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Lonnie Haefner, Ph.D., professor of civil engineering, points out slipshod maintenance of a parapet joist on a pedestrian/road bridge in St. Louis County. Haefner says that at least 43 percent of the nearly 600,000 bridges in the United States are maintained poorly, and thus unsafe.

Frequent failures

U.S. bridges unsafe due to poor funding, says Lonnie Haefner

The San Francisco Earthquake of 1989 gave sobering proof of what excessive stress can do to bridges. But it also serves as a vivid reminder of the deteriorating condition of our nation's bridges and highways, says Lonnie Haefner, Ph.D., professor of civil engineering.

"The condition of bridges and the state of their funding in the United States is so bad that if we were a Third World country, we'd go to the World Bank for a loan," says the transportation engineer.

At least 43 percent of the nearly 600,000 bridges in the United States are poorly maintained, and thus unsafe, Haefner says. A specialist in infrastructure problems, Haefner recently presented a report to the U.S. Congress Office of Technology Assessment. The report, "Impact of Advanced Technology and Innovation on Public Works Management and Decision-Making," focuses on ways the United States can plan to improve and manage its infrastructure into the next century.

As recently as 1987, the Federal Highway Administration (FHWA) estimated that 244,000 of the nation's 547,000 bridges were considered deficient, Haefner says. Of these, 131,000 were structurally deficient and 112,000 were considered functionally obsolete. Furthermore, he cites FHWA figures from 1987 showing that 37,000 American bridges were not inspected at all during the previous two years. Every bridge must be inspected at least every two years, according to federal law.

The transportation expert blames the high number of unsafe bridges on negligent maintenance due to poor funding. Bridges fail, Haefner says, because they are poorly inspected or not inspected at all.

The most common method of inspection today is a simple spot visual test of the pavement and structure of bridges.

"Experts say there is a 60 percent chance for error with a visual test," says Haefner, who has often testified before Congress on matters of the

nation's infrastructure. "Many structural specialists warn that visual tests don't reveal hidden problems in the structure; they're often very inaccurate."

Substructures ignored

More startling than the seemingly casual inspection of bridges is the disregard for the substructure of a bridge — the part that is often hidden by water. According to Lee Dickinson, Ph.D., a civil engineer who is a member of the National Transportation Board in Washington, D.C., several of the country's biggest bridge failures this decade involved breakdowns in the riprap, a concrete and stone foundation beneath the water, and other footings. Waterbeds and floods disturb and erode these foundations.

Although states are required to inspect the substructure of bridges every five years, an investigation following the Chickasawbogue Bridge failure near Mobile, Ala., in 1985 revealed that 35 states did not routinely inspect bridge substructure.

"The condition of bridges and the state of their funding in the United States is so bad that if we were a Third World country, we'd go to the World Bank for a loan."

— Lonnie Haefner

"I think one key reason substructures are commonly ignored is because of the generally hasty measures of inspection," says Dickinson, whose agency investigates transportation accidents. "But we are stressing this very important aspect of bridge safety everywhere. We are urging the states to take 'sounding' measure-

ments or to drop underwater divers to determine the strength of substructures. The states have to get their acts together before the whole system is out of control."

Money is at the core of the problem. Haefner cites a 20 percent reduction in federal dollars to the Federal Highway Program between 1982 and 1987, a decline from \$2 billion per year to \$1.6 billion per year, prompted by the government's need to reduce annual spending. It is estimated that the United States needs \$54 billion over the next decade to maintain its bridges, amounting to \$5.4 billion per year.

The federal emphasis on transportation should shift toward bridge repair, says Daniel Hanson, president emeritus of the American Road and Transportation Builders Association, of Washington, D.C.

"After more than 30 years of construction, the interstate system is just about completed," he says, noting that there are less than 800 miles left of new interstate to be built in the country. "The emphasis now should be going the other way — toward keeping bridges safe. At the rate bridge repair is being funded, it will take 33 years to catch up to where we should be now."

Failures far too frequent

Bridge failure is an every-other-day occurrence in the United States, with 189 failures in 1988, according to Hanson. Failures occur to massive structures spanning the nation's major arteries, such as the Mississippi and Ohio rivers, as well as 70-year-old single-lane suspension bridges over dried-up creek basins.

Bridge failure can mean a 30-mile detour for a farmer carrying grain to the market, or it can mean death, as it did on April 5, 1987, when two spans of the New York State Thruway (I-90) bridge over the Schoharie Creek fell 80 feet after a pier collapsed. Ninety minutes later, another pier crumbled. Four passenger cars and one tractor-semitrailer plunged into the creek.

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New compounds hold promise

AIDS virus replication may be blocked

A newly developed class of compounds has proven to effectively inhibit replication of the AIDS virus in cultured human white blood cells and might hold promise as a new therapeutic approach to this disease, according to researchers at the School of Medicine. The scientists' findings appear in the current issue of The Proceedings of the National Academy of Sciences, a highly regarded research journal.

"While these results are exciting, it's important to point out that the studies described in the report were limited only to testing in cell cultures. We must temper our enthusiasm until more is known," says Jeffrey I. Gordon, M.D., principal investigator and professor of medicine and of biochemistry and molecular biophysics who directed the research.

"Considerably more work has to be done with cultured cells and in animals before we completely understand how these compounds work and whether or not they will be useful in treating viral illnesses such as AIDS."

The new compounds resemble myristic acid, a rare, naturally occurring fatty acid that appears to be key to the replication of some viruses, for example, the AIDS virus. After infecting a cell, viruses commandeer the cell's protein-producing machinery and use it to produce their own protein building blocks. Myristic acid must be linked to some of these proteins in order for them to be incorporated into an intact virus. Thus, viral replication is dependent on linkage of myristic acid to viral proteins.

Scientists in Gordon's lab have been studying the enzyme N-myristoyltransferase, which links myristic acid to specific viral and cellular proteins. The new compounds they have synthesized are structurally similar to myristic acid, yet have different chemical and physical properties. The enzyme "recognizes" the novel compounds and transfers them to some cellular and viral proteins.

Treatment of cells with these myristic acid analogs significantly reduces viral replication. At optimal concentrations, one myristic acid analog reduced HIV replication in vitro by approximately 90 percent with no significant toxicity. These results are quite similar to those seen when AZT, the "gold standard" among AIDS drugs, was used in the same experimental model.

The research team showed that members of this class of fatty acid analogs also inhibit the replication of another retrovirus — the Moloney murine leukemia virus — which causes leukemia in mice. While one analog worked most effectively

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Inside: **MEDICAL RECORD**

- **Heavy drinking males might produce long-term toxic effects in their offspring. Page 4**
- **People diagnosed with early Parkinson's disease may be able to delay onset of disabling symptoms. Page 5**
- **Can liver damage caused by chronic hepatitis C, a sometimes fatal disease, be treated? Page 6**

Bridges —

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Ten people died. A long list of inadequacies was cited by the National Transportation Safety Board in a follow-up investigation, but the main cause was eroded substructure, a problem state inspectors ignored for years.

Prior to the Bay Bridge and I-880 Bridge collapses in the October earthquake, the nation's worst bridge disaster occurred in 1967 when the Silver Bridge collapsed over the Ohio River in West Virginia. Traffic on the bridge had been stalled several minutes, and the structure collapsed under the excessive "static load," as civil engineers term it. Thirty-three people perished.

That tragedy sparked then-Sen. Jennings Randolph of West Virginia to pass legislation requiring the federal government to monitor inspection of the nation's bridges on a regular basis.

Local state maintenance inspectors may be doing cursory inspections, but the data they collect is largely uninterpreted or in some cases falsified, says Transportation Board member Dickinson.

"We see many cases of data on reports, but they mean very little because they are unanalyzed, in effect 'paper audits,'" says Dickinson. "In most cases the Federal Highway Administration is not able to observe state inspectors in action. We also have proof of inspection forms that were filled out but the inspections were not made. This certainly isn't the norm, but it happens. While the situation isn't alarming, if something is not done about it, some tragedies are bound to happen."

The reasons behind the decline in the nation's bridges are diverse and complex, although bureaucratic and financial issues are at the root of the problem, says Haefner, who is the author of more than 100 technical papers and *Introduction to Transportation Systems*, a popular civil engineering textbook.

"Fluctuations in the economy have played a key role," he says. "For instance, when the oil crunch of the early '70s hit, the price of oil went up, driving down consumption of gasoline and oil. The Federal Highway Trust Fund, the source of dollars for transportation building and maintenance, is driven by taxes derived from gas and oil taxes. The result was an obvious underfunding of the Federal Highway Trust Fund during this period, and subsequently less attention paid to the repair of bridges and highways."

Ironically, the Highway Trust Fund has a cash balance of more than \$14.5 billion in unspent funds, according to an Aug. 30 article in the Wall Street Journal. The funds remain sequestered in a government bank account, the article states, to make the budget deficit appear smaller.

