

THE PRESERVATION QUARTERLY OF THE WORLD MONUMENTS FUND

# WORLD MONUMENTS

WINTER 2005/2006  
\$4.95

## WMF at 40

CHANGING THE FACE OF PRESERVATION

Science of  
Saving Venice

Fifteen Years  
at Angkor





*What time and neglect are ruining,  
the World Monuments Fund is fighting to preserve.*

The World Monuments Fund and founding sponsor American Express created the World Monuments Watch in 1996 to raise public awareness of the plight of the world's most endangered sites and attract the funding needed to help save them. American Express has committed \$10 million over ten years to the Watch. For the past six years, American Express Publishing's Travel + Leisure magazine has devoted a special section to the Watch, contributing ten percent of all net advertising revenue to the cause. We are proud to be associated with the World Monuments Watch initiative and the vital work of the World Monuments Fund.

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## WORLD MONUMENTS

Founded in 1965, the World Monuments Fund is dedicated to the preservation of imperiled works of art and architecture worldwide through fieldwork, advocacy, grantmaking, education, and training. A New York-based organization, WMF has affiliates and offices in France, Italy, Portugal, Spain, and the United Kingdom.

ICON is funded in part through the generosity of the Brown Foundation, Inc. of Houston, the Paul Mellon Education Fund, and Paul Beirne

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High tides, which a century ago inundated Venice's St. Mark's Square six times a year, now flood the historic site more than 60 times annually. Photograph © Paul Hardy/CORBIS



WORKERS STABILIZE ONE OF THE TOWER ENTRANCES TO ANGKOR'S PREAH KHAN

# A Vision for the Future

## EXPANDING OUR CAPACITY TO RESPOND

It has been 40 years since an American army colonel, James A. Gray, had the pioneering idea of creating the International Fund for Monuments, a private non-profit organization dedicated to the cause of historic preservation and the first institution of its kind to work on a global scale. Inspired by UNESCO's launch in 1965 of a campaign to rescue the great Nubian monuments overlooking the Nile at Abu Simbel, Gray's vision for the organization was also framed in large part by the extraordinary loss of cultural heritage he witnessed in his own time—through the ravages of World War II and its aftermath.

This issue of *ICON* presents some of our long-term challenges along with our contemporary strategy to continue to deepen our involvement in local heritage preservation even as we successfully broaden the range of our work, both geographically and chronologically. These sites are integral to our collective vision of civilization, yet vulnerable to the forces of change that constantly transform our world. Many of the challenges we have faced over four decades remain. Venice still faces an uncertain future; Angkor has yet to reach a point of sustainability with a body of local expertise; Luxor tenuously survives the effects of the Aswan Dam; Mexico City is sinking from inadequate water conservation measures. Here, and elsewhere, our challenges multiply. But as our knowledge grows of the vulnerabilities of these sites, so also does our understanding of how much they matter. WMF is on the front lines, helping local communities and governments to preserve our rich human legacy on Earth. To this end, WMF has continued to expand its ability to respond, developing a number of powerful solutions tailored to address the challenges that confront cultural sites around the world.

Although great architectural monuments may have been built to be permanent, the world around them is anything but. The rapid pace and variety of change over the past 40 years in the world's political, environmental, societal, economic, and demographic forces, leaves us with ever greater challenges, requiring WMF to be vigilant and creative in the face of the threats that can quickly destroy what was once thought ineradicable. Our effectiveness in the future will depend upon the resources harnessed today.

As our organization enters a new decade, we do so with the knowledge that where local values are strong, and communities cherish the traditions and places that have defined them, WMF will find fulfilling new opportunities to work. The great works created over the course of human history—which anchor our self-awareness and our belief in the value of human enterprise—will continue to inspire future generations as long as there are people, such as WMF has brought together over its short history, who believe that our mission matters.



CLOCKWISE FROM TOP LEFT, WMF CHAIRMAN MARILYN PERRY; WMF ITALIAN REPRESENTATIVE, DOMATELLA ASTA; CONSERVATORS GIOVANNI AND LORENZO MORIGI; MIEKE VAN HOLLE, SECRETARY GENERAL OF THE ASSOCIATION OF PRIVATE COMMITTEES FOR THE SAFEGUARDING OF VENICE; AND WMF PRESIDENT BONNIE BURNHAM ON A RECENT SITE VISIT TO CHECK IN ON THE RESTORATION OF VERROCCHIO'S EQUESTRIAN STATUE OF BARTOLOMEO COLLEONI, SLATED FOR COMPLETION THIS COMING MARCH.

*Bonnie Burnham*

Bonnie Burnham  
PRESIDENT



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*Walter Reade Theater  
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WMF Events Manager, 646-424-9594 ext 244



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KHMER KING JAYAVARMAH VII IN THE GUISE OF A BODHISATTVA GRACES ANGOR'S TEMPLE OF TA SOM.

## Safeguarding Our Heritage for More Than 40 Years

**W**hen the World Monuments Fund marked its fortieth anniversary this past spring, it seemed an ideal time not only to take stock of the current state of affairs but to step back and take in the larger picture, to assess the overall impact of the organization on the field of historic preservation since its launch as the International Fund for Monuments in May 1965.

Along with a variety of facts and figures—WMF has carried out 431 preservation projects in 114 countries—what emerged was perhaps of far greater importance. The extraordinary portfolio of projects carried out over the years spoke to how WMF has honed its ability to respond in the wake of disaster—in Venice following the floods of 1966, in Mexico after the 1985 earthquake, and most recently in war-torn Iraq and in the hurricane-ravaged Gulf Coast of the United States. The portfolio also revealed the results of decades of investment in the recovery of lost arts and the training of young conservators to meet an ever-increasing demand for preservation work of the highest-possible quality.

This issue, published in celebration of our four-decade commitment to the field of preservation, we explore two sites with which the organization has been long associated—Venice, which through some 25 projects has been a primary beneficiary of WMF's time and resources (see page 18), and Angkor, where a 15-year campaign has resulted in the restoration of temples, and more importantly, the training of a new generation of Cambodian conservators and preservation architects (see page 32). Plagued by rising seas and sinking sediments, Venice continues to present one of the world's great conservation challenges, one that will require ever more vigilance and innovation to address in the years to come. At Angkor, what began as a rescue effort to stabilize and salvage the remains of the ancient city in the wake of war is presenting new challenges in the form of site interpretation and tourism management for the millennium-old site, which now attracts more than a million visitors a year. As our ongoing work at both of these sites illustrates, making a difference often entails staying the course long-term, a capacity that is certain to remain a hallmark of the organization in the years to come.

Angela M.H. Schuster  
EDITOR

## Contributors

**ANNA SOMERS COCKS**, former editor of both *Apollo* magazine and *The Art Newspaper*, has been chairman of the Venice in Peril Fund since 1999. Currently editorial director of Umberto Allemandi Publishers, owner of *The Art Newspaper*, she was recently made a *Commendatore della Stella di Solidarietà Italiana* by the Italian government.

**JOHN H. STUBBS**, WMF's Vice President for Field Projects and Associate Professor of Historic Preservation at Columbia University, has been spearheading WMF's campaign at Angkor since fieldwork began in 1991.

**JOHN JULIUS, VISCOUNT NORWICH**, Honorary Chairman of WMF in Britain, is the author of the series, *Byzantium, A History of Venice*, and the recent *Paradise of Cities: Venice in the 19th Century*.

**MICHAEL ELLIS**, an architectural conservator based in Sydney, Australia, is a consultant to WMF in the area of Cultural Heritage Planning at sites such as Angkor's ancient temple, Phnom Bakhang.

**ALEX ULAM**, is a freelance writer whose work has appeared in *Architectural Record*, *Archaeology*, *Landscape Architecture*, and other publications.

# ICON

### EDITOR

Angela M.H. Schuster

### ART DIRECTOR

Ken Feisel

### EDITORS AT LARGE

Eric Powell  
Kristin Romey

### CONTRIBUTING EDITORS

Colin Amery  
Eve M. Kahn  
Leila Hadley Luce  
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Patwant Singh  
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## WATCH SITE UPDATE

### Gulf Coast Preservation Program Launched

**F**ew New Orleans neighborhoods were hit harder by Hurricane Katrina than Holy Cross, a historic section of the city's Ninth Ward. A breach along the Industrial Canal allowed the Mississippi River to surge into the district, leaving many of the area's wood buildings standing in water more than a meter high for 30 days. Today, most of the buildings suffer wind and flood damage ranging from leaking roofs to mold to structural instability.



Working in partnership with the Preservation Trades Network (PTN) and the University of Florida College of Design, Construction, and Planning, WMF has launched a program to help community groups and local partners in the recovery of the neighborhood and its historic architecture.

In the eighteenth-century, Holy Cross was the site of several plantations. By 1900, the area was populated with German and Irish immigrants and African-Americans whose farms provided produce, poultry, and dairy products to New Orleans' markets. Architecturally, the neighborhood is best known for its nineteenth- and early twentieth-century shotgun houses and

vernacular wood cottages, as well as a pair of "Steamboat Gothic" houses constructed by riverboat captains along the Mississippi in 1912. In recent times, low- and moderate-income residents have owned and rented the historic homes here. But almost six months after the storm and the evacuation of New Orleans, the neighborhood of Holy Cross remains vacant.

WMF and its partners have begun their effort in Holy Cross with a study led by the University of Florida of the current condition of the neighborhood. Working with the community, the next step will be to develop a plan that focuses on what immediate steps need to be taken to prepare the neighborhood for re-occupation.

The non-profit Preservation



**A "STEAMBOAT GOTHIC" CAPTAIN'S HOUSE AND A SHOTGUN HOUSE IN NEW ORLEANS HOLY CROSS HISTORIC DISTRICT**

Resource Center of New Orleans has been working in Holy Cross as part of Operation Comeback, a city-wide program to rehabilitate dilapidated historic houses and sell them to low- and moderate-income families. As part of Operation Comeback, WMF and PTN will restore a double shotgun house, using the process of preserving the house to engage the community and to create a center for traditional building trades and preservation training.

## DEVELOPMENT DISPATCH

### A Boost for Jewish Heritage

WMF's Jewish Heritage Grant Program (JHGP), launched in 2000 to help preserve important Jewish cultural sites—particularly those in Central and Eastern Europe damaged in WWII and by decades of neglect in its aftermath—has received a very generous \$500,000 grant by long-time WMF supporter Joyce Greenberg. This gift, issued as a challenge grant to the



**SUBOTICA SYNAGOGUE, SERBIA-MONTENEGRO**

program's endowment fund, will help expand the JHGP's mission and support its advocacy role on behalf of vibrant Jewish communities around the globe. Since its establishment, the JHGP has aided in the rescue of some 46 sites in 24 countries. To learn more about the JHGP or to help satisfy the 2-to-1 requirements of the current match, please contact WMF Director of Development, Richard Feiner at 646-424-9594, ext. 213, or [rfeiner@wmf.org](mailto:rfeiner@wmf.org)



# GLOBAL BRIEFING

Highlights of WMF's work around the world

compiled by Norma Barbacci & Holly MacCammon

**YAXCHILÁN** Development of a comprehensive management plan for the protection, conservation, and interpretation of this extraordinary late Classic Maya site is well underway, made possible by WMF with support from the J.M. Kaplan Fund and the Selz Foundation and carried out in collaboration with the government of Mexico. The site, which had been threatened by construction of a hydroelectric dam on the Usumacinta River, is being considered by UNESCO as a potential natural-cultural World Heritage Site.

**SYNAGOGUE OF THE CITADEL** Conservators working at the Synagogue of the Citadel at Timisoara in western Romania have recently completed the restoration of the sanctuary's interior murals, which had suffered from neglect and inappropriate repairs. Designed by Viennese architect Carl Schuman in 1863/64, the synagogue, which has a domed cupola and Gothic windows, is an architectural treasure of Eastern Europe. Restoration of the sanctuary has been supported by WMF through its Jewish Heritage Grant Program since 2003.

**ORANIENBAUM** Two major phases of work at Catherine the Great's extraordinary Chinese Palace at Oranienbaum on the outskirts of St. Petersburg have recently been completed—the first, a strengthening of the building's foundations, the second, replacement of the building's roof, which was found to be in far worse condition than previously thought. The project has been made possible by WMF through its Robert W. Wilson Challenge to Conserve our Heritage.



## HUACA DE LA LUNA

Project directors for the 1,500-year-old Moche site of Huaca de la Luna on the Peruvian coast have recently received the "Reina Sofia" award from the Spanish Agency for International Cooperation for outstanding management of the ancient site and careful balance between conservation, excavation, and interpretation of new discoveries, as well as the project's positive impact on the development of the local community. Work at Huaca de la Luna, which is being considered by UNESCO as a potential World Heritage site, has been underwritten by WMF through its Robert W. Wilson Challenge to Conserve our Heritage since 2002.



**TAMANSARI WATER CASTLE** The restoration of the so-called Umbul Binangun Pool Area at the Tamansari Water Castle in Yogyakarta, Indonesia, is well underway. Commissioned by Sultan Hamengku Buwono, the 59-room pleasure palace, built in 1758, includes a mosque, meditation chambers, swimming pools, and 18 water gardens and pavilions surrounded by ornamental lakes. The site was damaged by an earthquake in 1867, which destroyed many of its water features. Restoration work at Tamansari, a 2004 Watch Site, has been funded by WMF's Robert W. Wilson Challenge to Conserve our Heritage.



#### ANCIENT MAYA DISCOVERIES

### Magnificent Murals and Early Hieroglyphs Found in Guatemala

Archaeologists working at the ancient ceremonial center of San Bartolo in the Petén Region of Guatemala have uncovered a 2,100-year-old mural depicting the Maya creation story, the earliest-known example of its kind, as well as an inscription dated to ca. 250 B.C., which pushes back the development of complex writing in the region by several centuries.

Discovered by William Saturno of the University of New Hampshire, the mural shows deities planting trees and making sacrifices, thereby establishing the four realms of the world—underworld, earth, sky, and paradise—at the center of which is a depiction of the Maya Maize God. The narrative continues with the deity crowning himself king and scenes representing his life, death, and rebirth, which parallel the agricultural seasons. The narrative concludes with the coronation of a mortal king, whose name ends in the title *ajaw*, or ruler—clear evidence that the divine nature of Maya kingship had been firmly established by this early date.

In addition to the paintings, an inscription composed of ten hieroglyphs was found by team member Boris Beltrán on a masonry block within a



construction level that predates the murals by some two centuries. "Although the decipherment of the glyphs remains difficult given their archaic nature," says project epigrapher David Stuart of the University of Texas, Austin, "one glyph is clearly recognizable as an early version of the same *ajaw* sign we see rendered in the coronation scene in the later mural cycle."

Prior to this discovery, most scholars believed writing in Mesoamerica originated in the Oaxaca and Veracruz regions and then spread to the Maya area. The San Bartolo glyphs do indeed resemble Preclassic and Early Classic scripts found on monuments such as the

La Mojarra Stela, dated to the mid-second century A.D. and found in Veracruz, however, they precede these texts by some 400 years.

Saturno has had a conservation team on-site since the beginning of the project. "Discoveries such as these offer us an unparalleled view into the early nature of Maya cosmology and art," says Saturno, "yet they come with a great responsibility. The finds have lasted some two millennia. It is up to us to ensure their preservation well into the future." —AMHS

#### PALLADIAN VILLAS AT RISK Veneto Autostrada Approved

Six minutes. That, apparently, is the price of one of the world's most remarkable groups of buildings—the villas of Palladio—set within one of the last unspoiled regions of the Veneto in northwest Italy. The proposal to plough a highway through this historic feniand landscape, virtually untouched by modern development, would save six minutes on the average journey between Vicenza and Rovigo. With seven exits in 54 kilometers, this would also open up the area to industrial development likely to cover some 400 hectares.

This twin threat—a blight of the highway and development of the area—also



PALLADIO'S VILLA SARACENO (1543)

threatens the settings of some of the magnificent Palladian Villas that form a part of the Villas of Palladio World Heritage Site. Among these are the Villas Erizzo, Schiavinato, and Priuli at Lovolo, nearby Villa Helman, Villa dal Verme at Agugliaro, and Villa Saraceno, the latter beautifully restored by the U.K.'s Landmark Trust.

While plans for the autostrada, known as the Valdastico Sud, have been on the drawing board since the 1970s, permission to go forward with the project only recently granted by Italy's Council of State, the country's highest court of appeal, despite the protestations of Italy's Ministry of Culture and preservation groups such as Italia Nostra, the World Wildlife Fund, the Landmark Trust, and Save Europe's Heritage, an affiliate of Save Britain's Heritage. For information on the controversial project see: [www.savebritainsheritage.org](http://www.savebritainsheritage.org)

—ADAM WILKINSON,  
Save Europe's Heritage

## MONUMENTAL EFFORT

### Dresden's Frauenkirche Rises Again

Hailed as a masterpiece of Baroque architecture, Georg Bähr's Frauenkirche (Church of Our Lady), built between 1726 and 1743, dominated the Dresden skyline until February 15, 1945, when Allied



bombing of the city reduced the church to little more than a shell. On Reformation Day this past October 30, more than 60 years after its destruction, the church was reconsecrated, resuming its place on the Dresden cityscape and appearing much as it had originally thanks to a decade-long restoration effort that cost an estimated €155 million.



