St. Louis Dancers’ final performance honors Mertz

St. Louis Dancers and guest artists will present an evening of stimulating and theatrical modern dance and popular ragtime tunes in a gala farewell performance at 8 p.m. May 4 and 5 in Edison Theatre.

This is the 11-year-old company’s final performance in St. Louis. The weekend’s festivities include a reunion of former dance students and faculty to honor Annelise Mertz, founder and artistic director of the company. Mertz also is a long-time chamber dancer of St. Louis. Mertz is professor emeritus of dance at the University of Missouri.

The program will feature guest appearances by Daniel Shapiro and Joanie Smith, an exciting young dance duo known for its “tongue-in-cheek” style, and ragtime pianist Steven Radeck.

Shapiro and Smith have performed with Murray Louis and Alwin Nikolais, touring internationally for more than 30 years. Their program’s second half includes a duet titled “Self Recital.”

Also to be performed are “Ceremonial Rites,” Mertz’s signature piece set to Philip Glass music; “On the Dark Shore,” by Michael Ballard. Poulenc with music by Bartok, and a duet by renowned choreographer Murray Louis staged by Podolski, called “Calligraph For Martyr.”

The second part of the program, titled “Dance Monogamy Rites,” will include “Seaside Rag” and “Charleston Rag,” set to music by Scott Joplin. Radeck, a renowned ragtime and classical musician, will accompany the dancers and entertain the audience with popular ragtime tunes throughout the program’s second half.

Tickets are $12, $9 for senior citizens and Washington University faculty, staff, students. For more information, call 880-6545.

Mammography van will visit Hilltop

Mallinckrodt Institute of Radiology’s Mammography Mobile will be on the Hilltop Campus from 8 a.m. to 3 p.m. Thursday, May 3, to screen women over 35. The van, which will be in the parking lot west of the Mallinckrodt Center, features the latest low-dose equipment sensitive enough to detect the first stages of breast cancer.

The cost of the procedure, which takes about 20 minutes, is $50. Payment by credit card or check, cash cannot be accepted. The University Health Services

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• Balance system degrades with age, creating serious public health problem. Page 4

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• Senior citizens pump up for muscle mass study. Page 6

Maps reveal extent of Madagascar deforestation

Maps derived from 1972 and 1985 Landsat satellite images and 40-year-old French aerial photographs provide the first historical proof of the dramatic effects of deforestation in Madagascar. The island nation, located off the east coast of Africa, is considered a jewel among the Earth’s ecosystems.

The maps, developed by Glen Green, Ph.D., research associate in the Department of Earth and Planetary Sciences, and Robert W. Sussman, Ph.D., professor in the Department of Anthropology, portend bleak news that is sure to disturb the world’s conservationists.

Since 1990, there has been a 50 percent loss of tropical rain forest in Madagascar. Forest loss between 1972 and 1985 averaged 428 square miles annually. Only 4 percent of the nation’s rain forest thought to have existed at the time of colonization some 1,500 years ago now is intact.

Tropical deforestation has a devastating environmental effect both locally and globally. Since the 19th century, global carbon dioxide levels have risen 30 percent, an increase scientists blame on the burning of fossil fuels and the cutting and burning of millions of trees that use and store the gas. The two practices in turn contribute to the greenhouse effect and impair the ability of some deforested areas to recycle rainfall.

Species of plants, animals and microorganisms are disappearing daily from Madagascar, a phenomenon traced chiefly to the practices of subsistence “slash-and-burn” farming and the cutting of trees for charcoal, the chief energy form in the Third World country. Deforestation, the maps reveal, is spreading even into reserves that the Malagassy government has set aside as protected areas.


If deforestation continues at the same pace in Madagascar, the authors warn, only forests on the steepest slopes will survive over the next few decades. Green and Sussman say that deforestation in Madagascar has been most severe in areas of high population over the past 40 years, although recently the percentage of deforestation in low-density areas is approaching the level of destruction mapped in high-density areas nearly a quarter-century ago.

While Madagascar’s eastern rain forest have drawn the most attention from world conservationists, Green and Sussman say the satellite images show that the southwestern dry deciduous forests also have been cut at an alarming rate in the past two decades. This phenomenon coincides with a large population boom, a severe economic downturn in Madagascar and mass migration to the cities. These forests are being cut primarily for charcoal use because the people cannot afford gas or electricity. A bag of charcoal costing roughly $2 a bag will last a family of four about two months. The southwestern dry forest, the scientists say, contains some of the most unique biological communities in the world.

For the most part, the largest tracts of rain forest left in Madagascar are in the northeast in areas of low population and relatively high altitude,” says Green. “Most of the remaining forest area in the country has simply been out of reach of the population.

Satellite mapping

The maps are highly valued by the science community because they are the only graphic documentation of deforestation in Madagascar showing a systematic and historical process at work. The Green-Sussman calculations show that roughly 14,700 square miles of rain forest were intact as of 1985, compared to 29,000 square miles in 1950. The eastern rain forest at the time of colonization in 500 A.D. is estimated to have extended over 43,200 square miles, according to Green.

