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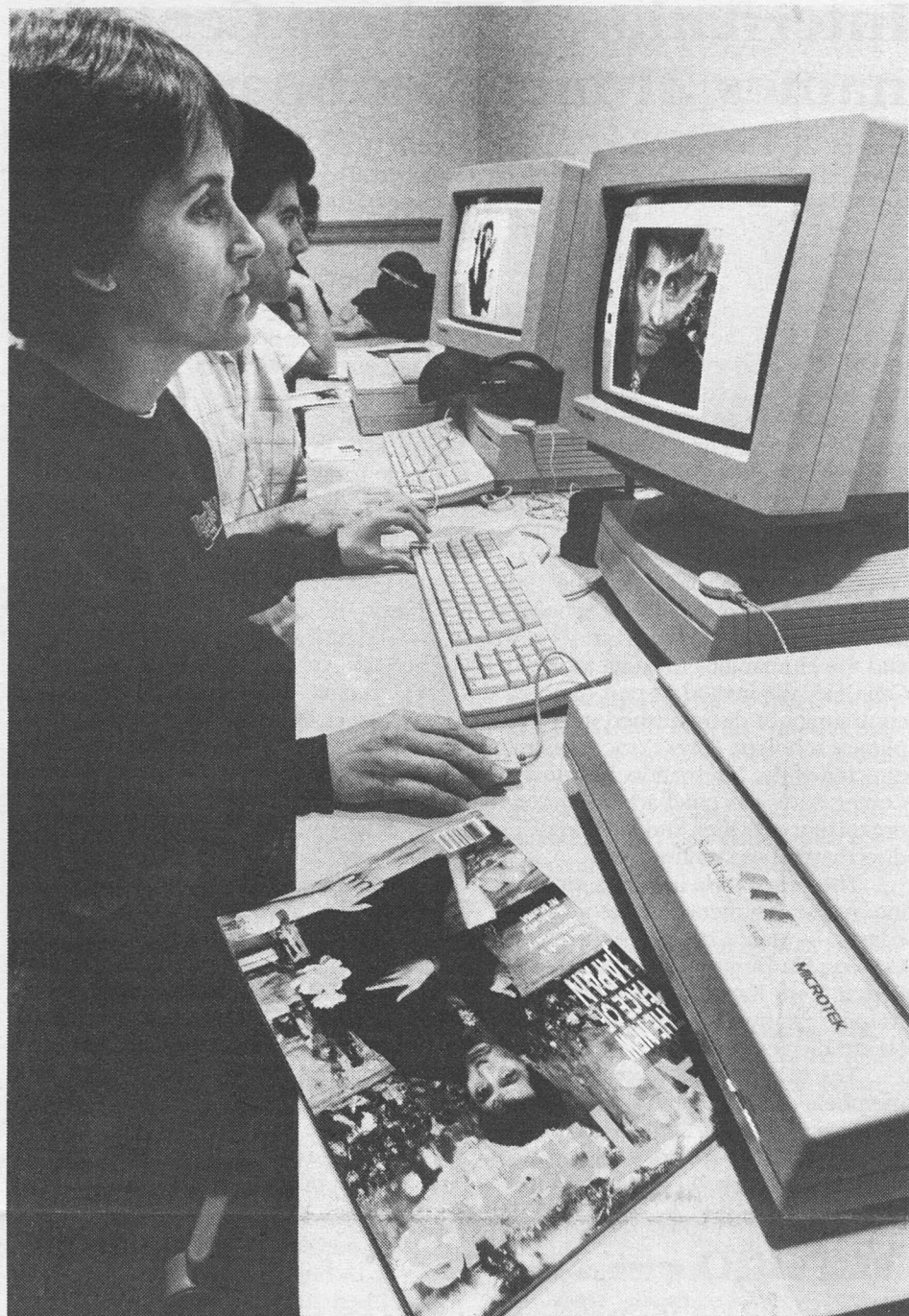
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RECORD

Washington
WASHINGTON · UNIVERSITY · IN · ST. LOUIS

Vol. 16 No. 4/Sept. 19, 1991



Paula Shryne, a second-year graduate student in printmaking, experiments with electronic equipment in the new media center at the School of Fine Arts. Using the computer, she was able to scan the magazine cover of Artnews and alter the face of the person shown on the cover.

Carolyn Roehm Electronic Media Center established at School of Fine Arts

Carolyn Roehm, a 1973 graduate of the School of Fine Arts and a trend-setter in the high-profile world of haute couture, and her husband, financier Henry Kravis, have given her alma mater \$100,000 to create a state-of-the-art electronic media center, Chancellor William H. Danforth has announced.

The donation by Roehm and Kravis has established the Carolyn Roehm Electronic Media Center in the school's Lewis Center, 721 Kingsland Ave., in University City. The facility houses almost 20 computers that can do everything from page design to video animation and editing.

"We are grateful for Carolyn Roehm's and Henry Kravis' interest in and support of the School of Fine Arts," says Danforth. "The media center will be an invaluable resource for students and faculty alike and we are delighted that it will carry the name of one of our most distinguished graduates."

"This gift has enabled us, in one step, to put together a well-planned, coordinated facility that would have taken years to assemble, one piece at a time," says Joe Deal, dean of the School of Fine Arts.

Roehm's gift was particularly timely, says Sarah Spurr, assistant dean. Even before the donation, the faculty realized the need for an electronic media center in which students in the various majors could do everything from design advertising campaigns, experiment with different perspectives and light sources or even model fashion designs on moving mannequins on screen.

Beginning in 1989, Spurr chaired a five-person committee that explored

incorporating electronic media into the School of Fine Arts.

