Wars lies in its disregard for some basic history of the arms race and human designers have largely ignored the rules of physics. And, he claims, its proposal since it was announced in the SDI and constant critic of the eventual Soviet response to the proposal it outlined in his famous March 23, 1983, speech to the nation, proposes an umbrella-like defense of lasers, orbiting satellites and mirrors powered by new computers, computer languages and algorithms for battle management, power stations and rockets, "fully enough technology to at least doubt the national debt, which already stands at more than two trillion dollars," says Bender. The United States is funding SDI research at approximately $3-9 billion per year. The purpose, according to Reagan and SDI backers, is a defense system that will make nuclear weapons "impo- possible" and "obsolete," protecting the United States from incoming ballistic missiles launched against an aggressor. The SDI "would be ineffective against so-called "stealth" weapons, such as the cruise missile, which moves at low altitude and is capable of evading radar. Cruise missiles, or their equivalent, can be launched by an aggressor. The SDI would not be able to put into place that will nullify Star Wars system must be able to destroy an approaching missile, a like amount of energy must be furnished to the weapon. Many of the SDI satellites would be armed with kinetic energy weapons — rockets or "rail guns," which have linear motors that conceivably could launch metal projectiles. The power required for the satellites to operate such weapon- sons, Bender says, would be the equiva- lent of hundreds of millions of watts for each rail gun, the amount that is gener- ated by a large power station supplying energy to a city of several million. But it is lasers — very intense light beams — that are the bulwark of the SDI. Lasers and particle beams are called directed energy weapons. Particle beams are intense beams of atomic particles; that, like lasers, are intended in the Star Wars plan to disable the Russian missiles by heating nuclear warheads. The proposed armada of lasers that would theoretically intercept an offensive missile include ultraviolet, infrared and X-ray lasers. The most powerful laser known today, according to an assess- ment of directed energy weapons by the American Physical Society, is just one percent as powerful as what is required. The Star Wars system must be able to track and aim at incoming missiles precisely and instantaneously. The accuracy required of the lasers would be equivalent to hitting the tip of the Washington Monument to within a few inches while standing on the Statue of Liberty," Bender says. "And humans wouldn't be aiming the lasers; comput- ers would." Computers are the driving force behind Star Wars. Certain computer

Continued on p. 2

Continued on p. 6
components must factor in the earth's magnetic field and the effects of air and diffraction within the earth's roughly 65-mile-high atmosphere. These elements alter and diffuse lasers and charged particle beams.

Presently, giant, possibly even football-field-sized mirrors are proposed to focus the lasers. The mirrors would direct the laser beams to their intended targets. But, like the Allies dropping tin foil over Germany on bombing runs in World War II to negate the German radar, the Soviet Union could foil the mirrors by simply launching vacuum cleaner bags of dust. Once a particle of dust scratches the mirror, Bender explains, the mirror will absorb the light from the laser that it was supposed to reflect, and melt; the laser, in effect, would destroy its own mirror, committing a sort of high-tech suicide.

"You can't get much more low-tech than dust bags in outer space," Bender says. "But that is all it takes."

The SDI computer system will require a new computer language that might encompass more than 10 million lines of code. In comparison, Bender points out, the Internal Revenue Tax Code is 10 percent as long, and "the tax code is full of loopholes. Indeed, it is code is full of loopholes. Indeed, it is.

There already are computer-driven, defensive systems that are miniature versions of Star Wars. Their susceptibility was dramatically illustrated in the 1982 Falkland War when the British destroyer Sheffield, a $50 million warship, was destroyed by a single Exocet missile an Argentine pilot fired from 20 miles away. The reason for the failure? The Sheffield was carrying Exocet missiles on board and its computerized radar, because of a programming error, could not detect whether the Argentine Exocet was friendly — so the British scientists.

Bender cites the United States' deployment of the multiple, independently targetable reentry vehicle (MIRV) to solve the technological challenge the Russians posed in the 1960s with their version of an anti-ballistic missile system (ABM) that was intended to protect Moscow. The United States, wanting to maintain its retaliatory capability over the Soviet ABM, developed the MBV, which carries multiple warheads and "completely overwhelms the Soviet ABM," Bender says.

Ironically, it was the Russians who actually first experimented with the Star Wars concept. A decade ago, they researched a version of the system and reached the same conclusion that most American scientists have: too expensive.

