

Extra!

In the Lab

# dig™

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Antarctica**

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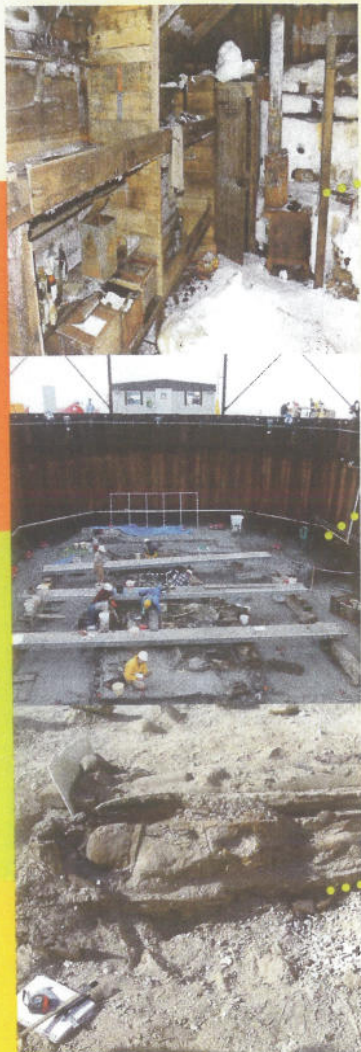
What's this?



WHOA! DID  
SOMEONE  
TURN HALF  
A LIGHT  
OFF?

(FIND OUT INSIDE.)

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## Beneath the Surface

Slowly does it—inch by inch! A conservator uses a cotton swab that has been dipped in a special chemical solution to remove surface deposits on a wall painting in a burial chamber in the Church of Sucevita Monastery in Romania in 2006. And this is just one example of work taking place around the world to preserve and conserve our human heritage!

An index of the articles and information in  
DIG's 2012 issues is online at:  
[www.cobblestonepub.com/2012index\\_dig.html](http://www.cobblestonepub.com/2012index_dig.html)



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Editorial Director  
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did you know?

—Summer 2008: London's Tate Modern art gallery hosted an exhibition that featured street artists decorating the streets around the gallery. The art was removed in September by specialists using steam jets, as seen in the photo below.

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## Consulting Editors

**HARRIET "RAE" BEAUBIEN**, head of conservation at the Smithsonian's Museum Conservation Institute (Suitland, MD); **KIM CULLEN COBB**, research associate at the Smithsonian's Museum Conservation Institute (Suitland, MD); **GORDON GRIMWADE**, historical archaeologist and writer based in North Queensland, Australia; **DONNY L. HAMILTON**, director of the Conservation Research Laboratory and professor in the Nautical Archaeology Program at Texas A&M University; **AINSLIE HARRISON**, conservation fellow at the Metropolitan Museum of Art (New York); **SALIMA IKRAM**, Egyptologist, University of Cairo, Egypt; **JULIA DEL C. MAYO**, archaeologist in Panama, president of the Fundacion El Cano, and research associate of Panama's Smithsonian Tropical Research Institute; **ROBERT B. PICKERING**, director of Curatorial Affairs & Public Programs, at the Gilcrease Museum (Tulsa, OK) and director of Museum Science and Management at the University of Tulsa; **CHRISTINA B. RIETH**, state archaeologist and director of the Cultural Resource Survey in the Division of Research and Collections at the New York State Museum

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Write to me!  
[awesomestuff@caruspub.com](mailto:awesomestuff@caruspub.com)  
 Awesome Stuff, DIG Magazine  
 30 Grove Street  
 Peterborough, NH 03458



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Winner of a 2013  
 Parents' Choice  
 Gold Honor

