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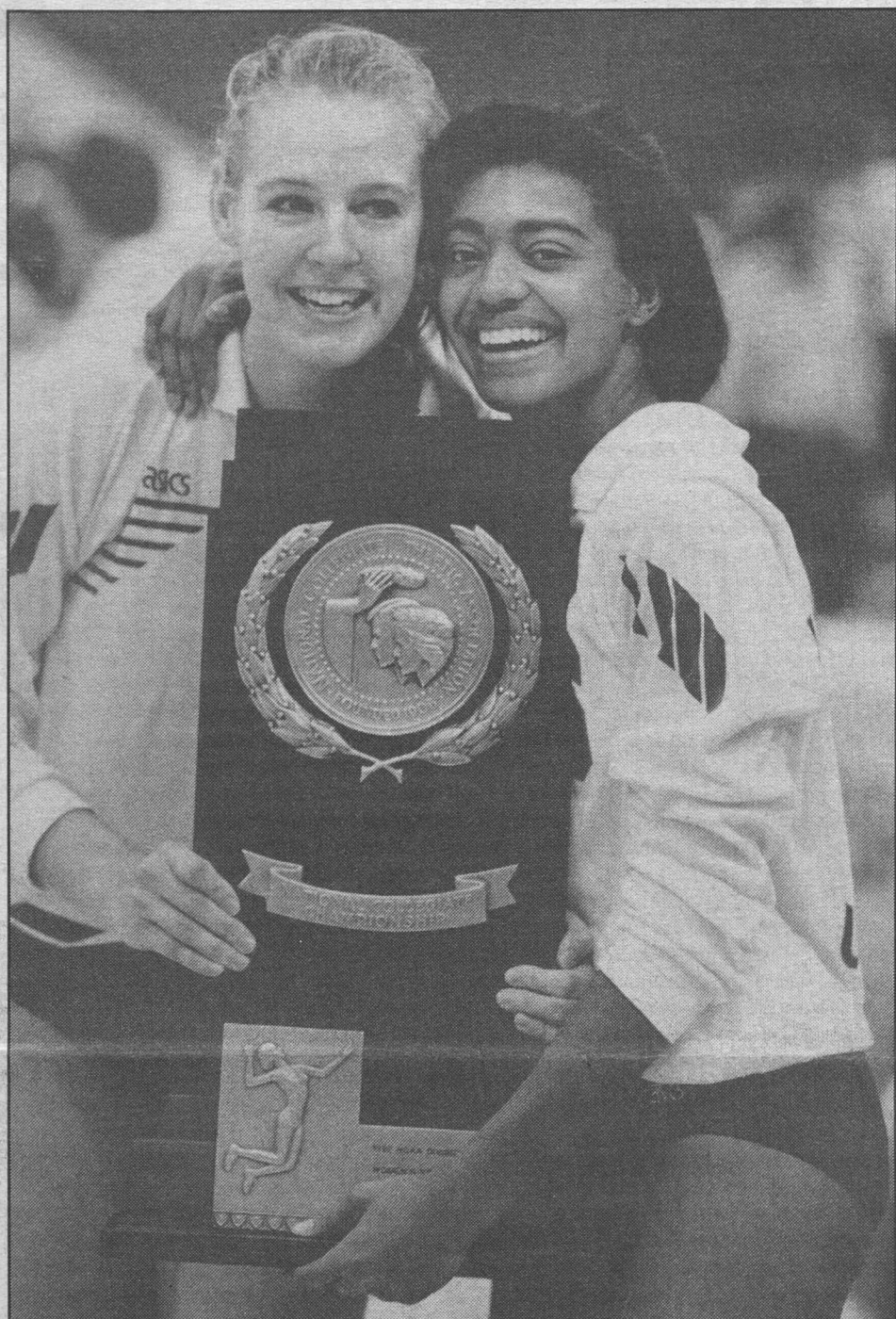
Washington University Record, December 3, 1992

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Senior middle blocker Lisa Becker, left, and senior outside hitter Michelle Kirwan celebrate after winning the NCAA Division III title.

Volleyball Bears win third NCAA Division III title in four years

Armed with a record five All-Americans, the Washington University women's volleyball team capped a season of perfection by winning its third NCAA Division III title in four years on Saturday night.

The Bears toppled the University of California, San Diego (UCSD), in the championship match by a 15-11, 15-9, 15-7 score to finish the campaign at 40-0. With the win, the 1992 Bears became the first title holder in Division III history to complete a season undefeated. Going back to last year, the Bears have now won 45 consecutive matches overall, 64 straight matches against Division III competition, and 40 matches in a row at home.

The championship, which drew a crowd of 3,024, was held at the Washington University Field House for an unprecedented fourth-straight year.

Game one was a see-saw battle in the early going. The Bears and the Tritons were knotted at 6-6 before a flurry of kills by Washington sophomore All-Americans Anne Quenette and Amy Albers helped the Red and Green pull away. In games two and three, Washington University played nearly flawless ball and forced the young Tritons into a succession of mistakes.

UCSD coach Doug Dannevik, who has led his Tritons to six national titles and four runner-up finishes in the past 12 years, offered high praise after the match.

"The Bears were awesome," Dannevik

said. "They didn't let a ball hit the floor. They had the complete package of power, speed, strength and ball handling. Washington University is also supremely well coached. They dominated the division and they deserve all the accolades coming to them."

Then Dannevik, perhaps the only person qualified to make such a judgment, bestowed his highest compliment.

"I think the Washington U. team that played tonight easily could have beaten our UCSD championship teams one-on-one. Sometimes it's hard to compare 1984 teams to 1992 teams, but very honestly I'd say that (Washington head coach) Teri Clemens' kids are as good as I've seen."

The NCAA Division III All-America selection committee agreed, tabbing five Bears with the highest of recognition. In addition, Washington's sixth starter earned all-conference honors. Leading the All-America list was senior middle blocker Lisa Becker, who was crowned as NCAA Division III co-player of the year.

Joining Becker on the 12-player first-team All-America list were junior middle blocker Amy Sullivan and sophomore outside hitter Amy Albers. Included on the 12-player second-team were junior setter Leslie Catlin and sophomore outside hitter Anne Quenette. Senior outside hitter Michelle Kirwan was granted second-team all-University Athletic Association recognition.

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Trustee's \$3 million gift will aid neurological surgery department

Shi Hui Huang, M.D., an internationally prominent industrialist, Washington University-trained neurosurgeon, and University trustee, has pledged \$3 million to the Washington University School of Medicine, Chancellor William H. Danforth has announced.

According to Danforth, three separate endowments will be established for the



Shi Hui Huang

Department of Neurological Surgery over a three-year period. The first endowment will be used to fund the Herbert Lourie Chair in Neurological Surgery. In 1993 a second endowment will establish the Shi Hui Huang Chair in Neurological Surgery, and in 1994 a third endowment will be used to support the academic functions of the department.

Lourie, who was a close friend of Huang's, also was trained in neurosurgery at Washington University. Lourie had a distinguished career at the State University of New York (SUNY) Upstate Medical Center and served as president of the Society of University Neurosurgeons and the Neurosurgical Society of America.

"We are very appreciative of Dr. Huang's farsighted and generous support. His gift will have a major impact on our School of Medicine for generations to come," Danforth said.

"A great faculty has earned the Department of Neurosurgery at Washington University School of Medicine an international reputation for excellence in patient care, research and teaching," said William A. Peck, M.D., vice chancellor for medical affairs and dean. "The department has thrived under the leadership of previous department heads, including Drs. Henry Schwartz and Sidney Goldring, and now under Dr. Ralph G. Dacey."

Huang is the chairman of the board of the Ching Fong Group, in which Ching Fong Investment Co. Ltd. functions as the holding company. San Yang Industrial Corp., Nan Yang Industry Co. Ltd. and Cathay Investment and Trust Co. Ltd. are all affiliated with the group.

In 1954 Huang was one of the first Asians to come from Taiwan to Washington University's School of Medicine to receive full neurosurgical training under renowned Henry Schwartz, M.D.

Huang later returned to Asia, where he developed neurosurgery in Japan by establishing a neurosurgery center at Yodogawa Christian Hospital in Osaka and by training neurosurgery residents.

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Growing by leaps and bounds

Day-care center plans expansion

A tree made of paper at the Child Development Center says it all. Hanging above the employee time clock, the tree is decorated with cards and letters from satisfied parents. Messages like "Thanks for caring for our children," and "Every day our daughter looks forward to coming to school" make it no surprise the day-care center, which serves only employees of Washington University and St. Louis Children's Hospital, is expanding yet again.

St. Louis Children's Hospital started the center in 1981 as a service for hospital employees. Washington University joined the program as a partner in 1987. The day-care center has come a long way since its doors first opened to only four children and two caregivers. Now 44 teachers watch more than 174 children ranging in age from infants to kindergarteners, while 133 families are on a waiting list. For infants, the worker-to-child ratio is one to three, which is lower than the state mandate of one to four.

The day-care is divided by age into two buildings behind Forest Park Community College. But in early 1994, the center will be consolidated in one building at the corner of Forest Park Parkway and Newstead. Once constructed, the new building will have such extras as a sick child room and an indoor, gymnasium-style playroom. There are plans for a visitor's

child-care program, which will accommodate the children of professors who visit the University for a week or a couple of months. The move will allow the center to own a building, rather than rent, and the new design will be more conducive to a large center. "When we opened, we didn't know just how many children we'd eventually have," says Director Rosalyn Kleinberg.

Scheduling will be even more flexible, Kleinberg said. Currently, families can change their schedules weekly. Also, the center provides "after-hours care" from 6 to 8 p.m. for a small fee. "We have to be flexible," says Kleinberg. "We know a nurse can't walk out of the delivery room. A researcher can't leave in the middle of an important experiment." Kleinberg said she hopes to arrange an hourly drop-in service for enrolled families.

The center has a simple philosophy: teach through play and above all, give lots of love. Like any good day-care center, the atmosphere is rambunctious. Children spill out of classrooms at the end of the day, clutching works of art. The halls are lined with projects: paper plates decorated with colored rice, handfuls of cotton sprinkled with glitter. A message board hangs on each classroom door and includes Polaroids of the day's activities: infants in their Hal-

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Medical Update

Blood tests developed to improve early heart attack treatment

Researchers at the School of Medicine have developed reliable blood tests that give physicians a quicker, safer way to determine whether heart attack patients will need invasive treatment to open blocked arteries. The tests identify heart attack patients whose blood flow is not restored by clot-dissolving drugs — a key question that often is difficult to answer during the period when treatment is most effective, the investigators report.

Until now, an invasive X-ray imaging procedure called angiography has been the only reliable way to assess reperfusion — the return of blood flow — in a blocked artery, said Dana Abendschein, Ph.D., lead author of the study. The test involves using a catheter to inject a special dye that shows up on X-rays.

