit curled in an attic chair for hours, pouring through old books from her parents' "Book of the Month" club memberships and neatly stacked piles of Time and National Geographic magazines.

"I gravitated to the older books. My two brothers have advanced degrees in chemistry and biology so there were a lot of microscopes and insect collections in the attic but I always went straight for the books," Grant said. "I enjoyed knowing where things were going to go, reading about crises of 20 years ago and knowing how they were resolved. I found it intriguing."

Grant, associate professor of history, credits her past for shaping her interests today. She was raised in Hartford, Conn., in a family that included many government employees. Her father worked for the U.S. Postal Service, many cousins worked for the U.S. Department of Labor. Family get-togethers often involved discussions of the realities of being a federal government employee.

"At a young age I'd listen to their discussions and soak it all up," Grant said. Today, Grant classifies herself as a public policy historian. Her current research focuses on the employment of minorities in the federal government, primarily the post office (which is the country's largest civilian employer) from the 1940s to 1975.

Surprisingly, Grant's early research involved a topic worlds apart from her own. As an undergraduate at Smith College, in Northampton, Mass., she became interested in the ethnic and national history of eastern Europe. She wrote her honors thesis on satirist Kurt Tucholsky, a German Jew who was trying rather unsuccessfully to find his place in Germany in the 1920s. In the course of her research, Grant frequented the Leo Baeck Institute in New York, a library with a special collection on the writings of German Jews.

"Here I was this young black woman armed with my serviceable German sitting in a corner reading the diaries of Tucholsky," she said. "People inevitably were curious and would come up and sit next to me to look at what I was working on."

Though it involved a far-away place and time, Grant's early research is notably similar to her current interest in the history and relationships of minorities in America.

"This was a volatile period in Europe that I found stimulating and exciting," Grant said. "While studying European history and minorities, I was always aware of trying to understand the relationship of minorities in this country but I thought it would be a useful and helpful laboratory to study something slightly removed from my own experience."

It was during college that Grant developed a healthy mistrust of others' interpretations of the past. Since then, she always has conducted her own primary research and, as in her youth, can lose herself for hours in shelves of forgotten volumes. Grant only studies areas that have never been extensively researched; topics that she says cause the reference librarian to say quizzically, "Gee, I don't know anyone who's written about that."

"I read interpretations of various people, but I have to see the documents myself," Grant said. "I enjoy reading in libraries but it is always more exciting when I am allowed into the stacks to look up the materials myself. It's like a little victory; you aren't held hostage by librarians who would give you a little piece here and there."

In her senior year, Grant decided to be an American historian and study the issues, problems and tensions of her own country. Because she talks a lot, asks a lot of questions and is "not particularly shy," Grant said she was encouraged by her college professors to go to graduate school.

Grant chose the University of Chicago, where she studied under the pre-eminent African-American historian and professor John Hope Franklin, Ph.D., and received a master's degree and doctorate in 1972 and 1978, respectively. During that period, she began her research into the Tennessee Valley Authority (TVA), a social planning experiment under Roosevelt's New Deal. In 1989, she published the book *TVA and Black Americans: Planning for the Status Quo*.

Before coming to Washington University in 1989, Grant taught history at the University of California, Davis, Northwestern University and Dartmouth College. She also studied music at Yale, played violin in studio with the Temptations, and played in the pit orchestra for Sammy Davis Jr., Smokey Robinson and George Benson, among others. She has published articles about black classical musicians in St. Louis and, to the delight of her students, weaves jazz, rhythm and blues, and gospel into her African-American history curricula.

In addition to her book, Grant has published several scholarly articles on the government's treatment of African Americans, an historical perspective on the relationship between African Americans and Jews, and the impact of the American and French revolutions on slavery, among other topics.

Grant's current research begins with the New Deal of the 1930s, which she identifies as the beginning of modern bureaucracy and of government's role as an agent of social reform. A theme linking her studies is the extremely slow

pace of social change, particularly when that change involves the government.

"I expected the 1960s to be this great blossoming of social reform and I couldn't wait to get into the boxes of the Kennedy and Johnson administrations," Grant said. "So, not really to my surprise — because as an historian you try not to be surprised — I discovered the so-called change I was expecting appeared at best in incremental forms. The actors changed, the language changed, but the impact was not as dramatic as I expected."



"Every one of us who lives in America has been affected by the issues we study in African-American history. No one lives in a vacuum."

pace of social change, particularly when that change involves the government.

Although Grant's research focuses primarily on African Americans, she maintains the cross-cultural perspective of her college studies and also investigates the treatment of other ethnic and religious minorities. Last December, she organized a conference on "Blacks and Jews: An American Historical Perspective," which drew noted African-American and Jewish scholars from across the country to Washington University to discuss the historical and recent interaction between the two minority groups.

was an enormous success."

As an historian, Grant said she believes she has many responsibilities to society. Through her own research, she has witnessed the power historians wield by deciding which records to keep and which to throw away. Early into her current study, she was told (falsely) by a post office archivist that all pertinent records had been destroyed by fire, thrown away or lost.

Historians also play an important role as educators, both in the classroom and in the community. It is a role Grant thoroughly enjoys. At the University and in the larger community, she is active on several committees, panels and advisory boards. When appropriate, she introduces historical significance to policy and other discussions. But it is in the classroom that Grant feels she has the greatest impact. Colleagues and students alike respect the importance of her history lessons and her courage in addressing some of the most controversial issues of the day.

"She tackles the sticky, difficult problems confronting our society and, without making it an agenda, shows us how historical precedence affects policy and race relations today," said Sharra Vostral, a graduate student in history. "I appreciate her as a professor and as an adviser. It is nice to have such an active female academic in the department, and I have learned from her wisdom."

Regardless of race, Grant said she believes everyone can learn from the history of African Americans and other minorities in the United States, and begs to differ with those who say they have been untouched by racism or discrimination. In her history classes, which are predominated by white students, she is sometimes asked why it is important to study the horrors of slavery and the struggles of the civil rights movement.

"I've encountered students who say that's history. We have to live in the present and not focus on the negatives of the past," Grant said. "Every one of us who lives in America has been affected by the issues we study in African-American history. No one lives in a vacuum."

Sometimes, classroom discussion strikes a nerve as Grant encourages her students to explore their feelings about racism and

segregation, past and present.

"Nancy grapples with some very controversial issues in her research and her classroom," said Christine Ruane, Ph.D., assistant professor of history. "Students today are searching for answers to what it means to live in a multi-ethnic, multi-cultural world and Nancy provides a forum for them to express themselves without fear of being attacked verbally."

In her classes, reflections about the history of minorities in this country often lead to discussions of the status of minorities in today's culture, and on today's college campuses. As they study student involvement in the civil rights movements of the 1960s, and today's efforts to establish African-American studies programs and ethnically specific residence halls on many American campuses, students often complain that the world is not as integrated as they would like. Grant's most vivid illustration — which also supports her contention that social change is slow — is the "History of Racial Minorities" class she teaches in Room 100 Busch Hall.

"Invariably, I look up and I see 125 students representing many minorities and they sit clustered in little groups, sitting with others from their own racial/ethnic group. Depending on the mood of the group, I point that out," Grant said. "I say what does it mean that there is a group of white students sitting here and a group of Asian students sitting over there? Are we self-segregating ourselves or are we merely sitting with people we know?"

For an historian who enjoys seeing how tensions resolve, it is a question that may not be answered readily. But, according to David T. Konig, Ph.D., professor of history, it is one of many Nancy Grant questions that must be asked.

"It has long been time to address these issues. We are very fortunate to have such a skilled interpreter of the African-American experience on our campus to do that," Konig said.

— Susannah Webb

Calendar

Oct. 6-15



Exhibitions

"A Gallery of Modern Art." Features 85 19th- and 20th-century masterpieces from the Gallery of Art's permanent collection. Through Oct. 16. Gallery of Art, upper gallery, Steinberg Hall. Hours: 10 a.m.-5 p.m. weekdays; 1-5 p.m. weekends. 935-5490.

"Orpheus on the Mississippi: 19th-Century Music Publishing in St. Louis." Features examples of sheet music from Gaylord Music Library's Collection. Through Oct. 14. Olin Library, Special Collections, Level 5. Hours: 8:30 a.m.-5 p.m. weekdays. 935-5495.



Films

Thursday, Oct. 6

7 and 9 p.m. Filmboard Series. "Shame" (1968). Room 100 Brown Hall. Cost: \$3. For 24-hour Filmboard hotline, call 935-5983.