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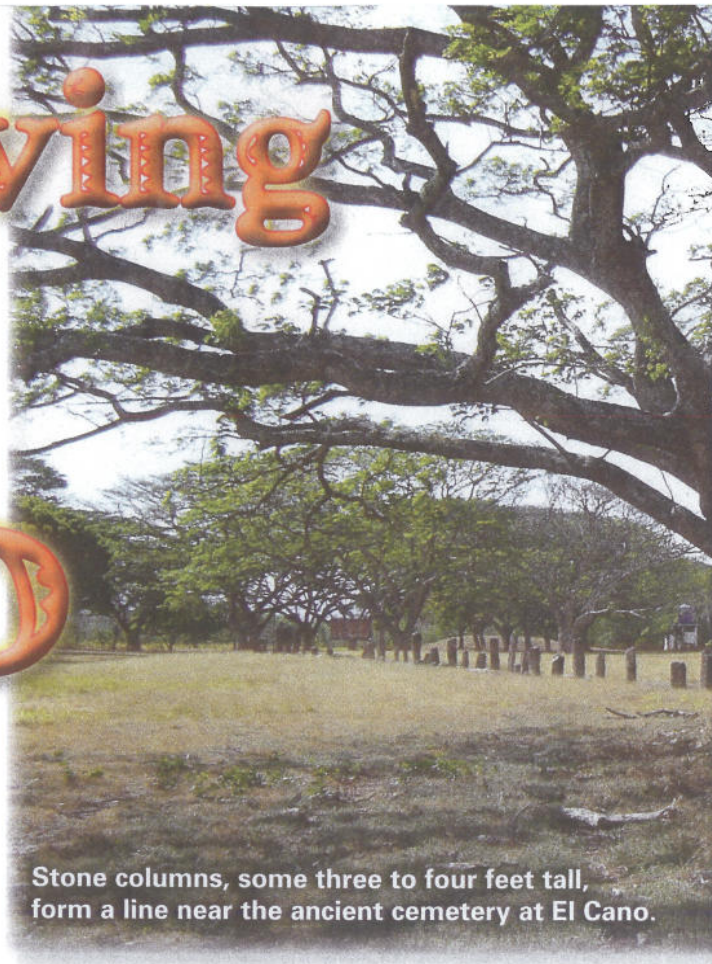
# Conserving at El Cano

Here's how they do it—  
step by step.

**E**l Cano is located in Central Panama in the region known as Gran-Cocle. From the archaeological evidence, we know that the Pre-Columbian people who lived here more than 1,000 years ago were grouped into loosely related societies headed by powerful chieftains. Previously excavated burials found in the region, dating to about A.D. 450–900, contained personal adornments fashioned from gold and other lavish offerings. Such finds offer striking proof of the power and wealth of these high-ranking individuals.

## Excavate With a Plan

El Cano, with its dozens of basalt (type of volcanic rock) columns and several big



Stone columns, some three to four feet tall, form a line near the ancient cemetery at El Cano.

