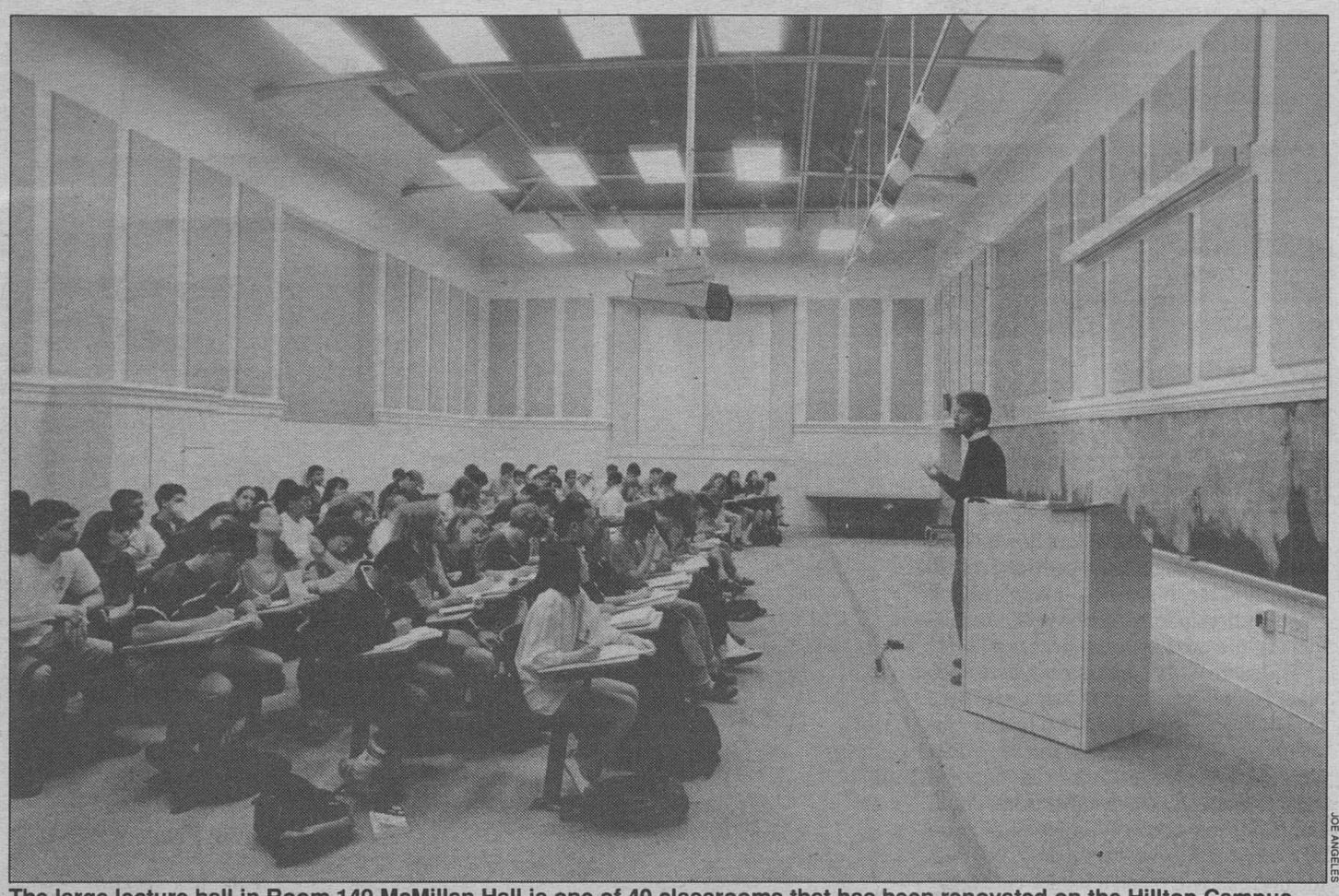
4-29-1993

Washington University Record, April 29, 1993

Record

WASHINGTON UNIVERSITY IN ST. LOUIS

Vol. 17 No. 29 April 29, 1993



JOE ANGELES

The large lecture hall in Room 149 McMillan Hall is one of 40 classrooms that has been renovated on the Hilltop Campus since 1990 as part of the Classroom Renovation Committee's plan. State-of-the-art audiovisual equipment, better lighting and rising chairs were added in the lecture hall. Doors that are accessible to disabled persons were installed in McMillan.

Learning environment

Renovation of 40 classrooms across campus improves education, teaching

The Classroom Renovation Committee recently completed its goal to enhance the general condition of classrooms on the Hilltop Campus.

Since 1990, the committee, which comprises faculty, students and administrators, has overseen the renovation of 40 classrooms, ranging from small classrooms, such as those in Cupples I Hall, to large lecture halls, like Room 149 in McMillan Hall, which now contains state-of-the-art audiovisual equipment.

The renovation work has included installing new lights, floors, walls, windows, sound and air conditioning systems, carpeting, desks and chairs; making sure the rooms are accessible to the disabled; and installing new blackboards with overhead lighting.

In addition to McMillan and Cupples I, the buildings with improved classrooms are Brown, Busch, January, Wilson, Rebstock, Eliot, Crow, North Ridgley, Sever and Duncker halls, as well as Olin Library. All of the renovations were for classrooms in the registrar's general assignment pool. Departments and schools from across the campus use these classrooms.

Recognizing the need to monitor the condition of classrooms on the Hilltop Campus, Provost Edward S. Macias, Ph.D., formed the committee in September 1989 and appointed Gerhild Scholz Williams, Ph.D., associate provost and professor of Germanic languages and literatures, as chair.

In planning the renovation projects, the committee's focus has been twofold, said Williams, who is on leave from the University and conducting research in Germany. "Each year, we totally redid a large lecture hall," she said. "We also oversaw basic renovation — such as painting chairs, installing lighting and good blackboards — in the smaller classrooms."

In order to avoid disrupting classes, the committee always began planning its projects in the fall so the work could be conducted the following summer, Williams said. Committee members also sought input from the faculty who use the rooms.

Williams said that the committee has been greatly aided by students who conduct weekly checkups of the classrooms in the general assignment pool and provide general upkeep, such as noting what maintenance work needs to be done. Jean Gaines, associate registrar and a member of the Classroom Renovation Committee, established this student program in 1989.

With better environments for faculty to teach and students to learn, the learning process will function more smoothly, Williams said. Robert H. McDowell, Ph.D., professor of mathematics and director of the Teaching Center, agreed. He has served as acting chair during Williams' absence.

"Improved teaching is more than faculty writing clearer messages on the blackboard," he said. "Everything is part of teaching — including the classroom environment. If the purpose of teaching is to learn, enhanced classrooms make learning easier."

In addition to Gaines, Williams and McDowell, the other committee members are: David L. Cronin, Ph.D., assistant dean for administration, George Warren Brown

Continued on page 5

In This Issue...

Carroll named dean of student affairs; Kisker returns July 1

Justin X. Carroll, acting dean of student affairs since mid-1992, will become dean of student affairs effective July 1, 1993. Harry E. Kisker, vice provost and dean of student affairs, has been on medical leave and will return to the University as vice provost effective July 1, 1993. The announcements were made last week by Provost Edward S. Macias, Ph.D. Carroll and Kisker both will report to Macias.

Carroll has worked in the student affairs division for 12 years, beginning as director of student activities in 1981. In 1986, he was promoted to associate dean and also served that year as acting director of residential life.

"Justin Carroll has provided excellent leadership for the entire student affairs program over the past school year," Macias said, "and I believe that he will provide the focus and strength the program requires in the 1990s. I am pleased to have Harry Kisker returning to the campus to work with me on projects of special importance."

Justin X. Carroll

As dean, Carroll oversees a wide array of student services, including residential life, athletics, the Career Center, the International Office, Student Educational Service, minority support programs, the Center for Chemical Abuse Prevention Education, Student Counseling Service, Health Service, Disabled Student Services and the Office of Student Activities.

Prior to joining Washington University, Carroll was coordinator of student organization development at the University of Iowa from 1979 to 1981. Prior to that he

Continued on page 6

Scientists move closer to understanding how ultraviolet light causes skin cancer

As spring approaches, the medical/scientific community will once again step up its efforts to convince the public that a golden tan should no longer be seen as a sign of good health. Not only has overexposure to the sun been found to increase premature aging of the skin, but also ultraviolet light rays have been linked to skin cancer.

"Early detection is the key in skin cancer. We know how to prevent it; stay out of the sun," says John-Stephen Taylor, Ph.D., associate professor of chemistry at Washington University. "There was a period when a dark tan was highly desirable, and people spent a lot of time acquiring a dark tan. People's attitudes have to change."

Taylor has studied the damaging effects of ultraviolet light on DNA (deoxyribonucleic acid) through funding from the National Cancer Institute, which recently renewed his grant for another five years.

Cells in the human body are composed of chromosomes formed from long strands of DNA, which can be 50 million to 250 million base pairs long. Ultraviolet light can alter base pair sequences, leading to mutations in the chromosome and unregulated cell growth.

In the Jan. 21, 1993, issue of Biochemistry, Taylor and his group at Washington University propose a new mechanism for the formation of the genetic mutations linked to skin cancer. Their findings bring researchers a step closer to understanding the cancer process.

Finding pathways from the sun

DNA is composed of a chemical alphabet only four letters long: A (adenine), C (cytosine), G (guanine) and T (thymine). Under normal circumstances, A pairs with T and G with C.

Researchers studying carcinomas have found C to T mutations in DNA. CC to TT mutations, in particular, have been found to be a fingerprint for ultraviolet light damage, according to Taylor, who set out to discover how C to T mutations occur.

When ultraviolet light hits DNA, it can react with Cs and Ts, abnormally fusing T with T or C with T or C with C. When the cells divide, these fused bases cause mutations in the DNA to occur, which only cause cancer when they occur at a particular site. Major alterations to DNA are easily detected by repair enzymes, which swing into action. However, some types of damage are so slight that they get overlooked by the repair enzymes and result in cancers.

Evidence pointed to the fact that the initial photoproduct created when ultraviolet light shines on DNA is not stable. It decomposes to another product. Taylor's team proposed that this decomposed product should code to lead to the C to T mutation.

Continued on page 8

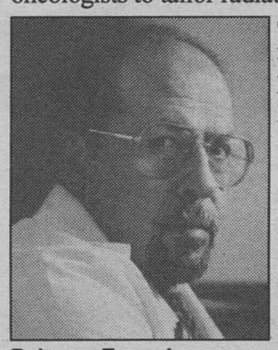
Medical Update

St. Louis' first 3-D cancer treatment planning center opens

The St. Louis area's first three-dimensional treatment planning center for cancer has opened at the Washington University Medical Center. The new 3-D Treatment Planning Center features state-of-the-art computer technology that may change the way radiation oncology is performed.

One of a handful of its kind in the world, the facility is a joint effort of Barnes Hospital and Washington University's Mallinckrodt Institute of Radiology. It will be operated by the School of Medicine with financial and clinical staff support from Barnes.

The planning suite allows radiation oncologists to tailor radiation therapy to each patient's needs. At computer workstations, physicians can view 3-D images of a patient's tumor and the surrounding organs. By manipulating the images, they can develop a treatment strategy that more precisely targets the tumor while sparing normal tissues nearby.



Bahman Emami

Although still experimental, the 3-D approach shows great promise, said James Purdy, Ph.D., professor of radiology and director of the 3-D Center. "There is still a lot of work to be done. But it is clear that after nearly a decade of developmental work, we have a system in place that is going to change the way radiation oncology is done," he said.