FRAUENKIRCHE IN 1880, 1948, AND TODAY

According to chief project engineer Eberhard Burger, the restoration was carried out using as much original building material as could be salvaged. However, modern additions include electricity, lighting, and heating systems, as well as an observation deck so that visitors may enjoy a panoramic view of the city.

Rebuilding of the church also has



been a symbol of reconciliation. Until the reunification of the country in October 1990, East Germany's Communist government had left the sublime ruin of the Frauenkirche as a potent reminder of the devastation wrought by World War II.



## WORLD MONUMENTS: *Touchstones of Past and Present*

Great monuments endure because they embody the quintessential political, cultural, and historical fabric of their times. In this series, presented by WMF in cooperation with the The Metropolitan Museum of Art, experts will discuss the meaning of these iconic touchstones within the context of the cultural moment that created them, and the efforts today to ensure their survival.

TUESDAY, MARCH 14

**Hagia Sophia,  
Istanbul, Turkey**

*Helen C. Evans is Curator,  
The Department of  
Medieval Art and The  
Cloisters, The Metropolitan  
Museum of Art*

TUESDAY, APRIL 11

**Forbidden City,  
Beijing, China**

*Maxwell K. Hearn is  
Douglas Dillon Curator,  
The Department of Asian  
Art, The Metropolitan  
Museum of Art*

TUESDAY, MAY 30

**Taj Mahal,  
Agra, India**

*Navina Haidar Haykel  
is Associate Curator,  
Department of Islamic  
Art, The Metropolitan  
Museum of Art. Ebba Koch  
is Professor of Asian Art at  
the Institute of Art History,  
University of Vienna*

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**I**t has been 40 years since the founding of the International Fund for Monuments—as WMF was first known—which has become the leading private organization dedicated to safeguarding and preserving imperiled architectural heritage around the globe. To mark the occasion, ICON asked WMF president Bonnie Burnham to discuss the organization, its impact on the field of preservation, and the challenges that lie ahead.

**ICON:** WMF's mission—to preserve mankind's built heritage that is at risk—is a hefty one. Do you think WMF's existence over the past 40 years has made a big difference for the world's cultural heritage?

**BB:** Yes, of course I think so. But to answer that question properly, one must look back at what the field of cultural heritage looked like 40 years ago—and, of course, it looked very different. In the early 1960s, the things that we consider today to be the milestones of the field were just happening, and these events were a shock. The flooding of Nubian Monuments at Abu Simbel by the construction of the Aswan Dam in 1963, the destruction of Pennsylvania Station in New York in 1964, and the Florence and Venice floods of 1966 set the stage for a new concern about the survival of art and architecture. On an intergovernmental level, UNESCO began to mobilize

# WMF AT 40

## CHANGING THE FACE OF PRESERVATION

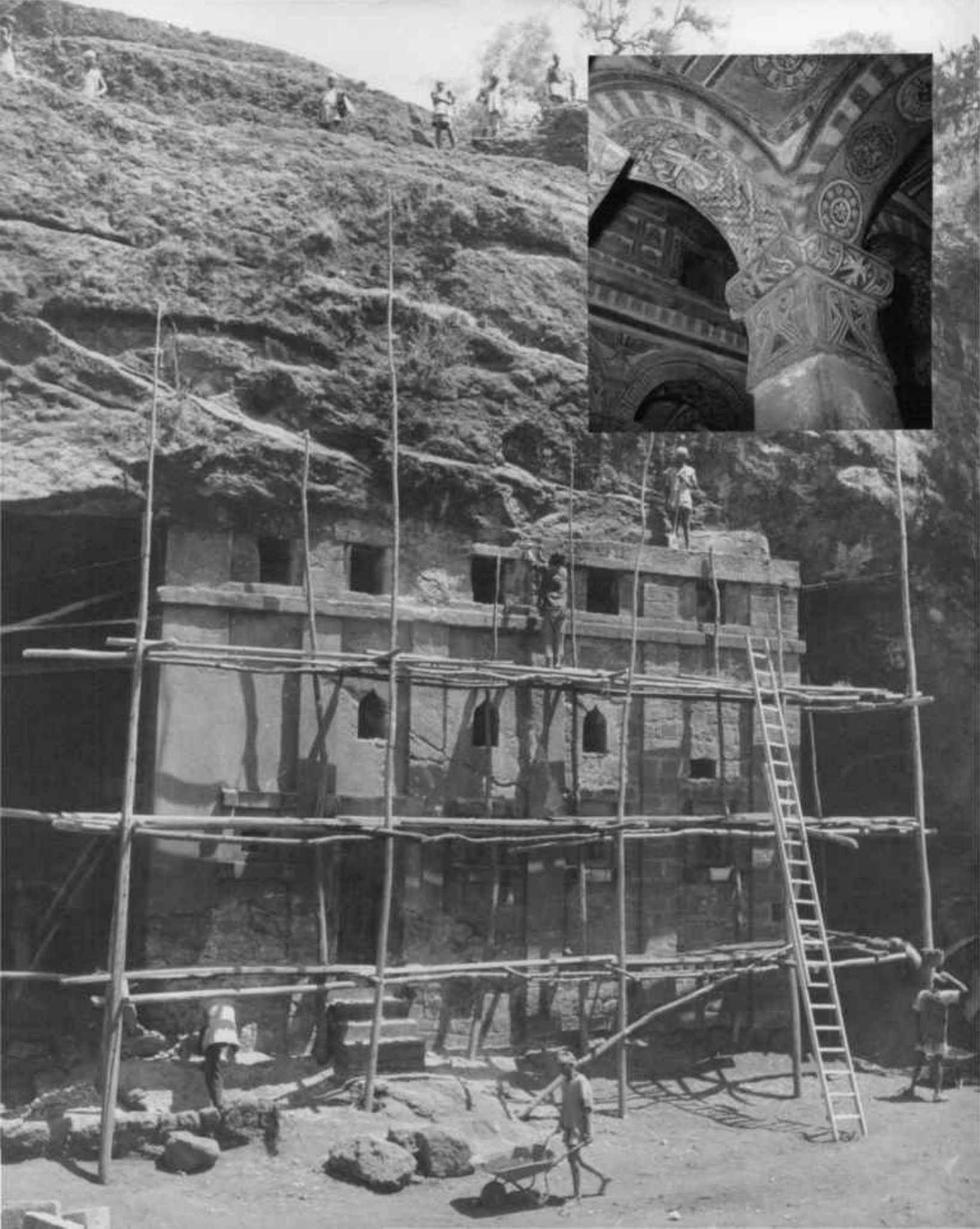
the international community to work together to protect great monuments and natural sites, and this culminated in the World Heritage Convention in 1972. In the U.S. the National Trust for Historic Preservation got its legs with the passage of the National Historic Preservation Act in 1966, following Penn Station's loss. WMF was part of this moment in history, but the impetus for its creation was completely different.

Colonel James A. Gray, who founded the International Fund for Monuments, was a retired U.S. Army officer who had a layman's interest in antiquity and a knowledge of engineering. He also shared the vision and ideals of a generation whose values were framed by the devastations of World War II, and who believed the world should be a better place as a result. Gray watched as UNESCO undertook its campaign to raise Ramses II's 3300-year-old temple at Abu Simbel from the flood waters, and wondered how a regular guy like himself could help in such an effort. After making inquiries, he found out that there really was no formal mechanism for channeling private interest and support for international historic preservation. So he decided to create one, and in May 1965, the IFM (which was WMF's name until 1985) was born.

**ICON:** Why was it important to create a private organization in the field, with government bodies and UNESCO paying attention to these issues?

**BB:** No government and no intergovernmental body, no matter how wealthy, has enough resources to care for its heritage adequately, and even the most important sites in the world are sometimes put at risk. Private organizations can begin to address this by calling attention when and where they see it is necessary, and by providing support.

The rock-hewn churches of Lalibela in Ethiopia were among the first beneficiaries of WMF support when the nascent organization hired Italian conservators to assist the Ethiopian government in finding a method to remove a bituminous coating that was abetting the deterioration of delicate paintings and polychrome finishes within the sanctuaries. Once a treatment was devised, the U.S. government paid for the large Ethiopian work force that was trained to carry out the restoration project, which continued until the country's government fell to revolutionaries in 1972.





William Mulloy, a pioneering American archaeologist who conducted the first restorations of ceremonial altars on Easter Island in the 1960s and 1970s, decided to send a detached head of one of the moai on a world tour with stops in the U.S. and Japan to promote knowledge of the island's extraordinary cultural heritage. Today, WMF continues to support management planning, conservation, and interpretation at sites on the island, including Rano Raraku, the quarry from which the moai were carved.



*Non-profit organizations like WMF can be flexible and innovative in finding solutions to meet preservation challenges. This has been a hallmark of our work since the beginning. But in addition, our mandate is to defend the public interest. Private organizations capture the passion of the people they represent. They are successful when they engage moral and financial support from a constituency that cares about what they do.*

*Since no one guarantees our budget, we have to choose our battles carefully, and we have to show results. The projects we choose to do must be effective, appropriate, and meaningful. You can't always say that of the public sector.*

**ICON:** What were some of IFM/WMF's early projects?

**BB:** *The first projects were interesting because they had all the earmarks of the way we work today. From the beginning, the Colonel realized that the challenges facing sites in need of preservation had several dimensions—there were technical problems, financial needs, and a lack of public awareness. IFM tried to address all of these issues in its choice of projects. Among its first activities were feasibility studies to address the progressive tilting of the Leaning Tower of Pisa, for example, and the deterioration of the stone literary lions, Patience and Fortitude, that stand in front of the New York Public Library. These well-publicized activities got the ball rolling.*

*With the support of the legendary philanthropist Lila Acheson Wallace, the organization was able to assist the Ethiopian government in developing a technique for restoring murals within the twelfth-century rock-hewn churches at Lalibela. And in the late 1960s, following a visit to Easter Island, Gray arranged for one of the island's enormous 1,000-year-old sculptural heads to be transported to the U.S. to be exhibited in front of the Seagram Building in New York and the Pan American Union in Washington to call attention to the plight of the island's ancient monuments and raise funds for their conservation. This exhibition generated tremendous publicity and enough donor interest for the IFM to embark on a long-term restoration campaign on the island.*

**ICON:** Is there a specific kind of event that triggers WMF involvement in a project?

**BB:** *Since the earliest years of WMF, the words "endangered" and "cultural heritage" were inextricably linked to its mission. Ever since its mettle was tested when the floods hit Venice in 1966, disaster response has been a specialty. The Venice Flood evoked a response from people everywhere, and*

Gray tapped that outpouring of concern. He pulled together groups of people all over the United States and encouraged them to create local chapters and adopt projects. Under his leadership, the organization proved it could efficiently manage a large portfolio of projects, and attract the support for them—which is how we continue to operate today.

The 1985 earthquake in Mexico City provided another opportunity to respond to a major international catastrophe, which left in its wake 10,000 dead, thousands more homeless, and billions of dollars in damage, much of it concentrated in the city's historic center. Once again, we were able to quickly identify projects and attract international donor support. We have a sustained interest in revitalizing the historic center of Mexico City and WMF is still working there, most recently in partnership with the Fundacion Centro Historico, under the vigorous leadership of businessman and philanthropist Carlos Slim.

After 9/11, WMF brought together the various organizations devoted to historic preservation in New York at the municipal, state, and national levels, to pool our resources and avoid any overlap as we worked toward a common goal. The result was the establishment of the Lower Manhattan Emergency Preservation Fund, an umbrella organization charged with setting priorities and channeling funds for restoration work on historic buildings affected by the terrorist attack or needing advocacy to avoid being lost to redevelopment.

And within weeks of Hurricane Katrina striking the Gulf Coast, we were able to dispatch a technical mission to the region to assess the damage to historic properties and identify pilot projects, which we're carrying out in partnership with local and national organizations. WMF adds an international endorsement to local concern that precious buildings and sites may disappear in the aftermath of disaster. Our presence is often very important.

**ICON:** Speaking of joint ventures, WMF has forged a number of key partnerships with other organizations. How has that increased the organization's capacity to carry out work in the field?

**BB:** WMF would not have been able to sustain its commitment to preservation without the numerous partnerships we have established over the years. Some of these have been with donor organizations

Following the 1985 earthquake that struck Mexico City, damaging Aztec, Colonial, and Modern structures, WMF embarked on the restoration of important modern murals within the city's civic buildings. Two years ago, WMF formed a partnership with philanthropist Carlos Slim to revitalize the city's entire historic center.





In 1989, WMF carried out the restoration of the painted cupola of the Dome of the Invalides in Paris, above, to commemorate the 200th anniversary of the French Revolution and celebrate the launch of the organization's French affiliate. Taking cues from WMF, the French government restored the magnificent exterior gilding of the dome for the occasion. The restoration project initiated a long-term exchange program between preservation crafts people in the United States and France, sponsored by the Florence Gould Foundation. Facing page, a French apprentice works on Tiffany windows in the Brooklyn Stained Glass Conservation Studio.

such as the Samuel H. Kress Foundation, which has long been committed to the conservation of important works of European art. Others include our partnership with American Express to establish the World Monuments Watch, and with the Ronald S. Lauder Foundation, which helped us launch our Jewish Heritage Program.

We also regularly join forces with local preservation organizations wherever we work around the world. Relationships with local specialists, funders, and community members are key to our work. It is imperative that projects have support—whether financial or logistic—at the local level and that the people living in the shadow of important sites have a vested interest in their preservation. Our goal for the sites we preserve, which are often derelict when we start working, is to find vigorous new uses, so they can be sustained locally and will not need our help again. Otherwise, our investment will be wasted.

**ICON:** With so many sites in need around the globe, how does WMF prioritize projects?

**BB:** A decade ago, we realized that we were facing an ever-increasing demand for our help. We launched the World Monuments Watch and its biennial listing of 100 Most Endangered Sites to identify sites at great risk, to highlight their plight, and if possible to deliver the technical assistance and financial resources they needed. Since then we have listed well over 400 sites in more than 100 countries.

The Watch program has been a huge success. It has allowed us to build close relationships with other preservation groups around the world—both public and private—and it has given us vast experience in dealing with a range of problems that affect different types of heritage sites. Archaeological sites are often negatively impacted by unmanaged tourism and encroachment; religious properties are affected by the loss of a vital community of users; and modern buildings often lack legal protection and public recognition of their importance. We are now gaining the capacity to diagnose problems and recommend solutions based on our knowledge of successful case histories.

The Watch program has also made WMF a major player financially. American Express, its founding sponsor, committed \$1 million a year to the program for the first ten years, which was an unprecedented level of support for a corporate sponsor in the field of preservation. This support has leveraged more than \$150 million from other sources to save these sites. We still need more funds to address the problems of all the sites on the endangered list, but we know we're making a big difference for most of them.

**ICON:** How is WMF able to work on so many projects in so many places with such a limited budget?

**BB:** Leverage is the answer. Our support usually unlocks a wealth of local resources—in terms of funds, technical capacity, and public good will. Even a small commitment from WMF for planning or emergency work has a lot of local impact. The corollary is also true: we have discovered long ago that success is difficult without a strong local commitment.

To stimulate local investment in projects, WMF's trustee Robert W. Wilson offered us a challenge



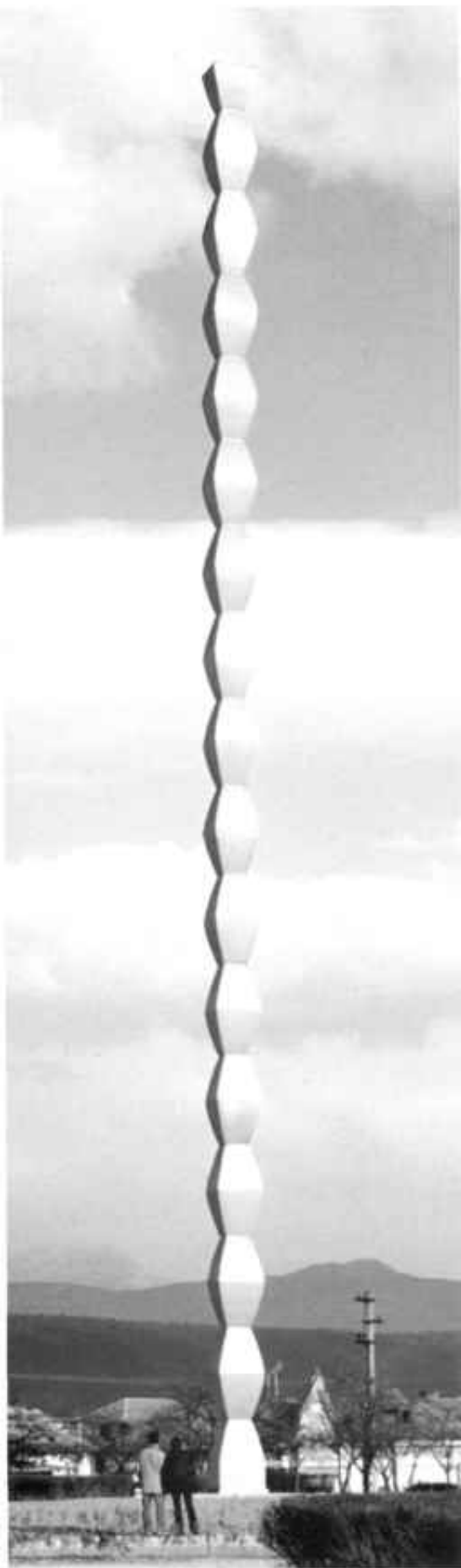


five years ago. He would be willing to personally commit up to \$10 million a year to support projects around the world, if we could find equal funding from partners abroad, as well as donor support in America to match his funds. Since then, our Wilson challenge funds, matched with partner commitments, have channeled about \$100 million into conservation projects everywhere. The scale of our involvement has also increased—we can mobilize huge projects that would have been beyond our reach in the past. This fall, Wilson doubled his challenge. We have a very exciting time ahead when we can focus strategically on the most important sites and the most entrenched problems that need solutions.