"In the '80s and now looking into the '90s, the nation's infrastructure is still trying to compete because of funding problems created by this tax-driven system," says Haefner.

Haefner cites Pennsylvania, a state with 54,000 bridges, many of which span several major waterways, as a state with some progressive ideas of how to attack the problem.

The state's Billion Dollar Bridge program, begun in 1982, is a "popular, goal-oriented approach that is making headway into the problem of bridge maintenance," says Harvey Haack, deputy secretary for planning for the Pennsylvania Department of Transportation. "Our primary objective is to repair or replace all the closed or



Lonnie Haefner pinpoints the area of the bridge pictured on page 1 that appears to be in need of an overhaul.

posted bridges on our priority networks."

The program's title refers to its original goal to repair or replace 1,000 bridges for \$1 billion. It operates on a share of federal funds and a state diesel fuel tax surcharge of six cents per gallon that generates some \$70 million annually. According to Haack, the Pennsylvania General Assembly has authorized the treatment of 6,500 out of 8,000 deficient bridges in Pennsylvania. The department's goal is to repair or replace 200 bridges per year. Since 1983, he says, the program has been responsible for repair or replacement of 1,100 bridges.

What should be done

To fund needed repairs to the nation's bridges, Haefner offers several suggestions: more toll roads, modifications in truck-weight users' fees, special district funding that could be funneled into a maintenance account and the notion of leasing bridges — an investment incentive for private industry to build bridges that the government would lease.

"Like barges or aircraft, which the private sector leases to government, leased bridges might bring higher quality construction and maintenance to the fore, if companies can be lured with tax incentives or other means," says Haefner. "The point is, we need creative financing because the old way has shown itself to be inefficient."

He suggests also a domestic equivalent to the World Bank, "a domestic development bank that would treat the squeakiest wheels first."

Finally, Haefner warns that the nation's infrastructure — including its clattering bridges — is in peril because the curricula at our engineering schools do not adequately address the topics of infrastructure, financing, management and maintenance.

"Maintenance is a vital component to keep the infrastructure in a state-of-the-art condition," Haefner states. "But the newest tools in engineering, such as computer-aided design and computer-aided mechanics, are not geared toward maintenance, but rather design. Moreover, these tools are popular in the private sector, but not in the government. As a result, often the lesser talented are in charge of maintenance."

Procrastination will cost the country dearly as it moves toward the next century, Haefner warns. "Our infrastructure is suffering from too many stop-gap measures and inconsistent policies," he says. "If we don't rebuild it now, we'll have a severely handicapped economy and a threatened population in the 21st century."

Tony Fitzpatrick

Introductions to new faculty

Beginning with this issue, the Record will feature a weekly series profiling new faculty on the Hilltop and Medical campuses. The introductions will include faculty who joined the Washington University community between January 1989 and September 1989.

Engin D. Akarli, Ph.D., associate professor of history, comes to Washington from Yarmouk University in Irbid, Jordan, where he was senior associate professor of history in the Department of Humanities and Social Sciences. He received a bachelor's in business administration from Robert College in 1968, a master's in history from the University of Wisconsin, Madison, in 1970, and a master's and doctorate in Near Eastern history from Princeton in 1976. A native of Eskisehir, Turkey, Akarli's research focuses on post mid-18th-century socio-political history of the Middle East, concentrating on relations between central governmental authorities and regional and vocational social groups.

Eleni Bastea, Ph.D., assistant professor of architecture, comes to the University from the College of Environmental Design at the University of California, Berkeley, where she received her doctorate in architectural history in the fall of 1989 and her master's degree in architecture in 1982. A native of Thessalonike, Greece, Bastea earned her bachelor's in art history from Bryn Mawr College in 1980. Her field of specialization is Byzantine art and architecture in the Balkan countries, and her current research interests include American urbanism and architecture using St. Louis as the example, and German architectural theory and education during the 19th century.

Eric C. Beyer, M.D., Ph.D., assistant professor of pediatrics, medicine and cell biology, joins the University from Harvard Medical School, where he was an assistant professor of pediatrics. He earned a bachelor's in biological sciences from the University of Chicago in 1976. He received a doctorate in physiology and pharmacology in 1981, and his medical degree in 1982, both from the University of California, San Diego. His research interests include cell membrane and cell surface molecules and structural specializations involved in cellular communication, adhesion and development.

James M. Cheverud, Ph.D., associate professor of anatomy at the medical school, was an associate professor in the departments of anthropology and cell biology and anatomy at Northwestern University before joining Washington's Department of Anatomy and Neurobiology. He received a bachelor's degree in anthropology from Northwestern in 1975, and both a master's and doctorate in anthropology from the University of Wisconsin, Madison, in 1977 and 1979, respectively. His research interests include quantitative, human and population genetics, evolutionary theory, and human and non-human primate biology.

Cynthia A. Loveland Cook, Ph.D., assistant professor of social work, comes to the University from the Great Lakes Regional Health Services Research and Development Field Program of the Veterans Administration in Ann Arbor, Mich., where she was principal investigator of research in mental health, health and social work. She earned a bachelor's in nursing from the University of Arizona in 1968, a master's in social work from the University of Washington, Seattle, in 1974 and a doctorate in

social work and social psychology at the University of Michigan, Ann Arbor, in 1986. Her research interests include health service and psychosocial responses to traumatic stresses.

Nancy Grant, Ph.D., associate professor of history, comes to Washington from the Dartmouth College history department, where she had taught since 1985. She received her bachelor's degree cum laude from Smith College in 1971 and her master's and doctorate from the University of Chicago in 1972 and 1978, respectively. Her research includes a study of the employment of blacks in the federal government between 1940 and 1972. She is the author of *TVA and Black Americans: Planning for the Status Quo 1933-1945*, published this summer by Temple University Press.

John W. Keating, Ph.D., assistant professor of economics, comes to the University from George Washington University, where he was an assistant professor of economics. He earned his bachelor's in electrical engineering from Purdue University in 1982 and a doctorate in economics from Northwestern University in 1989. His research focuses on the effects of monetary policy and the banking system on the business cycle.

Christopher G. Lamoureux, Ph.D., associate professor of finance, comes to Washington from Louisiana State University, where he had been an assistant professor of finance since 1985. He received a bachelor's degree in business administration from the University of South Florida in 1978. At Syracuse University, he earned a master's in business administration (1983), a master's in economic theory (1984), and a doctorate in finance (1985). His research focuses on the functioning of financial markets.

Charles Oriel, Ph.D., assistant professor of Spanish, joins Washington's faculty from George Washington University, where he was a lecturer in the Spanish department. He earned his bachelor's degree in literature from American University in 1977, and his master's in Spanish literature in 1983 and doctorate in romance languages and literatures in May 1989, both from George Washington University. His research interests include Spanish poetry and drama of the Golden Age, focusing on Garcilaso de la Vega, Francisco de Medrano and Miguel Cervantes.

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NOTABLES

Neil N. Bernstein, LL.B., professor of law, spoke at the "Personnel Law Update 1989" conference, sponsored by the Council on Education in Management. The topic of his lecture was the right of employers to institute substance abuse programs for their workers.

John R. Bowen, Ph.D., assistant professor of anthropology, delivered a paper at the University of Kent, Canterbury, on healing and sorcery in Indonesia, where Bowen had spent the summer doing fieldwork. Articles by Bowen appear in the October issue of *Comparative Studies in Society and History* and in the December issue of *Man*.

Judy Fox, head of cataloging and classification services, and **Kay Kanafani**, senior systems librarian, co-wrote an article published in the September 1989 issue of *Information Technology and Libraries*. Titled "Global Change Capabilities to Improve Authority Control in an Online Catalog," the article describes the implementation of an online authority control process in the Olin Library System, which library staff developed using modifications from existing software.

Beverly Kobeissi, business manager for radiation oncology in the Department of Radiology, was awarded the Distinguished Service Award by the Society of Radiation Oncology Administrators (SROA). She was the first recipient of the society's highest honor, which recognizes outstanding contributions to the society and the profession. SROA was established in 1983. Kobeissi, who received the award in October at the sixth annual SROA meeting, held in San Francisco, has served the society in numerous elected and appointed capacities, including as national president and board chairman. The meeting was held in conjunction with the Society of Therapeutic Radiation Oncologists.

James McGarrell, professor of art, displayed a 16-year survey of lithographs, and one etching, titled "A Print Survey: 1975-1989," during an exhibit at Printworks Gallery in Chicago, Ill. McGarrell's exhibit, which was reviewed in the *Chicago Tribune*, included an image from the 1978 "Stanza" portfolio that the art critic Alan G. Artner referred to as "beautiful" in his review. The image "evokes Pierre Bonnard's bathtub luminous paintings," wrote Artner.

James Nicholson, lecturer in the Performing Arts Department, spent the summer in residence at the Tyrone Guthrie Centre, Annaghmakerrig, Eire, at the invitation of the Arts Councils of Ireland as part of a cultural exchange in conjunction with New Dramatists in New York.

