Paris in Japan

The Japanese Encounter with European Painting
Let the games begin: Play officially began this fall for the University Athletic Association, a league formed of NCAA Division III schools committed both to academic excellence and the role of the student-athlete. In press conferences held last year in St. Louis and New York, an announcement of the association’s founding said it hoped to make a collective public statement about the role of athletics in institutions of higher education.

In the photo above, leaders of the eight schools responsible for forming the new league celebrate its inception. Standing, from left: John P. Crecine, senior vice president, Carnegie Mellon University; Charles D. O’Connell, retired vice president and dean of students, University of Chicago; William Danforth, chancellor, Washington University; G. Dennis O’Brien, president, University of Rochester; Robert Welch, dean of administration, Johns Hopkins University. Seated, from left: L. Jay Oliva, chancellor, New York University; William Fox, vice president, Emory University; David Ragone, president Case Western Reserve University. Since this photo was taken, Brandeis has joined the association.
Frontrunners

The latest in research, achievements, and other adventures, from around the campus and beyond.

Trade Winds

While turn-of-the-century Japanese artists emulated European painting, Americans wondered why.

Annual Report

University administrators review the highlights of an active and successful year.

Reading the Rock

In Canada’s Northwest Territories the earth bares itself, inviting geologists to search for clues to its creation.

Keeping an Eye on America

Max Lerner, A.M. ’25, columnist and American historian, maintains a sharp vigil over his country’s adolescence.

Enchanted Technology

Three major upheavals of thought have returned science to the province of magic. By Max Lerner.
Berlioz Specialist Augments Growing Music Department

"What a pleasure it is to see the sun," remarks Hugh Macdonald, recently arrived from Glasgow as the Avis Blewett Professor of Music, on the subject of a bright, Indian summer afternoon. "There's usually so much rain and fog this time of year back home." A remarkably young-looking 47, this couldn't possibly be the same Hugh Macdonald known internationally as a scholar of 19th- and 20th-century music, who taught for five years at Cambridge University, for nine at Oxford, and for another seven at Glasgow University. But it is.

Hugh Macdonald

The same Hugh Macdonald who is the founding and general editor of the New Berlioz Edition, a compilation of material on the 19th-century composer, Hector Berlioz, who has been the focus of Macdonald's scholarly life; the same Hugh Macdonald who is the author of 16 composer entries in the New Grove Dictionary of Music and Musicians; the same Hugh Macdonald who served as conductor of the university orchestra and led a jazz band back home (in which he played piano), and whose extracurricular interests run from bridges to antique typewriters to home-performance skills on half-a-dozen instruments, including the ophicleide, a forerunner of the tuba.

Macdonald's arrival this semester is part of a larger movement in the music department, set in motion last year with the naming of Jeffrey Kurtzman as chairman. Kurtzman came from Rice University, where he was a member of the founding faculty of the Shepherd School of Music. Setting as his goals the consolidating of existing strengths, Kurtzman has specifically attempted to create a broad-based undergraduate curriculum and a more narrowly focused graduate program that will more firmly establish the department's already excellent reputation.

"We're thrilled to have Hugh Macdonald join us," Kurtzman says. "His reputation enhances the international recognition of the department, and his interests help provide a central focus for the interests of other faculty here. His leadership in 19th- and 20th-century studies merges well with the specialties of several other members of the department. His familiarity with the repertories of the 18th and 19th centuries is immense, and his active involvement in performance brings a different perspective to scholarly pursuits than is common in the States."

As editor of the Berlioz series, it is Macdonald's responsibility to assure that published scores are true to the intentions of the composer. To that end, he searches out all available material, sifting and explaining variations. In the case of Berlioz, this search led Macdonald to the libraries of Paris, where he unearthed not only Berlioz' scores, but a huge body of critical writings, only a fraction of which have been published in modern editions. His interest in Berlioz, typically for one of such a wide range of interests, began before he was familiar with the music itself. "I started out in mathematics," Macdonald admits. "I read Berlioz' memoirs and I was struck by the personality. It was so vital."

Macdonald says he misses the rain and fog not a bit. "I never planned to spend my whole life in one place," he says, "and besides, it was time to winnow out my collection of 80 or 90 typewriters— I never had space enough to display more than a dozen at a time." —Rbea Symeonoglou

Around the town: Washington University Campus Stores, enlisting the support of the St. Louis Regional Arts Commission and University photographer Herb Weitman, this fall published Seeing St. Louis, a handsome, 200-page guidebook that features 14 neighborhood itineraries and nearly 50 striking photographs by Weitman of characteristic St. Louis scenes and sights. The author is Barringer Fifield, an historian and novelist who divides his time between St. Louis and Rome.

Above, a detail of the Lammert Building, a downtown commercial structure recently renovated.

Distributed through the campus bookstore and through other bookstores in the greater St. Louis area, Seeing St. Louis provides a helpful resource to students and campus visitors while the 14 itineraries include facts and artifacts, according to Campus Stores Director Paul Sheffel, "that even to the typical, long-time resident remain unheard of and unseen."

Copies of Seeing St. Louis can be obtained by mail for $11 (postpaid) from: Campus Stores, Campus Box 1074, Washington University, One Brookings Drive, St. Louis, MO 63130.
Sri Lanka Security Minister Wages War, Counsels Peace

O nly a half decade ago, Sri Lanka was considered a Third-World success with a model democratic government, economic development, and tolerable race relations. Today, the nation is torn by a civil war that has claimed 6,000 lives in four years.

According to the Honorable Lalith Athulathmudali, the country's national security minister, who spoke on "Terrorism in Sri Lanka—A Democracy in Crisis" during a visit to Washington University this summer, Sri Lanka today is in danger of being associated more with terrorism than with tea, its major export.

Athulathmudali said most of the violence is the result of ethnic differences between the Sinhalese majority and the Tamil minority. Since Sri Lanka gained independence from Britain in 1948, the differences between the Sinhalese Athulathmudali is responsible for political and economic discrimination Sinhalese. Tamils constitute 18 percent of the country's 16 million people.

A Sinhalese lawyer and educator, Athulathmudali is a visit to Washington University a half decade ago, Sri Lanka in danger of being associated more with terrorism than with tea, its major export.

Athulathmudali explained that the Tamil terrorists believe in a one-party state and killing civilians is part of their policy. "The followers call their leader the Pol Pot of international terrorism," he said. "These people are not fighting oppression, they have hijacked an ethnic question in order to advance their reign of terror."

Despite the fact that the terrorists are receiving financial and military assistance from the Soviet Union and operate from bases in the Tamil Nadu province of India, the government's military efforts have been successful, Athulathmudali insisted. Prime Minister Rajiv Gandhi of India has in recent months been able to hammer out an agreement between the two sides that has led to the creation of an autonomous region for the Tamils. "Crushing the Tamil terrorists might lead the government to abandon the search for a political solution to the nation's ethnic problems," Athulathmudali said. The security minister said he believes a political solution is vital for long-term peace between the Tamils and the Sinhalese majority.

Robert Hughes

Post-Modernism: Fashion-Victims and Chest-Thumpers

R obert Hughes, the silver-tongued art critic for Time, kicked off the festivities for the opening of Paris in Japan this fall with a talk titled "A Cool Eye on Hot Art," given as part of the Assembly Series. The author of The Shock of the New, a celebration of modern painting, and more recently The Fatal Shore, a lively history of Hughes' native Australia, told his audience that we are in a "cultural slump," brought about by false ideas of art and a rabid marketplace for collecting.

Deploring the self-promotion of post-modernists—or late modernists, as he refers to them—Hughes poked holes in many an inflated ego. "Nobody in America today can draw as well as Rembrandt," he said of the current New York SoHo crowd.

"The very idea they could has start back 10 years at the most. In the 1930s," Hughes suggested, "their counterparts went to Africa and filled the den with heads of elephant and rhinos."

The majority of neo-expressionist painting currently filling the galleries Hughes called "chest-thumping art meant to grab you by the lapels and convince you of its emotional urgency."

So, what's a poor art critic to do in this decadent environment? "The critic is locked out of immediate influence on the market, unless he is content to be a tipster," Hughes observed. "The right stance for a critic in the mass media is exile and cunning. You can start a slow leak."

Among contemporary painters Hughes likes: Lucien Freud—grandson of Sigmund and member of a group of painters whose work exists at "an intersection of the figurative and the abstract"—and a couple of neo-expressionists, Anselm Kiefer and Frank Auerbach.
Salmonella Vaccine Fights Disease in Humans, Animals

Roy Curtiss, professor and chairman of the Department of Biology, announced this summer the development of two mutant strains of salmonella bacteria that may be used as a vaccine to prevent disease by salmonella in both humans and animals. Salmonella is a bacteria that causes food poisoning in humans and disease in livestock; one species is known to cause typhoid fever in humans.

While it is unlikely that people, at least in developed countries, will become vaccinated against salmonella, an oral vaccine similar to polio or flu vaccines could, in theory, be developed for humans; the greatest need would be in Third World countries where typhoid fever still is a killer disease.

The first impact of the oral vaccine, which has been successfully tested in the laboratory, is expected to be in the poultry industry, where up to 60 percent of chickens raised for human consumption are thought to be infested with salmonella bacteria. But Curtiss expects several years of research and development before the vaccine becomes widely avail-

able. "If we can significantly reduce the incidence of salmonella in chickens," he says, "we should reduce the impact of the disease in humans. But the profit margin is very small in poultry production, so a vaccine would have to be very inexpensive for producers to use."

The breakthrough was accomplished through genetic engineering that allowed Curtiss to delete from salmonella bacteria two genes necessary for the bacteria's growth in animals or people. Harmless bacteria result, which provoke a response from antibodies in the immune system, warding off other disease-causing strains of salmonella.

In 1984, Curtiss also developed, through genetic engineering, a vaccine against dental cavities, which is still in the experimental stage, by using non-disease-causing salmonella that carry surface proteins from the bacteria that form dental plaque. The antibodies induced in saliva then prevent bacteria from forming plaque, and thus cavities. The new, mutant salmonella strains, Curtiss says, also should improve the effectiveness of this vaccine. - Tony Fitzpatrick

CSAB Studies: Protectionism No Cure for Trade Deficit

In two separate studies, researchers at the Center for the Study of American Business at Washington University have taken issue with industry-supported attempts to restrain foreign trade.

Analyzing the impact of the 1984 "voluntary" restrictions on steel imports, Arthur T. Denzau, professor of economics and research associate at CSAB, notes that while the import share of the U.S. steel market has fallen, steel-using industries are being harmed. Publishing his results in a recent issue of Policy Review, Denzau finds that the steel import restraints could be expected to save 16,900 jobs for the steel industry and its suppliers, but that important restrictions lead to higher domestic prices.

This price increase results in 52,400 fewer jobs in industries that depend on the supply of steel, Denzau says. The end result is an overall loss of 35,500 industrial jobs. "Studies of protectionism in microchips, textiles, and other industrial products," Denzau concludes, "would most likely yield similar results."

In an editorial in the Miami Herald, Thomas J. DiLorenzo, 1986-1987 John M. Olin Visiting Professor at CSAB, argues against restrictions on Japanese automakers with plants in the United States to "buy American." DiLorenzo points out that U.S. automakers also often turn to foreign parts suppliers for similar reasons—better quality. Nevertheless, Japanese plants do, in fact, use a wide variety of U.S. parts. (Nissan's Tennessee plant does business with 92 domestic suppliers, to the tune of $400 million annually.) DiLorenzo says that Japanese automakers, and parts-suppliers located in the United States account for employment of a significant number of American employees, expected to be over 200,000 by 1990.

DiLorenzo sees a brighter future for U.S. parts-makers: "Much of the domestic auto-parts supply industry is adapting to the challenge of international competition," he says, "and the sooner the necessary changes are made, the better." - Ken Chilton
Alcohol Studies Show Genetic Source for Dependency

Recent research on the personalities and drinking behavior of adopted-away children of alcoholics suggest that alcoholics are born with personality traits that make them particularly susceptible to alcohol abuse. Alcoholics are likely to pass on this susceptibility to alcoholism to their children, even when the children are reared in normal adoptive homes.

In a recent *Science* article, C. Robert Cloninger, professor of psychiatry and genetics, described two high-risk personality profiles that can lead to different kinds of drinking problems. Cloninger found that some personality traits predispose people to start drinking, whereas others predispose them to become addicted afterwards. Because these different traits occur in all possible combinations, there is no single or specific personality type characteristic of all alcoholics.

One high-risk profile involves people who are extremely impulsive and exploratory (high novelty seeking), risk-taking and uninhibited (low harm avoidance), and independently self-willed and socially detached (low reward dependence). Individuals with this personality profile start drinking during adolescence or early adulthood and continue to initiate alcohol-seeking behaviors so that they are unable to abstain from alcohol entirely for long periods of time. This type of alcohol abuser often engages in other forms of antisocial behavior, such as reckless driving and bar brawls. This form of alcoholism almost exclusively affects men.

The other high-risk profile, which is characteristic of most female alcoholics and some male alcoholics, involves the reverse combination of personality traits. These alcoholics are eager to please others (high reward dependence), anxious and inhibited (high harm avoidance) and rigid (low novelty seeking). They develop problems with alcohol during late adulthood after exposure to heavy drinking that has been socially encouraged, such as drinking at “happy hour” with co-workers.

These individuals are anxious, introverted perfectionists who find the anxiety-relieving effects of alcohol rewarding, so that they quickly become tolerant of and dependent on alcohol. In contrast to alcoholics who cannot abstain, these individuals can stay away from alcohol for long periods of time, but lose control once they start drinking. They often go on prolonged binges, and later feel guilty about their loss of control.

Evidence that the two personality types are inherited comes from studies of the adopted-out children of alcoholics by Cloninger and his associates in Sweden. Because these children were separated from their biological parents at an early age, Cloninger was able to show the importance of genetic factors. Home environment can also be important, but is not sufficient to cause alcoholism. Alcohol abuse in adoptive parents did not increase the risk of alcoholism in the children they reared.

In contrast, Cloninger found the adopted children of alcoholics were three times more likely to develop alcohol abuse than the other adoptees. He also found that the type of alcoholism they inherit was usually the same as that of their biological parent, with one exception. The exception is that women rarely express the “male-limited” form of alcoholism.

These adoption studies have been further supported by laboratory studies that link individual differences in personality with subtle differences in brain chemistry. For example, exploratory novelty seekers are more sensitive to alcohol’s stimulatory effects because of greater sensitivity to a neurotransmitter called dopamine, which plays an important role in regulating responses to pleasurable experiences. On the other hand, alcohol also has anti-anxiety effects, which cause anxious and inhibited individuals to “lose their inhibitions.”

“Yet it appears we had misunderstood the whole issue from the beginning. It’s not what we learn versus what we inherit. We inherit how we learn.” According to Cloninger, people are born with different styles of learning—that is, differences in sensitivity to different kinds of experiences, such as punishments, rewards, novelty, as well as different kinds of drugs like alcohol. “We don’t all start out equal in the way we respond to experience,” he says.

“The way we respond, however, is not fixed, but adaptive. While we are born with different styles of learning, these styles have not yet been behaviorally programmed, but rather are like computer software systems that allow us to adjust our behavior flexibly in response to our individual experience.” —Kathy Will
Determined Pace Set by Performing Arts Chairman

The recently arrived chairman of the performing arts department, Henry Schvey, is a soft-spoken man with an air of determination. "In the past, performing arts at Washington University have been an important extracurricular activity," he says. "I would like to see more enthusiasm about performing arts; I want it to be the thing to do on campus."

Sitting in his second-floor office, which he has just repainted a quiet shade of blue, Schvey wears a pink Oxford shirt with black suspenders, and a black and pink silk tie. He already has begun to redecorate and reorganize the department office where a new poster-print of the Santa Fe Indian market hangs on the wall.

In his new capacity as professor of drama this semester, Schvey will be teaching a beginning drama class and a course on world theatre. As chairman, he will be setting the pace for the department as well as overseeing the direction of the Edison Theatre Series. At the top of Schvey's list are plans to strengthen the quality and quantity of student contributions in performing arts and to help the student drama society, Thyrsus, become more active.

A native of New York, Schvey comes to Washington from Leiden University in the Netherlands, where he established the Leiden English Speaking Theatre (LEST) in 1975, while serving as associate professor of English at the university. The first English-speaking theatre in Holland to use predominantly Dutch actors, LEST has been highly acclaimed by the European theatre community.

LEST also was well received at the International Theatre Festival at the State University of New York at

Wound-Repair Agents Cut Healing Time by Half

Surgeons may one day speed wound repair by applying the body's own healing agents in even larger quantities than the body can make by itself.

Wound-repair studies by Thomas A. Mustoe, assistant professor of surgery at Washington University School of Medicine, show that one such agent—a growth factor made by blood platelets—can, in sufficiently large quantities, help wounds heal in less than half the usual amount of time.

Mustoe was alerted to the wound-healing potential of platelet-derived growth factor, or PDGF, by Thomas F. Deuel, professor of medicine and biological chemistry. Deuel was the first to identify and crack the genetic code for PDGF, making it easier to manufacture in large quantities.

Mustoe and Deuel's results could be significant for a number of reasons. For one, there's the concern over the cost of medical care. If better wound healing could shorten hospital stays by just a day or two, there would be tremendous cost savings. And growth factors could help certain patient sub-groups with significantly impaired healing: the elderly, malnourished, those in chemotherapy regimens, and anyone on steroid therapy. In addition, the factors may be useful with hard-to-heal wounds such as bed sores and burns. But before PDGF can be used in humans, it must first gain FDA approval.

"There's a lot of potential," Mustoe says. "Realistically, what we've done so far is just a scratch in the surface. But I think we're off to a good start." — Kathy Will

Quotables

"To solve both the foreign trade and domestic liability crises, I recommend a simple swap. No trade restrictions at all. But for every 1,000 Japanese cars that enter the U.S., they must take 100 American lawyers."

Murray L. Weidenbaum, Edward Mallinckrodt Distinguished University Professor of Economics, from a talk titled "American Business Is Learning to Compete," as quoted in the St. Louis PostDispatch.

"The media have seldom displayed much sense of proportion, giving banner headlines to the dogs who bite men, while scarcely noticing other truly dangerous, scandalous, or otherwise momentous happenings. During the very week of Gary Hart's departure from the presidential campaign, for instance, the head of E. F.

Robert H. Salisbury

Since the 1950s, each six-year shift has occurred almost entirely in the Senate.

**Democrats in '88: What Goes 'Round Comes 'Round**

I wish to propose an alternative theory of recent American election history, one that fits that history quite well, forecasts the winning party in the next two presidential elections, and generally provides a reasonably sensible account of what has been happening to us. I call it “The Six-Year Switch” theory.

Very simply, the United States has shifted its political direction, in modest but decisive proportions, every six years since 1932. There are two small anomalies in this pattern which obscure it from our view. One cycle, 1938-1946, was extended to eight years because of World War II; one, 1964-1968, was truncated by the effects of domestic protest over Viet Nam, urban riots, and other unpleasantness. Otherwise it holds.

Thus:

- **1932-1938** - The New Deal, ended by a revival of Republican strength in 1938, and the forging of the Republican and Southern Democratic conservative coalition to block any extension of New Deal social reform.
- **1938-1946** - Largely a wartime combination with neither party able to dominate Congress and substantial bipartisan cooperation in foreign and military policy, both between the president and Congress and within each branch.
- **1946-1952** - Beginning with Republican recapture of both houses of Congress in 1946, a period of considerable partisan antagonism with neither side able to win enough support to carry out an agenda of action.
- **1952-1958** - The Eisenhower years, characterized for most of the period by divided control of government, but with muted partisanship and a sort of cooperative moderation in policy making.
- **1958-1964** - The Democrats won big in the 1958 elections and sent a large class of liberals to the Senate, changing the balance and paving the way for Kennedy’s New Frontier.
- **1964-1968** - The Johnson landslide victory in 1964, carrying large additions to Democratic Congressional majorities, permitted the framing and enactment of the Great Society agenda that went well beyond anything proposed in the previous JFK period. Viet Nam, urban riots, and frustrations with ineffective federal programs cut short the cycle.
- **1968-1974** - The Nixon period, with Democrats firmly in control of Congress, forestalling any effort to implement a conservative domestic agenda, but generally supporting the foreign policy initiatives of the Administration ended by Watergate.
- **1974-1986** - The Reagan period, dominated by a popular president, and his agenda of tax reduction and military buildup ended when the Democrats recaptured the Senate.

There are several points worth noting in this formulation of our recent past. First, it is not always presidential elections that bring the critical shift in political balance. Five times Congressional elections have registered the shift without any president on the ticket. In every case, there has been an important shift in the relative strength in Congress of conservatives, moderates, and liberals, of Republicans and Democrats.

Since the 1950s, each shift has been manifested almost entirely in the Senate. Remarkably little change in the distribution of party and group strength has occurred in the House. Incumbent re-election rates there have been at or above 90 percent. In the Senate, however, it has been common, especially in the “switch” years, for more than one-third of an election class to be freshmen.

It is especially remarkable for the Senate to be the crucial arena since only one-third of the Senate faces re-election each year. Moreover, the Senate was always expected to be a force for stability, a solid anchor against the changing winds and tides of popular sentiment. The House of Representatives was supposed to be the institutional reflection of current public opinion. That things have gotten so turned around is one of the many ironies, as we celebrate the Constitution’s 200th birthday, that marks the document’s life in our land.

Why six years? I confess I don’t really know. Why should that be the period during which problems and discontents build up enough to generate a shift in votes, usually rather small in total weight but enough to alter the composition of the effective majority in the national government?

And what of the future? The theory is quite clear about what we can expect. In 1988, the Democratic candidate will be elected president. But he (or she) will probably serve only one term. By 1992, the cycle will have come around again.

—Robert H. Salisbury

Robert H. Salisbury is the Sidney W. Souers Professor of Government at Washington University. A slightly different version of this article appeared originally on the op-ed page of the Chicago Tribune.
While turn-of-the-century Japanese artists emulated European painting, exhibiting in Boston, New York, and St. Louis, Americans wondered why.

During the late 19th and early 20th centuries, both Japanese and American artists, sharing a belief in the preeminence of contemporary French art, apprenticed themselves to French masters. Henry James, who enjoyed the company of numerous American expatriates abroad, observed in 1887: "It sounds like a paradox, but it is a very simple truth, that when today we look for 'American art' we find it mainly in Paris. When we find it out of Paris, we at least find a great deal of Paris in it."

James' assessment of the cosmopolitan character of American art confirmed the advice offered in 1864 by the American art collector and critic James Jackson Jarves: "If America elects to develop her art wholly out of herself, without reference to the accumulated experience of older civilizations, she will make a mistake, and protract her improvement... We have not time to
invent and study everything anew... No one dreams of it in science, ethics, or physics. Why then propose it in art?"

But while Jarves advised Americans to appropriate accumulated knowledge from the "Old World," he held contradictory opinions concerning Japan and its art. One of the first Americans to study Japanese art, Jarves published in 1876 A Glimpse at the Art of Japan, a broad survey that, in addition to chapters on the psychological, religious, social, and historical origins of Japanese art, commented on a new movement:

Easel paintings are not found in Japan, unless we admit into this category recent attempts to imitate ours, all [of] which are striking failures, as are also our experiments in their line. Innovations on either side, by which the practice of the one is guided by the principles of the other, have a common result. Either system must be kept to itself, intact, or wholly abandoned. There can be no happy mixture of the antipod of the antipodal elements of Oriental and European art, or subordination of one practice to the other, although we may largely gain by studying their fundamental principles and acquiring a knowledge of their materials and technical secrets.

Jarves' conviction that Eastern and Western aesthetic canons were "antipodal" prevented him from recognizing the profound influence that traditional Japanese arts were exerting at that moment on European—particularly French—artists. Precisely because Japanese art was recognized as an essentially different aesthetic from that of the West, it constituted a useful resource for European artists. In this respect, the threat of Westernization of Japanese art implied the loss of welcome stimulation, especially in France, where previous
generations of artists had, for example, drawn inspiration from Chinese motifs in the 17th and 18th centuries, and Near Eastern subjects in the early 19th century.

Most Western viewers may be familiar with the Oriental influence on European art, but the Western-style oil painting that developed in Japan still is not well known in this country, despite the fact that it represents a significant part of Japanese culture. *Paris in Japan: The Japanese Encounter with European Painting* presents to Americans, for the first time, a comprehensive survey of the Western painting movement during its years of maturation, from about 1890 to 1930. Although the histories of the artists involved and their accomplishments will be new to most Americans, this will not be the first time works by Western-style Japanese painters have been exhibited in America, nor will it be the first time their work stimulates critical discussion in the United States. In fact, several of the artists included in *Paris in Japan* visited America at the turn of the century, exhibited work in Boston, New York, and St. Louis, among other places, and sold paintings and watercolors to American collectors and at least one American museum.

The American reception of this Japanese Western-style painting suggests that Americans clung tenaciously to the expectation that Japanese art remain different from, and unadulterated by, Western art, even while American art was being nurtured on that of Europe. Japan was seen, from America, as an ancient civilization whose long-standing traditions were threatened by Westernization, rather than the way Japan saw itself at the time, as a young culture, like America, in the process of inventing itself. Turn-of-the-century Americans craved traditional objects from Japan; although they followed the progress of Japan’s modernization with interest, they were fascinated by the antiquity of its threatened customs.