**ICON:** How have world events influenced the selection of projects in WMF's portfolio?

**BB:** *The constantly changing political landscape—especially since the end of the Cold War—has been a big factor in setting our global agenda. We have often found ourselves in the aftermath of war and political isolation. We were among the first international organizations to be invited into Cambodia to help with the conservation of Angkor. Since 1989, we have been working at this extraordinary monumental complex to train a new generation of Cambodian conservators and architects (see page 32).*

*Eastern and Central Europe have also been a focal point of our work in the past 15 years. In these countries, preservation can have an enormous impact on the economic life of local communities. The participation of an international organization, bringing funds, professional resources, and good will, is received with great pride and enthusiasm. You can even say that our work is a diplomatic gesture without the political baggage.*



The architectural heritage of Eastern Europe was in a sorry state following the fall of the Soviet Union. WMF helped focus governmental and non-profit resources on important sites, including the Alexander Palace outside St. Petersburg, above, and with a new roof, top right; the Tempel Synagogue in Krakow, right, and the Endless Column in Romania, left. Building consensus among local groups, government agencies, and the international preservation community—all of which have differing conservation philosophies—to resolve technical challenges has been a feature of WMF's projects in the region.



One of our most pressing concerns at the moment is for the cultural heritage at risk with the ongoing conflict in Iraq. Shortly after the war broke out, we joined forces with the Getty Conservation Institute and Iraq's State Board of Antiquities and Heritage to launch the Iraq Cultural Heritage Initiative. The first objective of this joint initiative—to develop a management tool, in the form of a database, that will allow Iraq to monitor the condition of its heritage sites and establish its priorities based on objective criteria—is almost complete. We are training Iraqis in rapid site assessment so that priority conservation projects can be identified. But we are still very worried about how long it will be before work can start on the ground—and how much more damage will occur in the meantime.

**ICON:** What is WMF doing today that is different from past years?

**BB:** The opening up of China in recent years has presented us with opportunities unimaginable a decade ago. We have embarked on the restoration of the eighteenth-century emperor Qianlong's Lodge of Retirement and gardens in the Forbidden City, which is bringing about a revival of the artisanal skills needed to carry out the work, but is also giving our Chinese partners their first opportunity to work with Western partners. Through the project, WMF is acting as a bridge between China, an economically vibrant country emerging from decades of isolation, and the international conservation community. We have gathered together not only the very substantial financial resources needed to preserve this unique environment, but we are engaging the most qualified professionals in the world to create an unparalleled museum environment that rivals any institution in the West. This is a very exciting and unprecedented undertaking.

**ICON:** Are the challenges WMF faces becoming more intense despite our best efforts?

**BB:** While the threats to cultural heritage have not been reduced, we have honed our ability to respond. The world now acknowledges the need to preserve the past as part of our world today and for future generations. As more people realize just how precious this cultural heritage is, and how fundamental it is in their lives, I believe we will gain the recognition we need to be even more effective. ■

# CHARTING A COURSE FOR THE FUTURE

## WMF LAUNCHES FOUR NEW INITIATIVES TO ADDRESS NEW CHALLENGES IN PRESERVATION

To enhance its ability to respond to new threats to cultural heritage with vigilance and preparedness, WMF has launched a number of new initiatives targeting areas of concern in the field of preservation. These initiatives—which complement a number of WMF's existing site-specific programs—represent a substantial organizational commitment in dollars and professional resources.

### Iraq Cultural Heritage at Risk

Launched in partnership with the Getty Conservation Institute (GCI) shortly after the war broke out and carried out in coordination with UNESCO and Iraq's State Board of Antiquities and Heritage, the GCI/WMF Iraq Cultural Heritage Conservation Initiative has embarked on a program to enable Iraqi conservation professionals to regain the capacity to care for their cultural heritage damaged during the war and in its aftermath. Cultural heritage professionals are being trained in the latest techniques for rapid site assessment and are creating a database of important sites and monuments—which number more than 10,000 and chronicle millennia of human history—so that they may establish conservation priorities when the country is safe and funds for restoration become available. The initiative also seeks to keep the issue of Iraq's threatened cultural heritage in the public eye, and has created a mechanism to leverage additional public and private support.



### Endangered Modernism

Whether classified as Functionalist, Rationalist, International Style, or simply, Modern, twentieth-century architecture was shaped by the rejection of traditional classical design and ornament and the use of emerging technologies and mass-produced materials to explore new theories of form, function, and space. These methods and materials—as well as the original political and social ideas that underpin their design—are often the very attributes that embody the landmark qualities of modern architecture.

In recent years, WMF has taken up the escalating battle to save great works of modern architecture that are threatened by neglect, deterioration, and demolition, culminating in the launch of its Modernism Initiative in 2005. While the issue of preserving modern architecture has lately gained prominence in public dis-

course, the threats to modern buildings continue to arise, in part, because the greatest threat to Modern architecture can be that too few people believe that buildings of our own time and the not-so-distant past are important enough to be preserved for future use. The 2006 World Monuments Watch list of 100 Most Endangered Sites includes nine endangered Modern landmarks—the highest number yet—and most of them are threatened with demolition.



### Reviving Traditional Building Arts

With the Traditional Building Arts Training Initiative, WMF has designed a two-tier response to the need for sustainable education and training in the building crafts and preservation arts around the world. On a national level within the U.S., WMF has brought together representatives from organizations both within and outside the preservation mainstream to identify issues impacting traditional building arts training, assess available resources, and formulate solutions, including the development of national standards and guidelines. At the local and state level, WMF is working with communities and partners to develop hands-on training programs that harness and expand extant resources—including existing education programs—and create the opportunities needed to support and institutionalize long-term traditional building arts education. On an international level, WMF is continuing its efforts to revive "lost" or disappearing arts to carry out a host of projects, including its restoration of Qianlong's eighteenth-century Retirement Lodge in the Forbidden City. WMF cannot fulfill its mission to save our most treasured sites unless there are skilled and experienced crafts people to carry out the work.

### Saving European Fine Interiors

The European Fine Interiors Program, managed by WMF-Europe, addresses the challenges of preserving major historic decorative ensembles, which often require special expertise and attention. Projects include survey and documentation of interior finishes, technical assistance, and the development and funding of full-scale conservation treatment, in cooperation with European institutional and philanthropic partners. Opportunities for training in traditional crafts and preservation arts



will be an integral part of this program and will be developed in cooperation with the Preservation Arts and Training Initiative. A dozen sites in five countries were selected as the core projects of the program at its launch. These projects represent important interiors in former residences as well as religious and civic contexts. The program seeks to provide for their restoration, maintenance, and interpretation for the public.





# WMF IN VENICE

CELEBRATING A FOUR-DECADE COMMITMENT TO ONE OF THE WORLD'S GREAT YET IMPERILED CITIES

by JOHN JULIUS NORWICH

I first came in contact with the International Fund for Monuments—as it was then called—in Venice. The great flood of November 3–5, 1966 was still a recent and terrible memory. The waters had risen to well over two meters above their normal level and had remained there for more than 24 hours, undermining the foundations of many of the city's most important buildings and leaving most them on the verge of collapse. The disaster had prompted an exhaustive inquiry by UNESCO into the present condition of the city—which, it reported, could hardly have been worse. Unless a huge conservation program could be launched on a global scale, they said, it seemed likely that within a hundred years the Venice that we all knew and loved would effectively cease to exist. UNESCO accordingly appealed to its members to rally all their resources to avert catastrophe, and some two dozen countries responded by establishing special foundations with the preservation of Venice as their object. One of these was Britain, which established the Venice in Peril Fund, with which I have been affiliated since its founding in 1971.

The United States did not need to start from scratch since the World Monuments Fund—which I shall call it throughout this article, although until 1985 it was still operating under its old title—was already in existence. Superbly equipped to operate in Venice, it created a Venice Committee, a body dedicated to carrying out restoration in the city and funded by various local “chapters” throughout the United States.

Under the chairmanship of John McAndrew, of Wellesley College in Massachusetts, the Committee wasted no time in buckling down to the job. By the end of 1969, it was hard at work on

two major projects. The first of these was the restoration of the façade of the Ca'd'Oro, the finest and most elaborate late Gothic palazzo in the city. The second was one of the six *scuole grandi* of Venice—that of S. Giovanni Evangelista, just behind the great Franciscan church of the Frari.

The *scuole grandi* were the principal private charitable foundations of the Venetian Republic, founded by confraternities of rich citizens who were determined that the buildings in which they were housed should adequately reflect their wealth and splendor. S. Giovanni Evangelista, which was established as early as 1261, was lent particular distinction by its possession of a fragment of the True Cross. The side façade, with its Gothic windows, dates from the middle of the fifteenth century; but the front is a superb example of early Renaissance work, featuring a marble screen by Pietro Lombardo. Inside is a vastly impressive double staircase by his contemporary Mauro Coducci, the only one of its kind in Venice. Sadly, the building was systematically stripped by Napoleon, who actually stabled his horses in the Gothic entrance hall. By the time WMF appeared on the scene, its condition was little short of desperate. The outer walls were on the point of collapse into the canal, and everywhere there was a deep and dangerous infiltration of water and salt. WMF introduced damp courses, restored beams and pavements where necessary, and undertook a complete rewiring. In gratitude, an apartment in the building was made available for the organization's Venice office.

In that same year, 1969, WMF also began work on the Scuola Grande of S. Rocco. It is the largest and richest of all the *scuole*, a sumptuous Renaissance building of the early sixteenth century,



but today it is principally known for its 58 enormous canvases by Jacopo Tintoretto, depicting scenes from the Old and New Testaments and including what is perhaps the greatest of all representations of the Crucifixion. With the dissolution of all such institutions following the fall of the Republic in 1797, however, the building was abandoned; wind and rain were allowed to do their worst. In 1850, John Ruskin had reported that three of them were "hanging down in ragged fragments, mixed with lath and plaster, round the apertures made by the fall of three Austrian heavy shot." Soon afterwards, the worst of the damage was repaired, but the paintings remained covered with the dust and candle smoke of five centuries. "Incurable blackness," wrote Henry James some 30 years later, "is settling fast upon all of them, and they frown at you across the sombre splendor of their great chambers like gaunt twilight phantoms of pictures." With invaluable help from the Edgar J. Kaufmann Charitable Trust, WMF was able to embark on a six-year program of cleaning. If only, one feels, Ruskin could return there now....

With the 1970s, WMF found its stride. One of its first and most important challenges was the complete restoration, inside and out, of the church of S. Pietro di Castello. This building, now relatively unvisited in its distant location at the far eastern extremity of the city, was in fact the official cathedral of Venice throughout the period of the Republic. In the early seventeenth century, it was remodelled according to a design by Andrea Palladio. Fortunately, Mauro Coducci's lovely snow-white campanile was left untouched. Its great cracked bell was, almost unbelievably, refounded in situ, a huge furnace was constructed immediately beneath it, causing alarming columns of smoke to billow out of the upper openings. Then came the church of the Pietà, with its two ceilings by Giambattista Tiepolo and its associations with Antonio Vivaldi, its *maestro di cappella*. Thanks to the composer, the church was the center of music in Venice in the mid-eighteenth century, its

orphanage of female foundlings providing the best music, vocal and orchestral, to be heard anywhere in the city.

**BUT WMF did not limit itself to Christian places of worship. It also turned its attention to the Scuola Canton. There had been a vast immigration of Sephardic Jews into Venice after their eviction from Spain by Ferdinand and Isabella in 1492; a quarter of a century later the entire community was contained in the ghetto, where several synagogues were immediately built to serve their needs. The Scuola Canton was the second of these, but the first to be primarily intended for the Ashkenazim. The restoration began in 1975, with an emergency grant from the Chicago Committee of WMF after it was discovered that the building which housed it on the second floor was in danger of collapsing into the adjacent canal. After the building was made secure, WMF embarked on the second stage of the work: a full restoration of the synagogue itself, which was completed in 1989 and underwritten in large part by the J.M. Kaplan Fund.**

Then, in 1977, WMF joined with several other private committees to help one of the loveliest and most precious of Venetian buildings, the ancient Cathedral of S. Maria Assunta on the island of Torcello. This is basically an early eleventh-century building, though built on foundations much earlier still—and is famous for its astonishing thirteenth-century Byzantine mosaics. Mosaic is normally one of the most permanent of artistic techniques: the tiny tesserae of which it is composed are fired in a kiln over their color and gold leaf, giving them the durability of glass or ceramic. What can happen, however, is that with rising damp the mortar bed in which they are set can pull away from the masonry behind it, loosening its grip on the tesserae themselves. This is what was happening at Torcello: gradually a golden rain of mosaic pieces was beginning to fall to the floor beneath. To deal with this involved work of considerable technical sophistication, using such instruments as stethoscopes and tuning forks; the cost was to prove far



AMONG THE RESTORATIONS CARRIED OUT DURING THE 1970S AND 1980S WERE OF A TINTERETTO PAINTING CYCLE IN THE SCUOLO GRANDE DI SAN ROCCO, ABOVE; THE SCUOLA CANTON, A SYHAGOGUE BUILT IN 1531, RIGHT; AND CEILING FREScoes BY TIEPOLO IN THE CHURCH OF THE PIETÀ, FAR RIGHT.



greater than any one committee could hope to meet on its own. It proved, however, triumphantly successful: the mosaics are now as breathtaking as they ever were.

In 1979 WMF's Minnesota Chapter assumed responsibility for the restoration of the Scala del Bovolo, one of the most extraordinary buildings in all Venice with its unique early Renaissance staircase set into a circular Byzantine tower. It is a piece of typically Venetian *bragadoccio*—the palazzo of which it is a part has a perfectly good inside staircase of its own—the more extraordinary since it can be admired only from a tiny concealed courtyard behind Campo Manin.

With the immense number of major restorations in progress by the beginning of the 1980s, Venice was feeling the increasing need for a major laboratory for stone and marble conservation. A perfect site for it was found in the Scuola Vecchia della Misericordia. This magnificent old building was begun in the thirteenth century and gradually added to over the next 300 years. In 1634 it had lost its religious function and had subsequently been used by silk weavers; later still it became a residence. In 1980, together with the Samuel H. Kress Foundation—and what a friend and supporter that wonderful organization has shown itself over the years—WMF helped to create a state-of-the-art stone conservation center, one of the best in the world and now financed entirely by the Italian government.

Among the many individual works of art restored by WMF, two in particular deserve a special mention. The first, one of my favorite paintings in Venice, is to be found in the little church of S. Giovanni in Bragora—in which, incidentally, one may still see the font in which Vivaldi was baptized. The Baptism of Christ by Cima da

Conegliano was painted between 1492 and 1494, and is thought to be the earliest surviving large-scale representation of this subject. It is certainly one of the most beautiful. Set in an exquisite marble frame—the remains of what was once a choir screen—it seems to transform the whole church. The second is the famed equestrian figure of Bartolomeo Colleoni by Andrea del Verrocchio. Magnificently arrogant, the horseman swaggers on his high pedestal in the Campo SS Giovanni e Paolo. Colleoni—the quintessential *condottiere*, or mercenary soldier of fortune—claimed, as his name implies and as is confirmed by his coat of arms on the plinth, to be superendowed with certain male attributes.

Looking up at him, one is not entirely surprised. At the time of this writing he remains encased in scaffolding; but it will not be long before he is once again unveiled, doubtless looking more virile than ever.