The School of Medicine is one of approximately three institutions in the United States to pioneer this technology, said Purdy, a medical physicist. In 1984, researchers at the medical school's Mallinckrodt Institute began developing a 3-D treatment planning system. Funded in part by three research contracts from the National Cancer Institute (NCI) and an industrial research grant by Computerized Medical Systems Inc. in St. Louis, the researchers have spent eight years perfecting a prototype system and performing preliminary clinical work. The medical school is now in the third year of a five-year NCI contract for further development.

To treat a tumor, radiation oncologists must decide where the tumor lies, how much radiation to give and from what angles the X-ray beams should be delivered. Traditionally, they start by looking at "slice" images taken for diagnosis on a computed tomography (CT) machine. From the slices, they mentally piece together a 3-D estimate of where the tumor lies. Radiation oncologists generally rely on standardized sets of treatments and deliver the standard beam arrangement and dose that is most appropriate for their patient's tumor site and stage of disease.

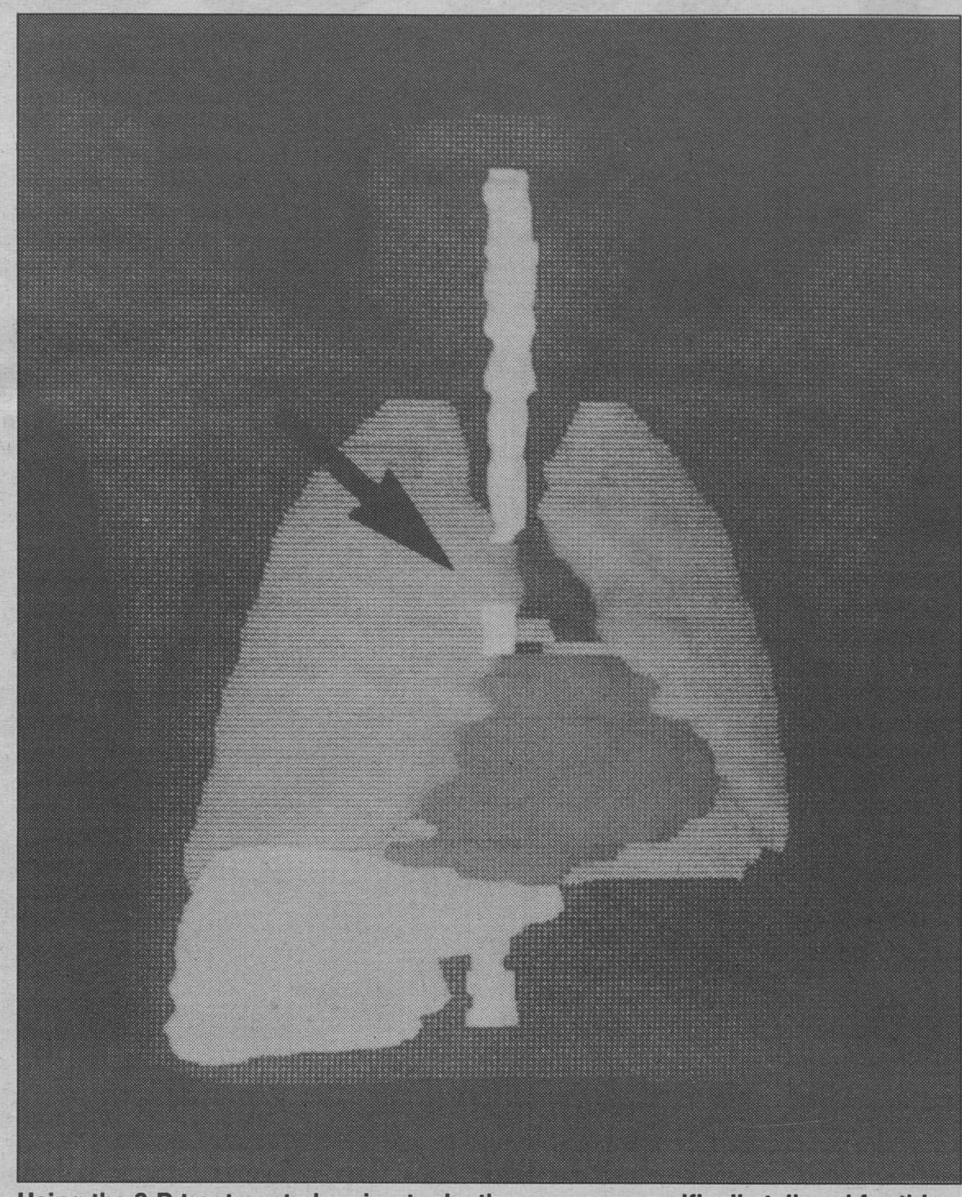
For the 3-D planning process, the patient undergoes a scan on a CT machine that is integrated to the 3-D treatment planning computer system. From the scan data, the computer generates 3-D images of the tumor and surrounding anatomy at a computer workstation, where physicians can choose the organs to view and the colors in which they will appear. Using a hand-operated device, they can rotate this custom-made image in any direction to look for the best arrangement of therapeutic X-ray beams.

James Purdy

Based on early clinical work here and at other institutions, the investigators expect 3-D planning to allow them to pinpoint more accurately the size and location of tumors, increase the radiation dose to the tumor and reduce the damage to healthy tissues, said Bahman Emami, M.D., professor of radiology, clinical director for the 3-D program. Ideally, that will mean a higher cure rate with fewer complications, he said.

Researchers here have treated roughly 50 patients, primarily for prostate and lung cancer. "So far, we have shown that we can deliver a conventional dose to the tumor, reduce the dose to normal tissues and hopefully end up with fewer complications," he said. For example, in his clinical work, Emami has found he can reduce the radiation dose to the rectum and bladder in prostate cancer patients. In addition, with 3-D planning he can minimize damage to the salivary glands of a subgroup of head and neck cancer patients, who inevitably lose some or all of their ability to produce saliva when treated with conventionally planned techniques, he said.

The 3-D system offers the major advantage of allowing physicians to plan therapy using scans taken with the patient in exactly the same position required for treatment. Conventional planning relies on diagnostic scans; if the patient has to be in a different position for treatment, diagnostic scans may not accurately represent the tumor's location during the treatment procedure, explained Mary Graham, M.D., instructor in radiology. Graham has used the 3-D system to plan treatment for 27 lung cancer patients.



Using the 3-D treatment planning tools, therapy was specifically tailored for this lung cancer patient. Shown is a front-to-back image of the tumor (arrow) and the surrounding structures (lung, heart, liver and spinal cord).

Such innovations in treating tumors locally with external radiation are still necessary in spite of the emphasis in recent years placed on the "magic bullet" potential of systemic treatment with chemotherapy, Graham noted. "Current systemic therapy is most effective when the bulky site of primary disease is eradicated, either by surgery or radiation. Even if we find new effective systemic therapy, we will always need a very good local therapy," she said.

Scientist says most conserved protein regions have been found

In a recent issue of Science, School of Medicine researchers reported that scientists have already discovered most of the protein regions that are evolutionarily conserved in worms, yeast and humans. Philip P. Green, Ph.D., lead author of the report, says a comparison of newly found genes from several gene sequencing projects yields an estimate that there are probably fewer than 1,000 ancient conserved regions of proteins, and most are already in protein data bases. Green is associate professor of genetics at the University.

Using computers, Green and collaborators in the medical school's Department of Genetics and scientists from the National Center for Biotechnology Information (NCBI) compared random gene sequences generated by the *C. elegans*, yeast and human genome sequencing projects. The genes encode proteins, some of which contain regions that are similar in distantly related organisms. These regions, called ancient conserved regions (ACRs), often correspond to specific domains (or "motifs"), such as "zinc finger" DNA binding domains or enzyme active sites. They can also comprise most or all of the sequence of a single highly conserved protein or protein family, such as actins and histones. Several different proteins may contain the same conserved region. The report suggests that there are only about 900 different ancient evolutionarily conserved regions, and most have been identified.

The study's original goal was to find more ACRs among recently discovered gene sequences in yeast, worm and human DNA, says Green. Comparison of yeast DNA to human DNA, human to worm, and worm to yeast yielded 54 ACRs. Yet roughly 90 percent of these were already in protein data bases, meaning they were present in previously identified proteins. The high match rate in a random sample of genes suggests to Green and others that most ACRs have already been found. "We believe that 85 to 90 percent of ACRs are now in protein data bases," Green says.

The findings also help interpret why early findings from the yeast and *C. elegans* gene sequencing projects showed that only about 30 percent of the newly found genes matched sequences in existing data bases. "We originally thought this meant the data bases are relatively incomplete," explains Green, who collaborates with the *C. elegans* sequencing team at the University. "Our assumption was that we were finding lots of new genes and that when all of these organisms are completely sequenced a lot more of them will match."

Green says it appears that only 30 to 40 percent of the genes in these organisms are highly conserved. The remaining 60 to 70 percent may represent genes found in a single phylum or genes that have evolved rapidly.

Identifying ACRs provides valuable information about proteins and evolution. Green says that the NCBI plans to compile a data base for public use that will have representatives for each of the conserved protein regions.

Two-year diabetes research grants available

Faculty members who do research in the areas of diabetes and endocrinology may apply for funding through the Diabetes Research and Training Center (DRTC) at the School of Medicine.

Researchers at the Hilltop Campus as well as those at the medical school are encouraged to apply for the funding, which begins Dec. 1. The two-year grants will range from $5,000 to $25,000. Applications from the basic sciences, epidemiological and behavioral science departments are particularly encouraged.

The DRTC pilot and feasibility program fosters projects required to develop preliminary data that could lead to independent research supported by the National Institutes of Health (NIH). The NIH awards three to four such projects at the medical school yearly.

Those interested must submit letters of intent to the DRTC by June 15; proposals must be submitted by Aug. 3. Both should be sent to Melanie Puhar at Campus Box 8212. For more information and application forms, call 362-8290. Specific questions should be directed to DRTC Director Julio Santiago, at 454-6046.

Record

Executive Director, University Communications: Judith Jasper
Executive Editor: Susan Killenberg
Editor: Deborah Parker, 935-5235, Box 1070
Editor, Medical news: Kleila Carlson, 362-8261, Medical School Box 8065
Assistant Editor: Carolyn Sanford, 935-5293, Box 1070
Contributing writers: Debby Aronson, Jim Dryden, Gerry Everding, Tony Fitzpatrick, Nancy Galofre, Jim Keeley, Juli Leistner, Nancy Mays, Dave Moessner, Joni Westerhouse and Mike Wolf
Photographers: Joe Angeles, Tom Heine, David Kilper and Herb Weitman
Production: Galen Harrison
Record (USPS 600-430;ISSN 1043-0520), Volume 17, Number 29/April 29, 1993. Published for the faculty, staff and friends of Washington University. Produced weekly during the school year, except school holidays, and monthly during June, July and August by the Office of Public Affairs, Washington University, Campus Box 1070, One Brookings Drive, St. Louis, Mo. 63130. Second-class postage paid at St. Louis, Mo.
Address changes and corrections:
Postmaster and non-employees: Send address changes to Record, Washington University, Campus Box 1070, One Brookings Drive, St. Louis, Mo. 63130.
Hilltop Campus employees: Send to Office of Human Resources, Washington University, Campus Box 1184, One Brookings Drive, St. Louis, Mo. 63130.
Medical Campus Employees: Send to Payroll Office, Washington University, Campus Box 8017, 660 S. Euclid, St. Louis, Mo. 63110.

