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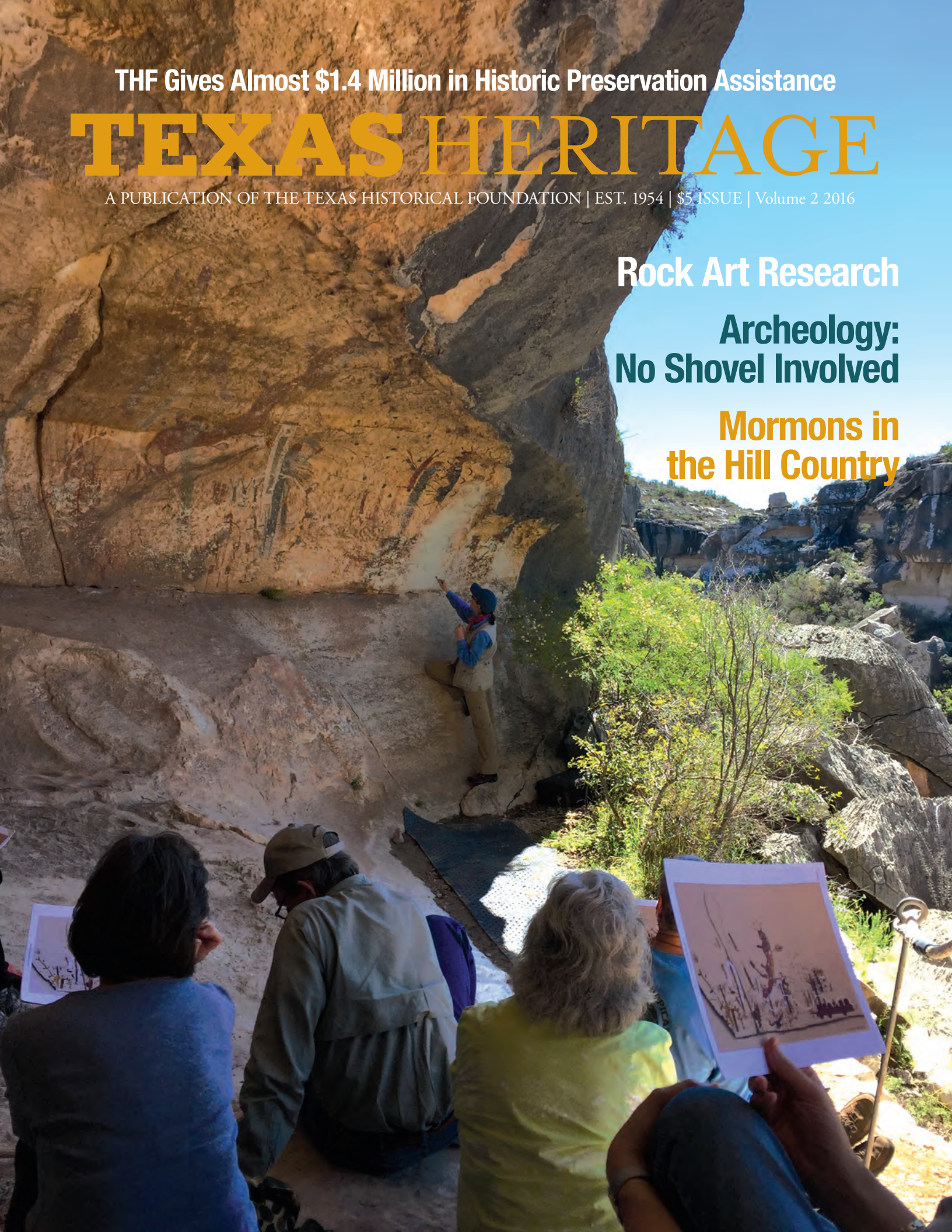
TEXAS HERITAGE

A PUBLICATION OF THE TEXAS HISTORICAL FOUNDATION | EST. 1954 | \$5 ISSUE | Volume 2 2016

Rock Art Research

Archeology:
No Shovel Involved

Mormons in
the Hill Country



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Early inhabitants of the state left drawings scrawled across the canyons of the Lower Pecos. Today, with the help of modern technology, researchers are learning more about the artists and the paintings.
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Dr. Carolyn Boyd points out figures in the White Shaman mural located in the Lower Pecos Canyonlands. Photo courtesy of the Shumla Archaeological Research and Education Center.

