Sondra Stang

The Revival of Ford Madox Ford

THE FORD MADOX FORD READER
EDITED BY SONDRA STANG
FOREWORD BY GRAHAM GREENE
Annual Report
University administrators weigh in with reports on what will surely be remembered as an historic year.

The Warden
Cool and compassionate, federal warden Calvin Edwards helps shepherd the field of corrections into the modern era.

Our Man in Istanbul
Ottoman expert and MacArthur fellow, Cornell Fleischer takes a personal approach in bringing Islamic history to life.

Speaking to Learn
A recent study at the Central Institute for the Deaf suggests deaf students taught to speak acquire better reading skills.

Wizards at the Keyboard
With enthusiasm and inventiveness, Mike Miller and graduate students play at the frontiers of computer science.
O’Neill Collection Part of Centennial Celebration

Never a fast reader, Harley Hammerman, M.D. ’75, found it easier to read plays than novels. In a high-school English class, he recalls a teacher reading aloud Eugene O'Neill’s *Emperor Jones* while beating on her desk as if on a tom-tom, just as O’Neill had envisioned the play being read. Hammerman was hooked. Now married with three children, the St. Louis native and radiologist in private practice has amassed what is probably the largest private collection of books, manuscripts, letters, and other material relating to O’Neill.

Hammerman was a collector from an early age. A collector from an early age, he augmented his boyhood coin, stamp, and rock collections with a first edition of *Ah, Wilderness!* plucked from the annual St. Louis Book Fair. By the late-1960s, book dealers’ catalogues became his staple reading diet. Gradually, he became known nationally, then internationally, as an O’Neill collector.

His collection reached a turning point in 1984 when Hammerman, after negotiations lasting more than two years, bought most of a private collection that belonged to Robert Sisk, publicity director for the New York Theatre Guild. That collection included inscribed first editions, photographs, letters, and inscribed galley proofs. Also included was a first edition of O’Neill’s sea plays that contained a pencil drawing by O’Neill of the set for *In the Zone*.

The Hammerman collection at present contains about 300 pieces, and includes, in addition to various first and inscribed editions, approximately 30 letters and manuscripts by O’Neill, 50 letters written by O’Neill’s wife, Carlotta, 40 photographs, and other ephemera such as theater programs and video tapes of productions. Among the curiosities in the collection is a brick Hammerman scavenged from the demolition of the Morosco Theater in New York, site of *Beyond the Horizon*, the first Broadway production of an O’Neill play.

Sixty-five pieces of the Hammerman collection, including many significant “firsts,” have been put on display from November 3 to December 29 in the Special Collections department of Olin Library. O’Neill’s first published work (a poem), his first (and only published) short story, and his initial correspondence with Argentinian essayist and playwright Leon Mirlas can be seen along with many limited and first editions of the plays. The display also includes photographs and a revealing autobiographical sketch Hammerman suggests was written as a prelude to a never-completed series of plays to have been titled *The Sea-Mother’s Son*.

In addition to the Hammerman collection, the University’s O’Neill celebration consisted of the showing of film adaptations of O’Neill’s work, a production of *Desire Under The Elms* presented in Edison Theatre, and a conference held November 10-11 focusing on the autobiographical element in O’Neill’s work and featuring the presentation of original papers by noted O’Neill scholars.

—Virginia Slabman

Prize-winning eye: Each year, the Council for the Advancement and Support of Education (CASE) assesses the quality of publications at colleges and universities throughout the country with an awards program.

This year, a special honor has been paid to Herb Weitman, B.S.B.A. ’50, University photographer and associate editor of this magazine; for the second time in his career, Weitman has been named CASE Photographer of the Decade, based on a portfolio of 25 photographs, many of which appeared in these pages.

Above, Sir Francis Crick, co-discoverer (with James Watson) of the double-helix structure of DNA, demonstrating his discovery for a class at the medical school during a February 1980 visit to campus.
Shelley vs. Kraemer Ruling

When the J.D. Shelleys, a black couple from Mississippi, bought the two-family flat at 4600 Labadie in an all-white St. Louis neighborhood in August 1945, they had no idea they'd soon be making history. The lawsuit that arose from their purchase, Shelley vs. Kraemer, was successfully argued before the Supreme Court in 1948 and became known as "the grandfather" of fair housing laws. In that decision, the Supreme Court ruled that a lower court's decision to enforce a private individual's racially discriminatory contract was unconstitutional.

As part of its commemoration of the bicentennial of the United States Constitution, the law school this fall presented a two-day conference, co-directed by Professors Jules Gerard and Bruce La Pierre, entitled "Individual Freedom and Governmental Power: The State-Action Doctrine of Shelley v. Kraemer."

In 1911, the Labadie neighborhood association had voted to attach a covenant to each deed in the subdivision restricting ownership, transfer, or rental to Caucasians. On the basis of this restrictive covenant, neighbors Louis and Fern Kraemer sued the Shelleys, alleging that the Shelleys' presence would cause the Kraemers to "suffer irreparable injury and irretrievable damage to their property."

A lower court ruled in favor of the Shelleys, but the Missouri Supreme Court subsequently reversed the decision, directing that the terms of the racial covenant be enforced. The Shelleys appealed to the United States Supreme Court.

On May 4, 1948, the Supreme Court, with only six justices sitting — three having disqualified themselves — ruled unanimously that the courts could not be used to enforce restrictive housing agreements, since this would, in fact, constitute state action in violation of the 14th Amendment. The successful conclusion of Shelley vs. Kraemer marked not only the first decisive blow in the long battle to achieve fair housing but also a significant expansion of the state-action doctrine.

Conferences assessed the enduring significance of the decision's state-action doctrine of the 14th Amendment, explored subsequent development of the doctrine, and considered the tension between individual liberty and governmental power that is posed by it. Among those speaking at the conference were the Honorable A. Leon Higginbotham, Jr., Chief Judge, United States Court of Appeals, who addressed the implications of Shelley vs. Kraemer in the light of race and legal process in both the United States and South Africa; and Professor Francis A. Allen, dean emeritus of the University of Michigan Law School, who was Chief Justice Fred M. Vinson law clerk at the time of the decision. Excerpts of the conference proceedings will be published in the Washington University Law Quarterly.

— M.M. Costantin

Depression May Increase Chances of Heart Disease

A clinical case of depression may be as big a risk-factor as cigarette-smoking, elevated cholesterol, or high blood pressure in developing coronary artery disease (CAD), says a psychologist at the Washington University School of Medicine. According to a recent study by Robert Carney, associate professor of psychology at the School, nearly one out of five patients with CAD were clinically depressed before their diagnosis. And, in the year after diagnosis, depressed patients were twice as likely to have a major coronary event — heart attack, surgery, or death — than nondepressed patients. "Our study underscores the fact that depression is an important, independent risk-factor for the occurrence of major heart problems," says Carney. "If early diagnosis and treatment of depression in patients with CAD is initiated, we may be able to save lives."

Carney's study on the prevalence of depression in CAD patients was published last December in the American Journal of Cardiology. Interviewing 50 patients recently diagnosed as having CAD, Carney found that nine of them — 18 percent — suffered from a major depressive disorder, a much higher incidence of depression than the 4 percent found in the general population. The study also showed that depression in CAD patients is not related to the severity of CAD, medical problems caused by CAD, age of the patient, or use of medication. In most cases, the depressive symptoms preceded symptoms that could be attributed to heart disease, such as chest pain and breathlessness.

"We'd like to see increased attention to the psychological side of illness," Carney says. "It's important to recognize that a patient's psychological state may have an effect on the disease and on the outcome of the disease."

— Tony DiMartino
Microwaves: We Should Learn to Live with Low-Risk Hazards

According to William F. Pickard, an electrical engineer at Washington University who has studied the effects of microwave radiation for 15 years, the time has come for scientists to consider establishing guidelines to end research on risks associated with low-level microwave radiation—the kind millions of Americans are exposed to each day with their microwave ovens.

But, the researcher stresses, novel, beneficial uses of microwaves and suspected risks at recognized high levels of radiation should continue to be explored.

"After 50 years of research, scientists have not been able to come up with conclusive evidence that low-level microwave radiation is indeed harmful to humans," he says, noting that of thousands of studies in that span, only a handful have produced significantly conclusive effects that have been replicated consistently. "Thus we ask ourselves now whether to keep the bell around the cat's neck or below the guidelines set by the American National Standards Institute (ANSI), a private organization that has recommended unofficial safety standards to many different industries. Foster's explanation, later proven by other scientists, is that a person merely hears sound waves generated in the head by the microwaves. This effect, first explained in 1974, is not now considered a hazard.

Presently, there is no national safety standard for exposure to microwave radiation, although the United States Environmental Protection Agency is working on guidelines. For more than two decades, researchers have relied on the ANSI guidelines. But nationwide, safety standards can vary from state to state, let alone from county to county and among municipalities within counties.

The problems that have bedeviled microwave researchers for half a century are seen in other areas of low-level risk research, the scientists say. The possible risks from groundwater contamination from pesticides, pesticide residues on fruit and vegetables, electric fields near power transmission lines, radiation from nuclear power plants, and long-term effects of consuming substances such as saccharine and food dyes are of high interest to today's environmentally aware consumers.

"As a researcher, I can't guarantee anything about safety," Pickard cautions. "But after 15 years of work, I've concluded that if there is anything there, it's pretty darn subtle. If there are hazards in low-level exposure to microwaves, I don't know what they are."

—Tony Fitzpatrick

Study Reveals Stress Disorder Prevalent among Civilians

A psychiatric survey of the general population confirms that combat-wounded Vietnam veterans are more likely than anyone else to suffer from post-traumatic stress disorder (PTSD), the official name for "post-Vietnam syndrome." But in a twist that the study's principal investigator termed "the biggest surprise," the disorder was found as often among civilians exposed to attacks as it was among non-wounded Vietnam veterans. In both these groups, its frequency was 3.5 percent, while among wounded veterans the frequency shot up to 20 percent.

The 2,500-person study, conducted by researchers at Washington University School of Medicine, also suggests that people with a history of childhood behavioral problems are more likely to be exposed to traumatic events that might lead to the stress disorder, and are more likely to develop its symptoms after being exposed to trauma. According to the survey, people with the disorder are also likely to have a variety of other psychiatric disorders.

"The biggest surprise was that in non-wounded combat vets, the risk for PTSD was no greater than the risk for people who'd been exposed to trauma in the United States," says John E. Helzer, M.D., professor of psychiatry and director of the study.

Post-traumatic stress disorder was officially recognized by the American Psychiatric Association in 1980 after veterans' groups and mental health personnel worked for recognition of a "post-Vietnam syndrome." A compromise between these groups and the association was reached that recognized a new disorder affecting not only veterans but anyone subjected to severe and sudden psychological stress due to "an event that is generally outside the range of usual human experience."

People exposed to trauma are diagnosed as having PTSD if they re-experience the trauma in dreams, flashbacks, or thoughts, and if they feel emotionally detached or numb. Before a diagnosis of PTSD is made, they must also show at least two of these symptoms: hyperalertness (jumpyness), sleep disturbance, guilt, impaired concentration, or avoidance of situations that stir memories of the traumatic event.

—Tony DiMartino
**Exercise Rebuilds Bone Mass Affected by Osteoporosis**

Strict adherence to a program of simple exercises—walking, jogging, climbing stairs—increased bone mass in 15 of 17 post-menopausal women participating in a study at Washington University School of Medicine. This new evidence, though preliminary, is the first substantial indication that exercise may be a treatment for low bone mass, a condition that is characteristic of osteoporosis, often referred to as "brittle bone disease."

Now with the University of Connecticut medical school, principal investigator Gail Dalsky, who published her results in the June issue of the *Annals of Internal Medicine*, conducted the study as a research instructor in the applied physiology section of the internal medicine department at Washington University. Her study shows not only that women who exercise can increase bone mass in the spine, but equally important, that if they stop exercising they lose the benefits—bone mass returns to its original levels. “We’ve found that lumbar bone mineral content increased significantly after just nine months of weight-bearing exercise,” says Dalsky, an exercise physiologist. “The exercise must be consistent, though—if it’s sporadic or seasonal, you’re unlikely to see an increase. With continued training, you maintain bone mass, but with inactivity, you lose the training effect.”

Osteoporosis is a progressive disease, mainly affecting older women, where substantial bone loss may result in painful and crippling fractures. Physiologists have determined that, at the point of fracture, women with osteoporosis have a bone mass that is 30 percent below the average of a young, normal woman. Bone loss may begin as early as 25.

—Debra Bernardo

---

**Mexican Volcano Poised for Disaster Within Two Decades**

James Luhr, assistant professor of earth and planetary sciences, has studied more than 400 years of written history and 170 years of geological evidence on the Colima Volcano, one of the most active in the world, located in the western Mexican volcanic belt, near the Pacific Ocean. He foresees the end of the volcano’s current cycle in the next 10 to 20 years, an event to be marked with a series of violent eruptions. But more importantly, he has found a disturbing geological formation—a legacy of the 1980 Mount St. Helens eruption—that could prove far more hazardous to the 200,000 people living under the volcano.

On one of the dozen field trips to Colima Luhr has made since the mid-1970s, he detected a large, partly buried crater on Colima’s south flank similar to one that formed at Mount St. Helens. Geologists call such a crater, a remnant of a previous avalanche of the volcanic cone, a caldera (“cauldron”). Colima’s caldera, which measures three miles across, is, like Mount St. Helens’, a horseshoe-shaped wall sliding down through the volcano.

The Mount St. Helens caldera formed when the upper volcanic cone slid away during a moderate earthquake that triggered the avalanche of the volcano’s summit and the first major eruption of May 18, 1980.

Before the eruption of Mount St. Helens, scientists did not understand how avalanche-calderas were formed, but since studying the American volcano that erupted with the force of a 10-megaton hydrogen bomb, geologists have identified nearly 100 calderas of the Mount St. Helens type, including Colima. Luhr points out that the volcano is flanked on the north by the older, extinct volcano, Nevada; the elevation drops off rapidly to the south, a natural invitation for an avalanche.

Unlike most of the earth’s volcanoes, Colima has a written history dating back to 1560, shortly after the Spanish, under the leadership of Cortez, conquered Mexico. The history has evolved through four distinct and similar eruptive cycles since then. While Luhr hedges on exactly when Colima will erupt, he is certain of one thing: the cycle eventually will end with one or more powerful eruptions that may rival the "strongly explosive eruption that ended the last cycle in 1913.”

His scenario: continuing intermittent explosive activity that will end with one or more powerful eruptions. The past three cycle-ending eruptions occurred early in the year, between January and April. Ash (miniscule bits of hot volcanic gases and dust) will flow down the southern sides of the volcano with simultaneous ash fall in nearby cities. The last eruption will clear out the crater with a new dome of lava gradually ascending throughout the following dormancy period of about 50 years. The dome rises within the crater like a piston within a cylinder, Luhr explains.

Above all, in the earth scientist’s mind, is the specter of the caldera and the lesson of Mount St. Helens. "The volcano is now nearing the same height as when it collapsed 4,300 years ago and carried deposits more than 40 miles away from its base,” Luhr cautions. "A repetition of this event is clearly possible; the active cone of Colima is unstable, very ripe for collapse.” —Tony Fitzpatrick
**In Memoriam**

George H. Capps, a Life Trustee of Washington University, died Thursday, Sept. 1. He was 72. A 1939 graduate of Washington University and the University's law school, Capps kept a close and active association with his alma mater.

A member of the University’s Board of Trustees since 1966, Capps served as chairman of the board from 1980 until 1983, when he was named chairman of the Alliance for Washington University.

In addition to his leadership of the Alliance campaign, Capps also chaired Washington’s development and major gifts committees when the University successfully completed a $120 million fund-raising program in 1976, two years ahead of schedule.

For his outstanding service to the University, he received an alumni citation and the University’s prestigious William Greenleaf Eliot Society’s “Search” Award. Chancellor Danforth said of Capps, “A man of mature judgment, he has demonstrated almost unbelievable devotion and dedication to Washington University. No one has worked harder for the institution.”

Capps is survived by his wife, Helen Capps; four sons and three daughters; a brother and a sister; and 20 grandchildren.

---

**FRONTRUNNERS**

**This Fall’s Freshman Class Strongest Ever Academically**

The class of 1992 is a "wonderful group of very bright and talented students," says A. Van L. Brokaw, associate vice provost for enrollment management, who calls this the strongest freshman class in the University’s history. He says a record 8,920 students sought admission to Washington this fall, and the academic standing of the applicants rose significantly. Because of the huge increase in applications, "We were able to be more selective," he says.

According to statistics compiled in September by the admissions office, of the 1,216 freshmen who have enrolled at Washington University this fall, 616, or 51 percent, are males, and 600, or 49 percent, are females.

For the entire freshman class, 46 percent were ranked in the top five percent of their high school class, compared to the 35 percent a year ago; 69 percent were ranked in the top 10 percent vs. 54 percent last year; and 91 percent were ranked in the top 20 percent, a significant increase over 78 percent a year ago.

Other interesting facts about the 1988 freshman class:

- The number of black freshmen for fall 1988 is 72, which is approximately six percent of the total freshman class. For fall 1987, the number of black freshmen was 70, about five percent of the freshman class. Of this year’s 72 black freshmen, 50 are females and 22 are males.
- The most popular academic interests of the 725 freshmen enrolled in arts and sciences, as indicated on their application forms, are biology and pre-med studies, English, psychology, political science, and mathematics.
- Among the class are 13 Student Council presidents, 49 yearbook editors, 53 newspaper editors, nine senior class presidents, 21 basketball captains, nine football captains, and 21 soccer captains.
- Those with pre-college activities include one U.S. Open ball boy, 10 model United Nations members, 39 camp counselors, one American Field Service president, one assistant to the consular officer at the U.S. Consulate in Casablanca, one graphic designer for the Hispanic Yellow Pages, and five who own and run their own businesses (three in lawn care, one in mail order, and one racket stringer).

---

**Up-to-Date Prospector Pans Underground Streams**

For the past five years, Jill Pasteris, associate professor of earth and planetary sciences, and Brigitte Wopenka, senior research scientist, have been staffing the first (and one of only two) geology lab of its type in the United States. An economic geologist, Pasteris is seeking more thorough methods for locating valuable underground substances like gold, platinum, diamonds, and oil. Her lab is equipped with a rare Raman microprobe, a device that uses a laser to identify minute amounts of solid or liquid material in larger samples, which she has been using to study geological fluids.

“There are small amounts of fluid moving very slowly within the Earth’s crust,” Pasteris explains. While this liquid is moving along, it is dissolving minerals much like sea water corrodes away metal.

Pasteris hopes that by studying geological fluids she will better understand how they move and operate and where to find the mineral deposits they leave. The odds for successful drilling are increased by using the techniques she has developed.

"The days of the easy-to-find deposits are over,” Pasteris says. “The old prospector with the mule has gone, and now we’ll have to get a lot smarter to find ore deposits.”
Playing Straight
Man to a Poet
Laureate

Howard Nemerov, Edward Mallinckrodt Distinguished University Professor of English, rarely offers a response you expect. Recently named the country’s third Poet Laureate, Nemerov has a way of throwing a comic twist in the way of most anyone’s conversational intent. That, in part, is why he is so well-respected—in speech, as in his poetry, Nemerov’s surprising humor confounds logic and diverts it to a more satisfying conclusion.

As illustration, we reprint here parts of an interview conducted shortly after Nemerov received the Laureate’s crown. An enterprising local writer, Keith Klamer, working for St. Louis Weekly, hurried over to get the first pronunciation from the new Laureate’s mouth. “It didn’t go the way I planned,” Klamer says. “About halfway through, I saw this going to be off the wall, and my best shot was just to go with it.”

(Some questions and answers have been deleted from the interview, but none has been shortened or changed.)

Q.: Were your mother or father particularly artistic?

Nemerov: My father always had a yen to paint, and when he retired, he did—with considerable success. I have two or three of them today. He was so ambitious, he wanted to do everything well.

Q.: What kind of person was your father?

Nemerov: He was rather stern, dedicated. Tremendously energetic—as if born to command. Children puzzled him a bit, as my children puzzle me a bit.

Q.: And your mother?

Nemerov: Mom is still alive, but going a bit blind at 88. Still got her marbles. She lives in Albuquerque with my sister.

Q.: You were very close to your other sister, the photographer Diane Arbus, weren’t you? Her reputation seems to be growing much larger after her death.

Nemerov: Yes, especially after her death. The death connoisseurs love that sort of thing. That’s immortality for you—come by the hard way.

Q.: I imagine that was a particularly rough time for you.

Nemerov: It wasn’t for me. I was just sorry she took that way out. I’m a coarse and insensitive person really.

Q.: I think people would be surprised to hear that.

Nemerov: Well, let ‘em be surprised. I certainly don’t spend a lot of time thinking about my feelings. Which, after all, is sort of a negative way of saying you’re happy. Misery is thinking about yourself. When the body is in a condition of health, it just does things. It’s only when you’re sick that you start thinking about what you’re going to do about things like your liver.

Q.: Was there a particular experience, or teacher, which started you down the path toward a literary career?

Nemerov: I had a wonderful teacher in my senior year in high school. He’s in his 90s and has a mistress. I see him when I’m in New York.

Q.: So you decided to get into teaching. Is it still a pleasurable experience for you?

Nemerov: Yes, it isn’t always, of course; it can be very rough at times. But by and large, I’ve been able to endure and even like it.

Q.: . . . teaching all those eager, fresh-scrubbed young faces...


Q.: One of your early books—The Homecoming Game—was turned into a movie called Tall Story starring Jane Fonda and Tony Perkins. Did you like what Hollywood did to your story?

Nemerov: It was really none of my business, except to cash the checks. They were pretty reasonable for those days. I guess the family cleared about $40,000 after taxes, which, of course, is nothing compared to today, but it did give us a nice start.

Q.: Would you say you’re a happy person?

Nemerov: I just don’t know.

Q.: What depresses you?

Nemerov: Being unable to write. It doesn’t bother me in a dramatic way—I just get a little more sullen and withdrawn than usual, and feel a little more biodegradable.

Q.: You once wrote a poem about a turkey buzzard...

Nemerov: . . . circling over an old folks home, just a couple of blocks from here.

Q.: That buzzard seemed like such a perfect symbol for death, but you refused to make a big deal out of it, other than to note what you had seen. Is it a very human tendency to give meaning to what was probably a random event?

Nemerov: It is necessary for us to behave as if the universe meant something. It’s remarkable—physicists have no trouble making it mean quite a lot of things.

Q.: Have you fathomed the universe yet?

Nemerov: (chuckling) Oh sure. But I’m not telling anybody yet.

Q.: I would imagine you like to be alone a lot.

Nemerov: Like most people, I think. After all, we are alone. But that shouldn’t interfere with a decent amount of social life.

Q.: Do you exercise regularly, other than walking to and from work every day?

Nemerov: No. Nothing faster than a walk nor stronger than gin.

Q.: Many people have criticized your work in the past by saying it contains too much humor, isn’t that right?

Nemerov: People have said it with considerable regularity about my work over the years.

Q.: Why is that?

Nemerov: I guess if there were one answer it would be Romanticism and its sequels. After that movement came along nothing was funny anymore, or if it was, it was separated off and called light verse.

Q.: You won the Pulitzer Prize and the National Book Award in the same year, correct?

Nemerov: In the same week. I did say when asked by the New York Times that it was about time. But I didn’t think I was missing anything those long years when there were no prizes or awards. I was reasonably happy about it. My low profile had become a bump instead of a dent.

Q.: But your profile these days is getting pretty mountainous.

Nemerov: But remember—it’s in a very small business.

Q.: You once said that “being honored by your country is a wonderful thing, especially in a country where poets are for the most part a harmless impertinence, like birds at an airport.” Do you still stand by that?

Nemerov: (chuckling) There’s nothing to stand by. But be sure to get a comma after “impertinence.”

Q.: Is there anything left for you to do, now that you’ve won every major award and honor in your chosen field?

Nemerov: Nothing for it, but die in poverty and disgrace. That’s the usual formula for a poet, isn’t it?
Sondra Stang attempts to set the record straight on Ford Madox Ford, the “most unacknowledged” literary figure of the 20th century.

by Roger Habn

In a recent issue of the *Sunday New York Times Book Review*, critic Edmund White noted a similarity between the new novel by Alison Lurie and two works from the first part of this century, *What Maisie Knew*, by Henry James (published in 1897), and *The Good Soldier*, by Ford Madox Ford (published in 1915). The comparison may have puzzled a good many *Times* readers. Most would have good reason to have heard of James, an almost-sainted figure in the history of 20th-century literature. But Ford Madox Ford? If the name conjures any image at all, it is likely a fuzzy one.

Those for whom Ford’s name rings no bell whatsoever may be surprised to know that only two years ago the *Washington Post Book World* said of him: “With the possible exception of Ezra Pound, no modern man of letters has done more for literature than Ford Madox Ford.” Even those familiar with passing references to Ford may be interested to learn that the writer Graham Greene has become his greatest champion in the United Kingdom: “There is no novelist of this century more likely to live than Ford Madox Ford,” Greene has written. “No one in our century except James has been more attentive to the craft of letters.”

