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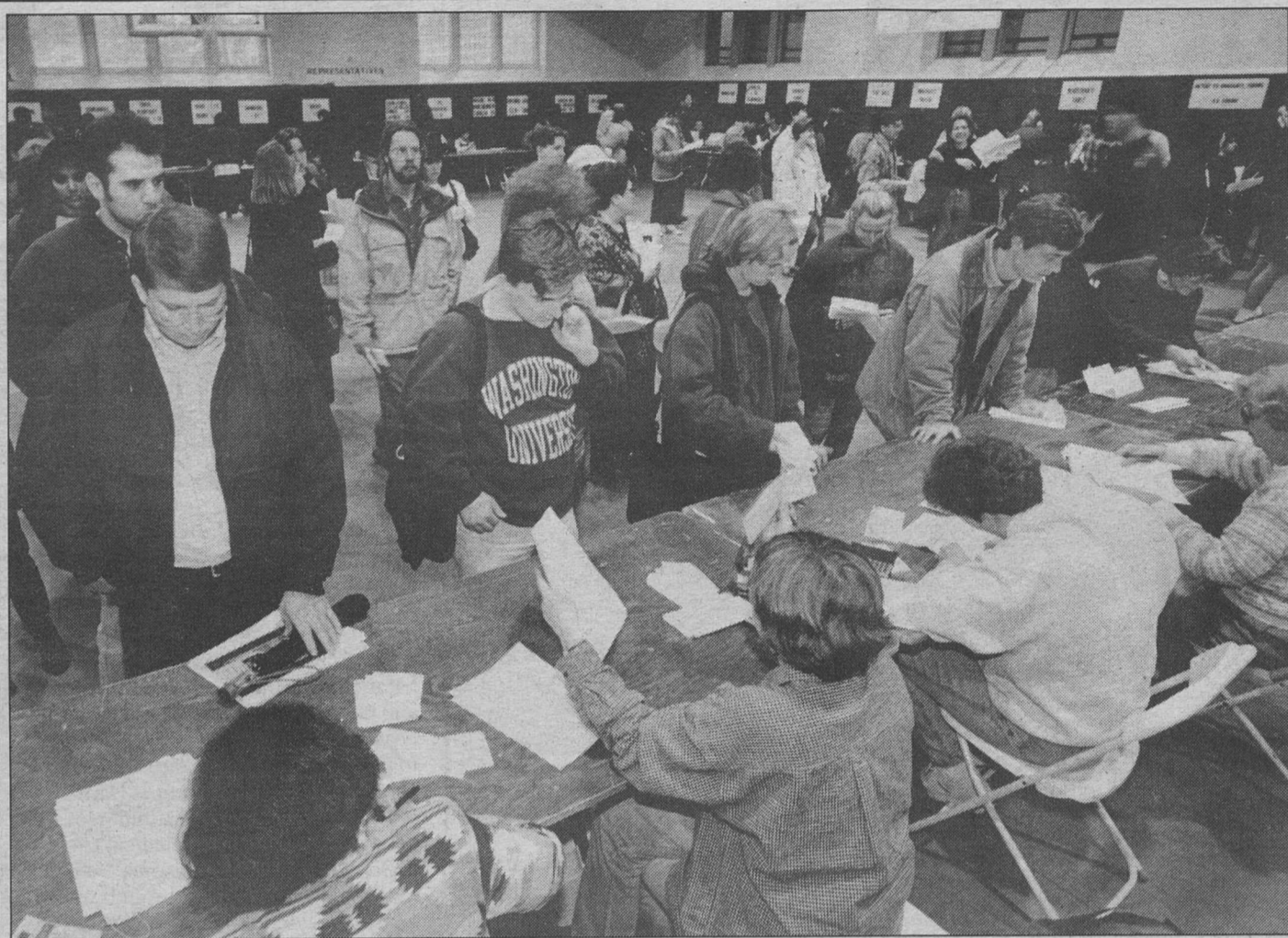
Washington University Record, January 26, 1995

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Friday the 13th marked the last day for manual student registration at Washington University and the end of long lines in Francis Gymnasium. In April students will register for fall 1995 classes electronically from computers across campus.

Seismologist's find challenges theories

A Washington University seismologist has recorded a first in seismology — a record-setting 83 aftershocks from a large deep earthquake beneath the Pacific Ocean. The find challenges the way seismologists view the mechanisms of deep earthquakes, which for decades have been distinguished from shallow earthquakes by their relative lack of aftershocks.

Douglas A. Wiens, Ph.D., associate professor of earth and planetary sciences in Arts and Sciences, charted the aftershocks from the March 9, 1994, Tonga earthquake in the south Pacific islands, a region that is home to two-thirds of the world's large deep earthquakes. Wiens and colleagues from Washington University, the islands of Fiji and Tonga and the University of Hawaii deployed eight seismographs on Tonga, Fiji and a neighboring island named Niue in the summer of 1993. The earthquake itself occurred 350 miles beneath sea level and was recorded at 7.6 on the Richter scale. Wiens recorded aftershocks ranging from 3.8 to 6.0 on the Richter scale.

In contrast to the Tonga earthquake, the earthquake that hit Kobe, Japan, Jan. 17 was centered on a fault about 12.5 miles beneath sea level. The Kobe event occurred in a population center of more than one million people, causing widespread destruction and more than 4,000 fatalities. Death is rare with large deep earthquakes because of the long distance the waves must travel to the surface. Wiens also is studying Tonga and Fiji earthquakes that are similar to the Kobe earthquake.

Plotting the seismic waves through computer analysis, Wiens determined that the many aftershocks recorded line up along a plane deep within the Earth, similar to the way aftershocks occur

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Brittle book syndrome

Libraries' triage unit resuscitates terminal texts before it's too late

There is an all-out war being waged in the libraries at Washington University. On one side: the book preservationists, armed with the latest surgical techniques, a triage unit, even a guillotine. On the other side: humidity, cockroaches, water, acid, heat, crumbs and dozens of other assailants that can slowly kill a book.

"See this book?" asked Roxanna Herrick, preservation administrator of University Libraries, folding the corner of a yellowed page and watching the brittle piece fall into her hand. "It has brittle book syndrome. It effectively has died. There is nothing we can do to bring this book back to life."

By the time books make it to Herrick's office, located in the preservation unit on the second floor of Olin Library, it is usually too late. Once material has become embrittled, the deterioration cannot be reversed or, in most cases, even slowed. Small piles of books — ancient hardcovers, crumbling textbooks, swollen paperbacks — await

their fate on Herrick's crowded desk and bookshelves.

"Each brittle book is a difficult decision," Herrick said. "These books are gone. There is nothing we can do to bring them back. I and other librarians have to decide if it's worth the money to try to preserve them. Every decision is a judgment call. There is no hard and fast rule."

There are not enough resources to preserve every embrittled book in the University's collection, or to purchase duplicates of each book. In fact, 80

**"You would not believe
what people do to books.
You name it, I've seen it."**

— Roxanna Herrick

percent of the books in University Libraries are out of print and irreplaceable. Because embrittled books cannot be resuscitated, the Libraries' preservation policy is based on prevention. The six-member preservation unit plays a critical role in averting potential damage to these books and other materials, including journals, pamphlets, maps, video and audio tapes, microfilm and compact discs, and keeping them in circulation.

"Our goal is to keep as much of the circulating material on the shelves as possible, while at the same time attempting to modify storage and environmental factors to optimize the condition of the material," Herrick said.

The internal enemy

A book's greatest enemy lies within its own cover. The natural acid in the pages, when combined with air pollution and humidity, creates a chemical reaction that causes the wood fiber to break down.

Interestingly, books made before 1840 do not have this problem, and usually are in better shape than those made in the late 1800s and 1900s. Until the Industrial Revolution, books were made from naturally non-acidic linen and cotton fibers. When books began to be mass produced, publishers switched to the less expensive wood-based paper.

"The cost of mass production was that the paper was of much less durable quality," Herrick said. "That tang you smell when you cut a piece of wood, that's the acid. The seeds of destruction are in the books' own pages."

The solution

One solution is to house books in a stable environment. A book's ideal home would be on a steel shelf coated with baked enamel in a dark, insect-free room with less than 50 percent humidity, a temperature below 72 degrees, and few — if any — readers. As this is not a realistic library environment, preservation staff work to get as close to this ideal as possible.

"Books are hygroscopic and absorb water from the atmosphere. Paper can swell even if water doesn't touch it. In one library where I worked before coming here, the books were so swollen from high humidity levels they literally popped off the shelves," Herrick said.

In the University's 11 libraries, all books are stored upright on baked enamel shelving (wood shelving hosts the same acidic foes as paper). Areas are monitored for humidity and temperature fluctuations. Some University libraries have shields that block harmful ultraviolet light from fluorescent fixtures. Herrick is experimenting with a variety of pesticides that promise to eliminate the silverfish, beetles and cockroaches that eat the adhesive from the books'

Continued on page 6

Russian talk launches educational program for older Americans

Georgetown University Professor Richard Stites, Ph.D., will give a lecture titled "Russian Popular Culture: Looking at the People" Wednesday, Feb. 1. His talk, part of the Assembly Series, will be held at 11 a.m. in Graham Chapel. He also will participate in an informal discussion on the study of Russian popular culture from 2 to 3 p.m. Feb. 1 in Lambert Lounge, Room 303 Mallinckrodt Center. Both events are free and open to the public.

His Feb. 1 lecture kicks off a national educational program that gives older Americans a chance to explore the history, culture and current dilemmas of the people of Russia, said Max J. Okenfuss, Ph.D., associate professor of history in Arts and Sciences and program director.

Stites, professor of history, visited the former U.S.S.R. 35 times. His extensive teaching assignments have taken him throughout European Russia, Ukraine, the Baltic and the Caucasus, Finland, Germany and Denmark.

In addition to his many articles about Soviet and Russian culture, he has published the following books: "The Women's Liberation Movement in Russia: Feminism, Nihilism and Bolshevism, 1860-1930" (1978), "Revolutionary Dreams: Utopian Vision and Social Experiment in the Russian Revolution" (1989) and

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In this issue ...