Far from an exhaustive list; this sampling offers a fairly accurate picture of what one single charitable organization has been able to achieve during the past 40 years. The program is by no means over. Venice is a small city—one can walk from one end to the other in less than an hour—but her architectural wealth is virtually incalculable, and her perilous situation would alone be enough to ensure that there will always be work to be done. Incalculable too is the debt that we all owe her; for the unique contribution that she has made—far greater than any other city of similar size—to the culture of the Western world, in painting and sculpture, architecture and music, and not least in the art of elegant and civilized living. Now is the time for us to repay a small fraction of that debt; and the World Monuments Fund, looking back on half a lifetime of effort, has good reason to be proud. ■

# 40 YEARS OF WMF IN VENICE

Following the disastrous floods of November 1966, WMF—at that time known as the International Fund for Monuments—embarked on a number of restoration campaigns in the fabled city. Since then, WMF has carried out some 25 projects in Venice, making

it one of the primary beneficiaries of its time and resources. Current efforts in the city are focused on the restoration of Verrocchio's famed equestrian statue of Bartolomeo Colleoni and a suite of Napoleonic rooms in the Royal Palace



**1968**  
**CHURCH OF SAN MOISÈ**  
Supported conservation of 17th–18th-century paintings

**1968**  
**CHURCH OF SAN SALVATORE**  
Conserved paintings of *Three Saints*, by Girolamo da Treviso il Giovane



**1969**  
**CHURCH OF MADONNA DELL'ORTO**  
Bellini's *Madonna and Child*



**1969-1979**  
**SCUOLA GRANDE DI SAN GIOVANNI EVANGELISTA**  
Complete restoration of the 18th-century building



**1970**  
**CHURCH OF SANT'EUFEMIA (GIUDECCA)**  
Consolidation of panel paintings by Bartolomeo Vivarini

**1970-73**  
**CHURCH OF SANTA MARIA DEL GIGLIO**  
Restoration of the 17th-century building



**1970-1978**  
**CHURCH OF SANTA MARIA DELLA VISITAZIONE (SAN GIROLAMO DEI GESUATI)**  
Painted ceiling medallions

**1970-1982**  
**CHURCH OF SAN PIETRO DI CASTELLO**  
Restoration of the 15th-century church, its organ, and bell tower



**1970-1988**  
**CHURCH OF SANTA MARIA DELLA VISITAZIONE (LA PIETÀ)**  
Restoration of the roof and frescoes by Tiepolo



**CA. 1971**  
**CA' D'ORO**  
Conserved façade friezes

**1971-74**  
**CHURCH OF SANTA MARIA DEL CARMELO (CARMINI)** Pictorial cycle of 15 paintings by Lorenzo Lotto, Tintoretto, et al.



**1971; 1988-90**  
**CHURCH OF SANTA MARIA DEI DERELITTI (OSPEDALETTO)**  
Restored 33 paintings; funded work in the Sala della Musica

**1972-1975**  
**CHURCH OF SANTA MARIA GLORIOSA DEI FRARI** Restored 14th-century belltower and tombs



**1972-1977**  
**SCUOLA GRANDE DI SANTA MARIA DEI CARMINI** Restored roof, façade, Tiepolo paintings, and stucco decoration of the staircase



**1974-1981**  
**PALAZZO QUERINI STAMPALIA** Restored Bartolomeo Nazziari's Cardinal Angelo Mario Querini and library heating and storage facilities

**CA. 1974-1985**  
**PALAZZO DUCALE**  
Restored stuccoes of the 16th-century Scala d'Oro



**CA. 1975**  
**CHURCH OF SAN NICOLÒ DA TOLENTINI**  
On-site conservation lab and restoration of Strozzi's *Charity of St. Lawrence*

**1977-1989**  
**SCUOLA CANTON**  
Restoration of the 16th-century synagogue



**1977-1985**  
**CHURCH OF SANTA MARIA ASSUNTA (TORCELLO)**  
Supported restoration campaign

1979-1985  
**PALAZZO CONTARINI  
 DEL BOYOLO**  
 Restored spiral staircase



CA. 1980  
**CHURCH OF SAN  
 SIMEONE GRANDE**  
 Restored 15th-century  
 tomb bas-relief depicting  
 Sant'Ermolao

1980-1985  
**MISERICORDIA  
 LABORATORY**  
 Establishment and  
 equipping of conservation-  
 research laboratory



1983-85  
**PALAZZO DUCALE**  
 Restored paintings in the  
 Sala del Maggior Consiglio

CA. 1984  
**BIBLIOTECA  
 MARCIANA, ANTISALA**  
 Conservation of ceiling  
 paintings—architectural  
 perspective by Cristo-  
 foro and Stefano Rosa  
 surrounding the allegory of  
 Wisdom by Titian



CA. 1987-88  
**SCUOLA DALMATA  
 (SAN GIORGIO DEGLI  
 SCHIAVONI)**  
 Installed fire and security  
 systems to protect  
 Carpaccio painting cycle



CA. 1988-90  
**BIBLIOTECA MARCIANA**  
 International course for  
 conservation of books and  
 paper

CA. 1989  
**CA' ZENOBIO**  
 Emergency repair of stair-  
 case; planning for restora-  
 tion of baroque garden



1989-1990  
**CHURCH OF SAN  
 GIOVANNI IN BRAGORA**  
 Cima da Conegliano's  
 Baptism of Christ and the  
 stuccoed presbytery vault;  
 Madonna and marble  
 angels at the high altar

CA. 1990  
**CHURCH OF SAN POLO**  
 Restored sculpted lions at  
 campanile base



CA. 1996-2006  
**BARTOLOMEO COLLEONI MONUMENT**  
 Conservation of one of Italy's most  
 celebrated monuments, the late fifteenth-  
 century equestrian statue of Bartolomeo  
 Colleoni, a Renaissance mercenary, is drawing  
 to a close, nearly a decade after the famed  
 bronze appeared on WMF's 1996 list of 100  
 Most Endangered Sites.

Sculpted by Andrea del Verrocchio  
 and cast by Alessandro Leopardi, the  
 statue was inspired by Roman imperial  
 monuments of the second century A.D.  
 Centuries of exposure to Venice's corrosive  
 marine environment and airborne industrial  
 pollutants, however, had erased details and  
 weakened structural components.

Following inclusion of the Colleoni  
 Monument on the Watch list, WMF in  
 partnership with Venice's Soprintendenza ai  
 Beni Artistici embarked on

the development of a comprehensive conservation plan for the statue. In October 2003, a conservation laboratory was built around the statue, which was then disassembled on site. Following an exhaustive analysis of the condition of each of the statue's bronze components, conservators began cleaning each of the pieces and treating them with a silicate resin to arrest further decay. Moisture-trapping material that had been inside the horse since its casting was removed while the original iron supports for the statue, which were heavily rusted have been cleaned. Cracks in the legs and tail have also been sealed to prevent moisture from seeping into the statue in the future. Green corrosion, which covers much of the statue, was not removed as it would further weaken it and result in additional loss of detail. However, it has been stabilized. Current efforts are focused on reinforcing the supports that anchor the statue in its marble covered brick base to minimize motion when the wind blows. Upon completion of the conservation project, the statue is to be rededicated on March 21, 410 years after its creation.



CA. 1988-90  
**ROYAL PALACE-CORRER MUSEUM**  
 Following the fall of the Venetian Republic to Napoleon  
 Bonaparte in 1797, the buildings surrounding the Piazza  
 San Marco were renovated to serve as the French Royal  
 Palace; collectively, the rooms within each represent a  
 rare example of French Empire style outside France.  
 WMF is now supporting an effort spearheaded by the  
 Comité Français de Venise to restore the chambers,  
 which will become part of the Correr Museum.





# The Science of Saving Venice

PLAGUED BY RECORD HIGH TIDES AND A SETTLING LANDMASS, THE CITY PRESENTS ONE OF THE WORLD'S GREAT CONSERVATION CHALLENGES

by ANNA SOMERS COCKS

*Oh Venice! Oh Venice! When thy marble walls  
Are level with the waters, there shall be  
A cry of nations o'er thy sunken halls  
A loud lament along the sweeping sea!*

—LORD BYRON, *Ode to Venice*, June 28, 1819

In the old days of the Venetian Republic, the doge would board his golden barge on Ascension Day to be rowed out beyond the lagoon into the waters of the Adriatic. There, he would throw a consecrated ring into the sea, saying "Desponsamus te, mare." (We wed thee, O sea).

On the night of 3 November 1966, that marriage—more than a millennium in the making—failed as a violent storm surge rolled into the city, flooding its labyrinthine canals to a depth of nearly two meters above mean sea level. Miraculously, no one perished. Yet Venice was forever changed. As debris and pollution from oil spills flowed throughout the city, its most basic services rendered inoperable, the flood threw a harsh spotlight onto the crumbling architectural fabric of Venice, which had been slowly but surely sinking into the waters of the lagoon that had given it life, unbeknownst to the outside world.

Within weeks, the international community responded, pledging to aid Venice in its recovery. Working closely with the *soprintendenti*, or cultural heritage officials in the Italian government, UNESCO drew up a list of more than 100 structures in urgent need of stabilization and conservation and launched an appeal for funds and technical assistance. Among the first to step forward were the British Art and Archives Rescue Fund (renamed Venice in Peril in 1971) and the U.S. Committee to Rescue Italian Art (CRIA). The World Monuments Fund (WMF)—known at that time as the International Fund for Monuments—partnered with the latter and established the Venice Committee to carry out restoration work. Its example was soon followed by the formation of a number of national committees dedicated to the preservation of the city.

In that time WMF has supported some 30 restoration projects in Venice, making it one of the largest beneficiaries of the organization's time and resources, while Venice in Peril has restored more than 40 buildings and works of art, as well as





DURING ACQUA ALTA, LITERALLY HIGH WATER, PEDESTRIAN TRAFFIC MOVES ALONG ELEVATED PLANKS SET UP IN LOW-LYING PARTS OF THE CITY. MAPS OF VENICE, BELOW, SHOW THE DRAMATIC INCREASE IN SEASONAL FLOODING OVER THE PAST CENTURY. IN 1900, ST. MARK'S SQUARE FLOODED WHEN WATERS REACHED 120 CM ABOVE MEAN SEA LEVEL, A THIRD OF THE CITY WAS FLOODED AT 140 CM, TODAY, ST. MARK'S IS INUNDATED WHEN TIDES EXCEED 100 CM ABOVE MEAN SEA LEVEL, ONE THIRD OF THE CITY AT 120 CM.

CA. 1900

Areas flooded when water reaches  
 ■ 120 cm  
 ■ 140 cm  
 Above mean sea level



TODAY

■ 100 cm  
 ■ 120 cm  
 ■ 140 cm



financed bursaries for students of conservation to study in Venice. Other organizations have also done their part to salvage what they can of one of the world's great cities. Yet, the task is far from complete, and perhaps today more daunting than ever. The challenge is not merely to conserve monuments, but to arrest further decay as the city continues to sink and waters continue to rise at an alarming rate.

Venice is built atop a group of 117 small islands—part natural, part artificial, created by driving millions of piles deep into the clays underlying the lagoon—connected by some 378 bridges. Archaeological digs have shown that Venice has been sinking at the rate of about ten centimeters a century since its founding in the late first millennium, but in the past 100 years it sank an extra ten centimeters. Industry on the mainland, which depleted natural underground reservoirs of their freshwater reserves, has caused the subsoil to compact, resulting in a water level some 25 centimeters above a mean sea level reference point established in 1897. Although this practice was stopped in the 1970s, the damage was done. As Albert Ammerman of Colgate University has put it, "Venice has lost a century in its battle with the sea."

This reduction in the margin between ground level relative to sea level, which is eroding the fabric of the city itself, is omnipresent. A line of green algae that grows at high tide is evident on the brickwork above the protective Istrian stone bases of the buildings. As the brick absorbs seawater, salts within it crystallize and degrade building materials. Within St. Mark's Basilica, one of the world's great architectural treasures, the damp has reached as high as the vaults and is causing the individual mosaic pieces to fall off.

In addition to the chronically high water level, there are the *acque alte*, seasonal floods that invade the alleys and squares most frequently in late fall, forcing the populace and visitors to walk on duckboards. These occur as a result of a high tide, a low-pressure system, and either a strong southeast wind (*scirocco*) that drives in extra water from the Adriatic or a northeast wind (*bora*) that drives a high surge of water across the lagoon.

The incidence of flooding has increased ten-fold in the past century because of adverse environmental changes in the lagoon. In 1900, St. Mark's Square, the lowest lying part of the city, was flooded perhaps six times a year; today, that number is more like 60. While the lagoon used to be embraced by salt marshes, capable of absorbing substantial amounts of water, kilometer after kilometer of these have been drained and paved over with cement. Moreover, the sandbanks and shallows that once broke up and slowed down the volumes of water are today only a third of their extent a century ago.

The lagoon is also getting deeper and saltier, behaving more and more like open water, pollution having killed off sea grasses that stopped erosion. And the deep-water channel dug in the twentieth century to let tankers into the port is causing more sediment to be sucked out of the lagoon with each waning tide.

Compounding the physical damage, the city is suffering a social prob-

lem—abandonment, the population of the city dropping from 150,000 inhabitants in the 1950s to 64,000 today. Residents are fed up with trying to lead a normal life under abnormal conditions, fomenting a poor environment in which to conduct business. Mayor after mayor has lamented the fact that Venice is losing its socio-economic diversity and turning into a mono-economy anchored in tourism. Yet when the physical condition of Venice induces people to think short-term, tourism seems an attractive option with its quick return on investment.

When I became chairman of Venice in Peril in 1999, I realized that if we were to truly help the city, we would need to look beyond the individual restoration projects our organizations were carrying out and begin addressing the underlying problems; in other words, to treat the disease as well as the symptoms.

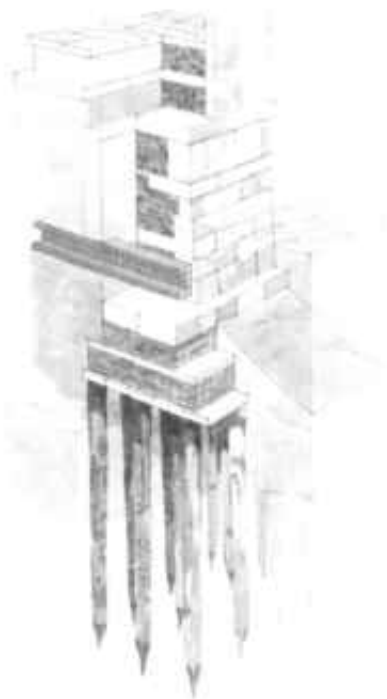
For years, politicians, engineers, developers, and environmentalists had been arguing over how to save the city. Many believed its problems could be solved with the construction of a mobile barrier between the lagoon and the Adriatic, which would hold back elevated tides. Others contend that the environmental impact of such a contraption will be disastrous if measures are not taken to address the ecological health of the lagoon.

I realized that amid all of the political shouting the scientists were not being heard. I rang up an old friend, Sir John Boyd, head of Churchill College, Cambridge, and said, "There must be some way of finding out where the truth lies." He agreed, and arranged for lunch with some of the best scientific and engineering minds at the university. By coffee, we had decided that a way forward was to found a three-year fellowship to gather all the extant scientific research on Venice and the lagoon, after which we would convene an international meeting of scientists from relevant backgrounds to ascertain where the balance of proof lay, and see whether there were any serious gaps in the research.

By autumn 2001, we had identified two researchers to carry out the work—Caroline Fletcher, an environmental chemist, would take up the Venice in Peril Fellowship at Churchill, while Jane Da Mosto working with the Consortium for the Coordination of Research into the Lagoon (Corila), a Venetian interdisciplinary university body, would be her counterpart in Italy. Chief of the project in Cambridge was Tom Spencer, head of the Coastal Research Unit. His calm, clear, expert guidance would prove invaluable.

## City on Stilts

When Venice went from temporary refuge to a permanent city in the ninth century A.D., its citizens found they could build on the marshy land by driving piles deep into the dense clay subsoil beneath the lagoon. More than 10,000 such pilings support the Rialto Bridge while the Chiesa della Salute on the Grand Canal is supported by no fewer than a million. To form building foundations, layers of oak were laid atop the piles, which would then be capped with Istrian stone, a tough marble impermeable to water. For building construction above the water line, lighter and more flexible materials were used to reduce stress on the foundations and increase the capacity to respond to ever shifting subsoils. To make repairs to foundations and underwater sewage pipes, below, canals must be dammed and drained.



The first thing to emerge was that research conducted since 1966 was not always easy to find, divided as it was between different organizations, and much of it unpublished. Nonetheless, by September 2002, the project was ready to hold scientific and technical workshops. Each—attended by 12 to 15 people, from Venice, Cambridge, and elsewhere—looked at four areas: flooding and its implications for the buildings of the city; physical and ecological processes of the Venice lagoon; modelling of the hydrodynamics, morphology, and water quality of the lagoon; and global environmental change, uncertainty, risk, and sea level rise in the northern Adriatic.

Twelve months later, the largest interdisciplinary meeting of scientists to discuss the Venice problem since 1969 took place at Churchill College. For three days, Italians, Britons, Americans, Russians, Dutchmen, Lithuanians, Danes, and Spaniards discussed issues of flooding and environmental change in the city in an apolitical, tension-free setting—something that, unfortunately, is very difficult in Venice itself. They considered possible solutions and compared them to the situation in other places, such as the Netherlands, the Thames estuary, and St. Petersburg, each of which had approached the problem of flooding in novel ways.

The most striking thing that emerged from the discussions was that no scientist present thought Venice could survive without the installation of a mobile barrier system (see page 28). Yet, they also agreed that the barriers were only part of the solution, a way to buy Venice time and that we needed to be researching and planning for the next expedient. Informally, the Dutch suggested that one day, it might be necessary to cut Venice off from the sea permanently and convert the lagoon into a sweet water lake, as they have done with a part of the Eastern Scheldt estuary. More recently, scientists from Padua University have suggested that it might be possible to pump water into the subsoil and raise the area under and around Venice by 30 cm. Both at the conference and in the years since, nearly all have agreed that there will ever be a single, definitive solution to the flooding problem.

Critical to carrying out any sound diagnostic and planning work on the flooding is clear communication between the various research institutions and government agencies tackling the problem.

