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Characterizing Cumberland fluted biface morphology and technological organization

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ABSTRACT

Cumberland bifaces are frequently referenced in discussions of fluted point technology, Paleoindian chronologies, and Younger Dryas adaptations. However, due largely to the absence of stratified, datable components, limited information exists about Cumberland lithic technology. Only brief descriptions of morphology, reduction sequence, and potential chronologies based on exceptionally small datasets are available in the existing literature. To address these deficiencies, a study of biface morphology and technological organization was conducted based on over 900 fluted Cumberland bifaces. Morphological and technological similarities to other fluted biface types, as well as bracketing radiocarbon ages, suggest that Cumberland bifaces likely date to the early Younger Dryas. Cumberland appears to represent a maintainable technology used by people adapted to an environment with predictable resources. Reconstructing artifact life histories suggests Cumberland technology was related to a logistically mobile settlement strategy.

1. Introduction

Since originally defined by Thomas M. N. Lewis in 1954, Cumberland fluted bifaces have received long-term and widespread interest. They are frequently referenced in discussions of Paleoindian chronologies (Anderson and Sassaman, 2012; Anderson et al., 2010, 2015; Broster et al., 2013; Driskell et al., 2012; O'Brien et al., 2001, 2014) and potential Younger Dryas (YD)-related human adaptations (Anderson et al., 2011; Meeks and Anderson, 2012). However, questions still remain regarding the production, use, and timing of Cumberland bifaces in relation to other Paleoindian technologies. While there is an extensive body of literature devoted to understanding other fluted biface technologies (e.g., Amick, 1999; Bradley et al., 2010; Gingerich, 2013; Waters et al., 2011), research related to Cumberland has been extremely limited. Nearly all previous studies of Cumberland technology were conducted on datasets of fewer than 20 specimens (Boldurian and McKeel, 2011; Cambron and Hulse, 1961; Jolly, 1972; Morse et al., 1964). Thus, until there is a thorough understanding of what Cumberland is, discussions related to its chronological association with other biface types, technological organization, and relevance to YD-related adaptations, will remain speculative.

Cumberland represent the instrument-assisted fluted horizon in the North American Midsouth, and though currently undated, are assumed to be generally contemporaneous with the earliest part of the YD (Anderson, 2004; Anderson and Sassaman, 1996; Anderson et al., 2010, 2015; Bradley et al., 2008; Broster et al., 2013; Ellis and Deller, 1997; Fiedel, 1999; Goodyear, 1999; Meeks and Anderson, 2012; Meltzer, 2009; Tankersley, 1990, 1996). While these bifaces are prevalent throughout the Midsouth, they have only been recovered from surface or disturbed contexts (Anderson et al., 2010, 2011; Goodyear, 1999). Jolly's (1972) study comparing Cumberland and Clovis fluted biface technology in the Middle Tennessee River Valley, though 30 years old, is still the most detailed discussion of the Cumberland biface reduction sequence. However, the small sample size ($n = 14$) provides limited support for his interpretation of Cumberland technology. Although Bell (1960) states the Cumberland toolkit consists of various unifacial tools, there are currently no known discrete Cumberland assemblages.

The overall objective of this study is to identify, and offer potential explanations for, variability within Cumberland biface technology. The research presented here is the first to comprehensively address the question, "What is Cumberland?" from the perspective of technological organization, and incorporates previous studies of geographic distribution and chronology with new morphological and technological data. One way to link lithic artifacts to behavioral adaptations is to reconstruct how hunter-gatherers organized their lithic technologies (Binford, 1979; Kuhn, 1995; Shott, 1986; Torrence, 1983). Investigating the organization of technology allows us to view technology as a set of behaviors related to human adaptation rather than a set of objects related to a production procedure (Nelson, 1991). As such, studying how bifaces were made, hafted, used, refurbished, and discarded can offer valuable insight into how Cumberland technology was organized (Kuhn, 1995; Nelson, 1991). In turn, the *life histories*, as it were, of Cumberland bifaces can be used to support inferences about behavioral

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adaptations in the Midsouth during the late Pleistocene (Binford, 1979; Nelson, 1991).

2. Geographic distribution

Unlike most other diagnostic point types, there is not a type-site for Cumberland fluted-bifaces. Rather, the genesis of Cumberland as a type is derived from the dense concentration of bifaces recovered along the Cumberland River in middle Tennessee during the early twentieth century. Lewis (Lewis, 1954) coined the name *Cumberland* to describe a large, thick lanceolate fluted-biface, which he saw as similar to Clovis and found throughout the Cumberland River Valley. The core geographic distribution of Cumberland encompasses much of the area between the Tennessee and Ohio Rivers (Fig. 1) (Anderson et al., 2010; Justice, 1987). The conflation of typological names, such as with Barnes in the Great Lakes region, may explain the identification of some Cumberland-like bifaces across a larger territory (e.g., Bradley et al., 2010; Justice, 1987; White, 2006). Notably, the Midsouth is also characterized by an abundance of high-quality cherts (Amick, 1987; Parish, 2011, 2013). The majority of Cumberland bifaces are made from Fort Payne and St. Louis cherts, which naturally occur in tabular and cobble forms from northern Alabama to central Kentucky.