Focusing attention 2

Scientists discover changes in brain activity before anticipated stimulation, which may have clinical implications in stroke treatments

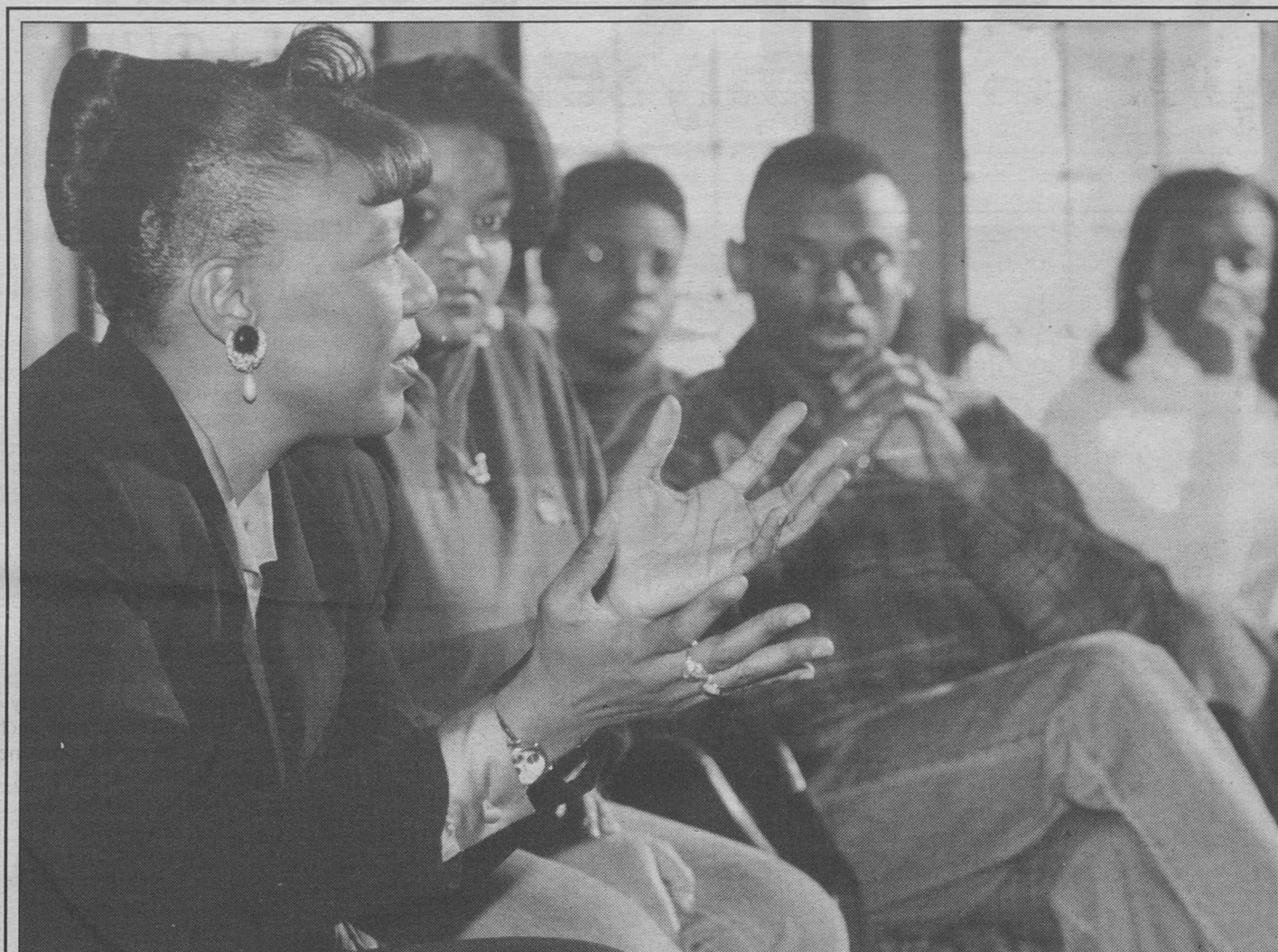
On the forefront 3

Pulmonary physician Robert Senior, M.D., was among the first to identify emphysema-causing enzymes

Teen-age triumph 6

University City High School students debate biotechnological issues on campus

Medical Update



During her Jan. 20 visit to Washington University, the Rev. Bernice A. King talked with undergraduates during an informal gathering at Whittemore House. King also attended a luncheon at the medical school and spoke at Graham Chapel, in observation of Martin Luther King Jr. Day. Her visit was sponsored by the African-American Medical Students at the School of Medicine and the College of Arts and Sciences.

The science of touch

Researchers find changes in brain activity before anticipated stimulation

Investigators at the School of Medicine have found evidence suggesting that the human brain focuses attention on parts of the body where stimulation is expected by suppressing competing information from other areas of the body.

In the Jan. 19 issue of the journal *Nature*, the researchers report decreased blood flow in parts of the somatosensory cortex in response to anticipated stimulation of various parts of the body. Using Positron Emission Tomography (PET) imaging, the researchers studied a total of 37 subjects and found that anticipated stimulation of one part of the body will depress blood flow in areas of the cortex that sense stimulation in other parts of the body.

Single-cell experiments previously had shown that neurons would suppress activity in limited areas of the skin, but this is the first study to demonstrate that this occurs on such a broad scale in the brain's somatosensory cortex. The work, which was funded by the National Institutes of Health and the Charles Dana Foundation, may have clinical implications in conditions such as stroke, chronic pain management and Attention Deficit Disorder (ADD).

Principal investigator Wayne C. Drevets, M.D., assistant professor of psychiatry and radiology at the Mallinckrodt Institute of Radiology, said the study findings support a previous theory of spatial attention, which holds that the brain enhances some signals by suppressing competing information.

"For example, when you converse in a noisy, crowded room, you need to suppress stimuli in order to concentrate on the person to whom you're speaking. The brain works the same way. By suppressing competing information, it can focus on what it thinks is relevant," Drevets said. "Though it all happens at a subconscious level, it's as if the brain is focusing on the toe specifically by not focusing on the finger or the face."

When study subjects expected stimulation of the finger, blood flow decreased in regions of the cortex that provide sensation to the face. Study subjects anticipat-

ing a light touch to the toe displayed decreased blood flow in brain regions that relate to the fingers and face.

Co-investigator Harold Burton, Ph.D., professor of anatomy and neurobiology, said these findings have many important clinical implications in diseases where attention is important.

"In some stroke patients, for instance, there is evidence that attention can be disrupted," Burton said. "If I want to do something with my right hand, then my

brain shuts off some activity to my toes and my face. Many stroke patients cannot do that. They have difficulty shifting the focus of their attention."

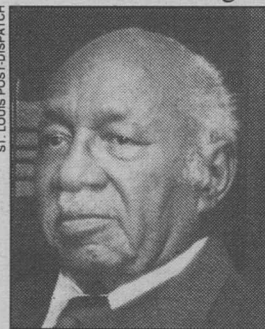
Drevets said people with ADD also may be unable to focus their attention using this mechanism. "There are also implications in chronic pain management where we teach people to focus on other activities. This could be the mechanism at work when the brain is able to suppress pain," he said. — Jim Dryden

Venable honored with humanitarian award

H. Phillip Venable, M.D., associate professor emeritus of clinical ophthalmology at the School of Medicine, was awarded the Outstanding Humanitarian Service Award from the American Academy of Ophthalmology at the academy's annual meeting.

Venable joined the School of Medicine faculty in 1958, becoming its first African-American member. Through the Katie and Howard Venable Fund, he and his wife have provided summer fellowships and grants to African-American students and residents for outstanding ophthalmology research.

Venable grew up in Detroit and received a medical degree with honors from



H. Phillip Venable

Wayne State University Medical School in Michigan in 1939. He applied for an internship at many hospitals, but said he found doors closed because of his race. "You could go to medical school, but very few hospitals would take you as a resident," the 81-year-old Venable recalled.

He eventually was accepted as a resident at Homer G. Phillips Hospital in St. Louis, a city hospital that served the African-American community. In 1943, he was appointed director of the Department of

Ophthalmology at Homer G. Phillips. During his 42 years in that position, he trained 197 residents from 44 countries.

Venable and Bernard Becker, M.D., then chair of the Department of Ophthalmology at the School of Medicine, created an intensive three-month clinical training program to provide minority medical students with hands-on ophthalmology education.

The program began in 1953, and Venable and his wife provided qualified students with everything from microscopes to lodging. "All that mattered was that they were motivated to become ophthalmologists," Venable said.

"Dr. Venable provided the money for these students, and he scoured the country, going to Morehouse College, and Howard, Johns Hopkins and other universities, telling African-American students about it," said Henry J. Kaplan, M.D., professor and head of Washington University's Department of Ophthalmology. "Dr. Venable gave more to his profession than most of his peers."

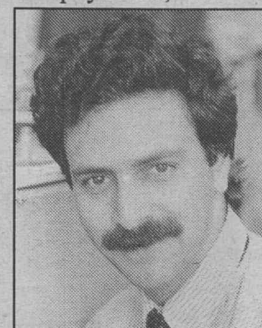
Venable also played an important role in integrating the medical staffs at numerous St. Louis hospitals. He was instrumental in the creation of the Roman-Barnes Society, an association of minority ophthalmologists. That group nominated Venable for the Outstanding Humanitarian Service Award for his contributions to ophthalmology, including five decades as a fellow of the American Academy of Ophthalmology.

Evers named head of anesthesiology

Alex S. Evers, M.D., has been named the Henry Eliot Mallinckrodt Professor and head of the Department of Anesthesiology at the School of Medicine.

The appointment was announced by William A. Peck, M.D., executive vice chancellor for medical affairs and dean of the medical school.

"Alex Evers is an outstanding scientist and physician," said Peck. "Under his



Alex S. Evers

leadership, the Department of Anesthesiology will excel both in patient care and as a leader in research."

The Mallinckrodt Professorship in anesthesiology was established in 1948 by Mr.

and Mrs. Edward Mallinckrodt Jr., in memory of their son, Henry Eliot. The chair most recently was occupied by William D. Owens, M.D., who stepped down to devote more time to research.

Evers, who also is a professor of internal medicine and of molecular biology and pharmacology, has served as acting head of anesthesiology since 1992. Prior to that, he was medical director of the surgical intensive care unit at Barnes Hospital, a sponsoring institution of the Washington University Medical Center.

Evers is known for his research on the molecular mechanisms through which anesthetics depress nervous system function. He studies volatile anesthetics — anesthetic gases inhaled at the time of surgery to make patients lose consciousness — focusing on the target molecules with which those anesthetics preferentially interact. Using labeling techniques, Evers has identified various proteins involved in those interactions as well as the structures.

Evers came to Washington University in 1983 following a fellowship in surgical intensive care at Massachusetts General Hospital in Boston.

He received a bachelor's degree in biochemistry from Yale University in 1974 and a medical degree from New York University Medical School in 1978.

Record

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 Washington
WASHINGTON UNIVERSITY IN ST. LOUIS

Washington People

Senior pinpoints emphysema catalyst

In the late 1960s, Robert Senior, M.D., treated a patient who had a profound impact on his career. The patient was a 23-year-old soldier who had been sent home from combat in Vietnam because of a chronic lung problem thought to be asthma. Senior, then a physician at Walter Reed Army Medical Center in Washington, D.C., and his colleagues discovered that the man actually had emphysema, a debilitating disease that gradually destroys the lungs. It was a surprising find, because emphysema typically strikes people much later in life.

"This one patient got me interested in the question that has kept me going for most of my career: What are the biological processes that turn a normal lung into the destroyed lung that we see in emphysema and other lung diseases?" said Senior, now the Dorothy R. and Hubert C. Moog Professor of Pulmonary Diseases in Medicine.

Emphysema affects an estimated 1.6 million Americans. Its hallmark is the progressive and irreversible destruction of elastic fibers in the lungs, which reduces elasticity of the lungs and makes breathing increasingly difficult over time. When Senior entered the field of pulmonary medicine in the late '60s, the cause of this destruction was unknown. He was among the first to begin pinpointing its source: tissue-eating enzymes that are released from certain blood cells.

Over the past 25 years, he has performed pioneering research to identify many of the enzymes that contribute to emphysema

and to explain other aspects of the disease process. "He has been at the forefront of this field since his earliest publications. His work has really ushered in the modern era of thinking regarding the cause of emphysema," said Edward Campbell, M.D., associate professor of medicine at the University of Utah Health Sciences Center and a former colleague of Senior's at Washington University.

