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### ***Crumbling Wonders***

*By Katie Paul*

Antiquities fans were stunned and alarmed when three chunks of mortar broke off Rome's colosseum just before dawn on Sunday May 9, plunging through a protective netting designed to catch falling debris. As it turns out, they shouldn't have been so shocked, considering that debate has long been underway over the efficacy of preservation measures at the site. Critics charge that water leaks and rusting metal braces could threaten the structural foundations of ancient buildings throughout Rome.

With those concerns in mind, NEWSWEEK decided to check in on the state of affairs at other beloved heritage sites. Guiding us through the debris are two connoisseurs of antiquities: Doug Comer, a president at archeological management organization ICAHM, and Gustavo Araoz, who heads up ICOMOS, an association of conservation professionals working on cultural heritage sites. Both were quick to point out that none of these are among the 31 properties listed as UNESCO's most endangered heritage sites, at least in part because of the care and concern their fame elicits. Still, everybody's got problems. Here are some of the top concerns at each site:

## PETRA, Jordan

Petra has two main enemies: people and water. Named one of the wonders of the natural world in 2007, it now attracts hordes of tourists, up to 800,000 a year by some estimates. These tourists sit on the steps of the theater and rub up against the walls of the Siq (the narrow gorge leading to Petra's most famous temple), eroding inscriptions carved by stone masons thousands of years ago. "These are embellished with symbols of various deities—both from the Arab and Hellenic traditions. The ones at human height are going to be eradicated because people rub up against them and erode them," says Comer. Without adequate toilet facilities at the site, he adds, people have been known to wander off and use the tombs to do their business, producing problematic (and unseemly) chemical reactions with the stones. On the structural front, the development of massive tourist infrastructure in the nearby town of Wadi Musa has disturbed ancient water systems, a big danger in an area prone to flash flooding. Where terraces used to carry water away to be soaked up by the soil, now the surfaces near Petra are being turned into less-absorbent parking lots. Since Petra is made of sandstone, which acts like a sponge, it soaks up the minerals in that backed-up water, which can then form crystals and ultimately push the stone itself apart.



## TAJ MAHAL, India

The Taj Mahal is in good shape structurally, says Araoz, but has been plagued by another annoyance: Agra's incredible traffic jams. Since the Taj Mahal was built with pristine white marble, air pollution that creates acidic rain can stain and then eventually erode the stone. Once the problem is spotted, it can be fixed with various stone repair tools, but the original can never fully be restored. At the Taj Mahal, the damage isn't yet visible to the average tourist's eye, but scientists have noted enough of a problem for the World Monuments Fund to put the site on its watch list.



## ANGKOR, Cambodia

Once an imperial city, Angkor has fallen into disrepair. After the Khmer Rouge killed nearly all the country's intellectuals in the 1970s, the country's archeology experts were reduced from about a thousand to merely two. Without anyone to protect the site, says Comer, the jungle reclaimed it. Now humongous tree roots have overtaken entire buildings, a difficult problem to correct, since killing the tree can damage the building's structure. In recent years, the government has put notable efforts into revitalizing Angkor, recognizing it as an asset as it builds up its tourist economy. But without the resources to manage the urban development around it--or to keep tourists from climbing all over the structure--there are questions as to whether the new attention has done harm or good. The government isn't the only one eying the site as a cash cow. According to Comer, poor management has left much of Angkor's invaluable antiquities wide open to looting. In the markets in neighboring Bangkok, he says, vendors have tourists select knick-knacks from a book, then send someone over the border to grab the items and sell them off. Carved reliefs are especially popular; in many cases, the faces are simply chiseled off.



## **MACHU PICCHU, Peru**

Machu Picchu is one of the most popular destinations for tourists in Latin America, attracting more than 400,000 visitors a year. In many ways, that's the problem. According to Comer, the train that brings tourists to the top lets hundreds of people off at once, creating crowds that are likely to step off the beaten path and rub up against the stones. It also has the misfortune of attracting a particular demographic of believers who insist upon rubbing their entire bodies against the stones to transfer energy. Both of those issues are manageable with a good conservation plan, but that's not to say the site is without bigger risks. In January, torrential rains caused massive landslides and floods throughout Peru, and Machu Picchu was no exception. Seven tourists were killed and thousands were trapped for days. Later, UNESCO expressed concerns that the vast inundation of water could have affected the water-carrying capacity of the site's soils, which could lead to future landslides and fatalities.



