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# WORLD MONUMENTS

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## Conservation on the Roof of the World

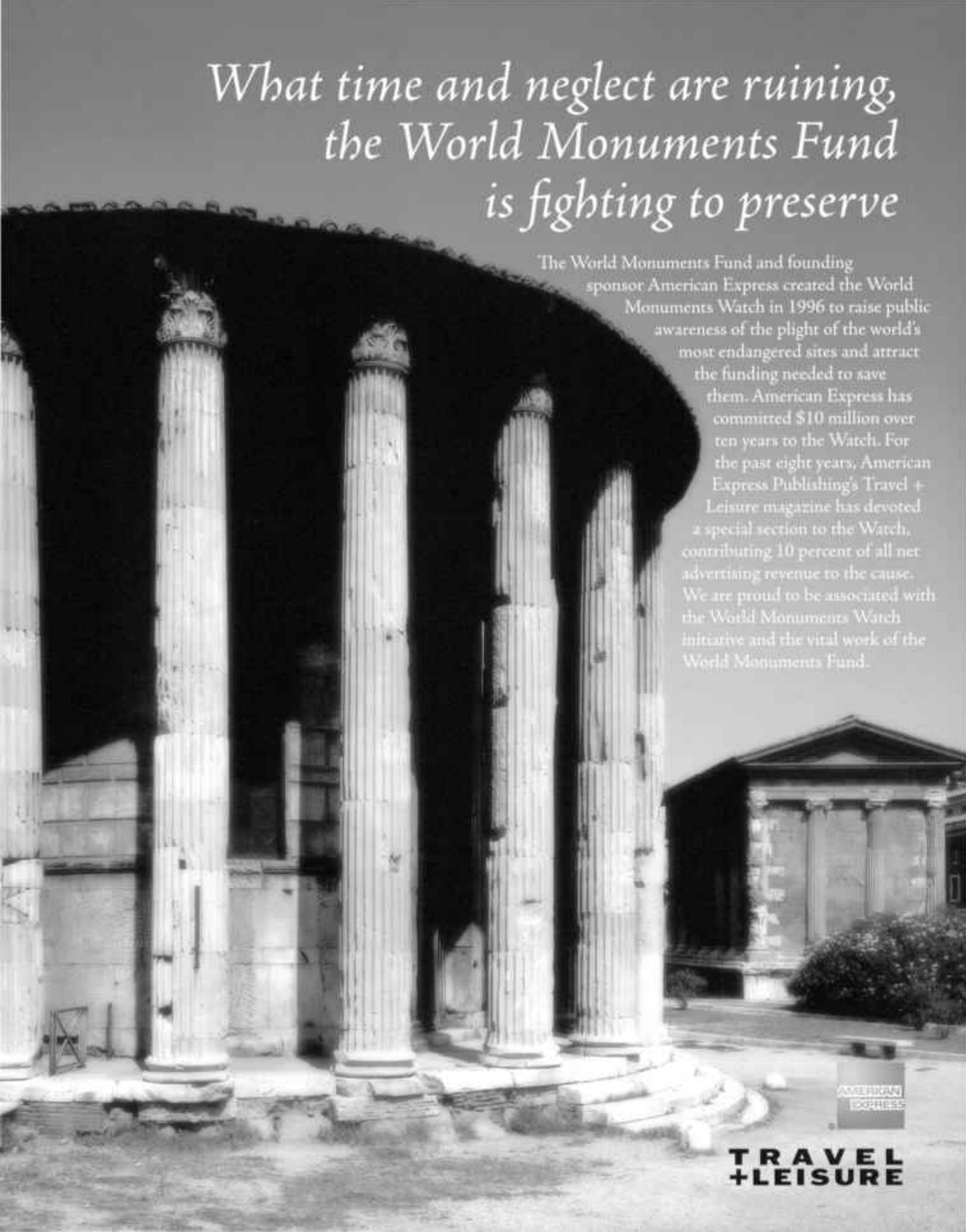
BUILDING A SUSTAINABLE FUTURE  
FOR THE HIMALAYAN KINGDOM OF LADAKH

## Reclaiming Sacred Space

LANDSCAPING BRANCUSI'S  
ENDLESS COLUMN ENSEMBLE

## Oasis of Tranquility

A 900-YEAR-OLD CLOISTER  
BLOOMS AGAIN



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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 save them. American Express has committed \$10 million over ten years to the Watch. For the past eight years, American Express Publishing's *Travel + Leisure* magazine has devoted a special section to the Watch, contributing 10 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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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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## ON THE COVER

A new retaining wall bolsters Basgo's Chamba Lhakhang, far left, an architectural gem in the Himalayan kingdom of Ladakh and 2000 WMF Watch site. Photograph: Brian A. Vikander



THE WOMEN OF BASGO, LADAKH, ARE WORKING TO RETAIN THE RICHNESS OF THEIR CULTURE

# Monumental Equestrian

## A CELEBRATION IN VENICE MARKS THE COMPLETION OF AN EXTRAORDINARY RESTORATION

Commemorative monuments occupy public places everywhere, some honoring famous heroes, others devoted to people whose names are now obscure. On my daily walk to work through Central Park I pass heroic equestrian portraits of King Jagello, who drove the Teutons out of Poland in 1410; Simon Bolivar, who won independence for South America; and our own General William Tecumseh Sherman, who led the infamous Civil War March to the Sea. Monuments like these are often artistically undistinguished, and with the feats of many of their heroes now faded into history, it is easy to wonder who commissioned them and why. The unveiling of Andrea del Verrocchio's restored bronze fifteenth-century monument commemorating Bartolomeo Colleoni in Venice on June 23, with all its artistic magnificence now apparent, gives a new opportunity to consider these questions.

Colleoni, an aristocrat whose family was banished from their home in Bergamo during the Guelph/Ghibelline conflict, served various city-states over the course of a long life as a condottiere, or mercenary soldier. His most important client was the Venetian Republic, where he served for many years as head of its army. Upon his death he left money to the republic in return for the construction of an equestrian monument in his own honor with the instructions that it be erected "near San Marco," since the actual piazza was out of the question in a city so proud of its republican tradition. Even near San Marco posed a problem for the Venetians, and in a fine example of Venetian guile, the statue was eventually erected in the beautiful but remote Campo di Zanipolo, near the Scuola di San Marco. Verrocchio's bronze is considered to be one of two sculptures that re-established the classical tradition of monumental equestrian sculpture—the other being Donatello's fifteenth-century statue of Gattamelata, who, like Colleoni, was a mercenary—perhaps a sign of the importance of military defense during a turbulent period of Italian history.

Verrocchio struggled with the daunting task of executing the model, and its casting was even more of a challenge. The art of welding had been lost in the Middle Ages, and the master bellmaker—who was eventually recruited to fabricate the bronze—sembled it from several large pieces of metal, cast in various alloys, with joints virtually stapled together, cleverly concealed under the horse's trappings. The last cleaning of the sculpture after World War I did little to reveal the lustrous quality of the patina and the exquisite carved detail. After another 80 years in Venice's harsh environment—with its salt-laden air, smoke, and airborne pollutants—its color had darkened to an monotonous grayish green. On its streaked and soiled marble base, it looked like another indifferent nineteenth-century monument.

The splendid restoration by the famed Giovanni Morigi has eliminated this impression. WMF Europe's president, Bertrand du Vignaud, who attended the inauguration, reports that the patinas are particularly subtle and beautiful, not at all uniform and the quality of the carving of the bronze bas reliefs are much more visible than before. Against the colored marble facade of the nearby Ospedale di San Marco and the nearby church of San Giovanni and Paolo, the Colleoni is part of a spectacular ensemble in Venice that anchors the lively activity in nearby shops and cafes on the square and the adjacent street and canals. And this, after all, is the purpose of commemorative sculpture: to grace and transform, as well as animate our public spaces.

Colleoni and his colorful legend, part of the lore of the city, now take on an international dimension as the statue is transformed through its restoration into one of the world's outstanding works of public art. The condottiere and the great Renaissance artist have received their apotheosis. And not a moment too soon.



THE RESTORATION OF ANDREA DEL VERROCCHIO'S EQUESTRIAN STATUE OF BARTOLOMEO COLLEONI WAS CELEBRATED IN A LOCAL FESTIVITY ON JUNE 23.

*Bonnie Burnham*

Bonnie Burnham  
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A TEN-KILOMETER FOOT PATH LEADS INTO THE HAMLET OF SUNDA CHUNG, HOME TO LESS THAN A DOZEN FAMILIES AND AN EXTRAORDINARY ELEVENTH-CENTURY MONASTERY. DEVELOPMENT PLANS FOR THE AREA INCLUDE EXTENDING A ROAD INTO THE VILLAGE TO FACILITATE VISITOR ACCESS.

## Building a Sustainable Future

Few regions of the world have so enchanted the explorer as the High Himalaya with its rich spiritual traditions and extraordinary, yet forbidding, landscape, the product of great geological forces, which have been at work for millions of years. Strategically sited between the formidable empires of Britain and Czarist Russia during the heady years of the Great Game, most of the region remained closed to the outside world well into the twentieth century.

For the once-independent kingdom of Ladakh (see page 22), limited access resulted in the preservation of age-old ways, many of which have endured to the present day. But this is changing rapidly. Now a semi-autonomous region within the Indian state of Jammu and Kashmir, Ladakh first opened its doors to the outside world in 1974. Since then, access to the area

has become increasingly commonplace, made all the easier by daily flights into the Ladakhi capital of Leh throughout the June to September trekking season. While Ladakh's visitor numbers—which topped 23,000 in 2005—may seem modest when compared to those of destinations in Europe, Latin America, and Southeast Asia, they are growing steadily with tourism rather than trade goods fueling the local economy. As visitor numbers increase, however, so does the toll exacted on this wondrous and fragile landscape and its resources. Ladakh is at a crossroads with much to gain and much to lose. Our hope is that by managing resources wisely, Ladakh will be able to ensure that any increase in visitation will improve its capacity to care for its extraordinary cultural heritage.

For those of you wishing to visit Ladakh and other destinations mentioned in this issue, we have added a new section to the magazine, an Insider's Guide (see page 44), in hopes that you will journey to see WMF's work in the field first-hand.

Angela M.H. Schuster  
EDITOR

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## NEW INITIATIVES LAUNCHED

### Addressing the Needs of Developing Nations

For decades, WMF has recognized that preserving cultural heritage, particularly in developing countries, can bring enormous benefits not only in engendering local pride but in fostering economic growth. Yet, many highly significant cultural sites in such nations remain virtually unknown to the outside world. As a result, local communities often lack the resources and capacities—financial, professional, and organizational—to protect and conserve important monu-



ments and provide for their long-term stewardship. In many cases, this challenge is further compounded by destruction wrought by war or natural disaster. To address this issue, WMF is launching

the Annenberg Program for Endangered Cultural Heritage in the Developing World, a program designed to provide new opportunities for the organization to expand its reach and commitment to underserved and underrecognized countries where an investment in cultural heritage has the most potential to benefit local communities through training and capacity building, site management and tourism planning, and expanded international technical exchange. This year's grants will aid sites in the Middle East and South America.

### Safeguarding Great Works of Modern Architecture

Among the most threatened sites to come into the WMF portfolio in recent years have been great works of modern architecture—among them Mies van de Rohe's Tugendhat House in the Czech Republic; residences by Richard Neutra, Rudolph Schindler, Edward Durrell Stone, and Frank Lloyd Wright in the United States; and the National Schools of Art in Cuba. To enhance its effort to preserve such sites, WMF has launched a major new initiative, Modernism at Risk, a program

made possible with the support of Knoll, Inc., a leading manufacturer of modern furniture for the office and home. While the issue of preserving



TUGENDHAT HOUSE, CZECH REPUBLIC

modern structures is gaining prominence in public discourse, postwar buildings around the world continue to fall prey to neglect, deterioration, demolition, and unsympathetic redevelopment. Modernism at Risk will greatly strengthen WMF's ongoing efforts to preserve modern buildings. Knoll will contribute \$400,000 over a four-year period to the new initiative.

In addition, WMF and Knoll will award a biennial Modernism Prize to recognize those architecture and design professionals who have developed creative solutions to extend the life of modern landmarks.

## WATCH SITE LOSES GROUND

### Greenock Sugar Warehouses Burn

A former Watch Site and an internationally recognized landmark of Scotland's industrial heritage faces partial demolition following a major fire. Sections of the former James Watt Dock Sugar Warehouses in Greenock, Renfrewshire, collapsed in the blaze, which took 40 firefighters more than four hours to bring under control on June 13.

The fire started inside the cast iron and brick industrial buildings, and quickly spread to the central section of the four-story buildings, with flames bursting out from the roof. It is believed the fire began at a pile of tires stored inside the warehouses. A spokesman for Clydeport, the owner, said part of the roof has come off the warehouses, and estimated damage to be in the region of

£100,000. He said a program of partial demolition will be required to ensure the buildings' safety, but that the company would try to store any architecturally important parts of the structure for prospective regeneration projects. Colin Amery, director of WMF in Britain, shared local dismay at this turn of events: "WMF placed these warehouses, the largest surviving cast iron and brick industrial buildings in Scotland on the Watch list in 2002, to draw attention to their plight and give them a global architectural context. Now it seems this secular shrine to industry has fallen victim to neglect and an inability to be reused. A fire of this kind could easily result in their demolition."

Known locally as the sugar sheds, the



dilapidated structures have also been a fixture on the Scottish Civic Trust's (SCT) Buildings at Risk register for 11 years. Feasibility studies in the past have estimated it would cost in the region of £18 million to restore the sheds, and this looks less likely after this fire. —WILL BLACK

# WATCH 2006 UPDATE

With each announcement of a new biennial list of 100 Most Endangered Sites, WMF presents to the world a snapshot of the state of cultural heritage sites around the globe and the dangers they face. This issue marks a year since WMF announced its 2006 list. And in that time, more than half of

the sites included on the list have reported substantial progress as a result of Watch listing. Herewith are just a few updates from places where nominators have been able to take full advantage of Watch listing to help save their sites. For more background on each of these sites and why they were listed, see [wmf.org](http://wmf.org).

## DUTCH REFORMED CHURCH

**NEWBURGH, NY** Capitalizing on the attention garnered by Watch listing, the city of Newburgh has launched a public planning



process in which residents are working with officials and professionals to help identify an appropriate new use for this historic church, designed by one of America's most pro-

lific nineteenth-century architects, Alexander Jackson Davis (1803-1892). In addition, the foundation and basement level of the church has undergone stabilization and repair.

## BLUEGRASS CULTURAL LANDSCAPE

**KENTUCKY** Watch listing has elevated awareness of the aggressive development of Kentucky's Bluegrass region and sparked a public discourse on sustainable development, including a *New York Times* OpEd piece, "Bluegrass Blues," by noted Kentucky author Bobbie Ann Mason. Preserving the region's many horse farms and agricultural properties was one of the top three issues debated during the mayoral race in Lexington—the unofficial capital of the Bluegrass Region.



## SÉGOVIA AQUEDUCT

**SÉGOVIA, SPAIN** A masterpiece of hydraulic engineering, the 2000-year-old aqueduct



has been threatened by pollution and development. Watch listing generated tremendous publicity, prompting the Ministry of Culture to commit more than €150,000 annually to maintain the site.