In the United States, the Boston area was most intimately involved in America’s understanding of Japan, largely through the efforts of Edward Sylveste Morse, who resided in Japan on three occasions between 1877 and 1883 to study and teach zoology, eventually established himself as an authority on Japanese art and aesthetics. He assembled a distinguished collection of Japanese ceramics bought by the Boston Museum of Fine Arts in 1892, inspired numerous Bostonians to experience Japan, and introduced Ernest Fenollosa to the country in 1878.

Fenollosa helped convince the Japanese government in the 1880s to establish an art school to perpetuate traditional Japanese artistic values and techniques. The Tokyo School of Fine Arts was intended to counter the increasing Japanese infatuation with Western art and halt the declining quality of native craftsmanship. Extremely influential in shaping American perceptions concerning Japan, Fenollosa served as curator of America’s first department of Japanese art—at the Boston Museum of Fine Arts from 1890 to 1896—further strengthening that city’s ties to Japan.

Fenollosa argued that for Americans to truly understand the arts of Japan they must try to see them from a Japanese perspective. In his view, Americans should try to learn more about the “heart” of Japanese traditional art, and ignore why or how the Japanese studied the rules that governed Western art. Lecturing in Boston in 1892, he insisted:

The curse of western art is its hard and fast formalism by which individuality is crushed. We are so absorbed in the form and colors of things that we have no time to think of their meaning. With the Japanese artist it is widely different. Form and color he knows... but in every line and shade he sees the beauty of thought that lies behind. He sees the heart of things. And this is one of the lessons that we may learn from them, to drop our slavish desire to do everything as some one else has done it.... Art may be representative, but it must be imaginative... It is the heart that gives value.

One of the ways Americans might have acquired some less-biased knowledge about the Western-style art developing in Japan at the turn of the century was through accounts published by American artists such as John La Farge, Robert Blum, and Theodore Wores, who visited Japan in the 1880s and 1890s; but they were largely silent concerning the phenomenon. It seems probable the Japanese Western-style painters would have sought out the visiting American painters if they had known of their presence, however, as La Farge was conducted through the country by Fenollosa and his young protégé, Okakura Kakuzo, the Japanese Western-style oil painters were probably avoided. Further, La Farge arrived in 1886, in the midst of the suppression of Western-style painting by the Meiji government—under the influence of
Fenollosa and Okakura—which had banned public exhibition of such work, and in 1885 closed the Technical Art School where, since 1876, Western-style painting had been taught.

One eyewitness report, unpublished until 1963, is that of Blondelle Malone, who spent most of 1903 in Japan. Malone, who studied at the Art Students League in New York, was a friend to numerous American artists, including Blum, John Twachtman, and William M. Chase. A world traveler, she toured an unidentified art school, presumably the Tokyo School of Fine Arts, where both Japanese and Western-style arts were taught.

We met the director, who spoke English. I asked if there were artists who had studied in Paris and he went for one, the instructor in oil painting. This fellow came in with Paris stamped all over him... We visited the life classes next and the work was very good... we met four students... with the studio stamped all over them—baggy clothes, Vandyke and Rembrandt beards, and everything that goes to make an artist; that is, every superficial thing... we all went upstairs to see the gallery of oil paintings... The light and color seem to be better understood by the few Japanese who do go in for it than by the majority of our students... each had a character of its own. I was more pleased with the exhibition than any of its size that I ever attended, that is of students' work.

In February 1900, the Boston Museum of Fine Arts mounted an exhibition of Western-style watercolors and oil paintings by two young Japanese artists on their way to the Paris Exposition Universelle, Yoshida Hiroshi and Nakagawa Hachirō. Ironically, the museum where Fenollosa had served as curator presented an exhibition antithetical to his commitment to traditional Japanese values. Boston collectors and the museum itself purchased at least 84 of the 104 works exhibited, all of which—though depicting Japanese subjects such as bamboo groves, cherry blossoms, Kyoto temples, and landscapes—were painted in a Western style. The appeal of this and subsequent shows was probably due, in part, to the artists' Western realism, which satiated Americans' thirst for picture-postcard views of the exotic, foreign land. The marketability of these paintings, particularly those in watercolor—which was appreciated as a traditional Japanese medium, even when handled in a Western manner—appears to have resulted in several exhibitions intended to encourage, as one catalogue advised, the purchase of holiday gifts.

In New York, the American Art Association presented shows in November 1901 and December 1902. The 1902 exhibition of a group of Japanese artists, organized in Tokyo around 1901 as the Pacific Art Association, prompted a provocative review by The New York Times:

It has been the fashion to laugh at those Japanese artists who have gone to Paris to study, but they are justifying themselves. An exhibition of water colors now on view... shows that these men can produce work that compares favorably—very favorably—with the productions of their Occidental brothers. There is also an exhibition of water colors by American artists recently open in Fifty-seventh Street [at the New York Water Color Club]. A visit to that show, followed by an inspection of the work of the Japanese, is likely to lead to somewhat unwelcome reflections—to an American.

It would be instructive to place one of the pictures by, for instance, Winslow Homer, which are shown on Fifty-seventh Street, beside, for instance, "The Misty Morning" by Hiroshi Yoshida....In the one is an absolute lack of poetic feeling, color that is strong but unpleasing, drawing that is very clever but unrefined. In the other one finds a subject of the simplest character treated in a manner which exhibits the truest poetic instinct, subdued color which nevertheless has the qualities of a gem, drawing in which every line is subtle and full of meaning.

The New York Times review of the New York Water Color Club exhibition implied the context in which cultural sensibilities were exchanged. It noted

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My First Meeting with Renoir (1917)

UMEHARA RYÜZABURÔ (1888-1986), already well trained in Tokyo by his teacher Asai Chū, arrived in Paris in 1908 when he was just 20. Umehara developed an intense love for Renoir’s work, examined in detail all the paintings he could locate, and eventually traveled to the south of France in order to attempt a meeting with the Master himself.

Umehara became Renoir’s student and eventually a close friend of the family. Umehara’s memoir of Renoir contains a number of touching incidents concerning the French painter who, already 67 years old when the two met, was able to continue painting, despite increasingly frail health, until his death in 1919. No other Japanese painter of the period was able to work so closely with a French artist of Renoir’s enduring stature.

The house was surrounded by what seemed a copious olive grove, planted inside a fence that ran around the property. The entrance through the fence could be surveyed from a second-story window; and, indeed, a rather stout older woman now looked out and knocked, a large-boned, black-haired woman, wearing a kind of bodice with white dots on a red ground, so familiar from Renoir’s paintings, opened the latch in a careless fashion. . . .

“I have come from Japan to see Monsieur Renoir,” I blurted out. Startled, she led me inside. . . .

From something that I had read, I knew about Renoir’s rheumatism. Still, I had no inkling that he would appear in such rough clothing, and supported on two canes. Yet coming forth from those threadbare clothes was his majestic neck; and above all, I saw his strong, splendid eyes . . .

I will always remember the way the Master looked at that moment. Seeing this bizarre guest, for whom he was altogether unprepared, he could not even imagine in what language he was to be addressed. Since then I have never again seen anyone quite so startled. As I remember, I was so anxious to express my profound admiration for his art, and my thanks to him, that I quite forgot about my broken French and managed to address him; it now seems to me, in a relatively natural manner. I told him how I had learned of his name through books and had studied his paintings through printed illustrations of his work long before I left Japan. I told him how all the Japanese admired the Impressionists, and that there were many who were trying to study these new techniques. As I stopped and started my meandering remarks, he listened to me. We climbed up and down the corridors, Renoir manipulating his canes as he went along, so that he could show me his atelier. . . .

His atelier was not particularly large. The door and the wainscoting were painted yellow and the walls a light blue. There was a small boy there, familiar from some of the paintings, and Mme. Renoir explained that he was their third son, Claude, then nine years old. Renoir had done a series of canvases showing this boy and a woman with a red dress, writing at a desk. This woman was Mme. Renoir’s niece, Gabrielle. I later learned that for 15 years she had not only served as his model but had helped in every way, from cleaning his brushes and palette to aiding the awkward old man when he stood or walked . . .

Renoir had me sit in one of the chairs beside him and so gave me the opportunity to observe how he could create that world of harmony I so much admired. He took up a thin brush between his index and middle fingers, squeezed it dry with his thumb, and then, while holding with some difficulty in his arthritic left hand his palette, on which he had neatly arranged his colors—white, red, blue, green, black, and so on, all in order—he studied his model while, stroke after stroke, he piled up the thin layers of paint on the canvas. His efforts now seemed to have reached their climax. With his casque and a piece of cloth wrapped around his neck like a young laborer, Renoir opened his whitebearded mouth and began to sing what I took to be a phrase of Wagner. I later read something of Octave Mirbeau in which he indicated how he could feel the force of nature in Renoir’s joy as he created; and at this moment, I felt exactly the same thing myself. Mme. Renoir, standing behind me, said that there was no one else alive who could paint in that way, with that touch of the hand. “There is not, Madame,” I said. I felt no need to add anything more.

—Translated by J. Thomas Rimer and Emiko Yamanashi. Excerpted, in a slightly different version, from the catalogue to Paris in Japan.

Kuroda's figure study for a now-lost history painting demonstrates the careful artistic standards perpetuated at the Tokyo School of Fine Arts, where the curriculum was based on the French system of figure painting.

Far right: Portrait of Mrs. F., 1939 (Private collection); Yasui Sotaro (1888-1955).

Yasui's mature paintings express a cosmopolitan stylistic idiom that defies characterization as simply Eastern or Western; the same may be said of many of those who sat for their portraits.

Right: Mosquito Net, 1917 (Tokyo Metropolitan Art Museum, Tokyo); Arishima Ikuma (1882-1974).

Like many of his fellow artists, Arishima was inspired by both Cézanne's stylistic breakthroughs and the attitude with which the recluse painter achieved them, as he cast aside fashionable Paris for solitary dialogue with his subjects in the south of France.

that "The Rain" by the American Charles Courtney Curran depicted a "nude, treated in Japanese style, exquisite in color and in line, and charming in sentiment." The Times singled out for praise seven watercolors by the Japanese Yeto Genjiro, "in which the best traditions of the Japanese school of flower painting are followed." Thus, at the turn of the century, both the traditional and radical elements of Japanese art confronted one another in New York City; meanwhile, contemporary American artists such as Curran revealed the influence of traditional Japanese art in their own work.

The St. Louis World's Fair of 1904 presented the most comprehensive display of Western-style Japanese oil painting in the United States to date. There, the Meiji government exhibited some 91 works by native artists in the Fair's Art Palace, organized into a "Japanese School" and a "European School." The latter section comprised 26 oil paintings and watercolors by 18 painters (including Okada Saburōsuke, whose work is shown on the cover of this magazine). Artists of the Japanese school took the lion's share of the 35 prizes awarded to Japan by the international jury; three of the lowest rank went to the European school painters Yoshida, Mitsutani Kunishirō, and Wada Eisaku.

It is significant that although these three Japanese artists had by now been to Europe, they presented in St. Louis only Japanese figure, genre, and landscape subjects. Their work was generally overlooked by critics, most of whom lavished praise on the Japanese-style painters. For example, the American artist Will Low, who had studied in Paris with Jean-Leon Gérôme and Carolus-Duran, argued in Scribner's Magazine that "the only regrettable feature of the exhibit ... was a small collection of works by Japanese artists trained in Western schools and painting in accordance with our methods." Art critic Charles Caffin asserted in World's Work that the Japanese oil painter had "separated himself from the motives as well as from the methods of his own art. For the motive of Japanese painting is not one of representation, as ours is, but of suggestion.... It has grown out of and conformed itself to the preference which the Japanese have for the abstract over the concrete."

In such judgments these critics upheld the position of Fenollosa and his Japanese colleague, Okakura, who, as the first director of the Tokyo School of Fine Arts, had in 1887 organized the curriculum to revive the teaching and appreciation of native traditions. In 1904, Okakura presented a paper on "Modern Problems in Painting" at the Congress of Art and Science convened at the St. Louis World's Fair. Alerting his audience to the "onslaught of Western art on our national painting," he reported that "a great battle is raging among us in the contest for supremacy between Eastern and Western ideals." Okakura also cautioned: "Our national painting seems not to have been grasped by the general Western public. Our painting is still known to you through the color-prints of the popular school, and the flower and bird pictures which represent the prettiness, not the seriousness of our artistic efforts."

His admonition that Occidentals were confused in their judgments of the genuine qualities of Japanese art strikes at the heart of the problem concerning the identification of authentic national sensibilities. Even when looking at the Western-style art of Japan, Americans visiting the Art Palace at the St. Louis World's Fair wanted to see, as did the art critic for International Studio, Maude Oliver, "something of the dainty simplicity" that Japan "stamps... upon even the oil paintings of her artists."

In 1903, Sadaakichi Hartmann published Japanese Art, the first study in English to include a detailed chapter on the modern movements. Hartmann, born in Nagasaki to a Korean mother and German father, offered a cosmopolitan perspective on the issues, reporting that the Western-style "radicals" had "found the classical Japanese styles unequal to the expression of the new ideas, and largely unintelligible to a modern public." Briefly recounting the career of Kuroda, he offered an assessment that differentiated between the artist's academic history paintings and his landscapes:

The Radicals never convince us when they attempt elaborate compositions. Kuroda's most important picture ("Telling an Ancient Romance") ... is not even as interesting as [those of] Alma Tadema, while his views of Fusiya [Mt. Fuji] and river scenes, bearing all the characteristics of Japanese composition, are exquisite creations. They are vibrant with light and warmth, and show keen observation of nature in the Western sense.

The Radical school seems to have no future. It will never become national.

During the 1910s, Japanese art historians and critics published in English a number of accounts of contemporary Japanese painting that discussed the
Western movement as seen from within Japan. The differences of opinion concerning the Western-style painting in Japan itself are demonstrated by a contemporary, 1913 assessment in *The New York Times* by the "noted connoisseur" Kuwabara Yojiro, who found that "up to now their effort has been a failure."

Another critic, Harada Jirō, writing in *Studio* in 1910 informed readers that "it is the general opinion among our own art critics that our oil paintings show a more marked advancement than do our native paintings." In a comprehensive survey of the movement published in *International Studio* in 1915, Harada affirmed that: "Those Japanese artists who have adopted the European method of expression have done much for the advancement of art in general. If in nought else, at least by their boldness and freedom of expression they have pointed out new possibilities and given a fresh stimulus to those of our artists who have shown more or less inclination towards conventionality."

But while the movement received increasing coverage in the art magazines, the number of exhibitions of Western-style Japanese paintings in America declined. In contrast, during the 1920s and 1930s, the Boston Museum of Fine Arts, Pennsylvania Academy of Fine Arts, and Toledo Museum of Art, among others, mounted shows of contemporary Japanese-style painting and woodblock printing.

At the same time, growing numbers of aspiring Japanese artists arrived in the United States, often fresh from art school in Tokyo. Many went to New York, where they enrolled at one or more of its art schools; between 1902 and 1918 no fewer than 67 students at the National Academy of Design in New York listed their birthplace as Japan. Many Japanese also set Paris as their goal, with America a half-way step where they might improve their skills and raise money through sales of their work. The most accomplished almost inevitably went on to the French capital. The Académie Julian in Paris, which attracted numerous Japanese students during the first two decades of the century, reported in its journal that there were many Japanese studying Western art in San Francisco, evidence of the rapport between French and American art centers during the period.

The School of Fine Arts at Washington University publicized with pride the award of the Wayman Crow Prize for artistic achievement in 1905 to one of its students, Date Kotarō, a native of Japan. Date arrived in St. Louis via Seattle at the behest of Kajiwara Takuma, a Japanese photographer and portrait painter. Graduating in 1907, Date studied at the New York Art Students League for two years before returning to St. Louis, where he painted an unlocated mural for a local high school. He returned to Japan with the ambition of establishing his own art school in order to lead his compatriots, according to the *St. Louis Globe-Democrat*, "to a right conception of artistic principles... to help wean Japan from the artistic methods that have so long obtained there."

In general, American responses to the Western-painting movement of Japan disclose some of the presumptions, as well as the enthusiasms, that shaped contemporary Western opinions concerning Japanese art. On the one hand, Americans welcomed the Japanese artists to the United States, bought their work, and offered training in Western painting methods; on the other hand, Americans criticized their efforts as unworthy of Japan's great artistic traditions. A few Americans saw in the maturing Western painting movement a uniquely Japanese character; most Americans preferred not to see the movement at all.

Neil Harris, professor of history at the University of Chicago, suggests one of the motivations behind American interest in Japan during the late 19th and early 20th centuries may have been an implicit recognition that the United States, like Japan, was experiencing rapid modernization. In his 1975 essay, "All the World a Melting Pot? Japan at American Fairs 1876-1904," Harris observes that this modernization threatened revered values and challenged the notion that America's strength lay in its ethnic diver-
sity and, as James Jarves described, in its "eclectic" character. Harris insists: Japan telescoped a major American problem. In the late 19th century, anxiety was growing about the menacing character of modernization and the effects of industrialization and massive immigration...as millions of immigrants with distinctive physical, linguistic, and cultural traits entered the country, the question of assimilation grew more insistent. Were old stock Americans to adopt these millions to already extant models of culture, deportment, and value-orientation, or would immigrants retain their cultural peculiarities, enriching with heterogeneity a society that had not yet assumed any fixed form?...Japan presented an analogous problem...If the Japanese modernized, would they lose their special contribution to world civilization? If they did not modernize, could they survive as an independent state and resist the blandishments and intimidations of Western powers?...American efforts to understand the Japanese...[were] also an attempt to examine the future shape of their own civiliza-

Still Life (Three Red Apples, Cup, Can, Spoon), 1920 (Ohara Museum of Art, Kurashiki), Kishida Ryüsei (1891-1929).

Especially impressed by Rembrandt, Goya and Albrecht Dürer, Kishida abandoned his former painterly style in favor of a precisely delineated surface that shows his debt, particularly in his portraits, to Dürer and other Northern European masters.

In this still life, the artist evokes the life of objects in the mind, where unarticulated secrets of the cosmos may be understood through the senses.

If valid, Harris' thesis confirms that one can learn much about both Japanese and American cultures by studying phenomena such as the Western painting movement in Japan. In our consideration of this fertile encounter between cultures, we may discover that we have shared much with Japan in our mutual quests to articulate cultural values through the visual arts.
ANNUAL REPORT
1986-1987
Remarks of the Chairman

I find it a greater challenge each year in these brief remarks to do justice to the progress of the University in so many areas, to recognize the achievements of our outstanding faculty, students, administrators, and staff, and to salute the leadership, involvement, and generosity of countless individuals and organizations.

Last year I said I felt that the alliance of individuals and organizations that had pushed our major fundraising program beyond its announced goal of $300 million would continue to grow. With great pride and pleasure, I announce that gifts and pledges to the Alliance for Washington University as of June 30, 1987, stood at $553.1 million. This total, the largest ever achieved by a national university campaign, has been made possible by 217,066 gifts from 58,333 donors.

These are not final figures. The campaign will continue until December 31, 1987. Clearly, Washington University's alumni and friends have risen to the challenge of the Alliance. And it is equally clear that they recognize the importance of their ongoing support. For the second year in a row, voluntary private gift support of Washington University exceeded $100 million; the total for 1986-87 is $110.4 million, including major gifts from the Danforth Foundation and the Spencer T. and Ann W. Olin Foundation.

But it is particularly encouraging to see that the Annual Fund — unrestricted gifts in direct support of the current operations of the University and its schools — reached an all-time high of more than $8 million, a one-year increase of 38 percent.

The impetus for the great advances of the last few years came from my colleagues on the Board of Trustees, who nearly a decade ago convened the Commission on the Future of Washington University to study the major units of the University and to make recommendations for the 1980s and beyond. The process begun in the late 1970s by the individual task forces of the Commission on the Future will be further consolidated by permanent National Councils now being formed for each of the schools, for the libraries, and for student affairs.

The membership of the Board of Trustees underwent significant change during the past year. Last fall, Paul L. Miller, Jr., president of P. L. Miller and Associates, St. Louis, and Harvey Saligman, chairman of the board and chief executive officer of Interco, Inc., St. Louis, were named to the Board, followed in December by the election of Stanley C. Pace, chairman of the board and chief executive officer of General Dynamics Corporation in St. Louis.

At the May meeting, seven new Trustees were elected to replace seven whose terms expired in 1987. The incoming members are: John P. Diesel, president and director, Tenneco, Inc., Houston, Texas; Benjamin F. Edwards III, president, chairman, and chief executive officer, A. G. Edwards, Inc., St. Louis; Carol Tucker Foreman, president, Foreman & Heidepriem, Washington, D.C.; David W. Kemper, chairman and chief executive officer, Commerce Bank of St. Louis, and president and chief executive officer, Commerce Bancshares, Inc.; John Peters MacCarthy, president, Centrere Bancorp and president and chief executive officer, Centrere Bank, St. Louis; Andrew E. Newman, chairman of the board, Edison Stores, Inc., St. Louis; and Ronald L. Thompson, chairman of the board, president, and chief executive officer, General Railroad Equipment & Services, Inc., East St. Louis, Illinois. All of the new members in 1986-87 bring impressive records of achievement, service, and leadership in civic and business affairs.

Those whose regular terms expired are: August A. Busch III, chairman of the board and president, Anheuser-Busch Companies, Inc., St. Louis; Sam B. Cook, chairman and chief executive officer, Central Bank and Central Bancompany, Jefferson City, Missouri; Robert J. Glaser, M.D., director for medical science, Lucille P. Markey Charitable Trust, Menlo Park, California; Donald E. Lasater, chairman of the board and chief executive officer, Mercantile Bancorporation, Inc., St. Louis; Lee M. Liberman, chairman, president, and chief executive officer, Laclede Gas Co., St. Louis; George E.

W. L. Hadley Griffin
Chairman
Board of Trustees

Pake, group vice president, retired, Corporate Research Group, Xerox Corporation, Palo Alto, California; and Margaret Bush Wilson, senior partner, Wilson, Smith & Seymour, St. Louis.

The Board was saddened by the loss of Trustee Emeritus Lee Hunter, chairman of the board, Hunter Engineering Company, who died November 7, 1986, and of Trustee Edward J. Schnuck, chairman of the executive committee, Schnuck Markets, Inc., who died February 4, 1987. Their generosity and involvement will benefit the University for years to come.

We cannot expect the University's progress to continue to accelerate as rapidly as it has since the announcement of the Alliance in 1983, just as we cannot expect that changes outside the campus will so often benefit the University's advancement. However, the certain outcome of the Alliance is that our University community will be better poised to deal with problems before they occur, and to seize opportunities whenever they appear. Perhaps our greatest asset is a wealth of friends who share our dreams and our hopes. With them we shall continue to chart our course of excellence.

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

In 1945, Arthur Holly Compton returned to Washington University to serve as chancellor. His mission, endorsed by the faculty and by the Board of Trustees, was to lead Washington University to a new level of excellence, creating in St. Louis one of the world’s greatest centers of learning. At that time, the medical school was already a recognized national and international leader. Erlander and Gasser had been awarded Nobel prizes in 1943 and Carl F. and Gerty T. Cori had performed the work that was to lead to their Nobel prizes in 1947. There were also strong resources of people, facilities, and endowment on the Hilltop Campus. The basic institutional strengths gave promise for the future.

Neither the Board of Trustees nor the faculty expected that Washington University would gain instant recognition; universities are long-lived institutions which cannot be transformed overnight. In assessing progress in such institutions, one must think in terms of decades rather than years. Persistence in holding to a grand vision is often the key to success. Fortunately, Arthur Compton’s goal has continued to motivate faculty, boards of trustees, chancellors, and provosts since that time. Now four decades later, in the single academic year 1986-1987, a number of events and milestones have occurred which make it evident that the long years of sustained effort are bringing us much closer to our goal.

Many of the important happenings are outlined in the comments of Chairman of the Board, W. L. Hadley Griffin, in the annual University report and in the reports of school activities by the deans.

The reader will note that in the past year two Nobel prizes were awarded for work begun in the Biology Department of the Faculty of Arts and Sciences, and the first Fidia-Georgetown Award in Neuroscience was presented to Professor Viktor Hamburger. In addition, one present and two former members of the Faculty of Arts and Sciences journeyed to the White House to receive special recognition from the President of the United States. Two members of the medical faculty were elected to the National Academy of Sciences and two others to the Institute of Medicine, bringing the total number of our faculty in these two organizations to 20 and 14, respectively. A biologist and an economic historian were made Fellows of the American Academy of Sciences and four others Fellows of the American Association for the Advancement of Science. Another faculty member was elected to the American Philosophical Society. I am very pleased at this banner year for faculty recognition, which I believe is well deserved and, if anything, overdue in coming.

Student successes ranging from that of the mathematics team to that of the basketball team and the recognition of Student Life are documented in succeeding pages along with individual student accomplishments. Both the academic life and the extracurricular life of the University exhibit good health.

Accomplishments of faculty and of students give us all special pleasure; their recognition by others is evidence that Washington University is succeeding in its mission. These successes are the result of individual talent and effort. They do not happen in a vacuum, however, but in a context. That context is Washington University, supported by the work, the vision, and the generosity of alumni and friends.

