ARCHAEOLOGICAL RECONNAISSANCE
OF THE CAVES AT SINKHOLE FLAT,
EDDY COUNTY, NEW MEXICO*

Victor J. Polyak
and
James C. Cokendolpher

Abstract

A reconnaissance of the archaeology associated with the gypsum caves at Sinkhole Flat in Eddy County, New Mexico, was conducted for the Bureau of Land Management. All the sites were lithic scatters; hearths and pottery sherds, while rare, were noted in the sites, as well. The lithics are sparsely scattered and consist predominately of poor quality local cherts. No materials were collected; three projectile points were mapped, sketched, replaced, and reported to the Bureau of Land Management. Two are probably late Archaic projectile points, and the other is identified as an early Archaic (Jay) point. Pottery sherds consisted of brownware similar to Jornada or El Paso Brown, and black-on-white ware similar to Chupadero Black-on-white.

Archaeological sites such as these have been observed in other localities along the western margins of the Pecos River valley in eastern New Mexico. A Bajada point found in a site around the entrance of a gypsum cave north of Roswell, New Mexico, and the Jay point found during this reconnaissance indicate that early Archaic cultures visited or occupied sites around the entrances of the larger gypsum caves in this region. The caves were probably sources of water and occasionally shelter.

Introduction

Sinkhole Flat as the name implies, is a gentle depression that is dotted with small sinkholes. The study area of approximately 20 square kilometers encompasses Sinkhole Flat and the immediate surroundings northeast of the Guadalupe Mountains (Figure 1). The regional surface geology consists of Permain marine sediments covered in some places by Quaternary gravels. The area is barren and the biology and climate are characteristic of the northern Chihuahuan Desert. The caves of Sinkhole Flat developed in gypsum beds. Typical of gypsum caves in the southwestern United States, these have tubelike, serpentine passages that are sometimes extensive in length (greater than 100 meters). Entrances to these caves are usually at the bottom of funnel-shaped depressions called

* Courtesy of Bureau of Land Management, Carlsbad Resource Area, Carlsbad, New Mexico
Figure 1. General location of Sinkhole Flat and other points in Texas and New Mexico.
sinkholes. The sinkholes at Sinkhole Flat are less than 150 meters in diameter and less than 10 meters deep.

The major gypsum caves of eastern and southeastern New Mexico have surface archaeological sites associated with their cave entrances. With the exception of rock art that has been recorded just inside the entrance of a gypsum cave (Hanging Yucca Cave) north of Roswell, New Mexico (Belski 1987), little evidence of past human occupation has been observed within the interior of gypsum caves of this region. The lack of evidence within these caves is probably because the caves occasionally flood and the waters erode the floor, ceiling, and walls. On the surface, however, lithic scatters and sparsely situated middens are commonly observed immediately adjacent to the cave entrances. Soils on these semiarid gypsum plains are widely dispersed and usually thin, with the exception of stream and doline deposits, which can be thick. Archaeological materials preserved in context are rare because of the lack of soils, especially near the cave entrances where they are easily eroded and transported into the sinkholes and caves. The lithic and ceramic materials observed during this study were exposed surface artifacts and therefore probably not in context. Observation and study of surface artifacts has permitted the following archaeological report.

Methods

Archaeological materials were observed and studied on-site around six caves within Sinkhole Flat. The caves included in the study area are Batman Cave, Whirlpool Sink, Berry Tree Cave, Crumble Cave, Gourd Cave, Milliped Cave, and Oasis Cave. The artifacts were photographed, sketched, and replaced where they were found. Locations of projectile points (in reference to the nearest telephone poles) were recorded using a Brunton compass and tape, and then reported to the Bureau of Land Management in Carlsbad, New Mexico. From observations of surface artifacts and features, a general interpretation was constructed.

Results

Three projectile points, six pottery sherds, two scrapers, a few fragments of bifaces, and many lithic flakes were observed, all within 100 meters of cave entrances at Sinkhole Flat. Multicomponent lithic scatters and temporary open camp sites surround the Oasis, Batman, and Gourd cave group. Lithic scatters and open camp sites also surround the entrance of Milliped Cave. Sparsely located around these caves are burned rock middens (hearths). The middens are small and consist of slightly to moderately darkened cobble-sized rocks. The lithic scatters around the entrances of Oasis, Batman, and Gourd caves are relatively dense and consist of materials that are of local origin. Most of the chert found in these sites appears to have been quarried from small nodules within nearby limestone and dolomite cobbles and boulders. These cobbles make up alluvial deposits that form gently sloping, low-lying hills and ridges in the Sinkhole Flat area. The cobbles are of various colors, but generally of poor quality. Most of the nodules in the dolomite cobbles and boulders are too small for the manufacture of projectile points and
other common lithic tools. The projectile points were constructed of higher quality cherts that were undoubtedly imported into the area. Some of the other tools observed were manufactured from banded chert and foram-bearing chert. (Foram is short for Foraminifera, which are one-celled animals; fossils of these animals are abundant in the foram-bearing cherts.) Banded chert has been observed about 25 kilometers northwest of Roswell in New Mexico as nodules within dolomite beds of the Permian San Andres Formation. Nodules of banded chert in dolomite beds are probably present in many localities west of the Pecos River valley in southeastern New Mexico. These banded cherts are usually of poor quality. Foram-bearing cherts have been observed as nodules in the San Andres Formation in Last Chance and Sitting Bull Falls Canyons in Eddy County, New Mexico. Foram-bearing chert has also been observed as small cobbles in Ogallala gravels exposed along the eastern caprock of the Llano Estacado in Garza County, Texas, approximately 300 kilometers to the east (Figure 1). Cobbles of this chert can probably be found along much of the southern caprock of the Llano Estacado where cobbler gravels are exposed.