## STONEHENGE, United Kingdom

For a 4,500-year-old structure, Stonehenge is in remarkably good shape. British politics? That's another story. Authorities closed the immediate area around the stone circle to visitors back in the 1970s, after the construction of new roads made the site readily accessible to ever-growing hordes of visitors, who would chip away at the stones for souvenirs. Pagan groups have protested that decision, arguing that in their eyes the site is a living temple that they should be able to access freely. The groups have compromised, agreeing to allow solstice celebrations on-site. But not all differences can be resolved; one pagan protestor who believes he is the incarnation of King Arthur last year staged a 10-month sit-in to demand that visitors be allowed to touch the stones.



## GREAT WALL, China

The report card on the Great Wall is mixed--by necessity, since the wall isn't a single structure, and construction varies from place to place. The areas where tourists usually go tend to be in good shape, since they are built of solid stone. But large segments of the wall were built with earthen architecture, like adobe, and are more vulnerable to the elements. Some areas have begun to look more like a long mound than a wall. Araoz says Chinese authorities are on top of the problem, as much as they can be, given the epic length of the wall. They're applying treatments called sacrificials, coatings that can be replaced as they wear away, preserving the structure inside from erosion. But even this must be handled with care, says Araoz, since it can defeat the purpose if excess water ends up being trapped inside.



## GIZA, Egypt

The pyramids at Giza are not the structures conservationists spend their time fretting about. Rather, says Araoz, the biggest issue is the urban encroachment of the city of Cairo. At one point, the Egyptian government proposed building a road that would have gone straight through the site, but UNESCO objections put a halt to the plan. “When you are at the back of Sphinx, looking in the direction Sphinx is looking, you’re staring right at the edge of the city,” he says, arguing that such development destroys the spirituality of the visit. Such development can have unintended consequences, too. Three years ago, Egyptian authorities realized sewage dumped in a nearby canal was causing a rise in the water table underneath the Sphinx, reaching only 15 feet below the statue. Flakes of limestone began to peel of the surface as moisture was drawn up into the stone. Workers installed pumps to divert the water, but the Sphinx remains the top concern.



## ROME, Italy

With some four million visitors each year, the ancient sites in central Rome are some of the most visited and monitored antiquities in the world, but, as one Roman official put it recently, “they need some love.” What he means, really, is that they need some money. Ceilings have collapsed at the nearby Palace of Nero, Palatine Hill, and now the Colosseum, while the Aurelian Wall is propped up with makeshift wooden support beams. A restoration and cleaning project is set to start within the next month at the Colosseum, but the city council is on the hunt for sponsors willing to provide the nearly \$30 million needed for it. Still, says Araoz, while the collapse at the Colosseum makes for dramatic news, the problems in Rome pale in comparison to those faced in other old Italian cities, such as Venice and Florence.



## TIMBUKTU, Mali

Timbuktu was once on UNESCO's danger list, but was finally removed in 2005 after Malian authorities adopted a proper conservation plan. But broader social issues are still undermining the site's conservation. Traditionally, the local community in Timbuktu used to come together to refresh the plaster surfaces, reapplying the adobe at sensitive spots. But as the country modernizes, those communities are beginning to fail. "Young people don't want to be traditional craftsmen anymore," says Araoz, "so these traditional crafts are not being passed through generations anymore." The buildings are hardly in extreme danger, he says, but it's unclear who will keep them that way going forward.



## ACROPOLIS, Greece

The Acropolis appears to be a conservation success story. Thirty-five years ago, following the return of democracy, Greece launched an ambitious restoration project at the ancient temple site, reversing decades of pollution damage and treatment debacles that ended up causing more problems than they solved. At beginning of 20th century, for example, workers reinforced the structures with with iron ties to guard against seismic shifts, but the penetration of water over decades caused the iron to rust. As result, they grew in size, displacing the massive stones. Now, Greek authorities are replacing all those iron ties with titanium. With the opening of the Acropolis Museum last year, such efforts seemed to be nearing completion, bringing Greece ever closer to the real goal of the restoration: convincing the Brits to hand back the Parthenon's Elgin Marbles.