I am happy to report that the physical and financial resources which undergird the work of faculty and students and make possible our hopes and dreams are stronger than ever. The nearly completed Alliance for Washington University is already the largest campaign yet conducted by an American university. I have known and long admired the generosity of the Washington University family, but even I have been overwhelmed by the support and the generosity in response to the Alliance for Washington University. This is an example of American voluntarism at its best. I am grateful, very grateful. In fact, I am inspired to aim higher, to work harder, and to rededicate myself to the dream of the last four decades.

Gifts associated with the Alliance for Washington University, coupled with outstanding management, have raised our endowment until it is now the ninth largest university endowment in the nation. Year in and year out, as far as I can see into the future, the income from the endowment will be helping to provide for faculty salaries, scholarships, books for the library, and the other essentials for a successful university. The financial underpinning for our work is firm.

Now as the Alliance comes to a close, it is time to ask, “What next?” and to plan for the future. Past and recent successes must not lead us into complacency. Complacency can cause even the greatest institutions to stagnate and decline. As part of our effort to view ourselves objectively and to be worthy of the trust that is placed in us, Washington University has formed National Councils for each of the schools, for the library, and for the student affairs area. These Councils will bring us the perspectives of many wise and accomplished individuals who are not caught up in the day-to-day affairs of the University. I believe that the National Councils will be a great resource in helping us identify and meet the coming challenges.

This last year has seen a number of major administrative changes.

In August 1986, W. Maxwell Cowan returned to Washington University to serve as Provost and Executive Vice Chancellor succeeding Ralph E. Morrow, who retired after a long and distinguished career. Provost Cowan has brought a broad understanding of...
education and science along with an intimate knowledge of Washington University. The impact of his energy and vision has already been of great value to people throughout the University, but especially to me, for it is my special privilege to work closely with Dr. Cowan.

Richard N. Rosett, vice chancellor and dean of the Faculty of Arts and Sciences, resigned because of differences over financial and budgetary policies. His resignation was a source of regret, for Dean Rosett had brought to Washington University a powerful intellect, a sense of direction, imagination, and a drive for excellence. The improvements resulting from his leadership will remain with Washington University for years to come. Fortunately, Professor Martin H. Israel of the Department of Physics was willing to take on the most difficult task of acting dean of the Faculty of Arts and Sciences. We owe him a debt of gratitude for the vigor, intelligence, and goodwill with which he has plunged into his duties.

After 11 years, Dean George D. Selfridge retired as dean of the School of Dental Medicine. Dean and Mrs. Selfridge, who are held in great affection and admiration by all who know them, will continue to reside in St. Louis. David A. Bensinger has succeeded Selfridge as interim dean. No person in my experience has done so much for, or given such able leadership to, that school. Time and again in periods of adversity and crisis, many at Washington University have turned to David Bensinger for help, relying on his intelligence and planning ability to see us through; he has never disappointed us. In recent months his vision and practicality have brought great progress.

The School of Law has a new dean, Dorsey D. Ellis, Jr., who will begin his activities in August 1987. Dean Ellis' coming is the result of an extensive national search carried out under the leadership of Dean Robert L. Virgil. All of us at Washington University look forward to the arrival of Ellis, who brings to us extensive experience both as a professor of law and as a university administrator. In both capacities he has earned the admiration of all who know him. The School of Law is in excellent shape. Much of the credit for this goes to Philip D. Shelton, who, as acting dean, gave exceptionally able and dedicated leadership over the last two years. Many of us feel that Phil Shelton is one of the finest individuals that we know. He and his wife, Diane, will be greatly missed as he takes on the new challenge as dean of the Mercer School of Law.

This last year also saw the resignation of Charles D. Churchwell, dean of Library Services, after nine years of distinguished service at Washington University. Churchwell came to us with an already established reputation as a librarian of national stature. His aspirations for the library and his hard and dedicated work soon won wide appreciation. While I regret Dean Churchwell's decision, I certainly respect it. Fortunately, Professor Bernard D. Reams, director of the Law Library, was willing to move to Olin Library to serve as acting dean. His quick grasp of the needs of the library system, his energy, and his balance have been a wonderful asset to Washington University.

During this last year Dennis Martin has served ably in the very important position of Director of Financial Aid. He succeeded Benjamin S. Sandler, who was promoted to the position of assistant vice chancellor for budget and institutional studies, a key role to which he has brought great dedication and strong planning ability. Robert J. Benson, Sandler's predecessor, is now applying his imagination and energy as dean of the School of Technology and Information Management.

A.V. Brokaw has joined Washington University as assistant vice provost for recruitment management to strengthen the planning for the admissions programs of the University. Robert M. Hedrick, who as dean for admissions had done much to help strengthen the undergraduate recruitment, has left to accept a position at the University at the South. Edward B. McDonald, who has given great service to Washington University for many years, has consented to serve as acting dean of admissions.

James E. McLeod, who for the last decade has served as assistant to the Chancellor and has helped to make my life a pleasure, will take on a new responsibility as director of African and Afro-American Studies. He will be succeeded by John A. Berg, who will also work under the direction of Herbert F. Hitzeman, Jr., to coordinate the work of the National Councils.

There have been 67 new appointments to the faculty. Twenty-nine faculty members have been granted tenure, and 24 have been promoted to the rank of professor.

It is a privilege for me to serve as Chancellor of Washington University. The greatest reward is the ability to work with so many intelligent, able and dedicated people of vision and goodwill. I look forward to the future with hope and with anticipation.

William H. Danforth
Chancellor

Washington University in 1986-87: Gathering Momentum

When Viktor T. Hamburger joined the faculty as assistant professor of zoology in 1935, few could imagine the future impact of his work in neuroscience. Two scientists he recruited to join him at Washington University, Rita Levi-Montalcini, professor emerita of biology, and Stanley Cohen, a biochemist now at Vanderbilt University, shared the 1986 Nobel Prize for Physiology or Medicine for their pioneering studies of nerve growth factor—research begun here 40 years ago and continuing today. Cohen delivered the Department of Biology's annual Viktor Hamburger Lecture here in March. Hamburger, Levi-Montalcini, and Cohen together have received most of the major awards given in the field of neuroscience. Most recently, Professor Emeritus Hamburger received the first Fidia-Georgetown Award in Neuroscience.

Levi-Montalcini and George E. Pake, trustee emeritus and former provost and executive vice chancellor, were selected to receive the 1987 National Medal of Sciences from President Ronald Reagan in June. They join Howard Nemerov, Edward Mallinckrodt Distinguished University Professor of English, who was recognized by the President in June with the National Medal of Arts. He also was named last January as the first recipient of the Aiken Taylor Award for Modern American Poetry.

More Faculty Distinctions

W. Maxwell Cowan, provost and executive vice chancellor, has been elected to the American Philosophical Society, founded in 1743 by Benjamin Franklin. Cowan, who is a member of
the National Academy of Sciences and the Academy's Institute of Medicine, a member of the American Academy of Arts and Sciences, and a fellow of the Royal Society of London, previously received the Philosophical Society's Karl Spencer Lashly Prize for Neurobiology in 1985.

Two faculty members of the School of Medicine were among 61 scientists nationwide elected to membership in the National Academy of Sciences. Philip Needleman, Alumni Professor and head of the Department of Pharmacology, and Emil R. Unanue, Edward Mallinckrodt Professor and head of the Department of Pathology, were recognized for their achievements in research. Two of their colleagues were elected to the Academy’s Institute of Medicine: Michel M. Ter-Pogossian, professor of radiology and director of radiation sciences for Mallinckrodt Institute of Radiology, and Samuel A. Wells, Jr., Bixby Professor and chairman of the Department of Surgery. Unanue also is one of five faculty awarded MERIT status this year by the National Institutes of Health to ensure uninterrupted support for their research; the others are Carl Frieden, professor and interim head of the Department of Biological Chemistry; Donald C. Shreffler, professor of genetics; Eugene A. Bauer, professor of dermatology; and Jacques U. Baenziger, professor of pathology. MERIT (Method to Extend Research In Time) status provides funding for an initial five-year period with possible renewal of the grant for an additional three to five years. Ter-Pogossian also recently learned that his research team’s cyclotron project, at 24 years one of the longest running grants at Washington University, would be funded for an additional five years. Joseph E. Varner, Charles Rebstock Professor of Biology, and Douglass C. North, Henry R. Luce Professor of Law and Liberty, have been elected Fellows of the American Academy of Arts and Sciences, joining 14 other members of the faculty on that prestigious body. Four faculty members—Roger N. Beachy, professor of biology; Joel E. Brown, Bernard Becker Professor of Ophthalmology; Paul J. DeWeer, professor of cell biology and physiology; and Philip W. Majerus, professor of medicine—were elected Fellows of the American Association for the Advancement of Science, a leading scientific organization in the United States.

One further example that the University’s faculty are preparing their students to function effectively in the world beyond the classroom was the recognition accorded to the School of Law’s clinical education program; the program, described as “second to none,” received the 1987 Emil Gumpert Award for Excellence in Teaching Trial Advocacy from the American College of Trial Lawyers.

**Student Achievements**

Washington University students again displayed their depth of talent and range of interests by their accomplishments and their honors. The University’s team of Daniel N. Ropp, Dougin A. Walker, and Japheth L. M. Wood won second place to the host school’s team in Harvard’s William Lowell Putnam Mathematical Competition. Over the past 10 years Washington University teams have finished first or second seven times. The School of Law’s mock trial team again won the Midwest Regional Competition and advanced to the National Mock Trial Competition; for the second consecutive year, the school was the only one to have two teams in the semifinals of regional competition. The University’s College Bowl team also advanced to national competition this year.

Five graduate students and three recent graduates received Fulbright awards for study abroad. 1986 graduates Allen Rose and Katharine Welle will teach English in French high schools and David Askins will do research in the history of mathematics in Germany. Graduate students, their fields, and their countries of choice are: Anne Barker, German, Germany; Karen Remmler, German, Austria; Linda Ruffner-Russell, fine arts, Finland; Larry Randall Wray, economics, Italy; and Margaret Sherraden, sociology, Mexico. Joshua Gordon, recently elected Student Union president, who will be a junior this year, was awarded a Harry S Truman Scholarship for the last two years of undergraduate and the first two years of graduate study.

**Voluntary Support**

Within the widening circle of the University community, there have been a number of gestures endorsing the significant work of the faculty in teaching, research, and service, and providing new resources to support the University’s mission.

The two largest commitments to the ALLIANCE FOR WASHINGTON UNIVERSITY during 1986-87 were: a $55 million grant from the Danforth Foundation, which provides endowment support; and a $30 million commitment from the Spencer T. and Ann W. Olin Foundation to endow fellowships and an annual symposium in the Medical Scientist Training Program, a six-year M.D./Ph.D. program to prepare clinically trained medical researchers. Both gifts were announced at a recognition event for ALLIANCE donors and volunteers in October, when it was also disclosed that the ALLIANCE had reached more than $500 million in total gifts and commitments, the most successful fundraising program in the history of American higher education to date. At year’s end the total for the ALLIANCE stood at $553.1 million, with gifts received during 1986-87 totalling $110.4 million. The Annual Fund, which provides unrestricted support for current operations, reached a new high of $8 million.

**Sponsored Project Support**

Sources from outside the University provided a total of $110.3 million in support of sponsored research, training programs, and other projects during the past year. This new money does not include multiyear projects which were fully funded in advance in previous years, and represents an 8.76 percent increase over the amount of such awards received during the 1985-86 fiscal year. The total includes $18.98 million from nongovernment sources, including industry and private foundations, and $91.3 million from government sources. A majority of the government funding, $78.6 million, was received from health agencies for projects in medicine and the biomedical sciences.

The University’s agreement with Monsanto Company, the largest university/industry research agreement ever established, continues to produce useful collaboration between Monsanto and Washington University scientists. One area of recent progress is the study being conducted by Philip Needleman, Alumni Professor and head of the Department of Pharmacology, of atriopeptides, protein molecules released by the upper chambers of the heart. These proteins act as hormones and have a powerful effect on the regulation of fluid and salt levels in the body.
newcomer to the Dean's office cannot help but be struck by the remarkable diversity of the Faculty of Arts and Sciences and the programs it offers. Its 22 academic departments teach students and engage in scholarship over the entire spectrum of humanities, social sciences, and natural sciences. The past year was one of great successes, whether one measures success in terms of numbers of students, achievements of students, or recognition of faculty.

This past academic year, 1,082 degrees were awarded: 757 bachelor's degrees to undergraduates in the College of Arts and Sciences, 278 master's and doctoral degrees to advanced students in the Graduate School of Arts and Sciences, and 47 bachelor's and master's degrees to evening students in University College. Out of the 757 graduating College students, 114 earned double majors this year, completing the required course work in two different fields.

Applications for undergraduate admission for fall 1987 are up 28 percent compared to 1986, and deposits paid by admitted students have similarly increased. It is likely that this year's large graduating class will be replaced by an even larger incoming class. This increase in admissions in the face of a declining number of high school seniors nationwide represents increasing national recognition of the excellence of our programs.

Student Awards and Activities
This year our students earned a number of national awards which reflect positively not only on the individuals who earned them, but on the faculty and the University. The honors for graduate students include, among others, Fulbright and NSF Fellowships, and NASA Awards for graduate research. Our undergraduate math team, Daniel N. Ropp, Dougin A. Walker, and Japheth L.M. Wood, won second place in the national William Lowell Putnam Mathematics Competition. This successful team contributed to a winning history—Washington University teams have finished in first or second place seven times in the last ten years, by far the best record of any university, in a competition that includes most of the best universities in the country.

While most extracurricular student activities are campuswide, one important organization works directly with this Faculty. Under the leadership of James T. Madore, the Council of Students of Arts and Sciences was active this year, especially in the area of student-faculty interaction. The Council sponsored events such as an afternoon for students and faculty at the St. Louis Symphony where a work composed by Robert Wykes, professor of music, was performed, followed by a gathering with the composer and conductor. The Council also continued its decade-long tradition of honoring four faculty members each year for outstanding teaching. After an exhaustive review of student recommendations, the Council presented its teaching awards to Ursula Goodenough, professor of biology; Peter Phillips, professor of physics; Susan Rava, lecturer in French; and Burton Wheeler, professor of English and religious studies.

Faculty Honors
Scholarly achievements of our faculty were nationally recognized by a number of major awards:

Howard Nemerov, Edward Mallinckrodt Distinguished University Professor of English, received the National Medal of Arts and the Aiken Taylor Award for Modern American Poetry. Lynn Walter, assistant professor of earth and planetary sciences, received a Presidential Young Investigator Award from the National Science Foundation.

Douglas C. North, Henry R. Luce Professor of Law and Liberty, and Joseph E. Varner, Rebstock Professor of earth and planetary sciences, were elected fellows of the American Academy of Arts and Sciences.

Viktor A. Hamburger, Edward Mallinckrodt Distinguished University Professor of Biology Emeritus, received the first Fidia-Georgetown Award in Neuroscience. His colleagues, Rita Levi-Montalcini and Stanley Cohen, won the Nobel Prize for physiology or medicine for work inspired by his direction in the Department of Biology here.

Peter Raven, Engelmann Professor of Botany and director of the Missouri Botanical Garden, received the International Prize for Biology in Tokyo from Crown Prince Akihito. Roger N. Beachy, professor of biology, was elected a fellow of the American Association for the Advancement of Science. Peter Gaspar, professor of chemistry, won the Kipping Award of the American Chemical Society.

The Ralph E. Morrow Distinguished University Professorship was established to honor the former provost and dean of the Faculty of Arts and Sciences for his 30 years of service to the University. The first person named to the position is Larry Haskin, chair of the Department of Earth and Planetary Sciences.

While we continue to recruit excellent senior faculty from outside the University, it is a special pleasure, when after rigorous scrutiny, our own junior faculty are awarded tenure. This year we awarded nine tenure promotions: John Bleeeke, chemistry; Anders Carlson, physics; Robert Dymek, earth and planetary sciences; Carolyn Gordon, mathematics; William Kirby, history; Nicholas Papanicolaou, physics; Dolores Pesce, music; Lynne Tatlock, German; and Colette Winn, Romance languages and literatures.
Facilities Improvements

Students and faculty are the essential parts of a university, but facilities of outstanding quality are vital in order for everyone to realize his or her potential. Three departments are currently making major improvements in their facilities. The biology department is adding a Plant Growth Facility with an adjacent greenhouse to its Life Sciences Building. Renovations in Louderman Hall will provide modern climate-controlled space for nine Nuclear Magnetic Resonance spectrometers and several high speed lasers for the chemistry department. Eads Hall, home of the psychology department, is being renovated to provide new animal quarters, to enhance the laboratories and to renew the first and second floors.

National Council

Like any private university, Washington University depends on the financial support of alumni and friends. We also look to these groups for advice and assistance in other ways, and the newly established National Councils should become a vehicle for informing our friends of what we are about and for listening to their counsel. The inaugural meeting of the National Council for the Faculty of Arts and Sciences was held last November, and a second meeting was held in April. John F. McDonnell, president of McDonnell Douglas Corporation, is the chair of this 25-member group. The Council's five standing committees are: Admissions, Development, Management and Planning, Minority Recruitment, and University College.

Annual Fund and ALLIANCE Update

The outstanding success of the ALLIANCE campaign is providing a base for continued improvement of the Faculty of Arts and Sciences. Three special gifts to the ALLIANCE this year are: $1 million from the Monticello College Foundation to endow Olin Fellowships for women pursuing graduate and professional studies at the University; $1.4 million from Monsanto Company for specialized Nuclear Magnetic Resonance equipment to support research in the chemistry department and the work of Jacob Schaefer, Charles Allen Thomas Professor of Chemistry; and a grant from alumnus Tobias Lewin to establish three professorships in the humanities.

While major gifts have been essential to this campaign, it is gratifying to note that an ever-increasing number of alumni and friends are contributing in all amounts to the Annual Fund for the Faculty of Arts and Sciences. Gifts to our scholarship program this year provided 61 named scholarships for students in the College. Nearly 100 individuals joined the Eliot Society with gifts of $1,000 or more; together with a $100,000 challenge grant from an alumnus, parents, and a corporate leader amounted to $244,278 in new and increased gifts to the 1986-87 Annual Fund.

With the scholarly accomplishments of its student body and faculty, the increasing generosity of its alumni and friends, and the support of the University's central administration, the Faculty of Arts and Sciences, undeterred by change of dean, has demonstrated the strength and vigor needed to continue to grow in achievement and reputation.

Martin H. Israel
Acting Dean
Faculty of Arts and Sciences
Faculty Distinctions and Activities

Professor Udo Kultermann was designated the first Ruth and Norman Moore Professor in recognition of his longtime distinguished teaching at the School and his international prominence as an architectural critic and historian. Kultermann, under his new title, will open the fall 1987 Monday Night Lecture Series.

In April, Professor Sheldon S. Helfman was selected to be one of the two recipients of the Burlington Northern Foundation Faculty Achievement Awards for 1987.

Professor Leslie J. Laskey retired from full-time teaching at the end of the academic year. To celebrate his educational contributions to our students since 1956, the School and the Gallery of Art at Steinberg Hall presented a comprehensive retrospective of his work titled "Silva Rerum." We are very pleased that Laskey will continue to teach at the School on a part-time basis.

Adrian Luchini, visiting assistant professor, presented his work, "Homage to Foucault," at a regional ACSA Conference in Urbana, Illinois, in September 1986. Luchini's "Three Projects" were also published in the August 1986 issue of Architecture and Urbanism.


Iain Fraser, associate professor, and Rod Henmi, affiliate assistant professor, presented a paper, "The Legacies of Architectural Drawing: Insights Revealed," at the national ACSA Conference in Los Angeles in March.

Enrollment and Student Activities

Enrollment in the fall of 1986 stood at 168 undergraduate and 107 graduate students. A larger freshman class for the fall of 1986 than in preceding years, a spectacular increase in the number of applicants for the fall of 1987, and a much larger number of participants in the summer Architecture Discovery Program may forecast larger undergraduate enrollments in the School for the next few years. Both the 1986 freshman class and the incoming 1987 freshman class have excellent academic profiles.

The recipient of the Fitzgibbon Scholarship for 1987-88, selected from more than 110 applicants, is Susanna Takayama of New York City, who will be joining the 1987 freshman class. During the summer, 46 high school juniors, representing 26 states, participated in the Architecture Discovery Program under the direction of Associate Professor Iain Fraser, who was assisted by four graduate students.

Michael Wolfson, a graduating senior and president of the Architecture Student Council received the 1987 University Shepley Award for leadership, scholarship, and service to the campus community. Again this year many students participated in various national competitions. Major awards were won by Chin Yean Loh, Amy Yuiko, Haden Smith, and Amy Munsat. Within the School, the first Fitzgibbon Prize for 300/400-level students went to Maneswar Cheemalapati, Brian Oster, and Robert Hahn.

Other Events

Late in the fall semester, James R. Harris, assistant dean, was curator of "The Architecture of William Adair Bernouy in St. Louis" exhibit, housed in the Gallery of Art in Steinberg Hall. William Bernouy attended Washington University for only a short time and then studied with Frank Lloyd Wright. Returning to St. Louis, he established a career and a reputation recognized by its Wrightian vocabulary. The School was honored to host this exhibit, which represented a distinguished career and a significant contribution to the architectural history of St. Louis.

"Steeleman Week" was held in February and included a lecture, review, and selection of a winner from the 159 entries, and a display of the participants' work together with a panel discussion by the jurors for the benefit of students and faculty. The winner of the $11,000 award, in conjunction with the American Academy in Rome, was a George Queral of New York.

A three-day symposium, "Points of Departure: Sources and Evolution of Architectural Ideas," was held in March under the initiative and direction of Professor Donald C. Royse.
symposium included a design charrette for participants and students, presentations and panel discussions by distinguished architects and academics, and was attended by a large number of students and faculty from other schools of architecture and members of the St. Louis architectural community. The keynote address was delivered by Swiss architect Mario Botta. Other participants included Wolf D. Prix, Vienna; Antoine Predock, Albuquerque; Judith Chafee, Tucson; and Peter Prangnell and William J.R. Curtis, visiting faculty at Washington University.

As part of the recurring accreditation process, we were visited once again by an NAAB accreditation team in April. Although its final report will not be available until later, we expect from the Team’s exit report that it will be the best accreditation report we have received during the last 15 years.

Based on nearly five years’ experience in providing computer-assisted design and drafting courses and seminars to graduate students, the School is embarking on a new venture—the integration of computers into a regular design studio. On the basis of recommendations developed by a faculty committee, the School obtained funding for a major remodeling project at the west end of the second floor studios. The project will result in a new mezzanine and renovated floor space for a computer studio and supporting spaces and facilities. We hope to have this completed and in operation during the 1987-88 academic year.

Alumni

The Annual Fund, under the direction of King Graf, BArch. ’53, continues to be an important part of the School’s overall development effort. Alumni and alumnae participation in the annual fund has reached 26 percent, and for the third consecutive year, the average gift exceeds $100. The 1987-88 Annual Fund will focus on increasing the number of scholarships available through the fund.

Carlos Ott, M.A.U.D. ’72, returned last fall to receive a Distinguished Alumnus Award at Founders Day. Having won first prize in an international competition for a new Paris Opera House, Ott spends most of his time supervising its construction, which is scheduled to be completed on July 14, 1989, the bicentennial of the French Revolution.

This year’s graduates were rewarded on May 15, 1987, with an additional and rare treat: the presence of Fumihiko Maki, internationally known and respected architect and educator, and a former faculty member of the School of Architecture. Maki was at Washington University to receive an honorary Doctor of Arts and Architecture degree. We are proud of “Chico,” and delighted to see his accomplishments recognized by Washington University.

Many thanks to all students, staff, faculty, alumni, alumnae, and friends who helped add another memorable year to the continuous development and progress of the School of Architecture.

Constantine E. Michaelides, FAIA
Dean
School of Architecture
**School of Business and Public Administration**

By concentrating on the basics of our enterprise—the faculty, academic programs, and students—we took important strides during 1986-87 toward our goal to achieve excellence in management education. The efforts and generosity of many friends are reflected in our progress.

**Faculty Development**

The School's future is the faculty. Attracting, developing, and retaining good faculty is our most important challenge. The growth in our student body presents an unparalleled opportunity to build the faculty. It is a difficult, yet exciting task. We made outstanding progress in this area this year, thanks to the efforts of James Little, associate dean, and the core of faculty who worked with him.

A few years ago, we began to focus our recruiting at the junior level on the best schools. This strategy is now paying off. In September 1987, we will welcome seven new junior faculty: Pamela Pickard, completing the Ph.D. at the University of Texas-Dallas, and Scott Davis, completing the Ph.D. at Stanford University, will join the faculty in marketing; Jean Masson, completing the Ph.D. at the University of Rochester, and Cynthia Campbell, Ph.D., University of Michigan, will join the faculty in finance; Arnold Buss, Ph.D., Cornell University, and Stephen Lawrence, completing the Ph.D. at Carnegie Mellon University, will join the faculty in operations and manufacturing; and Charles Wasley, Ph.D., University of Iowa, will join the faculty in accounting.