WMF and the municipality are now developing an integrated masterplan and drafting legislation to protect the aqueduct and its surroundings.

## KAROL SCHEIBLER MAUSOLEUM

**ŁÓDŹ, POLAND** Press coverage generated by the listing of the mausoleum of the nineteenth-century industrialist helped the nominator and local advocacy group rally the Łódź community to the cause of protecting the site. The municipality has since agreed to support a conservation study for the structure. It is hoped renewed interest in the building will generate funds for its restoration.



## LEDNICKÉ-ROVNE PARK

**SLOVAKIA** Following inclusion of the eighteenth-century Historical Park of Lednické Rovne on the 2006 list, the Slovakian Ministry of Culture awarded a grant to restore the natural elements in the park,



while the local Slovak gas industry is funding the conservation of some of its architectural elements. Work is slated to begin later this year.

## TEATRO CAPITOLIO

**LISBON, PORTUGAL**

Constructed in the 1920s and 30s as part of an urban entertainment district, the Teatro Capitolio was slated for demolition to make way for a new development designed by Frank Gehry. Press from its inclusion on the 2006 list generated support for saving the building. In February, the Mayor of Lisbon announced that the historic theater would be restored and incorporated into the new plan for the area, rather than razed.



## SIR ERNEST SHACKLETON'S HUT

**CAPE ROYDS, ANTARCTICA** Built in 1908, Sir Ernest Shackleton's Hut is one of six wooden building ensembles remaining—albeit in a fragile state—from the heroic age of Antarctic exploration. The New Zealand Antarctic Heritage Trust, which is conserving the site, has raised \$3.4 million, due in large part to awareness of the hut generated by its inclusion on WMF's 2004 and 2006 Watch lists.



## LANDMARK RULING

## WTC Stair to be Preserved

The "Survivors' Staircase," a flight of steps that once led from Vesey Street in Lower Manhattan to the World Trade Center plaza, was declared one of America's most endangered historic places by the National Trust for Historic Preservation this past May, thanks in part to the efforts of the Lower Manhattan Emergency Preservation Fund (LMEPF).

The only above-ground element to have survived the attacks of the World Trade Center and the subsequent cleanup, the staircase played a significant role in saving the lives of hundreds of individuals escaping from their offices just before the two towers fell. Yet, according to Richard Moe, president of the National Trust, few people



are even aware that the staircase exists. "It's an enormously important artifact," he said.

Although current redevelopment plans

for Ground Zero do not include presentation of the stairway, representatives of the LMEPF are hoping that will change.

A coalition of five preservation organizations—including WMF—that formed in the wake of the September 11 attacks, the LMEPF has been helping to secure and protect Lower Manhattan's historic resources, including the slurry wall and foundation columns of Towers One and Two, which will now be part of the memorial museum. For information on the LMEPF, visit: [wmf.org/nycpreservation911](http://wmf.org/nycpreservation911). For more

background on the staircase and other sites listed by the National Trust, visit: [www.nationaltrust.org](http://www.nationaltrust.org)

—KEN LUSTBADER

## UNESCO IN SESSION

## New Cultural Sites Added to World Heritage List

Sixteen cultural sites were inscribed on UNESCO's World Heritage List during the 30th session of the World Heritage Committee, held in Vilnius, Lithuania, July 8-16, bringing the total number of cultural sites on the list to 644. Among the newly inscribed properties are the archaeological site of Bisotun in Iran, which reached its apogee during the reign of the Persian king Darius I (r. 521-486 B.C.); the Chongoni Rock Art Area in Malawi, the richest concentration of rock art in Central Africa with some 127 sites; the fortified historic town of Harar Jugol in Ethiopia, a sacred Muslim city built between the thirteenth and sixteenth centuries; the archaeological site of Yin Xu, an ancient capital city of the late Shang Dynasty (1300-1046 B.C.) some 500 kilometers south of Beijing; the Vizcaya Bridge west of Bilbao, Spain, completed in 1893 and the first bridge in the world to carry people and traffic on a



AMONG THE SITES NEWLY INSCRIBED ON UNESCO'S WORLD HERITAGE LIST ARE THE ARCHAEOLOGICAL SITE OF BISOTUN IN IRAN (LEFT) AND THE VIZCAYA BRIDGE WEST OF BILBAO, SPAIN.



suspended gondola; the tequila producing region of Mexico, a living landscape of blue agave fields and the urban settlements of Tequila, Arenal, and Amatitán; and historic mining installations in the United Kingdom and Chile.

Five sites previously inscribed on UNESCO's List of World Heritage in Danger—including the Cologne Cathedral and

India's Hampi, the capital of the Hindu kingdom of Vijayanagar—were removed from that list as a result of significant improvements made in their state of conservation. Two sites were added to the list, which now numbers 31 sites. For descriptions of each of the newly added sites, visit: [whc.unesco.org/en/newproperties/](http://whc.unesco.org/en/newproperties/)

—AMHS



#### AALTO ALTERED?

#### Controversy Erupts over Harvard Renovation

This summer's renovation of the Woodberry Poetry Reading Room at Harvard's Lamont Library has sparked spirited discussion, pitting Harvard brass against the university's own Graduate School of Design.

One of only four North American projects by famed Finnish architect Alvar Aalto, the Poetry Reading Room, designed in 1949, has been cited as a rare and significant example of total design, where every element—from flooring and wall finishes to lighting and furniture—was commissioned specifically for the space. Yet, according to proponents of the renovation, wear and tear from six decades of student use has resulted in substantial damage to the room's finishes and custom-made furnishings, while advances in technology have rendered the room's electrical system inadequate and obsolete.

"A dilemma arises when a celebrated space designed by a world-renowned architect begins to show its age," said Nancy M. Cline, the Roy E. Larsen Librarian of Harvard College. According to the university's public relations department, the Poetry Room will retain as many Aalto furnishings as possible, including the signature paneling and screens as well as the large study table, which is being refinished, and two of the turntable consoles, which are being converted into study tables, while most of the original light fixtures will be reinstalled after being cleaned and rewired. Several retired items, including a console, chair, stool, floor lamp, and ceiling lights, will go to Harvard's Busch-Reisinger Museum.

Harvard officials contend the renovation will upgrade the room to accommodate heavy use and address the needs of twenty-first-century students while remaining true to "the spirit of Aalto." But Toshiko Mori, chair of the graduate school's department of architecture, argues that Aalto's signature furnishings should be restored rather than replaced as planned. "We have discovered to our horror that nearly all of the original furnishings and furniture are to be replaced, leaving no trace of Aalto as a result," Mori told ICON. —AMHS



## In Katrina's Wake Restoring a Sense of Place

An exhibition of photographs by STEPHEN WILKES

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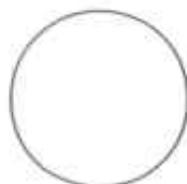
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## INDONESIAN HERITAGE AT RISK

# Special Report from Yogyakarta



On the morning of May 27, 2006, an earthquake registering 6.2 on the Richter Scale and lasting just under a minute rocked Indonesia. Its epicenter was just 20 kilometers southeast of the historic center of Yogyakarta. The famed eighth-century Buddhist temple of Borobudur, a World Heritage Site some 40 kilometers north of Yogyakarta, escaped damage. But the quake—which left more than 5,700 dead and thousands more injured and/or homeless—took

its toll on numerous other historic sites. Among them were the tenth-century Hindu temple complex of Prambanan, a World Heritage site 17 kilometers from the city, and the Tamansari Water Castle, an eighteenth-century pleasure garden within the city's fortified royal precinct, portions of which had only recently been restored following its 2004 Watch listing.

Within days of the quake, Laretna T. Adhisakti and her colleagues at the Jogja Heritage Society—aided by the Center for Heritage Conservation in the Department of Architecture and Planning at Gadjah Mada University and the Indonesian Heritage Trust—mobilized a team to carry out a preliminary damage assessment. Herewith is a summation of their findings:

FACING PAGE: THE MAIN GATEWAY TO TAMANSARI SHORTLY AFTER ITS RECENT RESTORATION, UNDERWRITTEN BY WHF THROUGH ITS ROBERT W. WILSON CHALLENGE. DAMAGE TO THE GATE, RIGHT FOLLOWING THE QUAKE. BELOW: QUAKE DAMAGE TO CEMETHI ISLAND, LEFT, AND PONGANGAN DEKSI BERI, A PIER ON ONE OF TAMANSARI'S ARTIFICIAL LAKES.



**BALUWERTI FORTRESS:** Commissioned by Sultan Hamengkubuwono I and built between 1755 and 1792, the four-kilometer-square royal precinct is composed of an outer fortification wall within which are numerous buildings and building complexes—including the royal residences of Kraton Yogyakarta and the Tamansari Water Castle. The fortification sustained substantial damage to its walls and the trios of bastions marking each of its four corners.

**KRATON YOGYAKARTA:** The Bangsal Trajumas, a hall within the fortress's innermost palace complex used to shelter ritual objects, completely collapsed, while a number of other halls, including the Srimanganti, Pagelaran, and Sitinggil, as well as various outbuildings in the kraton, now have cracks in walls and support columns.

**TAMANSARI WATER CASTLE:** Located just to the west of the Kraton Yogyakarta within the fortified royal precinct, Tamansari, which means "perfumed garden," was built in 1758 as a pleasure palace for Sultan Hamengkubuwono I. The 59-building complex included a mosque, meditation chambers, swimming pools, and a series of 18 water gardens and pavilions surrounded by ornamental lakes. During the quake, the water castle sustained damage to the upper portions

**THREE BASTIONS ON THE NORTH-EAST CORNER OF BALUWERTI FORTRESS COLLAPSED, BELOW LEFT, AS DID TWO OF THE THREE BASTIONS ON THE FORT'S SOUTHWEST CORNER, BELOW RIGHT.**



THE BANGSAL TRAJUMAS, A HALL WITHIN THE KRATON YOGYAKARTA THAT WAS USED TO STORE REGALIA AND RITUAL OBJECTS, COLLAPSED IN THE QUAKE. BELOW, THE NINTH-CENTURY A.D. SOJIWAN TEMPLE WITHIN THE PRAMBANAN ARCHAEOLOGICAL PARK, WHICH WAS UNDERGOING RESTORATION AT THE TIME OF THE QUAKE, COLLAPSED, LEAVING ONLY 30 PERCENT OF THE STRUCTURE STILL STANDING



of its ornate *Gapura Agung* (Grand Gate), the main gateway to the complex and the subject of a recent restoration project underwritten by WMF through its Robert W. Wilson Challenge to Conserve our Heritage. Part of the wall of Cemeti Island on this site collapsed in the quake, killing a mother and her child, who lived there along with some 2,700 other residents.

**PRAMBANAN ARCHAEOLOGICAL PARK:** Completed ca. A.D. 900, the Prambanan Temple Complex, the largest Shiva temple complex in Java, boasts more than 240 temples spread over 143 hectares. The most prominent temples are dedicated to the three great Hindu divinities—Shiva, Vishnu, and Brahma—each of which has an associated temple dedicated to the animals who serve them. The Brahmana Temple, restored in 1987, is the most heavily damaged of the three main temples with slabs of stone scattered about its base. Its pinnacle, balustrade, and a surrounding wall collapsed. The Shiva Temple, the largest at the site and the first to be restored (1918–1953), sustained damage to its foundation, while cracks are visible in the foundation and





THE PLAOSAN TEMPLE COMPLEX WITHIN PRAMBANAN ARCHAEOLOGICAL PARK SUSTAINED DAMAGE TO ITS NORTH TEMPLE, TOP, AND SOUTH TEMPLE, ABOVE, SECTIONS OF WHICH COLLAPSED.

towers of the Vishnu temple, which had been restored in 1991. Also within the archaeological zone, the nearby Sojiwan Temple Complex, which was undergoing restoration at the time of the quake, collapsed, leaving only 30 percent of its masonry standing, while the Plaosan Temple suffered a cracked pinnacle, collapsed roof, and damage to its foundation.

Beyond damage to these sites, numerous vernacular buildings were lost, including traditional houses in the villages of Kota Gede, Wonokromo, and Imogiri. The archaeological office charged with managing sites in Central Java was also destroyed.

The earthquake also dealt a blow to the region's famed artisanal communities, damaging workshops and markets for batik makers in Imogiri and potters in Kasongan and Bayat.

Although ICOMOS Indonesia and UNESCO through its Jakarta office have embarked on an effort to channel international aid to the region, much more remains to be done to stabilize the sites. Since May, the region has continued to experience geophysical unrest—quakes, tremors, and the tsunamis they spawn—further compromising the sites and efforts to preserve them. To keep abreast of the situation, visit [www.jogjaheritage.org](http://www.jogjaheritage.org). For information on how to help, contact WMF in New York (646) 424-9594. ■



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The sliver of Rome that stretches across the Caelian Hill between the Basilica of St. John Lateran and the Colosseum is as historically significant as it is chaotic—a cacophony of whirring mopeds and rattling Fiats rumbling past tourists streaming between archeological treasures and locals going about their daily business. Yet amid all this confusion, tucked inside the massive summit fortress of Santi Quattro

Coronati, is a virtual oasis of tranquility where contemplative Augustinian sisters pray and study in a secluded garden bathed in glorious sunshine. Gentle breezes carry the scent of fresh blossoms through the arches of an adjacent cloister; the noise outside is displaced by chirping birds and the gentle hum of Gregorian chant.

# Oasis of Tranquility

Tucked within Rome's  
monastery of  
Santi Quattro Coronati,  
just steps from  
the Colosseum, a  
900-year-old cloister  
blooms again.

by BARBIE LATZA NADEAU

Over the centuries, the monastery of Santi Quattro Coronati has endured wars and the ravages of time and nature. And, like other architectural masterpieces on the Caelian Hill, this meditative paradise could have just as easily become a ruin had it not been for the fierce determination of the sisters who live there and the dedicated team of architects and conservators charged with arresting its decay.

Construction of Santi Quattro Coronati began in the mid-sixth century at which time a basilica was built atop the remains of a lavish Imperial-age villa that had graced the Caelian Hill's northern summit. During the reign of Pope Leo IV (r. 847-855), the basilica was rebuilt and several chapels were added while a crypt was dug beneath its nave. Other additions included a 22-meter bell tower and a *quadriportico* with pillars and columns, originally adorned with frescoes. When the Normans sacked Rome in 1084, the basilica was burned to the ground, reduced to fragments of pillars and arches that once supported its mighty walls. In the century that followed, a much smaller version of the original basilica was erected, incorporating remnants salvaged from the original structure, while several chapels and giant halls were also built on the site.

During the first quarter of the thirteenth century, a Gothic-styled cloister was tucked in among the buildings, unifying the complex both artisti-







OPENING SPREAD AND ABOVE, RADICAL MEASURES TAKEN TO LIMIT MOISTURE EXPOSURE AND ARREST DECAY ARE FAR FROM NOTICEABLE IN SANTI QUATTRO CORONATI'S NEWLY RESTORED AND LANDSCAPED CLOISTER. BELOW, THE ENTRANCE AND BELL TOWER OF THE MONASTERY COMPLEX.



cally and logistically by connecting the basilica to the various architectural elements.