Data available in PIDBA and state surveys suggest that people using Cumberland fluted bifaces had a predilection for major river valleys in the Midsouth, similar to Clovis (Anderson, 2004; Anderson et al., 2010; Barker and Broster, 1996; Breitburg and Broster, 1994; Broster and Norton, 1996). Based on Clovis data, Miller (2011) suggests that rather than sampling or population biases, the distribution of fluted bifaces in the Midsouth reflects a land-use strategy focused on the intersection of rivers, physiographic boundaries, and toolstone sources. It is reasonable to assume that this pattern holds true for Cumberland as well, given the similarities in technological organization between the two types (Tune, 2016).

Though Cumberland bifaces are dispersed throughout the Midsouth, relatively high densities have been documented in certain areas that may represent habitual-use sites. These locations may be similar to aggregation sites associated with Clovis macrobands (Anderson, 1990, 1996; Smallwood, 2012), and may reflect a post-Clovis continuation of macroband aggregation behaviors. The Sandy Springs site, in southern Ohio, is near the northern extent of Cumberland distribution and is located in close proximity to a saline spring (Seeman et al., 1994; Tankersley, 1994). At least 15 Cumberland bifaces have been documented from the site, which has limited evidence for on-site biface reduction and a high percentage of finished bifaces made from non-local raw materials (Aagesen, 2006; Seeman and Prufer, 1982; Seeman et al., 1994; Tankersley, 1989).

The Parris Collection and Heaven's Half Acre may represent habitual-use sites near the southern extent of Cumberland distribution. The Parris Collection primarily comes from multiple sites in Hardin County, in south-central Tennessee (Tune et al., 2015). Extensive research by noted avocational archaeologist Jim Parris identified a series of fluted biface sites concentrated on remnant levees of the Tennessee River. Heaven's Half Acre represents a series of fluted biface sites near the Tennessee River in northern Alabama. Since the 1950s avocational archaeologists have recovered large numbers of Cumberland and other fluted biface forms from the margins of geomorphic depressions that may have been wet season ponds during the late Pleistocene (Futato, 1996; King, 2007). Both the Parris Collection and Heaven's Half Acre

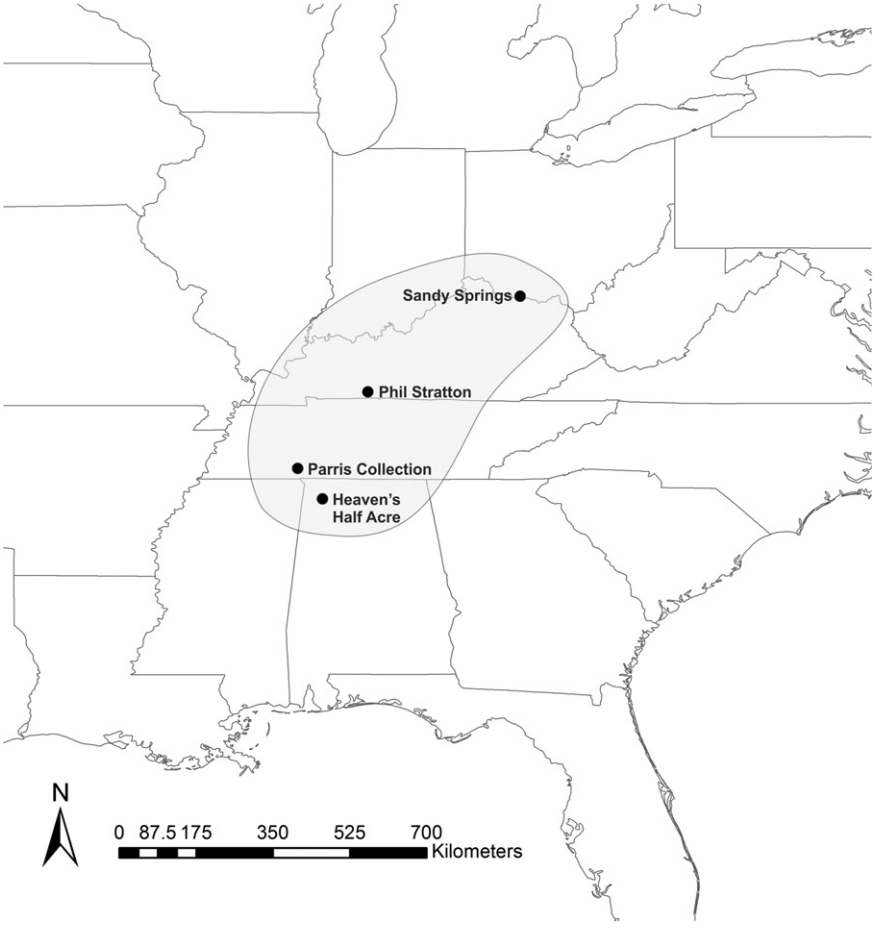

Fig. 1. Generalized core distribution of Cumberland fluted bifaces and sites referenced in text.