Previous studies were ambiguous over whether the deforestation rate is increasing or decreasing,” notes Green. “Our study provides an example of how remote-sensing data can be used to map forest extent and to monitor deforestation. Landsat images are already available for most of the Earth’s tropical forests. Many of these images are nearly two decades old and thus provide a remarkable and, yet, to date, essentially unused data base.

The study was funded by the Fulbright Scholars Program, the Missouri Botanical Garden, National Geographic Society, Pew Midstates Science and Math Consortium, Washington University and the World Wildlife Fund.

The maps also are valuable as a source to explain the deforestation dilemma in a relatively inexpensive and simple manner, says Sussman.

“You can see the rain forest disappearing before your very eyes,” says the biologist and anthropologist, who, along with botanists at the Madagascar Botanical Garden of St. Louis, conceived the idea five years ago to measure the rate of deforestation by studying satellite images.

“At the time, no one knew how much rain forest was left in Madagas- car, and we wondered how it could be measured,” he says. “I was intro- duced to Glen, who was working on a doctorate in earth and planetary sciences at Washington University. His interests are in satellite imaging, inter- pretation of deforestation and forest conservation. It was a perfect match.”

To assemble his maps, Green used black and white multicamera Landsat images at the wavelength most comparable with the aerial photographs taken by French scientis- ts H. Humbert and G. Cours Darme in 1950. Green also purchased 65 neg- atives from the governments archival agency Earth Resources Observing System (EROS), located in Sioux Falls, South Dakota.
Deforestation — continued from p.1

Iowa. The negatives were produced from digital data that satellites beamed down by microwave. Green assembled 38 data sets into mosaics on a one-to-one-million scale that starkly reveal the decreased rain forest from 1973 to 1990.

Madagascar is home to approximately 200,000 species of life, which represents nearly five percent of the Earth's total biodiversity — the various forms of plants and microorganisms that live on the planet.

Through the process of deforestation, Madagascar broke away from mainland Africa at least 150 million years ago. And 50 million years ago it was on its pristine path of evolution, allowing the rapid development of thousands of species that evolved uncontested from other more advanced species elsewhere.

Among the more famous denizens unique to the island are the lemurs, which range over a few square miles (it's the fourth largest island in the world), are the lemur, the oldest form of primate in the world, and many species of cactus-like plants from the Dasylirion genus, plus hundreds of lesser-known plants and microorganisms.

Collaborative efforts key

Sussman, who has transferred his expertise in the study of the 24 living species of lemurs — 14 are known to be extinct — has made key contributions to wildlife preservation in Madagascar. He was a catalytic figure, with colleagues from Yale University and the University of Madagascar, in establishing Ifota Malahafaly, a government-protected reserve, which opened in 1978 to see the collaborative nature of his work with Green as an essential element in fostering the development of conservation biology.

"We'd like to see our study develop into a forum for others who are seeking to protect the world's environment," he says. "We began our work, I had no knowledge of mapping from satellite data, and Glenn knew only a little of Madagascar. Now our knowledge is more inter-changeable. Such collaboration is paramount to understanding ecological problems of the Third World."

Hertz PENSKE

For many students, it may seem like only yesterday that they were packing their belongings, saying goodbye to family and friends and heading to St. Louis to begin their fall classes at Washington University.

However, as the students enter their final week of classes, many are realizing that they not only have to worry about finishing papers and studying for finals, but how to get those prized possessions, ranging from 10-speeds to teddy bears, back home in a secure and economical way.

Each semester, some 500 students resolve their moving dilemmas by shipping property between their home and school residences through University Trucking, a student-owned and operated shipping company.

University Trucking will haul anything the student wants shipped. "We've even transported merchants students use in fine arts classes," proclaims junior Michael E. Jaffe, a French major from Long Island, N.Y., who runs the company along with his three business partners: [a. S. Berg, a business major from Purchase, N.Y.; Jason; A. Harkavy, a business major from North Brunswick, N.J.], and James C. Wolfson, a business major from Purchase, N.Y. The partners are all members of the Alpha Epsilon Pi fraternity.

The company was founded 12 years ago by two other fraternity members and was passed along to the partners by their fellow fraternity brothers.

Students who send goods back home through Jaffe's service get their possessions picked up at their door-step by a University Trucking employee. The worker then transports the wares to one of the company's two rented Hertz trucks stationed at the First Congregational Church of St. Louis near the residence halls. The company serves students who live on and off campus.

The next day, Jaffe and his partners drive the 24-foot Hertz trucks to the students' East Coast homes.

University Trucking stops in 11 municipalities, including those in the Washington, D.C. area, Connecticut, New York City, Boston, Philadelphia and cites located on the northern and southern shores of Long Island and New Jersey.

When students are ready to ship their property back to the University for the fall semester, they can arrange to have the goods picked up at their homes or they can drop packages off at central locations. Because the fall semester is the company's busiest, Jaffe and his partners hire professional drivers, equipped with 53-foot trucks, who transport the students' wares to the University. The goods are conventionally stored for the students until they return to campus.