## Revitalizing the Marshes

In addition to its extraordinary cultural patrimony, Venice boasts a world-renowned wildlife habitat, being the largest wetland in Italy and one of the most important, yet complex ecosystems in the whole of the Mediterranean. Its dramatic ebb and flow of tides and brackish mix of fresh and saltwater support a rich biodiversity. Yet the city's saltmarshes and mudflats have been reduced by nearly 30 percent since the close of the nineteenth century, having given way to industry and coastal development. Those that survive have been starved of sediment, poisoned by pollution, and eroded by waves as the lagoon continues to be dredged to accommodate large passenger ships. At present, a number of schemes are underway to restrict further development, revitalize existing marshes and create new one with silts dredged from the lagoon.

This, at present, does not exist because of fragmentation of institutional responsibilities within Italy. Reducing the pollution in the lagoon watershed, for example, is the job of the Veneto regional administration, while pollution of the actual lagoon is policed by the *Magistrato alle Acque*, a branch of the Ministry of Public Works. One tide-gauge network is run by a branch of central government, the Agency for the Protection of the Environment, while forecasting storm surges is the job of the town council, which in turn, has its own tide-gauges.

The conference also exposed the need for an integrated long-term plan for Venice in which risk analyses and cost benefit assessments are used to help guide major decisions. For example, the Dutch, who have engaged in this type of long-term planning, have decided in the future to sacrifice some of the valuable *polders* (re-





At the Malamocco inlet, above, one of three through which the Adriatic enters the lagoon, construction of a breakwater in preparation for the installation of the MOSE barrier system (see page 28) began in 2003. A scale model of the lagoon, left, is used to assess the impact of the barrier system.

claimed low-lying land) to the sea as part of their defence against anticipated sea-level rise. Defending them would simply cost too much.

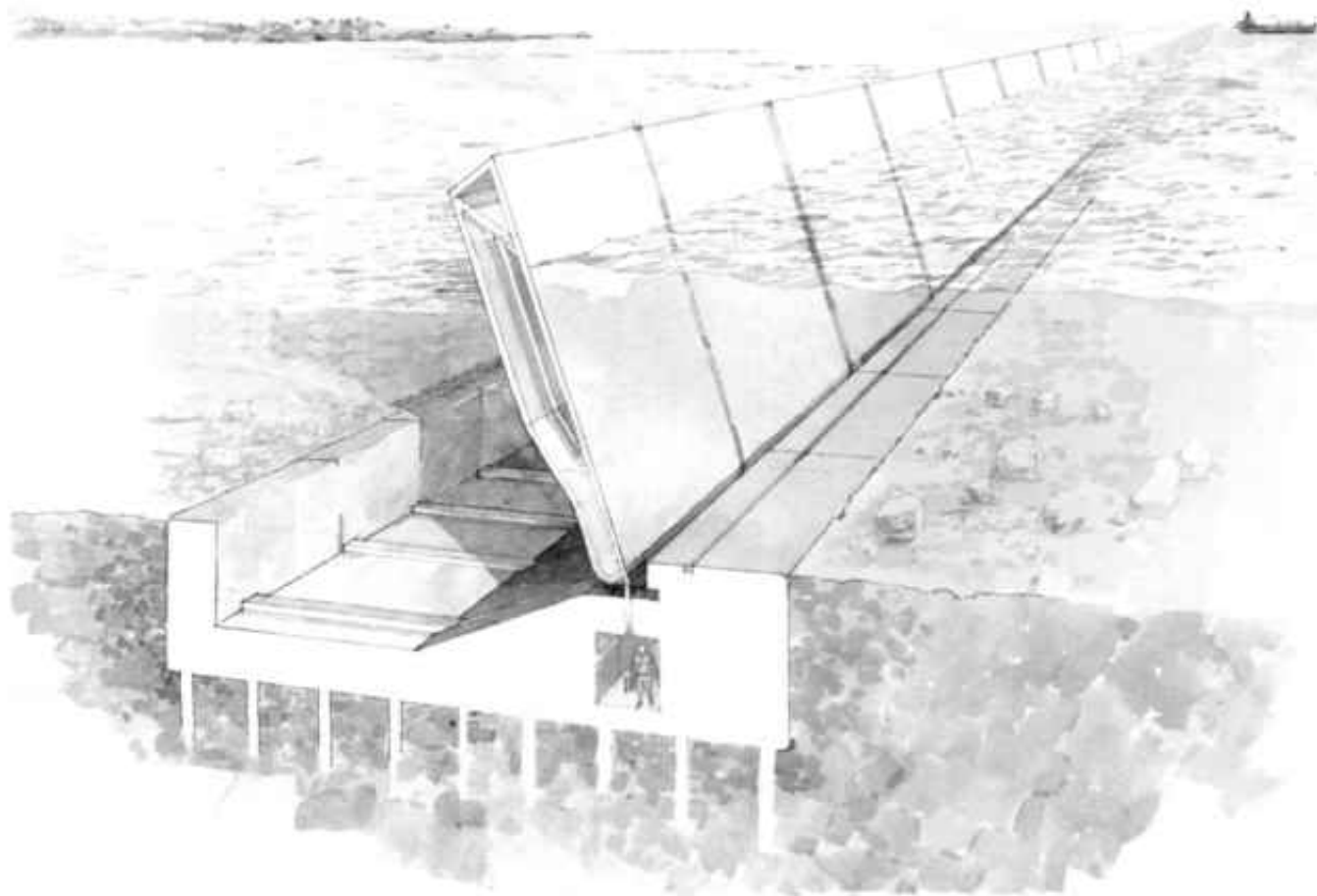
Which brings us to a crucial question: what is the survival of Venice worth in the long term? This is not a crass, philistine question but one that the Italian government needs to consider. It cannot be left as an ordinary, ad hoc item of governmental budgeting, decided at best on a three-year basis and subject to the changing priorities of different governments.

This past autumn, Prime Minister Silvio Berlusconi decided that the main construction phase of the barriers should go ahead. The cost of these is variously given as €3.5 or 4.3 billion, depending on what ancillary work is included. Many Venetians, including the current mayor, fear that if all this money goes on the barriers, there will

be none left for the work of equal importance: the environmental recovery of the lagoon; the research on what is to follow the barriers; the maintenance of the canals and fabric of Venice itself.

Finding a solution to Venice's sinking and flooding will not be an easy task, one made all the more difficult by poor communication and misinformation. In an effort to address these issues, Venice in Peril has produced a booklet *La Scienza per Venezia, or The Science of Saving Venice* (see page 42), based on the results of the Cambridge conference. Prepared with the help of a scientific educator from London's Natural History Museum, the publication has been sent to every member of parliament in Rome and the relevant local government politicians in Venice and the Veneto. For those interested in the complete proceedings of the meeting, they too have been issued by Cambridge University Press in a comprehensive volume, *Flooding and Environmental Challenges for Venice and its Lagoon: State of Knowledge* (C.A. Fletcher and T. Spencer, eds.).

Shortly after Hurricane Katrina struck the Gulf Coast Region, I rang up a friend and colleague, John W. Day of Louisiana State University at Baton Rouge, an expert both on the Mississippi Delta and the Venice lagoon, who described Venice's problem most succinctly. "Venice is not at risk from hurricanes," he said, "because the Adriatic is too small a sea for them to develop. Yet Venice and New Orleans have much in common; they are both entirely artificial entities in environmental terms and they will survive only as long as we want them to survive. After that, Nature will reclaim them." ■



# The MOSE Gates

IN CONVERSATION WITH GEOTECHNICAL PIONEER MICHELE JAMIOLKOWSKI

Although Venice has been slowly sinking into the marshy soil upon which it is built for centuries, the historic city is confronting a modern-era condition that is threatening coastal regions throughout the world, global warming. In Venice, global warming has exacerbated the effects of extreme storms, which batter the city four to six times a year. Over the past decade, the Italian government has embarked on a massive and complex plan to preserve the city with measures ranging from raising the city's sidewalks to installing new breakwaters in the lagoon. The costly and controversial centerpiece of the plan, however, is the installation of the so-called MOSE (Modulo Sperimentale Elettromeccanico) Gates, a system of 78 300-ton barriers across the three inlets to the lagoon that are intended to protect the city during the worst of storms.

ICON correspondent, Alex Ulam, recently caught up with Michele Jamiolkowski, president of Studio Geotecnico Italiano, a firm which is helping to design the gates. A professor at the Technical University of Turin and a geotechnical engineer known for his innovative approaches to solving such problems

as reducing the precarious tilt of the Leaning Tower of Pisa, Jamiolkowski explains why the gates are critical to saving Venice.

**ICON:** *The extraction of water from the underground aquifers and the extraction of natural gas have been blamed for Venice's sinking. To what extent is the annual flooding in Venice related to these activities?*

**MJ:** Human induced subsidence was triggered first by the extraction (pumping) of water and later by the extraction of gas, which began around 1920. More than a decade ago, the Italian government stopped the extraction of the gas from the upper Adriatic and moved the pumping of water to deeper strata. Generally, they have also forbidden deep wells in the historic part of Venice. Once they curtailed these activities, the problems of human induced subsidence was reduced practically to zero.

Today, the problems caused by the human induced subsidence are quite small in comparison to the rise in the sea level and the high tides, which are caused by very specific weather conditions. Yet, the city continues to sink as a result of natural

subsidence caused by the compression of the subsoil under the weight of recent river deposits, especially those of the Po River Delta. The rise in the sea level is linked to global warming and the melting of the polar ice caps. The special weather conditions in the Adriatic, where there is an unusual combination of low barometric pressure and high winds, are causing the frequent high tides.

The historical areas of Venice are extremely vulnerable as they are located at very low elevations with respect to the mean sea level. This past November, for example, a large part of the historical part of the town was flooded during high tides, which rose to elevations of 1.36 meters above sea level, the Venice datum for which is close to the Church of Santa Maria della Salute.

**ICON:** How is Studio Geotecnico involved in the design and construction of MOSE Gates?

**MJ:** SGI is acting as Geotechnical Consultant to the Engineering Company TECHNITAL, responsible for the design.

**ICON:** Has Studio Geotecnico worked on any other World Heritage Sites aside from Venice?

**MJ:** Yes, we have also been involved in safeguarding the Bell Tower in St. Mark's Square.

**ICON:** What is most challenging aspect to designing and installing the MOSE Gates?

**MJ:** The baseless opposition by the Green Party, both from a scientific and an environmental point of view, as well as the differential settlements of the MOSE caissons and the maintenance of the mobile gates in the lagoon environment.

**ICON:** Will the barriers be completely watertight?

**MJ:** No. One cannot have the steel gates touch each other, so there are some small gaps between them, which will allow some seepage of the water from the sea into the Venice lagoon. However, this will not cause any significant rise in the Venice lagoon during high tides.

**ICON:** There has been some concern that the water in the canals will stagnate during the periods when the gates are up. How will you avoid this?

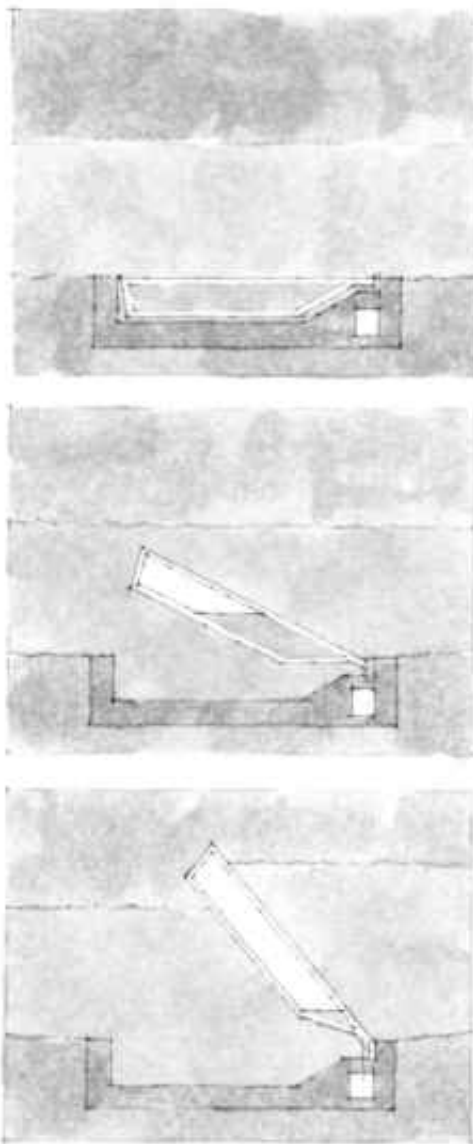
**MJ:** The gates will only be operating when the high tides exceed 1.1 meters above mean sea level. Under the present conditions they will only be raised a few days a year. Of course, the longer the gates need to be closed, the greater concern there

will be about the adverse environmental impact resulting from a lack of circulation within the lagoon.

**ICON:** You mentioned that the MOSE Gates wouldn't necessarily help with the problems in New Orleans.

**MJ:** New Orleans flood was caused by an accident—failure of the dikes—while MOSE is conceived to defend a relatively small area from high tides occurring roughly every year. In the case of Venice, three relatively narrow inlets will be fitted with gates. The area to be protected in New Orleans, however, is so large that a system such as the MOSE would not be affordable. The way out for New Orleans is to make the dikes safer and to implement an efficient monitoring and maintenance procedure.

WHEN THE MOSE GATES ARE INSTALLED, 78 HINGED STEEL FLOOD BARRIERS WILL STRETCH ACROSS THE THREE INLETS—LIDO (41 GATES SEPARATED BY AN ARTIFICIAL ISLAND), MALAMOCCO (19 GATES), AND CHIOGGIA (18 GATES)—THAT ALLOW ADRIATIC WATERS INTO THE LAGOON. THE BARRIERS WILL RETRACT INTO CAISSONS SUNK INTO THE LAGOON.



**ICON:** This past fall, you were asked to evaluate a proposal put forth by scientists from the University of Padua, which would involve the injection of water into the depleted aquifers to elevate the city. Would this help protect Venice against the floods?

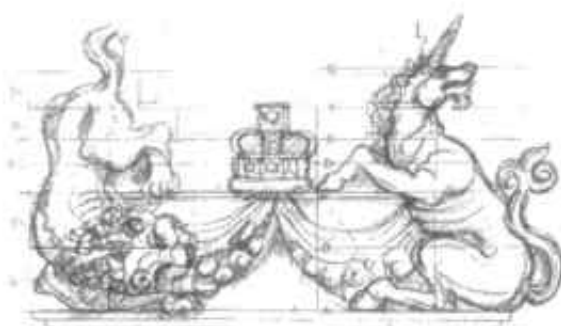
**MJ:** Injecting water into the aquifers is not technically feasible. Even if it were, this intervention would raise Venice not more than a hundred millimeters, which is not enough to provide any degree of protection from the floods. Further, this solution would result in a differential heave to the soil, which would damage historical buildings. This solution would also cause a great deal of environmental harm because it would contaminate the freshwater aquifers with salt water.

**ICON:** In addition to Venice, you have worked on the containment of Chernobyl and on reducing the tilt of the Leaning Tower of Pisa. Of these projects, which has been your most challenging?

**MJ:** The Leaning Tower of Pisa was much more challenging and difficult to solve for several reasons. As one of the most important icons in Italy, any work on the tower was politically charged, with the public opinion and the media being particularly sensitive to even a slightly invasive intervention on the monument. Every attempt to solve the problem of the lean since the close of the eighteenth century had failed. When we began our project in 1993, the tower was on the verge of collapse, so any intervention to its foundation or masonry was highly risky. By excavating sediments beneath the north side of the tower and installing thousands of pounds of counterweights, we were able to reduce its lean by .5°, buying the tower another three centuries (see ICON Spring 2003). ■

# St. George's, Bloomsbury

LONDON, ENGLAND

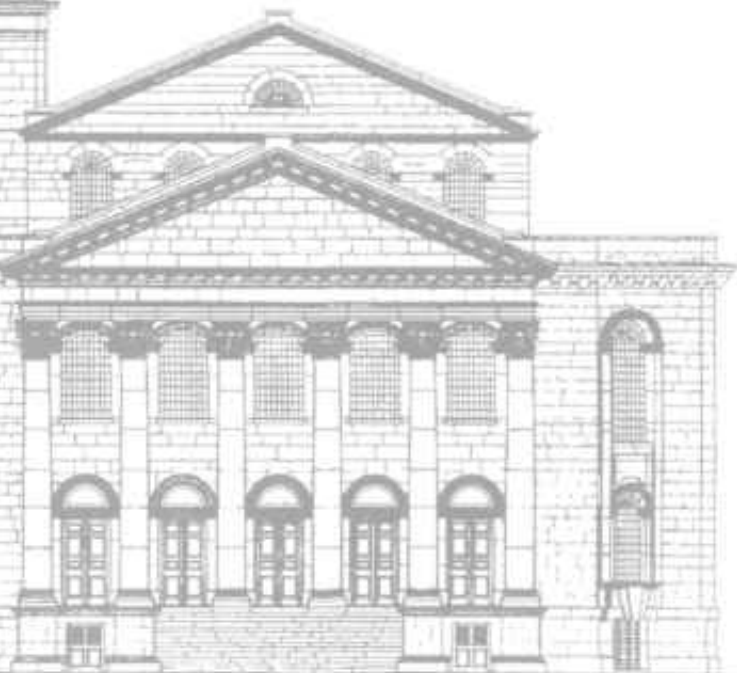


TIM CRAWLEY'S 1:3 SCALE MODEL OF A LION, ABOVE, GUIDED THE CARVING OF ONE OF FOUR STONE STATUES SOON TO GRACE THE STEEPLE OF ST. GEORGE'S, BLOOMSBURY. FACING PAGE, A MASONRY BLOCK, ONE OF 66 THAT WILL MAKE UP THE SCULPTURES, IS HOISTED INTO PLACE.

