Washington University Record, April 16, 1992

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The crumbling infrastructure

Defense industry's downturn could mean upgrade of bridges

A way to help the faltering defense industry — and in the same time repair and earthquake-proof the nation's bridges — is proposed by a consortium of St. Louis researchers and business people.

The answer lies with a staple of the aerospace companies for use in military and World War II aircraft, which don't corrode, are unaffected by salt and do not need to be painted or maintained, because of their tremendous ratios of strength-to-weight and stiffness-to-weight, these materials permit entirely new design concepts to be used for bridge structures. Chief among these are ways to make bridges virtually earthquake-proof.

Americans still have fresh visions of the Loma Prieta earthquake. The impact of these frightening images perhaps is greatest on populations that live near major earthquake fault zones. The New Madrid Fault seismic zone is located about 160 miles south of St. Louis. It extends from the Missouri Bootheel into parts of western Kentucky, northern Arkansas and southern Illinois. In the early 19th century, this seismic zone produced the most powerful earthquakes ever to hit the continental United States. Many seismologists believe the New Madrid Fault is capable of producing another very large earthquake within the next 50 years, if not sooner.

In his testimony, Kardos cited research by Washington University's Thomas G. Harmon, Ph.D., the Clifford W. Murphy Professor of civil engineering, and Kerry Slattery, Ph.D., assistant professor of civil engineering, that illustrates the compressive strength of composites. The engineers have performed tests showing that composite, confined concrete, which would be used for columns, piers and flanges (adjoining rings) in bridge construction, greatly increases maximum strength. This concrete also requires more energy to damage the structure compared with conventional, steel-reinforced concrete.

Big payoff predicted

While the current cost of composite materials is high, Kardos says their efficiency, low maintenance and durability make them cost-effective in the long run than steel. And, with more commercial applications for composite materials, volume will increase, eventually lowering material costs.

Kardos predicts a big payoff. "First, we will be providing new jobs," he says. "By establishing new companies and new directions for existing companies, we hope to provide an economic boost for the St. Louis area and eventually for the entire country. And, with more commercial applications for composite materials, volume will increase, eventually lowering material costs.

Kardos testified Feb. 21, 1992, at a hearing of the U.S. House Subcommittee on Technology and Competitiveness. For 20 years, the chemical engineer was director of the Washington University Materials Research Laboratory and chair of the graduate program in materials science and engineering. He came to the nation's first team of academic-scientists to study composite materials. The wings and tails of fighter bombers that performed in Operation Desert Storm are made of composites in contrast to their counterparts in Korean War and World War II aircraft, which were made primarily of aluminum and other metals. The new substances make a leaner, meaner bomber. These composite materials also make more streamlined, efficient automobiles.

"Composite materials have one-fifth the weight of steel for the same strength and are far superior in resisting fatigue," Kardos said in his testimony. "They don't corrode, are unaffected by salt and don't need to be painted or maintained, because of their tremendous ratios of strength-to-weight and stiffness-to-weight, these materials permit entirely new design concepts to be used for bridge structures. Chief among these are ways to make bridges virtually earthquake-proof.

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Summer School emphasizes foreign languages, cultures

From exploring French culture through film, to learning how to produce Spanish sounds, the 1990 Summer School is now offering students an expanded array of courses on foreign languages and cultures.

"Our emphasis on more language courses is to get people who already know a foreign language and can take immediate intermediate or advanced courses. Other students who enroll in our courses will be interested in international cultures," says Stamos Metzidakis, Ph.D., director of the Summer School and associate professor of French.

Creating a foreign language atmosphere and wanting students to see how the French people relate to each other and how French affects the classical French language. The advanced course is for undergraduate French majors, graduate students in the field, and high school French teachers. Also making a debut on the schedule is an intermediate level conversational French course, along with new courses in Greek, Italian, contemporary Japanese, and advanced Spanish phonetics. For the first time, students will be able to view television news broadcasts from other countries.

Foreign languages are not the only emphasis of this year's programs. The Summer School continues to sponsor its popular High School Summer Scholar Program in in advanced, special study courses. The high school program is designed to introduce high school seniors to college studies and rewards of college life. Students who have completed their advanced level courses may enroll in selected freshman and sophomore courses and earn college credit.