F. Hodge O'Neal, S.J.D., dean emeritus and George Alexander Madill Professor Emeritus of Law, was

Red Cross relief

Within a week of the Oct. 17 San Francisco earthquake, students, faculty and staff of Washington University's Program in Physical Therapy and Irene Walter Johnson Rehabilitation Institute raised more than \$400 for the American Red Cross earthquake disaster relief program.

"We had heard that the Red Cross' resources were exhausted from Hurricane Hugo and we were just responding to a call for funds," says Jack Hurov, a first-year student in the physical therapy program, who helped organize the fund-raiser.

inducted into the Louisiana State University Alumni Hall of Distinction. The induction ceremonies were held in Baton Rouge. O'Neal received both his bachelor's degree (1938) and his juris doctorate (1940) from Louisiana State.

Helen W. Power, Ph.D., adjunct assistant professor of women's studies, presented a paper, titled "Part-Time Faculty in Women Studies," at the Midwest Women's Studies Association Conference, held in October at the University of Nebraska-Lincoln.

Carter Revard, Ph.D., professor of English, who spent the summer in England on an NEH travel grant, presented a paper at the York University manuscript conference. At the biennial conference, which focuses on Medieval manuscripts, Revard presented his work on Harley 2253. Harley 2253 is a British library manuscript anthology on the best Middle-English lyrics, including Latin, French and English political, humorous, devotional and raunchy poetry and prose. He was quoted in a *Times Higher Education Supplement*. His presentation will be published in early 1991 in proceedings from the conference.

Charles J. Sutherland, M.D., assistant professor of orthopedic surgery, delivered a paper on "3-Dimensional Imaging in Surgical Planning" at the second international symposium on custom-made prostheses, held in Chicago. The paper presented strategies for applying 3-dimensional medical imaging data to computer assisted engineering and solid modelling systems. Co-authors of the paper include **Michael W. Vannier**, M.D., professor of radiology, and **Steven J. Bresina**, research associate in orthopedic surgery and a doctoral candidate in civil engineering.

Murray L. Weidenbaum, Ph.D., Edward Mallinckrodt Distinguished University Professor of economics and director of the Center for the Study of American Business, recently delivered two lectures to the Wharton School of the University of Pennsylvania. The lectures were on "Corporate Takeovers: Winners and Losers" and "The Global Marketplace and Government Policy." Weidenbaum also presented a lecture on "The Competitive Status of U.S. Manufacturing" at the annual meeting of the National Association of Business Economists in San Francisco.

Colette H. Winn, Ph.D., associate professor of French, delivered a paper at the Colloque International "Joachim du Bellay" in Angers, France. The paper is titled "Ecriture et Negation dans les Regrets de Joachim du Bellay".

Daryl Youngman, science/engineering librarian and director of the Center for the Study of Data Processing library, has published a report, titled "Tools for Decision Support: An Overview of Online Database Searching and Optical Disc Technologies," for the center's Working Paper Series.

Have you done something noteworthy?

Have you: Presented a paper? Won an award? Been named to a committee or elected an officer of a professional organization? The Washington University Record will help spread the good news. Contributions regarding faculty and staff scholarly or professional activities are gladly accepted and encouraged. Send a brief note with your full name, highest-earned degree, current title and department along with a description of your noteworthy activity to Notables, Campus Box 1070, or by electronic mail to p72245SS at WUVMC. Please include a phone number.

Auditorium named for May Co.

The John M. Olin School of Business has recognized the strong support of the May Department Stores Co. by naming its main lecture hall for the St. Louis-based retailer.

The May Department Stores Co., which recently committed \$1.2 million to Washington University, was honored Nov. 21 during a dedication ceremony held at a meeting of the Century Club, a business school alumni group.

"We are very proud to have the May Company name associated with the Olin School of Business in this way," said Dean Robert L. Virgil, D.B.A. "May Company is one of the world's leading retailers and its

support will help us toward our objective of becoming a leading business school."

The May Co. commitment includes \$200,000 for general operating funds and \$1 million in business school endowment funds. The endowment gift will be matching dollar-for-dollar from a \$15 million challenge grant from the New York-based John M. Olin Foundation.

David C. Farrell, chairman and chief executive officer at May Co., said at the ceremony that the donation was the company's way of showing support for a school "that is a very positive force in the St. Louis community and the country generally."

Professor Steven Schwarzschild dies at 65

Steven S. Schwarzschild, D.H.L., professor of philosophy and Judaic studies, died suddenly on Friday, Dec. 2, at Jewish Hospital in St. Louis after suffering an aneurysm. He was 65.

The funeral was held Dec. 5 at Riverside Memorial Chapels in New York, with interment following at the Congregation Habonim section of Cedar Oak Cemetery, Paramus, N.J. A memorial service is pending for next month at Washington University.

Schwarzschild was an internationally known authority on Jewish philosophy, especially on Maimonides and Hermann Cohen, as well as on Immanuel Kant. He had taught religious philosophy at Washington University since 1965. Prior, he was a visiting



Steven S. Schwarzschild

professor at Brown University and held visiting chairs at the Hebrew University in Jerusalem and at Notre Dame University in Indiana.

Ordained a rabbi at the Hebrew Union College in Cincinnati, Ohio, in 1948, he had served a Reform Jewish

congregation in Fargo, N.D., and a Conservative Jewish congregation in Lynn, Mass., between 1950 and 1964.

A lifelong democratic socialist and pacifist, Schwarzschild declined service in the military chaplaincy upon ordination and instead served as the rabbi of the Jewish communities in both parts of Berlin and in East Germany from 1948 to 1950.

He was editor of *Judaism*, a leading scholarly journal, from the mid-50s to the mid-60s, and published numerous articles on philosophy, theology and politics. He is the author of two books to be published by the State University of New York Press in early 1990.

Born in Frankfurt, Germany, his family had been residents of that city's ghetto dating to the early 15th century. He escaped Hitler Germany with his family in 1939, and attended high school in New York and the University of Cincinnati.

He is survived by his wife, Lily Rose Schwarzschild, a native of London; their son, Maimon, a professor of law at the University of San Diego, now visiting at New York Law School; and a brother, Henry, an official of the American Civil Liberties Union in New York.

NEWSMAKERS

Washington University faculty and staff make news around the globe. Following is a digest of media coverage they have received during recent weeks for their scholarly activities, research and general expertise.

"The Changing Face of a Restless Nation," a Sept. 25 *Business Week* article about population shifts that are still remodeling America, quotes Charles L. Leven, Ph.D., professor of

economics, regarding the serious housing shortage in the 1950s.

A human breast implant made of peanut oil, which will not interfere with cancer detecting X-rays, has been discovered by Judy Destouet, M.D., associate professor of radiology, and V. Leroy Young, M.D., associate professor of surgery. An article about their discovery appeared in the Sept. 25 issue of *Newsweek*.

AIDS virus — continued from p. 1

against HIV, a different one was more successful against the Moloney virus. The analogs are produced by substituting sulfur and oxygen for native atoms at various locations in the myristic acid molecule.

"At the very least," Gordon says, "these analogs will be useful tools to help us understand the role of fatty acids in viral replication. They might also prove to have significant clinical potential."

The idea for these compounds came from an analysis of how N-myristoyltransferase works, and specifically from the observations of a M.D./Ph.D. graduate student in Gordon's lab, Robert O. Heukeroth. Testing of the compounds was done together with Lee Ratner, M.D., Ph.D. and Marty Bryant, M.D., Ph.D., at the

School of Medicine, and Steve Adams, Ph.D., at Monsanto Co.

This research has been supported by The National Institutes of Health and by Monsanto through the Washington University/Monsanto Joint Research Agreement. Signed eight years ago, and now having a total value of more than \$62 million, the joint research agreement is the largest biological research-support program between an American corporation and a university.

"Monsanto played a key role in the development of this project because of their interest in a fundamental biological question — the role of fatty acids in protein function," Gordon said. "Their support occurred well before we could have predicted that these new compounds would be discovered."

MEDICAL RECORD

Alcoholic males may affect intelligence of offspring

Alcoholic mothers who often sacrifice their unborn children's health to fetal alcohol syndrome may not be the only ones taking that horrific risk with the future. Groundbreaking investigations at the School of Medicine suggest that fathers who drink heavily prior to the conception of their children also might be instrumental in producing long-term toxic effects in their offspring.

The research shows that adult male rats sired by "alcoholic" fathers required significantly longer than their normal counterparts to acquire two learning tasks regularly used to test memory in laboratory rats. "They showed a basic flaw in their ability to learn," says Theodore J. Cicero, Ph.D., who directed the study. On developmental measurements and in all other observations, the "paternal alcohol" offspring — never exposed to alcohol themselves — were normal.

