Cornerstone of the Future:
The Business School Inhabits New Quarters
A Season of Renewal

Discovering what is new within what appear to be the limitations of circumstance or history is an endeavor appropriate to the summer season. Surrounded by temporary lushness, we partake of summer recreation, and wait for the annual cycle to begin again, our vision restored, carrying us through to the next summer.

In the five stories that make up this issue of Washington University Magazine, this theme appears and reappears in different guises, in a plea for a renewed commitment to scientific research in space, in three stories about buildings dedicated to reaffirming the continuity of history, in a description of a new program designed to help those recovering from alcohol or drug dependencies.

Our table of contents on the facing page reveals a trio of stories grouped around a common theme: Changing the Built Landscape. In the first, we talk with WU graduates who participated in the recent revival of St. Louis Union Station, an ambitious and complex development project. Our cover story takes a look at the new home of the School of Business—John E. Simon Hall—the largest building on the Hilltop campus and a conscious attempt to renew the spirit of the campus plan conceived by the founders of Washington University. Lastly, we visit with architect Carlos Ott, a celebrity in Paris since being chosen to design a new Opera House to commemorate the French Bicentennial in 1989, reinterpreting the spirit of the fall of the Bastille and the revolution that gave birth to the modern state of France.

In our lead story, we hear from concerned scientists at WU and around the country who fear for the future of space research, particularly since the tragic explosion of the shuttle Challenger last January. That these committed and careful researchers choose at all to voice their reservations is an indication of the gravity of circumstances affecting the pursuit of science in space. But the situation is not without hope, as this article concludes, where attention is paid and commitments reaffirmed.

Our own absolution would not be complete if we failed to acknowledge past errors. In our last issue, we mistakenly named the author of the article titled "Keeping Perspective"; he is Jack Lipton. In that issue, we also got the title of assistant professor William C. Kirby's next book wrong; we should have said he is working on a project to be called The International Development of China. Finally, we reported that Martin Luther, as a young man, visited a monastery in England, when we should have realized that Luther was actually in Germany at the time.

—R.H.
The restoration of St. Louis' historic Union Station is an urban development test of remarkable skill and courage, and University alumni had their hands all over it.

Changing the Built Landscape

High Wire Act

The space-shuttle program costs more than it seems, not only on the toll of human lives but in the restrictions it places on scientific research in space.

Cornerstone of the Future

John E. Simon Hall, the new home of the School of Business, is both a return to the vision that first created the Hilltop campus and an opportunity to move vigorously forward.

An Opera House for the People

WU graduate Carlos Ott won out over almost 750 contestants in an international competition to redesign the Paris Opera for France's Bicentennial. Not so long ago, he was a struggling architect. Now he's known in Paris as "Le Cowboy Gaucho."

The Great Escape

Once a person decides to quit drinking, how do you help him live with that decision? A new program at Jewish Hospital in St. Louis looks beyond chemical dependency to treat the rest of a sufferer's life.
Michelangelo Is Alive and Well and Living in Olin Library

Call it an academic fairy tale.

Early this spring semester, a Washington University undergraduate happened upon an original Michelangelo document in Olin Library's Special Collections—a document entirely unknown to Michelangelo scholars throughout the world.

The student, Larysa Beyer, LA'87, was looking for references to Michelangelo's poetry but found instead a piece of parchment measuring approximately eight by fourteen inches. The document, a declaration of household goods and foodstuffs, is signed and dated by the artist.

"When I read it I realized it wasn't poetry. I didn't know what it was," Beyer admits. "But I thought it was astonishing that Washington University would have something like this in its possession."

So did Beyer's teacher, assistant professor of art and archaeology William E. Wallace. "I was extremely skeptical when she mentioned it to me," Wallace recalls, explaining that of perhaps 800 known Michelangelo documents only a half-dozen or so reside in the United States, and even fewer are dated and signed. "But the second I saw it," Wallace insists, "there was no doubt in my mind."

The document, produced while Michelangelo was living in Florence and the city was under siege, reports the artist's supplies to city authorities and reads, in part: "I, Michelagniolo Buonarroti, have at home eight barrels of wine, and about two barrels of beans and one-half barrel of vinegar, and four mouths to feed." The four mouths refer to the artist, who never married, his young nephew, a housekeeper, and an assistant.

Coincidentally, the unearthed document sheds light on a period of Michelangelo's life that Wallace has recently been investigating. "The document represents a time when art is no longer the primary focus," Wallace explains. "He's more concerned with designing and building fortifications for the city, in his role as a military engineer... We see a great man living in extremely reduced circumstances. It was a very brutal period."

Wallace has written up the details of the find, to be published in Burlington Magazine, a scholarly journal based in London.

It should be of great interest to Michelangelo scholars because a catalogue of all known letters, documents and miscellaneous items—a six-volume project nearly 20 years in the making—has only recently been completed and published in Italy.

The original document is part of the George N. Meissner Collection, a group of rare books, manuscripts, and autographs given to Washington U. in 1962. Librarians to the collection recognized the document's existence but not its scholarly significance. "But that's the point of a research library," Holly Hall, head of Special Collections, points out. "Certainly there are more treasures here to be mined, waiting for the right person to bring new information to them. The process is not so much one of discovery," she suggests, "as rediscovery."
Dancer Angela Culbertson will study with the Jose Limon Dance Company of New York City this summer.

Student Award-Winners Bloom in the Spring

The end of the academic year usually means a time of appraisal and honors, but this spring has been particularly generous in awarding Washington U. students.

Most notable, perhaps, is a new award established on campus by Edward N. Wilson, Dean of the Graduate School of Arts and Sciences. Intended to recognize the efforts of a too-often neglected role in higher education, that of the graduate student teaching assistant, this year's first two Dean's Awards for Excellence in Teaching go to Sarah Russell, of the English department, and Glenn Gavin, a graduate student in Romance Languages.

Another English department graduate student distinguished himself by winning a significant national award for young writers. Philip Simmons, who this spring graduated from the Writers' Program, won Playboy magazine's College Fiction Contest, topping nearly 1,200 entries with his short story, "Night Vision," for a $3,000 first prize. Simmons' story will be published in the October 1986 issue.

Angela Culbertson, a graduating senior who was chosen to perform at the National College Dance Festival in Washington, D.C., started her undergraduate career as an engineering student in the computer sciences. Three years later and 20 pounds lighter, she is graduating with honors and has been awarded a full scholarship to study with the Jose Limon Dance Company of New York this summer.

Two anthropologists gained prestigious recognition. Pia Nystrom was given the L.S.B. Leakey Foundation award, which she will use for summer research in Ethiopia. And Louis Kiddar won an unusual award for an anthropology student: a citation from the NASA Graduate Student Researchers program.

Other student award winners included:
- two National Science Foundation Fellows: Mark LaStarza and Susan Lawleer, from the Division of Biology and Biomedical Sciences;
- two Fulbright Fellows: Larry Wray in Economics and Karen Remmler in German;
- and two winners of the Olin Fellowship for Women: Jill Zitewitz in Chemistry and Rachel Freudenburg in German. Also recognized were Anne Barker, a German student who won a Fulbright Travel Grant; Mary Hays, a chemistry student who won an American Association of University Women Fellowship; and Ann Dunford, a comparative literature student who was admitted into the National Graduate Fellowship Program for 30 months.

University Joins New League Dedicated to Athlete-Scholars

Making what might be considered a bold statement between academics and athletics, Washington University and seven other private universities have formed a new, eight-team conference, to be called the University Athletic Association (NCAA), and all eight are private research universities with similar backgrounds and ideas about the role of athletics in academic life.

The other seven schools are:
- Johns Hopkins University (in Baltimore)
- New York University
- University of Chicago
- Case Western Reserve (in Cleveland)
- University of Rochester (N.Y.)
- Carnegie-Mellon University (in Pittsburgh)
- and Emory University (in Atlanta).

"Athletics are extracurricular activities and student-athletes are just that—students first," explained Harry Kisker, dean of student affairs at WU, and an instrumental force in the formation of the new league. "Our philosophy is not to be confused with those who desire to 'win at all costs.' We're not income centers or public entertainment.

In press conferences held in St. Louis and New York, an official announcement of the new league said it would conform to the institutions' overall academic mission, and that the new association would make a collective public statement about the role of athletics in institutions of higher education.