At the senior level, Dean H. Kropp, from the Amos Tuck School of Business at Dartmouth College, was appointed professor of operations and manufacturing management, and Don L. Coursey, from the University of Wyoming, was appointed associate professor of business economics. Their permanent appointments represent a major step forward and build on the recent appointments of Nicholas Dopuch, Hubert C. and Dorothy R. Moog Professor of Accounting; Barry Weingast, who recently was promoted to professor of political economics; and Gary Miller, professor of political economy.

The School’s changes in faculty resulted in both temporary and permanent losses. John Bowyer, who was with the University since 1951, retired as professor of finance. Recognized for his outstanding teaching more often than any other faculty member, Bowyer will be missed for his dedication to our students. Few undergraduates who attended the School during the last 30 years were not touched by him in some way.

Jess Yawitz, John E. Simon Professor of Finance, resigned from the faculty to remain as director of the financial strategies group for Goldman, Sachs & Co. William Marshall, formerly associate professor of finance and now associate director of the financial strategies group for Goldman, Sachs & Co., also announced his resignation. Laura Starks, assistant professor of finance, accepted a position at the University of Texas-Austin. Kenneth Leh, assistant professor of business and public policy, will be on leave during 1987-88 to become chief economist of the U.S. Securities and Exchange Commission. This is Leh's second tour of duty with the SEC, having served as deputy chief economist in 1984-85. Barry Weingast extended his leave for a second year at the Hoover Institution at Stanford.

**Faculty Achievements**

Gregory Waymire, associate professor of accounting, was one of ten young faculty nationwide awarded a research fellowship by the Peat Marwick Foundation. The fellowship will assist him in his research program during the next two years on the empirical relationship between accounting earnings and security prices.

Don Coursey, associate professor of business economics, was invited by the Russell Sage Foundation to select and coordinate a small group of scholars who study the ways in which various decision biases and other demonstrated departures from individual rationality express themselves in experimental markets. Coursey also received grants from the Chicago Board of Trade and the National Science Foundation.

Gary Miller, professor of political economy, received a grant from a major private foundation to support a year's collaborative research for the completion of a study on the ratification of the U.S. Constitution.

Barry Weingast, professor of political economics, was awarded a National Science Foundation grant for the purpose of collaborating in research on rational theories of political institutions.

The School received two grants from major private foundations in support of a research conference on political economy and business, convened under the direction of Barry Weingast and Douglass North, Henry R. Luce Professor of Law and Liberty and director of the Center in Political Economy. The conference was held on March 19-21, 1987 in Simon Hall, and was attended by more than 60 nationally and internationally recognized scholars in political economy, law, political science, economics, finance, and accounting. Additionally, the School has been awarded a grant to sponsor jointly with the Center in Political Economy, a
series of lectures on international political economy during the next two academic years.

Students again honored members of the faculty for their excellence in teaching. Teachers of the Year for 1987 were John Bowyer, Ronald King, Dean Kropp, and Kenneth Lehn.

**Growth in Student Body**

We achieved overwhelming success in attracting students to the undergraduate B.S.B.A. program. Our target for the 1987 freshman class was 140 students, up from 121 in 1986, from 95 in 1982, and from 70 in 1977. We exceeded our target of 1,000 applications for these 140 places, reaching 1,020 or 28 percent over last year. Offers of admission, however, rose only 17 percent, indicating our increasing selectivity. The incoming class represents 30 states, Puerto Rico, and six foreign countries. Sixty percent are men and 40 percent are women. Twenty-one percent of the class are minority students, including 18 blacks, more than double last year's enrollment of eight black students. The average SAT score is 1190, or the 95th percentile, compared to 1160 last year. More than 90 percent of the students are in the top quarter of their high school classes.

Equally significant is our success in M.B.A. admissions. The year's prospect pool exceeded last year's by 24 percent, reaching a total of 6,700. Applications, which are running 26 percent ahead of 1986, number 732 for 140 places in the Class of 1989. The average GMAT test score is 598, compared to 565 in 1986, and a national average of 487. The average college grade point average of the incoming students is 3.24.

In placement, our students continue to find the opportunities and challenges they are seeking, reporting an average of 2.3 job offers for each graduating student.

In the Ph.D. program, we continue to attract a strong group of highly qualified students. Twenty-seven students, including nine new students and 18 who are continuing, constitute a promising group of new young business scholars.

The Executive M.B.A., our most successful recent programmatic innovation, graduated its third class in June. The fifth E.M.B.A. class has enrolled approximately 40 students for fall 1987.

Total enrollment in the School of Business is 1,210 or about 11 percent of the University. Overall, our success in admissions is attributable to the growing general reputation of Washington University, the effect of Simon Hall, and our own growing reputation for excellence.

**Alumni Distinctions**

On April 21, we inaugurated a new tradition in the School—the Distinguished Business Alumni Awards and Dinner. We recognized H. Frederick Hagemann, Jr., B.S.B.A '26, Oliver A. Goralnik, B.S.B.A '30, Elliot Stein, B.S.B.A '39, Donald O. Schnuck, B.S.B.A '46, and Roger W. Schipke, B.S.B.A '58.

Thirty-eight persons worked assiduously on the executive committee of the Business Alumni Association, which Robert L. Harmon led as president. Hundreds of other alumni and friends assisted with placement, phonathons, class reunions, and other important activities. I am extremely grateful to each of them.

**The Alliance Difference**

On October 9, 1986, the School of Business received a second gift of $5 million from The Danforth Foundation when it made an additional generous gift of $55 million to Washington University. Including this gift, the School has received more than $41 million in gifts and pledges toward its original goal of $31 million in the ALLIANCE campaign. Nearly 34 percent of alumni, together with non-alumni friends, corporations, and foundations, provided $1,587,089 in annual operating support, which was 38 percent higher than last year. Five reunion classes presented the School with a combined reunion class gift of $300,449, which represents contributions from 277 alumni, or 38 percent of these classes. Participation rates reached as high as 72 percent for the Class of 1937 and 61 percent for the M.B.A. Class of 1962. Oliver Goralnik, B.S.B.A '30, Chairman of the Eliot Society membership committee, reports that 393 of our 2,027 giving members are at the Eliot level, 86 of them new Eliots. We are now able to offer 170 named scholarships through our Scholars in Business Program due to generous commitments from our friends. The Corporate Partners program, now in its second year, has 76 founding members at levels ranging from $1,000 to more than $100,000 annually. These are tremendous results.

I deeply appreciate the loyalty and dedication of our alumni and friends. These steadfast supporters are helping to ensure that we realize our vision for the School's future. Their support and confidence continue to inspire us.

Robert L. Virgil
Dean
School of Business

Dean Kropp, professor of operations and manufacturing management, teaches a class to MBA students in Simon Hall.
New Educational Opportunities

Radical changes in health care services in recent years have dramatically affected the field of dentistry. In order for the School to attract students, it is essential that our academic programs prepare students for the professional life that follows education. With this in mind, we have broadened our educational opportunities. The School offers a program leading to a master's degree in craniofacial biology, and accepts candidates for a doctoral degree in craniofacial biology. In cooperation with the Graduate School of Arts and Sciences, students will be able to earn a master's degree in such areas as economics, biology, and statistics. I am interested in seeing the School and its students becoming increasingly part of the entire University community. In this regard, the School will continue to explore other educational programs for our students.

Faculty Changes

Five members of the faculty became emeritus at the end of the 1986-87 academic year: Hugh Berry, professor of endodontics; John E. Gilster, professor of pedodontics; Samuel Guyer, professor of restorative dentistry; Harold Rosenthal, professor of biochemistry; and Charles Waldron, director and professor of diagnostic service and pathology. Each has spent many years on the faculty—some as many as forty. Berry, Gilster, and Guyer all received dental degrees from Washington University. The School and the University have been honored by their careers and their many contributions.

Philip Osdoby, previously assistant professor, was awarded tenure and promoted to associate professor in the Department of Biomedical Sciences. Allen Sclaroff, associate professor of oral and maxillofacial surgery, was also awarded tenure. Richard Smith, professor of orthodontics, was appointed associate dean.

Rebecca German, assistant professor of anatomy, received a joint appointment to the Department of
Memory Elvin-Lewis, professor of microbiology in biomedical sciences, is conducting research on ethnobotanical aspects of the Jivaro Indians of Peru, with emphasis on plants used in dentistry and medicine. Support has been provided by grants from the National Science Foundation, National Geographic Society, and World Wildlife Foundation. Her study area includes five river systems in the upper Amazon, where more than 4,000 plant specimens were collected. Many of the plants are under evaluation by academic collaborators and commercial interests for their potential value.

School News

Several years ago, the School embarked upon an ambitious program of computerizing its academic, clinical, and patient records. The School purchased an expanded IBM System 38 computer and hired personnel to develop the necessary software. While a number of dental schools have computerized systems, none has a system that follows student academic progress, patient care, and financial records. This effort has proven worthwhile, as the system is now essentially operational. The faculty now have the capability of tracking student progress and patient care on a daily basis.

The School of Dental Medicine entered into an agreement several years ago with St. Louis Children’s Hospital to provide both in-patient and out-patient care for children with special problems. The program, under the direction of Donald Huebener, has matured to a full service which enjoys referrals from the entire St. Louis metropolitan area and beyond. This service has been featured in various media offerings in the past year, and features an infant oral health care program, and a dental care program for special children, and participates in the Down’s Syndrome Medical Clinic program.

Another program, under the direction of Donald Gay, associate professor and director of maxillofacial prosthetics, provides reconstruction and prostheses for patients with eye, ear, facial, and dental deformities. In cooperation with departments in the School of Medicine and through referrals from a multi-state area, Gay provides a service otherwise unavailable in the metropolitan area.

The School’s clinics continue to provide dental care for a large and diverse population of patients. Junior and senior students provide care in general dentistry, under the supervision of faculty, as well as all of the specialty fields. Additionally, surgical care is available at Barnes and St. Louis Children’s hospitals. Maxillofacial prosthetics is available at the School, and care for special children is available at St. Louis Children’s hospitals. During 1986-87, approximately 3,100 new patients were examined.

Last year, students achieved national recognition as winners of the National Student Table Clinic Competition. This year, the School will be represented by Greg Grosham, winner of the local competition, whose clinic is titled “The Effects of Mandibular Position on Obstructive Sleep Apnea.” Other local winners were Michael Saxe and William Cohen, whose clinics dealt with child abuse and adhesive strengths of materials, respectively. Mark Singer, a member of the class of 1987, was elected Regional Trustee by the American Student Dental Association House of Delegates.

Our School of Dental Medicine is the oldest school of dentistry west of the Mississippi; our ambition is to see it continue as one of the finest.

David A. Bensinger
Interim Dean*
School of Dental Medicine

*Appointed Dean September 1, 1987
During the 1986-87 academic year, the School of Engineering granted 288 bachelor of science degrees. These degrees were earned by 252 students who came from 36 states and nine foreign countries. Students from the St. Louis area constituted 36 percent of the graduating class, women made up 21 percent, and minorities made up nine percent. Forty-six students earned more than one degree. The most popular degree combination, which was elected by 25 students, was the computer engineering option, which requires a B.S. degree in both electrical engineering and computer science. Combined bachelor's and master's degree programs were also popular, with two students receiving the B.S. and M.S. degrees and four receiving the B.S. and M.B.A. degrees.

The undergraduate enrollment of 984 for 1986-87 was up slightly from the figure of 964 the previous year. The School is effectively operating at its capacity for undergraduate instruction; and indeed, enrollments in electrical engineering now exceed the department's optimal capacity. The School granted 118 master's degrees and 16 doctoral degrees. These numbers are essentially unchanged from recent years. Over the past three years, 50 doctoral degrees were awarded, of which 35 went to foreign students, a figure consistent with the national average. Many of these foreign students will remain in the U.S., entering both academic and industrial positions, and will make major contributions to the advancement of American technology.

New Faculty
The William Palm Professorship of Civil and Mechanical Engineering, established in 1880, is the third oldest named professorship at Washington University. The last Palm Professor was Civil Engineer E.O. Sweetser, who retired in 1951. This year, Andrew Dimarogonas was named William Palm Professor.

Dimarogonas, a native of Greece, earned his doctorate in mechanical engineering at Rensselaer Polytechnic Institute in 1970. He has taught at Lehigh University and has extensive industrial experience in the United States. In 1974 he returned to Greece to head up the mechanical design division of the newly created University of Patras. At Washington University, Dimarogonas will lead a new program in mechanical design and computer integrated manufacturing (CIM). His appointment significantly enhances the capabilities of the mechanical engineering department in an area of great importance.

During the past year, a search committee chaired by Fred Rosenbaum, professor of electrical engineering, successfully recruited Barry Spielman, head of the Microwave Technology Branch of the Naval Research Laboratory in Washington, D.C., as the new chairman for the Department of Electrical Engineering. Spielman, who received his Ph.D. degree from Syracuse University, is an authority on microwave and millimeter-wave engineering. This technology is applied in satellite and point-to-point communications, radar, and military electronics. Recently he worked with developing GaAs semiconductor integrated circuits for use at microwave frequencies. This activity parallels the advances made in digital electronics with silicon integrated circuits, which have made possible super computers and personal computers. Spielman is recognized as a spokesman and champion of this technology in the Department of Defense. He is active in the IEEE, and is president-elect of the IEEE Microwave Theory and Techniques Society.

The Department of Electrical Engineering is the largest in the School of Engineering, both in number of students and size of faculty. Its enrollments have grown much more rapidly than the size of its faculty. This, combined with a number of impending retirements, makes new faculty recruitment a major responsibility of the new chairman.

Master of Engineering Management
1987 was the inaugural year for the new graduate degree program, Master of Engineering Management. The program is led by Professor William Darby, chairman of the Department of Engineering and Policy, and is administered by the School of Technology and Information Management. The program has met with remarkable support from local businesses and industries. The first students were admitted to classes last fall, and currently, nearly 100 students are pursuing the degree. The average student in this program is 32 years old and has about eight years of professional engineering experience. Because of the overwhelming response to this degree program, a full complement of courses is being offered during the summer school term. As a result, some students have accelerated their programs of study, and the first Master of Engineering Management degree may be awarded as early as May 1988.

Successful Fiscal Year
Financially, fiscal year 1987 was the most successful in recent years. This was due to a number of reasons: 1) part-time graduate student enrollment has increased substantially; 2) a significant growth in the School's new division for continuing...
professional education—the School of Technology and Information Management; 3) the growth of undergraduate tuition remissions has slowed and, with the increasing national visibility for Washington University, we anticipate a larger applicant pool and improved ability to control undergraduate remissions; 4) the ALLIANCE FOR WASHINGTON UNIVERSITY has brought major help to the School. For example, in 1980 the market value of the Engineering Endowment was approximately $11 million and is now in the neighborhood of $40 million. In addition, annual giving budget support has increased from $450,000 in 1980 to an estimated $900,000 in 1987; and 5) the School's subsidiary corporation, WUTA (Washington University Technology Associates, Inc.) has grown to the point where it has begun paying cash dividends to the School in the 1987 fiscal year.

Future Goals

In March Dean M.C. Kelvey presented to the Board of Trustees a plan for strengthening the School of Engineering over the next five years. The plan emphasized that the School had made mixed progress toward achieving the goals set in 1980 with the help of the Engineering Task Force of the Commission on the Future of Washington University. With regard to undergraduate education and continuing professional education, the School has made excellent progress, but it has made little progress toward its goals for research and doctoral education. Hence, in the immediate future, the School will place special emphasis on increasing research and doctoral education.

The School’s goals for research and doctoral education are to increase research funding from outside sources from its present level of $53,000 per year per faculty member to $100,000, and to increase doctoral degree productivity to more than 0.35 doctoral degrees per year per faculty member.

In order to achieve these goals, the School proposes to increase the number of doctoral degree candidates by 50, to obtain needed research space by constructing a new building, Harold D. Jolley Hall, and to increase the size of the engineering faculty from its present level of 75 to 96.

The School proposes to fund the graduate scholarships needed for the increased enrollment of doctoral students with income from the recent Danforth Foundation grant to the School of $5 million.

The principal funding for Jolley Hall will come from the bequest of Harold D. Jolley, which was designated for the construction of a building. A preliminary study of the proposed site just east of Bryan Hall has been made, and the School anticipates that an architectural design contract will be negotiated in the near future.

Financial analysis shows that the implementation of the proposed plan will result in increased annual operating costs to the School of approximately $3 million. However, the increased research activity will generate additional revenues of an equal magnitude. The School has received a $1 million gift designated for electrical engineering faculty development, which will help meet the initial start-up costs associated with the faculty expansion plan.

If the School is successful in achieving these goals for research and graduate education, it will move into the first tier of approximately one dozen highly prestigious private schools of engineering. This will have important benefits for undergraduate recruitment, not only for engineering but for the other undergraduate divisions of Washington University as well.

James M. McKelvey
Dean
School of Engineering and Applied Science
After 10 years as dean, I still find the faculty and students of the School of Fine Arts amazing. These faculty and student artists make up a community where personal perspective and individual spirit combine to generate great creative energy, yet we share in Washington University's goals as a teaching and research institution.

Results of Self-Study Committee

This year, by design, the interaction among students, faculty, and administration was more intense. While some may have perceived the mood as risky, I saw it as an opportunity for truly open communication, especially as we began a "self-evaluation" in preparation for reaccreditation. Every 10 years, the professional accrediting body for the visual arts in post-secondary education—the National Association of Schools of Arts and Design (NASAD), of which we are a charter member—requires us to complete a self-study document as part of the reaccreditation process. A broadly representative ad hoc faculty committee, which gathered opinions and data, met on more than 20 occasions throughout the year to consider the implications for our future. The committee also advised the dean's office and provided the basis for writing the self-study document.

Early results from these deliberations include the following actions and plans:

1) The faculty has modified the requirements for the B.F.A. degree, lowering the credit-hour requirement to 128 semester credit hours;
2) Student advising will be strengthened by the addition of a part-time assistant to the dean with an office at Lewis Center;
3) The departmentalization of the School was eliminated and the administrative positions of director of core and director of graduate studies were established. Professor Hylarie McMahon has accepted the charge of the graduate post. Former chairmen, Professors Peter Marcus, Robert Smith, and James Sterritt, will serve as an advisory committee to the new directors for two years;
4) The strengthening of enrollments for both undergraduate and graduate programs was clearly reestablished as a highest priority; and
5) The importance of the long-term development of an on-campus home for the School will continue to be examined and emphasized.

During the past year, this office has supported the NASAD Self-Study Committee, and encouraged input from students—which relates directly to the work of the Provost's Committee on the Quality of Undergraduate Education—reflecting the strengths and weaknesses that characterize our real and our self-perceived image.

Another important area has been planning for the School's National Council. Trustee William Tragos has accepted the challenge of chairing the Council for the School of Fine Arts, which is being formed and will begin meeting in the fall. The Council will provide a resource for expert guidance on matters of nonacademic planning. I am confident that the School's management and development strategies will be advanced greatly through the expertise of the National Council. The opportunity to cast our vision in a national and an international context will provide additional fodder for future deliberations.

School News

The admissions effort during 1986-87 has produced a large number of freshmen at the University. The School's 1987-88 freshman class of 70 is the largest in nine years. Further, only 45 percent of these students will receive need-based financial aid, a decline from an average of 57 percent which had held since 1983-84. Graduate enrollment has increased as well, with 20 first-year graduate students scheduled to begin their studies in the fall.

Each year visiting artists and art professionals augment the work of the faculty. The Hallmark guest illustrators program, the Dubinsky lecturer, and the Louis D. Beaumont Visiting Distinguished Professor brought distinguished artists to campus, highlighting a long list of visitors. Students established a student programming committee, bringing 14 personalities to campus. Such student participation far exceeded that in past years. The activities included lectures, slide presentations, and studio visits, as well as film, video, and performance artists.

Technology is having an interesting impact at the School. During 1986-87, two pilot programs added to the educational experiences offered to students. In the first, an innovative project that has been underway since the fall, faculty and students worked with University City officials and residents to document the evolution of community and institutional dialogue.

At the same time, they explored ways to put works of art in public places. Four sculptures by student artists give evidence to the ambitious process. Stacks and stacks of broadcast-quality 1/2" video cassettes have become part of a documentary being produced for public television.

While the School has provided educational opportunities using video technology since the early '70s, the art in public places project has given students a special opportunity to apply relatively sophisticated, commercial-quality video that is now accessible, in-house, and a bit "high-tech" to the University City project.
Photographer Bart Parker visited the School of Fine Arts during spring 1987 as the Louis D. Beaumont Distinguished Visiting Professor of Art.

The second pilot program, run by adjunct faculty member Joyce Ryan for four students and two faculty, has shown the great promise of computer graphics. The program was so successful that we have increased our enrollment capacity to 36 for 1987-88. We waited patiently for the correct moment to introduce computer graphics into the curriculum. Previously, we felt that the high cost exceeded the potential educational benefits, but the price tag for sophisticated computer graphic capability has dropped dramatically, so we have bought in. The key to our decision was to help students achieve user-level computer literacy and to add a potential for developing visual language literacy. If the computer can become a tool for facilitating visual language literacy, in the way that a pencil or piece of charcoal is, we need it for our students.

Financial Update
While the twin resources for our financial well-being do not change dramatically from year to year, tuition revenues and annual contributed income grew at a greater rate than expenses during the past year. Annual giving exceeded $100,000 for the second year and the average gift by alumni exceeded the $100 level for the first time. It is also encouraging that last year’s Cohen challenge grant created a momentum that is being sustained through a high percentage level of participation (more than 19 percent) by alumni.

The welcome gift of over half a million dollars from the Arthur Proetz Estate will add measurably to the School’s endowment. The establishment of the Arthur and Essie Proetz Scholars in Fine Arts is an important step towards achieving the School’s priority goal of providing major increases in scholarship support. Increased money for scholarships is one of the goals of the Alliance for Washington University.

Alumni Survey
The ultimate success of any educational enterprise can best be judged by the employment record of former students. We recently surveyed 2,640 Fine Arts alumni about the usefulness of their educational experience. More than one-third returned the questionnaire. An early reading suggests an enthusiastic response, but results are not yet complete. We are very interested to learn from a tabulated analysis the effect of an art education at the School of Fine Arts on careers. We hope that the results of this study will prove useful to future admissions efforts.

Roger I. DesRosiers
Dean
School of Fine Arts
The 120th year of Washington University's School of Law was a year of anticipation and expectation, of energy and real achievement, of stability and transition. Midway through the 1986-87 academic year, I decided to leave the University to become dean and professor of law at Mercer University Law School. After 13 years at Washington University, the decision was difficult, but I am confident it will prove to be a good one both for me and for the University. The spirit and morale of the faculty, administration, alumni, and students who have gone through this two-year period of temporary leadership are high, and the entire School is now ready for a new era.

The Search Succeeds
The most significant achievement of 1986-87 was the appointment of Dorsey D. Ellis, Jr. as dean of the School of Law. Dan Ellis has been a member of the law faculty at the University of Iowa since 1968 and most recently served as vice president for finance and university services. He graduated from the University of Chicago Law School in 1963 and spent five years in private practice with Sullivan & Cromwell in New York City before launching his distinguished academic career. He brings to the deanship a sophisticated understanding of legal education, a wealth of administrative experience, and an objective new vision for the School.

Special Award
The American College of Trial Lawyers selected the Washington University School of Law as the 1987 recipient of the Emil Gumpert Award for Excellence in the Teaching of Trial Advocacy. The beautiful plaque and checks for $27,500 were presented at a special ceremony in April. The Gumpert Award recognizes in teaching what we in the School have been committed to for some time: devotion to the highest standards of academic legal training to provide effective and meaningful training in applied lawyering skills.

Many share responsibility for this achievement, most notably Professor Karen L. Tokarz, director of clinical education. In addition, Professors Tom Sullivan, Roy Simon, and Merton Bernstein, and Visiting Professors Martin Frey and Ken Chackes, and other faculty, who are actively involved in the program, deserve great credit. Also deserving recognition are more than 300 persons in the St. Louis legal community who participate in various aspects of our advocacy training program. We are grateful to the American College of Trial Lawyers—and the 28 alumni members of the College who participated in preparing our submission—for selecting Washington University to receive this honor, and we are extremely grateful to the hundreds of alumni, lawyers, and judges in the St. Louis community for making the program possible.

Students and Student Activities
The demographic characteristics of our student body have stabilized at roughly 600 full-time J.D. candidates, with slightly over 200 entering each fall. The Graduate Tax Program, under the renewed direction of Professor Gary Boren, experienced a slight increase in enrollment. More vigorous recruitment efforts and the introduction of mandatory CLE in Missouri will further enhance enrollment in the tax program.

The wide spectrum of student activities outside the classroom continues to make the School a vibrant place. The various competitions in which the School participates were all very successful, involving more than half our enrolled students. The Law Quarterly and Journal of Urban and Contemporary Law, under the leadership of Editors-in-Chief Susan J. Cooper and Stephen J. Trichka, had a very successful year, with two articles from the Journal reprinted in the Land Use and Environmental Law Review. The Student Bar Association initiated a lecture series featuring the Honorable L. Bruce Laingen, American Chargé d'Affaires in Tehran, Iran, and the

Philip D. Shelton
highest ranking hostage during the 1979-80 crisis, and Dr. Manfred Weiss, a distinguished professor of labor law at Goethe University in Frankfurt, West Germany.