"In addition to its many shortcomings, Star Wars does not prevent stealth weapons from reaching U.S. targets," Bender says, "nor will it stop a terrorist from launching a basket-sized nuclear bomb on the back of a bicycle.”

**Cost savings plan announced to staff during Danforth's talk**

"How can we talk so poor when we are so rich?" was a question raised by Chancellor William H. Danforth during an administrative staff meeting held June 10 in Simon Hall auditorium. Of more than 400 staff and administrative attended the standing-room only meeting, which was held to explain the University's budgetary situation for the new fiscal year and to introduce a cost savings program that would enlist employees' help in conserving resources.

In reply to his own question, Danforth said, "The answer is that we are indeed a very wealthy institution, but no institution, however wealthy, can spend more than it has, or even, the strongest of the world, can lift himself up.

"I have come to the conclusion that with the increase in resources we expect more of ourselves and of our institution than ever before. The expectations have outpaced our resources. Since the budget cannot be expanded indefinitely, we will have to think of more creative ways of meeting the challenges before us — us, and better with what we have.

Danforth explained that "what we have" may sound like a great amount of money at the University's disposal, but much of the campaign donations are governed by two specific principles: 1.) We can spend gift and grant money only for the purposes specified by the donor; and 2.) We cannot spend our endowment. We are limited to spending the income from endowed endowed endowed endowed endowed endowed endowed endowed endowed endowed endowed endowed endowed endowed endowed endowed endowed endowed endowed endowed endowed endowed endowed endowed endowed endowed endowed endowed endowed endowed endowed endowed endowed endowed endowed endowed endowed endowed endowed endowed endowed endowed endowed endowed endowed endowed endowed endowed endowed endowed endowed endowed endowed endowed endowed endowed endowed endowed endowed endowed endowed endowed endowed endowed endowed endowed endowed endowed endowed endowed endowed endowed endowed endowed endowed endowed endowed endowed endowed endowed endowed endowed endowed endowed endowed endowed endowed endowed endowed endowed endowed endowed endowed endowed endowed endowed endowed endowed endowed endowed endowed endowed endowed endowed endowed endowed endowed endowed endowed endowed endowed endowed endowed endowed endowed endowed endowed endowed endowed 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the 15th annual meeting of the Midwest Art History Society, held at the Walker Art Center in Minneapolis, Minn. In addition, Ketner wrote an article on “The Belmont Murals of Robert S. Duncan” for the “Tall Museum,” which appeared in the spring issue of the Queen City Heritage Magazine of the Cincinnati Historical Society.

Ronald M. Levin, J.D., professor of law, has been elected chairman of the Washington University Senate Council for the academic year 1988-89.

Robert Paine, M.D., clinical professor of emergency medicine and professor of internal medicine at the Department of Medicine at St. Luke’s Hospital, Chesterfield, has written a book (five contributors) titled “Generation and Interpretation of the Electrocardiogram.” The book was derived from the host of lectures presented in a senior cardiology elective at the School of Medicine and St. Luke’s Hospital. The book gives a complete explanation of the electrophysiology of the heart, has a practice manual for analysis and interpretation of data contained in 1,000 sample ECGs, and gives an introduction to the new techniques for computer-aided detection of the ECG from myocardial cellular events.

Peter Riesenberg, Ph.D., professor of history, has been invited again to participate in a summer institute at the National Humanities Center in Durham, N.C. He reported on “Aging of the Peripheral Auditory System of the Chinchilla” at the Academy of Sciences. The 3-day seminar is one of the largest in the country and was co-sponsored by the University and the Exxon Education Foundation.

Speakers at the conference were: William Safire; Hodding Carter III; Thomas F. Eagleton, Ph.D., professor of Public Affairs; and William H. Gass, Ph.D., professor of humanities.

“Responsibility and Integrity in Public Discourse,” which was held on campus and web-served by the University, will focus on “Honor, Public Interest, and the News” and will be co-sponsored by the University and the Exxon Education Foundation.

Area’s first graduate program in biotechnology is offered

In response to the need for trained personnel in the growing biotechnology field, Washington University will launch a new master’s arts program in that discipline this fall. The Master of Arts Program in Biotechnology will be the only one of its kind in the St. Louis metropolitan area. Late afternoon and evening courses for adult part-time students will be offered.

Through biotechnology, genetic material is manipulated to create novel, modify products, improve plants or animals, or develop micro-organisms for specific beneficial uses.