"In the short term, our forming a new league will probably have little effect on the college athletic community," Dean Kisker suggested. "But in the longer term, there is the possibility that selected private institutions, who have been trying to reconcile high academic standards and attempting to compete in an arena outside their grasp, will see us as an effective role model."

Although the conference covers a wide geographic area, Kisker said travel budgets will not increase appreciably because championships will be determined by tournaments in most sports. In football, basketball, and soccer, though, each team will meet the others once, with the best record determining the league champion.

Play is scheduled to begin with the 1987-88 season.
MARIO VARGAS LLOSA, the Peruvian novelist considered one of the most important writers in the world today, celebrated his month-long stay this spring on the Washington U. campus by accepting a teaching appointment to the faculty. He also accomplished a very personal, literary goal: paying his respects to the gravesite, in Oxford, Mississippi, of American novelist William Faulkner. 

Along with Gabriel Garcia Marquez and Carlos Fuentes, Vargas Llosa is considered to be in the vanguard of current literary activity. His 1982 novel, *Aunt Julia and the Script Writer*, was selected by *The New York Times Book Review* as one of the best novels of the year; last year, he was awarded the Hemingway Prize for his novel *The War of the End of the World.* 

The respect of most Latin American writers for classic American literature is considerable. "In some ways, they take aspects of our culture more seriously than we do," explains associate professor of Spanish in the Romance Languages and Literatures department Raymond L. Williams, who accompanied Vargas Llosa on a 1983 visit to Mark Twain's childhood home in Hannibal, Missouri. Williams, who next fall will publish a critical study on the whole of Vargas Llosa's work, also accompanied the Latin American author on his pilgrimage to Faulkner's gravesite. "The mood of the trip was pretty serious," Williams recounts. "Mario knows all of Faulkner's work in great detail. He feels a great debt to him and his work. I felt I was witnessing an historic event and felt privileged to be there."

The trip began with Sunday morning breakfast at the Peabody Hotel in Memphis, where Williams met Vargas Llosa and his wife, Patricia. The Peabody Hotel figures prominently in Faulkner's writing. From there, the trio proceeded south to Oxford. First stop was the Faulkner collection in the library of the University of Mississippi. Vargas Llosa carefully inspected some of Faulkner's original manuscripts, quietly reading aloud to himself certain passages. The three then left for the cemetery. On the way, Vargas Llosa insisted Williams stop at a local supermarket and emerged carrying a small pot of brilliant red geraniums. "Arriving at Faulkner's grave was almost eerie," Williams recalls. "The tombstone is very simple, the cemetery very austere. The contrast was especially striking when you think of baroque, elaborate cemeteries common to Latin America."

Explaining that he had also brought flowers to the grave in Paris of French novelist Gustave Flaubert, Vargas Llosa told Williams, "These are the last flowers I will ever bring in homage to a writer."

The Peruvian novelist's appointment will bring him to the Washington campus for one semester every two years. He will join the avant-garde French novelist Alain Robbe-Grillet, who has accepted a similar appointment. Vargas Llosa's first semester in residence will likely be the spring term of the 1987-88 school year.

Noting that Vargas Llosa has also published respected works of criticism, Williams says, "He should be a very interesting person to have in the classroom." 

PERUVIAN NOVELIST VARGAS LOSA and his wife, Patricia, visit the gravesite of a great American novelist in Oxford, Mississippi. 

**Ageless Historian Creates Center for Study of Freedom**

"Of course it's a long shot," admits J.H. (Jack) Hexter, Distinguished Historian in Residence and noted authority on British history. "It takes a certain amount of what's called chutzpah to plan, at the age of 76, a project that will take 25 years to complete."

But that's exactly what Jack Hexter has done. This spring, the irrepressible historian was named John M. Olin Professor in the History of Freedom. In that position, he will direct the new Center for the History of Freedom—believed to be the first of its kind anywhere. "Jack Hexter is truly rare among scholars," comments Richard W. Davis, professor of history, who will serve as associate director of the Center. "Instead of retiring at age 65, he embarked on a series of major research efforts upon his return to Washington University and now he is launching what will
certainly be the most important study of freedom ever undertaken."

Hexter, who received his master's and doctoral degrees from Harvard University, was professor of history at Washington U. from 1957 to 1964. He then, with some reluctance, accepted an offer from Yale University. From 1964 until his retirement in 1978, Hexter taught at Yale and lived in New Haven, Connecticut. He returned to the history department at Washington U. in 1978, taught for three years, and took a three-year leave at the National Humanities Center in North Carolina. It was there his ideas for a study of the history of freedom took shape.

"Historians have written extensively about three of the four phenomena of the modern world: technology and industrialization, the expansion of Western civilization, and modern science," Hexter says. "But no serious attempt has ever been made to record the history of the fourth uniquely Western process, the making of modern freedom."

"Actually, 76 is the perfect age to start a project like this," Hexter insists. "Whatever reputation you've made has been well established at 76; you don't have to worry about how the project will affect your own future. And the odds are pretty good you won't be around to be looking over your successor's shoulder, which ought to make it easier to attract someone to continue the project."

And how does the energetic septuagenarian like living in St. Louis again? How does it compare, say, to New Haven? "Oh, it's just three times better," Hexter responds, with a pause. "The restaurants are miles better, the Symphony is miles better, and the places to buy food are miles better. And by the time you reach 76, those are the things that count."

Dr. David Kipnis, left, head of the Department of Internal Medicine, and Dr. Howard Schneiderman, Senior Vice-President for Research and Development at the Monsanto Company, were instrumental in the creation of the original Washington University/Monsanto research agreement three years ago.

**Washington U. and Monsanto Renew Research Agreement**

Washington University and the Monsanto Company this spring extended their five-year collaborative research agreement to eight and one-half years, more than doubling the amount of research funding provided.

Under the terms of the original agreement, signed in June 1982, Monsanto furnished $23.5 million for biomedical research at Washington for the period mid-1982 to mid-1987. As extended, the agreement now provides a total of $51.9 million in constant 1982 dollars through the end of 1990. Because of a provision that automatically increases each year's funding to offset inflation, actual research funding will total approximately $62 million through 1990.

The 1982 agreement provided the framework for an extensive biomedical research program, administered jointly by Monsanto and the University. The program currently supports 30 active research projects involving some 120 University scientists. So far, research has resulted in 12 potentially patentable discoveries, the most notable being the atrial peptides developed by Philip Needleman, Ph.D., head of the Washington Department of Pharmacology.

Patent rights on all inventions are owned by the University; Monsanto has the right to an exclusive license under mutually acceptable terms.

The renewal of the agreement represents a high degree of satisfaction for both parties and comes close on the heels of an evaluation report submitted last fall by an independent, outside review committee of distinguished scientists.

Among the committee's conclusions:

- research is of high quality;
- cooperative efforts between scientists are based on mutual trust and respect and result in more productive research than investigators might accomplish separately;
- the program greatly extends the breadth and depth of Monsanto's discovery capabilities;
- the University benefits from additional, flexible resources to support innovative research and research training.

The committee also found no evidence that any faculty members are directing their efforts to applied research at the expense of fundamental research of broad significance, and found no distortion of the medical school's basic mission of education and research in the public interest.

"The dynamics of this agreement are tremendously productive versus the standard model for university collaborations with private industry," notes Edward L. MacCordy, associate vice-chancellor for research. "Funding is not committed to any individual project or research objective, but open to the entire faculty of the medical school," MacCordy says. "We have widened the field to a very broad area of research with an open invitation that constantly invites new ideas from an extremely creative group of scientists."

The renewal of the research agreement did not go unnoticed by Business Week magazine. In an article titled "Monsanto's College Alliance Is Getting High Marks," the publication noted that, so far, the agreement has not served as a model for other industry-university collaborations, but with cutbacks in federal funding for scientific research, more universities will be looking to Washington as an example of a successful partnership with likely sources of private-sector funding. ☐
ALLIANCE FOR WASHINGTON UNIVERSITY Exceeds $300 Million Goal

The Alliance For Washington University fund-raising program has exceeded its $300 million goal 18 months in advance of its December 31, 1987, target date, George H. Capps, general campaign chairman and president, Capitol Coal & Coke Co., announced June 24. The goal is one of the largest in the history of U.S. education.

Capps stated that 183,818 gifts from 50,627 donors totaling $301.2 million have been committed to the program. The program was publicly launched in May 1983 to help the University achieve objectives identified by the Commission on the Future of Washington University, a body of 270 community and national leaders who made a thorough study of the major units of the University.

