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yet for the birth of a hotspot plume," says findings in the Journal of Geophysical Northwestern University, published their out of this fuzz emerges a strong signal that planetary sciences. "It's like having blind-Wysession, assistant professor of earth and seismologist at Washington University has zeroed in on an area, 2,000 miles beneath the Earth's crust and above its core. But they have not known exactly where. Through calculations involving analyses of seismic waves from 23 of the world's large earthquakes, Michael T. Wysession, Ph.D., has modeled in Oregon's Columbia River basin, which displays geologists call flood basalts. "We have compiled the firmest evidence yet for the birth of a hotspot plume," says Wy Posen, assistant professor of earth and planetary sciences. "It's like having blindends on and looking at something fuzzy, but out of this fuzz emerges a strong signal that a hotspot is forming." Wysession and colleagues Emil A. Okal, Ph.D., and Craig R. Bina, Ph.D., both of Northwestern University, published their findings in the Journal of Geophysical Research, Vol. 97, June 10, 1992. The Hawaiian and other Pacific islands such as Tahiti are the most visible and recognizable evidence of hotspot activity. They are, in fact, the tail ends of the plumes that rose through the mantle to the Earth's surface. The last great hotspot period occurred roughly 65 million years ago, an era that saw the extinction of dinosaurs. A core of scientists believes that the resulting flood basalts unleashed such a curtain of ash and fallout from the burning rocks that the sun's rays could not penetrate the Earth, thus dramatically altering the Earth's atmosphere and climate. Combined with the great meteorite that slammed much of the Earth at approximately the same time, this one-two-punch, proponents say, led to the demise of dinosaurs. The specific site Wysession has found is beneath eastern Indonesia. The seismologist says the existence of a new hotspot at the base of the mantle is consistent with the absence of hotspot volcanoes in the region or any other remnants of a previous flood basin. Such a remnant exists, for instance, in Oregon's Columbia River basin, which arose from a hotspot currently beneath Yellowstone National Park. In analyzing P and S seismic waves from nearly two dozen large, deep earthquakes and studying results from other researchers, Wysession found that the velocity of the waves off eastern Indonesia is 3 percent slower than average over other regions of the core-mantle boundary throughout the Earth. He combined geomagnetic evidence from others' studies with his own thermodynamic calculations of the temperature and composition of the core-mantle boundary to form his hypothesis. "The anomalous seismic velocity, the lack of hotspot volcanoes in the region plus the ratio of magnetic iron to iron we can infer our calculations strongly suggest that a plume is sitting here at the core-mantle boundary," says Wysession. "We're seeing the birth of a plume, or hotspot." Unlike the characters in Jules Verne's "Journey to the Center of the Earth," Wysession cannot literally descend the Earth to attend this geochemical blessed event. The deepest drill only reaches about eight miles beneath the Earth's surface. The most reliable tools seismologists have are continued on page 3.
Medical Update

Playground design offers access to disabled children and adults

The School of Medicine has received a $1 million grant from the National Institutes of Health (NIH) to coordinate a multi-center study of heart disease in nearly 15,000 families.

The study is designed to help explain how a child’s genes and family environment work together to cause heart disease, the nation’s number one killer. It will be the first study to examine both factors comprehensively in such a large group.

The four-year contract, from the NIH’s National Heart, Lung and Blood Institute, is part of an $11 million collaborative among five universities. Washington University will coordinate the study and analyze data generated by investigators at the four other centers, located at Boston University, the University of Texas Southwestern Medical School in Dallas, and the University of Minnesota.

Co-Principal investigators of the St. Louis team are Dabeeru C. Rao, Ph.D., professor and head of the Biostatistics Program, and Michael A. Province, Ph.D., assistant professor of biostatistics.

Each year, 1.5 million Americans have heart attacks, and 500,000 die from them, according to the American Heart Association. In addition, about 6 million Americans today have a history of heart attack, chest pain, or both.

Investigators at the four centers will gather information about the family history of heart disease in nearly 15,000 participants, as well as their parents, siblings, and children. In 1,200 of these families, researchers will also look at blood lipid and glucose levels as well as smoking, alcohol use, exercise and diet. In addition, they will use ultrasound in the smaller group to measure the amount of blockage in the carotid artery, the main artery leading from the heart to the brain.

Half of the study’s smaller group will be families with at least one high blood pressure or high blood cholesterol rate, Province said. These families are more likely to carry a relatively large portion of the many genes suspected to cause heart disease. The investigators will study the families to try and find as many of those genes as possible, he said.

The St. Louis team will look at family relationships to determine whether differences among family members are due to shared genes, shared habits, or both, Province said.

A large portion of the many genes suspected to cause heart disease.

A memorial service for Hallowell Davis, M.D., who died Aug. 22 at the age of 96, will be at 10 a.m., Sept. 13, at Graham Chapel on the University campus.

Davis, a professor of physiology and research professor of otologygry at the School of Medicine, was former director of research at the Central Institute for the Deaf (CID), part of the Washington University Medical Center. He came to St. Louis in 1946 from the Department of Behavioral Sciences at Harvard Medical School to establish a research program and research department at CID.