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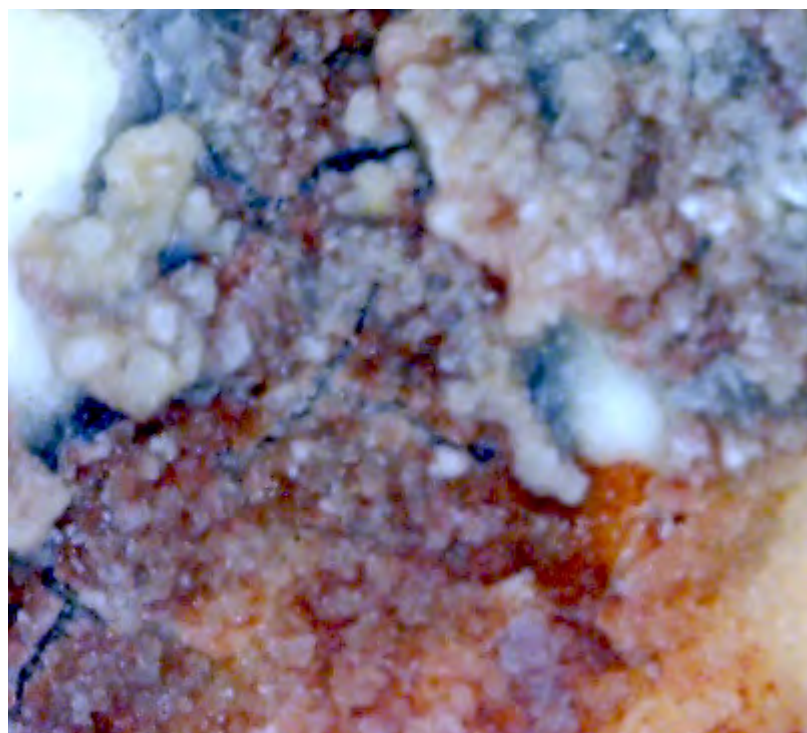
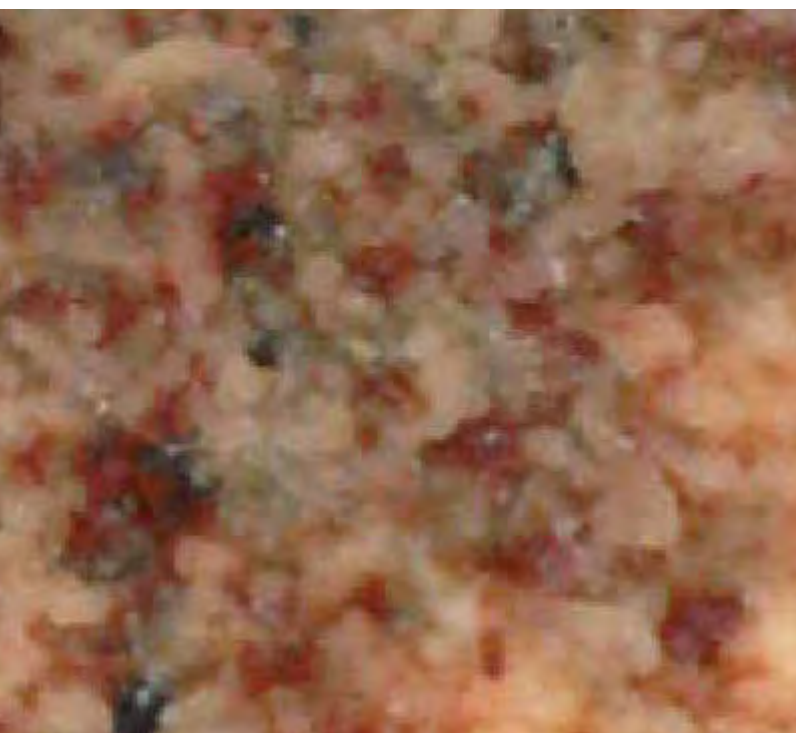
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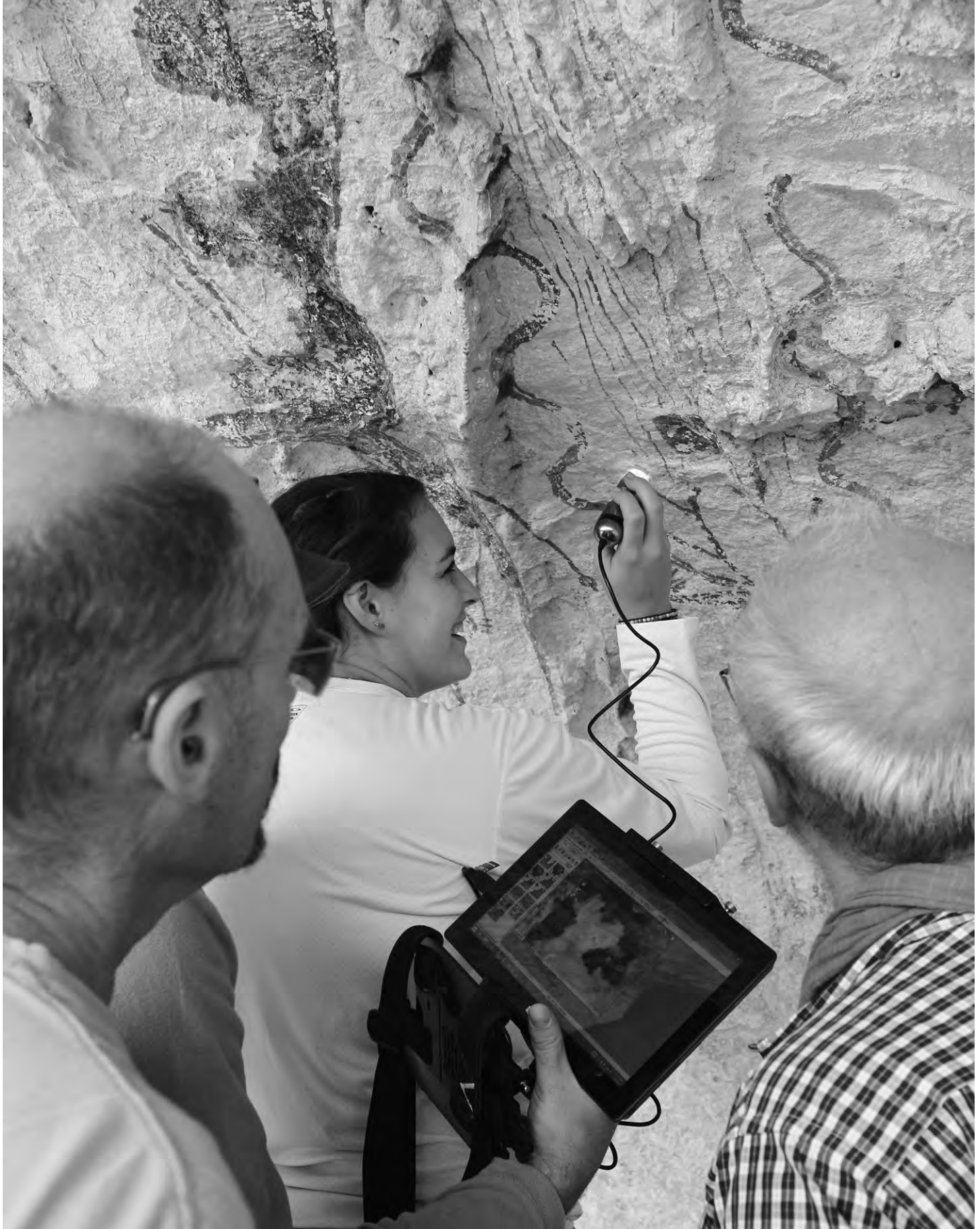
Top: This full-color rendering depicts the White Shaman mural as it would have appeared in its completed state. Bottom, left: This microphotograph shows a paint intersection on one of the murals displayed at 50x resolution; the one on the right is at 200x resolution. All photographs and drawings are courtesy of the Shumla Archaeological Research and Education Center.