For all of its tranquility, Santi Quattro Coronati is steeped in its own local lore. Named for four Christian soldiers martyred under Diocletian (r. 284-305) for refusing to make offerings to the Pagan god Asclepius, nine saints are honored as patrons of the church—the latter five were sculptors who died under the same emperor for refusing to sculpt a statue of the same deity. Due to its proximity to St. John Lateran, Rome's patriarchal cathedral during the Middle Ages, papal processions once passed by Santi Quattro Coronati, with some popes taking refuge within the complex to escape an angry populace. The church is also associated with the mysterious Pope Joan, or the Papessa Giovanna, who, according to legend, was elected Pope John VIII, only to give birth to an illegitimate child on the way to the papal crowning—the story, the nuns say, is absolute nonsense.

Santi Quattro Coronati is among the first monastery complexes in Rome to be decorated in the Cosmatesque style, which takes its name from the Cosmati, a family of masons who in the twelfth and thirteenth centuries advanced a new style of *opus sectile* or cut work, which involved crafting mosaics and inlaid marble designs out of stone salvaged from ancient buildings. The cloister itself is thought

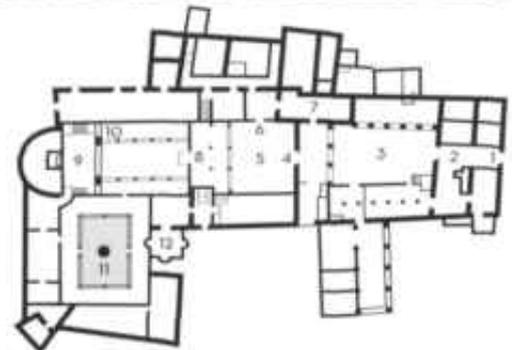
to be the work of Pietro de Maria, a Roman stonecutter. Today, local stonecutters, or *marmorari*, of which there are very few left, meet each November 8 in Santi Quattro's chapel of St. Sylvester to pray for inspiration.

It was during the papacy of Pius IV (1559-1665) that Santi Quattro Coronati was entrusted to the Augustinian nuns in whose care it remains. Under their stewardship, the complex served as an orphanage for girls, a role it maintained until the nineteenth century. Since then, the Augustinian sisters have continued helping Rome's neediest by operating a soup kitchen out of the complex's western gate.

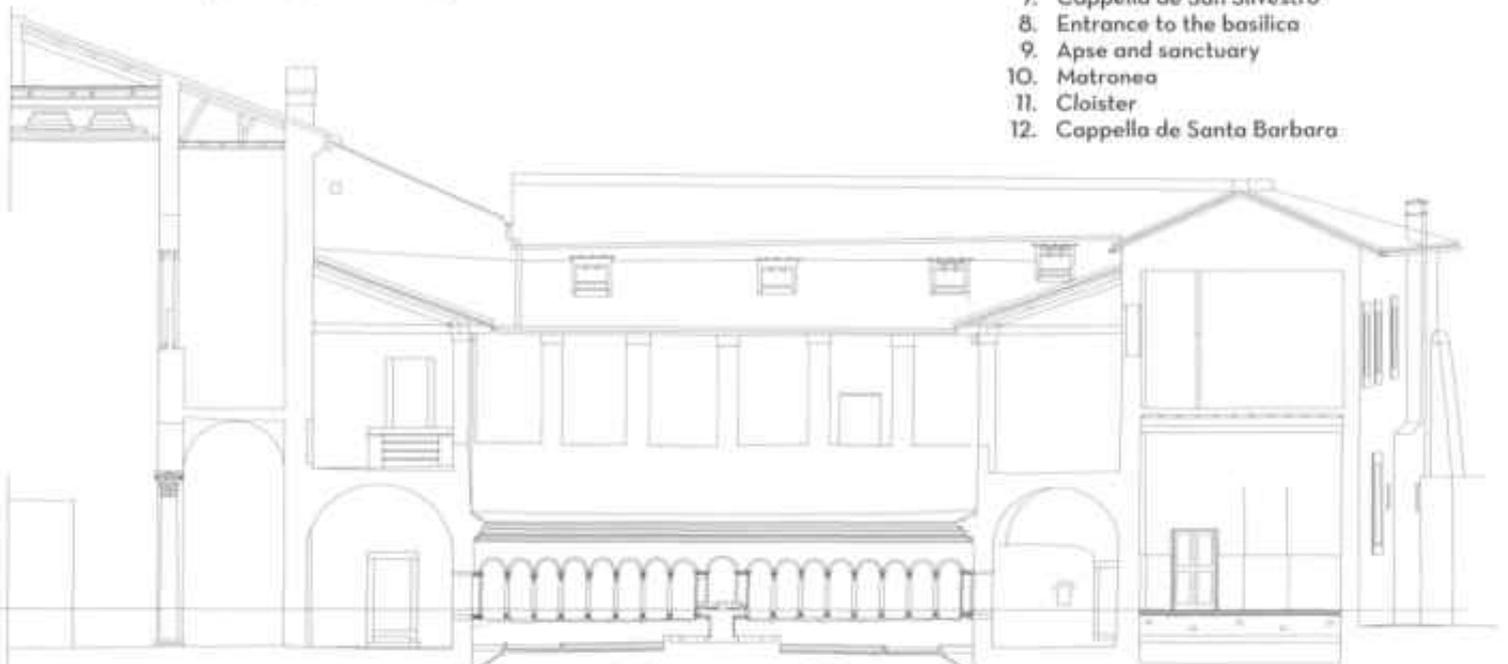
To appreciate the significance of Santi Quattro Coronati, it is vital to understand the grave threat the site recently faced.

At the beginning of the twentieth century, Antonio Muñoz, at that time the local superintendent for monuments, carried out an exemplary restoration of the cloister, one that raised the bar in the history of Italian conservation. In addition, Muñoz collected some 300 artifacts during the restoration project, including notable funerary inscriptions, stones carved with poetry by Pope Damasus, and sculpture dating from the Roman period through the Middle Ages, which he had affixed to the cloister's perimeter walls. Among the most important finds he recovered was an eleventh-century marble *cantharus*, or fountain for ablutions, which still graces the center of the cloister garden today.

Despite Muñoz's careful work, it was not to last. By the late 1990s, Santi Quattro was again at risk, when moisture from humidity and unchecked pollution had begun to destroy the inner walls, particularly those of the cloister. The sisters complained of foul air; the stench of mildew growing out of the walls was so vile that tourists and pilgrims could barely stomach a visit. The culprit was, in fact, water that ran off from the roofs of the convent and basilica into a Roman cistern in the cloister's garden. Water from this buried cistern in the hillside and old Roman sewers made it almost impossible to avoid the persistent damp that clung to the columns and pillars in the cloister. Moisture from the hill was literally rotting the building from the inside out. To make matters worse, the

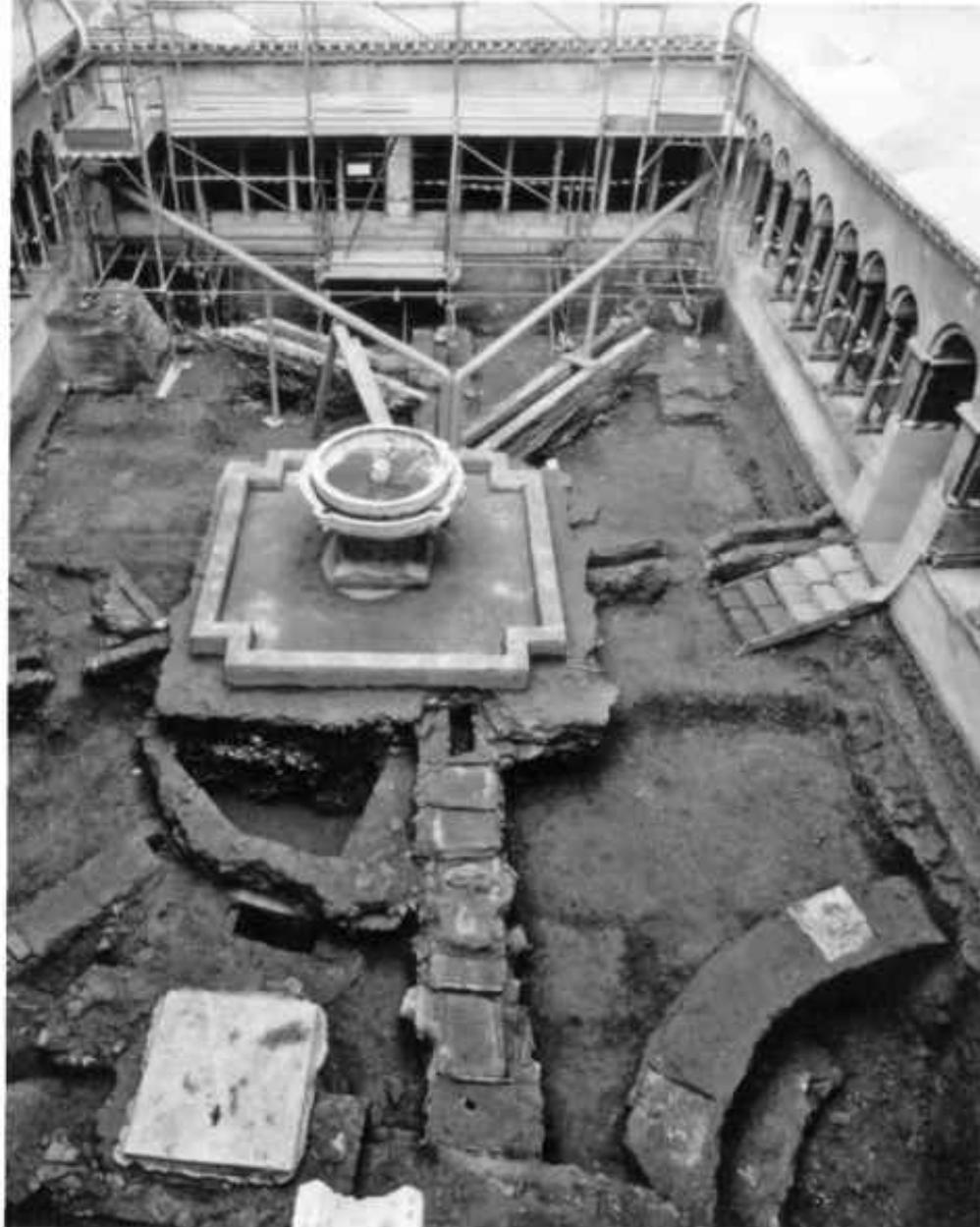


1. Gate
2. Romanesque belltower
3. Outer courtyard
4. Original entrance to the church
5. Inner courtyard
6. Entrance to Cappella de San Silvestro
7. Cappella de San Silvestro
8. Entrance to the basilica
9. Apse and sanctuary
10. Matronea
11. Cloister
12. Cappella de Santa Barbara



Longitudinal cross-section of the cloister





FACING PAGE CLOCKWISE FROM TOP: AN ELEVENTH-CENTURY FOUNTAIN GRACES THE NEWLY RESTORED CLOISTER, WHILE ARCHAEOLOGICAL FRAGMENTS COLLECTED DURING A RESTORATION IN THE EARLY TWENTIETH CENTURY ADMORN THE CLOISTER'S INNER WALLS; THE ENTRANCE TO THE CHAPEL OF ST. SYLVESTER. THIS PAGE CLOCKWISE FROM TOP: ARCHAEOLOGISTS HAD TO EXCAVATE THE ENTIRE CLOISTER TO REACH MORE ANCIENT CISTERNS AND WATERWORKS. THE PRIMARY SOURCE OF DAMAGING HOISTURE, EVIDENT IN A COSMATIC FRIEZE SURROUNDING THE COURTYARD. CONSERVATORS REMOVED MASONRY TO INSTALL TIE BEAMS.



soot from traffic pollution settled on the site like a blanket, resulting in the medieval columns and walls being coated with a wet slime-like grit.

Because the site is operated as a religious entity, the city all but turned its back on its plight, and it was nowhere on the Vatican's list of priorities. Not to be deterred, the artful sisters of St. Augustine lobbied for Vatican attention and got it, piquing the interest of Roger Mahony, Archbishop of Los Angeles, who helped them secure funds to carry out a conditions assessment from the LA-based Getty Grant Program and the Italian company Sparaco Spartaco SpA in 1997. The complexity of the site's conservation problems also garnered the attention of one of Rome's leading restoration architects, Giovanni Carbonara, director of the University of Rome's "La Sapienza" school of monument restoration. "We looked at this not just as something we could fix," he says, "but as an opportunity to be a part of the history of Santi Quattro Coronati and, as such, of Rome."

Realizing that a full restoration of the site, including the cloister, would require substantial technical expertise and could cost millions, Carbonara, with Mahoney and the sisters, brought Santi Quattro Coronati to the attention of the World Monuments Fund, which included the cloister on its 2000 list of 100 Most Endangered Sites. Following Watch listing, WMF was able to raise more than \$800,000 for the restoration of the cloister—the most heavily damaged portion of the complex—through its Robert W. Wilson Challenge to Conserve our Heritage, the Antiqua Foundation, and the Agnus Noster Foundation, funds that were





**PRIOR TO RESTORATION, WATER DAMAGE WAS EVIDENT IN THE FLOOR AND WALLS OF THE ARCADE SURROUNDING THE CLOISTER, ABOVE. BEFORE CONSERVATION BEGAN, ARCHAEOLOGISTS CLEANED ARTIFACTS CAREFULLY EXCAVATED FROM THE THIRTEENTH-CENTURY CLOISTER.**

complemented by support from Sparaco Spartaco SpA and the Provincia di Roma.

With funding in place to begin restoration of the cloister, Carbonara embarked on solving the unique problems presented by Santi Quattro Coronati. Not only did his team have to evaluate the site's physical vulnerabilities and water damage, but they also had to consider its historical, iconographical, symbolic, and spiritual aspects. Beyond conservation issues Carbonara and his team worked according to the stringent regulations set forth by the Italian government regarding the type of work that could be done, which materials could be used, and what sort of equipment was allowed, as well as accommodate the nuns' prayer schedule.

Careful excavations were carried out to determine the extent of the water damage and to evaluate various methods of drying out the area around the cloister. Structural engineers, chemists, and microbiologists were called in to help determine the least invasive approach to conservation and eventually restoration. It was also important to decipher the basic differences between damage wrought by previous attempts at

restoration and by the passage of time.

By the time the actual restoration began in 2000, the site had been studied and evaluated and tested to such an extent that volumes of significant information were archived, not just for future restorers, but for art historians and archaeologists. "Never before have we done this type of multi-disciplinary work in Rome," Carbonara says, adding that this research has become an integral part of his teaching material.

Test lasers were used extensively to clean the layers of pollution or "black crusts" off the structure. When the cleaning process left the original surface "too new" or removed the marks of natural oxidation from the stones, artists were brought in to re-create the exact hues and match the cleaned surfaces to the originals. "Restoration is a measured discipline," says Carbonara, noting that





one cannot always see the immediate results. "It is, in many ways, like an aged wine. A true restoration cannot be done quickly and its effects may not be seen for years to come."