Those who can place him or have read *The Good Soldier*, his best-known work, may be aware that Ford, around the turn of the century, entered into a 10-year collaboration with Joseph Conrad, author of *Lord Jim* and *Heart of Darkness*, among others, a collaboration that produced three novels and an unending amount of controversy. But even professional scholars familiar to some degree with Ford’s work may be at pains to recall that his career spanned three generations of writers and that he helped promote
the careers of, among others, writers as diverse as Thomas Hardy, D.H. Lawrence, Ezra Pound, Jean Stafford, e. e. cummings, Katherine Anne Porter, Ernest Hemingway, Gertrude Stein, James Joyce, Eudora Welty, William Carlos Williams, and Robert Lowell.

The author of more than 80 books, twice founding editor of prominent literary journals, participant in the literary fervor of Paris in the 1920s, a colorful, garrulous lover of life known in literary circles as "everybody's Uncle," Ford's esteem after the Second World War had fallen so low that of all his prodigious output only *The Good Soldier* remained in print and in the 1950s a major literary history relegated him to a four-line footnote, and that uncomplimentary.

How is it possible that amid this churning machinery of dissertations, articles, critical studies, college survey courses, biographies, and publishing-house reissues, a central participant in the development of literature in this century had been overlooked, a significant career neglected? By what conditions could such an oversight come to pass? And if such an oversight had occurred, by what means could it be rectified?

These are the questions with which Sondra Stang has been occupied for the better part of the past 20 years.

An adjunct professor of English whose husband, Richard, has taught 19th- and 20th-century literature at Washington University for 27 years, Sondra Stang stumbled on the mysterious case of the missing man of letters while teaching a course on the modern novel in the mid-1960s in University College. One of her texts was *The Good Soldier*, and her reading of it differed intensely from that of the volume's introduction.

So intensely that, in her words, "The adrenaline started flowing. I was burned up. The critic who wrote that introduction hadn't understood something very central in the book. I felt I had to set the record straight."

Her efforts have sustained her for more than 20 years and have led her in the past 11 years to oversee the publication of five new volumes on Ford, in the course of which she has become what her British and American publishers describe as "the world authority" on the intriguing and elusive literary figure. She has read all his published work and most of the unpublished, which she says add up to a "mountain" of manuscripts.

She has rallied writers and critics to the cause of a just and sensitive reinterpretation of Ford's work and his place in
the history of modern literature, a cause greatly advanced by the reissue programs currently taking place on either side of the Atlantic of Ford's lesser-known novels and other books —in England by Carcanet Press and in the U.S. by The Eccolo Press. In both cases, she has served an advisory role, going so far as to lend her own editions of Ford's books otherwise impossible to find.

This fall she will present the world with a long-lost due to Ford's vision of life and letters, *A History of Our Own Times*, the unpublished, 350-page volume written in the last decade of Ford's life and intended as the first of three volumes to depict the shift of values and power between 1870 and 1930. Stang and Associate Professor of History Solon Beinfeld, whose specialty is modern European history, spent five years "crawling all over" the manuscript, which covers 1870 to 1895, restoring what Stang describes as "pages and pages of gouging" —deletions Ford made in an unsuccessful attempt to see the book published in his lifetime.

Their completed version of the work, published by Indiana University Press in December, along with an excerpt of Stang's introduction scheduled to appear in the *Sunday New York Times Book Review*, will add considerably to what Stang sees as the slowly building momentum of a Ford Madox Ford revival.

"Ford Madox Ford is a special case. There is probably no other major figure in 20th-century letters whose achievement is so generally unacknowledged as his," writes Stang in her *The Presence of Ford Madox Ford*, a memorial volume of essays and reminiscences published by the University of Pennsylvania Press in 1981. Much about Ford has confounded critics (not the least of which was his decision to change his name, shortly after World War I, from Ford Madox Hueffer, to the circular name by which we know him today).

Born in 1873 into a prominent London family of artists and writers, he distinguished himself early, publishing his first work while still in his teens. By the turn of the century, he could be counted among a very select group of writers living within calling distance of each other in the countryside south of London. That group included himself, H.G. Wells, Henry James, Stephen Crane, and Joseph Conrad, with whom Ford spent 10 years steadily turning out manuscripts and working out a theory of writing both referred to as literary Impressionism.

A generous supporter of young writers throughout his life (a trait critics would later hold against him), Ford, as editor of a literary journal in London in 1908, not only discovered and first published the 27-year-old D.H. Lawrence, but helped convince the young and brooding schoolteacher, on the basis of a manuscript submitted to Ford by a third party, to give his whole commitment to a career in literature. In Paris in the 1920s, again as editor of a prominent journal, Ford hired Hemingway as an editor, before the younger man had published a novel. It was in the same magazine that Fitzgerald first read the work of Hemingway and probably in the magazine's offices that the two first met.

While Ford's work as editor, writer, and supporter of young writers brought him a high degree of prominence among his contemporaries, it was a prominence that for Ford would prove treacherous. Having been raised within a circle of Victorian and Pre-Raphaelite artists and writers at the end of the 19th century, Ford later in life not only carried the traces of two centuries but bore them, as well as his own achievement, with a disparaging self-irony that put some people off. He is quoted, affectionately, by a close friend as refusing to talk about certain matters by saying, "I am too old and distinguished to think about it." It is not difficult to imagine how a remark like that might be taken the wrong way.

In a similar fashion, he was often criticized for his dealings with women. When he left his wife to live with an older woman and his wife instituted legal proceedings, acquaintances, like Henry James, found their sense of decorum insulted and withdrew their friendship. In part to escape personal difficulties that also included financial losses from a magazine he founded, and in part to test his conviction that the old and not the young should be fighting wars, he eventually enlisted as a second lieutenant in the armed forces at the age of 42. Later in life, luckily, his liaison with painters Stella Bowen and Janice Biala would prove happier.

Ford's incredible energy allowed him throughout his life to maintain a second career as gardener, clearing and planting plots wherever his peripatetic ways landed him. "He cultivated two gardens," Sondra Stang writes in *Ford Madox Ford*, a thorough and sympathetic summary of Ford's life and work published in 1977 by the Frederick Ungar Publishing Company as part of its Modern Literature Monographs series, "letters and vegetables were his 'double occupation.'"

He was a nonstop talker, and in addition to the more than 80 books he pub-
Continental contributor: While his larger reputation has suffered misfortune, Ford generally has been acknowledged for his two best-known novels, *The Good Soldier*, written before World War I, and *Parade’s End*, reflecting the dislocations caused by the war. Novelist Graham Greene, an ardent supporter, says of the two books: “They are almost our only reply to Flaubert.”

Above, a photograph of, left to right, James Joyce, Ezra Pound, and Ford Madox Ford, in Pound’s Paris studio in 1923.

lished and the pile of unpublished manuscripts he left, Ford wrote more than 400 uncollected articles and essays. But that extraordinary energy and the terrific joy he seemed to take in writing (in later years he described himself as “an old man mad about writing”) led critics to distrust the quality of such literary quantity. Similarly, his generosity and interest in young writers allowed him a sociability indulged in by few literary figures. “By carefully going through the Alphabet, and my calling book,” he wrote in 1923, “I have found that I know at the present moment 1,642 men and women.” But reviewers, uncertain whether to take such exaggerations as ironic, took them literally, doubting many of his statements and failing to recognize his real motives.

Always poor, he insisted on his love for luxury, but not comfort. William Gass, David May Distinguished University Professor in the Humanities and an early supporter of Sondra Stang’s scholarly reclamation of Ford, in an essay on Ford’s historical trilogy *The Fifth Queen* (contributed to *The Presence of Ford Madox Ford* and later used as an introduction to a reissue by CoCo Press), catches the view many must have taken of him as a sometimes forlorn and disreputable character: “He got by on small change. He bragged by disparaging himself. He hated scenes and then arranged his life like a procession of them.”

Perhaps most controversial was his theory of literary Impressionism and the style he developed in support of it. In both painting and literature, Impressionism calls into question the nature of human perception, drawing attention to the surface of a work, emphasizing the fact of the work of art itself. In Ford’s case, it led him to a style that mimics human memory and speech, as if the novel were in fact only a story being told in person by the novel’s narrator. The clearest expression of this theory can be found in a passage early in *The Good Soldier* where the novel’s narrator, John Dowell, creates a setting in which he places both himself and the reader:

So I shall just imagine myself for a fortnight or so at one side of a fire-place of a country cottage, with a sympathetic soul opposite me. And I shall go on talking, in a low voice while the sea sounds in the distance and overhead the great black flood of wind polishes the stars.

In his novels, Ford was more intent on rendering the psychological experience of time than observing the chronological conventions of narrative. In a memoir of Conrad, Ford explained the basis of his method:

Life does not say to you: in 1914 my next-door neighbor, Mr. Slack, erected a greenhouse and painted it with Cox’s green aluminium paint. Rather, and if you think about the matter... you will remember, in various unordered pictures, how one day Mr. Slack appeared in his garden and contemplated the wall of his house. You will then try to remember the year of that occurrence... You will remember Mr. Slack—then much thinner because it was before he found out where to buy that cheap Burgundy of which he has drunk an inordinate quantity, though whiskey you think would be much better for him! Mr. Slack again came into his garden, this time with a pale-weasely-faced fellow, who touched his cap from time to time... At this point you will remember that you were then the manager of the fresh-fish branch of Messrs. Catlin and Clovis in Fenchurch Street... What a change since then! Millicent had not yet put her hair up.

In his essays and books of reminiscences, this blending of the objective and subjective led to charges of Ford’s falsifying, charges he answered by insisting, “The accuracies I deal in are the accuracies of my impressions.” And, in
Choosing a person to reclaim the rightful place for Ford Madox Ford in the history of letters, one could hardly have done better than Sondra Stang. The task, obviously, requires someone who can appreciate Ford's strengths while making his defense with a clear head and strong will. Moreover, it needs someone who can share his enthusiasms for formal complexity as well as moral and psychological insight. Such a person must have, besides, a strong commitment to the craft of writing and the value of literature along with a firm grounding in the tenets of scholarship, to carry out her task wisely and unimpeachably.

A graduate of Hunter College and married at 18 to a returning veteran of World War II resuming his studies at Columbia University, by 22 Stang had completed three years of graduate work at Columbia that included a master's degree in 17th-century literature. It was then, as she puts it happily, "motherhood overtook me." Her three children, David, Elizabeth, and Samuel, were born within 4½ years of each other. When the youngest was ready for kindergarten, she returned her attention more fully to matters of literature and scholarship, teaching as her schedule permitted and assigning herself an ambitious reading list in 19th- and 20th-century literature. When she came across what she perceived as the arbitrary treatment of a major literary figure, her reading project became a Ford Madox Ford list, which she took on with typical thoroughness, setting out to read all his published work in chronological order.

Much of the success of the match between Sondra Stang and Ford Madox Ford seems, in retrospect, founded on happy accidents. Perhaps the happiest of all is that the Rare Book Room at Olin Library has one of the few nearly complete collections of Ford's work in the world. This fortunate coincidence allowed Stang to proceed in her work without hindrance. During her husband's sabbatical year spent at Cambridge University in England, Stang found the library there, for example, much less well-equipped to provide her with necessary materials.

In her campaign to revive Ford's reputation, Stang has gotten considerable help from the community of writers and scholars gathered at St. Louis with Washington University as its focus. Similarly, the Ford collection at Olin is the result of suggestions provided by members of the English department in the early 1960s when the library's director

of special collections William Matheson, until recently curator of rare books at the Library of Congress, set out to gather collections of 20th-century writers whose reputations had been undervalued. Chief among the authors enthusiastically nominated by the writers and scholars at Washington University was Ford Madox Ford.

Based on a thorough reading of the whole of Ford's work, the first product to issue from Stang's scholarly endeavors was an article on The Good Soldier that laid out what she saw as the lines of a more accurate reading of Ford. While in the process of putting together the idea for a book-length work, she was then contacted by Ungar Publishing to write a brief but complete monograph that would cover Ford's life and work, into which the earlier essay was incorporated. That effort required a fuller reading of the criticism and biographical material on Ford, which in turn led Stang to the idea behind The Presence of Ford Madox Ford, a volume of memorial essays and reminiscences published in 1981 and intended to amplify the existing record.

"I'd become fed up with all the reasons out there for denying Ford the place he clearly deserved," she recalls. "And I thought it was important to draw on other critics, many of whom were primarily novelists. I queried writers who, I had a hunch on the basis of their work, would be sympathetic. Then there were those who'd written on Ford but hadn't covered the territory I thought they might." She also knew she didn't want to take on a biography or full-scale work of criticism. "At that point, there had been more dissertations written on Ford than there were books of his in print. How pointless to write another critical book when readers had no books to read for themselves."

The scholar became editor and mailed "a few hundred" letters. Her requests elicited submissions from well-known writers and critics, besides novelists like Graham Greene and Alison Lurie. She also got contributions from Washington's

---

More Meaningful Questions

"Why Ford has been considered a peripheral rather than a central figure in the canon of 20th-century writers is a perplexing question, one that probably has more to do with accident and the way in which reputations are made than with the substance or nature of the work itself. They are really two separate matters, and if ever criticism had a job to do it is to see them as separate. Whether Conrad learned more from Ford than Ford learned from Conrad; whether or not a man should conduct his private life monogamously and stick to one woman of his own age; whether or not Ford can be 'exonerated' from the charge of lying about real events and real people (including himself) in his written reminiscences and his conversations — these questions have aroused high passion and partisan feeling and the sense that it is necessary to cast a vote. But they are all false issues for criticism to concern itself with, when they are seen by themselves apart from matters of sensibility and temperament — and when more meaningful questions about Ford's powers as a novelist have not yet been sufficiently considered."

William Gass and Howard Nemerov. An introduction by Stang and significant biographical material added to the volume's impact; one scholarly journal described it as "a model for what such books can be." Combined with the Ungar monograph, it established Stang as a substantial scholar interested in reviving interest in Ford.

Before long Carcanet and Ecco Press were in touch with her about their reissue programs. She agreed to edit *The Ford Madox Ford Reader*, a selection from Ford's lesser-known writing and some unpublished work, including 60 letters and a manuscript account of World War I combat she had earlier published in *Esquire* in 1980. Ecco, especially, was interested in her advice and asked her to guest-edit an issue of the quarterly *Antaeus* devoted entirely to Ford. For that she drew again on noted critics as well as contributions from Washington University scholars, including a long essay by Gass, articles by Associate Professor Wayne Fields, Assistant Professor Benjamin Taylor, and a new bibliography by graduate student Rita Malenczyk. Novelist Mary Gordon (*Final Payments, The Company of Women*) was also included, writing on the appeal of Ford, who in his lifetime actively supported the political cause of women, to women readers.

*The Ford Reader* and *Antaeus* were published together in 1986, just months after the appearance of *The Three-Ingredient Cookbook* (published in 1985 by New American Library), a collection of recipes Stang had developed over the years based on a very manageable but surprisingly adaptable culinary method. The book became a local bestseller in University City. It also points out the felicity of Sondra Stang's commitment to Ford Madox Ford, whose alarming recipe for a three- to-four pound roasting chicken and two pounds of garlic she included. Like Ford, the pleasure she finds in life is not restricted to a life in letters.

Where Ford had his gardening, Stang has her music, the prime evidence of which is a large and old Bechstein grand occupying the better part of the Stang dining room in their house in the Parkview neighborhood. A recent bout of chronic illness has curtailed her playing somewhat, but for many years she accompanied St. Louis tenor Willard Cobb weekly at the keyboard. She remains in touch with her piano teacher from childhood and visits on return trips to Manhattan.

What has mainly distinguished Stang's work on Ford is a quality of careful attention she brings to all her endeavors, the kind of careful attention that also sets her teaching apart. Her model, she says, is piano teacher Leah Brown, who "taught me how to teach. She insisted on a very high level of concentration, and listened to me very analytically and patiently. She questioned me very closely on small details and related the choices I'd made to my conception of the whole piece. I would have to rethink what I'd done until it really made sense to me. When it did, I felt exhilarated."

The musician's instinct for collaboration and a musician's sensitive ear clearly inspire the literary scholar. In her introduction to *The Presence of Ford Madox Ford*, Stang quotes musician Claudio Arrau in support of one of her guiding principles, that each work ought to be read in the context of the whole:

"To understand a composer's musical language, you have to know most of his output. If you come upon enigmas in a certain piece, they may be unraveled by analogy to a composer's other works. Even if you compare piano sonatas to string quartets or symphonies, you can understand and dispel many puzzles."

Brown served as a model of another sort of well. "I saw in her a real passion for the work itself," Stang says, "an absolute dedication. Her approach to music and to teaching was both passionate and disinterested at the same time, in the best sense of both those words."

When novelist Mary Gordon says, "There's nothing detached about Sondra Stang's work on Ford," she is referring to Stang's involvement in Ford's work. But that advocacy is never compromised by an absence of careful scrutiny, a prime reason why her work has been so generally admired. Of the *Ford Reader*, Graham Greene has said, "Sondra Stang has undertaken the enormous task of choosing pages from the whole ground of Ford's work; and no one could have done it better." William Pritchard, writing in *the Hudson Review*, said "One imagines how pleased [Ford] would have been by this Reader." William Gass pays tribute to the quality of even-handedness Stang combines with thorough investigation when he says of her achievement, "Sondra Stang is the best Sherlock Holmes in the business." The lessons Stang learned as a girl at the keyboard obviously have served her well.

As valuable in her appreciation of Ford is Stang's devotion to the craft of
writing, a devotion mirroring Ford's faith in the aesthetic value of pattern and form. Best known in the English department as the proprietor of the nine a.m. section of English Composition 311, she has, in the course of 20 years, tutored students in the advanced principles of good writing, relying heavily on individual attention and personal conferences to convey her lessons. Many of her students, she says, have been majors in other disciplines; often, in their final semesters, troubled about entering the larger world with no firm grasp of written expression. She prefers her style of teaching even though it may expand the time required to teach one class to nearly that of a whole semester's workload, because, she says, students rarely respond as well to symbols and comments written along the margins of their papers.

Although illness has restricted her teaching schedule, Stang's commitment has not flagged. Last year, she and Assistant Professor Robert Wiltenburg, director of the English department's composition program, published (with Random House) a collection of composition lessons gathered from writing teachers around the country called Collective Wisdom (the title suggested by husband Richard). Next year, they are scheduled to produce a companion volume for teachers and students based on reading assignments for the collected lessons.

Finally, she shares with Ford an interest in the ways things tie together, in the connective patterns of history and culture, an inclination displayed in the inspired literary scholar takes from her love of music. Two years ago, for instance, she joined collaborator Solon Beinfeld in teaching a course in turn-of-the-century literature and history. Last year, she taught a course for medical students with Wallace Renard Professor of Psychiatry E11 Robins on works of literature concerned with the practice of medicine. And when she first took a look at the unpublished manuscript of A History of Our Own Times, which she had known about but had given little thought to until she'd read it for herself, Stang says she knew instantly and instinctively that she wanted to publish the work which blends history, literature, and reminiscence in a manner idiosyncratically Ford. "Five minutes into it, I saw how vivid and brilliant it was."

But first, she sought the corroboration of a professional historian. Beinfeld not only offered his approval of the manuscript, but consented to collaborate on its restoration. Twice a week for nearly five years, Stang carried her copy of the manuscript to Beinfeld's office in Busch Hall as the two carefully edited, annotated, and reconstructed the work into what Stang knew Ford would have wanted, a "reader's version" of his sweeping history. Sensing the care with which she approached her work, a colleague in the history department recalls seeing Stang regularly carrying her manuscript in a carton "like someone carrying a box of baby chicks."

As she awaits whatever reviews will attend the book's publication, Stang expresses understandable concern. Of all her efforts to bring Ford to the attention of a wider audience of readers, this, she says, is the "most perilous. It's a very vulnerable manuscript. Ford was not a professional historian, and he's suffered before from the charge of being an unreliable narrator. I cringe at the thought of someone dusting off that old complaint."

Fortunately, she has plenty to keep her mind occupied. She has nearly completed an edition of the manuscript of Ford's French translation of a part of The Good Soldier (Le bon soldat, which Ford, who was fluent in both French and German, wrote entirely from memory), done with Maryann Dejulio, now at Kent State. Stang's introduction is scheduled to be published next year in a special Ford issue of Contemporary Literature, published by the University of Wisconsin, along with an essay, co-authored by composer Carl Smith and contributed to by University Composer-in-Residence Robert Wykes, on a long piece of music Ford wrote and left in manuscript. In addition, she is finishing the afterword for a volume of two of Ford's reissued novels. And, with husband Richard, she has agreed to collect the best of Ford's essays and reviews. These last two are scheduled to be published by Carcanet in 1989, the 50th anniversary of Ford's death. She also has been invited by two British publishers to prepare new editions of Ford's collected letters and his collected poems.

Meanwhile, Sondra Stang takes pleasure in the increasing activity around the world on Ford's behalf. The number of critical books and dissertations on Ford is growing constantly. (A new arrival to the English department this year, Assistant Professor Miriam Bailin, has, for instance, written on Ford.) Two biographies have recently been commissioned in England, and both projects are moving steadily forward. Following the announcement of the publication of the History, Stang herself received two more offers of book contracts. (She turned them down, she says, feeling already overextended.) Most importantly, she observes with the savvy of a seasoned scholar, the prices being paid for Ford's books and manuscripts have been climbing undeniably upward.

And, there is the annual birthday party on December 17 held in the Rare Book Room at Olin Library to think about. Every year since the early 1970s (except last year, when illness intruded), Sondra Stang has baked treats for the library staff to thank them for their help and to celebrate Ford's memory. With next year marking the 50th anniversary of Ford's death, she would very much like to see an event held in his honor. Her British publisher is planning an event at Wigmore Hall in London, which she hopes to attend. But it may be the birthday party in Olin will be the major celebration on this side of the Atlantic.

Even so, Stang has brought Ford to the attention of a wider audience of readers. She has stimulated discussion and contributed to the critical discussion of the protean author. Most importantly, she has cleared the way for readers directly to experience a major literary figure of the 20th century who had previously stood in grave danger of being lost. "So many books," says Stang, "are not appreciated or understood when they are first reviewed or even later in a writer's lifetime. Many are misunderstood by critics for decades. What matters most is that there are other readers out there who will read Ford's books for the first time, and they can see for themselves what they contain."
The Unseen Campus

During the weeks surrounding the summer solstice, in the silent moments just after dawn, University Photographer David Kilper finds the Hilltop Campus bathed in rare light.
Remarks of the Chairman

One of the most striking qualities of a great university such as ours is its capacity to grow and adapt, while retaining its essential character. The periodic shifts in what we do here and how we do it are all part of the dynamics of an enduring institution like Washington University.

Growth is possible because the people who are drawn to the life and purposes of the University bring new ideas and attract new resources. These people inside and outside the University—individuals, groups, and families—also assure its continuity. They transform the challenges of the past into opportunities for the future, and from such transformations new challenges arise. That is the record of the Alliance for Washington University, the development campaign which concluded December 31, 1987, with more than $630.5 million in gifts and pledges. Great progress for the University has been made possible by the campaign, but with this growth come still greater responsibilities.

The Board of Trustees played a pivotal role in the process of planning and development that led to the campaign, but the success of the Alliance was achieved through the generosity and involvement of more than 60,000 donors and 5,500 volunteers, representing our alumni, parents of students, other individual friends, as well as corporations, foundations, and many groups and organizations. Of the total 233,115 gifts and pledges, more than 16,000 were made during the last six months of the campaign, capped by major commitments from the John M. Olin Foundation of New York and the Lucille P. Markey Charitable Trust of Miami, Florida.

To sustain the progress made during the campaign and to ensure ongoing growth will require an equal commitment by the University community now and in the years ahead. The Board of Trustees will rely heavily on the advice and recommendations of the National Councils of the Schools and major units of the University in making plans for the future. Our alumni and friends will always be the foundation upon which the Washington University of tomorrow will be built.

Change and continuity also characterize the membership of the Board of Trustees. On July 1, 1988, Lee M. Liberman succeeded me as chairman of the Board. Chairman, president, and chief executive officer of Laclede Gas Company of St. Louis, Mr. Liberman, who was first elected to the Board in 1975, was re-elected at the March meeting. Trustee William M. Van Cleve, chairman of Bryan, Cave, McSheeters, and McRoberts, became vice chairman, succeeding George H. Capps, who so masterfully guided the volunteer leadership of the Alliance for Washington University. Both Mr. Capps and I will continue to serve as life trustees.

New trustees elected this year include: Henrietta W. Freedman, vice president, SEMCOR, St. Louis, elected in March; John H. Biggs, chairman, president, and chief executive officer, Centerre Trust Company; and Roger W. Schipke, senior vice president, GE Appliances, General Electric Company, Louisville, Kentucky. Mr. Biggs, a former vice chancellor of the University, and Mr. Schipke were elected at the May meeting. Mrs. Freedman was the Alumni Board of Governors' representative to the Board for two years.

Also at the May meeting, five trustees were re-elected: William E. Cornelius, chairman and chief executive officer, Union Electric Company, St. Louis; Robert J. Glaser, M.D., director for medical science, Lucille P. Markey Charitable Trust, Menlo Park, California; Richard J. Mahoney, chairman and chief executive officer, Monsanto Company, St. Louis; William E. Maritz, chairman of the board, president, and chief executive officer, Maritz, Inc., Fenton, Missouri; and Roma Broida Witcoff, St. Louis.