Spurr was assisted by several School of Fine Arts professors who already were exploring the use of computers in their work. Painter Bill Kohn, for example, had used the computer to help him visualize his monumental series on the Grand Canyon, titled "Rim to River," which was exhibited last year at the Randall Gallery in St. Louis.

These professors combined their experiences to determine the type of facility that would best benefit the fine arts students. The group decided to integrate electronic media into the existing program as a teaching tool rather than establish a separate major.

"The beauty of this facility is that it is very interdisciplinary," says Spurr, a longtime advocate of liberal arts education for artists. "As you look down the road, the barriers between different art media are blurring. Art education is about further breaking down those barriers."

Lecturer and research assistant Hal Bundy, an artist who has been trained in computer technology, will head the center, which is divided into three rooms.

The first room has eight Macintoshes and will be used mostly for graphic design and illustration. The second room is a mix of Macintosh and Amiga computers. The Amigas can interface with video animation and drawing programs. One Amiga also will be set up as a "video-toaster," which can create three-dimensional renderings of either static or animated

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Revolutionary computer model puts new spin on vertigo

Like many major league baseball players, Nick Esasky of the Atlanta Braves saw the 1991 baseball season as a year of hope after an off-year in 1990. Unlike other players, though, the strapping slugger was trying to recover from a truly nightmarish season that reads like a Hitchcock movie script.

Last year, Esasky suffered from an enigmatic, haunting bout of vertigo. A baffling condition associated with the intricate geometry and mechanics of the inner ear, vertigo renders its victims dizzy, nauseous and visually impaired. Esasky, a first baseman accustomed to fielding more than a dozen baseballs in a game, some of them moving more than 100 miles an hour, saw ghosts and shadows on the white orb and was not always certain how the ball got into his glove. At the plate, he couldn't follow 90-mile-per-hour pitches. He began to fear for his safety in a sport that demands the most exquisite hand-eye coordination.

After playing only nine games, he sat out the 1990 season and submitted to a merry-go-round series of more than 30 examinations at clinics throughout the country. His condition is not life threatening, but he has spent almost all of the 1991 season again on the disabled list, still suffering from vertigo.

Physicians and scientists now have a model that may one day help them better understand and eventually diagnose the causes of vertigo and associated conditions of the inner ear, such as Meniere's disease, which strike thousands of people yearly. Richard D. Rabbitt, Ph.D., assistant professor of mechanical engineering, has developed a mathematical model of the vestibular end organ, the complex of components in the inner ear that is aligned with the visual system and which gives all mammals, including humans, their sense of equilibrium and motion. The three-dimensional model is the most advanced portrait of the semicircular canals ever computerized.

The system, which Rabbitt designed after studying organs in human cadavers, is the first mathematical computer model of the inner ear to accurately follow the firing rate of innervated sensory hair cells when the head moves quickly from side-to-side. Sensory hair cells send messages to the

brain; in the case of the vestibular end organ, the message relates to balance and equilibrium. The new model also reveals far more information about the biophysics and geometry of the vestibular end organ than previous models. Rabbitt envisions the model as one day being part of a computer expert system that will aid clinicians in diagnosing vestibular disorders. Also, the model could help scientists better understand the effect of microgravity on astronauts who suffer from space sickness.

"Because the model predicts the excitation of the hair cells, and is based on the detailed structure of the organ, you can change the parameters around, which helps you study the function of the system," he continues. "You can factor in a physical effect as a model input and make predictions without going in and doing anything to an animal or a patient. We hope it will allow clinicians to work backwards — they see something wrong with the patient and use the model to pinpoint pathological conditions that might be causing the symptoms."

Rabbitt and his graduate student, Edward Damiano, Ph.D., now a doctoral student at Rensselaer Polytechnic Institute, digitized the geometry of the tiny organ from photomicrographs. To give an approximation of scale, the semicircular canals — major components of the organ — are so small that three of them can fit on a dime.

The research, which spanned three years, was sponsored by a National Science Foundation Presidential Young Investigator's Award. Rabbitt presented a paper detailing the development of the model at the American Physical Society's conference, held March 20, 1991, in Cincinnati. The paper soon will appear in the *Journal of Fluid Mechanics*.

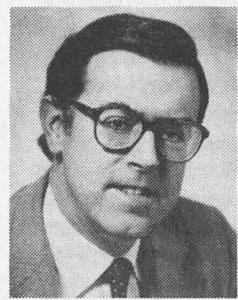
William Van Buskirk, Ph.D., dean of the School of Engineering at Tulane University, developed what long had been considered the best mathematical model of the vestibular end organ in the early 1970s when he was at Stanford University and later at Tulane. The idea then was to use the model to understand the sources of motion sickness in astronauts, to this day an inevitable consequence of space travel.

Continued on p. 2

Politics of rich and poor topic of discussion

Political analyst Kevin Phillips will discuss "Politics of Rich and Poor" at 11 a.m. Sept. 25 in Graham Chapel. His lecture, part of the University's Assembly Series, is free and open to the public.

Phillips, author of the bestseller *The Politics of Rich and Poor: Wealth and*



Kevin Phillips

the Electorate in the Reagan Aftermath, is a contributing columnist for the Los Angeles Times and a member of the political strategists' panel of The Wall Street Journal. He also serves as a regular commentator for National Public Radio and CBS. In 1992 he will serve, for the third consecutive presidential election, as the campaign analyst for CBS.

Phillips, long known as a political insider, is editor and publisher of both "The American Political Report" and "Business and Public Affairs Fortnightly," a newsletter on business-government relations and corporate

external relations. An editorial contributor for The New York Times and The Washington Post, Phillips also is frequently interviewed on television network news programs.

His first book, *The Emerging Republican Majority*, was used in the 1968 Republican presidential campaign, when Phillips was chief campaign strategist for Richard Nixon. Written in 1967 and published in 1969, the book was described by Newsweek as "the political bible of the Nixon era."