In addition to the aesthetic considerations of the site, Carbonara's team was also careful to assess the risk of bringing in equipment to carry out the restoration and minimize any damage that might be caused by the installation of ventilation and electrical systems. Where new wiring had to be laid, ancient floor tiles were removed, numbered, and re-set rather than replaced. And where the ventilation system had to be integrated into the structure to keep the walls dry, it was designed to blend seamlessly into the surfaces. Many aspects of the overall restoration of the cloister are hardly visible, except for the noted absence of damp, which Carbonara views as a success. "An ancient structure is a part of living history. We don't want to cancel out its history, or erase its past, just grant it a reprieve for the foreseeable future."

For Carbonara and those conservators who worked to arrest the further decay of the cloister, the case of Santi Quattro Coronati is a true success story. Not only did they save the site, but they were able to do so through the generosity of private donors, thereby avoiding so much of the governmental red tape that governs preservation in Rome. More important, the research gathered in the restoration process will prove invaluable to conservators as they complete restoration of the cloister and carry out much-needed work on the rest of the monastery complex. "With luck," says Carbonara, "Italy's private sector might learn a thing or two from our project, ensuring a brighter future for the rest of the monastery complex as well as many more of the city's extraordinary architectural treasures." ■

**A MASS CELEBRATING THE CONSERVATION  
WORK IN THE GARDEN OF THE CLOISTER  
WAS HELD IN SANTI QUATTRO CORONATI'S  
BASILICA THIS PAST MAY.**





The soft glow of butter lamps illuminates Lama Tsering as he blesses a bundle of prayer flags, aspersing them with rose water and grains of white rice. Clad in a saffron robe and enveloped in a cloud of juniper incense, he prays for the success of our mission, his rhythmic chant punctuated by the celestial chime of cymbals and the percussive strike of a small drum.

Five hours ago our party was dropped off at Chiling—the road head—where we began our ten-kilometer trek to Sumda Chung, an 800-year-old monastery perched high on a hillside overlooking a snow-fed tributary of the Zaskar River in central Ladakh. Shortly after our arrival, conservators Mark Weber, Sanjay Dhar, and Sonam Wangchuk; photographer Tejbir Singh; and I presented offerings of prayer flags and incense at the main temple, removing our hiking boots before entering the sanctuary.

# Conservation on the ROOF of the WORLD

by ANGELA M.H. SCHUSTER

**With tourism on the rise, the Himalayan kingdom of Ladakh is seeking to address its growing need for infrastructure within the context of sustainable community-based development.**

Once sanctified, the flags will be strung between poles atop the temple roof, releasing the prayers printed on them into the wind. It is an auspicious moment, marking the beginning of an international effort to restore the temple and preserve an extraordinary cycle of murals within it—among the most important works of Buddhist art ever created. Porters have prepared our camp in a clearing downslope, a place we will call home for the next two days as our team carries out a comprehensive documentation of the paintings and the temple, a necessary first step in the preparation of a conservation plan.

It has been more than a millennium since Buddhism took root in the once-independent Himalayan kingdom of Ladakh, introduced there by the venerable sage Padmasambava in the eighth century A.D. Today, the remains of dozens of fortified monasteries—many still in use—dot the region's steep hillsides, a testament to the endurance of the faith and the often turbulent political environment in which it flourished.

Embraced by the majestic peaks of the Himalaya and Karakorum ranges, Ladakh—now a 100,000-square-kilometer semi-autonomous region in the Indian state of Jammu and Kashmir—is one of the highest inhabited places on Earth. It is a rugged alpine desert criss-crossed by great rivers and deep verdant valleys nourished by melting snow. Its name is derived from the

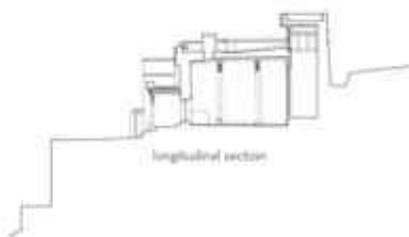
## SUMDA CHUNG



southeast elevation



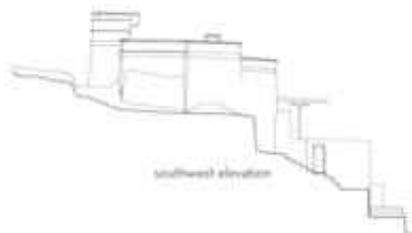
ground floor



longitudinal section



cross section



southwest elevation

Tibetan *La-dwags*, meaning “land of high passes,” an apt description of a region whose elevations range from 2,600 to 7,700 meters. For centuries, caravans plied these often treacherous passes, transporting textiles, precious stones, tea, spices, and other luxury goods from China, Tibet, and India to Kashmir and Central Asia. Perhaps more important, this well-trodden byway of the fabled Silk Road served as an intellectual corridor, fostering an exchange in ideas evident in a rich cultural legacy that survives to this day, preserved within numerous Buddhist temples and monastic complexes.

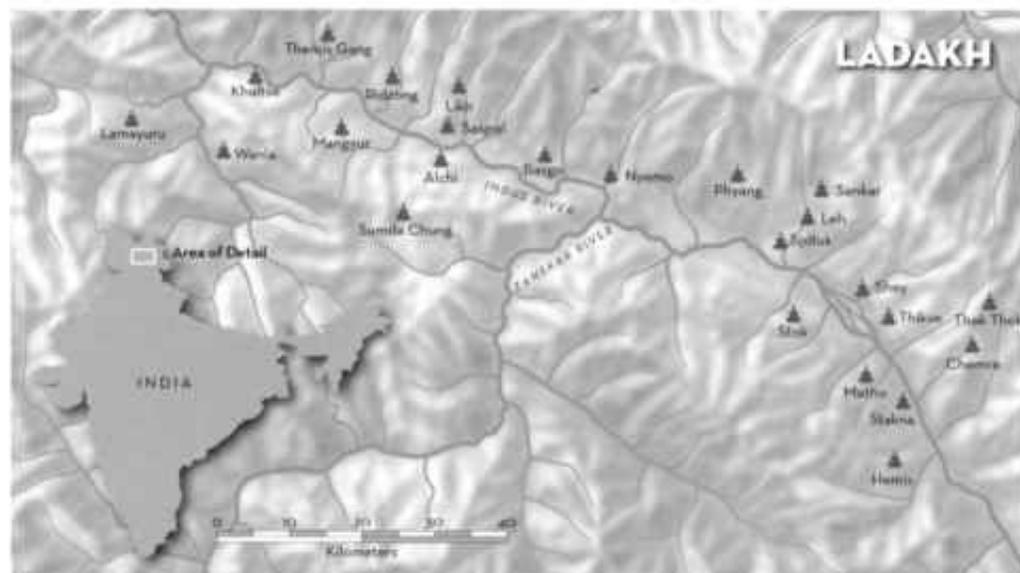
Built of mudbrick, wood, and stone centuries ago, the monasteries prospered under the patronage of Ladakh’s rulers and *rinpoches* (Buddhist teachers), who commissioned the extraordinary works of art within them—murals, *thangkas* (painted scrolls), and gilded images of the Buddha. Foremost among these was Rinchen Zangpo (A.D. 958–1055), who with his successors has been credited with reviving the faith in Ladakh and in the process founding more than 100 monasteries and temples in the region, including those at Alchi, Mangyu, Nyarma, and Lamayuru, and the lesser-known temples at Sumda Chung.

Today, many of the monasteries founded by Rinchen Zangpo and his successors continue to serve as centers of learning for vibrant communities of monks and as spiritual anchor points for villages throughout the region. Time, however, has taken its toll on their surviving buildings, which have endured centuries of exposure to the elements and seismic activity—the latter wrought by the unrelenting march of the India Plate as it continues its 55-million-year northward journey, plunging deep into the Earth’s mantle beneath the Tibet Plateau. In some cases, well-intentioned efforts to shore up buildings have only compounded the damage. Such has been the case with Sumda Chung, which was recently inscribed on WMF’s 2006 list of 100 Most Endangered Sites.

Yet the future of this remote monastery may be a bit brighter now, thanks to the pioneering efforts of the Namgyal Institute for Research on Ladakhi Art and Culture (NIRLAC), a Leh-based family trust headed by His Excellency Chogyal Jigmed Wangchuk Namgyal, whose ancestors ruled Ladakh throughout much of its history—from A.D. 975 until the kingdom was annexed by Jammu and Kashmir in 1846.

Launched in 1985 to foster a better understanding of Ladakhi culture and encourage a revival of traditional crafts in the region, NIRLAC has become the leading preservation organization in Ladakh, working to protect its architectural wonders and build the necessary local infrastructure to conserve and care for them. Central to NIRLAC’s operation is the full participation of village and monastic bodies in the conservation, management, and maintenance of the historic properties the trust chooses to take on.

Since 2002, NIRLAC has played a critical role in the restoration of a trio of temples at Basgo, 42 kilometers northwest of Leh, providing much-needed technical assistance to the Basgo Welfare Committee (BWC), a village-based social organization that had brought the sanctuaries to the attention of WMF, nominating them to the organization’s 2000 list of 100 Most Endangered Sites. The primary reason for our coming to Ladakh—aside from documenting the





murals at the ancient monastery of Sumda Chung—has been to check in on the progress made at Basgo in the years since the temples first came onto the Watch list and to attend a WMF-sponsored planning workshop on sustainable development at the site.

Built between 1445 and 1650 and dedicated to the Great Maitreya, or “Future Buddha,” the temples are cradled by the eroded ramparts of once-mighty Basgo Citadel, sited atop a rock outcropping overlooking the village of Basgo, home to 1,000 inhabitants. Known in Ladakhi chronicles by its Tibetan name, *Rab-brtan lha-rtse*, or Divine Peak of Great Stability, the fortress, built of mudbrick and rammed earth, served as the seat of Ladakh’s royal family and the administrative capital of the country from the fifteenth through seventeenth centuries. During this time the citadel weathered numerous sieges, most notably from invading Mongol, Tibetan, and later Dogra armies.

The oldest and most magnificent of the Basgo temples is Chamba Lhakhang, constructed during the reign of Drakspabum lde (r. 1450–1490). A colossal gilt and polychromed clay figure of the Maitreya—flanked by statues of Avalokiteshvara, the Bodhisattva of Compassion—fills the apse of the temple, which is laid out on basilica plan. In the late sixteenth century, the Chamba Lhakhang was refurbished under the guidance of King Tsewang Namgyal, who commissioned the murals that grace its interior. Painted between 1580 and 1600, the murals depict manifestations of the Buddha, important deities and rinpoches, as well as scenes from the life of the king and his court.

Begun during the reign of Jamyang Namgyal (r. 1600–1615) and completed by his son Senge Namgyal in 1622, the temple of Serzang—which literally means “gold and copper”—houses a 14-meter-high, gilt-copper statue of a seated Maitreya. Adjacent to the temple is the diminutive Chamchung, a shrine commissioned by Queen Gyal Khatun, a Balti princess and wife of Jamyang Namgyal. Thought to have been built originally as a mosque—the Balti being Muslims—the shrine was converted into a Buddhist temple by Skalzang Dolma, the Balti wife of Senge Namgyal (r. 1616–1642). Like the walls of Chamba Lhakhang, those of Chamchung are graced with resplendent murals.

At the time of their inclusion on the 2000 list of 100 *Most Endangered Sites*, the sanctuaries were in an advanced state of decay with failing roofs, structural cracks, crumbling mudplaster, and delaminating murals—damage caused in large part by the erosion of the hill upon which the temples were built. Chamba Lhakhang in particular was on the brink of collapse. A deep gully had developed in the hill beneath the southern end of the temple’s foundation, resulting

**A NEWLY CONSTRUCTED RETAINING WALL  
HAS HALTED EROSION OF THE HILLSIDE  
BENEATH CHAMBA LAKHANG.**

SONAM ANGDUS, RIGHT, SUPERVISES THE REPLACEMENT OF CHAMBA LHA KHANG'S PAINTED CEILING. A CIVIL ENGINEER BY TRAINING, TSERING ANGCHEK, PICTURED WITH HIS MOTHER BELOW, HAS BEEN A DRIVING FORCE BEHIND THE RESTORATION OF THE TEMPLES AT BASGO FOR WELL OVER A DECADE. PAINTINGS CONSERVATOR SANJAY DHAR, BOTTOM, SHOWS WMF PROJECT DIRECTOR MARK WEBER AREAS OF SUBSTANTIAL WATER DAMAGE TO CHAMBA LHA KHANG'S MURALS.



in a vertical crack down the length of the south elevation that weakened the entire structure. Despite the fact that several years earlier the Basgo Welfare Committee (BWC), under the guidance of Tsering Angchuk, a civil engineer and secretary of the committee, had begun construction of a retaining wall to bolster the southern end of the citadel, the temples were literally being torn apart by the differential settling of their foundations as the rock beneath them continued to waste away.

Shortly after the 2000 Watch list announcement, American Express stepped forward with a grant of \$45,000 for Basgo—just enough money to complete the construction of the retaining wall and to begin carrying out emergency repairs. It soon became clear, however, that a team of trained conservators would be needed to carry out the more delicate work of stabilizing the temples, stitching the structural cracks in their walls, and beginning the painstaking process of conserving their murals. At this stage WMF dispatched a team to evaluate the site and determine the best methods for its restoration.

NIRLAC, with its access to some of the best conservators in South Asia—as well as His Excellency's familial connection to Basgo—became a natural partner for the restoration project. "We were extremely impressed with how committed Basgo's residents were to saving the site," says Tara Sharma, NIRLAC's program director. "Since the early 1990s, the villagers had volunteered their time and donated money and materials for the project even though some were working hard just to support their own families. That's how important the temples are to them." Beyond monies contributed by villagers, Angchuk was able to raise some \$80,000 in funds from various organizations, including UNESCO, with the help of a Basgo-born friend, Lozang Jampal, a Buddhist scholar associated with the New York-based Tibetan Classics Translators Guild, to support the BWC's restoration work.

In addition to constructing the retaining wall—stones for which had been brought in on the backs of villagers—it seems that Basgo residents had undertaken a number of emergency repairs over the years, including patching temple roofs with layers of clay, which resulted in an ever-increasing load on walls and wooden support columns that further compromised the ancient structures. "Given the extent of the damage, the temples could not be saved without technical assistance," says Sharma, noting that some early proposals from the BWC called for the use of concrete and repainting of the murals rather than conserving the original paintings.

With additional support from private donors in India, the Tibetan Classics Translators Guild, and WMF through its Robert W. Wilson Challenge to Conserve our Heritage, NIRLAC was able to assemble an expert team of architects and conservators not only to carry out the work but to train the resident monks and villagers—many of whom had devoted considerable time and effort to saving the site. With a conservation strategy in place, Angchuk was enlisted as the on-site project manager to guide its implementation. As part of WMF's ongoing commitment to

restoration work at Basgo, project director Mark Weber, who handles the organization's South Asian portfolio, was charged with overseeing the conservation work at the site and providing technical assistance on an as-needed basis. It is Weber who organized our journey to Ladakh with the help of WMF's New Delhi-based consultant Amita Baig. Prior to setting off on our trek to Sumda Chung, we spent several days at Basgo, touring the site in the company of the conservators charged with its restoration.