Washington University is one of only four universities in America to have successfully completed fund-raising drives of this magnitude. The other three are Harvard, Stanford and Yale, Capps noted.

Although the dollar goal of the Washington University program has been exceeded, some of the initial objectives remain unfunded, Capps said. These objectives include funds for certain physical plant and endowment needs and gifts for ongoing operations. The fund-raising drive will therefore be continued through 1987 as originally planned, he said, with strong emphasis on the importance of annual gifts.

"Washington University's role has never been more important than during these closing years of the twentieth century," William H. Danforth, Chancellor of the University, commented. "The Alliance For Washington University has tremen-

dously strengthened our ability to serve the region and the nation as a major resource for education and research. Aided by generous gifts, the University has moved from 14th to 8th in the nation in endowment, which currently totals over $925 million. "Our physical plant has been augmented by the superb Clinical Sciences Research Building, a splendid new athletic complex and the beautiful and functional new John E. Simon Hall for the School of Business. Through gifts to the Alliance we are increasingly able to undergird the work of our outstanding faculty and serve the needs of our student body."

Of the $301.2 million thus far committed to the Alliance program, $152.9 million has come from alumni of the University and other individuals, $50.2 million from corporations, $72.7 million from foundations, and $25.4 million from other sources, Herbert F. Hitzeman, Jr., Senior Vice Chancellor for University Relations and director of the Alliance campaign reported. No funds from government sources or from research contracts have been applied toward the Alliance goal, he pointed out.

"The total of $301.2 million includes $194.5 million toward the capital funds goal of $200 million, and $106.7 million for operating funds, which is $6.7 million over the goal of $100 million. The goal for operating purposes has two components: $66 million is for special program support; $34 million is the goal for the Annual Fund."

Over $79 million in gifts and pledges has been received for special program support, surpassing the goal for that segment of the campaign. These gifts are for special purposes of interest to the donors. Some support cancer research; others, new developments in engineering or biology; still others purchase books for the library.

Gifts to the Annual Fund now total $27 million toward the $34 million goal, leaving $7 million to be raised in the last 18 months of the campaign. Annual Fund gifts support current operations, and may be used where and when the funds are needed. They are both the cement that holds the other programs together and the margin of excellence that allows the University sufficient flexibility to strive for the best.

"Washington University's alumni, parents, and friends have been simply outstanding in their response to the challenge of this vital fund-raising program," Capps said. "It demonstrates the deep loyalty and commitment within our University family and community."

He added, "I fully expect our efforts will continue at the same high level until we have succeeded in every dimension of this campaign."
Danforth Foundation Gives
University $100 Million

A grant of $100 million to Washington University from the Danforth Foundation was announced June 30 by Gene L. Schwilck, president of the Foundation. The announcement came six days after the University reported it had surpassed its $300 million gift campaign goal.

Schwilck said, "The Danforth Foundation is pleased to make this special grant to Washington University on the occasion of the achievement of the $300 million goal of the ALLIANCE FOR WASHINGTON UNIVERSITY. The Foundation, headquartered in St. Louis, is convinced that Washington University can be of important service to the St. Louis region, to the nation, and to the world in the decades ahead. It is proud to join with the friends of Washington University in supplying the long-range financial underpinnings for that service."

The $100 million will be placed in the University's endowment. The new grant is unusual in that it will provide for future rather than current needs. The income from the fund — estimated at $5 million per year — will be allocated annually for capital needs on action by the University's Board of Trustees. Capital needs include traditional new endowment, construction, or major pieces of equipment.

W. L. Hadley Griffin, chairman of the University's Board of Trustees, stated, "Washington University is extremely grateful for the confidence expressed in this gift. I speak for the entire University family in pledging continued careful planning and hard work in order to have a superb academic enterprise now and in the future. I am confident that our alumni and friends, as well as the faculty, administration, and staff will respond with increased commitment. There is no better way to express our appreciation."

Kudos from the Press

The following editorial, reprinted in its entirety, appeared in the July 7 editions of the St. Louis Post-Dispatch.

U nder the leadership of Chancellor William H. Danforth, Washington University has joined the ranks of Harvard, Stanford and Yale universities by successfully conducting a fund-raising drive of more than $300 million. The Alliance for Washington University campaign, chaired by George H. Capps, has raised the donations over the last three years from more than 50,000 separate donors—a reflection of the depth of support for the university both in the St. Louis area and from alumni around the country.

The fund-raising campaign will continue through the end of next year.

Large endowments are crucial to private universities, enabling them to deepen their commitment to education and research as well as to pay for renovations and expansion. With an endowment now surpassing $800 million — the 10th largest among American universities — Washington University will be able to further improve its already excellent programs. Among the recent additions to the university are the clinical sciences research building, the John E. Simon Hall for the School of Business and the expanded athletic complex.

In addition to its advances in learning and research, Washington University also is seeking to make its mark as a proponent of athletic programs that do not compromise academic achievement. The university is one of eight NCAA Division III schools with excellent academic reputations that are forming a new sports conference—the University Athletic Association. The association's goal is an admirable one: allowing schools that have strong academic requirements for their athletes to play against student-athletes who must meet similar standards in the classroom. Too often, our universities ignore their proper educational function by lowering academic standards for athletes.

Winning high marks for candor, campus guest Ted Koppel, anchor of ABC News' "Nightline," held nearly 4,000 audience members spellbound during his appearance April 5 as part of the University Assembly Series.

"How does one guard against the influence of an industry that's on the verge of becoming an hallucinogenic barrage of images, whose only grammar is pacing, whose principle theme is energy?" the veteran broadcaster asked in a speech followed by a question and answer session. "We are losing our ability to manage ideas, to contemplate, to think. We are becoming a nation of electronic voyeurs, whose capacity for dialogue is a fading memory, occasionally jolted into reflected life by a one-liner."
In the tragic aftermath of the Challenger space-shuttle explosion lies a serious threat to scientific research in space.

by Robert G. Brock

Robert M. Walker, director of the McDonnell Center for the Space Sciences at Washington University, still rambles down corridors in his trademark red-checked western shirt and bolo tie, trailing cigarette smoke. His nearly frantic schedule of lectures, classes, student advising, laboratory research and committee meetings continues unabated. His gruff commands echo in the hallways.

But sometimes, in the silence of his office, Walker's eyes focus intensely on something outside the room, something far away. And sometimes, when he speaks of the future of space science, you can hear the frustration in his voice: "NASA is in serious trouble," he says carefully, sweeping unruly wisps of stark white hair off a creased brow. "And whether we like it or not, our futures are intimately tied to NASA."

More than most, Walker has a right to his frustration.

Two years ago, an experiment he designed in collaboration with German, English and NASA scientists was released from the space shuttle Challenger's cargo bay and left to float in its own Earth orbit. Since then the satellite, a two-square-meter collector mounted on a much larger satellite called the Long Duration Exposure Facility (LDEF), has been sweeping the sky, catching tiny particles — cosmic dust — that constantly bombard Earth's upper atmosphere at speeds ten times the muzzle-velocity of a rifle bullet.

When returned to Earth and analyzed, these submicroscopic samples of interplanetary debris will yield valuable information about the nature of vast clouds of cosmic material swirling about in space. They promise to offer new clues to the shrouded origins of the solar system and may give us our first glimpse at real stardust — material originating beyond the boundaries of the solar system.

But researchers waiting to scrutinize the precious stuff with high-tech wizardry at the McDonnell Center's Extra-terrestrial Materials Laboratory — probably the most advanced such facility in the world — may be waiting in vain.

Originally, LDEF was to be plucked from its orbit by a shuttle mission in April of last year. Then NASA postponed the retrieval for 16 months to make room for overdue commercial launches. And then, last January, came the Challenger tragedy.

Today Walker's satellite circles Earth in a continuous holding pattern while he watches the skies and waits. "One way or another it will come down," he observes with a sardonic smile. "Who knows? It might be the second Skylab."

Walker is not alone. Many other science projects at universities across the country face similar fates. "The future looks quite grim for university scientists," says Sean Solomon, a planetary scientist and professor of geophysics at Massachusetts Institute of Technology. "What we're seeing is not simply a glitch caused by the Challenger accident, but a serious, long-term trend."

Fatal Flaws

"For many years, there has been a steady decline in federal funding devoted to space research," contends Martin Israel, associate director of the McDonnell Center for the Space Sciences, "and every year the squeeze gets a little tighter."