"A lot of time and energy have been spent investigating the damage an alcoholic mother does to her offspring. Now we must begin to consider the father's role," says Cicero, a professor of neuropharmacology. Though he and his co-investigators are not comfortable extrapolating directly from their laboratory work to the human population, Cicero says the results of the animal study should, "sharply refocus clinical investigations into the effects of alcohol."

The research, part of a series of experiments done over the last seven years exploring the effects on offspring of alcoholic sires, used male rats given free access to a diet in which 35 percent of the calories were derived from alcohol. Cicero says such a diet makes them, "heavily dependent and intoxicated much of the time, the equivalent of human alcoholics." Tests of blood alcohol content in the animals revealed levels of 100 milligrams per 100 milliliters, an amount commonly expressed as .1 percent.

"A lot of time and energy have been spent investigating the damage an alcoholic mother does to her offspring. Now we must begin to consider the father's role."

— Theodore J. Cicero

Because rats do not naturally like the taste of alcohol and eat less than normal when it is disguised in their food, control animals were pair-fed — given exactly the same number of alcohol-free calories and the same nutrients.

The chance to separate the effects of alcohol from the effects of the poor nutrition so often suffered by alcoholics is just one of the advantages available to the scientist who controls his experimental procedure in animals, Cicero points out. For the clinical investigator, the study of alcohol's effects is complicated by issues of personality, genetics and environment that the laboratory scientist controls.

For 39 days, the male rats ate a diet in which the alcohol content was gradually increased to allow adaptation, stabilized, then reduced to prevent withdrawal. Before being



Theodore J. Cicero, Ph.D., and co-investigators spent two years double-checking results before presenting their findings at the 19th Annual Meeting of the Society for Neuroscience in late October.

bred to normal females that had eaten only alcohol-free food, the male rats got no alcohol for two weeks to eliminate any withdrawal symptoms that might confound results. Fifteen rats were on the protocol, along with 15 control animals eating non-alcoholic rations.

David F. Wozniak, Ph.D., a research instructor of psychology in psychiatry and the co-investigator who conducted the behavioral studies, says other controls were employed as well. For example, Wozniak says, the experimental animals in the study were yoked with control rats on the basis of litter size, and body weights at birth were not different between the two groups.

Rat pups sired by both the alcoholic males and normal males were compared for body weight at several stages in their growth and the times at which developmental landmarks, such as eye opening, appeared. In all cases, no significant differences were found. Wozniak also compared the pups on two sensorimotor tests. One test measured time spent on a steeply inclined screen; the other assessed their ability to turn 180 degrees on a gently inclined slope. Again, no differences were found between the test subjects and the controls.

But after the offspring reached maturity (75 days), the investigators trained them on a spatial learning task and found a reliable performance deficit among the male offspring of alcoholic sires. The animals were tested in a radial arm maze — a device in which a rat is thought to use various objects it sees in the test room as cues to recall which arm of the maze it has already traveled. In order to get a reward, the rat must learn to visit only previously unused arms of the maze. And the paternal alcohol rats took significantly longer to learn that. In fact, Wozniak reports, normal rats mastered the task in an average of just over eight days; the offspring of alcoholic fathers required 12 days, nearly half again as long. Once the animals had learned the task, both groups retained their lessons equally well. Female rats were also tested at an

older age, but no deficits were found.

When the male rats were reevaluated much later (seven to eight months of age) on another test of recent memory conducted in a T-maze, learning ability was still significantly impaired in the test animals. The deficit displayed by the male offspring of the alcoholic sires does not go away as they age. It is not "developmentally overcome," in Cicero's words.

The learning impairment also appears to be relatively selective. Wozniak reports that the lab animals are now being tested on tasks not related to spatial or working memory, and early results show no difference between the groups.

Alcoholism has been well established as a disease with a genetic component, but researchers have looked principally for a personality trait or a behavioral predilection passed along as the triggering factor, Cicero says. This new work suggests that the effect, while still genetically transmitted, may be more biochemically direct and not a function of generations-old genetic trait.

The mechanism by which the specific deficit occurs is not yet clear, but the possibility exists that alcohol has a toxic effect on sperm, perhaps doing direct chromosomal damage. Rat sperm have a life of 42 days, long enough that the sperm responsible for conception were viable during the period of the rat's "alcoholism." The effect might translate into a learning deficit for animals conceived via the damaged sperm. That, however, has yet to be shown, and Cicero says precisely defining the mechanism is one of the big tasks this research sets for investigators.

In addition, Cicero and Wozniak are following other avenues of investigation. They are replicating the entire study now to further substantiate their results. And they would like to know how much alcohol is required to produce the effect. How long must a male rat go between ingesting alcohol and conception before the effect of the alcohol disappears? Is the risk diminished by long-term abstinence? Answering each

of these questions will require the careful design of more studies.

Working in the laboratory of John W. Olney, M.D., professor of psychiatry and neuropathology, Wozniak also plans to look for abnormalities in the brains of the paternal alcohol offspring. Potentially important to understanding the mechanism of the deficit, such abnormalities are likely to be, "very subtle and difficult to localize," Wozniak says.

Cicero says his lab will use the model developed here to explore suspicions that the offspring of alcoholic sires also suffer from impaired immune systems and abnormal hormonal patterns as suggested by clinical observations and other animal research.

To effectively measure the implications of the current study for human beings, clinical investigators will have to do some rethinking, according to Jack Mendelson, M.D., professor of psychiatry and neuroscience at Harvard Medical School. "The studies and the controls will be more difficult to design for humans," Mendelson says, "but that is always the case. Most of what we know about many diseases — cancer and heart disease are examples — we learned using animal studies as guides. I look forward to applying Cicero's principles in my own work." He adds, "this is an extremely important development and spectacular science. That some changes affecting cognitive development are transmittable through the male will stimulate huge interest."

Cicero and his co-investigators, aware of the impact their work may have, spent two years double-checking results before presenting their data at the 19th Annual Meeting of the Society for Neuroscience in late October. Their evidence that alcohol consumption in rodent fathers produces a toxic effect in offspring is liable to focus the light of science on how male parents risk their children's development — one more way in which alcohol acts as a poison.

Steve Kohler

Dacey is new head of neurosurgery

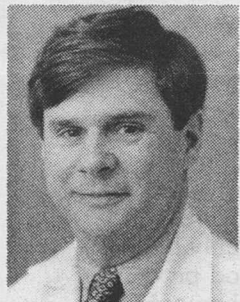
Ralph G. Dacey Jr., M.D., has been named professor and head of Neurological Surgery and co-head of the Department of Neurology and Neurological Surgery at the School of Medicine.

Dacey's appointment, effective Nov. 20, was announced by Chancellor William H. Danforth. Dacey will replace Sidney Goldring, M.D., who has headed the department since 1974. Goldring, who specializes in the surgical treatment of epilepsy, is retiring from administrative duties and will concentrate fulltime on patient care and research activities.

"We are very pleased that Ralph Dacey will head the Department of Neurological Surgery," says Danforth. "His clinical and research experience is impressive, and his leadership should ensure that the department will continue to be a national and international leader."

Dacey comes to the University from the University of North Carolina at Chapel Hill, where he has been professor and chief of the division of neurological surgery. In addition to his School of Medicine post, Dacey will serve as neurosurgeon-in-chief at Barnes Hospital, and on the staffs at Children's and Jewish hospitals at Washington University Medical Center.

Dacey's major clinical interest is in the treatment of cerebral aneurysms, arteriovenous malformations and basal skull tumors. His research focuses on cerebral arterioles, minute blood vessels in the brain, and their responses to various types of injury or disease.