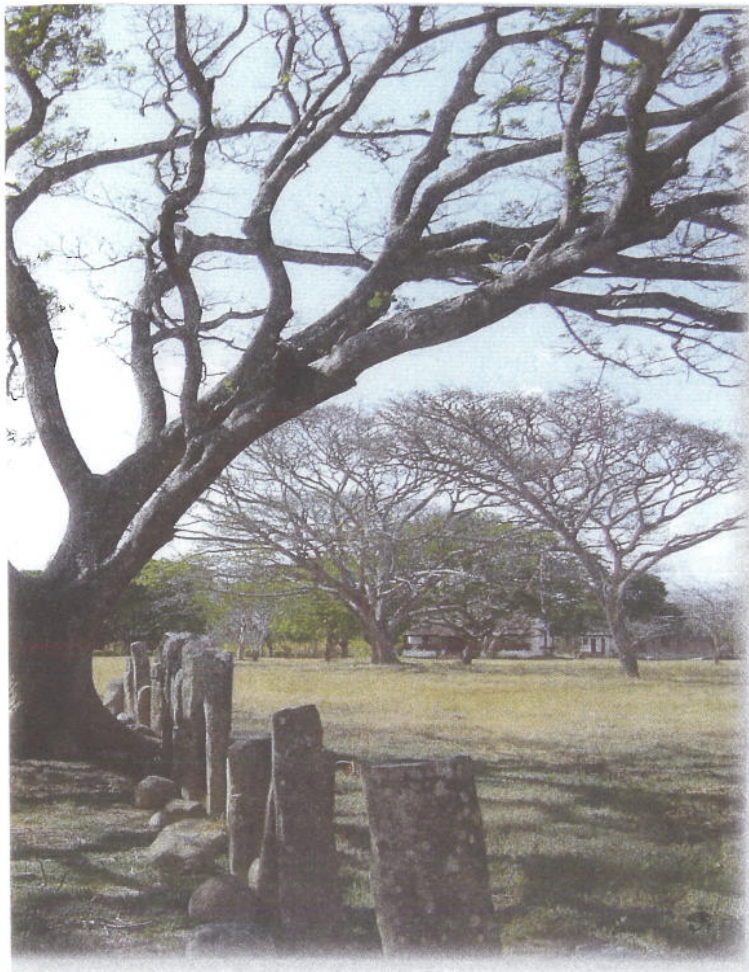


Spot the ceramic fragments and the necklaces and belts made of beads just waiting for conservators to turn their attention to them.

mounds, has long been recognized as an important burial and ceremonial site. However, it is only in the last several years that it has been explored through systematic excavation. The director of the dig, Julia Mayo, enlisted the help of conservators to make sure the newly uncovered objects were removed safely and preserved in stable condition.

## Check the Environment

Every excavation presents its own issues with respect to preservation. These depend on the type of environment and the types of artifacts that are buried in the area. El Cano is a tropical site with wet and dry seasons. So, the artifacts that



by Harriet “Rae” Beaubien,  
Ainslie Harrison, Kim Cullen Cobb,  
and Julia del C. Mayo

of tumbaga, a mixture (also called an alloy) of gold and copper. The artisans often created a rich golden outer layer by dissolving away some of the copper from the surface. The inside alloy, however, still contained a lot of copper. During their hundreds of years underground, these copper-rich metals can corrode and become quite fragile.

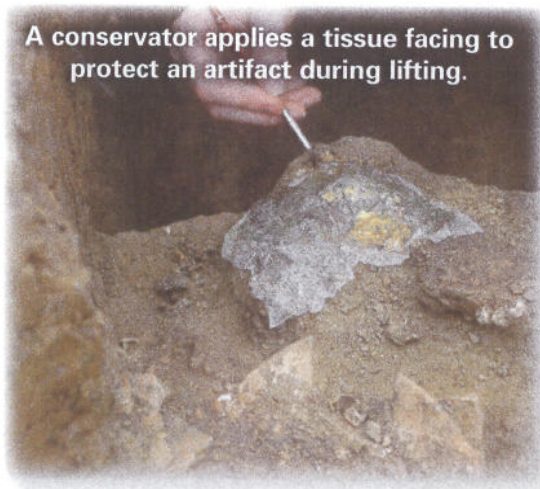
### Use Block-Lifting and Facing

When we come across a tumbaga artifact at El Cano that is at risk of falling apart if lifted by hand, we often use a process called block-lifting. This involves lifting the object—or group of fragments—along with the surrounding soil to help hold everything together. Usually, the object or group of fragments is given some additional protection before it is lifted. An adhesive that can be removed easily later is used to attach a fine tissue to the exposed surface in a process called facing. The same techniques can be used to lift other types of fragile materials. While most plant and animal materials at El Cano decomposed long ago due to the wet environment, the more robust components, such as bones and teeth, typically remain. However, these can also be very crumbly, brittle, and cracked from deterioration in the ground. Artifacts made from bone or teeth—such as a carved whale tooth found in fragments—will often benefit from facing or block-lifting.

are at particular risk include those made of metal, especially copper, as well as those made of plant and animal materials, such as bone and tooth. In addition to these materials, there are heaps of ceramics that have been broken into many fragments. There are also necklaces and belts made of hundreds of beads. All these require special attention.