“There is a great demand for people who have expertise in biotechnology,” says Roy Curtis III, Ph.D., chairman of the biology department. He is using the diverse approaches of biotechnology to develop vaccines against important diseases of animals and humans. Curtis says “local corporations, particularly companies like Monsanto, as well as the major research universities, are searching for employees who can clone and sequence genes, genetically engineer microbes, plants, and animals to produce and recover the products that these engineered organisms produce.”

The Washington University credit hour program is sponsored jointly by the Graduate School of Arts and Sciences and University College, the evening division of the Faculty of Arts and Sciences. The program will feature specialized areas in microbial, plant, medical and commercial biotechnology, as well as a wide range of other opportunities for students with a bachelor’s degree in science, engineering, business or economics.

Ales Prokop, Ph.D., affiliate associate professor of chemical engineering, is coordinator of the program.

Registration begins Aug. 1 and classes start Aug. 31. For details on admission, registration and program costs, call 889-6777.

**Philosophical Society elects botanist Peter Raven**

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At Central Institute for the Deaf (CID), students like 7-year-old Dominic Fleishman are taught speech rather than sign language. CID researchers say that students who are taught speech achieve higher reading levels than those who are taught to sign.

The theory of total communication is to teach signing and talking together to give children the benefit of taking information through whatever system suits them. The implication is that they will learn to both sign and talk," says Geers.

"But our studies show that children are not learning to talk and sign together. Some are learning to sign, but they are not learning to talk as well as those in oral programs, and most are not learning to talk enough well to be understood." Furthermore, Geers adds, they are not learning to sign English at a higher level than orally educated deaf children learning to speak English. Both Geers and Moog agree that using signs and speech can be very helpful for a deaf person to communicate, but they maintain that learning speaking English before signing is crucial.

"There is no evidence that a profoundly deaf child can be taught simultaneously to sign and speak and do both well," Moog comments. "There is also no evidence that a child can first become a competent signer and then learn to speak well. However there is evidence that if you become a competent talker, you might later acquire signs if you wanted to be able to use both systems. Everyone. We've never studied who was competent with both modes, learned to speak first and sign later. Our philosophy is to start with an oral program, and become completely proficient orally before attempting signing," says Moog.

Only 10 percent taught orally

Advocates of total communication have criticized CID's results, saying the reading levels were high because CID tested economically advantaged children whose parents had the money to enroll them in the best education possible. However, according to the Office of Demographic Studies at Gallaudet, of the some 20,000 profoundly deaf children being taught in the United States, only 10 percent of them are taught in spoken language programs.

Moog notes, "That in itself reduced the pool from which we had to draw," Moog says.

"We believe there are fewer than 500 children nationwide in the 16- to 17-year-old age group who have been educated exclusively with the oral approach. We tapped a sizeable proportion of the orally educated sample in that age range. There was no reason for our sample to be skewed socioeconomic because we paid all expenses for the testing." Moog does attribute the small number of children in oral programs partly to financial reasons. "Speaking is extremely hard for a deaf person, and it's hard to do well. It is also expensive to do well. It takes very highly trained teachers to teach deaf children to talk, and I think there are probably not a lot of people who want to finance it."

On the other hand, Geers says, the expense is a concentrated one. The expense is probably equivalent in both methods of teaching. When children are very dependent on sign language, they are either required to stay in special education all the way through adulthood or have an interpreter accompany them in a normal-hearing setting.

"Children at CID are taught in small groups with a ratio of one teacher for every four children, and most teachers have master's degrees," says Geers. "So it's very expensive to teach these children, but it's also relatively short term.

Parents begin receiving training with their infants as soon as the deafness is diagnosed, and children begin intensive instruction at the CID school starting at age 3. Some are ready to be mainstreamed by the time they reach first grade, especially if they are diagnosed during infancy and are well fitted with hearing aids. Geers notes. On the other hand, average children are placed in regular classrooms with normal hearing children.

Deaf education debate: signing vs. the spoken word

At Washington University Medical Center's Central Institute for the Deaf (CID), students like 7-year-old Dominic Fleishman are taught speech rather than sign language. CID researchers say that students who are taught speech achieve higher reading levels than those who are taught to sign.

8, the spoken language of children in oral programs was 30 to 40 percent better than those educated in total communication programs. In both studies, the children tested were comparable in age, hearing impairment and intelligence.