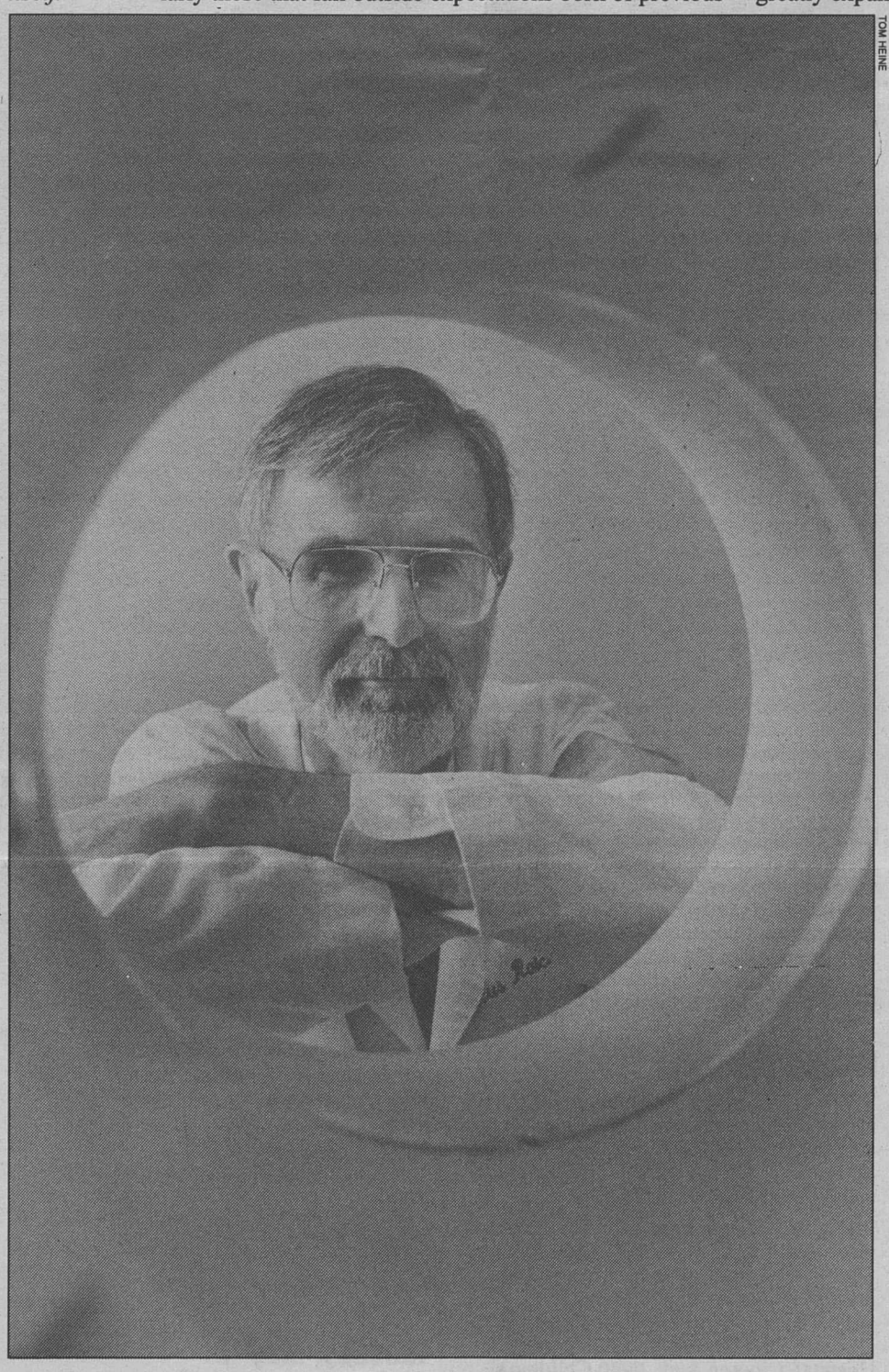
Washington
WASHINGTON·UNIVERSITY·IN·ST·LOUIS

Washington People

Raichle conducts inquiry into 'symphony of thought'

In man's brain the impressions from outside are not merely registered; they produce concepts and ideas. They are the imprint of the external world upon the human brain. Therefore, it is not surprising that after a long period of searching and erring, some of the concepts and ideas in human thinking should have come gradually closer to the fundamental laws of this world, that some of our thinking should reveal the true structure of atoms and the true movement of the stars. Nature, in the form of man, begins to recognize itself.

Victor Frederick Weisskopf — 1962


TOM HEINE

If, as Weisskopf says, nature comes to recognize itself, can the brain then know itself? Can the tool of understanding be understood? Marcus E. Raichle, M.D., says yes.

Now a third of the way through the Decade of the Brain, Raichle says his goal of "understanding how the brain works" sounds less nebulous than it did 20 years ago when he began devising ways to explore the functions of the body's most complex organ. By using positron emission tomography (PET) to map the brain and identify areas that are active during precisely controlled tasks, Raichle has seen proof that eventually we will understand the mechanisms of normal thought and emotion.

In some measure, Raichle says, the brain can be visualized as an orchestra, where English horn, oboe and cello combine on a passage for a particular effect. Likewise in the brain, specialized areas link to perform a certain task. PET images show increased activity in particular areas of the brain as a mental task is processed. By painstakingly designing experiments that require precise types of thinking, Raichle and his colleagues are well into the "long period of searching and erring" that someday will identify who does what in the symphony of thought.

For example: Much of the recent seminal research concerning human brainwork done here concerns language because, as Raichle asks, "What is more human than language?" Working with Steven Petersen, Ph.D., to design language-processing tasks, Raichle, professor of neurology and radiology, has identified two distinct thought pathways in the brain: one automatic, the other non-automatic.

"It is an old idea that we must automate much of what our brains do. We simply couldn't get out of bed in the morning if we had to make every decision every time," Raichle says. As an example of the autopilot the brain sometimes relies on, he offers the common experience of switching to a new car from one driven for years. Almost everybody looks for the ignition in the wrong place or steps on the brake for the clutch in an automatic movement that is nonetheless controlled by the brain. Or consider Petersen's experience of driving down the same highway to work every day, then one evening while taking that highway to a baseball game he finds himself standing at his office door instead of at the ticket turnstile. Guided down the automatic pathway, he became what we sometimes call "absent-minded."

To explore this automatic/non-automatic circuitry, Raichle showed subjects a list of 40 nouns on a screen, one at a time, and asked for an appropriate verb for each. The PET scanner revealed highly lateralized activity on the left side of the brain as the subjects searched in their mental dictionaries for responses such as the verb "hit" to the noun "hammer."

But after they had practiced the list, providing the same verbs repeatedly, subjects no longer showed that brain activity. They had switched the task to an automatic circuit. When Raichle changed the nouns, the non-automatic circuits again glowed brightly with increased activity.

"We can flip back and forth between the pathways," Raichle says. "Now we are working on ways to make subjects come up with new verbs each time so we can explore the non-automatic circuitry more fully."

Once a mental procedure has been automated, researchers ask, can the brain think of other things while it oversees the automatic action? How much interference is necessary to occasion the shift from automatic to non-automatic?

"This makes it great fun to consider the issue of economy and efficiency in the nervous system. With its billions of neurons, the brain is vast. But it is limited," Raichle says.

> "It is an old idea that we must automate much of what our brains do. We simply couldn't get out of bed in the morning if we had to make every decision every time."

In another series of brain studies, Raichle explores human memory. Neurologists traditionally have believed that the brain's hippocampus is the seat of the memory. But by testing subjects' ability to recall whole words when shown only their first three letters, Raichle is fine-tuning that understanding.

Though the interpretation of the recent studies remains open, Raichle believes that the hippocampus may be responsible for "writing down" occurrences, particularly those that fall outside expectations born of previous experience. But the scanner has shown little activity there during recalling.

Such experiments require great care to devise and refine. The group's first try at assessing language memory involved showing subjects a series of words, then scanning while word stems were shown. The subjects were asked to recall any whole words they had seen that began with the word stem's three letters. As traditional thinking would have predicted, the hippocampus became active, along with the frontal lobe.

But the activity all appeared on the right side of the brain, opposite to where language processing is generally agreed to occur. Later refinements of the experiment showed that subjects had been matching letter shapes and probably not processing language at all. In later versions of the study, the words were presented auditorily or in upper and lower cases to ensure that the brain was performing language tasks, Raichle explains.

Soon, this work and more will be centralized in a new 70,000-square-foot facility scheduled for completion by summer 1994. The research center is being added to the medical school's East Building and will house a PET scanner and three of the latest magnetic resonance (MR) scanners from Siemens, known colloquially among the scientists who use them as "magnets."

The MR scanners will aid in brain research by greatly expanding on the observation of Linus Pauling that the magnetic properties of red blood cells vary depending on how much oxygen they carry. When a portion of the brain becomes active and blood flow to that area rises, oxygen levels increase. The MR scanner can record that change and produce a computer-assisted image of the brain's activity. MR technology requires no radioisotopes and spares patients exposure to even the minimal radiation doses associated with PET.

By combining these technologies in a center devoted entirely to research, Raichle says his group of investigators (known among the world's neuroscientists as "the St. Louis group") is placed in an "unbelievably enviable position. There may not be another center in the world with this kind of horsepower."

When Raichle moves his offices to the East Building, it will be the first time he has relocated during 22 years at the medical school. He has always operated out of the sixth floor of Washington University's Mallinckrodt Institute of Radiology, and, in a small inside joke, he expects that "many days, I may end up back at the old office when I should have turned."

For the same 22 years, he has lived with his wife and four children in the house they bought when they first came to St. Louis. The family's interaction with the University runs deep. Two sons have graduated from the University: one is a St. Louis attorney; the other now lives in Seattle. Two daughters are attending the University: The elder is a student of economics, and the younger is a sophomore majoring in psychology.

Each August, the family travels to Seattle, where Raichle was raised and where his mother and his sister make their home. Raichle's cabin sits on the edge of Puget Sound's Hood Canal, commanding an unrestricted view of the water and the Olympic Mountain Range beyond.

The location suggests Raichle's passion for mountaineering. His family name is known to mountaineers both in Europe and the United States as manufacturers of fine hiking and ski boots. In May, a number of Raichle's fellow investigators, who are also friends and adventurers, are off to Mount Everest to further their work on the effects and prevention of altitude sickness. Professional responsibilities will prevent Raichle from joining them on this trip as he has on past ventures into the Himalayas.

Foregoing the mountain adventure, Raichle has other interests to occupy him. Since his youth he has sailed, and he maintains two wooden sailboats at the western residence. He doesn't sail in Missouri, because "sitting on a boat in that summer sun" doesn't appeal to him. He and his wife agree that it is best to leave such diversions for the time when he can truly be away from the demands of his work.

For satisfaction outside of work while in St. Louis, Raichle plays the English horn and oboe. He began as a child and played all through college, putting aside his instruments only during medical school. In 1976, he came out of retirement and joined the Kirkwood Symphony, which he describes as "an admixture of aspiring professionals and people like me who participate to fulfill our Walter Mitty-ish visions." He plays three or four concerts a year, studies to improve and often is asked to perform solos.