In 1987, The National Journal listed Phillips as one of the 150 people in Washington "you would want to have on your side in a fight." In 1988, U.S. News & World Report, in their special issue on the "New Establishment," included Phillips in the 40-member "Who's Who" in U.S. politics. The Washington business magazine *Regardie's* included him in its 1990 list of the 100 most influential people in Washington's private sector.

The lecture is co-sponsored by the Department of Political Science, the George Warren Brown School of Social Work and Student Union. For more information, call 935-4620.



Dancer-choreographer Rachel Lampert will open Edison Theatre's "Stage Left" series when she premieres her latest work at 8 p.m. Oct. 4 and 5 in Mallinckrodt Center's Drama Studio.

'The Woody Allen of modern dance'

Combining humor and drama, artist confronts midlife crisis

"Frisky," "perky," "witty," "intelligent," "bittersweet," "whimsical" and "disarming" are all words that have been used to describe dancer-choreographer Rachel Lampert and her work.

All those adjectives fit the way she views the world, says Lampert, who has been described by The New York Times as "the Woody Allen of modern dance."

"My work is very much a personal journey," Lampert said. "Even though I've been through some wild and intense experiences, I see the underlying humor in almost every situation."

The artist will premiere her latest work, "Eghosts: Inventory 1991," at 8 p.m. Oct. 4 and 5 in the Mallinckrodt Center Drama Studio, Room 208. "Eghosts" opens Edison Theatre's "Stage Left" series, which presents innovative works in the intimacy of the studio. Lampert has been credited with creating a "breakthrough blend of dance and drama" based on her own experiences she calls "autochoreography."

In the past year, Lampert lost a very close friend and artistic collaborator, T.J. Myers, to AIDS. She also married and confronted what she calls a "midlife crisis." All of these subjects are addressed in "Eghosts."

"Eghosts" is definitely a midlife crisis dance," says Lampert. "My circumstances have changed drastically over the last year. Especially in the arts, we are so affected by those we work with. T.J.'s death brought up all kinds of issues about 'Do I go on?' and 'If so, where do I go from here and how?'"

"Eghosts" is a reference both to Lampert's own ego and the ghost of Myers, says the artist.

Lampert considers herself an "ambassador of dance in the Midwest." From 1979-1988 she and her company

toured regularly throughout the Midwest, including a 1981 residency in Little Rock, Ark.

"I have always been caught in a conflict between the great joy of sharing my work with people in small Midwest towns who had never seen dance of any type before and the crippling effect my reputation as a "pioneer of the Midwest" has had among the movers and shakers of the cutting edge in New York. My work in the Midwest enabled me to keep performing, but in New York, once you are labeled a pioneer (of the Midwest), you aren't considered a 'serious' artist."

"Working with T.J., I was able to reach a balance. With him, I could create serious work and I was also able to keep touring small towns outside the New York scene."

Since Myers' death, Lampert performs solo, which she considers "a practical necessity, never the destination" of her work. "Eghosts" was created in collaboration with and directed by Jason McConnell Buzas, who has worked with Lampert on numerous other projects.

Lampert was raised in New York City and began dance training at the age of six. She received her degree in dance at New York University's Tisch School of the Arts and was a member of its first graduating class. After dancing with several small companies and on Broadway, Lampert began choreographing her own work. She presented her first New York concert in October 1975, and formed her own company the following year.

Tickets to "Eghosts" are \$10 for the general public; \$8 for senior citizens and University faculty and staff; and \$6 for students.

For information, call 935-6543.

International Writers Center names 21-member board

A 21-member board has been named to advise the International Writers Center, according to William H. Gass, Ph.D., director of the center and David May Distinguished University Professor in the Humanities.

Board members advise the director on activities of the center, which will include international conferences every two years, readings and lectures, and other programs to encourage involvement in literature and writing from different disciplines and cultures. The board also will make recommendations for visiting writers and help identify young talent from around the world.

Gass is on sabbatical for the 1991-92 academic year as a Getty Scholar at the Getty Center for the History of Art and the Humanities in Santa Monica, Calif. He was invited as part of a community of distinguished interdisciplinary scholars. Lorin Cuoco, associate director of the International Writers Center, serves as chief administrator, organizing activities and working directly with the writers.

The new board includes nine international writers, translators and editors — Marc Chenetier, Robert Coover, Liu Binyan, Margaret Sayers Peden, Tom Rimer, Anton Shammas, Antonio Skarmeta, Siegfried Unseld and Heide Ziegler.

The board also includes nine members of the faculty — Gerald Early, Ph.D., professor of English and of African and Afro-American Studies; Wayne Fields, Ph.D., professor and

chair of the Department of English; Robert Hegel, Ph.D., professor and chair of the Department of Asian and Near Eastern Languages and Literatures; Ron Himes, adjunct professor in the Department of African and Afro-American Studies and producing director of the St. Louis Black Repertory Company; Jim McLeod, chair of the Department of African and Afro-American Studies and adjunct associate professor in the Department of Germanic Languages and Literatures; Eric Pankey, director of the Writing Program; Randolph Pope, Ph.D., chair of the Committee on Comparative Literature and professor of Spanish; Richard Watson, Ph.D., professor of philosophy; and Gerhild Scholz Williams, Ph.D., chair and professor of the Department of Germanic Languages and Literatures and associate provost.

Three members are from the St. Louis community: Julian Edison, chair of the executive committee of Edison Brothers Stores Inc.; Janet Majerus, mayor of University City and author of several books, including the novel *Grandpa and Frank*; and Joe Pollack, St. Louis Post-Dispatch theatre and film critic.

The first annual meeting of the entire board will take place Oct. 19-22 in St. Louis.