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Wisconsin Hospital and Clinics in their hearing aids to volunteer for a for skin cancer. By testing hearing aid wearers who are happy with their hearing aids, it is possible for the same prescription to be interpreted in different ways by different manufacturers. While hearing aid manufacturers use various modifications of these formulas when they receive prescriptions from audiologists, it is possible for the same prescription to be interpreted in different ways by different manufacturers. By testing hearing aid wearers who are satisfied with the level of sound provided by their hearing aids, audiologists hope to find out which formula provides the most accurate measure of the volume gain actually preferred by the patient. Volunteers must be 18 years of age or older, with mild to moderately severe sensorineural hearing loss (nerve deafness). They must have successfully completed an audiologic evaluation and must consent to wearing a new set of hearing aids. STAHIL awardee honored for his scientific contributions by receiving MERIT status for his latest grant. By securing an additional $700,000, it is possible for the same prescription to be interpreted in different ways by different manufacturers. By testing hearing aid wearers who are satisfied with the level of sound provided by their hearing aids, audiologists hope to find out which formula provides the most accurate measure of the volume gain actually preferred by the patient. Volunteers must be 18 years of age or older, with mild to moderately severe sensorineural hearing loss (nerve deafness). They must have successfully completed an audiologic evaluation and must consent to wearing a new set of hearing aids. George J. Hruza, M.D., has been named director of the Cutaneous Surgery Center at the School of Medicine. Hruza joined the faculty July 1. He comes to St. Louis from the University of Wisconsin Hospital and Clinics in Madison, where he was the Mohs micrographic surgery fellow. He also has served as a research fellow in cutaneous laser surgery at Harvard University Medical School. Dr. Hruza replaces Robert H. Goden, M.D., who has accepted a position as director of the Mohs Micrographic Surgery Unit at the University of Pennsylvania. Cutaneous surgery consists of three components: laser surgery, which can remove unsightly birthmarks; dermatologic procedures, such as dermabrasion for acne scars; and Mohs micrographic surgery, a highly successful treatment for skin cancer. Developed 40 years ago by Frederick E. Mohs, M.D., at the University of Wisconsin, micrographic surgery involves removing a thin layer of skin, examining it beneath a microscope for cancer cells, and repeating the process until no further evidence of cancer is found. In 1982, Washington University established the first medical center in Missouri to offer the surgery, and in 1986 the School of Medicine established its own unit at Barnes Hospital, a training institution of the medical center. It is the only unit in Missouri, and one of about 180 units across the country. Hruza received his medical degree from New York University School of Medicine in 1982. He served an internship in internal medicine at New York Hospital, Cornell University, and a residency in dermatology in the skin and cancer unit at New York University Medical Center. Three cancers may be asked to participate in this study: skin cancer, breast cancer, and prostate cancer. All tests will be free of charge. For more information, call 362-7489.
active. Ultimately, this work could improve treatment for degenerative disease of the nervous system.

Fischbach came to Washington in 1981 after Harvard Medical School, where he was professor of pharmacology. He received a medical degree from Cornell University Medical School and a bachelor’s degree in mathematics and chemistry from Colgate University.

Kornfeld, co-director of the School of Medicine’s hematologic-oncologic division, is recognized for his research on the biochemistry of glycoproteins. His work has helped to explain the structure of the carbohydrate units of these molecules and to define the steps involved in their biosynthesis. These carbohydrate units are important because they serve as specific recognition markers in a variety of biologic reactions.

Kornfeld is interested in how these proteins are targeted to their correct destination in the cell, because the cell makes hundreds of different proteins that have to be sent to many different destinations. Signals built into the proteins allow this to occur. Kornfeld’s work involves trying to decipher the signals to determine how proteins get sent to the correct location.

A 1962 graduate of Washington’s School of Medicine, Kornfeld served his internship and residency at Barnes Hospital. He has been on the medical school faculty and the staff at Barnes Hospital since 1966.

Majerus is co-director of the Division of Hematology-Oncology. His research involves defining the mechanisms by which a blood cell responds to signals within its environment both to evoke responses inside the cell and to modify its surroundings.

Deaf education—continued from p. 4

proficient at speaking English, which I think is important,” she says. “I think speaking proficiently improves their ability to participate in the hearing world if they so choose.”