The orchestra — its organization, complexity and balance — is the source of many of the images Raichle uses to describe his work with the brain. For him, playing music and leading scientific inquiry into brain function both are enjoyable. They fall under the umbrella of what Carl Sagan was talking about in 1979, when he said:

> *We are an intelligent species, and the use of our intelligence quite properly gives us pleasure. In this respect, the brain is like a muscle. When it is in use we feel very good. Understanding is joyous.*

— Steve Kohler

Calendar

April 29–May 8

JOE ANGELES

Above: Employees cheer on their co-workers during a softball game at last year's Staff Day. The 18th annual Staff Day is scheduled for May 17. Staff will receive service awards during an 11 a.m. recognition ceremony in Edison Theatre. A complimentary lunch in Bowles Plaza will follow the program. After lunch, a variety of activities will be offered, including volleyball and softball tournaments, a Forest Park bike ride, bingo, and an arts and crafts show. Please RSVP to the Office of Human Resources, Box 1184, by Friday, May 7, if you plan to attend the lunch. For information, call 935-5990.

Exhibitions

"Bachelor of Fine Arts Graduation Exhibition." Exhibit opening: 5-7 p.m. May 7. Exhibit continues through May 16. Gallery of Art, upper gallery, Steinberg Hall. Hours: 10 a.m.-5 p.m. weekdays; 1-5 p.m. weekends. For more info., call 935-6597.

"The Core Show." Exhibit opening: 5-7 p.m. April 30. Exhibit continues through May 16. Bixby Gallery, Bixby Hall. Hours: 10 a.m.-4 p.m. weekdays; 1-5 p.m. weekends. For more info., call 935-4643.

Master of Fine Arts Thesis Exhibition II. Through May 2. Gallery of Art, upper gallery, Steinberg Hall. Hours: 10 a.m.-5 p.m. weekdays; 1-5 p.m. weekends. For more info., call 935-6597.

"Perspectives: Jarvis Thurston and Mona Van Duyn." Through May 7. Olin Library, Special Collections, Level 5. Hours: 8:30 a.m.-5 p.m. weekdays. For more info., call 935-5495.

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

"Bodies, Bones and Belligerence: China Perceived by Westerners, 1914-1941." Through May 28. Glaser Gallery, seventh floor, School of Medicine Library. Hours: 8 a.m.-10 p.m. weekdays; 1-6 p.m. weekends. For more info., call 362-4239.

"Goddesses, Queens and Women of Achievement on Coins and Medallions From the Wulfing and Bixby Collections." Through July 3. Gallery of Art, lower gallery, Steinberg Hall. Hours: 10 a.m.-5 p.m. weekdays; 1-5 p.m. weekends. For more info., call 935-4523.

Lectures

Thursday, April 29

Noon. Dept. of Genetics seminar, "Allelic Losses in Squamous Cell Carcinoma," Steve Scholnick, asst. prof. of otolaryngology, WU School of Medicine. Room 816 McDonnell Medical Sciences Bldg.

Noon. Dept. of Pediatrics Research Seminar, "A Novel GATA-binding Transcription Factor Expressed in Heart and Endodermal Derivatives," David Wilson, asst. prof. of pediatrics, WU School of Medicine. Third Floor Aud., St. Louis Children's Hospital, 400 S. Kingshighway.

4 p.m. Central Institute for the Deaf Research Seminar, "Identification of Genes for Inherited Disorders Using Mapping Technologies," Helen Donis-Keller and Paul Goodfellow, Dept. of Medical Genetics, WU School of Medicine. Second Floor Aud., Clinics and Research Bldg., 909 S. Taylor Ave.

4 p.m. Dept. of Chemistry seminar, "The Use of Dipeptide Mimetics in Drug Design," Gary Flynn, Merrel-Dow. Room 311 McMillen Laboratory. (Coffee: 3:40 p.m.)

4 p.m. Dept. of Mathematics colloquium, "Kumon Machine: Learning Math With Silicon Paper," Dan Kimura, assoc. prof., WU Dept. of Computer Science. Room 199 Cupples I Hall. (Tea: 3:30 p.m., Room 200.)

4 p.m. Division of Biology and Biomedical Sciences student-sponsored seminar, "Herpes Simplex Virus Gene Expression During Productive Infection and Latency," Priscilla Schaffer, Stanford U. Erlanger Aud., McDonnell Medical Sciences Bldg.

4:30 p.m. Program in Physical Therapy presents the Fourth Annual Steven J. Rose Lectureship, "Creating a Culture of Disability Prevention in Physical Scientists," Alan M. Jette, senior research scientist, New England Research Institute, Boston. Moore Aud., 4580 Scott Ave.

Friday, April 30

8:30 a.m.-5 p.m. Office of Continuing Medical Education seminar, "Current Issues in Amplification." Frontenac Hilton Hotel, St. Louis, Mo. Cost: $75. For more info., call 362-6893 or (800) 325-9862.

9:15 a.m. Pediatric Grand Rounds, "Immunizations — Up To Date?" Penelope G. Shackelford, prof. of pediatrics and assoc. prof. of molecular microbiology, WU School of Medicine; Pediatric Infectious Diseases Division, St. Louis Children's Hospital. Clopton Aud., 4950 Children's Place.

Noon. Dept. of Cell Biology and Physiology seminar, "Manipulation of Wound Healing With Growth Factors," Jeffrey M. Davidson, Dept. of Pathology, Vanderbilt U. School of Medicine, Nashville, Tenn. Room 423 McDonnell Medical Sciences Bldg.

4 p.m. Dept. of Anatomy and Neurobiology seminar, "Analysis of Gene Expression in the CNS: Building the Tools," David Gottlieb, prof., WU Dept. of Anatomy and Neurobiology. Room 928 McDonnell Medical Sciences Bldg.

Saturday, May 1

7:30 a.m.-3:15 p.m. Office of Continuing Medical Education seminar, "Depression and Related Disorders in Women," Raj Nakra and Elizabeth P. Pribor, program chairpersons. (6 credit hours AMA Category 1.) Doubletree Conference Center, Chesterfield, Mo. Cost: $75 for physicians; $40 for physicians-in-training and allied health professionals. For more info., call 362-6893 or (800) 325-9862.

9 a.m. Dept. of Anatomy and Neurobiology seminar, "Auditory Cortex: Maps and Mechanisms," Chris Schreiner, U. of California, Berkeley. Erlanger Aud., McDonnell Medical Sciences Bldg.

9 a.m.- 12:30 p.m. The WU AIDS Clinical Trials Unit symposium, "Advances in the Management of Fungal Infections," Michael Saag, assoc. prof. of medicine and director, U. of Alabama AIDS Outpatient Clinic, Birmingham; John Wingard, prof. of medicine and clinical director, Bone Marrow Transplant Program, Emory U. School of Medicine, Atlanta; William Powderly, asst. prof., WU Dept. of Medicine; Victoria Fraser, asst. prof., WU Dept. of Medicine. Ritz-Carlton Hotel St. Louis, 100 Carondelet Plaza. Cost: $50 for physicians; $35 for allied health professionals and general public; free for physicians-in-training and HIV-positive persons. For more info. and reservations, call 362-2418.

Monday, May 3

4 p.m. Graduate Program in Immunology seminar, "Cell Shape Changes in *Drosophila* Spectrin Mutants," Daniel Branton, Higgins Professor of Biology, Harvard U., Cambridge, Mass. Third Floor Aud., St. Louis Children's Hospital, 400 S. Kingshighway.

Tuesday, May 4

9 a.m. Dept. of Psychiatry presents the Samuel B. Guze Lecture, "Biological Psychiatry or Psychobiology? Lessons From Cognitive Therapy," Michael Gelder, Handley Professor and chair, Dept. of Psychiatry, University of Oxford. Clopton Aud., ground floor, Wohl Clinic Bldg., 4950 Children's Place.

12:10 p.m. Program in Physical Therapy Brown Bag Research Seminar, "Progress Report on Low Back Syndrome Projects at Barnes Physical Therapy," Janet Tenhula, orthopedic clinical specialist, Barnes Physical Therapy. Steven J. Rose Conference Room, third floor, Room 3400 East Bldg.

2 p.m. Center for the Study of Islamic Societies and Civilizations lecture, "Orhan Pamuk's *Black Book*," Bernt Brendemoen, U. of Oslo, Norway. Cohen Lounge, Room 113 Busch Hall.

3:30 p.m. Jewish Hospital presents a program for Mental Health Awareness Month, featuring Chris Sizemore, who was the subject of the movie "The Three Faces of Eve." She will discuss multiple personalities. Steinberg Amphitheatre, Jewish Hospital.

4 p.m. School of Medicine presents the Julia Hudson Freund Memorial Lecture in Recognition of Meritorious Research in Oncology, "The Retinoblastoma and the Control of the Cell Cycle," Robert A. Weinberg, member of the Whitehead Institute for Biomedical Research and prof. of biology, Massachusetts Institute of Technology. Carl V. Moore Aud., first floor, North Bldg., 4580 Scott Ave.

Wednesday, May 5

7:30 a.m.-3:30 p.m. Office of Continuing Medical Education seminar, "An Update in General Thoracic Surgery," Joel D. Cooper and Alec Patterson, program chairmen. (6 credit hours AMA Category 1.) WU Medical Center, St. Louis. Cost: $50 by May 4; $70 on-site for physicians, physicians-in-training and allied health professionals; free for full-time staff. For more info., call 362-6893 or (800) 325-9862.

Thursday, May 6

4 p.m. Dept. of Molecular Biology and Pharmacology and the students of the Division of Biology and Biomedical Sciences seminar, "Determination of Retinal Cell Fate," Connie Cepko, Dept. of Genetics, Harvard U., Boston. Erlanger Aud., McDonnell Medical Sciences Bldg.

Friday, May 7

Noon. Dept. of Cell Biology and Physiology seminar, "Bioactive Peptides From Multiple Domains of Thrombospondin," William A. Frazier III, prof., WU Dept. of Biochemistry and Molecular Biophysics. Room 423 McDonnell Medical Sciences Bldg.

6 and 8:30 p.m. WU Association Travel Lecture Series, "The Faces of Italy" by Dale Johnson, former director of the television series "The Lone Star Sportsman." His most recent film for the National Forest Service won a gold medal at the New York International Film Festival. Graham Chapel. Cost: $4.50 at the door. For info., call 935-5212.

Music

Thursday, April 29

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

Friday, April 30

8 p.m. WU Opera presents opera scenes, directed by John and Jolly Stewart. Scenes from Massenet's "Cendrillon," Rossini's "La

Cenerentola" and Johann Strauss' "Die Fledermaus." Graham Chapel.

Sunday, May 2

2 p.m. Dept. of Music presents a graduate recital with keyboardist Erik Entwistle on piano and fortepiano. Graham Chapel.

7:30 p.m. The University City Symphony Orchestra presents the Young Artists' Awards Concert, conducted by William Schatzkamer. Graham Chapel.

8 p.m. Dept. of Music presents an electronic music concert, directed by Richard O'Donnell. Tietjens Rehearsal Hall.

Miscellany

Friday, April 30

8:30 a.m.-5 p.m. Office of Continuing Medical Education seminar, "Current Issues in Amplification." (Continues Saturday, May 1, 8 a.m.-1 p.m.) Frontenac Hilton Hotel, St. Louis. Cost: $175. For more info., call 362-6893 or (800) 325-9862.

10 a.m.-5 p.m. Committee on Social Thought and Analysis interdisciplinary conference, "Explaining Social Phenomena." (Continues May 1, 9 a.m.-6:30 p.m. and May 2, 10 a.m.-12:30 p.m.) Speakers include Craig Calhoun, U. of North Carolina, Chapel Hill; Frank Furstenberg, U. of Pennsylvania, Philadelphia; Richard Easterlin, U. of Southern California, Los Angeles; Michele Lamont, Princeton U.; Jon Elster, U. of Chicago; and Donald McCloskey, U. of Iowa, Iowa City. Alumni House, 6510 Wallace Circle. Reservations necessary. For more info. and reservations, call 935-4860.