At CID, he developed a research program oriented toward medical problems of hearing and deafness. His basic physiological studies of the electrical responses of the inner ear, auditory nerve, and brain led to the development of an electroacoustic audiometer, which all measure these responses more sensitively and accurately. These developments helped inspire his pioneering work on electrical response audiometry for the early diagnosis of hearing loss in infants.

Davis played a key role in the development of the electroencephalogram (EEG) between 1934 and 1941, and was a pioneer in the application of rapidly developing electronic amplifiers to other problems related to hearing. These included the measurement of normal and impaired hearing, the assessment of the effects of noise on hearing, the design of hearing aids, and various problems in speech communication.

Among his honors and awards: the National Medal of Science, Gold Medal Award of the Acoustical Society of America, Gold Medal Award of Merit of the American Otological Society, Beltone Institute for Hearing Research Award, International Prize in Otolaryngology of the Collegio Oto-Rino-Laryngologico Amniciae Sacrum.

He was president of the American Electroacoustic Society, the Acoustical Society of America, the American Physiological Society, and the No Sigma Nu International Medical Fraternity. He was a member of the National Academy of Science, and the American Academy of Arts and Sciences.

Kevin Finnegan, 3, looks out from atop the platform of a tunnel slide as his twin brother, Daniel, watches.
As a large degree, the future of St. Louis rests in the hands of F. Sessions Cole, M.D. As director of the Division of Newborn Medicine at the School of Medicine, Cole oversees all of the clinical and scientific research that takes place in the Division of Newborn Medicine. In addition, he is in charge of the neonatal-perinatal fellowship program.

Cole: Compassionate crusader for newborns

By caring for an infant, and improving his or her outcome, a life span of 70-plus years is influenced.

"The true determinant of viability or non-viability is not the technology; we apply the true determinant is whether the biology of the infant is sufficient to survive outside of the womb," he says. "It's very difficult sometimes to identify the biology of a child who is going to survive versus a child who is not going to survive." 

"What we do is apply technology to fetuses to see if they respond. If they don't, they don't survive. If they do, they do survive. We follow the approach that we do not provide futile therapy. Each case is individual." 

Some of Cole's biggest challenges revolve around "viability" discussions with families, he says. "On Friday afternoon not long ago when a couple of twins, who weighed less than 2 pounds apiece, was transferred into the unit. The uncle in disbelief at what he had heard because he believed the twins might survive. The uncle told him that if he refused the parents' request, he would transfer the twins to his own neonatal intensive care unit where they would be allowed to die.

Cole clearly recalls the conversation in which he was able to convince the family that the babies had a chance to survive. "We spent about six hours that Friday night talking, and a number of hours on Saturday, Sunday and Monday," says Cole. "On Tuesday, he flew back to his home. The baby has improved, survived and today they are fine." 

While the incident may not be typical, it certainly is not unusual for Cole. One of his primary tasks involves forging an alliance with families that are extended — while treating their critically ill infant.

"I find it takes as much of a commitment to support and guide the family through a kind of situation as it does medically to manage the babies," he says. "We do this because we are treating a family when we take care of an infant, and if the infant dies we are still taking care of that family. We spend a lot of time with families and they always teach me something." 

In addition to his concern for the families, Cole also worries about the future of the infants once they leave the unit. Another challenge he faces is trying to improve the educational outcome of children who have required neonatal intensive care.

Cole says there is a window of opportunity, from the time the child is discharged from the intensive care unit until he/she enters kindergarten, to discover and manage any learning or emotional problems that may exist. "If we wait until a child enters kindergarten to determine whether he/she has problems, they have missed the chance to provide a variety of interventions to help him/her catch up. We cannot ignore this time between birth and age five; if we do, whatever good we did in their first months of life in the intensive care unit may be lost. We're not out trying to optimize survival, but also educational outcome," he says.

That is an advocate for education is evidenced by the projects in which he takes part. Cole is the faculty adviser for the AIDS education program, Students Teaching AIDS to Students (STATS), and the Perinatal project, both of which are run by medical students and serve the St. Louis community. Medical students involved with the projects provide AIDS education to middle school students in St. Louis. First- and second-year medical students involved with the Perinatal Project provide important educational interventions to disadvantaged pregnant women and their children. "Both of these programs are extremely important because they are run by medical students and benefit medical students as well as the community," says Cole. "Unlike the prescribed curricular requirements of medical school, these projects are activities the students have identified as being important for their own education." 

Cole's personal crusade since arriving here in 1986 has been to decrease St. Louis' high rate of infant mortality. He co-chairs Operation ChildSave, a community government effort that provides a 24-hour-a-day referral service for women who are pregnant.

Cole says the infant mortality rate in some areas of St. Louis is so severe that it equals those in Third World countries. Citywide, he says, infant mortality averages somewhere between 15 and 18 deaths per 1,000 live births. The national average is around 10 deaths per 1,000 live births.