As a reward for working hard during their training, students spent much of their week sightseeing in the St. Louis area. They ordered their own food at restaurants, bought their own tickets to an amusement park, asked the tour guide questions at an underground mine, and talked on a riverboat ride on the Mississippi River. “They went independently everywhere a normal-hearing person would, and they didn’t need to be accompanied by an interpreter,” Moog says. “That’s the point of teaching speech. If you can only communicate using sign language, and nobody can understand you when you speak, you probably won’t have as many opportunities as those who can speak.”

NOTE: Results of CID’s study will be presented in July in Orlando, Fla. to the A.G. Bell Association, which is an association of deaf adults and parents and teachers of deaf children.

Faculty named to editorial board

Dennis M. Bier, M.D., co-director of endocrinology and metabolism for St. Louis Children’s Hospital and the Department of Pediatrics at the School of Medicine, has been named the next editor-in-chief of the professional journal Pediatric Research.

The journal’s next editorial board will include five other members of the St. Louis Children’s Hospital staff — F. Sessions Cole, M.D., director of newborn pediatrics; Donald Granoff, M.D., director of infectious diseases; Alan L. Schwartz, M.D., Ph.D., director of hematology and oncology; Arnold W. Strauss, M.D., director of cardiology; and Joseph J. Volpe, M.D., director of nephrology. The five-year appointees begin January 1.

The selection of Dennis Bier and his colleagues for the new editorial board of Pediatric Research, from among many highly qualified groups, is further evidence of the depth and breadth of quality in the Department of Pediatrics at Washington University,” said Harvey R. Colton, M.D., pediatrics-in-chief. “I believe the journal and research in pediatrics will be the beneficiary of their assumption of this responsibility.”

Pediatric Research is published monthly for the International Pediatric Research Foundation Inc. It is sponsored by the American Pediatric Society, European Society for Paediatric Research and the Society for Pediatric Research.

The journal offers original research reports on clinical and laboratory studies and abstracts of major research meetings on childhood diseases.

Work in his lab uses biochemistry, and molecular biology techniques to define the pathways involved in generating cell messages. He and his colleagues recently discovered several new enzymes and metabolites involved in this pathway and are further exploring these and other new reactions. Another project involves the study of an endothelial cell protein, thrombomodulin, which is a natural anticoagulant molecule.

Majerus pioneered the clinical research that first indicated that aspirin, taken daily in low doses, could help prevent possibly fatal thrombosis (blood clotting) in kidney dialysis patients, without harmful side effects. His work suggested that aspirin might prevent clotting among patients who had already suffered one such occurrence, and that healthy persons might take aspirin on a regular basis to reduce the possibility of a heart attack. That preliminary work was confirmed earlier this year when Harvard University announced results of a follow-up study that involved 11,000 doctors nationwide who took an aspirin or placebo every other day.

Majerus joined the faculty at Washington in 1966 after serving as a research associate in biochemistry at the National Heart Institute. He received a medical degree from the University in 1961 and completed undergraduate studies at Notre Dame University in 1959.

The American Academy of Arts and Sciences, founded in 1780, conducts studies that reflect members’ interests and respond to societal needs. There are currently 17 faculty members at Washington University who are academy fellows.

$1 million in funding

Holtzman to study asthma causes with two grants

A researcher at the School of Medicine has been awarded more than $1 million to study the causes of asthma and other inflammatory lung diseases.

Michael J. Holtzman, M.D., assistant professor of medicine, will receive funding from two five-year grants—one from the National Institutes of Health (NIH) and the other from the American Lung Association.

Holtzman’s research focuses on the biochemistry of cells lining the lung airways. The cells are in direct contact with the environment, and might be responsible for protecting the airways, he says. He hopes to learn if and how they contribute to an inflammatory response when certain particles in the environment — such as dust, pollen and mold — are inhaled. The explanation for diseases that involve inflammation of the airways — for example asthma, bronchitis and cystic fibrosis — may lie in the normal or abnormal responses of these airway lining cells.

The NIH’s Heart, Lung and Blood Institute has given Holtzman an $831,000 grant to support his studies. Also, he is one of two recipients nationwide of a Career Investigator Award from the American Lung Association. The $175,000 award is given annually to scientists whose work shows exceptional promise for treating lung disease. Holtzman is a staff physician at Barnes Hospital, a sponsoring institution of the Washington University Medical Center. Before joining the faculty at Washington University in 1987, he was an assistant professor of medicine and a staff member at the Cardiovascular Research Institute at the University of California, San Francisco. He has lectured internationally and has written numerous scientific papers on his research.

