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Cover image by Joseph E. Wilkinson showing early stage Southern Hardins from South Carolina.

South Carolina Antiquities

Volume 49

Christopher R. Moore, Editor
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The Southern Hardin in South Carolina

Joseph E. Wilkinson

Introduction

Arrowheads, projectile points, or, more generally, hafted bifaces, have long been the focus of archaeological investigations. They have captured the attention of many archaeological enthusiasts, amateur archaeologists, collectors, and professional archaeologists for decades. Much has been learned from this focused attention, such as chronologies, cultural settlement and mobility patterns, social interaction, trade and transmission of ideas, among many other things. Understanding formal typologies and the relationships between technological systems are at the very heart of archaeology, as it gives us a means by which to understand the human past. The Southern Hardin, a relatively unknown hafted biface type in the southeastern United States, is just one of many such artifacts found in South Carolina and the broader Southeast. Its presence and characteristics have been grossly under-evaluated, as its frequency in assemblages is very sparse to nonexistent. A sample of this type from South Carolina is evaluated here, and patterns of spatial distribution, raw material selection, morphology, and its technological relationship with other types are presented. This paper is intended to form an initial understanding of its presence in South Carolina and the Southeast, in order to more fully understand the spectrum of cultural development and change among Early Archaic hunter-gatherers.

Hardins in South Carolina

The Southern Hardin gets its name due to its distribution in southern states. Its geographic extent extends outside of South Carolina and across the lower Southeast. Archaeological literature on the Southern Hardin in the Southeast is very sparse. Most mentions of the type in print can be found in amateur archaeological journals and collector reference guides (Bierer 1974; Dowdy and Sowell 1998; Overstreet 2013:260; Powell 1990). Previously, it has also been called the Ocala Hardin (Powell 1990), and is distinctly different from more northern and Midwestern Hardin varieties. Bullen also described the type in Florida and associated it with a variety of Bolen, the generic name for Early Archaic notched points in the region (Bullen 1975). Bullen's Bolen type 3 class often includes points of the Southern Hardin variety. At the time of this writing, the author is unware of any comprehensive studies of the type anywhere in the Southeast.

Until now, no comprehensive study or analysis has existed for a large sample of the Southern Hardin from South Carolina. Its existence here has not gone unnoticed, and has previously been mentioned in archaeological literature (Charles 1981:32; Charles and Moore 2018; Sassaman et al. 2005) and amateur/avocational archaeology and collector reference guides (Overstreet 2013:260). This gap in the archaeological literature is not due to negligence on behalf of the archaeological community, but rather a reflection of the absence of the type in most assemblages. The rarity of this type appears to be significant enough that even prominent Southeastern archaeologists fluent in Early Archaic research are unaware of their presence within South Carolina (David Anderson personal communication 2017), as earlier evaluations of the type were misinterpreted (Bierer 1974:30). Thus far, the most detailed description of the Hardin type in South Carolina is found in the works of Tommy Charles (Charles 1981; Charles and Moore 2017). In his 1981 publication on South Carolina point types, he labeled the Southern Hardin as a "Type O." Charles (1981) provided a brief description of its overall shape and manufacture, as well as a range of metrics that he observed. His evaluation of this type is also addressed in his more recent publication with Christopher Moore (Charles and Moore 2018) on point types from South Carolina. There, Charles describes the differences between the Midwestern style Hardins and those he has observed in South Carolina. For the South Carolina Hardins, he notes that the hafted bifaces are very well-made, with delicate retouch which often creates a slight left bevel, as well as delicate and carefully flaked "V"-shaped notches that create a stem-like haft (Charles and Moore 2018).

Hardins in the Midwest

One region of the country where Hardins have been evaluated is in the Midwest, where the type is far more abundant and where several varieties exist (Behm 1985; Bell 1960; Justice 1987; Munson 1967; O'Brien and Wood 1998; Scully 1951). The highest densities and geographic distribution of these varieties of Midwestern Hardins occur in Wisconsin, Iowa, Illinois, Missouri, and Arkansas with less frequent occurrences in surrounding states, such as Indiana, western Tennessee, eastern Oklahoma, and northern Mississippi (Behm 1985; Justice 1987; Powell 1990). Although stylistically the Midwestern Hardins vary from the Southern Hardin, a technological connection is probable due to distinctive technological traits. While geographic relationships between the various styles of

Hardin have not been quantified, understanding basic knowledge of Hardin technology and temporal placement in the Midwest is useful for inferring similar patterns among the Southern Hardin in South Carolina.

In the Midwest, at least three varieties of Hardins have been proposed: long-stemmed, short-stemmed, and expanded notch (Behm 1985; Luchterhand 1970; Perino 1962). These varieties have been described typologically, but geographic distributions are the same across these varieties (Behm 1985). A variety previously identified as Hardin corner notched (Powell 1990), has more commonly been referred to as a Knobbed Hardin by collectors. This variety has been observed among collections by the author to cluster in a region including Indiana, Ohio, Kentucky, and Tennessee. Powell (1990) also notes this distribution and notes the presence of this variety in Florida, though infrequent compared to the Ocala, or Southern Hardin. Also noted by Powell (1990) is the apparent boundary of the Ocala/Southern Hardin and Midwestern varieties in the Arkansas and Mississippi area where overlap between varieties is present. This pattern has also been observed by the author among private collections

Determining the age of the Hardin type in the Midwest has been sporadic and problematic at best. Despite its presence in excavated assemblages, its precise temporal placement has been uncertain (Ahler and Koldehoff 2009; Behm 1985; McElrath et al. 2009a; McElrath et al. 2009b; Ray et al. 2009; Wiant et al. 2009). The type was first named by Scully (1951) who found the type associated with Late Archaic to Early Woodland artifacts, and placed it within this later period. This assertion was echoed in the discussions in following publications as no other data existed to dispute it (Bell 1960:54; Munson 1967). Since these earlier evaluations, most researchers have come to agree on its placement within the Early Archaic time period, though its precise placement within the period and among other styles has not been resolved (Ahler and Koldehoff 2009; Behm 1985; McElrath et al. 2009a; McElrath et al. 2009b; Ray et al. 2009; Wiant et al. 2009). In fact, every possible temporal placement of the type within the Early Archaic has been proposed with various arguments based on evidence from excavated contexts, radiocarbon dates, and technological/stylistic evaluations (Gramly 2002:180-181; Kidder and Sassaman 2009:669; McElrath et al. 2009b; Morse and Morse 1996; Nolan and Fishel 2009; O'Brien and Wood 1998:128; Pleger and Stoltman 2009). Many have proposed its placement within the Thebes/St. Charles/Dovetail cluster based on its general haft morphology and beveled blade resharpening strategy (McElrath et al. 2009b). Others have suggested it predates Kirk corner notched technologies, while some also claim it postdates Kirk (Benn and Thompson 2009:525; Morse and Morse 1996). Very few radiocarbon dates exist with any kind of association with Hardin, and those that do are not consistent (Brose 1978; Nolan and Fishel 2009; Purtill 2009:570; Wiant et al. 2009).

The largest concentration of Hardin points known at a single site was found in Wisconsin at the Bass Site, and were suggested to have been associated with Scottsbluff points (Ahler and Koldehoff 2009:211; Behm 1985; Pleger and Stoltman 2009:702-703.). The Bass Site is described as a quarry site where a majority of the artifacts were discovered in surface contexts or within a disturbed plow-zone in association with abundant quarry debris and other tools, including Bass Knives (Ahler and Koldehoff 2009:211; Behm 1985; Pleger and Stoltman 2009:702-703.). An undisturbed portion of the site was excavated, but analysis of this is preliminary at best (Pleger and Stoltman 2009:702-703). Given the presumed association with Scottsbluff technology, a part of the Cody complex from the plains (Justice 1987; Wormington 1957) has led many researchers to propose contemporaneity (Ahler and Koldehoff 2009; Nolan and Fishel 2009:431-432; Pleger and Stoltman 2009:702-703). This would place Hardins between 8800 and 8400 yrs. BP (Justice 1987:49). This post-Kirk temporal placement has also been proposed in Arkansas (Morse and Morse 1996). Across the Southeast Hardins have been proposed to comprise a portion of the corner notched cluster (Kidder and Sassaman 2009:669), and among the following post-Kirk styles (Wilkinson 2017, 2018).

The Southern Hardin Type

Over the span of the last four years, the author has analyzed a total of 55 hafted bifaces of the Southern Hardin type from South Carolina. Through various datasets, and with the help of Tommy Charles, a total of 76 Southern Hardin hafted bifaces is now known for this state. These data are presented in Table 1.

To echo some of the observations previously made as to the morphology of the Southern Hardin (Charles 1981; Charles and Moore 2018; Powell 1990), a few observations are described here before discussing other characteristics. In overall appearance, the Southern Hardin closely resembles a Kirk corner notched hafted biface, but has some distinct features in its overall design. In almost all cases, the Southern Hardin will have a slightly convex or convex base that is lightly ground (Table 2), a stem-like and/or corner notched haft design, and a blade that often has a slight or gradual left bevel (as opposed to a steep, chisel-like bevel) that rarely ever has intentional serrations. The notched shape often resembles a crescent, as it starts out wide and narrows to a distinct "V"-shaped notched termination. The notch is started on the lowest point of the side of an oval, or teardrop, shaped preform, and extends upward as the notch progresses (Charles 1981; Charles and Moore 2018; Powell 1990). The result of this notching strategy leaves a stem-like haft that has a convex basal shape and drooping blade ears or barbs. Short, noninvasive, pressure retouch on the basal margin can sometimes leave a bi-beveled appearance, and large basal thinning flakes are very rare on the Southern Hardin type. This convex and delicately shaped base is uniquely different than the typically straight and basally thinned

Table 1. List of all known South Carolina Southern Hardins used in this study.

Study #	Collector/Owner	Site	County	Material Type	Source
58	Gayle Dyches	Known-No Site #	Clarendon	Allendale Chert	Recorded by Author
120	Steve Williams	38CL102	Calhoun	Allendale Chert	Recorded by Author
220	Dennis Hendrix	38BM6/61	Bamberg	Allendale Chert	Recorded by Author
362	Kat Salley	38CL100	Calhoun	Unknown Coastal Plains Chert	Recorded by Author
519	SCIAA-Strong		Allendale	Allendale Chert	Recorded by Author
520	SCIAA-Strong		Allendale	Allendale Chert	Recorded by Author
521	SCIAA-Strong		Allendale	Allendale Chert	Recorded by Author
522	SCIAA-Strong		Allendale	Allendale Chert	Recorded by Author
523	SCIAA-Mitchie	38LX1	Lexington	Allendale Chert	Recorded by Author
837	SRARP	38BR407	Barnwell	Allendale Chert	Recorded by Author
846	Pickens Williams	Known-No Site #	Barnwell	Allendale Chert	Recorded by Author
920	Andy Shull		Sumter	Quartz	Recorded by Author
953	Andy Shull		Sumter	Allendale Chert	Recorded by Author
1430	Bob Costello	Known-No Site #	Clarendon	Allendale Chert	Recorded by Author
1634	Gary Tomlin	Known-No Site #	Kershaw	Allendale Chert	Recorded by Author
1635	Sam Hartis	Known-No Site #	Chester	Allendale Chert	Recorded by Author
1643	Kat Salley	38CL100	Calhoun	Flow Banded Rhyolite	Recorded by Author
1668	Johnny Causey		Hampton	Allendale Chert	Recorded by Author
1669	Johnny Causey		Hampton	Allendale Chert	Recorded by Author
1670	Johnny Causey		Hampton	Allendale Chert	Recorded by Author
1671	Johnny Causey		Hampton	Rhyolite	Recorded by Author
1672	Johnny Causey		Hampton	Allendale Chert	Recorded by Author
1691	Sonny Zorn	38BM36/38/55/Z1/Z2	Bamberg	Allendale Chert	Recorded by Author
1692	Sonny Zorn	38BM36/38/55/Z1/Z2	Bamberg	Allendale Chert	Recorded by Author
1693	Sonny Zorn	38BM36/38/55/Z1/Z2	Bamberg	Allendale Chert	Recorded by Author
1694	Sonny Zorn	38BM36/38/55/Z1/Z2	Bamberg	Allendale Chert	Recorded by Author
1695	Sonny Zorn	38BM36/38/55/Z1/Z2	Bamberg	Fort Payne Chert	Recorded by Author
1710	Fort Jackson	38RD707	Richland	Quartz	Recorded by Author
1736	SCIAA-Moyer		Aiken	Differentially Crystallized Tuff	Recorded by Author
1738	SCIAA-Croft	Cowden Plantation	Aiken	Allendale Chert	Recorded by Author
1739	SCIAA-Croft	Cowden Plantation	Aiken	Allendale Chert	Recorded by Author
1740	Ira Bacon	Known-No Site #	Clarendon	Allendale Chert	Recorded by Author
1741	Ira Bacon	Known-No Site #	Clarendon	Allendale Chert	Recorded by Author
1749	Tommy Huffman	Known-No Site #	Orangeburg	Allendale Chert	Recorded by Author
1753	Michael Moss		Sumter	Banded Rhyolite	Recorded by Author
1768	Tommy Charles			Allendale Chert	Recorded by Author
1769	Tommy Charles			Allendale Chert	Recorded by Author
1770	Tommy Charles			Allendale Chert	Recorded by Author
1800	SCIAA-Croft	Cowden Plantation	Aiken	Allendale Chert	Recorded by Author
1979	Hungerpiller-Elloree South State Bank		Orangeburg	Allendale Chert	Recorded by Author
1980	Hungerpiller-Elloree South State Bank		Orangeburg	Allendale Chert	Recorded by Author
1981	Hungerpiller-Elloree South State Bank		Orangeburg	Allendale Chert	Recorded by Author
1982	Hungerpiller-Elloree South State Bank		Orangeburg	Allendale Chert	Recorded by Author
1983	Hungerpiller-Elloree South State Bank		Orangeburg	Allendale Chert	Recorded by Author
1991	Mike Johnson	Known-No Site #	Berkeley	Allendale Chert	Recorded by Author
2017	Joey Patsourakos	Known-No Site #	Colleton	Allendale Chert	Recorded by Author
2018	Ira Bacon		Orangeburg	Rhyolite	Recorded by Author
2022	Larry Strong		Allendale	Rhyolite	Recorded by Author
2027	Andy Shull			Allendale Chert	Recorded by Author
2091	Barnes Family	Known-No Site #	Hampton	Allendale Chert	Recorded by Author
2128	SCIAA-Wiles		Abbeville	Allendale Chert	Recorded by Author
2129	SCIAA-Wiles		Abbeville	Exotic Chert/Ocmulgee/Albany	Recorded by Author
2130	Fort Jackson		Richland	Allendale Chert	Recorded by Author
2135	Jeff Correll		Unknown	Rhyolite	Recorded by Author
2139	Raymond Franks		Orangeburg	Allendale Chert	Recorded by Author
	Unknown		Charleston	Allendale Chert	Overstreet 2013:260
	Unknown		Orangeburg	Allendale Chert	Overstreet 2013:260
	Unknown		Lexington	Allendale Chert	Bierer 1974:30
	Marion County Museum		Marion	Rhyolite	Confirmed by Author
	Brody		Orangeburg	Allendale Chert	Confirmed by Author
	Elloree Museum		Orangeburg	Allendale Chert?/Unconfirmed	Confirmed by Author
	Kenny Jarrett	Cowden Plantation	Aiken	Rhyolite	Confirmed by Author
	Jack Wilhoit/Overstreet 13th Ed.p.260		Horry/Brunswick	Allendale Chert	Confirmed by Author
	John Cercopely	Known-No Site #	Charleston	Allendale Chert	Confirmed by Author
	Lyons		Unknown	Allendale Chert	Per Tommy Charles
	Lyons		Unknown	Allendale Chert	Per Tommy Charles
	Fenklea		Dillon	Rhyolite	Per Tommy Charles
	Fenklea		Dillon	Rhyolite	Per Tommy Charles
	Ward		Georgetown	Unknown Chert	Per Tommy Charles
	Smith		Hampton	Allendale Chert	Per Tommy Charles
	Smith		Hampton	Allendale Chert	Per Tommy Charles
	Smith		Hampton	Allendale Chert	Per Tommy Charles
	Smith		Hampton	Allendale Chert	Per Tommy Charles
	Burgess		Horry	Allendale Chert	Per Tommy Charles
	Atkinson		Lee	Allendale Chert	Per Tommy Charles
	Hebert		Orangeburg	Allendale Chert	Per Tommy Charles
	Hart		York	Basalt	Per Tommy Charles

Blue Text indicates measured from a photograph

Table 2. Frequencies of different South Carolina Southern Hardin basal shapes.

Basal Shape	Count	Percentage
Convex	42	76.36
Slightly Convex	3	5.45
Straight	5	9.09
N/A	5	9.09
Total	55	100

Table 3. Frequencies of different South Carolina Southern Hardin beveling attributes.

Beveling	Count	Percentage
Slight Left	32	58.18
Left	2	3.64
No	21	38.18
Total	55	100

Table 4. Frequencies of impact fractures on South Carolina Southern Hardins.

Impact Fracture	Count	Percentage
No	54	98.18
Yes	1	1.82
Total	55	100

Table 5. Frequencies of bend breaks on South Carolina Southern Hardins.

Bend Breaks	Count	Percentage
Blade	9	16.36
Haft	3	5.45
Total Points	11	20
Total Breaks	12	n/a
Total N	55	

bases of Kirk corner notched bifaces in the region (Coe 1964; Daniel 1996, 1998, 2001; White 2016a, 2016b). The blade is bifacially resharpened, which typically results in a slight left bevel as if the last pass of pressure flakes were taken from the left margin (orientation = distal up) of the biface working from the proximal end of the biface towards the distal with removals taken from the anterior face. This resharpening strategy reduces length at a faster rate than it reduces width. The presence of a steep, chisel-like left bevel does occur as a result of heavy resharpening or blade margin repair, but this is not common (Table 3).

Functional attributes of the Southern Hardin, after considering the manufacture and maintenance strategies mentioned above, provide insight into the primary function of the Southern Hardin. The debate of function for prehistoric hafted bifaces between projectile point or knife use is ongoing, often with unique conclusions for each type across time and space (Ahler 1971; Andrefsky 1998; Churchill 1993; Goodyear 1974; Greiser 1977; Nance 1971; Patterson 1985; Peterkin 1993). While in many cases hafted bifaces filled both functional roles, the divide between these roles is worth evaluating. Given the wide range of variability in overall length and the above described resharpening strategy, it is clear that many Hardin bifaces were extensively resharpened lending evidence of extensive use as knives (Figure 1). Impact fractures (evidence of use as projectile points), are very infrequent, with only one example present among the sample (Table 4). While obvious impact fractures are rare, bend breaks on the blade and haft are more frequently present and are observed in 20% of the bifaces analyzed (Table 5). Bend break fractures are indicative of

Figure 1. The Southern Hardin resharpening sequence.

heavy stress and could indirectly be evidence of impact-related fractures. Given the incidence of these 12 fractured bifaces from the sample, a total of 21.82% of the bifaces examined have evidence of possible impact damage. This pattern implies that projectile point use was perhaps a secondary function for the Southern Hardin, and that their primary function was for use as knives.

Only one example of the Southern Hardin has evidence of being resharpened into a drill. This technological strategy is common among Kirk corner notched hafted bifaces, and has been observed by the author among Kirk Stemmed hafted bifaces as well. Figure 2 illustrates an example of each, with the Southern Hardin example showing a bend fractured bit.

Raw Material Distributions

Understanding the distribution of the Southern Hardin across the landscape of South Carolina sheds light on general patterns of mobility and settlement among the people who made and used them. Figure 3 is a representation of the overall distribution pattern of known Southern Hardins in South Carolina. It is clear in the distribution map that the Southern Hardin has an abundant presence on the Coastal Plain, with many fewer known to exist above the fall line. This observation was previously made by Charles (1981) and Charles and Moore (2018). This pattern may be influenced by a few factors that may have altered our interpretation of this distribution. For example, the author's experience in working with private collections has had a heavy Coastal Plain focus (Goodyear and Wilkinson 2014, 2015; Wilkinson 2014, 2017, 2018). Also, the raw material selection pattern present in Table 6, illustrates the dependence on high-quality raw materials, especially the Allendale variety of Coastal Plains Chert (Figure 4 and 5), as well as rhyolites (Figure 6). For Southern Hardins made on lesser quality materials such as quartz, identifying them may be difficult due to less flexibility in manufacture (Goodyear 1979; Wilkinson 2017). The Piedmont is covered in exposed quartz sources, and the workmanship of bifaces of this lower quality raw material might not allow for the identification of Southern Hardins that may exist there if made on locally available sources. Given the dependence on high-quality materials, transportation of Southern Hardins into the Piedmont is noted with a few examples. While more are surely available among existing collections and waiting for proper identification, the decades of work by Tommy Charles studying collections across the state, including the Piedmont, is almost surely evidence enough that fewer are present above the Fall Line than below it.

The distribution patterns of the two raw material types for which the Southern Hardin is primarily made from, Allendale chert and rhyolite, are illustrated in Figures 7 and 8. These distribution maps illustrate again the Coastal Plain focus, but also illustrate several other unique features worth discussion. First, the great distance with which hafted bifaces of either material travel is extensive. Both materials extend across the state to distances of up to

Table 6. Frequencies of raw materials among South Carolina Southern Hardins.

Raw Material	Count	Percentage
Allendale Chert	58	76.32
Metavolcanic	12	15.79
Quartz	2	2.63
Unknown Coastal Plains Chert	2	2.63
Fort Payne Chert	1	1.32
Exotic Coastal Plains Chert	1	1.32
Total	76	100.01

275km or more. These materials have been known to travel similar distances in previous cultures such as Clovis and with Kirk corner notched bifaces (Daniel 2001; Daniel and Goodyear 2015, 2017; Goodyear 2014; Sassaman 1996; Sassaman et al. 1988). The evaluation of this range of movement among earlier cultures has typically included much larger sample sizes. While the general distribution pattern is similar (a higher concentration of Allendale chert bifaces are found nearest the source along the Savannah River), this wide-spread distribution of the Southern Hardin with such a small sample size is meaningful, as it does not appear to have the typical step-like decrease in raw material frequencies by distance that is usually expected (Daniel 2001; Wilkinson 2017). This pattern reflects not only a system of long distance mobility, but perhaps also a system of frequent mobility (Wilkinson 2017). Secondly, rhyolite Hardin bifaces appear to have a concentration in the Upper Coastal Plain. Earlier cultures have displayed patterns of long distance movement across the Fall Line, with metavolcanic materials from North Carolina sources sometimes extending all the way to Georgia via this pathway (Moore 2017; Charles and Moore 2018). This Upper Coastal Plain concentration for metavolcanic Hardin bifaces is interesting, but may be misleading with

Figure 2. Examples of Kirk corner notched, Southern Hardin, and Kirk Stemmed hafted bifaces from South Carolina that have been resharpened into drills.

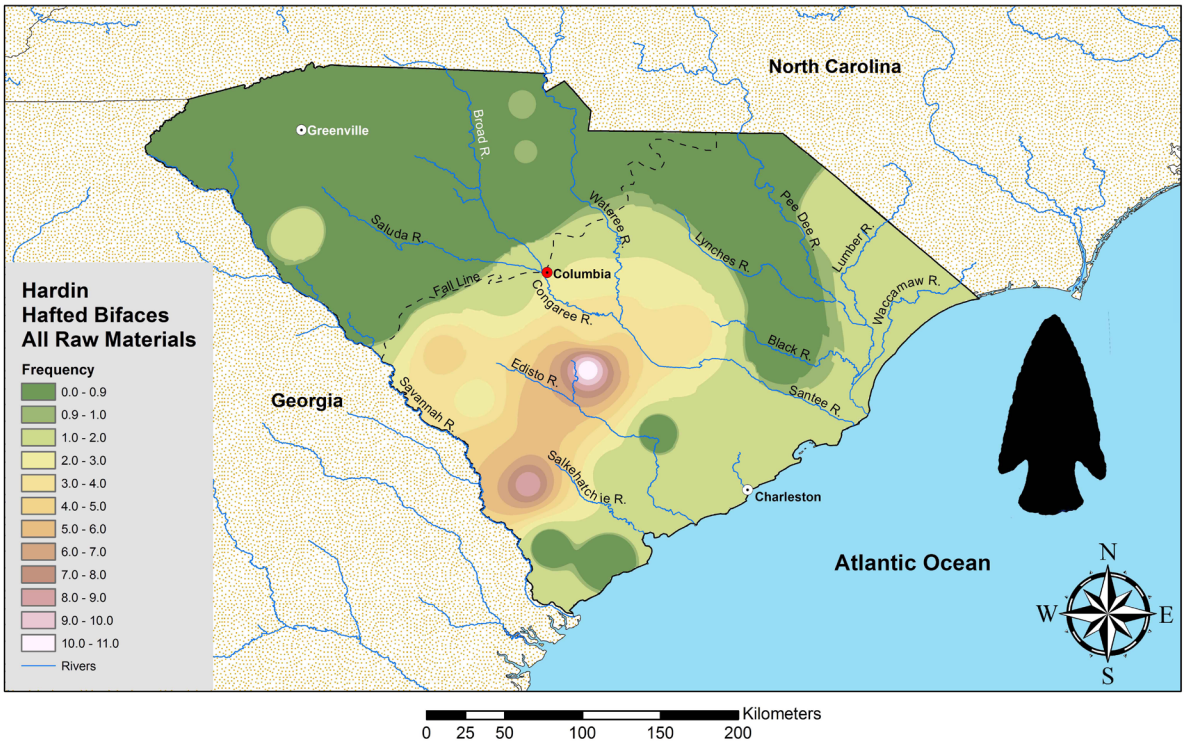

Figure 3. The geographic distribution of all recorded Southern Hardins in South Carolina.

such a small sample size. Lastly, the apparent lack of Hardin bifaces along the Lynches River is problematic. Many large collections are known to exist along this drainage, but very little work has been done to assess these collections by professional archaeologists. This locality of the state has had very little archaeological work done, and it is quite probable that Hardin bifaces exist there and have not been identified.

Figure 4. Allendale chert, early stage Southern Hardins from South Carolina.

Hardin Metrics

The metric parameters for South Carolina Hardins have previously been described by Charles (1981) and Charles and Moore (2018) with low sample sizes. The metric parameters for the complete sample of Hardins examined by the author are presented in Table 7. The metric observations presented here are not unlike those previously described, but with a larger sample size, the averages for each measurement are more reliable. Not all measurements were available for each biface, as some exhibited damage from use or more recent damage, and a portion of the bifaces were analyzed and digitally measured from photographs (N=12) which prohibited measurements of thickness. Methods for obtaining digital measurements have previously been utilized by archaeologists in the analysis of hafted bifaces with reliable results (White 2012; Williams 2016).

In the Midwestern literature on the Hardin, a subdivision of the type has been suggested between short-stemmed and long-stemmed varieties of Hardins (Behm 1985; Perino

Table 7. South Carolina Southern Hardin Metric Parameters.

Metric	Mean	STDEV	Max Value	Min Value	Range
Max. Length	53.0568293	15.152852	93.7	30.3	63.4
Max. Width	28.659388	4.4686881	37.8	20.2	17.6
Max. Thickness	7.4014286	0.8766863	9.06	5.46	3.6
Haft Length	14.382745	2.7242823	20.9	7.4	13.5
Haft Thickness	6.120952381	0.689961384	7.78	4.7	3.08
Base Width	20.413061	2.5805364	25.19	12.2	12.99
Blade Width	28.6261224	4.51900559	37.8	20.2	17.6
Basal Convexity	3.746	1.175009031	7.3	1.74	5.56
Neck Width	15.095818	1.6407312	18.5	10.57	7.93
Weight	9.70317	5.61018	30.77	2.84	27.86
Haft Area (HL * NW)	219.2217314	53.48288503	337.75	80.6491	257.1009
Ear Width (BW - NW)	5.31244898	1.534182666	8.69	1.3	7.39
Haft Angle	69.534694	5.9938591	80	59.1	20.9

N = 55

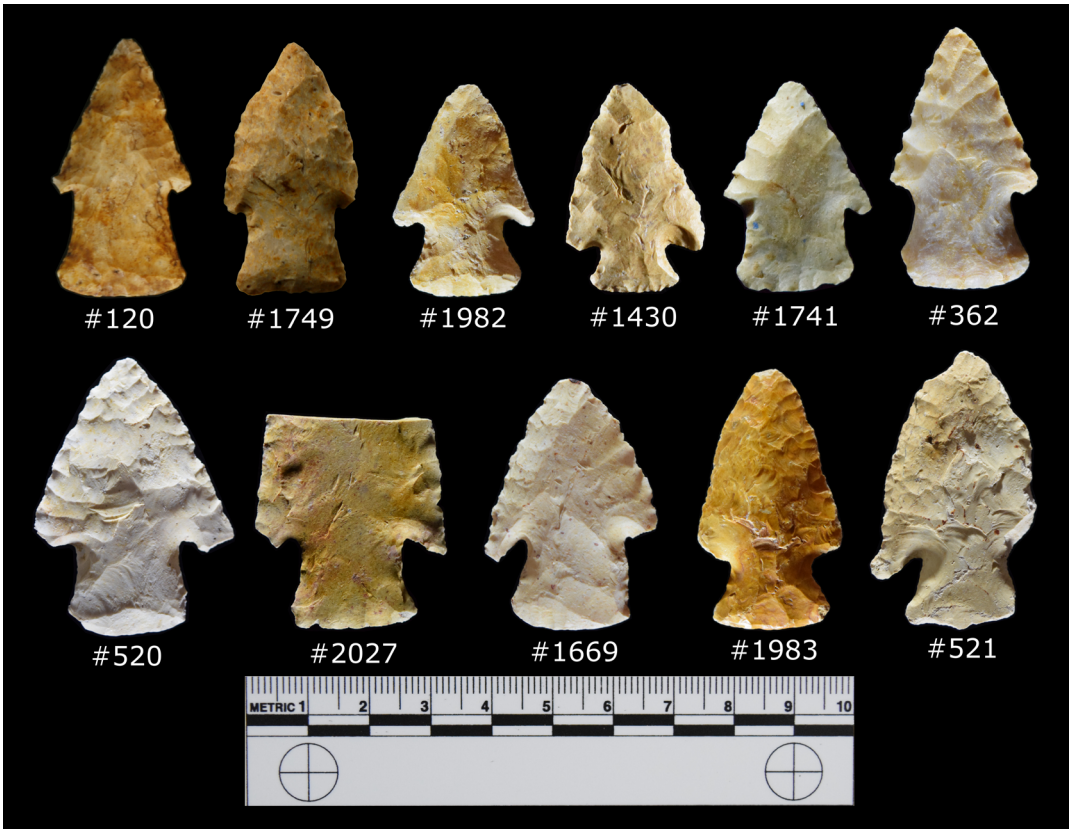

Figure 5. Allendale chert, late stage Southern Hardins from South Carolina.

1962:46 Figure 28; Luchterhand 1970:27). Behm (1985) determined that this source of variability did not have significantly different geographic distributions within his study area, but was rather a characteristic of internal variation. A simple analysis of haft length among the Southern Hardin in South Carolina suggests that there may also be similar variability among the type here in South Carolina. Figure 9 shows a wide range of haft length measurements, with slight variability across an otherwise relatively normal distribution. This variability does not have an obvious bimodal separation of haft lengths as does the Midwestern subdivision. While visually this distinction is not easily made, some Hardin hafts appear shorter than others of near equal overall size. Other evaluations of haft

Figure 6. A sample of metavolcanic Southern Hardins from South Carolina.

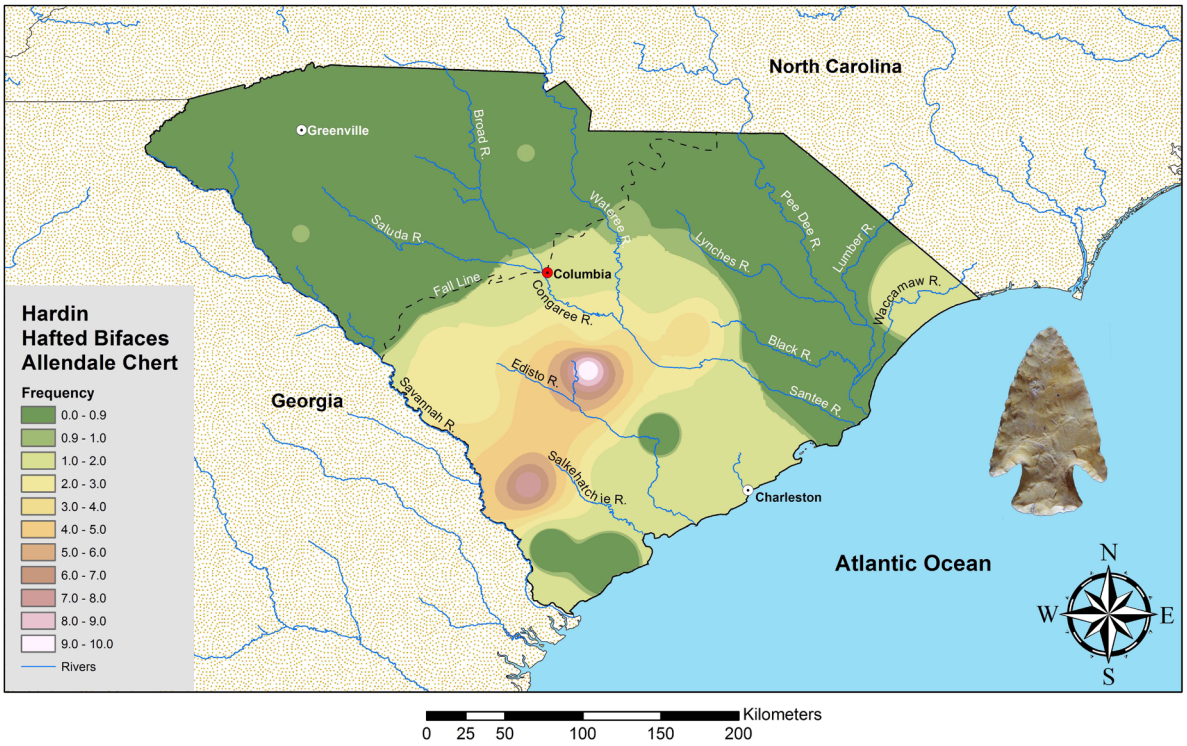

Figure 7. The geographic distribution of all Allendale chert Southern Hardins in South Carolina documented in this study.

variability in the Southern Hardin are discussed below.

Hardin Frequencies Versus Other Early Archaic Types

Placing the Southern Hardin within the context of all Early Archaic technological systems in South Carolina can shed light on its relative abundance. This has potential implications regarding the relative population fluctuations of people present in South Carolina throughout the Early Archaic. Table 8 illustrates that Hardins are the most infrequent of the hafted bifaces present during the Early Archaic. Kirk Stemmed and Stanly are also very low in relative frequencies. In order to understand

Table 8. The geographic distribution of all metavolcanic Southern Hardins in South Carolina documented for this study.

Collection	Collection Location	Taylor/SN	%	Kirk/CN	%	Hardin	%	Kirk Stem	%	Stanly	%	Total
Zorn	Bamberg County	18	22.22	54	66.67	5	6.17	4	4.93	0	0	81
Croft	Aiken County	298	41.27	382	52.91	3	0.42	33	4.57	6	0.83	722
Causey	Hampton County	137	35.86	179	46.86	5	1.31	59	15.45	2	0.52	382
Hendrix Bamberg	Bamberg County	45	36.59	65	52.82	1	0.81	6	4.88	6	4.88	123
Island	Calhoun County	35	37.63	45	48.39	1	1.08	8	8.6	4	4.3	93
High Creek	Calhoun County	68	41.98	75	46.3	2	1.23	13	8.02	4	2.47	162
Shull Black River	Sumter & Lee Counties	103	40.39	117	45.88	2	0.78	15	5.88	18	7.06	255
Strong	Allendale County	443	37.2	619	51.97	4	0.34	88	7.39	37	3.11	1191
Shull Lake Murray	Lexington County	62	48.06	41	31.78	0	0	23	17.83	3	2.33	129
Lake Marion Combined	Clarendon & Sumter Counties	136	44.01	120	38.83	1	0.32	17	5.5	35	11.33	309
Marion County Museum	Marion County	95	44.81	79	37.26	1	0.47	7	3.3	30	14.15	212
Hungerpiller	Orangeburg County	53	41.01	58	44.96	5	3.88	7	5.43	6	4.65	129
Total		1493	39.41	1834	48.42	30	0.79	280	7.39	151	3.99	3788

this relationship and its implications, the technological evaluation of the Southern Hardin must first be discussed across these types.

Stylistic Seriation

In order to better understand the technology of the Southern Hardin within the context of technological and stylistic change through time, and to evaluate and propose a temporal placement for the Southern Hardin based on these attributes, data are presented here from samples of hafted biface types from known ages for comparison. Because the temporal placement for Hardin bifaces are known to have been discovered during archaeological survey and excavation, one a surface find from a conflated site (38BR407 - #837), and another from a shovel test with no recorded depth below surface (38RD707 - #1710). In both cases, Southern Hardins were misidentified as Kirk Corner Notched points. While stratigraphic and radiocarbon data are ideal for dating cultural materials, the fundamental archaeological method of seriation has been significantly underutilized in the analysis of stone tool technologies. When implementing evolutionary theory within a technological framework (Basalla 1988; Dunnell 1980; Goodale et al. 2015; Kuhn

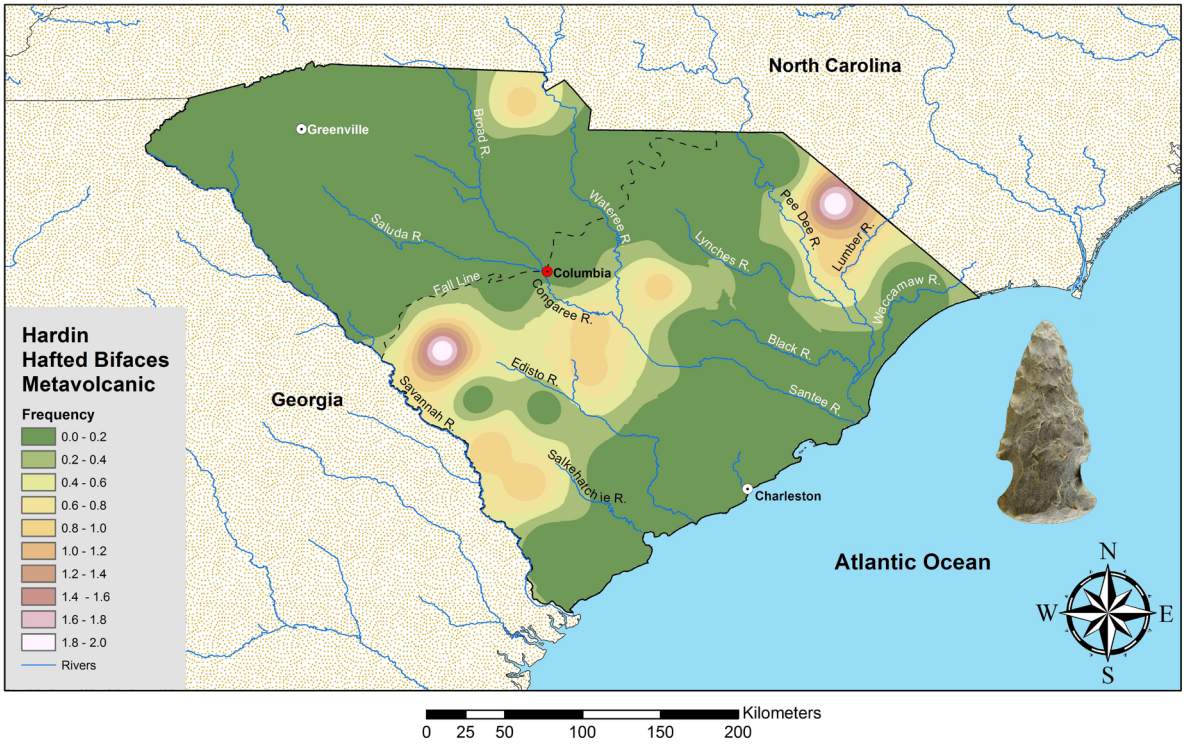

Figure 8. The geographic distribution of all metavolcanic Southern Hardins in South Carolina documented for this study.

Hardins in the Midwest is problematic where the type is far more abundant, traditional methods for dating the Southern Hardin with its infrequent presence would be extremely difficult. Within this state, only two Southern 2004; Lyman 2009; Lyman and O'Brien 1998, 2001; O'Brien and Lyman 2000; Sahlins 1960; Schiffer 1996; Steward 1955), the method of seriation can then be used to create a predictive model. This predictive model can be

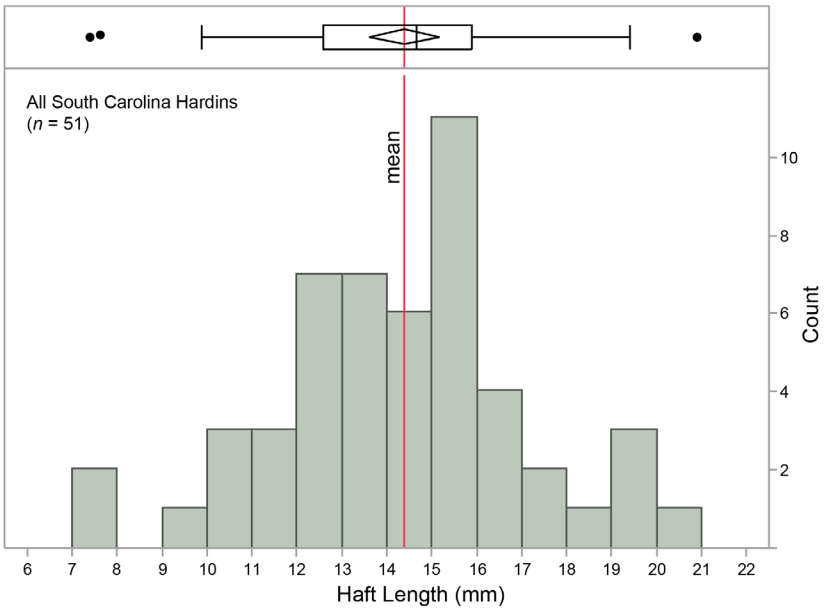

Figure 9. Histogram of haft lengths among South Carolina Southern Hardins.

used to propose temporal placements for technologies that lack traditional dating evidence, such as radiocarbon dates and stratigraphy, and provide a means for understanding cultural and technological shifts through time until data becomes available to ground truth the model's predictions.

