

OBSIDIAN RESEARCH IN TENNESSEE AND ALABAMA

Mark R. Norton

Seven obsidian artifacts found in Tennessee and Alabama were sent to the Northwest Research Obsidian Studies Laboratory in Corvallis, Oregon for x-ray fluorescence sourcing and hydration measurement tests. The results indicate obsidian was traded into our region from sources in California, Nevada, Oregon, and Arizona possibly as early as the Late Archaic period (ca. 2000 BC).

This research began at one of the monthly meetings of the Jackson Archaeological Society (JAS) in Jackson, Tennessee where the question was raised if any obsidian had been found in Tennessee. The only specimen known at that time was a core found at the Brick Church Pike Mound site (40DV39) in Nashville, Tennessee by a local resident who lived in an adjacent neighborhood (John Dowd, personal communication, 2003). This artifact, given to a local college professor for analysis, was unfortunately misplaced or stolen before any laboratory results were produced. JAS member Mr. Bryan Banks put an exclamation point on the discussion by stating that he had found an obsidian flake on a site (40BN58) along the Big Sandy River in Benton County, Ten-

nessee (Figure 1). This site had been previously recorded by C.H. Nash in 1940 and designated as Late Archaic ca. 2000-3000 years ago.

The flake recovered by Mr. Banks was sent to the Northwest Research Obsidian Studies Laboratory in Corvallis, Oregon for x-ray fluorescence (XRF) and hydration analysis. A chemical signature obtained from the XRF analysis would allow researchers to define the exact volcano where the obsidian was originally collected (Skinner 2008a). The XRF result determined this obsidian was collected from Sarcobatus Flat A in southwestern Nevada (Figure 2).

The hydration test measured the amount of moisture the flake absorbed since it was manufactured. For the west-



FIGURE 1. Obsidian flake from 40BN58, Benton County, Tennessee.



FIGURE 2. Sarcobatus Flat, Nevada source location for 40BN58 obsidian artifact.

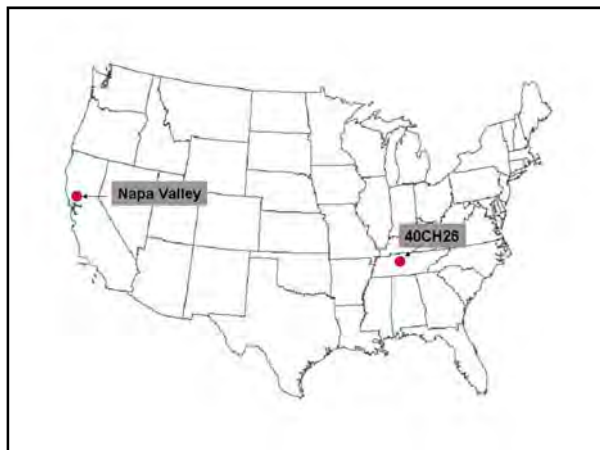


FIGURE 3. Obsidian source location of projectile point from 40CH26, Cheatham County, Tennessee.

ern United States, researchers measure the thickness of the hydration patina to provide a relative date for the artifact (Skinner 2008b). This method has yet to be perfected in the southeast. The hydra-

tion test yielded a measurement of 6.1 microns (Skinner and Thatcher 2003a). This item is thought to be 2000 years old or older, giving this piece at least a Woodland period association that approximates the Late Archaic designation suggested by C.H. Nash in 1940.

These test results were shared with other archaeological societies across the state to heighten an awareness of obsidian artifacts, and to see if other obsidian artifacts may have been found in the region. Amazingly, three individuals from the Dickson County (Tennessee) Archaeological Society (DCAS) reported the discovery of obsidian artifacts. Mr. Richard Anderson retrieved an obsidian projectile point at 40CH26, a Late Archaic site recorded on the Harpeth River in Cheatham County, Tennessee. A subsequent XRF test indicated Napa Valley,



FIGURE 4. Obsidian projectile point from 40CH26

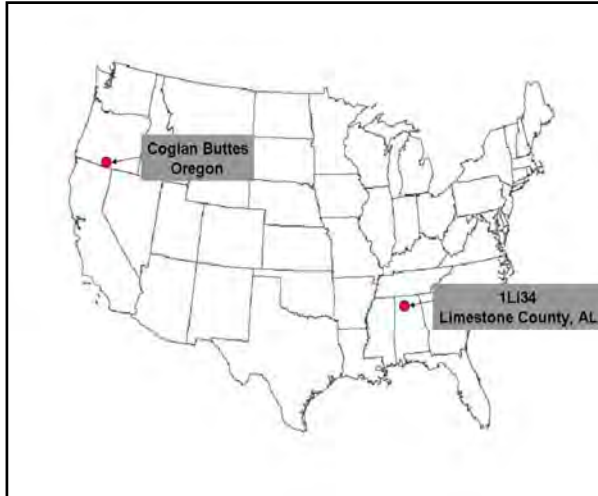


FIGURE 5. Obsidian source location (Coglan Buttes, Oregon) for point from 1LI34, Limestone County, Alabama.