Participants still needed for diabetes study

The campaign to recruit patients for a major national diabetes study, being conducted in part at the School of Medicine, will come to a close in September.

The Diabetes Control and Complications Trial (DCCT) is designed to determine whether the newer forms of diabetes treatment can prevent or stop the progression of eye, kidney and nerve damage that commonly occurs in patients with insulin-dependent diabetes.

During the last five years more than 1,000 volunteers have been recruited at 27 diabetes research centers in the United States and Canada. Local participants in the DCCT are treated by specialists at the School of Medicine.

All diabetes care and supplies will be provided free of charge, including physical examinations and regular testing for the early detection of the complications of diabetes. In order to participate in the DCCT, volunteers must be between the ages of 15 and 39 and have been taking insulin for one to five years.

For more information about how to participate in the study, call 454-6025.
Accommodating the handicapped

Rehabilitation programs, readers, special equipment, extra time off — when is an employee enabled to perform similar handicap accommodations, and to whom? What is reasonable, who is handicapped, and requires employers to capped job applicant otherwise qualified? under the law? The following is a sampling handbook of the Book: Accommodation Handbook, by Paul McCray, which answers many of the question of what is reasonable about the law and handicapped workers.

What the statutes say

The Vocational Rehabilitation Act of 1973 (42 USC 12101) requires that businesses with annual federal contracts in excess of $12,500 have an affirmative program that encourages employment of qualified disabled veterans and Veterans Readjustment Assistance Act (410:521) requires that businesses with annual federal contracts in excess of $5,000 have an affirmative program for the handicapped. It also may include so-called "reasonable accommodations" that would enable the handicapped person to perform all the essential job functions.

Reasonableness

If accommodations will enable a handicapped worker to perform the essential functions of the job, the employer is obligated to provide those accommodations, so long as they are deemed "reasonable." The value and nature of a particular accommodation may be clarified by considering the following:

- Is the accommodation necessary for the performance of duties?
- To what extent does the accommodation compromise the work of the handicapped worker's limitations?

Will the accommodation give the employee the "opportunity to function, participate, or compete on a more nearly equal basis with co-workers? Would the accommodation benefit others, both non-handicapped and other handicapped workers? What alternatives (realistic, cost-effective, and must enable the handicapped person to perform the essential functions of the job. Providing inadequate accommodations simply for the purpose of marginal compliance is not acceptable. Reasonable accommodations should enable the handicapped worker to carry out the essential job duties in much the same manner expected of a non-handicapped employee. Cost is an important factor in determining reasonableness, as is the degree to which an employer's business may be disrupted by the accommodation. Courts have consistently ruled that accommodations that would require 'fundamental alterations,' "massive changes," "substantial modifications," or "endanger a program's viability," or "jeopardize effectiveness" are not required.

Undue hardship exception

While accommodations that cause an employer undue hardship need not be made, the burden of proving hardship rests with the employer. Factors that must be considered in evaluating the extent of the hardship include:

- The overall size of the company
- The number of employees, size and type of facilities, and size of budget
- The type of operation, including the composition and structure of the workforce; and the nature and cost of the accommodation.

While employers have an obligation to make "reasonable accommodation" to qualified handicapped employees, they also have a right to choose the accommodation that will be provided. The accommodation selected from a group of alternatives must enable the handicapped employee to perform the essential job-related functions, but the employer may rightfully select the least costly option.

Selection process

Reasonable accommodations are required when the application and selection process might discriminate against an otherwise qualified individual. Employers may need to modify testing procedures, for example, so that handicapped applicants can demonstrate their abilities competitively. Examination content also can be modified to measure the same areas of knowledge, skills and abilities without screening out handicapped competitors. Other accommodations in the application process may include:

- Reading to applicants who are blind, or who have reading disabilities
- Writing for applicants who have difficulty using their hands
- Using alternative test instructions into sign language for the deaf

In making accommodation tests are administered fairly, employers who are sure selection criteria themselves are not discriminatory. Criteria that purport to measure the physical or mental abilities of employees or applicants may not unnecessarily exclude individuals on the basis of their handicap, and the criteria must be clearly job-related. Employers should consider the extent to which selection practices or standards

Employee 1988-89 holiday schedules

The following holiday schedule has been approved for the 1988-89 fiscal year for all employees on the Holiday campus for those other than represented by union contracts.