Data presented here evaluate stylistic relationships across Early Archaic types through the analysis of metrics taken from the haft elements of each type. The haft is the most static portion of a hafted biface, with very little intentional modification throughout its use life (Goodale et al 2015; Goodyear 1974). The hafted biface types examined here are: Taylor side notched (Bridgman-Sweeney 2013; Michie 1966, 1970, 1996), Kirk corner notched (Coe 1964; Daniel 1998, 2001; Tuck 1974; White 2016a, 2016b), the Southern Hardin (Charles 1981; Charles and Moore 2018; Powell 1990), Kirk stemmed (Chapman 1985; Coe 1964; Faught and Waggoner 2012; Sherwood et al. 2004), and Stanly (Chapman 1985; Coe 1964). The samples of each type were selected from large collections from the Aiken and Allendale counties in South Carolina, which were either a part of previous research excavations or donated private collections, and were all made from Allendale Coastal Plains chert. Examples of each type are presented in Figure 10.

The Knowns

The Taylor side notched hafted biface is the local variant of the side notched horizon, which is widespread across the Eastern United States (Coe 1964; Dejarnette et al. 1962; Michie 1966, 1970, 1996; Randall 2002; Sherwood et al. 2004; White 2012). Within South Carolina, this

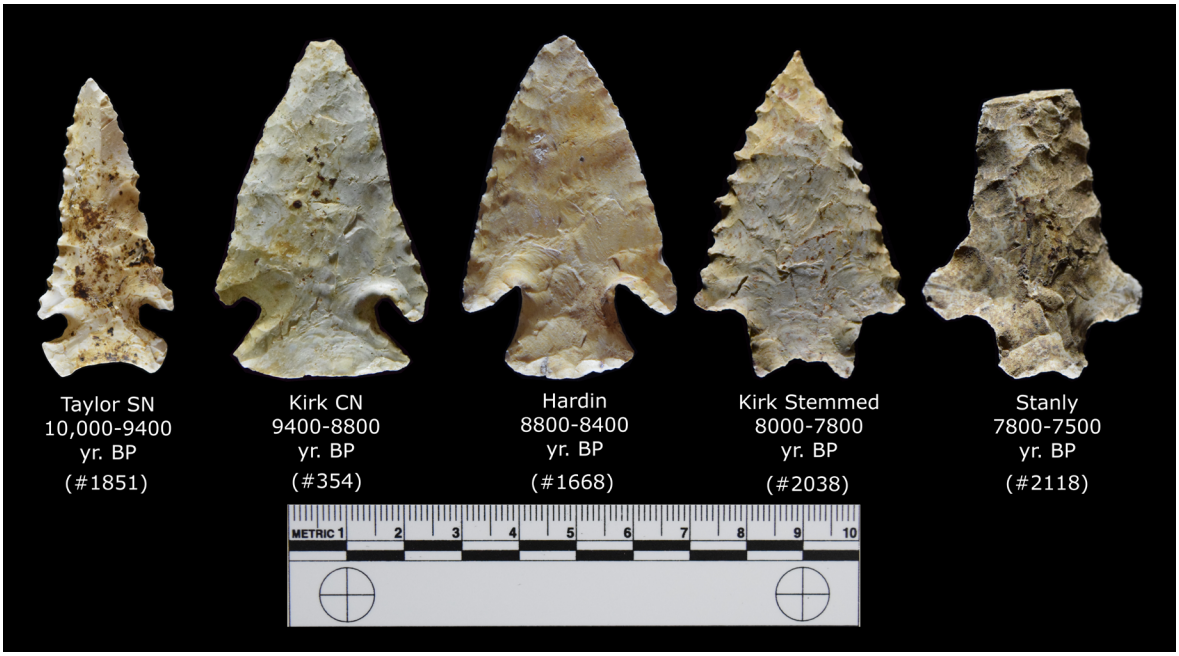

Figure 10. The five Early Archaic hafted bifaces examined in seriation.

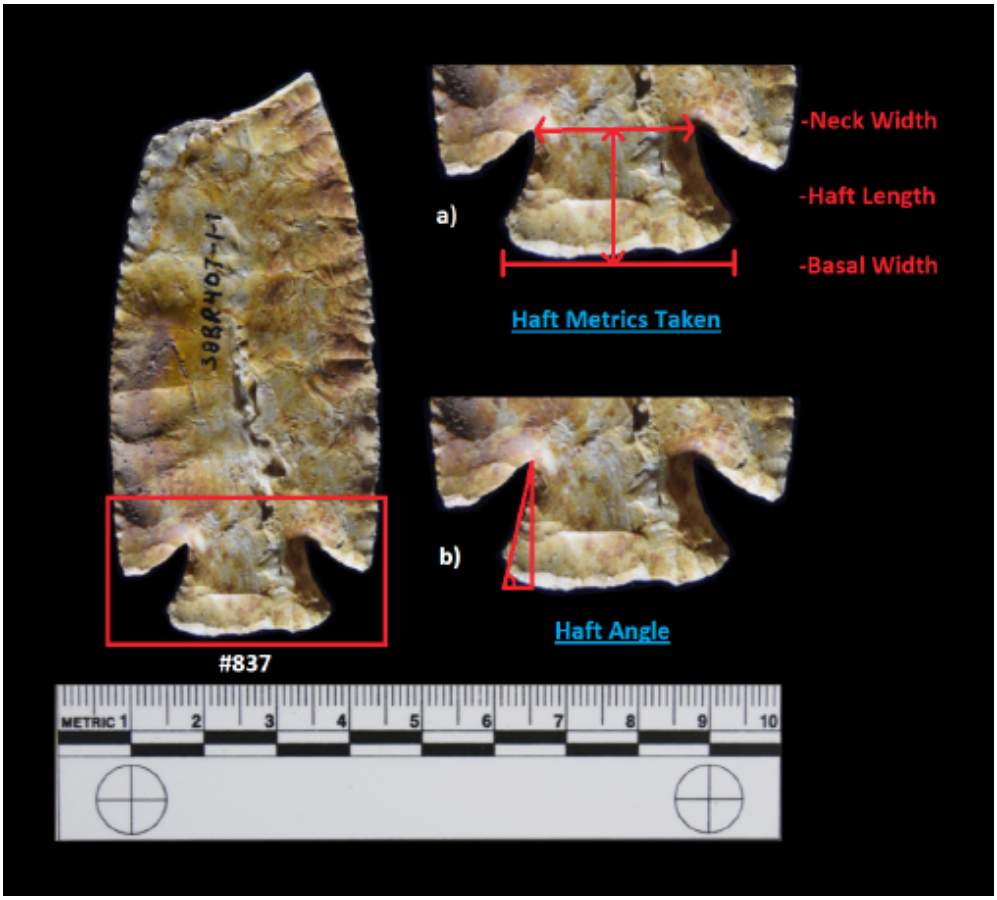

Figure 11. Illustration of the haft measurements taken (a) and the measured haft angle (b).

variant has been found in stratigraphic contexts directly above Paleoindian materials (Goodyear 2013), and work in surrounding states has also placed it in contexts that date it around 10,000-9400 yr. BP (Coe 1964; Sherwood et al. 2004). Side notched hafted bifaces in the region have a variety of stylistic variations that are still technologically underevaluated, though stylistic differences have in some cases been shown to have geographically extensive patterns (Bridgman-Sweeney 2013; Thulman 2014, 2015). Other stylistic varieties present in South Carolina include: Hardaway, Van Lott, and Rowan (Anderson and Sassaman 2012; Coe 1964; Gunn and Rovner 2003; Michie 1965, 1966, 1996).

The Kirk corner notched hafted biface was found to follow side notched varieties, such as Hardaway by Coe (1964), and have been observed in stratigraphic contexts above side notched varieties across the Eastern United States (Anderson and Sassaman 2012; Chapman 1985; Coe 1964; White 2012, 2016a, 2016b). This hafted biface type is a part of a corner notched horizon that has been the topic of much discussion, as it extends across the entire Eastern United States with remarkable continuity (Coe 1964; Tuck 1974; White 2016a, 2016b). It also has a variety of variants such as Palmer and Lost Lake, and is also underevaluated technologically. Stratigraphic and radiocarbon dating of this horizon places it around 9400-8800 yr. BP (Anderson and Sassaman 2012; Chapman 1985; Tuck 1974; White 2012).

Kirk Stemmed hafted bifaces were first described by Coe (1964) and found above corner notched varieties of Kirk and Palmer in stratigraphic contexts. This type has some stylistic variation, and was initially described as two separate types by Coe, who separated the serrated bifaces from those that were not serrated. We now know more about the process of resharpening, and both previously described types are now understood to be the same (Goodyear 1974). Kirk Stemmed hafted bifaces are also widespread across the Eastern United States, and is a part of a large inter-connected technological system just as preceding types (Chapman 1985; Coe 1964; Faught and Waggoner 2012; Sherwood et al. 2004). The stratigraphic and radiocarbon evidence for Kirk Stemmed hafted bifaces places it roughly between 8000-7800 yr. BP (Chapman 1985; Coe 1964; Faught and Waggoner 2012).

Lastly, Stanly Stemmed hafted bifaces are found to be an early Middle Archaic type in the region of South Carolina and North Carolina. Coe (1964) first described its stratigraphic placement above Kirk Stemmed in North Carolina. This hafted biface style has a much smaller geographic range than previous hafted biface types. Stylistic variation of this variety exists, but has not been adequately evaluated. Contemporary types in neighboring localities, have not been evaluated or very well understood technologically. The stratigraphic and radiocarbon evidence available primarily from North Carolina on Stanly hafted bifaces places it between 7800-7500 yr. BP (Chapman 1985; Coe 1964).

Metric Seriation

In order to evaluate the evolution of haft morphology through time, simple metrics can be analyzed in a series of stacked histograms which allow for patterns of similarity or difference to emerge. By arranging the histograms in

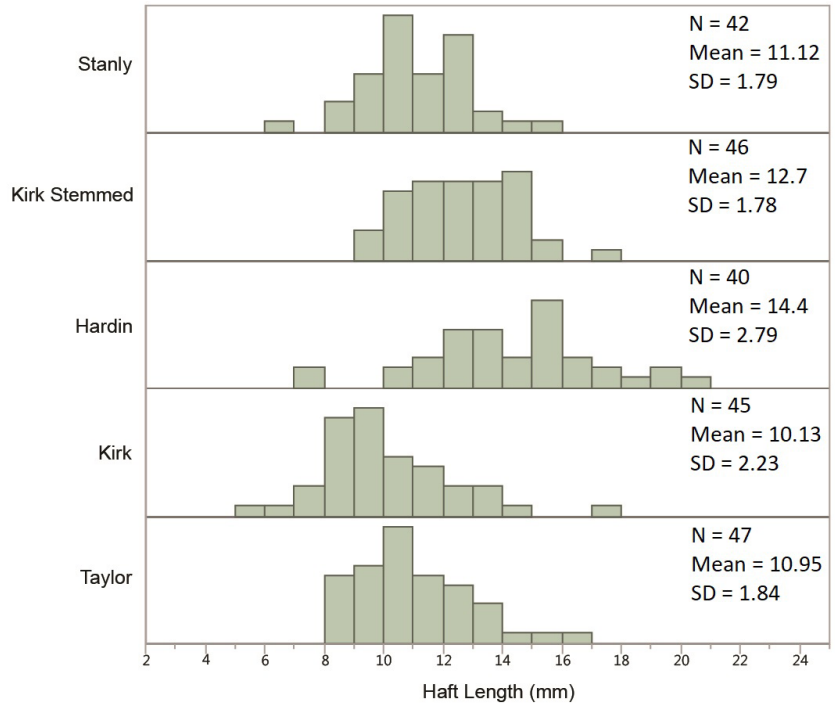

Figure 12. Haft length histograms across all five Early Archaic hafted biface types.

order by time, overall patterns that may be present across hafted biface types are more easily assessed. For this evaluation, Hardin metrics are placed between Kirk corner notched and Kirk Stemmed due to general morphological comparability with both types, and as a test for its temporal placement between these two types as it has been proposed in the Midwest. The following haft metrics were used to evaluate the evolution of haft morphology throughout the Early Archaic: haft length (taken from the top of the haft to the bottom of the base across all types); neck width (taken across the haft between the apex of the notches, which for stemmed types is not the narrowest location across the haft); basal width (the maximum width of the base); and haft thickness (taken at the location on the haft where the neck width was taken) (Figure 11a).

Haft Length. The evaluation of haft length (Figure 12) does not show any linear change through time, but does provide insight as to the relationship of haft length across types. Unambiguously notched forms, such as Taylor and Kirk, appear to have very similar means and ranges of haft length, with Kirk showing a few outliers. Unambiguously stemmed styles, such as Stanly and Kirk Stemmed, also show similar means and ranges only slightly larger than notched forms. Hardin haft lengths are on average longer than any other type, with a skew towards longer hafts. This is an interesting difference as Hardins appear to have stem-like hafts that are the result of notching.

Neck Width. Evaluating neck width (Figure 13) also does not show linear changes through time, but instead mimics the general pattern observed with haft length. The notched forms of Taylor and Kirk have comparable means and ranges, just as the stemmed forms of Kirk Stemmed and Stanly. Kirk Stemmed and Stanly again show only slightly larger neck widths than notched forms. The most significant difference lies with Hardin neck widths, which in this case is shown to be on average the narrowest, with a skew towards very narrow neck widths. The mean Hardin neck width is not far from the mean of notched types, though the skew shows it to have some difference from those

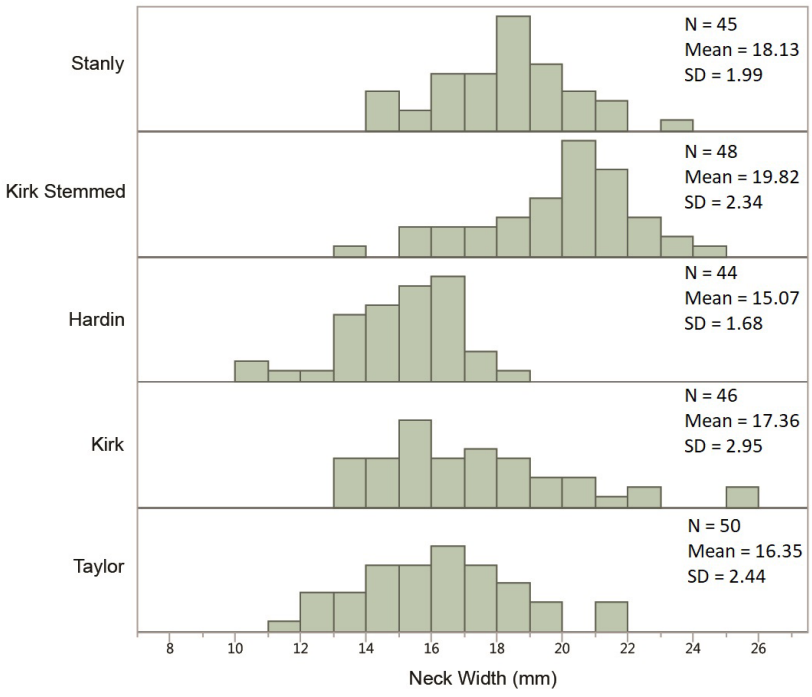

Figure 13. Neck width histograms across all five Early Archaic hafted biface types.

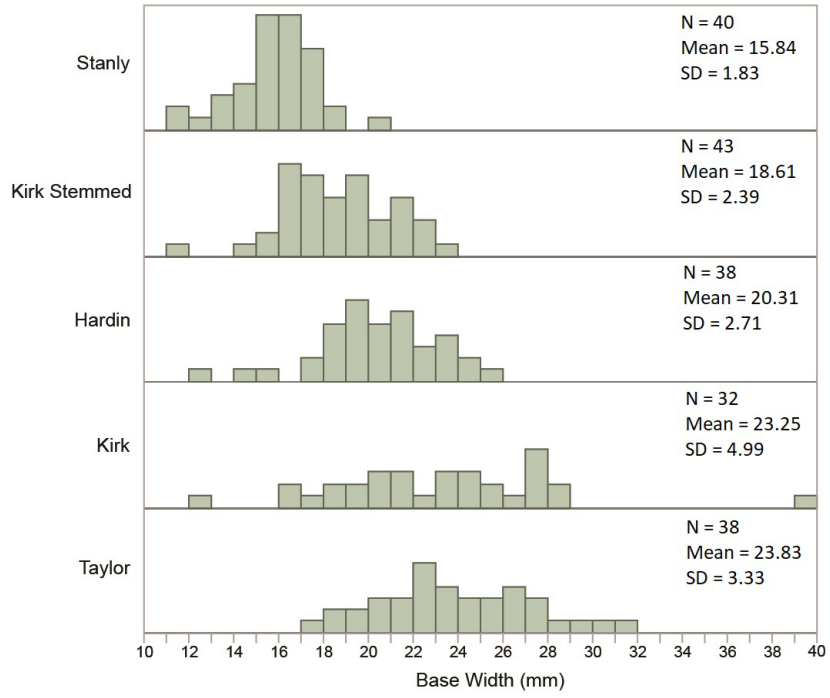

Figure 14. Basal width histograms across all five Early Archaic hafted biface types.

varieties.

Basal Width. In contrast to haft length and neck width, basal width (Figure 14) does display a linear pattern through time. The basal widths of Taylor side notched appear to be the widest, though Kirk corner notched has one significant outlier with a more even distribution. Stemmed styles have a steady decrease in basal width from the notched styles. Hardin basal widths fit nicely between the notched and stemmed styles, with an almost normal distribution.

Haft Thickness. Haft thickness evaluations show another interesting pattern (Figure 15). Haft thickness is relatively stable across notched types, with very comparable means and distributions with Hardin. The stemmed styles are comparable with larger means. This difference may be the result of overall strategies of haft manufacture. Notched styles may require thinner hafts in order to produce the desired notches, while stemmed styles may rely less on the flexibility of manufacture and are focused more on robust and sturdy hafts.

Angle Model. Another evaluation of the haft is performed that utilizes many of the above metrics. Haft angle, inspired by White's (2016b) "ear flare," is evaluated by taking three simple metrics of the haft: haft length, neck width, and basal width. This calculation reflects a two-dimensional characteristic of the haft that likely reflects both stylistic and functional changes in the overall haft morphology. Simple geometry is used to calculate the unknown angle of a right triangle when the lengths of two sides are known. Haft length is one side, and the other is calculated by subtracting the neck width from basal width, which is the ear width. When ear width is a negative number, an angle of greater than 90 degrees is present, and the difference of the negative angle and 90 should be added to 90 for the final angle. Figure 11b illustrates this measured angle on a Hardin point.

Figure 16 illustrates the evaluation of haft angle across types and also illustrates a linear change through time. Again, notched styles and stemmed styles are comparable with slight changes, and Hardins fit between the two with a smaller distribution. The gap between Hardin and stemmed varieties is interesting, and

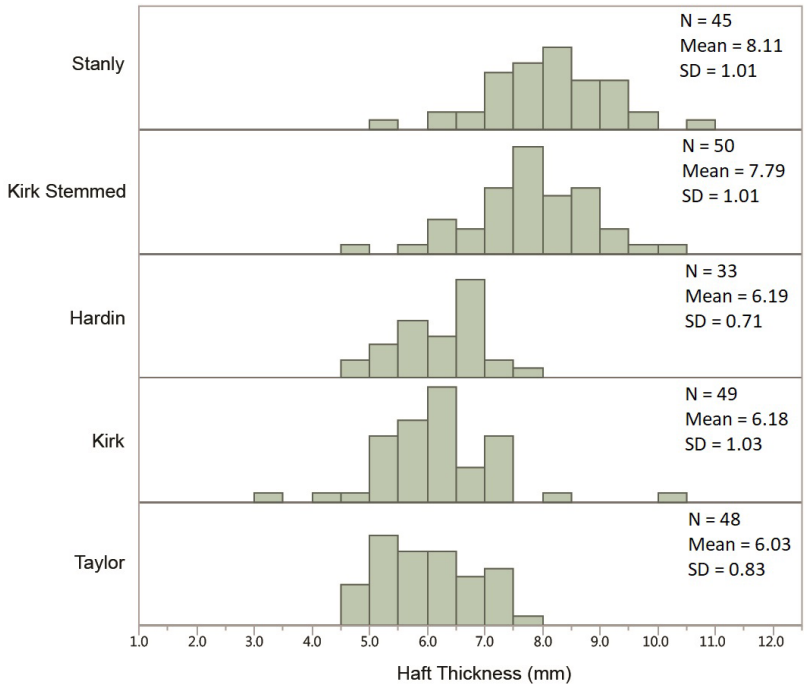

Figure 15. Haft thickness histograms across all five Early Archaic hafted biface types.

suggests either another type may be missing, or a significant leap in overall design was made. One other significant "post-Kirk" stylistic cluster that is infrequently present in South Carolina is the bifurcate. Due to their infrequent presence and a near lack of bifurcates made of Allendale variety Coastal Plains Chert, this point type was not evaluated in this paper. Bifurcates fall between Kirk corner notched and Kirk Stemmed hafted bifaces (Broyles 1971; Chapman 1985). This angle model should be applied to a sample of bifurcates in order to evaluate a potential relationship with these styles.

Base Width and Haft Angle Bivariate Comparison. Two metrics are shown to have linear changes through time: base width and haft angle. A bivariate illustration of these metrics are presented in Figure 17. This bivariate plot shows the clustering of types previously discussed and illustrated in Figures 14 and 16. The clustering of notched types to the left and stemmed points to the right is comparable with previously discussed differences. Hardins are found in the middle with a skew towards the notched forms. These clusters also illustrate the linear change of haft morphology through time that was previously discussed for these two metric attributes.

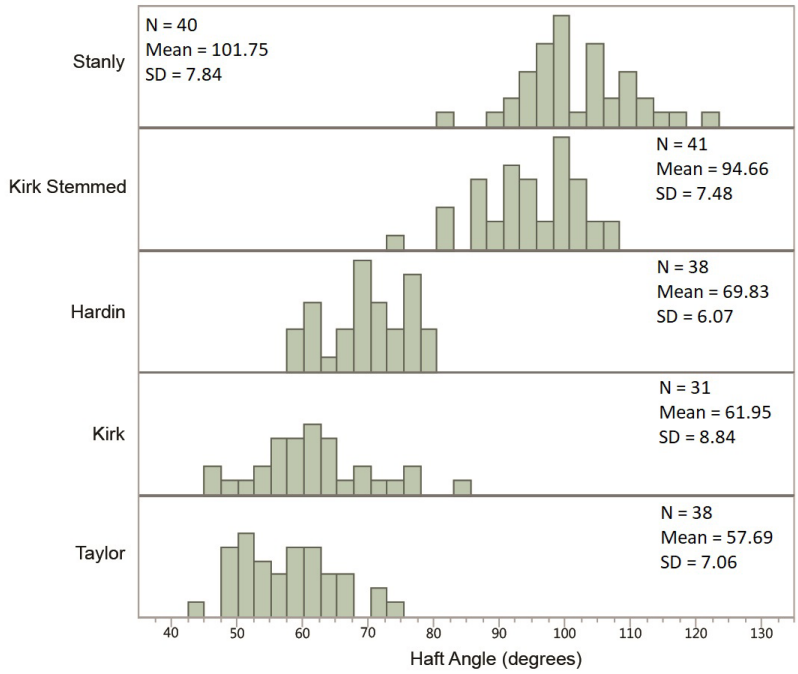

Figure 16. Haft angle histograms across all five Early Archaic hafted biface types.

Metrics Discussion. As discussed above, not all haft metrics have linear patterns of change through time, though there are distinct relationships between specific metric ranges and the corresponding forms of hafted bifaces. For example, across different haft measurements there were comparable means and ranges for notched and stemmed styles that differed from each respective form. The clustering of these evaluations is interesting alone, as it demonstrates with empirical data that similar morphological structures share metric correlates (Thulman 2012).

By comparing these patterns with hafted bifaces of different known ages, an evaluation of the general change of hafted biface design can be more accurately understood. While leaps in technological strategies or stylistic discontinuity do occur in cultural systems, technological innovations are most often built on pre-existing methodologies that recreate similar characteristics while also producing new ones (Basalla 1988). This is to say that technological innovations or inventions are never altogether completely new. The evaluation of technological change through an evolutionary perspective relies on the assumption of slow gradual change as an explanation for change

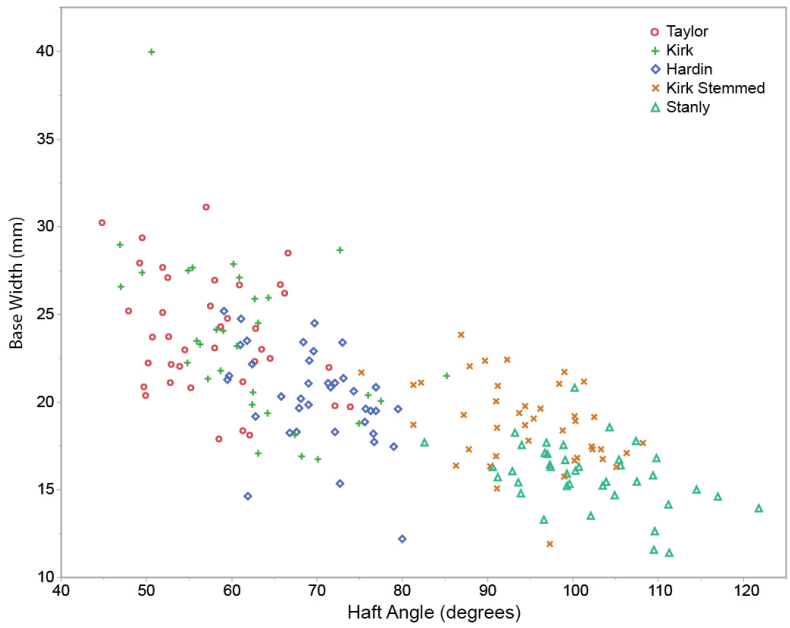

Figure 17. Bivariate plot of haft angle and basal width across all five Early Archaic hafted biface types.

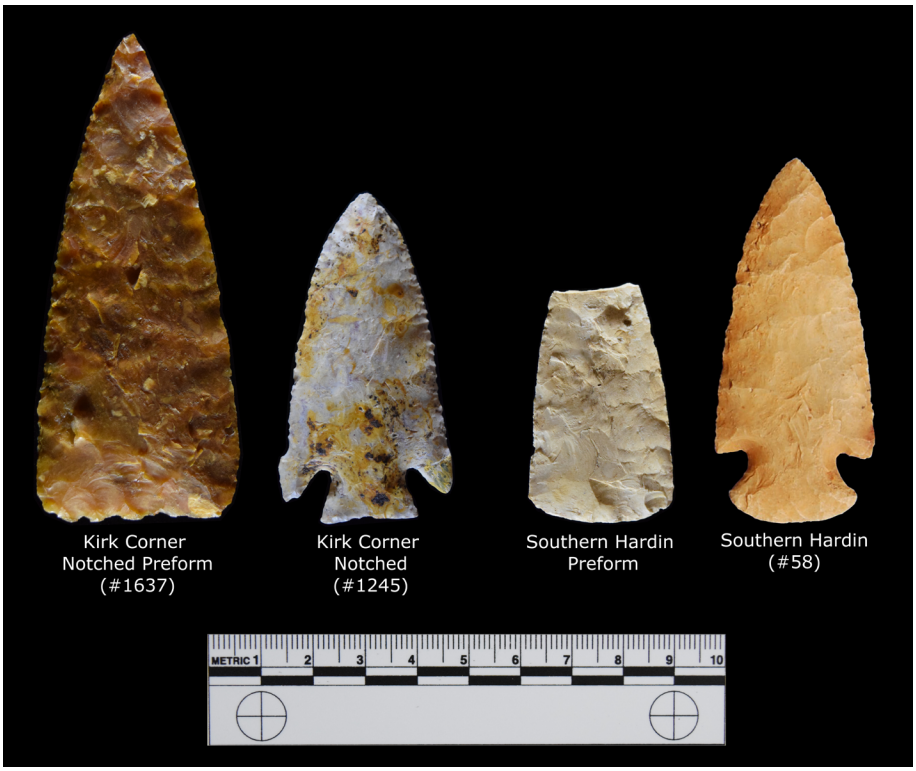

Figure 18. Prehistoric Kirk corner notched and Southern Hardin preforms and finished hafted bifaces.

through time. This implies that there will be intermediary, or "transitional", types present that display shared characteristics with multiple "types." The problems with typology have reflected this reality, as archaeologists and amateur archaeologists have long wrestled with issues of lumping and splitting types on the basis of varying degrees of likeness (Bell 1960; Bierer 1974; Bullen 1974; Charles and Moore 2018; Dowdy and Sowell 1998; Justice 1987; Michie 1970; Overstreet 2013; Thulman 2012). Perhaps it is best to approach technologies as fluid systems across time and space, with degrees of variability always present across both dimensions. With this perspective in mind, it is not difficult to understand the various degrees of overlap present in the histogram diagrams, especially when linear changes are present through time.

The results of the haft metric analysis illustrate that the method of seriation can be a useful tool for not only evaluating technological relationships across time and across stylistic forms, but also as a predictive tool for placing unknown or unique technological strategies within a timeframe of continuous change. While not every metric displayed gradual changes through time, some illustrated the degrees of similarity or difference between morphological forms. For several metrics, linear changes across time are present, which illustrate that the temporal placement for the Southern Hardin likely falls between Kirk corner notched and Kirk Stemmed hafted biface technologies at roughly 8800-8400 yr. BP. Also, while it appears that metrics quantify changes of shape in the haft quite accurately, other significant technological characteristics have not been evaluated here across types. Strategies of resharpening, for example, are not reflected here but may have meaningful relationships across types through time. Also,

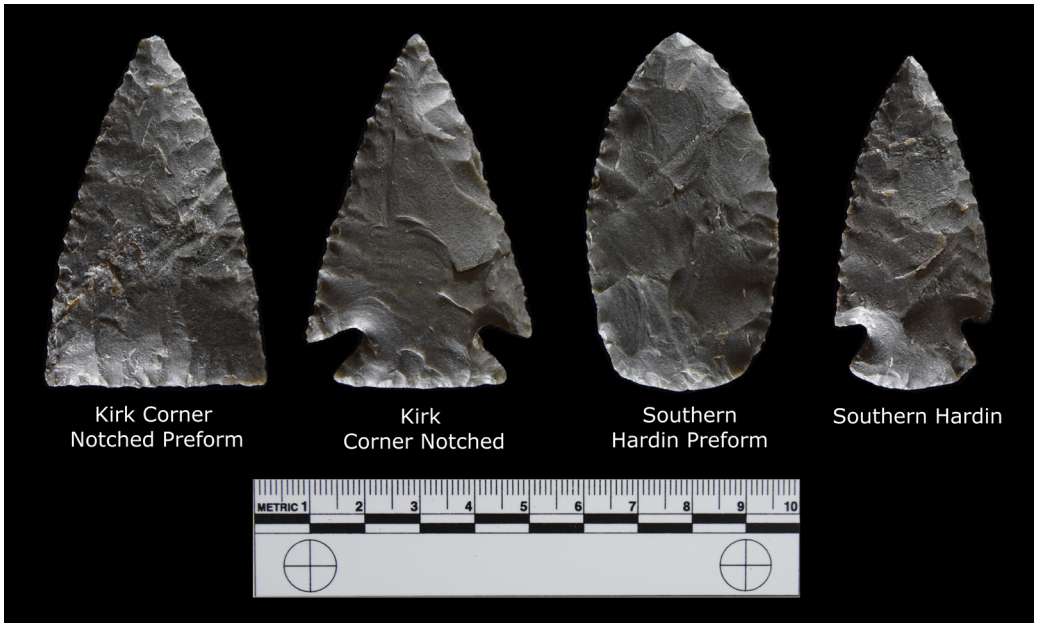

Figure 19. Reproduced Kirk corner notched and Southern Hardin preforms and finished hafted bifaces.

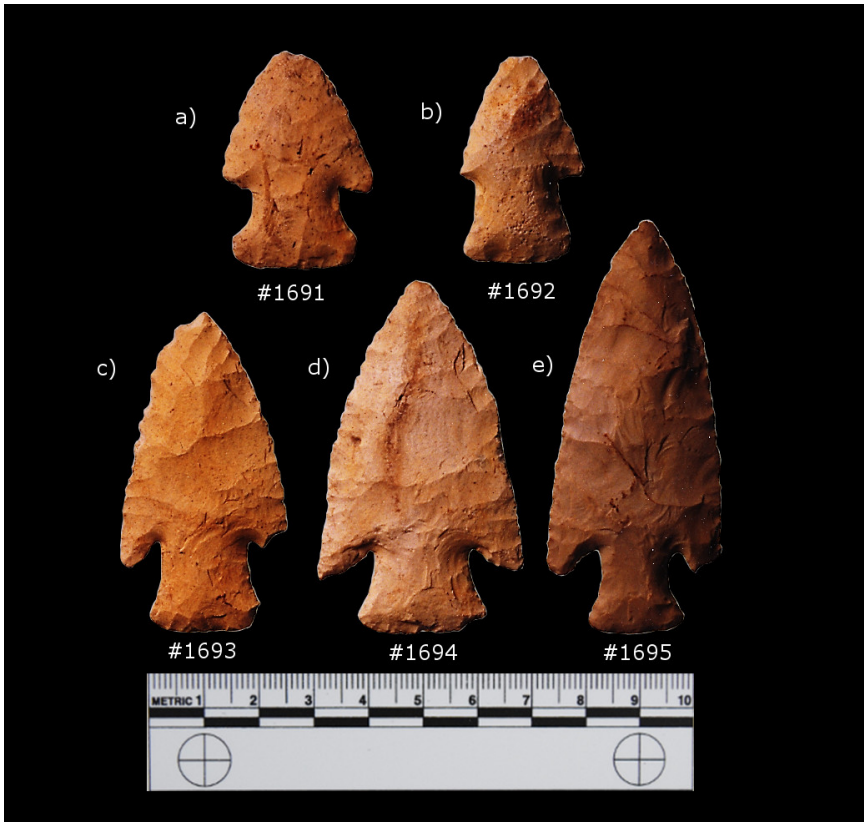

Figure 20. Five Southern Hardin hafted bifaces from the Sonny Zorn collection (Sassaman et al. 2005:10 Figure 4). Modified from original. (a-d = Allendale chert, e = Fort Payne chert)

breakage patterns across types may reflect differences in the emphasis of the functional preferences across the projectile point/knife divide. These characteristics could have meaningful patterns as well, and should be evaluated across types with large sample sizes in order to further understand the full range of variability and technological change through time.

Hardin Replication

An understanding of the technological relationship between the Southern Hardin and other Early Archaic hafted bifaces, can also be evaluated through the experimental replication of similar point types. The author, with the help of several experienced knappers, attempted to replicate the Southern Hardin in order to understand more about the early stages of manufacture. The Early Archaic hafted biface type which is closest in overall morphology to the Southern Hardin, the Kirk corner notched, is contrasted here with replicated examples of late stage preforms and finished points for comparative purposes.

As previously discussed, there are some distinct differences between the Southern Hardin and Kirk corner notched hafted bifaces. These differences lie not only with the final shape of each type, but also in the strategies of manufacture and maintenance that produce those final results. Three attributes that affect haft morphology and that differ between the two types are: preform shape, basal treatment, and notch origination, shape, and angle.

Preform shape directly influences the resulting shape of both a Kirk and a Southern Hardin, because notches are one of the last steps of manufacture. Late stage preforms are thinned and shaped according to the desired end result, and the only post-notching modification that typically

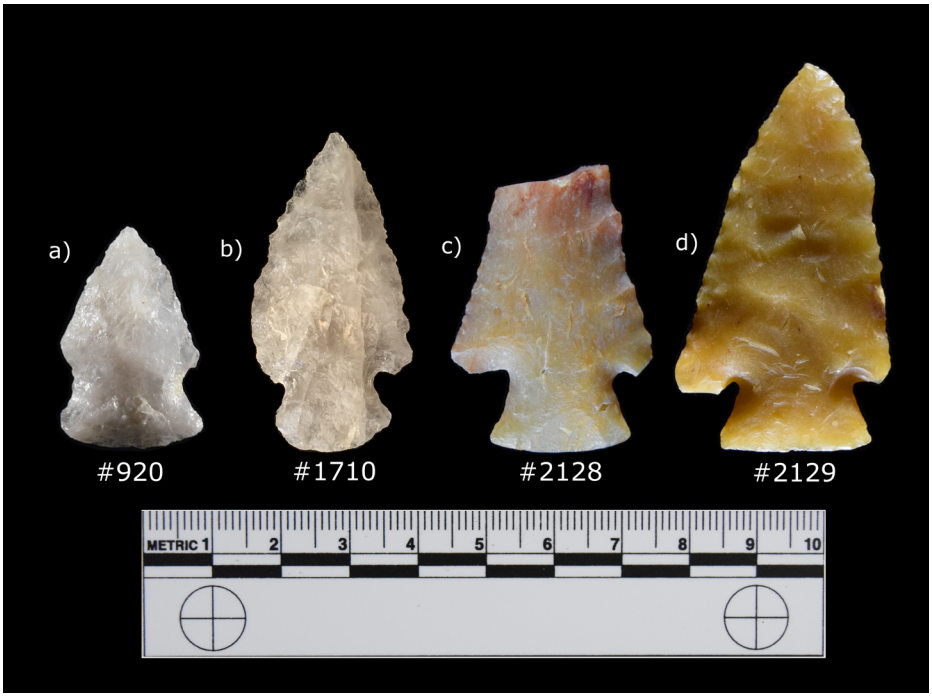

Figure 21. Quartz Southern Hardins (a, b), unknown Coastal Plains Chert Southern Hardin(c), and an exotic Coastal Plains Chert (likely from Georgia sources) Southern Hardin (d).

occurs will be a product of maintenance strategies of resharpening and recycling (Goodyear 1974, 1979). Figure 18 illustrates with prehistoric artifacts the probable shape of a Kirk preform next to a finished early stage Kirk, and the probable shape of a Southern Hardin preform next to a finished early stage Hardin. The noticeable difference lies primarily with the shape of the basal portion of the preform. Kirk preforms are expected to be triangular in overall shape, as early stage Kirks after notching maintain that shape. The Southern Hardin is similar, but with a convex base and barbed blade ears, preforms are expected to have a more oval or teardrop shape prior to notching.

Basal treatment is also a product of manufacturing techniques with the desired preform and finish product in mind. For Kirk bifaces, the straight bases are typically thinned with small percussion and pressure flakes in the late stages of preform manufacture. This strategy creates thin hafting elements and facilitates deep corner notches. For the Southern Hardin, the teardrop shaped preform has short pressure flaked retouch along the basal margin which creates the rounded appearance of the finished biface. Because the notches on a Southern Hardin start closer to the side of the preform than the corner in most cases, significant basal thinning is not needed to facilitate notching. It has also been suggested to the author by modern flintknappers that Hardin notching is achieved through the use of indirect percussion. While this is also a plausible technique for Kirk notching, a thinned margin may not be crucial for creating the desired notch shape for the Southern Hardin. Notch shape on the Southern Hardin also differs from Kirk. Hardins have a crescent notch shape that terminates in a distinct "V" shape, while Kirks have elongated "U"-shaped notches with a "U" shaped termination. It has previously been suggested that notch shape is also affected by the tools used to create the notch, and the condition in which those tools are kept for notching (Goodale et al. 2015). Understanding that the end result is also influenced by learned ways of producing tools such as hafted bifaces, both in overall strategies and with the tools used for manufacture, can also shed light on the process of technological and stylistic evolution through time.

Examples of reproduced preforms and finished points are presented in Figure 19. Strategies for reduction utilized the same tools and techniques, and attempts were made on the same raw material type. These examples illustrate the differences in form between late stage Kirk and Hardin preforms, and the resulting difference in the hafted biface types.

Discussion

Overall patterns present among the Southern Hardin in South Carolina suggest a close relationship with Kirk corner notched technology (Daniel 1996, 1998, 2001; Sassaman 1996; Sassaman et al. 1988; White 2016a, 2016b). The Southern Hardin's widespread distribution implies frequent mobility and interconnectivity across the landscape. The scale of this interconnectivity, specifically with regard to the movement of certain raw material types, is previously seen with Clovis (Daniel and Goodyear 2015, 2017) and Kirk corner notched (Daniel 1996, 1998, 2001; Sassaman 1996; Sassaman et al. 1988) hafted bifaces.

In overall morphology, the Southern Hardin is also very similar to Kirk corner notched hafted bifaces, and the evaluation of haft metrics illustrates their comparability. Within an evolutionary framework, it is not difficult to see a technological relationship, but what are its implications for sociocultural systems?

The infrequent presence of the Southern Hardin may represent the first population decline or exodus of people within South Carolina and the lower Southeast that has previously been noted to follow Kirk corner notched technology (Anderson 1991; Faught and Waggoner 2012; Sassaman 1996; Steen 1985). This phenomenon has not been well understood, but it is clear that for some time people left the Coastal Plain or were present infrequently. While artifacts from these periods are found within South Carolina, as previously displayed in Table 8, their presence is much less frequent. It is interesting to note the heavy Coastal Plain focus of the Southern Hardin, especially given its proposed temporal placement before the technologies of bifurcates, Kirk Stemmed, and Stanly bifaces, which are so infrequently found on the Coastal Plain.

Within the realm of widespread technological systems, the Southern Hardin is no different when compared to other Early Archaic hafted biface technologies. While geographic patterns and relationships between observed varieties of the Hardin have not been quantified or very well understood, it is apparent that Hardin-like technologies are present across the majority of the Eastern United States, which is comparable with side notched and corner notched technological systems (Chapman 1985; Coe 1964; Randall 2002; Dejarnette et al. 1962; Tuck 1974; White 2016a, 2016b). The abundance of the Midwestern styles of Hardin is a stark contrast to its infrequently present Southern Hardin variety. This pattern is interesting and suggests a population migration and focus in the mid-continent roughly 8800 years ago. The implications of such a pattern beg an explanation which as of yet has no quantified data to support any interpretation. Climatic shifts have long been the investigation of influence on cultural migrations and should be applied to this problem. The failure of directly dating the Hardin remains, despite numerous attempts in the Midwest (McElrath et al. 2009a:12). An effort to directly date Hardin bifaces across the Eastern United States is sorely needed, as ground-truthing the proposed seriation would better qualify the observations made here.

Conclusions

It seems clear that there is still much to learn about the evolution of past cultural systems and their technologies throughout prehistory in North America. Further

analyses of the Southern Hardin should be done across the Southeast in order to understand the scale of technological interconnectivity that is present. This project is currently underway, as the author has encouraged and facilitated interaction with artifact collectors through social media such as Facebook, where he has created a group titled "The Hardin Project." Just as this paper on the Southern Hardin in South Carolina would not have been possible without the aid of private collections, understanding technological interconnectivity across a large geographic scale (especially with regard to such a rare hafted biface type) is wholly benefitted by collaboration with collectors and through contacts within collector networks. This outreach effort has already begun to produce overwhelming results, and is an example of newly applied methods of data collection in archaeology. With large datasets of Hardin bifaces across the Eastern United States, an understanding of large scale cultural systems will be understood for one slice of time. Moreover, efforts are underway to evaluate other Early Archaic technological systems at this scale (White 2016a), and should also be initiated for other temporally distinct technological systems as well if we are to better understand cultural fluctuation and evolution throughout the Early Archaic.