"We transport 10,000 students every fall semester," adds Jaffe. "Our company offers students a convenient and economical way of moving property. He points out that University Trucking, stationed on the South 40, picks up and makes deliveries directly to the students' rooms, whereas most commercial companies only deliver packages to the Wohl Center mailroom and students must later pick them up. That can be quite a hassle when you have five to 15 items to pick up, he says. Except for furniture, University Trucking customers are required to pay a $7.50 service charge per item.

17th-century Italian and German music is focus of meeting featuring concerts

The American Heinrich Schutz Society Conference will be held from 2 to 5 p.m. on Friday, April 27, and from 9 a.m. to 5 p.m. Saturday, April 28, in Brown Hall Lounge.

The conference, which includes panel discussions and paper presentations, will examine "Cross-Currents Between Italian and German Music in the Seventeenth Century," and "Choral Works of Heinrich Schutz," as well as "The American Schutz Society and of the performance and study of music by Schutz and his contemporaries.

Jeffrey Kurtzman, Ph.D., chair of the American Heinrich Schutz Society, and of the University of University's Department of Music, is organizer of the event.

The conference is free and open to the public, is sponsored by the Department of Music. For more information, call 869-5574.

Van continued from p. 1

studied in Italy with fellow composers Giovanni Gabrieli and Claudio Monteverdi. The American Schutz Society is a member of the International Heinrich Schutz Society, which promotes the performance and study of music by Schutz and his contemporaries.

Jeffrey Kurtzman, Ph.D., chair of the American Heinrich Schutz Society and of the University of University's Department of Music, is organizer of the event.

The conference is free and open to the public, is sponsored by the Department of Music. For more information, call 869-5574.

Tony Fitzpatrick
Go ing home—pack all their belongings in boxes or trunks.

Additionally, Jaffe says his company's prices are based solely on the size of the items, rather than the customary weight and destination, which make other delivery service rates higher. "Basically we set our prices according to our costs. Our motive is to serve the students rather than build profits. We're just a student organization working for students."

In an effort to thank the students for their patronage, University Trucking has donated funds to Residential Life that provided a videocassette recorder for residents living in Shepley Hall. "Because the students showed faith in us, we wanted to do something for them," says Jaffe.

Throughout the process of running the company, the owners have developed a high level of business acumen and, in the process, also learned more about themselves. Jaffe became a partner in University Trucking as a freshman, during a time, by his own admission, he was "unusual about everything." But "running your own business builds character and self-confidence because you are taking care of other people. From placing advertising in Student Life, to taking care of other people. From placing advertising in Student Life, to coordinating moving schedules, I've learned how to make everyone happy." He also has developed a knack of answering questions about the University from parents. Each June the partners mail letters to parents of freshmen. The letters explain the business' operations and welcome the families to Washington.

"The parents call and ask me all sorts of questions, such as what type of carpeting should they buy for their children's room; how many times have I stayed up all night studying for a test; and what is it like running my own business," notes Jaffe. "In many ways, I feel like part of an orientation committee, but I don't mind. It's fun to talk to parents."

Jaffe's flexibility will be needed in May when, along with two new employees, he will haul students' possessions across the East Coast without assistance from his three partners, who are all studying abroad this semester. He's ready for the challenge. "This will be my fifth, maybe sixth," he says. "I'm a professional. There's no doubt I can do it."

Carolyn Sanford

Other movers and shakers

University Trucking is one of two student-operated transportation companies on campus. The other is East Coast Express, which is owned and operated by Andy Caplan, a junior in the business school, Chuck Cohen, a junior in political science and business, Adam Pogach, a junior in political science; and Pete Sanders, a senior in economics. They all hail from the East Coast as well and are Zeta Beta Tau fraternity brothers. Incorporated in the state of New Jersey, East Coast Express services 11 stops that include New York City, Scarsdale, N.Y., Livingston and Paramus, N.J., and Philadelphia. The company's first operating season was spring 1989.

Tony Nowak, who works with both companies in his position as director of Residential Life, says, "I really respect what the two companies do. The marvelous service they provide exceeds that of any other commercial company because they're more convenient and economical." His department allows the companies to store their trucks on the South-40.
**Equilibrium problems prevalent as people age**

The apparently simple accident of falling down — you trip, you fall — is being revealed as the complicated and serious problem it actually is by researchers at the School of Medicine. Not only do elements of the human balance system degrade with age, but with them goes the brain's ability to compensate for those changes, says balance expert Gary D. Paige, M.D., Ph.D. Together, the decreases in capacity help explain why people fall more frequently as they age.

Paige's data indicate that a decline in the performance of the body's "guidance system," as he calls it, is universal. "Falling is a function of two factors: the propensity to fall and the opportunity to fall," he says. "Everybody seems to develop a degeneration of the balance system that leads to an increased propensity." Falling is a serious public health problem, especially in those aged 65 and older, when it gains epidemic proportions," according to Paige. Studies show that among the elderly, 25 to 50 percent experience a fall during the course of a year. Fully one quarter of all hospital admissions of patients aged 65 and older are directly attributable to falling, and more than 200,000 hip fractures result from falls each year in this country alone.