During the past year, the following trustees left the Board: Zane E. Barnes, chairman and chief executive officer, Southwestern Bell Corporation, St. Louis; John F. McDonnell, chairman and chief executive officer, McDonnell Douglas Corporation, St. Louis; Mary Dell Pritzlaff, Phoenix, Arizona; and William H. Webster, Director of Central Intelligence, Washington, D.C. We thank them for their loyal service and many valuable contributions to the University.


I have been most fortunate to be associated with the University during one of the most important and exciting periods in its history. I am especially proud of our premier faculty and outstanding student body. I shall be watching with interest as our scholarly community continues to build on its worldwide reputation of excellence.

W. L. Hadley Griffin
Chairman
Board of Trustees
Comments by the Chancellor

The 1987-88 academic year was marked by a number of happenings of long-range significance. The Alliance for Washington University, which came to a close on December 31, 1987, was a success beyond anyone's expectations and even beyond my dreams. Over 60,000 donors and 5,500 volunteers joined in the Alliance to accomplish something of national and international significance, that is the building of a great university. The result was the most successful campaign yet conducted by an American university. I am deeply grateful to all those alumni, friends, volunteers and staff, deans and faculty, and even students whose contributions of time, talent and treasure created this success. Without those many individuals, there could have been no Alliance for Washington University.

One might ask, "What is the significance of the successful Alliance?" The gifts and the associated increase in endowment, which now ranks seventh in the nation, mean that our institution has the flexibility to develop excellence. The added resources mean more opportunities and with these opportunities, added responsibility to see that our new advantages are used as wisely as possible for the benefit of society.

These new resources have not made life easier, but rather more challenging. They in no way relieve us from our obligations to strive for excellence, to set priorities, to practice thrift and frugality. In fact, these virtues are made more important, for without them even the Alliance could not guarantee progress. Washington University now has an annual operating budget of more than $400 million. Income from endowment and from gifts covers only about 15 percent of the expenditures. The rest must come from tuition, from federal research grants, from patient fees and from a variety of smaller sources. Even such a successful campaign cannot spare us from making difficult choices or from the constant searching for the support needed to make the most of our opportunities.

I am convinced that our academic community and our larger community of alumni and friends are up to the challenge of excellence.

Also of major significance is the more than 60 percent increase in undergraduate applications over the last two years. Those of us close to Washington University have recognized for a long time the quality of our educational programs. Now that quality is recognized nationally. This recognition and the desire of students to join us is the best guarantee we could have for our future success.

Washington University is a physical place with land and buildings. It is an institution with endowment and budgets. Primarily, however, Washington University is people, individuals with aspirations and talent. While the institution endures, the people turn over. Hadley Griffin has completed his five-year term as chairman of the Board of Trustees after presiding over some of the most significant successes of Washington University's history. His leadership has been an essential ingredient of recent progress. George Capps, Mr. Griffin's predecessor as chairman of the Board, is now stepping down as vice chairman and chairman of the Development Committee. George Capps is, in my opinion, the greatest fund-raiser ever to serve on the Board of Washington University. The Alliance is a lasting legacy from these two men. The new leadership of Lee M. Liberman, chairman and William M. Van Cleve, vice chairman are fully up to their responsibilities. We are fortunate to have such people deeply involved in our governance, for an active, well led Board of Trustees is absolutely essential for a successful university.

This last year has seen Provost W. Maxwell Cowan leave to take on a major responsibility for developing the research policy of the Howard Hughes Medical Institute. All of us at Washington University wish him well. I am deeply indebted to four individuals for taking on major administrative roles during a time of transition: Ralph Morrow for returning to his old position as provost; Ronald G. Evans for assuming the position of vice chancellor for Financial Affairs; Martin H. Israel for serving as acting dean of the Faculty of Arts and Sciences and Bernard Reams for serving as acting dean of Library Services. Without these individuals many functions would have come to a halt and my job would have been impossible.

1987-88 has been an eventful year as described in the subsequent pages. It has been a year of change, of success and of new challenges. People wonder how Washington University has come so far in what appears to be a short period of time. Often I am asked about the key ingredients for our progress. There are, of course, many, but for me the most important factor has been persistence in holding to the task of building a great institution of higher education. Over 40 years ago, in 1946, when Arthur Holly Compton came to Washington University as chancellor to lead our institution into a new era, he saw education as essential to avoiding disaster in the nuclear age. He began the task of building Washington University into a model modern university. His goal was embraced...
eagerly by faculty, trustees and alumni and has continued to be our major motivating force. In the late '50s and early '60s, dormitories were constructed. The undergraduate student body was recruited nationally. Throughout the '60s, Washington University continued its progress adding new buildings and new faculty of energy and talent. During the 1970s and 1980s these efforts continued. Now, after 40 years of persistence, has come increased national recognition, both of the accomplishments of individual faculty and students and of the institution as a whole.

The key to a successful future is no different than that of the past. If we hold to our goals, if we maintain our standards high, if we work hard and patiently, if our community continues to support us generously, Washington University will come ever closer to realizing the ideals that we hold for it.

William H. Danforth
Chancellor

The University in 1987-88:

Noted Events

A few of the many highlights of the year are described in the following paragraphs.

Howard Nemerov, Edward Mallinckrodt Distinguished University Professor of English, was appointed Poet Laureate of the United States and Consultant in Poetry to the Library of Congress for 1988-89. Nemerov is the third poet to be so honored.

The Gallery of Art, directed by Gerald Bolas, in cooperation with the Japan Foundation of Tokyo organized "Paris in Japan: The Japanese Encounter With European Painting." The exhibit, which premiered last fall at the gallery in Steinberg Hall and then traveled to major showings in New York and California, was one of the most critically acclaimed art events of the year. Most of the featured works had never before been seen in the United States. In May, the University was host to an international conference, the first in North America, on Czech composer Leos Janacek. The six-day event, which drew 40 scholars from six nations including Czechoslovakia, included North American premieres of Janacek's Danube Symphony, performed by the Saint Louis Symphony Orchestra, and a film biography of Janacek by Czech director Jaromil Jires. The conference, organized by Michael Beckerman, assistant professor of music, was cosponsored by the International Research and Exchanges Board (IREX).

Faculty Honors

Two faculty members were elected to the National Academy of Sciences. Carl Frieden, professor and interim head of biological chemistry at the School of Medicine, and Patty Jo Watson, professor of anthropology, joined 19 colleagues at the University as members of the nation's most prestigious honorary society for scientists. Frieden, director of the Medical Scientist Training Program, is known for his work on the structure of proteins; Watson's archaeological research has unlocked a new understanding of prehistoric societies.

Sarah C. R. Elgin, professor of biology, was named a Fellow of the American Association for the Advancement of Science, the nation's oldest science organization, for her work with chromosome structure in relation to genetic traits. Philip W. Majerus, professor of medicine, was elected to the prestigious Institute of Medicine of the National Academy of Sciences, joining 13 other University faculty members. Majerus was also one of three faculty elected to the American Academy of Arts and Sciences. The others are Gerald D. Fischbach, Edison Professor of Neurobiology and president and head of anatomy and neurobiology, and Stuart A. Kornfeld, professor of medicine. The University now has 18 current and emeritus faculty members of the academy. Peter H. Raven, Engelmann Professor of Botany and director of the Missouri Botanical Garden, became the second current faculty member elected to the American Philosophical Society.

Kathleen F. Brickey, professor of law, was elected to the American Law Institute, which comprises 2,000 judges, lawyers, and law professors selected on the basis of their achievements and standing in the profession. Paul Michael Lützeler, professor of German and chairman of the Department of Germanic Languages and Literatures, was awarded the Austrian Cross of Honor for Arts and Sciences (First Class). The award, presented by the Austrian government, recognizes Lützeler's work on the Austrian-born author Hermann Broch. John Walter Clark, professor of physics, received the second Feenberg Medal at an international meeting of physicists in Finland. Clark was a student of Eugene Feenberg, the Washington University nuclear physicist for whom the medal and a memorial lecture at the University are named.

Student Achievements

For the 11th straight year, a team of undergraduates placed among the top 10 in the nation in the William Lowell Putnam Mathematical Competition. Sophomore Japheth Wood placed among the top 10 individual students in the competition, while senior Daniel N. Ropp ranked 18th and junior David S. Shohe ranked 59th. The University's College Bowl team competed in the College Bowl National Championship for the second straight year. Team members included freshmen Robert A. Skinner and Robert Corey Booth, and juniors Mark A. Ramsey and Paul Wen-Sin Cheng; freshman Mark Zackin was an alternate. Two student teams from the School of Law made it all the way to the national finals in skills competitions. Third-year law students Debbie S. Champion, Tim Holstein, and Peter C. Sisson competed in the final round of the National Moot Court Competition in New York after winning the regional competition held in Kansas City. The mock trial team of Allison A. Hart, Michael B. Katz, and John F. Meulder, Jr., all third-year law students, competed in the National Trial Competition in Dallas. The University's athletes enjoyed their most successful year of NCAA Division III, with conference championships in six sports during the inaugural season of University Athletic Association, four teams qualifying for postseason tournaments, and 13 individual athletes qualifying for national championships. In another kind of sports competition, nearly 1,000 students volunteered to work at the 1988 Special Olympics, organized by Zeta Beta Tau fraternity and held on campus in February. The students' efforts were recognized in a proclamation signed by Vincent C. Schoemehl, Jr., mayor of St. Louis.
Voluntary Support

The generous response of the University’s alumni and friends to the Alliance for Washington University continued through the campaign’s close. The record-setting total of $630.5 million in gifts and commitments received by December 31, 1987, included several significant grants announced during the last few months of the effort. The George Warren Brown School of Social Work received a $500,000 commitment last fall to establish the Betty Schroth Johnson Program in Social Service Management to train women for administrative roles in social service agencies. The gift includes a $400,000 commitment from Betty and James L. Johnson, Jr., and $100,000 from an anonymous donor. Mr. Johnson is a trustee emeritus. A grant of $1.8 million from the James S. McDonnell Foundation in November is enabling the University to establish the Center for Genetics in Medicine at the School of Medicine. The center will be a focus for research in human genetics and a resource in the effort to map the human genome. The two large commitments to the Alliance during the final months of the campaign were announced in December. The John M. Olin Foundation of New York, founded by and named for the late John M. Olin, University benefactor and former trustee, announced a grant of $15 million to the School of Business, which was named for the St. Louis business leader. Under the terms of the grant, the University must raise a matching amount of new gift support for the Business School over the next five years. Another major grant of $12.1 million from the Lucille P. Markey Charitable Trust of Miami will enable the School of Medicine to establish the Markey Center for Research on the Molecular Biology of Human Disease.

Sponsored Projects and Research

The University signed an agreement with the Institute of Physical and Chemical Research (RIKEN) of Japan to share expertise that may eventually enable scientists to map the entire human genetic structure. The three-year agreement, signed in October, involves the Tsukuba Life Sciences Center of RIKEN and the newly established Center for Genetics in Medicine. Four more scientists in the School of Medicine have been honored with MERI'T (Method to Extend Research in Time) status by the National Institutes of Health this year, bringing to nine the number of University researchers who have gained the honor. MERIT awards provide long-term, uninterrupted financial support to scientists who have demonstrated superior achievement during previous projects.

Many additional program and project grants were received during the year.

Administrative Changes

Following the resignation of W. Maxwell Cowan, provost and executive vice chancellor, to become vice president and chief scientific officer of the Howard Hughes Medical Institute, Ralph E. Morrow, University historian and former provost, was named acting provost. Edward S. Macias, professor and chairman of the Department of Chemistry, was named associate provost for science and technology to continue initiatives in the sciences begun by Cowan. David A. Bensinger, interim dean of the School of Dental Medicine, was appointed dean last fall; he will serve until his planned retirement in June 1989. William C. Kirby, associate professor of history and director of the International Affairs Program, was appointed dean of University College. He succeeds Edward N. Wilson, who will return to his full-time responsibilities as dean of the Graduate School of Arts and Sciences; Wilson took on the additional post of University College dean two years ago when former dean Robert C. Williams left the University. Stuart D. Yoak, formerly associate law librarian for administration and public services, was appointed University registrar to succeed Richard E. Young, who died last July; Young had been registrar since 1976. Joseph D. Kerner II, curator and registrar of the Washington University Gallery of Art, was named acting director following the resignation of Gerald D. Bolas to become director of the Portland, Oregon, Art Museum.

Ronald G. Evans, director of the Mallinckrodt Institute of Radiology, has been appointed vice chancellor for financial affairs. Evans, who is Elizabeth E. Mallinckrodt Professor of Radiology and head of the radiology department in the School of Medicine, recently completed a two-and-a-half-year term as president of St. Louis Children’s Hospital at the Washington University Medical Center. Gloria W. White, associate vice chancellor for personnel and affirmative action, was promoted to vice chancellor. White, head of the personnel office since 1975, was national president of the College and University Personnel Association in 1987. L. Thomas Hussey was appointed associate vice chancellor for physical plant.

Around Campus

In September, the University announced that a new $14 million medical library would be constructed at the School of Medicine by fall 1989, with the majority of funding provided by an anonymous $10 million gift. In April, the Department of Biology dedicated its new Plant Growth Facility, housing a greenhouse and laboratory space and connected to the main departmental buildings.

Finally, the University community was saddened by the deaths of several well-known and well-loved individuals. Dean of Women Emeritus Adele C. Starbird died August 2 at the age of 96. The Women’s Society of Washington University established an annual lecture to honor her; the inaugural speaker was actress and University alumna Mary Wickes. Florence Moore, Charles Rebstock Professor Emerita of Biology, died December 12. Colleagues and friends established an endowed scholarship in her name upon her retirement in 1983. Long-time athletic trainer, physical education instructor, and former athletic director Bruce Melin died March 29. After his retirement in 1977, he continued to work part time as athletic trainer and instructor and received the Interfraternity Council Performance in Teaching Award in 1986. Kenneth E. Hudson, retired dean of the School of Fine Arts, died March 31. During his 31 years as dean, he is credited with expanding the fine arts curriculum and bringing artist Max Beckmann to the faculty. Former Director of Admissions and Registrar Oliver Wagner died May 21. He worked in admissions and student records at the University for 25 years, retiring in 1973, and was active in national organizations.
The 1987-88 academic year was a year marked by significant achievements of our students and faculty. It was a year in which our undergraduate division, the College of Arts and Sciences, experienced the effect of Washington University's increased national prominence and attractiveness to high school students.

**Freshman Admissions**

In the fall of 1987, the College of Arts and Sciences enrolled the largest freshman class in its history—810 students. We expected a class size of approximately 720 students, and we were therefore surprised by the percentage of admitted students who chose Washington University over other schools to which they also had been admitted. By increasing the number of faculty advisors, and by adding sections to some of the larger introductory courses, we were able to accommodate the influx of students. This freshman class has had an impact on the campus beyond just its numbers. Academically it has been comparable to others before it, but in extracurricular activities this group has been especially active and talented.

While freshman applications for entrance to the College of Arts and Sciences in the fall of 1987 were up by about 20 percent from the previous year, this year we experienced a further 40 percent increase in applications over last year. Since we have not increased our target size (720) for incoming freshman classes, we are becoming increasingly selective as we admit students. The happy result in fall 1988 will be a class with outstanding academic credentials.

**Student Awards and Activities**

Again this year students earned a number of national awards, including Fulbright and National Science Foundation fellowships for graduate work, and NASA awards for graduate research. For the 12th consecutive year our undergraduate math team placed among the top 10 schools nationwide in the William Lowell Putnam Mathematics Competition. This record for the past dozen years is one which only Washington University, Harvard, and Princeton can boast.

The Council of Students of Arts and Sciences, under the leadership of junior Wendy Armstrong, set up plans for a much enlarged peer advising program for freshmen, to complement the work of the faculty advisors. The Council of Students also continued its tradition of annually honoring four faculty members for outstanding teaching. The process of selecting honorees is careful and exhaustive and the student panel carefully reviews nominations submitted by students. This year's teaching awards went to David Hadas, associate professor of English, Mark Kornbluh, assistant professor of history, George Pepe, associate professor of classics, and Owen Sexton, professor of biology.

**Faculty Honors**

Just a few days before commencement, Howard Nemerov, the Edward Mallinckrodt Distinguished University Professor of English, was named by the Librarian of Congress to the position of Poet Laureate of the United States. This distinction led to a memorable feature of the spring commencement ceremony—an unscheduled reading by Professor Nemerov of one of his poems.

Patty Jo Watson, professor of anthropology, was elected in the spring to the National Academy of Sciences in recognition of her accomplishments in archaeological theory, ethnoarchaeology and the origin of horticulture in North America and the Near East. Clifford Will, professor of physics, earned the American Institute of Physics' Science Writing Award for his book, *Was Einstein Right?*, a popular account of the research of the past 25 years that has tested and verified the general theory of relativity—the basis for our understanding of gravity.

Paul Michael Lützel, chair of the Department of Germanic Languages and Literatures and director of the Western European Studies Program, was awarded the Austrian Cross of Honor for Arts and Sciences (First Class) in recognition of his extensive work on the Austrian-born author Hermann Broch. Sarah C. R. Elgin, professor of biology, was elected a Fellow of the American Association for the Advancement of Science in recognition of her research on the relationship of chromosome structure to gene expression in Drosophila.

John-Stephen Taylor, assistant professor of chemistry, is one of 90 young scientists across the country receiving a 1988 Sloan Research Fellowship. Sloan Fellows are selected for their exceptional promise and originality of research.
The Music Department was host to a conference on Czechoslovakian composer Leos Janáček in coordination with a festival of Czech music on campus and in St. Louis.

The Biology Department held a symposium in conjunction with the dedication of the new Plant Growth Facility, as did the Departments of Chemistry and Physics, in connection with the dedication of new facilities for nuclear magnetic resonance. Our Performing Arts Department attracted national attention with its production of Equus, which brought the playwright Peter Shaffer here for a pre-production public discussion of his work.

This year's Lewin Distinguished Visiting Professor in the Humanities, Sir Oliver Wright, a distinguished British statesman, delivered a series of lectures, including a major address in Graham Chapel, in which he provided insight into the British problems in northern Ireland.

Alumni Support
With the exceptionally successful conclusion of the ALLiANCE campaign, the Faculty of Arts and Sciences can look back on a period in which six new professorships were endowed, major building renovations took place, and the annual giving of our alumni and friends increased dramatically. During the 1987-88 fiscal year, which included the last six months of the ALLiANCE and the first six post-ALLiANCE months, annual giving to the Faculty of Arts and Sciences for the first time exceeded $1 million dollars. This new level of support for our annual operating budget offers great encouragement as we continue to develop our teaching and scholarly activities during the coming years.

Martin H. Israel
Acting Dean*
Faculty of Arts and Sciences

*Appointed Dean July 1988

We honored one of our own faculty by appointing Carl P. Wellman, professor of philosophy, the first Hortense and Tobias Lewin Distinguished Professor in the Humanities, in recognition of his scholarly accomplishments in ethics and the philosophy of law, and for his dedication to excellence in undergraduate teaching.

Major Conferences
Several departments in the Faculty of Arts and Sciences hosted significant national and international scholarly conferences during this past year. In many cases the conferences were supported by gifts and grants from friends and foundations.

The Philosophy Department organized a conference on the philosophy of Willard Van Orman Quine, perhaps the greatest living philosopher of science. The German Department hosted the ninth in its series of biennial symposia on German literature, titled "Disenchantment of the World: German Literature 1200-1500."

Howard Nemerov, Edward Mallinckrodt Distinguished University Professor of English, was appointed Poet Laureate of the United States and Consultant in Poetry to the Library of Congress for 1988-89.

Patty Jo Watson, right, professor of anthropology, was elected to the National Academy of Sciences. She joins 20 colleagues at the University as members of the nation's most prestigious honorary society for scientists.
Ideas, discussions and efforts of recent years on many important issues seem to have come to fruition in a converging manner to make the 1987-88 academic year a rewarding one and full of promise for the future of the School of Architecture.

A most significant project that upgraded the physical facilities of the School and the academic offerings of the School will be completed at the beginning of fall 1988. The remodeled west end of the second floor of Givens Hall with its new mezzanine will accommodate expanded computer facilities, which will enable us to offer at the graduate level each semester a computer-aided architectural design studio. This major remodeling, which, together with the cost of equipment, amounts to nearly half a million dollars investment, will obviously have significant teaching and research implications for the future directions of the School.

The School of Architecture also has been a beneficiary of the tremendous increase in numbers and quality of undergraduate applications to Washington University. The fall 1988 freshman class will be the product of an all-time high of 511 applications. The presence of this excellent class in Room 116 of Givens Halls when they assemble for the first time on Wednesday, August 31, will be promising much about the School as well as of the architectural profession.

After many years of labor, another one of the recommendations of the Task Force of the early 1980s may come to a reality: A Missouri Architectural Fellowship program. Much has been accomplished towards this goal during 1987-88. Although details and a contract are still ahead of us, this innovative agreement funded by the State of Missouri will provide fellowships for a number of Missourians who will be admitted to the professional studies program of the School to benefit the State, the architectural profession, and the students in the School of Architecture.

**Faculty Distinctions and Activities**

Professor Irving Engel published a second book, *Structural Steel in Architecture and Building Technology*, by Prentice-Hall, Inc. It will be used as a college-level textbook by a national audience, as well as a professional reference.

During the academic year Associate Professor Iain Fraser was granted tenure. In addition, Fraser served as judicial administrator with University-wide responsibilities.

Ruth and Norman Moore Professor Udo Kultermann gave a series of lectures and seminars at the Architectural Association School of Architecture in London, England during March. The lectures and seminars were under the general theme "Soviet Architecture in the 1970s and 1980s," an area of interest in which Kultermann is recognized to be an international authority.

Adrian Luchini, visiting assistant professor, was selected from a pool of 837 architects for his competition entry in the New York Chapter of the American Institutes of Architects (AIA) exhibition. His entry is entitled "Westside Waterfront Proposal, New York." Ten of the leading critics writing on New York architecture each selected 10 projects for the exhibition, called "Ten on Ten." The exhibition will take place at the Urban Center in New York and a catalogue of the projects will be published. In addition, Luchini's architectural projects were presented in a solo show in Seattle at the Blueprint Design Center.

Brian McLaren, visiting assistant professor, presented a paper titled "Site; Surface; Field" to the West Central Regional Conference of the Association of Collegiate Schools of Architecture. The conference was held in October 1987 at Iowa State University in Ames.

Trevor Dannatt, visiting professor and Fraser, associate professor, and Rod Henmi, affiliate assistant professor, presented a paper titled "Visionary Drawings: Memories of the Future." In addition, Henmi received the first place award for table design in the "Circles and Squares Into Tables and Chairs" competition sponsored by the St. Louis Design Center.

Lorens Holm, assistant professor, and Brian McLaren, visiting assistant professor, presented a paper titled "Site; Surface; Field" to the West Central Regional Conference of the Association of Collegiate Schools of Architecture. Holm, assistant professor, presented a paper titled "Site; Surface; Field." The Washington University School of Architecture nominated him for the honor. A London architect since 1952, Dannatt was professor at the University of Manchester, editor of the British Architects Yearbook, and a frequent visitor to the faculty at Washington University.

**Enrollment and Student Activities**

Enrollment in fall 1987 was 213 undergraduate and 104 graduate students. Stronger undergraduate enrollments and greater selectivity in our admissions policies are the current reality for the School. Graduate
enrollment has remained relatively even during the last few years. We anticipate stronger enrollments through increased selectivity at this level, too, as the present larger numbers of undergraduates will seek admission to the graduate professional programs of the School in the near future. Our expectations are, however, that total enrollment will remain at the 315-plus level proportioned in a 2-to-1 ratio between undergraduate and graduate students.

The 1988-89 recipient of the Fitzgibbon Scholarship selected from more than 100 applicants and six finalists is Dale Riedel of Kansas City, Kansas.

Although this is a career discovery rather than a recruitment program, we were pleased that seven of our fall 1987 freshmen were from the 36 participants of the 1986 Architecture Discovery Program. Again during the summer, 46 high school juniors representing 18 states participated in the ADP/1988 program under the talented leadership of Associate Professor lain Fraser, who was assisted by four of our recent graduates.

Cindy Petheram was our first MArch graduate in May who came through the Cooperative (3 + 4) program. Four more students from Grinnell, Augustana, Agnes Scott, and Macalester Colleges were enrolled during the academic year. We are expecting three additional students to enroll in the program in the fall 1988 from Agnes Scott, Cornell and Knox colleges.

Many students individually or through the Architecture Student Council contributed their time, talents and energies to give the academic year a distinctive character. Contributions varied in kind and spirit, but the most distinguished must be mentioned: The Monday Night Lecture Series, which was run for the fourth year in a row by alumni and alumni secured pledges and gifts in excess of $40,000 to fund the Joseph R. Passonneau Endowed Scholarship. The scholarship, to be awarded annually beginning in 1989, will honor Joe’s service to the School as dean from 1956 through 1967, and celebrate his chairmanship of Eugene J. Mackey III, RS ’60, BArch ’62, a committee of alumni and friends to whom we owe unlimited gratitude.

Other Events

The School held “Steedman Week” last February, which included a lecture, submission review and selection of a winner from 108 entries, and a display and panel discussion by the jurors for the benefit of the Givens Hall community. The winner of the $11,000 award was David T. Mayernik from Philadelphia. Members of the competition jury were William Morgan, FAIA, Jacksonville; Chairman Stanley Tigerman, FAIA, Chicago; Clark Davis, AIA President, St. Louis AIA Chapter; Neal Payton, visiting faculty, Washington, D.C. Both the number of participants and submissions were substantially reduced this year in comparison with recent years. We assumed that this was primarily due to the drop of the value of the dollar versus European currencies. The Steedman Governing Committee is currently reviewing the situation and it is likely it may decide to hold the competition bi-annually to include a substantial increase in the award.

