Professor strives for safer aircraft design through revolutionary engineering technique

On Aug. 12, 1985, Japan Air Lines Flight 123 slammed headlong into a mountainside northwest of Tokyo, killing all but four of the 524 passengers on board. Preliminary investigations indicate that failure of a structural component caused the accident.

On Oct. 11, 1985, McDonnell Douglas Corp. announced that cracks could develop in bulkheads connecting the wings to the fuselage of its newest fighter aircraft, the F-18. Experts blame an engineering defect.

Modern aircraft are as vulnerable as they are incredibly sophisticated. Failure of a single structural element can cause disaster. Yet the methods engineers use to evaluate structural components in aircraft are based on concepts pioneered almost 30 years ago.

Until recently, these methods represented the best available technology, says Barna Szabo, Ph.D., director of WU's Center for Computational Mechanics. But a significant breakthrough in computer-aided design techniques will radically alter the way engineers evaluate aircraft designs of the future, he says.

During the last 15 years, Szabo has developed PROBE, an engineering program he believes will result in more efficient engineering and safer aircraft for the 1990s.

In a test problem of an L-shaped corner, for example, he explains, "conventional technology must solve about seven million equations to reach a solution accurate to within one percent relative error. PROBE can do it with 800 equations. If it takes PROBE one minute to solve this problem, then conventional programs would need 200 years on the same computer."

"Of course no one has 200 years to solve a problem. Instead, engineers settle for lower-quality solutions. "The result," Szabo continues, "is that engineers spend more time and effort, more resources, and use more expensive computers to design a final product that ends up more expensive and more difficult to maintain."

Using the finite element technique, engineers calculate stress distribution on a physical object by dividing the object into a screen-like mesh of small sections called finite elements. Each element is mathematically modeled with approximating functions to represent stresses in the object.

To increase precision, conventional meshes often contain thousands of tiny elements. Because each element requires complicated processing, solution of a complex problem calls for substantial computer resources. Engineers spend about 80 percent of their time producing intricate mesh designs and interpreting vast amounts of data, says Szabo.

As an alternative, Szabo increased the mathematical sophistication of the approximating functions describing each element. As a result, he needed far fewer elements to accurately model the entire object.

At first they said it could never work," he smiles. "As little as five years ago, critics hinted that Szabo's theories were nothing more than computerized black magic.

But in scientific papers published in 1981 and again in 1984, Szabo and Iva Babuska, an internationally recognized mathematician at the University of Maryland, provided rigorous mathematical proof that not only does PROBE perform better than existing technology, but if applied in a certain way, will approach the theoretical optimum performance achievable. In other words, Szabo observes, "if a supreme being were to design a finite element program, it would be PROBE."
Janis R. Powell, a second-year WU law student, is a husband of two and a half-year-old boy. "There are two ways to get good grades: be a genius or work very hard. To play it safe, I work very hard." In addition to his legal studies, he hits the books at home for two hours each weekday.

The law library is popular for several reasons, according to McCloskey. "It's convenient; students can obtain input from their peers on complex law issues; and, of course, the library has 'many resources that are extremely useful' to students, faculty and the St. Louis area law community.

The site boasts a large research collection of more than 310,000 volumes. It has source materials to help scholars find anything from specific law cases to statistics that support arguments.

The library also has opinions of various federal and state courts, briefs from the U.S. Missouri Supreme Courts; numerous federal and Missouri statutes and regulations, law review articles, and legal treatises which are comprehensive summaries of the law. Freund library is one of the few academic facilities nationwide that contains all of the administrative agency codes and regulations for the 50 states.

To help library users with their inquiries, Peggy McDermott, assistant law librarian for reference services, teaches students and faculty how to use the computer-based Lexis and Westlaw legal research systems. By using these online data bases, operators rapidly can find cases by plugging particular words, phrases or legal citations into the computer. In addition, they can retrieve administrative decisions made by federal agencies and examine cases heard by specific judges.

The Lexis and Westlaw data bases are part of a new revolution in processing legal information. Although WU's law school still has traditional law books on most of its shelves, technology increasingly is being emphasized to quickly provide resources to researchers, says Bertrand D. Reams Jr., J.D., Ph.D., professor of law and director of the law library.

In the future, predicts Reams, the majority of legal information will be transmitted through laser or optical disks, which store massive amounts of information on a disk the size of a 12-inch phonograph record. Reams recently purchased the library's first optical disk unit, which indexes legal periodicals. He and his staff are considering acquiring another laser disk system that indexes federal government publications.