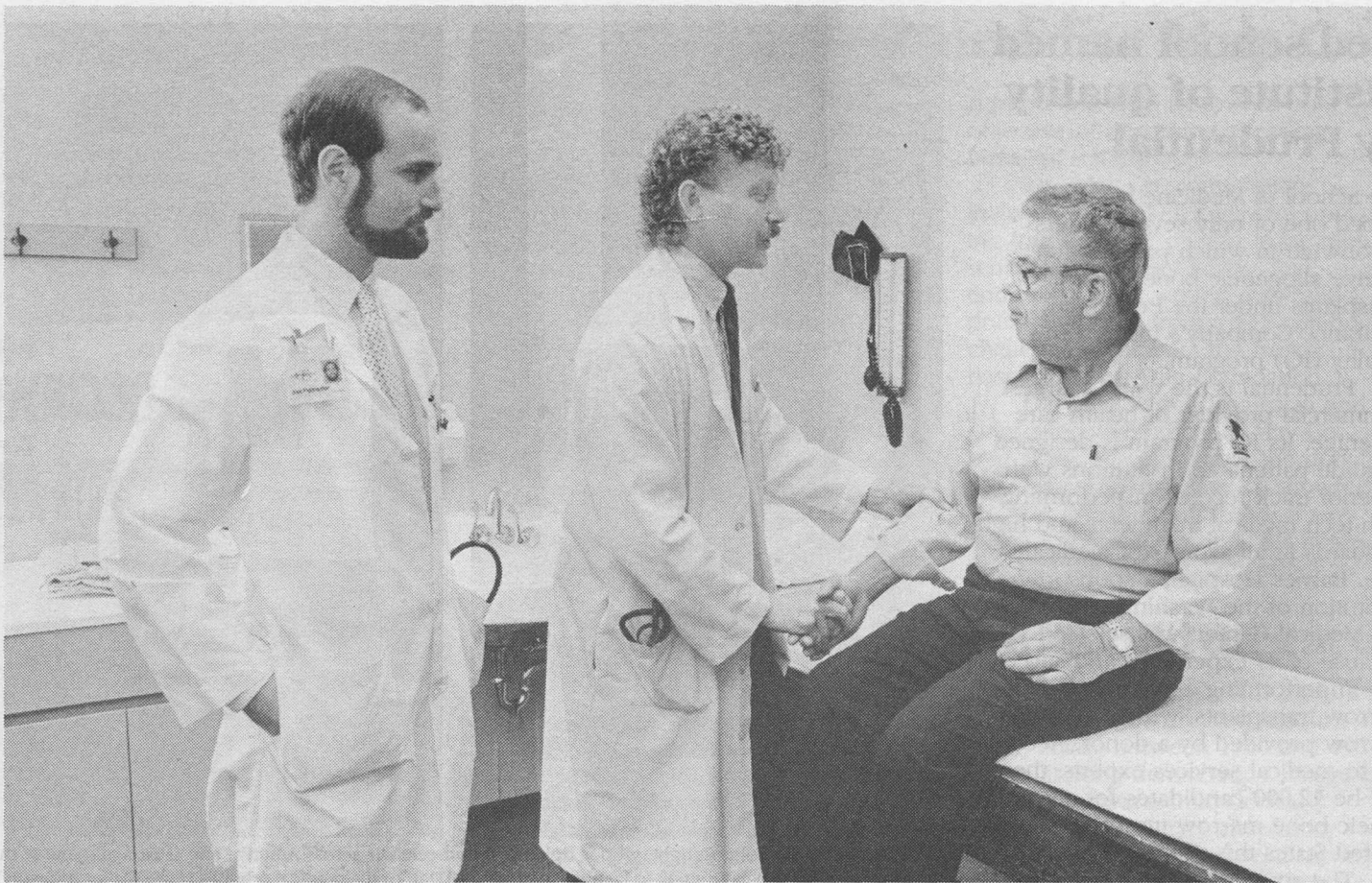
Ralph G. Dacey Jr.

Currently, he is investigating cellular changes that occur in these blood vessels with age and hypertension. His work is funded through a five-year grant of more than \$400,000 from the National Heart, Lung and Blood Institute of the National Institutes of Health.

He also has studied the responses of intracerebral arterioles to acetylcholine and other neurotransmitters. He has conducted extensive research on the reactions of arterioles to vascular injury, looking particularly at how the inner linings of cerebral blood vessel walls change and interact with the deeper vascular smooth muscle when injury occurs. The work is especially relevant to vasospasm, or constriction of blood vessels, which is the primary cause of morbidity and mortality in stroke due to rupture of intracranial aneurysms.

Dacey received the doctor of medicine degree in 1974 from the University of Virginia. He completed a residency in medicine at Strong Memorial Hospital in Rochester, N.Y., and a residency in neurosurgery at the University of Virginia. His training also included a year as a postdoctoral fellow in physiology at the University of Virginia as an American College of Surgeons Schering Scholar. He was a faculty member at the University of Washington and the University of Virginia before joining the University of North Carolina faculty.

He is a diplomate of the American Board of Neurological Surgery and the American Board of Internal Medicine, a fellow of the American College of Surgeons and the Stroke Council of the American Heart Association, and a member of numerous other professional organizations.



Joel Perlmutter, M.D., and Lee Tempel, M.D., examine Parkinson's patient Norman Becherer.

Major advance in Parkinson's disease treatment

People diagnosed with early Parkinson's disease may now be able to substantially delay the onset of disabling symptoms by taking the drug deprenyl.

This finding, reported November 16 in the New England Journal of Medicine, is a result of the largest controlled clinical trial ever conducted for Parkinson's disease, according to Joel S. Perlmutter, M.D., assistant professor of neurology at the School of Medicine. Perlmutter headed the St. Louis portion of the multicenter trial.

"Though not a cure, the study shows deprenyl dramatically delays the onset of disabling symptoms, which means for patients a longer period of time to continue working, participate fully in family activities, and enjoy physical well-being," says Perlmutter.

Deprenyl and a special form of vitamin E called tocopherol were systematically evaluated in the DATATOP (Deprenyl and Tocopherol Antioxidative Therapy of Parkinsonism) study. The School of Medicine is one of 28 study sites in the United States and Canada participating in the clinical trial, conducted by the Parkinson Study Group and sponsored primarily by the National Institute of Neurological Disorders and Stroke of the National Institutes of Health. Additional local support is provided by the

Greater St. Louis Chapter of the American Parkinson's Disease Association.

Twenty patients from the St. Louis area were among the 800 nationwide who took part in the study, which began in 1987. Results indicated that the drug deprenyl significantly delayed the time until these patients, who all had early Parkinson's disease, required levodopa therapy to treat serious disabilities. Levodopa, the mainstay of treatment for Parkinson's disease, suppresses many symptoms but does not slow the progression of the disease; its benefit to patients is limited because it works only temporarily.

"This finding that deprenyl delays the need for levodopa is particularly important for Parkinson's patients at the early stages of the disease," Perlmutter explains. In addition to its limited effectiveness, he notes, levodopa and similar medications can be associated with adverse effects including abnormal involuntary movements, clinical fluctuations, and hallucinations.

Research subjects who received deprenyl reached a predetermined point of disability nearly one year later than those who did not receive deprenyl (26 months to disability with deprenyl vs. 15 months without deprenyl). Deprenyl treatment also significantly increased the time

patients remained gainfully employed, which can mean increased productivity and annual savings of hundreds of millions of dollars. Side effects associated with deprenyl were minor.

The DATATOP study is ongoing, but because of the dramatic nature of the findings, has been modified so that all participating subjects now take deprenyl.

The study investigators hope that the continued monitoring of subjects to the planned conclusion of the trial in 1992 will provide more information about the long-term effects of deprenyl, the potential benefits of tocopherol and the interaction of these experimental treatments. Investigators will examine the effects of deprenyl before and after the need for levodopa, and begin to assess the impact of treatments on factors such as chemical measures in cerebrospinal fluid, mental functioning and life expectancy. All DATATOP findings are coordinated through the University of Rochester in New York.

"We hope the ongoing study will provide additional information on how to better treat the disease and ultimately to help find a cure," says Perlmutter. "But for now, we're happy that we can extend the quality of life for people at the early stages of this debilitating disease."

\$3.5 million

Grant funds local effort to prevent AIDS among IV drug users

The National Institute on Drug Abuse has awarded \$3.5 million to the School of Medicine for research designed to improve drug treatment in order to prevent the spread of HIV infection among IV drug users in the St. Louis area.

The four-and-a-half year grant will support researchers from the Department of Psychiatry in an effort that is unprecedented locally: to persuade IV drug users to get treatment by providing 300 new treatment slots at a drug-free program and a methadone maintenance clinic. This will significantly reduce waiting lists for drug treatment in the inner city. In addition, the project will provide street out reach in high risk areas to educate the community on ways to reduce the risk for HIV infection and

to distribute vouchers for drug treatment.

"At last we, as researchers, have the opportunity to work directly with St. Louis area treatment programs to help the intravenous drug user," says epidemiologist Linda B. Cottler, Ph.D., principal investigator of the study. "Minority drug users need particular attention because they often are less likely to enter treatment." Cottler, a research instructor in psychiatry, will head the collaborative effort involving Washington University faculty in psychiatry and pediatrics, two area substance abuse treatment programs — BASIC and West End Clinic — and the Metropolitan AIDS Program.

Researchers will work with the staff at these centers to make program improvements that until now have

been impossible, largely due to lack of funds. Over time, the investigators will evaluate street outreach and improvements in the treatment programs and compare their effectiveness. The team will administer standardized interviews to examine a number of factors, including relapse to drug use, needle sharing and high risk sexual behaviors, the programs' retention rates, employment, psychiatric symptoms and rates of HIV infection.

Cottler currently is conducting the first study in the St. Louis area on the prevalence of HIV infection in IV drug users and their needle-sharing and sexual partners. That three-year project is also funded by the National Institute on Drug Abuse.

MEDICAL RECORD

Med school named institute of quality by Prudential

The School of Medicine has been named one of only seven centers nationwide in which patients can receive allogeneic bone marrow transplants under the Prudential Insurance Company's Institutes of Quality (IQ) program.