The first conference, "The Writer and Politics," will be held Oct. 18-22, 1992. Participants will examine what it means to be a political writer, a victim of politics, and a writer running for and serving in political office.

Vertigo — continued from p. 1

But Rabbitt's model, Van Buskirk says, has potentially more applications.

"Rabbitt's model will provide more insight, and may become part of a diagnostic tool. It's gratifying to see him advance my research to this stage. I thought I had solved all the problems, but he has taken the system further because of his access to much more sophisticated mathematics. Thus, he's been able to solve more of the mechanical and physical problems, such as the firing rate on the nerve end."

The complex and seemingly contradictory relationship between the inner ear and the ocular — or visual — system, constitutes what some scientists in the field like to call our "sixth sense," which involves motion, balance, acceleration and velocity. To understand how it works, imagine you are riding in an airplane, looking straight ahead, and you notice the airplane tipping to the right as it banks. Why do you see it tip if you are seated in the plane and you are tipping with it? You see this phenomenon because your eyes actually roll the other way in your head: Move your head to the right and your eyes go to the left; move it down and your eyes go up; move it up and your eyes go down. This is called the vestibular ocular reflex, named for the vestibular end organ, which is responsible for how we sense motion. The eyes move contrary to the motion of the head so that the image can be stabilized on the retina, giving the eyes time to process the image. Thus, control of the eyes is very important in maintaining equilibrium.

The vestibular end organ consists of two different kinds of sensory mechanisms — the semicircular canals, which sense angular motions of the head, and the otolith organs, which primarily sense linear motions of the head. The canals and otoliths are a geometrical maze of fluids, tissues, membranes, nerve cells and sensory hair cells; they interact to produce a

firing rate on the nerve that sets the whole intricate equilibrium process in motion.

A key area on which Rabbitt and Damiano concentrated was the excitation of the hair cell by the mechanics of the semicircular canals. A hair cell is a cylinder-shaped structure that is dotted with stereocilia hairs. The cells are found within a region of the semicircular canals, which come three to each ear. The canals consist of a loop of fluid, called endolymph fluid, which is similar to water. The loop responds to angular acceleration. Across the loop is a partition called the cupula, which prevents the fluid from freely flowing around the semicircular canals. When you accelerate your head one way, the inertia of the fluid creates a difference in pressure across the partition, setting off a deflection along the cupula, which in turn activates the innervated sensory hair cells.

The firing rate of neurons on the hair cells sends a signal to the brain up the vestibular nerve — a key reaction that gives us our sense of equilibrium. When the hair cells deflect, the firing rate coming off the hair cell changes. The same kind of process is at work in the cochlea; the hair cells there respond to sound, instead of motion.

The model may help clinicians diagnose a vestibular disorder simply by testing the eyes. How the eyes move when the head moves is strongly correlated with the signal that originates in the vestibular end organ and his model could provide another diagnostic tool in this sort of testing.

Similarly, many drugs prescribed for disorientation problems such as vertigo affect the response of the vestibular end organ. "Everything from getting dizzy on a carnival ride to space sickness can be traced to the vestibular end organ," he said. "We hope the model will provide a better working knowledge of this part of the sensory system."

—Tony Fitzpatrick

NOTABLES

Kenneth Chilton, deputy director of the Center for the Study of American Business, recently participated in a conference titled "Integrated Waste Management Systems: Myths and Realities" at Big Sky, Mont. The presentations he gave were titled "Myths of Solid Waste: Creating a Crisis" and "Who Should Take Out the Trash? Principles to Differentiate Public Sector Roles."

John W. Clark, Ph.D., professor of physics, was one of five western lecturers at the Spring College on Many-Body Techniques, which took place at the Isfahan University of Technology in Iran, under the auspices of the Physical Society of Iran. After the meeting, he spent two days in Tehran at the invitation of the society and Vice-President Ghafoori. The first physics meeting of international scope since the Islamic revolution, the Spring College was organized to acquaint Iranian research students with the latest advances in theories of many-particle systems. The event was sponsored in part by UNESCO through the International Center for Theoretical Physics at Trieste.

Robert Deusinger, Ph.D., instructor for the Program in Physical Therapy, was appointed to a second three-year term on the Foundation for Physical Therapy board of trustees. He also has been re-elected to the foundation's executive committee. The foundation is a national organization that provides funding for research grants and doctoral training on a competitive basis to facilitate clinical research in the field of physical therapy.

Gerald Early, Ph.D., professor of English, and of African and Afro-American Studies, recently had his article "One Nation Under a Groove" published in The New Republic magazine. The article chronicles the "brief, shining moment of Motown" and its effect on race relations in America.

Martin H. Israel, Ph.D., dean of the Faculty of Arts and Sciences, **Philip Needleman**, Ph.D., research professor in pharmacology and former head of the department, and **William A. Peck**, M.D., vice chancellor for medical affairs and dean of the School of Medicine, were named charter members of the St. Louis Science Center's board of trustees. Other members of the new board include several members of the

University's Board of Trustees: **Sam Fox**; **David W. Kemper**; Emeritus Trustee **Stanley Lopata**; **Michael M. McCarthy**; **William P. Stirtz**; and **William Van Cleve**.

Alessandra Luiselli, Ph.D., assistant professor of Spanish, gave an invited paper, titled "La idea de la mujer en las obras de Juan Ruiz de Alarcon y Sor Juana Ines de la Cruz" in the IV Jornadas Alarconianas, a festival held in Taxco, Mexico. The festival includes conferences, plays and musical programs that are related to Golden Age writer Juan Ruiz de Alarcon.

Amanda Newfield, a senior in fine arts, won first place in the 17th annual Wichita State Design competition for 1991. Her costume designs were selected by a jury of professional designers and teachers. The award carries a cash prize of \$250.