One of the three projectile points observed at Sinkhole Flat resembles a Jay point. This projectile (Figure 2a) was found near Oasis Cave and has a lanceolate blade with a relatively long straight stem that tapers slightly toward the base. The shoulders are rounded and the base is straight to slightly convex. A similar projectile (Figure 2b), identified as an early Bajada point, was noted at an open campsite at the entrances of Crystal Caverns (also a gypsum cave) approximately 200 kilometers north of the study area (Polyak, 1987). The point observed near Crystal Caverns is made of fine-grained basalt or andesite. The Jay projectile point observed near Oasis Cave is covered with a light brown patina, but from a small chipped area it appears to be made from light gray, medium-to-coarse-grained flint having a similar texture as that of fine-grained volcanic material. Marshall and Walt (1984) report that Jay and Bajada phase materials along the Rio Grande in central New Mexico are most commonly basalt and basalt andesite.

The other two projectiles found near Oasis and Batman caves are dart points. Dart Point 1 (Figure 2c) is made of moderate quality, light gray flint, which has a light brown patina. This projectile point is ovate in shape and has a convex base and has similar characteristics to the Pindi-convex reported by Thoms (1977) and the "Sand Mountain," an informal name, reported by Marshall and Walt (1984). Dart Point 2 (Figure 2d) is made of moderate quality light gray banded flint. This projectile point is a triangular blade with deep corner notches and a concave base and is similar to the Martindale or Marcos point, described by Bell (1980).

A few pottery sherds were noted near Oasis Cave. These consisted of brownware similar to El Paso Brown and Jornada Brown, and black-on-white pottery similar to Chupadero Black-on-white (Runyan and Hedrick 1973).
Figure 2. Projectile points from Sinkhole Flat area:  

- **a**, early Archaic projectile point (Jay) from near Oasis Cave, Sinkhole Flat;  
- **b**, early Archaic projectile point (Bajada) from near Crystal Caverns, De Baca County, New Mexico (redrawn from Polyak 1987);  
- **c**, Dart Point 1 from near Batman Cave, Sinkhole Flat;  
- **d**, Dart Point from near Oasis Cave, Sinkhole Flat.
Discussion

Study of the projectile points and pottery sherds indicate that at least three cultures were present, making the sites surrounding Sinkhole Flat caves multicomponent sites. There was not a great diversity in the type of lithic materials observed and the lithics are poor quality. This probably indicates that only a few cultures frequently occupied these sites. If several cultures had occupied this area, more diverse and better quality materials should be present.

The projectile point resembling a Jay indicates early Archaic human visitation or occupation of these sites. The Jay and Bajada phases are within the Oshara Tradition of northern New Mexico and have been assigned dates between 7,500 - 6,800 B.P. and 6,800 - 5,300 B.P., respectively (Irwin-Williams 1973). The type region for these phases, defined between the Puerco and Jemez Rivers (Irwin-Williams 1973), is about 370 km to the north of Sinkhole Flat. Early Archaic points similar to Jay and Bajada have been reported in other areas of the southwestern United States; these include east-central Arizona (Berry, 1984), the southern Tularosa Basin of New Mexico (Eidenbach 1983; Carmichael and Gerald 1986), and the Capitan Mountains-Hesperos Embayment region of New Mexico (Wiseman 1993). Henderson (1976) identifies a Jay phase component of a site adjacent to the Pecos River at Brantley Dam 20 kilometers east of Sinkhole Flat. Irwin-Williams (1973) notes the similarities between the Bajada and Jay phases and suggests considerable continuity from the Jay to Bajada phases. As Berry (1984) indicates, however, there is a lack of stratigraphic and temporal control on these and related phases.

Much of the early Archaic of the western United States has been interpreted, in general, as considerably warmer and dryer than today. Antevs (1955) reports this period of drought to have occurred during the middle Holocene from 4,000 to 7,500 B.P. and refers to it as the Altithermal or the “Long Drought.” In Colorado, Benedict (1979) studied the Altithermal in further detail and suggests that it represents two episodes of severe drought occurring from 7,000 to 6,500 B.P. and 6,000 to 5,500 B.P. Holliday (1989) defines the middle Holocene drought for the southern High Plains from 6,500 to 4,500 B.P. Grayson (1993) provides further evidence of a middle Holocene period of drought in the western United States. There is much evidence documenting a middle Holocene drought in the southwestern United States, and according to dates given by Irwin-Williams (1973), the Jay and Bajada phases were coincident with this considerably warmer and drier period. Presence of Bajada and Jay projectile points at gypsum cave sites probably suggests that early Archaic cultures visited or were inhabitants of these sites during the middle Holocene drought. Water and shelter would have been the primary reasons for visiting these gypsum caves.