"The advantage of the tests we have developed is that they can be done quickly while the patient is still being treated with a thrombolytic agent to identify patients who will require additional invasive measures to restore flow to the heart. Then we will be able to administer invasive therapy within the time window that's available to minimize heart damage," said Abendschein, research associate professor of medicine and of cell biology and physiology.

Abendschein presented the study findings at the American Heart Association annual scientific meeting in New Orleans. He conducted the study with Burton E. Sobel, M.D., professor and head of the Division of Cardiology, Allen S. Jaffe, M.D., professor of medicine, and other colleagues.

The investigators monitored 176 patients for blood levels of two enzymes, MB creatine kinase (MB CK) and MM creatine kinase (MM CK). The enzymes leak from dying heart cells and wash into the bloodstream as flow is restored. Once in the blood, the enzymes undergo subtle chemical changes to yield several "isoforms." Abendschein developed tests that measure

the original "tissue" form and the other isoforms. The tests yield results within 30 minutes.

Of the patients who had opened arteries, 91 percent were correctly identified by measuring how quickly the tissue form of MM CK rose compared to total MM CK. Eighty-one percent of the same group were identified by monitoring ratios of the tissue form of MB CK to its isoforms. The two tests were even more powerful when used together, Abendschein said.

In addition, the researchers are evaluating other markers that may help determine which patients are likely to experience a re-blockage. Because angiograms are only a snapshot look at blood flow, they can miss such changes, Abendschein explained.

The team also is evaluating the use of isoforms for diagnosing heart attacks within their critical early hours. Currently, a test that measures total MB CK — all isoforms included — is the diagnostic gold standard, but it may not be as sensitive as the isoform test.

Although the isoform tests are not likely to replace angiography, they may reduce the need for emergency angiography, Abendschein said. "The trend now is to avoid emergency angiography because of its expense, risk and unavailability. The idea of having a noninvasive test that would help to identify the patients that have a high need for catheterization is very reasonable and responsive to the system as it is currently being used," he said.

The study is part of the national multicenter Thrombolysis in Myocardial Infarction (TIMI) clinical trial. It was conducted in collaboration with investigators from Baylor College in Houston and Brigham and Women's Hospital in Boston. Abendschein directs a TIMI core laboratory that will release similar data in several hundred additional patients in the coming months, he said.

Insulin linked to cardiovascular disease in non-insulin-dependent diabetics

High levels of insulin and insulin precursors may contribute to atherosclerosis in non-insulin-dependent diabetics by disrupting their body's built-in mechanism for dissolving blood clots, researchers at the School of Medicine report.

The findings provide the most direct evidence to date linking insulin to the high rate of cardiovascular disease in people with non-insulin-dependent diabetes mellitus (NIDDM) — a disease that affects 14 million Americans, the investigators say. A better understanding of these clotting disruptions may generate new pharmacological approaches to atherosclerosis among diabetics. The researchers presented their results at the American Heart Association's annual scientific meeting.

Clinical studies over the past four years have hinted that overabundance of insulin and its precursors — the substances from which insulin is formed — might accelerate atherosclerosis in people with NIDDM, hypertension or obesity, said David Schneider, M.D. He and Janet McGill, M.D., instructor of medicine, are lead authors of the study. One feature of NIDDM is a resistance to insulin, the natural body chemical that allows cells to pull in and use glucose for energy. NIDDM patients release high levels of insulin and of insulin precursors in response to meals.

In the first of two studies, Schneider and his colleagues looked at insulin's effect on endothelial cells, the cells that line blood vessels. They confirmed past reports that insulin stimulates production of a substance called plasminogen activator inhibitor type 1 (PAI-1). PAI-1 is known to interfere with blood chemicals that prevent clot formation. They also found for the first time that insulin precursors increase PAI-1 production, said Schneider, a research fellow who conducted the work in the lab of Burton E. Sobel, M.D., professor of medicine.

In the second study, the investigators measured PAI-1 in 69 people — 34 with NIDDM, 19 non-diabetic obese and 16 non-diabetic lean volunteers. They found that obese and diabetic people had abnormally high levels of PAI-1, findings that confirmed past studies. The researchers then went a step further to see whether such PAI-1 levels actually altered the ability to respond to blood clots. They simulated a blood vessel blockage by applying pressure to decrease circulation in an arm for 10 minutes, then measured levels of the natural clot dissolver called tissue-type plasminogen activator, or t-PA. Lean people responded appropriately, by producing the higher levels of t-PA that would be needed to break up the clot had it been real. Diabetics, however, had no such response. The finding marks the first time researchers have shown a direct link between PAI-1 levels and an impaired response to physiologic stress in the same group of people.

Taken together, the studies suggest that diabetics may not respond properly to microscopic blood clots that may form on a regular basis, Schneider said. "In each of us a dynamic equilibrium exists between making clots and dissolving them. If there is too much PAI-1 present, dissolution of clots may be impaired. The effect of that may be persistence or recurrence of clotting, which can exacerbate atherosclerosis," he said.

Ongoing studies by Schneider and his colleagues suggest that insulin and some of its precursors may stimulate PAI-1 production by binding to the insulin receptor; other precursors may work through separate receptors of their own, Schneider said. Such receptors may become important pharmacological targets for treating cardiovascular disease. Heart disease is the number-one killer of diabetics.

Lazarus named assistant dean for student affairs

Cathy J. Lazarus, M.D., has been named assistant dean for student affairs at the School of Medicine.

Lazarus, who in 1990 was named director of the Washington University Medical Campus Student and Employee Health Services, will continue in that position in addition to her responsibilities with the newly created position of assistant dean. She assumed her new role Dec. 1.

"Dr. Lazarus is a fine mentor and clinician, intensely interested in student activities," said



Cathy J. Lazarus

William A. Peck, M.D., vice chancellor for medical affairs and dean of the School of Medicine. "Her many talents will enhance our very important and already fine student affairs program."

In her new position, Lazarus will assist Patricia L. Cole, M.D., associate dean for student affairs, who will take on the added role of director of the Cardiac Catheterization Laboratory at Jewish Hospital, part of the Washington University Medical Center. Lazarus and Cole will be responsible for arranging all student affairs activities at the medical school, such as graduation, orientation and other events. In addition, Lazarus will be an adviser to students, helping them deal with academic and other difficulties that might arise during the course of their education at Washington University.

Lazarus, who is an assistant professor of clinical medicine, will continue as director of student and employee health

services, overseeing administration of the service and providing direct patient care to medical campus students, including those in the medical school, graduate school of biological sciences, occupational therapy, physical therapy and other programs based at the School of Medicine.

Volunteer couples needed for clinical study of unexplained, recurrent miscarriages

Couples who have experienced three or more miscarriages are needed as volunteers for a study being conducted by researchers at the School of Medicine. Approximately 15 to 20 percent of all pregnancies result in miscarriage. For patients who experience repeated miscarriages, a cause can be identified in only about half of couples.

The study, which is funded by a \$2.25 million grant from the National Institutes of Health, will evaluate how immunotherapy and psychological support may be used to prevent recurrent miscarriage. It is being conducted by Randall R. Odem, M.D., assistant professor of obstetrics and gynecology, and James R. Schreiber, M.D., professor and head of the Department of Obstetrics and Gynecology.

"It is our goal to identify which of these treatments, immunotherapy or psychological support, will best help couples with this devastating problem," says Odem, principle investigator of the study. "Ideally, the cause of recurrent pregnancy loss can be identified and treated. This study is designed to benefit couples in whom there is no identifiable explanation for the repeated miscarriages."

Many women who have had three or

Lazarus is a 1977 graduate of the University of Michigan, Ann Arbor, and received her medical degree in 1981 from Washington University. She was named assistant professor of clinical medicine in 1991.

more unexplained miscarriages may have an underlying immunologic abnormality that causes them to reject the fetus as they would a transplanted organ. Immunotherapy involves immunizing women with a large number of cells from their husbands to induce normal immunologic responses which are thought to be essential for successful pregnancy. Prior studies have suggested a high success rate using this pregnancy treatment.

Researchers also will examine how psychological support can improve pregnancy outcome. One study conducted in Norway demonstrated an 85 percent success rate in pregnancy outcome when patients received frequent medical and psychological support in the first three months of pregnancy.

All couples will receive increased medical and psychological support during the first trimester of pregnancy. Women in the study will be randomly selected to be immunized with either their husband's cells or a placebo (sterile water). Those who receive the placebo and miscarry or do not become pregnant within one year may be immunized with their husband's cells.

For more information, call Moira Lewis, study coordinator, at 362-3945.

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 **Washington**
WASHINGTON UNIVERSITY IN ST. LOUIS

Washington People

Cox moves communications into the fast lane

The computer is the paragon of servitude: it works at maximum efficiency and minimum cost, using logic alone to blitz through tasks a human cannot or ought not do. Pop culture takes that Computer Friday image a step further, with talking starships, Robocops and android companions, which somehow seem to have manufactured themselves. In truth, real people teach computers how to heal the sick, span distances, educate minds and scan the universe for extraterrestrials — people like Jerry Cox.

Jerome R. Cox, Sc.D., Harold B. and Adelaide G. Welge Professor of Computer Science and previous chair of the Department of Computer Science, began his career studying acoustics, specifically the effects of industrial noise. Then, an invitation in the early 1960s from the late Hallowell Davis, then director of research at the Central Institute for the Deaf and research professor of otolaryngology at the Washington University School of Medicine, channeled his talents into the emerging field of computer science. "He changed my life twice," Cox says. "First, by asking me to come to St. Louis, and second by asking a question: 'How can you measure the evoked auditory response in infants who might have a hearing impairment?'"

Searching for the answer at the Central Institute for the Deaf opened up the possibilities of a career in computer science to Cox, and he found that the challenge of a new technology and the personal rewards of medicine were an irresistible combination. "I decided computers were a lot more fun than acoustics," he says. "They were something people wanted to do; industrial noise control was something they had to do, but didn't want to."

Cox left his mark on a number of groundbreaking projects. In the 1960s, work in radiation treatment planning paved the way for systems in operation worldwide. Studies by Cox's Biomedical Computer Laboratory in the next two decades led to the development of several commercial systems for detecting cardiac arrhythmia. In the mid-1970s, he formed Washington University teams that worked on the methodology to program computers that allow CT (computerized tomography) and PET (positron emission tomography) scanners to diagnose cancers and evaluate the effectiveness of patient treatments. He has been a member of peer review and policy-making panels at the National Science Foundation, the National Institutes of Health and the Defense Mapping Agency.

The common thread in his work is promoting the computer as a means of sharing, rather than simply generating data. "Communications was always a theme," Cox explains, "and I have always felt that communications and computers were tightly tied. Medicine is an information-rich profession; it makes sense for both computers and communications to play large roles there."

Since 1988, Project Zeus has been the recipient of a large part of Cox's time and energy. A high-speed, fiber-optic communications network, it transmits voice, video, data and high-resolution images simultaneously. Businesses are extremely interested in developing and exploiting the commercial applications of such ATM (Asynchronous Transfer Mode) systems. Southwestern Bell Telephone Co., Southwestern Bell Technology Resources and NEC America contributed more than \$4 million to Washington University's team during the initial three-year demonstration phase of Project Zeus.