In his most recent research, Paige and his team investigated the vestibulo-ocular reflex, or VOR, a primitive and robust reflex that keeps the eyes stationary when the head moves. That reflex, a critical component of balance and orientation in space, most likely evolved as a survival mechanism to allow the head and body to move erratically while keeping a visual image steady on the retina, says Paige. Providing information from the vestibular organ, the brain's ability to compensate, Paige studied 60 normal subjects, aged 18 to 89, challenging their balance systems in experiments that come closer to recreating real-world circumstances than any previously done. He designed a series of tests using a computer program that moves at precise speeds and distances, a special contact lens, and two-power binocular glasses. Results, presented at the 19th Annual Meeting of the Society for Neuroscience in 1989, show that older subjects — those 65 and above — do not maintain gaze as well as their younger counterparts and that their ability to adapt to that loss is deficient beyond age 65.

Subjects first were checked for normal vision, hearing and vestibular function. Their balance systems were evaluated on a machine that recorded postural adjustments when the surface on which they stood moved sharply or undulated beneath their feet. Subjects were then seated in the rotary chair, a computer-driven device that moves precisely through arcs with speeds as great as 300 degrees per second and, when traveling at smaller velocities, can reverse direction as often as eight times an hour. When their heads were fixed in place firmly but comfortably so that the only motion possible was that imparted by the chair, Paige placed a contact lens, consisting of a ring of soft plastic that houses a coil of copper wire about the size of a human hair, into a subject's anesthetized eye. A large hole in the middle of the lens facilitated clear vision, and subjects were instructed to focus on images projected onto a screen surrounding them. A second coil was placed on their foreheads. When an electromagnetic signal was generated around the head of the subject, any motion of eye or head created a small, discrete electrical current in the coil, allowing precise detection of its position and, therefore, the corresponding position of the eye.

**Movements quantified**

Using computer algorithms written in the lab, Paige was able to relate head movement to the right, for example, to eye movement to the left, thereby measuring with extreme accuracy the subject's VOR. By relating the response (eye movement) over the value for the stimulus, (head movement), Paige arrived at the representation of the subject's VOR performance. That value he called "gain." An equally important value, called "phase," quantified synchrony of eye and head movement.

Older subjects, those 65 and above, showed smaller gains and poorer synchrony. The differences were not apparent at lower head velocities, but as the circumstances began to approach real-world conditions, "like looking left and right before crossing the street," Paige says, older subjects' gains dropped and synchrony declined in direct relationship to age. Younger patients stayed nearly constant. Paige's rotary chair, along with the computer programs that drive it, make up one of the world's only facilities capable of so closely replicating lifelike conditions in the laboratory.

**Creating 'mixed signals'**

To assess the brain's ability to correct for changes in the vestibular system, Paige went on to challenge his subjects with combinations of visual and kinesthetic stimuli. He asked his subjects to wear two-power glasses for eight hours, after which they were evaluated in the rotary chair a second time. "When you put on the binocular glasses, suddenly your brain starts to think of them as part of your body," he explains. "Your eyes send information that says you have moved two units left. When the head turns, the visual world appears to shift and blur. The brain detects the mismatch and adjusts the VOR by employing mechanisms to boost its performance.

Paige did not expect subjects to have completely adjusted by the end of eight hours, but "after wearing the glasses, you see measurable adaptation, and I can place them on the curve. By the end of the day, their brains are recalibrating so that the reflex behaves more closely in accordance with its goal," he says. Perfect adaptation would be expressed by a gain of 2 or 100 percent. Paige says the system of plastic adaptation is capable, given enough time to adjust, of reaching about 70 percent. Although the VOR is a true reflex, its performance is modified by experience. Current thinking is that we are born with an arbitrary value and that our experiences with visual and vestibular interaction fine-tune the system. Again, results showed the relative capability of the brain's adaptive plastic mechanism to be clearly related to age. In one protocol, subjects younger than 50 displayed an average increase in VOR gain of 45 percent after a day adapting to the glasses. Older subjects managed a maximum increase of only 30 percent. And when the chair moved at four cycles per second — the rapid oscillation that duplicates glancing back and forth — older subjects did even worse: Younger people still managed an adaptive increase of 22 percent, their more senior counterparts displayed only a two percent change.

Says Robert Baloh, professor of neurology at the UCLA Medical School, "This work gets at the specific pathophysiology of falling. Earlier studies focused mostly on environ mental and sensory mechanisms. We're dealing with the source and its relation to the changes caused by aging and those who are not. He is now exploring the value of using the glasses as a tool for quantifying clinical patients' adaptive capabilities.

When tumors interfere with nerve function from the ear, balance can be seriously impaired. Sometimes the appropriate surgery requires cutting the nerver. In those cases, patients must learn to adapt to a vestibulo-ocular system that is one-sided. Paige believes previous experience with the two-power glasses may prepare patients for coping with that change.