The Black Law Students Association (BLSA) capped a very good year under the leadership of Althea P. John. Fourteen black students were among the 178 graduates in May, the largest class of minority students in recent years. Our present data indicate that the expanded efforts of our faculty, BLSA members, and administrators will yield good results for fall 1987, but attracting minority students to the School remains a challenge.

Faculty
The list of faculty publications, speeches, lectures, and other activities is too extensive to list here. However, one book especially worthy of note is Federal Land Use Law: Limitations/Procedures/Remedies, by Professors Daniel R. Mandelker, Jules B. Gerard, and E. Thomas Sullivan, which was published in 1986 by Clark Boardman Company. Professor Stanley Paulson, who received a research grant from the National Endowment for the Humanities last spring, will be on leave in Germany in 1987-88 to complete work on a book. Professor Bruce Mann
received a Constitutional Fellowship from the National Endowment for the Humanities.

Professor Karen Tokarz was promoted to full professor with tenure. Her work on gender discrimination, both in amateur sports and judicial appointments, has received considerable attention. Professors Bruce Mann and Gerald Johnston have accepted permanent appointments at other law schools—Mann at the University of Pennsylvania, and Johnston at George Washington University.

Rex E. Lee, former solicitor general of the United States, delivered the 1987 Tyrrell Williams Lecture last spring. Last term Lee argued more cases before the United States Supreme Court than any other private lawyer in the country and also spoke on the art of oral advocacy before the high court. Associate Justice William J. Brennan, Jr. has agreed to deliver the Tyrrell Williams Lecture next spring. The occasion will mark 25 years since he delivered the lecture in 1963, a lecture which remains the most often cited lecture in the series.

Scholarships

Three permanent new scholarships were added to the law school endowment in 1986-87. Gifts and pledges from the family of Fred A. Eppenberger, LW 28, supplementing an earlier gift from the law firm Husch, Eppenberger, Donohue, Elson & Cornfeld, permanently established the Fred A. Eppenberger Scholarship Fund. Jack and Charles Goralnik, and Diane Goralnik Weinstock, established a permanent Scholar-in-Law Award in honor of their father, Herman A. Goralnik, LW 35, distinguished St. Louis businessman and civic leader. Malcolm W. Martin established a permanent Scholar-in-Law Award in honor of his father, William McChesney Martin, LW 1900, a prominent and distinguished St. Louis attorney and public figure. The School is privileged to have the names of these men perpetually affiliated with it.

New term Scholar-in-Law Awards were established by Guy H. Allison, LW 58, who practices law in Corpus Christi, Texas; Edward G.H. Beimfohr, LW 56, an attorney in New York City; Mr. and Mrs. Richard A. Hetlage, LW 50, a partner with Peper, Martin, Maichel, Jensen & Hetlage in St. Louis, and his wife. The Spoehr & Lemkemeter Scholar-in-Law Award, named for the law firm that merged with Bryan, Cave, McFheeters & McRoberts in 1985, was established by a gift last spring from the late Charles H. Spoehrer, LW 30. The School is extremely grateful for these new scholarships. Tuition in 1987-88 is $10,900 per year and our students' challenge to meet the high cost of a first-rate legal education is greatly eased by these scholarship funds.

Alliance for Washington University

The Alliance for Washington University will end in 1987 and already it has been the most successful fund-raising campaign in the history of higher education. The centerpiece for the law school is the $10 million grant from the Danforth Foundation. Beyond that, however, the School has successfully raised more than $6 million in gifts and pledges during the campaign, including a substantial gift from William R. Orthwein, Jr., in honor of his father, to establish the William R. Orthwein Professorship in Law. During the past two years, alumni and friends contributed more than $800,000 in unrestricted funds. During the coming year, a student computer center will be established with the assistance of gifts from the Stolar partnership honoring Hyman Stolar, LW 24, and an anonymous gift honoring Gilbert Rosch, LW 37. The constant challenge of maintaining and improving the largest research library in the region was enhanced this year by a gift from Ula Neuhoff in honor of her husband, C. Sidney Neuhoff, LW 27.

During the course of the Alliance campaign, the outpouring of support from alumni and friends has been exceptionally gratifying to all of us at the School. The names of those who have made significant gifts exceed the space available here, but we have been delighted and humbled by the response to our need.

Farewell

I trust my last report to the Washington University community adequately reflects the affection, enthusiasm, and optimism I have for this institution. As a graduate of the School, I shall always remain a loyal alumnus. But I can never repay my alma mater for 13 extraordinarily good years during which I have made so many good friends among students, faculty, and alumni. I leave knowing the School of Law will continue to grow under the leadership of Dorsey Ellis.

Philip Shelton
Acting Dean
School of Law
School of Medicine

The outward appearance of the School of Medicine has changed considerably since I came here as an instructor in the Department of Preventive Medicine in 1957. Probably freshest in all our minds and definitely newest on the campus and definitely newest on the campus maps are the Clinical Sciences Research Building and the renovated East Building, both completed within the last three years. The School of Medicine's physical plant now includes more than 30 buildings spread across more than 50 acres. The campus' apparent immensity can disguise the fact that pressing needs for new space still exist.

To address what seemed to be the most acute of those needs, this year the School made a firm, formal commitment to construct a new, state-of-the-art medical library. The need for a new library has been a concern for quite some time: the current facility's shelving space, workspace, and support systems are no longer adequate for an operation as prodigious and productive as our School has become.

The library should be completed by fall 1989. It will be built at the intersection of Euclid and Barnes Hospital Plaza and will become a new focal spot and hub of activity for the School of Medicine. The building, designed with a dignified facade of brick and glass, will have an impressive entrance with a seven-story high atrium to keep the lobby bright and commodious. Given its location, I'm certain the library will serve as a new frontispiece for the School and will, both symbolically and practically, serve as a portal connecting the principal buildings on both sides of Euclid Avenue.

Faculty Recognition and Research

This past May, two of Washington University's most respected biomedical scientists were elected to the National Academy of Sciences: Philip Needleman, Ph.D., Alumni Professor and head of the Department of Pharmacology, and Emil R. Unanue, M.D., Edward Mallinckrodt Professor and head of the Department of Pathology.

Needleman was elected in recognition of his many contributions to research related to fluid homeostasis in the body. Most recently, Needleman and co-workers in his lab isolated and deciphered the molecular structure of atriopeptins, chemicals produced in the bloodstream that dramatically affect the kidney's control over the body's internal fluid environment. Needleman is also a foremost authority on prostaglandins, hormone-like substances that affect many of the body's regulatory systems. He has made specific contributions that reveal and clarify the relationship between prostaglandins and blood clotting, blood pressure regulation, and heart disease.

Unanue, an immunopathologist, has centered his research on understanding the complicated interactions that occur routinely among immune system cells. He and his co-workers are credited with key discoveries regarding the critical role played by macrophages, white blood cells that ingest and destroy foreign substances. Dr. Unanue's research has elucidated the macrophage's role in directly stimulating the differentiation of other white blood cells that subsequently attack specific invaders. His work has expansive implications in fields as diverse as transplantation, infectious diseases, and cancer biology.

This year two more of our faculty members received Javits Awards, a form of research support dispensed through NIH to neurological scientists whose work is extremely inventive or promising. These two new Javits Awards raise our institution's total to eleven—a position of national leadership. The recipients are Eugene M. Johnson, Ph.D., professor of pharmacology, and Joseph L. Price, Ph.D., professor of anatomy and neurobiology. Johnson will receive more than $900,000 over seven years to further explore the role of nerve growth factor in the development and maintenance of nerve cell pathways. Price's award, also more than $900,000, will enable him to rapidly expand his study of the anatomical organization of the brain. Of particular interest to Price are areas of the brain involved in memory and in emotional responses to environmental stimuli—areas implicated as playing a role in Alzheimer's Disease.

For several years running I have been able to report the addition of a new Program Project Grant, and the string will not be broken this year. These grants are of a special ilk because they are characteristically large, long-term, and are awarded through an extremely competitive process that selects a recipient from the ranks of the best researchers, research programs or facilities nationwide. This newest Program Project will provide for intense study of inner ear disorders, which affect hearing and balance, and will be directed by Ruediger Thalmann, M.D., professor of otolaryngology. Another large NIH grant in a related area, to Gary Paige, M.D., Ph.D., assistant professor of otolaryngology, for study of balance disorders at a new Vestibular and Oculomotor Laboratory, dovetails nicely with the efforts of Thalmann and establishes us as a new national leader in the study of the neurological control of balance and related areas.

Approximately two years ago, NIH established a new type of grant dubbed with the acronym MERIT, for Method to Extend Research in Time. MERIT status for a particular grant means that its recipient will receive long-term,
uninterrupted support and is freed from time-consuming paperwork and other delays and diversions traditionally associated with grant renewal applications. This year eight of our faculty members received grants with MERIT status: Eugene A. Bauer, M.D., dermatology; Donald C. Shreffler, Ph.D., genetics; Jacques U. Baenziger, M.D., Ph.D., pathology; Carl Frieden, Ph.D., biological chemistry; Emil Unanue, M.D., pathology; Harvey Colten, M.D., pediatrics; John O. Holloszy, M.D., medicine; and M. Alan Permutt, M.D., medicine.

Total government support of research and training exceeded $69 million for the 1986-87 fiscal year, an all-time high for the School of Medicine. I've mentioned several of the largest and the most prestigious grants, ones which single-handedly can change the complexion of a department. Yet in no way do I want to imply that the more moderate-size gifts, grants, and contracts are not equally important. A small amount in the hands of an extremely talented young researcher can reap future benefits beyond the most vivid, creative imagination; proof of that can be seen over and over again here and at any of our country's finest medical schools. Our school this year received more than 320 NIH grants and contracts, placing us eighth among medical schools nationally. The research, education, and patient care undertaken by these awards, large and small, play a major role in further establishing this institution as a premier medical school.

**Students**

In May, the School of Medicine conferred the M.D. degree upon 118 individuals. Forty-three of those graduates chose to remain in St. Louis for residencies; most of them (34) selected Barnes, Jewish, or Children's hospitals. The distribution of our graduates among specialties did show some change from the preceding year. Fewer students chose internal medicine and surgery, more chose radiology, emergency medicine, and pathology. Overall, 87 percent of our graduates matched with one of their first three residency choices.

More than 4,300 students applied for the 120 spots in our 1986-87 first-year class. Such a ratio continues to permit us to be extremely selective in choosing our new students, despite the nationwide reduction in the overall number of medical school applicants.

The Medical Scientist Training Program (MSTP), which enrolls students who plan to earn both the M.D. and Ph.D. degrees, had a census of 100 students, compared to 92 students last year. We had 11 students working toward joint M.A./M.D. degrees. There were 182 students in the Division of Biology and Biomedical Sciences, compared to 173 in the preceding year.

The Physical Therapy Program had 109 students, an increase over 1985-86, and remains our largest paramedical program. Health Administration and Occupational Therapy were the next largest paramedical programs, with 65 and 45 students, respectively.

**Gifts and Support**

A commitment of $30 million over the next 20 years from the Olin Foundation will fund the Spencer T. and Ann W. Olin Medical Scientist Fellowship Program. The gift is expected to fund as many as 10 new MSTP students each year, providing full tuition, living expenses, book fees, and research supplies for each recipient. The gift will also support an annual two-day symposium through which distinguished scientists from throughout the country will come to Washington University to present news of their research to past and current MSTP students and to the University's own community of scientific scholars.

Through a gift of more than $1 million, the family of the late Gregory B. Couch has established an endowed chair in his memory. Such a generous gift to the Department of Psychiatry will make it possible for us to expand research on the causes and treatment of schizophrenia.

Mrs. John S. Lehmann, who is a longtime benefactor to Washington University and its School of Medicine, made a $1 million gift to name the new library's beautiful atrium entrance.

We are deeply grateful also to our alumni, whose support contributed to a record Annual Fund of $668,000. A new high of 44 percent of our medical alumni made outright gifts and many bequest commitments were received. The Eliot Society and reunion class gift program also broke new records.

To the faculty, staff, students, alumni, benefactors, and other friends of Washington University School of Medicine, I express my sincere appreciation of your efforts and support during the past year and look forward to our fine institution's continued progress.

**M. Kenton King**

Dean

School of Medicine
School of Social Work

The George Warren Brown School of Social Work had another excellent year in 1986-87. One hundred and fifty new students, who came from different parts of the United States and several foreign countries, enrolled in the M.S.W. program. The 98 students who received the M.S.W. degree this year had a splendid placement record.

Alumni Support
The loyalty of students and alumni remains one of GWB's strongest assets. The GWB graduating class initiated a gift-giving project in which two-thirds of the class participated. Alumni support to the School increased by nearly 25 percent. The Alumni Network, formed primarily to help our graduates locate suitable employment, now includes over 500 members in all parts of the U.S. The Alumni Association awarded its Outstanding Alumni Award to Janice W. Wetzal, M.S.W. '73, Ph.D. '76, who is director of the School of Social Work at the University of Iowa.

Faculty Honors and Changes
William E. Gordon, professor emeritus, was the first recipient of the Richard Lodge Prize of the Adelphi University School of Social Work. The prize, named in memory of a former director of the Council on Social Work Education, is awarded biannually to a social worker who has made an outstanding contribution to shaping the theory base of the social work profession through research, writing, teaching, or practice.

Professor Emeritus Ralph E. Pumphrey was recognized for his years of excellence in the field of social work education during a worship service at the Pilgrim Congregational Church in St. Louis. Helen Graber, assistant dean for field education, was named to the Commission on the Role and Status of Women of the Council on Social Work Education. Carol Nesslein, director of placement, was elected chair of the Liberal Arts College Group of the Midwest College Placement Association.

The School recruited three new faculty members on tenure-track positions. Nancy Morrow-Howell, formerly a lecturer, has been appointed assistant professor. Her areas of expertise include gerontology and health care. Vered Slonin-Nevo, a specialist in family treatment, and Steven R. Smith, an expert on mental health policy, will also join the faculty this fall.

After serving GWB with great dedication, Associate Professor Richard J. Parvis retired in May. Thanks largely to his efforts, GWB now attracts more foreign students than any other school of social work in the United States. In honor of Parvis and his wife, the School has established the Richard J. and Kathleen S. Parvis Scholarship.

Training and Research Grants
Two child welfare grants from the Office of Human Development Services of the Department of Health and Human Services were awarded to GWB to train the staff of the Missouri Division of Family Services. David L. Cronin, assistant dean, is director of these training projects.

Enola Proctor, associate professor, and Nancy Morrow-Howell received research grants from the AARP Andrus Foundation and the National Center for Health Services Research to study various aspects of discharge planning under the Medicare Prospective Payment System. Wendy Auslander, assistant professor, obtained a pilot and feasibility grant from the Washington University Diabetes Research and Training Center. Her study will identify family coping patterns and resources of diabetic children at the Children's Hospital in St. Louis. The Alzheimer's Disease Research Center, also at Washington University School of Medicine, awarded a grant to Joel Leon, assistant professor, to explore field methods in the study of economics of Alzheimer's Disease. These research grants will strengthen GWB's relationship with the School of Medicine and its affiliated hospitals.

Shanti K. Khinduka

Colloquia and Continuing Education
GWB hosted a number of distinguished visitors who participated in our weekly colloquia. They include the following: Nancy Amidei, former director of Food Research and Action Center; Joseph Bevilacqua, commissioner of mental health in South Carolina; Leon Chestang, dean, School of Social Work, Wayne State University; Margaret Frazer, consultant, Scottish Churches Council; David Gil, professor of social policy, Brandeis University; Karl Gunner Gostestam, professor of psychiatry of the University of Trondheim, Norway; William Hope, health commissioner for the City of St. Louis; Nancy Humphreys, director, School of Social Work, Michigan State University; Stephen Jones, director, marital and family training program, Menninger Foundation, Topeka, Kansas; William Kahn, executive vice-president, Jewish Federation of St. Louis; Nazneen Mayadas, professor of social work, University of Texas at Arlington; James Midgeley, dean, School of Social Welfare, Louisiana State University; and Donald Suggs, publisher, St. Louis American.
The Morris Wortman Memorial Institute on Marriage and Family Education held its 10th annual program in April. The Institute organized a well-attended workshop on "The American Family: Year 2000."

**Planning for the Future**

During the year, the School gave balanced attention to issues of current relevance as well as to those of future significance. The faculty specified curriculum objectives in terms of behavioral outcomes, implemented new policies and procedures for the field practicum, re-evaluated their role as advisors, and took several measures to aid student learning in the classroom as well as in the field. A task force prepared a number of recommendations to include additional international content in the GWB curriculum.

One of the most far-reaching developments last year was the establishment of the Bettie Schroth Johnson Program in Social Service Management. When fully funded with an endowment of $500,000, this innovative program will train a carefully selected number of female social service managers for important administrative positions in public and private social agencies.

The appointment of Edwin S. Jones, Washington University trustee emeritus, as chairman of the National Council for the School of Social Work, represented a major step toward developing a mechanism to interpret the School's programs to the community and to enlist volunteer leadership and support on behalf of GWB. The National Council for the School of Social Work will begin operating next year.

**Shanti K. Khinduka**

Dean
George Warren Brown School of Social Work
The 1986-87 academic year was one of change for the University Libraries. Charles D. Churchwell resigned as dean of Library Services after nine years of distinguished service. The management arrangements were altered twice. A system recommended by an independent consultant firm was installed and subsequently dismantled as the University moved quickly to set in place an effective structure. More recently we have been focusing our efforts on three areas: (a) rebuilding the staff, (b) restoring services, and (c) enhancing Library holdings. I am pleased to report that with the support of the University administration and the hard work and dedication of the library staff, the Olin Library System has made considerable improvements in the level and overall quality of service offered to the faculty and students. A new acquisitions policy is in place, and the morale of the library staff is high.

**Building on Our Strengths**

The quality of a library is directly related to the quality of its staff because they are responsible for acquisition selection, information delivery, accession of the collection, and patron service. We are fortunate to have a first-rate staff of professionals and will continue to build upon this solid base.

We were also fortunate this past year to benefit from the generosity of our friends and supporters. On April 12, 1987, Chancellor Danforth announced the future commitment of $1 million by Carl G. Neureuther, made in honor of "The Year of the Reader." This commitment is the largest ever made to the Olin Library System. By linking his future gift to the current effort to promote reading, Neureuther, a 1940 graduate of the School of Business, has sought to encourage and stimulate reading on our campus and to foster a lifelong appreciation for the art of reading among our students. The theme "1987—The Year of the Reader" was started by the Center for the Book at the Library of Congress for just these reasons. With the exception of a planned student book collecting contest, which at Neureuther's request will begin next spring, the major part of the commitment is to establish an endowed book fund. This commitment will provide a much-needed increase in the endowment of the Olin Library System, and the income from the fund will substantially supplement the acquisitions budget. In this way we anticipate that Neureuther's gift will remain as a tangible symbol of the central role played by the library in the life of the University.

**Technological Advancements**

As fundamental as the printed word is in the pursuit of knowledge, today's research library requires the integration of modern technology to create an environment that facilitates and supports pioneering scholarship and research. Of the technological advancements made this past year, those that will clearly have the most impact on daily operations are the improvements that are being made for the circulation of materials to the users of the library. A phased program has been established for the checkout process utilizing a bar code system to replace the traditional punched cards. The bar codes that in time will be placed in all books in circulation point to the specific items recorded for each book in the Olin Library System's computerized file. This process—which is familiar from its widespread use in retail stores—should result in quicker and better service at the circulation desk. It will eventually replace the book cards and the outdated card reader equipment currently in use. This advance is the first of many improvements which will allow the eventual implementation of a circulation module that is integrated with the on-line catalog system, so that patrons using LUIS (Library Users Information Service) will be provided with both bibliographic and circulation information.

**Physical Facilities**

This summer a large amount of new shelving was added to house the growing collections in Olin Library. The expanded shelving project added room for about 85,000 volumes by lengthening the existing stacks on all but the main level. This is the equivalent of adding 5,000 new shelves to the library, and I am pleased to report that it has been accomplished without the loss of seating capacity and with only a minimum of disruption to the library's activities.

Many of the departmental libraries are also faced with space shortages. One fortunate exception is the Biology Library, which, as part of an overall expansion of the Life Sciences complex, is to add almost 1,000 square feet of space to its existing area. Since space is everywhere at a premium, finding adequate space for our growing collection is likely to present a major challenge to the Olin Library System for some time.

**Acquisitions**

All American research libraries' book and journal budgets are suffering from the effects of diminished purchasing power for foreign materials, discriminatory pricing practices on the part of foreign publishers, and general
inflationary factors. To help combat the erosion of the acquisitions budget from forces beyond our control, the Olin Library System used sound planning to better utilize our scarce financial resources for acquisitions. As a result, a new approach in the way allocations are made to academic departments and schools was instituted.

In addition, the approximately 10,000 serials subscriptions held by the Olin Library System were reviewed by academic departments and schools in an effort to identify the journals that are essential to supporting the scholarly work of the faculty. This systematic review, plus an additional allocation, allowed us to add a substantial number of new journals to support current faculty and student scholarship. Although we are helpless to curb the upward spiral in the cost of books and journals, we remain optimistic that the Olin Library System will find new ways to maintain and improve the collections as books and journals are still the backbone of research and teaching at Washington University.

**External Relations**

Our most exciting prospect is the formation of the National Council for the Library. The development of a National Council constitutes a major commitment from the University for which we are grateful and will work hard to make successful.

The Bookmark Society, the library's literary and support group, mounted an outstanding series of activities this past year. Many of the highlights of the organization's third season were a stirring performance of Samuel Beckett's *Endgame*; another fascinating lineup of film/discussion events; an engrossing look into the mind of a talented young short story writer, Bob Shacochis; and bringing the season to a close, an insightful trip behind the scenes of the local newspaper's book review section. These activities, along with the Society's book discussion groups, provided another year of intellectual stimulation for its approximately 500 members.

**Focus on Quality Service**

The many changes, improvements, and developments that have occurred in the Olin Library System this year have paved the way for further progress. Like all research libraries in the United States, we face a number of serious challenges. But we are confident that we can meet these challenges given the show of support of the administration, of our faculty and students, and of our many friends of the Library. Each contributes in a unique way to enable the library to fulfill its central mission: to provide quality service to all who use our libraries. We are committed to making Washington University's library system the best it can be: we need your support to help us achieve this goal.

*Bernard D. Reams, Jr.*

Acting Dean
University Libraries
The University ended fiscal year 1987 with income in excess of expenditures. The income increased 10.8 percent over the preceding year, with the largest percentage increases being from patient and laboratory fees, tuition and fees, 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 $283,535,000. Student tuition and fees accounted for $83,507,000. Patient and laboratory fees for medical services provided by faculty and staff amounted to $80,825,000. Income from organized patient-care activities, such as the Edward Mallinckrodt Institute of Radiology, was $55,772,000. The auxiliary enterprises, including residence halls, food service, and bookstores, had income of $20,868,000. Sales and services of educational activities amounted to $20,389,000. Current funds investment income was $8,847,000, while other miscellaneous operating income totaled $13,327,000.

- **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 1987 was $88,685,000, an increase of $9,952,000 over fiscal year 1986. Scholarships and traineeships accounted for $7,222,000 of the total and $92,000 of the increase. In addition, 90 percent of the total $3,285,000 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 $110,427,000 in gifts and grants from private sources for various purposes (including a $55 million Danforth foundation gift for endowment). Major sources include alumni, individuals, business corporations, and foundations. The table below presents a breakdown of the total gifts, grants, and bequests received by source and purpose. The total $110,427,000 was divided as follows: $26,095,000 for operating purposes which includes $2,671,000 in unrestricted gifts and $23,424,000 for sponsored research, other sponsored programs, and scholarships; $78,884,000 for endowment; $5,039,000 for plant including gifts in kind; and $409,000 for student loans. In the table, $763,000 in scholarships is combined with $409,000 in loans for total student aid of $1,172,000.

  In addition to these private gift sources, the University also receives funds through private contracts for sponsored projects. In fiscal year 1987 these contracts amounted to $12,721,000 which, when added to the $23,424,000 referred to above, brings the total for sponsored programs to $36,145,000. Of this total, $6,876,000 is being held for future expenses on sponsored programs. The remaining $29,269,000 was expended for current operations in fiscal year 1987 and, combined with the $2,671,000 in unrestricted gifts, brings the total private gift, grant and contract income utilized for operating purposes to $233,527,000.