Mike Wolf, director of sports information, delivered a lecture titled "Publications: How to Print Cheaper" at the annual meeting of sports information directors held in San Francisco. He also served as the press coordinator for the men's and women's volleyball national delegation at the 1991 U.S. Olympic Festival. The volleyball competition, conducted on the campus of Loyola Marymount University, was one of 37 sports contested at the 11-day festival in Los Angeles. **Teri Clemens**, women's volleyball coach, served as the head coach of the women's North Squad at the festival.

Jerry J.J. Yuan, M.D., resident in the Department of Urology, Division of Surgery, won the "Dr. L.M. Aronberg Annual Prize in Urology" for the highest grade attained in the national "in-house" examination for residents. The award carries a \$500 prize.

George I. Zahalak, Eng. Sc.D., professor of mechanical engineering, delivered the first lecture, titled "An Overview of Muscle Modelling," at the Third Conference on Neural Prostheses in Banff, Canada. The conference, sponsored by the Engineering Foundation and the World Neuroscience Congress, brought together an international group of leading researchers working toward restoration of motor function in paralyzed persons through functional neuromuscular stimulation.

Ernst Zinner, Ph.D., research professor in physics, has been named a fellow of the American Physical Society. Only those who have contributed to the advancement of physics by independent, original research, or who have rendered some other special service to the cause of the sciences are designated as members. This year 155 members were named fellows. Zinner was honored for original measurements of isotopic ratios in selected, small samples of extraterrestrial materials, culminating in the discovery of primordial interstellar grains of SiC and graphite. Zinner has been instrumental in modifying an ion microprobe located in the McDonnell Center for the Space Sciences, making it possible to detect infinitesimal grains of presolar materials in meteorite samples.

Have you done something noteworthy?

Have you: Presented a paper? Won an award? Been named to a committee or elected an officer of a professional organization? The Washington University Record will help spread the good news. Contributions regarding faculty and staff scholarly or professional activities are gladly accepted and encouraged. Send a brief note with your full name, highest earned degree, current title and department along with a description of your noteworthy activity to Notables, Campus Box 1070, or by electronic mail to p72245DP at WUVMC. Please include a phone number.

'Seasons in Hell'

Blumenfeld opera will depict work, brief life of poet

Harold Blumenfeld, professor emeritus of music, has been invited by the Camargo Foundation for a residency at its facilities in Cassis, on the French Mediterranean coast, for the first half of 1992. The foundation chooses only two composers each year from an international pool of applicants for its residency program.

Jerome Hill, an American philanthropist who was the grandson of the builder of the Great Northern Railroad, established the Camargo Foundation at his Mediterranean estate in 1967. Hill, himself a musician, painter and filmmaker, set up the foundation to provide fellowships for scholars who wish to pursue further studies of the French culture in France.

During his stay, Blumenfeld will compose an opera, "Seasons in Hell," dealing with the work and brief life of poet Arthur Rimbaud, who lived from 1854-91. The opera represents a culmination of Blumenfeld's 10-year exploration of the young poet's surreal, violent writing. The words are being written by Blumenfeld's collaborator Charles Kondek, an opera and theatre director formerly associated with Sarah Caldwell's Boston Opera Company. Much of the text will be taken directly from Rimbaud's poetry, letters and other documentation of his life.

Blumenfeld's most recent Rimbaud-based work, "Ange de flamme et de glace (Angel of Flame and Ice)," received its world premiere April 18 in Cincinnati at the Corbett Theatre. The work was based on "Les Illuminations," a poem mostly written when Rimbaud was 19 years old. Blumenfeld's composition for voice and instrumental ensemble was performed under the direction of Gerhard Samuel.

"Ange" is the fourth work that Blumenfeld has based upon the poetry of Rimbaud. It was preceded by the frequently performed "The Cinderead Face" from "Les Illuminations" for mezzo-soprano, cello and piano, and the large-scale spatial cantata "Carnet

de Damne (Notebook of the Damned)" from "Season in Hell" for soprano and eight instrumentalists. These works, featuring soprano Christine Schadeberg, recently have been digitally recorded along with "Ange" for inclusion on a Blumenfeld-Rimbaud compact disc to be issued soon. Blumenfeld's new orchestral work, "Illuminations After Rimbaud," also will be included in the recording project.

Rimbaud's "Season in Hell" had a great influence on rock musician Jim Morrison of The Doors and was quoted extensively in the 1991 film about Morrison and his band, according to Blumenfeld. "After Rimbaud completed that work, he utterly renounced poetry and the life of degradation it had brought him," says Blumenfeld. "He committed a kind of spiritual and artistic suicide after getting 'Season' out of his system." The poet left France to make his fortune in Africa, where he traded in coffee and ran guns for the King of Abyssinia, according to Blumenfeld. "Little good did it do him," the composer notes. "In his African adventures, he contracted a fatal knee infection, and was dragged across Africa on a litter to a ship that took him to Marseilles. There his leg was amputated, and he died after six months of excruciating pain." He was only 37 at the time of his death.

"Rimbaud's fellow poet and companion Paul Verlaine coined the term 'poete maudit (accursed poet)' to refer to Rimbaud, and it was quite appropriate to both of these star-crossed writers," says Blumenfeld. Rimbaud's work was largely ignored while he was alive, Blumenfeld notes; however, the centenary of his death is being marked throughout France this year, with major international conferences in Charleville this month and in Marseilles in November. Blumenfeld dedicated the premiere of "Ange de flamme et de glace" to Rimbaud's memory.

Four students named Goldwater scholars

In the 1964 presidential election, bumper stickers abounded that read: Au H20 64. To the scientifically illiterate, that message was baffling. It was the Republican party nominee's name spelled out as symbols of the elements: Au (Gold) H2O (Water) 64.