As one drives north of Leh along the Leh-Srinagar Highway en route to Basgo, the complex geology of this tectonic contact zone is writ large in the disparate stratigraphy of the steep slopes flanking the upper reaches of the Indus—a stretch of the river known locally as the Sengge Tsangpo. To the northeast are hills of craggy and fractured granite, what geologists call the Ladakh Batholith; to the south are tilted and folded bands of bedded sandstone, the Indus Molasse. As we neared Basgo, we passed the junction of the Indus and Zaskar rivers. It is a dramatic landscape punctuated with mane walls, chortens, monasteries, and prayer flags.

The eroded watchtowers and ramparts of Basgo citadel are barely discernible from the surrounding rock, save for the newly constructed retaining wall beneath Chamba Lhakhang. Upon our arrival, we were greeted by Tsering Angchuk and his team who were eager to show us around the site and fill us in on what had been accomplished to date, including the full restoration of the Chamchung shrine—a project carried out with the support of UNESCO—and substantial WMF-sponsored structural work on Chamba Lhakhang, which entailed major repairs to its foundation and the “stitching” of large cracks in its masonry with mudbricks and plaster. This season, restoration of the temple has entered a critical stage with the removal and replacement of its badly damaged roof.

“Originally the roof was composed of layers of birch bark, clay, mud, and barley straw placed atop the painted timber ceiling,” said Abha Narain Lambah, the principal architect for the Chamba Lhakhang project, as we navigated the complex maze of scaffolding erected inside the temple to support it during restoration. “Over time, however, additional layers of clay and straw were added to patch leaks, roughly doubling the original weight of the roof and resulting in the deformation and cracking of the interior support elements. The building may have been under-structured to begin with,” she said, noting that its four interior wooden support columns had been fortified with rope and cloth sometime after its construction, “but were no match for the added burden of the roof.”

Shafts of sunlight beamed down on workmen perched on the scaffolding as they continued replacing planks of the painted timber ceiling. As we climbed up to a small second floor terrace surrounding a skylight over the sanctuary to examine the roof, Lambah described its original design. Test corings revealed what was original and what had been added over time. “We decided to reconstruct it as it had been originally,” she said. According to Lambah, the only “modern additions” will be a few pieces of metal flashing atop the walls and several hollowed-out poplar timbers to channel rainwater away from the building.

HIS EXCELLENCY CHOGYAL JIGMED WANGCHUK NANGYAL, FAR LEFT, AND CONSERVATOR SONAM WANGCHUK, SECOND FROM LEFT, LOOK ON AS BASGO RESIDENTS REPLACE THE ROOF OF CHAMBA LKACHANG USING TRADITIONAL MATERIALS. AN IMAGE OF YAMA DHARMAPALA, THE LORD OF DEATH, AN IMPORTANT PROTECTOR DEITY IN TIBETAN BUDDHISM, GRACES THE WALL OF BASGO'S CHAMCHUNG SHRINE.





PAINTED EIGHT CENTURIES AGO, A DELICATE FLYING APSARA IS JUST ONE OF THE THOUSANDS OF EXTRAORDINARY IMAGES GRACING THE WALLS OF SUMDA CHUNG. OTHER INTERIOR DETAILS INCLUDE A VAJRADHATUMANDALA, BELOW, COMPOSED OF 37 INDIVIDUAL SCULPTED FIGURES AND ONE OF THE EARLIEST SURVIVING WORKS OF ITS KIND.



"One of the most challenging aspects of the restoration," said Lambah, "has been the procurement of building materials such as birch bark—which had been placed directly atop the timber ceiling as a waterproofing layer in the original construction—due to the scarcity of timber at such high elevations and the relatively brief summer window in which materials can be brought into Ladakh. Since roads into the region are impassable during the winter months, timber, particularly Deodar wood from Kashmir must be ordered nearly a year in advance so that it has a chance to cure." Scattered about the terrace are stacks of replacement birch bark, harvested from forests of Sonamarg in the Kashmir Valley.

Back inside the temple, Sanjay Dhar, a paintings conservator trained in India and Italy, brought us up to date on the restoration of the murals, which have been covered with a protective tarp while structural work on the building is carried out.

"Water damage at the site has been exacerbated by a pronounced change in the region's rainfall pattern," said Dhar. "What used to fall in numerous light showers is now falling in one or two torrential downpours," he added, pulling back the tarp and pointing to several bulging columns of mud—the remains of rain-melted masonry—flowing down the murals. "It is not just a matter of removing the mud from the paint surface, but centuries of soot from ever burning butter lamps in the temple."

Despite extensive damage, it was clear to us why the murals are so important—the artistry with which the figures are rendered was masterful. Aside from the mudflows, which bond tenaciously to the painted surfaces, there has been substantial pigment loss in areas where structural cracks had opened in the masonry. Where painted surfaces survive adjacent to the cracks, the intonaco has largely delaminated from its plaster ground.

Beyond the traditional problems of mural conservation, Basgo has presented a more difficult challenge for Dhar—one that has pitted his ethics as a conservator against the needs of the community whose temples continue to serve a religious function. "While strict rules of conservation dictate filling paint-loss areas with blank intonaco," Dhar told us, "locals do not understand why I seem unwilling to repaint missing portions of the images since 'everyone knows what belongs

there,' given the strict canon of figural representation in Buddhist art. For them, the restoration of old and dilapidated shrines and replacement of broken, decaying images or other cult objects with new ones is seen as a great act of religious merit. It is not a matter of restoring paintings for art's sake but restoring the spirit with which they are imbued." Moreover, he said, there is great fear within the community of potential wrath wrought by damaged images.

After much animated discussion, Dhar and the villagers were able to reach a compromise of sorts. He would "visually integrate" any missing portions of the images, "ritually completing the figures," while still adhering to international conservation standards by maintaining a clear distinction in tone and texture between what is original and what is not. Restoration of the murals is slated for completion this coming October.

Following our visit to Chamba Lhakhang, we strolled over to Serzang, which is awaiting restoration. Although the temple's condition is less dire than the others, Serzang too suffers from erosion beneath its foundation, which has resulted in several cracks in its rear wall and damaged paintings. And, like the other temples, attempts to repair its roof with the addition of clay and straw has stressed the structure to such an extent that wooden lolly columns have been installed inside the sanctuary to help bear the weight. Although a preliminary assessment of the structure was carried out as part of the overall documentation of Basgo, a more detailed analysis of the building must be carried out before work on the temple begins next season.

Since conservation efforts began at Basgo, His Excellency, who assumed leadership of NIRLAC in 2000, has taken a hands-on approach to the restoration process, working alongside Angchuk and his team. In addition, NIRLAC has been instrumental in helping local residents formulate a plan for the long-term care of the site as well as examine its potential for generating revenue for the village through tourism.

While visitor numbers have steadily increased in Ladakh since the region first opened its doors to tourists in 1974, there has been a sharp increase in visitor numbers over the past two years due in large part to the political instability in neighboring Nepal. Seen as an alternative destination for travelers seeking an Himalayan adventure, Ladakh welcomed some 23,000 visitors during its 2005 June-to-September trekking season. Yet, as in so many parts of the world, Ladakh's local people have been among the last to benefit from tourism but the first to experience the toll it can exact on cultural and natural resources—particularly in a fragile environment. Visitors to Ladakh tend to make Leh their home base, visiting local villages and monasteries as day trips. As a result, the communities fail to profit from tourism dollars—the lion's share go primarily to outside tour operators—leaving them with neither the incentive nor the capacity to care for and protect their cultural and natural patrimony.

For the BWC, the restoration of Basgo's monastic complex is a key component of an overall village revitalization scheme that also includes the rehabilitation of more recent vernacular buildings for reuse as guest houses and cultural centers. If Basgo can attract overnight visitors on its own terms, the village hopes to reap the benefits of tourism without eroding the traditional values and way of life. How to ensure the preservation of Basgo's cultural legacy and natural environment with controlled tourism cultivation and infrastructure building was one of the focal points of the workshop at the site.

"Beyond the rescue of the temples, Basgo is serving as a case study in conservation training and sustainable economic development," His Excellency told us, "one we hope to replicate at other 'living' historic sites such as Sumda Chung," a project slated to begin early next year, funds permitting.

MONKS FROM HEMIS MONASTERY, WHICH HAS JURISDICTION OVER THE ELEVENTH-CENTURY SUMDA CHUNG, ACCOMPANIED THE WHF TEAM AS IT CARRIED OUT A PHOTO DOCUMENTATION OF THE MURALS WITHIN THE SANCTUARY, WHICH IS IN DIRE NEED OF CONSERVATION.





It is clear from our trek to Sumda Chung that this site will pose logistical problems as well as conservation challenges for NIRLAC and its international partners. Conservators will have to live on site for weeks at a time while materials needed to carry out the work, including a tented camp and generators, will have to be brought in by porters and yaks.

Reaching the site, some 65 kilometers southwest of Leh and ten kilometers from the nearest road, entails a four-hour hike—from an elevation of 3,300 meters at Chiling to nearly 4,600 meters at Sumda Chung—along a boot-wide trail broken by steep stretches of scree and patches of wild rose and willow where the path traverses a tributary of the Zaskar River. Each twist and turn in the trail reveals a mountain view more splendid than the last, and the air grows thinner with every meter gained in elevation. It is a perilous journey where a missed step could result in death. Agile ibex scampering across the landscape prompt rock slides that wipe out portions of the trail. At a point where one experiences near exhaustion, prayer flags strung across a white-washed chorten signal the home stretch with Sumda Chung glistening in the distance.

Despite its difficulty of access, Sumda Chung is nothing short of extraordinary. Built in the eleventh century, the monastery overlooks a tiny hamlet of no more than ten families. The complex includes a main sanctuary or assembly hall with its polychromed interior, monks' residences, several stupas and chortens, and a mane wall. It is clear from the eroded remains of numerous structures at the site that the monastery once covered a substantial portion of the hillside.

Inside the assembly hall, butter lamps flicker, enabling us to make out mandalas and hundreds of images of the Buddha. As our eyes become accustomed to the light, more detailed renderings come into view, among them a delicate flying apsara no more than 15 cm across. Lama Tsering explains the mural cycle, pointing out tiny gold ornaments embedded in the paintings.

Whereas the two main temples at Basgo were dominated by a large statue of the Maitreya, the central feature within the temple at Sumda Chung is a *Vajradhatumandala* composed of 37 individual sculpted clay figures, one of the earliest surviving works of its kind. Prayer tables and bookcases filled with prayer books occupy much of the sanctuary interior, its cool clay floor burnished from centuries of wear. Small chapels on either side of the assembly hall contain towering four-armed statues of the Maitreya and the Bodhisattva Avalokitesvara.

To document the murals, we must gather every available light source—flashlights, butter lamps, and a small solar-powered generator that fuels a single fluorescent light bulb. The latter, Lama Tsering tells us, is the village's only source of electricity. With the help of Lama Jigmed, one of the monks who accompanied us to the site, Tejbir Singh spends the better part of two days capturing every square meter of the muraled interior using long exposures and large-format film, while Dhar and Weber scour the building, inside and out, making note of every structural problem and conservation challenge.

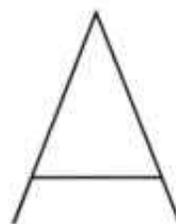
Sumda Chung sits astride the junction of the Indus Molasse and far older Paleozoic elements of the Tethys Himalaya—the compacted remains of an ancient sea whose waters separated India and Asia prior to the collision of the continents more than 45 million years ago. Recent tectonic activity in the region is evident in a large crack that runs east-west through the monastery complex, cleaving the assembly hall, the chortens that flank it, and the hillside below. Our team will eventually place so-called tell-tails on the crack to detect any ongoing movement. If the crack is the result of a one-time event, it can easily be stitched. If not, it will have to be patched in such a way that will allow it to “stretch” with time.

Like the paintings that grace the walls of Basgo's Chamba Lhakhang, those at Sumda Chung suffer primarily from water seeping into the building, which has been exacerbated by well-intentioned efforts to protect the site and arrest further decay. A few years ago, stone buttresses were built to bolster the assembly hall's bulging walls. Unfortunately, the buttresses have trapped moisture in the walls and foundations of the sanctuary and its side chapels. Clearly these will have to be removed so the building can dry out, but only after alternative emergency stabilization measures are taken to support the structure during restoration.

While WMF and NIRLAC conservators estimate that saving Sumda Chung will cost less than \$200,000, the long-term survival of this Himalayan gem will require far more in terms of careful planning for appropriate and sustainable economic development. Recently, construction began on a road from Chiling into Sumda Chung to allow for greater visitor access. The project—expected to take at least five years to complete—will undoubtedly impact this remote community, its spiritual patrimony, and pristine environment. Sumda Chung is a living sanctuary, not merely a stop on a tourist itinerary. Yet the quality of its murals warrant worldwide attention. The challenge will be to develop the site in such a way that everyone involved gains in the process. ■



**A MANDALA AND A CARVED SUPPORT BRACKET GRACE THE INTERIOR OF SUMDA CHUNG. FACING PAGE: A CLUSTER OF BRIGHTLY COLORED TENTS SERVED AS HOME BASE FOR THE WMF-NIRLAC TEAM DURING THEIR SURVEY OF SUMDA CHUNG. AT PRESS TIME, CONSTRUCTION HAD BEGUN ON A ROAD INTO THE HAMLET OF SUMDA CHUNG, CURRENTLY HOME TO LESS THAN A DOZEN FAMILIES. THE ROAD, WHICH WILL TAKE MORE THAN FIVE YEARS TO BUILD, WILL NO DOUBT HAVE A SIGNIFICANT IMPACT ON THE COMMUNITY, WHICH UNTIL NOW COULD ONLY BE REACHED VIA A TEN-KILOMETER TRAIL FROM CHILING.**



At a time when there is much discussion about landscape as art, the *Endless Column* Complex by Romanian sculptor Constantin Brancusi (1876–1957) holds particular significance for the field of landscape architecture. Completed in 1938, the tripartite ensemble—composed of the *Endless Column*, a 30-meter high column of zinc and brass-clad, cast-iron modules, and two stone monuments, the *Gate of the Kiss* and the *Table of Silence*—was conceived as a tribute to young Romanian soldiers who died defending the town of Târgu-Jiu against German forces during World War I. Its location marks the place along the River Jiu where the young men made their sacrifice and draws out from there as a processional way that continues through the town for nearly two kilometers. It is a sublime creation that suggests the journey from this life to the next, with a sequence of evocative, abstracted monuments placed within the fabric of everyday civic life. Com-

# RECLAIMING SACRED SPACE

## LANDSCAPING CONSTANTINE BRANCUSI'S *ENDLESS COLUMN* COMPLEX

memorating a profoundly heroic and tragic moment in the history of Târgu-Jiu and Romania as a nation, this seminal work of modern art is regarded as one of the first and most successful public monuments of the twentieth century.

Upon its completion, the ensemble defined a sacred space that stretched from the river floodplain to a haymarket on the edge of town, the monuments punctuating a serene landscape of gently rolling hills, cultivated fields, and farmhouses built of wood and stone, embraced by the snow-capped Carpathians visible in the distance.