### Private Gifts, Grants and Bequests Received

<table>
<thead>
<tr>
<th>Source</th>
<th>Total Received</th>
<th>Excluding Danforth Fndn Endow</th>
<th>Purpose</th>
<th>Total Received</th>
<th>Excluding Danforth Fndn Endow</th>
</tr>
</thead>
<tbody>
<tr>
<td>Trusts and Foundations</td>
<td>62.50%</td>
<td>25.30%</td>
<td>Endowment</td>
<td>71.40%</td>
<td>43.10%</td>
</tr>
<tr>
<td>Business Corporations</td>
<td>9.60%</td>
<td>19.10%</td>
<td>Current Operations</td>
<td>2.40%</td>
<td>4.80%</td>
</tr>
<tr>
<td>Alumni</td>
<td>16.20%</td>
<td>32.20%</td>
<td>Sponsored Research and Other Sponsored Projects</td>
<td>20.50%</td>
<td>40.90%</td>
</tr>
<tr>
<td>Agencies and Groups</td>
<td>4.10%</td>
<td>8.10%</td>
<td>Plant</td>
<td>4.60%</td>
<td>9.10%</td>
</tr>
<tr>
<td>Individuals</td>
<td>7.60%</td>
<td>15.30%</td>
<td>Student Aid</td>
<td>1.10%</td>
<td>2.10%</td>
</tr>
</tbody>
</table>

Total Private Gifts, Grants and Bequests = $110,427,000
Excluding Danforth Foundation Gift for Endowment = $55,427,000

Annual Report
The ten-year chart on this page reflects a large bequest in 1981.

Endowment
The investment of endowed funds resulted in $29,701,000 of income used to support operating expenditures.

Expenditures
The total operating expenditures of Washington University in fiscal year 1987 amounted to $395,694,000. In 1986 this figure was $359,910,000. Approximately 52 percent of the increased expenditures was attributable to instruction and student aid. Research, primarily supported by outside agencies, accounted for another 18 percent; and another 14 percent was attributable to academic support.

Included in operating expenditures is student aid (scholarships, fellowships, and stipends) amounting to $31,910,000 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 1987 totaled $4,819,000, compared with $4,758,000 in the prior year. Net capital expenditures for buildings were $21,609,000. Investments in all physical facilities, including buildings, land, equipment, and library acquisitions, increased $43,609,000.

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.
Summary of Current Funds Revenues, Expenditures, Transfers, and Changes in General Reserves for Separate Fiscal Units of the University for Fiscal Year 1987

Thousands of Dollars

<table>
<thead>
<tr>
<th>Revenues:</th>
<th>Central Fiscal Unit</th>
<th>Faculty of Arts &amp; 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>$83,507 Tuition and Fees</td>
<td>$391</td>
<td>$32,954</td>
<td>$2,981</td>
<td>$9,886</td>
<td>$14,130</td>
<td>$2,724</td>
<td>$6,029</td>
</tr>
<tr>
<td>$88,685 Government Grants and Contracts (Research, Training, Financial Aid to Students, and Other Purposes)</td>
<td>$2,086</td>
<td>10,588</td>
<td>7</td>
<td>46</td>
<td>2,646</td>
<td>25</td>
<td>25</td>
</tr>
<tr>
<td>$31,940 Private Gifts, Grants and Contracts</td>
<td>$1,822</td>
<td>4,573</td>
<td>150</td>
<td>1,565</td>
<td>2,902</td>
<td>248</td>
<td>657</td>
</tr>
<tr>
<td>$29,701 Endowment Income (A)(B)</td>
<td>$3,115</td>
<td>9,694</td>
<td>228</td>
<td>735</td>
<td>1,470</td>
<td>208</td>
<td>538</td>
</tr>
<tr>
<td>$8,847 Current Funds Investment Income—Sales and Services—</td>
<td>$3,067</td>
<td>116</td>
<td>9</td>
<td>35</td>
<td>6</td>
<td>(10)</td>
<td>83</td>
</tr>
<tr>
<td>$20,389 Educational Activities—Sales and Services—</td>
<td>$1,249</td>
<td>605</td>
<td>28</td>
<td>53</td>
<td>2,253</td>
<td>14</td>
<td>12</td>
</tr>
<tr>
<td>$20,868 Auxiliary Enterprises</td>
<td>18,528</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>$80,825 Patient and Laboratory Fees</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>$55,772 Organized Patient Care Activities—Sales and Services</td>
<td>1,167</td>
<td>340</td>
<td>49</td>
<td>71</td>
<td>403</td>
<td>10</td>
<td>138</td>
</tr>
<tr>
<td>$13,327 Other Income and Additions</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>$433,861 Total Revenues</td>
<td>$31,945</td>
<td>$58,870</td>
<td>$3,452</td>
<td>$12,391</td>
<td>$23,810</td>
<td>$3,219</td>
<td>$7,482</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Expenditures and Mandatory Transfers:</th>
<th>Central Fiscal Unit</th>
<th>Faculty of Arts &amp; 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>$149,593 Instruction</td>
<td>$1,254</td>
<td>$22,304</td>
<td>$1,717</td>
<td>$5,604</td>
<td>$10,997</td>
<td>$1,562</td>
<td>$2,519</td>
</tr>
<tr>
<td>$67,999 Research</td>
<td>882</td>
<td>7,931</td>
<td>1</td>
<td>2,414</td>
<td>6</td>
<td></td>
<td></td>
</tr>
<tr>
<td>$31,467 Academic Support—</td>
<td>(292)</td>
<td>8,035</td>
<td>485</td>
<td>2,833</td>
<td>2,743</td>
<td>596</td>
<td>2,353</td>
</tr>
<tr>
<td>$9,887 Student Services</td>
<td>$1,667</td>
<td>3,453</td>
<td>150</td>
<td>701</td>
<td>1,265</td>
<td>186</td>
<td>412</td>
</tr>
<tr>
<td>$15,016 Institutional Support</td>
<td>$1,710</td>
<td>3,398</td>
<td>143</td>
<td>540</td>
<td>1,002</td>
<td>165</td>
<td>435</td>
</tr>
<tr>
<td>$30,483 Operation and Maintenance of Physical Plant</td>
<td>(725)</td>
<td>5,985</td>
<td>283</td>
<td>889</td>
<td>1,555</td>
<td>433</td>
<td>696</td>
</tr>
<tr>
<td>$22,436 Scholarships and Fellowships</td>
<td>852</td>
<td>10,935</td>
<td>738</td>
<td>1,992</td>
<td>3,400</td>
<td>728</td>
<td>973</td>
</tr>
<tr>
<td>$43,670 Organized Patient Care Activities</td>
<td>16,255</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>$18,579 Auxiliary Enterprises</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>$6 Miscellaneous Services</td>
<td>3</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>$6,558 Mandatory Transfers</td>
<td>3,673</td>
<td>275</td>
<td>(117)</td>
<td>303</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total Expenditures and Mandatory Transfers</td>
<td>$25,279</td>
<td>$62,316</td>
<td>$3,516</td>
<td>$12,443</td>
<td>$23,679</td>
<td>$3,670</td>
<td>$7,394</td>
</tr>
</tbody>
</table>

| Transfers to committed reserves, plant, and other funds from revenues and prior years' accumulated reserves | $2,357 | (3,446) | (103) | (76) | 59 | 6 | |
| Total Expenditures and Transfers | $22,922 | $58,870 | $3,413 | $12,367 | $23,738 | $3,676 | $7,392 |

| Net effect of revenues, expenditures, and transfers on General Reserves | $28,113 | 0 | 39 | 24 | 72 | (457) | 86 |

(A) Endowment at Market Value with income for:

<table>
<thead>
<tr>
<th>Support of Current Operations</th>
<th>$1,009,430</th>
<th>$362,528</th>
<th>$110,091</th>
<th>$5,622</th>
<th>$36,353</th>
<th>$35,215</th>
<th>$5,695</th>
<th>$17,491</th>
</tr>
</thead>
<tbody>
<tr>
<td>Other Purposes</td>
<td>209,454</td>
<td>143,381</td>
<td>26,765</td>
<td>1,174</td>
<td>1,473</td>
<td>9,730</td>
<td>468</td>
<td>14,235</td>
</tr>
<tr>
<td>Total Endowment</td>
<td>$1,218,884</td>
<td>$505,909</td>
<td>$136,856</td>
<td>$6,796</td>
<td>$37,826</td>
<td>$44,945</td>
<td>$6,163</td>
<td>$31,730</td>
</tr>
</tbody>
</table>

(B) A portion of the Central Fiscal Unit Endowment Income is Distributed to Several Schools.
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. 1987 was the fourth 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 Schools of Dental Medicine, Engineering, Law, and Medicine, as well as the Central Fiscal Unit ended the year with income in excess of expenditures as well as an increase in general reserves. $8,713,000 of the $9,023,000 addition to the General Reserve of the Central Fiscal Unit was the result of a planned transfer from the Reserve of the Treasurer’s Investment Pool to eliminate the cumulative deficit as of June 30, 1986 of the Central Fiscal Unit. The Schools of Architecture and Business, as well as the Institute of Biomedical Computing had a small increase in general reserves in fiscal year 1987. The School of Fine Arts ended fiscal year 1987 with a reduction in its general reserve.

The Faculty of Arts and Sciences utilized $3,791,000 of temporary endowment, as part of its transition to a reserve basis, and ended the year with no change in its general reserve.

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, 1987, 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 are 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, 1987, the total assets of the current funds were $219,904,000, including restricted current funds of $32,985,000 and unrestricted current funds of $186,919,000. Accounts payable and other such liabilities against unrestricted current funds amounted to $46,618,000. Another $79,083,000 of the unrestricted current fund assets was encumbered or otherwise administratively committed for specific future purposes. The net uncommitted general reserves were $61,218,000.

Summary of Undergraduate Financial Aid (Excluding Loan Funds)

Thousands of Dollars

<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>1985</td>
<td>$10,181</td>
<td>$2,847</td>
<td>$1,288</td>
<td>$774</td>
<td>$920</td>
<td>$16,010</td>
</tr>
<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>
</tbody>
</table>

Summary of Assets, Liabilities and Fund Balances as of June 30, 1987

Thousands of Dollars

<table>
<thead>
<tr>
<th>Current Funds</th>
<th>Student Loan Funds</th>
<th>Endowment Funds</th>
<th>Plant Funds</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Assets</td>
<td>Unrestricted</td>
<td>Restricted</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cash and securities maturing within thirty days</td>
<td>$29,870</td>
<td>$7,970</td>
<td>$1,879</td>
<td>$19,270</td>
</tr>
<tr>
<td>Investments at book value</td>
<td>68,549</td>
<td>18,291</td>
<td>2,638</td>
<td>746,834</td>
</tr>
<tr>
<td>Receivables</td>
<td>79,702</td>
<td>6,346</td>
<td>28,991</td>
<td>1,495</td>
</tr>
<tr>
<td>Plant facilities</td>
<td>526,561</td>
<td>526,561</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Other</td>
<td>8,798</td>
<td>378</td>
<td>491</td>
<td>10,777</td>
</tr>
<tr>
<td>Total Assets</td>
<td>$186,919</td>
<td>$32,985</td>
<td>$33,999</td>
<td>$778,376</td>
</tr>
<tr>
<td>Liabilities and Fund Balances: Liabilities</td>
<td>$46,618</td>
<td>$378</td>
<td>$134</td>
<td>$10,777</td>
</tr>
<tr>
<td>Deferred undistributed investment income</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Encumbered and committed reserves</td>
<td>79,083</td>
<td></td>
<td>79,083</td>
<td></td>
</tr>
<tr>
<td>General reserves</td>
<td>61,218</td>
<td></td>
<td>61,218</td>
<td></td>
</tr>
<tr>
<td>Balance of funds</td>
<td>32,534</td>
<td>33,865</td>
<td>767,599</td>
<td>449,001</td>
</tr>
<tr>
<td>Total Liabilities and Fund Balances</td>
<td>$186,919</td>
<td>$32,985</td>
<td>$33,999</td>
<td>$778,376</td>
</tr>
</tbody>
</table>

Student loan funds totaled $33,999,000. The total student loan fund receivables were $28,991,000, of which notes receivable from current and former students amounted to $28,846,000. Outstanding loans to students included $22,798,000 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 $778,376,000, including $766,104,000 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 $603,277,000. Of that amount, $526,561,000 was invested in land, buildings, books, and equipment. Total borrowings for physical plant facilities as of June 30, 1987, were $149,142,000, of which $6,508,000 represents Housing and

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Urban Development bonds for student housing and dining facilities, and $141,550,000 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, 1987 totaled $53,451,000 compared to $51,942,000 for last year. Endowment income for the same period was $37,852,000 compared to $36,013,000 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 $1,444,932,000 compared to $1,198,013,000 for the preceding year. A comparison of endowment funds over the past ten years is presented in the accompanying chart.

The increase in market value of endowment funds of $246,426,000 is the net result of gifts, grants, and net transfers of $96,608,000, (including the Danforth Foundation gift of $55,000,000), realized market gains of $48,103,000 and unrealized gains on the portfolio as of June 30, 1987, of $101,715,000.

On June 30, 1987 the total investment portfolio was diversified as follows:

- Cash and Short-term Securities: 3.9%
- Fixed Income: 16.0%
- Equities: 78.9%
- Real Estate and Other: 1.2%

Net income from securities lending was $48,000 compared to last year's $157,000.
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FOOTNOTES
1Deceased February 4, 1987
2Deceased July 28, 1987
3Deceased August 8, 1987
4Executive Vice President, Machine Components, Inc., beginning January, 1987
5Through March 19, 1987
6After March 25, 1987

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The natural approach would be to round in, following the curve of lakes that ride the edge of the Canadian Shield like a string of exotic— if unevenly placed—gems, moving northward from Superior to Winnipeg to Athabasca to Great Slave and, then, just before the gulfs and bays of the Northwest Passage, reaching Great Bear, the final jewel, blue and clear beyond all imagining. But I came by the more practical, if less poetic, route, drove from our summer cabin in northern Michigan to Minneapolis, and caught a jet to Edmonton. The land beneath the plane had been endlessly squared, neatly partitioned into the rich yellows of August wheat and the duller, deeper greens of hay ready for harvest: the Great Plains running north through Minnesota and the Dakotas into Saskatchewan and Alberta.

From Edmonton, the following morning, a smaller, older plane, one with an unfamiliar name on the fuselage, lost the ground and all its prairie consistency under a cover of clouds well before reaching the Northwest Territories; but Yellowknife, once seen on the descent, is not likely to be mistaken for Topeka, jauntily as if to hint at an otherwise undetectable raciness in the place. The buildings—even the official structures that declare this a capital and extend the claims of politicians and judges to their outermost limit—have a corrugated look, emphasizing aluminum flavored by a dash of cedar. Windows are scarce and nearly always narrow.

Neither could Yellowknife be confused with other hard luck,

In Canada's Northwest Territories the earth bares itself, inviting the scrutiny of geologists searching for clues to the violence of its creation.
Hard facts: Sam Bowring, assistant professor of earth and planetary sciences, records "the direction and angle of the rock, noting changes in consistency and structure. Patience, he explains, is the way a literary critic would explicate a piece of prose."

Right, Bowring confers with Todd Housh (left), a graduate student in earth and planetary sciences, and David Fielder, a 1987 Washington graduate. "How many people my age get to do geology here?" Fielder asks. "How many students get to do geology here?"

Bowring's method of teaching conforms with his shyly reluctant personality. "Sam does not mentor," explains the author, "but makes the pupil a colleague, explaining and filling in blanks, until you discover you know more than you thought. It is not so much a matter of teaching as of shared pleasure."

hardscrabble towns in Maine or Michigan's Iron country; license plates are shaped like polar bears, and the most prominent name in town is that of an explorer who lost his ship, his men, and his life in waters north and east of here. There is Franklin Street, the Sir John Franklin Territorial High School—no windows visible from the street and a raven eating bread beside the flagpole—and a tenement building called Franklin House. The venerable Hudson Bay Company remains, now called simply The Bay and offering, instead of pelts and furs, specials on pantyhose and cosmetics bags; its video club promises free membership, and an elderly Indian couple contemplates this generosity in front of three tiers of television sets, as a soulless version of "Paper Roses" drifts down from Musik speakers.

And yet evidence of an earlier Yellowknife persists. In Old Town, Weaver and Devore's still carries the no-nonsense supplies of prospectors and hunters, still smells of oiled, pine floors and canvas. Nearby, the Wildcat Cafe, a low-lying building half a block from the lake, serves a simple menu built around fish and caribou. And on the waterfront, Cessnas, Beavers, and Otters—float planes—lift off and land throughout the day, carrying passengers and cargo into the bush beyond the town.

At the edge of Yellowknife, down the street from the Sir John Franklin Territorial High School, is the Core Lab, which houses, among other things crucial to the Geological Survey of Canada, the expeditor who meets my plane and who, after several delays, at last delivers me and two visiting government geologists to the Cessna 185 that takes us north. The Canadian Survey serves two purposes. First is the practical one of supplying the Minister of Energy, Mines, and Resources with the data necessary for his department's work. This means providing maps and mineral inventories for an area rich in resources. The second end is more purely scientific. Survey geologists are research scientists trying to better understand the earth's evolution, to learn what the rocks can tell us about the dynamics of its cooling, how the continents were formed, and about a multitude of other matters inherent in the planet-making business. The Northwest Territories, with an area greater than one-third of the entire United States and a population roughly equal to that of Walla Walla, is one of the best places in the world to conduct such studies. Much of its rock is exposed to view, not buried beneath the plants and soils of more hospitable regions, revealing the tortured past of a planet where even the rocks move, crashing into one another in awesome violence. It is a geology instructor's dream, an open textbook with picture-perfect illustrations on every page.

The geologist seated in front of me in the Cessna was a lab researcher, out to see how the other half lives. For the entire flight, he kept his face close to his window, excitedly calling out feature after feature of the landscape below. Much of what he said was lost in the noise of the engine, but an occasional word broke through, often a word I dimly remembered from geology courses taken years ago. When I looked down, I, too, could pick out some of what he saw, but primarily I saw what was missing, the incredible vacancy of the place, the lack of any center by which to locate myself.

The sun gave little assistance except illumination. This far north—on line, roughly, with Fairbanks and Anchorage and Reykjavik—the world is, in early...
took him summers, and even on shorter school recesses, to places where there were interesting rocks and big fish.

In the winter term of his senior year, David became preoccupied with the Northwest Territories where he was to spend the following summer, mapping; in such a place there would be trophy lake trout, grayling, and, maybe, even char. One of the texts we had been reading in class that semester was *The Journals of Lewis and Clark*, and I observed that the Canadian survey was probably as close as anyone could now get to the experience of a wilderness expedition. I suppose my envy was evident. At 45, I was already much older than David, or even than Lewis and Clark at the time they went on their expedition, was, in fact, already more than a decade older than Lewis when he stopped having birthdays altogether. Besides, English teachers do not go to the wilderness, they go to the library. They eat their vegetables, brush after every meal, and lead regular, if not particularly wholesome, lives.

In March, David came to tell me the still-unmet Sam had invited me—if I could get to Yellowknife—to visit the mapping crew. I finally talked to Sam in May, a whimsical conversation that left me without any concrete information about my obligations other than that I was not to wear the color blue.

Now it was mid-July; and at a brightly lit hour my watch declared to be 10 p.m., I descended to Wopmay Lake (the name borrowed from a pioneer bush pilot) and a field camp known to the Yellowknife expeditor and short-wave operator as Sandbox City. The camp, a cluster of small, sleeping tents scattered along a ridge that rose behind a shallow cove, formed a rough horseshoe around the large mess tent. The white canvas and the ground, bone-colored with lichen, reflected the low, slanting sun and the entire campsite glowed as though backlit. People came to meet us and to help with the unloading, speaking kindly to the arriving strangers, but more concerned with getting the supplies, especially the beer, safely stowed away.

Sam Bowring approached almost shyly. Sam looks like a youth who has, miraculously, sprouted an old man's wispy beard; he was slightly slouched as though always carrying a pack full of rocks, his eyes groundward looking for something else to add to his burden. His deliberate gait at times, suggests the movement of someone who has come a long way and who, if he conserves his energy, will yet continue on for a considerable distance; at other times, it suggests a child coming home from play, reluctant to give up the day's game and lay aside his toys. The only other time I had seen him, he was seated in his office, a narrow room littered with rocks and papers, looking out of place and harassed. Here, pushing aside a spruce limb and stepping onto the sand on which we'd beached, he looked at home.

The camp director, Rob Hildebrand, seemed less than pleased to have a visitor who brought no useful skill to a work crew already feeling the pressure of a short summer, and he prowled around us, thick bodied and bear-like. Sam stayed between Rob and me, asking about the flight, explaining that David and Todd Housh, a Washington University graduate student, were at a secondary camp some distance away and wouldn't be returning until later in the week. All the while, Sam did his best to keep a muttering Hildebrand at bay, and herded me towards the mess tent where dinner
was, at 10:30, about to be served. Hildebrand's usual crew consisted of himself, Sam, a camp cook, and nine assistants. The assistants were students, mostly advanced geology students and mostly Canadian, who worked summers on the Survey both for income and invaluable mapping experience. They had returned to camp only a short time before our arrival, having been on all-day traverses—mapping forays, 20 or more miles long, across the wilderness I had been watching from the air. There was, at the table, the banter common to student unions and rathskellers, but there was as well the shrill edge of exhaustion brought on by the long hours of hard work and the pressures of scientific research with its demand for accuracy.

Despite the absence of darkness, I slept soundly, warm enough to leave the sleeping bag open most of the night. The next day, Sam supervised my packing—lunch, water, rain gear, repellant—inspecting my jeans and blue shirt without comment. Then we flew in the Cessna, together with one of the assistants, to be dropped off for the day's mapping. Before landing, the pilot banked around each lake, rolled his wings perpendicular to the water for an unobstructed view, and checked for a suitable spot on which to ground us.

When we came to our stop, Sam and the pilot agreed on another lake for our mapping experience. They had pointed out from the air, the site, a suitable spot on which to ground us.

We spent the day walking along the Wopmay Line, a north-south trench Sam had pointed out from the air, the site, nearly two billion years ago, of an enormous geological collision. What geologists call the basement, Archean rock, two-and-a-half billion years old, got here first, and sits on geological flaws call the basement, Archean rock, Wopmay Line marks the edge of the Slave craton, a large, central geological accumulation of sediments had built a layered sequence.

When, 1,885 billion years ago, the Hottah terrain collided with the western edge of the Slave craton, those sedimentary formations were detached, peeled away and, to the east, shuffled upwards like a deck of cards. Along the Wopmay Line, however, they were buried, over-ridden by the Hottah terrain, and then uplifted. Continued magmatic activity to the west produced the younger (1.875 to 1.84 billion years old) Great Bear Magmatic Zone which covered most of the Hottah terrain.

It was the history of this violence that Sam was charting, watching especially for the light-colored leucogranites, rich in feldspar and quartz, that were intruded sometime during the collision. The tremendous heat generated by rock overwhelming rock "deforms," restructures the constituent parts, so that with granite, depending on the extremity of the temperature, the quartz particles may melt and flow together in pencil-shaped veins or be flattened into layers. If the temperature gets hot enough, so may the feldspars. The degree and type of deformation in a particular rock allows it to be located in the larger chronology of prolonged geological disturbance.

By identifying and dating granites that came late in the process, Sam is able to refine our understanding of that larger event, the collision of continental plates and subsequent magmatic action. The dating is made possible by the presence of zircons in granite and, in turn, of uranium in the zircons. The granite is ground up, the zircons extracted, and the radioactive isotopes measured by extremely accurate instruments developed over the last few years. Thus is the age of the granite determined and the geology dated, the microscopic providing a vital perspective on an event of enormous magnitude, and the researcher somehow able to keep both extremes in mind simultaneously.

Picking his way along the course of that ancient collision, Sam moved through two radically different planes of time. He hurried us along towards our evening rendezvous with the plane, constantly aware of how much ground we had to cover in the hours—unnoted by the sun—left in our day, and yet, at the same time, was reconstructing two-billion-year-old events with an acceptable margin of error of plus or minus four million. In the same manner, he stopped to point out the nest of a yellowlegs or a ptarmigan, eggs lying virtually unprotected on the ground, then elaborated on a primal violence great enough to shear a country. Somehow, he was managing not only to be in two different places at the same time, but also in two different times at the same place. So skillful a guide was he that, at moments, I could catch glimpses, too, of all this existing around me, could discern in this wilderness an even wilder place that Sam and Bob were charting.

If it was for me a feat of imagination, simply, it was for Sam an accomplishment of technique as well. At each outcropping, if he observed any variation, Sam would record the direction and angle of the rock, noting changes in consistency or structure that indicate the time of deformation, of the heat or pressure that had changed its structure. Patiently, he pointed out the differences in the rock we were examining, explained it the way a literary critic would explicate a piece of prose.

But Sam is an enthusiast as well as a scientist. When his text revealed an unexpected twist in plot or introduced some new subtlety, he would grow excited, exclaim that this was "incredible," "amazing." (When the student assistants would mimic Sam at the dinner table, they would say with exaggerated enunciation, "ah-soo-lute-ly ah-may-zing.") They did it routinely in their banter, perhaps as a way of legitimizing their own delight at a time in their lives when they are too self-conscious to admit to such emotions. Sometimes, in the field, Sam said it the same way, as though mimicking himself but without undercutting the fact that it was amazing.)
Searching for clues to geological events that occurred almost two billion years ago, scientists examine microscopic samples of rock to determine their composition and, thus, their age. In this way, tiny bits of evidence shed light on past events of enormous magnitude. In a similar fashion, geological expeditions become exercises in “a special kind of double-mindedness—the capacity to be in two disparate places simultaneously.… “Picking his way along the course of an ancient collision,” writes Fields, “so skillful a guide is Sam Bowring that, at moments, I could catch glimpses of an even wilder place he was charting.”