"Children are the economic basis for the future," he says. "If the economy of this region is to continue to grow, children must be ready to learn when they reach kindergarten. In St. Louis, 35 percent of children who are born after the full 40 weeks of pregnancy not prematurely. If all pregnant women had access to early and consistent prenatal care, the number of premature infants would fall by 40-60 percent. This change would lead to significant improvement in educational outcome, significant increase in the number of adults who have the knowledge and the skill.
Lectures

Thursday, Sept. 3
10 a.m. Division of Biology and Biomedical Sciences Thesis Defense, "Subtractive Hybridization Cloning and Subsequent Characterization of Two DNAs Which May Regulate the Growth and/or Differentiation of Intestinal Epithelial Cells," Burton Wise, WU graduate student. Room 423 McDonnell Medical Sciences Bldg.


Friday, Sept. 4
8:30 p.m. St. Louis 'Bruid Hildel Foundation Lecture, "Voyages to Freedom: Five Hundred Years of Jewish Life in Latin North America," Kenneth Libo, curator of Jewish history, Jewish Museum of North America. Room 241 Compton Hall.

Tuesday, Sept. 8

4 p.m. School of Medicine Seminar, "Microbiology Seminar," "Translational Regulation of Viral and Cellular mRNAs by Internal Ribosome Binding." Paul Sarnow, U. of Colorado Health Science Centers. Room 775 McDonnell Bldg.

4 p.m. Dept. of Chemistry Seminar, "Internal Ribosome Binding," Peter Sarnow, WU professor of Internal Medicine. Steven J. Rose Conference Room, Room 3400 East Bldg.

Wednesday, Sept. 9

11 a.m. Assembly Series Presents the Woman's Club Lecture: "Politics and Other Bizarre Happenings," Molly Ivis, Texas journalist. Graham Chapel.

Calendar guidelines
Events sponsored by the University — its departments, schools, centers, organizations and its recognized student organizations — are published free of charge. The University reserves the right to refuse entries which are not relevant to the University 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 Melissa Kohrs at Box 1075 (via fax: 935-4259). Submission forms are available by calling 935- 8533.

Lecture examines laws affecting church and state

Recent U.S. Supreme Court decisions affecting the separation of church and state will be the focus of the 15th annual Jerome W. Sideld Memorial Lecture, titled "Church and State: Is the Wall Falling Down?" The lecture will be held from 4 to 5:30 p.m. Sept. 13 in Stonborough Hall Auditori- um. The free event is open to the public.

Constitutional scholar Douglas Laycock, professor of law at the University of Texas, Austin, will be the featured speaker. Laycock has filed briefs in many recent religious liberty cases, including Lee v. Weisman. The Supreme Court in that case ruled officially for the first time that religious activities at high school graduations unconstitutional. Following Laycock's lecture, a panel exchange and audience discussion will be held. Richard Laycock, J.D., professor of law at Washing- ton University, will moderate. Panel speakers include: The Hon. Richard S. Arnold, chief judge, 8th U.S. Circuit Court of Appeals; Harry James Cargas, professor of literature and languages, Webster University; Carl H. Esbeck, professor of law, University of Missouri, Columbia; and Josee H. Murphy, assistant professor of elementary and early childhood education, University of Missouri, St. Louis.

The conference is co-sponsored by the Washington University School of Law and the American Bar Association, in partner- ship with the Missouri Humanities Council. For more information, call 935-5503.

Seniors to explore post-graduation options

Washington University's Career Center will sponsor its fourth Senior Op- tions program to help seniors explore opportunities available to them after gradua- tion.

The program will be held at various locations from 7 to 9 p.m. on Tuesday, Sept. 8, and from 6:30 to 9:30 p.m. on Wednes- day, Sept. 9. Senior Options will feature sessions on entering graduate and profes- sional schools, the college job search, options for American and international students, and facing the uncertainty of the job market. Also scheduled are career panels highlighting fields like architecture, engineering, fine arts, business, and public service. Alfreda Brown, center director, will introduce the program. Brown, along with Karen Levin Coburn, associate dean for student develop- ment, will lead the kick-off session as follows:

"As part of the program, "Choices 401," a skit written by Washington alumna Nikola Wilemsky, will be shown at 7:05 p.m. Sept. 8 in Edison Theatre. The skit, which is a humorous look at post-graduation years, will serve as a springboard for the program, addresses seniors' concerns about learning about their options and making those options a reality.

For more information, call the Career Center at 935-5930.

Sports

Men's soccer seeks 10th national appearance

With nine starters returning from last year's 13-4-3 squad, the men's soccer team has high hopes for a fourth University Athletic Association title and a 10th NCAA Division III postseason appearance.

The 1991 Bears, who captured their third NCAA title in the league's five-year existence, lost three key components of last year's stingiest defensive squad, allowing just 0.31 goals per game. Washington did not let an opponent score more than one goal in any game. Only two pieces of that defensive puzzle are missing with the losses of midfielders Erik Trueter and sweeper back Brad Thornton, who both graduated.

