Scientists are working to reconstruct and restore the massive monoliths of Easter Island in effort to preserve these world monuments.
At 480 to 1,000 years-old the moai are young compared to other archaeological monuments in the Americas, but the very properties of the stone that make them ideal for carving also make them suscep-
tible to rapid deterioration. Nearly all of the statues were carved in the Rano Raraku quarry located on the northeast corner of the island. Many of the statues never made it out of the quarry and

attraction to the heads. Archaeologists estimate that between 1100–1500 AD islanders meticulously carved approximately 900 statues and their accompanying stone platforms from the island’s soft volcanic rock. Most likely the carvers belonged to family groups who were com-

peting with each other to produce larger and larger moai. The biggest statue, named El gigante, weighs between 145

111. One of the first scientists to realize the

archaeological and cultural significance of the site was University of Wyoming

Professor William Mulloy, who tirelessly campaigned UNESCO for support to study the island’s monuments. During his first official mission to the island in 1966, Mulloy and Gonzalo Pizarro led a team of experts who developed a plan for studying, conserving, and restoring Rapa Nui’s cultural treasures. What followed was a series of projects with international support that restored moai and their plat-

torms and eventually the Orongo village.

In 1986, Chile’s National Center for

Conservation and Restoration worked with

UNESCO to investigate possible treatment

plans to prevent or slow the deterioration of the statues. They chose a moai at Manga Kao’s that had been re-erected but was highly deteriorated. After spending several months drying out under a protective tent, the moai was cleaned of all growths and

dirt. The restoration experts applied a con-
solidation treatment to harden the stone and prevent erosion and a hydrophobiza-
tion treatment to prevent water from seep-

ing into the stone. Although these treat-

ments have worked so far, they do not pro-

vide permanent protection of the moai and

remain there today in varying stages of
completion. The red scoria stone used for

headpieces found on some of the moai came from solidified fruct of volcanos lava.

These soft volcanic rocks are particu-

larly vulnerable to erosion from Easter Island’s relentless wind and rain. “When

the stone is wet, the clays present in it

absorb moisture and expand, as the stone

dries, they contract. The internal stress of

these repeated expansions and con-

traction results in microcracks within

the stone which serve as channels for

water migration and its corrosive effects,”

wrote A. Elena Charola in a 1994 publica-
tion of the World Monuments Fund.

Another natural process that weakens

the stone in the growth of algae and

lichen. Not only do they trap water—

which plays a part in the wet-dry cycle of

the stone—but they also eat away at the

stone surface.

Starting with the carvers themselves—

who not only knocked over their beloved

statues but also beheaded some of them—people have had a sort of fatal

and 165 tons and would be nearly 72 feet

high if it were standing. But for reasons

unknown, El gigante was never raised

and remains in the Rano Raraku quarry.

The islanders’ obsession with larger and

more impressive moai wreaked havoc

on the environment. More and more trees

had to be cut down to provide scaffolding

for the statues and to build wooden sleds

to move the statues overland. By the time

Dutch explorer Jacob Roggeveen landed

on the island on Easter Day in 1722, he

found a desolate landscape void of trees

or bushes over ten feet high with no

birds, bats, or lizards. The people were

hungry and fighting amongst themselves.

Sometime after contact with the outside

world, the islanders knocked over and

destroyed most of the moai, probably as a

result of clan warfare. Contact with the

outside world brought new diseases, a

new form of religion, and kidnappings for

the slave trade. By 1877 the native popu-

lation of 15,000 had declined to a mere

111.

The relationship between man and

moai is complex, and similar to the

admiration of the past, modern-day man’s

fascination with the statues has produced

both positive and negative results. As the

island’s only industry, tourism provides a

way to make a living for the most remote

civilization on Earth. Unfortunately the

casual visitor lack of respect and local

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agement has caused the monuments to

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need to be reapplied periodically. From 1992 to 1996, a team led by University of Chile archaeology professors Claudio Cristino and Patricia Vargas completed an ambitious reconstruction project of the Tongariki, the largest and most impressive ceremonial center on Easter Island. Both Cristino and Vargas had extensive knowledge of the island’s monuments. From 1977 to 1996, they were part of the Easter Island Archaeological Survey, a University of Chile research program that recorded more than 20,000 archaeological sites and features. At its peak, the ahu Tongariki measured nearly 720 feet long, with a central platform measuring 325 feet and a wing on either side. A total of fifteen statues weighing 40 to 90 tons were placed on their ahu platform. The statues could be moved without falling apart: “The first statue that went up was about 45 tons and went up in a few days,” Cristino explains. Painstakingly, the team reconstructed the statues and placed them on their ahu platform. The result is a monument as tall as a five-story building with fifteen moai and their toppots called pukao.

“We started from zero, little by little, trying to put this back together,” Cristino explains. “We used historic photographs and maps. Our main goal was the reconstruction of a largely destroyed monument. This was also local, so at the end of this project was a revelation. ‘Little by little [they] realized what their ancestors did was incredible. Their sense of pride was enormous.’

UCLA archaeologist Jo Anne Van Tilburg considers herself to be “a friend of the family” to the moai. Since 1982 she has surveyed the moai, compiling what she calls “biographies” of 1,045 sculptural objects that include full or partial moai. Van Tilburg runs the Easter Island Statue Project (EISP) with Co-director Cristián Arévalo Pakarati, a native Rapa Nui artist and surveyor. “The statues today do not look the same as when I saw them in 1982,” she says, “I could see the change over time.” Van Tilburg appealed to the Archaeological Institute of America to fund a preservation project to develop treatments for the fragile stone. With the grant, EISP installed a weather monitoring station near two moai in the Rano Raraku quarry. For the first time, scientists will be able to record fluctuations in wind, moisture, and temperature near a statue and observe how the stone reacts to changes in weather. Van Tilburg says that with this information, the team will be able to develop a treatment plan that could be used not only on the sample moai, but also on the 400 other statues that reside in the quarry.

As part of the same project, Research Associate Christian Fischer of UCLA and Conservation Chief Monica Bahamondez of Chile’s National Center for Conservation and Restoration used a portable sprayer to apply two different types of water-repellent solutions to the test statues. Although the mixture will take several months to evaporate and dry, the team could see that it was already working when they poured water on the monuments and watched the water droplets run off the stone.

To better educate and manage visitors to Easter Island, the National Forest Corporation (CONAF)—the government agency that manages all of Chile’s national parks and reserves—opened a sustainable visitor center in May 2011. The center is located at the entrance to the Orongo Ceremonial Village, which is one of the most visited archaeological sites on the island. “Easter Island is a landmark in the tourism world, and that is why we need to work hard to preserve its resources as well as offer all kinds of information and education to its visitors, both national and international,” says CONAF Executive Director Eduardo Vial Ruíz-Tagle.

The moai of Easter Island tell different stories depending on the listener. For the islanders, they tell the story of their ancestors. For scientists they tell the story of a society gone awry, and for the rest of the world they tell the story of human ingenuity. “Without something to remind us of the achievements or problems of the past, we don’t pay attention,” says Jo Anne Van Tilburg. To make sure that we continue to pay attention, scientists and conservationists are working to protect the statues for the generations of listeners in the years to come.

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Chris Hardman is a longtime contributor to AMÉRICAS.