

## Technological Remarks on the Folsom Bifacial Artifacts from the Baker Site, New Mexico

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As a part of a long-term project directed towards experimental and comparative technological research on diverse Paleoindian lithic assemblages from the Americas, this paper reports observations made on bifacial artifacts from the Baker site, New Mexico. These specimens were recovered during fieldwork conducted during the 1960s in the central Rio Grande Valley. The artifacts are curated at the National Museum of Natural History. This collection has significant potential for understanding aspects of Paleoindian lithic technology in the region (Amick 1996; Judge 1973).

The site yielded a remarkable number of artifacts useful for understanding the Folsom biface-reduction sequence. The analyzed sample considered only those pieces with significant attributes of early bifacial stages of manufacture, preforms, and finished products. Most are made of chert and fine-grain quartzite locally available in the Santa Fe gravels. Non-local sources include Chuska (Nabrona) chert from Arizona and felsite from Las Vegas, New

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Mexico. Six bifaces were broken during the early stage of their manufacture (Callahan 1979). Flake scars indicate percussion flaking using a bone or soft stone. Their width/thickness ratio and average angles indicate that the bifaces failed during stages 3 and 4 in a proposed bifacial thinning model based on the Folsom projectile points manufactured at Lindenmeier (Nami 1999). Three preforms exhibit fractures that occurred during fluting, suggesting that preparation for fluting occasionally started during early stages of reduction. Five specimens were broken during removal of the first flute. These examples indicate that the side to be fluted was prepared by pressure applied on platforms produced by beveling the edge of the biface. Spacing the pressure flaking at about 5- to 10-mm intervals created the convexity to carry the fluting force and control the width of the channel in the first attempt. The opposite face still has remnants of early-stage reduction when the preform breaks. If the fluting was successful, knappers prepared the second face for fluting in a manner similar to the first. Another five examples were broken during second fluting. In this step, one of them was fractured in at least four parts (one lacking). Three pieces have been refitted to both channel flakes in a process similar to that at the Hanson site (Frison and Bradley 1980: Fig. 35). Another specimen was successfully fluted on one face and carefully prepared for the second, but failed because it detached only a 1.5-cm flute. However, the preform broke near the tip where the raw material was flawed. As usual, isolated nipples were prepared for fluting platforms. A number of preforms (more evident in those of Pedernales chert) exhibited heat-treatment attributes in later stages (Crabtree and Butler 1964) suggesting they were treated, probably after successful bifacial thinning. In fact, preforms exhibit luster, change of texture, and heavy ripples in the pressure flake scars, and are shinier than early stages. Four completed basal fragments were apparently carried to the site in the foreshafts and replaced by new points. These points show that finishing was accomplished by small regularized retouched flakes and the edges were carefully abraded.

The biface-reduction sequence shares many similarities with other Folsom localities. Comparable biface stages and preforms are present in several sites across North America, including Hanson (Frison and Bradley 1980), Lindenmeier (Nami 1999; Wilmsen and Roberts 1978), Bobtail Wolf (Root et al. 2000), and Big Black (William 2000). The Baker specimens exhibit preparation for fluting identical to many preforms from Lindenmeier. In fact, these artifacts demonstrate that the fluted face was prepared for pressure flaking by using beveled platforms. The reverse face still has flake scars remaining from previous bifacial thinning (Nami 1999:Figure 6A–B). Differences between the early-stage bifaces and preforms suggest that heat treatment was applied after successful bifacial thinning.

In summary, Folsom artifacts from Baker indicate that the projectile-point manufacturing sequence in the Rio Grande Valley is basically similar to other Folsom sites. Specifically, the entire sequence has a similar manufacturing pattern of bifacial thinning in the early stages, including probable heat treatment, preparing the first face for fluting, retouching the other face and second fluting, and final retouch after fluting.

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### References Cited

- Amick, D. S. 1996 Regional Patterns of Folsom Mobility and Land Use in the American Southwest. *World Archaeology* 27 (3):411–26.
- Callahan, E. 1979 The Basics of Biface Knapping in the Eastern Fluted Point Tradition. A Manual for Flintknappers and Lithic Analysts. *Archaeology of Eastern North America* 7 (1):1–180.
- Crabtree, D. E., and B. R. Butler 1964 Notes on Experiments in Flintknapping: 1. Heat Treatment of Silica Materials. *Tebivua* 7 (1):1–6.
- Frison, G., and B. Bradley 1980 *Folsom Tools and Technology at the Hanson Site, Wyoming*. University of New Mexico Press, Albuquerque.
- Judge, W. J. 1973 *Paleoindian Occupation of the Central Rio Grande Valley in New Mexico*. University of New Mexico Press, Albuquerque.
- Nami, H. G. 1999 The Folsom Biface Reduction Sequence: Evidence from the Lindenmeier Collection. *Folsom Lithic Technology: Explorations in Structure and Variation*, edited by D. S. Amick, pp. 82–97. International Monographs in Prehistory, Ann Arbor.
- Root, M. J., J. D. William, and A. M. Emerson 2000 Stone Tools and Flake Debris. In *The Archaeology of the Bobtail Wolf Site. Folsom Occupation of the Knife River Flint Quarry Area, North Dakota*, edited by M. J. Root, pp. 223–308, Washington State University Press, Pullman.
- William, J. D. 2000 Folsom Stone Tools. In *The Big Black Site (32DU955C). A Folsom Complex Workshop in the Knife River Flint Quarry Area, North Dakota*, edited by J. D. William, pp. 169–288, Washington State University Press, Pullman.
- Wilmsen, E. N., and F. H. Roberts, Jr. 1978 *Lindenmeier, 1934–1974. Concluding Report on Investigations*. *Smithsonian Contributions to Anthropology* 24, Washington, D.C.