11:30 a.m. The Woman's Club of WU announces a spring luncheon/program: annual business meeting and election of officers, followed by a docent tour. Saint Louis Art Museum Cafe. Cost: $13.50. For more info. and reservations, call Annette Kimelman at 991-1261 or Jan Kardos at 763-0523.

Monday, May 3

5:15 p.m. Dept. of Athletics offers summer tennis program for adult beginner players. (Also offered 6:15 p.m. for adult intermediate players.) Meets Mondays and Wednesdays through May 26. Cost: $50. For more info. and registration, call 935-5220.

Thursday, May 6

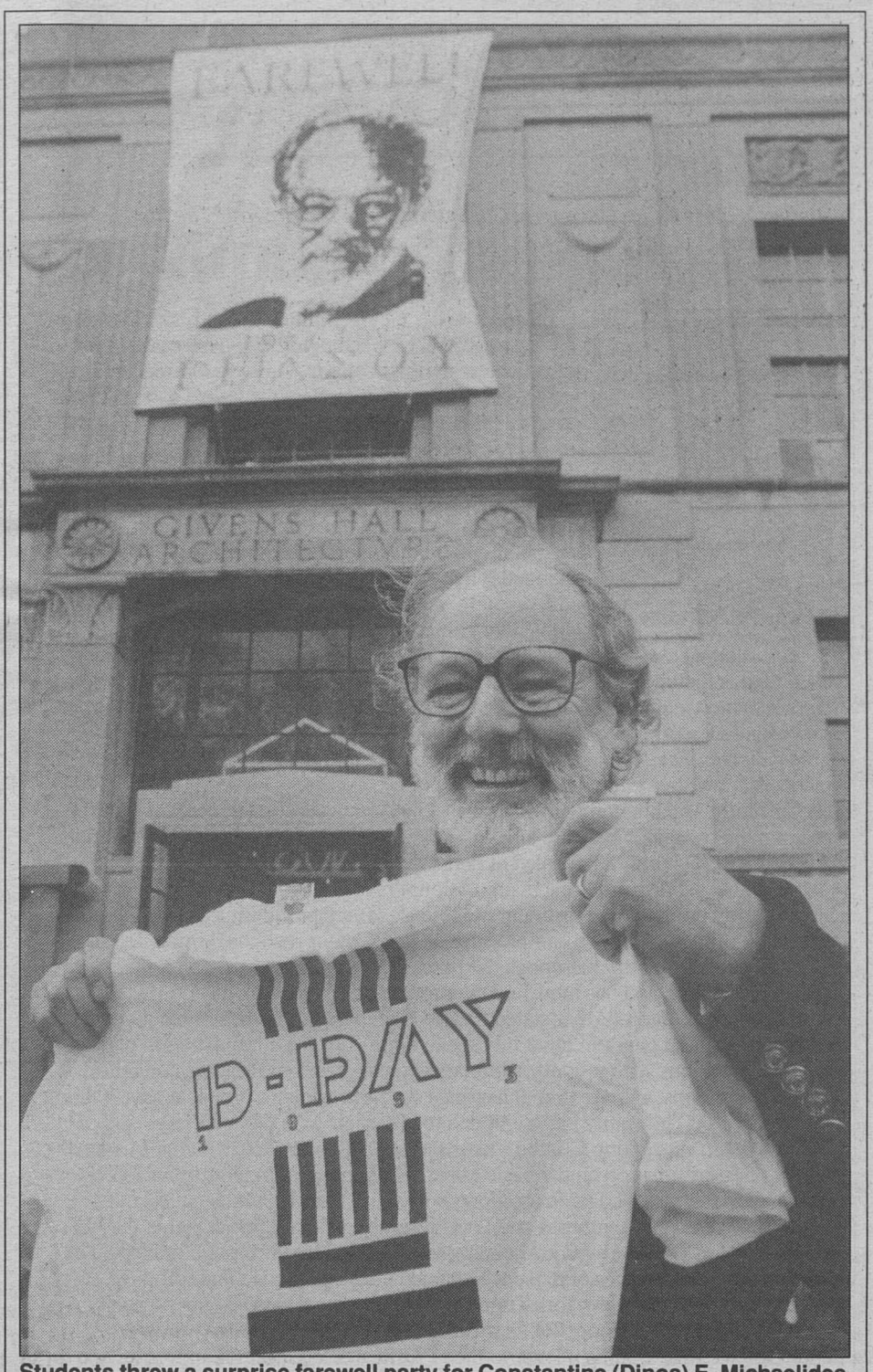
1-3:30 p.m. WU Medical Center Alumni Association Reunion. (Also May 7, 2-4:15 p.m. and May 8, 10 a.m.-noon.) WU Medical Center on May 6 and 7; Ritz-Carlton Hotel St. Louis on May 8. For more info. and detail on events, call 362-0299.

Calendar guidelines

Events sponsored by the University — its departments, schools, centers, organizations and its recognized student organizations — are published in the Calendar. All events are free and open to the public, unless otherwise noted.

Calendar submissions should state time, date, place, sponsor, title of event, name of speaker(s) and affiliation, and admission cost. Quality promotional photographs with descriptions are welcome. Send items to Marie Doss at Box 1070 (or via fax: 935-4259). Submission forms are available by calling 935-8533.

The deadline for all entries is noon Tuesday one week prior to publication. Late entries will not be printed. The Record is printed every Thursday during the school year, except holidays, and monthly during the summer. If you are uncertain about a deadline, holiday schedule, or any other information, please call 935-8533.



Students threw a surprise farewell party for Constantine (Dinos) E. Michaelides, dean of the School of Architecture, last Friday at Givens Hall. Michaelides has served as dean of the school since 1973. He will retire effective July 1.

Sports

Baseball

Last Week: Washington 6, McKendree 5; Washington 6-6, Rose-Hulman 2-10; Washington 6-2, Millikin 3-4

This Week: Maryville University, 6 p.m. Wednesday, April 28, St. Louis. (End of Season)

Current Record: 18-18-1

Heading into last weekend's five-game homestand, the Bears needed to win at least three of the five games to notch their third consecutive winning season. On Friday they played McKendree. Trailing 5-3 in the bottom of the ninth, Jason French, St. Charles, Mo., who earlier belted a two-run homer, led off with a double. Then with one out, freshman Dan Linde, Beverly Hills, Calif., delivered a pinch-hit single, which scored French. Freshman Isaac Mosley, Galesburg, Ill., drilled a pitch over the left field fence, giving the Bears the win.

French batted .467 in the five games (7 of 15), driving in six runs, and posting a 2.07 earned run average in three pitching performances. He is batting a career- and team-high .373 for the season.

Men and Women's Track and Field

Last Meet: University Athletic Association (UAA) Championships — Men's team: 4th of 8; Women's team: 3rd of 8

This Week: Idle.

Hosting the Sixth Annual UAA Outdoor Championships this past Saturday and Sunday, the Washington women's team placed a surprisingly strong third, while the men's team finished a rather disappointing fourth. Posting Washington's only individual championship was sophomore Jennifer Hendricks, Omaha, Neb.,who won the shot put competition. Junior Tirzah Wilson, Benton Harbor, Mich., placed second in the 100 meters and third in the 200. Freshman Julie Pearman, Desloge, Mo., earned runner-up status in both the 100- and 400-meter hurdles. On the men's side,second-place finishes were earned by junior hammer thrower Brent Rice, Cincinnati, Ohio, and freshman triple jumper Kenneth Walker, Memphis, Tenn.

Women's Tennis

Last Week: Washington 9, Carnegie Mellon 0; Washington 6, Brandeis 3; Emory 5, Washington 0

This Week: Regular season complete.

Current Record: 5-5

Competing at the UAA Championships in Ohio, the Bears placed second in the conference for the fifth consecutive year. After whitewashing Carnegie Mellon on Friday, the Bears scored a 6-3 semifinal win over Brandeis. During Sunday's finals national power Emory dealt the Bears a 5-0 blow. Among those looking to secure all-Association status in this week's balloting will be second-singles junior Kim Villena, Cincinnati, Ohio; third-singles senior Ivy Brown, Moorestown, N.J.; and fifth-singles junior Stacy Leeds, Muskogee, Okla.

Men's Tennis

Last Week: Washington 8, Missouri-St. Louis 1; Washington 7, St. Louis 2; Washington 9, New York 0; Emory 5, Washington 3; Washington 6, Chicago 0

This Week: Regular season complete.

Final Record: 7-6

With a third-place finish at the UAA Championships, Washington extended its string of winning seasons to 13 with a final season record of 7-6. Washington fell 5-3 to Emory. The Bears bounced back in the third place match with a 6-0 win over Chicago.

Junior Rich Berens, Chesterfield, Mo., and senior Scott Wolf, St. Louis, Mo., appear to be headed for the NCAA Division III National Championships, which will be contested May 21-24 in Kalamazoo, Mich. Berens, 10-3 in singles at the Bears' top slot, is ranked 10th nationally. Berens and Wolf, Washington's top doubles tandem, is 12-3 and also ranked 10th in the country.

Athletics department offers 1993 summer camps for youths, adults

The Deparment of Athletics has announced its offerings for the Bears' 1993 Summer Programs. There are a number of youth and adult programs, and all are open to the public.

For adults, tennis is available on Mondays and Wednesdays, May 3-26, with a session for beginners from 5:15 to 6 p.m. and a session for intermediate players from 6:15 to 7 p.m. The cost for the tennis program is $50. Lynn Imergoot, women's tennis coach, will teach the sessions.

For youths, programs will focus on football, soccer, basketball and volleyball.

The Kindbom-Meyer Football Passing Camp is open to boys entering 7th through 12th grades. Skill positions, line positions and fundamentals will be taught by Larry Kindbom and staff. Session I runs from June 9-11 and Session II runs from June 14-16. Session II also will include kicking skills. Both programs will be held from 9 a.m. to 4 p.m. The camp costs $70 a session.

Soccer Camp is open to boys and girls, ages 7 to 15. There will be two sessions, June 21-25 and July 12-16. Participants can attend from 9 a.m. to noon, 1 to 4 p.m. or all day. Cost is $60 a week for morning or afternoon sessions and $105 for all-day sessions. Soccer camp will be taught by Ty Keough and staff.

Basketball Camp will be offered June 14-18 from 9 a.m. to 4:45 p.m. It is open to boys and girls ages 10-15. Fundamental instruction and games will be taught by Mark Edwards, Nancy Fahey and staff. Basketball Camp costs $105.

Various Hit Volleyball Camps will be available for children and young adults enrolled in 2nd through 12th grades. Head volleyball coach Teri Clemens will teach the camps. Dreamers camps for players entering 2nd through 6th grades will be held from 6 to 8:30 p.m. daily June 27-July 1 or July 5-9. The cost is $55.

Believers Camp for players entering 7th through 9th grades will be held June 28-July 2 from 9 a.m. to 4 p.m. Monday-Thursday and 9 a.m. to noon on Friday. The cost is $105.

Achievers Camp for players entering 9th through 12th grades will be held June 21-25 from 9 a.m. to 4 p.m. daily and 9 a.m. to noon on Friday. The cost is $105.