Prudential is the world's largest commercial provider of health care coverage. Its IQ program is designed to guide patients to institutions with superior track records in performing high-tech medical treatments and high standards in all aspects of medical care. Barnes Hospital, a sponsoring institution of the Washington University Medical Center, was selected because of its experience and success rate in performing allogeneic bone marrow transplants, which use bone marrow provided by a donor. According to medical services experts, there will be 12,000 candidates for allogeneic bone marrow transplants in the United States this year.

The six other centers participating in the IQ network are The City of Hope National Medical Center in Duarte, Calif.; The Fred Hutchinson Cancer Research Center in Seattle, Wash.; The University of Minnesota Hospital and Clinic, Minneapolis; The Medical Center at the University of California, San Francisco (pediatric only); The Johns Hopkins Health System, Baltimore, Md.; and Shands Hospital at The University of Florida, Gainesville.

Under the IQ program, a physician is asked to refer patients needing one of the designated treatments or surgical procedures to the nearest participating facility. In addition to the benefits normally paid, the patient's travel costs to and from the facility are reimbursed. Travel and accommodation expenses for a family member or other close companion accompanying the patient are eligible, too. The donor's expenses are also covered for allogeneic bone marrow transplants.

In addition to allogeneic bone marrow transplants, other procedures performed in Prudential's IQ program include heart, liver and kidney transplants, as well as kidney stone treatment. The program is available in most states to individuals enrolled in Prudential group health plans.

Gait/balance study adds component; volunteers needed

Researchers at the School of Medicine and Jewish Hospital are seeking volunteers with mobility problems to participate in a gait and balance study.

The study, which began two months ago, has been expanded and will evaluate not only gait and balance, but also whether exercise will help people with mobility problems. To be eligible, participants must be 65 years of age or older and have mobility problems such as falling, or difficulty climbing stairs or walking 10 blocks. They also must not be involved in a regular exercise or physical therapy program more than once a week.

Volunteers will receive a free evaluation of balance and gait by a geriatric physician and physical therapist, as well as recommendations on how to minimize physical disability. For those participants who qualify, an exercise program, conducted by a physical therapist at the School of Medicine, will be offered.

For information, call 454-8150.



Wheel power: John Enright, who is trekking by wheelchair across America and back again, made the School of Medicine one of his stops while in St. Louis recently. He gave a talk to faculty, students and staff of the medical school's Irene Walter Johnson Institute of Rehabilitation and occupational and physical therapy departments. The purpose of the journey, Enright says, is to inspire people with physical disabilities and to raise awareness about the need for better, more accessible facilities to accommodate the disabled. Enright, who lost use of his legs seven years ago, completed a one-way trip across America in 1983. In January when he completes this journey, begun in December 1988, he will be the first to have traveled by wheelchair across the United States and back again. He is accompanied by his wife, Vicki, who drives behind in a van, and a friend, Ron Ballichi, who also is confined to a wheelchair.



First effective treatment found for hepatitis C

Researchers at the School of Medicine are part of a team that has found an effective treatment for reducing the liver damage caused by chronic hepatitis C, a sometimes fatal disease.

Results of a multicenter study published in the Nov. 30 issue of The New England Journal of Medicine indicate that a six-month course of Intron A, recombinant human alpha interferon, resulted in significant improvement in liver function tests in about half of patients with hepatitis C. Hepatitis C accounts for more than 90 percent of all hepatitis cases contracted through blood transfusions — approximately 150,000 cases per year in the United States. Half of those cases will develop chronic hepatitis C, which can lead to cirrhosis of the liver and liver failure.

"Until now, no therapy has been shown effective in treating chronic hepatitis C," says Robert P. Perrillo, M.D., associate professor of medicine at the School of Medicine and director of the division of gastroenterology at the Veterans Administration Medical Center. Perrillo directed the local trial of Intron A. "Recombinant alpha interferon — a genetically engineered protein that has antiviral and immunogenic properties — finally offers the potential for arresting the progression of hepatitis C and relieving its symptoms." Intron A is produced by Schering Corporation.

Washington University was one of 12 centers participating in the 166-patient study, the first large, controlled trial to assess the effectiveness of alpha interferon therapy in treating hepatitis C. The principal investigator was Gary L. Davis, M.D., at the University of Florida in Gainesville.

All participants in the study had contracted hepatitis C by blood transfusion or occupational exposure to blood. One-third of the group received three million units of alpha interferon given three times weekly for six months, one third received one million units on the same schedule, and the remaining third did not receive any treatment.

Compared with the untreated group, those who received three million units of interferon showed a significant reduction in liver damage. Levels of an enzyme that indicates

liver damage promptly fell to normal in 38 percent of patients who received three million units, in 16 percent of those who received one million units, and in 4 percent of untreated patients. Furthermore, patients taking the larger dose showed a significant reduction in liver damage, as measured by liver biopsy.

Of those patients who improved, one-half showed improvement lasting longer than six months after treatment ended. In addition, many patients experienced a lessening of the debilitating fatigue and malaise that characterizes chronic hepatitis C.

According to the study, side effects associated with interferon therapy were tolerable and usually short-lived. These side-effects, which included flu-like symptoms such as muscle ache, headache and fever, typically improved or ceased as therapy continued.

"We are extremely encouraged by the results of this study, but future studies are needed to determine whether a different dose or longer duration of treatment will increase the

frequency and durability of response," notes Perrillo. Such a study is currently underway at the School of Medicine, in conjunction with the VA Medical Center.

Hepatitis C is one of several different types of hepatitis caused by viruses that attack the liver. The hepatitis C virus, discovered earlier this year, is spread mainly by exposure to blood and blood products, and is often found in hemophiliacs, dialysis patients and health care workers.

The Centers for Disease Control estimates that between 1 and 3 percent of all Americans carry the hepatitis C virus. Although many cases of the chronic form are asymptomatic and mild, cirrhosis, a destructive and sometimes fatal liver disease, develops in at least 20 percent of patients with chronic hepatitis C.

Other major types of viral hepatitis include hepatitis A, transmitted by exposure to contaminated food and water, and hepatitis B, transmitted by exposure to infected blood or blood products or close, personal contact.

OASIS grant aim: to help older adults meet emotional challenges of aging

A \$90,000 grant to evaluate the effects of a program to help older adults meet the mental and emotional challenges of aging has been awarded to OASIS (Older Adult Service and Information System).

OASIS is the St. Louis-based national educational, cultural and wellness program for people 60 and older. The group's two-year grant, funded by the Retirement Research Foundation of Chicago, is titled "Positive Attitudes, Positive Aging." The project will be conducted in conjunction with the School of Medicine's Program in Occupational Therapy and the Jewish Hospital Program on Aging. Both the School of Medicine and Jewish Hospital are local sponsors of OASIS along with Famous-Barr.

The grant will enable OASIS to evaluate a program that could make a significant difference in the quality of life for older adults in St. Louis and

throughout the OASIS network. Plans are to evaluate four curriculum modules dealing with self-esteem, activity and leisure, relationships and empowerment for older adults, and to conduct pilot tests in St. Louis OASIS centers beginning this spring. After the modules have been thoroughly tested and revised over the two-year grant period, they will be ready for use in other OASIS cities.

OASIS was founded in St. Louis in 1982 to provide educational, cultural and health maintenance programs for those over the age of 60. Initially funded by a grant from the Department of Health and Human Services, Administration on Aging, OASIS now receives major support from the May Department Stores Co. Currently there are 22 OASIS centers in May Company stores in 17 cities.

The St. Louis OASIS centers are located at Famous-Barr Clayton, Northland and Southtown stores.

PERSONNEL NEWS



Neediest cases: The University Health Services staff is once again issuing a challenge to all departments on the Hilltop and Medical campuses and at the Administrative Service Center to participate in the 100 Neediest Cases program co-sponsored by the St. Louis Post-Dispatch and the United Way. Last year more than 12,000 families in the St. Louis area were directly helped by this annual appeal. The Health Services staff is pooling the amount normally spent for departmental holiday season gift-giving and other festivities to make a contribution to the 100 Neediest Cases. Departments interested in meeting this challenge should inform Gloria W. White, vice chancellor for personnel, at 889-5990 or through Box 1184. Participating departments will be acknowledged on the University's Community Service Honor Roll. Jane L. Kley, a junior in illustration at the University, submitted the drawing pictured above in the 100 Neediest Cases Art Competition. Her pen and ink drawing will be on display along with illustrations by other area college students from Jan. 2-7 at the St. Louis Galleria.

Guide for finding help with personal problems

As a service to University employees, the Personnel Office has compiled the following resource list for those with personal problems.