Junior fullback Scott Jones (Cincin- nati, Ohio), senior midfielder Chris Wollmuth (Portland, Ore.), and sopho- more goalkeeper Tim Stavropoulos (St. Charles, Mo.) do return, however, and are key personnel for the 1992 Bears.

Women's soccer looks to climb national charts

Early last season, the women's soccer team got its first taste of the "big time" — climbing into the national Top 20. While the dream of making the NCAA Division III tournament turned out to be a bit premature for the third- year program, the 1992 Bears appear ready to ascend to the next heights.

Eight of the 11 starters return from last year's 9-6-2 squad, including four all-University Athletic Association honor- ees. The key returnee for head coach Doug Hippler is senior goalkeeper Jennifer Hanson (St. Louis, Ohio), who became the Bears' first all-region pick last season. Hanson's senior year marked a two- year mark of 16-7-3, a 0.64 goals against average, and 15 shutouts.

Four of last year's starters, including junior forward Jason Felsen (Quin- cy, Ill.), a 1991 first-team all-UAA and first- team all-Midwest selection; junior midfielder Kyle Drager (Columbus, Ind.), a 1990 second-team all-UAA pick; junior forward Ron Sorensen (Tignard, Ore.), a 16-point scorer in '91, and sophomore Kevin Neebes (East Brunswick, N.J.), who were used primarily as a reserve, also return.

Jones earned first-team all-UAA and first-team all-Midwest honors last year while Wollmuth, who has 28 career assists, earned second-team all-UAA kudos. The outstanding defense helped Stewart record 13 shutouts and a 0.18 goals against average — second lowest in Division III history. For his efforts, the rookie goalie earned the conference's all-team UAA laurels.

The Bears also return three of the five into the picture: junior forward Laura Miller (Florissant, Mo.), a second-team all-UAA back last year, forward Thorunn Ragnarsson (East Brunswick, N.J.) and freshman midfielder Leonila Latimer (East Brunswick, N.J.) and sophomore goalkeeper Tim Stavropoulos (St. Charles, Mo.) do return, however, and are key personnel for the 1992 Bears.

Training with Haddad to anchor the defense will be fellow Cincinnati-native Kristi Kohls. The senior sweeper has earned first-team all-UAA honors each of the past two seasons with her tough- minded defense and a thrilling end-to-end offensive efficiencies.

Other key cogs in the Washington lineup include junior forward Robert Simmons, who was the first-team all-UAA back in 1991; junior Laura Kilroy (St. Peters, Mo.), a 16-point scorer in '91, and sophomore Kevin Neebes (Cleveland, Ohio), who was used primarily as a reserve but led the Bears in scoring with 9 goals and 1 assist.

Exhibitions


"Green Area: Neocolonialism in the U.S." Nov. 11-Nov. 1. Opening Reception: 7-10 p.m. Sept. 11. Gallup Art, upper and lower galleries, Steinberg Hall. Exhibition hours 10 a.m.-5 p.m. weekdays. For info., call 935-4523.

Films

Tuesday, Sept. 8
7 p.m. Dept. of Asian and Near Eastern Languages and Literatures Japanese Film Series Presents "Ballad of Narayama," Shohei Imamura, director. Subtitled in English. Room 219 South Ridley Hall.

Wednesday, Sept. 9

Thursday, Sept. 10

Friday, Sept. 11


Saturday, Sept. 12


10 a.m. University College Poetry Workshop, "Light Verse Writing Workshop." (Continues thru Oct. 31.) Fee $175. For info. and registration, call 935-6701.

10 a.m. University College Poetry Workshop, "Loud Verse Writing Workshop." (Continues thru Oct. 31.) Fee $175. For info. and registration, call 935-6701.

WU Dept. of Music Lecture, "Co-"
T he plight of three "disenfranchised" elements of society — Native Americans, the homeless and communities of the U.S./Mexican border — will be examined in an exhibit titled "Green Acres: Neocolonialism in the U.S." The exhibit opens Sept. 11 at the Gallery of Art in Steinberg Hall and runs through Nov. 1. An opening reception will be held from 7 to 10 p.m. Sept. 11 at the gallery.

The exhibit, which is sponsored by the Office of Community Engagement, has been developed through the partnership of the Office of Community Engagement, the center for American Indian Studies, the School of Social Work and the center for Latino Activities and Research. The exhibit will exhibit works on paper, video, installations, photographs and paintings that document the lives of the homeless and communities of the U.S./Mexican border.

"The exhibit is designed to give people a sense of the reality of life for homeless individuals and communities of the U.S./Mexican border," says Scoates, who also is curator of the gallery.

Many installations in the exhibit juxtapose images with reality of living as a Native American, Hispanic or homeless person. The exhibit is intended to be interactive. Unlike a typical gallery exhibit, many of the works are installation pieces that are designed to walk into and examine from all sides. Visitors will have the opportunity to see the works of art that integrate images and text, in addition to photographs, drawings and videos. At each of the installations, visitors have the opportunity to record their responses, questions or stories in a notebook, which will then become part of the exhibit.

People can also watch videotapes and read books that provide more information about the topics of the exhibit.