In another use of technology, the acquisitions department has completed a book catalog of the library's monographs collected during the last five years by using a specific computer program to compile the information.

"We are anticipating future trends," Reams remarks. "Today we rely on microforms to store masses of legal information, tomorrow it will be the laser disk."

The computer wave has influenced the way law students produce their legal studies. Freund library is one of the few academic facilities nationwide that contains all of the administrative agency codes and regulations for the 50 states.

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News items for the medical record section are published once a month and may be sent to the Office of News and Information, Campus Box 1070, Washington University, St. Louis, Mo. 63130.

Bountiful harvest: On a recent Saturday morning, 45 WU students harvested more than 200 bunches of turnips and mustard greens that were given away later that day to needy people in north St. Louis. The students, who are involved in the Inter-Varsity Christian Fellowship, had heard a talk on local hunger and decided to do what they could to help alleviate the problem. A farmer in West County volunteered his crop, which covered an area about the size of a football field. Otis Woodard, who distributes food, clothing and money to the needy through the Lutheranh Family and Children's Services, handled the distribution of the harvest from a truck outside his home. Among the turnip and mustard green pickers were (above, from left) Tim Williams, a sophomore in engineering; Adam Smith, a master's degree candidate; his civil engineering advisor, and J. B. Brebek, a doctoral candidate in chemistry.

William C. Kirby, Ph.D., assistant professor of history and director of the International Affairs Program, has received the first Roland Grimm Traveling Fellowship from the University. Grimm, a 1914 alumnus of the University, died in 1985. The fellowship was established to support WU faculty research in Asia. Grimm, who was 89 when he died, was a sales representative in the Orient for about 40 years. The University also is naming its squash, handball and racquetball courts in the new athletic complex in his memory.

Kirby said the grant will support his research in Chinese archives for a book titled The International Development of China Since 1928. He is focusing on patterns of Chinese foreign economic and technical cooperation under both Nationalist and Communist rule. He started the re- search in 1967 under a fellowship in Chinese studies from the American Council of Learned Societies.

The author of Germany and Republican China (Stanford University Press, 1984), Kirby joined the WU faculty in 1970. As director of the International Affairs Program in University College since 1983, he coordinates an interdisciplinary curriculum for students who travel and do business abroad.

Kirby earned his bachelor's degree in history, summa cum laude, from Dartmouth College in 1972. After a year of graduate studies in history and political science at the Freie Universitat in Berlin, he completed his doctorate in 1977 in China and did- dorate in 1981 in history at Harvard University. He was a teaching fellow at Harvard from 1975 to 1979.
Student’s string piece scores international prize

This article is part of a continuing monthly series profiling WU students.

George Chave, a doctoral candidate in WU’s department of music, decided to compose an entry for the Oriana Trio International Composition Competition because he needed a string piece to round out his portfolio. “I thought I’d kill two birds with one stone,” says the 26-year-old composer from Skaneateles, N.Y.

In August, Chave received word that he had completed his portfolio with a winning composition. His “Trio for Violin, Cello and Piano” won first prize out of a field of more than 40 pieces from eight countries. He will receive a $1,500 prize when the piece is premiered by the Oriana Trio in Kenosha, Wis., this week.

Chave got the good news Aug. 1, just three days before his wedding. “I was glad to receive the results before the big day,” he says. “Between the wedding and moving, it might have taken a long time for the announcement to catch up with me.”

In addition to the cash prize, Chave will gain some other benefits from his success. Not the least of which, he says, is a professional quality recording of the December performance. Chave had been concerned about the cost of getting a quality recording of his work, a must for a composer seeking a teaching position.

Many prestigious schools have so many students, it’s impossible to get the individual training a musician needs,” he says. “WU’s music department has a fine reputation and a small enough class that all students get individual attention.”

Chave’s compositions contrast greatly with much contemporary, “minimalist” music, which he says is repetitive and lacks movement. “Music should be forward-going,” he says. “It should have a drive and a direction.”

Chave’s own direction, after he receives his doctoral degree in the spring, is also forward-going. He hopes to find a teaching position in an urban area and continue writing music. He is hoping to find a publisher for his trio. “Having won this competition won’t hurt at all,” says the composer.

Aircraft safety—continued from p. 1

could perform a little better than PROBE. But not much.”