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A Study of Ceramic Diversity in the Carolina Colony: Silver Bluff, Yaughan, Curriboo, and Middleburg Plantations

Brandy Joy

Abstract

In this study I use archaeological remains from Silver Bluff, a trading post and plantation located along the Savannah River, near present-day Aiken, to evidence a consumption pattern of socioeconomic variability in the 18th century Carolina Backcountry. To do this, I analyze the archaeological assemblage from the trading post and plantation. I then compare the material assemblage and consumption patterns from Silver Bluff to contemporaneous plantations in the Carolina Lowcountry. The comparison sites include Yaughan, Curriboo, and Middleburg plantations, each of which has been cataloged into the Digital Archaeological Archive of Comparative Slavery (DAACS) database. Although contrasting elements among these sites exist (as will be explained), these sites have been selected based on general functional and temporal similarity and the idea that artifacts can reveal the social and economic systems in which their possessors engaged. The assemblage from Silver Bluff shows statistically significant ceramic ware type diversity, indicating a richness of material culture not present at the other sites. This finding indicates that the inhabitants of the site had multiple modes of access and greater opportunity for choice than those of the comparative sites (likely a result of the site's trading post function.) I extrapolate this finding to suggest that the 18th century Carolina Backcountry was not socioeconomically "backward," but was socially and economically cosmopolitan.

Introduction

The Carolina Lowcountry is a culturally and geographically defined area centered around Charleston (the colonial capital) and bordering the Atlantic Ocean. The Carolina Backcountry, on the other hand, reaches westward from the Carolina Lowcountry into the piedmont (where it met "Indian Land") and comprised the western boundary of the Carolina Colony. For roughly a one hundred year span between the late 17th century and late 18th century, the Backcountry was a frontier and contact zone for colonists and Native Americans (Crass et al. 1999).

The Backcountry has sometimes been considered culturally and socially backward, lacking the material refinement found in the colonial center of Lowcountry Charleston, South Carolina (Crass et al. 1999). Too often, landed estates in the 18th century Carolina Backcountry have been portrayed as one pole in a dichotomy between refinement (associated with possession of imported luxury goods) and "simple," traditional, rural folkways (represented by locally produced goods) (Groover 1994, Beck 1998, Crass et al. 1999). I propose that instead of being socially backwards and economically unsophisticated, the Backcountry was socioeconomically cosmopolitan. This cosmopolitanism is evidenced through multi-vocal, fluid social identities, which are reflected in consumer choices as accessed through relations with multiscalar (regional and global) trade networks, as well as localized production.

This is a study of material culture, a concept best understood as tangible goods that evidence access (i.e. production and exchange networks) and express the choices of their possessor (Miller 1987). Material culture expresses interconnectedness and works on a variety of scales in a way that enables a single site's assemblage to become more meaningful as inter-site comparisons increase. For example, items such as expensive porcelain teawares and other imported European goods are evidence of participation in the Consumer Revolution (also known as the Georgian Revolution [Mullins 2011:139]), a movement, beginning sometime during the 17thcentury (Carson 2013, Hancock 1998) through at least 1800 (Hancock 1998), but likely into the 19th century (Berg 2004, Galle 2010, Miller 1987). In this movement manners, behavior, and materials were linked through status judgments (Berg 2004, Carson 2013, Crass et al. 1998, Lewis 1999, Mullins 2011). Conversely, coarse earthenwares and clay pipes likely produced by Native Americans and enslaved African Americans (Kelly et al. 2011:252, Ogundiran and Falola 2007, Orser 1990:116, Singleton 1990:74) are taken as evidence of the maintenance of folk traditions. While cultural traditions, be they local-folk or consumable imports, are maintained, so too do they overlap, inform, and influence one another (Feeley 2013, Hauser and Curet 2011, Ogundiran and Falola 2007).

In my study, I show that the Backcountry participated in localized production of ceramic goods (a means of expressing autonomy), regional exchange (thereby creating situationally constructed relations with both indigenous and other colonial groups), and global trade (primarily by way of England and possibly other colonies) through a consumption study. Archaeologically based studies of consumption are a means of determining the degree to which these traditions intersected and social

categories were defined. I argue that in the Carolina Backcountry, archaeological remains are evidence of multi-scalar material consumption and localized production within a colonial-era trans-Atlantic network. This network is inherently, socially, and economically cosmopolitan, incorporating mass consumption alongside local industry and broad ideology in dialogue with smaller-scale interrelations.

Data Sources

To demonstrate socioeconomic variability in the 18th century Carolina Backcountry, I analyze the archaeological assemblage from this 18thcentury frontier estate in the Savannah River Valley to identify patterns of material consumption. I then compare the material assemblage and consumption pattern from Silver Bluff to contemporaneous estates in the Carolina Lowcountry. The comparison sites include Yaughan I, Yaughan II, Curriboo, and Middleburg, all of which are included in the DAACS (The Digital Archaeological Archive of Comparative Slavery) database.

DAACS. DAACS is an ongoing collaborative web-based project conceived, built, and housed at Thomas Jefferson's Monticello in which archaeologists from an array of institutions contribute data for inter-site comparative use. It consists primarily of artifact and site data from locations in the Chesapeake, Carolinas, and Caribbean with the aim of advancing historical understandings and evolution of the slave-based colonial and antebellum Atlantic World (DAACS 2014).

Historical Context

England's colonial claim on Carolina was realized by the arrival of settlers in the 1660s and 1670s. By 1720, the southern Carolina border was defined by the Altamaha (St. George) River and the western border was demarcated by the Appalachian Mountains (Edelson 2013). As geographical borders were clarified, colonial interests centralized and the Carolina Frontier (also referred to as the Backcountry) was established.

Colonization was, at its heart, an effort to impose Empires' worldview and lifeways into "new" regions. Unsurprisingly, this imposition was resisted by Native inhabitants as well as settlers (who focused on adapting to local contexts rather than obliging the bureaucratic vision of England [LeMaster and Wood 2013], namely trade policies [Stern 2013]), particularly as they came to develop their own regional identities (Schnurmann 2005). As such, successful colonization required strong alliances with indigenous groups, many of which were forged through trade negotiations. These alliances would have provided a means of maintaining diplomatic relations (thereby decreasing the possibility of attack), as well as granted a means of supplying the goods necessary for sustaining a livelihood (and, through this, a degree of autonomy and independence from England) for Indian Traders.

Indian Traders living in the Backcountry also maintained relationships with European and Euro-American merchants, many of whom were based in Charleston. These merchants moved the goods received from the Backcountry (and elsewhere in the colony) into the trans-Atlantic market. Thus, mercantilism spread into the Backcountry through official Indian Traders whose primary goal was to establish and maintain diplomatic and profitable relations through trade with indigenous peoples. Still, these everyday practices of interacting with merchants who were part of the bureaucratic schema did not necessarily reflect the colonist's desire to further the imperial cause. Outside the realm of practical, everyday experience and interpersonal relations, groups were unhappy with the way in which the mercantilist mentality idealized market monopolization and were resisting it by forging their own trading relationships (Stern 2013).

England's goal of economic monopolization was based on a traditional model of plantation agricultural production that emphasized maximizing direct profit while minimizing import reliance (Stern 2013). Unfortunately for the Empire, plantation agriculture did not initially flourish in Carolina the way it had in the Caribbean and the primary sources of revenue were the indigenous slave trade (Coclanis 2005, Gallay 2002, Nyman 2011, Ramsey 2002) and, later, the deerskin trade, which required participatoin from indigenous groups (Barker 2001, Stern 2013). Yet, over time, as Native peoples continually suffered the brunt of disease, conflict, enslavement, and general social and economic depression, the power balance shifted and divisions between colonists and indigenous groups became ever clearer (Feeley 2013, Hewitt 2001, LeMaster and Wood 2013, Ramsey 2001, Stern 2013). Initial reliance on indigenous groups dwindled and Charleston (the colonial power center), along with outside agents connected to Charleston (such as neighboring colonies), were more heavily relied upon by the colony to sustain itself and defend against its enemies (Hewitt 2001, Jennings 2013, LeMaster and Wood 2013, Stern 2013).

The government increasingly controlled the flow of wealth by lending money to planters and withholding it from the general public in order to earn interest and stabilize value through property mortgages. Land became the colony's economic grounding, and plantation expansion, with its requisite enslaved labor force, flourished (Hardy 2001, Hewitt 2001, Nash 2005). As a result, Carolina's economy shifted from trading based to plantation based.

Silver Bluff Trading Post and Plantation and Comparison Sites' Background

Each of my study sites (Silver Bluff, Curriboo, Yaughan I and II, and Middleburg plantations) was established as an economic endeavor, but also comprised its own community with its own character. Even so, none was isolated. Instead, they were connected to one another through social and economic networks. As such, comparison studies provide a means of analyzing similarities and differences among

sites to get at the broader experience of colonial life.

Silver Bluff (circa 1740-1780). The Silver Bluff site is located in Aiken County, South Carolina, on the Savannah River, near present-day Augusta, Georgia. Much of it is currently a National Audubon Society Sanctuary. The site contains a prehistoric element; however, in this study I focus on the colonial period trading post and plantation (Groover and Forehand 1999, Forehand et al. 2004).

George Galphin established Silver Bluff Plantation and Trading Post circa 1740 after he migrated to the Carolina Colony from Northern Ireland in 1737 (Crass et al. 1999, Forehand et al. 2004). Galphin was an Indian Trader, which made Silver Bluff a place of great importance for indigenous traders as well as colonists (Family papers of George Galphin [fl. 1773] MS[T] vol. bd., c. 1925, Columbiana Library, University of South Carolina, excerpt from Jones and Dutcher 1890, Groover 1994, Hamer 1982, Sheftall 1983). Galphin's relationships with governmental, settler, and indigenous groups, along with the geographic proximity to the river and the ease of transport associated with it, enabled his trading post at Silver Bluff to flourish. This success eventually enabled him to establish his plantation where he used enslaved labor to produce corn, indigo, and tobacco (Forehand et al. 2004).

Yaughan I (1740s-1790s). The Yaughan I site is the earlier of two plantation sites called Yaughan established by Thomas and Isaac Cordes in the 18th century. Although the two Yaughan sites are on the same land, they were separate occupations and were differentiated from one another at the time of excavation by unique site numbers; Yaughan I is site number 38BK76, and Yaughan II is site number 38BK75. I have chosen to refer to them as Yaughan I and II rather than by their site numbers.

Yaughan I was a rice and indigo plantation located just three-quarters of a mile from Curriboo in Berkeley County, South Carolina (Wheaton and Garrow 1985). The plantation was owned by Isaac Cordes and remained in his family until 1836. In addition to a main house, the plantation's structures included an overseer's house and a number of quarters for enslaved individuals, as well as several outbuildings (Wheaton and Garrow 1985).

The archaeological investigations at Yaughan were conducted in response to a federally funded canal project, which did not include the main house as it lay outside the project perimeter. Two slave quarters were investigated, however, along with related sheds/storage structures. The two separate slave quarters are the basis of the split between the Yaughan occupations, which were given unique site numbers (Wheaton and Garrow 1985), and it is this area from which my data derive. This separation has been maintained in my thesis through the labels Yaughan I and Yaughan II.

Yaughan II (1780s-1820s). The later Yaughan slave occupation, Yaughan II, overlaps the earlier occupation by about a decade, beginning in the 1780s when the plantation's enslaved population was increased (to about eighty persons) and a second occupation area was required for housing. Within a decade, however, the population was halved, and the original quarters were abandoned in favor of the newer construction. This later occupation site was inhabited into the 1820s (Wheaton and Garrow 1985).

Curriboo (1740-1800). Curriboo is located between Lake Moultrie and the Santee River near the town of St. Stephens, Berkeley County, South Carolina, a mere three-quarters of a mile from Yaughan. As with Yaughan, Isaac and Thomas Cordes established Curriboo as an indigo and rice plantation circa 1740. The two plantations are often spoken of as a unit because of their proximity, identical crops (rice and indigo), and familial ties. Thomas Cordes gained full ownership shortly after founding the plantation with his brother Isaac. As with Yaughan, the main house at Curriboo was not investigated archaeologically and work focused primarily on the slave quarters. Unlike Yaughan, however, Curriboo had only one slave quarter site, which was occupied from the 1740s until about 1800 (Wheaton and Garrow 1985).

The slave quarters at Curriboo were much larger than those at Yaughan. In addition to these structures, archaeologists uncovered a brick kiln and a brick pier structure (interpreted as a plantation office overlying an earlier naval store warehouse). Their findings suggest that Curriboo was a more affluent property than was Yaughan (Wheaton and Garrow 1985).

Both Yaughan and Curriboo remained in the family until the mid nineteenth century; however, they only operated as plantations until the early nineteenth century (Wheaton and Garrow 1985). At each plantation (but especially at Yaughan I), the enslaved population remained relatively stable, with few periods of additions from slaves acquired from outside the Cordes family. These inherited slaves are said to have been Afro-American and "insulated from whites," such that they maintained a material culture distinct from Euro-Americans. In fact, there is evidence that colonoware (a low-fired coarse earthenware that was produced in the colonial Americas primarily by enslaved peoples, most notably the Chesapeake and Carolinas [Cobb and Depratter 2012, Groover 1994, Ogundiran and Falola 2007, Singleton 1990, Weik 2007] was produced on-site at these two plantations (Wheaton and Garrow 1985).

Middleburg Village (1690s-1889). Middleburg Plantation is located about 25 miles north of Charleston, in the heart of the Lowcountry. Like the other Lowcountry sites (Yaughan and Curriboo), Middleburg grew rice; however, its documented crops also include oats, peas, and corn. It is one of the oldest plantations on the East branch of the Cooper River in the South Carolina Lowcountry, an area noted for the density of its vast rice fields owned by a closely-knit group of families and the individuals whom they enslaved. Middleburg is also the longest-lived of the five comparison sites.

The site contains 12 cabins, in addition to the plantation house, storehouses, dependencies, and domestic and industrial related accouterment. The big house at Middleburg was constructed in 1699 and remains

standing and privately owned today. Incidentally, it is the oldest wooden plantation house in South Carolina (SCIWAY 2016). Other structures present at the time of excavation include a kitchen, two barns, a smoke stack, and servants' quarters, along with a formal garden and avenue of planted oaks dating to the first third of the 18th century as well as rice fields. The earlier 18th century slave quarters were only located after numerous attempts based on a combination of oral histories, conjecture, and shovel testing; soon thereafter, a map was found confirming the site (Ferguson 1992). Slave quarters dating prior to the eighteenth century remain to be discovered (Ferguson 1992).

Leland Ferguson's 1986 excavations at Middleburg were part of a survey project that sought to learn about early slave communities on the East Branch of the Cooper River (Ferguson 1992). Three areas were investigated. Assemblages from each of the three areas were cataloged into DAACS, and all are used in my analyses.

The five sites in my study have unique archaeological assemblages, much of which is reflected in my analyses. Yaughan I, Yaughan II, and Curriboo include primarily the material residues of enslaved individuals, whereas Middleburg's assemblage includes a broader array of items from various areas of the plantation. In contrast, Silver Bluff's assemblage does not come from habitations for the enslaved. These habitation differences certainly have an effect on the materials in the collections because enslaved people had diminished access to goods, and personal choice is not reflected within selection of imported luxury wares. The power of choice and ability to gain access to the luxury objects of preference is most evident in the Silver Bluff assemblage. The great diversity within that assemblage may be attributed to the many social and economic roles of the site's founder, George Galphin.

Archaeological Methodology

My analyses are centered on the materials from Silver Bluff excavated during the 1999 field season. Statistical analyses conducted on the assemblages include seriation based on both mean ceramic dating (a way of determining a provenience's age based on the average age of its ceramics) and pipe stem bore diameter chronology, and correspondence analysis. I also used abundance indices in comparing ceramic assemblages from Silver Bluff and four South Carolina Lowcountry sites in order to evaluate my hypothesis that Silver Bluff's diverse material assemblages suggest that the 18th century was a time of Backcountry socioeconomic cosmopolitanism.

Field Excavations at Silver Bluff

The Silver Bluff site was first investigated between November 1979 and March 1980 by the South Carolina Institute of Archaeology and Anthropology (SCIAA), the University of South Carolina, Aiken, and the Augusta Archaeological Society. This examination consisted of a systematic ground surface collection survey (Scurry et al. 1980:2). A second investigation, conducted in 1996 by the Savannah River Archaeological ResearchProgram (SRARP), University of South Carolina, included a series of test pits and the implementation of ground penetrating radar.

Another excavation occurred in May and June of 1999 by the SRARP in conjunction with Augusta State University and the National Audubon Society's Silver Bluff Plantation Sanctuary. The three institutions came together to sponsor an archaeological field school for the excavation (Forehand et al. 2004:58). This endeavor is the source of the information contained within the DAACS database, although further efforts to gather information about the site occurred in 2003 in the form of various remote sensing attempts, as well as a cooperative effort summer camp sponsored by the SRARP and the Continuing Education Program at the University of South Carolina, Aiken (Forehand et al. 2004:69). A map of the excavations created by DAACS based on SRARP field notes is provided in Figure 1.

Laboratory Methodology

The laboratory methods I utilized were based on those established by DAACS. DAACS has detailed manuals for cataloging each artifact type group: ceramic, glass vessel, faunal, tobacco pipe, button, buckle, bead, and all other artifacts (all of DAACS manuals are available at http://www.daacs.org/about-the-database/daacs-cataloging-manual/).

All measurements are taken using calipers (set to the hundredth millimeter), a standardized DAACS laminated desk mat with minimum sherd size circles in millimeters, diameter projections in millimeters, electronic scales (weighing to hundredths of grams), a 10x magnification loupe or microscope (for inclusions), a flexible (metric) tape, and other prescribed systems as outlined in DAACS manuals and taught during training.

Statistical Analysis

The first part of my quantitative analysis was producing a two-part seriation-based chronology for the information I had cataloged into the database. Seriation is the process of putting items in a series or order based on their intrinsic properties, the most interesting of which for archaeological study is chronology (Shennan 1997:341). My seriation study was based on Mean Ceramic Dates (MCD) and pipe stem bore chronology among the Silver Bluff sites contexts.

The initial step in developing site seriation was the creation of a Harris Matrix. A Harris Matrix summarizes stratigraphic relationships among excavated contexts and groups of contexts (DAACS 2015d). To create the Harris Matrix, I identified stratigraphic groups (defined as groups of contexts that field records indicate were part of a single stratigraphic layer, lithostratigraphic unit, or deposit (personal communication Leslie

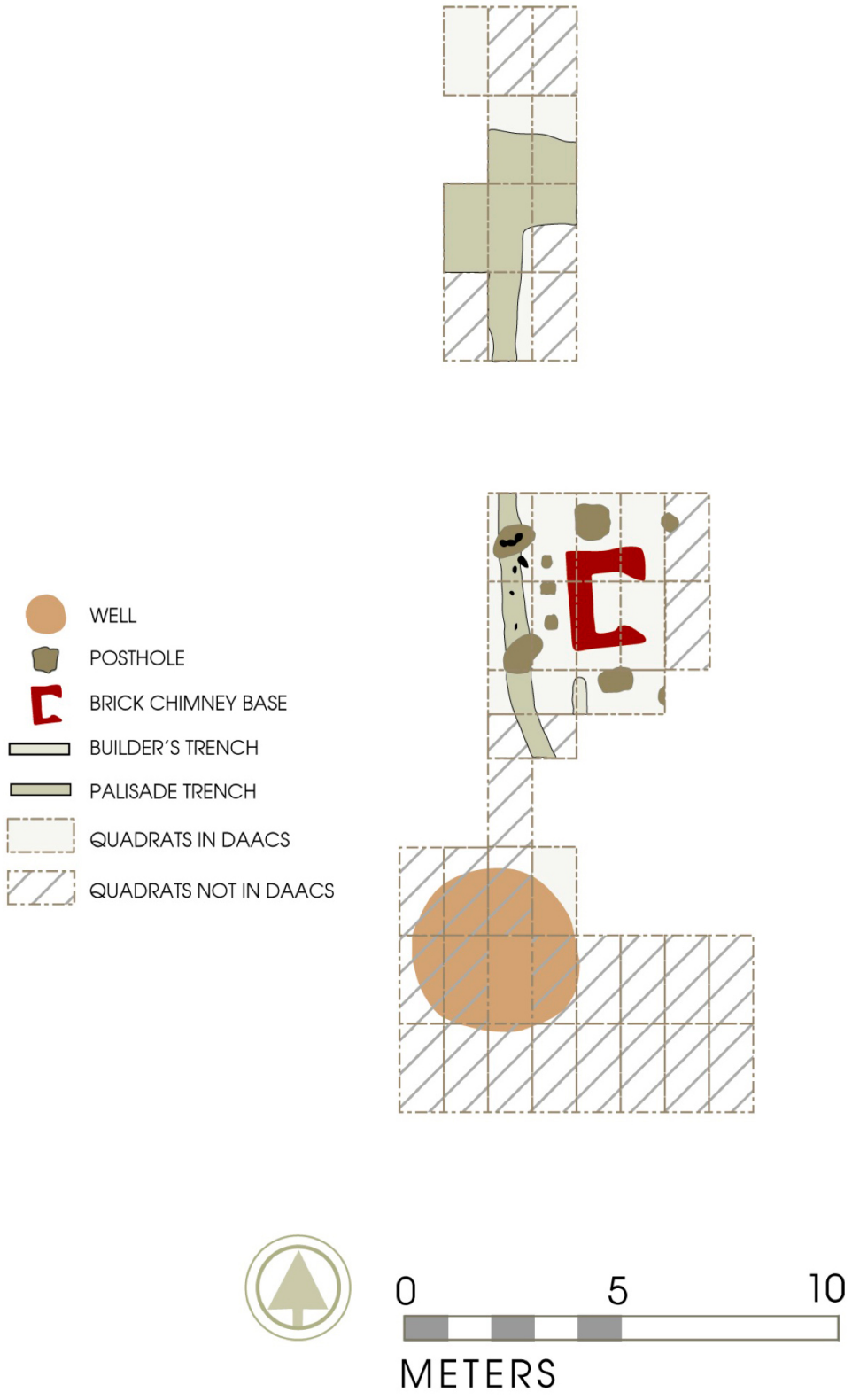

Figure 1. Silver Bluff Excavation Blocks, Units, and Features.

Table 1. Silver Bluff Stratigraphic Groups MCDs

Project Name	DAACS Stratigraphic Group	MCD	Blue MCD	Total Count
Silver Bluff		1732	1758	273
Silver Bluff	SG01	1726	1749	142
Silver Bluff	SG02	1730	1749	123
Silver Bluff	SG03	1730	1760	25
Silver Bluff	SG04	1730	1758	69
Silver Bluff	SG05	1729	1761	144
Silver Bluff	SG06	1732	1759	289
Silver Bluff	SG07	1719	1747	27
Silver Bluff	SG08	1735	1762	109
Silver Bluff	SG09	1736	1762	202
Silver Bluff	SG10	1728	1755	43

Cooper 2015) and assigned them to Stratigraphic Groups (SGs) in the database (however, not all contexts have Stratigraphic Group assignments because they are not stratigraphically or depositionally related to other contexts). These steps were lengthy and as such will not be detailed in this article. I also conducted a second, independent seriation study of pipe stem diameters, which is also not discussed in depth here. Interested parties are referred to my thesis (Joy 2016).

MCD. The first part of my seriation of Silver Bluff's archaeological contexts was MCD. MCD is a weighted average (type frequency) of the manufacturing date midpoints for historical ceramic types within an assemblage (DAACS 2015c). More sherds of a given type have greater influence in the average as compared to fewer sherds, which are weighed less heavily. Manufacturing midpoint estimates are computed from ware types manufacturing beginning and ending dates taken from ceramics industry documentary evidence (DAACS 2015c).

Pipe Stem Bores. I then conducted an independent seriation effort based on Silver Bluff's pipe stem bore chronology. This study is included in my thesis (Joy 2016), but is not discussed here due to space constraints. Suffice it to say that the study identified one temporal period for Silver Bluff's contexts included in my broader study.

Correspondence Analysis. Once I completed the seriation of Silver Bluff, I ran correspondence analysis, a type of multivariate statistics that attempts to understand the nature of the link between the archaeological record and interpretations in terms of human culture and history (Madsen 1988:7). Correspondence analysis uses deductive, descriptive statistics to graphically and arithmetically describe individual variables to multivariate data analyses (Madsen 1988:9). In other words, it provides a means of interpreting counts of types (abundance) and presence/absence (incidence) and removes the effects of differential assemblage size (Shennan 1997:308). Each find is considered a stand-alone event with its own meaning rather than a part of a whole, and every individual variable as well as the relationships among and between them are analyzed.

Results and Analysis

Using the results of the seriation I found based on pipe stem bore chronology (detailed elsewhere [Joy 2016]), which identified only one temporal period at Silver Bluff Trading Post and Plantation, I took the ceramic assemblage from the site as a single unit and compared it with the ceramic assemblages from the four other South Carolina plantation sites in DAACS using abundance indices.

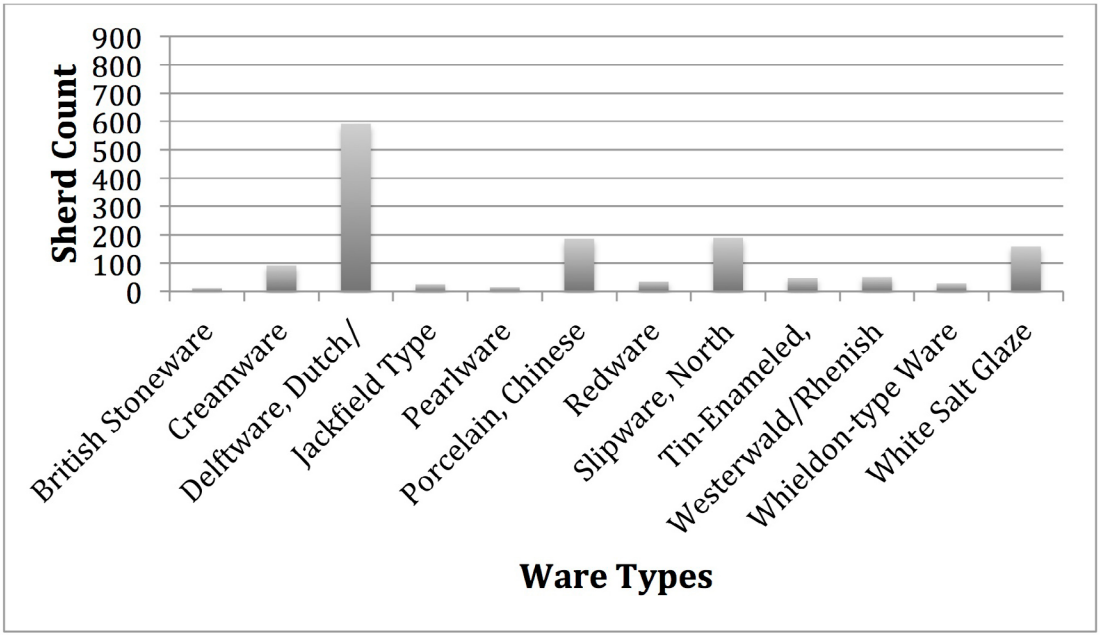

Figure 2. Ware types and sherd counts from Silver Bluff used to calculate MCD.

Comparison and Abundance Indices

Unlike relative frequencies, which measure discard rates based on the assumption that the discard rate of the numerator artifact class is independent of the discard rates for all of the artifact classes, which make up the denominator (the total sample), abundance indices utilize a single artifact class for the denominator value. A useful denominator class (wine bottle glass, in this case) need remain relatively constant across sites or vary predictably over time in order to provide a high correlation (defined by Galle [2010] as a vector angle greater than 90 degrees within the context of principal component analysis, a method not used here) between abundance index and discard rates (Galle 2004, 2010). This baseline rate is presumed to be stable or to change in a predictable way.

I was unable to identify a cross-site stable category for my comparative sites because I have no documentation on how any particular artifact class came to be present on any of the five comparison sites. Rather, I assume that both ceramics and wine bottles would have been regularly provisioned to enslaved peoples (or acquired, in the case of Silver Bluff.) (Although it is possible that provisioned rations may have been supplemented through alternative modes of access.) While slave habitations and slave villages might be expected to have fewer wine glass bottles than other habitation and structure types (and, hence, fewer sherds in their archaeological assemblages), the same may also be said of other artifact groups, including ceramics. Hence, I presume both ceramics and glass are consistently acquired on each site through time producing a correlation between their discard rates within sites; however, these discard rates vary among sites. It is this intra-site variation in discard that I use abundance indices to measure. Based on work by Galle (2006), I calculated the indices using wine bottle glass as a baseline measure for the 18th century. Abundance indices were calculated using the following formula: (waretype/(waretype + wine bottle glass sherd count).

Once calculated, the indices were then plotted against time, in this case MCD. Although the site-wide MCDs for the five sites vary from 1731 (or Blue MCD:1758) to 1786, and sample sizes vary from 34 to 1,629, the use of abundance indices in estimating rates of discard make these variations irrelevant (due to the intrasite independence created by the use of site specific calculations). I supposed that discard rates would likely be affected by historical events such as the Consumer Revolution (such that later sites would have higher rates of discard related to their possession of more objects in general due to the decrease in cost associated with mass production), as well as site functionality and inhabitant choice.

Finally, I created plots for each ware type and compared them among sites. I charted the ware types for each site, but removed types with fewer than 10 sherds in order to make the charts comprehensible. Notice the disparity in sample size (Figure 2, 3, 4, 5, and 6) requiring three different scales to enable visual comparison. Also, note that only two ware types are present at all sites: Creamware and North Midlands/Staffordshire Slipware. (Although Pearlware is also present at each site, the number of sherds in the Silver Bluff assemblage is below the 10 sherd minimum count requirement I established for my analyses.) My explanation for the prevalence of Creamware and North Midlands/Staffordshire Slipware is the popularity (related to relative low cost and high prevalence) of these types within the time period under study.

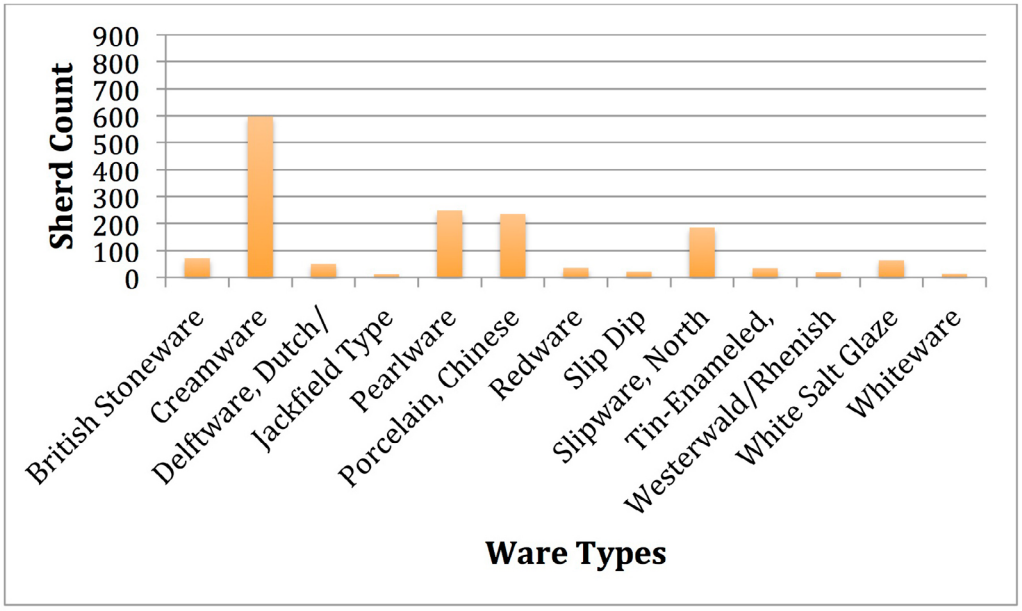

Figure 3. Ware types and sherd counts from Yaughan I used to calculate MCD.

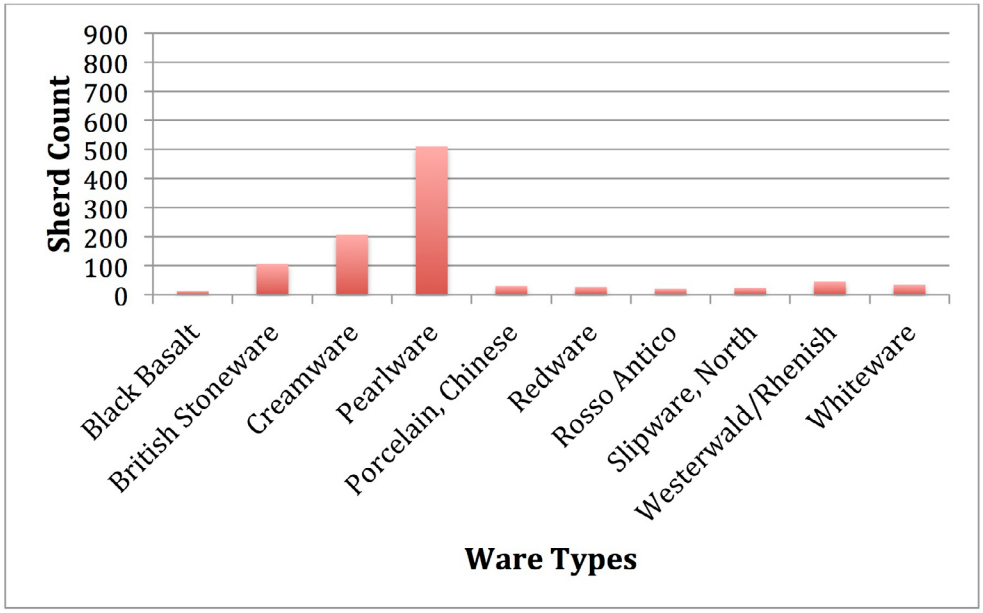

Figure 4. Ware types and sherd counts from Yaughan II used to calculate MCD.

The large number of ware types at each site, and the diversity among them, produced an unwieldy number of abundance indices across sites. Thus, I selected only those ware types from each site with an abundance index greater than .1 to chart in Figure 7. This figure shows those wares with the highest rate of discard from each site.

Discussion of MCD Wares

The ware types that are included in MCD are primarily of European manufacture. Each site contained these types of wares; however, the particular types of wares varied through time, as well as site-specific utility. Silver Bluff stands out by being the only site with the highest discard of porcelain, Staffordshire slipware, and white salt glazed stoneware, indicating prevalence of tea and tablewares at a level of ware type diversity not seen in the other sites. This, alongside the presence of the local and regional ware types, indicates diversified consumption at Silver Bluff that is unique among the South Carolina plantation sites in this study.

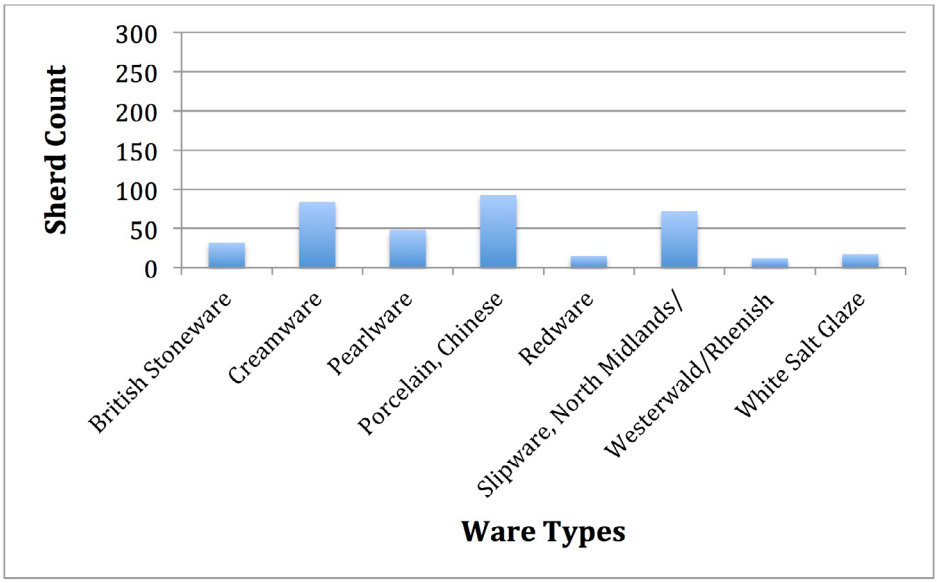

Figure 5. Ware types and sherd counts from Silver Bluff used to calculate MCD.

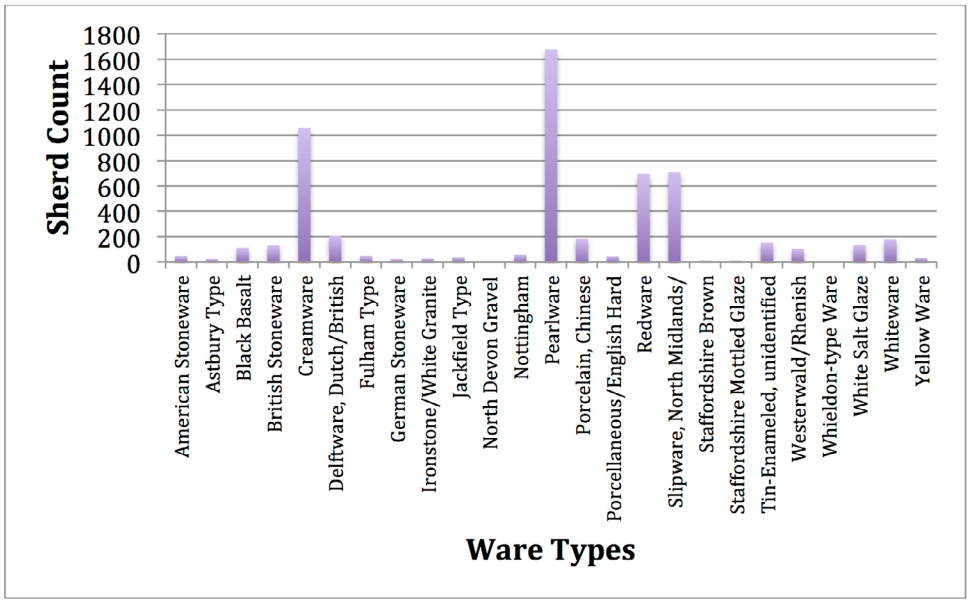

Figure 6. Ware types and sherd counts from Middleburg used to calculate MCD.

The inhabitants of Silver Bluff engaged in local production of ceramic ware as expressed by the presence of colonoware, regional exchange as suggested by the presence of unidentified coarse earthenwares (likely of regional and or trans-Atlantic production, although possibly of local production), and long-distance trade as reflected in imported wares of European and Chinese manufacture. Further, the variety of ware types suggests teawares, tablewares, and utilitarian wares were used in daily Backcountry life. This diversity in consumed ceramic wares suggests that Backcountry inhabitants had access to a range of goods and, thus, the opportunity for making choices, both economic and social.

Discussion of Wares not Included in MCD

There are wares that were present at each site, but could not be included in abundance indices because they are not included in MCD calculations. These wares are not mass-produced and/or imported en masse as the European wares are. As such, they do not appear in contexts of conspicuous consumption, which reflect the desire to appear refined. Rather, they are part of the local

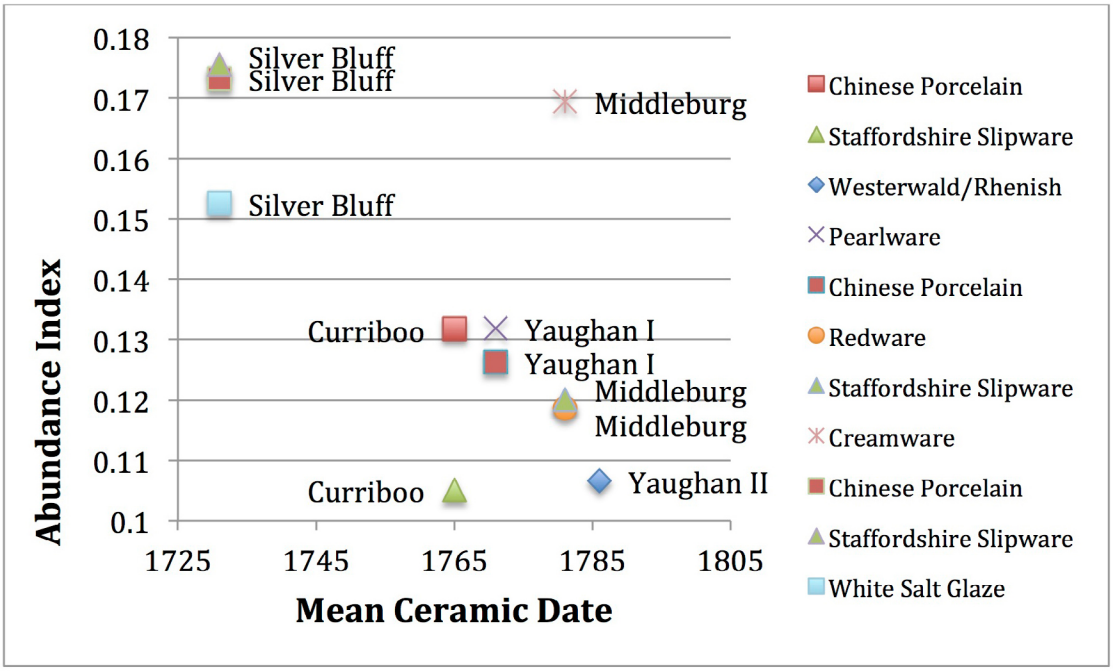

Figure 7. Scatter plot of each sites abundance indices for ware types (greater than .1) and each sites' MCD.

production and/or regional trade networks that align with ideas of subsistence and production-based autonomy. Two wares not included in MCD that are notable at each of the five comparison sites in my study are colonoware and "unidentified" coarse earthenware.

Colonoware. One of the wares present on each of the five sites that is not used in determining MCD is colonoware (DAACS 2015d). There was great variation in sherd numbers across sites (colonoware comprises the following rounded percentages of each assemblage: Yaughan I, 90%; Yaughan II, 63%; Curriboo, 89%; Middleburg, 73% and Silver Bluff, 31%) surely reflecting functional and/or choice-related differences in consumption, again indicating the disparities among the five sites.