In the special audit courses, students may pay $250 and do not receive college credit. Topics for these courses range from American politics to opera theatre. Among Metzidakis' future plans is to produce the American Freedom Summer Institute for high school students. Under the plan, students would spend an approximately 100 high school seniors will stay on campus for four weeks to study how freedom was conceived in the United States. The seniors, who will be supervised by high school social studies teachers, will attend daily classes taught by prominent Washington faculty. Metzidakis hopes to use "Washington's Center for the History of American culture," a rich resource of information and activity already on campus.

For more information on Summer School courses, call 935-6777.

Math team places 12th in national contest

Washington University placed 12th in the nation during the William Lowell Putnam Mathematical Competition. The contest is known as the most prestigious event for undergraduates in mathematics.

In all, 13 students from Washington University competed. "We had seven students place in the top 200 and six more in the top 500, which is absolutely superb," says Bender. William Chen, a senior, placed 12th in the nation. Chad Dreyer, a freshman, placed 54th; and Scott Nolden, a sophomore, placed 77th.

Preparing for this exam is a whole other world of mathematics. The experience is absolutely invaluable; it can be helpful toward the regular course load," Bender says.

Since the beginning of the school year, in the fall, the 15 coaches met every week for several hours to solve problems. In the spring, previous Washington teams have performed well in the Putnam competition, having won first place in 1989. The team will be last year's all as well as second place four times. The competition is open to all undergraduates.

Phased-in Hilltop parking increases to be spread over additional year

Washington University Hilltop parking fees will increase next year on a scheduled basis. These increases are less than those previously announced, and the University has decided to extend the current fee schedule through 1994-95, according to Richard A. Roloff, executive vice chancellor.

The slower rate of increase results from a delay in anticipated costs for a new parking facility. Under the new schedule, the rates through 1994-95 are as follows: $430 for the general public; $340 for those students with parking permits prior to 1991; $340 for students with permits prior to 1992; and $340 for students with permits prior to 1993.

Construction of a new parking facility will cost $18 and $25 for students with permits prior to 1991; $30 for students with permits prior to 1992; and $35 for students with permits prior to 1993.

Faculty and staff will again be able to opt for payroll deduction as a means to pay for parking permits. In addition, anyone may use a credit card (Visa or Master Card) to purchase a permit.

For those who wish to continue paying parking fees on a weekly basis, the off campus shuttle is the most reasonable option, with regular and timely shuttle service between the University and the off campus parking site.

Rates for daily and monthly parking permits will increase from $1 and $8, respectively, to $51 and $25 on July 1, 1992.

The parking enforcement program initiated during the current fiscal year will continue, including the towing of cars with multiple unpaid tickets and refusal to sell permits in future years to those who have not settled such violations.

We are pleased that the University has found a way to spread out the necessary parking increases over an additional year, since this will make it easier for faculty, students, and staff to factor these costs into their personal budgets over the next few years," said John V. Dutcher, vice chancellor.

Construction of a new parking facility will not begin at a site directly north of the current parking deck along Thorp Drive. It will be accommodated as part of a larger phased-in expansion completed in the summer of 1995. Although architectural plans and bids have not been finalized, estimates of costs are approximately $4.5 million. Traditionally, all funds collected from parking fees and fines cover the capital and operating costs associated with parking.

Learning arts present comedy on dining hall stage

"The Art of Dining," a play all about food, will be performed by students at 8 p.m. April 23-25 and at 2 p.m. and 7 p.m. April 25 at Millискroft Competition Drama Studio, Room 208.

The comic caper is directed by Tina Howe; a noted playwright, is about a man who leaves his law firm to open a restaurant with his wife and their housekeeper. But as fast as his wife can cook the food, he eats it all and involves everyone around making food, serving food and the social rules of eating.

"The play will focus on food, songs, appetite," Howe writes. "It's what the food represents that is key, just as the taste makes a sweet-souring, not its myriad ingredients."

Director Seana Manning, a graduate student in the Performing Arts Department, describes the play as a "light-hearted caricature of how people eat, make food and enjoy food in public."

"And," she hints, "you can't put food on stage without having a food fight somewhere."

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Jaynes: pioneering work recognized

Edwin T. Jaynes, Ph.D., the Wayman Distinguished Professor of Physics, was honored during a Bayesian statistics conference that took place Portland State University on Sunday April 10-11. Some 70 scholars from around the world attended the seminar on Bayesian Inference in Econometrics and Statistics.

Jaynes, who joined the Washington University faculty in 1950 as an associate professor, is retiring at the end of the 1992-93 academic year. An international leader in the development of predictive statistical mechanics, his invention of the maximum entropy inference method has had a profound impact throughout physics and many other fields of science. Areas where this method is used include nuclear magnetic resonance imaging, ancient tree ring cycles, astronomy and economics.