The Steedman Governing Committee also proceeded to implement an earlier decision to establish a $3,000 Steedman II Traveling Fellowship for summer study on the basis of a specific proposal by a Washington University graduate student. The summer 1988 winner is Martha Lewis, who will travel to Berlin to study inner-city housing development. We are confident that Martha will provide an excellent model for future Steedman II Fellows.

Alumni

The Annual Fund again experienced unprecedented growth in 1987-1988. Giving in support of the Scholarship Program has increased dramatically, making more financial assistance available to a greater number of students. Gifts from alumni and friends exceeded $130,000 for the fourth consecutive year and alumni participation in the Annual Fund topped 27 percent.

Under the initiative and chairmanship of Eugene J. Mackey III, RS ’60, BArch ’62, a committee of alumni secured pledges and gifts in excess of $40,000 to fund the Joseph R. Passonneau Endowed Scholarship. The scholarship, to be awarded annually beginning in 1989, will honor Joe’s service to the School as dean from 1956 through 1967, and celebrate his Distinguished Professor Award for 1988 received at the annual meeting of the Association of Collegiate Schools of Architecture (ACSA) in Miami, Florida.

During 1989, the School will be publishing a directory of alumni for the first time in 14 years. This comprehensive directory will be published in conjunction with the national meeting of the AIA to be held in St. Louis in May 1989.

This academic year would have not been what it was without the talented and spirited contributions of students, staff, faculty, alumni, alumnae, and friends to whom we owe unlimited gratitude.

Constantine E. Michaelides, FAIA
Dean
School of Architecture
Another new appointment is William Bottom, PhD expected 1989, University of Illinois, as assistant professor of organizational behavior. He is an excellent addition to our organizational behavior group.

Two faculty were recognized for their outstanding scholarship and teaching by being named to endowed professorships in the School. Gary Miller is now the Reuben C. Taylor, Jr., and Anne Carpenter Taylor Professor of Political Economy. Professor Miller, a member of the faculty since 1986, is the author of award-winning research articles in the leading journals of political science. He also has written several books on the topics of administrative reform and American government.

Dean Kropp is now the Dan Broida Professor of Operations and Manufacturing Management. Professor Kropp, who joined the faculty in 1987 from Dartmouth College, is well known nationally for his path-breaking research on instability in production scheduling. He was named Teacher of the Year by students in the MBA Class of 1989.

Four other members of the faculty also honored were Ron King, assistant professor of accounting, who earned recognition from the freshman and sophomore classes; Mitchell Crusto, adjunct lecturer in business law, who received the John W. Bowyer, Jr. Teaching Award from the junior and senior classes; Sterling Schoen, professor of management, honored by the MBA Class of 1988; and Scott Davis, assistant professor of marketing, recognized by students in the evening MBA.

In other achievements among the faculty, Seth Norton was promoted to the rank of associate professor of marketing. At the annual Eliot Honors Day Ceremonies in May, Professor Norton was one of two Washington University faculty members to receive the Burlington Northern Foundation's faculty achievement award in recognition of outstanding college and university teaching.

Other faculty deserving recognition include Joyce Berg, assistant professor of accounting; Katherine Warne, assistant professor of finance; and Stephen Lawrence, assistant professor of operations and manufacturing management, each of whom completed the requirements for the PhD.

Two faculty members, each of whom has given tireless service for more than 30 years, retired in 1988. Arthur Carlson, who joined the faculty in 1952, now is professor emeritus of accounting. Sterling Schoen, a member of the faculty since 1950, is professor emeritus of management.

Progress in Admissions

The success enjoyed in recent years in BSBA admissions continued in 1987-88. Our target was to increase total BSBA applications for fall 1988 by 15 percent to achieve an entering class of 150. A 19.2 percent increase, for a total of 1,137 applications, doubled the number of applications received as recently as 1985. Offers of admissions rose only three percent over the preceding year thus offering significant gains in admissions selectivity. Average SAT scores for fall's entering freshmen will be above 1130, or the 95th percentile nationally. Nearly 98 percent rank in the top quarter in high school, while some 65 percent rank in the top 10
percent. We believe that no undergraduate business school in the country has entering students with a stronger class-rank profile than ours. Freshman enrollment in the fall will be 150, up from 142 in 1987, and will include 31 minority students, 15 of whom are black.

The marked improvement in MBA admissions that began in 1986 has continued. This year’s prospect pool exceeded last year’s by 34 percent, producing a total of 8,800 domestic inquiries and another 960 foreign inquiries. Applications number 700 for 140 places in the Class of 1990, up from 580 applications just two years ago. Applications from minorities rose by 35 percent, a significant improvement over the previous year. The average GMAT test score of 596, compared to a national average of 487, now has reached the threshold of the nation’s leading MBA programs. The average college grade point average of the incoming students is 3.24.

In the PhD program that enrolls 22 students, nine passed the preliminary exam, three achieved candidacy, and 10 will complete the comprehensive exam in the coming year.

In placement, our students continue to find the opportunities and challenges they are seeking, reporting an average of 2.2 job offers for each graduating student.

Special Events

Century Club breakfast meetings continue to be attended by an average of 300-350 persons, the highest participation rate among the schools of the University. The roster of exciting guest speakers included Michael W. J. Smurfit, chairman and chief executive officer of The Jefferson Smurfit Group; Dr. P. Roy Vagelos, president and chief executive officer of Merck & Co.; Thomas C. Melzer, president of the Federal Reserve Bank of St. Louis; and John W. Bachmann, general partner and firm director of Edward D. Jones & Co.

Receiving the second annual Distinguished Business Alumni Awards were George E. Egger, BSBA ’25, Sam Fox, BSBA ’51, Joon Bum Lee, MBA ’61, and Robert W. Frick, MBA ’62. Hubert C. Moog, trustee emeritus of Washington University and a member of the Business Task Force, was awarded the Dean’s Medal in recognition of his dedicated service to the School.

Results of the Alliance

Great confidence in the Business School was expressed by alumni and friends in financial support during the Alliance for Washington University development campaign. The total of gifts, pledges, commitments, and bequests credited to the School during the Alliance was $56.7 million as of December 31, 1987.

The total amount raised includes $20.4 million from alumni and individuals, $8.9 million from corporations, and $27.4 million from foundations, primarily the Danforth Foundation and the John M. Olin Foundation. About 84 percent of the commitments to the School were for endowment, facilities and capital purposes. The remainder, primarily Annual Fund gifts, was in support of the School’s operations and ongoing programs.

Throughout the Alliance, alumni and friends recognized the need for continued annual support. For the fourth consecutive year, annual giving by alumni, individuals and corporations exceeded $1 million during fiscal year 1988. Over 100 persons became Eliot Society members, many in response to the Weston Challenge Grant.

One of the most gratifying results of the Alliance campaign and the most dramatic sign of the School’s progress continues to be John E. Simon Hall, the School’s fourth home since its establishment in 1917. Simon Hall is a modern spacious building handsomely serving the School’s need for expanded facilities given the requirements of high-quality business education and our growing faculty and student body.

Two New Centers Planned

As the John M. Olin School takes its place among the nation’s leading centers of teaching and research in business, two opportunities will be pursued that will distinguish the School and set it apart. First, we will develop a research and teaching program at the conjunction of business with law, economics, and politics. Second, we will establish a management center to supplement student learning in the classroom in the exciting, fast-moving current developments in management.

These wonderful developments are a tribute to our thousands of alumni and friends. Their generosity and trust have supported the progress that has brought us to this point. Their momentum will take us forward toward our goal. I am inspired by their confidence and deeply grateful for their support.

Robert L. Virgil
Dean
John M. Olin School of Business
In a period of time in which the nation's dental schools are struggling with enrollment and economic issues, I am pleased to report upon a year in which the School of Dental Medicine experienced many encouraging signs. A great measure of credit is due to a faculty dedicated to the School and its future, and to the students and their educational success.

**Enrollment Update**

Enrollment patterns nationally continue a gradual deterioration, emphasizing the need for effective and aggressive recruitment programs in the effort to fill classes with bright, capable students. Among dental schools it is the remaining private schools experiencing the most serious challenge. The cost of educating a student in dentistry is probably greater than most other educational opportunities, and is in part the function of a labor-intensive endeavor with remarkably high physical plant and equipment costs. Tuition levels become reflective of these costs, and lacking state subsidy, become borne by the student. In the face of these formidable challenges the School has a freshman class of diverse composition achieving an academic record of worthy note.

In recent years the responsibility for enrolling an entering class has been capably undertaken by Richard Brand, assistant dean for student services and director of admissions, and Marie Cuccia Liddy, director of recruitment. Annually, they travel the country developing contacts with career counselors in other universities and interviewing students. They carry with them audio-visual materials touting Washington University, the School of Dental Medicine, and St. Louis. It is their tireless effort that keeps the School's attractiveness visible to counselors and potential students. Time and again the School's successes relate to the dedication of its faculty.

The School's enrollment continues to reflect the attractiveness of its educational program. Thirty-four percent of the student body is from the West Coast, Rocky Mountain region and Hawaii; 44 percent from the Midwest; 18 percent from the Eastern seaboard; three percent from foreign countries; and 11 percent from states without dental schools. Twenty-three percent of the student body is female, six percent black, 16 percent Asian and eight percent Hispanic.

Upon graduation many of our students enter specialty training programs and residencies. This year approximately 65 percent of the class has been successful in competing for positions in surgery, periodontics, pedodontics, and general practice residencies. These programs vary in length from one to four years, depending on the specialty. Harriett Steuernagel, librarian emeritus and consultant in dental education has counseled students and guided their application process for several years. Through her tireless efforts our students continue to place well in their selection of programs.

**Faculty Honors and Awards**

Paul Henry Schlesinger was this year awarded tenure and promoted to associate professor in the Department of Biomedical Science. Schlesinger teaches biological chemistry at the School and conducts research centered around understanding the basic mechanisms by which eukaryotic cells organize and control physiological activities. He is primarily interested in the biochemistry of receptor-mediated endocytosis.

William F. P. Malone will join the faculty as tenured professor of restorative dentistry and associate chairman of the department. He received his dental and PhD degrees from Northwestern University, and his master's degree from the University of Illinois. He has authored and co-authored several text books.

Research continues to blossom at the School both in the biomedical and clinical disciplines. To accommodate the growth, new facilities are being created. National Institutes of Health has funded a $300,000 grant for Paul Schlesinger establishing the School as a multi-user center for individuals throughout the University interested in subcellular imaging. The grant provides for the installation of a quantitative laser imaging system allowing extremely sensitive quantitation of fluorescent probes. Schlesinger has also received NIH funding for research into acid vesicle biogenesis and regulation, and a study of endocytosis and phagosome acidification in mammalian phagocytes from AIDS and from normal controls.

Philip Osdoby, acting chairman of the Department of Biomedical Science, has received renewal of an NIH grant titled "The Cell Surface and Osteoclast Development," providing $460,000 in support.

Thomas Schiff, associate professor in the Department of Diagnostic Service and Samuel Holroyd, chairman of the Department of Periodontics, received a commercial grant for $75,000 to perform a study of dentifrice additives.
Rebecca German, assistant professor, was awarded a $60,000 grant continuing the study of "Oro-Facial Coordination During Feeding."

Robert James McCune, chairman of the Department of Restorative Dentistry, has negotiated a program with the School of Dentistry of the University of Manchester, England, providing for the exchange of several senior students of each school for a 10-week period annually. Transportation and living expenses will be supported by commercial grants. McCune continues to supervise four commercially sponsored research projects involving clinical studies of restorative materials.

The faculty continues to carry a heavy teaching load while finding the time to publish and assume responsible professional obligations. Samuel Holroyd completed the fourth edition of his "Clinical Pharmacology in Dental Practice," (C.V. Mosby), and was appointed chairman of the Council on Dental Therapeutics of the American Dental Association. Richard Brand, assistant dean for student services and director of admissions, was appointed secretary of the Student Affairs Section, American Association of Dental Schools. Marie Cuccia Liddy, director of recruitment and financial aid administrator, has been appointed a member of the Financial Advisory Committee and is chairman-elect of the Financial Aid Section of the AADS.

The School's dental clinics provided care through almost 50,000 appointments this year. Patients from Missouri and adjoining states are treated by students under faculty supervision with the latest techniques. Patricia Parsons, chairman of the Department of Pediatric Dentistry, provided examinations for 300 children in local day-care centers. She was awarded contracts through the Jefferson-Franklin and St. Charles County Headstart Programs, which provided complete dental care. Donald Huebener, professor of pediatric dentistry and director of the Division of Pediatric Dentistry at Children's Hospital, received a $10,000 grant from the hospital's Spoehrer Development Fund to provide equipment through which to expand treatment of children with special problems. Huebener has been notified by the National Foundation for Ectodermal Dysplasia that the Division of Pediatric Dentistry has been selected as the eventual site of a diagnostic and treatment center for children affected with the disease.

As the School enters its 123rd year, the essential academic trinity, students, alumni, faculty is healthy and intact.
During the 1987-88 academic year, the School of Engineering granted 256 bachelor of science degrees in eight different fields of engineering and applied science. These degrees were earned by 238 students who came from 42 states and seven foreign countries. Students from the St. Louis area constituted 34 percent of the graduating class. Women made up 15 percent and minorities, black, Spanish and Asian Americans, 13 percent.

Forty-eight students earned more than one degree. The most popular degree combination remains the computer engineering option, which requires a student to earn bachelor of science degrees in both computer science and electrical engineering. Fourteen students completed this rigorous program. Combined bachelor’s and master’s degrees were also popular, with eight students receiving BS and MS degrees and with nine receiving BS and MBA degrees.

At Washington University, electrical engineering continues to be the most popular field of engineering, as it is nationally. This year, 95 BSEE degrees were granted, down from 98 last year and from 106 two years ago. No major change in engineering enrollments, or in the distribution of students among the various engineering disciplines is foreseen for the next several years.

The School granted 107 master of science degrees, up from 98 the previous year and an all-time record. In addition, 16 master of construction management degrees and four master of structural design degrees were granted. Through its School of Technology and Information Management, the first master of engineering management degree and 27 master of data processing degrees were awarded.

At the doctoral level, 17 doctor of science degrees were granted, up from 16 the previous year. Over the past five years the School has granted 81 DSc degrees, of which 57 were earned by foreign students. Hence, over the past five years 70 percent of the Washington University engineering doctorates have been earned by foreign students. More than half of these students will remain permanently in the United States, entering both academic positions and industrial research positions. These figures illustrate the growing dependence of American technology on foreign talent.

The School of Technology and Information Management awarded 57 bachelor of science degrees in systems and data processing, 10 in the intensive data processing program, and five in industrial production management. The School also granted 32 bachelor of technology degrees, as well as 21 certificates, representing the equivalent of two years of study, in various engineering technology areas.

Successful Recruitment Year

Recruitment of new freshman students and Three-Two Program students for entry in fall 1988 was quite successful. The target range for new freshmen was 200-220. Anticipated enrollment is about 215. The Three-Two Program also had a successful recruiting year. With a target enrollment of 50 new students, it appears that about 55 students will actually be enrolled. These results are particularly gratifying considering the general decline nationally in interest in engineering on the part of college students.

The success of the School of Engineering in attracting students is, of course, related to the growing national recognition of the University for the academic excellence of its programs. This growing institutional reputation is critical to the School of Engineering in the coming years in which the population of college-age students is declining.

Cooperative Education Program

This past year, the School of Engineering submitted a successful proposal to the U.S. Department of Education for a grant to support the expansion of its cooperative education activities. The grant provides the School with funds to increase its administrative support of cooperative education with the intent of having a major increase in the number of students involved.

Susan Felps, formerly associate director of engineering admissions, has been named director of cooperative education, and a COOP office, temporarily located in Urbauer Hall, has been established. The cooperative education program will be an option open to students who have completed the first two years of their study. For those students entering the program, their remaining two years of study will be spread over three years, with semesters of academic work alternating with periods of work at cooperating companies. Upon graduation, the student will have the equivalent of one year of industrial experience. About 50 students will be involved in the program in the fall semester of 1988. The growth plan for the program anticipates about 250 participating students in about four years.
Faculty News

Four members of the engineering faculty received special honors during the 1987-88 academic year. Kevin Truman, assistant professor of civil engineering, received the University's Burlington Northern Award for excellence in undergraduate teaching. Milorad Dudukovic, professor of chemical engineering, received the Catalyst Award of the Chemical Manufacturers Association for excellence in chemical education. Bijoy Ghosh, associate professor of systems science, received the Eckman Award for his outstanding contributions to automatic control theory; and Jerome Cox, professor and chairman of computer science, was recognized at the Washington University Founders Day program for his many contributions to the University.

At the start of the 1987-88 academic year, the School had 75 regular full-time faculty members. During the academic year, a total of 10 new individuals were recruited to the faculty. These new appointments are offset by three resignations from the faculty during 1987-88, giving the School a net gain of seven. Additionally, two faculty members are presently appointed on a visiting basis, pending receipt of their permanent residency status from the U.S. Immigration Service. Hence the School starts the 1988-89 academic year with an effective faculty roster of 84.

The Five-Year Plan of the School provides for the faculty to increase to 93 by the start of the 1991-92 academic year. Anticipating six retirements and five resignations during this period, a total of 20 new appointments will have to be made in the next three academic years. This is an average of just under seven per year.

New Engineering Building

The new engineering building, Harold D. Jolley Hall, designed by architects Robert Entzeroth (of SMP-Smith Entzeroth) and Constantine Michaelides (dean of the Washington University School of Architecture) will have 54,000 square feet of gross space located on five floors and a basement. The building will be attached to the east end of Bryan Hall and will provide expansion space for the Departments of Computer Science, Electrical Engineering, and Mechanical Engineering. The anticipated cost of the building is about $8 million, of which approximately half will be provided by the bequest of Harold Jolley, a civil engineering graduate of the class of 1911. Construction should be starting in late summer 1988, with occupancy in January 1990.

Jolley Hall is a key component of the School's Five-Year Growth Plan, as is the expansion of the faculty. The School's plan, which was approved by the Washington University Board of Trustees in spring 1987, has been presented to the School of Engineering National Council, under the chairmanship of Trustee George Pake. The National Council, which has fall and spring meetings each year, will review progress of the School toward the goals set by the plan and will help in planning strategies to achieve the goals.

The incremental costs of implementing the Five-Year Growth Plan amount to about $20 million over the five-year period, including construction costs, new endowments, expenditures for new equipment, and start-up costs associated with new research initiatives. As of July 1, 1988, the School has received about $13 million of the required money and will be seeking the remaining funds over the next several years. It will look to corporations, foundations, alumni, and special friends of the School for assistance with this important project.

James M. McKelvey
Dean
School of Engineering and Applied Science
The decline has been gradual and the pattern constant. Undergraduate enrollment for fall 1987-88 rose sharply to 270 and current projections for fall 1988-89 are that 280 undergraduates will be enrolled in the BFA degree program at the School.

The numbers of students enrolled contributes directly to the School's fiscal well-being and to its educational mission as well. Given current physical capacity, and the faculty mandate regarding the School's educational mission, the upward population swing is having a very positive impact. The ideal size would be 325 undergraduates and 40 graduate students (38 graduate students are projected for 1988-89).

Most importantly, the School is consistently attracting high-calibre students with both excellent academic and artistic skills. This across-the-board student profile is unique and provides the faculty with a wonderful challenge to address the highest educational standards. These are gifted and highly motivated students, and they are all extraordinary for the proven track record in academics and for their enormous artistic potential.

In our efforts for effective recruitment results, two new strategies are in place at the School. An independent film producer under contract to the School during the spring semester scripted, directed, and produced a 12-minute film that captures the unique spirit of the School. Students leave the School with not only the skills of their craft, but also with the ability to problem-solve creatively complex issues. These are the leaders of the future, and this film will communicate—in videocassette form mailed to prospective students—our special combination of a professional education in art and the outstanding academic curriculum at Washington University.

During June, 19 high school students (about to enter their senior year) were on campus working with faculty and staff to experience an intensive study of photography and design for their career potential as well as for personal, creative expression. This program, called Explore, requires the participants' commitment to discovering the possibilities of survival as an artist/designer in today's world and the implications of expanding technologies for future artistic contributions.

It is not unusual for Washington University student artists and faculty to embark on field trips. Students in photography traveled as far away from Bixby Hall as New Orleans and San Antonio this past year looking for "photo opportunities." Sculptors traveled en masse to Vincennes, Indiana, to install an exhibition of their art and to confer with counterparts from other regional institutions and to Memphis, Tennessee, to participate in the Mid-America College Art Association (MACAA) conference. Chicago and New York City were the focus of field trips by graphic designers and advertising designers, respectively. An art contingency of 17 fashion designers from the School invaded Paris last December to participate, by invitation, in a first international competition among fashion design students. Leader of the expedition, Associate Professor Jeigh Singleton, remarked that "we didn't win the competition, but the experience was fantastic and I was proud that our designers' work compared strikingly to most." Participation in this dynamic opportunity is just one indication of Singleton's leadership that brings new vigor and excitement to the fine tradition of fashion design at the School.

Faculty

This year's Louis D. Beaumont Distinguished Visiting Professor of Art was Michael Hall, who is the sculptor in residence at Cranbrook Academy of Art. As one critic remarked "Michael Hall can challenge everything you think you know about sculpture, about art, and leave you feeling that there are worlds of thought on art you haven't yet explored." Students, faculty, and viewers of Hall's show at the St. Louis Gallery of Contemporary Art would most likely concur. The installation, "Reasoned to Believe," was put together with the assistance of our students. The exhibit also provided the opportunity for the School to collaborate with an outside gallery in reaching out to the community.

Faculty members Joan Hall, Peter Marcus, and Bill Kohn, former faculty Kim Strommen and Wiktor Szostalo, and alumni Scott Brandt, Carol Carter, Jane Sauer, Steven Teczar, and John-Paul Wolf were among the artists who exhibited work in "St. Louis
Contemporary Works: An International Exchange" in St. Louis' sister city, Suwa, Japan. The exhibit will also travel to China, Italy, Ireland, France, and Germany.

Other faculty highlights include James McGarrell's painting, "Crossing Move," which is part of the Metropolitan Museum of Art's collection being displayed in the newly opened 20th Century wing; Herb Weitman received the Grand Gold medal award in the "Photographer of the Decade" competition sponsored by CASE (the Council for Advancement and Support of Education); William Kohn received the Distinguished Faculty Award from Washington University; and William Quinn just completed 30 years of teaching at the School.

**Annual Fund**

Gifts to the School of Fine Arts Annual Fund topped the $100,000 mark for the third year in a row. Membership in the William Greenleaf Eliot Society is at an all-time high as more friends and alumni recognize the importance of supporting the School. Alumni participation reached the highest level in the history of the School's Annual Fund. A number of additional Annual Fund Scholarships were made available to students through the generous gifts of our friends. Prize funds were established in both the photography and graphics programs. These cash prizes are awarded to students who exhibit outstanding abilities in these areas.

A unique program was initiated within the School's Contract Print Workshop which allows donors to the Workshop to add their personal print collection and at the same time provide financial assistance to the workshop. Donors receive three prints from the collection, membership in the Eliot Society and an invitation to observe the collaboration between a visiting artist and the master printer.

**Roger I. DesRosiers**

Dean
School of Fine Arts

*Left the School of Fine Arts Sept. 1, 1988 to become president of the Cleveland Institute of Art. Acting Dean for the School is James Davis, professor of political science.
The retirement of Gray Dorsey and Hodge O'Neal, together with existing vacancies, made the search for new faculty members of paramount concern. We have been extraordinarily successful in that effort. Three new faculty members and three visitors will be joining us this fall.

The faculty has been active on many fronts during the year. Merit and Joan Bernstein's book, Social Security: The System That Works, has been widely reviewed in the national media. Dan Mandelker lectured extensively in Yugoslavia, Israel and London this year and published a revised edition of his highly regarded book, Street Graphics and the Law. Charles McMains was the only American law professor selected to participate in an international conference on the teaching of intellectual property law in Beijing; Ron Levin lectured to new federal judges at the Federal Judicial Institute in Washington; Mike Greenfield spoke to the National Association of Attorneys General; and Kathy Brickey delivered a paper at the ALI national conference celebrating the 40th anniversary of the Model Penal Code. Susan Appleton, Kathy Brickey and Bob Thompson were all elected to membership in the American Law Institute, and F. Hodge O'Neal was inducted into the LSU Hall of Fame.

Special issues of the Washington University Law Quarterly honored our retiring faculty. An international Festschrift for Gray Dorsey, initiated by his students, was published in June, and a corporate law symposium in recognition of the scholarly work of F. Hodge O'Neal is forthcoming in the fall.

Students

The student body continues to grow in quality and diversity. They possess, on average, better academic credentials than their predecessors. The 1987 entering class also included the largest number of women, the largest number of minority students and the largest number of black students in the history of the School.

Student teams continue to excel in interscholastic competitions. Washington University law students qualified for national competitions in New York City and Toronto. The Mock Trial team also advanced to the National Trial Competition.