Enslaved people typically relied upon colonoware for their own dining needs although it may also have been used to serve the big house (Ferguson 1992). The small amount of colonoware compared to other ware types at Silver Bluff relative to the other sites may be related to the assemblage's lack of slave habitation component. It is likely that Silver Bluff did have habitations for the enslaved; however, these have not been investigated. The difference in site types is quite clear when colonoware prevalence is taken into account; but this difference that was identified early in the study and assemblage differences related to that disparity come as no surprise.

In addition, because they lived on a trading post/plantation site, Silver Bluff's residents would likely have had greater access to imported wares than would the residents of Yaughan, Curriboo, and Middleburg. Hence, they would have had less cause to make or acquire colonoware than would residents of the other sites. Moreover, there is evidence that colonoware was produced at Yaughan and Curriboo (Wheaton and Garrow 1985), while no such evidence has been found for Silver Bluff. This fact alone could account for the disparity in ware type ratios. Still, the constancy of colonoware across sites reflects the inclusion of local production in both Backcountry and Lowcountry life.

Unidentified Coarse Earthenwares. Another ware type found on each site is what the DAACS system refers to as "unidentified" coarse earthenware. These wares do not have tightly defined dates of manufacture; therefore, they are not included in MCD and, hence, were not included in abundance indices. Importantly, these wares can be of local, regional, or trans-Atlantic (primarily English) production (Adams 2000:30-32, Bloch 2015, Elliott and Elliott 1991). Thus, at present this ware type cannot tell us much about production and exchange at Silver Bluff (or in the Carolina colony) aside from the fact that it is complex.

For example, it is documented that pottery was produced in Bethany located near New Ebenezer and the mouth of the Savannah River in the 1760s (Adams 2000). A potter named Andrew Duche supplied New Ebenezer with earthenwares in the 1730s, and wares that may be attributed to him have been found in Saxe Gotha near present-day Columbia, South Carolina (Adams 2000). While John Landrum's renowned Edgefield pottery was not established until 1810 (believed to be the first stoneware pottery in the district) (Castille et al. 1988), it is not outside the realm of possibility that a Backcountry earthenware potter existed in the prior century.

Chemical analyses may be able to better identify the clay sources for these wares and from that we could

extrapolate their place of manufacture and, perhaps, trace their journeys to the site. At present, however, I am satisfied with the idea that these could be of local, although no kilns have been found on the site to date and I know of none in the region during the relevant time period, regional, and long-distance production, suggesting, again, that exchange occurred in both the Backcountry and Lowcountry, as well as throughout the colonies and across the Atlantic. Because of this production identification quagmire, unidentified coarse earthenwares are not included in MCD.

Limitations

My study contains a number of limitations. These include statistical considerations and dramatic variations in site inhabitance.

Statistical. Any statistical interpretation, including multivariate statistics, relies heavily on the descriptions of the archaeological record provided by the archaeologist. In some cases, it may be that the data are contemporaneous and that seriation does not, in fact, exist. It is also possible that failure to obtain seriation may be the fault of the archaeologist, not the archaeological record or the statistical methodology (Madsen 1988:25). Two methods of ensuring a study's soundness are replicability and independent lines of study, each of which is proven in my study.

Further, although time is vital to the concept of typologies and human behavioral changes, it is not a given as one of the dimensions provided by correspondence analysis; time sequence seriations must be proven. Silver Bluff's ceramic assemblage does not have a proven time sequence seriation. (No lines may be fit to a "V" or "U" shaped scatter that would be evidenced by a temporal dimension.)

To counteract the non-linearity of the ceramic seriation's point cloud, I seriated Silver Bluff's pipe bore stem diameters (discussed in Joy 2016). This analysis suggested that the only chronological seriation is between the site's plowzone and non-plowzone levels. This interpretation ignores any potential errors with Binford's improvements upon Harrington's pipe bore diameter chronology, Neiman's R coding, and my applications of these.

In addition, correspondence analysis presumes a strict sequence of deposition to which real life does not adhere. In settlement occupation phases in particular, there may be time lags among settlements (Shennan 1997:342). This would certainly have been the case among my study sites; however, as I did not run correspondence analysis for intersite comparisons, the only applicable limitation of this type for my study is within Silver Bluff itself. As noted, there is no apparent chronological seriation within the site, and a single occupational phase is suggested. Yet, even this situation encompasses time lags as depositions occur in fits and starts over a period of time rather than steadily through time. Both physical and temporal distances provide these depositional stream gaps, which correspondence analysis ignores. Regarding the intersite comparison based on abundance indices, the possible limitations include presuming that constant change over time in South Carolina's wine bottle glass acts as an appropriate and reliable base line for ceramic change through time.

Variance in Site Habitation. I must also mention contrasting elements among the comparison sites. The primary difference is in the sites' habitation types. At Silver Bluff, most of the comparative assemblage comes from an architectural feature and a palisade suggested to be related to the first of two main houses on the site (Groover and Forehand 1999, Forehand et al. 2004). At Yaughan I and II, Curriboo, and Middleburg the assemblages are more closely related to habitations of the enslaved. Still, these sites have been selected based on functional and temporal similarity and the idea that the master-slave relations that were part of the lived experience at each can be seen in their material assemblages.

In addition, each site contains several outbuildings, which affect the overall assemblages bringing them closer to what has been analyzed for Silver Bluff. Moreover, the provenance of the architectural feature at Silver Bluff is uncertain due to factors such as proximity of the palisade to the feature (Fraser Neiman, personal communication); as the methodology and analysis chapters show, Silver Bluff contains little in the way of chronological seriation and, as such, is considered on a site-wide basis rather than on a particular structure. As such, each of the other sites is also considered as a whole unit, rather than as particular structures.

For this article, the selected sites are compared by only their ceramic assemblages as defined by the DAACS system, although other artifact groups evidence consumer choices and reveal information about actions. My analyses include using MCDs to establish an intrasite chronology for Silver Bluff and abundance indices in order to address possible intersite disparities in sample size and temporality.

Conclusions

The five-site comparison I make in this thesis is imperfect because of the way in which the DAACS South Carolina plantation sites (excluding Silver Bluff) are skewed towards slave habitations. (An unskewed study of Silver Bluff's material diversity was presented by Charles Cobb, Tammy Forehand Herron, and me at the 2015 Society for Historical Archaeology conference. It too showed high ceramic diversity at Silver Bluff as compared to a more functionally and geographically similar set of comparison sites. We believed this unique quality can be attributed to the trading post functions of the locality. Goods available for the purpose of trade provide a possible explanation for diversity that is not found at non-trading post sites. The high number of ware types at the site could also indicate that Galphin's rise in status and multitude of social connections allowed him to acquire a greater variety of goods than other planters.)

Both of these findings may be extrapolated to the intra-DAACS comparison that is the primary focus of this study. Analyses suggest that Silver Bluff's residents had more access than those at Yaughan, Curriboo, and Middleburg, which is likely due to their status as either primarily free (for Silver Bluff) or primarily enslaved (for Yaughan and Curriboo). Middleburg, seemingly, lies somewhere in the middle, which makes sense based on the site's mixed structural component (including both slave habitations and the main house, etc.) Accordingly, Silver Bluff had greater ware type diversity than Middleburg. These conclusions are drawn from the information provided in Figures 2-7 and are thoroughly discussed in Joy (2016).

Thus, Silver Bluff's role as an economic and social crossroads had a major impact on consumption patterns at the site. Although it seems certain that the reasons for Silver Bluff's relative outstanding diversity include site functionality (Silver Bluff's assemblage is from a trading post and plantation, rather than a slave-habitation-centered site), it is also clear that Silver Bluff's inhabitants engaged in a variety of activities, including those associated with subsistence as well as those characterized as refined. The goods associated with these activities (such as conspicuous consumption of imported luxury ceramics in big house dining scenarios, as well as more utilitarian ware, of local or regional production used in more private contexts) could be obtained at the trading post, making it pivotal to at least a portion of the Backcountry's cosmopolitanism.

The inverse lack of goods on the comparison sites does not indicate incivility or lack of social mores, however. Rather, it is related to both diminished access and the ability and/or desire to participate in social displays. In other words, neither the colonial South Carolina Backcountry nor the Lowcountry was lacking in "civility." Silver Bluff simply had more avenues of access and the power to participate in more diverse trade and social mores, such that its inhabitants possessed the many facets that comprise cosmopolitanism.

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Exploration of Possible Form-Function Relationships in an Artifact Recovered from Upper Lake Marion, Clarendon County, South Carolina

Robert C. Costello and Kenneth E. Steffy

The principal subject of this study is an artifact recovered from the dry bed of Lake Marion on 27 January 2008 (Figure 1); a GPS location was recorded at that time. The primary motivation for the examination of this artifact was provided by the observation of one barbed shoulder bearing a striking resemblance to a miniature projectile point. Discussions followed leading to the detailed evaluation described herein; therefore, the emphasis of this study is placed upon the artifact's functionality and not its typology.

Figure 1. The subject *in situ* just prior to its recovery on 27 January 2008.

The artifact is made of high quality Allendale/Brier Creek Chert. Metric data are provided in Table 1. Qualitatively, it has a broad blade with the maximum width occurring at the shoulders; it is slightly asymmetric and has a squared based with a converging stem and barbed shouldered. For the purposes of this study, the obverse side is the left view in the composite photo (Figure 2). The obverse view is also the one shown in King (2016), Plate 8.

Is this artifact in fact a projectile point? Form follows function, and the subject has several features inconsistent with effective utilization as a projectile point. The overall shape with its wide, barbed shoulders and slight asymmetry, does not favor a primary function of use as a penetrating projectile point. Unequal retouch along both blade edges is also a characteristic more indicative of knives than of projectile points (Hothem, 2000). Additionally, the presence of sharpened barbs is essentially counter-productive to utilization of the artifact as a projectile point.

Structural differences between the two shoulders led to a closer examination and exploration of their possible functional significance. Figure 3 presents a composite view of the basal portion of the examined artifact showing its obverse on the left and its reverse on the right. The obverse's top shoulder barb has been sharpened into a shape possibly suitable for penetration; however, it exhibits minimal use wear. The obverse's bottom shoulder barb is hooked, and reveals polish consistent with utilization. Use would have been in a drawing motion, from proximal towards the artifact's distal end.

One suggested function for these barbs involves the process of field dressing freshly killed game, specifically larger types. This process involves removal of the entire gastrointestinal tract and its contents in order to prevent possible contamination of the edible meat. Detailed descriptions and videos of the field dressing process can be found online. Figure 4 shows the blade of a modern "gutting" knife with its prominent gut hook. It is postulated that the artifact's bottom barb (Figure 3) is ideally designed and positioned to function as a gut hook. A small penetrating opening is initiated between the hind legs into the lower abdominal cavity using the point-like top barb (Figure 3), or possibly the point's sharp distal tip. The gut hook is then rotated 180 degrees from its normal use position and inserted into the opening. Once engaged, the gut hook is then drawn along the centerline of the animal opening the abdominal cavity from the anus to the lower jaw. Coupled

Figure 2. Composite photo, obverse side on left, reverse side on right.

with the blade's curvature, the dull hook tip significantly reduces the possibility of unintentionally puncturing any portion of the gastrointestinal tract. Manually lifting the skin preceding the hooked barb also aids in preventing any unintentional gastrointestinal punctures and its cutting by the proximal edge of the barb. This tool alone is unsuitable for splitting the sternum, and accidental impacts with the sternum may account for the broken barbs frequently observed on similar tools. When lacking the proper tool to split the sternum, the esophagus can be removed by rotating the blade back to its normal cutting position and then reaching beneath the sternum as far as possible into the neck and cutting it free. Likewise, the anus must be tied off, cut around, and retracted back into the abdominal cavity for removal. Once this is accomplished, the entire gastrointestinal tract is ready for removal.

One can envision other functional explanations of differentially modified shoulder barbs; however, it is felt that the preceding analysis clearly establishes that the artifact under study is not a projectile point. Structurally and functionally it is primarily a knife, and the artifact is best classified as a multifunctional knife due to the evidence for functionality of modified barbs, in addition to the cutting edges of the blade.

The preceding analysis, though limited to a single artifact, could be extended to similar artifacts from all eras since the need for prompt butchering of kills during hunting expeditions has been a relative constant throughout prehistory. Figure 5 presents additional artifacts that may exhibit similar functional modifications and merit future studies.

The subject of this paper was recovered from an unstratified context, and therefore is devoid of cultural association. Had this artifact been recovered in another state, it could quite possibly be classified as a Pickwick or Ledbetter type (Justice 1987). It also bears some similarity to the Morrow Mountain Straight Base type (Overstreet 2015).

Table 1. Metric data.

attribute	mass (g)	length (mm)	width (mm)	thickness (mm)
value	46.25	96.44	53.78	10.76

It is hoped that this study might encourage a fresh perspective on such artifacts, their careful examination, and experimentation directed at testing some of the postulates presented herein. Such experiments might include microscopic wear analyses of barbed shoulders on points and blood residue analyses.

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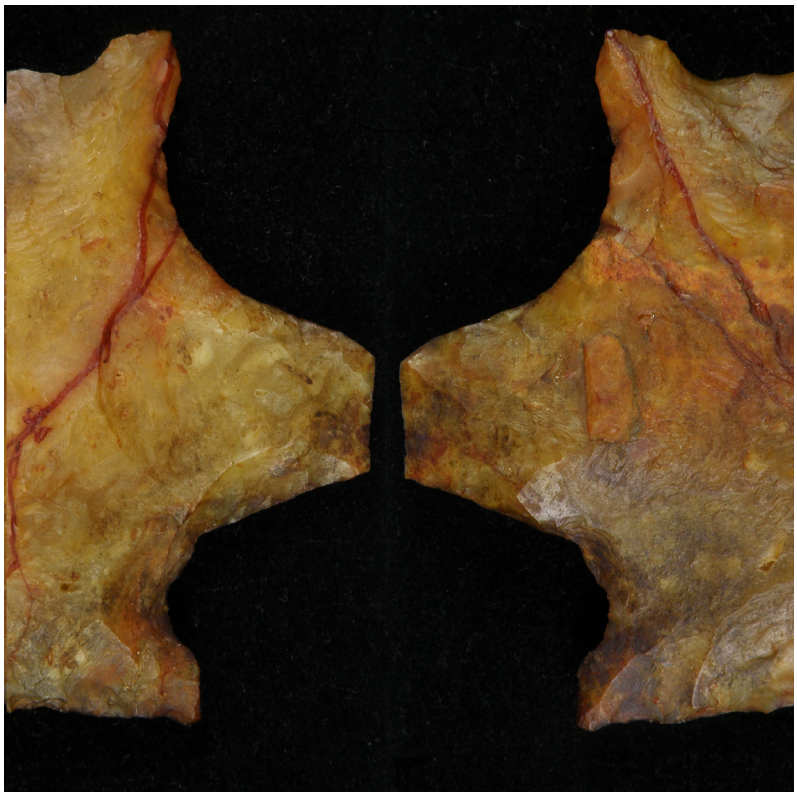

Figure 3. Composite photos, basal portion of the subject obverse side on left, reverse side on right, thus with right barb at top, left barb at bottom

Figure 4. Modern steel gutting knife blade.

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Figure 5. Some examples of additional artifacts from the author's upper Lake Marion collection, which may merit further study both in the context of structure-function relationships and in terms of typological categorization.

The Ernest McCoy Biface Cache, 38LU240

Albert C. Goodyear and Nena Powell Rice

On 31 July1990, a Mr. Ernest McCoy of Gray Court, South Carolina, came to the South Carolina Institute of Archaeology and Anthropology, University of South Carolina with six large rhyolite biface blanks (Figure 1) he had found in Laurens County, South Carolina. He found them lying together in May of 1990 while walking over some cleared woods looking for Native American artifacts near his home on Henderson Church Road.

Figure 1. The six metavolcanic bifaces from the McCoy cache from 38LU240, South Carolina.

Mr. McCoy allowed us to borrow the bifaces for photography and for recording metrics and technological observations (Table 1). The specimens are unusually large and all are made of flow-banded rhyolite. Large artifacts in South Carolina that are commonly made from this material are called Mack points—a large, contracting stemmed hafted biface, which has been found associated stratigraphically with Early Woodland Thoms Creek pottery at 38OR67, the Mack site (Parler and Beth 1984; Michie 1982:3). The six bifaces were examined macroscopically, and no polish or abrasions were observed that might have resulted from use wear or technological edge preparation. The artifacts appear to be early stage bifacial blanks that were intended to be manufactured into hafted bifaces.

On 23 August 1990, Mr. McCoy took the authors to the spot where he had discovered the cache. The site was located on a bulldozer cleared hill overlooking a valley

Table 1. Weights and measures of the McCoy metavolcanic biface cache from 38LU240, South Carolina.

Specimen No.	Weight (g)	Length (cm)	Width (cm)	Thickness (cm)	Raw Material
1	457.9	23.05	9	2.85	Flow-Banded Rhyolite
2	376.7	19.55	9	2	Flow-Banded Rhyolite
3	336.6	20.6	9	1.5	Flow-Banded Rhyolite
4	458.1	22.1	9.9	2.1	Flow-Banded Rhyolite
5	421.3	23.1	7.8	2.15	Flow-Banded Rhyolite
6	513.65	25.7	9	2	Flow-Banded Rhyolite

Figure 2. The oversized metavolcanic Mack point from the Gregg S. Fullerton collection found in the Cooper River, South Carolina.

with a commanding view of the latter. The site, recorded as 38LU240, is located about 1,000 feet southeast of Henderson Baptist Church and a half mile south of U.S. 76. The site was on the east side of the hill on a flat, bench-like portion rather than the apex. Mr. McCoy found the bifaces in May of 1990 while searching the cleared ground for artifacts. One of the bifaces was lying on edge sticking up in plain view. When he pulled it up, he heard it clink against the other bifaces. Mr. McCoy dug the remaining five bifaces up in a small area less than a foot in diameter and only a few inches deep. He said the bifaces were basically all lying flat and touching but not oriented in the same direction. We carefully examined the place where he had dug them up, but found no more bifaces. His relatives had come in after he found them and dug around where he had found them but no more bifaces were reported to be found. The tight concentration of the six items suggests that it was a discrete find restricted to one pit. We shovel

Figure 3. The oversized metavolcanic Mack point found near Dorchester, South Carolina.

scraped the find spot and saw a dark gray-brown organic soil overlying a reddish clay subsoil. The darker soil was very disturbed from recent digging, and it is likely that the teeth on the bulldozer blade mixed topsoil with subsoil. Regardless, we could not find a pit or remnant of a pit, although it is likely one could have been observed in undisturbed conditions. McCoy said the bifaces were in a loose dark soil and not in the reddish clay. This clay was below the bifaces and is much harder to dig. It appears that the Native Americans dug a pit in the loamy topsoil and stopped at the harder red clay subsoil.

Archaeologically speaking, the hilltop here is undistinguished. Mr. McCoy found only a few stemmed points here previously. On our visit, we made a pretty thorough inspection of the ground surface, which had good visibility from land clearing and recent rains. We saw only an occasional quartz flake but no real concentrations of artifacts. Perhaps the most unusual aspect of the site is its location on such a promontory, which provides a good view to the south. Approximately two miles to the west is Tumbling Shoals, which forms rapids on the Reedy River.

Based on current knowledge, the origin of these bifaces is almost certainly Morrow Mountain State Park in the Piedmont of North Carolina (Daniel and Butler 1991; Daniel 1998). While rhyolites are present in the western South Carolina Piedmont (Benson 2007), they do not typically show the marked banding. The Morrow Mountain rhyolites develop banding on the exterior due to weathering. Freshly flaked rhyolite from here is dark blackish blue without the prominent banding. The largest of the flow-banded bifaces in South Carolina are Mack points, which typically show some banding, some almost zebra like. Given that Mack points are from 3,000 to 3,500 years old, it follows that such amount of time is necessary for the weathering needed to produce the banding.

What is most distinctive about the McCoy cache bifaces is their extraordinary size (Figure 1). Rhyolite biface blanks matching the color and banding of these can be found throughout South Carolina, but on average are much shorter only measuring around 11 cm long. There are, however, occasional finds of rhyolite Mack points that are exceptionally large, such as the Gregg S. Fullerton Mack from the Cooper River, which is nearly 20cm long (Figure 2; cf. Goodyear et al. 1990: Figure 2a). Another large flow banded Mack point some 19 cm long came from Dorchester, South Carolina, found by someone while digging a utility trench (Figure 3). By comparison, the average length of intact rhyolite Mack points is about 8 cm. These large points, however, are well in excess of 15 cm and could be described as hypertrophic (cf. Goodyear et al. 1990:12). While Mack points underwent regular retipping and blade resharpening related to practical usage, the possibility of hypertrophic Mack points being made for other purposes, including social communication, seems a real possibility as seen in some Middle Archaic bifaces in the Midsouth (Johnson and Brookes 1989).

The McCoy site cache is 217 km (135 air miles) from Morrow Mountain State Park, North Carolina. In South Carolina, flow-banded Mack points are found all the way to the Savannah River. Other rhyolite biface caches are known in South Carolina, which include Macks (Anderson et al. 2011), so the McCoy cache is not alone. It appears that large numbers of Morrow Mountain rhyolite blanks and points were being transported down into South Carolina in the Early Woodland period. Some sort of transregional exchange system must have been operating during this time when Thoms Creek pottery was also being made in South Carolina. While metamorphic lithics, exotic to South Carolina, originating in North Carolina occurred throughout prehistory, even during fluted point times (Goodyear 2010), their incidence is relatively minor compared to metavolcanic Mack bifaces and caches. Given that Thoms Creek pottery is not well represented in the Piedmont of North Carolina, some suggestion of an asymmetrical exchange system seems to be implied.

Acknowledgements

We thank Ernest McCoy for sharing his cache find and showing us the site. Tommy Charles provided photography, and Keith McGraw, Chris Moore, and Joe Wilkinson aided in computer graphics.

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Update of Paleoindian in COWASEE with Extended Reporting on Dalton

Albert C. Goodyear and Joseph E. Wilkinson

In a previous study of Paleoindian points in the COWASEE basin, which includes the Congaree, Wateree, and Santee rivers, fluted points such as Clovis and Redstone were reported by frequency and raw material (Goodyear 2014). Later points, such as Daltons were also included and compared with previous fluted point frequencies. Some interesting and significant differences were found between points made from local raw materials, such as orthoquartzite, and points made from extra-local or exotic materials. The relevance of the latter has to do with the location of the COWASEE basin as a hypothesized physical and cultural boundary between Clovis macrobands to the north referred to as the North Carolina Uwharrie band and the southern band centered on the Coastal Plain chert quarries of the central Savannah River known as the Allendale band (Goodyear 2017; Daniel and Goodyear 2015, 2017).

In the three years since publication in 2014, several more fluted points and Dalton points have been recorded. The purpose of this paper is to add these finds to the statistical trends previously documented, especially those of Dalton points. Additonal items were found in the collections previously studied, plus a few new collections encountered at collector artifact shows and by social media.

Table 1 shows the updated Clovis points by raw material in the COWASEE basin. A total of 49 Clovis points have now been recorded. Of these, 25 are made from Allendale type Coastal Plain Chert, and 11 are made from metavolcanic rhyolitic type materials, all considered extra-local. The orthoquartzite points number 11 and are known to be local. Quartz and quartz crystal of Piedmont origin may or may not be local, as quartz gravels can be found in these rivers. The previously reported extra-local versus local ratio counting quartz and quartz crystal was 29:10 with a chi-square probability of less than .01 by chance. The 10 new Clovis additions result in 36 extra-local (76.6%) versus 11 local, counting only orthoquartzite as local. If the quartz and quartz crystal points are counted as local the ratio is 36 to 13 (73.5% to 26.5%) nearly identical to the 29 to 10 ratio. In making inferences about different Clovis groups occupying the COWASEE basin perhaps on only a seasonal basis, such as might be the case with the river boundary serving as an aggregation zone, or with statistically significant increases in the use of local raw materials which might indicate increased residence time, large numbers of artifacts are deemed important. In this sense, continued monitoring of COWASEE for additional fluted points seems desirable. On this note, two more Redstones have also been recorded. Both of these artifacts are made from Allendale Coastal Plain Chert. This brings the total Redstones from 9 to 11. Of these, three are made from local materials or a 9:3 ratio. The Clovis to Redstone ratio (49:11) stays the same with 4.45 Clovis for every Redstone similar to the rest of South Carolina (Goodyear 2014:11).

Table 1. Clovis Points by Raw Material in the COWASEE Basin.

Raw Material	Number	Percentage
Allendale Chert	25	51.02%
Metavolcanic	11	22.45%
Orthoquartzite	11	22.45%
Crystal Quartz	1	2.04%
Quartz	1	2.04%
Total	49	

As mentioned, a significant increase in the number of Dalton points has been realized from 66 to 83 (Figure 1, Table 2). These have also come from continued recording within previous collections, as well as through artifact shows as part of Wilkinson's research on the Early Archaic (Wilkinson 2017, 2018). Table 2 provides an itemized inventory of Dalton points in COWASEE by collector, site or locality, and by raw material. Table 3 lists the frequencies and percentages of Daltons by raw material type. We intend to add to this compilation going forward in order to have a more nuanced spatial study of Dalton point distributions within the basin.

In the previous study of COWASEE (Goodyear 2014), there was an evident increase in the use of local lithic materials in Dalton compared to Clovis. Adding the 1 Black Mingo Chert, the 1 petrified

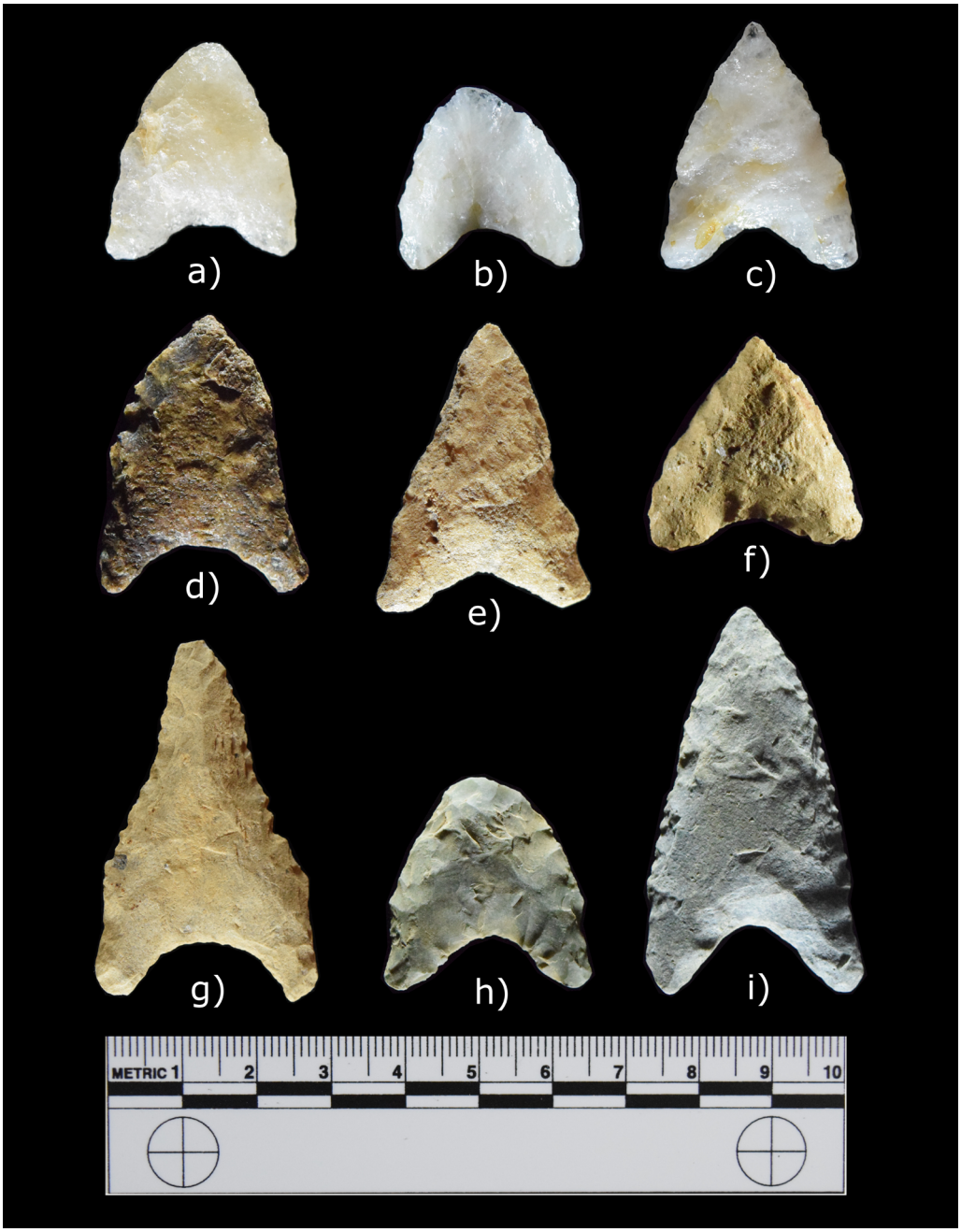

Figure 1. A sample of Dalton Points from the COWASEE Basin. (a-c) quartz, (d-f) orthoquartzite, (g-i) metavolcanic. (a, c, e, g) Hungerpiller Collection. (b, d, f, h-i) Ira Bacon Collection.

wood example, and the 9 quartz examples to the 23 orthoquartzites (Table 3), Daltons made of local materials sum to 34, or 41% compared to 26.5% for Clovis. This pattern continues the trend toward more local procurement and use in the COWASEE basin through time, which likely is a function of decreased settlement ranges and longer residence times in the valley. There may also have been a significant population increase during Dalton times resulting in more demographic packing across the early Holocene landscape.

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Table 2. Dalton Points Recorded in the COWASEE Basin as of November 2017.

Collector	Site/Locality	ACP	MTV	QTZ	O.Q.	BMCH	UNK.	OTHER	Total
Jim Michie	Lake Marion	1	4				1		6
Steve Williams	Island, 38CL102	5	1						6
G. Lee Thomas	38CL16	1	1						2
R. Venning	Lake Marion				1				1
T. Hebert	Bryce Site		1						1
T. Huffman	Elloree	1							1
R. Costello	Persanti Island	2	2	2	7			1a	14
R. LaFaye	Lake Marion	1							1
Heberts	South Side of Lake Marion	1	2		7				10
D. Vining	Eutawville						1		1
J. Skinner	Lake Moultrie		1						1
D. Wielicki	Wyboo Creek	2	1		2	1			6
Hungerpiller	Elloree		2	2	1				5
Ulmer	Elloree	1	1						2
D. Hendrix	Lake Marion	2							2
Salleys	38CL100	3	2	3					8
Gregg Walls	Persanti Island		2	1	3		1		7
R. Bunce	Lake Marion	2							2
Ira Bacon	Lake Marion		2	1	2				5
Fuzzy Furse	Lake Marion	1	1						2
	Total	23	23	9	23	1	3	1	83
	Percentage	27.71	27.71	10.84	27.71	1.2	3.61	1.2	

a = Petrified Wood

Table 3. Dalton Points by Raw Material in the COWASEE Basin.

Raw Material	Number	Percentage
Allendale Chert	23	27.71%
Metavolcanic	23	27.71%
Orthoquartzite	23	27.71%
Quartz	9	10.84%
Black Mingo Chert	1	1.20%
Unknown	3	3.61%
Petrified Wood	1	1.20%
Total	83	

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Qualitative Chemical Analysis of Surface Stains on a Chert Artifact from Upper Lake Marion, Clarendon County, South Carolina

Robert C. Costello

Lithic artifacts recovered from the bed of Lake Marion often are coated by adsorbed sediments (Costello 2011) which exacerbate analytical challenges, especially regarding lithic material type identification. Processing and analysis of the nature of the adsorbed material on a chert flake tool recovered 5 November 2017 from shallow water near the shore of "Little Persanti" Island is described herein.

When initially recovered the subject exhibited a dark reddish-brown/rust-colored coating on surfaces which had been exposed to the water (Figure 1).

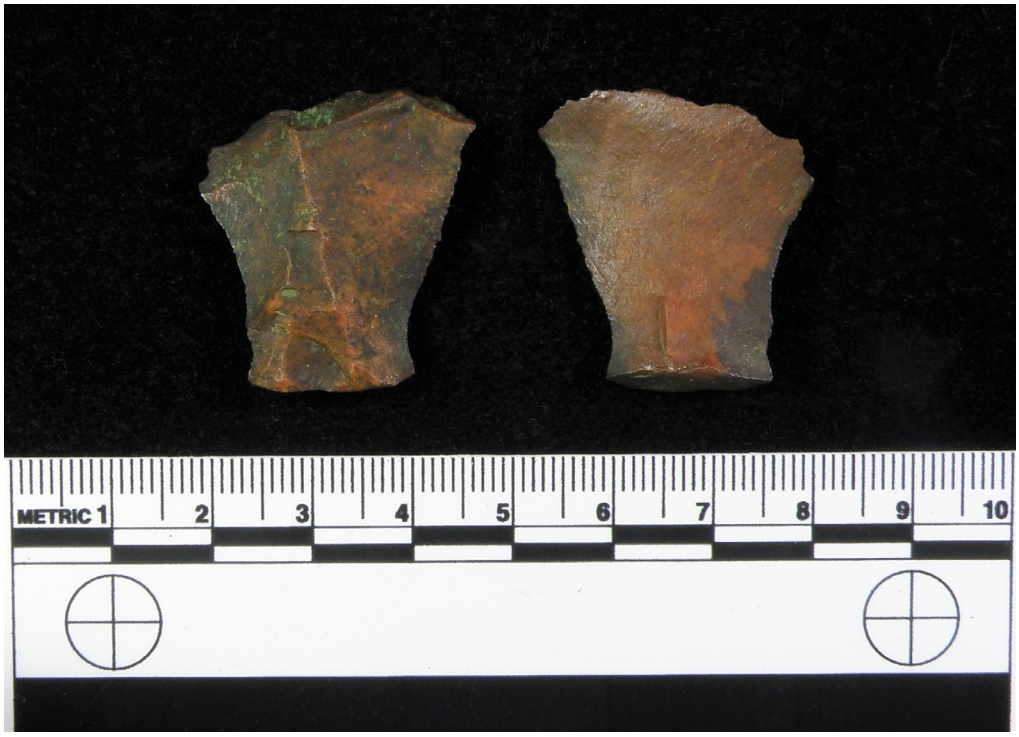

Figure 1. The artifact prior to HCl treatment, dorsal left, ventral right.

From the distribution of staining intensity, it appears that the dorsal surface (left image) experienced more exposure than the ventral surface (right image), and thus probably was facing upward on the lakebed. The stain coating these surfaces made the distinction between Allendale/Brier Creek Chert vs. ultra-high quality Black Mingo Chert containing a minimum of shell fossils problematical; however, water polishing present on the stained artifact may have enhanced visibility of features, such as the use polish on the distal ventral edge and ventral platform area, which contributed to its classification as a utilized flake. Polish is visible as gloss at the proximal and distal ends of the ventral view in the right image in Figure 1.

Qualitatively, the subject exhibits several features typical of a conchoidal flake (Andrefsky 2005). These features include a dorsal surface with scars from prior flake removals and a smooth ventral surface lacking prior flake removal scars. The striking platform is flat, unground, and possesses a small ventral lip possibly attributable to production of the flake by soft hammer percussion. Distal to the ventral lip is a hint of a small eraillure flake scar. Slightly to its left is a pit fracture along a fault line in the material. A roll-out termination is evident on the ventral side of the distal end; and the dorsal side of the distal end has been modified by intentional retouch and by usewear. Table 1 presents metric data for this artifact. The thickness value, which was measured across the center of the flake, is slightly less than the values obtained at the proximal bulb of percussion and distal regions.

Table 1. Metric data.

attribute	mass (g)	length (mm)	width (mm)	thickness (mm)
value	3.79	29.85	27.25	4.33

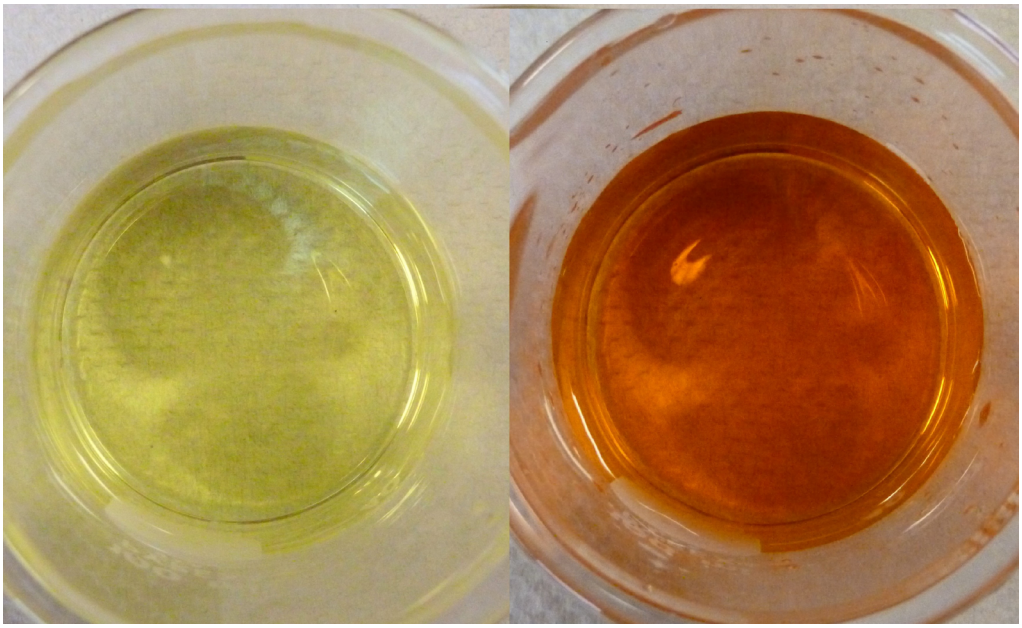

Figure 2. Wash solution before (left) and after (right) adding KSCN

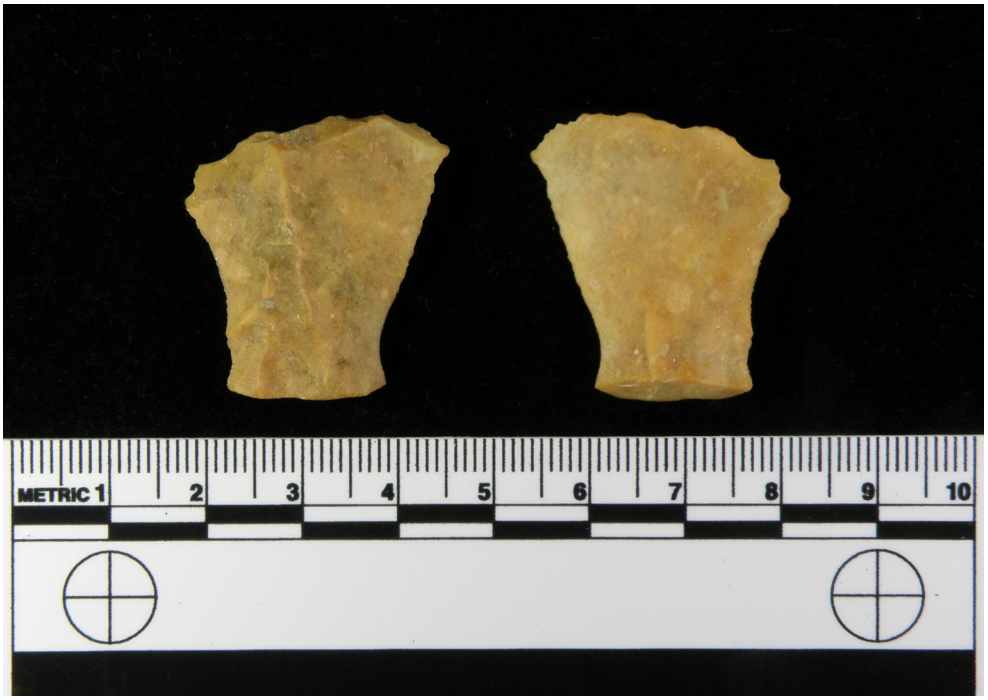

Figure 3. The artifact subsequent to HCl treatment.

Experimental Procedure and Results

Iron(III) oxide, Fe_2O_3, a suspected component of the stain, is reddish brown to black in color, insoluble in water, but soluble in various acids including HCl (Weast, 1982). To investigate whether Fe^{3+} ion was released by acid, the artifact was treated with 50 mL of 6M HCl for a period of 3 hours, then removed from the HCl solution. The wash solution, which originally was clear and colorless, exhibited a pronounced yellowing consistent with the release of Fe^{3+} ion from the sediment (Figure 2, left image).

Confirmation of the presence of Fe^{3+} ion in the wash solution was performed using KSCN, a reagent commonly employed for this purpose in qualitative analysis schemes (Slowinski et al., 2016). Addition of 2.0 mL of 0.20M KSCN to the wash solution following removal of the artifact produced a red-orange color (Figure 2, right image), attributable to the product of the reaction $Fe^{3+} + SCN^- \rightarrow FeSCN^{2+}$. This confirmed the presence of Fe^{3+} ion, presumably due to the presence of iron(III) oxide, Fe_2O_3, in the deposits removed and dissolved by the HCl.

The artifact was soaked in deionized water until the water was no longer acidic, then air-dried. After treatment, the artifact had become much lighter in color and had

lost some of the gloss previously attributed to use polish. (Figure 3)

Its mass (3.79g) remained unchanged at the cg level of sensitivity; thus, the total mass of sediment removed by the acid treatment comprised <1cg, or 0.3%, of its original mass. Close examination of the lithic material suggested that its features are within the range of those found among samples of Allendale/Brier Creek Chert (Upchurch 1984). Small fossils are visible in the ventral distal area, but no evidence of shell fossils typical of Black Mingo Chert or of Bryozoans typical of Wyboo Chert was observed.

The results of this experiment led to the identification of Fe^{3+} ion as a component of the adhering stain removed by HCl. Use of the techniques described above is not recommended for processing any artifacts that may possibly be subject to subsequent studies, such as immunochemical identification of blood residues or microscopic usewear analysis. Assessment of possible corrosive effects of HCl treatment on features, such as use wear striations,would require electron microscopic analysis beyond the scope of this exploratory investigation. Any such potential information residing in this particular artifact was sacrificed in order to establish the composition of the residue responsible for its staining.

Acknowledgements

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Documenting Orthoquartzite Tool Stone Sources and Local Utilization in the Beaver Creek Locality in Calhoun County, South Carolina

Joseph E. Wilkinson and Albert C. Goodyear

Introduction

Archaeological investigations of prehistoric landscapes often vary considerably across different geographic scales. The interconnectivity of technological systems and people across space cannot be underestimated in the archaeological record, and lithic raw materials across the landscape influence archaeological assemblages as a result of this interconnectivity. The localized exploitation of lithic raw materials can have significant influences on the composition and condition of archaeological assemblages (Andrefsky 1994; Charles and Moore 2017; Moore 2016, 2017; Wilkinson 2014, 2017, 2018). Orthoquartzite, a minimally evaluated raw material type present on the South Carolina Coastal Plain, is examined here in the locality of present-day Calhoun County in order to better understand its influence on local archaeological assemblages and the ways in which people throughout prehistory negotiated and exploited this raw material.