The exhibit features seven artists using a wide range of media. Hachivi Helga of Birds, from the Cheyenne tribe, will exhibit works on paper, video, metal signs and photographs of specific works. His art focuses on the displacement of Native Americans from their homeland. Richard Ray Whitney, from the Yuchi tribe, will exhibit a series of photographs, titled "Street Chiefs," which are portraits of contemporary Native Americans who are unemployed or homeless as a result of the 19th-century Indian Removal Act. His work Whitney will describe where he calls "the ultimate paradox of the postmodern city: being homeless in one's own homeland."

The work of two New York-based artists, Martha Rosler and Krzysztof Wodiczko, directly addresses the issue of homelessness. Rosler documents the current crisis in urban American housing and will outline how neighborhood organizations are fighting against government housing policies and real estate speculation. In "Green Acres," Rosler directly explores the relationship between homelessness and urban living in New York City and reactions to it from homeless city dwellers, police, social workers and the general public.

The exhibit's third segment examines the daily lives and hybrid culture of the U.S./Mexican border. Alfredo Juarez, who recently returned from his long-term residency at Sculpture Park, will exhibit six light boxes from his "In Between" project. The images and videos of people using the vehicle in New York City and reactions to it from home- less people, city electricians, police, social workers and the general public. The exhibit's third segment examines the daily lives and hybrid culture of the U.S./Mexican border. Alfredo Juarez, who recently returned from his long-term residency at Sculpture Park, will exhibit six light boxes from his "In Between" project. The images and videos of people using the vehicle in New York City and reactions to it from homeless city dwellers, police, social workers and the general public.

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seismic waves from the world's deep earthquakes. Wysession analyzed diffracted waves, which cause vibrations in the base of the mantle whenever large, deep earthquakes occur. Seismograms worldwide record these events, providing seismologists the primary data about the Earth. The velocity at which waves pass through the Earth reveals its composition at various places as well as its temperature, yielding even more clues to the physics of the inner Earth.

Diffracted waves work on the same principle that lets us hear sound around the corner of a building. The waves actually bend around a structure. In the case of earthquakes, the waves go in all directions, reaching the bottom 300 miles of the mantle and grazing the core-mantle boundary.

Wysession can explain P and S waves by pulling out an all-time favorite childhood toy (and a seismologist's most reliable teaching tool), a slinky. If you extend the slinky as far as it can be extended and give it a straightforward shake, the wave passing through works like the slinky effect. If the slinky were the Earth, each link or piece of Earth, pushes the one in front of it. That describes a P wave. If you take the same extended slinky and then give it a lateral shake, you have the motion of an S wave.

From the plotting of countless seismic waves, Wysession and other seismologists construct charts that resemble, according to Wysession, "a medical tomographic CAT scan. We don't have the convenience of a nice laboratory, where we know exactly in what directions we want to send waves. We're stuck with the whims of the occurrence of large earthquakes."

Getting to the Core

Over decades of analyzing millions of P and S waves from scores of earthquakes, seismologists have a pretty good idea of the average velocity of the waves at the core-mantle boundary, with variations differing slightly. The exception is the region off Indonesia.

While other seismologists also have noted the slow down of waves at this one point in the Earth, Wysession is the first to correlate the slow velocity and other geophysical factors with the birth of a hotspot. His calculations of P and S wave velocities comprised roughly 16,000 lines of computer code and took about 100 days of computation on 340,000 computers.

While the birth of a hotspot is exciting in the science world, there is no need to issue a hotspot warning, Wysession adds. The hotspot he has predicted won't be far from the Earth, at least not yet. Instead, Wysession says the hotspot is in the future, waiting for Earth's tectonic plates to move the hotspot away from the plate boundary. The hotspot, Wysession says, will bubble up to the surface for another 10 to 20 million years — enough time for everyone to enjoy a hot spot. The Wysession hotspot has been predicted in the past, but never been confirmed. This is the first time a hotspot has been predicted with such precision.

Professor James McGarrell receives two major honors

Painting James McGarrell, professor of fine arts, has received an associate member of the National Academy of Design and will serve as the Dartmouth College artist-in-residence during the 1993 spring semester. Here, he stands with his work "Albs," which means "dawn" in Italian. The piece is part of a collection in the New Orleans Art Museum.

Hotspot plume — from page 1

OLIN MBA students help promote economic growth in developing countries

P roviding management expertise to companies in the Philippines and the small Caribbean island of Dominica will be the mission of two first-year MBA students from the John Molloy College of Business. They will work in the developing countries for one year.

OLIN graduate students Scott Field and Samuel McDowell will be two of 20 foreign internships in a pilot program of the U.S. Agency for International Development (USAID). The program is being administrated by the Institute for International Education in New York.

The USAID's Development and Business Adviser Program will place MBA students who have significant professional experience in 12-month internships with small businesses in developing countries. The program's $1.3 million start-up budget is expected to increase if the pilot is successful.