Washington University law students competed successfully in the quest for employment. A record 168 employers interviewed at the School of Law. As of February, 93 percent of the 1987 graduates had obtained legal employment, of whom 15 percent held judicial clerkships.

Administration

A number of changes have transpired in the law school administration. Suzanne Prosser, formerly registrar for Fontbonne College, became registrar for the School in February. Assistant Dean Susan Sullivan brought increased visibility to the School by serving as president of the National Association for Law Placement. She will now become assistant dean for external affairs, with expanded responsibilities for alumni relations. Sue Ghidina, formerly associate director of placement and admissions, will become director of career services. Annette Pedersen, assistant dean for the last six years, resigned to become assistant to the president of St. Cloud State University in Minnesota.

Conferences and Lectures

The law school hosted a number of conferences, panel discussions and lectures during the year. A constitutional bicentennial conference, co-hosted with the Center for Judicial Studies, was held in September 1987 and a National Planning Law Conference, co-sponsored with the American Planning Association was held in December. A spirited panel featuring University Professor Tom Eagleton discussed the pros and cons of the nomination of Robert Bork to the Supreme Court in the fall. Judge Thijmen Koopmans of the European Court of Justice, William Bradford Reynolds, associate attorney general of the United States, Peter Stein, regius professor of Civil Law at Cambridge University, and William Brock, professor emeritus at the University of Glasgow were among a number of distinguished lecturers and visitors at the law school this year.

Members of the judiciary from throughout the nation have participated in activities at the School. Judges for the fall Wiley Rutledge Moot Court competition were Walter Cummings of the United States Court of Appeals for the Seventh Circuit, Warren Beatty of the United States District Court for the Southern District of Illinois, and Joseph Cunningham, LW '52, of the Illinois Supreme Court. In the spring, the panel included Judge Jon Newman of the United States Court of Appeals for the Second Circuit, and Judge Andrew Jackson Higgins, LW '48, of the Missouri Supreme Court, as well as Alan C. Kohn, LW '55. Howard Markey, Chief

**Asian Legal Studies**

Under the leadership of Professor William Jones, the School of Law is moving into the forefront of the area of Asian law and legal institutions. In June, Mei Mei Fu became the first student from the People's Republic of China to receive a JD from the School. This fall, the School of Law will initiate a joint degree program with the East Asian Studies Program of Washington University.

**Alumni**

In my first year, I have made a special effort to become acquainted with graduates of the School, especially those residing outside St. Louis. We held gatherings in Chicago, Philadelphia, New York, San Francisco, Washington, D.C., Jefferson City, Mo., Belleville, Ill., Miami, and Kansas City.

Distinguished Alumni Awards were awarded to Lon Hocker, LW '34, and Edith Spink, LW '45, at the Annual Alumni Dinner. Although Phoebe Couzins, LW '1871, was the first woman to graduate from an American law school, not until this year did we recognize the achievements of our woman graduates by honoring a woman with a Distinguished Alumni Award. Another of our outstanding graduates, Jean Hamilton, LW '71, became the first woman to be elected to Honorary Membership in the Order of the Coif by the Washington University chapter.

To recognize the importance of exceptional teaching, the Law Alumni Association established an Alumni Distinguished Teacher Award, to be conferred no more than once in every three years upon a tenured member of the faculty who has been at the University for 10 years or more. The first award was presented to Professor David Becker by Law Alumni Association President Larry Brody, LW '67, at the School of Law commencement in May.

Alumni and friends of the School have continued to give generously in support of our programs and aspirations. Thanks to the leadership of Tom Lownther, LW '62, and the members of his committee, we had a record number of new members join the Eliot Society this year. Dick Hetlage, LW '50, and his Scholars-in-Law Committee also did an outstanding job in increasing the number of Scholars-in-Law awards funded.

The class gifts by the 25th and 50th-year reunion classes set records. The class of 1938 donated $42,429 to the School, the largest amount raised in a single year since reunion projects were begun. We are grateful to Harry Deckert, 50th Class chairman for his leadership and members of the Class for their generosity. The Class of 1963 donated and pledged a total of $60,000 over a five-year period to establish a Judge-in-Residence Program at the School. Their gift constituted the largest amount given and pledged by any reunion class. Chairman Harold Goodman, Co-Chairman Alan Popkin, members of the Steering Committee and the entire membership of the Class of 1963 did a superb job. The Reunion Weekend was a sterling success thanks to the efforts of Bert Tremayne, LW '38, chairman of the Reunion Weekend for the law school and Fred Kuhlmann, LW '38, chairman for the University.

We established a National Council, chaired by William Van Cleve, LW '53, to advise the School on such matters as long-range planning, financial strength of the School and the relation of finances to aspirations, adequacy of physical facilities, student recruitment, fund raising goals and the prospects for achieving the goals, and relations to the community and community outreach. Initial appointments have been made, and the Council will hold its organizational meeting in October.

**Dorsey D. Ellis, Jr.**

Dean
School of Law
Approximately four out of every five of our medical students receive some financial aid. Therefore, for many students, tuition, room and board become a long-term debt that follows them into their medical careers. In some cases the large debt discourages students from pursuing lower-paying specialties or, worse yet, the prospect of such indebtedness discourages students from even selecting medicine as a career.

Traditionally, our School’s tuition has been well below the average of the other 51 private U.S. medical schools: this past year our fee ranked 39th. In 1986-87, we increased our tuition only three percent; for 1987-88, there was no increase at all.

As some of you have already heard, the Executive Faculty this year recommended a tuition reduction for 1988-89. Now approved by the Board of Trustees, next year’s tuition will be reduced five percent to $13,400. I am delighted with the Executive Faculty’s recommendation and hope it will help our students better manage the financial burdens of medical education.

Faculty News
Carl Frieden, professor and interim head of the Department of Biological Chemistry, was elected to the prestigious National Academy of Sciences this year. Frieden is best known for his research on the relationship between protein structures and function, and spent much time recently describing the kinetic properties of proteins that act as catalysts. He also studies actin—an important protein found in all cells of the body—and its relation to certain cellular functions.

Samuel A. Wells, Bixby Professor and head of the Department of Surgery, was elected to the National Academy of Sciences’ Institute of Medicine. As a member of the Institute, Wells will occasionally be called upon to help examine policy issues and advise members, branches and committees of the federal government.

I am greatly pleased to report that Henry J. Kaplan has joined us as the new head of the Department of Ophthalmology. Bernard Becker, who retired as department head, will continue teaching and conducting research at the School of Medicine.

Henry Kaplan had been the director of research in the ophthalmology department at Emory University School of Medicine. He has done extensive research into the development, control and consequences of inflammation within the eye, and is now concentrating his efforts on how viral infections, especially AIDS, affect the tissues of the eye. His expertise in immunology dovetails nicely with existing strengths in the department and will enable him to make interdepartmental contributions to a field of research that has become one of this School’s strengths.

Research
A recent grant of $12.1 million from the Lucille P. Markey Charitable Trust has enabled us to establish the Markey Center for Research on the Molecular Biology of Human Disease. This generous grant will have an enormous impact on Washington University. Through it, we plan to support specific areas of collaborative, interdisciplinary research in an expansive and broad-based manner. Five areas of concentration have been designated for the new center: molecular basis of the immune response, structure and function of animal cells, molecular pharmacology, molecular genetics, and protein structure and function. More than 50 senior investigators representing almost half of the School’s 17 departments already direct laboratories within these five specialty areas.

Four funding priorities have been established as a means for the center to support research within those areas. The first is a competitive research grants program. A committee composed of several of our senior scientists will review proposals from the faculty and determine the extent to which the center should fund their research.

Other funding priorities include recruiting new faculty members, supporting core research facilities, and purchasing or supporting special devices and instrumentation.

Our medical school has several faculty members whose work has done much to advance the study of genetics and, more recently, the deciphering of the human genome. That work has been recognized, rewarded and further seeded through a $1.8 million grant from the James S. McDonnell Foundation. Through this grant, the foundation established the Washington University Center for Genetics in Medicine. The center will become a new focus for research on human genetics, and will serve as an important international resource in efforts at mapping the human genome. It will include two units: a core facility focusing on state-of-the-art cloning and mapping techniques, and a facility devoted to developing technological improvements in special molecular biology problems related to genetics. The center will also store what we hope will become an elaborate “library” of cloned DNA, and will be calling upon the University’s computer science department to develop software for handling massive amounts of data generated by sequential analysis of DNA.
In addition to many notable gifts and grants from foundations and trusts, our faculty continues to compete well for funding from the National Institutes of Health and other governmental sources. The National Institute of Allergy and Infectious Diseases this year granted our application to become an AIDS Clinical Studies Group. As such, we will receive $5.5 million over five years to develop better AIDS treatment methods, conduct basic and clinical research, and improve public and physician education. At least 20 Washington University physicians and researchers will participate in the study group.

NIH has also provided the School with another Program Project Grant, this one for $900,000 over five years to John A. McDonald. McDonald and his research team are trying to determine the mechanisms by which a variety of growth factor-like substances increase selective protein production in lung tissue. Their work impacts on a variety of serious illnesses including pulmonary fibrosis and adult respiratory distress syndrome.

Total government support was $80 million for the 1987-88 fiscal year, topping last year’s total by several million. Our school this year received 409 NIH grants and contracts. The fact that we continue to improve our status in competitive grants received each year is a credit to our fine faculty. Their combined character and strengths uphold the traditions and guarantee the future of our school.

**Students**

Our ratio of applicants per spot in the 120-member 1987-88 entering class was nearly 30:1. While that ratio is certainly large enough to ensure the privilege of selecting and admitting only the finest students, we continue to observe with concern the shrinking pool of medical school applicants. Competition for the best, brightest and most well-rounded students has become quite keen.

Again this year I have the pleasure to report that the ranks and reputation of our joint MD/PhD program continue to rise. Over the last three years our enrollment has risen from 92 to 100 to 116 students (as of June ‘88). We announced last year the Spencer T. and Ann W. Olin Foundation gift of $30 million to support MD/PhD fellows, and it was especially pleasant this year to see that gift begin to come to fruition as the first 12 fellows were selected. Beginning this year, a new two-year, fully funded post-graduate research experience will be available to all MSTP graduates so that they may continue to hone skills and interests in basic or clinical research.

The Division of Biology and Biomedical Sciences, with a total of 201 enrollees, had nearly 20 more students this year. Enrollments in the Physical Therapy Program rose from 109 to 119. The Occupational Therapy Program had 58 students this year and the Health Administration Program had 64.

During graduation ceremonies in May, the MD degree was conferred upon 124 new physicians. Their plans to seek and select post-graduate clinical training closely paralleled those of past graduates, according to Match Day results. One-third of the graduates have chosen to continue their clinical education in St. Louis, one-fourth of them chose Washington University Medical Center hospitals.

**Gifts and Alumni Support**

The generosity of our benefactors continues to be as gratifying as it is appreciated. Raymond H. Wittcoff, a member of the Board of Trustees, has through a $1 million gift established an endowed professorship in biological chemistry. Wittcoff is president of Transurban Redevelopment Corporation.

The Norman J. Stupp Chair in Neurology has been established with a $1 million endowment from the Norman J. Stupp Foundation. Previous contributions from the foundation have greatly helped our Alzheimer’s Disease Research Center and this new chair will support further research related to cognitive disorders.

We are also thankful to Mr. and Mrs. Allen Portnoy. Through a $1 million commitment they have established the Saretta and Allen Portnoy Coronary Artery Disease Research Unit. The commitment was made in honor of Alan N. Weiss, associate professor of medicine.

Total gifts to the School of Medicine from all sources for fiscal year ‘88 exceeded $24 million. Such remarkable support is absolutely necessary if we are to continue to maintain high-quality research and teaching, recruit and retain the most talented faculty and students, and continue to improve our physical plant and environment through such additions as the new seven-story library and bio-medical communications center. Our alumni have again been extremely generous: they contributed $490,994 of this year’s $766,769 Annual Fund with almost 42 percent of MD alumni contributing.

Thank you all for your continuing support of the Washington University School of Medicine.

**M. Kenton King**
Dean
School of Medicine
For the George Warren Brown School of Social Work, the 1987-88 academic year represented a continuation of ongoing program activities as well as the initiation of steps that will better interpret its mission to the larger community.

Following an exhaustive review by a team of four prominent social work educators who examined every aspect of GWB's MSW program, the Council on Social Work Education reaffirmed our accreditation for the next seven years. It was gratifying to read the highly complimentary report about the School by nationally recognized experts.

**Students and Alumni**

Thirty states and 14 countries were represented in the 275 students enrolled in the MSW program last fall. Minority students constituted 16 percent and international students nine percent of the total student population. As in the past, four out of five students were women. The trend toward part-time studies continued, with 38 percent of the students enrolling on a part-time basis. The placement record of the 96 students who received the MSW degree was excellent.

The Alumni Association published its first Alumni Network Directory. More than 600 alumni from 48 states and 14 countries participated in the network in 1987. Alumni support reached new heights both in terms of the amount of alumni donations and the percentage of alumni making contributions. An impressive 70 percent of the graduating class participated in the class gift-giving project. George Eberle, Jr., MSW '58, president of Consolidated Neighborhood Services, Inc. in St. Louis was the recipient of the Alumni Association's Outstanding Alumni Award.

**New Scholarships**

The establishment of five new scholarships for students intending to practice social work in health care settings was made possible by a bequest of more than $400,000 from the estate of Myrtle Blanck Larson, who attended GWB during the 1930s. This substantial bequest will make it possible for GWB to continue the tradition of educating superior practitioners in this increasingly important field of service.

**Faculty**

After serving the School for nearly ten years, Helen Graber, assistant dean for field education, resigned to accept a similar post at the Columbia University School of Social Work in New York. Therese Dent has been appointed the new head of GWB's field instruction program. She brings with her a wealth of experience in clinical social work practice as well as in social policy analysis.

The faculty continued their customary involvement in scholarly and research activities. The Ford Foundation provided grant funds to Associate Professor Michael Sherraden to study the performance of national service policy and programs in China, Costa Rica, and Israel. David Cronin, assistant dean, directed two training grants from the Office of Human Development Services of the Department of Health and Human Services to train and upgrade the staff of the Missouri Division of Family Services. Martha N. Ozawa, Bettie Bofinger Brown Professor of Social Policy, and Nancy R. Vosler, assistant professor, began their study of the Opportunity System of the Consolidated Neighborhood Services, Inc., and the Learnfare/Welfare-to-Work project initiated by Governor John Ashcroft of Missouri. Enola Proctor, associate professor, and Nancy Morrow-Howell, assistant professor, completed their research studies on effective discharge planning under the Medicare Prospective Payment System. Their research was supported by the AARP Andrus Foundation and the National Center for Health Services Research. Wendy Auslander, assistant professor, is continuing her study of the family coping patterns and resources of diabetic children. Her research is supported by a grant from the National Institute of Health to the Washington University Diabetes Research and Training Center.

**External Relations**

Under the Barbara Bailey Program on International Social Welfare established two years ago, GWB hosted in November 1987, a conference to discuss common issues of aging populations in Japan and in the United States. Titled "Planning for an Aging Society: U.S./Japan Comparison," the conference featured speakers from both the United States and Japan in the fields of social work, law, political science, psychology and sociology.

While inquiry and instruction remain the twin preoccupations of the School,
communication with significant external constituencies has become a key ingredient of our strategy for future growth. Even more than other academic units, a school of social work must forge a close nexus with the community. To a remarkable extent we already enjoy the cooperation of the social service agencies. The faculty have decided, however, to go beyond traditional modes of collaboration. Thus, the School devised a mechanism under which each concentration and specialization in the MSW curriculum now has an advisory committee comprising faculty, agency executives, practicum instructors, and other leaders in the field. Each of these advisory committees has held several productive meetings; the advice, suggestions, and feedback from the practice community have been welcomed by faculty and are used to enrich and refine our curriculum.

For several years the School has attempted to strengthen its relationship with the human services departments in the state. Visits to GWB and meetings with faculty last year by Michael Reagen, director of Missouri Department of Social Services, Keith Schafer, director, Missouri Department of Mental Health Services, and William F. Siedhoff, deputy director for field operations of the Missouri Department of Social Services, have paved the way for a more frequent and closer interaction between the faculty and the human services departments in the state.

**National Council**

One of the most significant events this year was the formation of the Social Work National Council. Under the sagacious leadership of Edwin S. Jones, the Social Work National Council, composed of 18 highly respected civic leaders, businessmen, volunteers, and social work executives, held two well-attended meetings. Quickly appreciating the challenges before GWB, the National Council will focus its attention next year on the marketing needs of the School, with special reference to student recruitment and corporate and community relations.

**ALLIANCE FOR WASHINGTON UNIVERSITY**

A review of the impact of the ALLIANCE FOR WASHINGTON UNIVERSITY campaign on GWB suggests a number of conclusions: (1) the gap created by the drastic cutbacks in federal training grants, the traditional source of financial aid to social work students, has not been filled by alternative sources of assistance; (2) in the absence of significant additional resources, GWB will find it difficult to remain at the forefront of social work education; (3) while alumni have been generous with their donations, GWB must also discover and cultivate new sources of financial support; and (4) frugality and fiscal prudence must remain a habitual mode of operation rather than a concession to some short-lived financial exigency.

As one reflects on the conditions of the most needy and vulnerable members of our society, one begins to appreciate the critical role social services play in mitigating human misery, in providing care and succor to fellow human beings, and in improving the quality of human relations. One of the tasks facing the School is to effectively persuade people of good will that support for high quality training of human services personnel is crucial for the delivery of high quality human services. The formation of the Social Work National Council and the sensitivity with which its members have grasped the challenge confronting GWB lead me to believe that a significant initial step has been taken to communicate our story to an important and influential segment of the St. Louis community.

Shanti K. Khinduka
Dean
George Warren Brown School of Social Work
A n accelerated emphasis on improving services and establishing new vehicles for delivery of information characterized the major activities of the University Libraries during the 1987-88 academic year.

Planning for the Future
It was exciting throughout the year to watch the University Libraries National Council become a reality. After two productive meetings it is apparent that we have assembled a distinguished and capable group of nationally recognized individuals to help the Libraries prepare to meet the needs of a major research university as it approaches the 21st century.

Toward this end, the Libraries undertook two significant studies. The first study is a comprehensive year-long collection assessment project which helps identify our collection’s strengths. This project was part of a national cooperative effort called the North American Collections Inventory Project. NCIP has as its goals the development of an online record of research collections which assists scholars in locating materials to support their research, and the formation of an organized coordinated management of national research collections to help determine shared responsibilities for their maintenance. The current relevance of the project to the University community, however, is the evaluation of the collections we hold in approximately 40 subject categories. This will serve as an essential tool and foundation for sound collection development planning in the future.

The second study is a thorough review of space needs and physical expansion opportunities. The resulting report from this study combines a detailed analysis of the existing space limitations facing Olin Library and the departmental libraries, as well as a summary of the issues that need to be resolved before planning can begin. Presently, the central libraries house approximately 1.5 million volumes and 10,000 journals, plus millions of units of microform, maps, audiovisual materials, and manuscripts. These collections are fast outgrowing the Libraries’ functional space capacity. Through this study we will be properly prepared for growth for years to come.

Grants/Gifts
Preservation efforts at Washington University have received a very valuable boost by a grant from the Burlington Northern Foundation. The $200,000 grant covers a three-year period and is being used for 1) preventative preservation; 2) restoration of selected materials; 3) replacement of brittle books in original or alternative formats; 4) staff development for preservation and general patron/staff education of proper care and handling procedures; and 5) equipment and supplies. The need for preservation efforts cannot be overstated. Thanks to the Burlington Northern Foundation, the Libraries are addressing this problem with the proper techniques, equipment, and education.

Two additional organizations have recognized the Washington University Libraries’ contributions over the past year with the awarding of grants. The East Asian collection was again enhanced by a grant from the Japan Foundation. The Bookmark Society, the University Libraries’ literary and support group, received a grant from the Missouri Humanities Council, the state arm of the National Endowment for the Humanities, for its programs. The value of our collections has also been recognized and further distinguished through individual gifts from friends and donors. This year the music, Russian, urban studies, and audio-visual collections were strengthened. In addition, the University Archives received a special gift last fall when a historically significant document establishing the corporate charter date of Washington University was discovered amid old accounting files. The letter was from State Senator Wayman Crow to William Greenleaf Eliot, written from the Missouri State Chambers in Jefferson City and dated February 2, 1853. This exciting discovery is important to the history of our institution and serves as a good example for the need to restore, preserve and make available documents for future research.

Services/Bibliographic Improvements
Important steps were taken during the fall and spring semesters to enhance existing services and to institute new ones to support the ever-expanding interests of the student and faculty bodies. Technology has emerged in many forms and has provided the Libraries with valuable aid in the collection and dissemination of information. One such technological advancement growing in popularity is the CD-ROM (compact disc-read only memory). Thanks to the new database services now available on CD-ROM, indexes such as the MLA International Bibliography and the Humanities Index can now be searched in electronic format, greatly accelerating the time it takes for the citation-gathering process. The burgeoning interdisciplinary relationships between various hilltop departments and the School of Medicine have made necessary the ability to access each other’s bibliographic records. This has been accomplished through the installation in Olin of BACS, the medical library’s computer catalog; likewise, the medical
campus is now linked to LUIS (Library Users Information Services), the computer catalog for the hilltop libraries. As part of our expanded access plan, most of the departmental libraries received additional LUIS terminals this year.

LUIS was enhanced last year to provide an additional searching capability that allows researchers to "browse" the online catalog, much the same way one would browse the shelves. Called Library of Congress call number searching, the enhancement permits users to search LUIS by Library of Congress subject categories, thus improving a patron’s intellectual access to holdings records and saving time by remaining in one location while tracking materials scattered throughout the libraries on campus.

Behind the scenes, we are using technology to improve many of the processes involved in getting the materials on the shelves. A good example is the circulation automation and barcoding system, installed a year ago. The latest statistics indicate that more than 50 percent of monthly transactions involve barcoded items, which means patrons are now receiving faster service. A special computer, called an OCLC-CJK (Online Computer Library Center-Chinese, Japanese, Korean), will also make an impact in the cataloging and loaning of materials published in these languages.

While technology is showing us new ways of assisting users in locating materials, we remain committed to giving our patrons the most fundamental service we can provide for them—a talented and enthusiastic staff. We are especially proud of our staff members, Holly Hall and Julie E. Arnott. Arnott, conservation librarian, currently is serving an internship at Yale University to study preservation techniques. Hall, head of special collections, is the recipient of a Fulbright Fellowship. She will spend several months next year at the University of Reading, England, to assist with the cataloging of the Samuel Beckett Collection. Another noteworthy achievement is the election of Nicholas C. Bruckel, Director of Public Services and Collection Development, to the Council of the Society of American Archivists.

Realizing that the vital role of human interaction was missing at a critical point—the entrance of the five-story Olin Library—an information desk was placed in the lobby last September. That the information desk is providing a needed service is borne out by these statistics: staff at the desk assisted 17,678 patrons in the 1987-88 academic year. Combined with the user statistics compiled in General Reference Services, which helped almost 37,000 patrons during the year, more than 50,000 patrons (nearly 1,000 a week) received assistance from our staff just at these two service points.

**Special Events/Special Opportunities**

The Bookmark Society's fourth season of literary activities concluded on April 24 with a special program that paid tribute to the University’s outstanding semiology collection and to the man responsible for its creation and instrumental in its ongoing development, Philip M. Arnold. Other Bookmark Society-sponsored activities this year included an examination of the art of book collecting, a reading by Author Glenn Savan, and the third annual film/discussion series which centered on the Constitution and its effect on individual liberties.

The University Libraries had the pleasure of sponsoring the first annual Carl Neureuther Student Book Collection Competition. On April 8, Chancellor Danforth presented the first- and second-place awards to the winners in the undergraduate and graduate categories at a reception held in their honor. We are grateful to Mr. Neureuther for the opportunity to reward students for developing good reading and book-collecting habits.

The final and perhaps most meaningful special activity was the formation of the Library Eliot Society. At a reception for prospective members held at the home of Mrs. Kenneth Kranzberg, chairperson of the Library Eliot Society, we made many new friends and are optimistic that the current support level for the University Libraries can be increased.

**Facing the Future**

Of the many challenges facing the University Libraries, none affects us more than the continued increase in the cost of books and journals. The rising prices in journal subscriptions pose a significant concern to scholarship, for these materials take the lion's share of the acquisitions budget. The devaluation of the dollar, inflation rate, and unfair pricing practices among foreign publishers are factors that could raise the average cost of buying a serial subscription by as much as 18 percent next year. Despite these challenges, we have been able to lift a two-year spending moratorium for new subscriptions during the last fiscal year. We have been able to order 450 new subscriptions during the last fiscal year.

The past year's achievements have been significant. I am delighted with the progress that has been made. We thank all of our supporters who are helping the University Libraries reach full potential. With their help, the University Libraries will be ready for the 21st century.

**Bernard D. Reams, Jr.**

Acting Dean
University Libraries
Financial Condition of the University

The University ended fiscal year 1988 with income in excess of expenditures. The income increased 9.8 percent over the preceding year, with the largest percentage increases being from current funds investment income, private gifts, grants and contracts, government grants and contracts, and endowment income.

Below is a brief analysis of total income and expenditures, operations of separate fiscal units, and University assets and investments.