A 1984 report by NASA's Space and Earth Science Advisory Committee documents a drop of more than $100 million since 1968 in NASA support of basic research and analysis. The report found that the decrease of 50 percent in buying power in basal astronomy research since 1979 was "typical". Why?

One of the biggest reasons, Walker says, was the excruciating expense of developing the space shuttle program.

Since its inception in the early 1970s, the shuttle has been billed as a reusable jack-of-all-trades. Proponents claimed it would perform equally well as an inexpensive satellite launcher, a multipurpose science laboratory, and a heavy-duty materials truck to lug tons of cargo..."
machines that routine maintenance keeps the ships grounded between launches much longer than NASA intended. Launch-pad holds and delays have become routine. The inevitable result is that long before Challenger came hurtling apart, a queue of military, commercial and scientific missions had lined up waiting their turn for launch.

"It is very dangerous—Challenger was an example of how dangerous—to be too ambitious on a shoestring," Walker says. "Maybe NASA and the whole nation could be faulted for that. Maybe we should have said, 'We can't do it for that price.'"

Challenger's nightmarish explosion underlined the incredible risk NASA took nesting all of our eggs in a single, enormously complex and still experimental basket. With the shuttle grounded and its schedule in chaos, the United States finds itself suddenly, helplessly earthbound.

The disaster dealt a crippling blow to what, in fact, had been planned as the beginning of a national resurgence in space research and discovery. The Galileo probe to Jupiter, Ulysses studying the little known polar regions of the sun, shuttle studies of Halley's Comet, and astronomy's greatest leap beyond Earth's distorting atmosphere, the $1.2 billion Hubble Space Telescope that would allow scientists to peer to the very edges of our universe, were all booked for 1986 launch.

The comet studies are lost forever; the others will have to be delayed three to four years or longer.

Meanwhile, the shuttle is not expected to fly again until early in 1988. Faced with reshuffling 44 scheduled missions over two-and-a-half years with a reduced fleet, NASA has acknowledged that in the near future Defense Department payloads dedicated to national security will receive top priority.

Time-critical science projects must then vie with commercial satellites for second billing on the shuttle manifest. NASA had originally contracted to carry seven satellites this year and 19 in 1987. Eight of those were commercial satellites, bringing launch fees of $38 million this year and $71 million next year, helping to offset the shuttle's reputation as an economic boondoggle.

With pressure building in Congress not to become dependent on the French-based ArianeSpace or other foreign launch services, the space agency is under the gun to schedule as many commercial launches as possible. The result is that small science projects will be left holding useless shuttle tickets.

"The priorities," Walker says, "are very clear to me. Science is at the bottom of the pecking order."

**Persistent Problems**

Even if shuttle flights resume in 1988, repercussions from the Challenger tragedy will continue for a decade or more, fanning out like ripples on a lake. No one senses the ominous nature of this ripple effect better than Ray Arvidson, director of Washington University's Remote Sensing Lab, a principal architect of NASA's information management and data systems. Arvidson was recently named to the Mars Observer scientific team.

In his nondescript, back-room office in Wilson Hall, Arvidson maintains direct links with virtually every major space research facility in the nation. As director of one of the dozen NASA Regional Imaging Facilities, he commands satellite views of any spot on Earth, and with a few computer keystrokes calls up computer images of the Moon and distant planets.

"We're working right now on science missions for the next decade," he says,

"As a citizen, I believe the shuttle is an important step in establishing man's presence in space. But as a planetary scientist, I don't need it."

— Ray Arvidson, director, Remote Sensing Lab

"It is very dangerous—Challenger was an example of how dangerous—to be too ambitious on a shoestring."

— Robert M. Walker, director, McDonnell Center for the Space Sciences
"For many years, there has been a steady decline in federal funding devoted to space research, and every year the squeeze gets a little tighter."

- Martin Israel, associate director, McDonnell Center for the Space Sciences

expressing his thoughts precisely as if they were electronic bits in a data-stream. "Even if the shuttle resumes flying in two years, there will be significant delays in the Magellan mission, the Mars Observer mission, and Earth-observing projects in the coming decade."

"When the shuttle flies again, NASA will need to move very slowly, very cautiously," points out MIT's Solomon. "The agency cannot afford another mistake." He does not see the shuttle working up to the level of seven or eight flights a year until 1988.

In the meantime, serious problems lie ahead for university scientists, and these problems all have a single source — money.

NASA estimates replacing the shuttle will take at least two or three years and cost $3.2 billion — 2.2 billion for the shuttle and $1 billion to redesign faulty solid-rocket booster seals and replace spacesuits and equipment lost in the explosion.

"Funding totals are limited," says Arvidson. "NASA has to maintain its own laboratories, civil-service employees, and its large research centers. The result is that university research may be considered a lower priority."

"All bureaucracies have a natural tendency to protect their own," concurs Alastair Cameron, professor of astronomy at Harvard. "There has always been a significant difference in NASA's attitude toward their in-house scientists and scientists mainly from universities."

**Science Suffers**

One of NASA's charter missions is to support university level space research. "But time has seen erosion of that commitment," says Stanford's Banks. "The organization is trying to take care of itself without taking into account the negative factors influencing the Stanfords and the Washington Universities of the country."

Rippling delays will compound NASA's financial squeeze, too. "The army has to keep marching," Arvidson says. A three-year space project costs less than the same program strung out over seven years. Salaries must be paid and instruments maintained; costs rise with the passage of time. The accumulating pressures could have great impact on individual, university-based investigators.

Washington University astronomer William Smith is one such investigator, fiercely independent. "The Challenger disaster is just one more nail in the coffin of pure, individual science," he bristles, eyes flashing and voice cutting steel.

Smith is responsible for developing sophisticated equipment that can analyze the chemistry of celestial objects in a way no other instrument can duplicate. His ideas are so innovative that major observatories have begun outfitting their telescopes with similar equipment — but Smith cannot find funding to keep his own equipment operating. "I leave it boxed up," he says, pointing off-handedly to a wooden crate in a corner of his laboratory. "I can't afford to use it."

Challenger's demise, Smith says, will accelerate the funding squeeze. "Right now there are several times more high-quality science proposals than can be funded. It could get a lot worse. I am worried about the individual investigators who do interesting work all by themselves," he continues, rapid-fire.

"The giant projects will eat them alive. We are already at the point that significant, important science is being totally ignored. You cannot orchestrate scientific break-throughs by focusing on mission-oriented projects."

Lack of funding could force researchers to turn to the military, which for several years has had a larger budget than NASA. "By default we could easily slide into a predominantly military space program, and that would be a big mistake," says James Head, professor of geology at Brown University. The civilian program, he believes, is of fundamental importance to the future of the country, visibly demonstrating U.S. capabilities to the world in a peaceful way.

"If NASA were clever, they would preserve university funding for the kinds of work that all of us do between launches," Israel suggests. In the past, however, these low-profile projects rarely received funding equal to their scientific return, and many researchers are not optimistic the situation will change.

**A Concerted Voice**

On the other hand, thousands of university scientists have worked their entire careers in an era of budget cuts, managing to put together spectacular programs. "Maybe that's the nature of science in a democracy," Arvidson observes.

For all its shortcomings, the space shuttle still represents the first step in a grand design leading to the permanent presence of humans on a free-flying station, then the moon, and on to Mars and beyond. This vision has sustained the NASA's space program for a decade
and a half, and it is a vision many scientists have come to share.

Larry Haskin, former chief of the Space Sciences Division at NASA's Johnson Space Center in Houston, and now chairman of Washington University's Earth and Planetary Sciences Department, clasps his hands behind his head in thought. Leaning back in his chair, he fixes a steady gaze out the window, as if to get a better perspective of the universe. "Regardless of the difficult decisions that lie ahead, man's destiny lies in space, not only spiritually, scientifically and militarily, but economically as well," he says. "I have confidence that we'll decide to develop space because there will be a profit in doing so."

The vision is not without profound, if unpredictable, promise: "A big part of space science includes what we can do there, how humans react to it as residents instead of aliens," says Haskin. The shuttle is necessary for those projects that need heavier launch capability than current expendable rockets can manage.

A manned space station or moon base would open entirely new frontiers for science: manufacturing products that are impossible to produce on earth, repairing existing satellites, replacing obsolete equipment and replenishing exhausted supplies for long-term scientific experiments.