Since then, however, the ensemble has lost a substantial amount of its presence, yielding to visual clutter and landscape intrusions as the town continues to expand. The processional way connecting the monuments, known as the Avenue of Heroes, has become a major thoroughfare, now bisected by other streets and lined with Soviet-era buildings, while the sculptures themselves have been isolated from each other. The *Table of Silence* and the *Gate of the Kiss* are located in the Park of the Gate, which bustles with activity throughout the year. The Park of the Column, which is much less used, abuts a school, a relatively tall and grim clothing factory, houses, and, further along the road to Bucharest, army barracks.





Following restoration of the sculptural elements in 2000 (see page 37), our team of landscape architects from the Laurie Olin Partnership set out to restore the dignity and serenity the work possessed prior to World War II. While it would be impossible to re-create the landscape of Brancusi's day, we could subtly alter the immediate surroundings of the ensemble in such a way that its power could be felt despite a plethora of visual and aural distractions.

**PARK OF THE GATE:  
TABLE OF SILENCE, ALLÉE OF STOOLS, AND GATE OF THE KISS**

The table with its 12 vacant stools originally stood on the bank of the River Jiu. However, the relationship between the sculpture and the river has since been visually and physically obscured by a tall, grassy embankment installed as part of a flood control measure when the river was dammed. The embankment itself was planted with black poplars while a visually distracting water feature located at its base competed for attention. Moreover, low hedges had been planted around the sculpture, further diminishing its presence.

Our goal was to create a calm, reflective, and sacred space in which the table could sit quietly apart from the park, making it a destination rather than a through route. To do this, we removed all of the hedges, opting instead for a single, soft-edged ellipse of crushed stone around the table and stools, beyond which we planted a grove of weeping willows, which, with their long hanging branches that move with the gentlest breeze, are associated with mourning and water. In time, the willows will grow together to form a loosely defined and separate space from the surrounding park.

The Allée of the Stools—a 160-meter-long path lined with 15 stools on each side—which connects the *Table of Silence* with the *Gate of the Kiss*, is lined with horse chestnuts. Although they dramatically framed the space, the trees had grown in a way that shaded the stools, placing them in shadow for much of the day. Moreover, small, low clipped hedges had been planted around the stools, making them all but invisible in the surrounding visual clutter. The allée was also crossed by three paths. Two were important park circulation routes, but one, which crossed the allée between the gate and the stools, was particularly intrusive and of lesser importance for pedestrian movement. Beyond the allée, on either side, were dark areas of woodland and, close to the gate, a children's playground. The allée, originally of bare earth, had been paved in the Ceaucescu era with crude concrete containing a decorative pattern and was in very poor condition.

To allow the stools to be clearly seen and to return the ensemble to its





**OPENING SPREAD: HEDGES THAT ONCE OBSCURED THE TABLE OF SILENCE HAVE BEEN REPLACED WITH AN ELLIPSE OF CRUSHED STONE AND WILLOWS. DURING THE CEAUCESCU ERA, HEDGES WERE ALSO PLANTED AROUND THE TRIOS OF STOOLS LINING THE ALLÉE, ABOVE, MAKING THEM ALL BUT INVISIBLE. THE ALLÉE ITSELF, ORIGINALLY OF BARE EARTH, WAS ALSO COVERED WITH CONCRETE, WHICH HAD DETERIORATED CONSIDERABLY. THE HEDGES HAVE SINCE BEEN REMOVED AND SOFT BANDS OF SHADE-TOLERANT SHRUBS HAVE BEEN PLANTED AT A DISTANCE TO BLOCK VISUAL CLUTTER, LEFT. THE PATHWAY ITSELF HAS BEEN REPAVED WITH THE SAME CRUSHED STONE THAT NOW SURROUNDS THE TABLE OF SILENCE.**

more rural character, the hedges were removed and background distractions carefully screened by planting soft bands of shade-tolerant shrubs behind the stools in three rows of increasing height. The species were chosen to provide subtly varying seasonal colors and textures. For the walking surface, the same crushed stone that was used around the table was extended along the allée and edged with a matching colored curb. Carefully proportioned recesses of crushed stone frame each group of three stools, with the remaining areas planted with grass.

Much thought and debate went into the choice of material for the paths. Aside from practical considerations of maintenance, the discussion focused on finding a material that was robust and yet not too sophisticated. We wanted to respond to the primal quality of the work by choosing a material that would reflect light up to the underside of the canopy, yet one that did not have an insistent pattern. After viewing many samples of crushed stone, we opted for the same stone from which the stools were made for all paths within the two parks associated with the ensemble.



NOW FREE OF SUFFOCATING HEDGES AND OTHER VISUAL DISTRACTIONS, THE TABLE OF SILENCE, ABOVE, COMMANDS ITS LANDSCAPE. THE TABLE PRIOR TO RESTORATION AND BELANDSCAPING, RIGHT.



## RESTORING THE *ENDLESS COLUMN* COMPLEX

The *Endless Column* Complex by famed Romanian sculptor Constantin Brancusi (1876-1957) has been hailed as one of the great works of twentieth-century open-air art. Commissioned by the Women's League of Gorj to honor the soldiers who had defended Târgu-Jiu against a German force in 1916, the tripartite ensemble, erected in 1934, is composed of the *Endless Column*, a 30-meter-high column of zinc and brass-clad, cast-iron modules—15 full and two half—threaded onto a steel spine, and two travertine monuments, the *Gate of the Kiss* and the *Table of Silence*.

Despite the ensemble's artistic importance, decades of exposure to the elements and poor maintenance during the Communist era had taken their toll on the sculptures, which by the mid-1990s were in dire need of conservation. Following the inclusion of the *Endless Column* on WMF's 1996 list of 100 Most Endangered Sites, WMF and the Romanian Government established a partnership with the World Bank to finance the restoration of all three sculptures.

Although the column's modules had been replated twice since its construction, inspection of the modules revealed that while they were in generally excellent condition, the original surface had failed completely in a number of areas, revealing a rusting substrate. In June 1999, WMF brought together 32 leading architects, engineers, conservators, and Romanian cultural officials to determine the best methods to restore the column. Collectively, they decided to conserve rather than replace the existing spine, and to refinish the modules. Each module was cleaned, repaired—although pitting and small voids original to the cast-iron surface were not filled in—and replated with a polished medium-yellow bronze finish that closely resembles the original. Conservation of the column was completed in the fall of 2000. The travertine sculptures—the *Table of Silence* and its 12 stools, the *Gate of the Kiss*, and the stools lining the Allée—were cleaned of graffiti and biological growth and repaired. Some of the joints between the blocks of stone were fractured, probably due to some small structural movements within the monument. Conservation of the stone monuments was completed in 2004.



Finally the horse chestnuts were carefully pruned to filter more light down to the stools. Continued annual pruning will ensure that there is sufficient light during the day. For nighttime illumination, lights were placed high within the foliage of the trees suspended from discreet poles placed apart from the stools between the tree trunks.

### THE PARK OF THE COLUMN

Originally the site of a hay market outside the town, the Park of the Column today is a long triangular space with roads on each side. Although the column dominates the space around, the park was badly defined and in poor condition. In addition most views of the column invariably had come to have buildings in the background, which detract from the idea of the column's connection with the infinite.

The column, and in particular its connection to the sky, is the culmination of the procession from the river. To reinforce this connection, a variety of large and small trees have been planted at a distance of approximately one and a half times the height of the column to form a seasonally changing backdrop and to screen out the surrounding buildings. Over time, these small trees will grow together to form a woodland around the column, which is open to the axis to the northwest, to provide a view of the distant Carpathian Mountains. When the trees mature, they will frame the column in such a way that it will once again be seen against the vast horizon, distant mountains, and sky.

The earth has been carefully shaped so that the column appears to rise from a high point. As in the Park of the Gate, crushed stone has been used for paths which circumnavigate the column so that visitors see it at a distance and without any adjacent element against which to judge its scale. Paths are located on the periphery in the shade of this woodland edge. The approach to the column is via mown grass paths. The base of the column is a simple circle of crushed stone and the surrounding ground is planted as a native wildflower meadow that in full bloom should be about half a meter in height.



THE NEWLY RESTORED GATE OF THE KISS, ABOVE, AT NIGHT. A SKETCH BY LAURIE OLIN, BELOW, SHOWS THE LANDSCAPING POTENTIAL OF THE AVENUE OF HEROES, WHICH NOW SEPARATES THE ENDLESS COLUMN FROM THE TWO TRAVEERTINE ELEMENTS AND WHICH IS LINED WITH UNSYMPATHETIC ARCHITECTURE.

Benches are located along the paths around the perimeter of the clearing and park. Beyond the column to the east, where the park narrows, is a lawn of mown grass for playing and picnicking. The intent is to make this an informal recreational space for visitors and residents alike, one that relieves pressure for recreation and other park activities from the area around the column and which also affords long views toward the sculpture. Within the trees are planned public facilities including bathrooms, a café, a children's playground, and a security and maintenance office.

### AVENUE OF THE HEROES

With the exception of a handsome orthodox church that is located in the center of the thoroughfare approximately half way between the two parks, the Avenue of the Heroes is a street that has little to distinguish it from other streets in the town. Between the Park of the Gate and the church, the street is dominated by modern concrete buildings erected during the later years of Ceausescu's regime. These intrude on the more human scale of the older buildings and on the overall character of the street itself. The avenue is further interrupted by a large open swath of municipal gardens, with roads on either side approximately one third of the way between the park and the church. This strong axial open space and its bombastic buildings distracts from the ensemble's processional axis. The *Endless Column* becomes visible just after passing the church, at which point the street takes on a more rural and coherent character reminiscent of Brancusi's day with one and two story houses with gardens amid traditional fences. This calm approach to the climax of the sequence created by Brancusi is rudely interrupted, however, by railroad tracks and occasional commuter and freight trains. Throughout the length of the street, particularly between the Park of the Gate and the church, automobile traffic detracts from the experience.

We believe that the street should have a distinctive character, with locally available basalt blocks, currently installed around the church, extended throughout the length of the street. To provide a more generous and attractive space for pedestrians, we





**WHILE IT IS IMPOSSIBLE TO RESTORE THE RURAL CHARACTER OF THE ENDLESS COLUMN COMPLEX, ONCE NEW LANDSCAPING REACHES MATURITY VISITORS WILL BE ABLE TO VIEW THE MONUMENTS WITHOUT THE VISUAL CLUTTER OF THE MODERN WORLD.**

have proposed that the sidewalks be widened and that vehicular access be managed so that only vehicles that need to access the street are allowed. We also suggested planting trees on either side of the avenue to give the street a more sympathetic and humane character. This will also provide a consistently attractive edge and reinforce the ensemble's primary axis by providing a "green" link between the two parks.

Beyond this, Mihai Radu of Mihai Radu Architects has completed an urban masterplan for the immediate surrounding area that proposes new buildings and uses that are consistent with the character of the Avenue of the Heroes.

In particular, at the end of the Avenue of the Heroes on the north side, a site has been chosen for a museum and interpretative center that will allow a visitor to learn more about Brancusi, his work, and in particular, the ensemble, and the history of Târgu-Jiu.

While we cannot turn back the clock to an earlier era, the landscape design for this ensemble of abstract sculptures by Brancusi, which was originally placed in a rural setting, allows visitors to view them quietly and without the intrusion of the modern context. The design of the landscape has been an exercise in editing this context and clarifying the situation to allow Brancusi's work to dominate and once again be experienced as the coherent, powerful, and spiritual ensemble the artist envisioned. ■

In the chilly early spring of 1887, two dozen sunburned and wiry mine workers in western Colorado started moving the San Miguel River, damming portions of the waterway and sending it into a new wooden flume, a narrow chute used to channel water. Some 80 million gallons of water a day were slated to spray into downstream gravel riverbanks flecked with gold. Carried out by the Montrose Placer Mining Company, the three-year project was supposed to sluice out enough metal to pay for itself. Instead, its \$170,000 price tag quickly bankrupted Montrose Placer. No company records have survived to explain how the workers on sandstone cliffs managed to drill and hammer and cantilever beams and planks for some 16 kilometers.

Flume fragments still cling to the canyon walls along ten of the original kilometers. In some spots, just a couple of iron pins are poked into the rock. But wherever the flume was tucked under cliff overhangs that kept early twentieth-century locals from salvaging much lumber, the brackets and floorboards hang on.

The structure made Colorado's 1999 list of most endangered places and WMF's 2006 list of 100 Most Endangered Sites. Though rickety and decaying, it has at last begun attracting conservators' attention. It's also being documented down to its bolts and washers.

by EVE M. KAHN

2006 WATCH SITE

# Flume WITH A VIEW

## SAVING AN AMERICAN ENGINEERING MARVEL

Archaeologists, wood scientists, engineers, and photographers have rappelled, crawled, sketched, and tapped their way along much of the now-dry suspended chute. Wood, stone, and metal samples have undergone microscopic scrutiny. Reports totaling hundreds of pages have been issued, and plans for stabilization and even partial reconstruction are in the works.

"Flume fever," the experts on the project call their state of mind. When they're in midair analyzing the ruins, says Helena Meryman, an engineer formerly with Robert Silman Associates in Manhattan, "the artifacts are so fascinating, and the scenery so spectacular, you forget to be scared."

The specialists keep mulling over the data collected so far, because so many mysteries about the flume have yet to be solved. "We know what was built, but we don't yet know how," explains Ronald W. Anthony, a wood scientist with Anthony & Associates in Fort Collins, CO. "Isolated men using hand tools, 15 or 30 meters in the air over a river, putting up eight linear meters of flume a day—how exactly was that possible?"

What's certain, based on courthouse and state records and a few vintage newspaper and magazine articles, is that in 1887, Montrose Placer bought thousands of acres of gold claims near the Utah border. (The Ute tribe had been thrown off the land, their own former reservation, by 1881.) Hand-panning for gold—which glaciers there



had ground to powder—wouldn't have been efficient. So Montrose Placer followed the example of mining companies in California, where some 10,000 kilometers of flume once held river water.

Called hydraulic mining, the process "basically liquefies a hillside and runs it through a sluice," says engineer Kent Diebolt, founder of the Ithaca, New York-based firm Vertical Access, which dangled staff investigators from ropes along the Colorado flume in 2004. Water flowing through a flume, which is so effective in blasting apart a mother lode, places such stresses on the structure that most don't last very long. In fact, none are left in California, although Ron Anthony has spotted some crumbling brackets attached to Table Mountain, in the northeast corner of the state.

Montrose Placer optimistically commissioned a roofless meter-deep channel of Ponderosa pine upstream from its gold claims. A dam of boulders and cabled-together logs was stretched across the San Miguel. From there the flume makes tight turns through narrow canyons, following a giant wobbly "L" that starts out southwest and then bends northwest. Who engineered this feat?

Reference books in the 1890s would have offered few ideas for flume design. The company did have, however, an imaginative and possibly slippery manager named Captain Nathaniel P. Turner. He was "rumored to have been an experienced miner from California," writes Jack E. Pfertsh of Alpine Archaeological Consultants in a cul-

ENGINEERS AND CLIMBERS DESCEND TO INSPECT REMNANTS OF THE FLUME.



tural resources inventory for the flume, "It is not certain where Turner was actually from," the report continues. "He was listed in three different court documents as being from Denver, CO; Sumner County, TN; and St. Louis, MO."