With the restoration of Nicholas Hawksmoor's early eighteenth-century London church, St. George's, Bloomsbury drawing to a close, one of the last great tasks is now underway—the mounting of a pair of fanciful lions and unicorns atop the building's steeple, itself modeled on the Mausoleum of Halicarnassus, one of the Seven Wonders of the Ancient World.

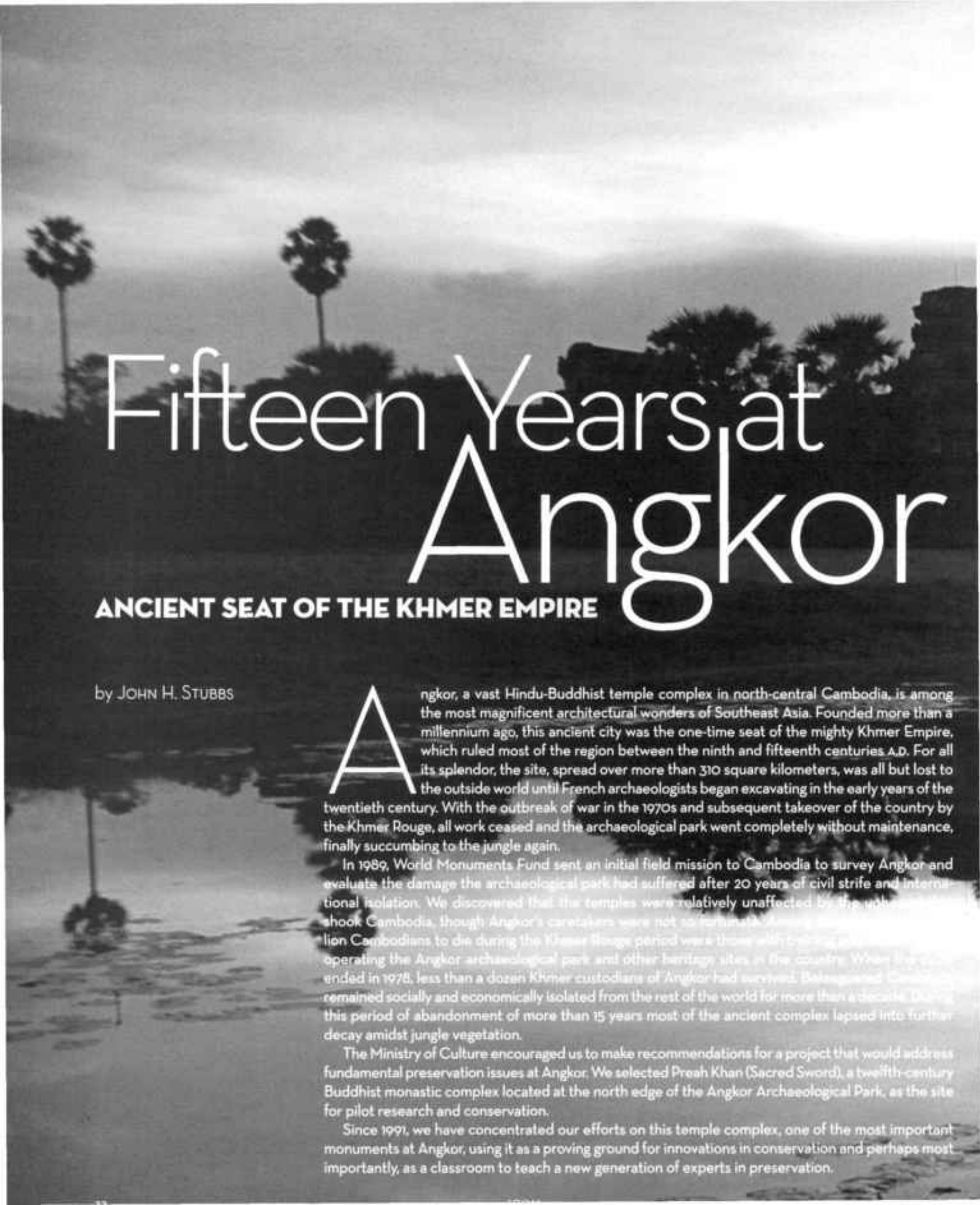
The three-meter-high sculptures by renowned sculptor Tim Crawley are based on drawings found in the Hawksmoor archive. The Portland stone originals that once cavorted about the base of the steeple were removed during a refurbishment of the church in 1871 by G.E. Street, who declared them to be too frivolous and potentially unsafe. Following their removal the sculptures were lost. The 66 masonry blocks that make up the new sculptures, also of Portland stone, will be hoisted into place over the next several months. For more information, see [www.thebeasts.info](http://www.thebeasts.info)

Built between 1716 and 1731 and depicted in Hogarth's 1751 engraving, *Gin Lane*; the church, not far from the British Museum, had suffered from poor maintenance and inappropriate repairs. The current restoration project, slated for completion this fall, has been underwritten by a \$5 million grant from the Paul Mellon Fund for Architectural Heritage in Great Britain, \$750,000 from WMF through its Robert W. Wilson Challenge to Conserve our Heritage, and £2.3 million from Britain's Heritage Lottery Fund. ■









# Fifteen Years at Angkor

## ANCIENT SEAT OF THE KHMER EMPIRE

by JOHN H. STUBBS

Angkor, a vast Hindu-Buddhist temple complex in north-central Cambodia, is among the most magnificent architectural wonders of Southeast Asia. Founded more than a millennium ago, this ancient city was the one-time seat of the mighty Khmer Empire, which ruled most of the region between the ninth and fifteenth centuries A.D. For all its splendor, the site, spread over more than 310 square kilometers, was all but lost to the outside world until French archaeologists began excavating in the early years of the twentieth century. With the outbreak of war in the 1970s and subsequent takeover of the country by the Khmer Rouge, all work ceased and the archaeological park went completely without maintenance, finally succumbing to the jungle again.

In 1989, World Monuments Fund sent an initial field mission to Cambodia to survey Angkor and evaluate the damage the archaeological park had suffered after 20 years of civil strife and international isolation. We discovered that the temples were relatively unaffected by the upheavals that shook Cambodia, though Angkor's caretakers were not so fortunate. Among the 2 million Cambodians to die during the Khmer Rouge period were those with training and experience operating the Angkor archaeological park and other heritage sites in the country. When the conflict ended in 1978, less than a dozen Khmer custodians of Angkor had survived. Besieged Cambodia remained socially and economically isolated from the rest of the world for more than a decade. During this period of abandonment of more than 15 years most of the ancient complex lapsed into further decay amidst jungle vegetation.

The Ministry of Culture encouraged us to make recommendations for a project that would address fundamental preservation issues at Angkor. We selected Preah Khan (Sacred Sword), a twelfth-century Buddhist monastic complex located at the north edge of the Angkor Archaeological Park, as the site for pilot research and conservation.

Since 1991, we have concentrated our efforts on this temple complex, one of the most important monuments at Angkor, using it as a proving ground for innovations in conservation and perhaps most importantly, as a classroom to teach a new generation of experts in preservation.





THE EAST GOPURA, OR TOWERED ENTRANCE, OF PREAH KHAN BEFORE AND AFTER STABILIZATION, TOP AND RIGHT. FINELY SCULPTED CELESTIAL DANCERS, BELOW, GRACE A LINTEL IN THE HALL OF DANCERS.



Commissioned by King Jayavarman VII in 1191, Preah Khan occupies .5 square kilometers, with four concentric enclosure walls that embrace a labyrinth of shrines, courts, halls, and pavilions. A monument to religious tolerance, Preah Khan has sections dedicated to Buddhism, Hinduism, and veneration of ancestors. Thousands of Buddhist monks at Preah Khan lived side by side with practitioners of Hinduism. The Buddhist king is believed to have employed Hindu thinkers as bureaucrats. Several elements at the site show a mixture of these influences.

Preah Khan's Vishnu Complex, smaller than most of the other principal parts of the site, consists of shrines dedicated to Vishnu—a protector deity, who with Brahma the Creator and Shiva, goddess of destruction make up the Hindu Holy Trinity—joined by low galleries surrounding a central shrine.

Jayavarman's sacred sword, which preceded the king during religious processions, may have been housed in the Two-Story Pavilion, which has round stone columns—rare in Khmer architecture. The Dharmasala, located along the principal entrance route from the east and identified as a rest house for pilgrims, may also have served as a temple that housed the *agni*, or sacred flame. It is similar to 121 other structures built by Jayavarman VII throughout his empire, all of which conform to the same design. They are sturdily constructed, oriented east to west, with windows on the south side alone. If indeed they once held a sacred flame, they may have functioned as staging posts on a ritual journey.

Preah Khan still features spectacular sculpture. The Hall of Dancers, once a large vaulted space with small courtyards, features lintels decorated with finely-sculpted *apsaras*, celestial female danc-

ers and hand-maidens of the gods. A royal dance troupe may have once lived and performed in the temple city. Facing outward from the site's outermost enclosure walls are 72 monumental *garudas*, or "guardian birdmen," carved out of sandstone. Each stands 3.25 meters tall and they are spaced 35 meters apart.

The Preah Khan Stela is one of the most important inscribed sculptural elements at Angkor. "Discovered" in 1939, it has detailed Sanskrit inscriptions about the temple city and its inhabitants and possessions. According to the stela, some 91,000 people served Preah Khan, indicating that the complex was more a town than a monastery.

When we began our project—spearheaded by British conservation architect John Sanday—Preah Khan was little more than a jumble of fallen stones and structures on the brink of collapse—the result of years of neglect, jungle vegetation encroachment, and water damage. Practically none of the original finishes and fittings remained. Eschewing major reconstruction due to the lack of historical data and the questionable philosophical nature of such an invasive approach, we chose instead to stabilize the site and preserve it as a partial ruin. We've respected the "as found" appearance of the site and its jungle setting as much as possible.

Before undertaking any stabilization work, all stones—including paving stones, lintels, vaults, and wall structures—were measured and drawn to scale as part of a survey of the "as found" conditions. The stones were referenced and number-coded to facilitate their accurate placement. By carefully studying the structures, our team was often able to replace fallen stones. In the courtyard of a new project at the nearby Buddhist temple of Ta Som, for instance, the site's all Khmer project team has pieced together several intricately carved frontons that fell from above the doors.

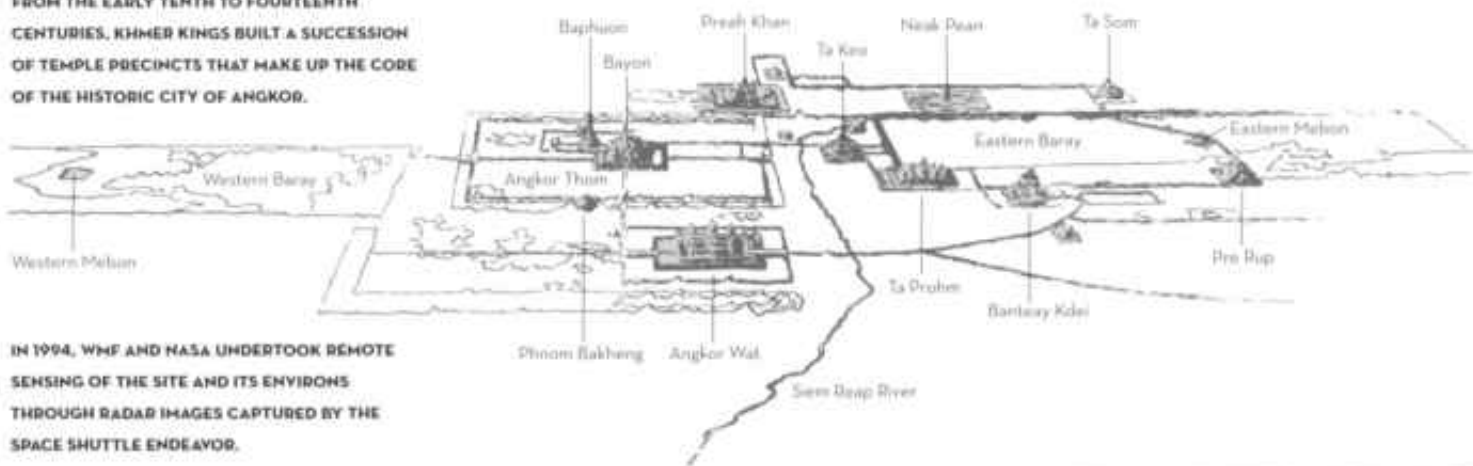
In order to keep the program simple, and more importantly, sustainable, the WMF field team has used low cost technology with a minimum of mechanical equipment to restore and maintain the temple structure. Workers use steel scaffolding as platforms along with simple block and tackle hoists and ten-ton hydraulic jacks, which they use dexterously to move the stones. The system is simplicity itself with little danger of equipment breaking down or endangering the safety of the workers.

A number of structures have been dramatically restored. When we first examined it in 1994, the



THE HEAD OF A GODDESS WITHIN ONE OF THE ANCESTRAL SHRINES AT PREAH KHAN WAS LOST TO THEFT.

FROM THE EARLY TENTH TO FOURTEENTH CENTURIES, KHMER KINGS BUILT A SUCCESSION OF TEMPLE PRECINCTS THAT MAKE UP THE CORE OF THE HISTORIC CITY OF ANGKOR.



IN 1994, WMF AND NASA UNDERTOOK REMOTE SENSING OF THE SITE AND ITS ENVIRONS THROUGH RADAR IMAGES CAPTURED BY THE SPACE SHUTTLE ENDEAVOR.





**THE SACRED SWORD PAVILION HAS BEEN CLEARED OF VEGETATION TO ENHANCE ITS LEGIBILITY.**

Dharmasala was teetering on the brink of collapse. Its foundations had failed and were sliding outwards due to the weight of the vaulted roof. However, since it was one of few structures of its kind still standing, we decided to save as much of the original structure as possible by designing a structural support that was only minimally visible. In order to halt the tendency for the foundations to spread, two ring beams were placed on the exterior foundations to prevent slippage. The beams were linked through the wall. Rather than dismantling this structure and reconstructing it, by far the simplest approach, the team instead saved a structure unique to Preah Khan in almost its original form. At least 75 percent of the structure remains as it was found.

We also undertook extensive structural interventions in the Hall of Dancers. Here, we were able to consolidate pillars and repair three doorways leading into the hall, ensuring the hall's stability. The most significant work undertaken so far has been the repair of three fractured apsara lintels, including one which had fractured at midpoint and had been crudely supported with a concrete lintel in the 1950s. Our approach was, after careful analysis, to dismantle the lintel and the stones above and to assess the stability of the adjacent structures. Subtle intervention involved placing this special sculpted lintel back in its original position, consolidating and protecting another of Preah Khan's unique masterpieces.

The other two lintels had fallen and were only recently found in the stone rubble. Trained craftsmen under the supervision of the professional Khmer staff carried out masterful conservation and repairs of both.

Despite the enormous strides made in conservation at Preah Khan and elsewhere in Angkor, theft and vandalism remain a major concern, particularly at the more remote sites. In addition to increasing security at the site, an inventory and photographic record of all vulnerable objects at Angkor has been developed for use as a powerful tool in combating looting. The École Française d'Extrême Orient (EFEO) has compiled an extensive inventory of sculpture both at and

from Angkor and efforts have been made on the ground in the province of Siem Reap to deter local vandalism. WMF has recently developed a site-specific computerized inventory of architectural sculpture, using video imaging, for use at Preah Khan. However, more effective solutions need to be found to stop the unlawful export and receipt of Khmer art from Cambodia. More and more of the legacy of the ancient Khmer is literally being carted away each year.

Once we commenced full-scale conservation activities at Preah Khan in November 1993, we began to train a team of approximately 70 skilled workers in restoration crafts and conservation technology. A group of Cambodian students of architecture and archaeology assisted with the planning and supervision of work on site. Their training was overseen by project manager and architect John Sanday, and Pedrag Gavrilovic, a seismic engineer at the Institute of Earthquake and Engineering Seismology of the University of Skopje, Macedonia. The list of projects ranged in complexity from debris removal and documentation to stabilization and partial restoration of the principal East Gopura, or towered entrance gate.

# The Challenge of Phnom Bakheng

## THE MOST ANCIENT TEMPLE IN THE HISTORIC CITY OF ANGKOR

The Hindu temple Phnom Bakheng is popular with visitors to Angkor as a spot for watching sunsets, and is particularly prized by tourists for its spectacular view of Angkor Wat, which lies some 1.5 km away. But Phnom Bakheng is also the most threatened temple in Angkor (in part because of indiscriminate climbing by tourists) and is the last of its key monuments to benefit from international aid. In December 2004, WMF and the United States Department of State announced a \$550,000 grant from the State Department to WMF for the conservation and interpretation of the site, a temple-mound at the symbolic heart of Angkor.