But NASA's decision to try to make the space shuttle all things to all people— to rely on the shuttle as our only way to reach the stars— troubles many scientists. "As a citizen, I believe the shuttle is an important step in establishing man's presence in space. But as a planetary scientist, I don't need it," says Arvidson.

Existing science projects, however, have all been designed for the shuttle. "We would have to start over from scratch to put existing experiments on top of expendable vehicles," insists Israel. Some larger science experiments—the Hubble Space Telescope, for example—could not be launched as they stand by anything but the shuttle.

The questions are not new. "I've been on umpteen-zillion NASA committees," says Walker, "all of which recommended that we develop dual launch capability." But NASA's entire space program has been a bare-bones operation for quite a while. "NASA should never have had to choose either manned or unmanned vehicles for all its launches," Walker maintains. "The question is not shuttle versus unmanned rockets, but finding a balance between the two."

To retain that vision, Haskin believes the nation will have to decide that it wants and will pay for a first-rate space program. Otherwise, opportunities in space will await those countries that choose to exploit them.

**A Space-faring Nation**

Those universities with strong space sciences programs stand to fare the best. Washington University, with the presence of the McDonnell Center for the Space Sciences, "is in an excellent position to prosper, even though some programs may be cut back," Israel says. The strength of the interdisciplinary science approach and its nationally recognized faculty will undoubtedly play a major role in the success of the University's space science efforts.

Says Arvidson: "University scientists will have to present a concerted voice that represents the interests of the university community very strongly."

If the nation pursues a thoughtful approach to these problems, some believe, NASA could emerge stronger than ever. And NASA's sudden reversal in March of its long-standing position— recommending that the United States build expendable rockets for some commercial and military payloads—bodes well for the future of space sciences.

"The Challenger explosion could actually relieve some problems in the long run by making it possible for NASA to procure expendable launch vehicles and gain better overall budgetary support," Haskin explains. "Science could actually gain as the disaster focuses our attention on the space agency's problems.

"We've all got to recognize that it's a risky business," Haskin continues. "There are going to be some very unhappy and very expensive things happening as we explore the frontier of space. But I believe we are, and ought to be, a space-faring nation. It's time to get on with it."

Robert G. Brock is the science features writer for Washington University.
Today, glass and metal shine and the lighted clocktower stands proudly like a sentinel above the city, but when engineers and architects began work on St. Louis' Union Station, it was a blackened structure nearly beyond renovation. Many people worked on bringing the station back, a huge team of people drawn from the various companies involved in the dazzling development project. Talking with some Washington University graduates—Washington U. alumni tend to populate the engineering and architectural scene in St. Louis—you get a pretty good idea of what it was like to work on the project: exciting, frustrating, complex, changing every day.

"No one really knew up to the last two months whether it would come together," says John Ward, a School of Architecture graduate whose role at the design firm Hellmuth, Obata & Kassabaum, Inc., was to coordinate HOK's efforts with those of consultants from other companies involved in the station's resurrection.

When construction began three years ago, the 90-year-old station had been abandoned for seven years. In the winter there was no heat, and water from condensation on the walls fell like rain over the once-beautiful interior of the Grand Hall. Neglected another year or two, the
station might have been beyond renovation. Union Station, clearly, presented a daunting, but enticing, challenge. "It was a once-in-a-lifetime possibility," says Ward, who quit his private architectural practice to work on the station.

Greg Palermo, project manager for HOK (and a graduate of the School of Architecture), says when he walks through the station today he remembers the blackened glass, the gnarled tracks. "You can feel wonderment in the remaking. The exciting part for me is knowing the magnitude of what went on in the reformulation of the place."

None of the challenges presented were small ones. Ward says the most difficult part of the project for him was dealing with the different personalities—from hotel managers to developers' consultants—all from different companies and professional backgrounds. Meetings were abundant, and Ward went to them all.

The Rouse Company, famous for innovative shopping arcades that are their own events (Quincy Market in Boston, Harbor Place in Baltimore), is also known—among the people who work on Rouse projects—for getting people to work together. "Rouse's idea is that these projects should be very much a team process," says Jim Darrish, one of the assistant project managers for the company and a graduate in urban design from Washington University. "At all the meetings, there was someone there from construction, design, and development. They all had an impact on any decision, no matter how small."

Decisions were not made at a single meeting, and changes were constant. "Some people would have liked all the decisions to have been made at the very beginning," says Darrish, "but it was very much a process—right up to the last month of construction."

The constant changes caused problems, particularly for the contractors. "Since the project was in a conceptual state when we started on it," says John Coffmann, project manager for the general contractor, HCB Corporation, and a graduate of the School of Engineering, "we didn't understand the entire scope of what the project was when we began working. There were no blueprints. We built it from sketches that had no specifics and from telephone calls. We had to react very quickly to changes which became a real problem. There were at least 2,000 major changes on the job before we were done."

The extreme difficulty in pulling off some of the amazing design and engineering feats had to do with a central and overriding problem: how to combine, aesthetically and technically, a new building for the 20th century with the 19th-century heritage and dignity of the old?

Charles (Chip) Reay, a graduate of the School of Fine Arts, is head of graphics at HOK and was part of a design group that discussed the general direction and character of design ideas before the architects began their work. "Finding and being able to develop a harmonious interaction between existing structures and new structures," he insists, "was the thorniest architectural problem we had to work with."

"What do you put under a canopy built in the Victorian Age of Iron?" Palermo asks of the 11.5 acre train shed—the largest in the world. The developers wanted a modern gathering place, but how would that relate to the transportation center the station once was?

Gyo Obata, a graduate of the School of Architecture and founding partner of HOK, explains, "People in St. Louis have a tremendous memory of this building. They saw people off here; they arrived
"People will continue to enjoy the Station because it's not easily understood in one viewing," explains Gyo Obata, a founding partner of HOK, architects on the project.

An aerial view of the project under construction showing the 11.5 acre train shed under which a shopping arcade and much of the Omni International hotel were built.

Here at the station, and stayed to live. Without taking away the memory of what it was, to make it again a place where people congregate, I think is an interesting phenomenon. We wanted to retain a sense of movement. Union Station had once been a great transportation center; now we wanted it to be a people center.

It certainly isn't a train station anymore. People come to shop and listen to concerts, to eat and stay in the Omni International hotel, which is an integral part of the renovation. But how do you retain references to the Station's previous use without turning it into a museum? "That was a real problem for us," says Ward. "How to keep away from too much reference to the fact that trains once came through here. We didn't want to make every lamp look like what must have been in the old station. We didn't want to put historical pictures everywhere. I think you'll feel when you walk through St. Louis Union Station that there are references to what was a train station, but not a heavy train-station feel. We tried not to trivialize and at the same time not avoid what was real."

Even when the designers came up with solutions that were beautiful and exciting and perfectly integrated with the old, there remained the question of whether or not these ideas could be carried out. John Coffmann says the biggest overall problem was bringing the old structure up to building code compliance. "This was especially difficult," says Coffmann, "because no one knew what the actual structure had been. Original blueprints were not detailed structural prints as we know them today."

Innovations were required not only to repair old structures, but to fit them in with the new. The roof of the train shed, for example, tends to expand four to six inches depending on how hot the day is. You could see the trusses that hold up the roof actually bend. The roof's original roller joints were rusted frozen. The roof had to move some, but it also had to interlock with the midway building so that weather could be sealed out and air conditioning sealed in.

While huge design and construction problems were being worked out, hundreds of smaller details were scrutinized just as closely.

Somehow, after a million such details were attended to, the station opened—a month ahead of schedule. The complexity and enormous scale of the project made it interesting to people seeing it for the first time—and everyone hopes that same complexity and scale will keep them coming back. "People will continue to enjoy the station because it's not easily understood in one viewing," Obata explains. "There is great satisfaction in returning to see different plays of light at different times of the day, at noon, at twilight."

John Ward describes a dinner party before the opening that marked for those who worked on it the end of the project. "The big coming-down-off-the-mountain for us was the dinner Friday night. A gut-wrenching, tearful kind of thing—all those people who wouldn't be working together anymore."

"There are pangs of sadness about what we couldn't do," says Chip Reay. "But the overall work we did was so satisfying because it is something that will ultimately play an important role in the life of the city—and provide a center and a focus for what we all but lost in downtown St. Louis."

