This extended abstract represents a summary introduction to a work in progress, which will culminate in a publication and exhibition at The Los Angeles County Museum of Art in 2018. It briefly outlines our discoveries and interpretations, which will be more fully presented, referenced and discussed in the forthcoming catalog.
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The Mimbres culture is named for the Mimbres valley of what is now New Mexico, where a relatively small pueblo social group developed a unique set of artistic traits that reached a “classic period” between AD 1000-1130. The hallmark of Mimbres art is black and white painted ceramic bowls of extraordinary aesthetic and artistic quality.

Primarily, the exhibition and catalog will focus on our interpretation of the paintings themselves. Paintings on Mimbres bowls have generally been divided into two categories: figurative depictions of their natural world (including narrative “story bowls”) and geometrics. However, our extensive research has allowed us to recognize that almost all motifs found on Mimbres bowls can be read as abstract references to trance-state visual experiences, some with direct reference to the natural world, others generated in the brain (entoptic). We thus argue that any of these so-called “geometric” bowls can be deciphered, either as abstractions of natural elements (such as flowers or moths), and/or as brain-generated entoptic shapes and visions experienced while in a trance state, which was in turn induced by the ingestion of psychoactive plants.

Of particular importance to this process was datura, a flowering plant with potent hallucinogenic properties that was utilized for vision quests throughout the Southwest and greater Mesoamerica. Datura still grows on Mimbres archaeological sites today, and was the most powerful mind altering drug used by the Mimbres. As we will demonstrate, Mimbres artists painted - in abstracted form - various aspects of datura, from its seedpods and first blossoming to the final withering of the flower. They also painted the principal pollinators of datura (hawk moths), and the visions associated with ingesting datura. Other plants with mind-altering properties are also depicted. However, datura is the only flower that is depicted in its various morphing configurations.

Significantly the central food plants; corn, beans and squash are never depicted. The reason for this omission could be that these basic food plants were not part of the trance state process that is the central theme of Mimbres painting.

Our findings are based on research supported by the Mimbres Foundation since 1976, as well as the Janss Foundation, the Rockefeller Brothers Fund, Thomas Weisel, Richard Fredericks and Laura Stearns. We have employed a variety of perspectives offered by distinguished scholars in our discussions, including Mesoamerican and Southwestern archaeologists, ethnographers, neurologists, artists and art historians. We also took high-resolution and time-lapse photographs of plants and blossoms to provide insights into datura's significance as a major agent in Mimbres art.
Datura seedpod effigies have been found at archaeological sites throughout the Southwest (Figure 2). Datura flowers open at night, the white blossoms unfurling as if alive, until they are wide open and ready for pollination. Figures 5 - 12 illustrate how, especially when seen in sequence, even the most highly abstracted depictions of datura blossoms can be identified on painted Mimbres bowls.
Figure 5 shows a datura blossom that is just beginning to unfurl. Figure 6 depicts this early stage of the opening flower and surrounding leaves. The circular shape of the flowers simultaneously reference the spiral, a basic entoptic form. It is significant that the bowl is not circular. Most bowls are only slightly off center. However, many Mimbres bowls seem constructed as if mimicking both the floppy and irregular shape of the datura blossom and the morphing trance state portal. The painting in these vessels are carefully conceived to fit the irregular shape of the bowl.)
In addition to many other stages of the datura flower’s life cycle, we have also identified representations of the datura stamen, and a number of other plants/flowers including: desert tobacco, evening primrose, sunflowers, agave, prickly pear, and cotton. These will be illustrated in the forthcoming publication.

Fig. 12 demonstrates how the abstraction of the datura blossom is often used as a format, in this case for the depiction of two deer.
Hawk moth elements

Hawk moths are the principal pollinators of datura, furthermore; their entire lifecycle (from egg, larva, and pupa-stage through to fully developed adult moth) may be spent with the datura plant. There is no doubt that Mimbres people were keen observers and were fully aware of the symbiotic relationship between datura and hawk moth and associated the moth with the powerful effects contained in the plant. This key insight has allowed us to recognize many painted Mimbres “geometric” motifs as abstracted depictions of patterns seen on hawk moth bodies (whether in the larval, pupal, or moth state).