Friday, Oct. 7

7 and 9:30 p.m. Filmboard Feature Series. "Belle Epoque" (1992). (Also Oct. 8, same times, and Oct. 9 at 7 p.m.) Room 100 Brown Hall. Cost: \$3.

Midnight. Filmboard Midnight Series. "The Transformers" (1986). (Also Oct. 8, same time, and Oct. 9 at 9:30 p.m.) Room 100 Brown Hall. Cost: \$3.

Tuesday, Oct. 11

7 p.m. Chinese Film Series. "An Autumn Afternoon," with English subtitles. Sponsored by the Dept. of Asian and Near Eastern Languages and Literatures. Room 219 South Ridgley Hall. 935-5156.

Wednesday, Oct. 12

7 and 9 p.m. Filmboard Series. "Carnival in Flanders" (1935, B&W). (Also Oct. 13, same times.) Room 100 Brown Hall. Cost: \$3.

Friday, Oct. 14

6:30 and 9:15 p.m. Filmboard Feature Series. "Farewell My Concubine" (1993), in Chinese with English subtitles. Sponsored by Pride, a gay, lesbian and bisexual student group. (Also Oct. 15, same times.) Room 100 Brown Hall. Cost: \$3.

Midnight. Filmboard Midnight Series. "Big Trouble in Little China" (1986). (Also Oct. 15, same time.) Room 100 Brown Hall. Cost: \$3.



Lectures

Thursday, Oct. 6

2:30 p.m. Mechanical engineering colloquium. "On the Constraints Imposed on Constitutive Equations by Symmetries and the Second Law of Thermodynamics," Helmut R. Brand, prof. of physics, U. of Bayreuth, Germany. Room 100 Cupples II Hall. 935-6047.

4 p.m. The 40th Annual Robert J. Terry Lecture. "The Biology of Sexual Orientation," Simon LeVay, chair, board of directors, Institute of Gay and Lesbian Education, West Hollywood, Calif. Sponsored by the Dept. of Anatomy and Neurobiology. Moore Aud., 660 S. Euclid Ave.

4 p.m. History talk. "Great Britain, France and Germany: Reassessing the Western

Experience," Richard Davis, prof. of history and director, Center for the History of Freedom, and Solon Beinfeld, assoc. prof. of history. Room 113 Busch Hall. 935-4399.

4 p.m. Peace Corps lecture. "Peace Corps Partnership in the Global Community," Chuck Baquet, deputy director, Peace Corps. Sponsored by The Career Center. Graham Chapel. 935-4653.

4 p.m. Central Institute for the Deaf Research Seminar. "Developing a Writing Tool for Deaf Writers," Linda Suri, contractor in speech technology, Technology Resources Inc., a division of Southwestern Bell Corp., St. Louis. Second Floor Aud., Clinics and Research Bldg., 909 S. Taylor Ave. 652-3200.

4 p.m. East Asian studies colloquium. "Science and Technology in Post-Mao China," Richard Suttmeier, prof. of political science, U. of Oregon, Eugene. The colloquium series titled "Science, Technology and Modernization in East Asia," is sponsored by the Joint Center for East Asian Studies and University of Missouri-St. Louis. Room 30 January Hall.

Friday, Oct. 7

Noon. Cell biology and physiology seminar. "Cell Cycle Checkpoints," Stephen J. Elledge, assoc. prof., Howard Hughes Medical Institute, Baylor College of Medicine, Houston. Cori Aud., 4565 McKinley Ave. 362-6950.

Noon. Environmental engineering seminar. "Pollution Prevention — A View," Milorad P. Dudukovic, the Laura and William Jens Professor of Chemical Engineering and director, Chemical Reaction Engineering Lab, Dept. of Chemical Engineering. Room 226 Urbauer Hall. 935-8590.

4 p.m. Earth and planetary sciences Charles W. Buescher Memorial Colloquium. "Pressure Alchemy," David H. K. Mao, staff geophysicist, geophysics laboratory, Carnegie Institution of Washington. Room 362 McDonnell Hall. 935-5610.

4 p.m. Music lecture. "Research and Travels in Prague," Judy Mabary, doctoral candidate in musicology, Dept. of Music. Room B-8 Blewett Hall. 935-5581.

4-7 p.m. Film screening and lecture. "Nothing but a Man," a classic movie from the 1960s showcasing racial attitudes in the southern United States. Co-directed by Michael Roemer, prof. of art, Yale U., New Haven, Conn. Roemer will lecture about the film after the screening. Sponsored by the American Culture Studies Institute. Room 149 McMillan Hall. 935-5216.

Monday, Oct. 10

4 p.m. Biology seminar. "Salmonella Pathogenesis and Control in Chickens," J. Olu Hassan, clinical research investigator, Dept. of Biology. Room 322 Rebstock Hall. 935-6287.

4 p.m. Biomedical computing and biological engineering seminar. "The Visible Embryo: Image Reconstruction Meets Distributed Computing," Mike Doyle, director, Health Informatics Lab, Dept. of Anatomy, U. of San Francisco. Wohl Aud., 4960 Children's Place. 362-2134.

8 p.m. Architecture lecture. "Actions and Continuities," Tom Hanrahan, Hanrahan/Meyers, and asst. prof. of architecture, Columbia U., New York. Steinberg Hall Aud. 935-6200.

Tuesday, Oct. 11

9 a.m. Dept. of Psychiatry Samuel B. Guze Lecture. "Perspectives on Health Policy Issues for Psychiatry," Jack D. Barchas, the Barklie McKee Henry Professor and chair, Dept. of Psychiatry, Cornell U. Medical College, New York. Clopton Aud., 4950 Children's Place. 362-7772.

4 p.m. Anthropology colloquium. "The Eve Hypothesis," Alan Templeton, prof. of biology. Room 149 McMillan Hall. 935-5346.

7 p.m. Reading and book signing. "Every Goodbye Ain't Gone," Itabari Njeri, author, journalist and lecturer. Sponsored by the African and Afro-American Studies Program. Hurst Lounge, Room 201 Duncker Hall.

Wednesday, Oct. 12

8 a.m. Obstetrics and Gynecology Grand Rounds table discussion. Faculty will discuss practical management of reproductive endocrine problems. Clopton Aud., 4950 Children's Place. 362-3122.

11 a.m. Assembly Series lecture. "On Writing 'The Black Swan,'" Richard Selzer, physician and author of *Confessions of a Knife* and *Raising the Dead*. Graham Chapel.

11 a.m. Pathology seminar. "DNA-based Immunization Via Direct Gene Transfer: A New Paradigm for Vaccine Development," Robert Whalen, prof., Dept. of Molecular Biology, Institut Pasteur, Paris, France. Room 7738 Clinical Sciences Research Bldg.

4 p.m. Biochemistry and molecular biophysics seminar. "Biological Electron Transfer — Site Directed Mutagenesis of Cytochrome C," Michael A. Cusanovich, vice president for research, U. of Arizona, Tucson. Cori Aud., 4565 McKinley Ave. 362-0261.

4 p.m. Judaism lecture. "The European Origins of Conservative Judaism," Ismar Schorsch, chancellor, Jewish Theological Seminary. Sponsored by Jewish and Near Eastern Studies and Hillel Foundation. Women's Bldg. Lounge. 935-8567.

4 p.m. Physics colloquium. "Solar Variability and Terrestrial Climate," Eugene Parker, prof., Enrico Fermi Institute, Dept. of Physics and Astronomy, U. of Chicago. Room 204 Crow Hall. 935-6276.

Thursday, Oct. 13

1:10 p.m. Social work lecture. "Legislative Advocacy for Children and Families: What Can We Do?" Nancy Amidei, senior lecturer and assoc. director, Center for Policy and Practice Research, School of Social Work, U. of Washington, Seattle. Brown Hall Lounge.

4 p.m. Earth and planetary sciences colloquium. "Compositional Variation in Apollo 16 Impact-melt Breccias and Inferences for the Geology and Bombardment History of the Central Highlands of the Moon," Randy Korotev, research assoc. prof., Dept. of Earth and Planetary Sciences. Room 362 McDonnell Hall. 935-5610.

4:15 p.m. Philosophy lecture and discussion. "On Skeptical Interferences From the History of Science: Rebutting the Pessimistic Induction," Robert Barrett, prof., Dept. of Philosophy. Room 109 Simon Hall. 935-7148.

4:30 p.m. Math colloquium. "Linearity of the Nearest Point Cross Section Operators on Holomorphic Function Spaces," Joseph China, prof. of mathematics, U. of North Carolina. Room 199 Cupples I Hall.