Total Income and Expenditures

Income
The University has four major sources of support for activities represented by its expenditures. These are:

Operating Revenue
Total operating income, primarily from payments by those who benefited directly from the University’s operation, amounted to $305,527,000. Student tuition and fees accounted for $92,644,000. Patient and laboratory fees for medical services provided by faculty and staff amounted to $85,888,000. Income from organized patient-care activities, such as the Edward Mallinckrodt Institute of Radiology, was $58,557,000. The auxiliary enterprises, including residence halls, food service, and bookstores, had income of $22,859,000. Sales and services of educational activities amounted to $21,730,000. Current funds investment income was $11,230,000, while other miscellaneous operating income totaled $12,619,000.

Government Grants and Contracts
A large portion of the research done by the University is sponsored by grants and contracts from governmental agencies, mostly federal, for specific sponsored projects. Total income from governmental sources expended in fiscal year 1988 was $100,561,000, an increase of $11,876,000 over fiscal year 1987. Scholarships and traineeships accounted for $7,756,000 of the total and $534,000 of the increase. In addition, 90 percent of the total $3,463,000 student loan funds issued under the Perkins and Health Professions Loan Programs was funded by the federal government.

Private Gifts, Grants, and Contracts
Washington University received a total of $50,623,000 in gifts and grants from private sources for various purposes. Major sources include alumni, individuals, business corporations, and foundations. The charts below present a breakdown of the total gifts, grants, and bequests received by source and purpose. The total $50,623,000 was divided as follows: $29,768,000 for operating purposes which includes $2,573,000 in unrestricted gifts and $27,195,000 for sponsored research, other sponsored programs, and scholarships; $13,936,000 for endowment; $6,670,000 for plant including gifts in kind; and $249,000 for student loans. In the charts, $954,000 in scholarships is combined with $249,000 in loans for total student aid of $1,203,000.

In addition to these private gift sources, the University also receives funds through private contracts for sponsored projects. In fiscal year 1988 these contracts amounted to $14,036,000 which, when added to the $27,195,000 referred to above, brings the total for sponsored programs to $41,231,000. Of this total, $6,931,000 is being held for future expenses on sponsored programs. The remaining $34,300,000 was expended for current operations in fiscal year 1988 and, combined with the $2,573,000 in unrestricted gifts, brings the total private gift, grant and contract income utilized for operating purposes to $36,873,000. The 10-year chart on the next page reflects a large bequest in 1981.

Private Gifts, Grants and Bequests Received—$50,623 (Thousands of Dollars)

<table>
<thead>
<tr>
<th>Source</th>
<th>Amount (Thousands of Dollars)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Agencies and Groups</td>
<td>$5,002</td>
</tr>
<tr>
<td>Alumni</td>
<td>14,717</td>
</tr>
<tr>
<td>Individuals</td>
<td>7,000</td>
</tr>
<tr>
<td>Business Corporations</td>
<td>9,593</td>
</tr>
<tr>
<td>Trusts and Foundations</td>
<td>14,311</td>
</tr>
</tbody>
</table>

Purpose

<table>
<thead>
<tr>
<th>Purpose</th>
<th>Amount (Thousands of Dollars)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Student Aid</td>
<td>$1,203</td>
</tr>
<tr>
<td>Current Unrestricted</td>
<td>2,573</td>
</tr>
<tr>
<td>Sponsored Research and Other</td>
<td>26,241</td>
</tr>
<tr>
<td>Plant</td>
<td>6,670</td>
</tr>
<tr>
<td>Endowment</td>
<td>13,936</td>
</tr>
</tbody>
</table>

52% 28% 13% 5% 2% 10% 29% 14% 19% 28% 10%
Endowment
The investment of endowed funds resulted in $33,263,000 of income used to support operating expenditures.

Expenditures
The total operating expenditures of Washington University in fiscal year 1988 amounted to $443,723,000. In 1987 this figure was $395,694,000. Approximately 47 percent of the increased expenditures was attributable to instruction and student aid. Research, primarily supported by outside agencies, accounted for another 19 percent; and another 10 percent was attributable to academic support.

Included in operating expenditures is student aid (scholarships, fellowships, and stipends) amounting to $35,656,000 from University income and from governmental and private sources, but excluding College Work Study and the State of Missouri Student Grant Program. The summary on page 30 reflects undergraduate financial aid for the past three years.

Student loans and capital expenditures for buildings are not expended from current funds—their sources are separate fund categories. All student loans issued during fiscal year 1988 totaled $4,488,000, compared with $4,819,000 in the prior year. Net capital expenditures for buildings were $17,397,000. Investments in all physical facilities, including buildings, land, equipment, and library acquisitions, increased $39,551,000.

Operation of Separate Fiscal Units
The Trustees of the University have adopted a policy requiring each of the schools to operate as a distinct fiscal unit. Under the policy, which is called the "reserve school system," each of the units is responsible for supporting its operating expenditures with its income,

Ten-Year Comparisons
Millions of Dollars
Operating Income by Source

Revenue from Tuition and Services

Endowment Resources Appropriated for Operating Purposes

Annual Expenditures
Total Operating Expenditures

Income Expended from Government Grants and Contracts

Operating Income From Private Gifts, Grants, Contracts, and Bequests
### Summary of Current Funds Revenues, Expenditures, Transfers and Changes in General Reserves for Separate Fiscal Units of the University for Fiscal Year 1988

**Thousands of Dollars**

<table>
<thead>
<tr>
<th>Revenues:</th>
<th>Central Fiscal Unit</th>
<th>Faculty of Arts and Sciences</th>
<th>School of Architecture</th>
<th>School of Business</th>
<th>School of Engineering</th>
<th>School of Fine Arts</th>
<th>School of Law</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total</td>
<td>$92,644</td>
<td>$531</td>
<td>$3,770</td>
<td>$11,159</td>
<td>$15,172</td>
<td>$3,227</td>
<td>$6,989</td>
</tr>
<tr>
<td>Tuition and Fees</td>
<td>$531</td>
<td>$3,770</td>
<td>$11,159</td>
<td>$15,172</td>
<td>$3,227</td>
<td>$6,989</td>
<td></td>
</tr>
<tr>
<td>Government Grants and Contracts</td>
<td>$1895</td>
<td>$11,961</td>
<td>$36</td>
<td>$124</td>
<td>$2,904</td>
<td>44</td>
<td>16</td>
</tr>
<tr>
<td>100,561</td>
<td>$1841</td>
<td>$5,012</td>
<td>$186</td>
<td>$1,978</td>
<td>$4,276</td>
<td>$242</td>
<td>$548</td>
</tr>
<tr>
<td>33,263</td>
<td>4,785</td>
<td>9,851</td>
<td>257</td>
<td>587</td>
<td>2,046</td>
<td>211</td>
<td>588</td>
</tr>
<tr>
<td>11,230</td>
<td>3,230</td>
<td>202</td>
<td>41</td>
<td>108</td>
<td>76</td>
<td>(16)</td>
<td>127</td>
</tr>
<tr>
<td>21,730</td>
<td>1,224</td>
<td>672</td>
<td>27</td>
<td>89</td>
<td>2,792</td>
<td>20</td>
<td>28</td>
</tr>
<tr>
<td>22,859</td>
<td>20,467</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>85,888</td>
<td>58,557</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>58,557</td>
<td>12,619</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>$476,224</td>
<td>$36,491</td>
<td>$65,892</td>
<td>$4,371</td>
<td>$14,318</td>
<td>$27,605</td>
<td>$3,745</td>
<td>$8,331</td>
</tr>
</tbody>
</table>

**Expenditures and Mandatory Transfers:**

<table>
<thead>
<tr>
<th>Expenditures</th>
<th>Central Fiscal Unit</th>
<th>Faculty of Arts and Sciences</th>
<th>School of Architecture</th>
<th>School of Business</th>
<th>School of Engineering</th>
<th>School of Fine Arts</th>
<th>School of Law</th>
</tr>
</thead>
<tbody>
<tr>
<td>$167,007</td>
<td>$517</td>
<td>$25,225</td>
<td>$2,121</td>
<td>$6,201</td>
<td>$12,445</td>
<td>$1,770</td>
<td>$2,701</td>
</tr>
<tr>
<td>Instruction</td>
<td>54</td>
<td>9,277</td>
<td>31</td>
<td>56</td>
<td>3,032</td>
<td>14,117</td>
<td></td>
</tr>
<tr>
<td>Research</td>
<td>952</td>
<td>7,355</td>
<td>482</td>
<td>3,477</td>
<td>3,150</td>
<td>643</td>
<td>2,446</td>
</tr>
<tr>
<td>Academic Support</td>
<td>1,576</td>
<td>3,793</td>
<td>163</td>
<td>933</td>
<td>1,328</td>
<td>188</td>
<td>421</td>
</tr>
<tr>
<td>Student Services</td>
<td>3,437</td>
<td>3,560</td>
<td>156</td>
<td>604</td>
<td>1,062</td>
<td>160</td>
<td>146</td>
</tr>
<tr>
<td>Institutional Support</td>
<td>(1,221)</td>
<td>6,298</td>
<td>315</td>
<td>962</td>
<td>1,829</td>
<td>468</td>
<td>775</td>
</tr>
<tr>
<td>Operation and Maintenance of Physical Plant</td>
<td>2,208</td>
<td>13,087</td>
<td>948</td>
<td>2,061</td>
<td>4,152</td>
<td>763</td>
<td>1,367</td>
</tr>
<tr>
<td>18,117</td>
<td>2</td>
<td>6</td>
<td>10</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>20,404</td>
<td>71</td>
<td>66</td>
<td>2</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>7,519</td>
<td>12,247</td>
<td>4,216</td>
<td>14,352</td>
<td>27,408</td>
<td>3,999</td>
<td>8,172</td>
<td></td>
</tr>
<tr>
<td>Mandatory Transfers</td>
<td>3,541</td>
<td>267</td>
<td>58</td>
<td>410</td>
<td>2</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total Expenditures and Mandatory Transfers</td>
<td>$443,723</td>
<td>$68,862</td>
<td>$4,216</td>
<td>$14,352</td>
<td>$27,408</td>
<td>$3,999</td>
<td>$8,172</td>
</tr>
</tbody>
</table>

Transfers to committed reserves, plant, and other funds from revenues and prior years' accumulated reserves:

| $26,561 | $7,128 | (2,970) | (93) | (40) | 13 | (555) | 31 |
| Total Expenditures and Transfers | $470,284 | $65,892 | $4,123 | $14,312 | $27,421 | $3,444 | $8,203 |

Net effect of revenues, expenditures, and transfers on General Reserves:

| $5,940 | $116 | $0 | $248 | $6 | $184 | $301 | $128 |

(A) Endowment at Market Value with Income for:

| $945,166 | $338,200 | $105,292 | $5,282 | $19,626 | $39,313 | $6,040 | $15,140 |
| Operations | Other Purposes | Support of Current | Support of Current |
| $196,136 | $130,434 | $23,583 | $1,168 | 10,114 | 3,080 | 482 | 14,517 |

(B) A portion of the Central Fiscal Unit Endowment Income is Distributed to Several Schools.
<table>
<thead>
<tr>
<th>School of Social Work</th>
<th>School of Dental Medicine</th>
<th>School of Medicine and Related Activities</th>
<th>Institute of Biomedical Computing</th>
</tr>
</thead>
<tbody>
<tr>
<td>$1,628</td>
<td>$3,858</td>
<td>$9,240</td>
<td>$</td>
</tr>
<tr>
<td>222</td>
<td>498</td>
<td>80,160</td>
<td>2,701</td>
</tr>
<tr>
<td>47</td>
<td>231</td>
<td>22,444</td>
<td>68</td>
</tr>
<tr>
<td>601</td>
<td>28</td>
<td>14,309</td>
<td>41</td>
</tr>
<tr>
<td>30</td>
<td>116</td>
<td>7,275</td>
<td>41</td>
</tr>
<tr>
<td>40</td>
<td>97</td>
<td>16,715</td>
<td>26</td>
</tr>
<tr>
<td></td>
<td></td>
<td>2,392</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>84,158</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>58,557</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>49</td>
<td>8,156</td>
<td>50</td>
</tr>
<tr>
<td>$2,572</td>
<td>$6,607</td>
<td>$303,406</td>
<td>$2,886</td>
</tr>
<tr>
<td>$727</td>
<td>$2,958</td>
<td>$112,204</td>
<td>$138</td>
</tr>
<tr>
<td>118</td>
<td>319</td>
<td>62,185</td>
<td>1,831</td>
</tr>
<tr>
<td>736</td>
<td>1,665</td>
<td>15,201</td>
<td>279</td>
</tr>
<tr>
<td>271</td>
<td>250</td>
<td>1,844</td>
<td>1</td>
</tr>
<tr>
<td>168</td>
<td>338</td>
<td>7,782</td>
<td>75</td>
</tr>
<tr>
<td>201</td>
<td>708</td>
<td>22,170</td>
<td>273</td>
</tr>
<tr>
<td>208</td>
<td>170</td>
<td>2,846</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>46,268</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>2,287</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>3</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>3,243</td>
<td></td>
</tr>
<tr>
<td>$2,429</td>
<td>$6,408</td>
<td>$276,033</td>
<td>$2,597</td>
</tr>
<tr>
<td>$75</td>
<td>$2</td>
<td>$23,003</td>
<td>$(33)</td>
</tr>
<tr>
<td>$2,504</td>
<td>$6,410</td>
<td>$299,036</td>
<td>$2,564</td>
</tr>
<tr>
<td>$68</td>
<td>$197</td>
<td>$4,370</td>
<td>$322</td>
</tr>
<tr>
<td>$15,471</td>
<td>$1,070</td>
<td>$399,732</td>
<td>$</td>
</tr>
<tr>
<td>64</td>
<td>2,524</td>
<td>10,170</td>
<td></td>
</tr>
<tr>
<td>$15,535</td>
<td>$3,594</td>
<td>$409,902</td>
<td>$0</td>
</tr>
</tbody>
</table>

and each maintains its own individual reserves which are increased by any operating surpluses and decreased by any operating losses.

The Schools of Business, Dental Medicine, Engineering, Law, Medicine, and Social Work have been reserve units for a number of years. 1988 was the fifth year of separate fiscal status for the Schools of Architecture and Fine Arts, and for the Faculty of Arts and Sciences. General University services and activities such as Olin Library are grouped in one fiscal entity presently referred to as the Central Fiscal Unit. The Central Fiscal Unit is reimbursed for services rendered to the other units.

The School of Business had a small increase in general reserves in fiscal year 1988. The School of Fine Arts ended fiscal year 1988 with an increase in its general reserve, which was the result of a planned transfer of $55,000 from the Reserve of the Treasurer's Investment Pool to eliminate the cumulative deficit as of June 30, 1987 of the School of Fine Arts. The Faculty of Arts and Sciences utilized $370,000 of temporary endowment, as part of its transition to a reserve basis, and ended the year with no change in its general reserve.

All other Schools, as well as the Central Fiscal Unit and the Institute of Biomedical Computing, ended the year with income in excess of expenditures as well as an increase in general reserves.

University Assets

Institutions of higher education and other not-for-profit organizations keep their financial resources in the form of funds to comply with the wishes of donors and to account properly for government grants and contracts. A separate fund is established for each project or purpose. The thousands of funds for which Washington University is accountable are handled in four major groupings: current funds, student loan funds, endowment funds, and plant funds. With the exception of income from the investment of endowment funds, the operating revenue of current funds may not include resources of the other three fund groupings. The Summary of Assets, Liabilities and Fund Balances as of June 30, 1988, presents the assets and any claims against them for the four fund groupings.

Current funds are separated between unrestricted and restricted funds. The unrestricted current funds consist of revenues from the various income-producing operations of the University, plus unrestricted gifts and unrestricted earnings from endowment. Expenditures of these unrestricted funds is left to the discretion of the University. Other funds available for current operations restrict expenditures to a given department or school, or for special, designated purposes such as research in a specified field or by a specified person. Unrestricted and restricted funds are combined in the overview of current operations of the separate fiscal units presented previously. They are kept distinct in the accompanying Summary of Assets, Liabilities and Fund Balances.

As of June 30, 1988, the total assets of the current funds were $244,931,000, including restricted current funds of $37,114,000 and unrestricted current funds of $207,817,000. Accounts payable and other such liabilities against unrestricted current funds amounted to $45,119,000. Another $95,540,000 of the unrestricted current fund assets was encumbered or otherwise administratively committed for specific future purposes. The net uncommitted general reserves were $67,158,000.

Summary of Undergraduate Financial Aid
(Excluding Loan Funds)

<table>
<thead>
<tr>
<th>Fiscal Year</th>
<th>Tuition Remission</th>
<th>Restricted Scholarships</th>
<th>College Work Study</th>
<th>Pell Grants</th>
<th>State of Missouri Grants</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>1986</td>
<td>$10,822</td>
<td>$3,169</td>
<td>$1,200</td>
<td>$732</td>
<td>$828</td>
<td>$16,751</td>
</tr>
<tr>
<td>1987</td>
<td>12,044</td>
<td>3,538</td>
<td>1,059</td>
<td>606</td>
<td>770</td>
<td>18,017</td>
</tr>
<tr>
<td>1988</td>
<td>13,453</td>
<td>4,277</td>
<td>1,011</td>
<td>564</td>
<td>686</td>
<td>19,991</td>
</tr>
</tbody>
</table>

Summary of Undergraduate Financial Aid
(Excluding Loan Funds)

<table>
<thead>
<tr>
<th>Fiscal Year</th>
<th>Tuition Remission</th>
<th>Restricted Scholarships</th>
<th>College Work Study</th>
<th>Pell Grants</th>
<th>State of Missouri Grants</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>1986</td>
<td>$10,822</td>
<td>$3,169</td>
<td>$1,200</td>
<td>$732</td>
<td>$828</td>
<td>$16,751</td>
</tr>
<tr>
<td>1987</td>
<td>12,044</td>
<td>3,538</td>
<td>1,059</td>
<td>606</td>
<td>770</td>
<td>18,017</td>
</tr>
<tr>
<td>1988</td>
<td>13,453</td>
<td>4,277</td>
<td>1,011</td>
<td>564</td>
<td>686</td>
<td>19,991</td>
</tr>
</tbody>
</table>

Student loan funds totaled $35,579,000. The total student loan fund receivables were $30,103,000, of which notes receivable from current and former students amounted to $29,941,000. Outstanding loans to students included $23,747,000 under the Perkins and Health Professions Loan Programs, which were 90 percent funded by the federal government.

The total assets of the endowment fund at book value were $836,858,000, including $828,323,000 in cash and investments. The market value of endowment investments associated with each of the separate fiscal units is presented along with the summary of expenditures and income for each unit.

Plant funds totaled $643,942,000. Of that amount, $566,112,000 was invested in land, buildings, books, and equipment. Total borrowings for physical plant facilities as of June 30, 1988, were $143,724,000, of which $6,153,000 represents Housing and
Urban Development bonds for student housing and dining facilities; and $136,545,000 represents bonds issued by the Health and Educational Facilities Authority of the State of Missouri to partially finance the construction and improvement of certain educational facilities.

Investments

Income (interest, dividends, rents, etc.) from all investments for the year ended June 30, 1988, totaled $59,942,000 compared to $53,451,000 for last year. Endowment income for the same period was $42,561,000 compared to $37,852,000 for last year.

The market value of all investments (endowment, current, plant, student loans, etc.) including interfund advances (loans) and those securities maturing within 30 days totaled $1,386,761,000 compared to $1,444,932,000 for the preceding year. The market value of endowment funds was $1,141,302,000 on June 30, 1988, compared to $1,218,884,000 the preceding year. A comparison of endowment funds over the past ten years is presented in the accompanying chart.

The decrease in market value of endowment funds of $77,582,000 is the net result of gifts, grants, and net transfers of $17,007,000, realized market gains of $45,641,000 and a market decline of $140,230,000. These last two numbers indicate a net portfolio loss for the year of $94,589,000.

On June 30, 1988, the endowment and total investment portfolios were diversified as follows:

<table>
<thead>
<tr>
<th></th>
<th>Endowment Investments</th>
<th>Total Investments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cash and Short-Term Securities</td>
<td>5.8%</td>
<td>14.4%</td>
</tr>
<tr>
<td>Fixed Income</td>
<td>16.7%</td>
<td>21.8%</td>
</tr>
<tr>
<td>Equities</td>
<td>70.0%</td>
<td>62.2%</td>
</tr>
<tr>
<td>Real Estate and Other</td>
<td>1.5%</td>
<td>1.6%</td>
</tr>
<tr>
<td>Other</td>
<td>100.0%</td>
<td>100.0%</td>
</tr>
</tbody>
</table>

Net income from securities lending was $56,000 compared to last year's $48,000.
Board of Trustees

Effective July 1, 1987 through June 30, 1988

Chairman
W. L. Hadley Griffin
Chairman of the Executive Committee
Brown Group, Inc.

Vice Chairman
George H. Capps LA 39 LW 39
President
Capital Coal & Coke Company

Zane E. Barnes
Chairman and Chief Executive Officer
Southwestern Bell Corporation

John R. Barsanti, Jr. EN 49 LW 52
Partner
Armstrong, Tetschale, Kramer & Vaughan

Donald N. Brandin
Chairman of the Board and Chief Executive Officer
Boatmen's Bancshares, Incorporated

B. A. Bridgewater, Jr.
Chairman of the Board and Chief Executive Officer
Brown Group, Inc.

M. R. Chambers
Retired

Former Chairman of the Board
INTERCO INCORPORATED

William E. Cornelius MLA 83
President and Chief Executive Officer
Union Electric Company

William H. Danforth
Chancellor
Washington University

John P. Diesi EN 51
President
Teneco Inc.
Houston, Texas

Katherine White Drescher

Benjamin F. Edwards III
Chairman, President and Chief Executive Officer
A. G. Edwards & Sons, Inc.

David C. Farrell
Chairman and Chief Executive Officer
The May Department Stores Company

Richard F. Ford
Managing General Partner
Gateway Associates L.P.

Carol Tucker Foreman LA 60
Partner
Foreman & Heidepriem
Washington, D.C.

Henrietta Freedman LA 75
Vice President
SEMCOR

David W. Kemper
President and Chief Executive Officer
Commerce Bancshares, Inc.

Charles F. Knight
Chairman and Chief Executive Officer
Emerson Electric Company

Charles Lipton
Chairman of the Board
Ruder Finn & Romian, Inc.
New York, New York

John P. McCarthy
President and Chief Executive Officer
Ceneter Bank, N.A.

Richard J. Mahoney
Chairman and Chief Executive Officer
Monsanto Company

William E. Maritz
Chairman of the Board, President and Chief Executive Officer
Maritz Inc.

Michael M. McCarthy EN 62
Chairman of the Board
McCarthy

John F. McDonnell
President
McDonnell Douglas Corporation

Robert H. McRoberts LA 17 LW 19
Senior Partner
Bryan, Cave, McFarland & Roberts

Paul L. Miller, Jr. GB 85
President
P.L. Miller & Associates, Incorporated

I. E. Millstone EN 27
President
Millstone Construction, Incorporated

Andrew E. Newman
Chairman of the Board
Edison Brothers Stores, Inc.

Michael N. Newmark LA 60 LW 62
Partner
Gallop, Johnson & Neuman

Stanley C. Pace
Chairman and Chief Executive Officer
General Dynamics Corporation

Kenneth Previtt GR 60
Vice President for Programs
Rockefeller Foundation
New York, New York

Mary Dell Pritzlaff
Phoenix, Arizona

Richard A. Rolloff EN 51
President
Capitol Land Company

Louis S. Sachs EN 48
Chairman and Chief Executive Officer
Sachs Electric Company

Harvey Saligman
Chairman of the Board and Chief Executive Officer
INTERCO INCORPORATED

Alvin J. Siteman
President
The Siteman Organization, Inc.

Elliot H. Stein BU 39
Chairman
Stifel Financial Corp.

William P. Stiritz
Chairman and Chief Executive Officer
Ralston Purina Company

William K. Y. Tao SI 50
President
William Tao & Associates, Incorporated

Consulting Engineers

Ronald L. Thompson
Chairman of the Board and President
General Railroad Equipment and Services, Inc.

William G. Tragos LA 56
Worldwide Chairman and Chief Executive Officer
TBWA Advertising, Inc.
New York, New York

H. Edwin Trusheim
Chairman of the Board, President and Chief Executive Officer
General American Life Insurance Company

William M. Van Cleve LW 53
Chairman
Bryan, Cave, McFarland & Roberts

William H. Webster LW 49
Director of Central Intelligence
Washington, D.C.

Raymond H. Wittcoff
President
Transurban Corporation

Roma Broida Wittcoff BU 45
Emeritus Trustees

Gladys W. Allen LA 42

Clark M. Clifford LW 28

Frederick L. Deming LA 34 GR 35 GR 42

Paul A. Freudent LA 28

H. Frederick Hagemann, Jr. BU 26

James L. Johnson, Jr.

Edwin S. Jones

David S. Lewis

Stanley L. Lopata

John F. Lynch EN 36

Hubert C. Moog

Spencer T. Oluf

George E. Pake

Warren M. Shapleigh

Robert B. Smith

Richard K. Weil

Margaret Bush Wilson

Representatives of the Alumni Board of Governors

Robert W. Meyer EN 74 SL 76 SL 78
Chairman
Alumni Board of Governors
Executive Vice President
Machine Components, Inc.

Robert B. Karn III BU 65
Executive Vice Chairman
Alumni Board of Governors
Audit Partner
Arthur Andersen & Co.