Built in A.D. 907 and the oldest temple within the historic city of Angkor, Phnom Bakheng was originally an oval-shaped sandstone massif 600 meters long, more than 300 meters wide, and nearly 70 meters high. The Khmer king Yasovarman I (r. 889-early tenth century) ordered the summit levelled and created terraces so that a stepped pyramid could be built. On the uppermost level of the pyramid he established a Hindu temple that became the center of his city, Yasodharapura. Dedicated to Shiva, the impressive temple structure measures 76 meters square at the base and 47 meters at the summit.

The Phnom Bakheng temple-complex is one of the most important and symbolic monuments of the tenth century. French historian Jean Laur proposed that Bakheng represents Mount Meru,

the center of the world according to Indian cosmology. A central shrine represents a polar axis and the 108 buildings that surround it evoke the cosmic revolutions around this axis. In Hindu cosmology 108 is a key number, linked to the idea of a *yuga*, or "great year," a period of 4,320,000 human years during which a world appears, evolves, and disappears. From certain vantage points, Bakheng appears to have only 33 towers, the same number of gods who according to Indian tradition live on Mount Meru.

Phnom Bakheng is also significant for marking the beginning of a particularly refined style of Khmer sculpture. The painstakingly executed imagery of the Bakheng style seems to echo the work in precious metals that abounded in the sanctuaries. The stylized faces at Bakheng appear both spiritual and indifferent in their perfection. Peculiarly tinged as they are with a certain sense of benevolence, the sculptures are the crowning achievements of Khmer statuary.

The current WMF project at Angkor is the development of a conservation program and an interpretation scheme for Phnom Bakheng so that visitors may learn not only about the importance of the temple complex and its role in the evolution of Angkor, but about the unique flora, fauna, and landscape features at the site. Maps and other materials will contain information to orient the visitor and illustrate that Phnom Bakheng is far more than simply a place to climb to watch sunsets.

—MICHAEL ELLIS



**ADOPT A**

# Garuda

**A**s part of its fundraising campaign to support its ongoing work at Preah Khan, WMF has initiated an "Adopt a Garuda" program to fund the restoration of the 72 monumental sandstone statues of guardian birdmen that grace the outermost enclosure wall of the temple complex. In Khmer and Hindu art, a garuda is the personal steed of the god Vishnu. Architecturally, images of the mythic beasts adorn terraces, perimeter walls, and cornices, acting as supports for the Vishnu's celestial abodes.

Exposed to the elements and engulfed in jungle for more than 500 years, the garudas are in a precarious state of preservation. Many have already collapsed and lie scattered on the ground. Others, though still standing, await a similar fate without intervention.

A contribution of \$20,000 supports the consolidation and restoration of a single statue. Once the sculpture is repaired, the balance of any adoption contribution provides for ongoing maintenance by the on-site team of conservators. Since the program was launched in 1996, 22 of the statues have been "adopted." For information on supporting this program, contact: Richard Feiner, Director of Development, (646) 424-9594. [rfeiner@wmf.org](mailto:rfeiner@wmf.org)





Realizing that there is no formal training in conservation theory or technology in Cambodia, we initiated an education program at the site in March 1991. The following year 25 students from the Department of Architecture and Archaeology at Royal University of Fine Arts (RUFA) in Phnom Penh were taken to Angkor for introductory level training in the history of Angkor, the philosophy of building conservation, general survey methodologies, and archaeology. This education initiative was followed by more extensive training both at Angkor and at the University in Phnom Penh in November 1992 and March 1993.

From this group of students five architects and two archaeologists elected to join the WMF team to study heritage conservation. They were invited to spend as much time as the university would allow them working and studying in Preah Khan. For a period of five years, they dedicated at least four months a year assisting us by preparing measured surveys and records of all project areas prior to and after intervention. In recompense, the students were given on-site workshops and training in conservation technology by WMF's international consultants. The students completed their university courses, and they all received their degrees with additional certificates in architectural conservation. Most still work on different WMF programs at Angkor.

To date, the WMF Conservation Program in Angkor has trained eight Cambodian students of architecture and archaeology from RUFA. Thanks to Sanday and Gavrilovic's dedication to teaching,



STRUCTURAL REPAIRS WERE MADE TO THE EXTENDED CRUCIFORM HALL OF DANCERS, PREAH KHAN'S PRIMARY EAST-WEST AXIAL WAY, IN 1997. THE CENTER FOR KHMER STUDIES, FOUNDED BY WMF IN 1997, HAS BECOME A CENTER FOR RESEARCH IN THE ARTS AND HUMANITIES.





THE WAT BO DANCE TROUPE PERFORMS WITHIN  
PREAH KHAN'S HALL OF DANCERS, FACING PAGE.  
A BAS RELIEF WITHIN A GALLERY AT ANGKOR  
WAT, WHICH DEPICTS THE CHURNING OF THE SEA  
OF MILK—A CREATION STORY WHEREIN VISHNU  
COMMANDS DEITIES AND DEMONS TO JOIN FORCES  
IN CHURNING THE COSMIC OCEAN TO RELEASE  
AMRITA, THE ELIXIR OF LIFE—IS THE SUBJECT OF A  
CURRENT WMF CONSERVATION STUDY.

they are now employed by the project and are largely responsible for the on-going work. The commitment of the project's staff has made an immense contribution to the success of the project.

For 15 years work has proceeded at Preah Khan uninterrupted by political conflict. Since then, the principal East Entrance has been reopened to visitors, the Hall of Dancers has been saved from collapse, and the Dharmasala and East Gopura have been stabilized. All projects are staffed and managed by Cambodian architects, archaeologists, conservators, and workers trained in site conservation. In addition, we have built a site-interpretation center at Preah Khan and established a comprehensive maintenance program for the site.

We have met our three principal objectives—the training of a professional and administrative staff, the training of a competent work force of craftsmen, and the raising locally of sufficient revenue with its various associated programs to make Preah Khan self sufficient. Now that all the major structural repairs have been made in the most important areas of the site, the temple complex is secure from structural collapse, and the Preah Khan staff is prepared for the future of their site.

We initially set out a ten-year work plan, which was due for completion in 2000. However, thanks to the continued support of WMF's trustees and generous donors, the program in Angkor was extended for a further five years with the mission of expanding the program to new sites. In 2000, the WMF presented to the Cambodian government's Authority for the Protection and Management of Angkor and the Region of Siem Reap (APSARA) an expanded program at Preah Khan. We also proposed a similar project at the nearby Buddhist temple of Ta Som, as well as a research project to study the conservation challenges presented by the *Churning of the Sea of Milk*, a bas-relief depicting Vishnu commanding deities and demons to join forces in churning the cosmic ocean to release *amrita*, the elixir of life, which adorns a gallery in Angkor Wat. At the same time, we approached the Ministry of Culture and Fine Art with the idea of developing a program with the Ministry at the remote site of Banteay Chhmar, a temple also built by King Jayavarman VII. With these new projects, we've expanded our activities to include state of the art conservation, research, documentation, and site-management techniques.

In 2005, WMF began the process of handing Preah Khan over to APSARA, which is responsible for all conservation in the archaeological park. WMF's role at Preah Khan will now involve only site interpretation such as that which we are carrying out at Phnom Bakhang, the oldest temple at Angkor (see page 37).

Our principle objective at Angkor has been to train Khmer craftsmen and professionals to conserve, protect, and present their cultural heritage. Preah Khan was once an important seat of religious learning. Six centuries after the great complex was abandoned, it has again served as a critical center for education as the descendants of Preah Khan's master builders have learned to safeguard their magnificent heritage. ■



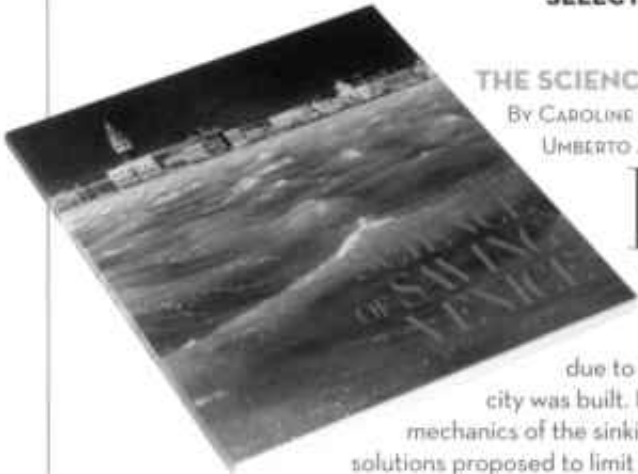
# EX LIBRIS

SELECTIONS FROM THE WMF BOOKSHELF

## THE SCIENCE OF SAVING VENICE

By CAROLINE FLETCHER AND JANE DA MOSTO

UMBERTO ALLEMANDI & CO. AND VENICE IN PERIL FUND • 92 PP. • \$14.50



In the four decades since the flooding of Venice in November 1966, conservators and scientists have been in a virtual race against time to bolster the city's monuments against future damage and, if possible, to formulate a plan to arrest La Serenissima's relentless sink into the sea. While the conservation of individual monuments and sites has proceeded apace over the years, progress has been slow on the larger issue of flooding, which happens with increasing frequency due to rising sealevels and continued compression of the sediments upon which the city was built. In this informative and engaging volume, Fletcher and Da Mosto examine the mechanics of the sinking city, measures taken to date to bolster its waterfronts, and more controversial solutions proposed to limit the impact of flooding, as well as environmental challenges surrounding the ecological health of the lagoon. The book, a distillation of a more weighty tome on the issue, is a must read for anyone concerned with the long-term preservation of what is certainly one of the world's great cities.


## THE CITY OF FALLEN ANGELS

By JOHN BERENDT • 432 PP. • PENGUIN PRESS HC • \$25.95

“The key to understanding Venetians is rhythm, the rhythm of the lagoon, the water, the tides, the waves. It’s like breathing. High water, high pressure: tense. Low water, low pressure: relaxed. The tide changes every six hours.” Count Girolamo Marcello tells our author in the opening pages of this engaging book, which chronicles nearly a decade of Berendt’s wanderings through the city and its society. The reader is treated to a Venice seldom seen by the casual visitor and the often quixotic personalities that define the city, including myriad expatriates who have taken refuge there. The account is set against a backdrop of intrigue surrounding the infamous burning of the city’s opera house, La Fenice, in late January 1996, and the building’s recently completed restoration.

## PARADISE OF CITIES: Venice in the 19th Century


By JOHN JULIUS NORWICH • 337 PP. • DOUBLEDAY \$32.50



Among the best-known chroniclers of Venice, John Julius Norwich, honorary chairman of WMF, offers an enchanting narrative that traces the history of the city from a proud and independent state to a sublime, if decaying, dreamland that attracted all manner of artists and poets. Weaving in impressions of Venice penned by such notables as Lord Byron, John Ruskin, and Henry James, Norwich takes the readers on the grandest of tours of her palaces and monuments, some of which have been the subject of WMF’s work in that fabled city.

## SAVING THE TSARS’ PALACES: The Story of the Artists

By CHRISTOPHER MORGAN AND IRINA ORLOVA • 178 PP. • POLPERRO HERITAGE PRESS • \$9.95



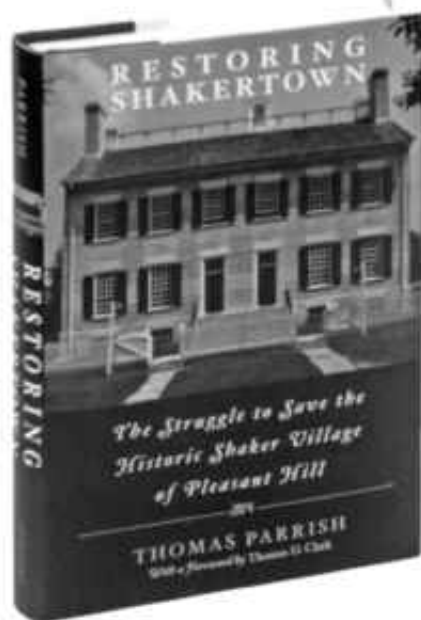
The story of St. Petersburg’s imperial palaces, their destruction, and restoration is one of the most poignant of World War II. *Saving the Tsars’ Palaces* does much to address this. Alongside harrowing images of Pavlosk on fire, the Catherine Palace without its roof, and the Peterhof fountains in ruins, the authors describe their first glimpses of these buildings in heart-rendering detail, chronicle the painstaking efforts of teams of artisans to restore them to their former glory, and contextualize the conservation work within the history of the twentieth century in St. Petersburg. WMF’s ongoing work at Oranienbaum is highlighted in this highly evocative and significant book.

## RESTORING SHAKERTOWN:

### The Struggle to Save the Historic Shaker Village of Pleasant Hill

By THOMAS PARRISH • UNIVERSITY PRESS OF KENTUCKY • 372 PR. • \$32

The Shakers who settled near Lexington, KY, in the 1810s called their utopian home Pleasant Hill, but that name was largely forgotten after the last sister died in 1923. Three dozen boarded-up buildings somehow managed to outlive her at what the locals nick-named Shakertown. In the 1950s, Kentucky's budding preservationists—inspired by the scholarly and financial successes of Colonial Williamsburg and Old Sturbridge Village—started fundraising to transform Shakertown into a peculiar mixture of living-history display, high-end restaurant, guest rooms, and conference facilities. After years of what historian Thomas Parrish calls “shaky, penniless days,” some shrewd and charismatic businesspeople on the Shakertown board figured out how to reel in millions of dollars in federal loans plus gifts from philanthropists like Eli Lilly and the Mellon family. The state of Kentucky was even persuaded to move a highway that pierced Pleasant Hill, which by the 1970s was attracting 150,000 visitors a year. Parrish chronicles the site's evolving management and PR strategies, cash-flow crises, and government lobbying campaigns. The book has much to teach modern-day fundraisers about persistently making preservation pay its own way. (Why not, say, generate royalties by persuading a paint company to market a shade called Brethren's Shop Red?) The book delves into some curatorial choices as well. The museum administration has bought up thousands of surrounding acres, including a graveyard and a ferry landing (the Shakers shipped their famous brooms and seed packets downriver as far as New Orleans). So the landscape looks much as it did in the 1830s. But twenty-first-century restorers would probably not follow Pleasant Hill's 1960s example of razing late nineteenth-century additions, and carving out guest rooms full of reproduction furniture.

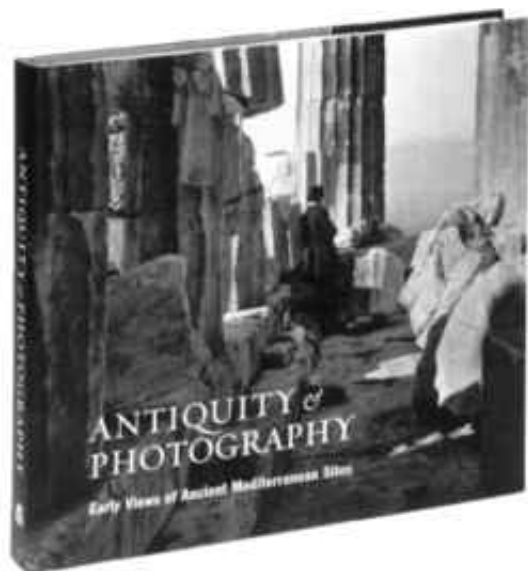


## ANTIQUITY AND PHOTOGRAPHY:

### Early Views of Ancient Mediterranean Sites

By CLAIRE L. LYONS, JOHN K. PAPADOPOULOS, LINDSEY S. STEWART  
AND ANDREW SZEGEDY-MASZAK • GETTY PUBLICATIONS • 326 PR. • \$65

Within a few months of photography's invention in 1839, amateurs started making costly excursions *daguerriens*, hauling camera equipment and chemicals to archaeological sites far afield. Despite sand constantly getting stuck on the glass plates and disobedient camels occasionally knocking over camera tripods, thousands of crystalline images of ruins were shipped home to publishers and academic societies. This study of the field's innovators, by four American or British scholars, explains how the pictures not only captured digs in transition but also reflected Victorian worldviews. Photographers often aimed, for example, to glorify Greece as the birthplace of democracy and a recent winner of independence from the Turks. Salted paper or albumen silver prints show the Acropolis becoming purely classical again, losing its accretions of Florentine fortifications and Ottoman mosques and homes. Buildings that were relative newcomers to the Athens hillsides were considered “post-Byzantine clutter” or even “vestiges of barbarity,” writes UCLA professor John K. Papadopoulos. Yet the photographers didn't mind focusing close-up on graffiti scratched into Parthenon columns, because the signatures had been left behind in the 1820s by foreign soldiers helping the Greeks beat the Turks. Landscapes reproduced in this absorbing book are largely deserted; when people do appear, they give a sense of scale while hinting at racial attitudes of the time. Locals are usually portrayed in the shadows of monuments and apparently wilting in the heat, while Western archaeologists pose heroically excavating statuary or scrupulously examining erosion damage.



To purchase titles featured here, click on WMF's Amazon.com link on our website at [www.wmf.org](http://www.wmf.org).  
Commissions on books purchased through our website support WMF field projects.

# EXPEDITION: MISSISSIPPI

**M**ore than 40 onlookers, many of them residents of Bay St. Louis, MS, had gathered as we documented and disassembled what remained of the Hecker House, a late eighteenth-century shotgun house at 220 North Beach Boulevard destroyed by Hurricane Katrina. Following the week-long process, our team would be storing surviving remnants of the house for later reconstruction.