Friday, Oct. 14

Noon. Cell biology and physiology seminar. "Palmitoylation of src Family Kinases and Interaction With GPI-anchored Membrane Proteins," Douglas M. Lublin, prof. of pathology and adjunct prof. of medicine. Cori Aud., 4565 McKinley Ave. 362-6950.

4 p.m. Molecular microbiology seminar. "mRNA Destabilization by the Virion Host Shutoff Protein of Herpes Simplex Virus," Sullivan Read, asst. prof., School of Biological Science, U. of Missouri, Kansas City. Room 775 McDonnell Medical Sciences Bldg.



Music

Friday, Oct. 7

7:30 p.m. Opera concert. "Read-through of Mozart's 'Cosi fan tutte,'" featuring Jolly Stewart, director, and Gail Hintz, pianist. Christ Church Cathedral, 13th and Locust streets. 935-5581.

Sunday, Oct. 9

2:30 p.m. Wind ensemble concert. Directed by Dan Presgrave, instrumental coordinator and lecturer in music, the performance features Robert Souza's Dixieland Five. Saint Louis Art Museum Theatre. 935-5581.

7:30 p.m. Kingsbury Trio concert. Features Jacob Berg on the flute, Maryse Carlin on the fortepiano and Sarah Edgerton on the cello. Umrath Hall Lounge. 935-5581.

Saturday, Oct. 15

8 p.m. Gabriello Trio concert. Features violinist James Buswell, teacher at The New England Conservatory of Music, Boston; cellist Michael Haber, member of The Cleveland Orchestra, Casals Festival Orchestra and Mostly Mozart Festival Orchestra; and pianist Seth Carlin, prof. of music, soloist with the St. Louis Symphony Orchestra. Steinberg Hall Aud. 935-5581.



Performances

Friday, Oct. 7

8 p.m. Edison Theatre "OVATIONS!" series presents dancer/choreographer Daniel Ezralow and his cadre of movement artists. Co-sponsored by Dance St. Louis (Also Oct. 8, same time, and Oct. 9 at 2 p.m.) Edison Theatre. Cost: \$20 for the general public; \$16 for senior citizens, faculty and staff; and \$11 for students. 935-6543.

8 p.m. Performing Arts Dept. presents "The Endless Adventures of M.C. Kat or How They Got From A to B," a story about a small furry stuffed animal who gets lost after falling out of a car window. (Also Oct. 8, 14 and 15, same time, and Oct. 9 at 7 p.m.) Drama Studio, Room 208 Mallinckrodt Center. Cost: \$8 for the general public; and \$6 for faculty, staff and students. 935-6543.

Tuesday, Oct. 11

7 p.m. AIDS Interfaith Network of St. Louis performance and discussion. A symposium for the annual AIDS symposium on Oct. 12. "Exposed," a drama by January Kiefer, will be presented by Story Performers. A group discussion will follow with the Rev. Bradley Wishon, pastor, Metropolitan Community Church of Greater St. Louis. Sponsored by the AIDS Clinical Trials Unit, Office of Continuing Education and AIDS Interfaith Network of St. Louis. Frontenac Hilton, 1335 S. Lindbergh at Highway 40. 362-2418.



Miscellany

Thursday, Oct. 6

4 p.m. Career Center workshop. "Getting Into Graduate School...What Works, What Doesn't, and Why," Donald Asher, author and contributing writer for the *National Business Employment Weekly* and *Managing Your Career*, subsidiary publications of The Wall Street Journal. Workshop includes an interactive videoconference. Room 7 Prince Hall. Limited seating. For more info. and to register, call 935-5930.

6:30-8:30 p.m. Campus Y Fall Course. "Meditation." Teaches the benefits of meditation: relaxation, heightened mental clarity, emotional balance and spiritual growth. Continues Thursdays through Oct. 27. Stix International House. Cost: \$40 for the general public; \$30 for full-time students; and \$35 for faculty and staff. To register, call 935-5010.

Calendar guidelines

Events sponsored by the University — its departments, schools, centers, organizations and its recognized student organizations — are published in the Calendar. All events are free and open to the public, unless otherwise noted.

Calendar submissions should state time, date, place, sponsor, title of event, name of speaker(s) and affiliation, and admission cost. Quality promotional photographs with descriptions are welcome. Send items to Judy Ruhland at Box 1070 (or via fax: 935-4259). Submission forms are available by calling 935-4926.

The deadline for all entries is noon Tuesday one week prior to publication. Late entries will not be printed. The Record is printed every Thursday during the school year, except holidays, and monthly during the summer. If you are uncertain about a deadline, holiday schedule, or any other information, please call 935-4926.

8 p.m. **Bookmark Society slide presentation.** "The Whittington Press: Its Books and Their Production," John Randle, British fine printer, book designer and proprietor of The Whittington Press. Co-sponsored by the School of Art. Steinberg Hall Aud. 935-5487.

Saturday, Oct. 8

8 a.m.-5 p.m. **Campus Y Fall Course.** "Personal Challenge." Join the "Team Adventure" staff for a daylong outdoor Outward Bound experience. Also offered Oct. 23 and Nov. 5. Bring a sack lunch. Transportation provided. Meet in front of Mallinckrodt Center at the drive off Forsyth Boulevard. Cost: \$35 for the general public; \$25 for full-time students; and \$30 for faculty and staff. To register, call 935-5010.

Wednesday, Oct. 12

8 a.m.-5 p.m. **AIDS education symposium.** "New Dimensions in the Management of HIV Disease." Sponsored by AIDS Clinical Trials Unit, Office of Continuing Education and Midwest AIDS Training and Education Center. Frontenac Hilton, 1335 S. Lindbergh

at Highway 40. For cost and registration info., call 362-2418.

Friday, Oct. 14

9 a.m.-3 p.m. **Continuing education social work conference.** "Making the Leap: Providing Services for Gay, Lesbian and Bisexual Youth," a day of workshops and discussion groups with human service professionals. Co-sponsored by The George Warren Brown School of Social Work, Office of Continuing Education; The Center; Parents and Friends of Lesbians and Gays; and Pride, a gay, lesbian and bisexual student group. Keynote speech, "Gay, Lesbian and Bisexual Youth as a Professional Challenge: It's Time to Act," Stefan Wade, clinical social worker, Minneapolis, and a popular national speaker on gay and lesbian issues. Brown Hall. For cost and registration info., call 935-4909.

Saturday, Oct. 15

10 a.m.-4 p.m. **1994 International Folkfest.** A volunteer recruitment event for Community Connections. Queeny Park. 935-4787.

Brooklyn-born Njeri to read from works

Award-winning writer Itabari Njeri will read from her book *Every Good-bye Ain't Gone* as well as her work in progress at 7 p.m. Tuesday, Oct. 11, in Hurst Lounge, Room 201 Duncker Hall. A book signing will follow her reading, which is free and open to the public.

The Brooklyn-born Njeri, a contributing editor at the Los Angeles Times Magazine, published her acclaimed memoir, *Every Good-bye Ain't Gone*, in 1990. She won the American Book Award that same year for the book. "When Ralph Ellison wrote about black invisibility in white America, he created a metaphor that would endure. Now Itabari Njeri conjures up her history and ... makes it stirring, heartbreaking, and perhaps most important, visible," wrote a critic for The New York Times Book Review. Njeri's work in progress is *The Last Plantation*, a book on inter-group conflict

and healing, to be published in spring 1995.

Njeri, who frequently lectures on multicultural issues, also has written on diversity issues for the Los Angeles Times. In 1992 she was a Pulitzer Prize finalist for cultural criticism.

Among Njeri's honors are a National Endowment for the Humanities Fellowship for outstanding journalists, the National Association of Black Journalists Award for feature writing, a Penney-University of Missouri journalism prize for feature writing and a Los Angeles Press Club award for excellence in entertainment reporting.

Njeri's visit is sponsored by the African and Afro-American Studies Program, Women's Studies Program, American Culture Studies Institute and the Department of English.

For more information, call 935-5690.



Washington University senior Gwendolyn Grote plays the role of Anna and St. Louis actor Jim Freund is cast as Ken in the world premiere of "The Black Swan." The play opens Oct. 20 in Edison Theatre. Grote also has appeared on television's "Murder, She Wrote" and "Baywatch."

Edison produces world premiere of Selzer play, 'The Black Swan'

"The Black Swan," a new play by physician/author Richard Selzer, will make its world premiere Oct. 20-23 and 27-30 in the Drama Studio, Room 208 Mallinckrodt Center.