Elite Achievers Weekend, a weekend of tournament play after Achievers Camp, will be held June 25-27. The weekend is for players in grades 10 through 12. The Achievers Camp plus Elite Weekend costs $135.

Specialized camps include: Setters Camp (9 a.m. to 4 p.m. July 5-6, $50); Middle Blocker Camp (9 a.m. to 4 p.m. July 7, $25); and Outside Hitter Camp (9 a.m. to 4 p.m. July 8, $25).

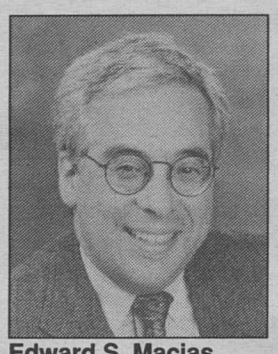
For information and registration, call the Department of Athletics at 935-5220.

Committee oversees renovations — *from page 1*

School of Social Work; Annette M. Gilson, a doctoral candidate in English and American literature; Thomas G. Harmon, Ph.D., Clifford W. Murphy Professor of Civil Engineering and director of the Structural Engineering Laboratory; Gary M. Hochberg, Ph.D., associate dean for the undergraduate program, John M. Olin School of Business; Michelle A. Loyet, a junior majoring in earth and planetary sciences and anthropology; James E. McLeod, dean of the College of Arts and Sciences; John K. Russell, Ph.D., associate dean and registrar, School of Engineering and Applied Science; Robert W. Sussman, Ph.D., professor of anthropology; and Virginia F. Toliver, director of administration and planning for Olin Library.

Observations *From the Provost*

Annual Report to the University Community from the Provost: The State of the ROTC Issue


Edward S. Macias

In March 1991, the Committee to Study the Relationship of ROTC to Washington University issued its report and recommendations. Those recommendations were subsequently endorsed by the Board of Trustees at its April 1991 meeting.

The Committee recommended that Washington University be allied with other institutions of higher education in an effort to persuade the Department of Defense that its current discrimination on the basis of sexual orientation is indefensible and should be changed. The Committee further charged the provost with annually reporting the state of this issue to the University community.

In furtherance of another of the Committee's recommendations, the following statement is included in all University publications in which the University's non-discrimination statement or a reference to ROTC appears:

Present Department of Defense policy governing ROTC and AFROTC programs discriminates on the basis of sexual orientation; such discrimination is inconsistent with Washington University policy.

Currently, Washington University has 33 students enrolled in the Army ROTC program on campus. There are an additional 14 University students enrolled in the Air Force ROTC program located at Parks College.

In January, shortly after his inauguration, President Bill Clinton took the first step toward ending the Department of Defense Policy prohibiting gays and lesbians in the military. Under a compromise he worked out with the Armed Services Committee, the military has ended the practice of asking recruits about their sexual orientation and has modified the process of discharging gays from the armed forces. Clinton further stated that he is prepared to issue an executive order ending the ban on gays effective July 1993. Until July, the administration plans to hold consultations with military commanders, congressional leaders and other concerned groups. Congressional hearings on the president's proposal have begun.

Washington University has continued to ally itself with other colleges and universities in supporting Clinton's plan and opposing the Department of Defense policy of discrimination on the basis of sexual orientation. In November 1992, Chancellor William H. Danforth, along with more than 100 universities and university presidents, endorsed an ACLU resolution calling for an end to the U.S. Department of Defense's policy banning lesbians and gays from the military. The resolution and the names of those who signed it was published in a full-page advertisement in The New York Times.

In January 1993, Chancellor Danforth joined 66 other university presidents and chancellors in signing a letter to then President-elect Clinton, urging an end to the military's ban on gays as soon as possible. In the letter, the educators stated that the exclusion of gays and lesbians from ROTC programs was "antithetical" to the institutions' commitment to equal access and opportunity for all its students.

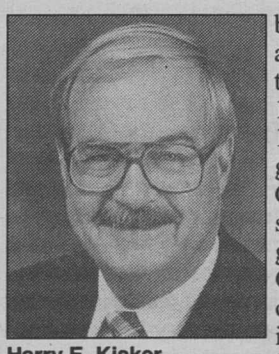
Higher education associations have supported a change in the Department of Defense policy. In February 1993, Robert Atwell, president of the American Council of Education (ACE), wrote a letter to Secretary of Defense Les Aspin on behalf of the American Association of Community Colleges, the American Association of State Colleges and Universities, the American Council on Education, the Association of American Universities and the National Association of State Universities and Land-Grant Colleges. In his letter, President Atwell endorsed President Clinton's plan to allow gays and lesbians in the armed forces, which would effectively end discrimination in ROTC programs.

In addition, there has been support outside of the higher education community for ending the military's current policy. Early this year a newly formed coalition of national professional associations, religious organizations, and civil rights organizations wrote to President Clinton supporting his plan to allow gays and lesbians in the armed forces and to offer their assistance and advice in implementing the plan. Among the 28 members of the coalition are the American Psychological Association, the American Council on Education, the American Bar Association, ACLU, and the National Education Association.

There has been less activity on the legislative level. In August 1992, the Military Freedom Act was introduced by Rep. Pat Schroeder (D-Colo.) and Sen. Howard Metzenbaum (D-Ohio). The act would have banned discrimination against gays and lesbians and would have prohibited discharge solely on the basis of sexual orientation. However, the act did not make it through congressional subcommittees.

Fewer colleges and universities have directly addressed the ROTC issue this year than in 1991-92. The University of Minnesota voted in January to delay the decision whether to take action against ROTC. In October 1992, the University of Maine Faculty Senate approved a resolution calling for the University to disassociate from ROTC by 1994 unless the military's policy is changed. The resolution followed the dismissal of a student from Air Force ROTC after admitting he was gay. The University of Southern Maine eliminated Army ROTC as an option for new students because of the military's ban on gays as well as declining student interest. Most colleges and universities are hopeful that Clinton will end the ban this summer and have adopted a wait and see attitude.

Kisker to serve as vice provost — *from page 1*


Harry E. Kisker

was an instructor and assistant dean of students at Mercy High School in St. Louis from 1974 to 1977. He earned a bachelor of arts degree in political science and history from Benedictine College in Atchison, Kan., his secondary teaching certificate from the University of Missouri at St. Louis and his master's degree in college student development from Southern Illinois University in Carbondale, Ill. He is pursuing his doctorate in higher education at St. Louis University.

Kisker has served in leadership positions in the student affairs program, beginning with his appointment with the University in 1978 through 1992. Kisker is a graduate of Colgate University and has done graduate work at Cornell. Prior to coming to Washington University in 1978, he was the chief student affairs officer at Lawrence University in Appleton, Wis.

Student environmental group promotes on-campus conservation

There's a hole in the ozone, toxins are wind-blown, water is depleting and forests are receding. Have environmental issues become cliche? Is recycling a thing of the past? Not according to junior Jessica Cragan and sophomore Sarah Bantz, co-facilitators of the student Environmental Action Group (EAG) at Washington University. Cragan and Bantz said they believe that working for the environment is more important now than ever. "It's important for our group to effect change locally and actually make some sort of difference in the St. Louis community," Cragan said.

The Environmental Action Group, funded through Campus Y and Student Union, is free and open to new members. Composed of approximately 25 Washington University students, EAG participates in a variety of activities — from petitioning government officials concerned with environmental issues, to promoting on-campus energy conservation.

Last fall, the student group's community outreach program took part in a project called "Operation New Spirit" in East St. Louis. Working with the Make East St. Louis Beautiful organization, EAG planted daffodils in front of city hall and in other public areas.

This past fall, EAG helped expand the University City recycling program to student apartments. Washington University students may purchase a recycling bin for $6 through EAG or University City's sanitation department. This fee is refundable upon return of the bin at the end of the school year. This year, about 30 students became involved in recycling.

Congress of the South Forty and EAG are working together to increase awareness of energy use among students. Congress members approached the environmental group last fall because of high energy bills. The EAG members came up with a contest idea for the best energy-saving slogan. Stickers with the slogan will be displayed in bathrooms, hallways and dorm rooms.

The student group also is working with two other Campus Y organizations, Adequate Housing for American Students to End Poverty and Operation Brightside to clean up area neighborhoods. In March the organization visited the Hamilton Heights neighborhood and beautified two government housing lots and mulched daffodil beds.

As part of Earth Week, April 19-24, EAG also sponsored a clean-up of Forest Park's waterfall area on April 24. The week also included teach-ins, stargazing, car conservation day and various speakers from the community. According to Cragan, "car conservation day was an effort to get students to carpool, walk or bicycle, rather than drive." Automobiles not considered energy-efficient were "ticketed" by the student group.

Along with energy conservation and recycling, EAG's community outreach program works with the Sierra Club and the Murphy Blair Girl's Club on a project called Inner City Outings. In April, they went on an overnight camping trip to give inner-city girls a chance to experience the wilderness.

For more information on membership or activities, call Jessica Cragan at 935-2203 or Sarah Bantz at 935-1181.

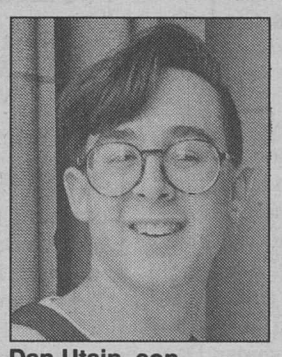
'April Welcome' visitors give their impressions

"April Welcome" is an expanded student recruitment program designed to offer prospective students and their parents the opportunity to experience a typical day on campus. Prospective students are sitting in on classes, spending the night in a residence hall and touring campus. The Record asked some "April Welcome" visitors what most impressed them about their visit and the program. Here are some responses.

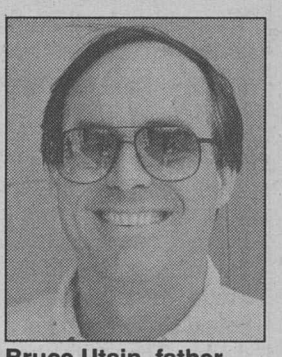
What has most impressed you about Washington University?


Sandy Utain, mother
Cherry Hill, N.J.

"I like how the University blends in with the surrounding city life. I like the urban campus, and St. Louis is quaint and beautiful. I've enjoyed visiting both the campus and the city."


Dan Utain, son
Cherry Hill, N.J.

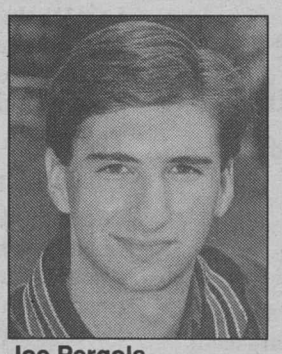
"The feel of the campus is great. There's a nice atmosphere. My favorite thing about the campus is that it's so close to the park. I like it."


Bruce Utain, father
Cherry Hill, N.J.

"The people have been extremely helpful and friendly. I like the fact that we're getting personalized attention. Also, we were impressed with the library."


Manjali Gupta
Bloomington, Minn.

"I like the size of the campus a lot. I want to major in both business and pre-med, and I like the fact that people have answered my questions about that. I've gotten access to actual students who go here, and that's been really good."


Joe Pergola
Tampa, Fla.

"I was impressed with the class sizes. They don't seem too small or too big. Also, the campus looks and feels collegial."


Hillary Weisfelner
Spring Valley, N.Y.

"It's a beautiful campus. The people have been so friendly. I like the fact that everybody has been so eager to help me and show me around."