In a recent demonstration at the Radiological Society of North America's annual meeting held in Chicago, Cox, his co-workers and graduate students showed what Project Zeus can do. Putting a prototype "Medical Doctor Work Station" through its paces, they accessed fictional patient records, including standard and enhanced X-rays, nuclear medicine images, medical video clips and ultrasound data. On the computer screen, viewers saw text, data, pictures and a real-time video conference of doctors discussing the case.

Video conferencing can be carried out among many participants. As a further test of these ideas, the computer science department has received NSF funding to

set up a complete operating multimedia network for faculty and staff by mid-1993.

A key component of the demonstration network and the planned Project Zeus network is its broadband switch, designed by computer science Professor Jonathan S. Turner, Ph.D., which routes small fixed-size units of data known as cells. The demonstration system was designed with four 16-port switches, each

because they take a long time to transmit, anywhere from 30 seconds to several minutes. Project Zeus makes this time a fraction of a second."

"Also, as Project Zeus adds new users, the capacity will grow," Turner continues. "In existing networks, more and more users share the same capacity. The architecture of Project Zeus has been designed to scale up to bigger sizes and support multiple users."

In addition to Turner's switch, much of the credit for the network's speed and expandability is due to the decision to base it on fiber optics. "Some people still believe the best method of data transmission is via satellite in geosynchronous or low earth orbit," Cox says. "There is a lot of money being bet, though, that it will be fiber. The bandwidth is virtually inexhaustible, while there are limits for satellites, and the cost of fiber is very small. It's private and allows two-way communication readily. With a satellite, that's awkward at best."

Work on ATM systems, fast-packet switching, fiber optics and applications such as high definition television is going on at many universities in the United States and abroad, most notably in France and Japan, Cox says. Japan receives a lot of attention as a competitor for the edge in technology, but according to Cox, "The U.S. is still ahead in some ways. As you get closer to the devices, the American lead vanishes, but as you get closer to the software and push flexibility instead of rigid standards, the U.S. is still ahead."

Bruce Waxman, now retired from the National Institutes of Health, oversaw the government funding of many of Cox's projects, beginning in the 1960s. He has had the chance to look over several ATM systems and thinks that fiber optics will not only prevail, but that Project Zeus will go on to set industry standards.

"There are maybe a dozen efforts like Project Zeus," Waxman says, "but it's my opinion that none of the others are in the same league. There's nothing quite as comprehensive and it's the most outstandingly engineered setup. For one thing, while other systems can do one or two tasks, Project Zeus can do several. Second, it interfaces directly into the projected fiber-optics network, and third, it's enormously flexible. Its design anticipates the emerging fiber-optics infrastructure."

Cox plans to adapt Project Zeus to serve in other campus applications, including Washington University's work

on the human genome mapping project, the Department of Earth and Planetary Science's satellite image processing, and research in architecture and urban planning. As Project Zeus begins to bear fruit, Cox expects its corporate partners to take the technology and run with it, producing and marketing devices and networks to improve home entertainment, business communication and data transmission.

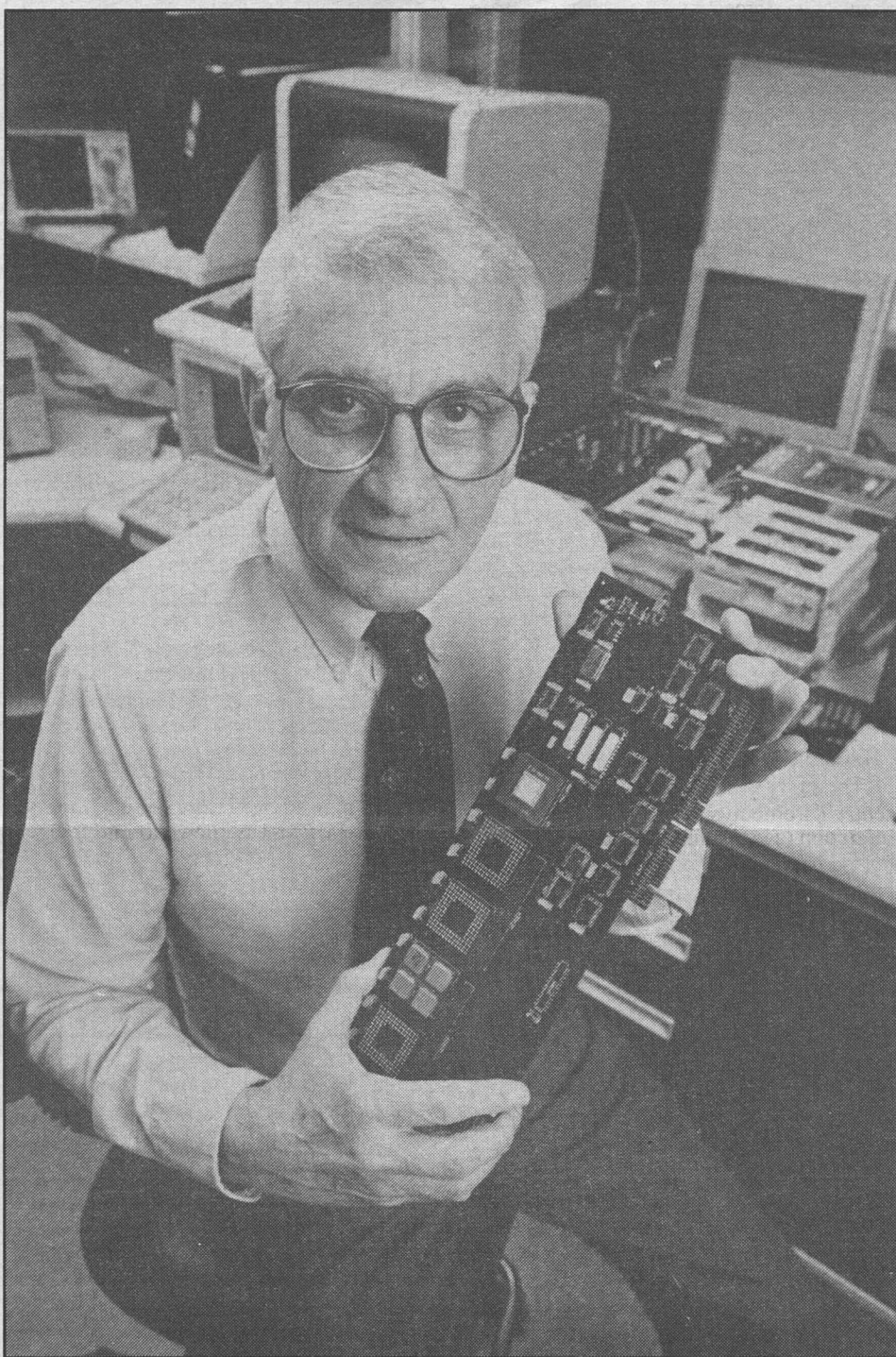
Down the road, Cox envisions computers and networks that provide faster and more intuitive links between physicians and their computer servants. In his ideal scenario, he says, "The M.D. carries a personal computer that translates for him or her and communicates with equipment throughout the hospital and at the office. It would be a tablet and pen, not a keyboard, and would be able to call up images and have voice recognition capability. In the office, it would link with thin display screens that hang on the wall."

What's standing in the way, he believes, is the human being's unwillingness to work for long periods entering copious amounts of data without a prompt and satisfying reward. Technology, per se, is not the problem.

"The cost of computing is coming down, seemingly inexorably, year after year," Cox says. "If there's a fundamental limit to that downward trend, it's far enough out that it's not clear whether it is a true limit or not."

"Dramatic changes in communication are upon us. If the economic, social and regulatory problems can be solved, I am confident that the technology will not be the obstacle."

— Maura J. Mackowski



"Dramatic changes in communication are upon us. If the economic, social and regulatory problems can be solved, I am confident that the technology will not be the obstacle."

with an aggregate switching capacity of 1.6 billion bits per second, operating at 100 million bits per port. The system architecture is expandable to over one gigabit (one billion bits) per port, with over one terabit (one million million bits) total capacity. That translates to a transmission rate of more than 10,000 times faster than current telephone systems.

These features are what makes Project Zeus so distinctive, Turner says. "Computer networks, as they are now, are very poorly suited to transmitting visual information. Satellite imaging and X-rays, even a photo or a work of art, are very difficult to handle

Calendar

Dec. 3-12



Lectures

Thursday, Dec. 3

Noon. Dept. of Molecular Biology and Pharmacology Seminar, "Activation of Intracellular Phospholipases," Richard Gross, prof., WU Dept. of Medicine. Room 3907 South Bldg.

Noon. Genetics Seminar, "Telomere Position Effect: Spreading the Silence," Dan Gottschling, Dept. of Molecular Genetics and Cell Biology, U. of Chicago. Room 816 McDonnell Medical Sciences Bldg.

4 p.m. Center for the Study of Islamic Societies and Civilizations presents "Mysticism and Messianic Movements in Islamic Spain," Alexander Knysh, senior researcher, Institute for Oriental Studies, St. Petersburg, and 1992-93 Rockefeller Fellow. Stix International House.

4 p.m. Dept. of Biology Seminar, "Sleep and Hibernation in Arctic Ground Squirrels," Toos Orntzigt, Institute of Arctic Biology, U. of Alaska. Room 322 Rebstock Hall.

4 p.m. Dept. of Chemistry Seminar, "Coupled Loop Movement? The Reaction Catalyzed by Triphosphate Isomerase," Nicole Sampson, Harvard U. Room 311 McMillen Laboratory.

4 p.m. Dept. of Earth and Planetary Sciences Colloquium, "The Nature of Fluid Flow and Moss Transport in Contact Aureoles: The Notch Peak Aureole as an Example," Peter Nabelek, assoc. prof., Dept. of Geology, U. of Missouri-Columbia. Room 102 Wilson Hall.

4:30 p.m. Dept. of Mathematics Colloquium, "Pluripotential Theory," Eugene Poletski, prof., Syracuse U. and U. of Michigan. Room 199 Cupples I Hall.

Friday, Dec. 4

9:15 a.m. Pediatric Grand Rounds, "The Energetics of Breathing in Children With Respiratory Failure," J. Julio Pérez Fontán, assoc. prof., departments of pediatrics and anesthesiology, WU School of Medicine; director, Division of Critical Care; director, Pediatric Intensive Care Unit, St. Louis Children's Hospital. Clopton Aud., 4950 Children's Place.

Noon. Dept. of Cell Biology and Physiology Seminar, "Studies of Capping Protein in Skeletal Muscle and Epithelial Cells," Dorothy Schafer, research asst. prof., WU Dept. of Cell Biology and Physiology. Room 423 McDonnell Medical Sciences Bldg.