The play is being produced by Edison Theatre as part of the "Stage Left" series. This world premiere marks the first time Edison Theatre will produce a show.

"The Black Swan," based on a Thomas Mann novella by the same name, tells the story of a German widow in her mid-50s who falls in love with a young American. Under the influence of her extraordinary passion, she grows young and beautiful again.

Selzer, a surgeon who turned to writing at age 40, has received accolades for his essays and fiction. A critic for The New York Times Book Review wrote that Selzer "is one of our most persuasive writers of essays, fiction

and autobiography springing from the practice of medicine."

The production will be directed by Henry I. Schvey, chair of the Performing Arts Department.

Tickets are \$12, with student discounts available. Tickets are available at the Edison Theatre box office or through Metrotix at 534-1111.

Egon Schwarz, the Rosa May Distinguished University Professor in the Humanities (emeritus), will offer a pre-performance lecture at 7 p.m. Oct. 28 in Edison Theatre on how Thomas Mann's life experiences may have influenced his writing of *The Black Swan*. Schwarz will offer his comments in German. The lecture is free and open to the public.

For more information about the production, call 935-6543.

Author discusses writing 'Black Swan'

Physician-turned-author Richard Selzer will lecture at 11 a.m. Wednesday, Oct. 12, as part of the Assembly Series. The lecture, which is free and open to the public, is titled "On Writing 'The Black Swan,'" and will be held in Graham Chapel. (See related story above.)

In his talk, Selzer will describe the process of adapting the work for the stage.

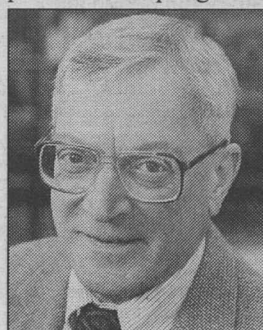
Selzer trained as a surgeon and was on the surgery faculty at Yale University between 1960 and 1985. He began to write in 1968 at age 40, drawing material from his medical experience. He is the author of many works, among them *Mortal Lessons*, an early collection of essays on surgical themes, *Down From Troy: A Doctor Comes*

of Age, an uncompromising memoir of his upstate New York boyhood, and *Raising The Dead*, an acutely observed account of his own illness and near-death experience when he suddenly fell victim in 1991 to Legionnaires' disease. Selzer attributes his unusual career to what he describes as a battle for his soul in childhood between his mother, an artist with literary ambitions for her son, and his physician father who took his young son with him on house calls. He ended up fulfilling both expectations.

Selzer has received numerous awards and fellowships for his writing, among them eight honorary degrees and National Endowment for the Arts fellowships.

The author will join students at the School of Medicine for an informal discussion during his visit.

This talk is sponsored by Student Union, the Program for the Humanities in Medicine, Edison Theatre, Pre-Med Society, International Writers Center and the Department of English. For information, call 935-5297.



Richard Selzer

many works, among them *Mortal Lessons*, an early collection of essays on surgical themes, *Down From Troy: A Doctor Comes*

Acclaimed Gabrielli Trio to perform Oct. 15

The Gabrielli Trio will perform a free concert at 8 p.m. Oct. 15 in the Steinberg Hall Auditorium. The event, which is sponsored by the Department of Music, is open to the public.

The Gabrielli Trio features violinist James Buswell; cellist Michael Haber, founder of the trio; and pianist Seth Carlin. The program includes Bohuslav Martinu's "Bergerettes (Pastorals)," Anton Arensky's "Trio, Op. 32," and Ludwig van Beethoven's "Trio, Op. 70 #2."

A graduate of the Juilliard School and Harvard University, Buswell won first prize in the Merriweather Post-Competition and received a Martha Baird Rockefeller Foundation Grant. Buswell has performed with

major orchestras across the United States and regularly performs throughout the world.

Haber is a Phi Beta Kappa graduate of Brandeis University. He was a member of The Cleveland, Casals Festival and Mostly Mozart Festival orchestras. He has toured and recorded internationally as a member of The Composers String Quartet and the Orpheus Chamber Orchestra.

Carlin, professor of music at Washington University, is a graduate of Harvard University and the Juilliard School. Carlin was a prizewinner in the International Busoni Competition and has appeared as a soloist with orchestras such as the St. Louis Symphony and the Boston Pops.

For more information, call 935-5581.

Sports

The following is compiled by Mike Wolf, director of sports information, and David Moessner, assistant director.

Football

Last Week: Washington 31, Rhodes 7
This Week: 1:30 p.m. Saturday, Oct. 8, at University of Chicago
Season Record: 3-2

Washington's tailback tandem of Justin Cummins, Murtaugh, Idaho, and Todd Hannum, Maryville, Tenn., combined to rush for 132 yards and three touchdowns.

Women's Volleyball

Last Week: At Wisconsin-Whitewater Invitational: Washington 3 (15, 15, 15), Wisconsin-Oshkosh 0 (2, 7, 10); Washington 3 (15, 15, 15), St. Thomas 0 (7, 7, 3); Washington 3 (15, 15, 11, 15), Wisconsin-Whitewater 1 (3, 7, 15, 0); Washington 3 (15, 15, 9, 9, 15), St. Benedict 2 (7, 5, 15, 15, 7)

This Week: 7 p.m. Oct. 4 at Columbia College, Columbia, Mo.

Season Record: 24-0 (7-0 UAA)

Washington University extended its overall win streak to 30 consecutive matches by beating four highly regarded teams over the weekend. Led by All-Americans Amy Albers, Washington, Mo., and Anne Quenette, Springfield, Ill., the Bears scored the first seven points of a fifth game against St. Benedict and cruised to a 15-7 win.

Men's Soccer

Last Week: Washington 2, Rochester 1; Washington 2, Brandeis 1

This Week: 4:30 p.m. Oct. 5 vs. Webster University, St. Louis Soccer Park; 4 p.m. Saturday, Oct. 8, at MacMurray College, Jacksonville, Ill.

Season Record: 6-3-2 (2-0-1 UAA)

Sophomore David Katz, Stony Brook, N.Y., scored both goals in the win over Rochester. The Bears defeated Brandeis

with goals from sophomore Scott Engroff, Mequon, Wis., and senior Kevin Neebes, Cleveland.

Women's Soccer

Last Week: Washington 4, Westminster 0; Rochester 3, Washington 0; Brandeis 2, Washington 1

This Week: 7 p.m. Thursday, Oct. 6, at Southern Illinois University-Edwardsville, Edwardsville, Ill.; 1 p.m. Saturday, Oct. 8, vs. Fontbonne College, Francis Field

Season Record: 3-6-1 (0-3-0 UAA)

Men and Women's Cross Country

Last Week: At Loyola Lakefront Invitational — Men: 6th of 18; Women: 8th of 14

This Week: 11 a.m. Saturday, Oct. 8, at University of Missouri-Rolla Miner Invitational, Rolla, Mo.

The men's effort was led by junior Asa Flanigan, Kankakee, Ill., who turned in a personal-best eight-kilometer time of 26:37, to finish 36th among 197 finishers. On the women's side, sophomore Jerylin Jordan, Kanohe, Hawaii, the reigning UAA Athlete of the Week, posted a 19:43 five-kilometer effort to finish 14th among 145 Division II and III competitors.

Women's Tennis

Last Week: At Millikin's Dorothy McClure Memorial Tournament, Decatur, Ill.

This Week: 3:30 p.m. Oct. 5 vs. St. Louis University, Tao Tennis Center; 3:30 p.m. Friday, Oct. 7, at Sangamon State University, Springfield, Ill.

At the Dorothy McClure Memorial Tournament Washington won five of the six singles flights and captured two of the three doubles levels.

Today's technology prompts new ethical questions in engineering

As part of an ongoing series on the teaching of ethics at Washington University, this story looks at ethics in the School of Engineering and Applied Science. Future stories will focus on the schools of social work, architecture and art, as well as the College of Arts and Sciences.

Historical precedent for ethics in engineering dates back to ancient Greek mythology and Daedalus, a mortal who built wings in an effort to reach the heavens. His attempt to defy gravity was punished by the gods through an engineering failure when the wax holding the wings together was melted by the sun, hurling Daedalus' son, Icarus, to his death.

Engineers today, who have the technical power to modify some elements of nature, can appreciate the ancient lesson of Daedalus. A modern parallel might be last summer's flooding of the Mississippi River, the magnitude of which was attributed largely to attempts to restrain the river with levees and commercial development.