PROBE’s rigorous mathematical foundation allows it to tackle problems that have eluded conventional technology, making it attractive to the aerospace industry, a critical user of finite element technology.

“We have created a tool that less engineers do more creative engineering,” proclaims James A. Flowers, president of Nocetic Technologies, the company formed to develop and market PROBE. “The bonus is that the answers are better. Not only will it give you the answer, but it is the only program in existence that is able to tell you how good the answer is.”

Szabo believes that new designs will be possible with the aid of the powerful engineering tool. Doubtlessly, PROBE will have significant impact on the performance and safety of aerospace structures.

Robert Brock

Edison will be the site of the Guthrie Theater’s production of “Great Expectations.” The orphan boy Pip (played by Timothy Wahrer) falls in love with the heartless Estella (Ann-Sara Matthews), who spurns Pip’s love.

Edison has Dickens’ ‘Great Expectations’

Edison Theatre will present the Guthrie Theater performing “Great Expectations” at 8 p.m. Friday, Dec. 13.

Barbara Fields adapted Charles Dickens’ story for the company’s 1985-86 tour. “Great Expectations” is set within the squalor and turbulence of Victorian England. It tells the story of Pip, an orphan, and his journey from rags to riches. Along the way, he encounters a starving convict, Abel Magwitch; a bitter spinster, Miss Havisham; her beautiful but cruel daughter, Estella, who spurns Pip’s love; and assorted other characters who influence him.

When a mysterious benefactor offers to pay Pip’s way to gentrification, he travels to London in hopes of becoming a gentleman and winning Estella’s love. He is trained in society manners by Herbert Pocket, a London dandy. In the end, the mysterious benefactor is revealed and Pip comes to terms with himself and Estella.

The Guthrie Theater, now in its 23rd season, is one of the nation’s foremost regional theaters. Since 1980, the Guthrie has been under the artistic direction of Liviu Ciulei, Romanian stage and screen director, actor, designer and architect.

Ciulei has an international reputation as an adventurous director. He made his U.S. directorial debut in 1974 with the American premiere of George Buchner’s “Leonce and Lena.”

His European credits include “As You Like It” in Romania and West Germany and “Leonce and Lena” in Romania and Scotland. At the Guthrie, he has staged “The Tempest,” “As You Like It,” “Twelfth Night,” “The Three Sisters,” “Eve of Retirement,” “The Threepenny Opera,” “Requiem for a Nun” and the critically acclaimed “Peer Gynt.”

In recognition of its outstanding contribution to American theater, the Guthrie was presented the Tony Award in 1985 by the American Theater Wing and the League of New York Theaters and Producers. The award was recommended by the American Theater Critics Association.

Tickets for the performance are $15 to the general public, $10 to WU faculty and staff and senior citizens and $7 to students. For tickets, call the box office at 889-6543.

This program is made possible by support from the IBM Corporation, the Missouri Arts Council and the National Endowment for the Arts, through their participation in Mid-America Arts Alliance, a regional arts organization.

Intramural office holds racquetball tournament

The WU Intramural Office of the Athletic Complex is sponsoring a continuing racquetball tournament for faculty and staff. The tournament format will be ladder-type competition, with players challenging higher ranked opponents to obtain their positions on the ladder.

Players of all skill levels are encouraged to enter this ongoing tournament and entries will be taken at any time (no entry deadline) in the intramural office. Complete tournament rules also are available in the office. For more information, call 889-5193.
Physical therapist gives warning on ‘feeling the burn’

Americans are taking to gyms and tracks with a vigor that will surely make physical fitness a major lifestyle change of the late 20th century. But our penchant for push-ups and other traditional calisthenics gives some of us more than we bargained for — pain. We often react by falling off the exercise bandwagon.

Help is on the way. Enter Shirley Sahrmann, Ph.D., a neurobiologist and physical therapist at WU School of Medicine. Sahrmann has spent years treating men and women who believe the slogan, “no pain, no gain.” “That’s a myth,” she says simply.

Sahrmann warns that particular exercises may be inappropriate for certain body types, weights and ages. An avid believer in the benefits of exercise, she deplores the intensity and inherent imbalance in many popular calisthenics-type exercise regimens.

“Counterbalancing exercises are necessary because the body operates according to the laws of physiology. Every action or movement is accomplished by certain muscle groups contracting while other muscle groups relax. These opposing actions make movement possible. But if the muscles that contract during a certain movement become overstrengthened (too short) from overuse, problems arise, most commonly pain and distorted posture.”