Jay and Bajada materials are apparently rare in eastern and southeastern New Mexico. Study of these projectile point types will prove significant for archaeologists interested in the early Archaic of eastern New Mexico and the South Plains of Texas. Occurrence of Jay and Bajada artifacts in association with gypsum caves may provide further understanding of these cultures as well as the conditions that persisted during this period. For instance, to retrieve water from these caves today, it is necessary to penetrate well into the dark zone. It would have been necessary for these cultures to go well into the dark zone of these caves for water, especially during the drier periods.
The dart points are probably characteristic of the Late Archaic. Dart Point 1 resembles a Pindi-convex, and these and similar types have been associated with the En Medio Phase of northern New Mexico, which has been assigned a temporal span between 3,000 B.P. and 1,600 B.P. (Irwin-Williams 1973; Thoms 1977). Similar dart points have been assigned to the Late Archaic-early Formative period (Carmichael and Gerald 1986). Dart Point 1 also resembles the Sand Mountain point of Central New Mexico (Marshall and Walt 1984), which is estimated to be Late Archaic and extends into the Formative period. Similarities in characteristics of projectile points such as size, shape, flaking technology, and material type are found to be important attributes from which cultural and chronological information can be postulated. By this means, Dart Point 1 could represent evidence of a Late Archaic to Formative period culture and therefore possibly the culture that manufactured the brownware pottery.

Dart Point 2 resembles a Marcos or Martindale point. These Archaic darts have an estimated range from approximately 6,000 B.P. to 1,000 B.P. (Bell 1980). The Archaic in southeastern New Mexico is complex and few sites have been radiometrically dated. Comparisons of the Archaic projectile point styles such as these cannot provide reliable interpretations until more detailed studies are performed (Stuart and Gauthier 1984). Study of the archaeology of Sinkhole Flat presented by this report is preliminary and brief, and only best guesses and postulations can be offered until detailed studies are undertaken.

The pottery types observed at Sinkhole Flat sites are brownware sherds similar to Jornada and El Paso Brown, and black-on-white ware sherds similar to Chupadero Black-on-white. These ceramic artifacts indicate cultural occupation of Sinkhole Flat during the Formative period. This time span extended from probably no earlier than 1,600 B.P. and no later than 600 B.P. (Runyan and Hedrick 1973; Wiseman 1983). The brownware is generally considered the earlier of the two pottery types.

Summary

Evidence exists at Sinkhole Flat in surface sites immediately surrounding the entrances of gypsum caves that indicates human visitation or occupation as early as the early Archaic and as late as the Formative period. The Jay and early Bajada phase projectile points found around gypsum caves of eastern New Mexico suggest that human visitation or occupation coincided with the drought period called the Altithermal. The gypsum caves were probably important water stations. Evidence of these cultures this far east is significant because it could link them to the Plains cultures.

The two dart points are probably evidence of Late Archaic to early Formative period occupation. Study of the pottery sherds could reveal more accurate dates for human visitation at Sinkhole Flat and definitely suggest dates between 1,600 B.P. and 600 B.P.

Sinkhole Flat is an arid and semibarren area today. The only feasible reasons for pre-Columbian visitation to this region during the mostly arid middle and late Holocene would be for water and/or temporary shelter. Visitation was probably seasonal, especially during the Altithermal, because water in these caves would evaporate during the drier seasons. To obtain water in most cases, it would have been necessary for the people of these cultures to go well into the dark zones of the caves.
Acknowledgements

We would like to thank Carol Holsey, Betty Johnson, Bennett Lee, April MacDowell, and Gina Reese for their assistance at Sinkhole Flat. The Bureau of Land Management in Carlsbad, New Mexico is thanked for allowing the reconnaissance on lands they manage.

References

Atrens, Ernst

Bell, Robert E.

Belski, Carol

Benedict, James B.

Berry, Claudia

Carmichael, David, and Rex E. Gerald

Eidenbich, Peter L.

Grayson, Donald K.

Henderson, Mark
1976 An Archaeological Inventory of Brantley Reservoir, New Mexico. Southern Methodist University Contributions in Anthropology 18. Dallas, Texas.

Holliday, Vance T.

Irwin-Williams, Cynthia

Marshall, Michael P., and Henry J. Walt

Polyak, Victor

Runyan, John W., and John A. Hedrick

Stuart, David E., and Rory P. Gauthier

Thoms, Alston Vern
1977 A Preliminary Projectile Point Typology for the Southern Portion of the Northern Rio Grande Region. New Mexico, Unpublished Master’s thesis, Department of An-
Wiseman, Reggie N.

The Artifact
Volume 33, Number 2

Editors:
Carrol Hedrick
Meliha S. Duran

El Paso Archaeological Society, Inc.
P.O. Box 4345
El Paso, Texas 79914-4345
1995

printed 1976