Gail DiBernardo holds a graduate degree in English from Washington University and has published several short stories.
Returning to the campus plan devised at the turn of the century, John E. Simon Hall—the largest building on the Hilltop campus—renews a commitment to excellence.

by Greg Holzhauer

When the Washington University Board of Directors decided in the late 1890s to move the University from its cramped quarters on the edge of downtown St. Louis to today’s west St. Louis site, it set in motion a process that would turn the Hilltop campus into one of the finest university campuses in the country. In this pleasing setting, augmented by English Gothic architecture of red granite trimmed with limestone and a series of connected courtyards and quadrangles, a tradition of academic excellence would flourish.

In 1981 the leaders of the School of Business found themselves in a situation similar to that faced by the whole of the University more than 80 years before. With ambitious plans as a relatively small, but intense, focal point for the study of business, the Business School found itself faced with inadequate facilities. After much discussion, and following the recommendations of a special task force of business leaders, alumni, and educators, a decision was reached to raise a new building rather than add on to Prince Hall, the school’s home for the past 25 years.

Like the University Board of Directors in the 1890s the leaders of the
Business School decided on more than just a new structure. And the decision they reached—to return to the spirit and philosophy of the first campus plan—may prove to be nearly as momentous for the future of the University campus as the decision in the 1890s to award the contract for the design of Washington University to the brilliant architectural firm of Walter Cope and John Stewardson.

During a period in which many major universities were building new campuses and in which classical architecture was the design of choice, Cope and Stewardson devised a plan in English Gothic style, organized along a series of interlocking courtyards and quadrangles, that both suggested a link to the English universities of Oxford and Cambridge and could well accommodate growth in the future.

Margaretta J. Damall, in her account of the evolution of the Hilltop campus, *Washington University in St. Louis: Its Design and Architecture*, writes: "(Cope and Stewardson) provided Washington University with an attitude about making buildings and spaces which would not have to be completed by the same architect within a relatively short period of time in order to achieve integrity. Rather, the attitude dictated by their block plan was one which could be enriched with variations and the contributions of other architects over time."

"With Simon Hall, we’re back on track," says Buford Pickens, professor emeritus of architecture and one-time campus planner for the University. "The building is about as close to perfection as you can come. The next architects to work on campus will have something to measure their efforts against. The new building provides a magnificent gateway to the campus from the southwestern end of campus, the way Brookings Hall provides a magnificent gateway on the eastern end. I’m happier than I’ve been in decades."

Even happier, no doubt, are the students and faculty of the School of Business, who until January of 1986 had been overloading the rooms of Prince Hall, itself a renovated dormitory. "Our old facilities were a real handicap," says Glenn Detrick, associate dean of the School of Business and director of the MBA program. "They created a number of constraints that seriously affected our work in several areas: student affairs, teaching, recruiting, library resources, computer resources. Those constraints are now gone."

The School began thinking about new facilities in 1979. At the same time the University as a whole was setting out to review in depth its programs, resources, and mission of service. To carry out the institutional self-study, the Commission on the Future of Washington University created task forces to look at each of the
University's principal divisions and make recommendations for the future. The Business School Task Force, under the leadership of Charles E. Knight, chairman and chief executive officer of Emerson Electric Company, met in 1980-81 and issued a report that identified the construction of new facilities as the School's most pressing need along its road to becoming a nationally recognized business school in what is a very crowded educational "industry."

"The Task Force's belief," explains Larry Malic, a St. Louis architect who served as assistant dean for facilities planning and development for the Business School during the design and construction of the new building, "was that bricks and mortar were a starting point in planning for the future; and that until you had better space, and more well planned space, your program would always be hemmed in, and you would have trouble recruiting both the students and faculty you needed to satisfy your ambitions for the School.

"The Task Force realized this was an opportunity to make a significant statement about the direction of the campus plan for years to come. By the University's standards, this was an extremely large project - more than 100,000 square feet - and it came at a time when there had been a rethinking of the campus plan, and a conscious decision to return to the original model."

Once committed to a new building instead of just an addition to the old, Dean Robert Virgil and others concerned with the School's future plunged in with a costly design and planning process that paid off in the selection of the acclaimed firm of Kallmann, McKinnell & Wood of Boston (designers of the landmark Boston City Hall), in association with Murphy, Downey, Wollf & Richman of St. Louis. The Task Force recommendations were translated into a $31 million goal for the Business School as part of the ALLIANCE FOR WASHINGTON UNIVERSITY fund-raising program, $13.5 million of which was designated for building construction. The University's friends responded generously in donating the required funds for new quarters for the Business School. Support for the new building included a substantial donation from St. Louis civic leader and philanthropist John E. Simon, for whom the building is named.

Five years after the issuance of the Task Force report, the School was able to
 Several classrooms surround the common, with four 50-person rooms in the north and south wings and two 20-person rooms in the center. The larger classrooms all have amphitheater seating, with raised tiers surrounding the instructor to facilitate case-study discussions, an approach to learning favored by the Business School.

The auditorium has a 400-seat capacity, with 315 of those seats in amphitheater style; it is equipped to provide videotaping and video projection, voice and sound reinforcement, film projection, and multiprojector slide shows. The business school's prime location reflects the significance of computers in modern business and computing education.

"As soon as they had access to personal computers, students began using them voluntarily for preparation of papers and reports, data analysis, spreadsheet financial analysis, accounting work, and many other purposes," says Lyn Pankow, associate dean of computing and professor of quantitative business analysis, who designed the School's system. "Three years ago, MPA students might have logged a total of one hour in their two years in the program using computers for other than specific class-room assignments. Now it's probably in the range of an hour a day."
The library, which holds 25,000 volumes and can seat 375 students, is designed to serve students who depend heavily on access to current and changing information. It's also an extremely inviting space, graced by an elaborate marble mantle from the 1893 Chicago World's Fair.

Also finding themselves blessed with essential new quarters are the students and faculty of the three-year-old Executive MBA program, which appeals to experienced managers wishing to work toward a graduate degree while continuing professional careers. As part of an intense two-year program of classes on alternate Fridays and Saturdays, students working in the EMBA suite have their own classroom, lounge, and lunchroom, all of which face the campus side of the building in order to help those in the program feel more a part of the main campus.

"The building is about as close to perfection as you can come," says Buford Pickens, professor emeritus of architecture and one-time campus planner for the University. "The next architects to work on campus will have something to measure their efforts against."

"Our aim is to make this one of the front-ranking research oriented business schools in the country," explains Dean Virgil. "Now our facilities match that objective. I've not seen a business school building anywhere that touches this one, and it can't help but assist in recruiting top students and faculty. Seeing the outstanding classrooms and the computer support available has to be a plus for us. But we're also aware that this is, after all, just a building. Whether the school accomplishes its goals depends not so much on this building, but more on the people in it."

Such a sentiment, and the building that inspires it, gives new life and meaning to the vision realized by Robert Brookings and the others who presided over the inception of the Hilltop campus nearly 100 years ago.

Greg Holzhauer is a former editor of St. Louis Magazine and currently publisher of St. Louis Dining.
Selected from almost 750 contestants to design the new Paris Opera, Carlos Ott is taking it all — the celebrity and the controversy — in stride.

by Roger Hahn

In France, a country that takes passionate interest in all things cultural, Carlos Ott, the Canadian architect from Uruguay, has become a celebrated figure. Educated at Washington University and chosen from almost 750 contestants to design the new Paris Opera House, Ott stands center-stage in a spotlight that promises only to grow brighter as his building project approaches its scheduled opening date — July 14, 1989 — the bicentennial of the French Revolution.

Emerging from obscurity to win an international design competition decided personally by French President François Mitterand, Ott's celebrity has been confirmed by the nickname bestowed on him in France: Le Cowboy Gaucho. Referring in part to Ott's personal style—a kind of sophisticated flamboyance expressed by his fondness for such casual costumes as a worn leather jacket paired with les blue-jeans—the redundant moniker also pays tribute to Ott's multi-cultural background, a factor that helped him win the commission to design what is described by competition literature as "the architectural and cultural event of the late 20th century."

Ott's instant celebrity status might easily have been predicted.
The French revere certain cultural figures as Americans do sports stars and captains of industry, and it is traditional to refer to the Opera House by the name of its architect. The last Opera House to be built in Paris, in 1873, is known as Le Palais Garnier after the young architect Charles Garnier, who also emerged from obscurity to win a design competition for the building.