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<td>Jan 1</td>
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<tr>
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<tr>
<td>Washington Day</td>
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</tr>
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In case an employee is scheduled to work on a holiday, a day off in lieu of the holiday should be given within the period of one month after the holiday is observed.

Medical school campus

The following dates have been selected for holidays observation on the Medical school campus:

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Limits set on tax-deferred annuity contributions

Under current law, employees of certain tax-exempt organizations, such as educational and research institutions, may reduce or set aside a portion of their salaries, before taxes, to purchase retirement annuity benefits. Such funds set aside on a tax-deferred basis may be contributed to an institutionally sponsored retirement plan, like the one at the University of Washington. The maximum amount that may be tax-deferred is limited by the Internal Revenue Code. It is determined by several formulas, which depend on factors such as years of service with your institution, prior tax-deferred contributions, and any after-tax contributions you make. You may set aside the least of:

- Your "exclusion allowance" — the sum of your gross salary, your institution's contributions to the retirement plan for the year and any prior tax-deferred contributions made by your institution.
- $25,000 minus 80 percent of the sum of your institution's contributions to the retirement plan for the year and any prior tax-deferred contributions made by your institution.
- $30,000 minus the sum of your institution's contributions for the year and your after-tax contributions for the year.
- $9,500

The amount that you may contribute is called your "General Limit." There are also several exceptions to this limit for special areas of knowledge, skills and abilities withoutscreening out handicapped competitors: Other accommodations in the application process may include:

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- $30,000 minus the sum of your institution's contributions for the year and your after-tax contributions for the year.
- $9,500

The amount that you may contribute is called your "General Limit." There are also three special alternatives or "catch-up elections" that employees of teaching institutions, hospitals, churches, home care health service organizations, and health and welfare service agencies may use. You may be able to use your annual exclusion basis using one of the alternatives (although even under the alternatives you may not contribute more than $9,500).

Alternative A is available to terminally ill employees and is elected only once in a lifetime.

Alternative B permits you to tax-defer the least of:

- The exclusion allowance as described above;
- 20 percent of your gross salary, minus 80 percent of the sum of your institution's contributions to the retirement plan and any after-tax contributions, plus $3,200.
- $15,000 minus the sum of your institution's contributions for the retirement plan and any after-tax contributions.
- $9,500

Alternative C permits you and your institution to contribute the lesser of the annual exclusion and your after-tax contributions for the year.
CALENDAR

MUSIC

July 7-Aug. 4
Sunday, July 10

Sunday, July 17

Sunday, July 24

Monday, July 25

Sunday, July 31
Washington University Percussion Ensemble presents an annual Assembly Series educational functions. The club also sponsors an annual Assembly Series educational functions. The club also offers free membership. The membership fee is $10.

The Gateway Festival Orchestra will celebrate the beginning of its 25th summer season with a concert at 8 p.m. Sunday, July 10, in Brookings Quadrangle.

EXHIBITIONS

"Highlights From the Permanent Collection" with 20th-century art in the upper gallery and with 19th-century art in the lower gallery. Both

Orchestra's 25th season opens July 10
The Gateway Festival Orchestra will celebrate the beginning of its 25th summer season on July 9 at 8 p.m. Sunday, July 10, in Brookings Quadrangle. Listeners are encouraged to bring chairs, blankets and picnic suppers to the outdoor concert, which will be the first of four Sunday evening performances performed by the orchestra in July.

Selections for the July 10 concert include Antonin Dvorak's Symphony No. 8 in G Major and Carl August Nielsen's "Concerto for Flute and Orchestra." The orchestra will continue its annual tradition of closing each concert with a show tune, offering "Carousel" as its final piece for the evening. F职责 Janet Scott will be the featured soloist.

Thursday, July 21
A welcoming social will be held in Graham Chapel and making furniture for the past seven years in St. Louis. His work is found in many St. Louis homes and corporations.

The Gateway Festival Orchestra was founded in 1963 by William Schatzkamer, professor of music at Washington University, and in 1964 by professional musicians who have offered their services to the public free of charge.

The Gateway Festival Orchestra will perform three additional Sunday concerts at 8 p.m. on July 24 and 31.

Selections for the July 17 concert, which will be held in Graham Chapel, include Brahms' Symphony No. 1, Gershwin's "Piano Concerto in F," and the music from "Evita." Partial Paul Tartini Quartet will appear as guest artists.