A generation later, science literacy, which is a growing concern among educators today, prompted a program in honor of Sen. Barry M. Goldwater that helps students interested in science careers. Four Washington University juniors have received scholarships from the Barry M. Goldwater Scholarship and Excellence in Education Program.

The program, in its third year, provides a \$7,000 scholarship per year for the winners' junior and senior years in college. The students are chosen in their sophomore year. The Washington University winners are: Stephen Ellis, a mathematics/physics double major from Hudson, Ohio; Matthew Kolz, an engineering major from Lakewood, Colo.; Laura Lindsey, a biology major from Pine Bluff, Ark.; and chemistry major Charles Webster from Mansfield, Ohio.

They join last year's winners, Karen S. Ho, a Pittsburgh biology major, and Michael Eisenberg, a mathematics major from Amherst, Mass., as Washington University Goldwater Scholars.

According to Robert Wiltenburg, Ph.D., assistant dean of Arts and Sciences, 1,340 students from 600

American institutions were nominated by faculty for the scholarship. Nearly 250 students were declared winners. Students had to write a 600-word essay detailing their interest in science and mathematics and explaining their career choice. Eligibility requirements include a grade point average of at least a B and ranking in the upper one-fourth of the nominee's class; and American citizenship, except in the case of nominees from American Samoa or the Commonwealth of the Mariana Islands.

Washington University was one of only seven institutions with four winners; the others were Harvard, the University of Iowa, Kansas State, Montana State, Northwestern and Swarthmore.

The Barry M. Goldwater Scholarship and Excellence in Education Program was authorized by the U.S. Congress in 1986 to honor Sen. Goldwater, who has served his country for 56 years as a soldier and statesman, including 30 years of service as a U.S. senator. The creation of the program pays tribute to the leadership, courage and vision of Goldwater and establishes in his name an endowed recognition program to foster and encourage excellence in science and mathematics.

The legislation was aimed at alleviating a critical current and future shortage of scientists and mathematicians.

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CALENDAR

Sept. 19-28

LECTURES

Thursday, Sept. 19

Noon. Dept. of Genetics Seminar, "Growth Regulation of Human Acute Myelogenous Leukemia Cells," Mark Minden, Dept. of Medicine, Princess Margaret Hospital. Cori Aud., 660 S. Euclid Ave.

Noon. Dept. of Veterinary Affairs BEARS Seminar, featuring the video "Endotracheal Intubation Tips for Rodents and Other Small Animals: Hamster, Rabbit and Guinea Pig." Video to be followed by WU veterinary commentary. Erlanger Aud., McDonnell Medical Sciences Bldg.

1:10 p.m. George Warren Brown School of Social Work Fall Lecture Series Presents "Social Welfare, Financial Reform and Popular Savings in Mexico," Clemente Ruiz Duran, prof., political economy, National U. of Mexico. Brown Hall Lounge.

4 p.m. Divisional Evolutionary and Population Biology Seminar, "Chromosomal Change and Speciation: The Sceloporus grammicus Complex (Iguanidae) as a Case Study," Jack W. Sites Jr., Dept. of Animal Science, Texas A&M U. Room 322 Rebstock Hall.

4 p.m. Dept. of Earth and Planetary Sciences Colloquium, "The Origin of Petroleum and Natural Gas: A New Perspective," Frank D. Mango, research associate, Shell Development Co., Bellaire Research Center, and adjunct prof. at Rice U. Room 102 Wilson Hall.

4 p.m. Dept. of Russian Lecture, "Dostoevsky's Russian Nationalism: The Judaeo-Christian Cultural Sources," Nina Perlina, prof. of Russian, Indiana U. Room 303 Mallinckrodt Center. For more info., call 935-5177.

4 p.m. Dept. of Physics Theory Seminar, "Results of Matrix Element Calculations in Lattice QCD," Rajan Gupta, Los Alamos National Laboratory. Room 241 Compton Hall.

8 p.m. Dept. of English Colloquium with Madeleine Brainerd, WU asst. prof. of English. Hurst Lounge, 201 Duncker Hall. For more info., call 935-5190.

Friday, Sept. 20

Noon. Dept. of Cell Biology and Physiology Seminar, "Molecular Regulation of Gap Junctions," Eric Beyer, WU Depts. of Pediatrics, and Cell Biology and Physiology. Room 423 McDonnell Medical Sciences Bldg.

4 p.m. School of Medicine Presents the Carl A. Moyer Lecture, "Diagnosis and Management of Soft Tissue Sarcomas," LaSalle D. Leffall Jr., prof. and chair, Dept. of Surgery, Howard U. College of Medicine. Clopton Aud., 4950 Audubon Ave.

Saturday, Sept. 21

9 a.m. Saturday Morning Neural Science Seminar, "Neurobiology of Affective Disorders," Wayne Drevetz, WU Dept. of Psychiatry. Erlanger Aud., McDonnell Medical Sciences Bldg.

9 a.m. School of Medicine Presents the Carl A. Moyer Lecture, "The Changing Status of Surgical Oncology," LaSalle D. Leffall Jr., prof. and chair, Dept. of Surgery, Howard U. College of Medicine. Steinberg Amphitheater, Jewish Hospital.

Monday, Sept. 23

4 p.m. Immunology Program Seminar, "Protein Tyrosine Phosphatases Involved in T Lymphocyte Function," Matthew L. Thomas, assoc. prof. of pathology and asst. investigator, Howard Hughes Medical Institute. Third Floor Aud., Children's Hospital.

4 p.m. Dept. of Biology Seminar, "Looking at the E. coli Colony as a Developmental System," James Shapiro, prof., Dept. of Biochemistry and Molecular Biology, U. of Chicago. Room 322 Rebstock Hall.

