

Technology and Typology in the Upper Gila Flaked Stone Artifacts from the 3-Up and Fornholt Sites, Mule Creek, New Mexico

Stacy L. Ryan, Desert Archaeology, Inc., Tucson, Arizona

Introduction

Over the course of several field school seasons, a substantial number of flaked stone artifacts were recovered from 13th and 14th century deposits at the 3-Up and Fornholt sites in Mule Creek, New Mexico. These sites are located adjacent to the extensive Mule Creek obsidian source, and collections provide insights into lithic technology at sites with immediate access to high-quality material. Although these sites are only a few kilometers apart, the Tularosa phase (A.D. 1200-1325) Fornholt site produced a more diverse set of projectile point types than was recovered from 3-Up, where a probable Kayenta migrant enclave and a Cliff phase (A.D. 1300-1450) Salado occupation have been identified.



Sites in the Upper Gila region and Mimbres Valley.

Projectile Points from the Fornholt Site, LA 164471

The lithic collection from the Fornholt site totals over 20,000 artifacts, including a diverse assemblage of 110 projectile points.



One-third of the diagnostic points from Fornholt are the Southwest Triangular type, an unnotched style that is affiliated with Salado, Hohokam, Mogollon, and Ancestral Pueblo cultures during the late pre-contact era (Silva 2006). Based on its widespread distribution, a preference for this relatively small type was not in response to the small size of the Mule Creek obsidian nodules.



The high notch placement on the Side-notched Type I points is reminiscent of a common type associated with post-A.D. 1150 sites in southern Arizona and the Mogollon Highlands (Moore 1999; Silva 2006). However, notch width and base morphology are different enough to suggest that these are a distinct type, and may represent a local variant.



Side-notched Type II points are distinguished by their shallow c-shaped notches and base-to-blade ratio. These are from a single feature that contained several point types, and are noteworthy because they are similar to points associated with late Hohokam and Salado sites in southern Arizona, and at Cliff phase (A.D. 1300-1450) sites in the Mimbres Valley (Nelson 1986).



Points with extra notches are seen during the A.D. 1150-1300 interval in eastern Arizona and western New Mexico, and are also associated with earlier Mimbres Classic (A.D. 1000-1150) deposits at NAN Ranch Ruin and other sites in the Mimbres Valley (Dockall 1991; Silva 2006). However, the Fornholt points have little in common with those examples in terms of base and notch shape. Points with this trait do not appear to be associated with Cliff phase or Salado settlements in the Upper Gila region.



Several corner-notched arrow points are associated with Tularosa phase occupation at Fornholt. Similar points occur as early as A.D. 600 in the Mimbres Valley and Mogollon Highlands, and begin to decline in the Pueblo period (Dockall 1991; Moore 1999). Residents of Fornholt used, and possibly manufactured, corner-notched points through the Tularosa phase, but they appear to fall out of favor after A.D. 1300 in the Upper Gila.

Projectile Points from the 3-Up Site, LA 150373

A limited number of types are represented in the 40 projectile points from the 3-Up site. These were recovered from three loci with different cultural and temporal associations (Huntley et al. 2010; Schollmeyer et al. 2007).



The widest variety of points is seen at Locus A, which was occupied throughout the Pueblo period. Southwest Triangular and side-notched types are most common. These include Classic Side-notched points, a widespread type after A.D. 1150, and a side-notched convex-base point that occurs in the Mogollon Highlands during the late Pueblo period (Moore 1999). Corner-notched points are exclusive to this locus, and are possibly associated with pre-Cliff phase occupations. One preform recovered (bottom right) indicates this type was produced at 3-Up.



Points from Locus B, a 13th century Kayenta enclave, consist primarily of Southwest Triangular types, with only a small number of points with shallow side notches placed low on the blade.



Only one complete point was found in Locus C, a Cliff phase Salado occupation. Although the blade shape is irregular, the notch placement and base shape is consistent with those found at post-A.D. 1300 sites throughout the region.

Research Goals

- Identify reduction patterns and compare the use of obsidian with other locally available raw materials.

- Examine trends in projectile point types in the Upper Gila region during the late Pueblo period (A.D. 1150-1450).

- Compare technological behaviors and projectile point styles between two sites from the same area with different cultural affiliations.



Unmodified obsidian nodules from the Mule Creek source area are small and generally do not exceed 10 cm in length (see Shackley 2005).

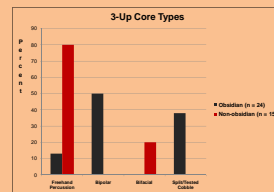
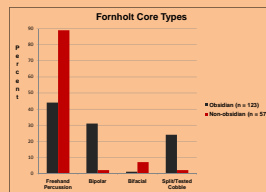
Obsidian Use and Reduction Patterns

Approximately half of the flaked stone artifacts from Fornholt and 3-Up are made of obsidian. The material was overwhelmingly preferred for biface and projectile point production, although it was used less frequently than other fine-grained local materials for scrapers and expedient tools.

Proportions of Tool Classes Made from Obsidian

	Projectile points	Bifaces	Unifaces	Core tools
3-Up	96%	91%	44%	33%
Fornholt	91%	79%	41%	25%

Obsidian cores were successfully reduced using freehand hard-hammer percussive techniques as well as bipolar reduction, a method of supporting the core on an anvil while striking from above. A similar range of core types occurs at both sites, but a higher rate of bipolar reduction is seen at 3-Up. Mean obsidian core size at both sites is nearly identical (30 mm), and significantly smaller than the mean size of non-obsidian cores (56 mm at Fornholt and 60 mm at 3-Up).



Discussion

Obsidian core reduction and tool production were a major focus at the 3-Up and Fornholt sites, where knappers were skilled at producing usable flakes from the nodules through a variety of methods. Tool production debitage occurs at near-equal rates at both sites and a similar range of core types is represented. A preference for bipolar reduction is evident at the 3-Up site and associated with all loci, and splitting nodules without the use of an anvil to create platforms was also a common strategy.

Projectile point types that have a widespread distribution during the 13th and 14th century in southwestern New Mexico and southeastern Arizona are well represented in the Upper Gila region. The large Tularosa phase collection from Fornholt also includes some styles that appear much earlier in the Mogollon Highlands and Mimbres Valley in southwestern New Mexico, and others that may be local variations of common types. In contrast, the narrow range of points from 3-Up consists mainly of those commonly seen at Hohokam, Salado, and Mogollon sites to the west. The projectile point styles highlight the different cultural affiliations and social influences at these two nearby sites.

At present, there is no single point type that can be considered a marker of Salado culture, but preferred styles may be inferred by examining new and existing collections from Salado sites throughout the region.

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