"Drawing inferences from incomplete information is something most of us try to do every day with varying success," said Clifford M. Will, Ph.D., professor and chair of physics. "Edwin Jaynes' pioneering work has shown how it is possible to determine some of the 'best' inference, and although it has not filtered down to the buyer of the consumer car, it has filtered down fields from the physical to the social sciences. Ed's collected works are destined to be a delight in the field of econometrics."

As part of the conference, a dinner for Jaynes was held April 10 at the Top of the World restaurant, attended by those who recognized Jaynes and his pioneering work. Among those who attended were Martin H. Israel, Ph.D., dean of the Faculty of Arts and Sciences, and Robert L. Ving, D.D.S., dean of the John M. Olm School of Business and economics. "It is a true honor to present to any questions. For more information, call 955-3477 or 955-5990.

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Correction

In the April 9 issue of the Record, it was stated that Kardos damages the concrete layer (because it is made with chloro-fluorocarbons, or CFCs). However, Kardos notes, it is not made with CFCs. In fact, Monsanto has never used CFCs. As of January 1990, the entire industry is ordered to stop using CFCs due to the anticipated erosion of the ozone layer. The Record apologizes for this error.

Muscle

generate nerve impulses. Their formulations have stood the test of time remarkably well. When the Nobel Prize for physiology or medicine for this work, a prize shared with Sir John Carew Eccles. For the past 40 years, Huxley has worked on muscle contraction, where his outstanding contributions have dominated the field and led to much of our understanding of how muscle contracts.

The Eberly-Gasser Lecture is sponsored by the Department of Cell Biology and Physiology in honor of Joseph Eberly, M.D., and Herbert Gasser, M.D.

The U.S. Information Agency, the J. William Fulbright Foreign Scholarship Board and the U.S. National Aeronautics and Space Administration announced the opening on May 1 of the 1993 competition for Fulbright Grants and other grants for graduate study abroad in academic fields and for professional training, creative and performing arts. About 650 Fulbright Grants are awarded each year. Fulbright grants provide round-trip international travel, maintenance for the term of study and tuition waivers. Travel grants provide round-trip international accommodations. The program exists in every country where the student will pursue study or research. All grants include health and accident insurance.

For all grants, applicants must be U.S. citizens at the time of application and hold a bachelor's degree. The competition is open to all nationalities. The 1993 competition for Fulbright Grants and other grants for graduate study abroad in academic fields and for professional training, creative and performing arts will open on May 1, 1992, and close on November 15, 1992. Final awards will be announced in March 1993. For more information, call 955-3477 or 955-5990.
Thursday, April 16
11 a.m. Department of Economics Seminar.
"Complex Dynamics," Nicola Arcila, WU grad student.

Noon. Department of Genetics Seminar.
"Genetic Workbook," Robert J. Segal, prof., and Michelle Sanz, prof, Dept. of Biology, University of New Hampshire.

Noon. Department of Molecular Biology and Pharmacology.
"Very High Resolution Determination of the Structural Core of Rat Intestinal Fatty Acid Binding Protein," James Bocchini, post-doc, Albert Einstein College of Medicine. Room 425 McGovern.

2:30 p.m. Dept. of Mechanical Engineering Seminar.

4 p.m. College of Arts and Sciences, Romance Languages and Jewish and Near Eastern Studies.
"Diversity of Expression and Activity," Thomas Devinney, West prof., Nuclear Medicine Department, Division of Nuclear Medicine.

4 p.m. Dept. of History and Jewish and Near Eastern Studies.

4:15 p.m. Departmental Writers Center Presents a reading by Polish poet Adam Zagajewski.

Wednesday, April 22
8 a.m. Dept. of Obstetrics and Gynecology.

Wednesday, April 23
8 a.m. Performing Arts Department.

Friday, April 24
8 a.m. Department of Cell Biology and Pharmacology Seminar.
"Polymerization of Transcriptional States," Jasper Rine, Dept. of Molecular Biology and Pharmacology.

Saturday, April 25
11 a.m. Department of Mechanical Engineering Seminar.

1 p.m. School of Engineering and Applied Physics Seminar.
"The Art of Being a Scientist," Ronald Johnson, grad student, Dept. of Electrical Engineering. Room 305 Bryn Hall.

3 p.m. Department of Mathematics Seminar.

Noon. Dept. of Cell Biology and Physiology Seminar.
"Polymerization of Transcriptional States," Thomas Devinney, West prof., Nuclear Medicine Department, Division of Nuclear Medicine.