Officers of the University Administration

William H. Danforth
Chancellor

W. Maxwell Cowan
Provost and Executive Vice Chancellor

Ralph E. Morrow
Acting Provost

James R. Buchholz
Vice Chancellor for Administration and Finance

Ronald G. Evans
Vice Chancellor for Financial Affairs

Samuel B. Guze
Vice Chancellor for Medical Affairs

Herbert F. Hitzeman, Jr.
Senior Vice Chancellor for University Relations

Martin H. Israel
Acting Dean of the Faculty of Arts and Sciences

Peter H. Ruger
General Counsel

Harriet K. Switzer
Vice Chancellor for the Board of Trustees

Virginia V. Weldon
Deputy Vice Chancellor for Medical Affairs

Jerry V. Woodham
Treasurer

FOOTNOTES
1 1 resigned October 19, 1987
2 2 Chairman and Chief Executive Officer after
February 1, 1988
3 3Deceased July 15, 1988
4 4Vice President of Marketing, Ingram Barge
Company, Nashville, TN after January 31, 1988
5 5Through December 31, 1987
6 6Beginning January 1, 1988
7 7Through May 31, 1988
8 8Beginning June 1, 1988
9 9Deceased Sept. 1, 1988

32 Annual Report
Cool and compassionate, Calvin Edwards helps shepherd the field of corrections into the modern era.

by Greg Holzbauer —photographs by Bill Stover

Terre Haute Federal Penitentiary, on the outskirts of Terre Haute, Indiana, looks, at first glance, like a Southern army base, with that vague Spanish look of 1930s government architecture surrounded by barbed-wire fences—three layers, by my count, one tilted inward on the top and two more rolled menacingly inside at the base; the effect is convincing. Though from the edge of the property the penitentiary looks almost pastoral, it's difficult not to feel a rush of apprehension approaching its periphery, particularly when the voice on the other end of the intercom—presumably a man in a tower with a gun or two—asks what you're doing there and whether you have any guns or drugs in your car.

No matter how innocent you feel, you can't help but wonder if you're going to have a problem.

To pass through the barbed-wire fence you must get clearance at the main gate. Across the road, outside the prison walls, is a construction site where several more men with what appear to be submachine guns are standing, looking very businesslike. What
kind of place, you can't help but wonder, must this be to work in, and what in the world is a master's degree holder in social work doing here? What kind of person would want to be a prison warden in the first place, you wonder, as your mind wanders through all the prison-movie images of wardens roaming the halls of the Big House, billy-club in hand, gruffly barking orders. What kind of person would want to come to work each day past gun-toting sentries, and have under his charge nearly two thousand people who have been incarcerated for all sorts of anti-social behavior?

The answer, at least in this case, is Calvin Edwards, M.S.W. '72, in whom the roles of bureaucrat, reformer, businessman, ombudsman, healer, and tough cop all seem to merge. Impeccably tailored in blue blazer, slacks, crisply starched, blue, dress shirt, and conservative tie and very much in command, Edwards has a resume about a mile long and a career in the Federal penal system that's moved very quickly. He is the compleat professional in a profession whose very idea gives me the willies; a man with a mind that seems to groove on accounting systems, facilities management, and personnel administration—all of the boring stuff that keeps large organizations rolling.

Before I met Edwards, I figured he would be an updated version of the Hollywood warden, sort of a Robert Redford as "Brubaker" type. He was, after all, at the age of 43, a man who came of age during the 1960s, with a degree from the George Warren Brown School of Social Work. Surely such a man would be a compassionate reformer who didn't think prisons were very good ideas in the first place, who would feel that his inmates' problems all came about because they were misunderstood, and a man who had dedicated his life to making the system better.

So much for preconceptions.

Seated in his large, well-decorated office, Edwards seems like any other successful executive, even though the barbed wire and hundreds of men with a record of failure are only a few steps away. "People are intrigued by the occupation," he says when I ask him if he's considered an oddity in Terre Haute's social or academic circles; if there's an aura of "cop" around him that might put people off or make them uncomfortable. "People don't tend to shy away from you necessarily," he says, "but there is a mystery to it. The first thing they say is 'Is there any danger?' or 'Do you feel comfortable with the environment?'

He looks puzzled at the thought, and says, with an air of dismissal, "I feel very comfortable with the environment."

Calvin Edwards had his first contact with corrections while still in graduate school. He was chosen to take part in a new program at the St. Louis County Court in which he evaluated people who had been arrested and decided whether or not they could be released on their own recognizance. "It was amazing to me at that point just how many people were arrested every night,"
he says. "And releasing them on their own recognizance was a new concept." It was part of Edwards' job to see if a professional social worker could accurately predict who would fail to appear for a court date once released.

He liked the work, and liked getting paid for it while still pursuing his studies. But after getting his degree, he took a job as a social worker at a mental health facility in Cleveland, and later as a project director for the YMCA in Kansas City. By 1974, though, he was into the corrections field full time, as a case manager at Leavenworth Prison. He had 300 "clients."

"That may have been the best job I ever had," he says. "It was a lot of work, but it was very enjoyable, and I really began to learn the system. I classified all the inmates when they came into the facility—assigned them jobs, worked out a plan for education, vocational training and the like, and wrote all the progress reports for inmates when they were up for parole. For those who were paroled, I had to prepare all the paperwork, as well as arranging for a halfway house and all the other release details. It was a mountain of paperwork, but I really began to learn the system. As a case manager you might not learn whether or not the system is working, but you learn how it operates. You learn the writing style of the government; you learn the chain of command; you learn management by being part of the process."

Edwards also began to see the career potential in the field. "I saw for the first time that there was a need for professionals in corrections," he says. "I saw so much potential for a career that involved bringing corrections into the modern era. The field of corrections at that point was beginning to be a dynamic one, engaged in an effort to bring prisons from unconstitutional kinds of Bastilles to more humane treatment. I felt," he says, "that I could make a difference, for fairness, and humaneness."

He also knew that it was a place where he could rise to the top, an ambition of his since he started school. To do so, he picked his arena carefully, choosing for his career the federal prison system, which was both progressive and politically independent. "I wanted to be a part of a progressive system," he says, "not one run by local politics. The federal system is free of politics, and has had only five directors in 50 years. Being apolitical, I felt it offered the greatest opportunities for change and advancement. I never felt I wanted to go to school to remain at the lower levels of an organization. I was always determined to achieve higher levels of responsibility."

After Leavenworth, Edwards moved quickly through the Federal Bureau of Prisons system, serving in a Michigan facility for youthful offenders, holding a high level staff job as Executive Assistant to the Regional Director, North Central Region (Kansas City, Missouri); becoming associate warden at Lompoc, California; superintendent of the Federal Prison Camp at Eglin Air Force Base, Florida (a place that received some notoriety on 60 Minutes as a prime example of "country club" prisons where, the suggestion was, convicted stockbrokers and politicians do nothing but trim hedges and play tennis; going back to Michigan to become warden of the Federal Correction Institution of Milan, Michigan; warden of the U.S. Penitentiary at Lewisburg, Pennsylvania; and finally, warden of the U.S. Penitentiary at Terre Haute.

Considering he's only 43 years old and already has been a warden for several years, it's a bravura performance, one of which Edwards is quite proud. Along the road, he's managed to keep up his management and scholarly studies, and is currently working on a doctorate in Public Administration at the Washington Public Affairs Center of the University of Southern California, flying into Washington, D.C. periodically for several days of intense work.

Edwards wears two hats, basically, as a warden. On the one hand, he's a chief executive of a large and complex business operation, administering a $15 million annual budget, plus the $18 million in sales from Terre Haute's Prison leading the field: Previously warden at Lewisburg, Pennsylvania, the 43-year-old Edwards' career thus far has been "a bravura performance." Not yet at his peak, Edwards continues to work on his doctorate and teaches at a local university.

Above, the main administration building at Terre Haute Federal Penitentiary.

"I look reality in the face. I'm a public administrator doing a job... We are not here to punish people. The confinement itself is punishment; the extraction from society is the punishment."
"Your reputation precedes you to a new assignment," he says when asked how quickly the inmates come to know him. "They know me real well."

Industries operation; supervising the work of 430 employees, from guards, case workers, and chaplains to comptroller and secretaries; and maintaining and rehabilitating properties that hold nearly 2,000 inmates, one quarter of whom reside in a low-security satellite camp outside the penitentiary walls. Terre Haute itself is considered a maximum-security facility, one of 47 prisons nationwide administered by the Federal Bureau of Prisons, a division of the Justice Department. Federal penitentiaries are graded according to security precautions. Marion, Illinois, which has been in lockdown for several years, is off the scale. Lompoc, Leavenworth, and Lewisburg (where Edwards was previously) stand alone at the top of the list. Terre Haute is in the next highest category.

A prison is a business, in a way, especially this one whose Prison Industries' output includes everything from rebuilding diesel engines for all the Bureau of Prisons' vehicles across the country to making and dyeing clothing for a diversified market. The repair shop functions as a vocational training program, repairing engines from all around the country; the textile operation produces cotton towels and washcloths as well as wool blankets, selling on a competitive basis to government agencies, going so far as to employ a marketing division in Washington. Everyone in the prison works, at an average wage of 69 cents an hour; the textile factory alone employs 600 workers. "We've got quite an operation here," Edwards marvels, as he talks about his weaving and dyeing operations with the pride of a garment man from Seventh Avenue.

Edwards' other hat is as a corrections official, in which he makes sure the operation is secure and orderly, that opportunities for rehabilitation are present, and that prisoners' constitutional rights are safeguarded. To a visitor there for just the day, Edwards' role seems a curiously personal one. Although there are many levels of bureaucracy below him, from three associate wardens on down to the newest case manager, much seems to hang on Edwards' personal touch. He makes it a point to walk through the "yard" every day, and a visitor can see his eyes taking in everything, from the physical condition of the plant, which doesn't look all that differ-
he's the guy who controls all the ways out, but Edwards seems to have respect for the inmates in turn—his "clients." Perhaps it's the social work background in him, perhaps it's a compassion he's not quick to let on, but he seems to have the ability to neither pity nor have contempt for men who have either never done well in life or who have made some big mistakes along the way.

"I look reality in the face," he says.

"These are people who have made many mistakes, and who have been placed here by the court. That's the way it is. I don't find it sad or depressing to be here myself, as you suggest I might. I'm a professional corrections officer; I'm a public administrator doing a job. There are a lot of people in here who aren't nice people, but then, there are a lot of people outside this place who aren't nice. I just don't see them.

"We are not here to punish people," says Edwards in discussing his philosophy of the prison environment. "The confinement itself is the punishment; the extraction from society is the punishment. We have no authority to punish people. We do have authority to maintain rules and regulations. We do maintain an orderly environment. And I think that as a prison warden, I am firm but fair. That's how I like to view myself, and I think that's how the inmates would describe me.

"As for rehabilitation, the notion of corrections that we follow is that you are extracted from society when convicted of a crime and given a term of confinement. That's the punishment and that's the reason you're here. Within that environment we can offer rehabilitation opportunities. But we can only offer opportunity for rehabilitation. I can't cure bank-robbery behavior. All I can do is offer vocational, educational, and counseling opportunities, and hope that some of these offenders will come to grips with their problems."

Edwards only laughs when it is suggested that maybe some of the white-collar criminals taling up crowded U.S. prison cells are in the wrong place—that prison is an excessive punishment that costs too much and keeps some prisoners, at least, from contributing to society while atoning for their crimes. "Well, there are a lot of prisoners out there who will tell you just that, that society would be much better off if they were teaching reading in the ghetto than doing time in prison. But I don't agree at all. I think prison is an appropriate punishment for white-collar and non-violent criminals. They have violated the law just like any guy who has gone in and held up a bank. Extraction from society and confinement is an appropriate punishment for them.

"As far as the humanness of the prison philosophy is concerned, we're not building new prisons just to meet the demand. When we do build, we think we should be building humane places. There are standards we recognize in this country, but if prisoners are complaining about overcrowding just because they have to share a room with another inmate, I'm not overly concerned. I shared a room in college, and I had to pay for it. Two individuals sharing a reasonably sized room is not considered overcrowding.

"Prisons aren't necessarily as bad as people think they are, but I guess that the public's perception of them is good, since it acts as a deterrent to crime. Nobody wants to come here, after all. But in reality, movies like Brubaker are mostly Hollywood. I've never seen a place that bad. And in most places, you don't have to be at risk in prison. If you mind your own business, and keep away from people and situations that are likely to cause trouble, you can do your time and get out."

"Prisons take on the character of their inmates. If you've got a lot of violent inmates, you're going to have a really unpleasant environment. If you don't, it doesn't have to be so bad. It's certainly not our job to make it bad."

Edwards, who feels that neither the public nor even many teaching professionals totally understand corrections, is teaching some courses on the profession in a local university. It's partly the academic in him, and partly the reformer. He wants the public to know more about what it is that he and others in the field do; he also knows it's a critically important issue for the country. "It's important that people like myself who are in the profession do some teaching ourselves," he says. "We've got to bring the pragmatic view into what is often just a theoretical field."

Greg Holzhauer is a freelance writer and publisher of St. Louis Dining magazine.

Bill Stover, formerly on the staff of the St. Louis Globe-Democrat, is a freelance photographer based in St. Louis.

Although there are many levels of bureaucracy below him, much seems to hang on Edwards' personal touch. He makes it a point to walk through the "yard" every day, his eyes taking in everything.
Ottoman expert and MacArthur fellow, Cornell Fleischer employs a personal approach in bringing Islamic history to life.

by Joan Bray

Since the age of 20, Cornell Hugh Fleischer has relentlessly pursued the object of his intellectual passion—the history of the Islamic world from the late-13th through the early-20th centuries, and particularly the history of the Ottoman Empire (which at its height extended from the Red Sea to the gates of Vienna)—a subject that might seem obscure to those not familiar with non-Western cultures.

But this past summer, at age 37, he received the kind of recognition that even the least scholarly person can appreciate.

Fleischer was tapped for a MacArthur Fellowship—often referred to as a “genius” grant. He will receive $48,000 a year for five years, for a total of $240,000. He may use the money any way he wants; his benefactor—the John D. and Catherine T. MacArthur Foundation—requires no reports or accounting of the gift.

Many people, hearing of the generous, no-strings-attached manna, might fantasize about taking the award and heading posthaste to an exotic island, emerging only when the money had been expended. But, Fleischer says with a chuckle, there’s no reason to worry about a hasty escape on his part: “These grants are probably only given to compulsives, like me.”

Before Fleischer became a faculty member in Washington University’s history department in 1982, his life had been that of the itinerant scholar. The raw material for most of his research lies in archives abroad, requiring trips between the United States and Turkey, Egypt, and Iran.

Kay Fleischer, his wife of 16 years, is presently an instructor at Washington University. She has built a career in teaching English as a foreign language that allows her to be equally mobile.

With the university as home base for the last six years, the couple has spent academic years at Ohio State University in Columbus—where she earned a master’s degree and he taught—and in Istanbul, where she taught at the University of the Bosphorus and he did research. And every summer since 1983—except the present—they have lived in Istanbul.
Select company: Associate Professor of History Cornell Fleischer, 38, joins Engelmann Professor of Biology Peter Raven as recipient of a MacArthur fellowship, the so-called "genius" grant for which individuals must be nominated by an anonymous network of advisers.

Fleischer’s attachment to the Middle East began at an early age. His father’s career with the Army and then the Foreign Service took the family all over the globe. At age 7, Fleischer moved with his family to Egypt and two years later, to Iraq.

"I grew up traveling around the world," Fleischer said. "There was something in particular about the Middle East and Muslim societies that clearly touched something very profound in me.

"I have always been very comfortable there. And when I began all of this...all I know is I wanted to do something related to this part of the world—something that would give me the linguistic skills and cultural skills to immerse myself in it, partly to understand why I like it so much and partly for pure intellectual curiosity.

"To become acquainted with the mores, the history, the literature of another society is a very exciting thing," he said. "To do it with a personal attachment is a more wonderful thing."

The career he chose, he said, "allows me to indulge those emotional attachments."

During an interview at the couple’s home, they recalled with amusement the lengths they went to during early stays in Istanbul (between 1976 and 1979) to make enough money to support themselves: He translated instructions for cooking macaroni from Turkish to Arabic so a company could export its product. And he arranged to teach a wealthy Armenian jeweler to speak Arabic, gathering the change to ride the bus to the jeweler’s house, hoping the man would remember to pay him so he would have enough money to catch the bus back home. Meanwhile, she appeared in commercials that were shown on television and in movies theaters.

When the Fleischers managed to collect enough money beyond basic living expenses, they bought books—books unique to his study of Islamic societies that he feared he might never find in a university library and might never again have the opportunity to buy.

Practical considerations contributed greatly to the Fleischers’ recent decision to put down roots in St. Louis. They bought a roomy, three-story house in the city’s Central West End. "I’ll have a library for the first time," Cornell Fleischer said. "We've had very limited resources and not much space."

The house has large, high-ceilenged rooms, freshly painted white by Kay Fleischer. A two-room suite on the second floor was occupied by 14 newly built floor-to-ceiling bookcases standing in pairs and clusters and facing each other at various angles. "Now they all have to be painted," Kay Fleischer observed.

A third-floor room held several piles of Middle Eastern carpets, richly colored in reds, oranges, and blues. Some will hang on walls, she said. Others will be scattered on the hardwood floors. Copper and clay vessels—necessities in Middle Eastern life—sat waiting arrangement in the dining room.

For Kay Fleischer, 36, investing in what could be long-term residence is not so unusual; her family has lived in McLean, Virginia, for more than 25 years. But her husband grew up in the transience of the Army and the Foreign Service. "I thought that having a home was going to horrify me," he said. "Actually, I find it a lot. I like the sense of space, of refuge."

Cornell Fleischer was born to Hugh and Florence Fleischer on October 23, 1950, in Berkeley, California. His father had just finished his college degree in Russian and Slavic studies under the GI Bill. The elder Fleischer’s work as a political officer in U.S. embassies took the family to Germany, Egypt, Japan, and Iraq, with an occasional posting in the United States.
Center Sheds Light on 800 Million

The growing demand for accurate information about the world's Islamic population has led to the recent establishment of the Center for the Study of Islamic Societies and Civilizations at Washington University. "We're going to see a growing center of power in this part of the world," says Robert Canfield, professor of anthropology. "The Center offers a tremendous opportunity to look at the intersection of the various regions and how they will interact under an Islamic resurgence."

Canfield worked with Cornell Fleischer, associate professor of Islamic history, to devise the comprehensive approach to area studies used at the Center. Fleischer is now directing the Center, which serves as a focus and clearinghouse for activities and research on this region of the world.

"The Arab lands with which Americans tend to identify Islam constitute a mere fraction of the Muslim population of the world," Fleischer explains. "Muslims number nearly 800 million people and inhabit an area stretching from North Africa to Indonesia and from Central Asia to West Africa.

"The established (area studies) programs historically have been based on language studies, with representatives from other disciplines being added later," he says. "The result has tended to be programs that stress cultural identity, but lack methodological coherence."

"We hope to avoid this by forging links between the humanities and the social scientific disciplines our members represent—history, anthropology, literary criticism, and political science—and building on a sound methodological base.

"The new generation of Islamicists, from which our young faculty is largely drawn, tends to have disciplinary as well as area-specific training. We are, therefore, in a unique position, as a group, to bring to our studies and teaching questions and perspectives that traditional Orientalism has ignored as irrelevant, and to engage non-specialist colleagues and students in intellectually meaningful dialogue."

After Fleischer and Canfield received approval to proceed with their plans, the Center received two major grants. Approximately 60 percent of a $650,000 grant from the Mellon Foundation to the Faculty of the Arts and Sciences is earmarked for faculty expansion and program development in the Islamic area. A $225,000 grant from the Rockefeller Foundation has enabled Center faculty to sponsor a major research project from 1988 through 1991.

One of Fleischer's goals for this year is to bring together Washington University faculty and faculty from other area institutions to discuss long-term activities for the Center. According to Fleischer, "It is very important to create an active corps of people interested in exchanging ideas and in helping to make the societies and cultures of this part of the world better known—not only within the University, but within the community at large."
Cornell Fleischer recalls being in Baghdad, Iraq, during that country’s coup of 1963. He was 12. “That was exciting,” he said. “I thought it was great fun watching the Ministry of Defense get rocketed.”

The family had a perfect view from the rooftop of their home, he said. “We could tell which way the revolution was going when the Russians, who lived behind us, periodically packed up and took off to their embassy,” he said. “My parents always made a point of not living in the (U.S.) embassy compound. They preferred living with the inhabitants of the country where we were. That was important for the view of the world I developed.”

“My parents made a point of not living in the embassy compound. They preferred living with the inhabitants of the country where we were. That was important for the view of the world I developed.”

Fleischer spent three years of high school in California but graduated from Gen. H.H. Arnold High School in Wiesbaden, West Germany. After two years at Brown University, he decided he didn’t like college and didn’t know what he wanted to do. “I was a miserable sophomore,” he said. “All of this came out of the blue. All of these memories of a happy childhood in the Middle East spontaneously came back.”

He transferred to the Critical Language Program at Princeton University, where he stayed to earn bachelor’s, master’s, and doctoral degrees. At Princeton, he met Martin Dickson, a professor in the Department of Near Eastern Studies. Dickson “is a consummate scholar and an amazing human being,” Fleischer said.

“He forced me to expand my vision by adding Persian and Turkish to Arabic, and he taught me to feel the breadth and beauty of history. Most importantly for a 19-year-old child of the Sixties, he showed by example that one could at once be a meticulous scholar and passionate, adventurous, moral person. I hesitate to call him a role model because he is unique. But had it not been for him, I would probably not have entered academia. If I can do for one student what Martin did for me, I will feel fulfilled as a teacher.”

A trip to the East Coast by either of the Fleischers always includes a visit to Dickson.

In a phone interview from his home in Princeton, Dickson said Fleischer was “precocious as an undergraduate.” His senior paper was a comparison of Turkish, Persian, and Arabic versions of tales of a picaresque folk character who appears to be the butt of a situation but whose wisdom often enables him to triumph. Fleischer’s ability to catch the ethnic humor “was advanced stuff,” Dickson said. “Even as an undergraduate, his work was professional enough it could have been a Ph.D.”

He said Fleischer’s knowledge bridged all the cultures of the Middle East, and he envisions his former student growing into a world historian. “He has that breadth of vision. He’s capable of much more.”

In 1972, after graduating from Princeton, Fleischer went to Cairo to study Arabic. There he met Kay Fryklund, who was on vacation visiting her sister. The two soon married and plunged deep into their multicultural life. Kay Fleischer developed her own profession but has maintained an active interest in her husband’s. Dickson recalled that although Kay Fleischer was not enrolled at Princeton, she attended his classes, learning the Turkish language and history.

For scholars to immerse themselves personally in the Middle East, as he has done, is relatively new, Cornell Fleischer said. The traditional approach to studying Islamic societies—called Orientalism—deemed “personal experience not necessary or desirable,” he explained. “The assumption is that these people don’t have a history.” And it is “only in the last couple of decades that any substantial American Middle Eastern studies have begun, through the efforts of people who have wider personal experiences,” he said. “But the underdevelopment of the field is also one of its attractions.

“What developed was a partly deliberate mystification or exoticism that was immune to criticism from other scholars. The myth developed that somehow Islamic study was a discipline of its own that has its own requirements for entrance, its own set of skills and techniques.

“But the notion that Middle-Eastern study is a separate discipline is completely fallacious. You’re dealing with another culture but with the same phenomena as in our culture. You should be able to use the same analytical skills. Orientalism says that somehow this other
culture is so different you can't import those analytical techniques—of history, sociology, anthropology, literature—because they were developed for our culture and this one is by implication both different and inferior," Fleischer said.

The first important lesson in studying Islamic cultures, Fleischer said, is that "these are people just like us, no better, no worse. I will have done my job if students, taking one course, leave with a sense of their psychological horizons having been broadened and a sense of sympathy for other cultures—that other cultures have to be taken seriously, that we have no monopoly on truth or on right. Years down the line there might somehow be a soft spot in their hearts, a spark of interest for something or someone from this part of the world that they have spent a semester studying," he said.

His goal for students who specialize in Islamic studies is to "develop a feel for ways of trying to understand the past from within and recognize that although we cannot in good conscience impose our own values and analytic categories on another society, we can use them to study that society as well as our own.”

The task of his generation of Islamic historians “is to get (students) to see Islamic history as normal, as part of the history of the world rather than as an aberration that inconveniently intrudes itself into real history every now and then. Ideally, I would like my students to be well-versed in the languages of the area and have a first-hand cultural feel,” he said. “But ultimately I would like them to be historians first and Middle-Eastern or Islamic specialists second.”

Scholars of the Middle East must learn the languages of the region, Fleischer said, and research must be conducted from the voluminous documentation produced by a highly developed bureaucratic and literary tradition, only a small portion of which is cataloged. Fleischer is fluent in modern Turkish, Ottoman Turkish, Arabic, Persian, French, and German. He reads Azeri, Chagatay, modern Uzbek, Russian, Latin, and Italian.

As a Fulbright-Hays scholar, he spent three years in Turkey, Iran, and Egypt. Before coming to Washington University in 1982, Fleischer taught Persian, Turkish, and Arabic for three years at Ohio State University, where he helped establish a Middle Eastern Center.