Background

The evaluation of lithic raw material sources and their utilization in prehistory across South Carolina has been of interest to archaeologists here for decades (Charles 1981; Charles and Moore 2017; Costello and Steffy 2013; Goodyear and Charles 1984; Costello and Goodyear 2014; Goodyear et al. 1979; Goodyear and Wilkinson 2014; Kubilius and Stephenson 2005; Moore 2010, 2012, 2016, 2017; Young 2013). These evaluations have played a fundamental role in our interpretations of prehistoric stone tool technologies, and without it much of our understanding regarding prehistory here would be lacking. They have been invaluable to archaeologists studying not only technologies, but also mobility and settlement, social interaction and exchange, and the many changes in societal structures throughout prehistory (Anderson and Hanson 1988; Anderson and Schuldenrein 1983; Charles and Moore 2017; Daniel 1996, 1998, 2001; Goodyear 2014; Moore 2017; Rigtrup 2009; Sassaman 1996; Sassaman et al. 1988; Wilkinson 2017, 2018).

The central Coastal Plain of South Carolina contains a variety of lithic raw material types suitable for chipped stone tool technologies. Many of these materials have only recently been identified and studied intensively for their archaeological relevance (Cantley and Swanson 2003; Costello and Steffy 2013; Costello and Goodyear 2014; Goodyear and Wilkinson 2014; Steen and Taylor 2002). One such material is orthoquartzite, a sandstone cemented together with silica that is sometimes suitable for producing chipped stone tools (Anderson et al. 1982; Charles 1983:9-10; Michie 1996:265; Moore and Brooks 2012; Upchurch 1984). The geographic distribution of most sources of this material is presumed to be in the counties of Berkeley, Georgetown, and Williamsburg, as high concentrations of this material type are found to be present among collections and assemblages in this locality of the state (Anderson et al. 1982; Charles 1981; Moore 2016, 2017; Moore and Brooks 2012).

Perhaps the most interesting evaluation of this raw material distribution among collections can be found in the Geographic Information Systems (GIS) analyses of private collections by Christopher Moore (Charles and Moore 2017; Moore 2016, 2017; Moore and Brooks 2012). By utilizing the Statewide Collectors Survey database compiled primarily by Tommy Charles (Charles 1981, 1983, 1986; Charles and Moore 2017), Moore has illustrated the high densities of orthoquartzite present in the aforementioned counties bordering the coast, with an interesting concentration present to the northwest in Calhoun County (Moore and Brooks 2012:Figure II-9).

Outcrops, Sites, and Collections

In order to better understand the presence of orthoquartzite among archaeological assemblages in the locality of Calhoun County, as well as its influence on technological organization and procurement strategies, an examination of geological exposures of the material and analysis of local private collections was made. Several exposures of the material were identified, and numerous collections exhibited evidence of localized exploitation. All but one of these exposures were located in the western portion of Calhoun County near its border with Lexington County (Goodyear and Wilkinson 2015). Figure 1 illustrates the locations of these outcrops and collections.

Outcrops. Three exposures of orthoquartzite were identified in Calhoun County, and one just across the Santee River in Sumter County. Evidence of another exposure was suggested in the form of two large cobbles that were found

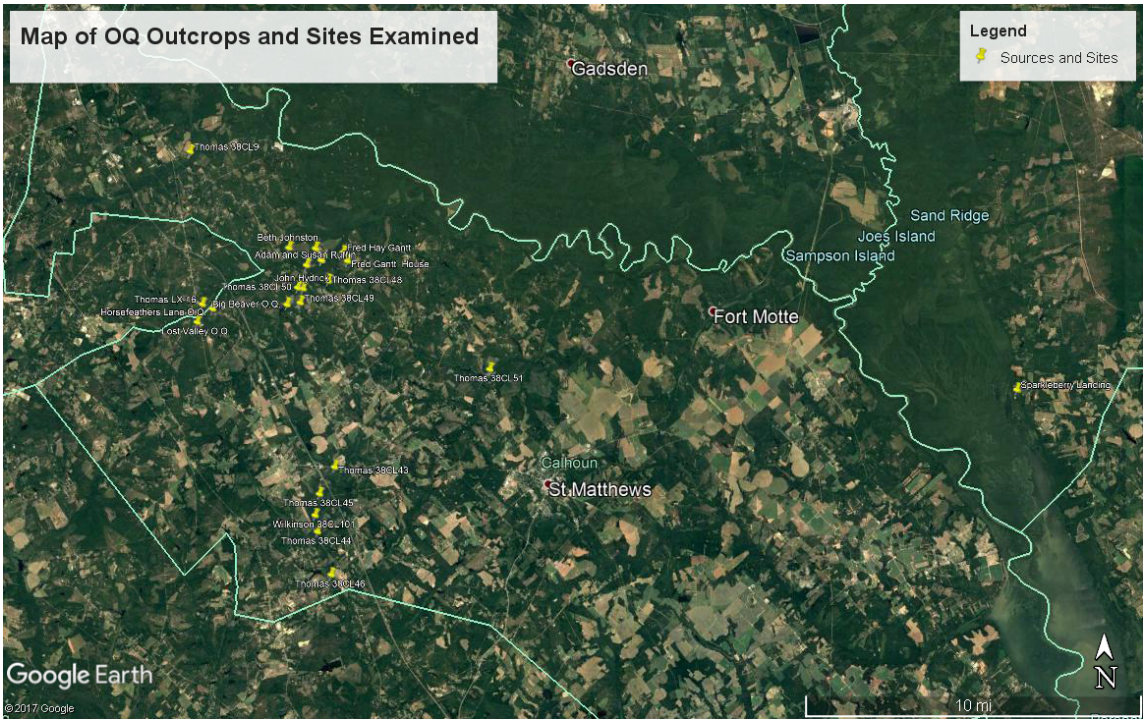

Figure 1. Map of exposures and private artifact collections examined.

among piling supports of the old historic Corbinn's Bridge over Big Beaver Creek (Figure 2), though no associated layer of orthoquartzite was identified in the immediate geological contexts. Testing of these cobbles revealed high quality tool stone. Despite the identification of numerous exposures, locating definitive quarry-related debris was unsuccessful as much of the landscape surrounding these exposures is private land and not explored.

Crider Pond Road. The first exposure examined was found along the east bank of Crider Pond Road at the juncture of S-9-173 and S-9-226, near its intersection with Little Beaver Creek. This deep road cut exposed large boulders of orthoquartzite already near the surface (Figures 3 and 4). Examination of the boulders revealed a range of variability in quality, much of which was soft and not well cemented. Also present, intermixed in the matrix, were pockets of mudstone (Figure 5). While the few pieces examined were of poor quality, many large boulders still embedded in the bank appeared to be slightly denser, and it is quite possible that better quality pieces of this material are present nearby. The adjacent property, where more exposed pieces and the highest potential for quarry debris might be located, is private property and was not explored.

Figure 2. Orthoquartzite cobble recovered from the pilings of the historic Corbinn's Bridge.

Lost Valley Drive. The second exposure examined is located on Lost Valley Drive near its intersection with Highway 21. This dirt road crosses Rock Branch just above its intersection with Big Beaver Creek (Figure 6). On the steep slope just east of Rock Branch, an exposure of orthoquartzite and associated mudstone is present (Figures 7 and 8). Evaluation of this material revealed that much of it was also brittle, but adjacent private properties were not searched for more exposures or quarry-related debris. Given the name of this tributary, it is logical to assume that much of this exposure is present in the creek, where water abrasion would likely sort the quality of orthoquartzite cobbles such that pieces of higher densities will be left for convenient

Figure 3. Orthoquartzite bearing layer on Crider Pond Road in Calhoun County.

and efficient exploitation.

Horsefeathers Lane. On the opposite side of Highway 21 near Big Beaver Creek is Horsefeathers Lane, where chunks of machine broken orthoquartzite were observed. This dirt road had been recently scraped by heavy machinery when it was visited to recondition the road, and as a result it was difficult to identify any deeply buried exposures of orthoquartzite. The presence of orthoquartzite chunks indicated that another exposure of the formation was uncovered somewhere along this road.

Sparkleberry Landing. One last exposure that was examined was found in Sumter County, just across the Santee River from Calhoun County. The Sparkleberry boat landing that is located in the upper portion of Lake Marion, has a deep road cut leading down to the water's edge. This road cut has exposed layers of orthoquartzite, as well as boulders of another local raw material called Black Mingo Chert (Goodyear and Wilkinson 2014; Steen and Taylor 2002). The variety of orthoquartzite present ranges from poorly cemented to high quality tool stone. Figure 9 is representative of some of the large boulders of orthoquartzite present with associated pockets of mudstone.

Collections

Because the identification of an orthoquartzite quarry was unsuccessful, a total of eight private collections from the western portion of Calhoun County were examined in order to evaluate the exploitation of local orthoquartzite and its influence on local assemblages. Among these eight collections were artifacts from seventeen different sites. The list of collectors, associated site numbers when available, total hafted bifaces, and the frequency of orthoquartzite hafted bifaces are presented in Table 1. This list shows that there are several collections with a sizeable number of hafted bifaces, and an overall occurrence of orthoquartzite that totals 12.7% of the total sample.

Further analyzing the hafted bifaces examined by specific hafted biface types is useful for understanding temporal fluctuations in the exploitation of local orthoquartzite against other raw materials brought into the locality. Table 2 is a list of all identified hafted biface types with counts for each raw material type present. All time periods are represented here, with the highest concentration of hafted bifaces present from the Woodland period. By consolidating the number of orthoquartzite hafted bifaces into totals per period (Table 3), it becomes clear that later time periods are more intensively focused on exploiting local orthoquartzite. A high percentage of the hafted bifaces present are found to be from the Middle Archaic, Late Archaic, and Woodland periods, with much less emphasis in earlier Paleoindian and Early Archaic periods. A sample of orthoquartzite hafted bifaces is

Figure 4. Orthoquartzite boulders exposed in Crider Pond Road cut.

Figure 5. Orthoquartzite boulder found in Crider Pond Road cut.

presented in Figure 10. This pattern of increased residency, if that is what this represents, is consistent with other evaluations of mobility ranges and the transportation of lithic raw materials found in other studies in South Carolina (Charles 1981; Charles and Moore 2017; Goodyear 2014; Goodyear et al. 1979; Moore 2016, 2017; Sassaman et al. 1988). It has been proposed that this raw material type is of lesser quality than other materials available in the state, and would have been exploited less frequently during earlier periods as Paleoindian and Early Archaic hunter-gatherers would have focused their raw material selection on more flexible materials (Daniel 1996, 1998, 2001; Goodyear 1979; Wilkinson 2017, 2018).

Figure 6. Lost Valley Drive, location of another exposure of the orthoquartzite bearing layer.

John Hydrick's Collection

One collection with a high concentration of orthoquartzite hafted bifaces was examined more closely in order to evaluate the presence of orthoquartzite among an assemblage of debitage. The collection of John Hydrick came from a single site located on a high sandy ridge adjacent to Falls Branch, a small tributary that runs into Little Beaver Creek just downstream of the site. The total count of hafted bifaces by raw material type (Table 4) demonstrates that the site was primarily occupied during the Woodland and Mississippian periods, though there is also a significant presence of Late Archaic artifacts.

Debitage from the Hydrick collection was first sorted by raw material type; then, counts and weights were taken in order to evaluate the average weight of the debitage per raw material type. Table 5 illustrates these counts and weights, and shows that orthoquartzite is not the most abundant material present. Despite more frequent counts of other exotic raw materials such as Allendale Chert and various metavolcanics, the highest average weight of debitage from a specific raw material type is orthoquartzite. This pattern is expected of locally exploited raw materials and demonstrates that proximity to exposures of orthoquartzite did influence assemblage variability.

In order to further understand the pattern present among the debitage assemblage, the frequencies of different raw materials were contrasted against their average weights. Figure 11 illustrates the ideal distribution of these two measures of a debitage assemblage as it is influenced by materials of different qualities and availabilities. In this illustration, debitage of locally available materials is expected to be larger in size than extra-local materials. The frequencies of local materials present in an assemblage are expected to be influenced by their relative quality, where higher quality materials will be selected and used more frequently than a material of lesser quality. Raw material package size will also influence the average weight of a specific raw material, and the average weight of materials that occur in small package sizes will be lower, regardless of proximity to their source. Extra-local materials are expected to be less frequent than locally available materials, and as a result of stress and use over long-distance transport, they are expected to be of

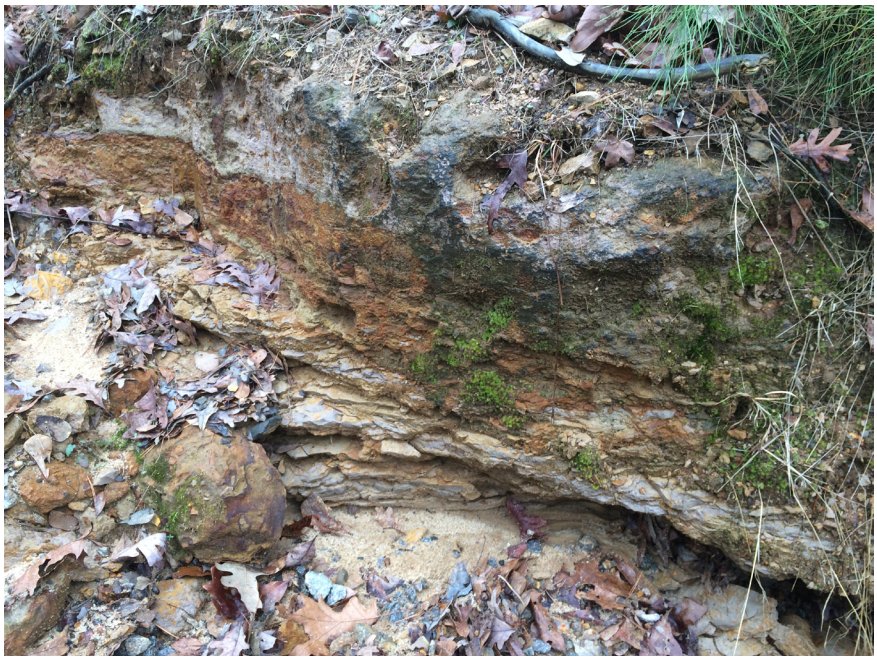

Figure 7. Exposure of orthoquartzite and mudstone on Lost Valley Drive in Calhoun County.

smaller average weights. High quality extra-local materials will also be slightly larger in average weight. And lastly, extreme extra-local materials will be both infrequent and very small in size.

Figure 12 illustrates the patterns present among the debitage assemblage of the John Hydrick collection by raw material. The expectations of the idealistic model of debitage distribution are present among this evaluation. Orthoquartzite, the most locally available material is on average heavier and more frequent than other locally available silicates with one exception. Black Mingo Chert, another material available in Calhoun County (Goodyear and Wilkinson 2014), is seen to have the highest average weight. Despite a small sample size for this raw material (N=9), because it is a locally available material it does match the expectations proposed in Figure 11. Extra-local materials high in quality, such as Allendale Chert and metavolcanics, are found to be more frequently present than most local materials, but with much smaller average weights. Extremely extra-local materials such as Ridge and Valley Chert and Dover Chert, are shown to be both very infrequent and very small in size.

Figure 8. Orthoquartzite boulder found on Lost Valley Drive in Calhoun County.

Discussion and Conclusions

Evaluating the presence and exploitation of lithic raw material sources across South Carolina has contributed to a growing understanding of prehistoric cultures, their technologies, and the ways in which societal structures and technological systems have changed over time. The presence of orthoquartzite in Calhoun County was not overlooked or ignored, but was incorporated with varying degrees in the toolkits of prehistoric peoples throughout prehistory who visited or inhabited the locality. While the identification of quarries of this material has not been made to date, the evidence of their presence geologically has been found, and evidence of their exploitation is also present among local assemblages. Its availability and relative quality to other materials has been evaluated here, and these influences are seen to influence variability in local archaeological assemblages.

As unique lithic raw materials are further identified and evaluated across the state, and quarries of various raw materials are found, our understanding of the prehistoric landscape will increasingly become more refined. Socio-cultural agencies will become better recognized as negotiations of the optimal

Figure 9. Orthoquartzite boulder found at Sparkleberry Landing in Sumter County.

patterns of resource exploitations are better understood (Wilkinson 2017). Throughout all of this, the continued use of private collections will provide archaeologists with clearer interpretations of the archaeological records on both local and regional scales.

Table 1. Collectors, sites, hafted bifaces, and the frequencies of orthoquartzite studied.

Collector	Site Numbers	Point Totals	O.Q. Points	% of Collection
Adam and Susan Ruffin	38CL16	73	10	13.70%
G. Lee Thomas	38CL44, 38CL45, 38CL46, 38CL48, 38CL49, 38CL50, 38CL51, 38LX16,	110	14	12.70%
Brian Platt	1 Site	7	2	28.60%
Beth Johnston	1 Site	8	0	0%
Dianne Vining	1 Site	11	1	9%
Fred Gantt	2 Different Sites	30	2	6.70%
Wilkinson	38CL101	65	3	4.60%
John Hydrick	1 Site	87	18	20.70%
Total	**17**	**393**	**50**	**12.70%**

Acknowledgements

A number of individuals are to thank, for without them this local study would not have been possible. Local collectors and landowners including Adam and Susan Ruffin, G. Lee Thomas, Brian Platt, Beth Johnston, Dianne Vining, Fred Gantt, Robert Wilkinson, Jo Rucker, and John Hydrick are all thanked for access to their collections and properties.

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Table 2. All hafted bifaces analyzed by raw material type.

Point Type	Allendale CPC	MTV	QTZ	BMCH	O.Q.	Other	Total
Clovis		1					**1**
Dalton	1	1					**2**
Hardaway SN			2				**2**
Early Archaic SN	8		11		1		**20**
Early Archaic CN	6	1	2		1	1a	**11**
Edgefield Scraper	4						**4**
Kirk Stemmed	1	1					**2**
Bifurcate		1					**1**
Stanly Stemmed	1	1					**2**
Morrow Mountain	14	4	34	2	12		**66**
Unknown Stemmed			2			1b	**3**
Guilford	1	1	1				**3**
Allendale	3				1?		**4**
Santee Lanceolate					1		**1**
Savannah River	17	9	14		13		**53**
Mack		5					**5**
Woodland Stemmed	42	17 (1 mag)	12	2	4	1c	**78**
Woodland Notched	3		3		1		**7**
Woodland Triangular	10	2	4		6	1a, 1c, 2d	**26**
Yadkin	8	2	3		3		**16**
Eared Yadkin	7	2	2		1		**12**
Pee Dee Pentagonal						1a	**1**
Mississippian Triangular	31	3	23	1	6	6c, 1a, 2e	**73**
Total	**157**	**51**	**113**	**5**	**50**	**17**	**393**

a = R&V c = Wyboo e = Silicified Clam
b = Unknown Silicate d = O.Q. Chert
O.Q. = 50/393 = 12.7%

Table 3. Orthoquartzite hafted bifaces by cultural time period.

Time Period	O.Q. Point Totals	Percentage
Paleoindian	0	0%
Early Archaic	2	4%
Middle Archaic	13	26%
Late Archaic	14	28%
Woodland	15	30%
Mississippian	6	12%
Total	50	

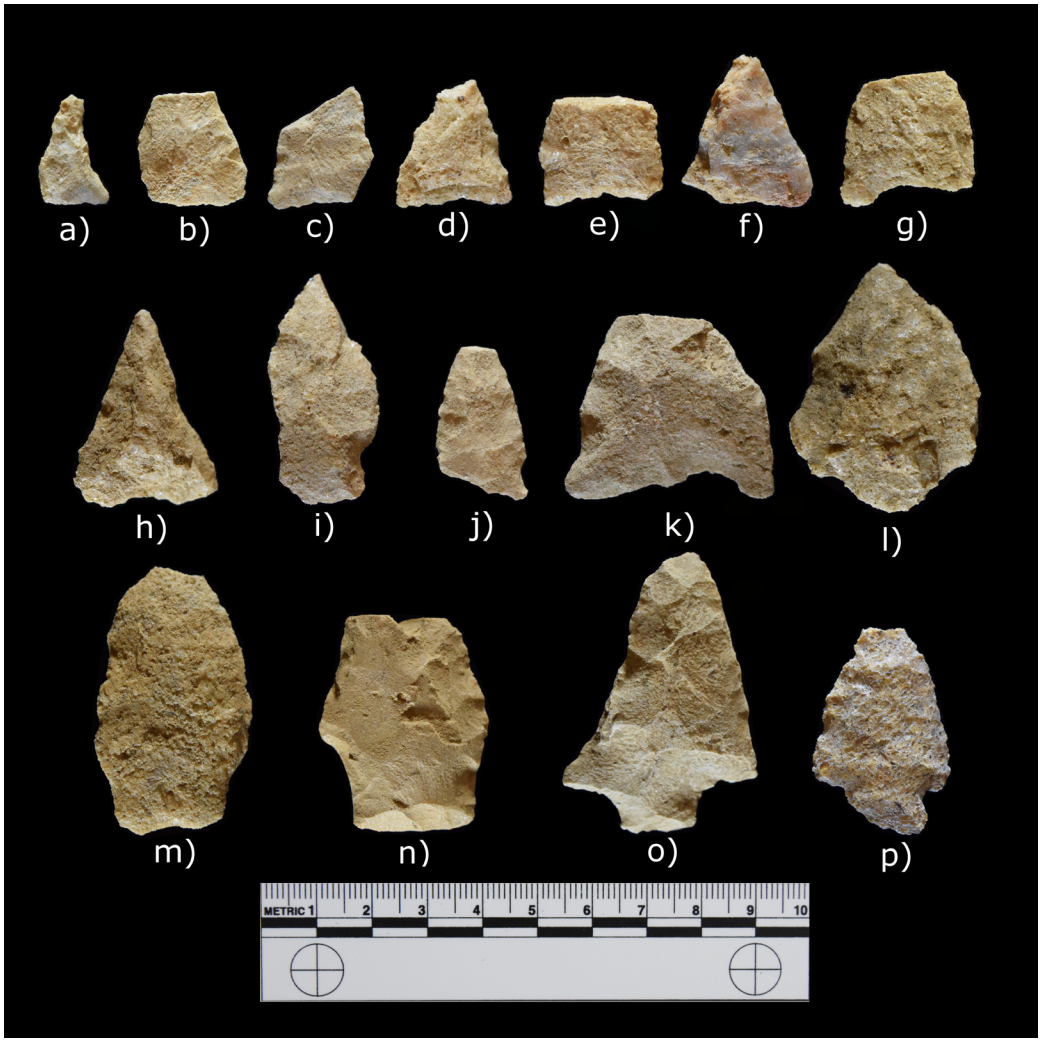

Figure 10. Sample of orthoquartzite hafted bifaces observed from private collections. Hafted bifaces (a-o) are from the Hydrick collection, (p) is from the Wilkinson collection at 38CL101. (a) Mississippian Triangular (b-h) are Woodland Triangular (i) Woodland stemmed, (j) Eared Yadkin, (k) Yadkin, (l) Morrow Mountain, (m) Santee Lanceolate, (n-o) Savannah River stemmed hafted bifaces, and (p) Kirk Corner Notched.

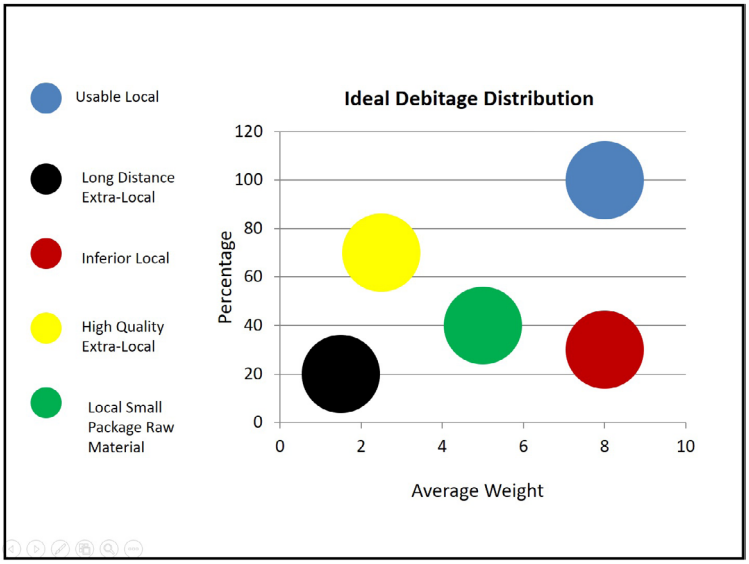

Figure 11. Ideal distribution of debitage frequencies and average weights given differing raw material quality and availablility.

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Costello, Robert C., and Albert C. Goodyear

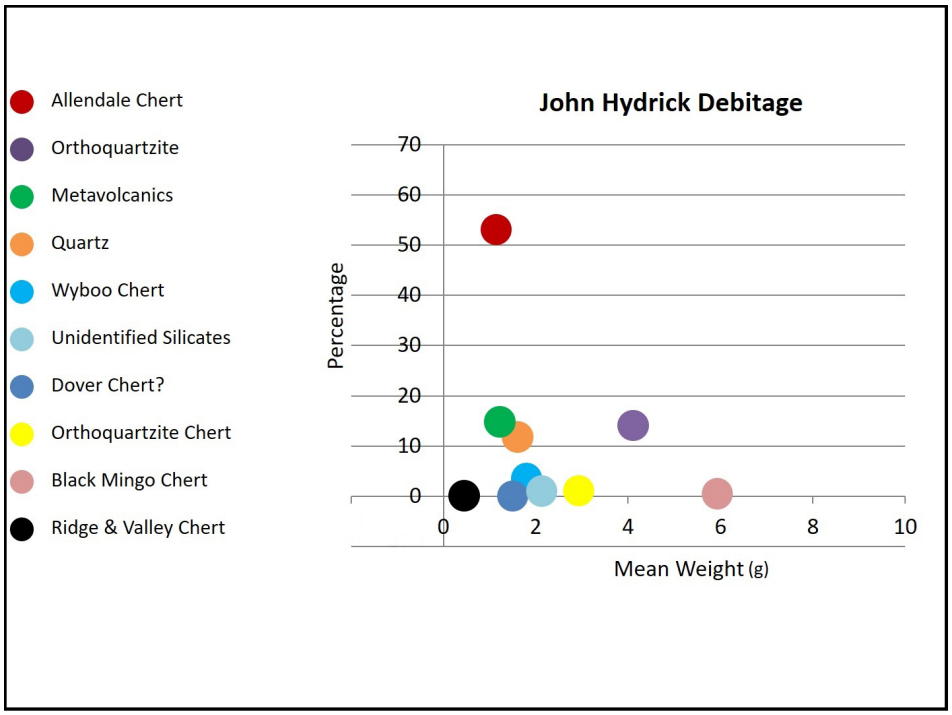
Table 4. John Hydrick's hafted bifaces by raw material type.

Point Type	Allendale CPC	MTV	QTZ	QTZ Crystal	BMCH	O.Q.	Other	Total
Clovis								
Clovis Preform								
Paleo Preform								
Dalton								
Hardaway SN								
Early Archaic SN			3					**3**
Early Archaic CN								
Hardin Barbed								
Edgefield Scraper								
Waller Knife								
Kirk Drill								
Kirk Stemmed								
Bifurcate								
Stanly Stemmed								
Morrow Mountain			5			2		**7**
Unknown Stemmed								
Guilford								
Brier Creek Stemmed								
Allendale								
Santee Lanceolate						1		**1**
Savannah River	2					4		**6**
Mack								
Woodland Stemmed	7	2 (No Mag)	2			2		**13**
Woodland Notched								
Woodland Triangular	1		2			4	1a, 2b	**10**
Yadkin		1 (No Mag)	2			1		**4**
Eared Yadkin	6	1 (Mag)	2			1		**10**
Jacks Reef								
Mississippian Triangular	18	2 (No Mag)	6		1	3	2a, 1c	**33**
Total	**34**	**6**	**22**		**1**	**18**	**6**	**87**

a = Wyboo
b = O.Q. Chert
c = R&V Chert (Blueish Gray)

Table 5. John Hydrick's debitage counts, weights, and average weights by time period.

Raw Material	N	Weight (g)	Mean Weight (g)
Black Mingo Chert	9	53.4	5.93
Orthoquartzite Chert	19	55.8	2.93
Orthoquartzite	239	982.8	4.11
Quartz	200	322.1	1.61
Wyboo Chert	59	106.4	1.8
Metavolcanics	250	304.9	1.22
Allendale Chert	897	1023	1.14
Ridge and Valley Chert	2	0.9	0.45
Dover Chert?	1	1.5	1.5
Unidentified Cherts	14	29.8	2.13
Total	1690		



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Archaeology at 38GN16: A Stoneware Pottery in Greenwood County, South Carolina

Carl Steen

Abstract

38GN16 is a pottery site that was clearly in operation between about 1860 and 1884, and perhaps as early as 1840. Numerous marked sherds are evidence of its operation under the ownership of Rev. J. P. Bodie in the 1860s-1880s. Slip-decorated sherds suggest the presence of noted Edgefield potter Thomas M. Chandler in an earlier context. He trained as a potter in Baltimore, then arrived in the area in the 1830s while serving in the U.S. Army. Changler married into a local potting family in 1838, and may have been making pottery in the Kirksey Crossroads area by 1844. Limited archaeology was conducted at the site in 1986 and 2016. The results are discussed in this paper.

Introduction

38GN16 was among the first archaeological or historic sites recorded in Greenwood County (Figure 1). It was visited by ceramic historian Georgeanna Greer and archaeologist Stanley South in 1970 (Greer 1970; South 1970). An early 20th-century newspaper article indicates that the site was a well-known landmark (*Greenwood Index 13 July 1911*). Before U.S. Hwy. 25 was built in 1926, the site would have been on the edge of the "Old" Martintown Road. This was the main road connecting 96 and Hamburg in the 19th century. US 25 deleted unnecessary curves and Thus, bypassed the site, adding a buffer and a bit of protection.

The full history of the site is a little ambiguous. A local landowner interviewed in 1911 thought it was established "by a man named Turner" (James Addison Turner-*Greenwood Index 13 July 1911*), and that it was subsequently owned briefly by W. D. Roundtree, J. H. Burnette, and then Rev. J. P. Bodie. In 1930, a Mrs. James M. Turner,

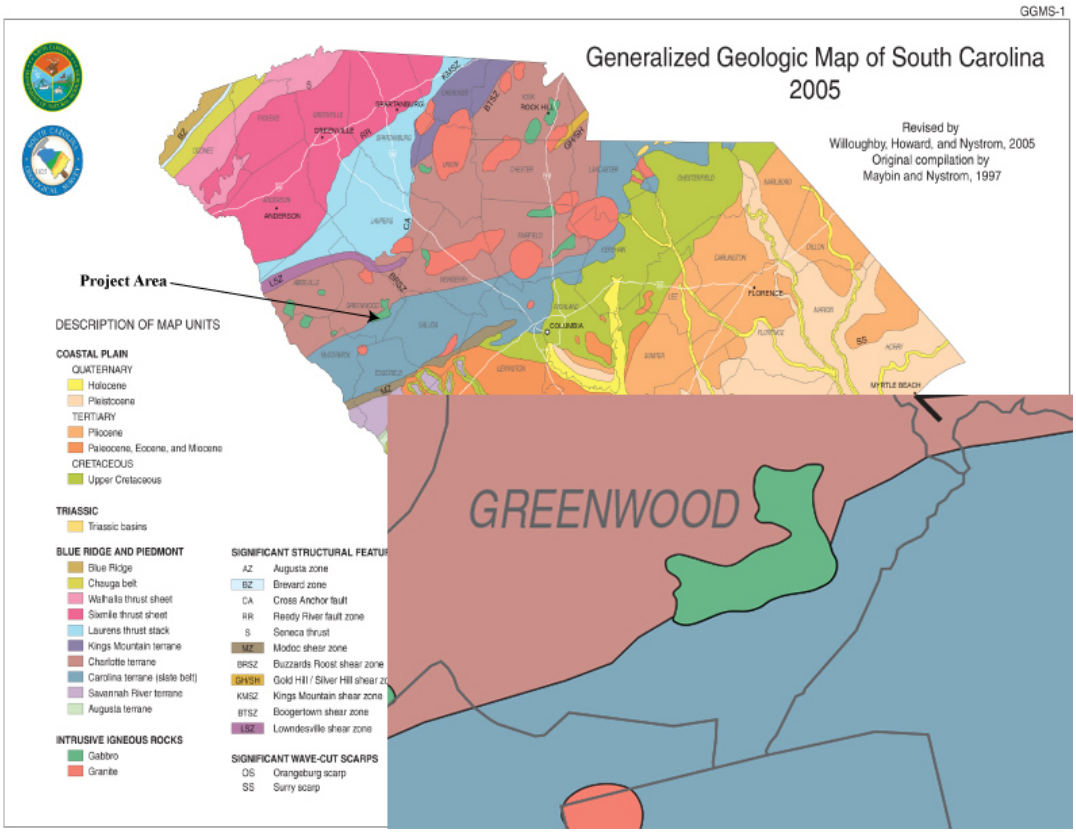


Figure 1. Site locator and geology.

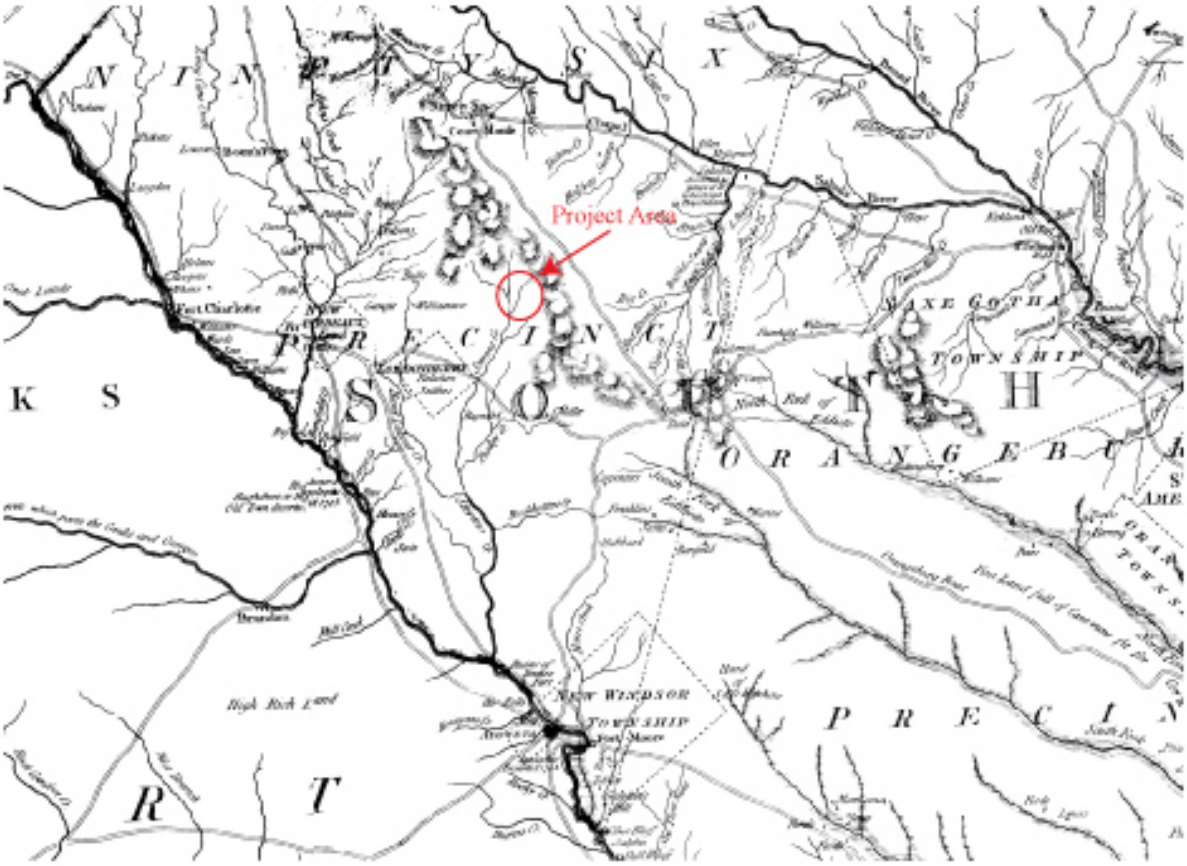


Figure 2. The Mouzon Map, 1780, showing project area.

wife of the potter's descendant, was interviewed by a staff member of the Charleston Museum and confirmed this lineage (Bragg 1930).

Land records in his name and sherds marked J. P. Bodie confirm without doubt that this is the stoneware pottery operated by the Rev. Jesse P. Bodie between 1866 and 1884, but an earlier component, featuring slip-decorated vessels, is also present. The main question is, who operated the pottery before Bodie? The Kirksey Crossroads area was the site of at least one pottery by 1840 (ECDB 1840).

Thomas Chandler was involved in at least two potteries near Kirksey Crossroads in the 1840s before he left the area in 1852 (Baldwin 1993). Because of the presence of slip-decorated wares, Chandler's signature product, it is believed that he operated the pottery, or at the least, is responsible for the slip-decorated sherds. Unfortunately, none of the sherds have maker's marks. Did Turner open the 38GN16 pottery contemporary with, or after Chandler? Did he hire Chandler or partner with him at 38GN16? Who is this Turner guy, anyway? This is explored in more detail below.

Archaeology has been conducted in the Kirksey Crossroads area at 38GN169, the Trapp-Chandler site, and 38GN343, the Thomas Chandler site, by Gerald Keith Landreth in his master's thesis research (Landreth 1986). Stephen and Terry Ferrell excavated a test unit at 38GN169 as well, and analyzed the artifacts recovered there (Ferrell and Ferrell 1976; Ferrell ND). The South Carolina Institute of Archaeology and Anthropology and McKissick Museum examined 38GN343 and 38GN16 in a 1987 survey of stoneware production sites in the Old Edgefield District (Castille, Baldwin, and Steen 1988). Stanley South and Georgianna Greer visited and recorded the site in 1970, but did not conduct excavations.

38GN16 is located in the Piedmont physiographic region (Kovacik and Winberry 1987). The site is located in a very interesting area, in geological terms. It is at the interface of the Carolina and Charlotte Terranes in the area of a large intrusive gabbro dike (see Figure 1). Prominent igneous dikes in the area, Parson's Mountain and Faulkner's Mountain, show clearly the nature of the Piedmont's formation. Some 300 million years ago the area was mountainous, and these igneous dikes represent the volcanic cores of mountains. Weathering and erosion has caused the softer, less durable rocks to weather and break down into clay and sand. This transformed the landscape into one of mostly low, rolling hills.

These clay deposits are far from homogenous, and pockets of valuable potting clays are scattered across the land. Potting clay must be plastic enough to throw, but not so plastic that it will not stand up under its own weight (Cardew 1969). One such deposit was at the Trapp-

Chandler site. Only 12 acres of land were transferred to the potters working there (ECMB 1843). Keith Landreth (1986) surmised that they had extracted all of the usable clay there before abandoning the site.

Another potting clay deposit is found on what was once called Molasses Hill, the site of 38GN16. This name is found in the 1911 newspaper article, which states that a wagon carrying molasses overturned and the resulting spill caused a slippery, sticky mess. In conducting fieldwork in 2016 at the end of an especially rainy period in February, a second possibility came to mind. The clay deposit on site is especially slick and plastic, leading to poor footing, even when the ground was covered with leaves and briars, and difficult (to impossible) screening conditions (see Figure 12). If the whole road was like this in wet weather, one can easily imagine people calling the spot Molasses Hill, and dreading traversing it—uphill or down, it would be a challenge. When we visited the site in 1986, we speculated that the sherds found in the road could have been brought in as fill, as we would with gravel today. This is an interpretation that still has its appeal.

In 1986, both flakes and prehistoric pottery were found in the shovel tests. This reminds us that Native Americans used the land in this area long before the first Europeans came to South Carolina (Benson 2006). A trading post at the intersection of two Native American trading paths was established by Robert Goudy as early as 1730, and surely by 1738 (Meriwether 1941:118). This spot, supposedly 96 miles from Keowee Town, was a way point and hunting camp in the first half of the 18th century as tensions with the Cherokee kept settlement down. This was near the present-day town of Ninety Six.

The area was not settled by Euro-Americans in notable numbers until the 1750s and 1760s as German and Scotch-Irish immigrants from the north, displaced by the French and Indian Wars, began to arrive (Meriwether 1941). Townships were established in the area in the early 1760s by the colonial government to encourage immigration by European and British settlers (Figure 2). These included Londonborough, Boonesborough, and Hillsborough, which, since it was settled by Frenchmen, was called New Bordeaux (Steen et al. 1996). Accurate population statistics are elusive, but the number of Euro-Americans grew before the American Revolution to the point that the majority of the white population of the state was in the Backcountry (Wallace 1951).

Robert Meriwether speculated that Horse Pen Creek got its name in 1760, when Dr. John Murray advertised for a horse that had strayed (Meriwether 1941:127). Murray, William Simpson, and Joseph Salvador invested in thousands of acres in the area in the late 1750s. A number of Germans from the Palatine region, including the members of the Hen, Keiss, Metzer, Straub, and Wilhelm families, were granted land on Horse Pen Creek in 1764 and 1765 (http://upamerica.org/roots/platcuffyhorse.html 12-22-17). The available land plats are downstream from 38GN16. The 1911 article states that an area about 10 miles square, 10 miles north of Edgefield was known locally as the Dutch [Deutsch] Settlement, and indeed, German names were (and still are) common here, and immigrants continued to arrive during the 19th century.

Early settlers lived mostly on self-sufficient subsistence farms. Local farmers raised pigs and cattle, and grew hemp, wheat, corn, tobacco, and other garden crops; however, few were able to raise crops worth the cost of shipping them to Charleston. Some grew flax and wove the thread into cloth, but it was not until the 1790s and the introduction of the cotton gin that a valuable crop could be raised.

The cotton gin changed the face of the Piedmont both physically and demographically. To work the fields ,enslaved African Americans were brought into the region. In the Edgefield District, which is where the site was located before Greenwood County was formed in 1893, the enslaved population grew from 5,000 to 30,000 between 1790 and 1820 (Calfas 2013; Burton 1985). During this period, the white population actually decreased as white farmers began moving west to newly opened lands. Small farms turned into large plantations, and arable land became a valuable resource. Cotton agriculture, however, depletes the soil, and clearing caused the fine-grained, clay loam to erode quickly. After the Civil War, many former slaves and whites employed on plantations became tenant farmers and settled nearly every arable piece of land, exacerbating the erosion problem. By the late 19th century, the surface soils of the Piedmont were significantly eroded. In the 1930s, the federal government stepped in and established the Sumter National Forest to provide some protection. Today, much of the land in the area is held by the federal government, though there are numerous outparcels as well.