Field will work with a water bottling company in the Philippines. His square-mile island near Martiniere was once a British Commonwealth in the 1950s. McDowell knows only that he'll be sent to a Caribbean country. Both students reported to Washington, D.C., for training.

As an undergraduate, Field worked his way through college assembling track undercarriages in the "pits" of production lines at General Motors Corp. plants in Michigan. He received a degree in economics at Oakland College in 1990. His interests include marketing and sales management.

"The USAID program appealed to me because I really wanted the international experience," Field says. "The things that I can learn in the Third World will be applicable in a more general sense."

McDowell completed his bachelor's degree in cartography at the University of Wisconsin-Madison in 1987. He worked two years for a mapping company in New Jersey. His international interests grow from a year at Hebrew University in Jerusalem and several travel adventures. In addition to working on a master's degree at Washington University, McDowell also will pursue his master's degree in international development at the University of Pennsylvania in 1992.

McDowell spent several weeks last summer in the rural highlands of Mexico working and talking with empresarios or small business owners. He's committed to spend his business career in developing countries where he hopes his efforts will improve the lives of people in these poor, small developing countries.

"We really had no plans to get an MBA," says McDowell, "but once I began studying international development, I began to realize the need for people trained in that area." He believes there is a need for people trained in international development to help create a climate in the United States and other countries where small businesses can learn in the Third World will be applicable in a more general sense.

"The USAID program is designed to promote economic development in target countries," says McDowell. "It is designed to encourage the expansion and improvement of U.S. graduate business education in developing countries. Participants will be expected to submit case-study portfolios on their experience for distribution to other schools."
Darby named STIM associate dean

William P. Darby, Ph.D., professor of engineering and decision sciences and chair of the Department of Engineering and Policy, has been ap- pointed associate dean for the Office of Technology and Information Management (STIM). Darby succeeds the School of Engineering and Applied Science: Donald F. Cailes, Ph.D., dean of the School of Engineering and Applied Science. The appointment was effective May 1992.

Darby joined the University as an assistant professor of technology and human affairs in 1976 and became associate professor in 1981. He was named assistant dean from 1985 through 1990, and he served as director of the Master of Engineering Management Program.

Darby received a bachelor's degree from Northeastern University in 1971 and a master's degree from Carnegie Mellon University in 1973. In addition, he received a doctorate in English from Yale University in 1982.

George M. Pep, Ph.D., associate professor of classics, has been appointed chair of the Department of Classics. He succeeds Kevin Neureuther, who has resigned as director of the Nursery School. The appointment was effective May 1992.

Pepe earned a bachelor's degree in classics from the College of the Holy Cross in Worcester, Mass., in 1961. He received both his master's degree and doctorate in classics from Princeton University in 1963 and 1966, respectively.

John D. Sprague, Ph.D., professor of political science, has been named director of the Department of Political Science. He succeeds Robert Salisburry, Ph.D., the Sidney W. Souers Professor of Political Science, who became provost of the University in 1985.

Sprague received his bachelor's and master's degrees from Stanford University in 1956 and 1964, respectively. He joined the faculty at Washington University in 1965. Sprague's research and writing on economic and political questions has earned him a reputation as one of the leading political science scholars in the country.

Rev. Gerald L. Early, Ph.D., professor of English and director of the African and Afro-American Studies Program Early, an award-winning writer, is also founder and director of the University's Black Heartland Project.

Early's project sponsors an annual conference that promotes African-American studies. The conference is the largest of its kind in the nation.

Peter Hecht, Ph.D., associate professor of German and Literatures, and Languages, has been appointed director of the Center for the Study of Islamic Societies and Civilizations. He has served as the center's interim director since July 1991. He joined the Washington University faculty in 1990 as an assistant professor.

Hecht received a bachelor's degree in Near Eastern studies from Princeton University in 1971. He received a doctorate in Arabic language and literature from Harvard University in 1981. He has taught at Columbia University, the University of Wisconsin-Madison, and the American University in Cairo. He has also served as editor of the Western Arabic Studies journal.

Izenberg, Ph.D., professor of history, shows how a combination of political, social, and psychological developments have resulted in the modern concept of selfhood. Focusing on the development of the self, the concept that the self is a unique entity that is separate from the rest of society, Izenberg argues that this concept has been shaped by a variety of historical and cultural forces. He examines the role of religion, politics, and social movements in shaping the concept of the self, and he discusses the impact of these forces on the development of the modern self.

In Impossible Individuality: Romanticism, Revolution, and The Origen of Modern Selfhood, Izenberg, Ph.D., professor of history, shows how a combination of political, social, and psychological developments have resulted in the modern concept of selfhood. Focusing on the development of the self, the concept that the self is a unique entity that is separate from the rest of society, Izenberg argues that this concept has been shaped by a variety of historical and cultural forces. He examines the role of religion, politics, and social movements in shaping the concept of the self, and he discusses the impact of these forces on the development of the modern self.
The following is a list of positions available on the Hilltop Campus. Information regarding required qualifications and duties may be obtained in the Office of Human Resources, North Brookings Hall, Room 526, or by calling 935-3990.