2:30 p.m. Complex Dynamics Seminar with Sigi Fu, graduate student, WU Dept. of Mathematics. Room 199 Cupples I Hall.

4 p.m. Dept. of Anatomy and Neurobiology Seminar, "The Prefrontal Cortex, Medial Thalamus and Limbic System: Food for Thought?" Joseph Price, prof., WU Dept. of Anatomy and Neurobiology. Room 928 McDonnell Medical Sciences Bldg.

4 p.m. Dept. of Music Lecture, "The Life of an Artist," Janine Reding, international concert pianist. Room 8 Blewett Hall Annex.

6 p.m. WU Association Travel Lecture Series, "East Indies — Gift of the Sea," by Grant Foster, who has won international acclaim and earned the title of New Zealand's film ambassador (also, 8:30 p.m.). Cost: \$4.50 at the door. Graham Chapel.

Saturday, Dec. 5

9 a.m. Neural Science Seminar, "Multiple Cortical Motor Areas: M_1 , M_2 , M_3 , ..., M_n ?" Marc Schieber, assoc. prof., WU Dept. of Neurology. Erlanger Aud., McDonnell Medical Sciences Bldg.

Monday, Dec. 7

4 p.m. Dept. of Biology Seminar, "Dorso-ventral Signalling Processes in *Drosophila* Oogenesis," Trudi Schupbach, prof., Dept. of Molecular Biology, Princeton U. Room 322 Rebstock Hall.

4 p.m. Dept. of Chemistry Seminar with Chung-Yuan Mou, National Taiwan U. Room 311 McMillen Laboratory.

4 p.m. Graduate Program in Immunology Seminar, "Tyrosine Phosphorylation and T Cell Activation," Lawrence E. Samelson, senior investigator, Cell Biology and Metabolism Branch, National Institute of Child Health and Human Development, National Institutes of Health, Bethesda, Md. Third Floor Aud., St. Louis Children's Hospital, 400 S. Kingshighway.

4 p.m. Social Thought and Analysis Colloquium, "Child Behavior and Adult Psychiatric Symptoms," Lee Robins, University Professor of Social Science and professor of social science in psychiatry, WU School of Medicine. Room 149 McMillan Hall.

6:30 p.m. Biophysics Evening Seminar, "Experimental Approaches to the Protein Folding Problem," Carl Frieden, prof., WU Dept. of Biochemistry and Molecular Biophysics. Room 311 McMillen Laboratory.

8 p.m. School of Architecture Lecture, "Open Heart Surgery: Building Architectural History," Ignasi de Sola-Morales, architect and historian, Barcelona, Spain. Steinberg Hall Aud.

Tuesday, Dec. 8

4 p.m. Dept. of Anthropology Colloquium, "Taung and the Evolutionary Role of *Australopithecus africanus*," Jeffrey McKee, prof., Witwatersrand U., Johannesburg, South Africa. Room 149 McMillan Hall.

4 p.m. Dept. of Chemistry Seminar, "Analysis of an Enzymatic Transition State and Logical Inhibitor Design," Ben Horenstein, Albert Einstein College of Medicine, N.Y. Room 311 McMillen Laboratory.

5 p.m. Pediatric Research Seminar, "The 1993 Glutamate Receptor," Steve Rothman, assoc. prof., WU Dept. of Pediatrics. Third Floor Aud., St. Louis Children's Hospital, 400 S. Kingshighway.

Wednesday, Dec. 9

8 a.m. Dept. of Obstetrics and Gynecology Grand Rounds, "Trauma in Pregnancy," Elisa Crouse-Amos, chief resident, WU Dept. of Obstetrics and Gynecology. Clopton Aud., 4950 Children's Place.

Noon. Neuroscience Luncheon Seminar, "Substance P Receptor Functions and Regulation: Analysis of Second Messenger Systems," James E. Krause, assoc. prof., WU Dept. of Anatomy and Neurobiology. Room 928 McDonnell Medical Sciences Bldg.

4 p.m. Dept. of Biochemistry and Molecular Biophysics Seminar, "Determination of the Chemical Mechanism of Neurotransmitter Receptor-mediated Reactions by Rapid Chemical Kinetic Techniques," George Hess, Dept. of Biochemistry, Cornell U., Ithaca, N.Y. Room 2918 South Bldg.

4 p.m. Dept. of Chemistry Seminar, "Toward Magnetic Organic Materials," Piotr Kaszynski, California Institute of Technology, Pasadena. Room 311 McMillen Laboratory.

Thursday, Dec. 10

Noon. Dept. of Molecular Biology and Pharmacology Seminar, "DNA Methylation

'Messiah,' Christmas carols featured in upcoming concerts

Several concerts at Washington University will help ring in the holiday season.

At 8 p.m. Saturday, Dec. 5, in Graham Chapel, the Washington University Chamber Choir will perform a free concert. The program will include songs such as "Silent Night," "Star in the East" and "Jesus Christ, the Apple Tree," as well as works by Mendelssohn, Rachmaninov, Bruckner and Ravel. In addition, the choir, which is directed by John Stewart, associate professor in music, will perform the U.S. premiere of a mass by the Estonian composer Arvo Pärt.

At 7 p.m. Sunday, Dec. 6, in Graham Chapel, the Washington University Chamber Choir will present its first annual sing-along to Handel's "Messiah." Scores of the "Messiah" will be available, but audience members are encouraged to bring their own copies if they have them. Those interested

in keeping a copy may purchase them at the concert for \$7.

A wassail, or holiday punch, and carols party will follow in the Women's Building Lounge. Admission to the Dec. 6 concert is \$5 for the general public; \$3 for faculty and staff; and free for students.

At 8 p.m. Dec. 15, a holiday brass concert will be held in Graham Chapel. That concert will feature traditional holiday music, including carols, sing-alongs and music by Gabrieli, Bach and Handel. Susan Slaughter, principal trumpet for the St. Louis Symphony Orchestra, and Bob Richards, KSDK Channel 5 meteorologist, will make special guest appearances.

Tickets for this concert are \$10 for adults and \$7 for students in advance; and \$12 for adults and \$9 for students at the door. Proceeds benefit the International Women's Brass Conference.

For more information, call 935-5581.

in Mammalian Development," Rudolph Jaenisch, Whitehead Institute, Cambridge, Mass. Erlanger Aud., McDonnell Medical Sciences Bldg.

Noon. Genetics Seminar, "Analysis of Two Mouse Developmental Loci: *Spotch* and *Bcg*," Philippe Gros, McGill U., Montreal. Room 816 McDonnell Medical Sciences Bldg.

4 p.m. Division of Biology and Biomedical Sciences Student-organized Seminar, "Development of Physical and Genetic Tools for the Analysis of Genomic Organization in the *Bordetellae*," Scott Stibitz, Center for Biologicals Evaluation and Research, Food and Drug Administration. Erlanger Aud., McDonnell Medical Sciences Bldg.

4 p.m. Dept. of Chemistry Seminar, "Novel Benzenoid Aromatics — Strained, Battered, and Bent," Michael Haley, U. of California, Berkeley. Room 311 McMillen Laboratory.

Friday, Dec. 11

9 a.m.-4:40 p.m. Dept. of Medicine presents a mini-symposium, "Frontiers in Extracellular Matrix Biology and Genetic Skin Disease," in honor of Arthur Z. Eisen, the Winifred and Emma Showman Professor of Dermatology. Erlanger Aud., McDonnell Medical Sciences Bldg. For more info., call 362-8180.

9:15 a.m. Pediatric Grand Rounds, "X-Linked Hypophosphatemia: The Most Common Heritable Form of Rickets," Michael P. Whyte, prof. of medicine, assoc. prof. of pediatrics, WU School of Medicine; director, Metabolic Research Unit, Shriners Hospital for Crippled Children. Clopton Aud., 4950 Children's Place.

10:30 a.m. Department of Pathology Thesis Defense, "Quantitative Isolation of Plasma Membrane and Endosomal Membranes by High Gradient Magnetic Affinity Chromatography," Dale Warnock, WU graduate student. Room 7738 Clinical Sciences Research Bldg.

Noon. Dept. of Cell Biology and Physiology Seminar, "Lessons From Mitochondrial Enzyme Genetic Deficiencies," Arnold Strauss, prof., WU Dept. of Pediatrics. Room 423 McDonnell Medical Sciences Bldg.

1 p.m. School of Engineering and Applied Science Seminar, "Electromagnetic Synthesis Using Parallel Computer Architectures," Barry E. Spielman, prof. and chair, WU Dept. of Electrical Engineering. Room 305 Bryan Hall.

2:30 p.m. Complex Dynamics Seminar with Nicola Arcozzi, graduate student, WU Dept. of Mathematics. Room 199 Cupples I Hall.

4 p.m. Anatomy and Neurobiology Seminar, "Dilute: A Fancy Mouse Mutation That May Give Insight Into Neuronal Function," Paul Bridgeman, assoc. prof., WU Dept. of Anatomy and Neurobiology. Room 928 McDonnell Medical Sciences Bldg.

Saturday, Dec. 12

9 a.m. Neural Science Seminar, "The Role of Muscles in Motor Control," Carlton Hunt, prof. emeritus, WU Dept. of Cell Biology and Physiology. Erlanger Aud., McDonnell Medical Sciences Bldg.



Performances

Thursday, Dec. 3

8 p.m. Performing Arts Department presents "Intimidation: An Evening of One Acts" (also Dec. 4 and 5, same time, and Dec. 6, 2 p.m. and 7 p.m.). Drama Studio, Room 208 Mallinckrodt Center. Cost: \$7 for the general public; \$5 for faculty, staff, senior adults and students. For more info., call 935-4795.



Music

Thursday, Dec. 3

8 p.m. Dept. of Music Vocal Jazz Ensemble concert directed by Fred Binkholder. Steinberg Hall Aud.

Saturday, Dec. 5

1-4 p.m. Dept. of Music piano master class for junior high and high school students, with Janine Reding, international concert pianist. Tietjens Rehearsal Hall. For more info., call 935-5581

8 p.m. WU Chamber Choir concert directed by John Stewart. Graham Chapel.

Sunday, Dec. 6

2:30 p.m. WU Symphony Orchestra concert directed by Dan Presgrave, featuring student concerto winner Anne Nagosky. Saint Louis Art Museum Theatre.

7 p.m. Dept. of Music presents a sing-along of Handel's "Messiah," directed by John Stewart, followed by a wassail party and carols. Graham Chapel. Cost: \$5 for the general public; \$3 for faculty and staff, free for WU students. Scores may be purchased for \$7. For more info., call 935-4841.

Monday, Dec. 7

7-10 p.m. Dept. of Music piano master class for WU student participants, with Janine Reding, international concert pianist. Tietjens Rehearsal Hall.

8 p.m. Dept. of Music String Chamber Music concert directed by Elizabeth Macdonald. Graham Chapel.

Tuesday, Dec. 8

8 p.m. WU Gallery of Art and African and Afro-American Studies program present a jazz concert with saxophonist Oliver Lake. Steinberg Hall Aud. Cost: \$8 for the general public; \$5 for faculty and staff; and \$2 for WU students. For more info., call 935-4523.