Wednesday, Sept. 25

8 a.m. Dept. of Obstetrics-Gynecology Grand Rounds, "Current Aspects of Male Infertility," Daniel B. Williams, instructor, WU School of Medicine. Schwarz Aud., Maternity Hospital.

11 a.m. Assembly Series Lecture, "Politics of Rich and Poor," Kevin Phillips, author of "The Politics of Rich and Poor: Wealth and the Electorate in the Reagan Aftermath." Graham Chapel.

4 p.m. Dept. of Biochemistry and Molecular Biophysics Seminar, "Plasticity in Protein Structures," Eaton E. Lattman, Dept. of Molecular Biophysics and Biological Chemistry, Johns Hopkins Medical School. Erlanger Aud., McDonnell Medical Sciences Bldg.

4 p.m. Dept. of Physics Colloquium, "COBE Looks at the Universe," David T. Wilkinson, Princeton U. Room 204 Crow Hall. (Coffee: 3:30 p.m., Room 245 Compton Hall.)

4 p.m. East Asian Studies Colloquium Series Presents "State and Society in Early 20th

Century China: The Chambers of Commerce in the Lower and Middle Yangtze," Zhang Kaiyuan, visiting prof. of history at Yale U. and past president, Central China Normal U. Room 30 January Hall.

8 p.m. The Writing Program and the Dept. of English Present a Writer's Colloquium with Linda Gregg, Visiting Hurst Professor. Hurst Lounge, 201 Duncker Hall.

Thursday, Sept. 26

12:10 p.m. Gallery of Art Talk, "National Academy of Design: An American Collection," Joseph Ketner, director, WU Gallery of Art. Steinberg Hall Aud.

1:10 p.m. George Warren Brown School of Social Work Fall Lecture Series Presents "Enhancing the Quality of Life for Americans: A Social Work Perspective," Barbara White, president, National Association of Social Workers. Brown Hall Lounge.

2:30 p.m. Mechanical Engineering Seminar, "Engineering Applications of Advanced Flow-Diagnostic Techniques," K.R. Sarapalli, senior scientist, McDonnell Douglas Research Labs. Room 100 Cupples II.

4 p.m. Dept. of Earth and Planetary Sciences Colloquium, "Intraplate Earthquakes and Phase Changes in Subducting Lithosphere," Stephen H. Kirby, senior research geophysicist, U.S. Geological Survey. Room 102 Wilson Hall.

4:30 p.m. Interfraternity Council and Women's Panhellenic Association Present a Lecture, "Greek Life in the '90s: Challenges Ahead," Maureen Syring, past national president of Delta Gamma. Location to be announced. For more info., call 935-5994.

Friday, Sept. 27

9:15 a.m. Pediatric Grand Rounds, "Hemato-poietic Growth Factors in the Management of Bone Marrow Failure Syndromes," Donna A. Wall, WU asst. prof. of pediatrics and director of the Bone Marrow Transplantation Unit, St. Louis Children's Hospital. Clopton Aud., 4950 Audubon Ave.

Noon. Dept. of Cell Biology and Physiology Seminar, "Alpha 1-antitrypsin: Pathways for Secretion and Endocytosis," David Perlmuter, WU Depts. of Pediatrics, and Cell Biology and Physiology. Room 423 McDonnell Medical Sciences Bldg.

4 p.m. Dept. of Music Lecture, "On Schoenberg's String Trio, Op. 45," Roland Jordan, WU Dept. of Music. Room B-8 Blewett Hall.

PERFORMANCES

Friday, Sept. 20

8 p.m. Edison Theatre "OVATIONS!" Series Presents "Mandy Patinkin in Concert: Dress Casual." Edison Theatre. Tickets are sold out. For more info., call 935-6543.

Saturday, Sept. 28

Noon and 2 p.m. Edison Theatre "ovations! for young people" Series Presents the Robert Minden Ensemble in "The Boy Who Wanted to Talk to Whales." Edison Theatre. Cost: \$7.

MUSIC

Monday, Sept. 23

8 p.m. Dept. of Music Clarinet Recital, featuring Ari Levy, WU School of Medicine student. Graham Chapel.

EXHIBITIONS

"Washington University Art Collections." Through May 1992. Gallery of Art, lower gallery, Steinberg Hall. Exhibit hours: 10 a.m.-5 p.m. weekdays; 1-5 p.m. weekends. For more info., call 935-5490.

"An American Collection: Paintings and Sculpture From the National Academy of Design." Through Nov. 3. Gallery of Art, upper gallery, Steinberg Hall. Exhibit hours: 10 a.m.-5 p.m. weekdays; 1-5 p.m. weekends. For more info., call 935-5490.

"Bibliomania: A Passion for Books." Through Oct. 18. Special Collections, Olin Library, Level 5. Exhibit hours: 8:30 a.m.-5 p.m. weekdays. For more info., call 935-5495.

FILMS

Thursday, Sept. 19

7 and 9 p.m. Filmboard Foreign Series Presents "The Green Wall," a Peruvian film in Spanish with English subtitles. Room 100 Brown Hall. \$3.

Friday, Sept. 20

6 and 9 p.m. Filmboard Feature Series Presents "Cyrano de Bergerac," a 1991 French film with English subtitles. (Also Sept. 21, same times, and Sept. 22 at 6:30 p.m.) Room 100 Brown Hall. \$3.

Midnight. Filmboard Midnight Series Presents "Heavy Traffic." (Also Sept. 21, same time, and Sept. 22 at 9:30 p.m.) Room 100 Brown Hall. \$3. On Fri. and Sat., both the 9 p.m. and midnight films can be seen for \$4; both Sunday films can be seen for \$4.