Any type of calisthenics — leg lifts, arm curls, etc. — needs to be counterbalanced by exercise that induces movement in the opposite direction. For example, you can counterbalance sit-ups by standing against a wall with head and shoulders back, arms and legs extended. Exercises should also be done lying face down to strengthen back and hip muscles.

Sahrmann didn’t set out to disagree, but she’s not the best way to strengthen a sagging abdomen.

The abdomen is encased in layers of muscles. To stop sag, the broad sheets that comprise one of the outermost muscle layers — the external obliques should be strengthened. (The external obliques are sometimes called the “lower abdominals” because they exert the most control over the pelvis and thus the lower abdomen.) But instead of engaging the lower abdominals, sit-ups strengthen and shorten an inner muscle — the internal oblique — and the outermost, ribbon-like layer of muscle — the rectus abdominis — that runs over the pelvis and thus the lower abdomen. The problem was weak abdominals.

“Linda has forward shoulders and a depressed chest,” says Sahrmann. “This tends to depress the chest by making the abdominal muscles work for the rectus abdominis, too short. And it neglects the lower abdominals, while overstretching the rectus that you don’t even accomplish what you’re after — a strong abdomen.”

Sahrmann suggests a progressive program of exercises to correct lower abdominal muscle imbalances and to help you avoid exercises that would aggravate them. You’ll be tested for spinal alignment, shoulder girdle function, and hyperextended knees.

Once you know what postural quirks you have, you’ll want to structure your exercise regimen accordingly. For example, resistive-type exercises (weights) to strengthen the shoulder girdle can cause problems, especially for women. “It’s very difficult for a woman to do them safely,” advises Sahrmann. “They have to be careful not to put their shoulders back. And they should start off with light weights, increasing resistance very slowly.”

Persons with forward-pointing shoulders should avoid any exercises involving a lot of forward arm waving or swinging. Instead, so that standing flat against a wall with feet about three inches away from the wall, they should raise their toes over their head and bring their shoulder blades back and down. Those with back problems should avoid exercises that have their bending forward. Knock knees will be aggravated by hip-flexing exercises; substitute those that have movement originating in the gluteal (buttock) area.

To err on the side of a balanced program so that you don’t have too much of any one activity, suggests Sahrmann. “If you’re very unfit, pick one exercise that you enjoy, and do only that.”

Sahrmann also suggests that sagging stomachs. The lower abdominal muscle imbalances that sport can cause. For example, bicycling can tighten the hip flexors. Swimming can contribute to forward shoulders.

“Aerobic-type exercises produce the real health benefit,” says Sahrmann. “But if you want to strengthen or tone muscles, ask what calisthenics or general exercises will counteract muscle imbalances induced by these sports.”

Most sports participants or vigorous calisthenics enthusiasts believe that stretching, as either a warmup or cooldown, is helpful. Yet Sahrmann cautions that a lot of bad advice, or lack of advice altogether, is causing people more harm than good.

One thing that’s missing from the exercise books I’m familiar with is, where is the end point of a stretch? People keep on stretching their hamstrings, but to what point do you stretch them? The same with heel cord stretches. Everybody learns against a wall to stretch their heel cords. To what degree should you go to achieve a certain range at your ankle?”

Other doctors told Linda that her problem was weak abdominals. Strengthen them with sit-ups, they recommended. But Linda, a 29-year-old student, had consulted Sahrmann did Linda learn that her “good sit-ups” (trunk curls) were having some problems.

“Linda has forward shoulders and a depressed chest,” says Sahrmann. “Her rectus abdominis is shortened from too many trunk curls, and sit-ups have pulled her chest down and head forward. Her lower abdominal muscles are not as well developed as they should be because the rectus is too strong.”

To correct these imbalances, Sahrmann advised Linda to cease sit-ups altogether and institute an exercise regimen developed by Sahrmann will stretch Linda’s too-short hamstrings and strengthen her “good sit-ups” (trunk curls) were having some problems.

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Ludmerer writes book on medical education

Sweeping transformations in the training of American doctors are chronicled in a new book by Kenneth M. Ludmerer, M.D., a physician/historian at WU School of Medicine.

Learning to Heal: The Development of American Medical Education has been scheduled to be published by Basic Books, Inc., a division of Harper & Row. It is Ludmerer's second book, the first, Genetics and American Society, was published in 1972 and was selected in 1973 by the Saturday Review as one of the year's ten outstanding books on scientific subjects.