The Historical Problem

In 1911, a series of articles in the *Greenwood Index* used a travelogue framework to discuss local history. In these articles, the author traveled around Greenwood County discussing local families, their homes, and businesses. The July 13, 1911 article focused on the Kirksey Crossroads area. In regard to the pottery industry, it first mentions Andrew J. "Jack" Roundtree (also spelled Rountree) being in "the jug factory business" in a discussion of local genealogy. At this point, the traveler is at a store established by Samuel Stevens that was later taken over by William Holloway Clegg. The Cleggs are shown on the 1871 Isaac Boles map south of Kirksey (Figure 4, #2). A. J. Roundtree married "one of his [Stevens] daughters." Jack's brother Washington Durst Roundtree, married another of Steven's daughters.

The Roundtree family is shown in 1820 on the Thomas Anderson map at what became known as Sheppard's Crossroads (Figure 3). This was later published in Mills Atlas (1826). John B. Roundtree obtained 1,113 acres of land in the area between 1837 and 1844. An 1837 plat shows the Roundtrees on Mountain Creek, and the name is shown on Mountain Creek Road on the 1871 Boles Map

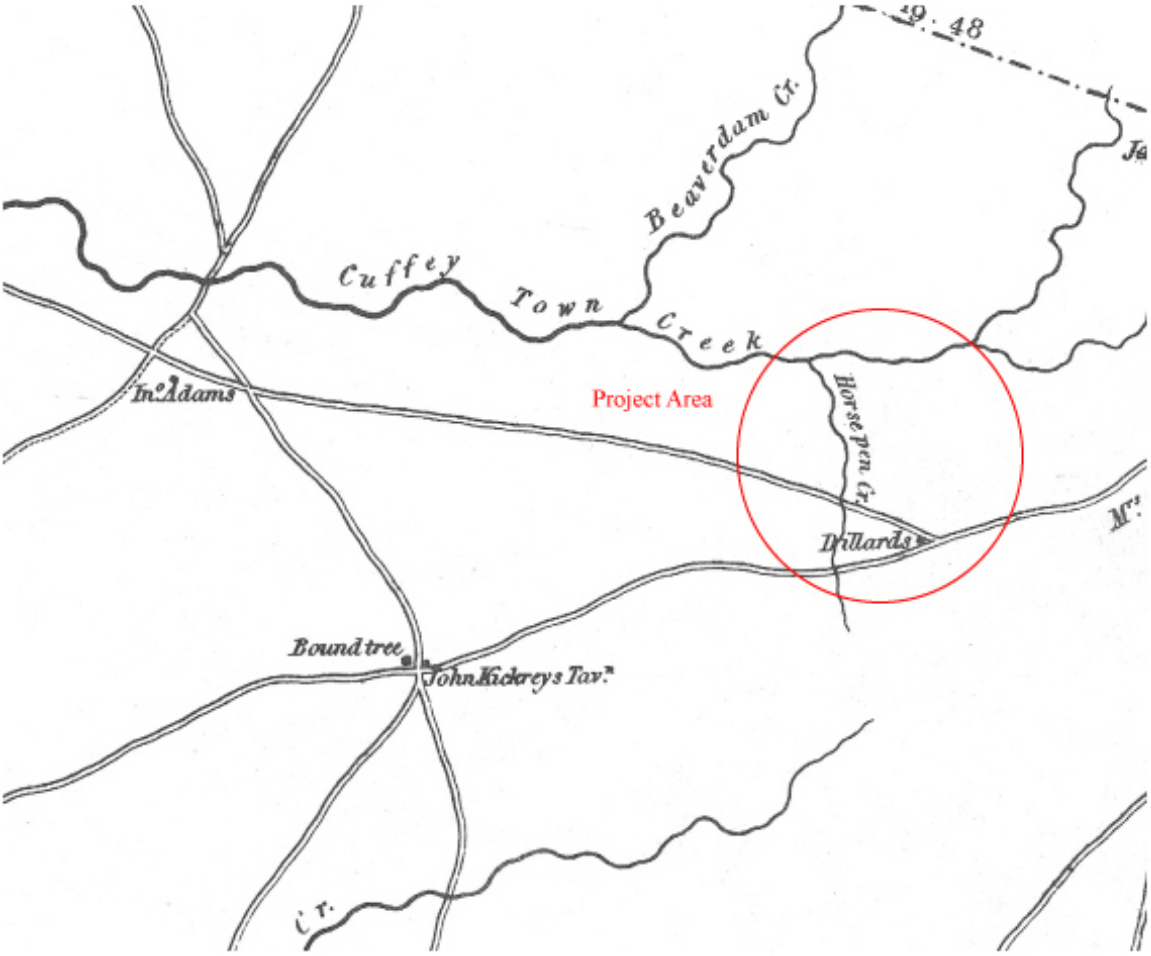


Figure 3. Thomas Anderson/Robert Mills 1820/1826 map showing project area. Note John Kirksey's Tavern southwest of the project area.

(Figure 4, # 7). Thus, the land depicted on the 1844 plat is thought to be east of Martintown Road.

After leaving the Clegg store, they stopped at another store owned by the Outz family (labeled Schenke on Figure 4, #3) on the way to the home of S. P. Mathews (Figure 4, #5) who was "known generally as Pierce Mathews." Before he arrived, however, he passed;

"the site of the first jug or pottery factory, which was started before the war by a man named Chandler [38GN169, Figure 4, #4]… This has been a great industry, this pottery business, in this section for many years. And good ware was made too, as many a housewife can testify to. Mrs J. K. Durst has a church [sic, churn?] made by this same Chandler before the war, it having been made for Mrs. Durst's father. The main jug factory site, (Figure 4, #6) however, was between Mr. Mathews present home and Kirksey."

This second reference to a pottery clearly refers to 38GN16.

The story of Molasses Hill is then recounted, and Mr. Durst, a local resident the author was interviewing, then says "his first recollection of the jug factory at this place is that it was run by a man named Turner. Then W. D. Roundtree built a store here and had charge of the plant. His brother-in-law Dr. S.G. Mosley built a home back of this place and practiced his profession… After the war Mr. Roundtree sold the factory to Mr. J.H. Burnett and he lived there some little time and sold it to Rev. J.P. Bodie, a local preacher of the S.C. Conference... Mr. S.P. Mathews owns the land here now" (*Greenwood Index 13 July 1911*).

Cinda Baldwin identifies James Addison Turner as the person who ran the pottery. She thought he was there "in about 1840" (Baldwin 1993:102) and states that he "sold [the] stoneware factory to W.D. Roundtree" (Baldwin 1993:227). The deed for this land transaction has not been relocated. Her assessment is based on an interview with Mrs. James Turner conducted by P. M. Rea of the Charleston Museum. Mrs. Turner's husband, James M. Turner, was a descendant of the earlier James Turner. Mrs. Turner said James had married "a Miss Roundtrees and moved to Florida" (Baldwin 1993:102-103).

Baldwin could not find any record of James A. Turner

Places mentioned in the 1911 article

1= Mountain Creek Crossroad
2= William Holloway Clegg, formerly Samuel Stevens
3= Michael Schenke, later site of the W.M. and J.T. Outz store
4= "The site of the first jug or pottery factory"
5= S.P. Mathews/Mathis
6= "The main jug factory site"
7= Roundtree land on 1837 plat

Figure 4. The Boles Map, 1871, showing names discussed in text.

Figure 5. Slip-decorated sherd with cartouche, a common Thomas Chandler motif.

marrying a Roundtree, but subsequent research (Toussaint 2016) has identified a James A. and Anna M. Turner in 1850 near Thomas Chandler. Anna was the daughter of John Birdsong Roundtree. John's mother was the sister of W. D. Roundtree's father Daniel, so there is a plausible family connection through which the pottery could have been passed from Turner to Roundtree informally. James Turner is found in the census in Edgefield in 1850. He did indeed move to Florida, where he was enumerated in New River in 1860. In 1853, James A. Turner was among a group of citizens petitioning the state legislature to build an extension of Martintown Road (SC State Archives record S165015:3079). Again in 1858 ,he was listed as a road commissioner (SC State Archives record S165015:3787). Thus,, they had to have moved between 1858 and 1860, which fits well with the first mention of a Roundtree store in 1859 (SC State Archives record S165015:00163; ECMR 1859-163-01).

In 1840, James A. Turner and Anna Roundtree would have been 14 and 10, respectively, so it seems unlikely that James A. Turner established a pottery in 1840. It is entirely possible, however, that Turner and his slave Edmon, left to him by his father in 1843, apprenticed with Thomas Chandler. So, it is possible that Turner did his apprenticeship and became a master potter by the time of Chandler's departure in 1852. The woman interviewed by the Charleston Museum gave them a jug she said she had owned since her marriage in 1866, that was supposed to have been made by James Turner (Baldwin 1993:103).

W. J. Devore was interviewed by the Charleston Museum in 1920. He said that a piece the museum was acquiring "was made at the pottery of Roundtree and Bodie at Kirksey Crossroads...the pottery was owned and operated up to 1861 by the above firm. Shortly after the Civil War about 1865 or 1866 Jessie P. Bodie purchased the interest of Bud Roundtree. The Bodie shop was in operation until about 1885 when it was abandoned. Jonathan DeVore, father of W.J. and E.N. DeVore was the turner at the pottery after the Civil War until very near the time of its abandonment" (Rea 1920). So, he confirms the Roundtree/Bodie operation, but does not mention the earlier component.

A pottery "18 miles north of Edgefield C.H." was advertised for sale by John Presley in 1840 (*Edgefield Advertiser 3 September 1840*). Research by archaeologist Keith Landreth indicates that it was 38GN169. This pottery was purchased by John Durham, who defaulted on a mortgage issued in 1843 and lost the property to Rev. John Trapp in 1845. Landreth said: "However, dated vessels marked Trapp and Chandler appear in the site ceramic record by 1844" (Landreth 1986:24). The name of a Kirksey blacksmith B. Harlan, the date 1844 and "Chandler Maker" are found on an extant vessel (Baldwin 1993:51). This places Chandler at Kirksey Crossroads by 1844. He had previously worked with Colin Rhodes on Shaws Creek (Wingard 2013).

Sherds marked Trapp and Chandler were found at 38GN169, with strata containing sherds marked with a stamped D and Roman numerals falling beneath them (Ferrell nd). One Roman numeral could have been an I for Isaac Durham. The D may be the mark of John Durham. This strongly suggests that 38GN169 was the Presley/Durham/Trapp-Chandler site.

Washington Durst Roundtree and Andrew J. Roundtree owned a store in the area as early as 1859 (*Edgefield County Records 1859-163-01*) but, when he came into possession of the land is unknown. As stated above, James A. Turner emigrated to Florida between 1858 and 1860, so he may have passed it along to his nephews at that time. The Roundtree family name is found in this part of South Carolina beginning in the mid 1760s, and it is shown on the Anderson Map/Mill Atlas in 1820/1826 at what is now known as Sheppard's Crossroads, which is about five miles south of what is now known as Kirksey Crossroads (see Figure 4). This is confusing, as in 1820 the John Kirksey Tavern was shown at what became Shepard's Crossroad. In 1850 W.D. According to the 1850 census,

Roundtree was 26 years old, and born in South Carolina. The Roundtree on the Mills' map may have been his father, Daniel, or uncle, J.B. Roundtree. The federal census Industrial Schedule shows us that in 1860 W. D. Roundtree owned a pottery that employed two males. It was valued at $2,000. They produced 9,000 gallons of stoneware in 1860, which is a fairly modest output. For instance, Lewis Miles and B.F. Landrum, respectively, produced 20,000 and 15,000 gallons that same year (Steen 2014).

From W. D. Roundtree the land passed to James H. Burnett, who sold it to Rev. J. P. Bodie in November of 1866. Roundtree served in the Confederate army in 1861 and 1862. In 1866, W. D. Roundtree was living in Quitman County, Georgia. The circumstances of Burnett attaining ownership are unclear. This was a time of great unrest in the South, and Roundtree may have accepted the best offer and informally passed ownership to Burnett before moving to Georgia to join his family. In January of 1866, Burnett signed an employment contract with three Freedmen: Anthony, "a Stone ware Turner," Jessie, "an apprentice turner of stoneware," and Ambris, occupation not stated. This contract was for a year's labor in return for housing, food, and clothing. Anthony received 1/3rd of the net proceeds of the factory, while Jessie received 1 1/2 cents per gallon for vessels less than one gallon, and 1 cent per gallon for vessels larger than one gallon (Freedmens Bureau 1866; Appendix A). Burnett sold the pottery to Bodie in the fall of 1866. Whether Bodie renewed the labor contract is unknown. No contracts between Bodie and freedmen were recorded in 1867. People with these first names are not present in the area in the census in 1870. The organization of labor immediately following the Civil War is a topic of considerable importance, and is better discussed by period experts such as Eric Foner (1983; 2002).

In 1870, Bodie employed 8 workers, who produced some 25,000 gallons of pottery valued at $2,500. Three white potters working in the pottery were named in the 1870 census: William Durham, Isum Whatley, and William Horne. Jonathan Devore's son stated in 1920 that his father worked as a turner at the Roundtree and Bodie pottery until the shop closed after Bodie's death in 1884. The 1860 census identifies him as an overseer, so he was probably in charge of all of the farm's operations, including the pottery. The Horne family lived next door to the Devores in 1870. A marked piece was signed by "Horne and Devore" in 1874 (Baldwin 1993).

Researchers from the Charleston Museum obtained a figural piece in 1920 that was attributed to Jim Lee, an African American who was said to work at the Bodie pottery. No further evidence of a Jim Lee has been found. John Presley was associated with two African-American men named Lee (yellow Lee and black Lee) in an 1841 newspaper ad for a court case (*Edgefield Advertiser 15 July 1841*). Another African American associated with pottery in 1870 was called Lee Rodgers. So, it is possible that Lee Rodgers was mistakenly called Jim Lee.

In 1860, W. D. Roundtree owned six slaves: a family unit with an adult man and woman and four children. He hired two others: a 33-year-old man and an 11-year-old girl. The census tells us he employed two males at his pottery. Whether these were the enslaved males or hired workers is not clear. On the one hand, Jonathan Devore's son said he worked as a turner for Roundtree and Bodie but on the other, he hired a slave, possibly a skilled worker like a turner. So, he may have hired a slave to work in the pottery or to help work the fields. Devore lived next door to Roundtree in 1860 and is called an overseer. At this time Roundtree is called a farmer; so, it may well be the case that all hands worked in the fields, the store, and in the pottery, as necessary, under the oversight of Jonathan Devore.

The cash value of his pottery products appears to be substantially more than his agricultural output in 1860. While most of his neighbors produced at least a bale of cotton, Roundtree did not plant cotton at all. His 90-acre farm's agricultural output included subsistence crops such as wheat, corn, oats, sweet potatoes, and Irish potatoes. He churned butter and sold $8 worth of orchard products. He owned a horse, two mules, two working oxen, milk cows and other cattle. With a value of $2,800, his farm was in the top 20% in his neighborhood. With a personal estate valued at over $15,000, he was also one of the more well-off people in his neighborhood.

In 1860, J. P. Bodie owned a farm with land worth $2,500 and personal property worth $4,500. He is listed in the census between the Outz and Stevens families (who lived in the houses labeled Clegg and Schenke in Figure 4), suggesting his home was a couple of miles south of Kirksey Crossroads. He was not a major slave holder, owning only five: two adult females, one adult male, and two children.

After the Civil War, his circumstances were greatly reduced. In 1870, his entire estate, worth only $1,055. He had moved to the Kirksey Crossroads community however. Living in close proximity were Shep Davis, William Durham, William Horne, Lee Rodgers, and Isum Whatley, all of whom "work in potry." Jonathan Devore is listed as a farmer in 1870, though he was still in the same neighborhood. J. P. Bodie died in 1884, and the pottery does not appear to have been in operation thereafter. Simeon Mathews purchased the pottery site in 1887 at a sheriff's sale, and it remains in the family today.

As previously stated, the possible presence of Thomas Chandler at 38GN16 is an important issue to consider. Artifacts excavated in the 1970s by potter Stephen Ferrell and his father, Terry Ferrell (a collector) later legitimized by the excavations of a professional archaeologist Keith Landreth. These artifacts tell us that a pottery was in operation at 38GN169 before the Trapp-Chandler ownership. The early wares from the site are marked with an impressed D, and I, suggesting this is the pottery owned by John Durham, assisted by his brother Isaac Durham. He mortgaged the operation in 1843, and lost his investment to John Trapp in 1845. Trapp hired or partnered with

Thomas Chandler to run the operation. A signed and dated piece suggests he was at work there or at 38GN16 by 1844. Chandler is enumerated as a stoneware manufacturer on his own in 1850, so this partnership was short lived.

Glazes and decorations characteristic of Chandler are found in the earlier deposits at 38GN16, suggesting that either he or a trainee of his worked here (Figure 5). Good arguments can be made that the wares were made by either Chandler or his students. On the one hand, the sherds are not marked the way wares from 38GN169 and 38GN343 were, so one can argue that they were not signed by him because someone else made them. On the other hand, wares attributed to him at Shaws Creek (38AK495) were not marked or signed with his name either. Design elements in the slip decoration and a characteristic glaze strongly suggest Chandler's presence—or is it the presence of a skilled and faithful student? Arguing in favor of this is the fact that slip-decorated wares were made at Shaws Creek after Chandler left there. One piece is dated 1854 (see Figure 39), and another 1857 (see Figure 40 - Baldwin 1993), so potters were clearly using slip decoration years after Chandler moved away. Arguing against, we can point out that the practice seems to have ended at Kirksey Crossroads after Chandler left. Certainly, no one was decorating with slip during the Bodie occupation.

What is clear is that this is the site of the Jesse P. Bodie shop. From Bodie, we can push ownership back to Burnett, and Roundtree for sure, and possibly to Turner. There are three known pottery sites between Sheppard's Crossroads and Kirksey Crossroads. Thomas Chandler is clearly associated with two, because he marked wares found there with his name. He is circumstantially connected to the third, 38GN16, by slip-decorated sherds and a characteristic celadon type glaze that appears to be his trademark formula. Chandler was not a landowner, however, and the documentary record is of no assistance in tying him to the site. So clearly, further work is needed at the site to gather evidence, pro or con, for these arguments.

The Martintown Road Potters

John Presley is the first name we can clearly associate with pottery making along Martintown Road. He advertised a stoneware factory for sale in 1840. Yet names associated with pottery making elsewhere have roots here as well. R. W. Mathis and Thomas Chandler both witnessed a deed for Amos Landrum at Shaws Creek in 1838. Before that ,Mathis was at Pottersville, where he worked with Isaac Durham, who spent time on Martintown Road as well. Mathis is thought to be a member of the Simeon Mathis family, though census and land records to support this contention have not been found.

With the exception of Thomas Chandler and John Presley, it may be the case that none of the owners of the potteries here were actually potters. John Trapp, James Burnett, Jesse Bodie, and W. D. Roundtree had diverse business activities. The 1870 census and an 1869 Roll of Citizens give us a peek into the operations. Although their names were not associated with pottery before the Civil War, five people on the same page of the 1870 census "work in potry." They are William Durham, Isum Whatley, Lee Rodgers, Shep Davis, and William Horn. Three of these men were white, and two African American. William Horn and Shep Davis were 21 and 22, respectively, but the other three were 42, 44, and 62. Thus,, Horn and Davis may have learned the trade after the Civil War, but the others were likely to have been involved before the war. Thus,, a pattern of both whites and African Americans working in the local potteries was established before the war, and continued afterwards. A list of individuals thought to be associated with pottery making in the Kirksey Crossroads area can be found in Appendix A. Further discussion of this is found in Toussaint 2017 as well.

Archaeology at the Bodie Site

As stated above, the location of the pottery site was well known a hundred years after it had closed down, and it was among the first historic resources in Greenwood County to be given a state archaeological site number. The site was not examined during Gerald Keith Landreth's 1978 thesis research (Landreth 1986), but in 1987 it was assessed by the SC Institute of Archaeology and Anthropology in cooperation with McKissick Museum (Figure 6 from Castille, Baldwin and Steen 1988). A portion of the pertinent report section is included below:

The Bodie Site (38GN16)

"The Bodie site (38GN16) is located along...Highway 25 in Greenwood County, near Kirksey Crossroads...This site is on the east bank of a small stream which has been dammed to form a small beaver pond. The stream empties into Horsepen Creek...An overgrown road bed for the "Old" Martintown Road follows the creek adjacent to the site (Figures 5-10 and 5-11). The nineteenth century road bed is submerged beneath the pond where the portion of the road bed runs to the kiln site. The site is in a wooded area which has been disturbed periodically by logging and tree planting operations. The probable kiln area was leveled by bulldozers in 1972 when the land was being cleared for planting pine trees (R. S. Norris, Personal Communication, September 1987).

Today the site is characterized by an artifact scatter which extends about 260 feet north-south and about 180 feet east-west. These site dimensions probably have been affected to an unknown degree by grading activity related to logging. The higher elevation area has apparently been graded and artifact concentrations occur in apparent low spoil piles located at the edge of the bluff overlooking the "Old" Martintown Road cut and the small pond (Figure 5-12). Exposed in the spoil areas are ceramics, kiln slag and fire brick."

2016 Fieldwork

The site was revisited in February and March of 2016

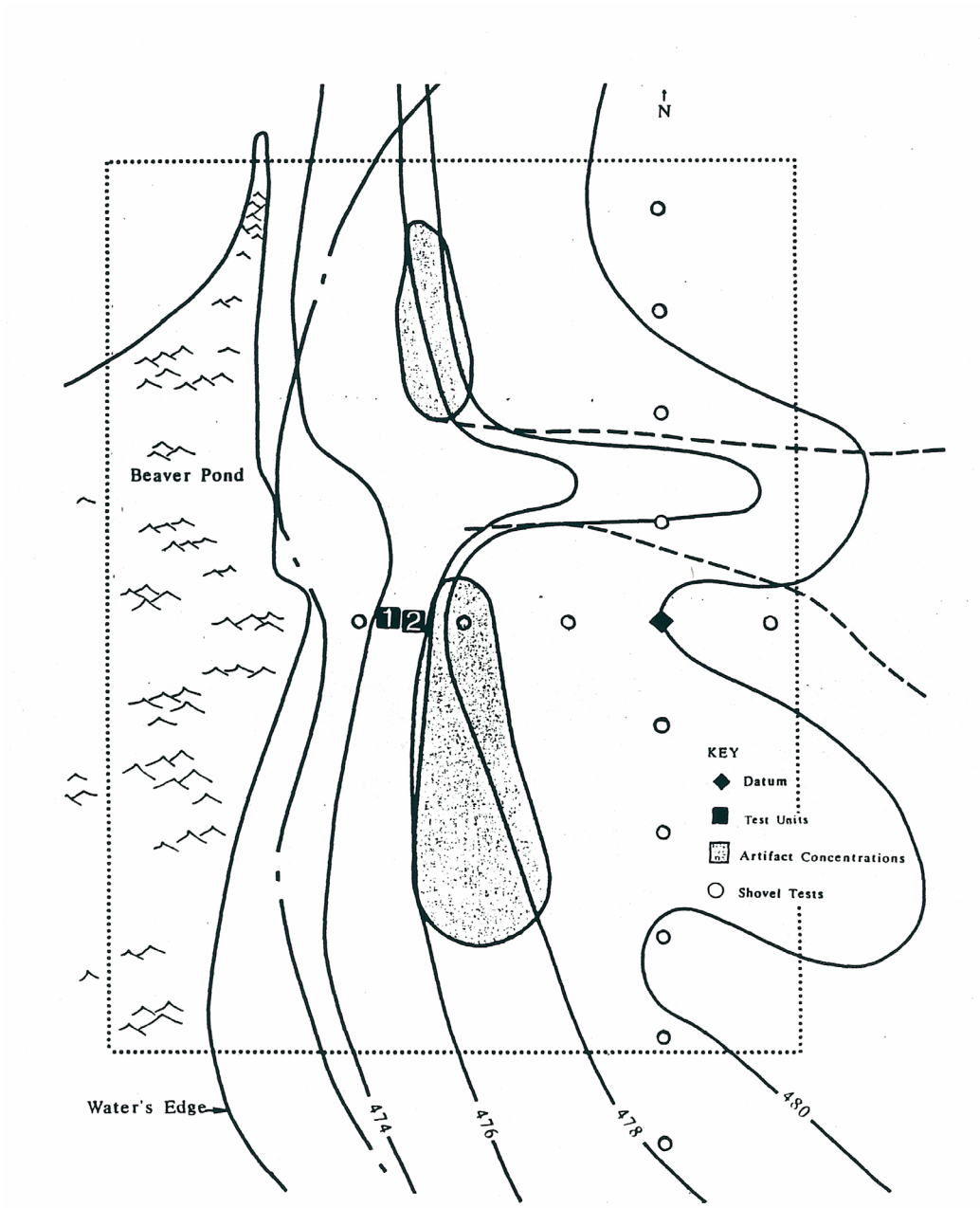


Figure 6. 1986 site plan.

(Figure 7). The upland portion of the site had been clearcut in recent years and had been cleared, burned and leveled (Figure 8). Vegetation in the clearcut consisted primarily of thick, tenacious briars. The 1987 datum could not be relocated, so a new metric grid was established. An old road cut pierced the bluff in the center of the site. The new datum was placed about five meters north of the road cut and two meters east of the bluff edge—essentially the first flat ground large enough to set up the total station in the area. The datum was designated 500E 500N. The grid is oriented to magnetic north. The 500E line roughly follows the 10W line from 1987.

The transition from the clearcut to a wooded area begins at about 505E (Figure 9). The land slopes slightly to the bluff edge overlooking the "Old" Martintown road cut (Figure 10). The bluff is at roughly 487E. The vegetation in the wooded area consists of small hardwoods and pines that probably grew after the 1972 clearing. Push piles are evident primarily around the old road cut. This may be a logging road. The cut for Martintown Road, which is clear of large trees, is covered with particularly thick briars. In 1987, this was the site of a beaver pond. When the site was visited in February after a week of heavy rain, water was actively flowing in the roadbed. When we returned two weeks later in March, the flow had turned to a trickle; however, standing and flowing water was still present,

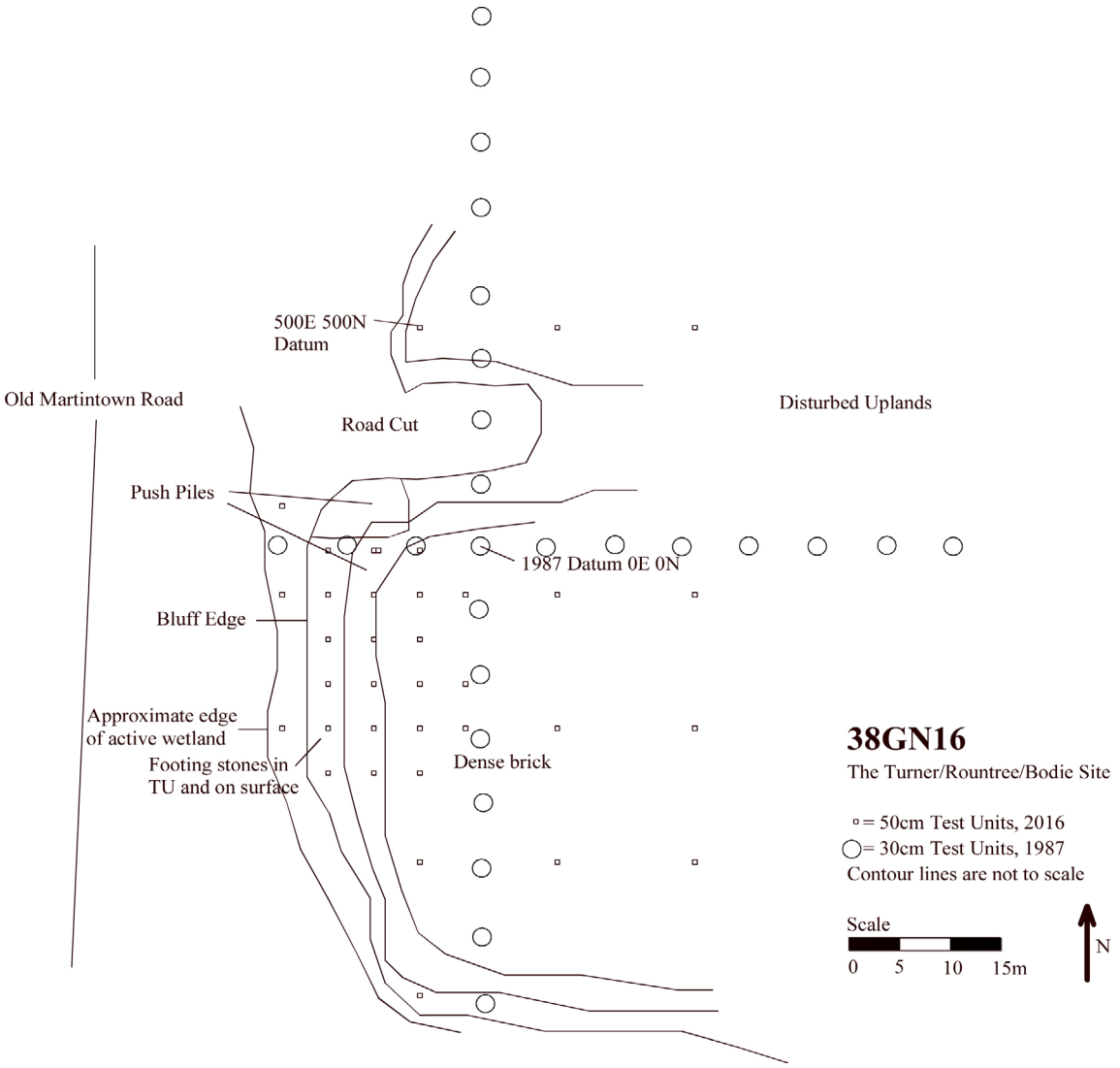


Figure 7. 2016 site plan.

making excavation and screening challenging (Figure 11). The water table was about 10cm below surface. The water caused excavations in the area to be slow and messy.

All test units were 50cm square, more-or-less, and all soils were, at the least, placed in the screen for sorting. Artifacts from soils in units in the wet area had to be picked out of the muddy clay loam (Figure 12). Soils in the upland units were, for the most part, drier and more amenable to screening, though at least two units filled with ground water as they were being excavated. These may have been in the path of a now buried road or drainage runoff. We only collected diagnostics—rims, handles, decorated, and marked pieces. Body and basal sherds, as well as brick, were piled in a central location by the unit and their numbers were estimated. Excavations were conducted using shovels, trowels, and fingers, as appropriate.

Shovel tests 50cm square were excavated at 15m intervals to establish site limits and assess disturbance. The units on the 515E and 530E lines in the clearcut encountered subsoil just beneath the surface, and only one (515E 500N) produced more than a few artifacts. The 515E 500N unit was placed in a filled rut from a log skidder or bulldozer that had filled with wasters.

The shovel testing showed that the majority of the artifact deposit fell between about 455N and 480N, between 485E and 500E. Units excavated at 505E 455N, 460N and 470N produced few artifacts; however, the 455N and 460N units were in an area where brick fragments were common both in the units and on the surface. Footing stones were seen on the surface and in the test unit at 490E 455N. The units in this area also yielded cut nails and window glass, suggesting the former presence of structures. This may have been a potting shed or office.

The most productive shovel tests were on the 470N line. The 500E, 495E and 490E units all produced a respectable number of sherds, but the 470N 485E unit was the most

Figure 8. Site view to east across the clearcut, house site trees in background.

Figure 9. Site view to north across slope, clearcut in background.

Figure 10. Site view to south from slope, Martintown Road cut in background.

Figure 11. Excavating 50cm square in road cut.

Figure 12. Screening was difficult.

Figure 13. Marked sherd found in road cut unit (see Figure 32).

productive of all. This unit was in the "Old" Martintown Road cut. Because of local vegetation, the unit was offset to about 486E. The bluff edge is at about 487.5E. This unit encountered a deposit of large, undisturbed waster sherds, many of which were decorated with slip. These appear to be earlier than the deposits on the slope above the bluff edge. Thus,, it appears that the deposits on the slope were bulldozed into place above the earlier waster pile.

The unit's stratigraphy supports this. The upper zone is dark and loamy, with few sherds. At about 20cm below surface the soil turns to a dark brown clay loam that has considerably more sherds. This gives way to a darker soil at about 30cm below surface that contains very large sherds.

Figure 14. Polychrome hand-painted white-ware, typical mid-19th century palette color.

At about 45cm below surface, subsoil clay is encountered. The upper zone is interpreted as fill that came off of the bank above.

Probing in the road cut showed that the dense waster deposit seems to end at about 483E on the 470N line, though dense briars impeded this effort. Shovel testing and probing in 1987 encountered a waster deposit at about two feet below surface (~60cm). Since none of our excavations were even 60 cm deep, it is possible that deeply buried deposits are present west of the 485E test units that could not be reached. This probing showed the deposit extending north from about 450N to about the beginning of the road that cuts through the bluff at 480N. Between 470 and 480N, displaced deposits are on top of a slight rise that marks the extent of the waster pile. The 485E 470N unit cuts through about 20cm of this fill, while the next unit to the north shows a less disturbed profile.

In summary, the shovel testing showed that the upland clearcut area was thoroughly disturbed. The flat ground at the edge of the clearcut is also disturbed, with piles of soil marking the edge of the upland. The slope leading to the bluff above the "Old" Martintown Road cut is less disturbed, with intact waster deposits and footing stones for at least one structure still in situ. Some disturbance is still evident, however, as fill covers the intact waster pile at the edge of the road cut. Sherds are also generally smaller in the slope unit, suggesting that many, if not all had been bulldozed into place. The full extent of the deposits in this area is unknown, but unsystematic probing suggests that it begins at about 460N and extends to about 485N between about 483E and 487E.

Artifacts

Our goal in conducting fieldwork at 38GN16 was not to accumulate a massive number of artifacts, but rather to focus on artifacts that would tell us more about the pottery and its operators. Thus, we concentrated on retaining diagnostics and good examples of the range of variation seen in glazes and body types. A total of 1,656 artifacts were collected. The vast majority of these were stoneware sherds.

Other artifacts include cut nails, window glass, whiteware, a sherd from a stoneware ginger beer bottle, a fragment of a horseshoe, and a few non-diagnostic iron fragments. Three of the whiteware sherds had polychrome hand-painted decorations that utilized colors thought of as the later palette (Figure 13). Polychrome hand-painted wares from the 1790s to 1820s feature vibrant, bright colors, while later colors tend to be more drab reds, browns, and greens. Hand painted wares of the type seen here tend to be found in 1840s to 1870s contexts. The lack of wire nails in the collection corroborates the idea that Bodie's pottery closed down at around the time of his death in the 1880s. Wire nails were introduced for special purposes in the 1850s, but they almost completely replaced cut nails for most purposes in the 1890s when steel wire extrusion techniques were developed that allowed whole nails to be extruded (Edwards and Wells 1993).

Locally made stoneware vessels include jugs; bowls/pans; small straight-sided jars with nested lids that are generally called preserve jars; larger nested lid vessels that could be churns; food processors (sauerkraut) or storage jars; ovoid storage jars; a few sherds from flatwares; pitchers; and a water cooler. In the analysis, sherds were sorted by body segment (rim, handle, base, and body sherds) and vessel type. At the sherd level, it is difficult to

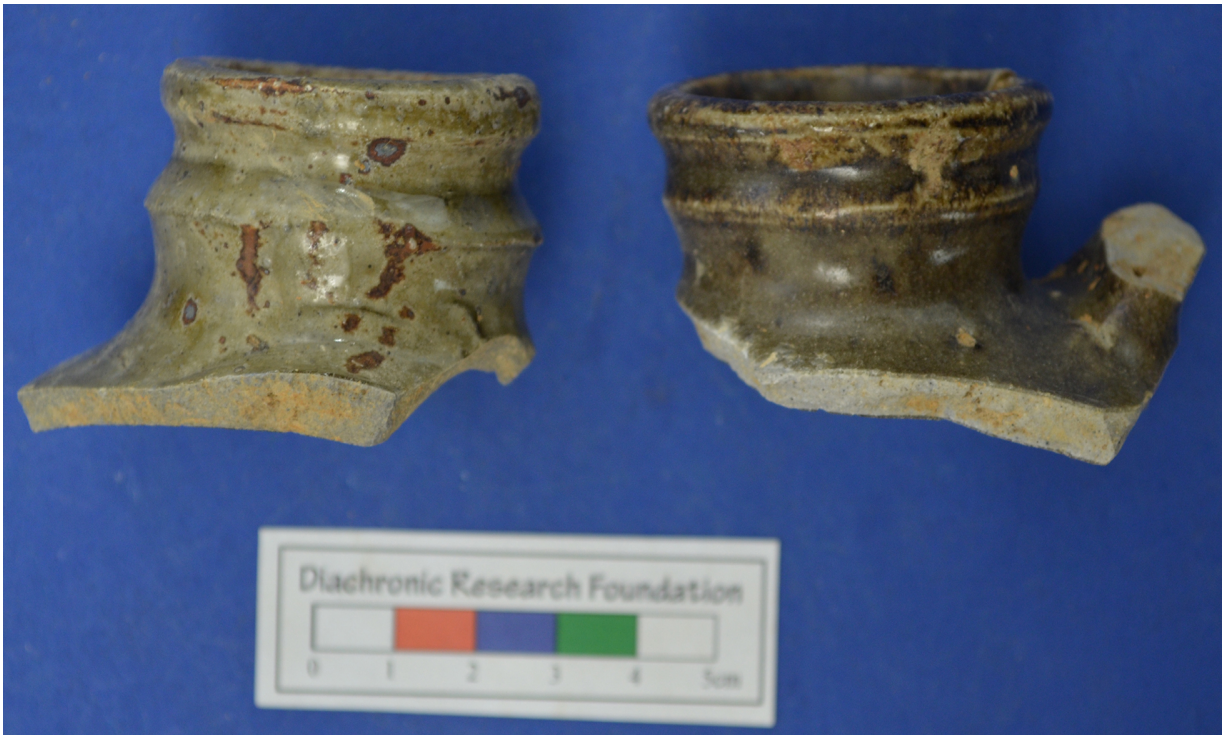


Figure 15. Bottle type rim sherds.

say with confidence what type of vessel many sherds came from. Pan, jug and storage jar rims are straightforward; however, small fragments of simple rims that are glazed on top could come from a variety of vessels.

Jugs. Little can be said about vessel form based on the jug sherds, but, in general, the vessels appear to be more ovoid than cylindrical, which fits well with broad diachronic changes in vessel forms. Jugs were more ovoid earlier, and more cylindrical later (Greer 1981; Steen 1994; 2014). This fits well with the assumption that the pottery closed down in the 1880s. Extant vessels with Bodie's mark tend to be ovoid (see Baldwin 1993:104, 179).

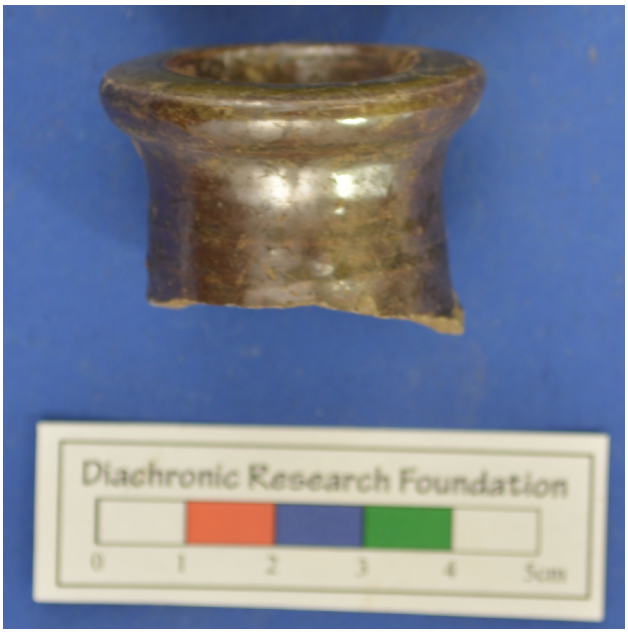


Figure 16. Flaring rim with flat top.

Three distinct types of jug rims were found. Three examples of the first type, double ring bottle type rims, were a bit unexpected, as this rim type was not seen in 1987 (Figure 15). They are very similar to rims found at Pottersville (38ED11- Abner Landrum), the John Landrum site (38AK497), the Amos Landrum site (38AK487), and at the B. F. Landrum (38AK496) and Lewis Miles sites (38AK854) (Steen 1994; 2011, 2014; Calfas 2013). They were common at the first two, which are earlier, and less so at the latter two, both of which were established in the late 1840s. Numerous examples have been seen on Thomas Chandler's wares as well. This type of rim was not used on vessels with other late characteristics like the cylindrical and stacker forms at the B. F. Landrum site, and were not seen at all at Miles Mill (38AK498), which was established in 1867.

One rim stands out from the others (Figure 16). It is a simple, straight neck that flares outward to a flat top. This is a form that is common on later Hahn, B. F. Landrum, and Miles Mill jugs (Steen 1994; 2014). A potter interviewed by the Charleston Museum in 1930, G. U. Flesher, stated that this flattened rim was characteristic of W. F. Hahn (Bragg 1930).

This rim form is also found on jugs made by William F. Hahn (Figure 17). Researchers believe that W. F. Horn became known as W. F. Hahn after moving from Kirksey Crossroads to Trenton (Jason Shull 2014: Personal

Figure 17. W. F. Hahn marked vessel with flaring, flat topped rim.

Communication). In the 1860 census, William F. Horn was 11 years old. The Devore family bible record of births states he was born in 1848. James Horn married Parmelia Devore, William's mother. The Devores and Horns were consistently neighbors in the Kirksey Crossroads area. The 1900 census shows W. F. Hahn living in Aiken and married to Sarah "Sally" Durham. His age is recorded incorrectly, as 31, when it should have been 51 or 52, adding to the confusion. This spelling change may be the result of the census enumerator mistaking a Backcountry pronunciation of Horn as Hahn. In one case, the census spells the name "Harne." Hahn was the name of a prominent Aiken family in 1870. Considering the suggestion printed in the Greenwood newspaper that the Horns were seen as "unsophisticated" (*Greenwood Daily Journal 21 January 1897*) it is possible that W. F. sought to distance himself from his country cousins.