Monday, Sept. 23

7 and 9 p.m. Filmboard Classic Series Presents "Repulsion." (Also Sept. 24, same times.) Room 100 Brown Hall. \$3.

Wednesday, Sept. 25

7 and 9 p.m. Filmboard Foreign Series Presents "Knife in the Water," a Polish film with English subtitles. (Also Sept. 26, same times.) Room 100 Brown Hall. \$3.

Friday, Sept. 27

7 and 9:30 p.m. Filmboard Feature Series Presents "L.A. Story." (Also Sept. 28, same times, and Sept. 29 at 7 p.m.) Room 100 Brown Hall. \$3.

Midnight. Filmboard Midnight Series Presents "Repo Man." (Also Sept. 28, same time, and Sept. 29 at 9:30 p.m.) Room 100 Brown Hall. \$3. On Fri. and Sat., both the 9:30 p.m. and midnight films can be seen for \$4; both Sunday films can be seen for \$4.

SPORTS

Thursday, Sept. 19

7 p.m. Women's Soccer. WU vs. Maryville College. Francis Field.

Saturday, Sept. 21

1 p.m. Men's Soccer. WU vs. Augustana College. (Also Colorado College vs. Fontbonne College at 3 p.m.) Francis Field.

Sunday, Sept. 22

11 a.m. Men's Soccer. WU vs. Colorado College. Francis Field.

Thursday, Sept. 26

7:30 p.m. Women's Soccer. WU vs. Principia College. Francis Field.

Friday, Sept. 27

2 p.m. Volleyball. University Athletic Association Round Robin. Competition continues Sept. 28 and 29 at 9 a.m. Field House.

5:30 p.m. Women's Soccer. WU vs. Grinnell College. Francis Field.

7:30 p.m. Men's Soccer. WU vs. New York U. Francis Field.

Saturday, Sept. 28

7 p.m. Football. WU vs. U. of Rochester. Francis Field.

MISCELLANY

Tuesday, Sept. 24

7:30 a.m.-7 p.m. Center for the Study of Data Processing Presents Showcase VI Conference: Advances in Application Development. (Also Sept. 25 at 7:30 a.m.) St. Louis Airport Marriott. Register at the door or by calling 935-5380.

Thursday, Sept. 26

7 p.m. Woman's Club Welcome Coffee for New and Current Members. "Book or Bytes: The Library in the Electronic Era," Shirley K. Baker, dean of University libraries. Elizabeth Danforth will welcome newcomers to the University. University House, 6420 Forsyth Blvd.

Saturday, Sept. 28

9 a.m. Dept. of Athletics Presents Saturday Swim Lessons for adults. (Also Oct. 5, 19 and 26.) All levels of swimming classes -- beginning through competitive are offered. Participants can attend as many classes as they want. Children's classes begin at 10 a.m. Instruction by the WU Swim Team and Lifeguard Corp. Millstone Pool. For more info. and registration forms, call 935-5220.

Calendar Deadline

The deadline to submit items for the Sept. 26-Oct. 5 calendar of the Record is Sept. 20. Items must be typed and state time, date, place, nature of event, sponsor and admission cost. Incomplete items will not be printed. If available, include speaker's name and identification and the title of the event; also include your name and telephone number. Send items to Deborah Parker, calendar editor, Box 1070, or by electronic mail to p72245DP at WUVMC.

First Eliot Society seminar series set

The William Greenleaf Eliot Society, in cooperation with the Women's Society and University College, is sponsoring a seminar series, titled "America's Recent Wars: Causes, Conduct, Consequences — Korea, Vietnam, and the Persian Gulf." The series is open to members of the Eliot Society and the board of the Women's Society of Washington University.

The four seminars will be held on consecutive Thursday evenings beginning Oct. 10. The registration deadline is Sept. 30. The scheduled presenters are Henry W. Berger, Ph.D., associate professor of history, Sen. Thomas F. Eagleton, LL.B., University Professor of Public Affairs, and James W. Davis, Ph.D., professor of political science. William C. Kirby, Ph.D., dean of University College and professor of history, will moderate the last discussion.

The series will focus on the political aspects and media coverage of the last three wars. The presenters will discuss the following topics: "Roots of the Conflicts and Causes of United States Involvement"; "The Politics of War, War Powers, and the Media at Home"; and "Planning, Strategy and Fighting." The last seminar will feature a discussion, titled "Consequences and Predictions: A Panel Discussion — Professors Berger, Eagleton and Davis."

The new program will give Eliot Society members a special opportunity to experience first hand some of the excellent faculty and academic resources that their gifts support.

Eagleton said he hopes members will take advantage of the special program. "If the series is a success, we will continue it every year with different topics of political and historical currency."

Members with questions can call John Bradbury at 935-4646 or Cynthia Wilhelm at 935-5295.

Center —

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objects using different perspectives and different light sources. The "video-toaster" also can create elaborate video special effects in which text can spin, float, change shape or color, says Bundy.

The third room will have some commercial video editing equipment. The editing facility uses tapes that are playable on home videotape machines.

"Students can buy tapes without spending their rent money," says Bundy. "We didn't want the cost to be prohibitive, but we wanted the students to get experience working with this technology. Because the tapes are VHS, they have a great sample of their work to show on job interviews, sort of a video resume," he adds.

"I see this facility beginning to carve out a special niche in video animation and interactive video," says Bundy, a 1988 alumnus of the School of Fine Arts. "A fashion design student, for example, will be able to construct a figure and then have that figure move, in order to study how a design would work on a real person."

Construction of the center was completed in several months, over the past summer. Most of the construction involved rewiring rooms with more electrical sockets and installing air conditioning to keep the computers in good working order.

In addition to being able to offer art students the latest in computer graphics and animation, the faculty hopes to combine its resources with others on campus to develop even more sophisticated computer systems.