



# Introduction

The Mimbres and the Salado were two prominent cultural groups that settled in the southern Southwest of North America, occupying many of the same regions of present-day southeast Arizona and southwest New Mexico, albeit at different times. They have been highly regarded by archaeologists for their distinctive and beautiful pottery styles, which have become integral to understanding their respective cultural identities.

Despite their regional proximity, these two groups produced pottery that often varies greatly in design and apparent intent-but how different are these two pottery cultures actually?

This analysis hopes to answer that question by comparing the Classic Mimbres Black-on-White period (1000-1130 CE) and the Salado Polychrome period (1275-1450 CE) pottery styles, focusing on the production process and methodology of each group. The goal is to gain a better understanding of how, and potentially why, elements of pottery production were either maintained or changed between the two groups. To accomplish this, a variety of factors are examined, including available natural resources, raw materials, tools, and technologies.

Clay

- Alluvial
- Grey to grey-brow Typically tempered
- wide variety of oth analyses.
- Researchers have been However, it is I and/or Gila Rive were located.



Museum

Figure 6. An incomplete

Source: Anthoney Howell,

Mimbres corrugated plainware

vessel. This shows what the clay

color would have been post-firing,

before the white slip was applied.

Western New Mexico University

- Puki (possibly): A ceramic base to help shape the vessel
- No direct archaeological evidence, but pukis were a common tool amongst other groups, and it is possible the Mimbres would have adopted it.
- Gourd Scrapers: For smoothing vessel walls
- Polishing Stones: To burnish the vessel
- Yucca Brushes: To apply slip and paint



Figure 7. A vessel made by Andy Ward, demo how a puki would have been used to form the Source: Andy Ward's website, Ancientpottery



ana i

Figure 9. Swatches of red hematite paint and white slip applied to a slab sandstone.. If fired, correctly, the reddish paint will become black post-Photo taken by me.

# Forming

- Used coil-and-scrape method
- Vessel is slipped white, then painted with geometric and/or representational designs
  - Bowls: Design on the interior, plain or white-slipped exterior
  - Jars (rare): Plain interior, design on the exterior

# Firing

- No evidence of kilns!
  - Likely completed using a pit fire
  - Firing atmosphere was oxygen-deprived.
  - How do we know?
  - The hematite-based paint was black post-firing. If the fire was oxidizing, the paint would maintain its red color.
- Firing Temperature: +/- 900°C (1650°F)



Figure 10. An interi Mimbres bowl featur and representationa Source: Brooklyn M





Gabby Pfleger, Archaeology Southwest & Rebecca J. Harkness, University of Arizona

	Classic Mim	bres Black-on-White		Salado
vial Arey to grey-brown clay which turns grey to tan after firing Typically tempered using fine sand, although there have been a vide variety of other materials found during petrographic analyses. earchers have been unable to pinpoint exact sources. However, it is likely clay came from the Mimbres River and/or Gila River in SW New Mexico, where many settlements were located.				<ul> <li>Clay</li> <li>Alluvial <ul> <li>A brown to reddisting</li> <li>Tempered using w</li> </ul> </li> <li>Salado "phenomenon singular clay source resingular clay source resingular</li></ul>
<ul> <li>I made by Andy Ward, demonstrating have been used to form the base. d's website, Ancientpottery.how</li> <li>Slips &amp; Paints</li> <li>White Slip: Made of kaolin – a type of clay abundant in kaolinite, which is a mineral rich in silicon and aluminum.</li> <li>Occurs when aluminosilicate minerals are weathered or otherwise altered via natural processes.</li> <li>Black Paint: Mineral-based, made of hematite</li> <li>The paint would have appeared red pre-firing, then would turn black after the firing process was completed.</li> <li>Paint was mixed with a plant-based binder</li> <li>A syrupy substance which helps the paint stick to the pot and uphold the integrity of the design</li> </ul>				<ul> <li><i>Slips &amp; Paints</i></li> <li><u>Red Slip</u>: Hematite –</li> <li><u>White Slip</u>: Made usin         <ul> <li>Occurs when w</li> <li>Super absorpt</li> <li>PIXE analysis sh composition var resources. (Sime</li> <li><u>Black Paint</u>: Typically</li> <li>2 possible plan                  <ul></ul></li></ul></li></ul>
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# Polychrome

sh clay paste which turns tan after

- very fine sand
- ' was widespread, making a nearly impossible to determine settlements were centered around pper Gila, and San Pedro river
- aking them likely sources, but not