Until the middle of this century, engineering activities were negligible in comparison with the global forces of nature. Today's technology has changed the relationship between man and nature, prompt-

ing new ethical questions in engineering, including: At what cost should engineers obey society's bidding?

"There is a joke popular among engineers that whenever a great project, such as the Apollo Mission, goes well it is considered a brilliant *scientific* success; if it fails, it is a miserable *engineering* failure," said Andrew D. Dimarogonas, Ph.D., the William Palm Professor of Mechanical Design. "Similarly, engineers often are blamed for everything from air pollution, through their designs of automobiles, to floods, through their construction of levees, locks and dams. This is one of the great ethical misunderstandings of society."

In addition to new technology, legal, corporate and societal realities related to the world of engineering make it imperative that today's students graduate with an awareness of the ethical dilemmas they will face as engineers.

The Accreditation Board for Engineering and Technology requires engineering schools to teach ethics, but does not specify how that task should be accomplished. Students at the School of Engineering and Applied Science are required to take "Senior Design Project," which introduces them to the American Society of Mechan-

ical Engineer's code of ethics, as well as issues of design ethics, product liability and organizational and individual responsibility, among other topics. In addition, students can choose from several electives that address ethical concerns, including recycling and disposal of nuclear waste. Advisers also inform their students about ethics courses offered through the College of Arts and Sciences' Department of Philosophy.

As a whole, basic ethical concerns in engineering have not changed dramatically since the ancient Romans took elaborate measures to guard against water pollution in their design of aqueducts. But today's engineers face new complexities stemming from changing technological, legal, corporate and societal realities.

"Basic ethical dilemmas haven't changed at all throughout history. But 100 years ago, it was inconceivable to sue an engineer for a defective product," Dimarogonas said. "Also, in the last century, a factory had one engineer who was the beginning and end of engineering decisions. Today, companies have thousands of engineers who are small gears in a complex machine. These engineers usually don't know the whole story, the whole process."

As a result, an engineer working for a large company may be unable to judge the social implications of the final design,

simply because he or she does not always know what that final design will be.

By the nature of their job, engineers often are the first to discover if a product is potentially defective. At this point, an engineer must weigh his or her loyalties to society against loyalties to the company. "Whistle blowing" is a term that comes up frequently in discussions of ethics at the school, and in the larger profession. A recent emphasis on "green design," or design for recyclability, and other environmental concerns also are incorporated into the engineering curricula at universities worldwide.

As a result of unprecedented complexity in the engineering profession, Dimarogonas stresses the need to teach today's engineering students individual responsibility, as well as organizational and societal responsibility.

"It is not enough to impose ethical constraints on the work of a single engineer," he said. "We need to address the ethics of the organizations and of the engineering profession as a whole, in conjunction with other factors involved in modern engineering design decision, such as medicine, law, politics, economics, environment, etc. This transition is not an academic exercise in futility, but it reflects a real need of our times."

— Susannah Webb

University accelerates data transmission — from page 1

high-quality communications services as movies on demand, interactive video town meetings, long-distance medical diagnosis and sophisticated forms of shopping over future information highways at the lowest cost.

SONET is an international standard for optical transmission systems formed under the leadership of Bellcore for high-speed fiber optic transport. The SONET standards allow fiber optic equipment manufactured by different companies to be interconnected easily.

ATM is a switching and transmission technique based on the concept of carrying information in small, fixed-sized units called cells for efficient transport of multimedia information.

Washington University is an international pacesetter in ATM networks and switching architectures. The Project Zeus switch, designed by Jonathan S. Turner, Ph.D., professor and chair of computer science, connects scores of campus computers to the Project Zeus ATM network. The switch can transmit video, audio and text data 10,000 times faster than current telephone lines. A new switch architecture Turner invented approximately a year ago provides more efficient support of multicast communication and is designed to operate at 2.4 Gb/s, 16 times faster than the previous speed. The improved multicast communication (communication between many different parties) enables the construction of cost-effective, large-scale networks.

The collaborating partners will bring various equipment, technological and

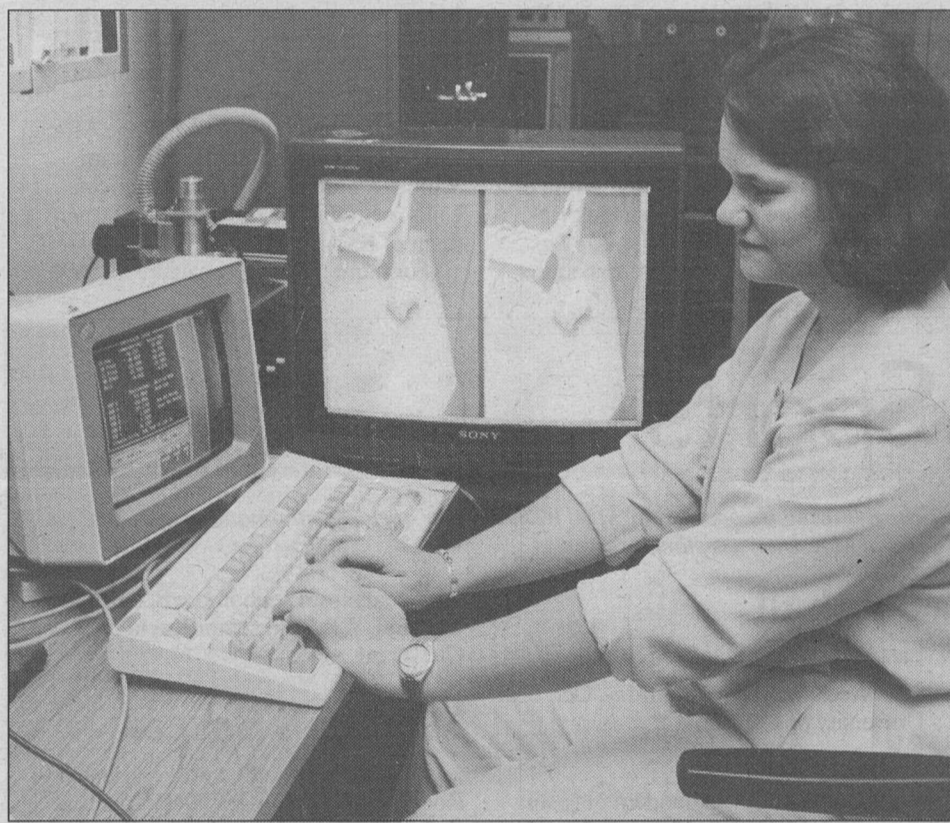
managerial expertise to the program. Turner said the Washington University contribution is to provide gigabit switching capacity and sophisticated medical imaging applications that will be demonstrated over the network at much higher speeds than currently available so that the images can be sent from point to point in real-time.

The medical and scientific imaging applications to be tested are spiral tomography and computational optical sectioning microscopy. Spiral tomography is an innovation of computer-aided tomography that provides high-resolution image data sets of a patient from an array of sources and detectors. Computational optical sectioning microscopy renders 3-D data sets of live biological samples without the use of intense light, which can destroy the living sample being studied. The objective with gigabit switching is to have both of these technologies connected to the Project Zeus network so that data gathered are directly delivered to image-processing computers, which then in real-time compute the set of images and send them to a display terminal.

"Being able to process these data in real-time enables you to make adjustments on the fly," Turner said.

"In terms of this project, everything is coming together here in St. Louis. Southwestern Bell is the hub of the activity where many of our collaborators will be working on the demonstration of the technology. And Washington University will provide the gigabit ATM switching and the set of applications to come from the project."

— Tony Fitzpatrick



Junior engineering student Jennifer Herron works on the robotic "arm" at the Johnson Space Center in Houston.

At age 20, Herron is NASA veteran — from page 1

along the ground and pick up dirt," Herron said. "The problem with it was you had to have a person come along and take the piece apart so you could attach it to the spectrometer. Of course, there won't be any astronauts on Mars this century, so something else was needed. My project specifications were to build an end-effector that will pick up things remotely as well as interface efficiently with several different instruments in the robot."

Herron spent an initial few weeks researching the different end-effector parts available at the Space Center, then went about the task of designing the new piece. That took about a month. Over the rest of her stay she worked with scientists in setting up the experiment.

Herron is not finished with planets simply because she has completed her design. She's working (apart from the Missouri Space Grant Consortium) with Arvidson and his colleagues at the NASA Geoscience Node this academic year to smooth the way for storing and distributing the massive data sets planned for the next Mars Mission. The Geoscience Node is the chief storehouse and distribution center for NASA data from the surfaces and interiors of Mercury, Venus, the Moon, Mars and the larger satellites of the planets.