Learning to Heal, already reviewed by one critic as a "stunning achievement," examines the progress of medical education in the United States.

A century ago, says Ludmerer, entrance requirements to medical school were less stringent than when they were to a good high school. "Instruction was superficial and brief," he says. "The terms lasted only 16 weeks, and after the second term, the M.D. degree was automatically given, regardless of a student's academic performance." Instructors were private practitioners who taught during their spare time.

All that has changed. As Ludmerer points out, medical education underwent a metamorphosis, during which medical training became institutionalized, with university-based medical schools allying with hospitals to form academic medical centers. Students go through years of rigorous training, combining classroom experience with practical experience in the lab and with the patients.

Ludmerer holds joint academic appointments in the School of Medicine and the Department of History. From 1980-85, he was a teaching and research scholar of the American College of Physicians and was one of the first recipients of a five-year, $50,000 scholar's grant established by the Henry J. Kaiser Family Foundation.

Since 1977, he has been a book reviewer and manuscript referee for a dozen medical and historical publications, including the Bulletin of the History of Medicine, the Journal of the History of Medicine, and the British Journal for the History of Science. He has lectured on medical education and the American medical profession to groups at several universities, including Harvard and Johns Hopkins.

Local diabetics needed for national study

WU School of Medicine is seeking people with insulin-dependent diabetes to participate in one of the largest and most important studies of the disease ever performed on medical volunteers are needed for the Diabetes Control and Complications Trial (DCCT), a seven-year study that will include 1,100-1,200 participants. WU is one of 21 medical centers across North America helping to conduct the research, funded by the National Institute of Arthritis, Diabetes and Digestive and Kidney Diseases, part of the National Institutes of Health.

The DCCT is designed to answer one of the most important remaining questions about diabetes: how effective are some of the newer forms of diabetes therapy at preventing, delaying or reversing the presence of diabetic complications? These complications may affect the eyes, kidney, nerves, heart and blood vessels.

"Even in people who control their diabetes, the complications can cause serious health problems," says Julio Santiago, M.D., one of the local study directors. "The relationship between blood sugar control and diabetic complications is an extremely important issue: The outcome of the DCCT will have a major impact on the treatment of diabetes in the future."

Santiago — and study co-directors Neil White, M.D., and Don Skor, M.D. — are looking for individuals with type I or insulin-dependent diabetes, particularly those between the ages of 15 and 39, and must have had type I diabetes for at least one but not more than 15 years. They cannot be taking more than two insulin injections per day, be using an insulin pump, or have any severe complications from diabetes.

Volunteers in the study will receive free medical care from diabetes specialists at WU School of Medicine for the next seven years. To volunteer, or to get further information, contact Lucy Levandoski, Santiago or White at 454-6051.

At WU Santiago is professor of pediatrics and associate professor of medicine, and White is assistant professor of pediatrics and instructor of medicine. Both are on staff at Barnes and Children's hospitals, sponsoring institutions of the WU Medical Center. Skor is clinical instructor of medicine at WU, and on staff at Barnes and Jewish hospitals. Levandoski is a physician assistant.

Bedell honored by dental alumni association

Robert E. Bedell, D.D.S., has received the 1985 Distinguished Alumni Award from the WU Dental Alumni Association.

The award was presented to Bedell, a Kirkwood orthodontist, at a recent banquet concluding the 119th annual meeting of the association. He was chosen as recipient of the award by an anonymous committee of his fellow dental alumni.

Bedell received his dental degree from WU in 1944 and the master of science degree in orthodontics in 1951. He was honored for his long service to the School of Dental Medicine as teacher, alumni leader and fundraiser, and for his prominence in national and regional orthodontic activities.

Bedell taught at the School of Dental Medicine from 1944-51 and from 1958-82. He is a life-time member of the Dental Alumni Association board of directors and served as president of the association in 1978. A member of WU's William Greenleaf Elliott Society since 1970, he has helped seek contributions to the School of Dental Medicine and presently serves on the School's Capital Resources Committee.

In 1979, Bedell was the recipient of the Distinguished Service Scroll of the American Association of Orthodontists (AAO). He has held various offices with the AAO, the Greater St. Louis Dental Society and the Missouri Dental Association. He served as president of the Midwestern Society of Orthodontists in 1983-84 and continues as a member of the society's board of directors. He has served for many years as a liason to the Missouri School for the Blind.
Medical school seeks volunteers for several cholesterol studies

Researchers at WU School of Medicine are seeking volunteers to participate in several studies on the effects of diet and medication on blood cholesterol.