Whenever he finds something worthy of note, Sam will write on anything. He marks his map with the appropriate symbols, adds data to his notebook, then puts even more notes on the back of his hand. The back of Sam’s hand sometimes looks like a debutante’s dance card.

It does not serve Sam’s reluctance to be the object of any attention that he is subject of a story repeatedly told in camp that summer; whenever the story is told in his hearing, he groans, his eyes lift heavenward in appeal, and finally, he shakes his head in resignation. Two days before my arrival, Sam had taken one of the Zodiaks—an inflatable rubber boat—to check a series of out-croppings. As he was walking, he came upon a black bear, a very aggressive and persistent bear that harassed him for the next four hours, chasing him and blocking his access to the Zodiak. It swiped at him with a paw and knocked the pack off his back. It bit at his heels, nearly bringing him to the ground.

Sam retaliated, fired the thundercaps that are supposed to frighten bears away with their blast, fired flares and, when one set the ground cover on fire, dutifully stomped out the flames while the beast stood aside to watch, and rest. He even struck several blows to the bear’s head with his rock hammer, but the hammer made no more impression than had the noise and fire. At last, exhausted by the long chase, he turned on the bear and, at close range, fired a flare directly in its face. This time, it was the animal
that caught fire, and, as it pawed the smoldering hair, Sam escaped to the boat.

The next day, he returned to the site with David and another assistant, one armed with a rifle, the other with a shotgun. They found the pack but no bear and so left the boat, the rifle, and pack, and proceeded to finish the previous day’s work. On their return, they discovered the boat destroyed, the rifle stock chewed to splinters, and Sam’s camera bitten completely through.

To a group of people who routinely spend 12 or more hours alone in a bush thick with black bears and grizzlies, the episode had made a considerable impression. At camp, it was referred to nearly every evening, acted out—special emphasis given to the hammering drama, and augmented by other bear stories, debates on whether black bears earlier, and antlers lay on the ground like huge, thick-palmed hands. A moose jaw leaned against a boulder, still clinging to its teeth now that everything else was gone.

Sometimes I drifted off laterally to break my own trail, a wise practice with some of the other geologists I followed, but Sam has reliable feet and even on our rambling course he could be counted on to find the best path, and so I inevitably came back into line as the walking got difficult.

By evening, I had a clearer sense of how Sam teaches, an understanding confirmed in subsequent days as I watched the assistants come to him at camp in an effort to improve their own reading of this place and the forces that created it; he had, without fanfare or pomposity, been teaching me all day. Regardless of the age of the student, team excitedly deciphered yet another wrinkle on the ground below, and on forays to particularly dramatic formations along Great Bear Lake. Hildebrand, who knows this terrain better than anyone, despite his initial wariness, was a generous host, tolerant of my geological ignorance because of his enthusiasm for the novels we discussed and, perhaps, because I prepared trout and char more to his liking than did the camp cook.

After Todd and David had been retrieved from the camp on Long Tom Lake, Todd and I spent a day flying to various granite formations and collecting samples for Sam’s lab. Todd had injured his back in a fall the previous summer, had reinjured it in the days before my arrival, and would be leaving for Missouri shortly. His job this day was to find the right rock; mine was to finish the whole of contemporary literature while repairing a punctured boat—and about repairing the whole of contemporary literature while repairing a punctured boat—and about teaching. He had few theories about the latter, seemed puzzled by the idea that he might be particularly good at it. He attributed the enthusiasm of students like David and Todd to an excitement intrinsic in geology. It was a matter not of teaching, but of shared pleasure.

As I swatted at the mosquitoes and black flies that had, when the wind died down, darkened my clothing, Sam rose and, brushing the lesser plague from his own shirt and pants, quietly said, “They seem to like blue. I should have told you.”

I learned a good deal more geology over the next several days, learned it from the air, as members of the Survey

The Northwest Territories is a place of work for those who can understand what
William Carlos Williams said of Daniel Boone:
“He was the kind of man who took chances with his mind for pleasure.”

are a greater threat than grizzlies, awe-filled references to polar bears, the most dangerous of all, by those with experience at the Survey’s eastern camps.

In many ways, the traverse with Sam provided the parameters for my entire visit, an introduction to both the landscape and to the geological issues it raises, as well as to the special double-mindedness—the capacity to be in two disparate places simultaneously—required by field work. Our meandering path carried us along outcroppings, through peat bogs, thick bush, and up lichen-covered hills. Every ridge offered panoramic views of lakes dotted by the shadows of passing clouds, and the crisp clarity of the air gave a creation freshness to a land where the only touch of human intrusion, other than our own presence, was a prospector’s claim post dating from the 1930s. There were birds of several species; yellowlegs that stood spindly-legged at the very peak of the spruce trees, nattering wildly as we passed, bald eagles riding the air currents overhead, and, on the lakes, loons and swans. The caribou migration had passed through this area a few weeks

Sam does not mentor but rather makes the pupil a colleague. At first, I thought he suffered under the delusion I knew more than, in fact, I did. Eventually, I came to realize this is how he works, explaining and filling in blanks, casually, until you discover that you, in fact, know more than you thought. At lunch, we talked about books—many geologists are avid readers, as I discovered one day when Hildebrand surveyed the whole of contemporary literature while repairing a punctured boat—and about teaching. He had few theories about the latter, seemed puzzled by the idea that he might be particularly good at it. He attributed the enthusiasm of students like David and Todd to an excitement intrinsic in geology. It was a matter not of teaching, but of shared pleasure.

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Mostly we worked the shore of Great Bear Lake: the Vance Peninsula, Mystery Island, Echo Bay, Port Radium. The lake still carried a good deal of ice, and its water, from the air, was a blue of incredible purity. For a while during the day, the horizon disappeared, not in fog or any atmospheric obstruction, but in a kind of extreme clarity where water and air become too pristine for demarcation. The young pilot looked at it in awe and asked me to take his picture with that unbroken backdrop, and Todd, whose emotions are usually impossible to discern, was also caught up in the wonder of it, snapping more than his usual, single, carefully chosen photograph.

The rest of the landscape was just as spectacular: great rocky bluffs, sometimes fractured but unfallen, lined like the back of an old man’s hand, sometimes smooth and without blemish; pockets of conglomerate polished to mosaic beauty by the lake; layered strata, turned on edge, and running off into the clear water like the lines on a grade school tablet. “A nice place to do doctoral work,” I said to Todd. “Yep,” he answered and allowed himself a quarter of a smile for the better part of a second or two. And it is—has been for Sam and for Hildebrand, will be for Todd; a good place not just because of its aesthetic delights, and not even because it is a
terrain where the processes of plate tectonics and continent formation have been laid nearly bare for study. Good as well because it provides the room required by matters of such enormity, forces the person taking on such issues to leave them undiminished and not allow the magnitude of it all to slip away. It has its risks, risks greater, I suspect, than bears or slippery rocks; the risk of a place where the conventions by which we order our lives break down before us, where the lines between day and night, between sky and water, up and down, can disappear.

As a student of American literature, a reader of new world exploration narratives, I know how difficult others have found being someplace in the American wilderness. More than one explorer has experienced the terrible despair of losing the fragile thread tying him to familiar, established places, and discovered himself nowhere, fallen off the edge. The Survey provides aerial photographs, black and white pictures, on which we find ourselves as we wander this terrain; yet even with such advantage, this is not a place, nor is this a field of study, for the timid. It is rather a place and work for those who can understand what William Carlos Williams said of Daniel Boone: "He was the kind of man who took chances with his mind for pleasure." It is for individuals who both know that pleasure and a proper fear of it.

Late in the week I stayed in camp to talk with David about his summer and to help him with his chores—burning garbage, repairing equipment, carrying food from the storage pits cut in the permafrost. He was tired, exhausted by a series of unusually long traverses. But as he described this work—the mapping and the long defenses of his findings before Hildebrand's relentless questioning—his weariness lifted. He looked around him, grinned, and asked, "How many people my age get to a place like this? How many get to do geology here?"

In June, he told me, before the ice had broken up and at one of the camps that preceded Wopmay, he had cut across the frozen lake to begin a traverse on the far side. As he walked, he became aware of something following him and, when he turned, saw a caribou that, separated from the main herd, had elected him as leader. He slogged along in the early morning light, and all the while the caribou trailed, trustingly, this stranger in its own land.

Flying back to Yellowknife through the midnight light, I watched the land below. There had been thunderstorms to the south, and lightening strikes had started forest fires. As we passed over the billows of smoke, and through the nearest thing to a dusk I had seen since arriving—a brief "legal darkness" was to begin in two more days according to the regulations for aircraft—I thought of all the different ways this place had appeared to me: the great swirls of rock sheared by faults, rising at times in bluffs, tinted red in the Arctic light, and jutting at other moments into domes, green, like oxidized copper, the long serpentine ridges; the lakes stacked everywhere, sometimes in tiers, catch basins ready to overflow into their lower neighbor; the trees, needle-like from the air with nearly indistinguishable horizontal growth, more masts than trees, or survivors of some great catastrophe who had been stripped of all that was superfluous.

Sometimes, especially in the late afternoon light, it seemed to me a very young place, as though creation had happened only last month or the month before, and life—the scraggly trees and bushes—was getting its first fragile hold in the small pockets of lichen and moss. The organic seemed the encroacher, ready in a moment to expand its domain in a sudden leap of vitality. But often, usually in the morning, it seemed un-speakably old, like some aged beast, its hair fallen away until only a few, last tufts remain, its rumpled skin revealed, hardened by time and travail.

In the smoky slide towards home, all the metaphors I had promised to suppress leaped out, thrusting science and reporterly caution aside. There was so much of rock and water, so little of people. From the air, the lakes and ridges ran from horizon to horizon, in an unbroken circle of water and rock. Fires burned, clearing trees and lichen from the face of the rock. In time, the trees and lichen will return, though not in my lifetime—an insignificant blink in such a place—and, meanwhile, the geologists will happily read this newly uncovered page in their text.

The old work will go on, growth and death continuing at their almost imperceptible pace, a spruce only reaching the size of a sapling in the lifetime of a man, frost and water continuing to grind at the rock, unhurried. Time is on their side.

From the air, the scars are obvious as the unrelenting violence continues; it is the rock that is most beautiful, even as it yields to time and to water, its deformations breathtaking when seen face-to-face. Formed in fire and remade by unendurable pressure, it too is alive, moving, reshaping the world as it constantly remakes itself.

Wayne Fields is professor of English at Washington University. This essay is one of a series on which he is working, to be collected under the title Other People's Places.
Max Lerner, A.M.'25, the celebrated columnist and American historian, maintains a sharp vigil over his country's adolescence.

Like the country that has been his lifelong subject and that he so obviously loves, Max Lerner, the 85-year-old American pundit, possesses a remarkable capacity for assimilating incongruities. To begin with, he is an immigrant, brought here from Russia by his family early in this century. ("Max Lerner's romance with America is almost as old as he is," The New Republic observed in a tribute to his 80th birthday, noting that his ardor has taken the form of an "immigrant's patriotism.") An outstanding student, his achievements and breakthroughs have been won largely beyond the borders of strict academic disciplines; solemn of nature ("learned as more professorial types are not," as The New Republic put it), his public life has been marked by the kind of renown brought on by political notoriety and an association with other celebrities.

Fixing himself at first in the public eye as an inflamed radical, leading the charge of the socialist Left in Manhattan in the 1930s and 1940s, he became known, with the publication in 1957 of his encompassing history America as a Civilization, as a defender and caretaker of the cause of democracy. As a man-on-the-scene during the commotion of the 1960s and early 1970s, he found himself alienated from the uprisings of the children of that generation he had once led; meanwhile, he continued without interruption and almost invisibly to pursue his essentially scholarly ambitions. Now, as both he and the American Century propel themselves into the infused glow of twilight, Max Lerner has become a rare treasure set in a country characterized by pride in progress and a vision rooted almost exclusively in the future.

Taking his inspiration as much from the European man-of-letters as Ralph Waldo Emerson and William James ("I get my sense of style from Thoreau," he once told an interviewer from People), Lerner has maintained his rambunctious
mien throughout a 60-year career of practicing his craft of comment and analysis in a variety of guises: as newspaper columnist (he maintains an office at the New York Post and writes twice weekly for the Los Angeles Times syndicate); as college professor (he retired in 1974 after 25 years at Brandeis University and promptly accepted his current post at U.S. International University in San Diego); as professional radical and amateur agitator; as editor, scholar, historian, and philosopher.

Side-stepping convention, he has turned his pugnacious countenance (crowned by a thatch of white hair as unruly and defiant as an albino brushfire, crowning a torso as thick and upright as a prizefighter’s) toward a muligan stew of topics, from Constitutional law to New Age cybernetics, from the life and loves of Elizabeth Taylor to the end of the liberal era under the regime of Ronald Reagan. Drawing on sources that run the gamut, from Alfred Lord Tennyson through Oliver Wendell Holmes to maverick anthropologist Gregory Bateson, Lerner’s intellectual wanderlust has led him through the annals of American literature and across the breadth of American liberalism, depositing him in a host of diverse locations on the American landscape, from the Hamptons to the heartland, from Harvard to Hollywood.

This year, coinciding with the anniversary of the Constitution, he celebrates the typically American rite of rebirth. Nearly silenced for several years by severe illness, Lerner is looking forward, in the next 12 months, to the publication of three books: a 30th-anniversary edition of his classic volume—described in these pages several years ago as “that mind-boggling Leviathan of a work”—America as a Civilization (over 1,000 pages long, more than 100,000 copies sold, translated into eight languages) with a postscript chapter by the author; a collection of more than 50 years’ worth of essays on Constitutional law (his initial academic interest; among the dozen books he has already published is a volume on The Mind and Faith of Justice Holmes) to be called A Constitutional Reader with a new, introductory essay by the author; and a memoir of his illness (four years spent fighting two cancers and a heart attack, during which he continued to produce his columns and maintain his bicostal commitments) to be called The Assertion of Life.

But that’s not all. In his typically prodigious fashion, Lerner has, on his always-lit back burner, three more books ready for completion: a three-part, psycho-historical study of the American presidents since Roosevelt tentatively titled The Wounded Titans, on which he has been working for the better part of two decades; the first volume of his autobiography, covering the years preceding the publication of America as a Civilization, whose title, Delight of Battle, is taken from a line in Tennyson’s Ulysses—“And drunk delight of battle with my peers, Far on the ringing plains of windy Troy”; and, finally, a work he began in the 1960s and dropped, based on his interest in the mythological life of America, whose working title remains Eros in America.

Quickly scanning the Readers’ Guide to Periodical Literature over the past decade for Lerner entries—a profile in People portraying him, in semi-residence at the Playboy Mansion West as “the Henry Kissinger of the Playboy empire”; an article in Vogue on the occasion of a film on the Communist John Reed informing a younger generation “We Were All Reds Then”; an essay in Foreign Affairs written during the Watergate trauma asking “Is America a Dying Civilization?”; a critique in The New Republic taking to task young pups Woodward and Bernstein for exceeding their talents as investigative reporters trying to write “hot history” in The Final Days; an exhortation in Notre Dame Magazine concerning the dangers and mysteries of teaching, that “unflaggingly difficult art”—one can see how the defiantly original historian has, over the years, been charged with spreading himself too thin.

Even under the best of conditions, Lerner defies categorization. For those who know of him, it is difficult to accept there is not one but several Max Lerners. Most of those who remember Max Lerner (and he is the first to admit many may consider him no longer among the living) identify him as the figurehead of the radical Left of the 1930s and 1940s, and among those there are plenty who harbor some resentment for his having moved beyond that era. Those who recall him best as a columnist may have a hard time pinning down the memory; unlike today’s breed, Lerner did not attach himself to a pale stereotype, but forged opinions, devoid of cool, careerist calculations, on unpredictable, moving targets.

Even in academic circles, where he has made perhaps his most significant contributions, his enduring commitment passes nearly uncelebrated, due in large part to his unconventional approach, nonconformist tendencies, and unbridled curiosity; many students of American studies today do not, in fact, recognize the name of the pioneer described by The New Republic as having “laid the intellectual foundations and erected a sound structure for the one genuine success of multidisciplinary work in the social sciences.”

Relishing controversy and cultivating an astonishingly eclectic array of influences and friends, from Plato to Jung, Robert Frost to Hugh Hefner, Walter Lippman to Marilyn Monroe, Lerner has grown accustomed to these charges and complaints, registered in ignorance of his overriding ambition to become, in an age of specialized jargon and narrowed fields of expertise, a superbly skilled generalist.

In 1959, in the introduction to a collection of his newspaper columns called The Unfinished Country, Lerner responded by defending his calling in general and the discipline of journalism in particular: “If the generalist also finds his métier (at least in part) as a journalist,” he wrote, “it is not wholly an accident. The academic environment in America today, except in rare instances, is not one to encourage anything but the specialist. In the academic marketplace, the man who has shown interest in a variety of fields is often dismissed as a dilettante...Unfortunately, life itself is not divided into these specialized patches, but comes to us whole and asks to be grasped whole.”

Taking to heart the task of grasping life whole, Lerner has throughout his career displayed a constant and unwavering fidelity to a pair of untamable obsessions: the life of the mind and the democratic experiment that is the United States of America. Through it all, he has steered a clear course, holding true to the creed he adopted early in life, articulated by an early and enduring model, Oliver Wendell Holmes: “It is required of a man,” Holmes wrote of the qualifications for a great jurist, “that he should...
share the passions and actions of his time, at peril of being judged not to have lived.

It was F. Scott Fitzgerald, no slouch of an American historian himself, who registered the cynical observation that "There are no second acts in American lives." Against Fitzgerald's darkly tragic vision, Max Lerner has pursued another kind of America, one that displays a surprising inclination to accept and accommodate an immense range of cultural influences, of traditions and inventions, of ideas and identities. In Fitzgerald's America, the yearning for regeneration is doomed to failure; in Lerner's, the possibility of renewal is constant. Ignoring none of the forces that predispose American life to chaos and disintegration, Lerner continues to hold out for survival and continuity, with an almost religious respect for a future that is unknown and, as yet, unformed.

Lerner's America is, in many ways, almost the exact complement to Fitzgerald's, and so, in most regards, is his life. Like the novelist, Lerner rose to prominence during a particularly vigorous episode of history in this, the American Century (both may be counted, in different decades—the 1920s for Fitzgerald, the 1930s and 1940s for Lerner—as "representative men"). But Fitzgerald's dark observation proved prophetic; his life yielded no second act. Lerner's life, on the other hand, can be seen to have played itself out in three clear and distinct intervals, each with its own conflict and resolution, each with its own collection of scenes and characters.

In the first act, Lerner sets out on his intellectual journey, leaves behind a place at Yale Law School ("I dropped out of law school to reform the world," he told the interviewer from People) and comes to Washington University to study the social and economic theories of Thorstein Veblen. After earning a master's degree in 1925 (with a thesis—written under the tutelage of Economics Professor Isaac Lippincott—that later becomes one of his books, The Portable Veblen), Lerner continues on to the Robert Brookings Graduate School of Economics and Government (once an arm of the Brookings Institution) where his education is supported by a scholarship in the name of the early Washington University patron who helped establish both organizations. There, his reformist passion is forged into a commitment to generalist scholarship. A heady succession of editorial jobs and teaching appointments follows, hurling Lerner through the world of ideas and politics (Ideas Are Weapons, he calls one of his early books). Comprising his intellectual initiation and early maturity, this period of Lerner's development draws to a close with the publication of America as a Civilization.

Along the way, Lerner encounters his early idols, Holmes and Veblen. He lodges next door to Holmes while at Brookings and sees the aged jurist taking his daily "constitutional"; following the award of his Ph.D. at Brookings, he is recommended for a job putting together the Encyclopedia of Social Sciences (published in 1930), and there meets Veblen, as well as the renegade Columbia professor Charles Beard and editor in chief Alvin Johnson, an essential influence in Lerner's life, who had been editor of The New Republic and, in 1923, founder of the New School for Social Research in Manhattan, where Lerner for over 40 years continues to lecture regularly.

He teaches for a while, after five years as youthful managing editor on the Encyclopedia, at Sarah Lawrence, alongside Joseph Campbell. Then, it's on to Harvard for a year, before accepting the editorship of The Nation; among his "young writers" are Mary McCarthy, Dwight Macdonald, and the neophyte historian Barbara Tuchman. Leaving The Nation, he takes a teaching position at Williams and becomes a contributing editor of The New Republic, but returns to New York to take over leadership of PM, the controversial leftist paper, from founder Ralph Ingersoll who is drafted into the War. Relinquishing the reins of PM, he begins his book on American civilization, starts writing a thrice-weekly column for the Post, and, in the early 1950s, accepts a tenured position at Brandeis. When America as a Civilization is finally published in 1957, Lerner's transformation from radical adversary to learned interpreter is complete.

In the second act of the Lerner chronicles, the success of America as a Civilization and the growing readership of his column, which seemingly refuses no topic, adds fuel to his celebrity, a fact he does not fail to take advantage of. (He counts among his friends theatrically types like actor Eli Wallach and acting guru Lee Strasberg, for a short time he takes on as his agent the notorious Hollywood wheeler-dealer Irving "Swifty" Lazar.) For a senior seminar at Brandeis, he invites significant figures of his acquaintance—Archibald MacLeish, Agnes de Mille, Norbert Weiner, Thurgood Marshall, Elia Kazan, Norman Thomas—to come and speak about their lives and their sense of their own place in history.

He can be seen during this period exercising his irrepressible curiosity in a series of snapshots: escorting Liz Taylor through avid crowds outside Madison Square Garden to the Johansson-Patterson fight; huddling at the 1964 Democratic Convention in New York City with fellow provocateur Martin Peretz, historian Arthur Schlesinger, and a young novelist just learning the ropes of political reporting, Norman Mailer, and dodging literal brickbats at the 1968 Democratic Convention in Chicago with Hugh Hefner. (The two meet in the early 1960s, at panel discussions, and become friends; when Lerner agrees to teach in San Diego, Hef gives him a key to a room of his own at the Playboy Mansion West.)

Less visible is his growing commitment to broadening the scholarly net cast by America as a Civilization, a dedication to exploring a wider reach of intellectual concepts; he continues teaching at Brandeis, and adds to his already intimidating intellectual arsenal the concepts of psycho-history, a new discipline built on the writings of Sigmund Freud and expanded to include the psychological thinking of both Carl Jung and Erik Erikson. During this time,

Worldly affairs: As a young editor and columnist, Lerner emulated Oliver Wendell Holmes' maxim: "It is required of a man that he should share the passions and actions of his time, at peril of being judged not to have lived."


both a study of American presidents since Roosevelt and Eros In America are conceived, and a psycho-historical look at the Kennedy clan takes form, published as Ted and the Kennedy Legend.

The third phase of Lerner's development is marked by his retirement in 1974 from Brandeis; no longer tethered to traditional academic practices, but deeply committed to both teaching and scholarship, he accepts a position at U.S. International University in San Diego, where his role is more exclusively that of mentor. Meeting with small groups of graduate students and assisted by devoted teaching assistants, he shepherds apprentice scholars through Ph.D. dissertations; in return, he is challenged, in a decidedly Socratic atmosphere, by ideas endemic to the West Coast (or as some would have it, the Left Coast—an oddly coincidental pun in Lerner's case), by New Age ways of thinking and the study of ecosystems, gestalt psychology, cybernetics (theories of information flow), and paradigm shifts (the study of the frameworks through which technological and cultural developments are viewed).

Illness interrupts his progress, effectively crippling the writing of book-length manuscripts, but in typical Lernerian fashion this illness, too, is incorporated into his life and thinking, resulting in a metaphysical focus on life and mortality that has him describing his condition several years later as "a continuing adventure in both illness and health." As in the previous two acts, an underground growth in his thinking takes place, deepening his commitment to a view of civilization studies that emphasizes cultural change and survival (or, as Lerner himself would put it, "total civilizations and their role in history, their viability and vulnerability").

An earlier commitment, again based on an edict of Justice Holmes, "to show the rational connection between your fact and the frame of the universe," is here cemented with an interest in combining subjective and objective perspectives. Lerner expresses it as "a sense of unity in writing about individual health and collective health." This renewed scholarly vigor also contributes to an increasing emphasis on the method of civilization studies, on the processes by which civilizations can be understood and analyzed. Lerner describes it characteristically: "Along with my interest in civilizations and my general interest in what the hell it's all about, there is this interest in how do we get at it, what are the clues, what are the keys?" It is almost as if, perched on the Pacific Rim, Max Lerner has come full circle, standing at the juncture where the newest evolution of American civilization faces some of the oldest civilizations in the world.

Remaining constant throughout each of these phases is the Lerner style. Based on a classical love of books and writing (majoring in literature at Yale, he concentrated on the Victorian period), it displays in almost equal parts the precocious nature of the eternal student with the curiosity and courage of an explorer. Respectful, almost gracious in manner, Lerner has attracted (or been attracted to) controversy throughout his life like an unstable molecule seeking valence. ("All my life, I've been drawn to risk-taking," he observes. "And I like that. A life that doesn't involve some risk-taking is not a pretty life"). Rather than court self-destruction, though, this disputatious nature seems to track self-revelation.