Paige thinks of balance as a true "sixth sense." He says, "you can take stock of it, you know when you're tipped or moving, even in the dark. But unlike the other senses, you can't shut off the system. And because it works 24 hours a day, it is not an adaptation." Not until it begins to degrade with age and every step becomes tenuous.
RARE FUNGUS CAUSES SINUS INFECTION

Physicians at the School of Medicine have reported the first case in the United States of a sinus infection caused by a fungus rarely seen in humans.

The unusual case was presented recently during a panel discussion at the American Academy of Allergy and Immunology's annual meeting in Baltimore.

The fungus, Sinus Zygomycosis, is a chronic inflammation of the sinus cavities caused by a fungus called Conidiospora incongruus. Although it has been found in horses, the fungus has been reported only twice before in humans. Now, it has been described on the face of a 23-year-old man from Queens who has a history of allergies and chronic sinus issues.

Kornfeld's work receives MERIT award

Stuart A. Kornfeld, M.D., and Rosalind Kornfeld, Ph.D., professors of medicine and biochemistry at the School of Medicine, have been awarded the MERIT award by the National Institute of Health.

The five-year grant from the National Cancer Institute, part of the NIH, totals $1,715,012. The funds will enable the Kornfelds to continue their research on the biochemistry of lysosomes, or little stomachs, that are responsible for breaking down waste products in the cell.

Kornfelds' work receives MERIT award

The Kornfelds have been recognized for their outstanding research, which has led to a much greater understanding of the mechanisms that control cell death and the potential for new therapies. Their work has been supported by the National Institutes of Health for 25 years, based on an expedited review of their work accomplished during the initial period.

The Kornfelds have helped to explain how glycoproteins, molecules with sugar and protein components, are synthesized by cells. In particular, they have elucidated the complex machinery used by cells to form the carbohydrate units of glycoproteins. These glycoproteins are important in the development of infectious diseases, as they play a role in the ability of pathogens to evade the immune system.

The Kornfelds have also been recognized for their contributions to the field of medical education. They have been on the faculty since 1969 and have contributed to the training of numerous generations of medical students and residents.

The Kornfelds' research has been supported by the National Institutes of Health for 25 years, based on an expedited review of their work accomplished during the initial period. This recognition is a testament to their dedication to the field of medicine and their contributions to the advancement of medical knowledge.

Asbestos expert to deliver Sutter lecture

A world-renowned expert on asbestos and asbestos disease will deliver the ninth Richard A. and Betty H. Sutter Visiting Professor Lecture in Occupational and Industrial Medicine, Thursday, May 3, at the School of Medicine.

Irving J. Selikoff, M.D., professor emeritus at Mount Sinai School of Medicine, will present his 9:30 a.m. lecture "Preventing Asbestos Disease," in Clancy Amphitheater. Dr. Selikoff worked with Andrew A. Audubon, an expert in the field of occupational health and safety, to conduct his research.

Selikoff, who is also professor emeritus of community medicine at Mount Sinai, is renowned for his expertise in environmental health research and public health concerns. He has received numerous honors and awards for his work and has served in various editorial capacities for such journals as Environmental Research, American Journal of Industrial Medicine, and Preventive Medicine.

Sutter lecture program is in its ninth year, and the series is supported by the Sutter Health Foundation.

The lecture series is open to the public and is free of charge. To register, please call 203-784-2000. For more information, visit the Sutter Health website at www.sutter.org.
Investigator award will be presented to Jeffrey Gordon

Jeffrey I. Gordon, M.D., a physician and biochemist at the School of Medicine, has been selected to receive the 1990 Young Investigator Award from the American Federation for Clinical Research.

The award, which includes a $20,000 prize, will be presented at the annual meeting of the Federation, April 23-27, in Washington, D.C. In addition to Gordon, a pioneer in the field of biochemistry and molecular biophysics, will present his work at the AFCE plenary session.

For the last eight years he has studied a family of lipid-binding proteins and their genes, using a variety of methods. His lab was the first to use transgenic, or genetically engineered, mice to study how the genes work. The proteins, expressed in different intestinal cells and in different regions of the intestine, affect the balance of fatty acids and proteins in the body. The new compounds resemble myristic acid, a rare, naturally occurring fatty acid that apparently must be present in order for some viruses, including the AIDS virus, to replicate.

The enzyme N-myristoyltransfere links myristic acid to specific viral and cellular proteins, including certain retroviruses like the AIDS virus. Gordon has developed a new type of transgenic mice to study the viral and cellular proteins and how fatty acids and proteins interact.

In a recent study, his team's analysis of the enzyme N-myristoyltransfere led to the development of a new class of compounds that inhibit replication of the AIDS virus in cultured human white blood cells. The new compounds resemble myristic acid, a rare, naturally occurring fatty acid that apparently must be present in order for some viruses, including the AIDS virus, to replicate.