Saturday, Dec. 12

8 p.m. WU Opera presents "Mozart Scenes III" directed by Jolly Stewart. Karl Umrath Hall Lounge.



Films

Thursday, Dec. 3

7 and 9 p.m. Filmboard Foreign Film Series presents "Such a Gorgeous Kid Like Me." Room 100 Brown Hall. Cost: \$3. **For 24-hour Filmboard hotline, call 935-5983.**

Friday, Dec. 4

7 and 9:30 p.m. Filmboard Feature Series presents "Bugs Bunny Cartoon Festival" (also Dec. 5, same times). Room 100 Brown Hall. Cost: \$3.

Midnight. Filmboard Midnight Film Series presents "Soylent Green" (also Dec. 5, same time). Room 100 Brown Hall. Cost: \$3.



Exhibitions

December Graduates Exhibition. Opening: 5 p.m. Dec. 4. Exhibit continues through Dec. 18. Bixby Gallery, Bixby Hall. Hours: 10 a.m.-4 p.m. weekdays; 1-5 p.m. weekends. For more info., call 935-4643.

"Midwest Modern: St. Louis Architecture by Harris Armstrong and Samuel A. Marx." Through Dec. 11. Givens Hall, first floor. Hours: 9 a.m.-5 p.m. weekdays. For more info., call 935-6200.

School of Fine Arts and Gallery of Art Faculty Show. Through Jan. 3. Gallery of Art, upper gallery, Steinberg Hall. Hours: 10 a.m.-5 p.m. weekdays; 1-5 p.m. weekends. For more info., call 935-4523.

\$3 million gift — from page 1

He returned to Washington University/Barnes Hospital's neurosurgery department in 1975 and served at St. Louis' Veterans Administration Hospital and City Hospital.

Following his father's death in 1979, Huang embarked on his second career — business. He continues to contribute to the medical field by serving as professor

"Works of Graphic Satire." Through Feb. 19. Olin Library, Special Collections, Level 5. Hours: 8:30 a.m.-5 p.m. weekdays. For more info., call 935-5495.

"Selections From the Gift of Mr. and Mrs. Edwin Grossman." Through Jan. 29. Olin Library, Special Collections, Level 5. Hours: 8:30 a.m.-5 p.m. weekdays. For more info., call 935-5495.

"Unpathed Waters, Undreamed Shores: The World of Renaissance Medical Discovery." Through Jan. 2. Glaser Gallery, School of Medicine Library, seventh floor, 660 S. Euclid Ave. Hours: 8 a.m.-10 p.m. weekdays; 1-6 p.m. weekends. For more info., call 362-4239.

"Washington University Art Collections — 19th- and 20th-century European and American Artists." Through May. Gallery of Art, lower gallery, Steinberg Hall. Hours: 10 a.m.-5 p.m. weekdays; 1-5 p.m. weekends. For more info., call 935-4523.



Miscellany

Thursday, Dec. 10

8 a.m.-4:30 p.m. The Greater St. Louis Healthcare Alliance presents "Quality Measurement: A Challenge for the 1990s," a one-day seminar on measuring the quality of health care facilities, featuring a faculty of national experts. Adam's Mark Hotel, 4th and Chestnut. Cost: \$40. Registration forms are available by calling 362-6832.

Friday, Dec. 11

Noon. The Woman's Club of WU mini-luncheon with guest speaker Suzanne Marshall on "The Evolution of a Quiltmaker." Women's Bldg. Lounge. Cost: \$5 for members and guests. Reservation deadline is Dec. 8. For more info., call Annette Kimelman at 991-1261 or Jan Kardos at 763-0523.

Noon-9 p.m. Piano sale by Staufen's Music House at the old Boyd's store, near the corner of Forsyth and Jackson in Clayton. Special discounts for Washington University faculty, staff and students. Sale continues from 10 a.m. to 9 p.m. Dec. 12 and from 11 a.m. to 6 p.m. Dec. 13

Saturday, Dec. 12

6:30 p.m. The Baha'i Student Association of WU potluck dinner, "Explore Our World: China and Thailand." At 8 p.m., there will be a China and Thailand slide presentation. Stix International House, 6470 Forsyth Blvd. For more info., call 863-5065.

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 Marie Doss at Box 1070 (or via fax: 935-4259). Submission forms are available by calling 935-8533.

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 935-8533.

of medicine at Taipei Medical College in Taiwan.

In 1990 he received a Distinguished Alumni Award at Washington University's Founders Day banquet. Prominent alumni receive the award "in recognition of outstanding professional achievement, contribution in areas of public service and exceptional service to the University."

Scientist says: 'The future is fuzzy'

If you've been accused of "fuzzy logic," don't feel so bad. One of the pioneers of computer science told a packed lecture at 100 Brown Hall on Nov. 18 that the real world operates in logical "gray" areas and the future of artificial intelligence (computer systems that can do the work of humans) rests on "soft" computing rather than "hard" computing.

Fuzzy logic is a major component of soft computing, said Lotfi A. Zadeh, Ph.D., professor emeritus in the Department of Electrical Engineering and Computer Sciences at the University of California, Berkeley. Zadeh, who pioneered the term fuzzy logic, explained that hard computing is based on precision, binary logic, numerical analysis, crisp software and systems. Soft computing, on the other hand, recognizes that answers to problems often are not precise and that approximations are often more acceptable solutions at cheaper costs compared with precise computations at higher costs.

As examples of real-life fuzzy logic, Zadeh offered check-out times at motels. If the motel policy is to check out at 11 a.m., and a patron is five minutes late or early, nothing happens to him because no one lives by such precise rules. Similarly, a businessperson who hangs out the shingle, "Back in 30 minutes," obviously cannot live up to his statement. Drivers do not constantly drive 65 miles per hour on interstate highways. And, when parking a car, we are posed with two problems: finding a space, then parking the car itself. Generally, the processes are easily solved by fuzzy logic because the final position of the car in the space chosen is not specified exactly. However, if the space parameters

were specified to within a few millimeters and a fraction of a degree (an example of hard computing logic), then it would take hours or days to achieve the desired results. Part of the hard computing approach to the problem is based on a crisp "if-then" rule. The fuzzy logic is categorized and dispositional.

"Most real-world problems cannot be estimated as real numbers," Zadeh said. "For instance, ask how long it takes to drive from Berkeley to the San Francisco City Hall, and you will get a different answer nearly every time. The idea behind fuzzy logic is to come up with an approximate answer you can live with."

When Zadeh posed his fuzzy logic and soft computing theories in the '60s and '70s, few in computer science or industry understood him. However, in recent years, Japanese, Korean and Chinese appliance manufacturers, among others, have coordinated his theories into such products as washing machines, microwave ovens, rice cookers and cameras. In the United States, some components of Saturn automobiles will be designed on fuzzy logic.

"In many situations, we cannot come up with precise parameters, which is why in artificial intelligence we haven't made as much progress as we originally thought," Zadeh told the audience. "To achieve, we must lower our sights. Soft computing will play a greater role in artificial intelligence computer systems of the future."

Zadeh's lecture was sponsored by the Center for Optimization and Semantic Control. For more information about the lecture or the center, call the center's director Ervin Y. Rodin, Ph.D., professor of systems science and mathematics, at 935-6007.

Sports

Men's Basketball

Last Week: DePauw 69, Washington 68; Washington 82, Nebraska Wesleyan 64; Millikin 98, Washington 93; Washington 98, Trenton State (N.J.) 93 (ot); Colorado College 81, Washington 68

This Week: Washington University Lopata Classic — Beloit (Wis.) vs. Trinity (Texas), 6 p.m. Friday, Dec. 4; Washington vs. Whittier (Calif.), 8 p.m. Saturday, Dec. 5; Consolation, 6 p.m.; Championship, 8 p.m.

Current Record: 2-3

After opening the season with five road games in a nine-day stretch, the Bears begin the home portion of their season this weekend with the prestigious Lopata Classic. This is the ninth annual "Brainball Classic," which features top academic institutions from around the nation.

Senior forward Charlie Borsheim, La Crosse, Wis., named to the all-tourney team at Colorado College, became the seventh player in Washington University history to top the 1,000-point mark. Averaging a team-leading 19.0 points per game after five contests, Borsheim reached the milestone with his ninth point against Colorado College. Senior Lance Shoulders, Russell, Ky., also earned all-tournament honors at the Colorado College Tournament.

Women's Basketball

Last Week: Washington 70, Aurora (Ill.) 57; Washington 70, Millsaps (Miss.) 56; Washington 65, Wisconsin-Platteville 56

This Week: Central College, 5:30 p.m. Friday, Dec. 4, Pella, Iowa; Knox College, 5:30 p.m. Saturday, Dec. 5, Galesburg, Ill.

Current Record: 5-0

This past week, the Bears dispatched a tough Aurora University squad on Tuesday and then went on to win the championship at the 4th Annual Washington University Invitational.

Junior guard Stacy Leeds, Muskogee, Okla., came off the bench to earn most valuable player at the Washington University Invitational. Leeds scored 14 points in the title win over Wisconsin-Platteville, including a pair of back-breaking 3-point field goals, and contributed four rebounds and three steals. In the semifinal win over Millsaps, Leeds netted 12 points and tossed in two more 3-pointers. Senior guard Carolyn Royce, St. Louis, Mo., joined Leeds on the six-player all-tournament team after scoring 15 points in the semis and 10 points in the finals.

Men and Women's Swimming/Diving

Last Week: Idle

This Week: DePauw/Wabash Invitational, Friday-Saturday, Dec. 4-5, Greencastle, Ind.

Current Record: Men: 4-2; Women: 4-1

The Bears will compete at the DePauw/Wabash Invitational this weekend. Over the past few years, Bear head coach Martha Tillman has used the DePauw meet as an early opportunity to qualify individuals for March's NCAA meet.

In the early going this season, standouts have included junior Omar Ahmad, Manchester, Mo., and freshman Robert Powers, Shreveport, La., on the men's side, and senior Jenny Schulenberg, Red Wing, Minn., and junior Shelli Ulmer, Olathe, Kan., on the women's side.

Volleyball — from page 1

"I've never scheduled to have an undefeated season and it was not something that I necessarily savored back in September," said Teri Clemens. "But this is a truly special feeling. Our players thrived on not getting beat. They wouldn't accept losing a match, a game, or even a point. Because volleyball is such a game of momentum, you had to wonder if that level could be maintained for three full months. They've made a believer out of me."

Music programs draw students from every discipline

The halls are alive with the sound of music. More and more undergraduates from every area of the University are taking advantage of the programs offered by the Department of Music. Enrollment in applied music programs has doubled in the past six years to about 300 students, according to Jeffrey Kurtzman, Ph.D., department chair.