But the very nature of the commission ensured its winner a place in the limelight. Intended to commemorate a landmark event in French history, just as the steel lacework tower designed by Charles Eiffel had 100 years earlier, the new Opera House is being built on a site that one observer describes as being "filled with spine-tingling significance": the Place de la Bastille, the very spot on which peasants stormed the Bastille and toppled the French monarchy 200 years ago.

Furthermore, the new Opera House was commissioned by a socialist government with the specific intent that it be "an Opera House open to everyone." Seen by some as a noble gesture and by others as terribly ironic, this Opera House for the people is only part of a major building program comprised of eight projects celebrating the French Bicentennial.

Adding to the difficulty of the competition were the design requirements and the conditions of the site: two auditoriums with enough backstage space to accommodate set designers and rehearsing groups as well as video equipment, all nestled in a small, triangular location opposite the Colonne de Juillet, the monument that occupies the center of the Place de la Bastille. One of the judges sitting on the panel that chose the three finalists, whose designs were submitted to Mitterand, compared the task as analogous to "fitting an elephant into a bathtub."

Who, then, is this 39-year-old upstart who overcame great odds to win what Maclean's, the Time magazine of Canada, called "one of the most prestigious contracts in decades?" And was his victory solely a coincidence of circumstance, or did the Opera House jury, in fact, discover the individual in the world best suited to design one of the most ambitious, expensive and controversial monuments to art and architecture ever conceived?

There is little doubt, in the mind of the architect, he is the person for the job. "You
The architect stands before the Colonne de Juillet, at the center of the Place de la Bastille. "I've been preparing for this (project) all my life," he insists. Above: An architectural model of the Opera House lit as if at night.

see, I've been preparing for this all my life," he told the Toronto Globe and Mail. "I'm one of those lucky fellows who knew what he wanted to do in life at the age of five. I was sharpening pencils for my father, who is also an architect, when I was three. I was in his studio, giving coffee to the draftsmen, learning to draft myself....

"My father was my hero. I like cars because he did, I like classical music because he did, I paint water colors because he did, and I am an architect because he was."

With such a strong early influence in his life, it could be expected that young Carlos would demonstrate his talent, if he had any, at a tender age. And, in fact, he both had the talent and showed he could use it.

As the son of an upper middle class family in Montevideo, Ott attended private schools, including a high school with studies in architecture. After high school, during the summer of his fifteenth year, he got a job designing for General Motors of Uruguay. He was good enough to have some of his ideas incorporated in a line of cars produced by the company and was offered permanent employment, which he refused, deciding instead to return to school to study architecture.

After graduating from the University of Uruguay with a bachelor's degree in architecture, Ott applied for a job with an architect he greatly admired, I.M. Pei. (Coincidentally, Pei was chosen to design a concurrent project, a major addition to the Louvre.)

The older architect suggested instead that Ott continue his architectural studies; the apprentice applied for a Fulbright scholarship to study in the United States. At the suggestion of the Fulbright committee, Ott chose to pursue his studies at Washington University, which offered not only a strong curriculum in architecture but an accompanying program, and degree, in urban design.

Ott graduated from the program in 1972, with a master's degree in architecture and urban design.

It was at Washington U., Ott says, that his intellectual relationship to the practice of architecture was formed. "All the time I was working on drawings for the Opera competition," Ott confessed during a recent interview from the small apartment he keeps in Monaco as his current home base, "I was thinking a lot about ideas I'd first encountered at Washington. It was funny, actually. There I was doing drawings in my house in Toronto, having been raised in South America and educated in the United States, trying to tell the French what kind of opera house they should build in the middle of Paris."

"There I was," says Ott, "doing drawings in my house in Toronto, having been raised in South America and educated in the United States, trying to tell the French what kind of opera house they should build in the middle of Paris."

"It reminded me of how I felt during the beginning of my year in St. Louis. I was being taught not so much about aesthetics, about color and form and so on, but more about different philosophies, and how social attitudes affect concepts and the use of those concepts. In the beginning, it all seemed too theoretical. "But later, when I was actually working,
I turned back to those ideas more and more, especially the notion that perhaps the architect is not the most important part of the building project, and that the best buildings reflect not only how we see the world but also how the world perceives us.

Ott's design reflects not only a popular influence but also an international one. Much of the new Opera is devoted to backstage and rehearsal space; the auditoriums are small, to bring an intimate quality to each performance. Adjustments have been made for different styles of set design and stage traditions in Europe and North America.

The idea is to present daily performances partaking of operas from around the world, increasing access to opera's highly stylized art while lowering ticket prices and creating a space that is not intimidating to the ordinary citizen.

Much of the "skin" of Ott's design will be constructed of specially made glass blocks—a "permeable" surface, he calls it—allowing passersby to watch set
changes and rehearsals from the street
and even from an adjacent subway plat-
form. As opposed to the Palais Garnier,
where one-third of the building is given
to a main entrance and foyer, all for the
purpose of displaying the audience, only
one-tenth of Ott's building is to be used
as entrance and foyer, emphasizing the
production rather than those attending it.

The overall effect of Ott's design is a
look both sleek and self-deprecating, and
it has its supporters and its detractors.
One writer describes the Ott style as
"an easy agreement with surrounding
buildings, but a definite contemporary
approach." Another described the
architect's design as "composed of
geometric shapes that slide together like
a high-tech jigsaw puzzle." Noted Paris
architect Gerard Charlet says of the new
Opera: "By comparison with other
modern works inflicted upon Paris in
recent years, I would say that Ott is the
first to get it exactly right."

Others are not so sure. The New Yorker
magazine called the Opera "an austere
utilitarian group of structures." And
Canadian architect Peter Hemingway,
writing in The Canadian Architect,
criticized Ott for using "all the modernist
cliches...the large plate-glass, car-
showroom windows, the curved glass
balustrades, the modular ceilings and the
recessed lighting."

### Ott's design reflects an international influence, offering daily performances of operas from around the world, while lowering ticket prices.

Disagreement is to be expected
regarding significant new designs, but
with this new Opera nearly every aspect
of the project has elicited controversy.
The building site is located in a working
class neighborhood, and the construction
of the Opera is intended to encourage
other development in the area, an idea
that must have attracted the urban-design
student in the Opera's chosen architect.
But some of the 250 residents displaced
by the new building have vociferously
protested its construction.

Similarly, the Opera and the entire
bicentennial building program drew
harsh criticism from Mitterand's political
opponents, who now hold the reins of
power in France. Fortunately for Ott,
however, the opposition leader, Jacques
Chirac, was mayor of Paris before
becoming the French premier and in his
former office had been a supporter
of the new Opera.

Nonetheless, Ott is staying close to the
project, overseeing construction and
protecting his political flanks. "It's been
a political fight from day one," he said,
"and we are fighting it all the way. But
that's part of the fun of it, too."

The irrepressible designer seems to
be taking it all—the celebrity and the
controversy—in stride. With a personality
as easily complex as his designs, Ott
apparently thrives on new challenges.
When the Opera is finally finished and
opened, he plans on returning to Canada,
where he is a partner in the architectural
and engineering firm of Neish Owen
Rowland & Roy, a position he accepted
only weeks after submitting his initial
application to the Opera Competition.

"The advantage of practicing archi-
tecture in Canada," he says, "is that we
can experiment with much more freedom
than in Europe. Architects are there
surrounded by monuments." Clearly, in
his self-effacing way, Ott is interested
most in conceiving new monuments for
the future.

For now, though, he is content
shepherding his opera house for the
Revolution to realization, employing his
new-found celebrity to marshal support
for the project. "I'm keeping cool
enough," he observed. "My father taught
me something that has become very
valuable to me now, and that is not to
take yourself too seriously."

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Roger Hahn is editor of Washington
University Magazine.
THE GREAT ESCAPE

A new program at Jewish Hospital concentrates not just on the symptoms of addiction but on the whole person.

By Mary Silva

Lucas Van Orden had it all: M.D. and Ph.D. from Yale, editor of a prestigious scientific journal, full professor, published author, researcher, lecturer, husband, and father of four children. Van Orden had climbed to what seemed to be the pinnacle of achievement when, in early 1975, he lost his foothold.

"I was giving lectures to medical students on alcoholism and drug abuse," he recalls, "while so intoxicated I couldn't remember I had done it."