An important clue to the cause of emphysema came from patients like Senior's young soldier. He was among the first people diagnosed with a newly recognized genetic form of emphysema. These patients are severely deficient in a blood protein called alpha-1-antitrypsin, which can block the action of tissue-destroying enzymes. "So it was proposed that in the absence of this protective protein, there must be some enzymes in these patients' lungs that were being allowed to function and damage lung tissue," Senior explained.

Senior began looking for those enzymes while he was at Walter Reed and continued after he joined the Washington University faculty in 1969. In 1976, he demonstrated that neutrophil elastase, an enzyme contained in a type of white blood cell called neutrophils, could cause emphysema in laboratory animals. The finding supported a growing theory that still holds true today: that neutrophils migrate from the blood vessels into lungs, where they release elastase and fuel the disease process.

Beginning with a sabbatical at the University of Connecticut in 1976, Senior began studying how blood cells made the journey from the bloodstream into body tissue. A major portion of his research has focused on finding the chemical signals that attract blood cells into body tissue and understanding how the cells interact with the tissue as they approach their destination.

The smoking link

This line of research uncovered an early link between smoking and emphysema in 1984. In laboratory tests, Senior and his colleagues found that nicotine could attract neutrophils. The information seemed to explain why these cells accumulate in smokers' lungs and further supported the idea that neutrophils play a role in emphysema. Senior currently is studying a protein component of vessel walls called entactin, which also may help lure neutrophils into the lungs.

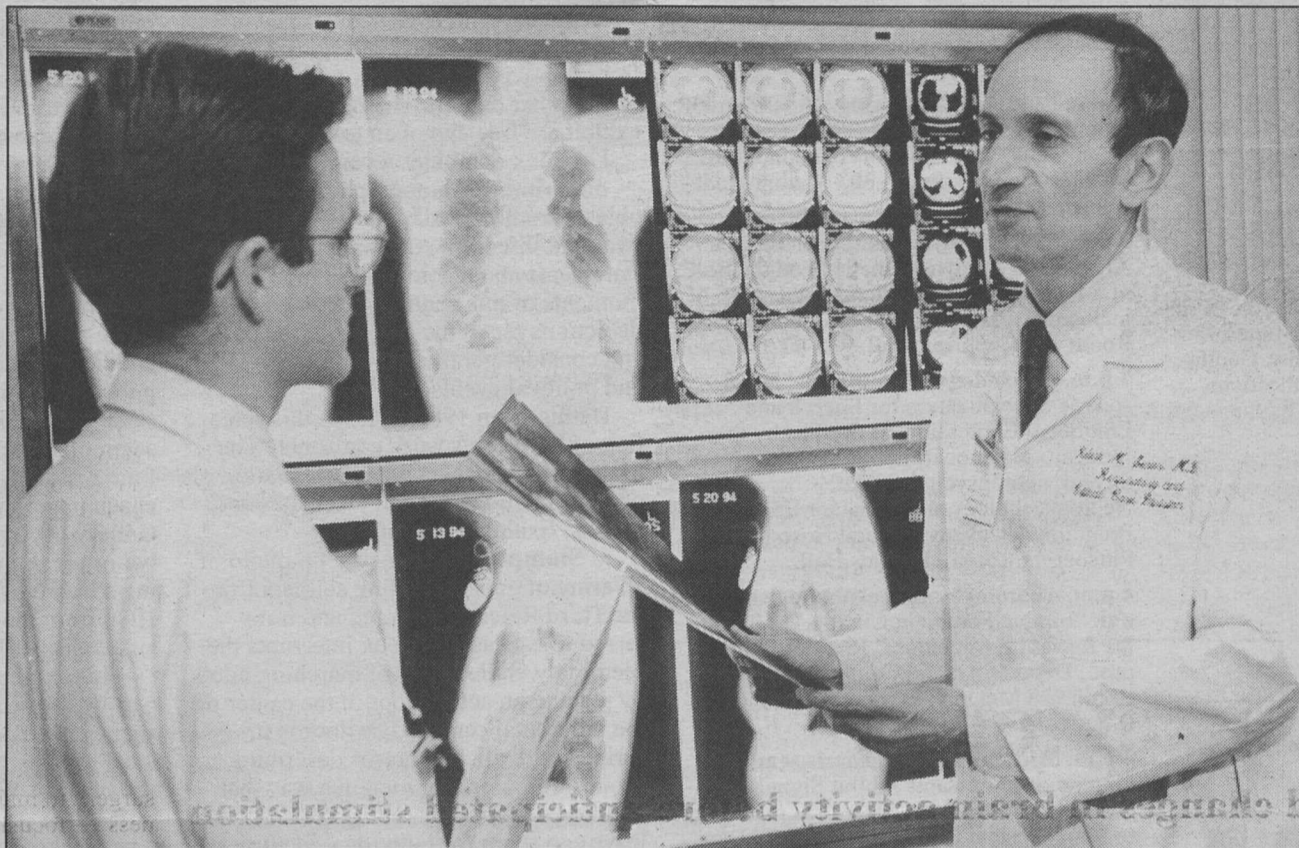
Senior's work has implicated another type of cell, called macrophages, in causing emphysema. Macrophages also accumulate in smokers' lungs — to levels 20 times higher than in non-smokers. In 1989, Senior's laboratory was among the first to show that macrophages, like neutrophils, release enzymes that can degrade elastic fibers. He and several collaborators — including Howard Welgus,

M.D., professor of medicine, Steve Shapiro, M.D., assistant professor of medicine, and Campbell — have since identified several of those enzymes.

"Now we are looking for the specific sites on these enzymes that are responsible for binding to elastic fibers and for degrading them," Welgus explained. The researchers hope their studies eventually will lead to the development of drugs to block the destructive action of these enzymes. Such drugs potentially could be used to prevent emphysema. The National Institutes of Health has recognized the value of this line of research by awarding the investigators a program project grant, which is currently in its 12th year.

he has held for 25 years. He treats patients with a variety of lung conditions, including emphysema, asthma, lung cancer, tuberculosis, pneumonia, pulmonary fibrosis, AIDS-related lung conditions and various forms of respiratory failure. He is ranked among the nation's best pulmonary physicians in a directory titled "The Best Doctors in America" and by Good Housekeeping magazine.

The best part of being a physician is talking to patients, he said. "Obviously, it is tremendously satisfying to make the right diagnosis and to get patients on the right path to recovery. But what I enjoy immensely is sitting down and talking to patients, hearing their story and interacting with them."



Robert Senior, M.D., Dorothy R. and Hubert C. Moog Professor of Pulmonary Diseases in Medicine, and resident Daniel Ring discuss chest X-rays and computed tomography scans of a patient with recurrent pneumonia.

"He combines the best qualities of a physician, a teacher and a scientist."

— Edward Campbell

"It's rare that I've seen anyone who is as respected and admired as Bob Senior is, not only among researchers at this medical center, but nationally," said Welgus. "He has been on the forefront of pulmonary medicine for his whole career." Senior was elected a fellow of the American Association for the Advancement of Science in 1987 for his contributions to emphysema research.

The field of basic research in pulmonary medicine has grown tremendously in recent years, Senior said. In recognition of that fact, the American Lung Association in 1988 asked Senior to start a monthly journal devoted to the topic. He tackled the job with two colleagues, both currently at Boston University. The American Journal of Respiratory Cell and Molecular Biology now is a highly cited publication.

Ironically, Senior was a "late bloomer" in choosing research as a career. He originally had no interest in research but had planned to be a physician since childhood. "It wasn't so much the science aspect of medicine that interested me. It was something about the practice of medicine — the chance to interact with people in a very significant way," he said. He earned his medical degree at George Washington University in 1961 and then came to Washington University to serve his internship and residency at Barnes Hospital and The Jewish Hospital of St. Louis.

Senior chose to specialize in pulmonary medicine because he thought it was an underserved area. Then a fellowship at Columbia University prompted his interest in the science behind medicine. The program there, to his surprise, was almost totally devoted to research. And, to his surprise, he enjoyed it. He became hooked on the idea of combining research and clinical care. After Columbia, he spent three years at Walter Reed Army Medical Center as a researcher and clinician, and then came to Washington University.

Today Senior spends nearly half of his time on clinical duties. Part of that time is devoted to running Jewish Hospital's Respiratory and Critical Care Division, a job

Over the past 25 years, he has witnessed dramatic advances in the tools and techniques used to treat these patients. Measurements of basic aspects of lung function, such as blood pressure in the lungs, once were performed only in special cases. Today such measurements are a routine part of monitoring the health of many intensive care patients. Fiberoptic bronchoscopes now provide a simple, safe method to get fluid and tissue samples from the lungs, a job that often previously required surgery. These instruments have revolutionized diagnosis of lung disease and are an invaluable research tool, Senior said. And the recent development of lung transplantation, pioneered by Washington University's Joel Cooper, M.D., professor of surgery, provides some of the sickest pulmonary patients with a new lease on life.

One of the most startling changes of the past few decades is the dramatic shift in attitudes about smoking, Senior said. "When I started practicing here, cigarettes were sold in the hospitals. There was absolutely no regulation on freedom of smoking," he recalled. "It is just incredible to me that we have reached the point today where it is banned from the hospital and many public places. I would never have predicted this would happen in my professional lifetime." The declining acceptance of smoking is a very positive trend, he stressed, regardless of whether second-hand smoke poses any real health threat. "It reinforces the idea that smoking is not a good thing to do, and that everyone should really think twice about it."

Teaching also is an important part of Senior's life. He teaches pulmonary physiology to first- and second-year medical students and trains residents and postdoctoral fellows. His trademark is an ability to generate an infectious enthusiasm for science, according to former students. He was given the School of Medicine's Teacher of the Year Award in 1973.

"He changed my whole career goals," said Steve Shapiro of his experience as a fellow in Senior's laboratory. "When I came into his lab, I was interested in pursuing a clinical career. Then he got me interested in research. He made science fun and interesting and important, and here I am a basic scientist today."

"He is a tremendous role model," said Campbell, also a former fellow of Senior's. "He combines the best qualities of a physician, a teacher and a scientist. That combination is almost impossible to achieve."

Back to school

Senior recently has taken on the role of student again by pursuing a master of liberal arts degree at University College. He has taken one course each semester for three years and is now halfway through. "It's been a very enjoyable, interesting thing to do. I've always enjoyed subjects like literature and history — things that are nonscientific. And it's nice to meet other people who are doing totally different work," he said. His wife, Martha, and their four grown children have been very enthusiastic about his return to school, he added.

Senior has enjoyed leading the "double life" of physician and scientist. He credits much of his success to the guidance he received from his colleague, Jack Pierce, M.D., emeritus professor of medicine and former head of pulmonary medicine at the medical school and Barnes Hospital. In addition to Pierce, "the medical school and Jewish Hospital have provided an extremely supportive and nurturing environment for me," he said. "This career has been much more satisfying than I ever dreamed it would be."

— Juli Leistner

Calendar

Jan. 26–Feb. 4



Exhibitions

"Arts Connection." Features self-portraits by a dozen children from the Darst-Webbe and Peabody housing projects. Continues through Feb. 25. Sponsored by the School of Architecture in conjunction with the Center for Contemporary Arts (COCA) and the Guardian Angels Settlement. COCA, 524 Trinity Ave., University City. Hours: noon-8 p.m. Tuesdays through Thursdays; noon-5 p.m. Fridays and Saturdays. 725-6555.