Colorado journalists in the 1890s nonetheless seemed to find Turner irresistible. In May 1891 he stopped for an interview with the *Grand Junction News*, which uncritically printed his rosy view of the flume: "Everything looks promising for a speedy and profitable return to the company." A few months later the paper called the nearly finished hanging channel "a magnificent piece of work."

Turner's workers had carved dozens of new wagon trails through the scrub to haul 550,000 meters of freshly milled lumber to the riverbed. Half a dozen forges were set up on the cliff tops to heat and shape the wrought-iron anchor rods. As the flume builders progressed downstream to the gold, for unknown reasons, they put up skimpier and skimpier framework.

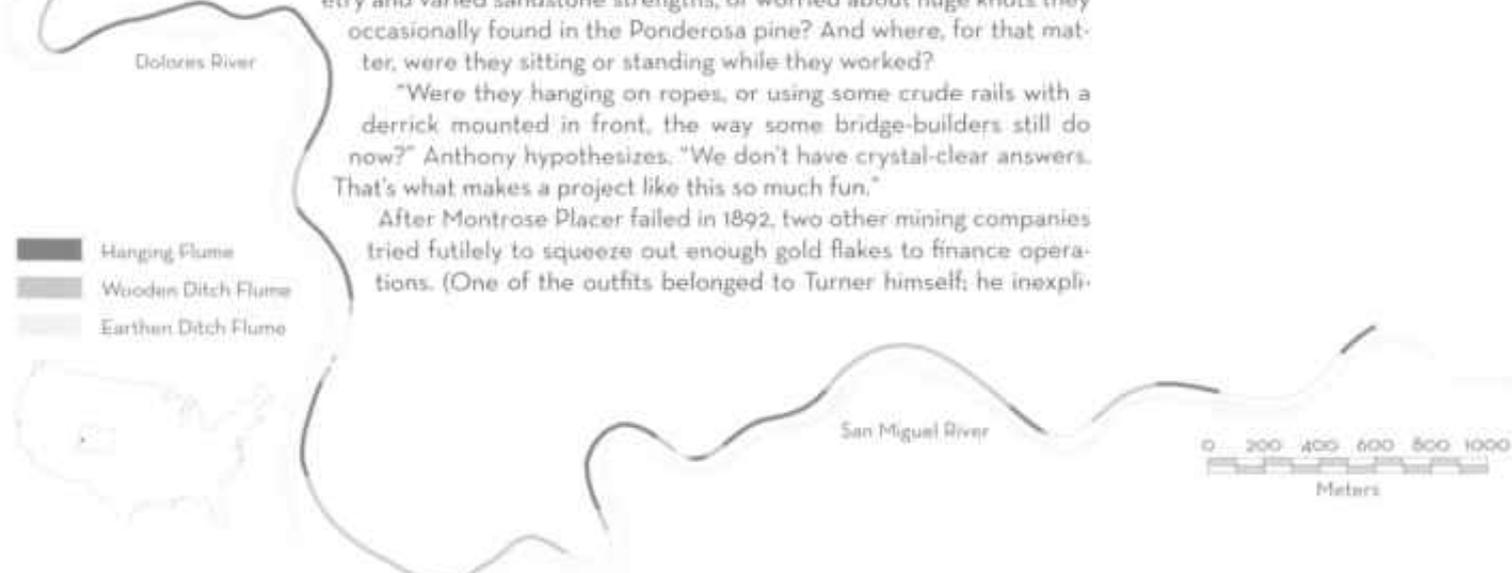
In 2004, Vertical Access and Silman engineers conducted seven study drops along the flume's length. They were perplexed to discover that the farther west they headed, the fewer reinforcing nails, bolts, braces, and posts they found. The flume turned out to have at least seven basic configurations of platform and bracket, and each unit "is subtly different in its exact dimensions, components, anchorage, and fastener locations," the Silman report concludes. But why so many variations in a fast-track, 16-kilometer industrial undertaking?

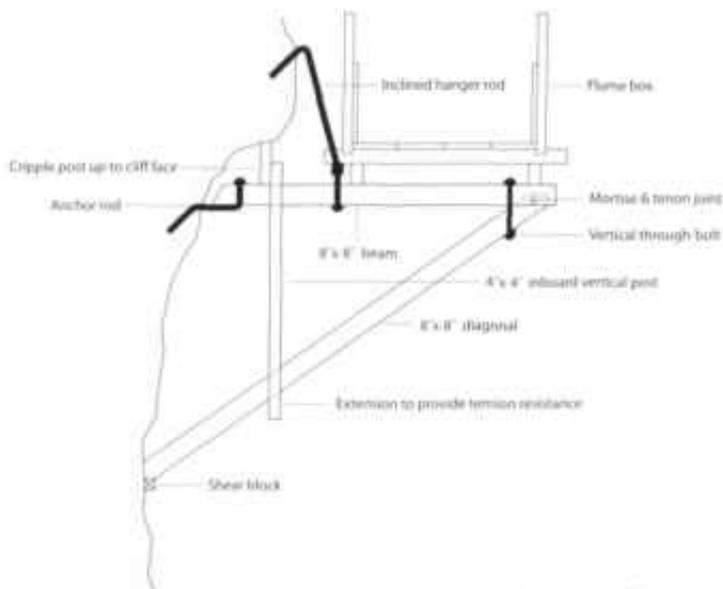
Were the builders perhaps getting more confident as they went along, or lazier, or were they simply running out of money? Or were they constantly adapting to cliff geometry and varied sandstone strengths, or worried about huge knots they occasionally found in the Ponderosa pine? And where, for that matter, were they sitting or standing while they worked?

"Were they hanging on ropes, or using some crude rails with a derrick mounted in front, the way some bridge-builders still do now?" Anthony hypothesizes. "We don't have crystal-clear answers. That's what makes a project like this so much fun."

After Montrose Placer failed in 1892, two other mining companies tried futilely to squeeze out enough gold flakes to finance operations. (One of the outfits belonged to Turner himself; he inexpli-

THMBER BENTS HAVE SURVIVED IN A SEGMENT OF THE FLUME, ABOVE. THOUGH THE FLUME BOX IS MISSING, A SCHEMATIC DRAWING, FACING PAGE TOK, SHOWS ONE OF SEVERAL TYPES OF FLUME CONSTRUCTION DOCUMENTED BY RESEARCHERS, BELOW. THE METHOD OF CONSTRUCTION VARIED BASED ON THE TERRAIN IT TRAVERSED.





cably gave it the none-too-reassuring name Vixen.) In 1912, uranium and vanadium miners started trying to strike it rich along the San Miguel. A new state highway erased the entrances to Turner's wagon trails. The U.S. Vanadium Corp. founded a bustling company town named Uravan near the vanished diversion dam. Miners and ranchers propped up their tunnels and outbuildings with timbers yanked or sawn off the flume. The flume has no surviving walls, not even in the most inaccessible niches. But thanks to the dry climate, according to Anthony's findings, most of the remaining support timbers aren't rotten but rather slowly weathering, shrinking by a centimeter per century.

Due to high levels of radiation as well as the presence of heavy metals such as lead, arsenic, cadmium, and vanadium in tailings and groundwater, Uravan was shuttered and declared a Superfund site in 1986. Almost all the buildings, where 800 people lived in the town's mid-century heyday, were deemed contaminated and razed. According to the Environmental Protection Agency, cleanup of the site will be completed this year. The settlement closest to the flume now is Naturita, population 635, 25 kilometers away. The state highway has been designated part of the Unaweep/Tabeguache Scenic and Historic Byway, and one turnoff bears a signpost encouraging drivers to peer down at the flume. Kayakers, canoers, fishermen, and mountain bikers also come to marvel at the spindly relic. So do amateur preservation activists, most famously Jerald Reid, a retired machinist in Whitewater, CO, and a flume-fever sufferer for 15 years.

"I've hiked every accessible inch of the flume, I've rappelled along the cliffs, and I've taken eye-level video of it from a powered parachute going 70 kilometers an hour," Reid says. The site is remote and forbidding, but nonetheless publicly accessible; it mostly belongs to the Bureau of Land Management (BLM). A few privately held sections are farmland or abandoned mines. Reid collects historical images of the flume, lectures frequently on the topic and helped get it listed on Colorado's 1999 endangered-places registry. "He got people across the state to recognize that the flume is much more than some sticks on a rock," Anthony says. Pfertsh has examined 23 sites associated with the flume, including construction camps and forges; Reid led the archaeologists to all but two of those troves. Along one trail was found a bosun's chair: a rope-hung plank swing, which the flume builders probably used. Complete with fragments of original rope, it's been donated to a museum in Dolores for protection from looters—or, as Pfertsh's report dryly puts it, "to prevent its loss by unauthorized collection."

Funding for scholarly flume studies, about \$150,000 to date, has come from a dozen donors including the BLM, the National Trust for Historic Preservation, and Colorado's State Historical Fund. Another \$180,000 (mainly from the BLM and Historical Fund) has been allotted for 2006 to fund plans for proper signage, a fly-through DVD flume tour from the Western Colorado Interpretive Association, and specs to reconstruct a short section perched on old beams for tourists to visit. "We have made great strides in raising awareness of this unique site, yet, the flume is still far from being out of danger," says Anthony, noting that funds have yet to be found to document the most remote stretches of the engineering marvel or to preserve even a short section, much less build a reconstruction for visitors. ■

# INSIDER'S GUIDE

## VISITING WMF SITES FEATURED IN THIS ISSUE

### Ladakh, India

#### GETTING THERE

The Ladakhi capital of Leh can be reached by air—depending on the weather—year-round from Delhi or by bus from Delhi, Manali, and Srinagar from June to mid-September. There are numerous small guesthouses in Leh, some of which can also

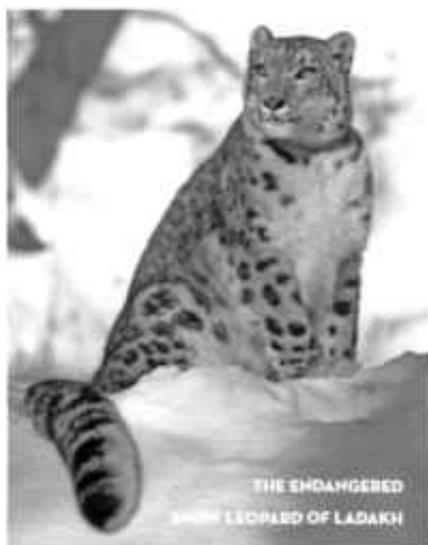
arrange for transportation to many of the monasteries (see map p. 24); multi-day treks between monasteries can be booked through local trekking companies in town. Those wishing to call on the conservators working at Basgo should contact the Namgyal Institute for Research on Ladakhi Art and Culture ([nirlac@touchtelindia.net](mailto:nirlac@touchtelindia.net)).

#### MORE ABOUT IT

Among the best trekking guides to Ladakh are Charlie Loram's *Trekking in Ladakh* (Trailblazer Publications, 2004) and Lonely Planet's *Trekking in the Indian Himalaya* by Garry Weare (2002). In addition, a number of excellent books have been written about Ladakh in recent years, among them *Ancient Futures: Learning From Ladakh* by Helena Norbert-Hodge (Sierra Club, 1992), which explores the environmental challenges facing the Himalayan kingdom, and Andrew Harvey's *A Journey in Ladakh: Encounters with Buddhism* (Mariner Books, 1983/2000), which provides excellent background on the spiritual life of the region.

#### INSIDER TIPS

Because of heavy snowfall, roads into Ladakh are generally closed during the winter months. The region



is open to visitors June through mid-September, however, the weather is best during July and August. As all of Ladakh is above 2,600 meters, visitors with high-blood pressure or any heart ailments should consult their physicians before traveling to the area.

#### PARTNERS IN PRESERVATION

Beyond its extraordinary cultural patrimony, Ladakh is rich in wildlife, including exotic breeds of sheep and goats, birds, and the rare and endangered snow leopard. Among the organizations working to preserve this fragile landscape and encourage sustainable development in Ladakh are the Snow Leopard Conservancy ([www.snowleopardconservancy.org](http://www.snowleopardconservancy.org)) and the International Society for Ecology and Culture ([www.isec.org.uk](http://www.isec.org.uk)).

### Santi Quattro Coronati, Rome, Italy

#### GETTING THERE

Located on Via dei Quercetti, between the Basilica of St. John Lateran and the Colosseum, Santi Quattro Coronati is open to the public for mass at 11:00 on Sundays.

#### MORE ABOUT IT

For additional information on the restoration and the Augustinian community that cares for Santi Quattro, visit [www.santiquattrocoronati.org](http://www.santiquattrocoronati.org).

#### WHILE IN ROME

In addition to Santi Quattro Coronati, WMF has worked to preserve numerous sites in Rome over the years, including the recently restored Byzantine church of Santa Maria Antiqua within the Roman Forum (see ICON, Fall 2005) and the second-century B.C. Temple of Hercules in the Forum Boarium. Two more sites in Rome are included on WMF's 2006 Watch list—the late eighteenth-century Cimitero Acattolico, or cemetery for





Non-Catholic Foreigners, just south of the Aventine Hill, and the late-second to first-century B.C. Temple of Portunus, which rises gracefully near the Tiber in the Forum Boarium. Located inside the ancient Roman walls adjacent to the fourth-century A.D. Portal of San Paolo and the first-century B.C. Pyramid of Caius Cestius, the Cimitero was the last resting place of such luminaries as the English poets John Keats (1795-1821) and Percy Bysshe Shelley (1792-1822). At press time, the Temple of Portunus had just received a grant to carry out a conditions assessment and begin the process of conservation planning.

## Endless Column Complex, Târgu Jiu, Romania

### GETTING THERE

Târgu Jiu is on a flat river plain four to five hours' driving time from Bucharest or three to four hours over winding mountain roads from Sibiu, a beautiful Baroque city in the Carpathian highlands. Train service is available from Bucharest. If driving, break the journey with a stop at the museum in Craiova, which exhibits some of Brancusi's early work. As an alternative, fly into Sibiu, and visit Transylvania first and then drive to Târgu Jiu and on to Bucharest. Cars and drivers can be hired in Bucharest or Sibiu through hotels there.

### MORE ABOUT IT

For background on Brancusi and the Endless Column Ensemble, *La Colonne Sans Fin* (Centre Georges Pompidou, 1998) is an excellent primer; Sidney Geist has written a number of authoritative books on the artist, among them *Brancusi: The Sculpture and Drawings* (Abrams, 1975). A book on Brancusi's Endless Column complex and its recent restoration will be published by WMF and Scala in January 2007.

### INSIDER TIPS

The Endless Column appears to change radically under different light conditions. Dramatic evening lighting makes a stay through the end of the day a must. Modest hotel accommodations are available in Târgu Jiu that permit an overnight stay and early morning visit. A walk from the Endless Column to the Table of Silence along the Avenue of The Heroes, or vice versa, is a must to experience the ensemble as it was intended by Brancusi.