One study will be conducted by the Lipid Research Center, which spent 10 years as part of an unprecedented national study that proved lowering blood cholesterol levels can reduce the risk of heart disease. The study, along with 11 other research centers, was released in August 1984, as the results of the Coronary Primary Prevention Trial, sponsored by the National Institutes of Health (NIH).

Researchers at the School of Medicine are using the findings of that 10-year project as the foundation for further studies of the relationship between cholesterol and heart disease. The work will be directed by Barbara Klein, who is also an authority on the prevention of low birth weight, is professor of gynecology and obstetrics at Emory University School of Medicine in Atlanta, Ga. She is also director of the Maternal and Infant Care Project and co-director of the Regional Perinatal Center, both at Grady Memorial Hospital in Atlanta.

Coy named professor of restorative dentistry at School of Dental Medicine

Richard E. Coy, D.D.S., M.S., has been named professor of restorative dentistry at the WU School of Dental Medicine. Announcement of his appointment was made by George D. Selfridge, D.D.S., M.S., dean of the dental school.

Before joining WU, Coy was assistant dean for clinical affairs and professor of removable prosthodontics at the Southern Illinois University School of Dental Medicine. He served as assistant dean since 1975 and had been on the faculty since 1970. Coy taught at the University of Pittsburgh School of Dental Medicine from 1961-70. He received his dental degree from the University of Pittsburgh in 1951 and later earned a master's degree in prosthodontics from the same institution. He served as a dental assistant and hospital corpsman in the U.S. Navy during World War II and was a Naval dental officer from 1951-53.

Coy is 1985-86 president of The American Equilibration Society, a diplomate of the American Board of Prosthodontics, and a fellow of the American College of Dentists and the American College of Prosthodontists. He also is a member of Omicron Kappa Upsilon, the national dental honor society.

Neurologists studying MS treatment

Researchers at WU School of Medicine are enrolling patients with multiple sclerosis (MS) as participants in a study of an immunosuppressive drug that may help victims of the disease.

Volunteers will be enrolled in the study through Dec. 30. The research, which began in 1984, examines the use of Cyclosporine A as a treatment for MS. WU is one of nine American universities conducting studies, sponsored by Sandoz, Inc. The local study is headed by John Trotter, M.D., director of the MS clinic and associate professor of neurology and neurological surgery at the School of Medicine.

MS is believed to be an autoimmune disease. Trotter says that immunosuppressive drugs—critical to successful organ transplantation—have been helpful in treating progressive cases of MS, he notes, but cannot be used routinely because of potentially severe side effects.

Cyclosporine A—a relatively new immunosuppressant—has been proven to be more effective, with fewer and reversible side effects, than other drugs used for transplant patients, Trotter says. For that reason, it is being studied for its safety and effectiveness as treatment for MS.

Patients will have blood tests and vital signs taken each month, with a formal examination by a neurologist and therapist every two months. Also, participants will be asked to have a spinal tap at the beginning and end of the trial. All testing will be conducted at the Clinical Research Center at the School of Medicine.

MS patients who have been treated with the immunosuppressive drug Cyclosporin may not enter the trial. Participants must be off all immunosuppressive drugs for two months before they begin the study, and cannot begin taking any immunosuppressants during the trial.

Because the study is placebo controlled, all patients will receive Cyclosporine A, Trotter says. If the drug is proven effective, however, all participants will receive it free until it gains federal approval as treatment for MS.

Further information about the MS study is available through Trotter at the Department of Neurology, telephone 362-3293.

Library introduces new search system

The WU School of Medicine Library, in conjunction with the Institute for Scientific Information in Philadelphia, has developed an online version of Current Contents, a major publication service for scientists and physicians.

The database includes citations to articles from the physical, life, clinical and agricultural sciences since January 1985. The system can be searched by title word, author or journal titles, and allows the searcher to save searches and run them at regular intervals. It is accessible through the library's Bibliographic Access and Control System (BACS), and is available at no cost to all faculty, staff and students at the WU Medical Center.

This user-friendly search can be conducted in the library or from remote locations, such as offices or laboratories using terminals or personal computers. It has 1,600 access points and capabilities and a 1200 baud modem.