Prior to the storm, the town of Bay St. Louis, approximately 50 kilometers from the Louisiana border, was a vibrant community of just over 8,000—a friendly mix of full-time inhabitants, including multi-generational property owners and expatriates and retirees from nearby New Orleans and elsewhere, and weekend and summer residents. Like many along the Mississippi Gulf Coast, “the Bay,” as the area is affectionately referred to by those who live here, contained a wealth of historic architecture. Beach Boulevard, one of five National Register Historic Districts in the town, consisted of modest Creole cottages and shotgun houses and late nineteenth-century, waterfront manses built by wealthy New Orleanians escaping the city’s heat and the occasional cholera outbreak.

Following the devastation wrought by Katrina’s ten-meter storm surge, less than 25 percent of Bay St. Louis residents have returned because their homes were either washed into the Gulf of Mexico or left in ruin, such as the modest shotgun house owned by 86-year-old Charles Hecker. Like thousands of Mississippians faced with a home in ruins, Hecker, whose family has owned the property since 1956, made the tough decision not to rebuild, but to demolish what remained of the house and sell the property.

Given its historical importance, WMF and its partners—the Preservation Trades Network and University of Florida College of Design, Construction and Planning—chose the house as the first in a series of demonstration projects that address the catastrophic damage to the Gulf Coast’s built heritage post-Katrina.

But just as important as saving this small part of Mississippi history, I believe the project served as a rallying point for the community, demonstrating the role the preservation process can play in helping people cope with such loss, and begin reconstructing their lives, their houses and their town. As one long-time resident stated, “We need these icons to rebuild around.”

—MORRIS HYLTON III



MORRIS HYLTON III ADDRESSES BAY ST. LOUIS, MS, RESIDENTS AND VOLUNTEERS IN FRONT OF THE HECKER RESIDENCE, A LATE-EIGHTEENTH CENTURY SHOT GUN HOUSE DESTROYED BY HURRICANE KATRINA, ABOVE. CHARLES HECKER, 86, AND HIS FAMILY TOUR WHAT IS LEFT OF THEIR HOME WITH GLENN JAMES, A VOLUNTEER WITH PRESERVATION TRADES NETWORK, BELOW.





WORLD MONUMENTS FUND®

2005 Annual Report

# Depth and Breadth

## Expanding WMF's Global Reach

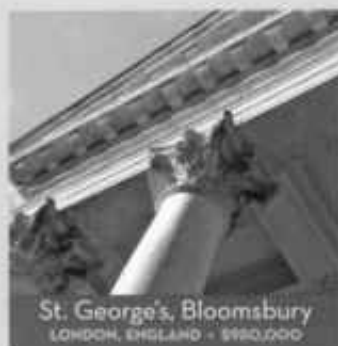
In 2005 WMF's programming touched an unprecedented range of sites—177 in 58 countries around the world. Almost \$13 million was invested in the future of places that, through this support, will survive and flourish as local cultural attractions, anchoring communities to their history and revitalizing elements of social and economic life. Whether the site is in the heart of London, the heartland of Long Island, or in the center of one of the world's most visited museums—the Forbidden City—the support we are investing is a stimulus to the local environment and to local awareness that our heritage is fragile and needs the involvement of everyone to be preserved.

Our greatest investments were in Western Europe, where over decades WMF has made a strong and steady commitment to preserving imperiled sites. WMF's vigorous affiliates in these countries have chosen projects that, despite their historical importance, have been bypassed in a region that has so many cultural assets to preserve. These rediscoveries reinforce the concept that the preservation of the world's fragile cultural assets is a universal concern that improves and enriches people's lives. From our well-established presence in Europe, we are also able to reach out to partners in the eastern and central parts of the region that are still in economic recovery and where heritage sites are only beginning to witness a reversal of fortune from a long decline.

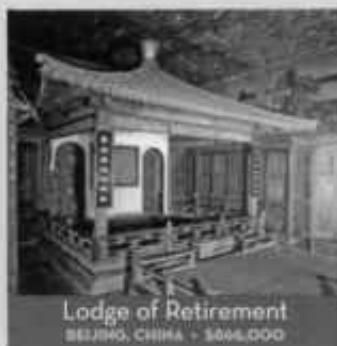
About half our funding in 2005 went to other regions of the world—representing WMF's greatest investment to date in the developing countries. Here, the challenge is to defend the places that support living traditions, and to encourage local authorities in charge of conserving heritage sites to do more by offering challenge funds to entice local partners into action. While our grants are generally more modest in these countries, our funding in Asia, Africa, and the Middle East is distributed over vast area and goes a long way. Most importantly, public officials and local philanthropists are becoming aware that WMF is eager to work in often challenging and difficult environments, in many cases amidst continuing economic and political turmoil, to preserve cultural heritage.

Marilyn Perry  
CHAIRMAN

Bonnie Burnham  
PRESIDENT



St. George's, Bloomsbury  
LONDON, ENGLAND • \$780,000



Lodge of Retirement  
BEIJING, CHINA • \$866,000

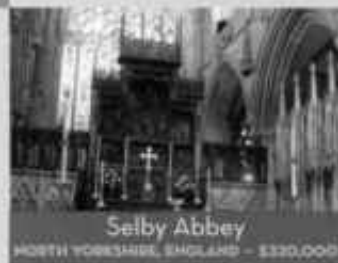


A. Conger Goodyear House  
OLD WESTBURY, NEW YORK • \$820,000



Stowe House  
STOWE, ENGLAND • \$357,000

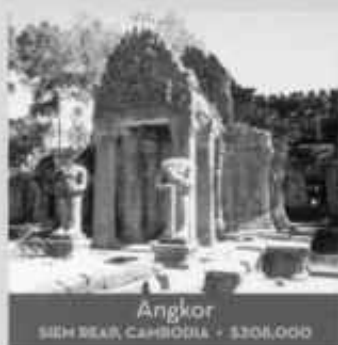
**20 sites received more than \$100,000 in 2005.** Nearly all are multi-year projects that benefitted from matching funds from other sources, doubling or tripling monies available for conservation projects.



Selby Abbey  
NORTH YORKSHIRE, ENGLAND • \$320,000



Hôtel du Talleyrand  
PARIS, FRANCE • \$250,000



Angkor  
SIEM REAP, CAMBODIA • \$308,000



Iraq Cultural Heritage Initiative  
NATIONWIDE • \$263,000



Sir Ernest Shackleton's Hut  
CAPE ROYDS, ANTARCTICA • \$239,000



Limonaia, Boboli Gardens  
FLORENCE, ITALY • \$796,000



## In 2005, 177 sites in 58 countries benefitted from WMF support

### AFRICA AND THE MIDDLE EAST

#### 17 Sites in 8 Countries

Egypt 7 · Syria 3 · Morocco 2 · Ethiopia 1 · Ghana 1 · Iraq 1  
Jordan 1 · Mali 1

### EUROPE AND CENTRAL ASIA

#### 99 Sites in 27 Countries

Italy 10 · United Kingdom 8 · France 9 · Russia 8 · Czech Republic 7 · Turkey 7 · Germany 6 · Bulgaria 5 · Portugal 5  
Spain 5 · Romania 3 · Poland 3 · Croatia 2 · Greece 2  
Ireland 2 · Latvia 2 · Macedonia 2 · Slovakia 2 · Georgia 1  
Hungary 1 · Albania 1 · Armenia 1 · Bosnia 1 · Ukraine 2  
Malta 1 · Netherlands 1 · Serbia/Montenegro 1 · Slovenia  
Turkmenistan 1

### ASIA AND THE PACIFIC

#### 28 Sites in 11 Countries

India 12 · China 5 · Cambodia 1 · Japan 2 · Indonesia 2  
Antarctica 1 · Australia 1 · Malaysia 1 · Mongolia 1 · Nepal 1  
Pakistan 1

### THE AMERICAS

#### 33 Sites in 12 Countries

Mexico 13 · United States 3 · Peru 2 · Brazil 4 · Chile 2  
Argentina 2 · Bolivia 1 · Canada 1 · Ecuador 1 · Guatemala 1  
Panama 1 · Paraguay 1 · Puerto Rico 1

For more information, visit [www.wmf.org](http://www.wmf.org)

## Event Highlights

The year 2005 saw many ground-breaking events for WMF. In October alone, WMF Trustees and International Council (IC) members traveled to Florence, Italy, for the dedication of the newly restored Limonaia in the Boboli Gardens of the Pitti Palace. WMF in Britain celebrated the restoration of Ireland's Browne-Clayton Monument, built in 1839 and damaged by a devastating lightning strike. At the end of that month, WMF held its most successful Hadrian Award luncheon to date at the Pierre Hotel, which honored Carlos Slim Helú and his work to restore Mexico City's Historic Center. The \$500,000 generated by the event was generously matched by Slim, marking the beginning of a new partnership between WMF and the Fundación Centro Histórico de la Ciudad de México. This past spring, WMF board and IC members ventured to Mexico City to visit restoration projects recently completed by WMF and those slated for future work. A highlight of the trip was a private lunch with Mexico's President Vicente Fox.



WMF PRESIDENT BONNIE BURNHAM 2004 HADRIAN AWARD RECIPIENT CARLOS SLIM HELÚ



Imperial Convents  
KYOTO AND HARA, JAPAN · \$180,000



Palacio de Bellas Artes  
MEXICO CITY, MEXICO · \$160,000



Preservation High School  
BROOKLYN, NEW YORK · \$25,000



Queluz Palace  
QUELUZ, PORTUGAL · \$185,000



Tamansari Water Castle  
YOGYAKARTA, INDONESIA · \$235,000



Rano Raraku  
EASTER ISLAND, CHILE · \$10,000



Strawberry Hill  
LONDON, ENGLAND · \$109,000



St. Sulpice  
PARIS, FRANCE · \$108,000



San Blas Chapel  
TOLEDO, SPAIN · \$102,000



Colleoni Monument  
VENICE, ITALY · \$101,000

# STATEMENT OF ACTIVITIES

FISCAL YEAR 2005

Total support and revenue for fiscal 2005 totaled \$17.9 million. Support from contributions totaled \$17.3 million, representing 96 percent of total support and revenue. Individuals, including trustees, trustee foundations, and International Council members, contributed \$9,189,030; foundation grants totaled \$6,872,259, and corporate contributions totaled \$1,220,473. Other revenue from special events and investment income totaled \$622,996.

The World Monuments Fund's total program and support services expenditures for fiscal year 2005 reached \$14.9 million.

Eighty-six percent, or \$12.9 million, of WMF's expenses in fiscal 2005 went directly to program services. Eight percent of the total was spent on management and general administration and six percent on fundraising necessary to generate both current income and support for future years.

WMF's Permanent Endowment Fund in fiscal 2005 totaled \$20,531,884. This significant growth is primarily due to a bequest from the Estate of Paul Mellon received in fiscal 2002.

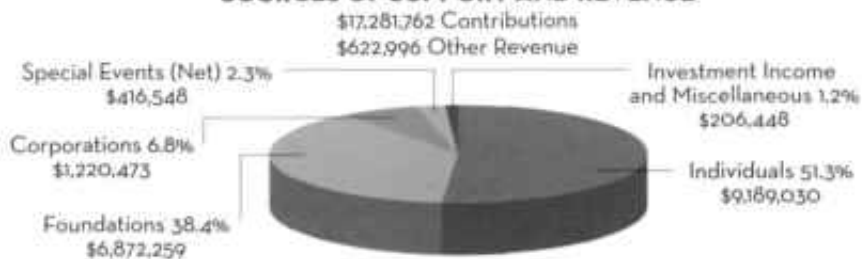
In addition to \$17.3 million in contributions received by WMF, an additional \$7.5 million funding has been leveraged by WMF contractual partners for field projects.

Every contribution to a WMF project leveraged an equal amount in funding from other sources. In fiscal 2005 total support for WMF's agenda was \$37 million with \$17.3 million coming from WMF and \$7.5 million from contractual partners and \$12.3 million from other sources.

WMF's continued growth has been primarily due to two major programs: the World Monuments Watch program established in 1996 with the List of 100 Most Endangered Sites, and the Robert W. Wilson Challenge to Conserve Our Heritage established in 2000 to provide funds from WMF and project partners worldwide.

Copies of the complete, audited financial statement from which this information is reported may be obtained by writing to the Office of the Attorney General, Department of Law, Charities Bureau, 120 Broadway, New York, NY 10271 or to World Monuments Fund.

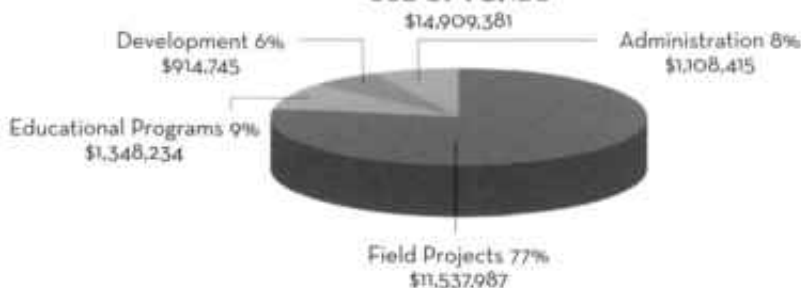
## SOURCES OF SUPPORT AND REVENUE



## CONTRIBUTIONS, PARTNER COMMITMENTS, AND LEVERAGED SUPPORT FOR WMF PROJECTS

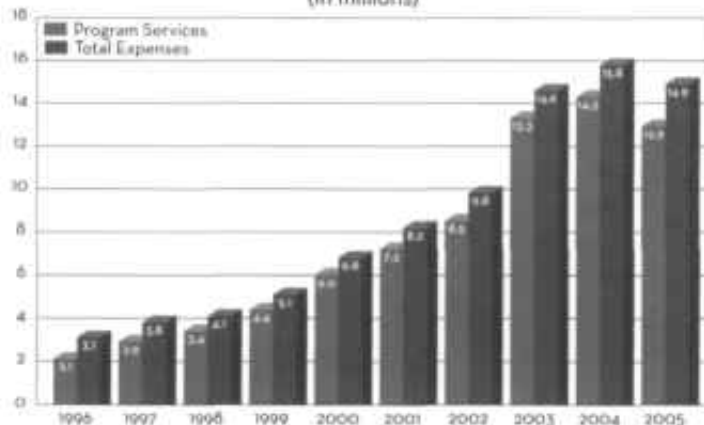


## USE OF FUNDS



## PROGRAM AND TOTAL EXPENSE

(in millions)



| <b>OPERATING SUPPORT AND REVENUE</b>                      | <b>World Monuments Fund</b><br>Year ended June 30 |             | <b>WMF Contractual<br/>Partners<sup>(1)</sup></b> |
|---|---|-------------|---|
|   | <b>2005</b>                                       | <b>2004</b> | <b>2005</b>                                       |
| Contributions   | 17,281,762  | 12,826,807  | 7,541,350   |
| Other revenue:  |   |             |   |
| Special events, net                                       | 416,548   | 265,795     |   |
| Investment income   | 204,942   | 5,885       |   |
| Publications sales and other income                       | 1,506   | 15,335      |   |
| Total other revenue                                       | 622,996   | 287,015     |   |
| Total support and revenue                                 | 17,904,758  | 13,113,822  | 7,541,350   |
| <b>EXPENSES</b>   |   |             |   |
| Program services:   |   |             |   |
| Actively Managed Field Projects                           | 3,953,122   | 3,085,994   |   |
| Affiliate Managed Field Projects                          | 3,010,055   | 3,754,291   |   |
| Partnership Projects                                      | 2,516,204   | 2,924,848   |   |
| Grant Projects  | 2,058,606   | 3,026,555   |   |
| Educational and Public Outreach Programs                  | 1,348,234   | 1,485,794   |   |
| Total program services                                    | 12,886,221  | 14,277,482  |   |
| Supporting services:                                      |   |             |   |
| Fundraising   | 914,745   | 729,488     |   |
| General and administrative                                | 1,108,415   | 798,111     |   |
| Total supporting services                                 | 2,023,160   | 1,527,599   |   |
| Total expenses  | 14,909,381  | 15,805,081  |   |
| <b>CHANGE IN NET ASSETS FROM OPERATIONS<sup>(2)</sup></b> | 2,995,377   | (2,691,259) |   |
| Non-operating Endowment support and revenue:              |   |             |   |
| Contributions and other revenue                           | 49,760  | 46,312      |   |
| Investment income   | 3,297,322   | 3,977,086   |   |
| Total change in net assets                                | 6,342,459   | 1,332,139   |   |
| Net assets, beginning of year                             | 37,348,375  | 36,016,236  |   |
| Net assets, end of year                                   | 43,690,834  | 37,348,375  |   |

<sup>(1)</sup> WMF contractual partners are bound by written agreements to match WMF Project funds; this report includes required matching funds plus any additional leveraged funds reported by Contractual Partners at the time of the award.

<sup>(2)</sup> The 2005 surplus in net assets from operations is due to receipt of field project grants in a current fiscal that will be expended in future fiscal years. The shortfall in 2004 was due to expenditure of field project grants received in fiscal years prior to 2004.

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Cover: The newly restored central dome of Mexico City's Palacio de Bellas Artes

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