In March 1975, after a blackout that erased the preceding month from his memory, Van Orden went into treatment and stopped drinking and taking drugs altogether. After a year's recovery, he decided to make treatment of the alcohol- and drug-dependent person a major focus of his career. Having recently completed a psychiatry residency at Washington University Medical Center, he serves as a consultant to Jewish Hospital's unique program for alcohol and chemical dependency.

The Jewish Hospital Alcohol and Chemical Dependency Program, begun in November 1984, is the first drug treatment unit in St. Louis to be located within an academic medical center. The program offers a unique type of care to the alcohol- and chemical-dependent person, care which treats not only the substance addiction but the complex physical and psychological consequences of that addiction.

Collins E. Lewis, M.D., medical director of the program, explains: "We don't just treat people with straight alcoholism or chemical dependency. We have patients who are depressed, suicidal, schizophrenic, and manic. We're comfortable treating all psychiatric disorders, as well as the many physical disorders that accompany alcoholism and drug abuse. Our program is different from others in that we don't just treat substance abuse in isolation."

Like Van Orden, the majority of alcoholics are a far cry from the stereotype of
the homeless and jobless wino. Yet that image and its stigma persists despite the facts: 95 percent of the estimated 10 million alcoholic Americans have jobs, families, and ties to the community.

In fact, reflects Van Orden, it is precisely those trappings that enable an alcoholic to cover up his problem. "The thinking is," he states, "Well, after all, he's successful, he can't be an alcoholic." And particularly for the professional, that's just not true because he needs to be successful to camouflage his alcoholism.

"No one is immune," says Lewis, assistant professor of psychiatry. "One may think of alcoholism as an infectious disease. People have different predispositions. Nearly everyone is exposed to alcohol. However, only a few go on to develop serious problems."

Alcoholism's widespread and seemingly random occurrence has made it difficult for researchers to pinpoint specific biological or psychological causes. But two groups have emerged as particularly susceptible, according to Lewis: people with a family history of alcoholism, and those who as youngsters develop a pronounced pattern of antisocial behavior, such as skipping school, fighting, shoplifting, or running away from home. For these individuals, he says, the best prevention against developing alcoholism is awareness of their vulnerability. "These people have to be educated," he emphasizes, "and warned that they have an increased risk of developing serious drinking problems."

Just as there is no typical alcoholic person, there are no clear-cut guidelines for determining when drinking becomes alcoholism. A popular misconception is that light drinkers are immune from alcoholism. Lewis stresses that it is not the amount of alcohol consumed, but the degree to which it disrupts one's life, that identifies the alcoholic.

"Today, alcohol disrupts lives at a much younger age, and those who become alcoholics are more likely to abuse other substances as well. Alice Noel, A.G.S.W., director of the Jewish Hospital Alcohol and Chemical Dependency Program, has worked with substance abuse since 1970. "Compared to 10 years ago," she observes, "people coming into treatment are much younger and much more affluent, and a lot sicker, than I remember them to have been. These younger patients are also more likely to be 'polydrug' users—they're into cocaine, tranquilizers, PCP—there's a whole menu of things they use."

In the Jewish Hospital program, Lewis and Noel work with a staff of physicians, psychiatrists, nurses, and social workers. They are trained to identify and treat the special medical and psychological needs of the substance-dependent person, training that Lewis also offers to the staffs of all the Medical Center hospitals. The program's location within Jewish Hospital, and its affiliation with the Medical Center, makes the many resources of those institutions available for diagnosing and treating the special complications of substance abuse.

The advantages of the program are evident in the case of a middle-aged man who was recently admitted to Jewish Hospital for what appeared to be a strictly medical problem—blood in his urine and stools. Examination revealed the classic symptoms of heavy, prolonged drinking: cirrhosis and liver failure, jaundice, and severe inflammation of the stomach lining and pancreas. The man admitted that he had been drinking heavily for more than 20 years.

His medical problems were brought under control, and he was placed in the hospital's alcohol and chemical dependency program. The in-hospital program enabled him to make the transition from medical to psychological treatment of his drinking problem without disruption and allowed his physician to closely follow his recovery. In a less comprehensive alcohol treatment program or a hospital without such a program, Lewis points out, patients would be treated for their medical problems, then referred to a private therapist or released for treatment in an outside alcoholism program.

"The continuity of care would be disrupted," he explains, "and it would be much more difficult for a physician to follow a patient's progress."

Patients admitted to the program must first undergo a carefully monitored period of detoxification. Detoxification is a crucial first step, allowing time for the toxic effects of the alcohol or chemicals to subside so that treatment of medical complications can begin. It is followed by a thorough psychiatric evaluation, one-on-one therapy with a psychiatrist, and group sessions. Breaking the psychological addiction to chemicals is the most difficult step of treatment, and one which requires a concentrated and continued effort. The Jewish Hospital program limits the number of participants in order to allow individual attention and to emphasize each person's responsibility for his own recovery.

"One of the things the patients have told us," says Noel, "is that they managed to just sit through other programs that were much larger. We ask people to do things, because recovery requires a behavior change. So someone who may have been sitting back, listening passively to lectures in another program, has demands put on him in our program."

One important demand is that the individuals learn new behaviors and acquire skills that will help them fill the free time they used to spend drinking.

"Because," explains Lewis, "once a person has been drinking and then stops, what is he going to do with all that free time? Our occupational and recreational therapists are not just playing games, they're teaching people to develop ways that are incompatible with drinking to spend their free time. One of our goals is to prevent relapse by teaching skills that people can take with them when they leave us."

Individual meetings between a recovering alcoholic and therapist allow a personalized approach to treatment, as well as opportunities for private discussions of concerns. Group sessions provide support through the exchange of common experiences and help the recovering person learn to say no to alcohol when confronted with business or social situations in which drinking is an accepted, even expected, fixture. Patients are also taught techniques for coping with stressful or anxious moments that would formerly have been relieved by a drink.

Van Orden believes that the group approach has yet another valuable role

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**Because alcohol and chemical dependency is a disease that infects an entire family, the Jewish Hospital program emphasizes professional help in the rebuilding of family structures.**

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Lucas Van Orden, M.D., Ph.D., knows of what he speaks: Alcoholism and chemical dependency are part of the human condition.

But the program is only a beginning; continued care is stressed as essential to recovery. The hospital encourages individuals to return for weekly meetings for at least six months. They are encouraged, as well, to join a community support group such as Alcoholics Anonymous, a step that Van Orden believes is critical to continued recovery. “Treatment is important to get the process started,” he states, “but if it’s going to be sustained, then I think you need to do it with other people who have the same goals.”

Because alcohol and chemical dependency is a disease that infects an entire family, Noel emphasizes the necessity of professional help in the rebuilding of a family structure torn apart by alcoholism. The Jewish Hospital program encourages active participation of family members in the three-week treatment period, with family therapy sessions and discussions. Family members are urged to seek the support of others in similar situations through community groups such as Al-Anon.

Van Orden says that families often mistakenly believe that simply eliminating the alcoholic’s drinking problem will be enough. “The family says, ‘If you fix the drinking, everything will be okay.’ And what usually happens is that the alcoholic has had some sick behavior, and the family has learned sick responses to that behavior.” Children of an alcoholic parent, says Van Orden, may typically adopt responses such as becoming a “superkid” who tries to hold the family together or cover up the problem. Or a child may become neurotic and chronically ill. Others may overeat, abuse drugs themselves, or become delinquent.

“We have to tell each family member that they have their own recovery to go through,” he states. “They all adapted to the drinking. But when the alcoholic goes through treatment and begins changing, it’s the recovery they have hard time handling because all the family dynamics change.”

The Jewish Hospital program has as its ultimate goal for each patient a life free of alcohol and drugs.

“I think it’s important to note, however, that alcoholism is a chronic, relapsing illness,” says Lewis. “Although our aim is permanent abstinence, sobriety is often temporary; it may last for months, or it may last for years. To prevent relapse, we teach our patients to recognize the early signs and seek help. With early intervention, a patient may not be as apt to lose his job, his spouse, his family, or his physical health. He gets back into treatment and gets on with his life.”

Luke Van Orden smiles as he reflects that a life like his can be strengthened by overcoming the pain of alcoholism and drug addiction. “The recovering alcoholic is, in many ways, better than he was when he began to drink. The things a recovering alcoholic and drug-dependent person has had to do simply to stay alive, the changes he has had to make, have put him in a better position. He has a true sense of what he can take.”

Mary Silva is the former editor of “Health Views,” the newsletter published by the Washington University Medical Center.