The Young Investigator Award also recognizes Gordon for his accomplishments as a teacher. For the past several years he has attracted a large number of M.D.-Ph.D. and M.D. students to his lab. He is co-director for an introductory molecular biology course given to all freshmen medical students at the School of Medicine. In addition to Gordon, a pioneer in the field of biochemistry and molecular biophysics, will present his work at the AFCE plenary session.

The recent developments in the Gordon lab have synthesized new compounds that are structurally similar to myristic acid, yet have different chemical and physical properties. The new compounds "fool" the enzyme N-myristoyltransfere into recognizing and then transferring them to some cellular and viral proteins.

Once transferred, these compounds block the normal function of a family of proteins that are found in the case of certain retroviruses like the AIDS virus. Replication is blocked without viral proteins. Transferring them to some cellular and viral proteins (including causing proteins or oncogenes). The research is part of a larger effort to understand how the muscle mass of elderly men can adapt to weight-training exercise by increasing their muscle mass. This research was combined with a weight-lifting study. In one study, increased muscle mass and strength similar to that of volunteers half his age. Researchers have only recently been able to conduct studies gauging improvement in muscle mass and strength using growth hormone because the hormone was in limited supply. Now scientists have the capability to produce a synthetic version of the hormone, the same substance given to children with short stature in the lab.

Researchers hope to extend their observations to include studies that examine the effects of weight lifting exercise on other age related problems such as the loss of bone density (osteoporosis), high cholesterol, increasing body fat and the diabetes that occurs as a result of increased body fat and loss of muscle mass.

People who live in the St. Louis area, are 65 to 75 years of age and in overall good health, are invited to call Yarasheski at 362-8914 about becoming a volunteer in the program.

Kevin Yarasheski, Ph.D., monitors Clarence Tunnicliffs workout.

New compulsive disorder support group

Persons suffering from obsessive compulsive disorder (OCD) and their families can now receive the support they need with the establishment of a chapter of the Obsessive Compulsive Foundation Support Group at the School of Medicine.

OCD, which affects about 5 million people in the United States, is characterized by recurrent, unwanted and unpleasant thoughts and/or repetitive rituals behaviors. OCD sufferers know their obsessions and compulsions are irrational or exces-
University is committed to drug-free workplace

In order to continue receiving federal grants and contracts, Washington University must certify that it conforms with federal standards for a drug-free environment. A copy of the certification form is reprinted here. You will note that the University must:

a) Publish a policy statement and make certain that all individuals engaged in grant or contract work have a copy. The statement, which has been approved by both the Senate Council and the Executive Faculty, appears below.

b) Establish a drug-free awareness program. Information is included in the FY-89 certification.

c) Institute appropriate sanctions against individuals convicted of violating drug laws.

These federal rules underscore the importance of a drug-free workplace. Anyone with substance abuse problems is encouraged to seek confidential counseling through Mary L. Parker, M.D., director of University Health Services.

Policy statement

It is the goal of Washington University to protect the public health and environment of members of the University community by promoting a drug-free environment.

In accordance with the recently enacted legislation it is unlawful to manufacture, distribute, dispense, possess or use illegal drugs at Washington University.

Violations of the drug-free policy will be handled according to existing policies and procedures covering the conduct of administrators, faculty, staff and students.

Training programs are being developed to provide information about creating and maintaining a drug-free environment.

Referrals to drug counseling and rehabilitation programs are available to the University community. Information about counseling and rehabilitation programs may be obtained from: Students, University Health Services, 889-6666; Hilltop Campus, Personnel Office, 126 North Brookings Hall, Box 1184, 889-9996; Medical School, Lisa Poor, Dean's Office, Box 8106, 362-6940; Dental School, Dr. Thomas Schill, Box 8100, 544-0950.

Approved by Executive Faculty on 12/7/88; approved by Senate Council on 1/20/89.

FY-89 Certification Regarding Drug-Free Workplace Requirements Grantees Other Than Individuals

This certification is required by the regulations implementing the Drug-Free Workplace Act of 1988, 24 CFR Part 85, Subpart F. The regulations, published in the January 31, 1989, Federal Register, require certification by grantees, prior to award, that they will maintain a drug-free workplace. The certification set out below is a material representation of fact upon which reliance will be placed when the agency determines to award a grant. False certification or violation of the certification shall be grounds for suspension of payments, suspension or termination of grants, or governmental suspension or debarment (see 54 CFR Part 85, Sections 85.615 and 85.620).

The grantee certifies that it will provide a drug-free workplace by:

(a) Publishing a statement notifying employees that the unlawful manufacture, distribution, dispensing, possession or use of a controlled substance is prohibited in the workplace, and is prepared by Gloria W. White, vice president and dean of the Personnel Office, Room 126, North Brookings, Box 8106, 362-7500.

(b) Making it a requirement that each employee to be assigned in the performance of the grant be given a copy of the statement required by paragraph (a).

(c) Notifying the employee in the statement required by paragraph (a) that, as a condition of employment under the grant, the employee will:

(1) Abide by the terms of the statement; and

(2) Notify the employer of any criminal drug statute conviction for a violation occurring in the workplace no later than five days after such conviction.