7 p.m. Filmboard Feature Series.
"In the Name of the Father," April 24, 25, sold out except for April 25 children's show at 2 p.m. Cost: $7. For more info, call 935-5490.

Friday, April 24
8 p.m. Edison Theatre Presents "Michael Moore in Motion," April 25 at 2 and 7 p.m. and April 26 at 2 p.m. Michael Moore, new wave jugi. Edison theatre. All shows sold out except for April 25 children's show at 2 p.m. Cost: $7. For more info, call 935-5490.

Saturday, April 25
1 p.m. Baseball. WU vs. Blackburn College. Kelly Field.

1:30 p.m. Catholic Student Center Holy Thursday Mass. Catholic Student Center, 6352 Forsyth Blvd. For info., call 725-2358.

3 p.m. Catholic Student Center Good Friday Service.
Catholic Student Center, 6352 Forsyth Blvd.

SUNDAY, April 18
11 a.m. International Office and Women's Caucus Social Work Lecture.

1 p.m. School of Engineering and Applied Physics Seminar.
"Magnetic Resonances in Biological Systems," April 24, 25, same time. Room 505 Building Center.

8 p.m. Academic Dances, held April 24 through May 2, different locations. For more info., call 935-5490.

11 a.m. Catholic Student Center's Easter Vigil Mass. Catholic Student Center, 6352 Forsyth Blvd.

MISCELLANY

Thursday, April 16
3:30 p.m. Professional Association of Manufacturers Center Seminar.

8 p.m. Catholic Student Center Holy Thursday Mass. Catholic Student Center, 6352 Forsyth Blvd. For info., call 725-2358.

Friday, April 17
8 p.m. Filmboard Feature Series.
"Michael Moore in Motion," April 25 at 2 and 7 p.m. and April 26 at 2 p.m. Michael Moore, new wave jugi. Edison theatre. All shows sold out except for April 25 children's show at 2 p.m. Cost: $7. For more info, call 935-5490.

MUSIC

Thursday, April 16
8 a.m. Dept. of Music Graduate Flute Recital with Margaret Urquhart, WU grad student, Room 110 Fine Arts Bldg. Free. For info., call 935-5981.

Saturday, April 18
8 a.m. Dept. of Music Graduate Vocal Recital with sopranos Jomperm and piaulat Gall, New Haven. Room 110 Fine Arts Bldg. Free.

Monday, April 20
8 a.m. Dept. of Music Graduate Flute Recital with Margaret Urquhart, WU grad student, Room 110 Fine Arts Bldg. Free. For info., call 935-5981.

EXHIBITIONS

"Master of Fine Arts I." Through May 10. Gallery of Art, 7th Floor, Room 311 McMillen.


"Land Here Explored: The American West." Through June 5. Olm Studio. Special Collections. Level 5: 8 a.m.-5 p.m. weekdays.


"The Book as Concept, Crisis of the Printed Text." Through May 15. Galler, 7th Floor, Hunt Hall.

"Cancer: Medical and Cultural Narratives." Through April 17. Room 305 Bryan Hall.

LIGHTS

Friday, April 17
8:30 p.m. "Hidden History: Film and Sound Feature Series.
"Presents: Jonas of Mongolia," April 18, same times. Room 100 Brown Hall.

8 p.m. Department of Russian Presents. "Autumn," the life story of a famous Russian composer, Inter. Room 305 Bryn Hall.

7 p.m. and 9 p.m. Filmboard Classic Series.
"Presents a double feature, 'The Unruled,' and "Weep No More," April 17 and 18, same times. Room 100 Brown Hall.

10 p.m. Party for WU students who are considering entering or returning to college. Room 100 Brown Hall. Free. For reservations, call 935-6777.

Wednesday, April 22
7:30 p.m. "The Betty Ross Association of Student Social Work Professionals 
"An Early Bird Special," The Missouri Theater, 423 McDonnell. 10 p.m. and 11:30 p.m. Films on "Gone Fishin," "Monty Python and The Holy Grail," and "A Fish Called Wanda.

10:30 p.m. "Wampus Werewolf: An Anthology." Live" Scared of the Dark, 7 p.m. and 9 p.m. Shows on "Werewolf: The Hunters of New England."

SPORTS

Thursday, April 16
3 p.m. Baseball. WU vs. U. of Missouri-St. Louis.

Saturday, April 18
3 p.m. Baseball. WU vs. Bludham College.

Kelly Field.