California as the obsidian source for this projectile point (Figure 3). The hydration measurement of 4.2 microns did indicate this point was a prehistoric artifact and not a modern reproduction (Skinner and

Thatcher 2003b). This projectile point is somewhat similar to Late Archaic/Early Woodland period points of the Mid-South, but a review of California projectile point styles determined this point to be nearly identical to the Excelsior type (Justice 2002) that dates from around 2000 BC to approximately AD 500 (Figure 4). This favorable comparison lends support for the trade of completed projectile points from California into the study area.

DCAS member Shannon Hafner reported finding an obsidian projectile point from site 1LI34 on the Tennessee River in north Alabama. The XRF test identified the obsidian source as Coglan Buttes, Oregon (Figure 5), and the hydration measurement was 3.0 microns (Skinner and Thatcher 2003b). The small size of the projectile point, and relatively thin hydration rim, are fairly good indicators this is a late period artifact. The point style fits



FIGURE 6. Obsidian point from 1LI34, Limestone County, Alabama.



FIGURE 7. Obsidian projectile points from 40SW186, Stewart County, Tennessee.

pretty well into the Western Triangular Cluster type (Figure 6). This point has a distribution that covers a great portion of the western United States, and ranges in time from around A.D. 900 to the historic period (Justice 2002:367).

A third DCAS member, Mr. John Puckett, found two projectile points on site 40SW186 along the Cumberland River in Stewart County, Tennessee (Figure 7). The XRF analysis on the first projectile point defined the source as Annadel, California (Figure 7a; Figure 8). The XRF analysis on the second projectile point determined Napa Valley, California as the original source location (Figure 7b; Figure 8). Interestingly, the hydration rim measurement for both of these points is 1.4 microns (Skinner and Thatcher 2005). The point presented in Figure 7a looks like a good match to the Excelsior type described by Justice (2002:271) and previ-

ously noted for site 40CH26. The point presented in Figure 7b is unlike any of the projectile point styles found here in the southeast, but is comparable to the Stockton Cluster described in Justice (2002:352).



FIGURE 8. Obsidian source locations (Napa Valley and Annadel, California) for projectile points from 40SW186, Stewart County, Tennessee.



FIGURE 9. Obsidian projectile point found on Butler Creek in Lauderdale County, Alabama

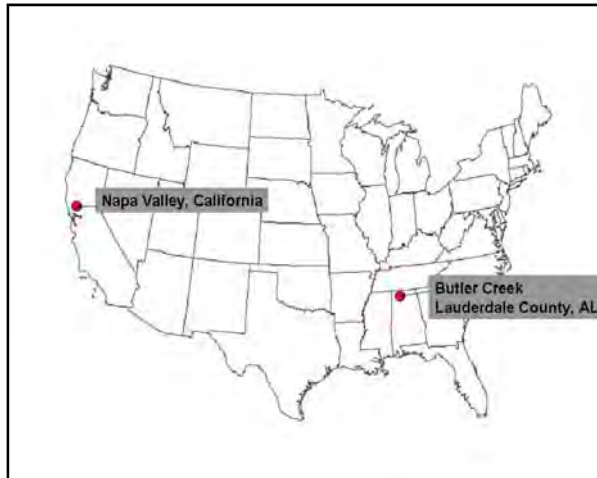


FIGURE 10. Obsidian source location (Napa Valley, California) for projectile point found on Butler Creek in Lauderdale County, Alabama.

An obsidian point on display at the Indian Mound Museum in Florence, Alabama was recovered by a local resident along Butler Creek in Lauderdale County, Alabama (Figure 9). The reported find lo-

cation does not coincide with a previously recorded site. The XRF test indicated this obsidian derived from Napa Valley, California (Figure 10). The hydration test yielded a rim measurement of 2.8 microns (Skinner and Thatcher 2003c). This is the second obsidian artifact noted from the Napa Valley source, and another match for the Stockton Cluster projectile point type.

Yet another obsidian artifact brought to our attention was from the collection of Dr. Clark Smeltzer. An obsidian flake was observed in his collection from site 40HS48 along the Tennessee River in Humphreys County, Tennessee (Figure 11). The XRF test indicated this flake material is from Government Mountain in northern Arizona (Figure 12). The hydration rim measurement was 1.6 microns (Skinner and Thatcher 2006).



FIGURE 11. Obsidian flake from 40HS48, Humphreys County, Tennessee.