Crisis Intervention Resource and Referral: 647-4357, 9 a.m.-9 p.m., Monday through Saturday

Alcohol and drug abuse

Alcoholism Information Center National Council on Alcoholism: 8790 Manchester Road, 63144, 962-3456

Alcoholics Anonymous Central Service: 2683 South Big Bend, Room 4, Maplewood 63143, 657-3677

Al-Anon Family Groups: 2683 South Big Bend, Room 17, Maplewood 63143, 645-1572

Mid-County Physicians: 11745 Olive Blvd., St. Louis 63141, 567-5011
Alcohol and Drug Abuse Counseling: 1034 South Brentwood, St. Louis 63117, 725-1616

Acid Rescue (Drug Crisis Intervention): 1422 South Big Bend, Richmond Heights 63117, 645-2900

Alexian Brothers Hospital: 3933 South Broadway, St. Louis 63118, 865-3333

Social service agencies

Family and Children's Service of Greater St. Louis: 107 South Meramec, Clayton 63105, 727-3235

Jewish Family and Children's Service: 9385 Olive Blvd., University City 63132, 993-1000

Lutheran Family and Children's Service: 4625 Lindell, St. Louis 63108, 361-2121

Family Resource Center (child or spouse abuse): 3930 Lindell, St. Louis 63108, 534-9350

Financial problems

Consumer Credit Counseling Service: 1425 Hampton, St. Louis 63139, 647-9004. No fee for service.

Legal problems

Legal Aid Society: 625 North Euclid, St. Louis 63108, 367-1700

Lawyers Reference Service: Civil Courts Building, 12th & Market 63101, 622-4995. Clayton Court House, 3rd floor, 7900 Carondelet, 63105, 889-3073. \$5 fee to talk to lawyer on duty; \$20 for referral for further services.

Reimbursement for child care expense

Any employee who participated in the Child Care Reimbursement Account during 1989 has until March 31, 1990, to submit claims for reimbursement for qualified child care expenses incurred during 1989. Any employee who participated in the Child Care Reimbursement Account during 1989 and has funds remaining in his or her account after Dec. 31, 1989, will be provided a statement during January 1990 showing the balance remaining in the account.

Personnel News

Personnel News appears monthly in the Record and is prepared by Gloria W. White, vice chancellor for personnel and affirmative action, and other members of the Personnel Office. Personnel News is designed to keep Washington University employees and their families informed of the benefits and opportunities available at the University.

Searches for professional positions are under way

Washington University is conducting searches to fill a professional position on the Hilltop Campus and three professional positions on the Medical Campus.

Hilltop opening

Associate Director of International Studies — Washington University announces the opening of a new position as associate director of International Studies. Under the guidance of the director of International Studies, the associate director will have a full-time administrative role involving coordination of international and area studies programs. Part-time teaching on an adjunct basis is also possible.

Duties of the associate director will include identification of funding opportunities and preparation of institutional grant proposals for international and area studies programs, advisement of faculty members on individual grant applications, recruitment for and coordination of campus Fulbright programs, coordination of a publications program in international studies, and coordination of conferences, workshops and hospitality for visitors in international studies. Salary and starting date are negotiable.

Applicants should possess an appropriate academic background in a related discipline with a doctorate preferred. They should have administrative experience, sound skills in oral and written communications, and prior involvement with fund-raising or funding agencies.

Resumes and the names of individuals willing to serve as references should be mailed by Jan. 30 to: Dean Edward N. Wilson, Chair, International Studies Search Committee, Washington University, Campus Box 1187, One Brookings Drive, St. Louis, Mo. 63130. Telephone: (314) 889-6843.

Medical openings

Assistant Dean for Finance — Requirements: an MBA, MHA or graduate degree in a related management field with a minimum 5 years senior management experience in medical school administration.

Special skills required: The role of this position is to organize and administer functions associated with the management of financial resources of the medical school, bearing direct responsibility for the central administrative budget of approximately \$85 million, monitoring the financial performance of numerous academic and nonacademic financially autonomous reserve units and coordinating the preparation and presentation of periodic aggregate financial reports for the entire medical school.

The assistant dean for finance will be responsible for the administrative management of the medical school's Finance Office, including financial information systems, selected business support services and development of a clinical systems support staff. In addition, this office will represent the school in high-level negotiations with third-party payers, affiliated teaching hospitals and other organizations contracting for services.

Assistant Dean for Administration

— Requirements: an MBA, MHA or graduate degree in a related management field, with a minimum 5 years senior management experience in medical school administration.

Special skills required: The role of this position is to manage the general administrative affairs of the medical school in all areas where the central administration coordinates activities and provides support services for

human resources, research administration and other responsibilities outside of finance and physical plant services.

The assistant dean for Administration will be responsible for developing appropriate administrative and organizational support structures for the School of Medicine in these areas, developing and implementing related policy and procedures and supervising all related personnel.

Director of Facilities Management

— Requirements: a BS/BA in business, engineering, health administration or related management field, with a minimum 5 years of senior facilities management experience in a university, hospital or large corporate/industrial complex. (Prefer health service industry.)

Special skills required: The role of this position is to manage all facilities maintenance activities for the School of Medicine in all areas where the central administration is directly responsible for the facilities and related support services and to ensure that certain facilities and services managed by the school's reserve units are properly maintained.

The director of Facilities Management will be responsible for developing appropriate administrative and organizational support structures for the School of Medicine in these areas, developing and implementing related policy and procedures and supervising all related personnel.

In addition to the professional searches, qualified candidates are being sought to fill secretarial, clerical and technical positions on the Hilltop Campus. These positions include the following:

Accounting/Bookkeeping, 4 positions; Clerical, 1 position; Data Processing/Programming, 2 positions; Drafting, 1 position; Laboratory Technician, 3 positions; Librarian, 4 positions; Part-time, 5 positions; and Word Processing/Secretarial, 7 positions.

Information about these and other positions is available through the Hilltop Campus Personnel Office, Room 126, North Brookings, 889-5990, and the Medical Campus Personnel Office, 4550 McKinley Ave., 362-7195.

Dependent child coverage reminder

Under Blue Cross/Blue Shield Alliance Plus, Group Health Plan and Partners HMO, unmarried dependent children are eligible for coverage until the date they marry or the end of the calendar year in which they reach age 23, whichever comes first. Any unmarried dependent child covered under any of these plans who reached age 23 in 1989 may be eligible to continue coverage as an individual under the applicable plan for up to 36 months with payment of the required premium. Contact the Personnel Office at 889-5990 to arrange for continuation of coverage on unmarried dependent children who reached age 23 in 1989.

Note that under the TIAA Major Medical plan, unmarried dependent children are eligible for coverage until age 19, or until age 23 if they are full-time students dependent on the covered employee for support. The eligibility for coverage does not extend to the end of the calendar year in which the child reaches age 19 or age 23, so it is important to notify the Personnel Office immediately upon the dependent child reaching the limiting age to determine if continuation of coverage is available.

CALENDAR

Dec. 7-16

LECTURES

Thursday, Dec. 7

Noon. Dept. of Genetics Fall Seminars, "Transcriptional Repression and Cell-Type Control in Yeast," Alexander Johnson, Dept. of Microbiology, U. of Calif.-San Francisco. Genetics Dept. Library, 816 McDonnell Medical Sciences Bldg.

4 p.m. Dept. of Chemistry Seminar, "Structure and Dynamics of Some Ionic Clusters," Mark Crofton, Dept. of Chemistry, U. of Calif.-Berkeley. 311 McMillen Lab.

4 p.m. Dept. of Anthropology Colloquium, "Feeding and Seed Predation of Pithecia and Chiropotes," Warren Kinzey, prof., Dept. of Anthropology, City U. of New York, and dir., Physical Anthropology Program, National Science Foundation. 101 McMillan Hall.

6 p.m. Dept. of Germanic Languages and Literatures Lecture, "Preussen 1803-1813 im 'vaterlaendischen Roman': Willibald Alexis, George Hesekiel, Theodor Fontane," Christian Grawe, prof. of German, U. of Melbourne, Australia. Hurst Lounge, Duncker Hall.

Friday, Dec. 8

Noon. Dept. of Cell Biology and Physiology Friday Noon Seminar Series, "Angiogenesis in Xenopus Tadpole Brain," Carl Rovainen, WU prof. of cell biology and physiology. Cell Biology Library, 4914 South Bldg.

4 p.m. Dept. of Chemistry Seminar, "Transition Metal Complexes of Reactive Silicon Intermediates," Don Tilley, Dept. of Inorganic Chemistry, U. of Calif.-San Diego. 311 McMillen Lab.

Monday, Dec. 11

4 p.m. Dept. of Biology Seminar, "Decapentaplegic Locus of Drosophila," Bill Gelbart, Harvard U. 322 Rebstock Hall.

Tuesday, Dec. 12

4 p.m. Dept. of Chemistry Seminar, "Intra- and Intermolecular Electronic Processes: Cisstilbene Isomerization and Energy Transfer in Photosynthesis," John Jean, Dept. of Chemistry, U. of Chicago. 311 McMillen Lab.

4 p.m. AIDS Clinical Trials Unit Presents Approaches to the Inhibition of HIV Scientific Series, "Inhibition of the HIV Protease," Garland R. Marshall, WU prof. of pharmacology, and "Attenuation of HIV Infections in Vitro by Glucosidase Inhibitors," David C. Tiemeier, Dept. of Molecular and Cell Biology, Searle. Cori Aud., McDonnell Medical Sciences Bldg.