Administrative Secretary
930022. Medical Alumni and Development Programs. Requirements: Minimum two years of college, bachelor's degree preferred; typing 50 wpm with accuracy; three or more years office experience; excellent word processing, data processing, and overall computer skills; familiarity with Macintosh, Word and Excel preferred; good command of English, ability to deal with multiple assignments and organize work to meet deadlines; ability to deal cordially, accurately and respectfully on the telephone, in the office, and at special events; ability to work Wednesday nights and Saturdays. Resume and three letters of recommendation required.

Cashier/Clerical Assistant
930032. Campus Stores. Requirements: Must be high school graduate; two years of college preferred; typing 35 wpm with accuracy; good customer service attitude; general office experience and organizational skills; ability to must be able to handle and balance, work Monday and Tuesday, Friday, Saturday, and accurately under pressure. Clerical testing and three letters of recommendation required.

Administrative Assistant II
930033. Special Development Programs. Requirements: Certificate or associate's degree, bachelor's degree preferred, typing 50 wpm with accuracy; must manage details carefully; excellent recordkeeping abilities; must relate well with older people; must be able to handle confidential information.

Administrative Assistant
930009. Medical Alumni and Development Programs. Requirements: Bachelor's degree; typing 45 wpm with accuracy; maturity, judgment, and diplomacy; excellent interpersonal skills; excellent communication skills, both oral and written; ability to communicate cordially and effectively with public constituents of the alumni and development office, including volunteers, donors, alumni, and officers of corporations and foundations; ability to communicate cordially and effectively with internal and external sources, including department heads, division chairs; and seniors in alumni and development services. Advanced biology courses desirable. Clerical testing and three letters of recommendation required.

Technical Assistant
930075. Applied Research Lab. Requirements: Bachelor's degree; typing 60 wpm with accuracy; Applicant must have ability to use a UNIX-based computer system for desktop publishing, report preparation, word processing, drafting of forms and supplies. Clerical testing and three letters of recommendation required.

Career Counselor and Special Programs Coordinator
930639. University College. Requirements: Master's degree; ability to work with a wide variety of people in a counseling environment; interest in working with adults in transition. This part-time position includes working one evening per week until 7 p.m. Resume and three letters of recommendation required.

Administrative Assistant
930040. Medical Alumni and Development Programs. Requirements: Must be high school graduate, one year of college preferred; typing 60 wpm with accuracy; three or more years of experience would be beneficial, especially if it involved working with people. Some supervisory experience required. Work with chair in day-to-day operation of the department. Clerical testing and three letters of recommendation required.

Assistant Law Librarian, Reference/ Circulation, School of Law
Applications are invited for an appointment as assistant law librarian to provide reference, circulation, and interlibrary loan service to students, faculty, and staff of the School of Law. Responsibilities include answering telephone calls from alumni, former students, faculty, and former school officials; keeping accurate records of all referrals and assistance given; handling incoming requests for information; keeping adequate statistics and records of student requests and fulfilling requests in a timely fashion; working night and weekend shifts, including Sundays and holidays. Applicants should have a bachelor's degree or equivalent, and a law degree is desirable. Knowledge of the practice of law and familiarity with the law library is desirable. Experience with the University's student information system is a plus. Submit a complete application which includes a letter of application, a current resume, and the names, addresses, and telephone numbers of three references to: Director, Law Library, School of Law, Campus Box 1120, One Brooks Drive, St. Louis, MO 63130.

Assistant Director of Medical Development
Description: Majors responsibilities will include formulating and implementing major gift programs; cultivating and soliciting major gift prospects; building relationships with alumni, friends and friends, serving as liaison officer to designated departments and, sharing responsibility for solicitation training and gift affidavits for all activities, former house staff, and faculty. Qualifications: Bachelor's degree or an accredited college or university is required, advanced degree preferred. Candidates should have a minimum of five years experience in major gift solicitation, preferably in higher education, or a record of achievement in a field requiring the application of similar skills. Experience in a health sciences setting desirable. Superior organizational, writing, verbal, and interpersonal skills are required, as is the ability to represent the school to a wide variety of audiences. Title and compensation will be commensurate with qualifications and experience. Submit cover letter, resume, and three letters of recommendation to: James D. Thompson, Senior Director of Major Gifts and Capital Projects, Alumni and Development Programs, Campus Box 1210, One Brooks Drive, St. Louis, MO 63130.

Director, Medical Development
Applications are invited for an appointment as director of medical development to serve as the liaison officer to the Office of Medical Alumni and Development Programs. Responsibilities include soliciting donations, either small or large, from alumni and friends in the health sciences. The director will make direct and indirect solicitations of potential donors, both by personal visits and by letters, phone calls, and other means. Duties will include the preparation and presentation of requests for funds to medical foundations and corporations. The director will represent the school to a wide variety of audiences. Title and compensation will be commensurate with qualifications and experience. Submit cover letter, resume, and three letters of recommendation to: James D. Thompson, Senior Director of Major Gifts and Capital Projects, Alumni and Development Programs, Campus Box 1210, One Brooks Drive, St. Louis, MO 63130.