His most significant contribution so far to the literature and the understanding of the region’s history, Bureaucrat and Intellectual in the Ottoman Empire: The Historian Mustafa Ali, 1541-1600 (Princeton, 1986), grew out of his doctoral dissertation. The book is dedicated to his father, who died of Alzheimer’s disease in 1982. “He encouraged me to read and learn,” Fleischer said.

For the book, he drew on the writings of Mustafa Ali, an Ottoman scholar who was trained for a religious career, but instead worked as a bureaucrat. Ali chronicled the latter half of the 16th-century Ottoman Empire, when economic, political, and social changes were taking place rapidly. “Ali combined his personal experience with his theoretical view of the state to produce the first pragmatic analysis and critique of Ottoman administrative practice,” Fleischer wrote in the introduction to the book.

In person, he explained further: “I will admit to a prejudice in favor of personal history. It’s the kind of history I find most congenial.” A study based
solely on bureaucratic statistics—such as the tax records of the era—"makes it look like nothing else was happening. I wanted to show that this was a creative, self-aware, and self-questioning society, like many others. This was also a highly cultured society that was not static," as previous historians have portrayed it, he said.

"I used very diverse sources—narrative, archival, literary, biographical—in order to build a portrait of an educated Ottoman and to analyze the society that produced him and with which he interacted. The result, I hope, is a study that shows how life was lived, rather than how we think it must have been lived.

“Our humanities and social science curricula largely disregard the history of Islamic societies as culturally alien and irrelevant to 'real' history, that is, our own as we have defined it. By even the crudest of quantitative criteria, Islamic civilization has had far greater impact on the history of the world than has Western Europe.

"While the Ottoman Empire is Islamic, it is not Arabic; it is European as well as Middle Eastern. And it should be seen as one of the premier early modern states that must be studied within a broader perspective. I hope that by making an important slice of Ottoman intellectual and social history accessible to non-specialists—especially historians of Europe and of other parts of the Islamic world—I might have taken a step toward making meaningful comparison and a broader, more reasonable historical vision possible.

"The studied ignorance of the region, which is deeply rooted in our educational system, leads people to think it has no positive role in history," Fleischer insisted.

"If I hope for any positive reverberations from this grant other than the effect it will have on my own research program, I would hope that this would help to establish the importance of this area of study.

"All kinds of things happen in this part of the world, and we don't know anything about it," he said. "Our diplomats and our educational institutions have seen this part of the world as passive in history—especially for the past two centuries. We don't have to worry about it except when there's a crisis.

"American foreign policy fiascoes in the Middle East show how much this continues to be the case."

Being alert:

Fleischer plans to use his MacArthur grant—and a similarly eclectic approach—to write at least two more books, which will require trips to Turkey at least every summer. "Everyone in my field is there during the summer," Fleischer said.

"There's a generation of us. We all get kind of antsy if we're away too long. The need to renew that link is very strong.

"You don't know if you'll get back in" to the archives and manuscript libraries, he said. "History is always a political topic" in developing countries: "There is a compulsion to protect, to control access. Foreigners have the lowest priority, the least access."

Both Fleischers enjoy the life in Istanbul, which is situated on the Bosphorus—the strait that flows between the Black Sea and the Sea of Marmara. "It's hilly; it's wooded. There's good food—great fish restaurants," Kay Fleischer said. "We eat out all the time.

"We like simply being there in the culture and functioning in some measure," her husband said. "There's a warmth, a sense of humanity."

Back in St. Louis, both are consumed by their careers. She designs her own courses on the Hilltop Campus, and has created a specialized program for students at the School of Dental Medicine. Some terms, she teaches up to three classes a day to foreign students who need to learn more English. He has focused his energy on building his field within the history department and developing the Center for the Study of Islamic Societies and Civilizations (see sidebar), which coordinates research activities across disciplines. "I take my teaching seriously," he said. "Consequently, I can't get as much done in writing and research during the school year."

But, in addition to the expectations he places on himself to produce academically, new demands have entered his life: The necessity for bookcases called for him to take saw, hammer, and nail to wood and learn from a friend; and when the sun deck collapsed into the backyard, he became an apprentice deck-builder as well.

The couple can recall one real vacation in the past nine years—a week in Northern Cyprus in the summer of 1987. And only an occasional evening is spent with their noses away from the grindstone—usually at Blueberry Hill, the hamburger joint and rock 'n' roll nostalgia bar in the University City loop.

Kay Fleischer's affinity for baseball—her allegiance easily adapting to the Cardinals—calls for trips to Busch Stadium, even in a losing season. Both are avid readers, and he admits even to liking "trash novels."

The University is generously complementing the money from the MacArthur Fellowship with additional time for research and writing, therefore, his teaching load will be reduced. "Maybe now," Fleischer said, "for the first time, we'll even have some time to do some relaxing."

But the likelihood is even in relaxation, the Fleischers' activities will retain the sense of determination and order of dedicated compulsives.  

Joan Bray is a staff reporter for the St. Louis Post-Dispatch, where this article, in a slightly different version, previously appeared. -
A recent study at the Central Institute for the Deaf suggests that deaf children taught to speak acquire better reading skills.

Speaking to Learn

by Joni Westerhouse

To speak or not to speak. That is a question teachers of the deaf have hotly debated for more than a century. Is it better for the deaf to be educated and to communicate through sign language, or through the spoken word?

At Washington University Medical Center's Central Institute for the Deaf (CID), deaf children are taught to speak. And researchers there have compelling new evidence that teaching the deaf to speak—before they learn to sign—helps them attain higher educational levels.

A nation-wide study contracted by the National Institutes of Health and carried out by CID researchers found that among 100 16- to 17-year-old profoundly deaf adolescents who had been taught speech, average reading scores were a full five grade-levels higher than the national average (about the third-grade level) for the deaf. It was the first time that data have been collected on such a large sample of orally-educated deaf youth.

“What we found especially interesting is that 30 of the 100 were reading at or above the 10th-grade level,” says Ann Geers, principal investigator of the study. “That means they were functioning for all practical purposes like normal-hearing adolescents, which is rather outstanding considering the severity of their deafness.”

Profoundly deaf people, even when fitted with the most powerful hearing aids, cannot understand speech without special training; however, they may be able to hear some sounds. The CID evaluation of oral education was accompanied by separate but related NIH-funded studies of total communication—a combination of speaking and sign language—carried out by Gallaudet University in Washington, D.C.

Gallaudet researchers measured reading skills in deaf children with deaf parents and those with normal-hearing parents. Researchers at both institutions looked for elements, such as hearing ability, that set good readers apart from those who didn’t read well. Knowledge of the English language was the primary factor influencing the development of reading and writing skills in the sample of orally-educated hearing-impaired adolescents, according to co-investigator Jean Moog, principal of the school at CID.

“The factor we were supposed to ferret out was what most predicts reading ability,” Moog says. “It’s not socioeconomic status. It’s not hearing loss—within the profound range, if you have a little more hearing, you don’t read better than somebody who has less. It’s not I.Q.—the very auditory stimulation, instruction in spoken language from an early age, and no sign language instruction until spoken language is firmly established.

Oral communication programs, such as CID’s, teach deaf children to communicate by using a combination of hearing devices to maximize the limited hearing capacity present (known cumulatively as residual hearing), reading lips, and speaking. Of the 20,000 profoundly deaf youth under age 21 in the United States, only about 10 percent are currently taught through this method.

The majority of students, on the other hand, are taught in total communication programs, which teach a combination of speaking and sign language.

“What appeared to make the most difference,” says CID Principal Jean Moog, “was their facility with English: how to form complex sentences, how to write them, how to speak them, and how to understand them when they are spoken.”

Deaf children in total communication programs don’t read as well, Geers says, because in many signing programs, deaf children are not given intensive instruction in speech and language, and therefore don’t learn English very well.

“What we are finding in this large population of oral deaf adolescents is that their English language skills are, for the most part, extraordinarily good,” Geers says. “Their oral English language skills—sentence structure, knowledge of vocabulary, discourse skills—are well-developed. I think that’s primarily what accounts for their reading skills.”

Moog stresses that although students
in total communication programs may become proficient at signing, most are not learning to speak well. She bases that on data from this reading study as well as another NIH-sponsored study conducted at CID in which 300 profoundly deaf children—150 from total communication programs and 150 from oral programs—were tested for spoken English skills.

Results showed that by the age of 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. "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 well enough to be understood. Furthermore, Geers adds, they are not learning to sign English at any 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 spoken English before signing is crucial.

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 get them the best education possible. 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 approximately equivalent in both methods of teaching. Children dependent on sign language, Geers points out, are either required to stay in special education through adulthood or have an interpreter accompany them in a normal-hearing setting.

Many people also are under the misimpression that it is not possible to understand deaf people when they speak, according to Moog. "Ninety percent of the teens studied at Gallaudet were rated as being proficient at speaking English, which I think is important," she says. "Speaking proficiently improves their ability to interact and participate in the hearing world if they so choose."

In the beginning: Researchers at the Central Institute for the Deaf (CID) say teaching deaf children to speak is most effective when instruction is begun before the child learns to sign.

Above, four-year-old Ashley Vickers learns her ABC's with CID teacher Betsey Brooks.

Joni Westerhouse is a writer in the public relations office at the School of Medicine.
In one corner stands a pair of tall file cabinets from which nearly every drawer has been pulled most of the way out, and left out, too. Every desk and table is littered with papers. One piece of paper attracts attention because it looks like a certificate. Slumped against a lamp, unframed, is a certificate for the completion of a course at the Massachusetts Institute of Technology. The chaos in this whirlwind of an office—but more than that, the evocation of industry combined with a complete disregard for order and convention—is world-class.

With enthusiasm and inventiveness, Mike Miller and his devoted group of graduate students play at the frontiers of computer science.

Facing the disheveled pair of cabinets on the edge of the sea of papers is a blackboard. Every square inch is covered with mathematical symbols, nudging and squeezing one another into odd angles, mad-scientist style. In the blackboard's center, an assertive graduate student has wiped a clearing where he has chalked a message in four-high yellow letters: "TIM, 9 A.M." Tim knows from experience that his teacher, Michael Miller, associate professor of electrical engineering and biomedical computing, often needs to be reminded of his appointments.

Kurt Smith, one of Miller's graduate students, has a nice way of thinking about the atmosphere of gentle anarchy that surrounds his adviser. Washington
University's electrical engineering department, he says, offers graduate students a choice of role models. "Snyder," says Smith, referring to Donald L Snyder, a mid-career professor of electrical engineering with a world-wide reputation, "is Leonard Bernstein. Miller is John Coltrane."

The combination of jazz saxophonist and electrical engineer seems improbable, but it clearly works for Miller. In five years at Washington University, this loose and exuberant, but ambitious and intensely hard-working scientist has achieved a well-deserved reputation in the field of medical imaging—the field of making better pictures out of computer axial tomography (CAT scans), nuclear magnetic resonance, and the other new technologies that have revolutionized medical research and diagnosis. The work is important enough to have won Miller, in 1986, a Presidential Young Investigator award from the National Science Foundation. Given to only about 100 scientists a year, the award provides up to $100,000 a year in research funding for five years.

At the same time, the 33-year-old mathematician-engineer has scored another kind of achievement. Through the attraction of his personality and his passion for his field, he has helped make Washington University's electrical engineering department a drawing card for some of the University's best academic talent, persuading gifted students to devote their energies whole-heartedly to sophisticated computing projects and prodding them to giddy heights of achievement. And he's helped them have fun in the process.

**In Electrical Engineering** no one advises as many graduate students as Miller. Many of them are brilliant, with the papers to prove it. Among Miller's charges, for example, are three students who have received National Science Foundation fellowships for their graduate study—Tim Schaewe (he of the nine a.m. reminder on Miller's blackboard), Anders McCarthy, and Michael Turmon. Given that only about 600 such fellowships are awarded each year nationwide in all the sciences, that's a remarkable concentra-

**Unconventional and spontaneous,** Miller often becomes totally absorbed in projects; he admits he's not good at "the details of life." A colleague describes him as someone who can penetrate the secrets of a computer, but can't figure out how to buy one.

Roysam, a likeable man with enormous enthusiasm for his work, says he came to Washington University because "I've always prospered in small places." Huang was bright enough to be sent by her country to study here.

Among these students, called "Miller's Mafia" by one of Miller's colleagues, there isn't a hint of the kind of graduate student miseries that were in fashion a generation ago—self-doubt, alienation, and other fungi from the slough of despond. In fact, Miller's students seem to have taken their cues less from Fyodor Dostoyevsky than from Robin Hood and his Merry Band: they're fond of one another, upbeat, poised—and in some cases, even a little cocky. "I don't know of any conflicts in the lab," says graduate student Kurt Smith, who hesitates as if puzzled by the question. "Everyone enjoys one another. It's just a big collaborative effort. They're also nothing like the popular conception of the engineer as nerd-par-excellence, although they sometimes like to play off the image—Miller himself wears a tee-shirt identifying him as "Super Geek." The fact is that Smith is a strikingly handsome young man who minored in college in jazz guitar; that Schaewe looks you straight in the eye and tells you that he can play a little baseball; that Turmon reads not only algorithms, but novels; and that Huang is adventurously lapping up American culture.

That's not to suggest that the students don't work hard. They do: 60- and 70-hour weeks are the norm. But the impression conveyed is one of multitalented young people who know they're smart and who are having a very good time proving it. In large measure, the responsibility for this atmosphere seems to go back to Miller. "He's a very up, outgoing person," Donald Snyder notes, "who is very humorous and positive in his interactions. He just creates a good atmosphere around him, and in our lab." One way Miller does that is simply by giving students more attention than they normally get, and huge dollops of encouragement. "He loves to talk with you, just hang around with you," says Schaewe. "And if you get a good result, it's more exciting to him than if you gave him $100,000.

His rather ungainly six feet four inch frame crowned with floppy curls, his manner distinctly casual and unstintingly friendly, Miller often gives the impression of being a human St. Bernard. Easy-going and friendly as he may be, however, Miller often works 10-hour days, 70-hour weeks are the norm. But the impression conveyed is one of multitalented young people who know they're smart and who are having a very good time proving it. In large measure, the responsibility for this atmosphere seems to go back to Miller. "He's a very up, outgoing person," Donald Snyder notes, "who is very humorous and positive in his interactions. He just creates a good atmosphere around him, and in our lab."

One way Miller does that is simply by giving students more attention than they normally get, and huge dollops of encouragement. "He loves to talk with you, just hang around with you," says Schaewe. "And if you get a good result, it's more exciting to him than if you gave him $100,000."

It's just a big collaborative effort. They're also nothing like the popular conception of the engineer as nerd-par-excellence, although they sometimes like to play off the image—Miller himself wears a tee-shirt identifying him as "Super Geek." The fact is that Smith is a strikingly handsome young man who minored in college in jazz guitar; that Schaewe looks you straight in the eye and tells you that he can play a little baseball; that Turmon reads not only algorithms, but novels; and that Huang is adventurously lapping up American culture.

That's not to suggest that the students don't work hard. They do: 60- and 70-hour weeks are the norm. But the impression conveyed is one of multitalented young people who know they're smart and who are having a very good time proving it. In large measure, the responsibility for this atmosphere seems to go back to Miller. "He's a very up, outgoing person," Donald Snyder notes, "who is very humorous and positive in his interactions. He just creates a good atmosphere around him, and in our lab." One way Miller does that is simply by giving students more attention than they normally get, and huge dollops of encouragement. "He loves to talk with you, just hang around with you," says Schaewe. "And if you get a good result, it's more exciting to him than if you gave him $100,000."

His rather ungainly six feet four inch frame crowned with floppy curls, his manner distinctly casual and unstintingly friendly, Miller often gives the impression of being a human St. Bernard. Easy-going and friendly as he may be, however, Miller often works 10-hour days, six days a week—when he's not particularly absorbed. When he is engaged, as he was recently when he discovered the work of Noam Chomsky, Miller pauses only to sleep and eat. Perceiving that the ideas of the noted linguist might help him in his quest to program computers to better grasp visual imagery, Miller became obsessed. "I just got into a frenzy," he says. "I got frantic, reading and reading and reading. Really excited. The house became a shambles." The casual visitor could confirm Miller's observation, noting Christmas cards propped about his apartment well into summer.
much of what Miller does has to do with filtering out noise and interpreting the essential message.

In trying to interpret the electromagnetic information that flows into a sensor during various scanning and measuring techniques, scientists have for years relied on Fourier analysis, a mathematical technique named for the 19th-century French mathematician Jean-Baptiste-Joseph Fourier. Fourier analysis still is used, for instance, to disentangle the radar signals from two nearby airplanes, so that the planes can be seen as separate and correctly identified. It’s used as well in interpreting the signals emitted during nuclear magnetic resonance and other scanning techniques for the body, so they can be built into a picture of what’s inside.

For these and other applications, however, Fourier analysis isn’t as powerful as scientists would like it to be. As a result, Donald Snyder helped pioneer the use of a different mathematical approach in interpreting the signals, called “maximum likelihood estimation” theory. Related to probability theory, the approach involves making a guess as to what a certain answer should be, checking the guess against the observed facts, refining the guess, checking again, and repeating the process again and again, at speeds up to thousands of times per minute. It was Snyder’s presence that drew Miller to Washington University. And it’s Miller’s development of a “maximum likelihood estimation” approach to positron emission tomography (PET) and electron microscopic auto-radiography that are probably his biggest achievements to date.

Developed by Washington University physicist Michel M. Ter-Pogossian, PET is one of the powerful new techniques for peering into the body that have been invented in the last two decades: computer axial tomography (CAT) and nuclear magnetic resonance are two others. An extremely powerful research tool with emerging clinical application, PET enables scientists to see not only anatomy, but also physiology. In other words, it allows researchers to see what’s going on in tissue, besides the tissue itself.

A key feature of PET, however, involves its reliance on radioactive tracers to provide it with its information. Subjects must swallow or be injected with a radiopharmaceutical which, after collecting in areas where their biological activity is in demand, emits the positrons, or pairs of photons, which give the technology its name.

Scientists using PET therefore face a problem: the more radioactive tracer they give the subject, the more information they gain, but the more damage they may inflict. The problem is particularly acute with young patients, for whom the legal limits of radioactive exposure have been set especially low.

As a result, any method of deriving equally good pictures from less data and less radioactive tracer, or better pictures from the same levels, represents an important advance, says Marcus Raichle, a professor of neurology and radiology with more than a decade of experience in PET. Such an advance, he says, is exactly what the new algorithm that Miller and those working with him appear to have achieved. In this case, Miller’s colleagues include Snyder and David Pollitte, a research associate in the Institute for Biomedical Computing.

An algorithm is a set of mathematical procedures, or instructions, for telling a computer how to manipulate data in a way that produces the desired meaningful result. Once devised, it is built into the computer’s software. Although the maximum likelihood estimation algorithm for PET is still being tested, it appears to represent a “quantum leap” forward, Raichle says. If it is, it will open new horizons for PET research.

**PART OF WHAT MOTIVATES**

Miller, suggests graduate student Schaeve, is a desire to accomplish something great, and to be recognized for it. But the long hours and a drive for recognition don’t reflect the kind of voracious ego or need for power that they might, because with Miller the work seems informed by the joy and freedom of discovery and achievement.

That’s the Coltrane in him, the part of his personality that in high school—in Valley Stream, New York, where he grew up the son of an accountant—made Miller a class clown who loved mathematics but otherwise studied only when deeply moved.

And it’s the part that helped him in his first and only “real” job, with GTE/Sylvania near Boston to fail miserably: Miller couldn’t apply himself to what he calls “details,” such as sitting down in the same office each day at the same time to do the same thing. So, clearly not fitting in, Miller left the corporate world after 18 months and went back to Johns Hopkins University, where he’d already gotten his master’s degree, and took his Ph.D. in electrical engineering in 1983.

The mundane, the routine, bother him in general, Miller says. “I’m not good at the details of life,” is how he puts it. Morley describes Miller as the kind of man who can penetrate the secrets of a computer but can’t figure out how to buy one.

Shoes may be another detail. “You see him in the conference room with his bare feet up,” Schaeve says, “while everyone else is sitting with their hands folded in their laps, looking mannerly.”

From another personality, such insouciance could easily seem offensive, such contempt for the mundane, snobbish. But it’s clear that Miller, through his exuberant and sweet nature, has been able to
Jodi Sullivan and other such as Assistant Professors Dan Fuhrmann and Jody O'Sullivan, and other members of the electrical engineering department's Electronic Systems and Signals Research Laboratory—he says, "they all want to give me things and involve me and help me do things." He is totally delighted and a bit bemused.

**ONE OF THE GREAT NEW TOOLS** of medicine, NMR imaging is a "non-invasive" scanning technique, enabling doctors to see inside the body without X-rays or radioactive tracers. In this and other ways, it represents an important step forward from CAT and PET scans. Many researchers view NMR as the imaging tool of the future.

Nifty as the new technique is, it has its limitations, notes R. Gilbert Jost, professor of radiology and chief of diagnostic radiology at the Mallinckrodt Institute of Radiology. Using Fourier analysis to decipher its signals, the information that's gathered is too sketchy to allow for quick exams. Researchers are compelled to have patients scanned for about an hour to get enough information to give them sharp, reliable pictures.

The technology is also limited in what it can image. Currently, only the hydrogen in a patient's body can be used to form images, because the signals given off by other elements in the body are too faint to be interpreted.

Although imaging hydrogen allows for diagnosis of many problems, including tumors, the capacity to image some other elements like sodium and phosphorous would be enormously beneficial, Jost says. If scientists could image phosphorous, for example, they could help distinguish between healthy, sick, and dead tis-

**Rolling along:** Tim Schaewe, Anders McCarthy, and Michael Turmon, from left to right, are all National Science Foundation fellows, among only 600 nationwide. If not for adviser Mike Miller's influence, says Schaewe, "I'd have gotten a job and be driving a nicer car by now." Instead, he's working on his Ph.D.

**NMR imaging is a "non-invasive" scanning technique, enabling doctors to see inside the body without X-rays or radioactive tracers.**

In this and other ways, it represents an important step forward from CAT and PET scans. Many researchers view NMR as the imaging tool of the future.

Nifty as the new technique is, it has its limitations, notes R. Gilbert Jost, professor of radiology and chief of diagnostic radiology at the Mallinckrodt Institute of Radiology. Using Fourier analysis to decipher its signals, the information that's gathered is too sketchy to allow for quick exams. Researchers are compelled to have patients scanned for about an hour to get enough information to give them sharp, reliable pictures.

The technology is also limited in what it can image. Currently, only the hydrogen in a patient's body can be used to form images, because the signals given off by other elements in the body are too faint to be interpreted.

Although imaging hydrogen allows for diagnosis of many problems, including tumors, the capacity to image some other elements like sodium and phosphorous would be enormously beneficial, Jost says. If scientists could image phosphorous, for example, they could help distinguish between healthy, sick, and dead tis-

levels of phosphorous. The value of such a diagnostic technique for survivors of heart attacks and strokes, among others, is obvious.

Enter Miller. Through a maximum likelihood estimation approach that he has developed in the last few years, he and his graduate students think they may have solved many of these problems. The preliminary indications are that the new method works at least two to four times better than the current techniques, Miller says. One result: pictures that now take 60 minutes to generate would take 30 or 15. In fact, Miller says, the new method may be more powerful by a factor of ten—good enough to image phosphorous. Although Jost is cautious—"there's still a lot of work to be done as to whether it (Miller's new approach) fits together," he says—he's also obviously quite hopeful.

"Miller," he says, "has a great track record."

**When a Human Being is Driving:** down a road on a foggy night and sees a large shape moving directly in front of him, he is much more likely to judge that shape to be a car rather than a cow equipped with brake lights. This kind of common sense determination is known as heuristics, and it helps human beings shape and speed their perceptions.

Writing heuristics in English is a simple matter. But writing heuristic commands in the mathematical equations that would allow a computer to understand them is a much thornier process.

How do you tell a computer to recognize where one object stops and another starts? How do you explain texture to distinguish more easily between lungs and hearts? How do you explain an object's "gestalt"—the recognition, for example, of the image of the person in the distorted shapes of a cubist painting by Picasso?

Such problems are extremely fundamental, engaging the basic problems of perception. Advances in their solution could entail significant progress in a number of areas, including speech recognition by computers, robot vision, and the kinds of imaging work Miller has already been involved in.

Miller and his graduate students are now working on mathematical models for a large number of heuristics, and developing the ways in which these models can be used by massively parallel computers. Massively parallel computers are a new, increasingly significant category of computers in which large numbers of simple processors are linked together to solve complex problems by breaking them up and working on them at the same time.

Although Miller says the work is "much deeper" than his previous work, he isn't making many claims about it yet. But Donald Snyder says it may be his most significant achievement to date.

"I think the things he's working on now will have a national impact," Snyder says. "I think they are potentially a real bombshell."

Paul Wagman, a former staff reporter for the St. Louis Post-Dispatch, is a writer for Hill and Knowlton, Inc., a public relations firm.
By dawn's early light: Roaming the Hilltop Campus just after sunrise during the weeks surrounding summer solstice, University Photographer David Kilper found the light of an unusual quality and arriving at an angle possible only at that time of year. Combined with a quiet left by the wake of Commencement, that rare light allowed him to document familiar sights in a mood most of us never see.

Above, a light-sensitive spotlight illuminating the Quad shines through the arch of Brookings Hall moments before being extinguished by the coming of daylight. More photographs can be found on pages 15 and 16.