Figure 13 shows a five-spotted hawk moth with its proboscis extended to feed on the nectar of a datura flower. We believe that the distinctive pattern on the side of its body was interpreted and abstracted by Mimbres artists to become a checkerboard pattern, a common motif in Mimbres painting (as seen on Figures 14 and 18). In Figure 14, the overall appearance of the hawk moth is abstracted. Using a particular pattern in a different location in abstracted images is a common occurrence, as shown on this bowl where the checkerboard pattern is moved from the body onto the wings. Elongating the wings is another recurring convention as seen in Figure 18.
Entoptic shapes

Some painted patterns are representations of commonly experienced entoptic shapes (Figure 16). We specifically argue that the association between hawk moth and datura would have been reinforced by the fact that certain patterns found on hawk moths, in particular zigzag lines (Figure 15), are themselves entoptic shapes commonly seen while in a datura-induced trance state.

The literature on psychoactive substances and hallucinatory experiences (which we explore in greater detail in the forthcoming catalog) show that many of the most widely reported entoptic hallucinogenic effects and visions produced by ingesting datura are consistent with the motifs seen on the bowls; most importantly a white circular tunnel, a spinning field of vision, entoptic shapes such as zigzag lines, triangles, nested squares, and concentric circles.
Story bowls: new interpretations through the lens of datura

To clarify how our interpretations differ from existing scholarship, we here present some examples that are representative of the type of analysis we will present in the exhibition catalogue.

17. painting of a figure riding a hawk moth private collection, approx. 6” 4 3/4”

18. an anthropomorphized hawk moth painting private collection. 10 1/2” x 5 1/4”

19. underside of an adult hawk moth, note the correspondence between its dotted abdomen and the tail like form of the Shaman. photo Damon Cirulli

The bowls in Figures 17 and 18 appear to portray transformative shamanistic experiences. The painting in Figure 18 incorporates hawk moth wings (compare to Figure 14) and the pointed end of the hawk moth abdomen into a recognizable human figure. The painting in Figure 17 depicts a hawk moth with its proboscis extended and a small human riding on its back. The moth and its rider are off-center, giving the impression that they are in flight. Shamans traveling in the spirit world commonly report flying, and often have a tutelary creature that will help them navigate the dangers of the spirit world. This may be a depiction thereof.

Aside from decoding many of the “geometric” designs in Mimbres art, our insights also allow a new deeper interpretation of figurative Mimbres paintings, including the narrative scenes on so-called “story bowls”. On the basis of our interpretation, these figurative scenes are likely to be both individualized and culturally mandated trance state visions, taking place in a white circular space which, as will be explained in the forthcoming publication, is so often reported in trance state visions (the “trance state tunnel”). We also explore in more detail the role the bowls themselves would have played in structuring and
dictating the Mimbres trance state experience. Once we had settled on a neuro-aesthetics approach, we invited one of the founders of the perspective, renowned cognitive neuroscientist Prof. V Ramachandran of the University of California, San Diego, who visited with us in Santa Monica on numerous occasions, and confirmed the appropriateness of our approach.

As mentioned, Mimbres artists represented several life stages of the hawk moth’s development. The death and rebirth-like process of the hawk moth as it emerges after pupating, transformed from its caterpillar form into a moth, would have been important. In Figure 20 we see the hawk moth larva (“horn worm”) with its segmented, tube-like body and what appears to be a head with mouth, horn, and eye, but which is actually its tail end. Figure 21 shows the adult hawk moth emerging from the chrysalis, its front legs kicking as it breaks free of the hard shell.