Career Services Assistant
930093. Olin Library. Requirements: Two years of experience as a library assistant, work experience, library work experience; ability to communicate effectively, orally and in writing, and to deal with the public in a consistently pleasant and businesslike manner. Computer skills, especially data entry, are desirable. Bibliographic skills and familiarity with foreign language resources are desirable. Ability to type 35 wpm with accuracy. Ability to work work and resolve patron problems under pressure. Physical effort is necessary. Ability and willingness to work flexible hours, including evenings and weekends. Clerical testing and letters of recommendation required.

Career Services Coordinator
930093. Olin Library. Requirements: Bachelor's degree preferred, knowledge of personnel services, and ability to get along well with people using a variety of microcomputer peripherals, such as modems and printers; must be physically able to lift system components, work evenings and Saturdays. Resume and three letters of recommendation required.

Administrative Assistant
930401. Alumni and Development. Requirements: Minimum three years of college; speech; public speaking experience; business training; typing 50 wpm with accuracy; experience with word processing and general office experience, including work with budget figures and reports; ability to deal effectively and professionally with alumni, faculty, alumni, parents and prospective students; maintain confidentiality; excellent attendance record; good command of English; ability to handle multiple project-oriented tasks with strict deadlines requiring a high degree of organization and thought; available to work overtime as needed; prefer someone with familiarity with dictation equipment and data management, experienced in word processing, knowledge of Microsoft Word, desktop publishing and spreadsheet software. Clerical testing and three letters of recommendation required.

Administrative Assistant
930407. Medical Alumni and Development Programs. Requirements: Minimum one year of college; bachelor's degree preferred, three years general office experience preferable; bachelor's degree; typing 25 wpm with accuracy; experience with or B/IBM compatible PC accuracy and attention to detail. Must be reliable in following government regulations and library standards. Must be expected to learn new procedures and computer programs. Clerical testing and three letters of recommendation required.

General Counsel
The general counsel is the institution's chief legal officer and reports directly to the chancellor. The general counsel is responsible for directing the activities of the professional and support staff in the Office of the General Counsel, which includes the development and representation on matters arising from the University's activities on its Hilltop and Medical campuses. The general counsel also is responsible for the selection and direction of outside counsel. The successful candidate will have a broad legal background, preferably including experience in the areas of higher education and law, and demonstrated management ability. He or she must be a lawyer who has been associated with a large, complex, integrated counsel who works well with others as part of a team and who demonstrates a commitment to the teaching, research and public service mission of the University. Applications and nominations should be sent to: Vice Chancellor for Human Resources, Washington University, Campus Box 1184, One Brooks Drive, St. Louis, MO 63130. Screened. Applicants will be evaluated in the process of an interview in students' professional development and desirable position. Applicant must have a minimum of five years of fund-raising experience, including work with budget figures and reports; ability to handle multiple project-oriented tasks with strict deadlines requiring a high degree of organization and thought; available to work overtime as needed. Submit resume and three letters of recommendation to: Bernard D. Reams Jr., Professor of Law, Director, Law Library, School of Law, Campus Box 1120, One Brooks Drive, St. Louis, MO 63130.

Instructor of Psychology and Counselor in Human Services
Applications are invited for an appointment as instructor in psychology and counselor in human services. Candidates are expected to supervise and coordinate counseling and psychotherapy services to students on the Hilltop Campus. Candidates will be expected to provide instruction to undergraduates in child psychology and related fields; provide instruction to residence hall staff in identification of and intervention in students' developmental and disordered behavior; provide counseling and psychiatry services to students; and supervise graduate or students in practical programs. Salary commensurate with qualifications and experience. Submit a letter of interest; a current resume and three letters of equivalent degree in psychology. Submit curriculum vitae to: Dr. Robert H. Easton, Director, Human Resources, Washington University School of Medicine, Washington University, Campus Box 1053, One Brookings Drive, St. Louis, MO 63130-4989.

Regional Director of Development and Associate Director of Major Gifts and Capital Projects
Description: This position requires personal solicitation experience and a thorough understanding of the university and donors. Reporting initially to the senior director of major gifts and capital projects, the associate director of major gifts and capital projects reports directly to the associate director of major gifts and capital projects and serves as a liaison officer to designated departments and, sharing responsibility for solicitation training and gift affidavits for all activities, former house staff, and faculty. Qualifications: Bachelor's degree or an accredited college or university is required, advanced degree preferred. Candidates should have a minimum of five years experience in major gift solicitation, preferably in higher education, or a record of achievement in a field requiring the application of similar skills. Experience in a health sciences setting desirable. Superior organizational, writing, verbal, and interpersonal skills are required, as is the ability to represent the school to a wide variety of audiences. Title and compensation will be commensurate with qualifications and experience. Submit cover letter, resume, and three letters of recommendation to: James D. Thompson, Senior Director of Major Gifts and Capital Projects, Alumni and Development Programs, Campus Box 1210, One Brooks Drive, St. Louis, MO 63130.