(d) Notifying the agency within 10 days after receiving notice under subparagraph (a)(2) from an employee or otherwise actual notice of such conviction;

(1) Taking one of the following actions, within 30 days of receiving notice under subparagraph (a)(2), with respect to any employee who is so convicted:

(a) Taking appropriate personnel action against such an employee, up to and including termination, or

(b) Requiring such an employee to participate satisfactorily in a drug abuse assistance or rehabilitation program approved for such purposes by a Federal, State, or local health, law enforcement, or other appropriate agency.

(g) Making a good faith effort to continue to maintain a drug-free workplace through implementation of paragraphs (a), (b), (c), (d), (e) and (f).

Professional job searches are under way

Washington University is conducting searches to fill professional positions on the Hilltop Campus. For complete job descriptions and qualifications required for these positions, call the Personnel Office at 889-5990.

Directors of Engineering Central Services (ECS)

Responsibilities include overall operation of the ECS teams and services that includes Publications, Copy Center, Machine Shop and General Administration. Provide technical services to maintain the physical, safety and housekeeping records of the engineering school buildings. Initiate and conduct contract services necessary to design and construct renovations within the engineering school buildings.

Qualifications: B.S. from an accredited institution or equivalent work experience in related areas. Send resume with salary history to: Mary C. Stillwell, Personnel Officer, Division of Administration, Washington University, School of Engineering and Applied Science, Hilltop Campus Box 1163, One Brookings Drive, St. Louis, MO 63130.

Associate Director of Corporate and Foundation Relations and Development for the Center for the Study of American Business (search extended)

Washington University is seeking an individual with a skilled and experienced individual to work with Corporate Development. As an Associate Director of Corporate and Foundation Relations, responsibilities will include: identifying, cultivating and soliciting corporations and foundations; providing staff support for the University's Corporate Partners program; serving as a resource to senior administrative officials; coordinating the University's project and prospect clearance process; and coordinating the proposal development process.

Responsibilities as director of development for the Center for the Study of American Business will include identifying, cultivating and soliciting individuals, corporations and foundations for annual support; and coordinating a small development group to assist with the solicitation of major donors.

A college or university degree is required; master's preferred. Three years of experience in corporate and foundation relations or a closely related field; experience in proposal development, prospect research and/ or foundation relations preferred.

Send letter of application, vita, and the names of three references to: Dr. Randy Farmer, Director of Corporate and Foundation Relations, Washington University, Campus Box 1193, One Brookings Drive, St. Louis, MO 63130.

In addition to the professional searches, qualified candidates are being sought to fill secretarial, clerical and technical positions. Information about these positions is available through the Personnel Office, Room 126, North Brookings, 889-5990, or the Medical Campus Personnel Office, 1130 Hampton Ave., 726-7500.
**CALENDAR**

**April 26-May 5**

### LECTURES

**Thursday, April 26**

- 2:30 p.m. Dept. of Mechanical Engineering Colloquium, "Boundary-layer Receptivity to External Disturbances," K. W. Whitten, McDonnell Douglas Research Laboratories. Room 100 Cupples B.

- 5:30 p.m. Assembly Series Lecture by Jorge Pagola, emeritus professor and former president of the Institute of Policy Analysis, Moscow. Women's Rugby Lounge. For more information, call 889-6453.


**Friday, April 27**


- 4 p.m. Dept. of Pathology Analysis Seminar, "Thorium's Conjecture for Non-isosceles Cages." Ken Stephenson, Dept. of Mathematics, U. of Tennessee. Room 199 Cupples B.

**Monday, April 30**

- 4 p.m. Dept. of Biology Seminar, "Clastic Methods for Inferior Rocks of Georgia." Montgomery Martin, Dept. of Integrative Biology, U. of Calif., Berkeley, Room 422 Rehearsal Hall.

**Tuesday, May 1**

- 4-5 p.m. Dept. of Chemistry Symposium, "NMR Spectroscopy of Marek's Disease," Jeffrey W. Lewis, prof. of chemistry, M.T. Rool 311 McKeldin Lab.

**Wednesday, May 2**


- 4 p.m. Assembly Series Lecture by anthropologist, "Cladistic Analysis of Prehistoric Baskets." Jennifer Berube of the National Legislation and Witness for Peace. (Witness was an observer of the February elections in Nicaragua.) Hurst Library, Room 4914, South Bldg.

**Thursday, May 3**


- Noon. School of Medicine 57th Annual Alpha Omega Alpha Lecture, "Responsibilities of the Physician: A Pedagogical Perspective," P. Seskin-Gale, WU prof. of pediatrics and assoc. prof. of cell biology and physiology, Clifton Amphitheater, 4995 Audubon Ave.


- 4:30 p.m. Dept. of Mathematics Colloquium, "Elliptic Regularity Results." Martin Schechter, Reading, England. Room 199 Cupples B.