### Handle Carefully

The process of preserving and safekeeping an archaeological artifact begins with careful handling at the time of excavation. This often includes the conservator's assistance during the lifting process. Among the most beautiful creations of the Pre-Columbian cultures in the region are pendants and other objects that were made out



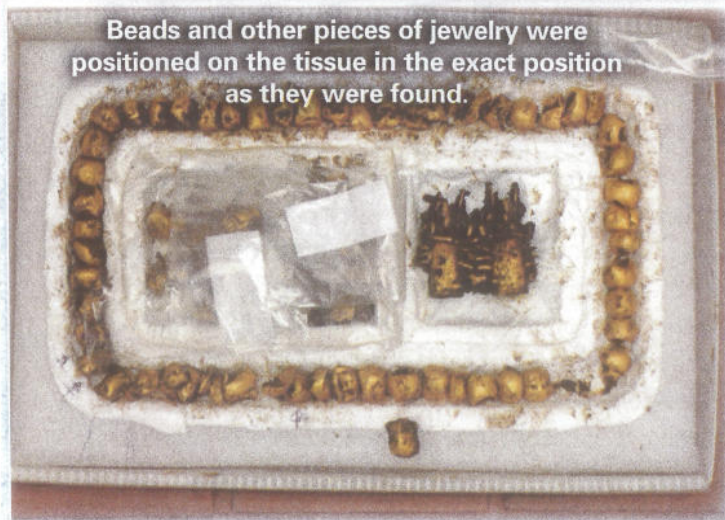
A conservator applies a tissue facing to protect an artifact during lifting.



A block-lifted area of soil, with artifacts still within, waits in the lab for the conservator.



Gloves are essential to keep the oil from one's hands from touching newly uncovered artifacts.



Beads and other pieces of jewelry were positioned on the tissue in the exact position as they were found.

## Record Every Detail

The excavation of complex groupings of artifacts is a particular challenge presented by the burials at El Cano. While each of the various artifacts may not be particularly delicate, their associations with each other are essential to their meaning and, therefore, important to preserve. For example, the hundreds of gold beads making up a necklace may maintain their original positions in the soil, but the string holding them together deteriorated long ago. When excavating such a piece of jewelry, it is important that all is drawn and photographed as it appears in the ground. Once this is done, the beads are transferred

to a custom-made box, which keeps their arrangement intact and allows them to be transported safely to the laboratory for further conservation.

## Treat Carefully

After the lifted artifacts arrive in the laboratory, the conservator can continue, at a careful pace, with the conservation process. In addition to being covered with soil, an object may be badly broken or have deterioration problems that

make it unstable or fragile. During cleaning and other treatment procedures, the conservator will always be careful to choose tools, cleaning methods, and adhesives that do not have a damaging physical or chemical effect on the original artifact materials. These procedures must also preserve subtle clues as to how the object was made and what its use was.

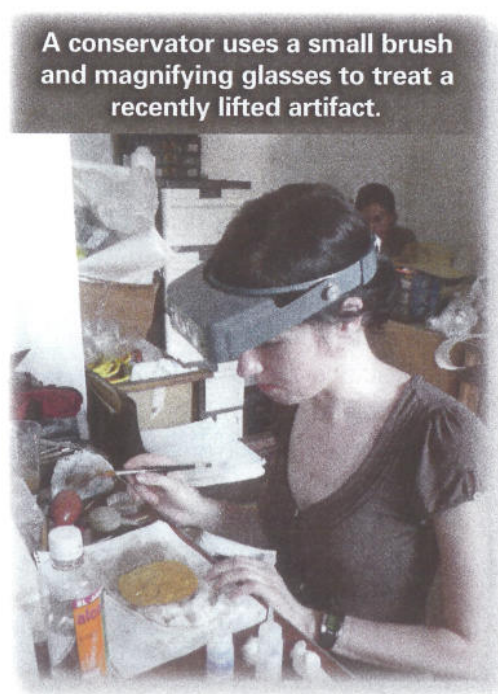
## Slow on the Reassembly

For most artifacts, careful cleaning and reassembly of fragments may be all that is needed. In the case of beads, with information recorded about their arrangement in the ground,

archaeologists can re-string them to show how they believe they looked originally. For block-lifted items, such as the carved whale tooth, the conservation process typically involves first removing the facing, if present. Then, the object or fragments are excavated carefully and cleaned. The third step in the process involves reattaching the pieces.