Applied music (music lessons) is taught by many of the full- and part-time faculty. In addition, there are 10 organized music groups, all of which rehearse and perform public concerts during the school year: Washington University Wind Ensemble, Washington University Symphony Orchestra, Flute Choir, Small Chamber Ensembles, Jazz Band, University Chorus, Black Composer Repertory Chorus, Vocal Jazz Ensemble, Chamber Choir and Washington University Opera.

Membership in many of these groups also has doubled over the past few years. The chamber choir, for example, has grown from less than 20 to more than 50 participants.

"The exciting thing about the students in the voice groups is that they come from almost every department on campus," says John Stewart, associate professor of music and head of the voice program. "We have only three music graduate students in the chamber choir, and the rest are from all over — math, physics, engineering, medical and law school, to name a few."

The symphony orchestra has expanded to 80 from 50 since director Dan R. Presgrave took over in 1988. Presgrave also directs the wind ensemble, which he has led since 1975. Presgrave invites amateur and professional musicians from the community to fill both groups, he says. Several years ago, about half of each group were members of the general community. Now, says Presgrave, the student musicians are of such high caliber that both the wind ensemble and the symphony are composed of about 70 to 75 percent Washington University students. The wind ensemble and orchestra play regularly scheduled concerts

at the Saint Louis Art Museum. Upcoming concerts will be at 2:30 p.m. Dec. 6 for the symphony and 2:30 p.m. Feb. 28 for the wind ensemble.

Another area of dramatic growth is the opera program. Opera courses have been taught in the past. However, with the arrival of Stewart and his wife, Jolly, nearly three years ago, the opera program has expanded. Jolly Stewart serves as director of Washington University opera and voice instructor. The program now features several public performances per year. Those events include scenes from Mozart operas at 8 p.m. Dec. 12 in Karl Umrath Lounge, and the opera double bill in Sheldon Concert Hall, 3648 Washington Ave., at 8 p.m. on March 26 and 27.

Kurtzman credits the growth of applied music to the active recruiting efforts of his department and the admissions office. There also has been a conscious effort to improve the departmental ensembles, to encourage students in applied music by offering scholarships for instruction and to recruit more students with music back-

grounds to the University, he says.

The growing interest in the ensembles and in lessons began to put a strain on rehearsal and teaching space, particularly space for rehearsing large ensembles and teaching voice, notes Kurtzman. Large ensembles can't fit into practice modules and, in some cases, can't even fit into the Tietjens Rehearsal Hall. Voice students have different acoustic needs, which cannot be met in the smaller practice spaces.

Kurtzman solved this problem in two ways. The department rents space in the First Congregational Church at Wydown and University Lane for large ensemble rehearsals and one music class. And last summer, two new voice studios were constructed in Tietjens Rehearsal Hall in space created by removing six practice modules. The practice modules were moved to the dorms. There are now a total of 15 practice spaces in the South Forty and in Millbrook Apartments.

The Stewarts and Christine Armistead, lecturer in music, helped design the new studios, suggesting necessary room dimen-

sions, type of wood floor, ventilation and requisite ceiling height.

The new voice studios also have two new pianos on loan from Staufen's Music House. In an agreement begun last year, Staufen's lends the music department more than a dozen pianos, on which students and teachers rehearse, practice and perform during the school year. Staufen's will offer some of those pianos in a special sale open to members of the University community and the general public from noon to 9 p.m. Dec. 11, 10 a.m. to 9 p.m. Dec. 12 and 11 a.m. to 6 p.m. Dec. 13. The sale will take place at the old Boyd's store, on the corner of Jackson and Forsyth in Clayton.

This year, 13 other pianos are on loan from Staufen's and are located in various places, mostly within the music department complex. A seven-foot-long grand piano sits in Steinberg Hall auditorium and a nine-foot-long concert grand is in Graham Chapel.

The arrangement with Staufen's will continue indefinitely and is a great boon for the department, many of the professors note.

Russians visit campus to learn about U.S. social work education

A Russian delegation interested in learning more about social work education in the United States will visit Washington University's George Warren Brown School of Social Work from Dec. 6-9. The three-member delegation is drawing up plans to start a curriculum in social work at the Moscow Business University, said Shanti K. Khinduka, Ph.D., dean of the School of Social Work.

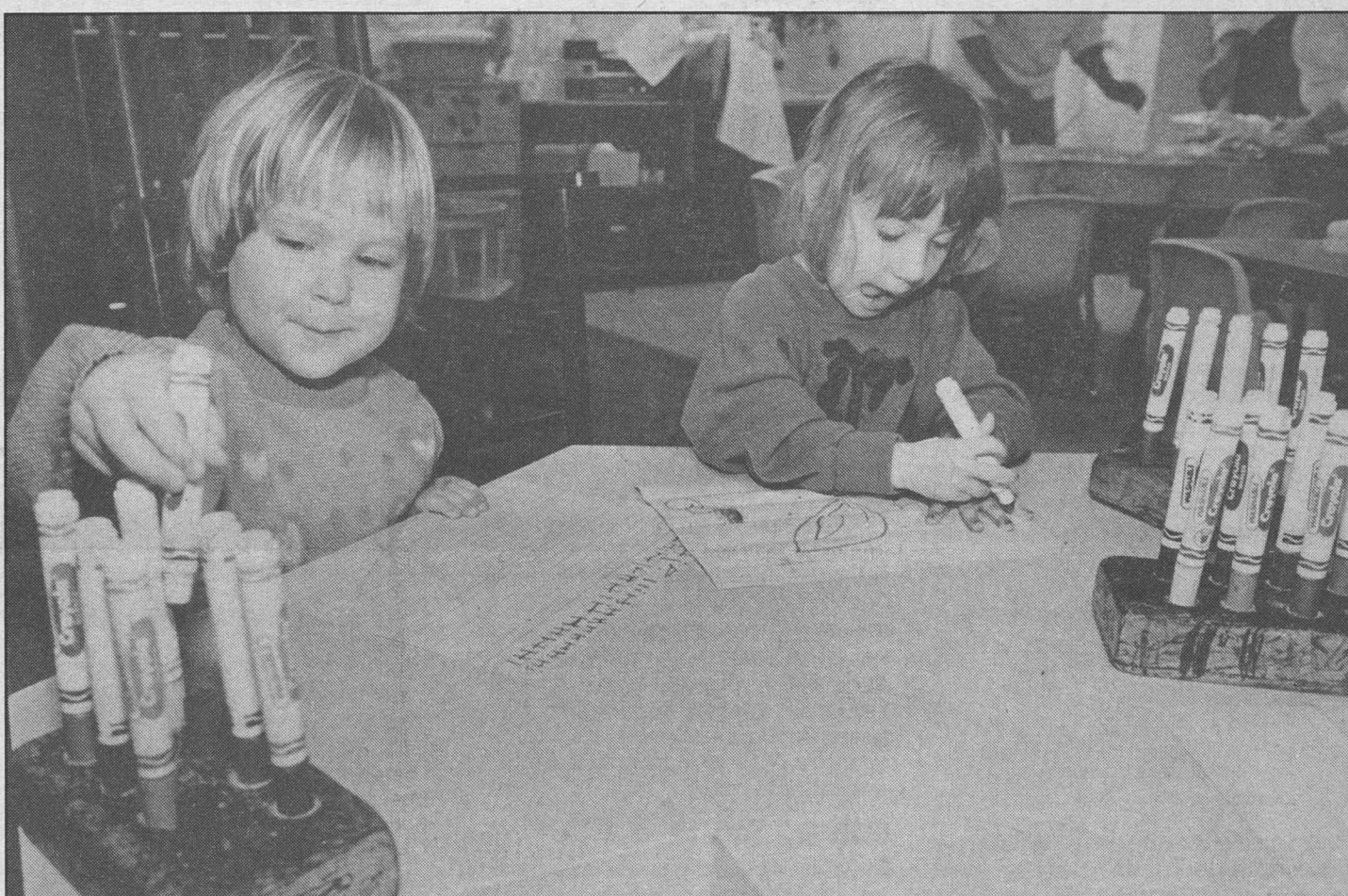
As part of the visit, the delegation will discuss the challenges facing today's Russian society and the need for social workers to respond during a colloquium titled "Social Work and Social Reform in the Changing Russian Society." The colloquium is scheduled for noon to 1:30 p.m. Tuesday, Dec. 8, at the Brown Hall Lounge.

During the visit, members of the delegation plan to talk with faculty and students about social work education as well as visit some of the area's social service agencies.

The delegation includes some of Russia's most prominent social work leaders. Visiting members are: Arkadii J. Nekrassov, president of the Russian Association of Social Workers and former chief of the economic division of the U.S.S.R.'s Ministry for Foreign Affairs; Sergii Puzin, chief of Moscow's Institute on Disability Problems; and Edward Abgaryan, chair of the departments of philosophy and sociology at Moscow Business University.

The Inter-University Consortium for International Social Development, a group of international social development experts, is organizing the trip, said Khinduka. Members of the consortium, including Khinduka, met with the delegation in Russia earlier this fall.

For more information, call 935-6693.



Children hard at play at the Child Development Center. The day-care center serves only employees of Washington University and St. Louis Children's Hospital.

Day-care center provides atmosphere of love and caring — from page 1

lowen costumes, toddlers making Jell-O art or a tucked-out baby who fell asleep surrounded by toys. At Thanksgiving, the three- and four-year-olds dictated turkey recipes to teachers who then displayed them in the hall. A particularly creative variation included peanut butter, Cheerios, a Dalmatian and "ladybug paint." Another child who doesn't like turkey instead gave a recipe for his favorite food — grilled cheese sandwiches.

"It's a wonderful center," says law Professor John Drobak, J.D., whose two children have attended the center. "The people are very loving. The interesting thing is that before our son went to the center we had him at a different day-care, a wonderful place where we had no complaints. But this was more convenient and we switched and ended up liking it even better. The staff is just fantastic."

Because of the center's hospital affiliation, the staff members are St. Louis Children's Hospital employees. That means employees receive a more generous benefits package than employees at independent centers, said Kleinberg. "Unfortunately day-care workers are never well-paid, but at least here we can offer benefits like an earn-time vacation plan, a good health insurance package and access to resources at the hospital," she said. Kleinberg says the benefits package — and the professional working conditions — make for low turnover in a field that often sees employees change monthly.

Kleinberg and the center's curriculum coordinator Rose Rudert are the center's two charter employees. "We painted the wall and put up the baseboard," said Rudert. Rudert said that because staff turnover is so low, employees have moved beyond the "how-do-we-work-together stage and on to using teamwork to master our child-care skills."

Sue Healey, who has been teaching at the center for seven years, said the teamwork and camaraderie is one of the main reasons she enjoys working there. "But of course the children and families come first," she said. "I love being creative with the children. There are endless ways to interest them. All that makes me feel like I'm doing something important, that I'm playing a very important role in each family's life."

Psychology Professor Leonard Green, Ph.D., said his daughter was so happy with the day-care that she likes to go back to visit, even though she's now in kindergarten at a neighborhood school. "We were very, very happy there. The kids were well cared for. It's a place that cares," he said.