- 6 and 8:30 p.m. Washington University Association Travel Lecture Series, "Untangled, Mythic Life of Ceylon," George Lange, fellow, Explorer's Club. Graham Chapel. For ticket info., call 889-5122.

**Lectures**

**Thursday, April 26**

- 8 p.m. Dept. of Music Symposium: Presents Music of the WU Collegium Musicum, directed by Bruce Carvell. Graham Chapel. For more information, call 889-5574.

**Friday, April 27**

- 2:30 p.m. Dept. of Music Symposium: "The Encircling Angel." 82 Brown Hall.

**Films**

**Friday, April 27**

- 7 p.m. Filmboard Series, "Body Heat." (Also Sat., April 28, same time, and Sun., April 29, at 7 p.m.) 8 p.m. Filmboard Series, "Remembering Angel." 82 Brown Hall.

**Midnight, Filmboard Series, "9 1/2 Weeks."" (Also Sat., April 28, same time, and Sun., April 29, at 7 p.m.) On Fri. and sat., both the 9:30 p.m. and midnight films can be seen for a double feature price of $2, both films can be seen for $3. Brown Hall.

**Monday, April 30**

- 7 and 9:30 p.m. Filmboard Series, "You Can't Take It With You." (Also Tues., May 1, same time, and Wed., May 2, 7:30 p.m.) 8 p.m. Filmboard Series, "The Hustler." (Also Sat., May 5, same time, and Sun., May 6, at 7:30 p.m.) 8 p.m. Filmboard Series, "Lister." Brown Hall.

**Midnight, Filmboard Series, "Past Times at Ridgemonk."" (Also Sat., May 5, same time, and Sun., May 6, at 9:30 p.m.) On Fri. and Sat., both the 9:30 p.m. and midnight films can be seen for a double feature price of $2, both films can be seen for $3. Brown Hall.

**Sports**

**Saturday, April 28**


- 1 p.m. Men's Baseball. WU vs. Harris-Storme College. Kelly Baseball Field. Admission free.

- 4 p.m. Men's and Women's Outdoor Track. WU Qualifying Meet. Busch Stadium.

**Miscellany**

**Thursday, April 26**

- 4:30 p.m. Millis Institute School of Fine Arts 61st Art. Fashion Show, featuring work by students in the Fashion Design program. Sponsored by the Women's Student Association. Admission free. By WU's Women's Society: follow 8 show. "Sandal Heels." (Also Sat., April 28, same time.) For more information and admission cost, call 889-6575. Admission free. At WU's Women's Center. Admission free. For more information, call 889-6521. Admission $10 for general public, $2 for senior citizens, students and WU faculty and staff. For more information, call 889-6453.

**Friday, April 27**

- 4:30 p.m. Dept. of Music Presents a Concert of German and Italian Music of the 17th Century. The concert will feature the U. of Illinois Chamber Choir, Chester Alves, director, and the WU Chamber Choir, Janet Krupnik, conductor. Our Lady of Lourdes Catholic Church, 7148 Pougatch Blvd. For more info., call 889-5574.

**Saturday, April 28**

- 7:30 p.m. Dept. of Music Presents a Concert of Italian Music, featuring S. Shashidhar on voice, and students. Admission free. By WU's Women's Society: follow 8 show. "Sandal Heels." (Also Sat., April 28, same time.) For more information and admission cost, call 889-6575. Admission free. At WU's Women's Center. Admission free. For more information, call 889-6521. Admission $10 for general public, $2 for senior citizens, students and WU faculty and staff. For more info., call 889-6453.

**Sunday, April 29**

- 10 a.m. Dept. of Music Presents a Concert of 17th-century Music for Voice, Harpsichord and Organ, featuring soprano Christine Amied and Carl Smith on harpsichord and organ. Trinity Presbyterian Church, 6800 Washington Ave. For more info., call 889-5574.

**Monday, April 30**

- 8 p.m. Dept. of Music Presents WU's Chamber Ensembles. Performance includes the Flute Choir, String Quartet and Cello Quartet, featuring Stephanie Ellis on cello, and the WU Chamber Choir. For more info., call 889-5574.

**Tuesday, May 1**


**Wednesday, April 29**

- 12:30 p.m. WU Women's Club Annual Meeting and Spring Luncheon, Sunset West, Clayton Center, at corner of Clayton and Kirby Mill roads. Cost: $12 for members and guests. For more information, call 722-1053 or 256-4899.

**Friday, April 30**

- 11:30 a.m. WU Women's Club Annual Meeting and Spring Luncheon, Sunset West, Clayton Center, at corner of Clayton and Kirby Mill roads. Cost: $12 for members and guests. For more information, call 722-1053 or 256-4899.

**Calendar Deadline**

The deadline to submit items for May 5-12 calendar of the Washington University Record is April 17. Items must be typed and state time, date, place, nature of event, sponsor and admission information, if applicable. Items must be typed and state time, date, place, name and telephone number. Send items to Andrew Cox, calendar editor, Box 1070, or by electronic mail to p72245ac at WUVMC.