Adopting a dictum that mixes erudition and slang (in Lernerese, references to books and writing), he expresses himself in a grammar that is concise, direct, and ruminative. Favoring the instincts of the synterist, his intellectual capacity has grown in two dimensions—in the range of topics he is comfortable discussing and in his ability to address levels of thought from pragmatic to abstract—until in both directions it is nearly encyclopedic. America as a Civilization "is at once informing, stimulating, and provocative...a great book," Samuel Eliot Morison, the Harvard historian observed, nicely summing up the distinguishing qualities of its author as well.

Following his family first to Manhattan (where his father sought employment in the midtown garment district) and then to the Catskills (where his father operated a dairy farm), Mikhail Lerner grew up on the streets of New Haven, Connecticut (where his father ran a small grocery and milk delivery). Attending one of the city's two largest high schools, Lerner qualified for the single scholarship offered to "townies" by New Haven-based Yale University. Feeling himself an outsider amid the Gothic spires of the Ivy League, Lerner nonetheless graduated Phi Beta Kappa; but growing restless with the narrow discipline of Yale Law ("I couldn't bear the thought of spending my life fighting for somebody's house deed," he told the interviewer from People), he lit out for a young university west of the Mississippi, where he persisted in his voracious quest for learning. "I read everything I could get my hands on in economics and social theory that year," Lerner recalls of the year spent at Washington University, "ransacked the stacks in the library."

In class, he assumed the insistent role of gadfly: "I didn't believe in one-way lectures," he says, with typical directness.

At Brookings Graduate School, he added to a dissertation on the history of American railroads a half-dozen essays on diverse subjects; in place of the traditional oral examination, he held forth in an impromptu, four-hour discourse on the relationship of the novel to society. At Sarah Lawrence, he established himself as an ardent defender of socialist theory, teaching alongside the scholar Joseph Campbell, whose interest in Nietzsche, Spengler, and cultural mythology was matched by a predilection for conservative politics, Lerner forced a distinction between the colleagues: "Students attended either his classes or mine," he recalls with a bit of pride.

As a graduate student at Washington, he met his first wife, Anita Marburg, a fellow student, with a family of three small daughters, both he and his wife held teaching appointments at Sarah Lawrence. But it was there he met, and fell deeply in love with, his present wife, Edna Albers, who was then a 17-year-old literature major. It was 10 years before they married, eloping to New Hampshire, their mutual divorces eliciting the displeasure of friends and family; even the justice of the peace who married them disapproved. ("He wouldn't look at us..."
during the ceremony," Edna, a psychology professor and therapist, recalls.) Replacing the socialist theorist Harold Laski at Harvard, Lerner provoked a crisis by asking after only a year in "The Yard" for a leave of absence to edit The Nation. "Any man who would consider becoming editor of The Nation when he has a chance of continuing at Harvard doesn't belong at Harvard," pronounced Harvard President James Bryant Conant, so Lerner resigned. His tenure at The Nation was disrupted when Lerner refused to back down from his support for Roosevelt's filling the Supreme Court with liberal nominees. As editor of the cutting-edge Leftist weekly PM, he encountered a profound disenchantment with socialist regimes.

Carved out with a writer's skill in perceiving distinctions, the controversies in the Lerner annals appear as rung-upon-run on a ladder allowing him to draw closer to the Jungian ideal of "individuation." As The New Republic pointed out, "In a vivid and vigorous column that is a continuing education for his readers (some may think of it as a continuing provocation), he has grappled with ideas and their consequences. Never smug, alive to controversy, he grapples still." In typical fashion, he recalls his association and friendship with the respected political columnist Walter Lippman as revealing limitations to the younger commentator; "I admired Lippman greatly," Lerner now recalls, "but in thinking about his career, I felt I wanted to move out from strictly political subjects. He was both my opponent and my model."

Understand the precise nature of the Lerner style and the intentions that underlie it helps to illuminate his contribution to the writing of history. "Some people are girl-watchers, others are bird-watchers," he cleverly told People, "I'm a civilization-watcher." But wit falls short in taking the full measure of the Lerner oeuvre, calling him a civilization-watcher implies too much impartiality, during contribution to our culture.

The Max Lerner who answers the door at his Manhattan apartment, in a building overlooking the East River very near a decidedly residential and middle-class portion of the East Side, is the Max Lerner one would expect: vigorous and solemn, but without a trace of pretension. Politely inquiring about a visitor's view of New York these days, he throws himself into a discussion of nearly insane cab drivers, and tells a story about a Lebanese who brought him from the airport and, discovering he is a Jew, berated him all the way. "But still," he observes cheerfully, "it's a wonderful country." Yes, this is exactly the Max Lerner one expects.

After a brief tour of the apartment (the study is a clutter of papers and books; pictures are torn from newspapers—one of Freud, for instance—and set on shelves against book spines; the hallways are overflowing with framed photographs), he settles himself into an easy chair by the window overlooking the river. The fading afternoon light strikes brilliantly on the industrial landscape beyond the swirling eddies that render Manhattan an island, indirectly lighting the room in which he sits. No lamps are turned on and the room slowly darkens while the horizon across the river grows brighter.

The first question that comes to mind, most naturally, regards the most controversial episode in his life.

Q.: How did your break with the Left come about?

Lerner: Well, I went off to Europe as a war correspondent for PM, and I began having doubts then. Seeing Europe was quite a corrective for me because I learned something about what absolutisms bring, whether the absolutism is to the Right or the Left. I came back from the war, and got a whiff of what the Communists were doing in domestic policy, particularly in penetrating the trade unions and, in effect, trying to destroy them. Then came a succession of spy trials. The Hiss trial was critical for me because it was hard to identify either with Hiss or with Chambers. I had a sort of Rashomon view that each was telling the truth from his point of view. I attended all the trials, and got to know a good deal about what the Communists were doing. Then I started traveling, to Europe and Asia and Africa. Wherever I went I saw Socialist governments ending up corrupt and cruel. I also went to Dachau and the other camps, and saw again what absolutisms had wrought.

Q.: Was it a difficult shift? In those days, wasn't your allegiance to the Left taken almost like a matter of faith?

Lerner: Well, it wasn't for me. You see, I was never a soldier of Communism. They wooed me very strongly, took me up on top of the mountain and offered me all the glories of the plains below, including bodyguards for myself. But I never went for it because I had a fierce intellectual independence. If I was going to commit myself to something, I wanted to commit myself to an idea, not to an army. So I never went in for that. It was always a question of intellectual belief. The Holocaust became a central event in my thinking. And I couldn't help associating it ultimately with both Left and Right absolutisms.

So, it was not painful. When I studied English literature, I studied the Victorians. For them, the great thinker was Darwin, their Marx and their Freud. The result of their belief in Darwin was to shake their faith in the Bible and Christianity. They went through real agonies. There are a number of my contemporaries who went through similar agonies of faith. For me, they were basically agonies of intellectual orientation. I was always
Friends and acquaintances: Lerner once observed about his mentor, Alvin Johnson, editor of the Encyclopedia of Social Sciences and founder of the New School for Social Research in New York City, that he was "the last man who knew everyone and everything," thereby defining Lerner's own ambition.

Above, Lerner "schmoozes" in the Green Room with host Johnny Carson and guest, stand-up comedian Woody Allen, before an appearance in the mid-1960s to promote the recent publication of one of Lerner's books.

Among the friends and acquaintances Lerner invited to his senior seminar at Brandeis, for instance, to discuss their lives and their place in history were Archibald MacLeish, Agnes de Mille, Norbert Weiner, Thurgood Marshall, Elia Kazan, and Norman Thomas.

asking, What is it that explains the world and explains history? What are the cues to history, to every discipline, to politics, to economics, to religion? I sought them in every discipline because of my early training, which was generalist. I'm very lucky for that training because it meant I didn't get stuck in any particular absolutism.

During the war, I was one of those eager-beaver correspondents. One day I found myself in the cathedral square at Aachen, in Germany, which was being shelled. For a long time after the shelling I sat there looking at the ruins. I couldn't help thinking of Gibbon and the ruins of Rome. I thought, "What's happened here to the history of Western civilizations?" Suddenly, it hit me that America, too, is a civilization, and that I wanted to spend the rest of my life on figuring out what lies ahead for American civilization. It meant covering all the disciplines but retaining a focus, a commitment. The commitment is to America and not to liberalism or conservatism or Marxism or Freudianism, but to America.

I tried, at first, to form a sort of independent Left, with my friends James Farrell, Malcolm Cowley, and James Wechsler, but it was short-lived. You see, my feeling about absolutisms expressed itself as an affirmative feeling about American democracy and American civilization, a much more affirmative feeling than most of my former colleagues. After the publication of America as a Civilization, I felt I had to break with my doctrinal gang. A number of my friends thought I had betrayed them and have not gotten over it. But I have not been part of that or any other doctrinal gang since.

Q.: But how did you suddenly see America as distinct from, say, the history of Western civilization?

Lerner: That came when I got into writing America as a Civilization. It took me 12 years to write. Very early I came to feel that America was not just the tail-end of Europe, but a civilization on its own, which meant the concept of American exceptionalism. I saw the trajectory of events in Europe through fascism and Communism as not necessarily the same trajectory in America. We had our own progression. We had developed a civilization of our own.

Q.: That idea is more acceptable today than it must have been then.

Lerner: I was very alone on it. Arnold Toynbee read my book, and he and I appeared in a number of places and argued in various magazines whether America was indeed a civilization. He saw it as a tail to the European dog, and thought I was a callow young man who had not really understood his stream of thought. I had great respect for him, but I held my ground.

Q.: It's almost as if a new kind of solution presented itself to you, instead of being committed to an absolutist doctrine the idea of the social experiment in democracy would become...

Lerner: In my opening chapter, I
saw the American as the archetypical person of the West. What happened to the American and to America, I felt, would be the destiny of the West. It has turned out so. I felt that the American personality type has influenced all the others and American social structures.

Q.: What were some of the roots of this idea in your intellectual experience?

Lerner: It came to me out of Spengler, who believed in prime symbols—that every civilization had its symbol and that Western civilization was Faustian. And that had a great effect on my thinking, figure is Alan Turing. Instead of Faustian man, Turing’s man. Well, that’s a little too specific for me right now. Some symbol will emerge.

My view of American civilization is that we are not decaying. Our problems are the problems of adolescence. What Reagan is in now is an episode of American innocence, trying to be covert. We’ve been expelled from the Garden of Eden, and we’ve eaten of the fruit of experience, but in the process we go all out for this highly secret, covert stuff, which only the ancient civilizations really

and I reflected a good deal on America as Faustian, which I felt it was. But I also felt that at some point it would no longer be so. It would have to move on to something else. And therefore, others would have to move on because America was the carrier of the prime symbol. I think we are moving on now. What’s happening is a paradigm shift in the type of man emerging, and the type of state, economy, and society.

Q.: What kind of man is emerging?

Lerner: It’s hard to say what, if anything, has replaced the Faustian. In my new chapter for America as a Civilization I don’t go into it. I talk about the information revolution, whose symbolic are good at—the French, the Jews and Israel, the British. We’re so young we don’t know how to do it, so we lean on Israel and the others. Then we get rigid and legalistic about it, which is what the Congressional committee was doing. The whole thing is a terrible episode. But we do it to every president. There has not been a president since Eisenhower who hasn’t been through some episode in which Americans have gone at him because he departed from innocence and virtue.

Q.: With Kennedy it was the Cuban missile crisis?

Lerner: And the Bay of Pigs. With Eisenhower, the U-2 episode. With Johnson, the Viet Nam war, with Nixon, Watergate. Ford, his pardon of Nixon. And Carter, the hostages. And now, Reagan again. We do it to every president because we have not yet learned how to be a world power. It takes experience and maturity.

Q.: So, where others would say that the country was in trouble, you would be more inclined to say it was a troubled adolescent who...

Lerner: It’s the trouble of adolescence. An adolescent still learning and precipitated so rapidly, so rudely, into having to be the head of the Western imperium. When we get older, we may become Ulyssian. Ulysses wandered the world and had to become wily and, at the same time, wise. It’ll be long after I die, but what I hope for is that we will eventually become Ulyssian.

Q.: Where did the interest in psycho-history begin?

Lerner: At Sarah Lawrence, I was teaching a course on modern thinkers—Nietzsche, Spengler, and Marx and Freud and D.H. Lawrence. I chose Lawrence as a sexual and erotic thinker. My wife has been a psychologist since we got married, and I picked up her psychology in our household. It meant a convergence of political theory and psychology for me. I moved on from Freud and Jung to developmental psychology, focusing on the life history. My treatment of the presidents is basically an analysis of their personality, character, and the life-course—how their decisions have turned out in later history.

Roosevelt was the tragic example. I used to be a groupie for Roosevelt, who was my president for 13 years. I now cast a rather cold look at him. He was a man who saved us domestically and fought a war successfully, but his military policies toward the end and his political decisions ended up ceding half of Europe to Stalin. He seems to have cared little about the Holocaust. These are pretty drastic things to think about a president you have loved and admired. On the other hand, Harry Truman, who was no hero at the time, either for me or for others, has emerged, along with Eisenhower, as probably the best presidents of the century. These were two administrations in which America was in relative equilibrium. That is one test of a president for me. Does he keep things in equilibrium or does he play a divisive role?

I think psycho-history, currently in disrepute, may stick in a modified form, as developmental history.

One of the striking things that’s hap-
pening now, is that young scholars are no longer wedded to a particular discipline, but keep crossing disciplines constantly. In any one study that they do, they will dip into a number of disciplines, mastering enough of each to be able to combine them. We talk of an age of specialization, but it's become hackneyed. The best specialists today are so involved with their specialty that they follow wherever their lead into every relevant discipline.

We are in the midst of something like a cultural and knowledge renaissance in America. There have been two of them so far in this country—one at the time of Emerson, Thoreau, Hawthorne, and Melville. The second one was at the beginning of the 20th century, the great liberal renaissance. Our present one is in the "hard" sciences, the life-sciences, the human sciences. But it comes basically out of the information and communication revolution, and their present fusion. It is producing paradigm shifts in a number of areas. I feel excited about what's happening in this shambles of a society of ours. And it is a shambles in many ways. You look around and you say, what is there still standing? But there are things being done that we can use as a framework around which to rebuild.

Q.: And yet, you continually deny being an optimist?

Lerner: Yes. My basic approach is that I'm neither an optimist nor a pessimist, because both of them are basically deterministic—a response to the things happening from the outside. I would say I'm neither an optimist nor a pessimist, but a possibilist. In being a possibilist, there are no determinisms, but within that frame of possibility you've got to work like hell, and sweat, and use some collective energy will and collective will.

I'm saying we can rebuild, not we will rebuild. We can rebuild. My word is always can. And my word is always emerging. I don't see things as accomplished, done. I'm glad to be part of this renaissance in my own way.

Q.: It seems the quality that has marked your intellectual journey has been this willingness to follow ideas into other disciplines...

Lerner: Well, the Encyclopedia training was that of a generalist. I get fascinated for a while with every discipline, and then I see its relation to others, and so I follow wherever it leads me and whatever my subject happens to be.

Presidential studies are among the most difficult of all, because they lead almost everywhere. You can't talk about any one of them, for example, without asking what kind of knowledge revolution happened under him, and that knowledge revolution in turn leads to a technology, and then you ask what kind of climate there was under each—political climate, intellectual climate, business climate, psychological climate.

We speak of Americans as having a "willingness of heart." I have a kind of willingness of mind. I want to follow the ideas. I think of Tennyson's "To follow knowledge like a sinking star beyond the utmost reach of human thought." We won't ever find the truth. What counts is not whether you find the truth, but what method you have worked out for trying to get at it. Because it's the method that can be handed on. The truth itself keeps shifting constantly. But the method for getting at it, that can be enduring.

You know, many people don't recognize me in all this. Those who know in some way that I'm still alive ask, "What's happened to him?" The fiery radical seems to have disappeared. But I haven't given my radicalism up. I've just shifted the ground. If radicalism means trying to get at roots, then I find myself more radical today than I ever was. The roots are method and how you work at your problem and how you follow it up in every direction, including politics and law, which are still at the center of my thought.

I think less of liberalism and conservatism and more of tender-mindedness and tough-mindedness, in the William James tradition. I find myself increasingly valuing the tough-minded thinkers and political leaders, those that are willing to face the Medusa-head of reality, which—particularly in foreign policy—is not innocence. In trying to assess what these political leaders are doing all of us have to face the Medusa-head of reality.

And so I care about tough-minded people, whether they're Republicans or Democrats, liberals or conservatives or whatever. I'd rather have a tough-minded liberal than anything, but I don't find many of them. Tough-mindedness lies in trying to get at what the heart of the problem is. Emerson said, "Wherever you touch life, it bleeds." I find that true intellectually. Wherever you touch a problem it bleeds; it bleeds difficulty; it bleeds complexity.

In my classes, one emphasis of mine is on the organismic, not only are we organisms, but societies and civilizations are organisms. Another emphasis is on the contextual, another on the developmental, another on the symbolic (because all reality is symbolic), and finally on the mythic. We have to make an effort to integrate them, to put them all together into a single whole. And that's basically my methodology.

I believe with Harold Bloom at Yale that we all take part, as working thinkers, writers, artists, whatever, in the process he calls agon, the Greek term for wrestling. What we do is wrestle with our predecessors, our heroes. We're not content until we have transcended them. I've been wrestling with Alvin Johnson, with Thorstein Veblen, with Toqueville, with Nietzsche and Spengler and Toynbee, with Freud and Jung. They are greater thinkers than I have any hope of being. But out of this intellectual struggle may emerge something that is finally mine, for whatever it may count in an unheeding universe.

Roger Hahn is editor of Washington University Magazine
Three major upheavals of thought—in information theory, communications, and the study of the mind—have returned science to the province of magic.

by Max Lerner

In the past 30 years, Americans, whatever the changes, have continued to see science and technology more than ever as a garden for them to work and dream in, full of luxuriant, blossoming surprises, an enchanted garden opening on vistas of miracle-working possibility. World War II and the tyrannies of Europe produced a golden migration of refugee scientists to America, bringing their creativity in exchange for the chance to pursue their work and lives. The openness and resources of American research laboratories served as a magnet for the best scientific talents of the world.

By the 1970s, the emphasis had shifted from stimulus-response behaviorism to the mental and organismic disciplines. Brain research, along with cellular structure, the genetic process, and the interconnected functioning of the organism, became critical. So, from another direction, did information and communication theory. Separately and together, they became the focus of a tangle of hard sciences, life sciences, mind and human sciences.

One result was the breakdown of the formerly rigid boundaries between science and technology, as they are put to the use and test of practice. Largely, the fusion came out of the urgencies of World War II and the post-war period, although it had begun well before. The theoretical work was in the biogenetic, information, space, and communication revolutions. The resulting technologies—bio-tech, computer-tech, space-tech, and communication-tech—were in time joined together in common usage under the umbrella-like “high-tech,” America’s abbreviation for the entire complex.

It was a mixed bag of potentials, at once creative and destructive. The dangers of contriving new organismic forms out of genetic elements in uncontained environments hovered over the oversight committees who had to make the decisions about them. The Chernobyl disaster of the Soviets, worse than the Three Mile Island near-disaster, alerted contemporaries to the limits of tolerance of industrial nuclear power. The escalation of destructive power in the nuclear weapons in both camps carried a potential that Americans had either to live with or resolve. The enchanted garden of science and technology was like the poisoned garden in Hawthorne’s tale, “Rappaccini’s Daughter”: it blended possible death with life and challenged those who tended the garden to separate the destructive from the nurturing.

In 1957, with the Holocaust in mind, I wrote about the “neutral technician” who set himself to any task without asking about its morality. On that score, the climate of the 1980s was a changed one, with a growing popular concern for bioethics and the moral problems involved in the life-and-death decisions at the convergence points of medicine, ecology, and technological advance.

Broadly, the great shift of emphasis that occurred was from the processing of materials and energy to the processing of information. At the height of the Industrial Revolution, America was primarily an energy society, involved with industrial products, and their logistics and distribution. But the technological nerves that controlled the system became overloaded, and a series of breakdowns showed the system to be under strain and presaged a basic shift, however slow.

World War II, while diverting resources from current research, spurred the sense of urgency of scientists and inventors. It cut across conventional thinking, and acted as a catalyst for information theory, releasing not only technical ingenuity but also the bold leap of the imagination which made it possible.

Claude Shannon, working at Bell laboratories, published his two classic papers on the transmission of messages, out of which emerged a concept of usable “information,” clear of the “noise” and disorders of noninformation. Norbert Wiener, working during the war on the “fire-control” of antiaircraft weapons, moved from there to his postwar theory of cybernetics. Alan Turing, working in wartime Britain on breaking the German “Enigma” Code, moved on to computer models and the challenge of Artificial Intelligence. A little like Columbus searching for a path to the Indies and stumbling on America, the men who sought practical ways of coping with messages, firepower, and code-breaking in the war uncovered a skein of information theory and technology out of which came, in time, the “universal machine.”
Had I been a better science watcher, I would have noted, before finishing *America as a Civilization* in June 1957, the striking coincidence of events a few years earlier. By 1956, the earlier generation of information thinkers—Norbert Wiener, John Von Neumann, Claude Shannon, Alan Turing—had developed computers which, in many ways, simulated the functions of the human brain—storing information in their memory bank, programming their processing, retrieving it at hitherto unimagined speed. With the computer had come a symbolic “grammar” of its own, in effect a new information language.

In the summer of 1956, a little group of younger scholars, among them John McCarthy, Herbert Simon, Allen Newell, and Marvin Minsky, gathered at Dartmouth to explore seriously how to translate their hypothesis into reality, in the form of Artificial Intelligence (AI), a term they initiated. Several months later, in September, another group of the younger scientists, linguists, and psychologists met at a Symposium on Information, at M.I.T., out of which came the origins of cognitive science—a cross-disciplinary blend of mathematics, philosophy, logic, linguistics, neuroscience, and psychology that has become a new discipline of ways of knowing, thinking, and problem-solving.

Thus the mid-1950s, immediately before my book appeared, saw the start of an intellectual renaissance which was recognized only later, when the three major upheavals of thought and technology converged—in information, communications, and the sciences of the mind. It was a renaissance which, in the next three decades, would transform technology, economy, and society, and do much to bring a new America into being. No area of life—government, management, architecture, design, engineering, music, medicine, law, education, research and inquiry, even religion—was left unaffected by them.

Two, new, critical, transforming environments have been created in consequence—that of telecommunications and that of the computer. Each is in its own way a symbolic environment, mediating experience for the viewer and user. Each creates a new world of representations as an enveloping sheath through which we see the larger world and its other environment.

It is a dangerous reduction to see them mainly as possible tools to be usefully employed, like the plow and the plane. Despite their differences, the new environments mark a movement away from direct experience to mediated experience. TV makes the sense of place irrelevant: you can watch the enactments of the global village from wherever you may be, because what counts is that you are simultaneously at home and in Manila or South Africa. The medium was the mesmerizer that leveled space and time and all hierarchies, and made two interacting entities—the viewer and the moving and speaking screen—the center of reality.

In the computer’s case, and its impact on human consciousness, there was the tantalizing question of whether it possessed “intelligence,” in Turing’s sense that a blind observer couldn’t differentiate it from the brain it simulates. It may never be adequately answered. It seems clear that while it might be structured to thread its way through Hamlet’s agonized reasoning over his “to be or not to be” decision, it could never hit upon the words that Shakespeare put into the soliloquy.

It will be a long time before Americans have adequately come to terms with the impact of these major environmental shifts on the neural mechanism, on consciousness, on the perception of self, on interaction with others, on the sense of time and place, on life-styles and (more important) on lifeways. The available evidence from school children involved in computer simulations of traditional problem-solving suggests the most important gain—a dimension of interaction between the self and the computer as a second self, with a vibrancy of relationship hitherto largely lacking.

In the decades ahead, these new symbolic environments are likely to prove a watershed in defining the American and his conduct. Nothing will ever be the same for him again. While it is hard to be precise about the neural and psychological changes that will come with the internalizing of both technologies, one glimpse of the future may be ventured. When the answers given, as well as the questions posed, are mediated by both a computer screen and a TV screen, Whitman’s America and Faulkner’s, Truman’s America and Eisenhower’s, will have a quality of quaintness. The changes in the tempo and accelerations of life, in responsibility and self-reliance, in individuality, in connectedness, in identity, in work and play, in school, in intimacy relations, in the forms that religious faith takes, in what has been called the American “willingness of heart”—these are bound to come, even while we puzzle over the shapes they will take.

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Splendor in the subarctic: On a field expedition this past summer with Sam Bowring, assistant professor of earth and planetary sciences, and two Washington students, English Professor Wayne Fields discovered the naked beauty of Canada's Northwest Territories. Working from a subarctic base camp near Great Bear Lake, the northernmost of a string of lakes that surround the Canadian Shield, Fields accompanied Bowring and his students as they gathered data for the Geological Survey of Canada as well as for their own research.

"Flying back to Yellowknife, I thought of all the different ways this place had appeared to me" Fields writes, "the great swirls of rocks sheared by faults, tinted red in the Arctic light; the long serpentine ridges; the lakes stacked everywhere, sometimes in tiers; the trees, needle-like from the air, more masts than trees."

The photograph above was taken by the author near midnight on the flight back to Yellowknife. Story and photographs begin on page 17.