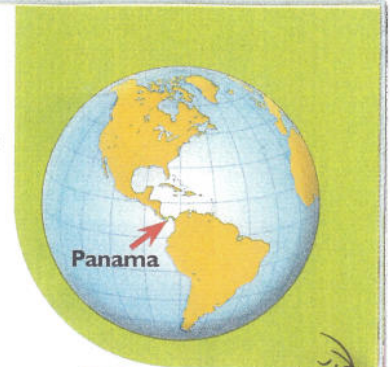
## Have the Proper Container

The final safeguard for an excavated artifact is having a protective container or support and a stable, secure environment when it goes into storage or on display in a museum. A simple ring made of foam can keep a ceramic jar that has been reassembled in the lab from dozens of pieces from tipping over on a storage shelf. For more fragile items that will be stored in a drawer or cabinet, the container made by the



A conservator uses a small brush and magnifying glasses to treat a recently lifted artifact.

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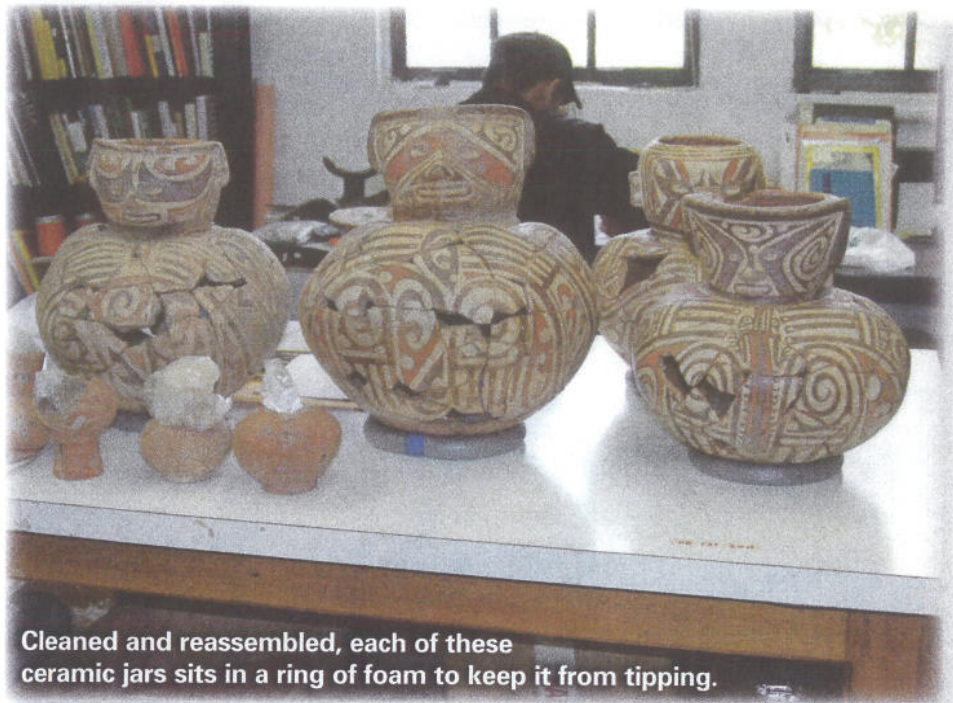


This carved whale tooth, now cleaned, was block-lifted from the site where it was uncovered.

THANKS!  
NOW I KNOW  
WHERE  
EL CANO  
IS!



conservator is designed to keep it from being scratched or crushed. It also allows it to be easily seen without needing to be unwrapped or picked up. The careful attention these astonishing finds at El Cano receive at every step—from excavation to storage and display—ensures that they will be able to be studied and appreciated for many years to come.



Cleaned and reassembled, each of these ceramic jars sits in a ring of foam to keep it from tipping.

Harriet "Rae" Beaubien, Ainslie Harrison, Kim Cullen Cobb are objects conservators on the Proyecto Arqueológico El Cano team. Archaeologist Julia del C. Mayo is director of the Proyecto.

Once again the beauty of the necklace is for all to see, as it sits in its custom-made box.



Cleaned, labeled, and arranged just as they were when found, these beads are ready to be stored in a drawer.