"Facing Pages." Commemorates the 30th anniversary of the University's Modern Literature Collection, an archival treasure of 20th-century literary manuscripts, correspondence and printed works of some of the most eminent writers of modern times, including Dept. of English faculty. Continues through Jan. 27. Special Collections, level five, Olin Library. Hours: 8:30 a.m. to 5 p.m. weekdays. 935-5495.



Lectures

Thursday, Jan. 26

Noon. WU Student Pugwash USA talk. "Impact on Labor Through NAFTA and GATT," Duke McVey, president, AFL-CIO of Missouri. Room 201 Eads Hall.

1:10 p.m. Social work lecture. "African-American Families: Challenges of Uncertainty," Andrew Billingsley, chair, Dept. of Family Studies, U. of Maryland, College Park. Brown Hall Lounge. 935-6600.

2:30 p.m. Mechanical engineering seminar. "Sodium/Halide Flames for the Synthesis of Metal and Ceramic Nano-particles," Richard L. Axelbaum, asst. prof., Dept. of Mechanical Engineering, Room 100 Cupples II Hall. 935-6055.

4 p.m. Chemistry seminar. "Design, Synthesis and Characterization of New Fullerene Superconductors," Otto Zhou, NEC Japan Research Center. Room 311 McMillan Lab.

4 p.m. East Asian studies colloquium. "Japan's System for Science and Technology Innovation," Leonard Lynn, prof., Management and Policy Division, Case Western Reserve U., Cleveland. Part of the 1994-95 Colloquium Series on Science, Technology and Modernization in East Asia. Room 331 Social Science and Business Bldg., U. of Missouri-St. Louis. 935-4448.

4:30 p.m. Math colloquium. "The Relation Between the Maximum of a Polynomial and Its Coefficients," Richard Aron, prof. of mathematics, Kent State U., Kent, Ohio. Room 199 Cupples I Hall.

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.

Friday, Jan. 27

Noon. Environmental engineering seminar. "The Use of Satellite Imagery in Conservation, Biology and Anthropology," Robert Sussman, prof. of anthropology. Co-sponsored by the School of Engineering and Applied Science and the Electric Power Research Institute Community Environmental Center. Room 216 Urbauer Hall. 935-8590.

Noon. Cell biology and physiology seminar. "Glycosylation and Glycoprotein Hormone Function," Jacques U. Baenziger, prof. of pathology. Cell Biology Library, Room 426 McDonnell Medical Sciences Bldg.

Noon. Left Forum meeting. "Adam Smith and Machiavelli Go to Moscow" (Part 2), David Felix, prof. emeritus of economics. Lambert Lounge, Room 303 Mallinckrodt Center. 935-6808.

3 p.m. Math analysis seminar. "Banach Algebras of Analytic Functions on the Ball of a Banach Space," Richard Aron, prof. of mathematics, Kent State U., Kent, Ohio. Room 199 Cupples I Hall. 935-6726.

3 p.m. Psychology colloquium. "Hemispheric Specialization for Speech and Emotional Expression, as Studied by the Intracarotid Amobarbital Procedure," Peter Snyder, neuropsych candidate, Neuropsychology and Behavior Epilepsy Program, Allegheny General Hospital, Pittsburgh. Room 118 Eads Hall.

4 p.m. Anatomy and neurobiology seminar. "Limbic Forebrain Circuits for Stimulus Reward Association," Joseph L. Price, prof., Dept. of Anatomy and Neurobiology. Room 928 McDonnell Medical Sciences Bldg.

4 p.m. Microbial pathogenesis seminar. "Immunosuppressants Inhibit Signal Transduction Cascades — Conserved From Yeast to Man," Joseph Heitman, asst. prof., Dept. of Genetics and Pharmacology, Howard Hughes Medical Institute, Duke U., Durham, N.C. Room 775 McDonnell Medical Sciences Bldg.

Saturday, Jan. 28

9 a.m. Neural sciences seminar. "PET Imaging in Depression and Anxiety Disorders," Wayne Drevets, asst. prof., Dept. of Psychiatry. Part of a series titled The Neurobiological Basis of Emotional and Psychotic Disorders. Erlanger Aud., McDonnell Medical Sciences Bldg.

Monday, Jan. 30

Noon. Molecular biology and pharmacology seminar. "SH₂ Domain-specific Recognition of Phosphotyrosine Containing Peptides," Gabriel Waksman, asst. prof., Dept. of Biochemistry and Molecular Biophysics. Philip Needleman Library, Room 3907 South Bldg. 362-4562.

Noon. Neurology seminar. "ALS and the Cell Biology of Motor Neurons," William Snider, assoc. prof., Dept. of Neurology. Schwarz Aud., First Floor Maternity Bldg.

3:45 p.m. Physics seminar. "NMR Determination of Local Structure and Charge Environments in High Temperature Superconductors: Evidence for Ordering of Pinned Holes," P.C. Hammel, staff member, Los Alamos National Laboratory, Los Alamos, N.M. Room 241 Compton Hall. 935-6276.

4 p.m. Biology seminar. "Cytoplasmic Bacteria in *Tribolium* — Studies of Host-Parasite Interactions," Lori Stevens, visiting assoc. prof. of biology, U. of Vermont, Burlington. Room 322 Rebstock Hall.

4 p.m. Social thought and analysis seminar. "Successful Macro-sociological Explanations," James Bohman, assoc. prof. of philosophy, St. Louis U. Room 149 McMillan Hall. 935-4860.

Tuesday, Jan. 31

4 p.m. Biomedical computing seminar. "Mapping the Gene-rich (H3) Region of the Human Genome," David States, assoc. prof. and director of the Institute for Biomedical Computing and director of Biomedical Engineering, School of Medicine, and affiliate assoc. prof. of computer science, School of Engineering and Applied Science. Room 110 Image Processing and Quantification Lab, 700 S. Euclid.

4 p.m. Chemistry seminar. "Phosphinidene: Structures, Reactions and Mecha-

'Horrors of the past'

Impact of war depicted in exhibit

The Matter of History," an exhibit of mixed-media art works by Annette Lemieux that addresses the Holocaust, the Third Reich and the many personal ways that war interrupts life, will be on display Feb. 3 through March 26 in the Gallery of Art, Steinberg Hall.

Lemieux, who lives and teaches in Boston, will be at the Gallery of Art from 6 to 8 p.m. Feb. 3 for a reception opening her exhibit. The reception and exhibit are free and open to the public.

Lemieux combines a variety of media — oil, printing, photography, as well as objects from everyday life — to create two- and three-dimensional personal statements about some of the most tragic moments of this century. Her powerful depictions recall the horrors of the past and consider parallels to current social and political events.

Dating from 1985 to 1993, this selection of Lemieux's work confronts "The Matter of History" with a combination of objects and imagery that fascinates and shocks. Examples include:

• **"Stampede"** — a newsclip photo of an army of goose-stepping soldiers from the Third Reich is enlarged and transferred to canvas. Lemieux interrupts the seemingly endless row of marching boots by placing an actual door in the center of the horizontal canvas. The door is inscribed with cliché phrases describing groups of animals or men in a way that — like the row of marching soldiers — leaves no room for individual identities.

• **"Silencing Sound"** — comments on another aspect of World War II, using an

enlarged photo of the mushroom cloud from the atomic bomb dropped on Japan in 1945. Lemieux creates a metaphor for the many lives wiped out by the bomb by pasting on the cloud a number of photographs of people from before 1945. Photos are pasted face-down to show how identities are eliminated; empty rectangles of photographs appear like memorials to the people killed.

• **"Hell Text"** — a recent addition to Washington University collections, is a deep-red canvas filled with text relating the experiences of Holocaust victims as they were rounded up and taken from their homes by the Nazis. The text is not printed, but burnt or branded into the canvas.

Lemieux's exhibits have received much attention in America and abroad, and her work is represented in many public collections, including the Museum of Modern Art, the Whitney Museum of American Art, the Museum of Fine Arts, Boston, the Wadsworth Atheneum and the Washington University Gallery of Art. She has received a number of prestigious art awards since earning a bachelor's degree in fine arts in 1980 from the Hartford Art School, University of Hartford, Conn.

This exhibition is made possible in part by the Missouri Arts Council, a state agency, the Regional Arts Commission, a local agency, and the Hortense Lewin Art Fund of Washington University.

Regular gallery hours are 10 a.m. to 5 p.m. weekdays and 1 to 5 p.m. weekends. For more information, call 935-4523.

Thursday, Feb. 2

1:10 p.m. Social work lecture. The Morris Wortman Memorial Lecture. "Beyond the Myths of the Normal Family: Changing Family Forms and Challenges," Froma Walsh, co-director, Center for Family Health, Chicago. Brown Hall Lounge.

4 p.m. Biology and biomedical sciences seminar. "Signal Transduction Pathways Controlling Light-regulated Development in *Arabidopsis*," Joanne Chory, assoc. prof., Plant Biology Laboratory, The Salk Institute, San Diego. Cori Aud., 4565 McKinley Ave. 935-8529.

4 p.m. Chemistry seminar. "Design Synthesis and Study of Unnatural Ionophores," Steven Burke, prof., Dept. of Chemistry, U. of Wisconsin, Madison. Room 311 McMillan Lab.

4:30 p.m. Math colloquium. "Fixed Points of Functions Analytic on the Unit Disk," Carl Cowen, prof. of mathematics, Purdue U., West Lafayette, Ind. Room 199 Cupples I Hall. (Tea: 4 p.m. in Room 200.)

Friday, Feb. 3

Noon. Cell biology and physiology seminar. "Insulin Action: A PHAS Way to Regulate Protein Synthesis," John C. Lawrence Jr., assoc. prof., Dept. of Molecular Biology and Pharmacology. Cell Biology Library, Room 426 McDonnell Medical Sciences Bldg. 362-6040.

Noon. Environmental engineering seminar. "Pollution Prevention in Aircraft Manufacturing," David Shanks, principal specialist in environmental engineering, McDonnell Douglas Aerospace Corp. Room 216 Urbauer Hall. 935-8590.

Noon. Molecular biology and pharmacology/genetics seminar. "Ras-mediated Signal Transduction During *C. elegans* Vulval Development," Kerry Kornfeld, postdoc, Dept. of Biology, Massachusetts Institute of Technology, Cambridge. Philip Needleman Library, Room 3907 South Bldg. 362-7051.

6 and 8:30 p.m. Washington University Association Travel Lecture Series. "Brazil — Giant of the South," Clint Denn, photographer, writer, actor and teacher. Graham Chapel. Cost: \$4.50 at the door. 935-5212.

nisms," Koop Lamertsman, prof., Dept. of Chemistry, U. of Alabama, Birmingham. Room 311 McMillan Lab.

4 p.m. Diabetes research group meeting. "Oxidative and Reductive Stress in Diabetic Complications and More," Joseph Williamson, prof., Dept. of Pathology. Pathology Library, Room 3723 West Bldg.

4 p.m. European Studies Program panel discussion. "Peace in Bosnia? Perspectives on the Situation in Former Yugoslavia." Panelists include former U.S. Sen. Thomas Eagleton, Roger Petersen, asst. prof. of political science, Engin Akarli, assoc. prof. of history, and student Michael Holzman. Room 106 Simon Hall. 935-4360.

Wednesday, Feb. 1

8 a.m. Obstetrics and Gynecology Grand Rounds. "Platelet Disorders," John Chang, chief resident, Dept. of Obstetrics and Gynecology. Clopton Aud., 4950 Children's Place.