AN ENDURING NARRATIVE

Technology Helps Solve an Ancient Mystery

Texas is a land of many stories: sagas of explorers, settlers, battles, and Texians forging a new country. There are some tales, however, that are less well known and much older. These are the narratives of the people who lived here long before Europeans stepped foot in the state. Fortunately for us, they left their storybooks behind.

By Jessica Lee



Amanda Castañeda uses the Dino-Lite Digital Microscope, connected to a laptop computer, to inspect this Lower Pecos Canyon rock drawing. The apparatus is more commonly used for medical purposes and counterfeit detection. Original image in color. Opposite page: This rendering of the White Shaman mural shows how it would have looked after the first layer of black paint was applied.



There is a slice of Texas, along the border with Mexico, that few have seen called the Lower Pecos Canyonlands. It is a special place in the wide desert where the Pecos River, Devil's River, and the Rio Grande meet. Formed by the damming of the Rio Grande in 1969, the Amistad Reservoir's beauty lures tourists and fishing enthusiasts. Long before jet skiers revered this place, however, it was sacred to some of the earliest inhabitants of the state.

In the deep canyons of this area, ancient people painted their stories. Between 4,000 and 1,000 years ago, they created hundreds of intricate murals in vivid color. When archeologists first noticed the rock art, they believed each mural had been created one figure at a time by different artists over many years. They doubted the meaning of the art would ever be known. After 19 years of preservation and study, though, Shumla Archaeological Research and Education Center has found that much more can be learned about the paintings and their creators than previously thought possible.

Dr. Carolyn Boyd, Shumla's founder and research director, felt from the time she first saw the Lower Pecos murals in 1989 that these were not a random mix of distinct figures, but compositions. She discovered, in the many years of research that followed, a complex and cohesive belief system depicted in the area's White Shaman mural. The absolute proof that this particular rock art panel was

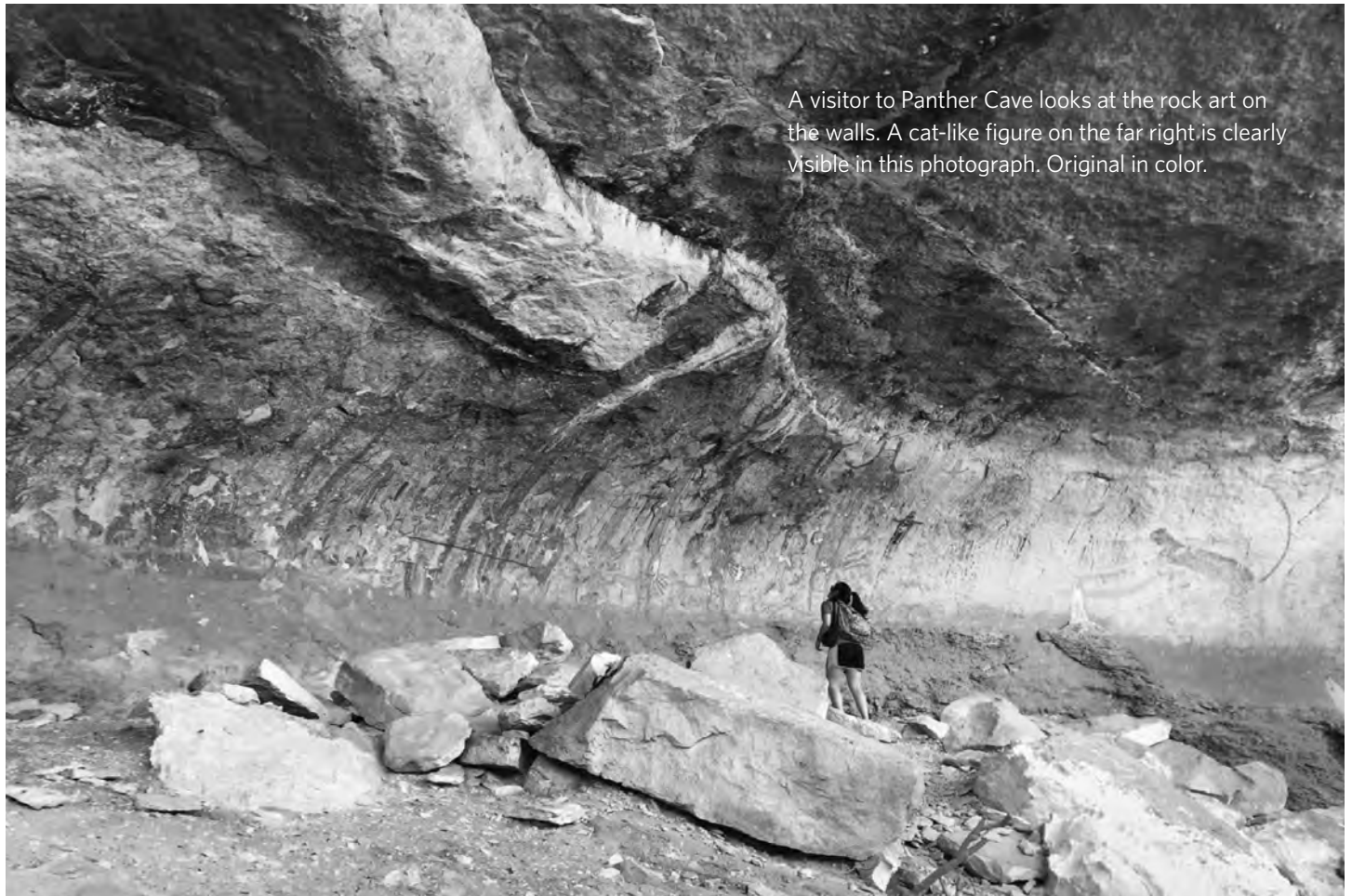
a composition painted all at once confirmed the intelligence and purposefulness of these ancient artists. However, it took ingenuity on the part of contemporary researchers to uncover the mystery.