For The Record

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

Of note

John W. Newcomer, M.D., assistant professor of psychiatry, received a $552,035 Scientist Development Award from the National Institute of Mental Health for a project titled "Accelerated Hippocampal Aging in Schizophrenic Patients." …

David A. Peters, Ph.D., professor of mechanical engineering and director of the Center for Computational Mechanics, will be named a fellow of the American Society of Mechanical Engineers during the society's ceremony to be held May 11 in St. Louis. …

During the Undergraduate Honors Conference for Communicative Arts held at DePauw University in Greencastle, Ind., **Heather D. Weger,** a junior majoring in drama with an emphasis in literary criticism, read her paper titled "The Bridge Between a Successful Autobiography and a Successful Literary Autobiographical Work." Her paper was one of 36 papers selected from approximately 120 submissions. …

Gary J. Weil, M.D., associate professor of medicine and assistant professor of molecular microbiology, was awarded a $60,000 grant from the World Health Organization's Special Program for Research and Training in Tropical Diseases. He received the grant to study protective immunity in filariasis, a parasitic disease that affects an estimated 75 million people living in the tropics.

Speaking of

During a presentation to the World Affairs Council of St. Louis, **Kenneth W. Chilton**, deputy director of the Center for the Study of American Business, spoke on "The Dynamic American Firm in a New World." …

During the Combustion Institute's Western States Section's spring meeting held in Salt Lake City, Utah**, Jianyi Du**, a doctoral candidate in mechanical engineering, presented a paper titled "$CH_4/N_2/O_2$ Counterflow Diffusion Flames With Varying Stoichiometric Mixture Fraction." The paper was co-authored by Du and **Richard L. Axelbaum**, Ph.D., assistant professor of mechanical engineering. …

Mark E. Frisse, M.D., associate dean for academic information management and director of the School of Medicine's Library and Biomedical Communications Center, delivered the Clifford D. Snyder and Mary Snyder lecture at the University of Utah Medical Center in Salt Lake City. His keynote lecture, titled "Seamless Information Systems," was part of a daylong conference on information management. …

During the Association for Research in Otolaryngology's midwinter meeting held in St. Petersburg, Fla., several faculty members from the Central Institute for the Deaf's Department of Speech and Hearing delivered presentations. **Julius Goldstein,** Ph.D., research professor of engineering, spoke on "Relating the MBPNL Model of Nonlinear Cochlear Function to Classical Cochlear Models Based Upon Structures" at a special session chaired by **S. Richard Silverman,** Ph.D., professor emeritus of audiology. **Gerald R. Popelka,** Ph.D., professor of audiology and director of professional education programs, delivered a paper/slide presentation titled "Growth of the 2f1-f2 Distortion Product Otoacoustic Emission With Stimulus Level in Normal-hearing Humans." **William W. Clark**, Ph.D., associate professor of physiological acoustics and director of the Communication Sciences Program, along with **Carl D. Bohl**, D.Sc., adjunct assistant professor of environmental health, delivered a poster session titled "Hearing Levels of U.S. Industrial Employees Not Exposed to Occupational Noise: The Search for an Appropriate Data Base B." …

Beata Grant, Ph.D., assistant professor of Chinese, delivered a paper titled "Who Is This I? Who Is That Other?: The Poetry of an 18th-century Chinese Laywoman" during the annual Association for Asian Studies' conference held in Los Angeles, Calif. She spoke as part of a panel organized by the Society for the Study of Chinese Religion. …

Susan K. Hannasch, J.D., associate general counsel, delivered a talk titled "You Mean This Mess Is My Responsibility?" during the National Association of College and University Attorneys' Midyear Continuing Legal Education Workshop on Environmental Law Issues. The workshop was held in Atlanta, Ga. Hannasch is co-chairperson of the association's environmental law section. …

During the Shakespeare Association of America's meeting held in Atlanta, Ga., **Robert Henke**, Ph.D., assistant professor of drama and comparative literature, presented a paper titled "Tragicomic Dramaturgy in Guarini and Shakespeare." …

As part of the Certified Hazardous Materials Managers Review Course held in St. Louis**, Dennis R. Nagy**, chemical waste technician in environmental safety for the Hilltop Campus, taught a section on the "Chemistry of Hazardous Materials." …

Jay S. Pepose, M.D., Ph.D., professor of ophthalmology and visual sciences, was an invited guest speaker of the Japanese Ophthalmologic Society in Tokyo, Japan. He lectured on "Herpetic Eye Disease" and "Ocular Manifestations of AIDS." …

Robert E. Sparks, D.Eng., Stanley and Lucy Lopata Professor of Chemical Engineering, presented a plenary lecture on "New Methods for Encapsulating Flavors and Fragrances" during the International Society for Flavors, Fragrances and Essential Oils' annual meeting held in Vienna, Austria. During the Eighth International Symposium on Microencapsulation held in Dublin, Ireland, he delivered a plenary lecture titled "Centrifugal Methods for Microencapsulation." …

Debra A. Swoboda, Ph.D., coordinator of disabled student services, presented a paper on "Notions of Commitment and Social Responsibility Among Political Activists" during the Southern Society for Philosophy and Psychology's annual meeting held in New Orleans, La.

On assignment

Sarah C. R. Elgin, Ph.D., professor of biology and of biochemistry and molecular biophysics, is a member of the National Academy of Sciences/National Research Council's working group on science curriculum standards for students enrolled in kindergarten through the 12th grade.

Etc.

Carter Revard, Ph.D., professor of English, helped plan a benefit concert for the American Indian Center of Mid-America, which is located in St. Louis. The concert was held at Powell Symphony Hall. During the Poetry Society of America's annual awards banquet held in New York City, Revard served as a judge in a poetry contest. He also read his poetry during a lecture series sponsored by Eastern Illinois University's cultural diversity committee. The lecture series, which was held at Eastern's campus in Charleston, Ill., was titled "One Nation: Many Voices."

Guidelines for submitting copy:

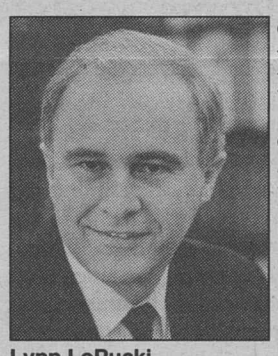
Send your full name, complete title, department, phone number, and highest-earned degree, along with a typed description of your noteworthy activity to For The Record, c/o Carolyn Sanford, Campus Box 1070. Items must not exceed 75 words. For information, call Carolyn Sanford at 935-5293.

LoPucki named Orthwein Professor of Law

Lynn LoPucki, LL.M., professor of law at the University of Wisconsin in Madison, has been appointed the William R. Orthwein Professor of Law, according to Dorsey D. Ellis Jr., J.D., dean of the School of Law. LoPucki, who will assume the position July 1, is a nationally recognized scholar in bankruptcy law.

"Professor LoPucki is an excellent classroom teacher," said Ellis. "He is one of the very few legal scholars who utilizes social science techniques to evaluate legal issues."

LoPucki practiced law for eight years in Florida, then joined the law faculty at the University of Missouri-Kansas City in 1980. In 1984, he joined the University of Wisconsin's law faculty.



Lynn LoPucki

He received his bachelor's degree in economics from the University of Michigan in 1965 and received his law degree with honors from the same institution in 1967. In 1970, he received an advanced law degree from the Harvard University Law School.

The William R. Orthwein Professor of Law chair was endowed by William (Bill) R. Orthwein Jr. in honor of his late father, who received a law degree from the University in 1905.

School of Engineering honors five alumni, presents Dean's Award to Elvera Stuckenberg

The School of Engineering and Applied Science presented Alumni Achievement Awards to five individuals during its 19th annual Alumni Achievement Awards Dinner held recently at the Missouri Botanical Garden.

In addition, Elvera Stuckenberg received the first Dean's Award, which is presented to an individual whose dedication to engineering education has enhanced opportunities for students and faculty. In 1987 Stuckenberg, along with her late brother, William, established the Elvera and William Stuckenberg Professorship of Technology and Human Affairs. Robert P. Morgan, Ph.D., holds the professorship.

The alumni award recipients are: Andrew M. Bursky, who received a bachelor's degree in economics and a bachelor's and a master's degree in chemical engineering, all in 1978; William T. Fuldner, who received a bachelor's degree in industrial engineering in 1949; Ellen L. Lee, D.Sc., who received a master's degree in 1966 and a doctorate in 1969, both in sanitary engineering; Peter A. Puleo, who received a bachelor's degree in chemical engineering in 1949; and Donald K. Ross, D.Sc., who received a doctorate in industrial engineering in 1960.

Bursky, managing director of Interlaken Capital Inc., a diversified investment company in Greenwich, Conn., received the school's first Young Alumni Award. He was honored for his outstanding career and community service achievements.

Fuldner is chairman of EFCO Corp., a Monett, Mo., company that designs and manufactures windows for industrial, commercial and institutional buildings. He was cited for his business and civic contributions.

Lee's company, Lee Engineering Enterprises in Sunnyvale, Calif., handles major water, wastewater and sewer system projects in the San Francisco Bay area and in Asia. She was recognized for her professional accomplishments.

Puleo is the retired president and board chairman of Industrial Process Equipment Co. in St. Louis, a local and national distributor and manufacturer of process fluid flow equipment. He was recognized for his business achievements and civic contributions.

Ross is the chairman of the board and chief executive officer of Ross & Baruzzini Inc., a St. Louis consulting engineering firm. The company, which specializes in building renovations as well as airport design and energy conservation, provides services for industrial, commercial and government organizations. The engineering school honored Ross for his accomplishments in energy conservation and engineering education, along with his community work.

Students receive awards to study in Germany

Gregory W. Baer, Dale K. Huffman and Cary A. Nathenson, all doctoral candidates in the Department of Germanic Languages and Literatures, have received 1993-94 stipends from the German Academic Exchange Service (DAAD).

In addition to the stipends, the service provides the students with round-trip air travel to Germany, tuition and a fee waiver at a host German university, as well as a small additional allowance for books and possible language study at a Goethe Institute.

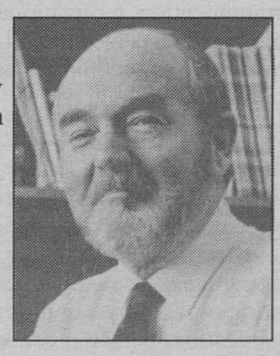
Baer plans to conduct research on Jurek Becker's novels, short prose and screenplays. He will study at the Free University of Berlin and other institutions in the city.

Huffman will examine the historiographical writings of Houston Stewart Chamberlain and will conduct research in Bayreuth. Nathenson will explore the psychological, sociological, aesthetic and political trends of writer Joseph Roth's work. He will conduct research at the Free and Humboldt universities in Berlin.

The deadline to apply for the 1994-95 DAAD stipends is Sept. 24, 1993. For more information, call Michele Shoresman, Ph.D., associate director of international studies, at 935-5958.

Campus Authors

The following is a recent release available at the Campus Bookstore in Mallinckrodt Center on the Hilltop Campus or at the Washington University Medical Bookstore in the Olin Residence Hall. For more information, call 935-5500 (Hilltop Campus) or 362-3240 (Medical School).



Architecture in the 20th Century is the title of a new book by **Udo Kultermann**, Ph.D., Ruth and Norman Moore Professor of Architecture. This definitive guide is the only source on 20th-century architecture to place design within its historical, sociological and political context. It covers all periods, types and movements, including unique coverage of Third World and Eastern European architecture. Kultermann offers a balanced presentation of the major phases of architecture, urbanism and architectural engineering from 1900 to 1992. He provides many insights into the complex and often contradictory applications of 20th-century architecture. Readers also will gain a keen understanding of current trends in international architecture. (Van Nostrand Reinhold, New York)

Opportunities & personnel news

Hilltop Campus

The following is a list of positions available on the Hilltop Campus. Information regarding these and other positions may be obtained in the Office of Human Resources, Room 126 North Brookings Hall, or by calling 935-5990.