11 a.m. Assembly Series lecture. "Russian Popular Culture: Looking at the People," Richard Stites, prof. of history, Georgetown U., Washington, D.C., and author of "Russian Popular Culture: Entertainment and Society Since 1900." Graham Chapel. 935-5285.

12:30 p.m. Neuroscience luncheon seminar. "A Role for Hox Proteins in Skeletal Muscle Gene Transcription," Venkateswara Rao, postdoctoral fellow, Dept. of Molecular Biology and Pharmacology. Schwarz Aud., First Floor Maternity Bldg. 362-7043.

4 p.m. Biochemistry and molecular biophysics seminar. "NMR Studies of the Structural Trigger for Muscle Contraction," Brian Sykes, prof., Dept. of Biochemistry, U. of Alberta, Canada. Cori Aud., 4565 McKinley Ave. 362-0261.

4 p.m. Math analysis seminar. "The Farmer's Legacy: An Isoperimetric Problem," Carl Cowen, prof. of mathematics, Purdue U., West Lafayette, Ind. Room 203 Cupples I Hall. 935-6726.

4 p.m. Women's studies colloquium. "When a Homeless Woman Makes a Burglary Report," Bonnie McElhinny, Mellon postdoctoral fellow in cultural studies. Women's Bldg. Lounge.



Music

Saturday, Jan. 28

8 p.m. Dept. of Music graduate voice recital. Lauri Davidian Goldenhersh, mezzo soprano and a master's in music degree candidate, with Gail Hintz, piano, and Andrew Goldenhersh, guitar. Program: music of Jean-Philippe Rameau, Joseph Marx, John Dowland and George Rochberg. Graham Chapel. 935-5581.

Sunday, Jan. 29

8 p.m. Dept. of Music concert. "Composers' Concert: A Program of 20th-Century Music for Flute," performed by Betsy Feldman, flute and alto flute, and John Perkins, assoc. prof. of music, piano. Steinberg Hall Aud. 935-5581.

Saturday, Feb. 4

7 p.m. Friends of Music annual gala. "Jukebox Saturday Night," an evening of 1940s music, supper and dance. Open to Friends of Music members and their guests. Holmes Lounge, Ridgley Hall. Cost: \$35 per person. 935-4034.



Performances

Thursday, Jan. 26

8 p.m. "Stage Left" series presents stand-up comic Reno in "Reno: Out There Without a Prayer." (Also Jan. 27 and 28, same time, and Jan. 29 at 7 p.m.) Cost: \$12. Drama Studio, Room 208 Mallinckrodt Center. 935-6543.

Sunday, Jan. 29

2 p.m. Edison Theatre "ovations! for young people!" series presents Kathy Rose's Kabukimenco Visual Theater. "Kabukimenco" is a combination of Ka-

buki, the stylized singing and dancing of Japanese drama, and Flamenco, the vigorous dance of Spanish Gypsies. Edison Theatre. Cost: \$10. 935-6543.

Friday, Feb. 3

8 p.m. Edison Theatre "OVATIONS!" series presents "Needles and Opium," conceived, written and directed by Robert Lepage and performed by Marc Labrèche. (Also Feb. 4, same time.) Edison Theatre. Cost: \$20 for the general public; \$16 for senior citizens, WU faculty and staff; and \$11 for WU students and children. 935-6543.



Miscellany

Saturday, Jan. 28

9 a.m.-noon. University College skill development workshop. "Goals, Time and Taking Notes." Instructed by Richard Lake, prof. of reading, St. Louis Community College. (One of three workshops on strategies for academic success. Other workshops are Feb. 18 and March 18, same time.) Room 30 January Hall. Cost: \$20 for each workshop; \$50 for all three. To register, call 935-6788.

Tuesday, Jan. 31

8 p.m. International Writers Center literary reading. David Bradley, author of "The Chaneyville Incident" and "South Street," will read from his works. West Campus Conference Center, 7425 Forsyth Blvd. Cost: \$5; free for senior citizens and students. 935-5576.

Friday, Feb. 3

Noon. Woman's Club mini-luncheon and program. "Folk Songs," Alex Usher, native St. Louisan and 1993 national autoharp champion. Women's Bldg. Lounge. Cost: \$5. 966-4680.

Saturday, Feb. 4

9 a.m.-noon. University College skill development workshop. "The Craft of Writing: Grammar and Usage." Instructed by Tatnall Warner; St. Louis Post-Dispatch news editor and lecturer in communications and journalism, University College. Room 30 January Hall. Cost: \$20. To register, call 935-6788.

Sioux artist's performances help preserve American Indian culture

American Indian artist Kevin Locke presents "Lakota Music, Dance and Oratory," a performance of stories, flute songs and hoop dances that brings to vibrant life the world of the Lakota Sioux, at 2 p.m. Feb. 12 in Edison Theatre.

Locke is a Lakota of the Standing Rock Reservation in South Dakota. He has performed internationally to spread Lakota traditions and to help preserve American Indian culture.

His performances stress the cyclical or "hooplike" nature of the world and all of its inhabitants. He uses 28 hoops to tell stories depicting such things as flowers, butterflies, stars, the sun and an eagle.

Locke is one of the youngest artists to receive a National Heritage Fellowship from the National Endowment for the Arts.

Locke's performance is part of Edison Theatre's "ovations! for young people" series, which offers programs of special interest to children ages 6 and older. Performances last about one hour and are followed by question-and-answer sessions with the artists. Tickets are \$10 and available at Edison Theatre box office (935-6543) or Metrotox (534-1111).

Locke's visit to Washington University is supported in part by the Center for



Kevin Locke

American Indian Studies at the George Warren Brown School of Social Work. Additional support comes from the Mid-America Arts Alliance Program made possible by the Dance On Tour Program of the National Endowment for the Arts with the Missouri Arts Council.

For more information, call 935-6543.

Saturday seminars explore post-war America

Post-war America is the subject of a series of seminars that will be held Saturday mornings in February. "A Backward Glance: America After the War" is the title of the 14th annual "Saturday Seminars," weekly lectures by University faculty designed to explore a common theme from different perspectives and invite dialogue between audience and speaker. The lectures are free and open to the public and will be held at 11 a.m. in Room 362 McDonnell Hall.

The series is based on the premise that the world changed dramatically after the defeat of the Axis powers in 1945. After a global struggle for liberation, violations of civil rights at home became increasingly unacceptable. International and domestic politics were redefined by Cold War myths and realities.

The first seminar, "The Legacy of the

Bomb," will be led by Carl M. Bender, Ph.D., professor of physics in Arts and Sciences, on Feb. 4. On Feb. 11, Henry Berger, Ph.D., associate professor of history in Arts and Sciences, will lead a seminar titled "1945 — America and the World: Between War and Peace." Former U.S. Sen. Thomas Eagleton, LL.B., University Professor of Public Affairs, will speak on "The 1948 Presidential Campaign: The Beginning of Modern Politics" Feb. 18. And Gerald Early, Ph.D., professor of English and director of the African and Afro-American Studies Program in Arts and Sciences, will close the series Feb. 25 with a seminar titled "The Energy of Freedom: The African-American's Protest Ideology and the Rise of American Nationalism, 1945-1965."

No registration is required. For more information, call 935-6777.

Russian scholars plan discussion forum — from page 1

"Russian Popular Culture: Entertainment and Society Since 1900" (1992).

Stites, who received a doctorate in history from Harvard University in 1968, has won major honors, including a Guggenheim Fellowship for 1983-84.

The national program, "Reemerging Russia: Search for Identity," is being organized by OASIS, a non-profit organization that offers educational programs and volunteer services in the arts, health and humanities to a membership of more than 200,000 adults over 55 in 24 cities.

Okenfuss and 10 other Russian scholars from across the country worked together to write essays, develop study topics and make video selections for a 10-session discussion forum.

"Since the collapse of communism, the Russian people have been rediscovering their past, redefining their national identity and recovering their literary, artistic, religious and cultural traditions," Okenfuss said. "Our goal is to help Americans understand the Russia that is reemerging from the ashes of the former Soviet empire."

The OASIS Institute, the organization's national headquarters based in St. Louis, received a \$170,000 grant from the National Endowment for the Humanities to develop the program, which will be offered in all 24 OASIS cities.

Participants in the OASIS lecture and discussion program will meet from 10:30 a.m. until noon Wednesdays from Feb. 8 through April 12. Admission is free, but

due to limited capacity, individuals interested in attending must register through the OASIS Center at 539-4555. The program will be offered again in the fall.

To make the program available to a wider audience, cooperative programs also are planned with other local institutions.

- The Saint Louis Art Museum will offer a free Russian Film Festival at 1:30 p.m. on Fridays, March 3-24.
- Free book discussion sessions offered by the St. Louis Public Library will look at the style, content and attitudes expressed by Russian writers. The sessions will be held at 1:30 p.m. Thursdays, May 11 through June 15.
- The Higher Education Center will videotape the OASIS discussion forums and show the tapes on cable TV stations throughout the St. Louis area.

In St. Louis, OASIS centers are located in Famous-Barr stores at the Crestwood and St. Louis Centre shopping malls and at the Washington University West Campus in Clayton. The organization is sponsored nationally by The May Department Stores Co., BJC Health System and Washington University School of Medicine. The local St. Louis program also is sponsored by Famous-Barr, the International Education Consortium, Jewish Hospital of St. Louis and the Missouri Humanities Council.

Stites' lecture is co-sponsored by Student Union, the Russian Club and the departments of History, Political Science and Russian in Arts and Sciences. For more information about the Stites' lecture, call 935-5285.

Sports

Compiled by Mike Wolf, director, and David Moessner, asst. director, sports information.

Both hoop squads ride UAA winning streaks

Last week (men's): WU 77, Rochester 54; WU 95, Case Western Reserve 74

This week (men's): 8 p.m. (EST) Friday, Jan. 27, at Emory University (UAA), Atlanta; 1 p.m. (EST) Sunday, Jan. 29, at Carnegie Mellon University (UAA), Pittsburgh

Season Record (men's): 13-2 (6-0 UAA)

Off to their best start in 80 seasons of intercollegiate basketball, Washington's men's basketball Bears put together four UAA home wins over a nine-day span. WU has won a school-record 12 consecutive league games dating back to Feb. 6, 1994.

Junior Kevin Folkl, St. Louis, provided the muscle behind the Bears' weekend wins over Rochester and Case Western Reserve, netting 21 points and 11 rebounds and 23 points and 11 rebounds, respectively.

Last week (women's): WU 63, Rochester 53; WU 81, Case Western Reserve 57

This week (women's): 7:30 p.m. Wednesday, Jan. 25, vs. Maryville University, Field House; 6 p.m. (EST) Friday, Jan. 27, at Emory University (UAA), Atlanta; 3 p.m. (EST) Sunday, Jan. 29, at Carnegie Mellon University (UAA), Pittsburgh

Season Record (women's): 10-5 (5-1 in UAA)

The women hoopsters, after struggling to a 6-5 start, have responded with an

impressive four-game surge. All four wins came against UAA foes — pushing the Bears to a second-place tie in the league race.

The recent burst has kept the Bears in solid contention for a sixth-straight NCAA tournament bid. In the latest ratings, WU was eighth in the Central region.