The other, most common type of rim has a few variants (Figure 18, 19). This is basically a straight neck with a single band at the top that extends no more than 2-3mm from the body. The necks are generally short, ranging from about 28-35mm, with orifices 20-25mm in diameter. This treatment includes narrow and wide bands that range from 7.5 to 18.9mm. The narrower bands cluster

Figure 18. Banded rim variants.

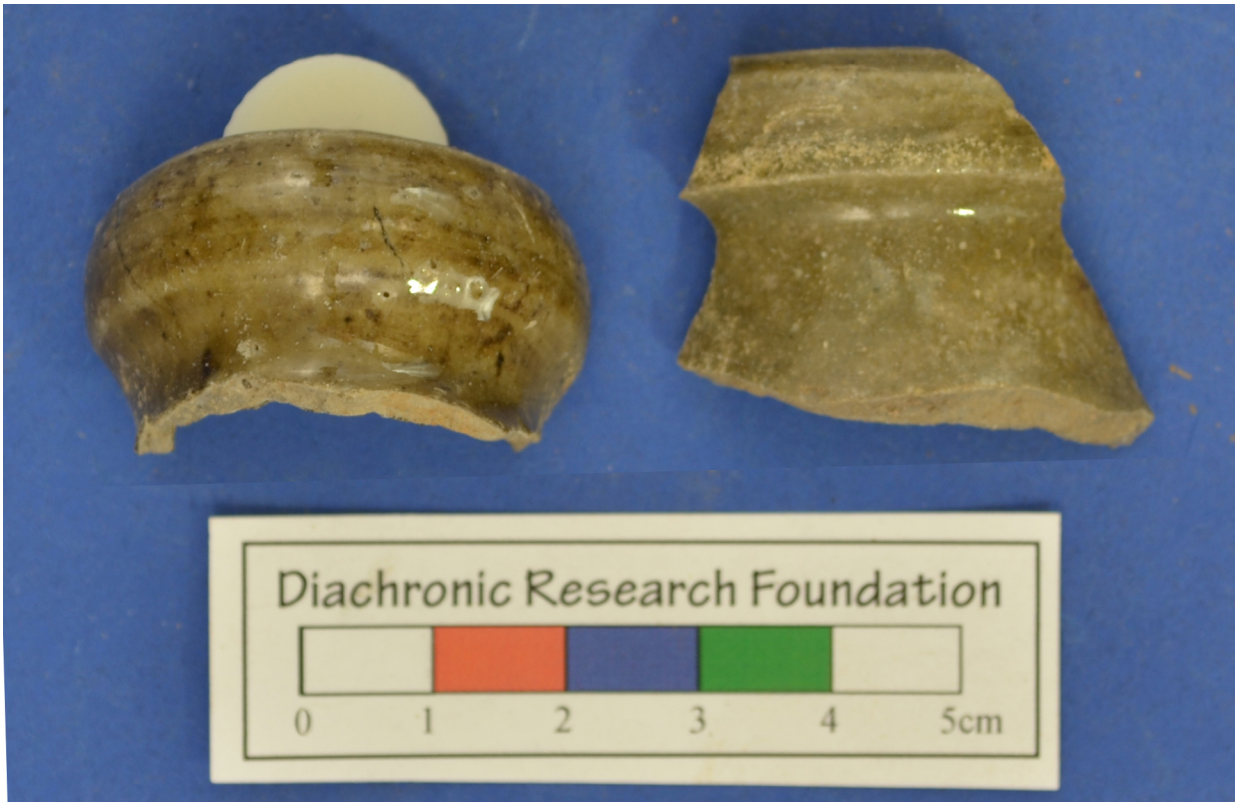


Figure 19. Banded rim detail.

around 11mm, while the wider ones tend to be about 15mm tall. They are tapered slightly from top to bottom in most cases, though about 20% are flat. In a few cases, usually on the shorter examples, the band is rounded. A marked J. P. Bodie piece illustrated by Baldwin has a rim with this rounded appearance (Baldwin 1993:104). In a few cases, the band was all but non-existent, and in one case there was no visible band. Examples of this rim type were found in the earlier roadside deposit, but bottle type rims were not found in the upland units at all. Some extant vessels marked by Thomas Chandler have this simple, single-banded rim (Baldwin 1993: 171, 172), but he also made vessels with double ring rims.

Figure 20. Jug handle examples, left two, thin tableware handle far right.

As we saw through W. D. Roundtree, however, there were potters in the area that may have worked at all three known sites, and as part of a local tradition or "community of practice," they may all have learned from the same teacher. This teacher may have been Thomas Chandler. He may have passed along his techniques, which were interpreted by the next generation in their own way, Thus, evolving away from the Chandler style.

Jugs are associated with strap handles, although strap handles are not exclusively found on jugs. Wide mouth pans, such as cream risers and chamber pots also had strap handles. These handles had two basic forms: one is flatter,

Figure 21. Storage jar rims. Note glaze variation.

with a groove and ridges across the top, and another is more ovoid, without the groove (Figure 20). Handles were attached to the body smoothly, with no pinching, shaping or impressing, as is sometimes seen (Steen 2014).

Storage Jars. Identifiable storage jars were ovoid in form and had simple, everted rims to allow covers to be tied on (Figure 21). Vessel size is difficult to extrapolate from small sherds, but none of the jars appears to have been extremely large. Sherds found in 1987 and 2016 were marked 2 and 3 [gallons] respectively, which is a common size for Edgefield storage jars and churns. Although pieces as large as 30 gallons are known, these are exceptional.

Two distinct handle forms were noted (Figure 22). One is a fairly typical lug handle that is cupped or hollow (Figure 22, left), while the other is more of a flat slab (Figure 21, right). The latter was seen on smaller, wide mouth vessels, while the former is more common on larger vessels. A vessel made by Thomas Chandler in Baltimore had a similar slab handle (Wingard 2013). This type of handle was not used extensively by other Edgefield potters, so it may be another Chandler trademark. Slab type handles were all relatively small, ranging from about 60-90mm across. The hollow handles were larger, ranging from as small as 65mm to as large as 145mm across. Terminals tended to be pinched, and were somewhat squared off.

Pans/Bowls/Wide Mouth Forms. Pans and bowls can be distinguished by form, although this is a somewhat informal distinction based more on morphology than function. Pans have straight walls that flare outward (Figure 23). Bowls have more rounded walls (Figure 24). Pans are not glazed on top of the rim, allowing them to be stacked rim to rim for firing. Two examples of vessels that fused in the firing were noted (Figure 25). Rims on forms identified as bowls were glazed on top. Rims are predominantly simple and rounded, extending only a few millimeters from the body. In a few cases, more complex indented or tooled ogee curve forms (Greer 1981: 65) were

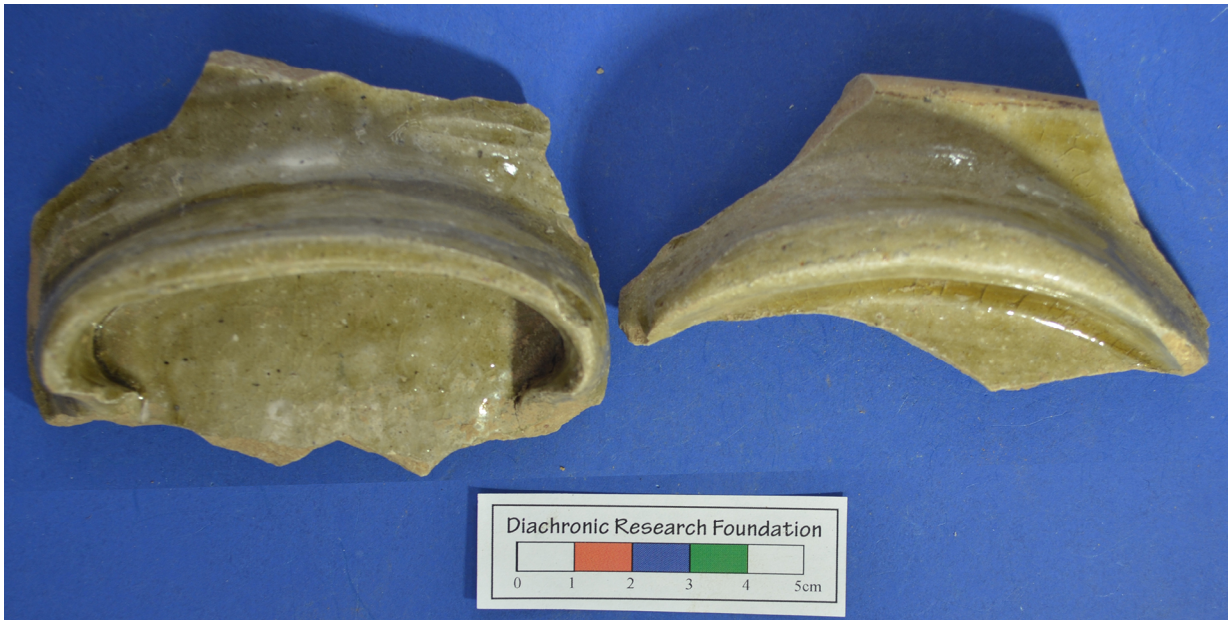


Figure 22. Storage jar handles. Left, cupped; right, slab .

Figure 23. Pan form, straight flaring sides.

seen. These were more common on decorated, wide mouth forms.

Two plain pans were complete enough to measure their height and diameter. Both were 7cm tall. One was about 18cm in diameter, and the other about 15cm. Two decorated pans were also measurable. The first was 21cm in diameter and 80cm tall. The other was slightly larger, at 21cm in diameter and 9.5cm tall.

Three straight-sided wide mouth vessels (Figure 26) were a minimum of 17, 12 and 11cm tall. No base to rim examples were found, so the full height of the vessels could not be determined. Like the pans, these were not glazed on top, which points to the difficulty in accurately assigning vessel form nomenclature at the sherd level. These are probably cream risers.

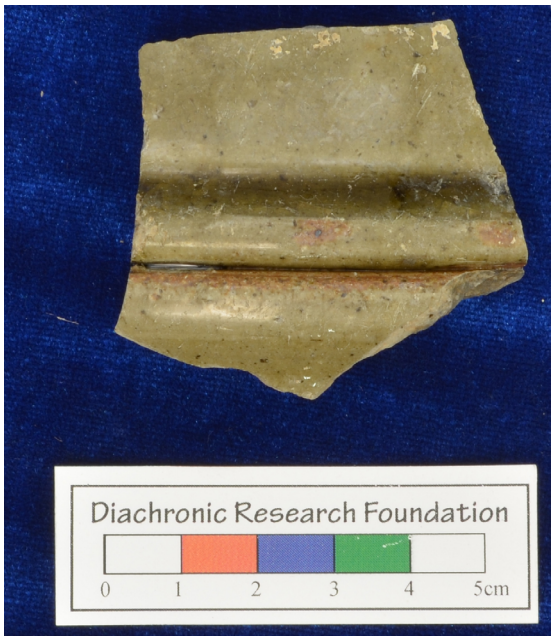


Figure 25. Pan rims, fused in firing.

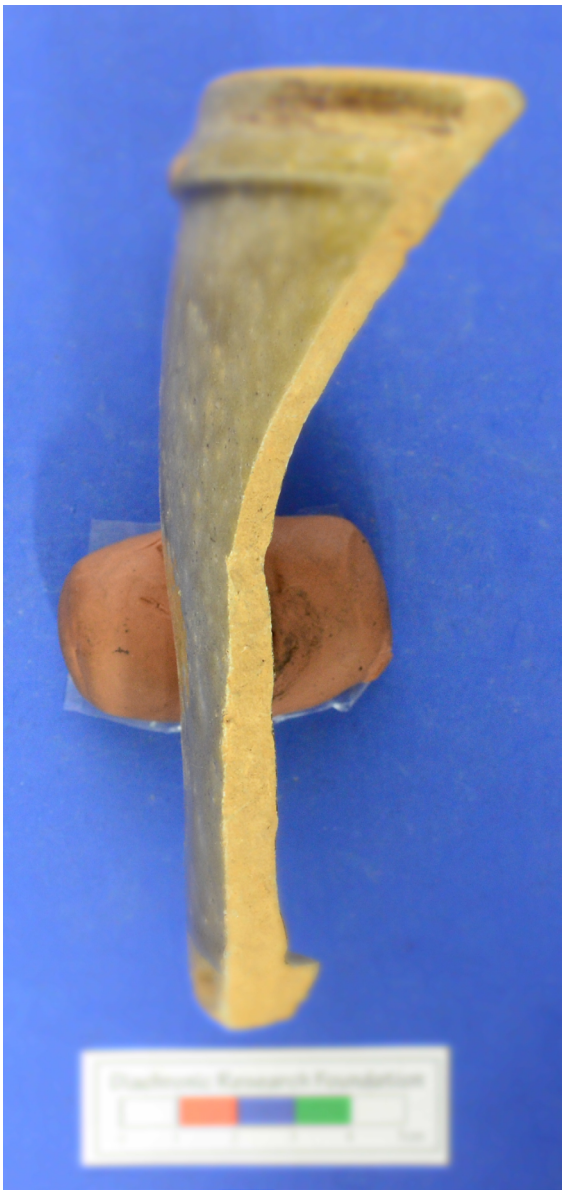


Figure 24. Bowl form, rounded side.

Other Forms. Two sherds from the same vessel had the wide, flat rim that is usually associated with chamber pots. The rim is 2cm wide and would have been about 20cm in diameter. The body would have been ovoid. Another vessel with a flat rim was much smaller, roughly 11cm in diameter. The vessel appears to be ovoid, but only the very top of the body is present.

Three flatware vessels are present. Two are saucer sized (about 15cm in diameter) while the third is a little larger (about 18cm in diameter). They are about 2cm tall, and have marleys that range from 1.8-2.3cm wide. The vessels had pedestal bases. A fourth vessel is more of a shallow pan that is about 2cm tall and 12cm in diameter. It does not have a marley. Flatware is generally uncommon on the sites that have been examined in the area, though a

Figure 26. Deep pan with brown slip decoration. Cream riser. Note handle attachment upper right.

number were found at the Hitchcock Woods site (Steen 2015). A thin strap type handle fragment was probably from a cup (see Figure 20, right). Otherwise, no tableware forms were identified in either the 1987 or 2016 samples.

Rims with pouring spouts were seen on three vessels. Many of the simple, rounded rims that were glazed on top could have come from pitchers or vessels whose contents were meant to be poured, such as cream risers.

The bung of a water cooler is seen on a single sherd (Figure 27). This is an uncommon form for the Old Edgefield District. One of the few marked examples was made by Thomas Chandler. Keith Landreth did not report finding this form at 38GN169 or 38GN343. The example here is undecorated. It was found at the edge of the slope overlooking the roadbed in the 490E 465N unit, so it could be attributed to either the early pottery or the later one.

A whole lid and two fragments were found. The whole lid is a simple, flat, unglazed form with a mushroom-shaped knob that is 15cm in diameter (Figure 28). It warped in the kiln. Another similar knob was glazed. The other lid was for a churn.

The final object is the stem of an unglazed elbow, or stub stemmed, earthenware tobacco pipe (Figure 29). This is a locally made stoneware pipe with an immature glaze. A few examples of pipes have been found at Pottersville, John Landrum, B. F. Landrum, and the Hitchcock Woods site, but they were not a major product. The 1860 census identifies Sarah Garner, a 23-year-old neighbor of Jonathan Devore, as a "pipe maker." Other sources refer to "Horntown" pipes. In 1897, they were advertised by that name at ten cents a dozen (*Greenwood Daily Journal 21 January1897*). By 1932 no one was making the pipes any longer, but they were well remembered by Dr. E. C. McCants (The *Greenwood Index 31 March 1932*). The pipes he remembered were "rather small, round bodied, and intensively black...decorated with geometric and esoteric etchings in brilliant white." The author believed these decorations were inspired by Native American designs. He said that Horntown was the:

"colloquial name for a somewhat primitive section of the country eight or ten miles below Ninety Six. The people of this neighborhood were sturdy and independent, but they were, to say the least, unsophisticated…Naturally, among such folk, home handicrafts were quite considerably developed. Most of the articles produced by these people were strictly for home use, but Horntown pipes were

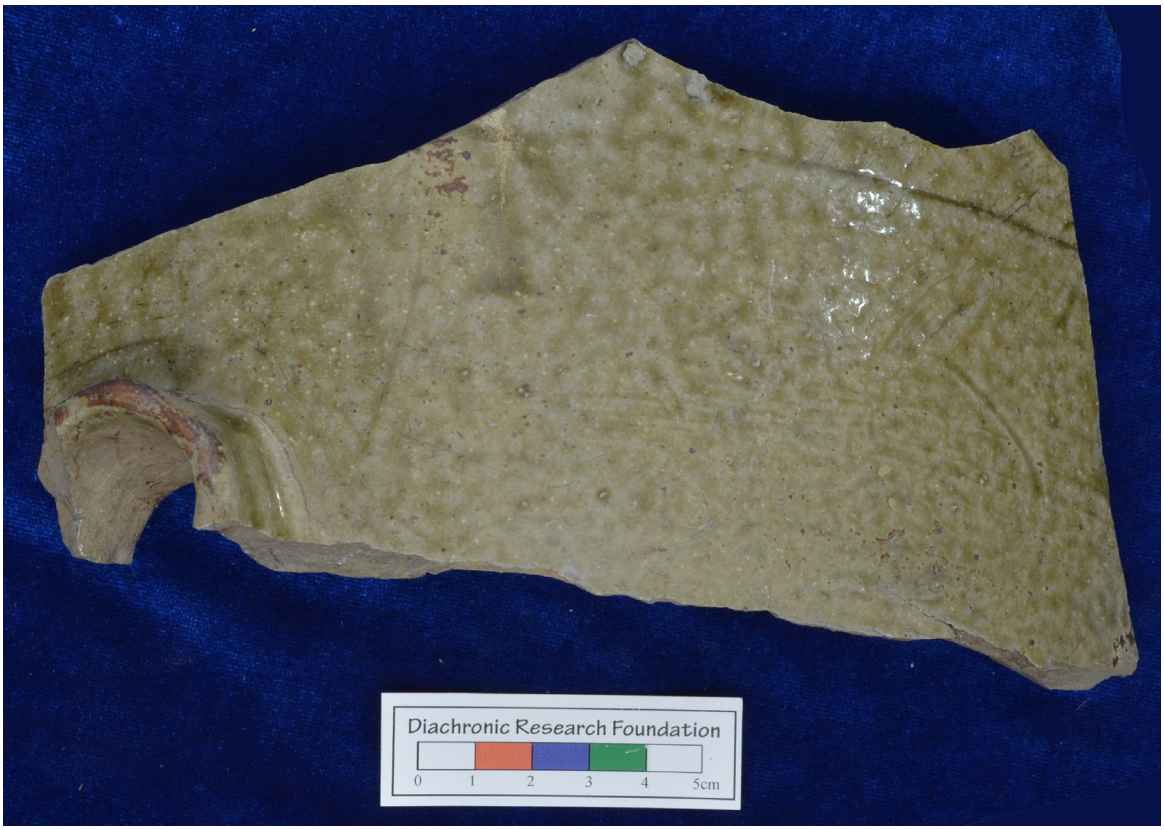


Figure 27. Water cooler base with bung.

turned out in commercial quantities. It is my impression they were manufactured by the women."

He goes on to say that merchants in Ninety Six sold them "at two for a nickel." He says they were made from local clay and fired in the fireplace, rather than in a kiln, which may explain the general dearth of pipes here. U.S. Forest Service archaeologist James Bates (2016: Personal Communication)

Figure 28. Unglazed lid.

Figure 29. Tobacco pipe stem fragment.

Figure 30. Melted jug from 38GN343.

has worked in the area since the 1980s, and he reports that he has never seen examples of "Horntown Pipes" on the numerous historic sites that have been recorded locally. Neither the author nor colleagues informally polled have found these in archaeological contexts either; so, although they were made commercially, locally, and cheaply, they are by no means common or widely distributed.

Several sherds had what appeared in their unwashed

Figure 31. Melted vessel base for 38GN16.

state to be a raised decoration. When cleaned this was revealed to be a second, thick glaze coat. This technique was occasionally used by a number of potters, including Thomas Chandler, but photos of a signed extant vessel with this glaze coat show that the potters at J. P. Bodie did this as well (Baldwin 1993; color plates).

Although our collection strategy did not include bases, a number were collected nonetheless. Potters in the area usually finish bases by lifting them with a tool, resulting in angled, "chamfered" edges, or lifting them directly from the wheel, resulting in a straight edge. Here, a small percentage of bases have a slightly protruding foot.

At 38GN343 and to a lesser extent, 38GN169, firing errors resulted in vessels that simply melted in the kiln (Figure 30). At least one vessel melted here as well (Figure 31). This may be the result of a poor body clay mix, or simply overheating the kiln.

At 38GN169 and 38AK497, an indeterminate material was melted inside stoneware pots used as crucibles. Keith Landreth identified this stone as feldspar at 38GN169, but modern potters who have replicated the traditional wares insist that this identification is incorrect (Personal communication: Steve Ferrell 2014; Tom Turner 2016). Both argue that there would be no need to melt feldspar. Instead, it would be crushed and ground to a powder. At 38AK497, the material was more vitreous than here, and it was suggested that this might be a frit glaze, or an attempt to make glass (Steen 2014).

Marks and Decorations

In 1987, only 1 of the 245 slip-decorated sherds recovered had white slip. Thus, it came as a surprise when we recovered nearly as many sherds decorated in white (72) as brown/black (78). Only a single sherd had both white and dark slip (Figure 32). Figures 33-35 illustrate some of the decorative motifs used. Most are familiar, employing simple loops, apostrophes, and wavy lines, while a couple of vessels had more abstract decorations. A sherd that appears to be bisque fired (Figure 36) was also found. Bisque fired sherds were also found in 1987. This is puzzling, however, as the interior of the vessel had a poorly developed alkaline glaze. Bisque fired sherds were more common in the 1987 excavations. They were common at the Trapp-Chandler site as well (Ferrell ND; Landreth 1986). So, it appears that unlike most southern potters (Burrison 1983), Thomas Chandler practiced bisque firing. As a generalization, it can be stated that pans were decorated on the interior, while

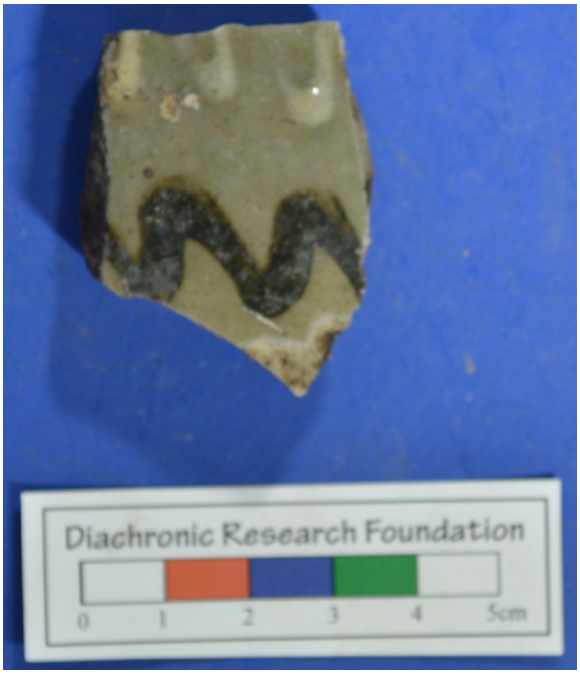


Figure 32. White and black slip combined.

other wide mouth vessel forms were decorated on the exterior. Several sherds had incised lines, but these appear to be incidental, with at least one possible exception. The latter is a single mark just below the neck of a jug and may indicate capacity. A churn or storage jar rim is marked with an incised 3 in a circle on the upper shoulder (Figure 37).

The only marked piece associated with the roadside waster deposit has two impressed // marks (Figure 38). This type of impression was also used at the Trapp-Chandler site, often associated with V, E, and D marks (Ferrell ND; Landreth 1986:86). Similar marks are common at the John Landrum, B. F. Landrum, and Stony Bluff sites. This mark was not used at the Thomas Chandler site (38GN343) suggesting that it was not Chandler's mark.

Seven sherds had segments of the J. P. Bodie maker mark (Figure 39). All of these were found in units on the slope, near the high ground. In 1986, we complained that no Bodie marks had been found, and Thus, final confirmation of this as the Bodie site was lacking. Now this shortcoming has been alleviated; however, the lack of clear Chandler marks continues to be a problem.

Summary - 2016 Excavations

Excavations at 38GN16 have allowed us to delineate the site more carefully than was the case in the 1987 survey. Although minor amounts of pottery were found over a large area, the greatest concentration is in a relatively small area. The pottery shop here was only one building and activity area in an extensive settlement that included dwellings, outbuildings, a store, and a Doctor's office. The footings for a small building were identified in this area. The remains of a massive chimney pile about 50 meters to the northeast may have been the site of a residence or of the Roundtree store. About a 100 meters to the south the remains of the buildings shown on the 1915 Mathews plat can be seen. The Trapp-Chandler pottery site is located about 1,400 meters to the south. Kirksey Crossroads is about 1,000 meters to the north. This was the site of a store, church, and a Masonic lodge. Kirksey steam mill was on the opposite side of the intersection. Thus, there was a spread out community of farms, stores and service industries around this country crossroads.

It was clear in 1987 that the site had been badly disturbed by logging and tree planting, and the additional shovel testing conducted in 2016 further documents

Figure 33. White slip, preserve jar.

Figure 34. White slip, storage jar.

Figure 35. Brown slip loops, deep pan, left, shallow pan, right.

this disturbance. The practice in this area is to clearcut everything possible; then, push the stumps and detritus into linear piles and burn the remaining wood. The leftover soil is then flattened for planting. As a result artifacts are spread far and wide, and any architectural remains would also be destroyed and dispersed. A fence line running east-west at the site of the chimney pile mentioned above is about a meter higher on the north side than it is on the south side, which indicates considerable soil loss in the clearcut area.

Push piles on the slope above "Old" Martintown Road containing stoneware and architectural remains suggest that the later pottery was at the verge of the slope. Shovel testing in this area yielded mostly later, undecorated sherds, some of which bear the impressed mark of J. P. Bodie. At the base of the slope, a dense deposit of earlier slip-decorated wares was found. The hillside is excavated about 20 meters here from the road bed, and the earlier kiln may have been located in this area. The dense briars present on the site prevented us from fully exploring this area in the limited amount of time we had to conduct fieldwork.

Was Thomas Chandler present at the site?

The name Thomas Chandler is associated with slip decorations on alkaline glazed stonewares made in the Kirksey area and at Shaws Creek. Since he was trained in Baltimore and is known to have decorated pieces there, and no one was doing so locally, it seems fair to attribute the introduction of the practice in Edgefield to Chandler. Yet, a casual examination of extant pieces illustrated in various publications, and an examination of decorated sherds from the Shaws Creek sites shows the hand of at least two artists, and probably more (see Baldwin 1993:149, 176 for example; Steen 2016: Figures 75-83). Thus, he taught at least one person, and probably more, to decorate with slip. Slip-decorated vessels have been attributed to Robert Mathis, Milton Rhodes, and Francis Devillin. All three have ties to Kirksey Crossroads. Cinda Baldwin argued that un-named women may have been decorators at Shaws Creek, so to attribute all slip-decorated Edgefield stoneware as the product of Thomas Chandler is incorrect.

Decorated sherds from 38GN16 look very similar to sherds from the Trapp-Chandler and Thomas Chandler sites at Kirksey (38GN169 and 38GN343). This similarity can be attributed to Chandler directly as an artist or

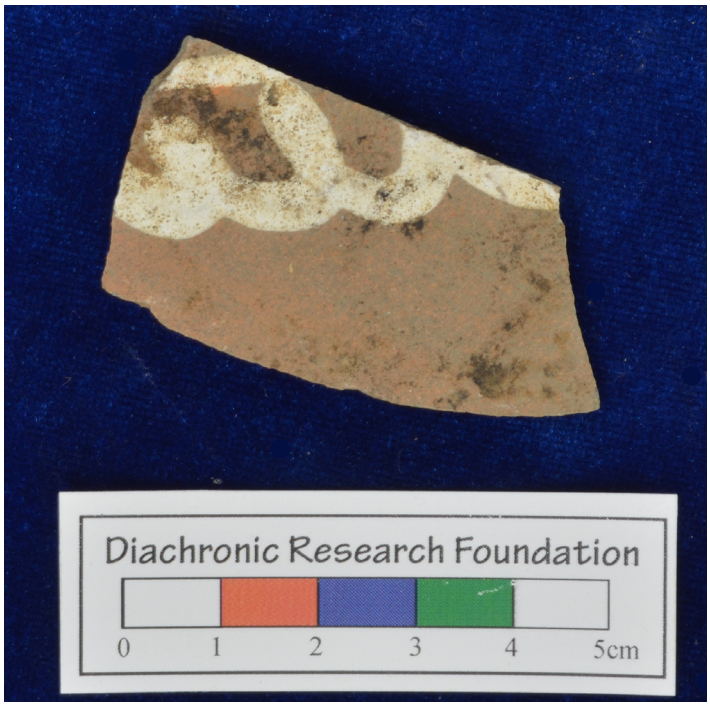


Figure 36. Bisque fired sherd with white decoration.

Figure 37. Unglazed sherd with incised 3 and cartouche.

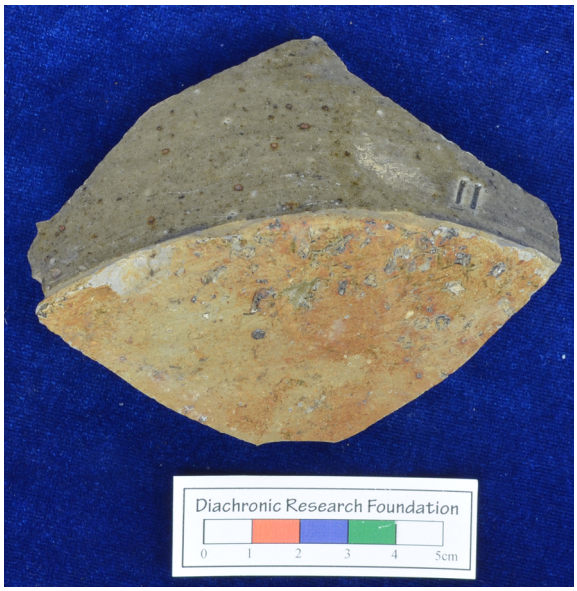


Figure 38. Sherd with two slash marks, from downhill road cut unit.

indirectly as a teacher. It has been suggested that the adoption of decoration was a marketing ploy to set the wares of the producer apart (Ferrell nd). Another purpose was to advertise for the merchants whose names were sometimes emblazoned on the pots. The earliest known slip-decorated vessels were made at Pottersville in 1836. One piece has the name "Drake, Rhodes and Co. Improved Stone Ware" boldly emblazoned on its side (Baldwin 1993:

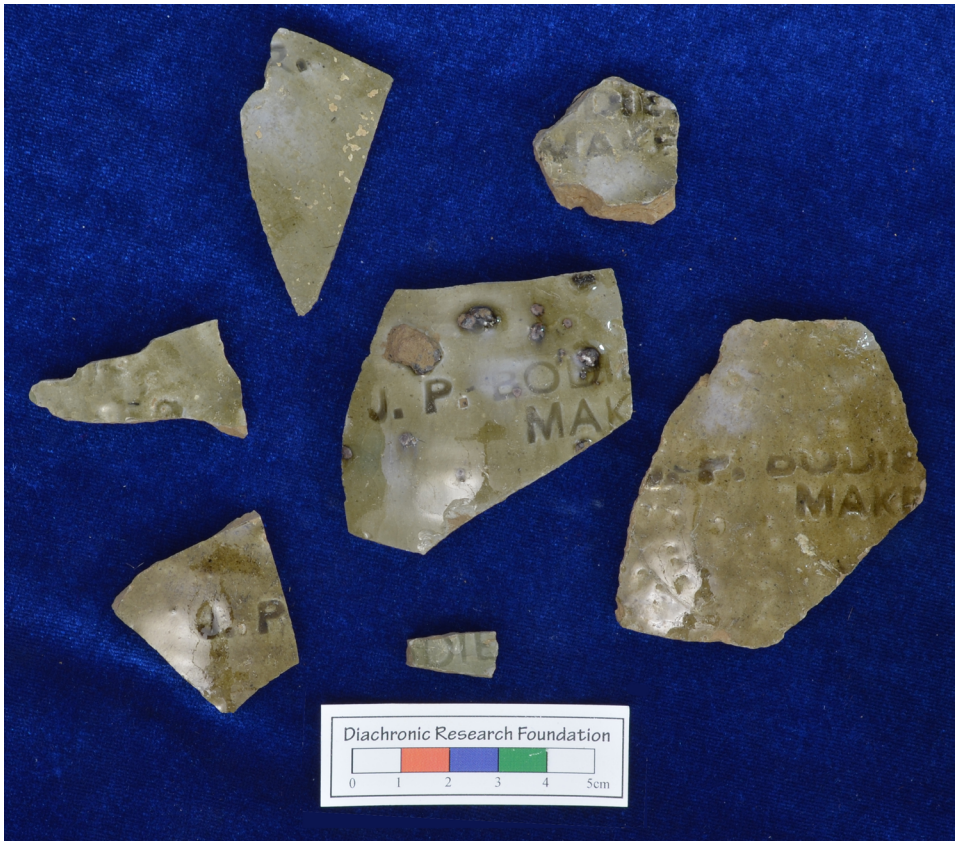


Figure 39. Sherds with J. P. Bodie, maker marks.

Figure 40. Slip-decorated vessel marked "M. Rhodes"

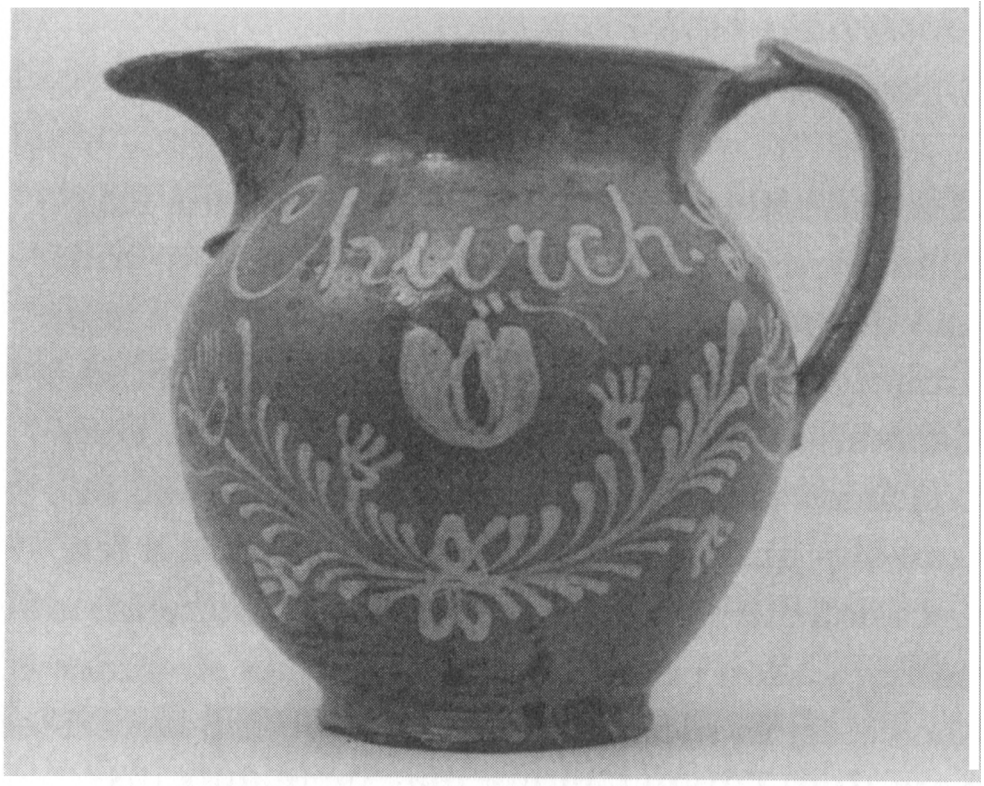
57). The other was made for Hiram Gibbs, of Union District (Baldwin 1993:69). This demonstrates that the technique was known, but not widely used prior to Chandler's arrival in 1838. However, Phillip Wingard (2013) has pointed out that Chandler was in the army, stationed at Augusta, Georgia in 1836 and that he went AWOL several times. It is possible that he took a job making pottery at Pottersville during one of his absences. Mr. Wingard (2016: Personal Communication) believes that the decorations seen at Pottersville were by Thomas Chandler.

Colin Rhodes announced in the *Edgefield Advertiser* in 1840 that he had employed "the best workers" and was opening the Phoenix Factory south of Edgefield on Shaws Creek. Thomas Chandler was one of these workers, and his marriage to Margaret Durham, daughter of John Durham, in 1838 indicates that he was actively involved in pottery making in Edgefield at the time. Amos Landrum, brother of Abner and John Landrum, was also working at Shaws Creek. He filed an indenture in 1835 that involved land on Shaws Creek, Reuben Drake and Jasper Gibbes,of Pottersville, and a slave potter named Buster (Baldwin 1993: 45; ECDB 47:94-95). In 1838, Thomas Chandler and Robert Mathis witnessed a deed for Amos Landrum on Shaws Creek. A pottery site associated with him was located about 200 meters from the Phoenix Factory site. Very limited work at the site (38AK487) in 1993 recovered sherds that were indicative of the Landrum family: the characteristic light-colored glaze, bottle type jug rims, and more importantly, the impressed cross maker's mark found at the John Landrum site (Steen 1994, 2014). A single sherd with trailed slip decoration was recovered as well. Extant pieces have been attributed to Amos Landrum, though the evidence behind this attribution is not known (McClendon Auction Catalog).

In 2013, a number of slip-decorated sherds were found at the John Landrum site (Steen 2014), and at least one known slip-decorated vessel was signed by Dave at Stoney Bluff in 1849. Slip-decorated sherds were recovered at the site as well (Toussaint 2017: Personal Communication). So the practice appears to have been tried out, but not heavily used by other potters in the area. The name most consistently associated with the practice is Thomas Chandler.

The design motifs used by Chandler at the Trapp-Chandler and Thomas Chandler sites are found at 38GN16 as well (Castille et al. 1987). At GN169 and 38GN343. Chandler's wares are marked with his name, but at Shaws Creek and 38GN16 they are not. It is possible that he was a teacher and his students "graduated" and got jobs elsewhere. It is equally possible that he was the only person to fully understand and appreciate the practice of slip decorating, and used this knowledge to market himself as a worker and his wares to the customer. As time consuming as decorating with slip is, it is easy to imagine a shop owner not wanting his workers wasting their time doing so. That said, a pitcher illustrated by Baldwin (1993:159) is slip-decorated and is dated 1857. Another vessel dated 1855 is known, so the practice did not die out completely when Chandler left the area.

As stated earlier, based on a newspaper article that



5.24 Slip-decorated alkaline-glazed stoneware pitcher, 1857, attributed to the Seigler Pottery, Shaw's Creek, Edgefield District, S.C. H 9¼", C 27". Kaolin-slip script: Rocke[s]pring Church S.C. / 1857. Collection of the Aiken County Historical Museum, Aiken, S.C.

Figure 41. Vessel marked Rock Springs Church, S.C. 1857, with design elements also found on Chandler vessels (Baldwin 1993)

quotes a longtime local resident and a 1920 interview, it is believed that James Turner may have purchased the pottery at 38GN16 in the 1840s or 1850s. Both 38GN16 and 38GN169 are on land that came to be owned by the Mathis (or Mathews) family, so Robert Mathis and Thomas Chandler may have made the move to Kirksey together. The lack of marks on pre-Trapp-Chandler slip-decorated pieces may, therefore, reflect his status as an employee, rather than an owner or senior supervisor. In fact, marked pieces from Shaws Creek say "C. Rhodes, Maker" and "Phoenix Factory," not "Thomas Chandler" or "Chandler Maker."

Thus, we must conclude that the decorations on 38GN16 sherds most likely show the presence of Thomas Chandler at the site, while bearing in mind that other explanations are possible. For instance, it is possible that the workers at Thomas Chandler's shop, desperate for work, opened a new shop when he left in 1852, continuing to make wares like the ones at 38GN343. Francis Devillin, for instance, lived next door to John Presley in 1840, and Thomas Chandler in 1850. He was present in the area until 1854 (*Edgefield Advertiser 29 November 1854*). James A. Turner, born in 1826, was in the Kirksey neighborhood and may have apprenticed with Chandler, though no signed or marked pieces are attributed to him. In 1854, he would have been in his mid- 20s, and with the help of investors and trained workers like Francis Devillin, he may have opened a new shop closer to Kirksey Crossroads. Evidence for Turner purchasing the shop has not been found. It is possible that Washington Roundtree financed the operation to supply his store with pottery for sale, but again, the documentary record is silent. An extant decorated vessel is signed "M. Rhodes" (Figure 40). This is Milton Rhodes, brother of Collin Rhodes. In 1851, he married Frances Kemp, daughter of Hannah Kemp, who, along with her extended family, lived at Kirksey Crossroads (*Greenwood Index-Journal, 24 September 1942*). The decoration on this vessel is in the hand of one of the Shaws Creek potters, as numerous similar sherds were collected there by Steve Ferrell. Another extant vessel is dated 1857 (Figure 41). Baldwin (1993:159) stated that this vessel "displays a departure in form and decorative technique," but the motif she illustrated is very similar to that seen in Figure 5, so continuity is indicated.

We cannot conclusively say Thomas Chandler worked at the site, yet the evidence does not rule him out either. The appearance of the decorations and glazes support his presence, and in all likelihood he was, in fact, present. Highly knowledgeable collectors are convinced that the decorations seen at 38GN16 can be attributed to him, and

it is difficult to argue against their opinions. However, the last piece of the puzzle, a marked sherd or definitive document, remains to be found.

Conclusions

The 2016 excavations at 38GN16 have been successful in delineating the main pottery production area. We have been able to separate products of the Bodie era from earlier wares. Definitive proof that Thomas Chandler was the maker of the earlier wares, in the form of marked or signed wares, has not been found. Nor has documentary evidence of his presence at the site been found. Inferential arguments for his presence are strong, but as always, inferential arguments are weaker than arguments based on empirical evidence.

Future excavations should be aimed, as was the present work, at obtaining this empirical evidence. This work will be weather dependent and will require flexibility. Wet soils can be excavated, but plans will have to be made for addressing the screening problems we faced in 2016. Our 1987 work suggests that intact, deeply buried deposits may be present west of our 2016 units.

38GN16 is better understood now, both in terms of the site's physical layout and its history and historical context. When the site was in operation, this stretch of what is today a sparsely settled country road was a busy place. In the area around Kirksey Crossroads, there was a tannery, several stores, the pottery, a steam mill, and water powered lumber and grist mills. At the crossroads, there was a church, a Masonic Lodge and a muster ground. In depth research can help us to better understand the site and the community, and put it into perspective.