The July 24 concert will be held in Brookings Quadrangle and will feature works by Berlioz, Tartini, Faure and Saint-Si ncer. The concert will close with Gershwin's "American in Paris" and selections from "Harem." The final concert of the season, to be held July 31 in Brookings Quadrangle, will include Tchaikovsky's "Romeo and Julia" and "Chausson's "Poeme," Saint-Si ncer's "Havanaise," Rossini's Overture to "La Guazza Ladra," and selections from the musical "Hair."

Sixteen-year-old violinist Julie Kurtzman will be the featured soloist.

In case of rain, the outdoor performance will be held in Graham Chapel. For more information, call 899-5581.

Contributions — continued from p. 7

Once you choose one of these alternatives, you may not choose one of the others in the future, even if you are employed by a different institution. You may always choose the amount available under the General Limit — even if you previously elected one of the alternatives. Salary reduction contributions are generally limited to a maximum of $9,500. You may, however, exceed the $9,500 general contribution limit if: (1) you have at least 15 years of service with Washington University; and (2) your salary reduction possibility under the General Limit or one of the alternatives you have selected is limited by the $9,500 cap.

If you are not terminating employment, you may elect either Alternative B or C. If you have several years of service and have not made extensive use of tax-deferred contributions in the past, you may be able to tax defer a relatively large amount by electing Alternative B. Conversely, if extensive tax-deferred contributions have been made in the past, or you have only a few years of service, the Alternative B amount may not be as attractive. Alternative B provides greater earnings opportunity for employees who have a number of years of service and have not taken extensive advantage of their tax-deferred possibilities.

You can also elect to contribute the amount that is available under Alternative C. Additionally, Alternative C generally allows a greater salary reduction for the recently employed individual than would be permitted by the other contributions limitations of the General Limit or Alternative B. However, if Alternative C provides any amount as the General Limit there is no need to select Alternative C, because selecting Alternative C provides the same benefits as Alternative A or Alternative B in the future.

If you are terminating employment, you may elect Alternative A, provided you have never elected one of the other alternatives before. The election of Alternative A would probably permit the greatest tax-deferred annuity contributions. Remember, Alternative A may be used only once in a lifetime, not every time you terminate employment.

If you are terminating employment, you may elect Alternative B in some situations, provide a greater tax-deferred opportunity than Alternative A (depending on years of service, salary, level and extent of past 403(b) contributions). If you terminate employment and Alternative B is acceptable, it is advisable to elect Alternative B. If you accept employment at another institution, you retain greater flexibility for future tax-deferred annuity contributions.

You may also choose Alternative C if you are terminating employment if this would provide greater tax-deferred opportunity.

Work sheets for computing your maximum contribution are available in the Personnel Office. Calculation requirements included in the April 1988 Benefit Bulletin #24 regarding retirement annuity.

Women's Club offers free membership
The Woman's Club of Washington University is offering one-year free memberships to women newly affiliated with the University for the 1988-89 academic year. The regular yearly membership fee is $10.

The Woman's Club is a social organization that sponsors cultural and educational functions. The club also sponsors an annual Assembly Series lecture in Graham Chapel. This year the lecture will be Flora Lewis, author and columnist, who will speak on Sept. 14.

New and present members receive the 1988-89 club handbook in September, which contains a calendar of all club events as well as addresses and phone numbers of the members. They also receive monthly newsletter service.

A welcoming social will be held in September at University House. M. Fredrick Volkmann, associate vice chancellor and director of public relations, will be the speaker. For more information, call Coreen Motard, president, at 645-2022, or Natalie McFarland, membership chairman, at 727-4949.

Evening woodworking class offered
An evening workshop in woodworking and furniture design will be offered beginning in September by the Industrial Design Institute of Washington University. The course, taught by St. Louis designer Ron Diefenbacher, will be held Monday evenings at John Burroughs School's woodshop, 755 S. Price Road. "Washington University has offered this course for three years," Diefenbacher says, "but we really never had a home. We met wherever we could find space. We were delighted with John Burroughs' invitation."

Diefenbacher has been designing and making furniture for the past seven years in St. Louis. His work is found in many St. Louis homes and corporations. He developed the Washington University course in response to requests. For more information on the course, call Libby Reuter, institute director, at 889-6597.