First-year student Amy Schweizer, St. Louis, who has scored a team-high 13.2 points per contest coming off the bench, tied her career-high with 19 in Sunday's win vs. Case Western Reserve.

Swim teams make waves

Last week (men's): WU 146, Indianapolis 82; DePauw 135, WU 108; Wabash 147, WU 97

Last week (women's): WU 122, Indianapolis 117; DePauw 120, WU 116

This week: 6 p.m. Friday and 11 a.m. Saturday, Jan. 28-29, Washington University Invitational, Millstone Pool

Both Bear swimming and diving teams officially plunged into the 1995 portion of the 1994-95 schedule last weekend.

First-year student Liz Burow, Minneapolis, triggered the women's success last weekend as she won both the 50-yard freestyle (:26.51) and the 100-yard freestyle (:56.97).

Sophomore Mike Donnerstein, Tucson, Ariz., paced the men's effort, winning both the 200-yard freestyle (1:48.95) and the 500-yard freestyle (4:59.48).

Science outreach program brings young orators to campus

Nearly 100 ninth- and 10th-grade students from University City High School filled Room 215 Rebstock Hall Jan. 12 to debate biotechnology and its nuances. The students, paired in teams of two, had survived a series of debates held earlier at the high school. The original series had pitted more than 300 University City ninth- and 10th-graders against each other. Debate topics ranged from controlling genetically engineered drugs and foods to the limitations of DNA fingerprinting. The massive "Battle of the Debaters" at Washington University took the entire morning and played in front of faculty from both institutions, the University City High School principal and some school board members. The day ended with an awards ceremony, a lunch for students, and an hourlong campus tour.

The event was the culmination of a 12-week biology unit in which University City ninth- and 10th-graders studied biotechnology and the genetics revolution. The curriculum was developed by University City teachers and University scientists headed by Cynthia Moore, Ph.D., Washington University lecturer in biology in Arts and Sciences and coordinator of the University's science outreach program, and Vicki May, biotechnology coordinator of the Mathematics and Science Education Center.

Curriculum funding was made possible by a 1991 National Institutes of Health grant called a Science Education Partnership Award (SEPA), which Sarah C.R. Elgin, Ph.D., Washington University biology professor in Arts and Sciences and outreach program director, received in 1991. The program was part of the Washington University/University City Science Education Partnership that Elgin started in 1989.

Students referred to germ warfare, salmonella bacteria, genetically engineered tomatoes, laboratory animal testing, the right of companies to gain access to genetic information of employees, and bovine somatotropin (a genetically engineered hormone that makes cows produce more milk). They cited studies and articles from Science, Time, U.S. News and World Report and Glamor magazines, as well as the St. Louis Post-Dispatch and The Wall Street Journal.

Although University City High School doesn't have a debate teacher, it was not apparent in the skills and polish of the students, who were advised by the Clayton High School Debate Team and guided by collaborating University City English teachers Barbara VanAusdall and Rick Wilson and social studies teacher Barbara Shapiro. The University City biology teachers who taught the curriculum were alumnus David Brock, Bridget Hanson, Rick Mace, Julie Schauer and Lucy Wynn, who also is science department chair.

High school student Melissa Meeks said she spent two weeks surfing the Internet at the University City Public Library for some of her sources. Her partner, Stephanie Fiscus, said she wasn't nervous until "I saw my friends mess up and I realized that could be me. As soon as I got on the stage, I started getting very nervous."

Daniel Luckett said mental preparation was key to his involvement.

"I had to get psyched up, but I didn't have any bad feelings for our opponents, like you might in sports."

"We were thrilled with the success of the event," said Moore. "The students were really up for it and took it all very seriously, though it was obvious they had fun, too. That's what counts. Besides, it was a great



University City High School students Eugenia Gibbons, 14, makes a point and Joe Killebrew, 14, observes during the "Battle of the Debaters" on campus.

day away from school, where they could get the feel of a college atmosphere."

Washington University recently was awarded another three-year SEPA grant, which will allow Moore, May, Elgin and other colleagues at Washington University to expand the biotechnology curriculum next year to Jennings, Webster Groves and Washington, Mo., high schools, in addition

to University City, which has participated three years in a row.

"The Washington University/University City Science Education Partnership has been productive in many ways," said Elgin. "We are fortunate to have so many interested and dedicated people in both institutions to sustain this effort."

— Tony Fitzpatrick

Preservation unit fights library books' internal, external enemies — from page 1

bindings. And patrons are not allowed to eat or drink in the library.

The external enemy

"I know students don't like this policy. They want to drink a Coke while studying. But if you knew how many times that Coke gets knocked over. Any book in the vicinity is ruined and is unlikely to be replaced," Herrick said.

While it is possible to control the environment in the library, books are literally out of the staff's hands as soon as they're checked out.

"You would not believe what people do to books," Herrick said. "You name it, I've seen it. We treat dog bites, books returned without covers or spines, everything. We loaned out a book and it came back covered with corn oil, ruined. But there's not much you can do."

Library patrons are not solely to blame for the condition of many of the collection's books, however. In the past, librarians themselves have done damage, frequently in the name of cataloging and marking ownership.

"Libraries have done damage to books. Librarians used to write directly on books, and use acidic materials," Herrick said. "Now acid-free materials are used, which will lessen the damage over time. For example, bar codes are affixed with an acid-free adhesive. The policy now is not to do anything that isn't reversible or is non-harmful as possible."

New methods

Herrick, who originally planned to be an art restorer, has trained a "triage unit" to treat seriously damaged books. With a glue machine, surgical scalpels and acid-free materials, preservation staff repaired 2,052 damaged books last year.

As brittle books are identified — and deemed important enough to save — library staff choose one of three preservation techniques: photocopying the book on acid-free paper, transferring the book to microfilm, or encasing the book in a protective enclosure. All are considered a last resort and have their own drawbacks, not the least of which is expense.

The preservation unit embarked on an

ambitious program in 1992 to protect the ever-increasing number of paperback books flooding the collection. Today, every new paperback that enters the library is stiffened with a piece of acid-free cardboard, cut to fit with an electronic guillotine. The library previously contracted with a commercial binder to reinforce tattered paperbacks at a cost of \$2.69 per book. The in-house cost is less than half this amount. Last year, preservation staff treated more than 8,000 paperbacks.

As the quality of books continues to decrease — some of the most recent releases will become brittle in only 10 years — new methods of book preservation and conservation are being studied. The Library of Congress pioneered a technique of deacidification, which neutralized the acid in paper. Books were infused with the gas dyetholzinc, or DEZ. Unfortunately, the method left covers sticky and odorous in many cases. The Museum of Natural History re-

searched another technique using paralene, which strove to stabilize brittle pages by infusing them with a mylar coating. But the technique did not succeed in coating all the pages of a book and still is experimental.

University Libraries opted not to adopt these procedures, and Herrick is looking cautiously at the latest technique — storing books digitally on CD ROM, creating, in essence, an electronic library. An early problem with this method is that CDs only last 30 years, much less than the books themselves and certainly not as long as microfilm.

"An electronic library may or may not be the wave of the future. I don't know," said Herrick, who is also a bibliographer and selects books for the women's studies and history departments. "A book is a simple object that is so much a part of everyone's life. When I see a brand new book that has never been used, it is such a treat. I couldn't imagine life without them." — Susannah Webb

Tips for preserving private book collections

Roxanna Herrick, preservation administrator of University Libraries, offers the following tips to care for private book collections:

- Store books on steel shelving with a baked enamel finish. Wood shelves will acidify and embrittle the collection. If wood shelves are used, a barrier of polyester film should be placed between the wood and the collection.
- Maintain a temperature of 65-70 degrees Fahrenheit.
- Relative humidity should not exceed 50 percent.
- Do not store books in the basement or attic, where it is difficult to maintain constant environmental conditions.
- Do not store books by a window. Sunlight's ultraviolet rays will degrade the paper and visible light will fade the dyes of the bindings.
- Do not store books on a window ledge, near pipes, under a fish tank, or any other place where they could get wet. Water damage cannot be

reversed and can result in complete destruction.

- If you must store books in boxes or cartons, make sure the material is acid-free.
- Do not put anything inside books. Newspaper clippings will acidify the paper. Pressed flowers will destroy the inks and paper. Paper clips, bookmarks and other items all do damage over time.
- Do not write in books.
- Do not attach Scotch tape, masking tape, or any other kind of adhesive to books.
- Treat books gently. Do not read books in the bathtub, while eating or while cooking. Do not leave them lying face-down in an open position. Do not leave them on a radiator or window sill, or where a dog or child can get them. Do not put cups or glasses on books.
- For more information about book preservation and care, call Herrick at 935-4287.

Campus Watch

The following criminal incidents were reported to the Hilltop Campus Police Department Jan. 2-23. 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.

Jan. 6

9:13 a.m. — A student's bicycle and lock were reported stolen from the rack on the north side of Liggett Residence Hall sometime between 1 p.m. Dec. 16 and 9 a.m. Jan. 6.

Jan. 11

3:05 p.m. — A television belonging to the Department of Biology was reported stolen from Room 202 Monsanto Hall sometime between 4:30 p.m. Jan. 6 and 2:30 p.m. Jan. 11.

Jan. 12

2:18 p.m. — A student's compact disc player/radio/tape recorder was reported stolen from Liggett Residence Hall sometime between Dec. 16 and 12:30 p.m. Jan. 12.

Jan. 15

12:23 a.m. — Unknown person(s) threw a metal object through a window of the Theta Xi house.

Jan. 16

2:15 p.m. — A student's bicycle and lock were reported stolen from the rack on the

north side of Hitzeman Residence Hall sometime between 9 a.m. Dec. 16 and 11 p.m. Jan. 14.

5:27 p.m. — Cash and a traveler's check belonging to a student were reported stolen from Rubelmann Residence Hall sometime between 1 and 2 p.m. Jan. 15.

9 p.m. — Unknown person(s) broke the window of a student's vehicle parked in the lot on the north side of the Athletic Complex sometime between 12:01 a.m. and 5 p.m.

Jan. 19

9:39 p.m. — A student damaged a window of Hitzeman Residence Hall with a snowball.

Jan. 20

2:43 p.m. — A student's bicycle was reported stolen from the rack on the east side of Mallinckrodt Center sometime between 11 a.m. and 2:30 p.m.

Jan. 22

1:11 p.m. — A license plate was reported stolen from a student's vehicle parked in the tennis court lot sometime between 7 p.m. Dec. 21 and 1:11 p.m. Jan. 22.

News Analysis

News Analysis contains excerpts from the For Expert Comment service. The service, which provides timely faculty comments to media across the country, is distributed by the Office of University Communications.

Soft soil underlies devastation of Kobe quake, says expert

Phillip L. Gould, Ph.D., professor and chair of civil engineering, specializes in earthquake engineering and is a board member of the Earthquake Engineering Research Institute based in Oakland, Calif. The



institute conducts seismic studies, inspects earthquake damage and supports educational efforts and technology transfer to reduce the impact of earthquakes. He comments below on the Jan. 17 earthquake in Kobe, Japan.

One of the most obvious problems the Kobe earthquake illustrates, said Gould, is the impact of earthquakes of this magnitude on buildings and structures that sit on soft soils.