Red iron oxide mineral

- ng smectite A mineral rich in Si and Al
- volcanic ash deposits undergoes weathering. tive and helps turn organic paint black during firing
- hows that exact ries based on location, preparation techniques, and shifting on et al 1998)
- organic, carbon-based (<u>rarely</u> mineral)

ed with a plant-based binder

#### Figure 17. An interior view of a Cliff Polychrome bowl, design. From the Eastern Arizona College Mills collection. Source: Archaeology Southwest. "Salado olychrome pottery, part 2"



### Forming

- Used coil-and-scrape method
- Vessel interior was slipped white, then painted with bold, geometric (and sometimes representational) designs, and the exterior was slipped red • Design varies depending on pottery sub-type

#### Firing

- Complex and technologically advanced!
  - Needed to oxidize the hematite slip, while simultaneously preventing the organic paint from oxidizing and burning off.
  - To do this, a surface or shallow pit fire was used, and firing time was much shorter.
- This knowledge would have been provided to the Salado via neighboring communities who knew how to execute it. • No evidence of kilns!
- Firing Temperature: 900°C (1650°F) maximum.
- Experimental potter Andy Ward has found success firing at 750°C (1382°F)



Figure 4. An interior view of a Gila olychrome bowl (1300-1450 CE, l features a single, bold black and ite geometric design interior and a rom the other Salado Polychrome sub-Source: American Southwest Virtual Museum Image Galleries





Photo taken by me.



# Tools

- Perforated Plates: A shallow, plainware ceramic piece used as a base to help form vessels • Originated with the Kayenta around 600 C.E.
- Gourd Scrapers: For smoothing vessel walls
- Polishing Stones: To burnish the vessel
- Yucca Brushes: To apply slip and paint



Figure 16. An interior view of a ainted Salado polychrome vessel re-firing. If done correctly, the eddish paint will be black after ring. Pottery made by Andy Ward ource: Archaeology Southwest, rning the Secrets".

# **Archaeology Southwest**

Figure 3. A partial exterior view of he same Classic Mimbres Black-on-*Nhite bowl featuring the black* geometric design and bighorn sheep The exterior of a Mimbres bowl was typically left plain or slipped white without desian. Source: Dallas Museum of Art

Figure 5. A partial exterior view of the same Gila Polvchrome bow ature a red-slipped exterior. but eac alado sub-type varies. The Gila Polychrome style specifically includ an exterior that is slipped red with no other design present. Source: American Southwest Virtual

Auseum Image Galleries

# Conclusion

Both groups' preferences for brown clay pastes, as well as the coiland-scrape method of production are typical of groups belonging to the greater Mogollon cultural sequence. Although some neighboring groups (I.e. the Hohokam) used the paddle-and-anvil method, this was not something that was adopted by either the Mimbres or Salado- the most likely explanation of this is simply a matter of tradition.

The similarities in tools and raw materials can be partially explained by the fact that both groups settled in resource-rich river valleys, where alluvial clay, fine sand, smooth polishing stones, and yucca would have been in abundance.

Major differences between the Salado and Mimbres include their use of slip and paint, as well as the firing atmosphere used to finish the vessels. Both factors can be partially explained by the differing cultural influences experienced by each.

Although the Mimbres didn't adopt the Hohokam method of production, the earliest forms of Mimbres pottery (known as Style 1, pre-Classic period) include representational motifs first seen in the Hohokam. However, over time the style shows fewer of these influences, so by the time of the Classic period, the design is entirely different. It has been posited that this may be due to a desire, conscious or sub-conscious, to form a more unique Mimbres identity (Hegmon et al. 2020).

Salado pottery design, meanwhile, can be directly linked to the Kayenta. The so-called "Salado phenomenon" as a whole is a product of the Kayenta migrating to the southern regions of Arizona and New Mexico, so it is natural that they would have brought these design motifs with them. This also explains why the Salado polychrome style varies so significantly in comparison to the Mimbres- the Kayenta diaspora was widespread, and pottery design would have been altered according to the southern groups they eventually joined.

The Salado's preference for organic-based paint also originates with the Kayenta, and there is even archaeological evidence of beeweed in a Kayenta site, meaning the knowledge on how to use this plant for paint was brought with them when they migrated south. The Mimbres likely used mineral-based paint because it was much more common in the region during their time. Organic paint was new to the region during the era of the Salado, and Mimbres pottery culture preceded them by at least one hundred years.

In both cases, their differing approaches to firing pottery is simply a product of the slips and paints they used. In lieu of kiln technology, open fires would have been the most obvious other option to complete the process, and oxygen levels and firing time could be controlled to produce the desired effect on the vessels. The Salado method of producing oxidized organic paint pottery was much more difficult to complete, and the technology to do so originated with Cibola groups in the north. The Mimbres method was more easily achieved, in part due to their preference for mineral-based paint, which is more resilient to

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