### WHILE IN THE GORJ REGION

The Gorj region is the home of Romania's traditional 'gypsy' folk music, which can be heard in local nightspots.

and of rustic wooden architecture that inspired Brancusi's work. The artist's birthplace in the town of Hobița is worth a visit. The medieval monasteries of Horezu, built by the founders of the Brancovan dynasty of Romanian medieval kings, and Tismana are located just to the north of Târgu Jiu, in the picturesque foothills of the Carpathians and preserve outstanding medieval frescoes. The monasteries offer overnight accommodation in beautiful surroundings. A visit to central Romania is not complete without seeing the Saxon Villages—self-contained German towns—located throughout Transylvania to the north of the Gorj Region. The cities of Sibiu and Braşov and the Saxon town of Sigisoara are must-see stops in Transylvania. WMF is also working in partnership with the Siebenbürgisch-Sächsische Stiftung to conserve the unspoiled Saxon village of Biertan, an hour's drive from Sibiu.

## Hanging Flume, San Miguel River Area, Colorado

### GETTING THERE

The site is remote and forbidding, but nonetheless publicly accessible; it mostly belongs to the Bureau of Land Management (BLM). A few privately held sections are farmland or abandoned mines. The settlement closest to the flume is Naturita, population 635, 25 kilometers away. The state highway has



been designated part of the Unaweep/Tabeguache Scenic and Historic Byway, and one turnoff bears a signpost encouraging drivers to peer down at the flume. Kayakers, canoers, fishermen, and mountain bikers also come to marvel at the spindly relic.

### INSIDER TIPS

If you go, stay at the Ray Motel on East Main St. in Naturita and dine next door at Sandy's Café—the staff at both places is familiar with flume fever.

# EX LIBRIS

SELECTIONS FROM THE WMF BOOKSHELF

## ART AND CULTURAL HERITAGE

### Law, Policy, and Practice

EDITED BY BARBARA T. HOFFMAN • CAMBRIDGE • 562 PP. • \$120

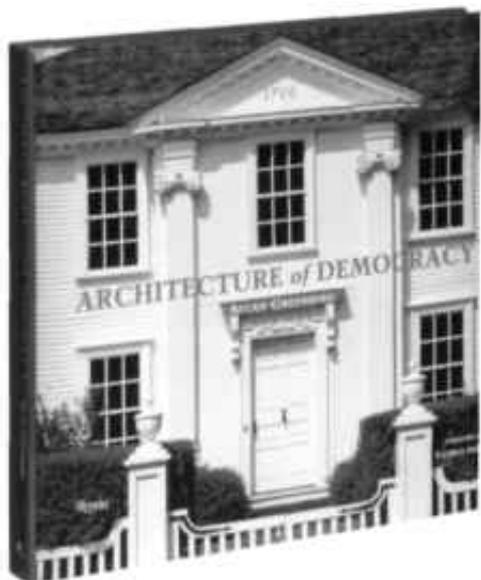
A number of volumes dedicated to safeguarding cultural heritage have been released in recent years. Most have presented only the views of regulators and those on the acquisitions end and have restricted their discussion to "movable heritage," or the trade in portable objects—never mind the fact that many artifacts falling into this category only became such when they were illegally removed from archaeological sites. *Art and Cultural Heritage* takes a far more holistic approach to the subject, examining not only the often conflicting laws that govern the management of our collective global heritage, but the ethics, theoretical constructs, and philosophies upon which these policies have been built. More important, the volume, an outgrowth of meetings of the International Bar Association and the International Council of Museums, lends a voice to all of the cultural property stakeholders—many from so-called source nations—providing an informed and balanced discussion all too rare in the field. A comprehensive "Guide to Art and Cultural Heritage Resources" lists a number of useful web sites, an indispensable resource for anyone in the cultural property field.

## THE ARCHITECTURE OF DEMOCRACY:

### American Architecture and the Legacy of the Revolution

BY ALLAN GREENBERG • RIZZOLI • 204 PP. • \$50

Allan Greenberg, age 68, is the éminence grise of a small, fervent band of American architects who reinterpret classical precedents for modern purposes. (He's designed schools, labs, courthouses, museums, offices, even a car dealership.) Born in South Africa, he detested apartheid and emigrated to the U.S. in 1964. As soon as he arrived at JFK Airport, he recalls in this paean to American buildings, "I was aware of being surrounded by voices speaking English with more accents than I had ever imagined existed. An electric energy seemed to pulsate through the ground... I fell in love with America." The book analyzes how the Founding Fathers' respect for citizens and human scale pervades everyday structures as well as icons like Monticello, Mount Vernon, and the U.S. Capitol. The very names of common American building types, Greenberg points out, reflect the fact that "the government is the people." Note that "house" is the suffix on statehouse, courthouse, firehouse, schoolhouse, meetinghouse, and jailhouse. Greenberg disapproves, however, of most of postwar modernism, whether commercial, civic, or institutional. Its "boxlike, self-referential buildings," he warns, offer the public nothing but a "vacant gaze."

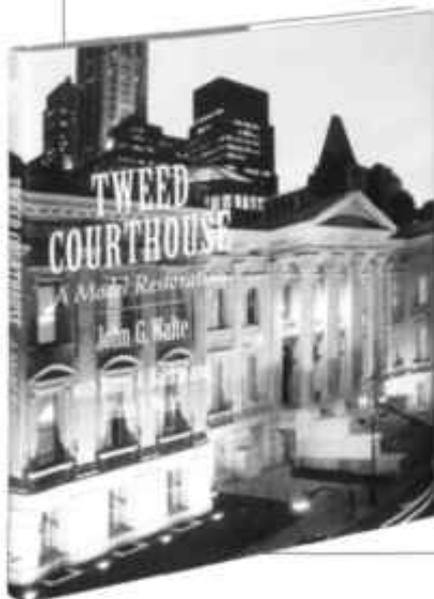
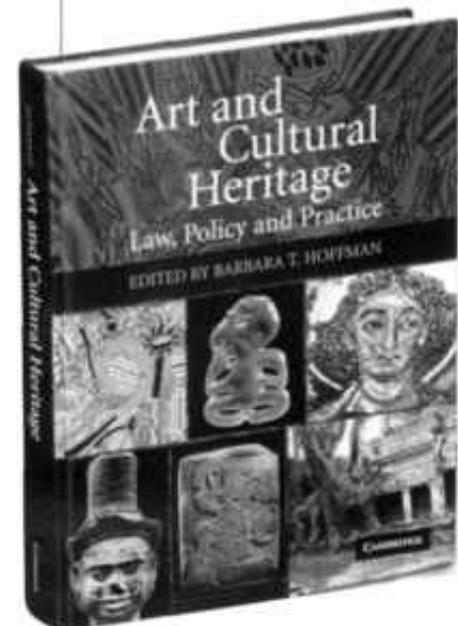


## TWEED COURTHOUSE:

### A Model Restoration

BY JOHN G. WAITE • W.W. NORTON • 176 PP. • \$50

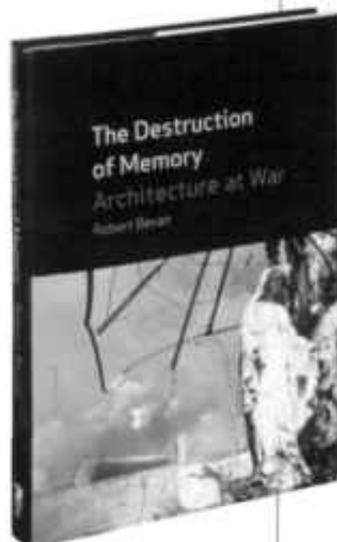
In 1861, New York City started constructing a marble courthouse next to City Hall, slated to cost some \$940,870. By the time the graft trials ended in the 1870s, the builders' padded bills had reached \$12 million. The white elephant ended up named for the politician who orchestrated the theft, William M. "Boss" Tweed (he died in jail before construction was finished). Embarrassed by the place, city officials didn't bother to landmark it until 1984, having previously disfigured the building inside and out before letting it deteriorate. But the structure held firm, partly because the plasterers and ironworkers had earned "bonuses" for making everything much thicker than it needed to be. John G. Waite, a preservation architect, led a \$90 million restoration of the building (now home to the Department of Education) between 1989 and 2003. This in-depth study chronicles every phase of research and implementation, and every building feature from the leaky skylights to the grimy granite foundation. Waite makes clear that preservation decisions are always creative, a graceful dance shaped by aesthetics, archival evidence, deadlines, budgets, building codes, and the laws of gravity.



## THE DESTRUCTION OF MEMORY: Architecture at War

By ROBERT BEVAN • REAKTION BOOKS • 240 PP. • \$24.95

Every building expresses something of the soul of those who built it, and so proves vulnerable when cultures collide. Australian architectural journalist Robert Bevan has found recurring causes of malicious demolition worldwide. Bureaucrats, armies, religious zealots—they raze “as a means of dominating, terrorizing, dividing, or eradicating” a foe, to insure “the erasure of the memories, history, and identity attached to architecture and place.” The technique is of course not modern, he adds: “Herodotus is peppered with examples of temple destruction.” But recent years have been rife with barbaric acts against landmarks, from the Buddhas of Bamiyan in Afghanistan to the World Trade Center in Lower Manhattan. Bevan also explores collateral damage to streetscapes caused by people walling themselves off from hated neighbors. As late as 1985, the East Germans leveled a Gothic Revival church in Berlin that had long been “marooned in the Wall’s death strip, which also tore through the Sophien Cemetery next door.” The communists argued that the church blocked their “line of fire”—that is, made it harder to shoot at would-be escapees running through a cemetery. Bevan’s relentlessly engaging and depressing book ends on a galvanizing note. He calls for international criminal courts to prosecute perpetrators of architectural annihilation, war crimes to be known as “urbicide” or “cultural genocide.”



## AFTER THE RUINS, 1906 AND 2006:

### Rephotographing the San Francisco Earthquake and Fire

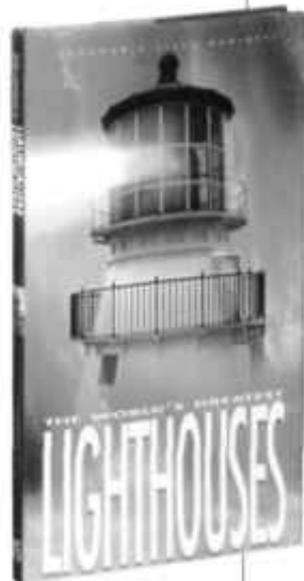
By MARK KLETT WITH MICHAEL LUNDGREN • UNIVERSITY OF CALIFORNIA PRESS • 134 PP.  
\$40.95 CLOTH, \$24.95 PAPER

In 2003, Arizona-based photographer Mark Klett started posting his tripod exactly where San Francisco cameramen had stood while taking snapshots of the smoldering ruins of 1906. “Rephotography,” his art form is called, and it serves, he says, as “a great way of extending a conversation about place over time.” This volume juxtaposes 48 pairs of new and old images. (Most of the vintage ones are anonymous, or were taken by Arnold Genthe, a German-born professional photographer who’d lost most of his previous work in the 1906 cataclysm.) The modern views unexpectedly echo their forebears. Skyscrapers’ ziggurat profiles resemble the silhouettes of Victorian brickwork partially knocked down. Occasionally a trace of pre-1906 San Francisco survives barely altered: Ionic porticos and balustrades on mansions, heroic bronze statues of machine-shop workers.

## WORLD’S GREATEST LIGHTHOUSES

By ANNAMARIA LILLA MARIOTTI • WHITE STAR • 176 PP. • \$19.95

With beams visible up to 62 kilometers away, all 37 of the lighthouses lionized in this book still work. Their shafts date back to the year 1172, and over the centuries their beacons have been fueled by resinous wood, heather, candles, coal, kerosene, gas, or oil from whales, olives, or rapeseeds. (These days, halogen or xenon bulbs burn inside the prismatic lenses.) The author, Italian lighthouse expert Annamaria Lilla Mariotti, evocatively describes how the structures are arduously constructed and maintained amid storms and crashing waves. They must be constantly shored up and monitored for instability—in fact Cape Hatteras’s famous brick spire with barber-pole stripes was deemed so vulnerable that in 1999, engineers had it dragged half a mile to safety inland. The keepers must also cope with manmade hazards: lenses used to float and turn on mercury baths, which poisonously leaked and off-gassed. Perhaps because of the threatening environment, architects have given lighthouses some defiantly lighthearted or luxurious details. The fanciest stand guard over the Brittany coast: domes are trimmed in scalloped metal filigree, interiors are furnished with parquet floors, carved paneling, and milk-glass tiles. Mariotti notes which sites are open to the public—a power station beside a 180-foot tower on France’s Ouessant Island serves as the country’s Musée des Phares—and which owners offer meals to travelers needing sustenance after climbing the lighthouse stairs.



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# EXPEDITION: PANAMA

Throughout the seventeenth and eighteenth centuries, the village of Portobelo on Panama's Caribbean coast served as an important depot for the shipment of gold, silver, and other precious metals from the Americas to Spain. Today, the remains of four forts—Santiago de la Gloria, Santiago, San Fernando, and San Jerónimo—dot the coastline and stand as silent reminders of an age when Spain and Britain vied for control of New World riches. Commissioned by Phillip II, the forts at Portobelo were built in large part by enslaved Africans, whose cultural influence continues to permeate Panamanian cuisine, music, language, visual arts, and spiritual beliefs.

Although the forts were inscribed on UNESCO's World Heritage List in 1982, they were, until recently, in a sorry state, threatened by neglect, poor maintenance, and uncontrolled development, which had virtually enveloped the sites, earning them a place on WMF's 1998, 2000, and 2002 lists of 100 Most Endangered Sites. Not long after the forts' initial Watch listing, WMF's founding sponsor American Express generously offered to fund restoration work on the sites, complementing support provided by the U.S. Ambassador's Fund and several governmental agencies and private organizations.

As WMF's project manager for Panama, it was my task to develop a conservation strategy for the sites and guide its implementation. Given their location within a rainforest reserve—Portobelo National Park—the fort sites offered us an ideal opportunity to open a new chapter in conservation in the region, one that combined the best practices in natural and cultural resource management. A key component of the restoration effort would be the development of a comprehensive training program for young people in the area.

Over the past five years, my colleagues and I have been able to carry out much-needed work at San Jerónimo and other sites in Portobelo, including several colonial bridges. We also have been able to address a serious drainage problem plaguing the nearby fort of San Lorenzo, which was also included in the Watch listing.

As the work draws to a close, we realize that our project succeeded beyond our wildest imaginations. Beyond involving the local community in restoration work, our projects have served as a catalyst for raising consciousness about the importance of preservation, particularly among young people. Only recently, when several of the kids who worked on our project spotted friends playing soccer in and among the ruins of San Jerónimo, they asked them to move the game elsewhere as the site was fragile and worthy of respect.

While we still have a long way to go in terms of conservation in the region, it is clear that protection of patrimony has become a priority for the people who live in the shadow of these monuments.

—ALMYR ALBA



FROM TOP: THE ENTRANCE OF SAN JERÓNIMO; CONSERVATION WORK SHOWN IN A PAINTING BY REINALDO ESQUINA; JESUS ESQUINA, A CONSERVATION TRAINEE.



# Where do WMF membership dollars go?



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