"The outcome of the Kobe earthquake will be a reconsideration of how earthquake effects are amplified on soft soils and filled-in soils," said Gould. "The Kobe earthquake and the 1989 Loma Prieta (Calif.) earthquake are very similar. They both showed that structures built on soft soils suffered significantly more damage than those built on harder soils, despite a similar distance between the earthquake's epicenter. There are many places nationwide, including California, St. Louis and the Midwest, where structures built on soft and filled-in soils are vulnerable."

Gould recently learned that many older houses and reinforced concrete buildings, constructed before the 1981 seismic regulations, collapsed. On the other hand, similar structures built after 1981 survived, for the most part.

Soft soils are found throughout the United States in river valleys, agricultural areas and near large bodies of water. Filled-in soils are common throughout parts of the United States, especially in areas such as the San Francisco Bay and the Chicago Lakefront, which are valuable for economic development. Much of the Chicago Lakefront was built from rubble of the famed 1871 Chicago Fire, according to Gould.

"In older cities along a bay, the soils have been filled in to make room for commercial and residential property. In the old days, they filled in with whatever was handy. In recent years, better engineering techniques have eliminated much of this problem."

Gould is spearheading a project for the Federal Emergency Management Agency (FEMA) that will provide national retrofitting standards for existing structures. Except for a few places in Los Angeles and Long Beach, Calif., there are no mandated retrofitting requirements for buildings anywhere in the country. "We feel in the next five to 10 years, mandated retrofitting will be coming for critical structures, like schools and hospitals. We're now developing standards to do this economically."

For The Record

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

Of note

Mark A. Franklin, Ph.D., professor of electrical engineering, and **Barry E. Spielman**, Ph.D., professor and chair of electrical engineering, have been elected fellows by The Institute of Electrical and Electronics Engineers. ...

Dale Sanko, a junior majoring in chemical engineering, and **Benjamin W. Verdine**, a senior biology major, were inducted into the Golden Key National Honor Society's Washington University chapter. The society, an academic honors organization, seeks to unite diverse individuals while nurturing and rewarding the academic efforts of top students in all disciplines. ...

David W. Thompson, director of protective services at the School of Medicine, was named the 1994 Healthcare Protection Administrator of the Year by the Greater St. Louis Healthcare Protection Association Inc.

Speaking of

During the annual American Speech-Language-Hearing Association Convention in New Orleans, **Susan M. Binzer**, coordinator of the Hearing Rehabilitation and Cochlear Implant Program in otolaryngology, **Laura K. Holden**, research audiologist in otolaryngology, and **Margaret W. Skinner**, Ph.D., associate professor of otolaryngology and director of the Audiology and Cochlear Implant Program, taught a short course on "Cochlear Implants: The Total Rehabilitation Approach." ...

At the National Association of Biology Teachers' annual convention in St. Louis, **Richard W. Coles**, Ph.D., adjunct professor of biology and director of the Tyson Research Center, spoke on "Declining Neotropical Migrant Songbirds — in St. Louis and in Venezuela." ...

David L. Elliott, Ph.D., professor emeritus of systems science and mathematics, lectured on "Reconstruction of Nonlinear Systems Using Delay Lines and Feedforward Networks" at the Du Pont Experimental Station in Wilmington, Del., the Institute for Systems Research at the University of Maryland in College Park and the New Jersey Institute of Technology in Newark. ...

During the National Association of Biology Teachers' national convention in St. Louis, **Susan A. Guckenberger**, a genetic counselor in the Division of Ultrasound and Genetics, delivered a presentation titled "Genetics in Real Life: Genetic Counseling and the Impact of Genetics on Families." ...

Daniel Keating, J.D., associate dean and professor of law, spoke on bankruptcy and employment issues during the 13th annual Bankruptcy Conference sponsored by the University of Texas School of Law in Austin. ...

Mary K. Migneco, O.D., clinical instructor of ophthalmology, presented a poster on "Attitudes of Successful Contact Lens Wearers Toward Refractive Surgery" at the Academy of Optometry's annual meeting in San Diego. ...

John C. Morris, M.D., associate professor of neurology, delivered a presentation titled "Medical Update on Alzheimer's Disease" at DePaul Health Center in St. Louis. In addition, during the Conference on the Therapeutics of Alzheimer's Disease he delivered a presentation titled "Assessment of Progression" at the Symposium on the Development on Neuroprotective Drugs. ...

Jay F. Piccirillo, M.D., assistant professor of otolaryngology and director of the Clinical Outcomes Research Office, was a panel discussant during a session titled "Healthcare Crisis — The Evolving Role of Outcomes Research in Head and Neck Cancer." ...

At the Midwest Clinical Teachers Conference held at the University of Kansas School of Law in Lawrence, **Jean Scott**, J.D., associate professor of law, was a panelist during the general session on "Educating Students With Special Needs."

She discussed challenges and opportunities in the clinical setting when students have learning or other disabilities.

On assignment

Linda M. Davidson, assistant business manager at the School of Medicine's Mallinckrodt Institute of Radiology, was appointed to the Healthcare Financial Management Association's board of directors. ...

Richard Lazarus, J.D., professor of law, was named to the Environmental Law and Policy Center's board of directors. The center, which is based in Chicago, is the first national environmental public interest group based in the Midwest. In addition, Lazarus was appointed to the World Wildlife Fund's national council. **Peter H. Raven**, Ph.D., Engelmann Professor of Botany, also is a member of the council. ...

The Central Association of College and University Business Officers appointed **David Nolan**, associate director of housing, to its St. Louis Professional Development Workshop Committee. ...

William D. Owens, M.D., professor of anesthesiology, was elected to the Anesthesia Foundation's board of directors. The foundation provides loans for house staff in anesthesiology. ...

Lee Ratner, M.D., Ph.D., professor of medicine and of molecular microbiology, was chosen by the National Institutes of Health (NIH) to chair its AIDS and Related Research Study Section 3, Division of Research Grants. The section reviews grants submitted to the NIH to determine their merit for funding. He will serve a two-year term. Ratner also received a

\$988,750 three-year grant from the National Heart, Lung and Blood Institute for a project titled "Viral Determinants of HIV-1 Associated Thrombocytopenia."

To press

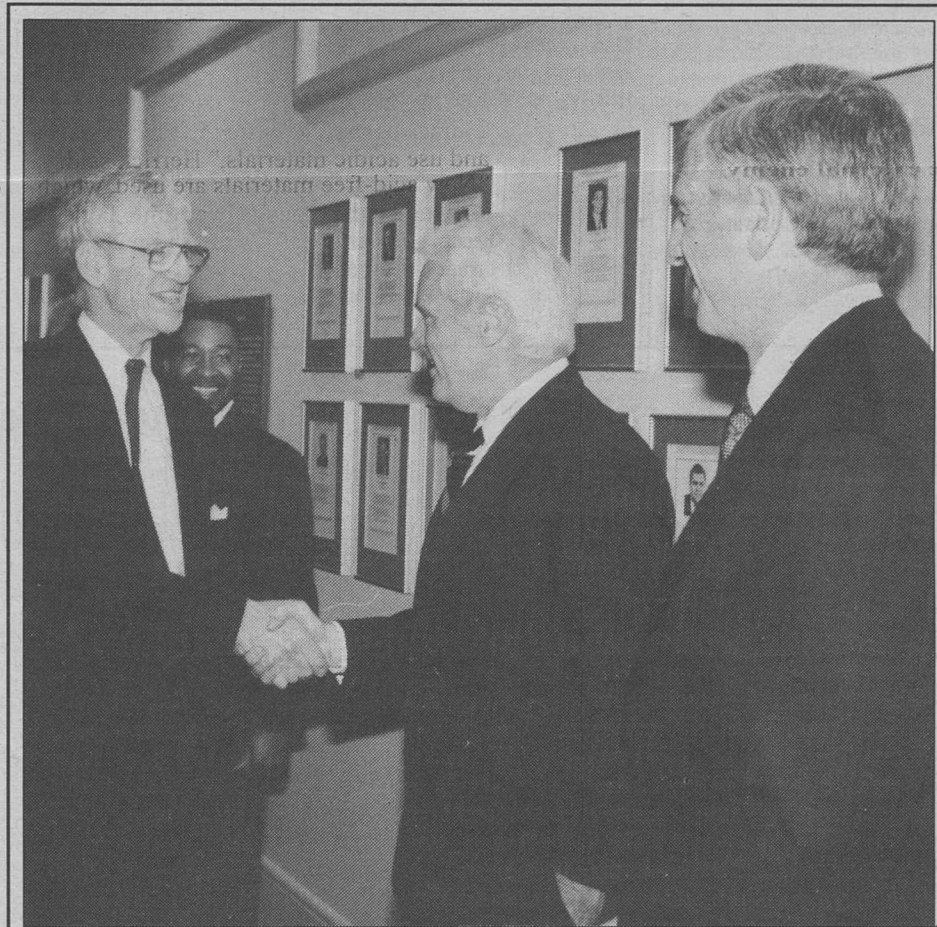
Mary-Jean Cowell, Ph.D., associate professor of performing arts and coordinator of the dance program, published an essay titled "East and West in the Work of Michio Ito" in the fall 1994 issue of the *Dance Research Journal*. ...

Stephen P. Leet, visiting assistant professor of architecture, has written the introductions to two monographs. The works are titled "Experimental Dwellings 1971-1994" by Alfons Soldevila, published by Edicions UPC, and "Eight Selected Projects" by Paul Amatuozzo, published by Sapiens Press in Milan. Soldevila is a former visiting professor of architecture at Washington University. ...

Kim Norwood, J.D., associate professor of law, wrote an article titled "Double Forum Shopping and the Extension of Ferens to Federal Claims That Borrow State Limitations Periods." The article will appear in the *Emory Law Journal's* spring volume.

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.



Retired U.S. senators Thomas F. Eagleton, LL.B., University Professor of Public Affairs, and John C. Danforth, LL.B., recently were honored as 1994 St. Louis Men of the Year at a reception in Simon Hall by 19 citizens, each of them past awardees. The award, established 40 years ago by the St. Louis Globe-Democrat and now sponsored by the St. Louis Post-Dispatch, recognizes outstanding leadership to the community. Above, Chancellor William H. Danforth congratulates Eagleton as St. Louis Cardinals shortstop Ozzie Smith and John C. Danforth (far right) look on. Smith and William Danforth are previous award recipients.

Alumnus elected to Board of Trustees

Washington University alumnus Donald P. Gallop, chair of the Gallop, Johnson and Neuman law firm in St. Louis, has been elected to a four-year term on the Board of Trustees. Gallop received a law degree from the University in 1959.

Gallop serves as chair of the School of Law's National Council and executive vice chair of the recently launched law school fund-raising campaign "Building for a New Century." Gallop, a member of the William Greenleaf Eliot Society, additionally supports the law school's Mr. and Mrs. Donald P. Gallop Scholarship. Gallop received a Distinguished Alumni Award from the School of Law in 1991



Donald P. Gallop

Gallop received a bachelor's degree in political science from the University of Missouri-Columbia in 1954.

and is an honorary initiate of the school's Order of the Coif. In 1992 he received a Distinguished Alumni Award from the University.

A member of the St. Louis and Missouri bar associations,

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.

System Coordinator 950165. University Registrar. Requirements: Bachelor's degree; typing 40 wpm with accuracy; experience with copiers, typewriter, electronic telephone set, filing, mainframe data entry, personal computer word processing. Clerical tests required.