Lab Aide Clerk - Part-time

930176. *Biology.* Requirements: High school graduate; general familiarity with computer terminals useful, but will train; capable of lifting 50 lbs. (animal food, mail bags); valid driver's license and clean driving record; good clerical and communication skills; some facility with numbers; must be absolutely, positively reliable; flexible enough to work varied duties; trustworthy so as to work occasionally without direct supervision. Clerical tests and three letters of recommendation required.

Department Secretary

930180. *Special Development Programs.* Requirements: Some college or other research-related experience; strong capacity to use on-line data bases and library-related sources of information; typing 50 wpm with accuracy; proofreading skills; capacity to conduct and keep track of several jobs at once; a flair for detail; good oral and written English skills; professional telephone skills. Clerical tests and three letters of recommendation required.

Administrative Secretary - Part-time

930183. *Center for the Study of Islamic Societies and Civilizations.* Requirements: Minimum of three years office experience; knowledge of foreign countries; FIS accounting system; knowledge of Washington University procedures; typing 50 wpm with accuracy. Clerical tests and three letters of recommendation required.

General Lab Assistant - Part-time

930184. *Biology.* Requirements: Bachelor's degree; other crafts-drawings preferred; skill in writing in English; typing 45 wpm with accuracy, includes some editing of manuscripts written by foreign research associates; rabies vaccination is required after employment, cost to be borne by department; person should be able to communicate well and be capable of assuming more responsibilities; must be dexterous and willing/able to do lab-related work, such as making electrodes. Resume and three letters of recommendation required.

Assistant Director

930186. *Development Services.* Requirements: Bachelor's degree, preferably in data processing. Duties: Program writing in Mark IV; production setup; preparation and verification of output; preparation and submission of daily, monthly and annual programs; system application development — PC and mainframe. Resume and three letters of recommendation required.

Technical Director

930190. *Theatre and Theatre Arts.* Requirements: Bachelor's degree (advanced technical degree preferred); experience with professional, touring road shows; strong lighting and sound design skills imperative; rigging and welding experience desired as well as knowledge of repair of electronic equipment; strong communication, motivational, management and interpersonal skills. Resume and three letters of recommendation required.

Operations Manager

930191. *Theatre and Theatre Arts.* Requirements: Bachelor's degree, master's degree preferred; prefer candidate with strong business background and computer accounting skills; experience in arts presenting organization and/or nonprofit organization; person must be highly energetic, outgoing, adept at managing a broad and diverse group of people — from students to seniors, and able to work within a university environment. Resume and three letters of recommendation required.

Associate Director

Annual Giving Programs. Department of Alumni and Development Programs. This is a challenging position in the office of University Relations. Candidates must have a college or university degree and experience in alumni/development or related work. Programs include direct mail, phonathons, corporate matching gifts, Department of Athletics (W Club) and the William Greenleaf Eliot Society. Excellent writing, speaking and organizational skills are essential. Salary is commensurate with qualifications and experience. Response is encouraged by May 15, 1993. Send resume and salary requirements to: Director, Annual Giving Programs, Alumni and Development Programs, Washington University, Campus Box 1210, One Brookings Drive, St. Louis, Mo. 63130.

Medical Campus

The following is a partial list of positions available at the School of Medicine. Employees who are interested in submitting a transfer request should contact the Human Resources Department of the medical school at 362-4920 to request an application. External candidates may call 362-7195 for information regarding application procedures or may submit a resume to the Human Resources office located at 4480 Clayton Ave., Campus Box 8002, St. Louis, Mo. 63110. Please note that the medical school does not disclose salary information for vacancies, and the office strongly discourages inquiries to departments other than Human Resources.

Medical Secretary I

930573-R. *Otolaryngology.* Schedule: Part-time, 22.5 hours a week — usually Tuesdays, Wednesdays and Thursdays, with up to five days as a float. Requirements: High school graduate/equivalent; prior experience in a medical setting dealing with the public; good communication and telephone skills; experience with WordPerfect; typing 60 wpm; knowledge of medical terminology and medical transcription.

Secretary I

930617-R. *Biology and Biomedical Science.* Requirements: High school graduate/equivalent. Should have one year experience with word processing and be familiar with general office equipment; must be reliable, accurate and have the ability to deal with Washington University faculty, students, personnel and the public; typing 50 wpm.

Secretary II

930621-R. *Ophthalmology.* Schedule: Part-time, 20 hours a week, hours will vary depending on work load. Requirements: High school graduate/equivalent; two years college preferred; desire individual with two to five years secretarial experience; should be highly organized and have good communication skills; must be personable and able to relate well with faculty, staff and trainees; typing 60 wpm.

Physician (Non-faculty)

930736-R. *School of Medicine.* Schedule: Part-time, 10 hours a week: 8 to 11:30 a.m. Candidate may specify which work days, Monday through Friday. Requirement: Licensed M.D. Will assist with metabolic clamping procedure in an ongoing research project examining glucose metabolism in patients with Alzheimer's disease. Training in metabolic clamping procedures will be provided.

Trainee in Psychiatry

930739-R. *Psychiatry.* Requirements: Ph.D., M.D.; must be a U.S. citizen; strong research background; computer skills.

Programmer Analyst II

930741-R. *Surgery.* Requirements: Bachelor's degree in computer science or equivalent with at least two years experience in development of interactive information systems; one year data base experience and one year C programming experience; would also prefer experience in SQL, VMS or UNIX and 4GL.

Lab Tech Research

930745-R. *Genetics.* Requirements: Two years college, including courses in the scientific field; must be eager to learn and have excellent manual dexterity skills; position will entail doing primarily repetitive jobs such as pipetting.

Medical Transcriptionist

930750-R. *Surgery.* Requirements: High school graduate/equivalent; at least one year experience, preferably within a hospital or doctor's office; should have strong interpersonal skills; medical terminology and transcription experience preferred; typing 60 wpm.

Administrative Assistant

930751-R. *Cardiology.* Requirements: Bachelor's degree in business, prefer a master's degree in business or health care administration with three years relevant experience in the health care field; should have strong analytical and organizational skills; prefer individual with a basic knowledge of CPT coding and computerized billing systems; must have a high degree of professionalism with strong interpersonal skills.

Ozone depletion threatens food chain — *from page 1*

"We introduced the product into a bacterial virus and let the E. coli replicate the damaged virus," says Taylor. "By analyzing the progeny, we observed what we had proposed to occur."

The result of these basic research findings will help scientists "find the pathways from the sun to the mutation that leads to cancer," says Taylor. "If you know which photoproduct is responsible, you can screen out specific wavelengths of light when you design sunscreens. It also suggests which particular repair enzyme that you'll want to enhance production of or deliver to the damaged cell."

Taylor has worked since 1983 to gain a better understanding of how sunlight contributes to the development of skin cancer by studying the formation of mutations in DNA. This basic research may some day lead to a cure for malignant melanoma.

"In order to design drugs or to intervene in the cancer process, you have to understand the process," says Taylor. "Before, it was all hit and miss. The more we know about the process, the more rationally we can think about pathways to target. The more you know, the better off you are."

Taylor foresees the development of drugs that can be used to intervene in the mutagenic process, stopping and/or reversing its damaging effects. Applied Genetics Inc., a Freeport, N.Y., company, is testing a "morning after" cream, which is spread on sunburned skin to repair DNA damage. The company claims the cream has been found to enhance DNA repair and prevent skin cancer in mice.

"Applied Genetics has found out how to encapsulate one DNA repair enzyme so that it can be used to penetrate the cell and repair the damage," says Taylor. "Our studies address what wavelengths of light are important and what repair enzymes should be encapsulated."

Synthetic building blocks

Taylor, a synthetic organic chemist, is one of only a few researchers in the world to employ standard organic chemistry and genetic engineering techniques to synthetically create sunlight-damaged DNA, which is inserted into a bacterial virus. The sunlight-damaged virus is then allowed to reproduce in the bacteria, and the progeny viruses are isolated and screened for mutants.

Taylor began his research with the goal of making synthetic building blocks for photoproducts produced in DNA to facilitate the production of pure compounds for study.

Since then, Taylor's synthetic models have been used to study repair and replication of photoproducts produced by sunlight in DNA. In 1986, his team discovered the Dewar photoproduct, which had never been isolated. Next, they moved on to study the repair and replication of damaged DNA in test tubes and, eventually, to study the origin of C to T mutations in living bacterial systems. Taylor's next step will be to study the formation of these mutations within a virus that can replicate inside human cells.

Taylor's synthetic models not only will help researchers learn more about how skin cancers develop but can help provide similar information about other types of cancers.

"We've supplied evidence for a couple of models," says Taylor. "We believe our mechanisms are sound and can serve as a paradigm for other systems. They can help us understand the fundamental principles behind mutagenesis."

Taylor's team will continue to accumulate data about DNA damage and how that damage is repaired by enzymes and how it leads to mutations.

"Hopefully, some general principles will emerge," he says. "If we build a large enough data base, we might be able to predict mutations."

Ozone layer key to cancer rise

One prediction of which Taylor is sure is that if the Earth's ozone layer continues to deteriorate, the incidence of skin cancer is going to continue to rise.

Today, about one in five Americans will develop skin cancer in his or her lifetime, according to Taylor. With continued erosion of the Earth's protective ozone layer, which acts as a natural sunscreen, those statistics could soon rise to one in four Americans, he says.

Malignant melanoma, the most serious form of skin cancer, is on the upsurge; its incidence rates have grown more rapidly than any other cancer except lung cancer, reports the Nov. 13, 1992, issue of Science. The scientific journal reports that 32,000 Americans develop malignant melanoma each year, and 8,000 die from the disease annually. It has been predicted that in the year 2000, the risk Americans face of developing malignant melanoma will be one in 90.

On April 4, 1991, the Environmental Protection Agency announced that the ozone layer is being depleted nearly two times faster than previously estimated. Atmospheric release of chlorofluorocarbons — chemicals used to manufacture a variety of products — has been credited for much of this loss.

The ozone is distributed throughout the stratosphere, which is about 20 miles thick. Ozone absorbs the same wavelengths of light that are absorbed by DNA, but it absorbs them before they reach our skin, according to Taylor.

"If we collected all of the ozone in the stratosphere and formed a layer of pure ozone, it would only be 3 millimeters thick," says Taylor. "That's a very small amount, but it's sufficient to take out a lot of the skin cancer-inducing wavelengths."

Taylor estimates that the amount of sunlight-induced damage in naked DNA (unprotected by skin pigmentation), which currently occurs after one hour's exposure in the sun, will occur after only 10 minutes' exposure if 50 percent of the ozone layer is lost. With a 100 percent loss of ozone, the same amount of DNA damage will occur after only 10 seconds' exposure, he predicts.

"Other estimates will vary from mine, but it gives you an idea of the severity of the situation," says Taylor.

Other life species may be even more severely affected by ozone depletion, according to Taylor.

"The impact is much greater than just damage to human beings," says Taylor. "It threatens the whole food chain. Humans can cover themselves with sunscreen and stay indoors. Plankton and fish will be affected, because sea water is transparent to ultraviolet light. With plants, it's not clear yet if the long-term effects would reduce crop yields."