She also has some unfinished business with robots. There are two cameras on the end of the robotic arm that take 3-D, stereo-video pictures of what the robot collects. The robots are put on a rover vehicle that carries them throughout the Martian terrain.

Herron, Arvidson, Geoscience Node Coordinator Tom Stein and others in earth and planetary sciences are figuring out a system to take the transmitted pictures from the robot and send them out to scientists worldwide over the Internet or some other electronic communications system.

At 20 Herron already is a NASA veteran. The summer after her freshman year she worked at the Johnson Space Center as a volunteer intern in robotics. And, in high school, she attended the famous NASA Space Academy in Huntsville, Ala., as well as a NASA space camp at the Johnson Space Center. With all of the NASA science in her backyard of Houston, why did she come to Washington University in St. Louis?

"One of the biggest reasons I came here was my involvement in theater in high school," she said. "There is a great theater department here, and I realized I could come here and do theater without having to major in it. I can do engineering as well as performing arts. That may seem like two things that cancel each other out, but there are lots of similarities between technical theater, for instance, and engineering. They're both creative and involve knowledge of how to build things."

Herron is a bit vague about her immediate future, although she knows she wants to get a master's degree in mechanical engineering in her specialty — robotics.

"What I'd really like to be ultimately is an astronaut," she said.

— Tony Fitzpatrick

Campus Watch

The following criminal incidents were reported to the Hilltop Campus Police Department Sept. 26-Oct. 3. Readers with information that could assist the investigation of these incidents are urged to call 935-5555. This release is provided as a public service to promote safety awareness on campus.

Sept. 28

9:59 a.m. — A staff member's wallet was reported stolen from the Nursery School sometime between 8 a.m. and 2 p.m. Sept. 27.

Sept. 29

7:45 p.m. — Compact discs and bags belonging to a student were reported stolen from Phi Delta Theta sometime between 10 and 10:45 p.m. Sept. 25.

7:48 p.m. — A student's radio and case were reported stolen from Phi Delta Theta sometime between 10 and 10:45 p.m. Sept. 25.

Sept. 30

11:11 a.m. — A student's typewriter was reported stolen from Room 17 Busch Hall sometime between 5 p.m. Aug. 15 and 10 a.m. Sept. 30.

Oct. 1

2:51 a.m. — An altercation between two male students was reported on the parking lot by the tennis courts. There were no injuries. The incident will be referred to the Board of Judicial Administrators.

4:39 p.m. — A student's mountain bicycle was reported stolen from the rack on the south side of Olin Library sometime between 1:30 and 4:14 p.m.

6:12 p.m. — A student's mountain bicycle was reported stolen from the rack on the north side of Liggett Residence Hall sometime between 4 p.m. Sept. 30 and 6:12 p.m. Oct. 1.

Oct. 2

12:59 a.m. — A male student was caught stealing a sign from the lower level of the Millbrook parking garage. The incident will be referred to the Board of Judicial Administrators.

6:14 p.m. — A student's bicycle was reported stolen from the rack at Koenig Residence Hall sometime between 6 p.m. Sept. 30 and 5:30 p.m. Oct. 2.

In addition to the incidents listed above, campus police received three reports Sept. 28 of thefts of currency and jewelry from suites in Dauten Residence Hall.

For The Record

For The Record contains news about a wide variety of faculty, staff and student scholarly and professional activities.

Of note

Paul M. Allen, Ph.D., professor of pathology, received a \$70,000 grant from The Council For Tobacco Research — U.S.A. Inc. for a project titled "Immune Effector Mechanisms in the Pathogenesis of Atherosclerosis." ...

Bruce Bergner and **Bonnie Kruger**, both artists-in-residence in performing arts, exhibited designs in a show titled "STAGEART" at the I-Space gallery in Chicago. The show was the first I-Space gallery exhibit to feature theatrical design. Bergner exhibited scene designs from "The Three Musketeers" for the Illinois Repertory Theatre. Kruger exhibited costume designs for "Ottone," an opera designed for The Göttingen Handelfest. ...

Paul J. Goodfellow, Ph.D., associate professor of surgery, received a \$30,000 grant from the Epilepsy Foundation of America for a project titled "Genetic Studies of Kifafa and Inherited Seizure Disorder." ...

Ronald J. Himes, adjunct instructor in African and Afro-American Studies and producing director and founder of the St. Louis Black Repertory Company, was named a national selection judge for the Kennedy Center's American College Theater Festival. Himes, one of a three-person panel, will critique productions at eight college theater festivals in 1995. The Washington University alumnus also will help select productions to be showcased at the national festival at the Kennedy Center in Washington, D.C. ...

Karen L. O'Malley, Ph.D., associate professor of anatomy and neurobiology, received a \$727,832 four-year grant from the National Institute of Mental Health for a project on "Transcriptional Control of Neuroendocrine Genes." ...

Susan R. Wente, Ph.D., assistant professor of cell biology and physiology, received an \$830,789 four-year grant from the National Institute of General Medical Sciences for a project titled "Molecular Analysis of Nuclear Pore Complex Function." ...

Speaking of

John W. Clark, Ph.D., professor of physics, delivered a talk on "Statistical Modeling of Nuclear Masses With Neural Network Algorithms" at the 18th International

Workshop on Condensed Matter Theories held in Valencia, Spain. Afterward he spent a week at the University of Coimbra in Portugal, where he gave a lecture titled "Teaching Neural Networks to Do Science." He also spoke on "Applications of Neural Networks to Nuclear Physics" at the Instituto Superior Tecnico in Lisbon. ...

At the American Political Science Association's annual meeting in New York, members of the Department of Political Science delivered papers. **Nicole Collins**, a graduate student, and **Victor T. Le Vine**, Ph.D., professor, presented "The State and the Challenge of Religious Fundamentalism: The Cases of Israel and Egypt."

Robert H. Durr, Ph.D., and **John B. Gilmour**, Ph.D., both assistant professors, and **Christina Wolbrecht**, a graduate student, delivered "Explaining Congressional Approval." **Arnold J. Heidenheimer**, Ph.D., professor, presented "Did Unification Keep the Christian Democratic Union From Sharing the Fate of Other Once Dominant Parties: An Exploration." **William R. Lowry**, Ph.D., assistant professor, delivered "Neither Paradises Nor Parking Lots: State Parks in Tough Economic Times." Other department members who delivered papers were **Valerie J. Hoekstra**, a doctoral fellow, and graduate students **Justin E. Gillespie**, **Randy Glean**, **Timothy R. Johnson**, **Karl Kaltenthaler**, **Lisa J. Montoya** and **David C. Nixon**. ...

During the 57th annual meeting of The Meteoritical Society in Prague, Czech Republic, members of the McDonnell Center for the Space Sciences presented talks. **Robert M. Walker**, Ph.D., McDonnell Professor of physics and director of the center, presented a "Retrospective on the Return of the First Lunar Samples," and **Ernst Zinner**, Ph.D., research professor of physics, delivered a special plenary talk on "Astronomy by Mass Spectrometry: Interstellar Grains in Meteorites." Other McDonnell members presenting papers were **Conel Alexander**, Ph.D., senior research associate in physics; **Sachiko Amari**, Ph.D., senior research associate at the center; **Robert Brazzle**, a graduate student in physics; **Ghislaine Crozaz**, Ph.D., professor of earth and planetary sciences; **Weibiao Hsu** and **Dante Lauretta**, graduate students in earth and planetary sciences; **Karl Kehm**, **Scott Messenger** and **Larry Nittler**, graduate students in physics; and **Frank A. Podosek**, Ph.D., professor of earth and planetary sciences. Hsu, Lauretta and Messenger received student awards from the Barringer

Crater Co. and IAGC Czechoslovak Trade Bank to attend the conference. ...

George Yeh, a doctoral candidate in chemistry, presented a poster titled "An Inert Cobalt Cage-phenol Complex: A Potential Electrostatic Catalytic Agent for Ribonucleic Acid Hydrolysis" during Missouri Inorganic Day at the University of Missouri-Columbia.

On assignment

The U.S. Nuclear Regulatory Commission appointed **Barry A. Siegel**, M.D., professor of radiology at the School of Medicine's Mallinckrodt Institute of Radiology, to a third two-year term as chair of the Advisory Committee on Medical Uses of Isotopes. When Siegel originally was appointed in 1990, he became the first non-governmental appointee to serve as chair. ...