Departmental Secretary 950166. Alumni and Development Programs. Requirements: Certification or associate's degree, bachelor's degree preferred; strong background in Microsoft Word; excellent verbal and written skills; pleasant, professional manner with co-workers, volunteers, vendors; ability to manage the flow of high-volume projects in a highly organized, accurate and timely manner; willingness to work extra hours if necessary; typing 50 wpm with accuracy. Clerical tests required.

Receptionist 950167. Medical Public Affairs. Requirements: High school graduate; one or two years secretarial/receptionist experience or training; typing 40 wpm with accuracy; general knowledge of executive office procedures; knowledge of computerized word processing and data systems, especially Microsoft Word; excellent organizational skills. Clerical tests required.

Support Center Specialist 950169. Accounting Services. Requirements: One year of basic scientific and manual skills education as is offered by technical institutes or junior colleges, or an equivalent amount of on-the-job training; working knowledge of personal

computers, set-up, maintenance and support; excellent work attendance record; capacity for light lifting and other manual work; experience operating and maintaining office equipment, including microfilm cameras, processing and mailing machines; ability to work independently with a high degree of self-motivation; strong service orientation. Clerical tests required.

Assistant Accountant I 950171. Accounting Services. Requirements: Six semester hours of accounting, at least six semester hours of additional accounting and/or other business administration courses; two years experience equivalent to an accounting clerk II plus three semester hours of accounting courses; ability to provide excellent service to a wide variety of internal and external customers, exercising confidentiality; willingness to continually improve professional and personal development; ability to participate on various types of teams to achieve the goals of Accounting Services; experience with mainframe and/or personal computers and various software applications preferred; high clerical and mathematical aptitude; payroll experience preferred; ability to lift 35 pounds. Temporary six-month position with possibility of regular status.

Plant Care Assistant, Part time 950172. Biology. Requirements: High school graduate, some horticultural education preferred; one year experience working in greenhouses; ability to work unsupervised; ability to lift 50-pound sacks of soil. Schedule: Weekends, four hours every Saturday and Sunday, and approximately seven hours Monday through Wednesday or Wednesday through Friday; work holidays. Application required.

Director of Compensation 950173. Office of Human Resources. Requirements: Ten or more years of progressively responsible experience in designing, developing and communicating compensation programs; knowledge of and familiarity

with incentive compensation principles and practices; knowledge of and familiarity with different compensation methodologies and associated statistical techniques; professional certification by credentialing organizations, such as SHRM, CEBS, ACA, etc.; master's degree in human resources management, and/or a master's degree in business administration preferred; ability to train, coach, counsel human resources staff, customers and peers; analytical skills to accurately forecast costs and trends; ability to use spreadsheet software and databases. Resumé required.

Director of Communications 950174. Office of Human Resources. Requirements: Ten or more years of progressively responsible experience in designing, developing and administering a variety of employee communications programs (three of the 10 years spent in the generalist role); knowledge of and familiarity with vendor-based human resources software, database loading and report generation tools; background in automating a human resource function and/or integrating human resources software with payroll and benefits software preferred; professional certification by credentialing organizations, such as SHRM, CEBS, ACA, etc.; master's degree in human resources management, Certified Public Accountant and/or master's degree in business administration preferred; ability to train, coach, counsel human resources staff, customers and peers; analytical skills to accurately forecast costs and trends; ability to use spreadsheet software and databases. Resumé required.

Director of Employment 950175. Office of Human Resources. Requirements: Ten or more years of progressively responsible experience in employment function, including exempt professional, technical and non-exempt positions (three of the 10 years spent in the

generalist role); knowledge of and familiarity with a variety of recruitment tools and sources; professional certification by credentialing organizations, such as SHRM, CEBS, ACA, etc.; master's degree in human resources management, and/or a master's degree in business administration preferred; ability to train, coach, counsel human resources staff, customers and peers; analytical skills to accurately forecast costs and trends; ability to use spreadsheet software and databases. Resumé required.

Director of Employee Relations 950176. Office of Human Resources. Requirements: Ten or more years of progressively responsible experience in designing, developing and communicating a variety of employee relations programs (three of the 10 years spent in a generalist role); professional certification by credentialing organizations, such as SHRM, CEBS, ACA, etc.; master's degree in human resources management and/or a master's degree in business administration preferred; mediation training very helpful; ability to train, coach, counsel human resources staff, customers and peers; analytical skills to accurately forecast costs and trends; ability to use spreadsheet software and databases. Resumé required.

Director of Training 950177. Office of Human Resources. Requirements: Ten or more years of progressively responsible experience in designing, developing, delivering and administering a variety of training and development programs (three of the 10 years spent in a generalist role); knowledge of and familiarity with vendor-based management development programs; knowledge of and familiarity with adult learning principles; ability to design behavior learning objectives, measures of effectiveness and validate results using Equal Employment Opportunity methodology; professional certification by credentialing organiza-

tions, such as SHRM, CEBS, ACA, etc.; master's degree in human resources management, master's degree in education and/or master's degree in business administration preferred; ability to train, coach, counsel human resources staff, customers and peers; analytical skills to accurately forecast costs and trends; ability to use spreadsheet software and databases. Resumé 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 resumé 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.

Medical Secretary II 950207-R. Neurology. Requirements: High school graduate or equivalent; two years of college with two years related secretarial experience preferred; knowledge of medical terminology and WordPerfect; typing 60 wpm.

Coding Specialist 950297-R. Internal Medicine. Schedule: 3-11:30 p.m.; some weekends. Requirements: High school graduate or equivalent; two years experience preferred; experience in CPT and ICD-9 coding; knowledge of medical terminology; typing 25 wpm. Considerable walking involved.

Accounting, Payroll or Purchasing Assistant I 950435-R. Pediatrics. Requirements: High school graduate or equivalent; some college-level accounting courses preferred; one year related experience; FIS experience; experience with FOCUS, Lotus and WordPerfect preferred.

Senior Departmental Accounting Assistant 950528-R. Anesthesiology. Requirements: High school graduate or equivalent with some college accounting course work, accounting degree preferred; two years accounting experience; experience on CRT; typing 40 wpm.

Editorial Assistant-Professional 950532-R. Surgery. Requirements: Bachelor's degree in business administration; two years experience with medical copy editing and associated editorial responsibilities; knowledge of medical terminology; experience with WordPerfect; typing 60 wpm.

Secretary II 950538-R. Ophthalmology. Requirements: High school graduate or equivalent; three years secretarial experience, preferably in an academic setting; supervisory experience helpful; experience with word processing, Macintosh and Microsoft Word; typing 55 wpm.

Secretary II 950543-R. Radiology. Requirements: High school graduate or equivalent; two years college or business school training or three years secretarial experience; skill in recordkeeping and business math; typing 50 wpm.

Medical Secretary II 950570-R. Surgery. Requirements: High school graduate or equivalent; two years office experience, preferably in a medical setting; knowledge of medical terminology; typing 60 wpm.

Manager, Patients Accounts 950571-R. Anesthesiology. Requirements: Bachelor's degree in accounting or business administration with at least five years experience in supervision of a patient accounts office; ability to recognize, analyze and report trends through accounting and organization skills.

Wiens' finding enlivens debate over earthquake causes, rocks popular theories — from page 1

along a fault plane like the famed San Andreas Fault in California.

"For a long time, scientists have wondered what a deep earthquake looked like," Wiens said. "What we see is the same sort of behavior found along the San Andreas Fault. The aftershocks tend to line up along the fault itself where the main shock happened."

Moreover, the seismologist determined that the plane deep within the Earth is about 35 miles wide, much wider than the zone most seismologists believe produces deep earthquakes. The most popular theory of what causes such earthquakes is called transformational faulting, where a thin zone of material no wider than 15 to

20 miles undergoes transformation from one phase to another, in the same way that carbon can be transformed to diamond by applying pressure.

"We show clearly that at least some of the aftershocks occur well outside of the width of what some scientists consider the transformation zone," Wiens said. "This means people either are going to have to revise their theories on what causes deep earthquakes or at least reconsider how wide the zone is that produces the earthquakes."

Wiens gave an invited paper on his results at the annual fall meeting of the American Geophysical Union in San Francisco on Dec. 8. His results are published in the Dec. 8 issue of Nature.

Since the 1930s there has been a lively debate among seismologists over what actually causes deep earthquakes. In addition to the transformational faulting idea, other theories propose that deep earthquakes occur because of loss of water from reactions that happen as material heats up deep in the earth. Others think that, like shallow earthquakes, deep earthquakes simply represent slip on a fault, with no transformation occurring. While Wiens' finding does not settle the debate, it does show that current ideas will have to be revised.

"The abundance of aftershocks from the Tonga earthquake is very unusual," Wiens noted. "Throughout the history of seismology, there never has been a deep earthquake with this many aftershocks. We have to look at why this particular earthquake has so many aftershocks. There is something that we don't understand about deep earthquakes that led to this kind of behavior."

An even larger deep earthquake (8.3 on the Richter scale) than the Tonga event occurred June 9, 1994, in Bolivia. Seismo-

graphs recorded a total of 36 aftershocks from that event, with just one registering higher than 5.0. In contrast, Wiens recorded 11 aftershocks greater than 5.0 from the Tonga event. The largest deep earthquake prior to the Bolivian event happened July 31, 1970, in Columbia. No aftershocks were recorded from that event.

"It may be that the Tonga event, which had abundant aftershocks, and the Bolivia and Columbia events, which are deficient in aftershocks, represent two totally different types of deep earthquakes," Wiens said.

Wiens and his collaborators still are recording aftershocks from the Tonga earthquake. They now have 11 seismographs deployed on islands throughout the region. During the summer of 1994, Wiens and another group of seismologists from the Scripps Institute of Oceanography deployed 30 seismographs on the ocean floor at sites throughout the southwest Pacific to gather even more data about deep Earth structure and seismicity in the region. — Tony Fitzpatrick

Q&A

Addressing employee questions concerning the Washington University community

Q: My department is overcrowded. I know Accounting Services recently moved to West Campus, and I wondered if there was any more space available in that building?

A: The space in West Campus is more than 90 percent committed by University Libraries, the International Writers Center, Accounting Services, Investments Accounting, the new Shared Billing and Collection Service at the School of Medicine, Computing and Communications, the

Correspondence Center and part of Alumni and Development. There are departments that are considering utilizing some of the remaining space, and it appears at this time that the remaining space will be assigned on a priority basis. — Richard A. Roloff, executive vice chancellor

Submit questions about the University, which have broad appeal, to Q&A, c/o Susannah Webb, Campus Box 1070, or p72245sw@wuvmd.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.

University exceeds United Way campaign goal

Washington University's annual United Way campaign has exceeded its 1994 goal, Robert Franklin of Accounting Services and the University's campaign coordinator, announced recently.

"We are very pleased to have surpassed our goal," said Franklin. "I would especially like to thank and congratulate all the employees who participated in the campaign. The United Way does a tremendous job in making our bi-state area a better place to live and work."

The drive, which began in September, netted \$290,000 in gifts and pledges, said Franklin. The University's 1994 goal was \$287,225. The 1994 United Way of

Greater St. Louis campaign raised a total of \$50.1 million.

Washington University employees have participated in the United Way campaign since its inception more than 25 years ago. United Way supports more than 140 regional agencies, which provide such services as disaster relief, child abuse prevention and treatment programs, elderly support, counseling and support for unemployed individuals and their families, and programs to fight hunger and homelessness.

Pledges and donations still are being accepted. For more information, call 935-4725.