Conclusions

This research report demonstrates that obsidian was traded into Tennessee and northern Alabama possibly as early as the Late Archaic period. The obsidian artifacts reported in this work comprise five finished projectile points and two flakes. X-ray fluorescence analysis results indicate the obsidian used to manufacture these artifacts derived from sources in California (n=4), Nevada (n=1), Oregon (n=1), and Arizona (n=1).

The sites included in this research from Benton (40BN58), Cheatham (40CH26), and Humphreys (40SW186) Counties, Tennessee are recorded as Archaic, while the remaining Tennessee and Alabama sites are multi-component sites that include Woodland and/or Mississippian period occupations. Obsidian artifacts have been previously reported from past research at the Middle Woodland period Glass Mounds (40WM3) in Franklin, Tennessee (DeBoer 2004, Griffin 1965). However, these artifacts cannot be lo-

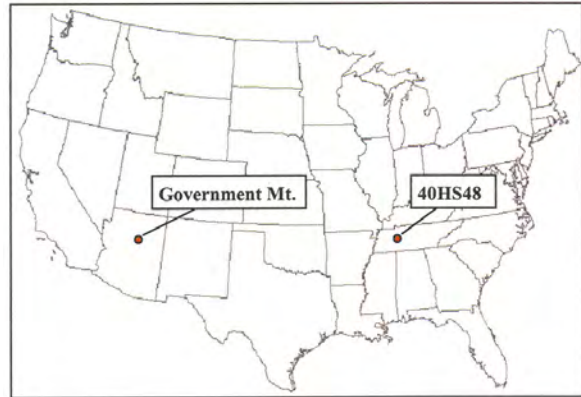


FIGURE 12. Obsidian source location (Government Mountain, Arizona) for flake from 40HS48, Humphreys County, Tennessee.

cated or verified. The previously mentioned (yet unanalyzed) obsidian core from the Mississippian period Brick Church Pike Mound site (40DV39) has been known since its discovery in the 1970s. Also, an obsidian flake recently recorded in an artifact collection from Davidson County, Tennessee was sourced to Obsidian Cliff, Wyoming (see Braly and Sweat, this volume).

Obsidian artifacts have been recently reported from various locales throughout the southeastern United States (White and Weinstein 2008). In Alabama, two pieces of obsidian have been analyzed from Moundville. One specimen was sourced to the Grasshopper Group in northern California, with the second item to Guatemala (Hammerstedt and Glascock 2006). In Mississippi, a stemmed projectile point base recovered from the Parker Bayou site (22HO626) was sourced to the Jemez Mountains of New Mexico (Bruce 2003; Skinner and Thatcher 2002). Also from Mississippi, at the Myer site (22CO529) in Coahoma County, a corner-removed projectile point was sourced to the Malad obsidian source in Oneida County, Idaho (Peacock et al. 2008). Neither of the Mississippi points match the western style projectile points noted in this research (Evan Peacock,

personal communication, 2008). In Louisiana, a uniface tool of possible Paleoindian age was recovered from site 16CD118 (Hester 1988). A second Louisiana obsidian find (possible bladelet midsection) was documented from Poverty Point, but has not been sourced (White and Weinstein 2008). In southeastern Missouri, an obsidian flake from Middle Woodland period context at the La Plant I Site (23NM51) was sourced to Obsidian Cliff in Yellowstone, Wyoming (Skinner and Buchner 2002, Buchner and Skinner 2002).

There seems to be enough evidence to include obsidian on the list of items traded into the southeastern United States. Perhaps a review of collections from major mound centers throughout the southeast is in order to see if obsidian flakes may have been overlooked or placed into historic period artifact categories. Also, this research report is a good example of how valuable information comes to light when the professional archaeological community and avocational archaeological community cooperate with each other. As such, communication between professional archaeologists and local amateur archaeological societies must be promoted in hopes that additional obsidian artifacts from personal collections will be made available for analysis. These steps, along with future obsidian finds through professional investigations, will help connect the dots to a better understanding of the trade networks for this exotic material.

Notes: Bryan Banks, Richard Anderson, and John Puckett kindly donated their obsidian artifacts to the Tennessee Division of Archaeology.

Craig Skinner performed the x-ray fluorescence and hydration analyses at the Northwest Research Obsidian Studies Laboratory in Corvallis, Oregon.

Avocational archaeological societies participating in this research were the Jackson Archaeologi-

cal Society (Jackson, TN), the Dickson County Archaeological Society (Dickson, TN), Cumberland River Archaeological Society (Clarksville, TN), Tennessee River Archaeological Society (Big Sandy, TN), Memphis Archaeological and Geological Society (Memphis, TN), Middle Cumberland Archaeological Society (Nashville, TN), Old Stone Fort Archaeological Society (Manchester, TN), Muscle Shoals Archaeological Society (Florence, AL), Huntsville Archaeological Society (Huntsville, AL), and the Cullman County Archaeological Society (Cullman, AL).