Introductory seminars are offered every Tuesday at 2 p.m. and 4 p.m. Personal access codes are assigned at that time. For more information contact the reference division, 362-7085.
Bocca exhibits paintings at three institutions

"My eyes are always on the masters. I don’t paint fashion — ever," says Edward E. Boccia, professor of art.

Boccia, who plans to retire from the School of Fine Arts in 1986 after 35 years of teaching, has included in the exhibit triptychs from as early as in his career as 1956, and as late as 1985.

Throughout his career, his style has been most closely linked to the Expressionists, specifically Max Beckmann, who influenced Boccia in his use of the triptych form. In developing his present style, Boccia incorporates elements of painting styles associated with Picasso, Magritte and Cezanne, to name a few. Despite these influences, Boccia undoubtedly possesses his own style. "My painting is mine," he says, "absolutely mine, in that no one else uses the language of my paintings the way I use it. No one else handles the human figure like I do."

In addition to his accomplishments as a painter, which include numerous one-person shows and paintings in hundreds of private and public collections throughout the United States and Europe, Boccia is a prolific poet.

Although he modestly considers himself a beginner, since 1981 he has taken part in national and international poetry competitions, and has been published in journals such as Writer's Review, California Quarterly and Orbis.

"I think my poetry is like my paintings," Boccia says. "I do see it as handling the human figure like I do."

The influences of the masters — the Italian Renaissance, Expressionism, Cubism and Surrealism — on Boccia's poetry is like Cubism. . . . like a collage. . . . It is like Picasso's paintings, and his poetry is like Cezanne's. . . . My poetry is like Boccia's paintings. . . . It is like a collage. . . .

"My eyes are always on the masters. I don’t paint fashion — ever." — Edward E. Boccia, professor of art

Elaine Dempsey

NASA honors Arvidson for service

"My glasses are always on the masters. I don’t paint fashion — ever." — Edward E. Boccia, professor of art

Raymond E. Arvidson, Ph.D., professor of physics and planetary sciences, will receive a NASA Public Service Award in an awards ceremony on Dec. 5 at the Jet Propulsion Laboratory in Pasadena, Calif.

Arvidson is being honored for his leadership role as chairman of the National Academy of Sciences Committee on Data Management and Computation and for his contributions as a member of numerous other NASA advisory groups dealing with the problems of space data management.

The Public Service Medal is one of 18 awards presented by NASA during 1985. It is given annually to a scientist from a private institution for exceptional contributions to NASA's space program.

Society of Physics Students honored

The WU chapter of the Society of Physics Students (SPS) has been designated one of the nation’s "Outstanding SPS Chapters for 1984-85" by the National Society of Physics Students, a branch of the American Institute of Physics. Only 30 of the 1600 SPS chapters nationwide received the honor.

Patrick C. Gibbons, Ph.D., associate professor of physics, is the advisor for the WU chapter, and

Richard E. Norberg, Ph.D., is the chairman of the physics department.

The awards were originated in 1978 to give recognition for outstanding work in the promotion of physics. Outstanding chapters are designated based on activities and lectures and on successful project proposals. Students present papers at scientific meetings and physics awards granted to member students.
Thursday, Dec. 5
4 p.m. Central Institute for the Deaf Research Seminar, "Clinical Performance of a Digital Hearing Aid." Gerald Popelka, clinical research scientist; Dick Eberman, visiting professor; Robert D. Wilson.
4 p.m. Dept. of Philosophy Colloquium, "Combination and the Unity of Self." Jay Rosenberg, prof. of philosophy, U. of Michigan. Hurst Lounge, Duncker Hall.
4 p.m. American Medical Student Association Lecture, "Apolis and Zeus: Health, Community and Government." Victor W. Sidel, Distinguished University Professor of Social Medicine, Monroe Medical Center. Albert Einstein College of Medicine. Also sponsored by the Department of Preventive Medicine and Public Health. Erlanger Aud. 6:00 S. Euclid Ave.
4 p.m. Dept. of Chemistry Seminar, "An Experimental Diabetes Model." Sheila M. Ramos, Ph.D., professor of medicine.
4:15 p.m. School of Fine Arts Lecture, "Asklepios, Apollo and Zeus: Art, Science, and Medicine." Edward Boccia, WU prof. of art, discussing his temporary works of art. 82. Brown Hall.
4:45 p.m. School of Fine Arts Lecture, "Apolis and Zeus: Health, Community and Government." Victor W. Sidel, Distinguished University Professor of Social Medicine, Monroe Medical Center. Albert Einstein College of Medicine. Also sponsored by the Department of Preventive Medicine and Public Health. Erlanger Aud. 6:00 S. Euclid Ave.
4 p.m. Dept. of Chemistry Seminar, "Asklepios, Apollo and Zeus: Art, Science, and Medicine." Edward Boccia, WU prof. of art, discussing his temporary works of art. 82. Brown Hall.