Do rave reviews surprise Kleinberg? "Well, our parent evaluations are outstanding," she said. "You should see the letters we get and see some of the gifts teachers receive."

In fact, parents were so willing to help out that a Parents Support Group was started last year to raise extra funds for the center. Mark Kornbluh, Ph.D., assistant professor of history, whose two children

attend the center, said nearly \$3,000 was raised and divided equally among the center's 10 rooms. Teachers then bought toys, books and equipment.

The parents' group recently outfitted the new kindergarten room with requested donations from the University community. The staff came up with an impressive list, including aquariums, birds, books, a computer and a guinea pig.

Such donations help keep the cost of enrollment down. Fees are based on the amount of time the child is enrolled and the age of the child. Full-time care for an infant, which is the most expensive age group, is \$149 a week, and full-time care for a five-year-old is \$106 a week. Kleinberg said the fees compare to other hospital-affiliated day-care centers in the city and are slightly lower than the top independent day-cares.

There are a lot of other benefits for parents as well. Some other extras families enjoy are:

- A weekly newsletter. "Children's Chat-ter" keeps parents informed of activities. The newsletter also offers tips on parenting skills and lists any center changes.

- Bi-monthly discussion groups. Parents and teachers meet to discuss such topics as discipline, age-appropriate toys and potty training.

- An end-of-the-year gift. Harried parents are offered free child care for one Saturday in December. "It's our way of saying thanks for trusting us," said Kleinberg.

— Nancy Mays

News Analysis

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

Consumers beware: fraud increases during holidays

Michael M. Greenfield, J.D., professor of law, is a consumer law expert and author of numerous books and articles, including Consumer Transactions (1983) and Consumer Law (1992). Here he comments on how consumers can avoid becoming victims of credit card fraud during the holiday season.

Because consumer transactions increase markedly over the holiday season, there are more opportunities for people who are willing to commit fraud to take advantage of shoppers caught up in the buying mood, says Michael M. Greenfield. Credit card fraud is a common occurrence this time of year but there are steps consumers can take to minimize the risk of theft, he says.

First, consumers should never give credit card information to someone who calls them. The only time it is appropriate to give out such information is when the consumer places the call and then, only if the consumer is confident the merchant is reputable, says Greenfield. He also suggests consumers destroy any carbon slips attached to credit card receipts. The consumer's credit card number can be lifted easily from those slips, he says. Under federal law, consumers face a liability of up to \$50 for charges made illegally with their cards, says Greenfield. However, those who quickly report their cards missing or stolen may not even be held liable for that amount, he says.

A good guideline to follow is to be leery of any offer made over the phone, says Greenfield. Often such deals are a way to extract credit card information from consumers eager to get a "great deal."

Greenfield suggests consumers who are suspicious of a telephone transaction contact their local Better Business Bureau or the state attorney general's office. He says it is important for consumers not to succumb to high-pressure tactics. Rather, they should take time to consider a proposed transaction, check with the Better Business Bureau or a consumer protection agency, and phone the caller at a later time, he notes. Any caller who refuses to leave his or her phone number definitely should be avoided, he adds.

For The Record

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

Of Note

Letha A. Chadiha, Ph.D., assistant professor of social work, and **Robert L. Pierce**, Ph.D., associate professor of social work, were awarded a \$208,000 three-year grant from the National Institute of Mental Health. Chadiha and Pierce will train minority social work students to provide social work services to children and families living in at-risk, urban communities. ...

Jean E. Ensminger, Ph.D., associate professor of anthropology, received an Excellence in Teaching Award from Emerson Electric Co. She was one of 85 teachers in the St. Louis area who received the award, which recognized outstanding educators named as the "best in class" by their schools. Ensminger received the award during ceremonies held as part of American Education Week. ...

Kimberly D. Vaughn, a senior majoring in English literature with a minor in African-American studies, received the Isserman Prize for service to the Washington University community. The first-time award was established in honor of the late Rabbi Ferdinand M. Isserman, who was a social issues advocate in St. Louis during his career. Vaughn received the award during the University's recent Holocaust Memorial Lecture/Rabbi Ferdinand M. Isserman Memorial Lecture. Author Elie Wiesel, recipient of the 1986 Nobel Peace Prize, was the featured speaker.

Speaking Of

Several faculty members in the Department of Speech and Hearing at the Central Institute for the Deaf (CID) gave presentations during the American Speech-Language-Hearing Association's conference in San Antonio, Texas. **William W. Clark**, Ph.D., associate professor of physiological acoustics, co-presented two mini-seminars titled "Noise Exposure and Hearing Loss in Children and Youths" and "A National Noise Abatement Strategy for the United States." **Lisa S. Davidson**, lecturer in audiology, was a presenter at a mini-seminar on "Connected Discourse Tracking in Profoundly Deaf Children."

Ann E. Geers, Ph.D., associate professor of psychology, presented two mini-seminars on "Assessing Benefits of Cochlear Implants in Children" and "Speech Production Benefits of Cochlear Implants and Tactile Aids." **David I. Mason**, Ph.D., assistant professor of audiology, spoke on "Asymmetrical Hearing Loss: Predicting Handicap From Percent Binaural Hearing Impairment," during a poster session based on his paper of the same title. He wrote the paper with **Regina M. Gilbert**, a CID audiologist; **Gerald R. Popelka**, Ph.D., professor of audiology; and **Mary H. Russo**, a former

audiologist at CID. **Jean S. Moog**, associate professor of education and principal of the CID school for hearing-impaired children, presented a mini-seminar on "Listening Training for Children With Nucleus-22 Cochlear Implants." ...

Mary Ann Dzuback, Ph.D., assistant professor of education, organized a symposium on "Academic Women: Institutional Culture, Scholarship and Teaching" for the History of Education Society's annual meeting held in Boston. Dzuback also presented a paper titled "Women and Social Research at Bryn Mawr, 1915-1940" at the symposium. ...

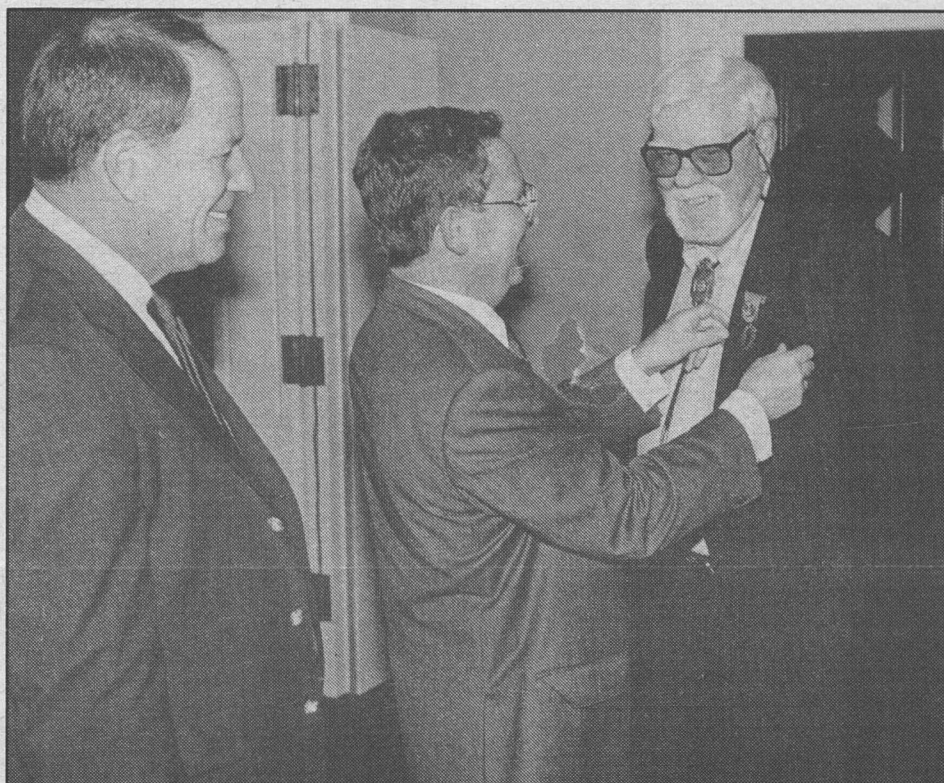
Raj Nakra, M.D., professor of psychiatry, gave an invited talk titled "Alzheimer's Disease — Diagnosis and Treatment Strategies" during the scientific session of the South Carolina Academy of Family Practitioners' annual meeting held in Hilton Head, S.C.

On Assignment

A team of international election observers, including **Victor T. Le Vine**, Ph.D., professor of political science, traveled to Ghana, West Africa, for the recent presidential elections. The 25-person team, sponsored by the Carter Center at Emory University, spent a week in Ghana monitoring polling stations, watching the counting and tallying of votes at the local and constituency levels and checking the national returns.

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, Campus Box 1070. Items must not exceed 75 words. For more information, call 935-5293.



In being named to the French government's Ordre des Palmes Académiques, **Robert M. Walker**, Ph.D., receives the officier insignia from the Honorable **Yves Gaudeul**, consul général of France for the Middle West. **James F. Mauzé**, St. Louis' honorary consul for France, looks on.

The French Connection

Walker named to academic order

Robert M. Walker, Ph.D., McDonnell Professor of Physics and director of the McDonnell Center for the Space Sciences, has been named an officier in l'Ordre des Palmes Académiques by the French government. The title, accompanied by a medal, is awarded by governmental decree to professors, scholars and scientists who have distinguished themselves in their field.

The insignia was presented to Walker by the Honorable Yves Gaudeul, consul général of France for the Middle West, during a ceremony held recently in the University's Alumni House.

Before presenting the award, Gaudeul commented on Walker's "remarkable research contributions in the field of space sciences," as well as Walker's contributions to strengthening research ties among French and American scientists.

Walker's connection with France began in 1962 when he went to the University of Paris for a year as a National Science Foundation senior postdoctoral fellow and visiting professor. Since 1966 when Washington University's Laboratory for Space Physics was established and Walker was named director, some eight French scientists, including several of France's top researchers in the space sciences, have conducted research at Washington. The establishment in 1974 of the McDonnell Center for the Space Sciences, formerly the Laboratory for Space Physics, has made possible exchanges that continue today.

Walker also has served as a visiting

scientist at the Laboratoire René Bernas, University of Paris, Orsay, and at the Institut d'Astrophysique, Paris. The University of Clermont-Ferrand, Aubière, recognized Walker with an honorary degree in 1975.

He has been working on the frontiers of space research for more than three decades. His interests include the laboratory study of extraterrestrial dust particles collected in the upper atmosphere and the location and measurement of preserved interstellar dust grains in primitive meteorites.