An obsidian flake from site 40WM63 along the Harpeth River in Williamson County, Tennessee was sent to the Geochemical Research Laboratory in Portola Valley, California for XRF analysis. The XRF test indicated the artifact source was from western Mexico, but the hydration rim measurement determined this specimen was not prehistoric.

Acknowledgements: The success of this obsidian research is attributed to the members of archaeological societies in Tennessee and Alabama. These individuals provided exact locations on these finds and allowed the slightly destructive tests to be performed so that more could be learned about these unique artifacts. Many individuals were involved in the compilation of this data, including Richard Anderson, Bryan Banks, Robbie Camp, Aaron Deter-Wolf, Shannon Hafner, Dr. Richard Hughes, Howard King, Charles Moore, John Puckett, Craig Skinner, Dr. Clark Smeltzer, Margaret Thatcher, and Joe Lawson Wright.

References

- Bruce, Kevin
2003 MDOT Archaeology Update. *Mississippi Archaeological Association Newsletter* 38(2):12.
- Buchner, C. Andrew and Craig E. Skinner
2002 An Obsidian Artifact from the La Plant I Site in the Cairo Lowland of Southeast Missouri. *Missouri Archaeological Society Quarterly*. Vol.19, No. 4. October-December.
- DeBoer, Warren R.
2004 Little Bighorn on the Scioto: The Rocky Mountain Connection to Ohio Hopewell. *American Antiquity* 69(1), pp. 85-107.

- Griffin, James B.
1965 Hopewell and the Dark Black Glass. *The Michigan Archaeologist* 11:115-155.
- Hammerstedt, Scott W. and Michael D Glascock
2006 Obsidian Artifacts From Moundville. Poster presented at the 63rd Annual Meeting of the Southeastern Archaeological Conference, Little Rock.
- Hester, Thomas R.
1988 Paleoindian Obsidian Artifacts from Texas: A Review. *Current Research in the Pleistocene* 5:27-29.
- Justice, Noel D.
2002 *Stone Age Spear and Arrow Points of California and the Great Basin*. Indiana University Press, Bloomington.
- Peacock, Evan, Cliff Jenkins, and Grady White
2008 Obsidian Artifacts from Mississippi. *Mississippi Archaeology*. In press.
- Skinner, Craig E.
2008a Obsidian Characterization Studies. Northwest Research Obsidian Studies Lab, Corvallis, Oregon.
2008b Obsidian Hydration Studies. Northwest Obsidian Research Studies Lab, Corvallis, Oregon.
- Skinner, Craig and C. Andrew Buchner
2002 X-Ray Fluorescence Analysis of Artifact Obsidian from the Laplant Site (23NM51) New Madrid County, Missouri. Laboratory Report No. 2002-21. Northwest Research Obsidian Studies, Corvallis.
- Skinner, Craig E. and Jennifer J. Thatcher
2002 X-Ray Fluorescence Analysis and Obsidian Hydration Measurement of Artifact Obsidian from the Parker Bayou II Site (22HO626), Holmes County, Mississippi. Laboratory Report No. 2002-18. Northwest Research Obsidian Studies, Corvallis.
- 2003a X-Ray Fluorescence Analysis and Obsidian Hydration Measurement of Artifact Obsidian from 40BN58, Benton County, Tennessee. Laboratory Report No. 2003-59. Northwest Research Obsidian Studies, Corvallis.
- 2003b X-Ray Fluorescence Analysis and Obsidian Hydration Measurements of Artifacts from Tennessee and Alabama. Report No. 2003-97. Northwest Research Obsidian Studies, Corvallis
- 2003c X-Ray Fluorescence Analysis and Obsidian Hydration Measurements of Artifact Obsidian from Butler Creek, Lauderdale County, Alabama. Report No. 2003-113 Northwest Research Obsidian Studies, Corvallis
- 2005 X-Ray Fluorescence Analysis and Obsidian Hydration Measurements of Artifact Obsidian from 40SW186, Stewart County, Tennessee. Northwest Research Obsidian Studies, Corvallis.
- 2006 X-Ray Fluorescence Analysis and Obsidian Hydration Measurements of Artifact Obsidian from 40HS48, Humphreys County, Tennessee. Report No. 2006-142. Northwest Research Obsidian Studies, Corvallis
- White, Nancy Marie and Richard A. Weinstein
2008 The Mexican Connection and the Far West of the U.S. Southeast. *American Antiquity* 73(2):227-277.
- Mark R. Norton
Tennessee Division of Archaeology
1216 Foster Avenue, Cole Bldg #3
Nashville, TN 37243