Friday, Dec. 6
6 and 8:30 p.m. WU Association Film Travel Lecture Series, "Swiss on White." Robert Graham, author. Steinberg Auditorium. Carlin will play piano; Balderston, cello; and Ramos, violin, visiting artist. Steinberg Aud.
6:15 p.m. School of Fine Arts Lecture with Edward Boccia. WU prof. of art, discussing his current exhibit of triptychs. Steinberg Auditorium.
8 p.m. Thursdays Presents the student dance concert in Room 207 Mallickinkrodt. Also Dec. 13 and Jan. 10, same time, and 5 p.m. Dec. 31. Admission is $2.

Friday, Dec. 13
8 p.m. Guthrie Theater Presents Charles Dickens' "Great Expectations" at Edison Theatre. General admission is $15. WU faculty, staff and senior citizens, $10. and students, $7. For more info., call 889-6543.

Saturday, Dec. 7
8 a.m. Dept. of Music Madrigal Christmas Concert directed by Orland Johnson. Holmes Lounge.
Monday, Dec. 9
8 p.m. Dept. of Music Piano Trio Concert with Beth Carlin, piano. WU assoc. prof. of music; Steven Balderston, cello; visiting artist; and Manuel Ramos, violin, visiting artist. Steinberg Auditorium. Carlin will lead the group. Balderston, cello; and Ramos, violin, visiting artist.

Tuesday, Dec. 10
8 p.m. Dept. of Music WU Christmas Choir Concert, Graham Chapel.

Friday, Dec. 13
8 p.m. WU Filmboard Series, "Everything You Always Wanted to Know about Sex." $5. Brown Hall. (Also Sat., Dec. 14, same times, and Sun., Dec. 15, at 7 p.m., Brown.)

Saturday, Dec. 14
8 p.m. WU Filmboard Series, "Fritz the Cat." $5. Brown Hall. (Also Sat., Dec. 14, same time, and Sun., Dec. 15, at 9:30 p.m., Brown.)

Monday, Dec. 17
8 p.m. WU Filmboard Series, "Photographs in the WU Collection." $3. Steinberg Auditorium. Carlin will play piano; Balderston, cello; and Ramos, violin. The concert will feature piano trios by Felix Mendelssohn, Albert Roussel, and Johannes Brahms. The WU Choir, directed by Johnonson, will present a Christmas concert at 8 p.m. Tuesday, Dec. 31, in Holmes Lounge. The concert will feature music by Heinrich Schutz, Samuel Barber, J. B. Bach and Ludwig van Beethoven.

Concerts to raise holiday spirits
From the Madrigals' intimate candle-light serenade to the full WU Symphony Orchestra, the WU music department will serve up a variety of Christmas concerts and other musical events to raise the holiday spirit. The Madrigals will present their annual Christmas Concert at 8 p.m. Saturday, Dec. 7, in Holmes Lounge. The concert features the 20-member chorus singing Christmas carols from classical centuries-old hymns to contemporary favorites. The Madrigals are carol directed by Orland Johnson, Ph.D., professor of music. Seth Carlin, WU associate professor of music, and visiting artists Steven Balderston and Manuel Ramos will present "An Evening of Piano Trios." At 8 p.m. Monday, Dec. 9, in Steinberg Auditorium. Carlin will play piano; Balderston, cello; and Ramos, violin. The concert will feature piano trios by Felix Mendelssohn, Albert Roussel, and Johannes Brahms. The WU Choir, directed by Johnson, will present a Christmas concert at 8 p.m. Tuesday, Dec. 31, in Holmes Lounge. The concert will feature music by Heinrich Schutz, Samuel Barber, J. B. Bach and Ludwig van Beethoven.

Calendar Deadline
The deadline to submit items for the Jan. 16-25 calendar of the Washington University Record is Jan. 2. 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. Address items to King McElroy, calendar editor, Box 1070.