Many details in the painting on the bowl in Figure 22 have clear visual connections to the hawk moth in its larval and chrysalis stages, and we thus interpret the central figure of the painting as a large, mythic hawk moth larva, likely involved in a ritual of shamanic transformation, aided by two helpers. The tail of the chrysalis...
alis is suggestive of the end of a rattlesnake’s tail, however, the ovoids with dots on the neck reference the shapes that appear on the lower abdomen of the hawk moth’s body. (see Figures 19, 22 and 23). Ambiguous depictions with possible multiple meanings are often present. The usual forward curving horn of the larva (see Figure 20) is here paired with another that curves backwards. This may depict the moment when the antennae of the hawk moth break out of the hard chrysalis case as seen in Figure 21.

Our interpretation of this scene is that the ingestion of datura transported a shaman into trance state, where he merged with the mythic hawk moth larva. The transformative power of the hawk moth (to transform itself from a caterpillar into a moth) would have been central to the Mimbres conceiving of and painting this scene.

A fourth enigmatic figure below the larva lies in a static pose. He may be dead or in a transformative state that fits the whole narrative. We may be seeing four different figures, or more likely, one figure shown in sequential narrative action. Multiple images of one figure in different stages seems to be a recurring depiction in Mimbres narrative story bowls.

The painting in Figure 23 depicts another combination hawk moth larva and shaman. While this creature has often been associated with the plumed serpent of Mexican mythology, we argue that the forward turning horn is that of a hawk moth larva (Figure 20), and the tail with six ovoid forms with a dot in the middle is a direct reference to the dotted ovoids on the bottom of the hawk moth’s body. These dots are also referenced between the legs of the Shaman in Figure 18.

In both Figures 22 and 23, the fact that the figures are painted within a white circular space with concentric circles at the periphery – a very common entoptic manifestation of being in a trance state – emphasize the supernatural character of the scene. We argue that the white circular space of the bowl’s interior is the opening of the trance state portal between the spirit world and the mundane world. The open portal allows the shaman to safely return from his interaction with the mythic hawk moth larva.

After we recognized the centrality of datura, we found that three individuals, the late Paul T. Kay, Lisa Huckell and Christine VanPool had earlier made this connection. In 2005 Paul T. Kay presented a poster presentation that recognized the presence of datura at Mimbres, Casa Grandes and Sityakti pueblos. He was the first to publish a datura related image, in this case a representation of a hawk moth larva. We found that Huckell and VanPool had come to appreciate the importance of datura in 2006, and identified a bowl as depicting the exploded datura seedpod. Although she did not publish a photograph of this bowl, it was the first recognition of the depiction of the datura seedpod.
Another aspect of the catalog will expand upon an idea that Berlant first published in 1973, which is that certain groups of bowls can be assigned to individual Mimbres artists. There is in our minds no doubt that there were a very small number of Mimbres master artists. Figures 11 and 12, for example, we believe are two works by the same painter.

In all native cultures of the Americas, art is rarely art for art’s sake: each motif and painted element has meaning. The forthcoming publication begins to decode the visual information on Mimbres bowls. Beyond our realization that Mimbres art is the world seen through the lens of datura, the most significant and unexpected insight is the realization that the so-called “geometrics” were not non-objective inventions, but rather abstracted depictions of flowers, most commonly datura, and the brain-generated entoptic forms associated with its ingestion.

Furthermore, the overtly figurative aspect of Mimbres painting has no parallels in any of the surrounding traditions. Painting datura flowers in carefully observed sequence, may have led to a naturalistic narrative style in the depictions of animals and people.

Scholars have long recognized parallels in the motifs and patterns of painted ceramics between Mimbres and surrounding cultures. Our identification of these motifs as abstracted but readable images thus extends beyond the Mimbres tradition itself, and allows us to interpret some of the art of other SW cultures as datura-related.

Beyond what is addressed in this paper the “Decoding Mimbres” exhibition catalog will include our exploration of Mimbres painting as art.
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