Thursday, Dec. 14

10:30 a.m. Olin Library Preservation Year Lecture Series: "Statewide Preservation Programs," Lisa Fox, preservation officer of SELINET. Simon Hall, May Aud.

4 p.m. Dept. of Chemistry Seminar, "Hydrocarbon Oxidation Reactions on Single Crystal Surfaces," Jeffrey Roberts, Dept. of Chemistry, Stanford U. 311 McMillen Lab.

4:15 p.m. Dept. of Philosophy Colloquium, "Providence and the Problem of Evil," Eleonore S. Stump, prof., Virginia Polytechnic Institute. Women's Bldg. Lounge.

4:30 p.m. Dept. of Mathematics Colloquium, "Gain of Regularity for Dispersive Evolution Equations," Thomas Kappeler, Brown U. 199 Cupples I Hall.

Friday, Dec. 15

Noon. Dept. of Cell Biology and Physiology Friday Noon Seminar Series, "The LDL Receptor and the Folate Receptor: Contrasting Mechanisms of Ligand Internalization," Richard G. Anderson, Dept. of Cell Biology, U. of Texas Southwestern Medical School. Cell Biology Library, 4914 South Bldg.

PERFORMANCES

8 p.m. Performing Arts Dept. Presents Dancer Robert Small in concert performing solo choreography. Edison Theatre. Cost: general public \$8; \$5 for senior citizens and students. For more info., call 889-5858.

MUSIC

Sunday, Dec. 10

4 p.m. Dept. of Music Chamber Choir Concert, with Janet Krupnik directing. Graham Chapel.

EXHIBITIONS

"Meditations: The Decade of the Eighties," featuring paintings by Lawrence D. Steefel Jr., WU Steinberg Professor Emeritus of Art History

and Archaeology. Dec. 10-Jan. 14. Gallery of Art, Steinberg Hall. 10 a.m. to 5 p.m. weekdays; 1-5 p.m. weekends. For info., call 889-4523.

"Washington University Permanent Collection." Collection includes European and American art from the post-World War II era, as well as Greek coins and terra cotta vases. Through Dec. 31. Gallery of Art, Steinberg Hall, upper and lower galleries. 10 a.m.-5 p.m. weekdays; 1-5 p.m. weekends. For more info., call 889-4523.

"Faculty Show," featuring photographic works by Stan Strembecki, WU assoc. prof. of art. Works by other University faculty members also will be on exhibit. Through Dec. 28. Gallery of Art, Steinberg Hall, upper gallery. 10 a.m.-5 p.m. weekdays; 1-5 p.m. weekends. For more info., call 889-4523.

"Photographs by Lynne Brown," hosted by WU School of Fine Arts. Brown, the administrative coordinator at the Art Institute of Chicago, has exhibited throughout the United States and Japan. Through Dec. 8. Lewis Center, Gallery 721, 725 Kingsland Ave. 8 a.m.-4:30 p.m. weekdays. For more info., call 725-7014.

"Looking Back on Mid-Century," featuring 20th-century American and English literary manuscripts. Through Jan. 12, 1990. Olin Library, Special Collections, level 5. 8:30 a.m.-5 p.m. weekdays. For more info., call 889-5495.

"University of Kentucky Sculpture Exhibit," part of an exchange program of work by art students. Through Dec. 17. Bixby Gallery, 2nd floor, Bixby Hall. 10 a.m.-4 p.m. weekdays; 1-5 p.m. weekends. For more info., call 889-4643.

FILMS

Thursday, Dec. 7

7 and 9:30 p.m. Filmboard Series, "The Shop on Main Street." \$2. Brown Hall.

Friday, Dec. 8

7 and 9:30 p.m. Filmboard Series, "Princess Bride." (Also Sat., Dec. 9, same times, and Sun., Dec. 10, at 7 p.m.) \$2. Brown Hall.

Midnight. Filmboard Series, "Monty Python and the Holy Grail." (Also Sat., Dec. 9, same time, and Sun., Dec. 10, at 9:30 p.m.) On Fri. and Sat., both the 9:30 p.m. and midnight films can be seen for a double feature price of \$3; both Sun. films can be seen for \$3.

SPORTS

Friday, Dec. 8

7:30 p.m. Women's Basketball. WU vs. MacMurray. Field House Gym.

Saturday, Dec. 9

2 p.m. Men's and Women's Swimming and Diving. WU vs. DePauw U. Millstone Pool.

3 p.m. Men's Junior Varsity Basketball. WU vs. East Central. Field House Gym.

Monday, Dec. 11

7 p.m. Men's Junior Varsity Basketball. WU vs. Olney Central. Field House Gym.

Saturday, Dec. 16

5:30 p.m. Women's Basketball. WU vs. U. of Mo.-St. Louis. Field House Gym.

7:30 p.m. Men's Basketball. WU vs. U. of Mo.-St. Louis. Field House Gym.

MISCELLANY

Friday, Dec. 8

Noon. Woman's Club Mini-Luncheon Program with the Washington University Chamber Choir Singers presenting a holiday concert. Women's Bldg. Cost: \$3 for Woman's Club members; guests \$4. For info., call 725-8254.

Monday, Dec. 11

12:30 p.m. Society of Professors Emeriti Luncheon Meeting, followed by program at 1:30 p.m., "Some Things About Washington University I Have Learned From Writing its History," Ralph E. Morrow, WU prof. of history and former provost. Whittemore House. For members only, to make reservations or more info., call Earl Shepard at 727-5039.

Calendar Deadline

The deadline to submit items for Dec. 21-30 calendar of the Washington University Record is Dec. 8. Items must be typed and state time, date, place, nature of event, sponsor and admission cost. Incomplete items will not be printed. If available, include speaker's name and identification and the title of the event; also include your name and telephone number. Send items to calendar editor, Box 1070, or by electronic mail to p72245PP at WUVMC.



Paintings by Lawrence D. Steefel Jr. will be on display from Dec. 10-Jan. 14 in the Gallery of Art. His "Bloused Figure in Severe Profile," 1988, pictured above, is included in the exhibit, titled "Meditations: The Decade of the Eighties."

Tribute to the artist

Steefel paintings to be on exhibit

Paintings by Lawrence D. Steefel Jr., Ph.D., Steinberg Professor Emeritus of Art History and Archaeology at Washington University, will be on exhibit at the Gallery of Art in Steinberg Hall from Dec. 10-Jan. 14.

An opening reception will be held from 2-5 p.m. Sunday, Dec. 10, in the gallery.

"We, Pete Steefel's friends and colleagues, are honoring him on the occasion of his retirement from teaching, but this exhibit is a tribute also to Pete Steefel's contributions as an artist," says Robert Thorp, Ph.D., associate professor and chair of the Department of Art History and Archaeology.

The exhibit, titled "Meditations: The Decade of the Eighties," features recent works that, according to Assistant Professor Robert Jensen, Ph.D., "evoke qualities of Japanese Zen paintings and are closely connected to the American Abstract Expressionist movement."

Perhaps best known as an art historian and teacher, Steefel is considered a world-renowned expert

on the works of Marcel Duchamp, a founder of the post-World War I "Dadaist" art movement and one of the most influential artists of the 20th-century. Steefel has published widely on Duchamp as well as on other subjects, including 17th- and 19th-century paintings.

Steefel is admired by his students and colleagues for his exuberance in teaching. Joni Kinsey, Ph.D., a former graduate student who is now an adjunct assistant professor in the department, says, "He gives a sense of passion to art that most professors can't. As one of the professors I worked with during my dissertation, I found he was a great source of inspiration for me."

Steefel received his bachelor's degree from Haverford College in Pennsylvania and his master's and doctorate in art history at Princeton University.

The gallery is open 10 a.m.-5 p.m. weekdays; 1-5 p.m. weekends. During the holiday season, the gallery will be closed Dec. 22-25 and Dec. 29-Jan. 1. For more information, call 889-4523.

Schools exchange sculptures for display

Sculpture students from the University of Kentucky and their professor are exhibiting their works through Dec. 17 in Bixby Gallery, Bixby Hall, as part of an exchange between the two universities.

The exhibit features works by more than 10 students from the University of Kentucky sculpture program and the professor of sculpture, Jack Gron. Gron, a 1976 graduate of Washington University's School of Fine Arts, is co-organizer of the show with James Sterritt, professor in the School of Fine Arts.

During the 1990 spring semester, a sculpture exhibit by student and faculty of Washington University will be displayed at the University of Kentucky in Lexington. Sterritt says that similar exchanges have been held with other universities, such as Indiana State at Evansville, but this is the first time it has been done with the University of Kentucky.

Bixby Gallery is open 10 a.m.-4 p.m. weekdays and 1-5 p.m. weekends.

For more information on the exhibit, call 889-4643.