Evy Warshawski, managing director of Edison Theatre, was a panelist for two National Endowment for the Arts' (NEA) panels. She served on the Advancement Overview Panel and the Presenting Networks Panel. She is a site visit panelist for

the NEA's Presenting and Commissioning Program as well. In addition, she will serve on the Missouri Arts Council's Multi-discipline Advisory Panel for a one-year term.

To press

Paul G. Anderson, Ph.D., assistant professor of biomedical communications in the Medical School Library, published a chapter on "Biomedical Research Facilities" in a book titled *Documenting Planning for the U.S. Health Care System*. The book is a guide for archivists and historians interested in contemporary institutions related to medicine and health.

Guidelines for submitting copy:

Send your full name, complete title, department, phone number and highest-earned degree, along with a typed description of your noteworthy activity to For The Record, c/o Carolyn Sanford, Campus Box 1070, or p72245cs@wuvmd.wustl.edu. Items must not exceed 75 words. For information, call Sanford at 935-5293.

McLeod named Educator of the Year

James E. McLeod, dean of the College of Arts and Sciences, has received an Educator of the Year award from the St. Louis American, a weekly newspaper covering the city's African-American community. The award honors those who have provided African-American youth with the educational tools for success.

McLeod and four other Educators of the Year recently were honored at the newspaper's 1994 Salute to Excellence community awards banquet held in the America's Center downtown. More than 1,000 people attended the event, which was hosted by former Miss America Debby Turner and Art Holliday, a morning news anchor at



James E. McLeod

KSDK-TV, Channel 5. Benjamin Carson, M.D., a pediatric neurosurgeon at Johns Hopkins University in Baltimore, was the keynote speaker.

In a statement published in the American's Salute to Excellence tabloid, Donald M. Suggs, D.D.S., publisher, said the honorees' lives communicate a common message: "Individual African Americans show a genius for self-redemption in the face of adversity. These remarkable men and women have prevailed because they would not let that adversity stand in their way."

McLeod, director of the John B. Ervin Scholars Program for talented, college-bound black high school students, was named dean in 1992. He first came to the University in 1974 as an assistant professor of German and has held a variety of positions, including assistant dean of the Graduate School of Arts and Sciences, assistant to Chancellor William H. Danforth and director of the African and Afro-American Studies Program.

Students ranked 15th in national contest

A University College advertising class finished in the top 15 in the country in the National Student Advertising Competition recently held in Houston.

Mike Dolan, adjunct instructor and an advertising account executive with the St. Louis Post-Dispatch, teaches the 25-member class, which is called "Topics in Advertising: Advertising Competition Course."

Last spring, Washington University's student competitors — the youngest in the division — finished first in their district for their creative advertising campaign. The project promotes Eastman Kodak Co.'s

equipment and supplies to college students and young adults.

As district winners, Dolan and the five-member presentation team earned an all-expense-paid trip to the national competition in Houston. While there they attended the American Advertising Association's ADDY awards and met some of the top players in the industry.

Sponsored by the American Advertising Federation's academic division, the nationwide contest is designed to provide advertising students with reality-based experiences.

Applicants needed for graduate fellowships

The National Science Foundation is seeking applicants for its Graduate and Minority Graduate Fellowships for 1995. The deadline for entering the competition is Nov. 4.

The foundation will award approximately 1,000 new three-year Graduate and Minority Graduate Fellowships in March. Fellows are expected to contribute significantly to research, teaching and industrial applications in science, mathematics and engineering. Separate competitions are conducted for Graduate Fellowships and Minority Graduate Fellowships, each with additional awards offered for women in engineering and computer and information science. Minority Graduate Fellowships are available to members of ethnic minority groups that traditionally have been underrepresented in science and engineering.

All applicants must be American citizens or nationals, or permanent resident aliens of the United States. Those eligible to apply in fall 1994 are college seniors, first-year graduate students and others who have completed a limited amount of graduate

study in science, mathematics and engineering.

For more information and application materials, contact the Oak Ridge Associated Universities (ORAU) consortium, of which Washington University is a member, at (615) 241-4300 or (615) 241-4513 (fax). Individuals also may write to ORAU at P.O. Box 3010, Oak Ridge, Tenn., 37831-3010.

Obituaries

James H. Hutchinson Jr., M.D., assistant professor emeritus of clinical medicine, died Sept. 19 at his home in Frontenac. He had Parkinson's disease and was 70. Hutchinson joined Washington University in 1950 as an assistant in medicine. He was named assistant professor of clinical medicine in 1960. He attained the emeritus title in 1983, the year he retired.

Introducing new faculty members

Hilltop Campus:

William Bechtel, Ph.D., professor of philosophy, comes from Georgia State University in Atlanta, where he held the same position. His research interests include the philosophy of psychology and cognitive science and the history and philosophy of biology. He received a bachelor's degree in religion, summa cum laude with highest honors, in 1973 from Kenyon College in Gambler, Ohio. He received a master's degree in philosophy in 1974 and a doctorate in philosophy in 1977 from the University of Chicago.

Thomas F. Head, Ph.D., assistant professor of history, comes from Yale University in New Haven, Conn., where he was an associate professor of history. His research interest focuses on social and religious issues in medieval Western Europe, particularly the role of saints in the ninth through 12th centuries. Head received both a bachelor's degree and a master's degree in 1978 from Harvard University in Cambridge, Mass. He received a doctorate from the same institution in 1985.

Shelley C. Rhoades, assistant professor of accounting, was an assistant instructor at the University of Texas in Austin in 1993. Her research interests are game theoretic models of issues in accounting and taxation. She received a bachelor's degree in business administration from the University of Nebraska in Lincoln in 1982. She

plans to complete requirements for a doctorate in accounting this year from the University of Texas in Austin.

Abdelhak Senhadji, assistant professor of economics, was a teaching assistant and instructor in economics, macroeconomics and econometrics at the University of Pennsylvania in Philadelphia. His research interests include econometric analysis of the competitiveness of the Belgian industrial sectors. He received a bachelor's degree in economics in 1984 and a master's degree in econometrics in 1985, both from the University of Brussels in Belgium. He plans to complete requirements this year for a doctorate in economics from the University of Pennsylvania.

Medical Campus:

Raphael Kopan, Ph.D., assistant professor of medicine and of molecular biology and pharmacology in the Division of Dermatology, comes from the Fred Hutchinson Cancer Research Center in Seattle, where he was in postdoctoral training from 1990 to 1994. His research interests include the study of cell fate selection during vertebrate development. He graduated from Tel-Aviv University in Israel with a bachelor's degree in biology in 1981. He graduated summa cum laude from the same university with a master's degree in zoology in 1984. He received a doctorate in molecular genetics and cell biology in 1989 from the University of Chicago.

Opportunities & personnel news

Hilltop Campus

The following is a list of positions available on the Hilltop Campus. Information regarding these and other positions may be obtained in the Office of Human Resources, Room 126 North Brookings Hall, or by calling 935-5990. Note: All positions require three letters of recommendation.

Project Coordinator

950023. *George Warren Brown School of Social Work*. Requirements: Bachelor's degree; strong communication and interpersonal skills; ability to organize and work under pressure; typing 50 wpm with accuracy; knowledge of American Indian culture preferred. Clerical tests required.

Research Assistant

950025. *Department of Biology*. Requirements: Bachelor's degree; skill equivalent to Lab Tech IV, that is, a working knowledge of all techniques and instruments in the lab, plus ability to work without supervision; some particular training and experience in the area of the research project, or a great deal of experience in related areas. The person filling this new position will assist in studies started by departing postdoc. Resume required.

Sales Associate

950030. *Campus Stores*. Requirements: Good customer relations; ability to stand, lift display merchandise; organizational skills; flexibility; cashiering experience; typing 20 wpm with accuracy; willingness to work evenings and weekends. Clerical tests required.

School Accountant

950049. *Accounting Services*. Requirements: Undergraduate degree in accounting or finance and/or a Certified Public Accountant; a master's degree in business administration is a plus; several years of public accounting experience, excellent accounting skills and a working knowledge of GAAP; three to five years of fund accounting experience, preferably in a complex university environment; an analytical mind with a high degree of intelligence and the ability to "think on his/her feet"; experience working with local area networks and personal computers; proficiency in word processing, spreadsheet and data base management software; excellent interpersonal skills; a service-oriented communicator who is accessible and a team player; self-motivated, driven by the need to succeed. Resume required.