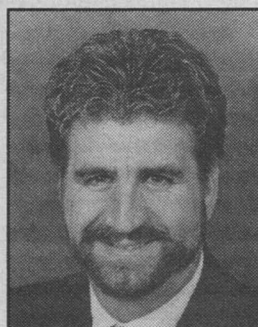
As director of the McDonnell Center, Walker oversees one of the world's largest research groups involved in the search for and study of extraterrestrial materials. Using a variety of highly specialized techniques, Walker and other McDonnell researchers are contributing fundamental knowledge about the early history of the solar system, the evolution of stars and the formation of the chemical elements.

Four other members of the Washington faculty have been named to the French order. Isidore Silver, Ph.D., Rosa May Distinguished University Professor Emeritus of the Humanities, received the chevalier title in 1962, was elevated to officier, and then, in 1975, to commandeur, the highest level of the three, becoming the first American to receive this honor. Michel Rybalka, Ph.D., professor of French, received the chevalier title in 1983 and was elevated to officier in 1992. Norris J. Lacy, Ph.D., professor of French, and Maya Rybalka, lecturer in French, both received the chevalier in 1990.

Givens named senior periodicals editor

Steven J. Givens has been appointed senior periodicals editor at Washington University, according to M. Fredric Volkmann, vice chancellor for public affairs. As senior periodicals editor, Givens serves as editor of the award-winning Washington University Magazine and Alumni News as well as other major periodicals.

Givens formerly was president and owner of Givens Communications, a freelance



Steven J. Givens

public relations and writing company. In that role, he served as consulting editor for the University of Missouri-St. Louis' alumni magazine. The UM-St. Louis magazine won a 1991 Award of Merit from the Council for Advancement and Support of

Education (CASE). Givens' previous employment also includes working in university communications at UM-St. Louis, where, for five years, he held a variety of positions, including assistant director of university communications and speechwriter for former Chancellor Marguerite Ross Barnett.

Givens is co-author of *Arch Celebration*, a 1990 book that celebrated the 25th anniversary of the Gateway Arch. He received an associate's degree in communications, with an emphasis in advertising and public relations, from St. Louis Community College at Florissant Valley in 1981. He received a bachelor's degree in English and a certificate in writing, magna cum laude, from UM-St. Louis in 1985 and a master's degree in secondary education, with an emphasis in adult education, from the same institution in 1992.

Givens chaired the 1992 CASE Recognition Awards Program Committee for the tabloid publishing improvement category.

Opportunities & 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.

Contract and Grant Coordinator

930053. *School of Social Work.* Requirements: Bachelor's degree with accounting background; strong communication and interpersonal skills; experience in funded research and administration and working with federal governmental agencies and foundations, PC word processing and spreadsheet skills; ability to organize and work under pressure during deadline period; typing 40 wpm with accuracy. Clerical testing and three letters of recommendation required.

Department Secretary

930083. *Alumni and Development Programs.* Requirements: Associate's degree or equivalent; specialized secretarial or business training; three years general office experience; typing 50 wpm with accuracy; word processing experience or willing to learn; good command of English; alert and well spoken; can deal with multiple priorities with minimum supervision; work and relate well with people. Clerical testing and three letters of recommendation required.

Programmer

930091. *Olin Library.* Requirements: Bachelor's degree in computer science; demonstrated experience in coding and debugging C programs; working knowledge of the UNIX environment including TCP/IP networking; knowledge of object-oriented programming technologies such as C++; knowledge of PC programming environments (DOS and WINDOWS); experience implementing client-server applications. Resume and three letters of recommendation required.

Department Secretary

930099. *Alumni and Development Programs.* Requirements: Specialized secretarial and business training; two years office experience; typing 40 wpm with accuracy; a strong command of the English language and ability to deal with multiple priorities with minimal supervision. Position requires overtime, including nights, weekends, etc. A good personality and good grooming are essential. Clerical testing and three letters of recommendation required.

Academic Secretary

930100. *Political Science.* Requirements: High school graduate with a minimum of two years of college, bachelor's degree preferred; excellent interpersonal skills, grammar, ability to work on many projects simultaneously; must be able to organize, set priorities and follow up on details; typing 40 wpm with accuracy. Clerical testing and three letters of recommendation required.

Cashier/Sales Clerk

930102. *Campus Stores.* Requirements: High school graduate; basic math skills and ability to operate a 10-key adding machine; one year of electronic register experience preferred; previous selling experience desired; good physical condition for recurrent lifting of moderately heavy items; excellent attendance record; must be able to work evenings and Saturdays; typing 20 wpm with accuracy. Clerical testing and three letters of recommendation required.

Assistant Director of Career Services

930103. *School of Law.* Requirements: Bachelor's degree, master's degree preferred; strong interpersonal, verbal and written communication and management skills; ability to maintain excellent relationships with staff, students and legal employees; experience in legal or educational setting desirable. Resume and three letters of recommendation required.

Audiovisual Coordinator

930104. *School of Law.* Requirements: High school graduate, some college preferred; strong organizational skills; experience in the maintenance and repair of audiovisual equipment preferred; experience with personal computers preferred; ability to work flexible hours, including evenings. Clerical testing and three letters of recommendation 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 may contact the Human Resources Department of the medical school at 362-4920. External candidates may call 362-7195 for information regarding application procedures or submit a resume to the Human Resources office located at 4480 Clayton Ave., Campus Box 8002, St. Louis, Mo., 63110.

Computer Operator, Part-time

930020. Hours: 10 hours a week; flexible weekend hours to back up nighttime operator. Requirements: High school graduate/equivalent; computer operator experience highly desired; ability to work independently; should have a working knowledge of the VAX system and be familiar with computer hardware, printers, tape drives and terminals.

Medical Research Technician

930188. Requirements: Bachelor's degree, preferably in biology, biochemistry or other biologically related fields; recent college graduate with minimal experience will be considered; applicant should be able to work both under direct supervision and somewhat autonomously.

Medical Secretary I

930189. Requirements: High school graduate/equivalent, some college preferred; must have a thorough knowledge of medical terminology; must have the ability to read and interpret information in a patient's chart and compose letters from this information; good dictaphone and PC skills; typing 70 wpm with accuracy.

Research Patient Coordinator

930204. Requirements: Associate's degree; prefer BSN degree with three years of level II or III nursery experience; should have an interest in high-risk neonates and families and an enthusiasm for data base and statistical review; excellent communication and organizational skills.

Phlebotomist, Part-time

930289. Hours: 6 a.m.-2:30 p.m. Saturday and Sunday and rotating holidays. Requirements: High school graduate/equivalent; ability to draw blood by venipuncture or capillary stick; applicant with phlebotomy experience and certification preferred; should have excellent communication skills.

Medical Research Technician

930292. Requirements: Bachelor's degree in biology or related field with strong knowledge of basic sciences; must have

one or two years laboratory experience and strong chemistry, biochemistry or molecular biology background; prefer background in DNA sequencing and recombinant DNA techniques.

Laboratory Technician, Research, Part-time

930329. Hours: Afternoons or 10 a.m.-2 p.m., 20 hours a week. Requirements: High school graduate/equivalent with college courses in chemistry or biology; prefer individual with one year research or clinical laboratory experience.

Research Instructor

930330. Non-tenure track position. Requirements: Doctorate with experience in molecular biology; excellent interpersonal and communication skills; ability to operate with considerable autonomy. Will be responsible for coordinating laboratory staff and materials, training medical students and visiting scholars and participating in research on "Renal Genes — Growth Factors, Development and Disease."

Secretary II

930344. Requirements: High school graduate/equivalent; must have good organizational and prioritizing skills; typing 60 wpm and word processing

experience; should have the ability to work well with people.

Medical Research Technician

930352. Requirements: Bachelor's degree with major in biology, chemistry or related discipline. Will assist in biochemical/molecular biological work.

Clinical Therapy Technician I

930362. Requirements: High school graduate/equivalent; two years of college preferred; prefer an individual with experience in an optometric or ophthalmic setting as a technician or assistant; contact lens experience helpful; should have good communication and record-keeping skills.

Animal Caretaker, Part-time

930371. Hours: 8 a.m.-noon Monday through Friday. Requirements: High school graduate/equivalent; prefer applicant with AALAS accreditation; sterile technique experience preferred. Will be responsible for animal care and cage cleaning; must be able to handle mice.

Medical Technologist I

930372. Requirements: Bachelor's degree with a minimum of one year micro experience; must be ASCP or HEW certified or eligible for certification.

Student Union president reaches out to University community

The president of Washington University's student government has created several initiatives designed to foster communication between students, faculty and staff.

Among the initiatives are appointing a Student Union director of campus relations to encourage unity among members of the University community and seeking faculty input about Student Union's course evaluation booklet.

Previously members of the University community may have felt that students did not want their input but "we want greater interaction between our students, faculty and staff," said Gregg Walker, Student Union president. "We want the faculty and staff to come to us with ideas, criticisms and advice. If they have ideas on how we can do something better, we can gain from these discussions."

"I am pleased that Student Union is undertaking these new initiatives to foster communication within the University," said Provost Edward S. Macias, Ph.D.

Walker recently appointed senior Anjali Prasad as director of campus relations. As director, Prasad's major responsibility is to "create unity between faculty and students, between students in various schools, and between students in various economic, gender, and academic classes," said Walker. "Her job is to reach out to everybody and to help people see that we all are part of one big campus community." To accomplish that goal, Prasad is organizing several campus events that focus on issues such as race relations, gender, multicultural awareness and cooperation, relationships between Greek and non-Greek students and understanding different religions.

In October, for example, Prasad and Adrienne Glore, associate dean of students for special programs, organized a "Breaking Down Barriers" luncheon for student leaders of various minority groups, the Women's Panhellenic Association and the Interfraternity Council. The purpose of the luncheon, said Glore, was to encourage the students to plan more programs together and by doing so,

broaden their cultural awareness. Among Prasad's future projects are reviving CIRCuit, the Council for Interreligious Concerns, a group that promotes awareness of the different faiths represented on campus, and working with Asian faculty and staff to develop support networks for Asian students.

Beginning next semester, Student Union and the College of Arts and Sciences will work jointly on a course evaluation guide. Information in the guide, which is distributed each semester, is based on student responses to a 14-question survey on topics ranging from course work load to quality of the instructor. The college was the sole publisher of the evaluation guide until approximately six years ago, when the Student Union Course Evaluation and Teaching Committee took full responsibility for the project, according to Walker.

In the past, some faculty members have desired more information about how the surveys have been conducted because "no one has explained to them how the process works," said Walker. "If the faculty members have ideas on how we can improve the course evaluation booklet, we want to hear their comments," he added. "The evaluations can be more informative, easier to use and more efficiently produced."

Besides offering faculty input into the process, the new arrangement will be more cost-effective because Student Union and the college will share publication costs, Walker said. Student Union and the School of Engineering and Applied Science distribute a course guide for engineering students each semester through a similar agreement. For both the engineering and arts and sciences guides, Walker is seeking input from the college and the Office of Public Affairs on other ways to cut costs, such as using less expensive paper and printers. In the future, he said, Student Union hopes to establish joint publishing arrangements with the architecture, business and fine arts schools by consulting with the individual school councils and deans.