TECHNOLOGY TO THE RESCUE

The use of advanced technologies, which is ongoing, enables Shumla archeologists to document and study the Lower Pecos murals. High-resolution imaging, 3D modeling, and *GIS* (geographic information system) mapping are all employed. Though not specifically developed for rock art research, these modern methods initially were used by the team in ingenious ways.

The Shumla researchers posed queries related to the fundamental purpose of the ancient artists, and then explored methods to guide them to the answers. Were the murals of the Lower Pecos a collection of loosely related images or single compositions? Was each mural painted at one time in order to communicate a cohesive story? Or were they painted during the course of many years by numerous artists returning to the same location to add their mark?

One of the ways Shumla archeologists attempted to resolve these mysteries was to study the sequence in which the paint was applied. They used



A visitor to Panther Cave looks at the rock art on the walls. A cat-like figure on the far right is clearly visible in this photograph. Original in color.

the White Shaman mural to test the idea that examining where figures and lines intersected might reveal the order in which the panel was created—and help establish whether it was random or planned. Many figures in the White Shaman mural intersect, as can be seen in the image at the top of page 8.

To determine which line, dot, or color was painted on top of another, researchers needed to microscopically inspect the places where the paint overlapped. Because the murals could not be transported to the lab, the team had to find a way to examine the art on site. Enter the Dino-Lite, a handheld digital microscope intended for use in counterfeit detection, material quality control, and ear and eye examinations; in this case, however, the apparatus was connected to a laptop computer and carried into the field.

STUNNING REVELATIONS

Archeologists never imagined what this detailed analysis would reveal. At each intersection of every color, they found that rather than painting the

mural figure by figure, the artists applied all the black paint first, then added red, yellow, and finally white.

This meant the intricate and vibrant almost-30 foot-long mural initially looked like it does in the image on page 11.

In order to create the painting in this manner, the ancient artists had to preplan the entire composition—all the figures, colors, intersections, and connections. This distinctive technique was conclusive proof that the entire White Shaman mural was completed at one time. What's more, it demonstrated the skill of the artists. To paint a large mural with so many attributes and alignments, one color at a time, and create a cohesive final product required a high level of intelligence and planning. Naturally, though, that raised another issue: was this only true at White Shaman or were other murals also painted in a similar manner? To answer that question, the team took the Dino-Lite to three other Lower Pecos sites. Each time, as one archeologist held the microscope to an intersection point, the others hovered near the laptop. Consistently, the results were the same: red over black,

yellow on top of red, and white applied last.

To ensure they were not just finding what they hoped or expected, the archeologists applied the highest level of scientific method to test their hypotheses. They took hundreds of microscopic photographs of paint intersection points at murals across the region. In the lab, two researchers trained to read *stratigraphy* (the study of layering) in microscopic images examined the results and made separate assessments. These determinations were then compared, and in instances where the researchers' evaluations differed, a third individual reviewed the photographs. If findings were inconclusive, the stratigraphy for that point was reported as indeterminate. All evaluations at one site were then input into sophisticated stratigraphic software and further studied to determine other characteristics, including patterns and outliers. The results indicated the same sequence of paint application: black, then red, followed by yellow, and finally white.

This discovery and Dr. Boyd's interpretive research are described in *The White Shaman Mural: An Enduring Creation Narrative*, to be published in December. In the book, Dr. Boyd identifies patterns in the imagery that equate to the mythologies of Uto-Aztec speaking peoples, including the ancient Aztec and the present-day Huichol. Drawing on 25 years of archeological research, as well as insights from ethnohistory and art history, she demonstrates that the rock art is a visual narrative telling of the birth of the sun and the beginning of time.

It is ironic, perhaps, that modern technologies provided the means to show the sophistication of these ancient artists. As high-tech study of these complex murals continues, more information will be revealed. Documenting and preserving the Lower Pecos Canyonlands paintings—possibly the oldest “books” in North America—provides an important piece in understanding the state's earliest inhabitants. ★

Jessica Lee is the executive director of Shumla Archaeological Research & Education Center in Comstock.

* Editor's note: In this article, the spelling of *archeology/archeologist* (Texas HERITAGE style) and *archaeological* (in the Shumla name) is intentional.



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