Analyst

950076. *Financial Planning*. Requirements: Bachelor's degree; relevant work experience; spreadsheet, data base skills; strong conceptual, analytical, quantitative writing skills; ability to work in micro- and mainframe computing environments; ability to summarize complex analyses into clear presentations; flexibility; ability to work independently; ability to thrive under pressure; accuracy and attention to detail. Resume required.

Administrative Assistant

950077. *Board of Trustees*. Requirements: High school graduate, some college preferred; efficiency in word processing and data processing; highly computer skilled with ability to use computer creatively to increase office efficiency; ability to coordinate numerous event preparation details; willingness to work outside of office hours to set up meetings/events; highly organized; ability to maintain good office records for efficient retrieval; skilled in proofing minutes and reports; appreciation of need for accuracy, even in routine things; willingness to assist in a variety of tasks; pleasant with fellow workers and external constituencies on phone; typing 50 wpm with accuracy. Clerical tests required.

Communications Technician II

950081. *Communications Services*. Requirements: Certificate of training and/or

equivalent experience in communications, including telephone and computer networking; ability to perform strenuous work and heavy lifting; willingness to work flexible hours and overtime; use of personal vehicle required with mileage reimbursement; ability to detect and differentiate the telephone color code. Resume required.

Assistant Publications Editor

950082. *Public Affairs*. Requirements: Some college, bachelor's degree preferred; outstanding editing and writing abilities; one year experience in writing and editing preferred; familiarity with typography and print production; skill and interest in proofreading; concern with detail and accuracy; ability to work well with wide range of others. Resume required.

Administrative Secretary

950083. *Accounting Services*. Requirements: College degree, business or vocational school; five years secretarial experience; typing 60 wpm with accuracy, including statistical typing; excellent interpersonal communication skills, particularly on the telephone; personal computer word processing, including WordPerfect for Windows, Lotus and E-Mail; excellent grammar, punctuation and spelling skills; ability to participate as a team member on various projects to achieve the goals of accounting services. Clerical tests required.

Library Assistant, Part time

950088. *John M. Olin School of Business*. Requirements: Some college, bachelor's degree preferred; good communication skills; strong service orientation; ability to understand, interpret and implement a wide variety of policies and procedures, especially on weekends and evenings when working alone for several hours; typing 35 wpm with accuracy. Summer work schedule will differ upon person's availability and library needs, but will be at least 20 hours per week. Normal hours are: 11 a.m.-3 p.m. Mondays and Tuesdays; 3-7 p.m. Fridays; 10 a.m.-6 p.m. Saturdays; and noon-6 p.m. Sundays. Clerical tests required.

Medical Sciences Writer

950089. *Medical Public Affairs*. Requirements: A college or university degree, preferably in journalism or communications, with a specialization in medical and/or science writing; a graduate degree is highly recommended; approximately five years professional experience with the media and public relations; a demonstrated knowledge of media requirements and operations; a demonstrated skill in writing and editing; ability to plan, organize and implement a regular program of developing medical/science features; ability to work well with others and to supervise their work as needed; ability to work effectively with faculty, administration and researchers. Resume required.

Manager, Indirect Cost Analysis

950091. *Indirect Costs*. Requirements: Bachelor's degree; training in accounting preferred; quantitative aptitude; ability to work easily and successfully with complex number problems, especially in the area of cost accounting; analytical aptitude; ability to see key issues and concepts in complex problems, and to explain them clearly; ability to communicate complex concepts clearly, both verbally and in writing, without extensive assistance, to a variety of audiences; computing skills; ability to work efficiently in micro- and mainframe environments, including spreadsheet applications, data retrieval from mainframe data bases and word processing applications; leadership and management skills; ability to sustain in others the values of productivity and commitment to responsibilities. Resume required.

Executive Secretary

950093. *Alumni and Development Programs*. Requirements: College degree or equivalent knowledge; three years general office experience; strong personal computer

background; excellent verbal and written communication skills; professional manner with co-workers, volunteers and vendors; ability to deal with multiple tasks in an organized, accurate and timely manner with minimal supervision; willingness to work extra hours when necessary; typing 50 wpm with accuracy. Clerical tests required.

Medical Campus

The following is a partial list of positions available at the School of Medicine. Employees who are interested in submitting a transfer request should contact the Human Resources Department of the medical school at 362-4920 to request an application. External candidates may call 362-7195 for information regarding application procedures or may submit a resume to the Human Resources office located at 4480 Clayton Ave., Campus Box 8002, St. Louis, Mo., 63110. Please note that the medical school does not disclose salary information for vacancies, and the office strongly discourages inquiries to departments other than Human Resources.

Programmer Analyst I

940898-R. *Psychiatry*. Requirements: Bachelor's degree in computer science, statistics, mathematics or related scientific field; knowledge of quantitative and population genetics desired; proficiency in SAS and C. Job located at Boatmen's Bank Building.

Medical Secretary II

940975-R. *Neurological Surgery*. Requirements: High school graduate or equivalent, some college preferred; related experience in medical environment preferred; CRT and dictaphone experience; typing 50 wpm.

Technical Writer/Editor

950089-R. *Surgery*. Requirements: Bachelor's degree, master's degree or Ph.D. preferred; experience in National Institutes of Health grant writing in biomedical sciences. Project will last through January 1995.

Clerk Typist II

950120-R. *Risk Management*. Schedule: Part time, 24 hours per week, 8 a.m.-5 p.m. Mondays, Wednesdays and Fridays. Requirements: High school graduate or equivalent with one year related experience, some college preferred; ability to transcribe with accuracy; knowledge of legal and medical terminology; typing 50 wpm; experience with WordPerfect 5.1.

Medical Secretary I

950131-R. *Psychiatry*. Schedule: Part time, 20 hours per week, flexible hours. Requirements: High school graduate or equivalent; secretarial experience or college course

work; knowledge of medical terminology; experience with Macintosh and Microsoft Word; typing 60 wpm.

Medical Secretary II

950149-R. *Metabolism*. Requirements: High school graduate or equivalent, supervisory experience preferred; knowledge of IBM and Lotus/Excel preferred; background in purchasing or accounting helpful; typing 60 wpm.

Medical Secretary I

950188-R. *Pediatrics*. Requirements: High school graduate or equivalent; two years related experience; knowledge of medical terminology; ability to operate routine office equipment; typing 40 wpm.

Medical Secretary I

950204-R. *Surgery*. Requirements: High school graduate or equivalent, medical secretarial experience preferred; experience with grants application; typing 60 wpm. Will be dealing with patients and handling several projects at one time.

Medical Secretary II

950207-R. *Neurology*. Requirements: Two years of college; two years related experience preferred; knowledge of WordPerfect; typing 60 wpm. Will have frequent contact with Alzheimer's disease patients and their families.

Data Assistant

950229-R. *Psychiatry*. Schedule: Part time, 20 hours per week, Mondays through Fridays, flexible hours. Requirements: High school graduate or equivalent, some college preferred; experience with DOS, WordPerfect and data management; experience with research preferred; typing 50 wpm.

Administrative Coordinator

950234-R. *Transportation*. Requirements: High school graduate or equivalent with some related college courses and/or administrative experience; computer and accounting experience and familiarity with purchasing procedures.

Secretary II

950237-R. *Student Affairs*. Requirements: High school graduate or equivalent, some college preferred; IBM computer experience; typing 65 wpm.

Departmental Accounting Assistant

950247-R. *Biochemistry*. Requirements: High school graduate or equivalent; three years related experience; knowledge of general office procedures; typing 40 wpm; experience with Macintosh; knowledge of university procedures and usage of forms highly desired.

Q&A

Addressing employee questions concerning the Washington University community

Q: Why are personal telephone payments sent off campus? We used to be able to pay bills at the Cashier's Office or through campus mail.

A: The answer is two-fold. When the new telephone system was installed in August 1991, we anticipated an increase in the use of personal authorization codes. That proved correct. Due to staff constraints in the Cashier's Office, that office was unable to continue handling employee payment of personal telephone bills by cash.

Additionally, an internal audit of the accounting department advised against sending cash by mail. As a result, billing for personal telephone calls currently is handled off-campus by Boatmen's Bank.

The University's accounting and billing departments are in the process of

researching the possibility of payroll deductions for personal telephone bills. — William Orrick, director of communications

Employees are encouraged to submit questions about the University, which have broad appeal, to Q&A, c/o Susannah Webb, Campus Box 1070, or p72245sw@wvumd.wustl.edu. Questions will be answered by the appropriate administrator. Though employee questions will appear anonymously in the Record, please submit your full name, department and phone number with your typed question. For information, call Webb at 935-6603.