Acknowledgements

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Appendix A: People Associated with Pottery Making in the Kirksey Crossroads Area in the 19th Century.

Ambris	Contracted with James H. Burnett for the year 1866, along with Anthony and Jessie. He is not called a potter, but Anthony and Jessie are, and he was hired to work with/for them.
Anthony	"A turner of Stone ware" contracted with James H. Burnett for the year 1866.
Jesse P. Bodie	Documented owner of the J. P. Bodie pottery (38GN16). Bodie was a Baptist preacher and farmer. In 1850 he owned three slaves, and in 1860 he owned five slaves. He owned $2,500 in real estate and $4,500 in property. He was not at Kirksey in 1850 or 1860, but is enumerated there in 1870.
A.F. Brannon	It is not clear that A. F. Brannon was a potter, but his name is inscribed on a vessel. An Agnefs [?] Brannan was enumerated in the census in the Abbeville District in 1820. W. B. Branon witnessed a bill of sale for timber between Abner Landrum and Harvey Drake in 1828. A relationship with pottery is inferred.
Esau Brooks, Jr.	Neighbor to the 38GN169 site, but not clearly identified as a potter. However, he was associated with Trapp and Presley in 1841 court proceedings, when he sold 1,400 gallons of stoneware to settle a court case. He may have been an investor.
Esau Brooks, Sr.	Neighbor to the 38GN169 site, but not clearly identified as a potter.
J. H. Burnett	Obtained the Roundtree pottery and sold it to Bodie, but he was not necessarily a potter. He was called a student in 1860 (at age 23) and was living in a rooming house in Ninety Six at the time. May have become a merchant or land speculator, as a 1911 newspaper account states that he stayed at the pottery for a short while in 1866 before selling it to J. P. Bodie.
Thomas Chandler	Well-documented potter.
Shep Davis	Worked in "potry" in 1870 according to the census.
Francis Devillin	Lived in the household adjacent to John Presley in 1840. Witness in coroner's inquisition regarding Thomas Chandler's son's death. Enumerated next door to Chandler in 1850, occupation "Pottery." Later, he moved to Buncombe County, NC, and helped establish the Penland pottery there.
Jonathan Devore	His son said he was a turner at the Roundtree/Bodie pottery. Census identifies him as an overseer and farmer.
Simpson Devore	Baldwin identifies a "Semps" Devore as a potter. It is assumed that this is Simpson, though the census referred to him as a laborer in 1880. He was the same age as his neighbor William Horn, and it is possible that a vessel marked "Horn and Devore" was made by them.
Matthew Duncan	1869 Roll of Citizens calls him a turner.
Isaac Durham	Baldwin says he was neighbor to John Trapp in 1850. Also a potter at Shaws Creek and Pottersville.
John Durham	Mortgaged land on Martintown Road that was the site of a "Stone Factory" to John Trapp in 1843. Not listed in the census, thus he may be the same person as Isaac Durham.
Stewart Durham	Lived in Kirksey in 1850 with his mother, Nancy, who was Isaac's widow.
William Durham	Went to NC with Thomas Chandler. Son of Isaac, traveled to Texas, then back to SC. Census lists him at Kirksey in 1870.
Easter	Slave of Thomas Chandler, mentioned in 1852 trust document.
Sarah Garner	She is called a pipe maker in the 1860 census and lived next to John Devore.
William Grice	He is listed as a turner in the 1850 census, but it is not clear where he lived.
William F. Horn/Hahn	William F. Horn grew up in Kirksey. Listed in 1850-1870 census in Kirksey, but is in Gregg Township in Aiken County in 1880. In Aiken in 1900 his name is given as William F. Hahn. He made pottery near Trenton, where he marked wares "W.F. Hahn/ Trenton SC." Trenton was established around 1870. The local post office was at a store and tavern called Pine House prior to that.
Jessie	"An apprentice turner of stone ware." Contracted with James H. Burnett for the year 1866.
John	Slave of Thomas Chandler, mentioned in 1852 trust document. Possibly John Chandler, who worked with William Durham, and ended up in Guadlupe Texas.
Jim Lee	The Charleston Museum says a slave named Jim Lee made a figural vessel depicting a local preacher, Rev. Pickett. No Jim Lee has been found in the census or other documentary sources. In 1840 John Presley used two slaves named Lee "one called yellow and the other black Lee" (ECDB) as collateral in a loan. Lee Rodgers is found in the 1870 census. One of the three may have been known as Jim Lee or mistakenly called by that name.

Appendix A: (cont.)

R.W. Mathis / Mathews	R. W. Mathis witnessed a deed with Thomas Chandler in 1838 at Shaws Creek. He was also a partner at Pottersville and Phoenix Factory. Given the presence of the Mathews family in the Kirksey area, a relationship is inferred.
Ned	Slave of Thomas Chandler, mentioned in 1852 trust document.
John Presley	John Presley married Abner Landrum's daughter, Mehathalan, and purchased land from him at Pottersville in 1838. In 1840, he advertised for sale a farm on Martintown Road, as well as a working stoneware pottery and "three or four negroes." This is thought to be 38GN169.
Milton Rhodes	Slip-decorated vessel signed M. Rhodes. Milton Rhodes married Frances Kemp and moved to Kirksey. He died intestate in 1858. His son Cullen Milton Rhodes sold his property to John Durst in 1871.
Lee Rodgers	The 1870 census states that Lee Rodgers was born in Virginia, worked at the pottery at 38GN16. He may be the person the Charleston Museum called Jim Lee.
Andrew Jackson "Jack" Roundtree	In 1911, he was said to have been "involved in the pottery business." He and his younger brother Washington were identified as traders in the 1850 census. Thus, his involvement in the pottery business may have been as a salesman.
Washington Durst Roundtree	W. D. Roundtree operated a store at Kirksey, and took over the operation of the pottery at 38GN16 from James Turner at some point. His store is first mentioned in 1859, when local citizens petitioned for it to be their polling place. He served in the Confederate army in 1861 and 1862. In 1866 he sold the pottery to J. H. Burnett and moved to Quitman, GA.
Simon	Slave of Thomas Chandler, mentioned in 1852 trust document.
Edward Stone	In 1841, Stone sold "one lot of jugs, jars, & c." at the "pottery on Martintown Road" under court order. He may have been a turner/partner in the Presley-Durham pottery at 38GN169. By 1844, he had gone to Buncombe County, NC, to open a pottery there, probably introducing alkaline glazed stoneware to NC.
John Trapp	John Trapp was a baptist preacher, farmer, and mill owner. He became involved in the pottery business at 38GN169 when John Presley used his "stone factory" as collateral on a loan. He partnered with Thomas Chandler to form the Trapp-Chandler pottery. This was probably in operation between 1843 and 1849, as Chandler opened a shop of his own in 1850 at 38GN343.
James A. Turner	According to a descendant interviewed by the Charleston Museum, 38GN16 was established by "a man named Turner." James A. Turner married Ann M. Roundtree. Ann was A .J. and W. D. Roundtree's cousin. In 1850, he was 24 years old, and enumerated by the census on the same page as the Horn, Devore and Trapp families. They had moved to Florida by 1860.
Isum Whatley	In the 1870 census, he was said to "work in potry." The Whatley family owned land that abutted the Mathews Fields tract.

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ECMR Edgefield County Miscellaneous Records
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Temporal and Morphological Aspects of Triangular Bifaces in the Middle Savannah River Valley

Jessica M. Cooper

Abstract

Previous research indicated that a threshold value of 18 mm basal width distinguished Woodland (≥18 mm) from Mississippian (<18 mm) triangular assemblages in the middle Savannah River Valley (Sassaman et al. 1990). In order to evaluate this hypothesis, the study area and sample size was increased to 369 bifaces from sites across Georgia and South Carolina. This analysis shows that mean basal width is temporally sensitive. In the middle Savannah Rier Valley, Triangular bifaces with a mean basal width of greater than 18 mm are categorized as Woodland, while those with mean basal widths less than or equal to 18 mm are categorized as Mississippian, though sub regional variation challenges the utility of a broad regional model of triangular biface basal width decline.

Introduction

The bow and arrow had a major impact on life in the prehistoric Southeast once it replaced the atlatl and dart as the primary weapon (Blitz 1988; Hudson 1976; Milner 1999; Tomka 2013). Though the exact timing and circumstances of its adoption are debated, small triangular bifaces are unequivocally accepted as evidence of the bow and arrow (Anderson 1986; Anderson and Mainfort 2002; Blitz 1988; Milner 1999; Peacock 1986; Sassaman et al. 1990). While the style change to triangular points is obvious, the size of the points is variable, and, in fact, they continuously decrease in size throughout the Woodland and into the Mississippian period (Hughes 1998; Milner 1999; Sassaman et al. 1990; Shott 1993, 1997; Thomas 1978). The primary goal of this paper is to model the change in size of triangular bifaces through time by establishing a threshold value for basal width from the Woodland to the Mississippian period in the middle Savannah River Valley.

Previous research indicated that a threshold value of 18 mm basal width distinguished Woodland (≥18 mm) from Mississippian (<18 mm) triangular assemblages in the middle Savannah River Valley (Sassaman et al. 1990). In order to evaluate this hypothesis, the study area and sample size was increased to 369 bifaces from sites across Georgia and South Carolina. This analysis shows that mean basal width is temporally sensitive with those assemblages with mean basal width of greater than 18 mm categorized as Woodland, while those with mean basal widths less than or equal to 18 mm categorized as Mississippian in the middle Savannah River valley. The utility of a broad regional model is questionable; however, a bimodal distribution occurs at 17 mm at the regional scale.

The Woodland and Mississippian Periods in the Middle Savannah River Valley

Mound building, horticulture, and pottery distinguish the Woodland period from its Archaic predecessor throughout much of the Southeast (Anderson and Mainfort 2002; Sassaman et al. 1990). In the Savannah River valley, however, pottery arrived much earlier during the Late Archaic Period (ca. 4500-3000 B.P.), and mound building did not occur until much later during the Mississippian, (ca. 750 B.P.; Sassaman et al. 1990).

Late Woodland Period (1450-800 B.P.). In the Savannah River valley, the Late Woodland is delineated by an increase in cord marking on ceramics accompanied by an absence in check stamping, as well as changes in lithic biface morphology (Sassaman et al. 1990). Triangular biface forms similar to Madison, Caraway, and PeeDee types become diagnostic of the period and are thought to represent the adoption of the bow and arrow as the primary weapon (Anderson and Mainfort 2002; Blitz 1988; Nassaney and Pyle 1999; Sassaman et al. 1990). Maize agriculture spread to South Carolina at the end of the Woodland period, and a clear shift from small dispersed settlements to large villages and civic ceremonial mound centers can be seen marking the end of the Late Woodland and the beginning of the Mississippian period (Herbert 2002; Judge 2016; Sassaman et al. 1990).

Mississippian Period (800 B.P.-500 B.P.). Platform mounds, civic ceremonial centers, social differentiation, and complicated stamped pottery distinguish the Mississippian period from the Late Woodland period in the middle Savannah River valley (King and Stephenson 2016; Sassaman et al. 1990; Stephenson 2011). Though there is some evidence for social stratification in the earliest part of the Mississippian period, it did not manifest in material differences (King and Stephenson 2016). The small triangular tradition continues from the Woodland period. The bow and arrow became the dominant weapon as palisaded villages began to appear and skeletal evidence points toward an increase in warfare (Blitz 1988; Milner 1999).

The Bow and Arrow

Though it is unclear precisely when the bow and arrow first appeared in many places, evidence indicates it was present during the Younger Dryas in the Upper Paleolithic between 11,000-9700 B.P. and was common by at least 8000 B.P. in Western Europe (Bergman 1993). In North America, evidence indicates that the bow and arrow first arrived between 11,000 B.P. and 5000 B.P. in the form of the Denbigh Flint Complex in Northwestern Alaska—considerably later than it was in wide use elsewhere (Ames et al. 2010; Blitz 1988). Following a north to south and west to east trajectory, bow and arrow technology quickly spread across the continent (Blitz 1988). Based on the small triangular tradition, the accepted date for for the introduction of the bow and arrow to the Southeast is during the Late Woodland between 1450 B.P. and 800 B.P. (Blitz 1988; Sassaman 1990). However, recent research by Cooper (2017) suggests that Middle Woodland (2450-1450 B.P.) Eared Yadkin points, may have functioned as early arrow points and Bradbury (1997) found evidence that the bow and arrow was present as early as 3150 B.P. during the Late Archaic.

Though the atlatl and dart was still in use when De Soto traveled through the Southeast in the 1540s, by the Late Woodland (1450 B.P.-800 B.P.) it was superseded by the bow and arrow as the primary weapon (Bradbury 1997; Clayton et al. 1993; Hudson 1976; Hughes 1998). The physics and stealth of the bow and arrow made it more advantageous in warfare, and equal to if not better at hunting small and medium sized game than the atlatl and dart. Hughes (1998) and Tomka (2013) found that the bow and arrow provided better velocity and penetrating power compared to the atlatl and dart and the thrusting or throwing spear. Hughes (1998:365) showed that the size of the stone tip on the weapon matters in two aspects of projectile technology: penetration and matching. In order to adequately penetrate prey, the stone tip must be as small as possible. She also found that even though an atlatl dart can be hafted onto an arrow shaft and vice versa, the high risk of breakage coupled with the reduction in performance would preclude such injudiciousness.

The Triangular Problem

Changes in lithic technology associated with the arrival of the bow and arrow are observed namely in the shift from large, stemmed, and notched bifaces to smaller, triangular bifaces (Nassaney and Pyle 1999). These bifaces—referred to simply as Woodland/Mississippian triangulars—are typically equilateral or isosceles triangles that lack any basal modification (Peacock 1986; Sassaman et al. 1990) (Figure 1). Triangular bifaces continue to decrease in overall size throughout the Late Woodland and Mississippian periods, and basal width was proposed as a good temporal indicator (Anderson 1986; Blanton et al. 1986; Judge 2017; Rudolph and Hally 1985; Sassaman et al. 1990).

Figure 1. Triangular bifaces from 38BR495 on the Savannah River Site.

An early study of Woodland and Mississippian triangulars at 38SU83 showed that basal width is temporally significant (Blanton et al. 1986). Triangulars from 38SU83 were divided into three groups subjectively based on size. Group 1 consisted of small triangulars with basal widths averaging 12 mm, and Groups 2 and 3 had basal widths greater than 17 mm. The Group 1 assemblage correlates with the Mississippian component, whereas Groups 2 and 3 are associated with the Woodland period.

Similarly, Sassaman and colleagues (1990) analyzed 91 triangular bifaces from Woodland and Mississippian sites on the Savannah River Site in western South Carolina. The data showed that a threshold basal width of 18 mm exists between Woodland (> 18 mm) and Mississippian (≤ 18

mm) triangulars (Sassaman et al. 1990). More recently, Judge (2017) proposed that triangular bifaces decline in basal width by 5 mm for each culture-historical period beginning with the Early Woodland (30-35 mm+) to the Mississippian (≤15-20 mm).

Research Area and Data

The data for this study was obtained from published archaeological reports, as well as the collection at the Savannah River Archaeological Research Program (SRARP), which is composed of artifacts from portions of Aiken, Barnwell, and Allendale counties, South Carolina.

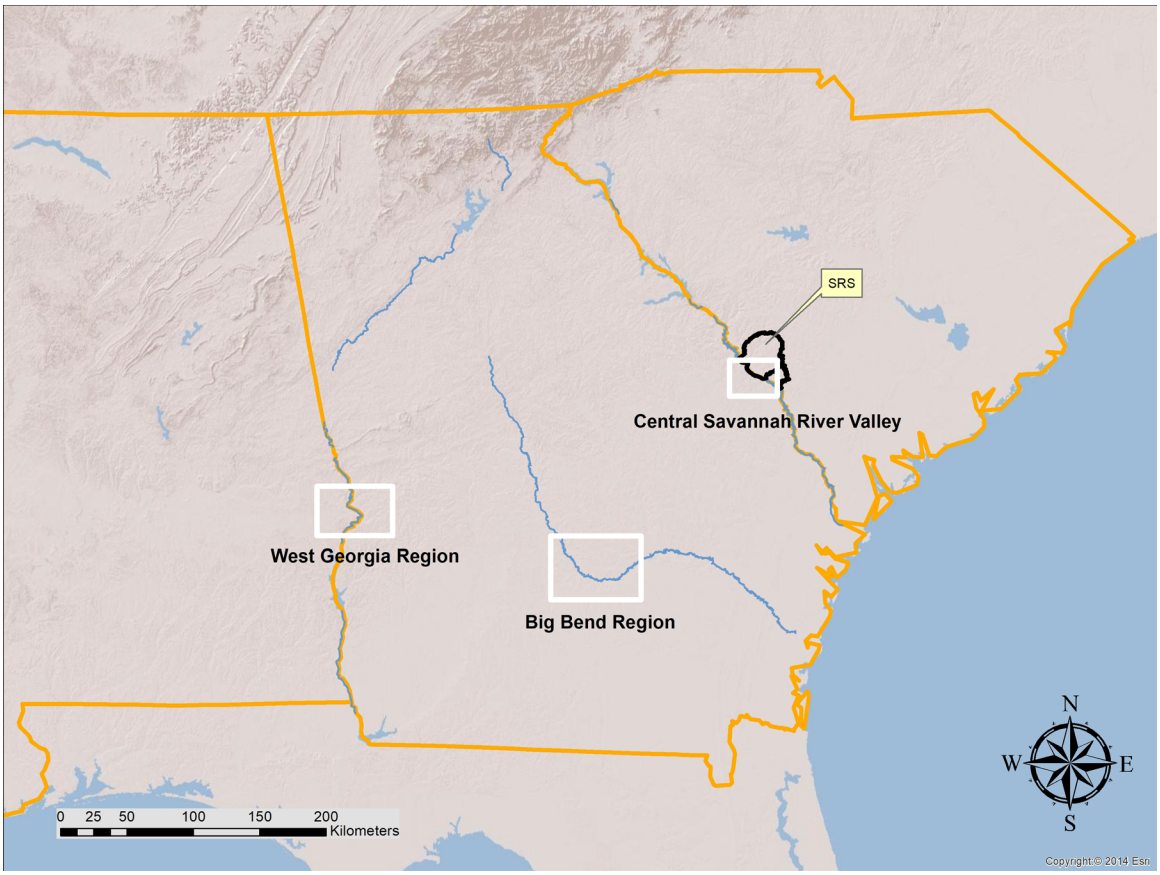

Figure 2. Overview of the study area.

Triangulars from archaeological sites in eastern, central, and western Georgia were also included to provide a regional perspective of basal width change (Figure 2).

Savannah River Site (SRS). Construction began at the site in 1951, and since 1973, cultural resources on SRS have been managed by Savannah River Archaeological Research Program (SRARP), a division of the South Carolina Institute of Archaeology and Anthropology. Approximately 30% of the 310 square miles of the SRS has been intensively surveyed archaeologically (Savannah River Archaeological Research Program 2016). The area of the SRS was continuously occupied from the Paleoindian period (11,500-10,500 B.P.) to the Historic period (500 B.P.-present) (Sassaman et al. 1990). Triangular bifaces from two sites on the SRS and one site just to the south were included in the study: G. S. Lewis-West (38AK228) and 38BR495 within the boundary of SRS and Lawton (38AL11) in Allendale County. Data from the Di-Lane Plantation excavations in Burke County, Georgia, are also included in this region (Figure 3).

G. S. Lewis-West. The G. S. Lewis site is a multicomponent archaeological site spanning the Early Archaic through Mississippian periods. Initially discovered in 1977 during Phase I survey, the site was not excavated until 1984 during compliance operations for the dredging of a nearby canal (Sassaman 2002). The site encompasses approximately 21 hectares and consists of two areas of excavation: G. S. Lewis-East consists of Early and Late Archaic components and G. S. Lewis-West which consists of Middle Woodland through Mississippian occupations, including a 25-cm thick Woodland midden (Sassaman et al. 1990; Sassaman 2002). Thirty-eight triangular bifaces from the Late Woodland (1000-800 B.P.) occupation of Lewis-West were analyzed.

38BR495. During the archaeological survey for the construction of L-Lake on the SRS, a 116 m^2 block of 39BR495 was excavated. Though the site was used

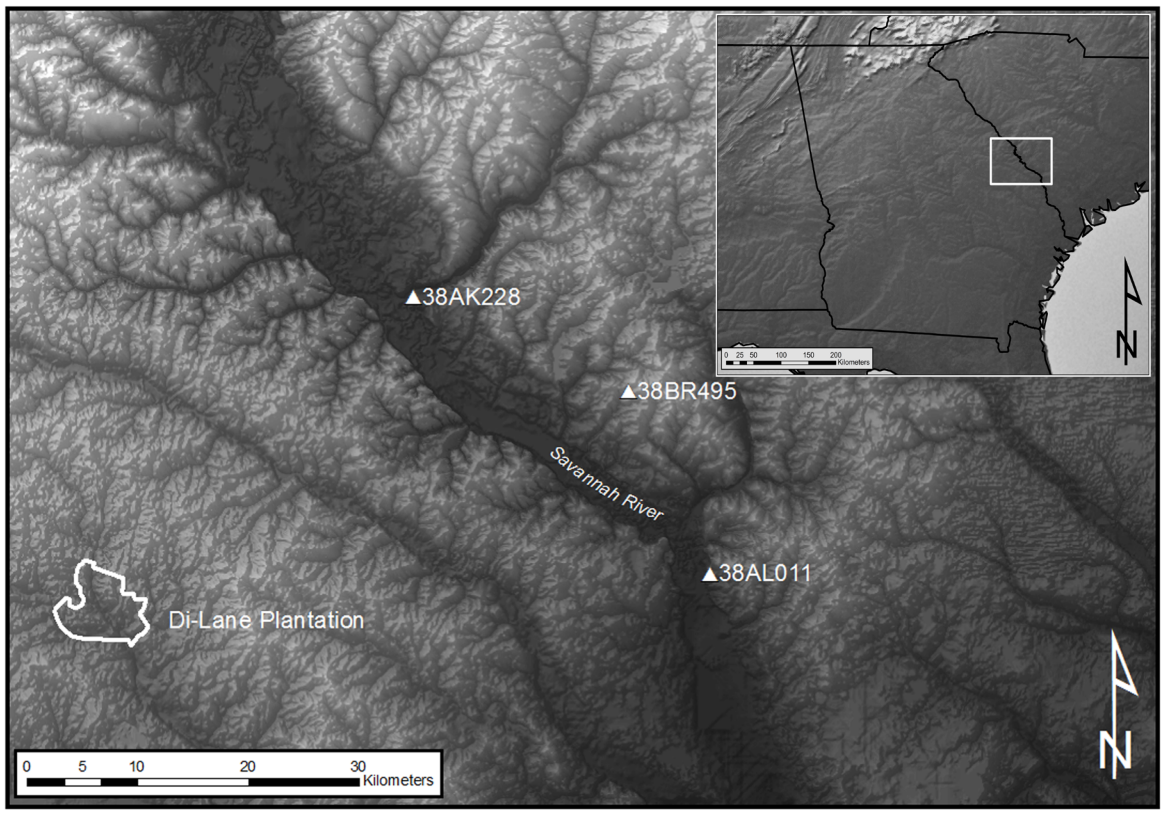

Figure 3. Savannah River region sites.

during the Archaic period, artifact density indicates that it was primarily occupied during the Middle and Late Woodland periods (Sassaman et al. 1990). Ninety-seven triangular bifaces from the Late Woodland occupation were included in this study, representing the largest single-site assemblage.

Lawton (38AL11). Located just south of the southernmost tip of the SRS boundary, Lawton consists of two platform mounds (North Mound and South Mound), a fortification ditch, and a borrow pit (Stephenson 2011). Excavations began at Lawton in 1999 and covered approximately 84.5 m^2 over both mounds (Stephenson 2011). These excavations indicated that Lawton was used during the Hollywood phase (700-600 B.P.) and contained a palisade along the interior of the ditch and landform edge (Stephenson 2011). A total of 58 triangular bifaces from Lawton were analyzed.

Di-Lane Plantation. Located just to the west of the SRS is Di-Lane Plantation in Burke County, Georgia. During a cultural resources survey of Di-Lane Plantation in 1993, 238 archaeological sites were recorded spanning the Archaic through Historic periods (Braley and Price 1996). Though a threshold basal width value of 19.5 mm is proposed for the Di-Lane assemblages, the report authors note that many of the bifaces came from multicomponent sites (Price and Braley 1996). The Di-Lane bifaces are typed as "Madison Late Woodland/Early Mississippian" throughout the report. Due to the unclear cultural association of individual bifaces and their overall larger size, the 49 bifaces analyzed for this study were placed in the Late Woodland category.

Ocmulgee Big Bend Region. In order to test the hypothesis that a threshold value between Woodland and Mississippian assemblages exists and is related to the adoption of the bow and arrow, the scope of the analysis was extended beyond the Savannah River valley to include data from central and western Georgia. Data from seven archaeological sites along the Ocmulgee River in Dodge and Jeff Davis counties in central Georgia were obtained from an unpublished Master's thesis (Stephenson 1990) (Figure 4). The 53 triangular bifaces that were analyzed from this area were associated with cordmarked vessels from the Late Woodland period.

Western Georgia. Triangular assemblages from two archaeological sites in western Georgia were analyzed: Carmouche (9ME21) along the Upatoi Creek and Florence Marina State Park (9SW124) along the Chattahoochee River (Figure 5).

Carmouche (9ME21). The Carmouche site is located in Fort Benning, Georgia in an area known as the Fall Line Hills (Gresham et al. 1985). Though archaeological investigations revealed that the site was used from the Early Archaic through the Historic period, it was most intensively occupied during the Early Mississippian period Averett phase (1050-780 B.P.; Gresham et al. 1985). The basal widths and lengths of 43 triangular

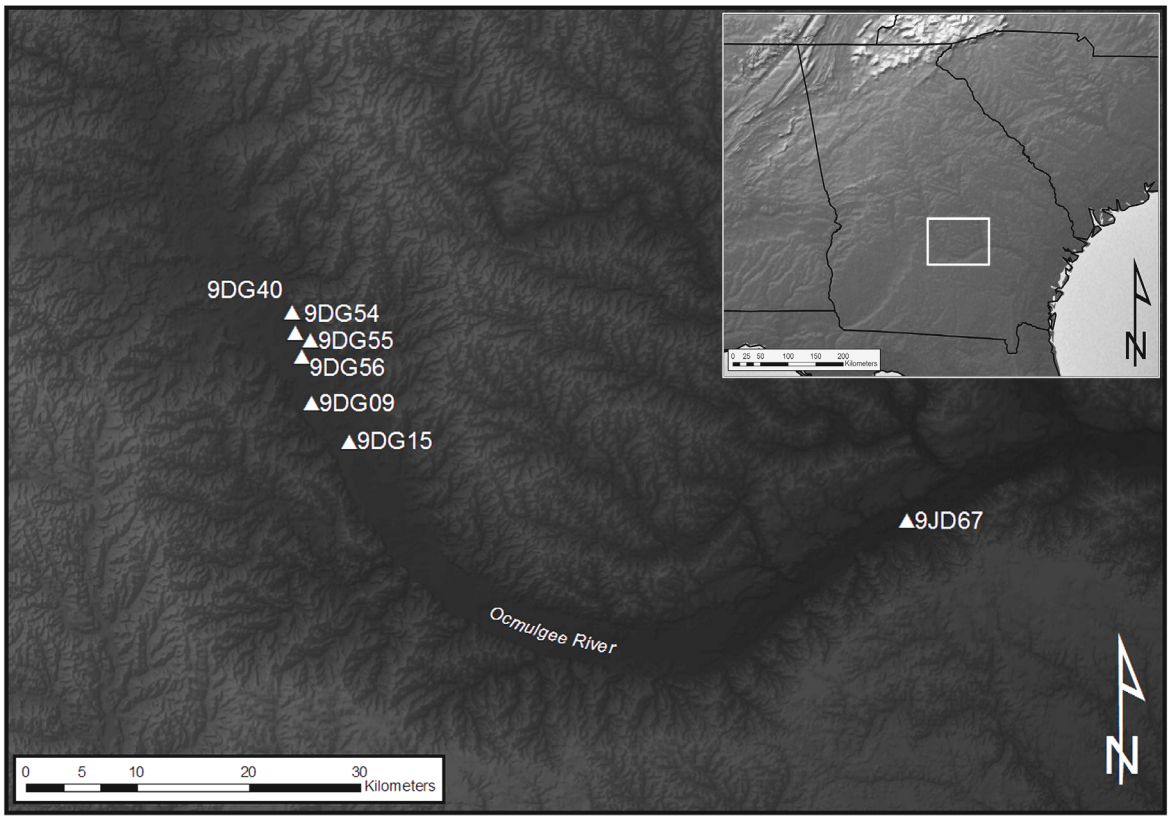

Figure 4. Ocmulgee Big Bend region sites.

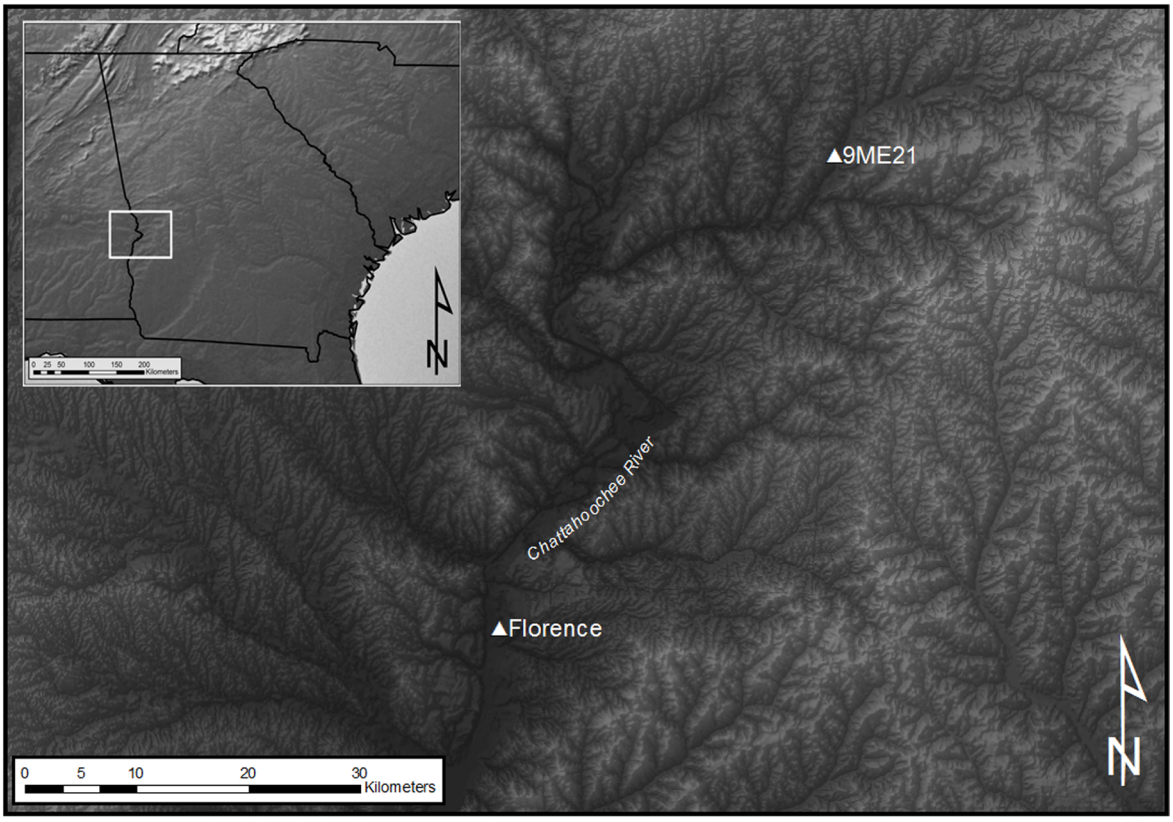

Figure 5. Western Georgia sites.

Table 1. Summary statistics for triangular assemblages by site.

Site	*^{14}C Dates*	*Time Period*	*Mean Base Width*	*Min. Base Width*	*Max. Base Width*	*Sample Size*
Big Bend Region	1000-800 B.P.	Woodland	15.04mm	7mm	23mm	53
G.S. Lewis-West (38AK228)	1000-800 B.P.	Woodland	19.31mm	11.58mm	25.71mm	38
38BR495	1000-800 B.P.	Woodland	18.15mm	12.34mm	29.58mm	97
DI-Lane	N/A	Woodland	18.38mm	12.2mm	23.9mm	49
Carmouche (9ME21)	1050-780 B.P.	Mississippian	12.4mm	9mm	20mm	39
Florence	1000 B.P.	Mississippian	12.41mm	8.3mm	18.7mm	35
Lawton (38AL11)	700-600 B.P.	Mississippian	15.22mm	10mm	22mm	58

bifaces associated with the Mississippian component of Carmouche were included in this study.

Florence Marina State Park (9SW124). Like the Carmouche site to the north, the Florence Site (9SW124) is an Early Mississippian Averett phase site (Ledbetter and Braley 1989). Carbon dates from pit features at the site date the Averett occupation to 1000 B.P. (Blitz and Lorenz 2006; Ledbetter and Braley 1989). Thirty-five triangular bifaces associated with Averett ceramics at 9SW124 were analyzed for this study.

Analysis and Results

The data for this study was obtained from published archaeological reports and the site files at the Savannah River Archaeological Research Program. All data was entered into a spreadsheet and analyzed using the open source software R Statistical Package. Because the Woodland and Mississippian periods were not experienced at the same time and pace throughout the study area, assemblages were categorized based on ceramic association: Woodland period assemblages are associated with cordmarked vessels and Mississippian assemblages are associated with complicated stamped vessels (Table 1).

Table 2. Summary statistics for temporally associated assemblages.

Time Period	*Mean Base Width*	*Min. Base Width*	*Max. Base Width*	*Sample Size*
Woodland	18.43/17.67* mm	7 mm	29.58 mm	237
Mississippian	13.65 mm	8.3 mm	22 mm	132

*Including sites from the Ocmulgee Big Bend Region

The three Woodland assemblages (38BR495, Lewis-West, and Di-Lane) from the Savannah River Valley confirm Sassaman and colleagues' (1990) original hypothesis that the threshold value between Woodland and Mississippian triangular bifaces is 18 mm. At the regional scale, the Ocmulgee Big Bend assemblage challenges the hypothesis; however, no Mississippian assemblage from the

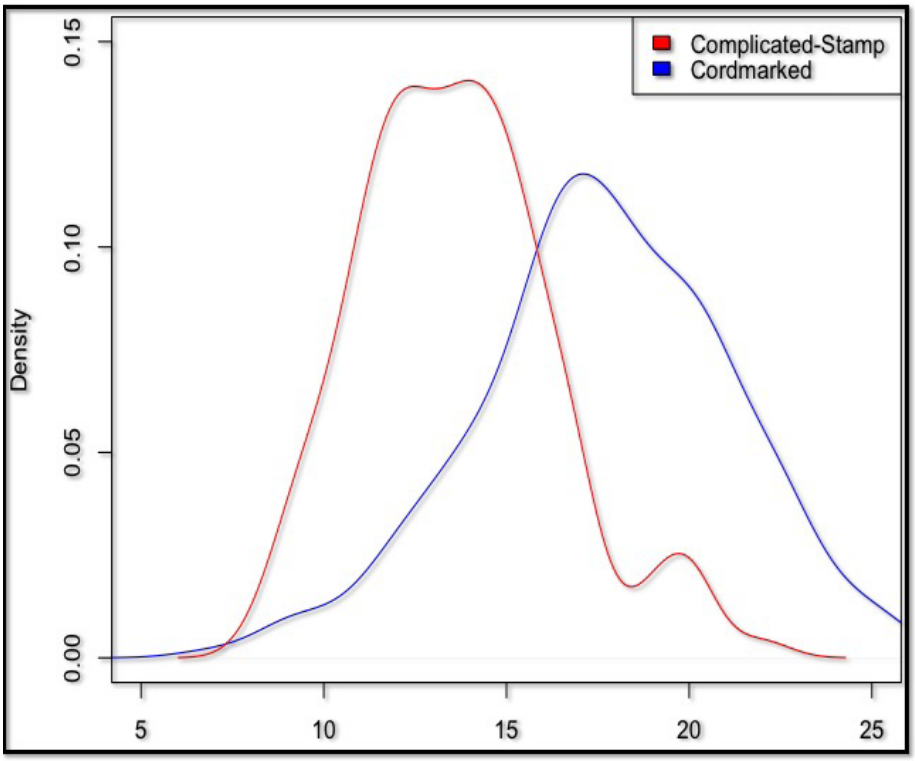

Figure 6. Density plot of Woodland and Mississippian triangular assemblages.

same region was analyzed for comparison. Similarly, the mean basal width of the two Mississippian assemblages from western Georgia are much smaller than the mean basal width of the Savannah River valley assemblage from Lawton. When the data from all the sites in each period is combined, the variation within the Woodland and Mississippian assemblages becomes obvious and the utility of a threshold value for diagnostic purposes becomes questionable (Table 2).

Conclusions

Triangular assemblages from archaeological sites in the middle Savannah River valley and across Georgia show that while Woodland and Mississippian assemblages display a bimodal distribution (Figure 6), the utility of a threshold value for basal width for diagnostic purposes is questionable. Evidence shows that the bow and arrow likely spread from north to south and west to east, therefore, the regional variation in basal widths is likely indicative of the rate of adoption of the bow and arrow. As expected, the smaller bifaces are from sites located the farthest west of the study area where the Mississippian period begins the earliest (Carmouche and Florence), while the largest are located the farthest east (Lawton) where the Mississippian period begins somewhat later.

The association of the adoption of the bow and arrow with the rise of Mississippian culture raises the question of the relationship of the bow and arrow and social complexity: there is evidence that the technology was present and available much earlier than the Late Woodland and Mississippian periods, so why was it not adopted as the primary weapon (Bingham et al. 2013; Blitz 1988; Blitz and Porth 2013; Bradbury 1997; Cooper 2017)? Comparisons of triangular assemblages from different periods within the same region may help shed light on this question.

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The maps in this paper would not have been possible without Chris Thornock, Walter (BJ) Clifford, and Brian Milner. Keith Stephenson provided the data and guidance on the first incarnation of this study nearly four years ago. I would also like to thank Chris Moore for his patience while this paper was prepared.

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BOOK REVIEWS

Camp, Stacey Lynn. The Archaeology of Citizenship: The American Experience in Archaeological Perspective **2013. University Press of Florida. ISBN: 978-0-8130-4459-0**

In a time where the meaning and opportunities of citizenship are currently being debated, *The Archaeology of Citizenship* by Stacey Lynn Camp details an honest account of how the concept of citizenship has changed dynamically since the founding of the United States. To become a citizen of the United States in the 18th century, one only had to possess the motivation to create a better life for themselves and their family, while also being able to act and do freely without risk or unjust political interference. A fluid and free-floating idea, Camp crafts her argument to display how the meaning and definition has changed and become cemented into law over the last three centuries. Citizenship laws, which are a set of rules and regulations that police the boundaries of a nation's citizenry, are in practice malleable and unevenly applied to different groups of people. Camp begins by outlining her argument of how citizenship within the United States has evolved to historically exclude and isolate specific groups of people. The marginalized communities of African Americans, Mexican immigrants, Chinese immigrants, and Jewish populations have routinely been limited in their opportunities for advancement due to the amount of racial prejudices that have been fostered when enacting citizenship statutes in the 19th and 20th centuries.

The Archaeology of Citizenship sees citizenship as a process rather than a static, legal state of being with which we have come to associate "citizenship." It aims to capture how people choose not to adopt certain behaviors and goods expected of American citizens. Camp asserts that the notion of citizenship can be expressed materially through consumerism and household possessions. The upper and middle classes have used this identity marker as a performance to display their opportunities and wealth as Americans. The main argument of this book is to examine how patterns of consumerism can be identified within the archaeological record, by focusing on the household artifacts of migrant Mexican immigrant communities and the type of possessions they had to perform their American identity. Camp also discusses how Americanization programs were used towards Mexican immigrants and Native Americans to make them better citizens. By examining citizenship through an archaeological perspective, it allows for the discipline to understand the experience of marginalized populations through the artifacts of their everyday life and to further understand how they participated in and against consumerism patterns.

Camp begins her analysis by providing a framework for how the concept of citizenship has changed through time by walking through immigration practices in American History. Immigration policies have been influenced by various factors, such as relationships with other nations, economic conditions within the nation, and paranoia over an individual's gender, criminal record, national loyalties, religion, race, or ethnicity. Before the 18th century, citizenship was extended to members of society who believed in working hard, contributing towards society, and believing in freedom and democracy; however, the Revolutionary War prompted new definitions of citizenship and an allegiance to one's country. The treatment by British parliament created new notions of national belonging and citizenship that had been unheard of at that time. Camp continues to trace the framing of citizenship from the Revolutionary War to the present-day. The turning point for how modern immigration policies are framed today started with the Chinese Exclusion Act of 1882. This landmark ruling was the first of its kind to restrict a group of people access to citizenship and access for entry into the United States based on imposed racial status. The enactment of this law this started a trend for how citizenship could be defined through legal means and ended how the concept of citizenship could be changed through ideologies of democracy and freedom. For a nation that built its principles of the ideology of freedom, the Chinese Exclusion Act was in opposition to how Americans had framed the beliefs and values of the country. The law was truly remarkable because it led toward future trends in laws to discriminate based on race, ethnicity, religion, and characteristics of individuals that make the United States unique in its demographic makeup.

The methods and practice of using archaeology allowed for Camp to analyze the material culture of Mexican immigrants who lived on Echo Mountain at

the Mount Lowe Resort. As part of their acceptance into their jobs, the Mexican immigrants were subjected to Americanization programs that were intended to "make them better citizens" and to start the process of eradication of their cultural heritage. Looking at the artifacts recovered from the sectioned housing on Echo Mountain, Camp discussed how the material culture reflected aspects of becoming American by the white wares and matching dining sets that expressed consumerism trends occurring within the United States. Citizenship was also taught institutionally, whether federal, private, or nonprofit, with a goal to transform their residents into proper citizens. The ultimate plan is to relinquish control over them and assimilate them back into the broader American society. This type of condition occurred within schools where proper civil habits were instilled, and how their education was taught provides insight for the people who were deemed as fit for American citizenship. Better citizenship included following Victorian gender roles where girls were taught to behave and prepare for domestic roles, while boys were trained in trades that were deemed undesirable by Anglo-American citizens. Historical archaeologists recovered ceramic vessels, metal or glass containers, and silverware from the girls' privy; while in contrast finding pocket knives, rubber balls, and bicycle licenses in the boys' privy. The values being instilled followed stereotypes where a women's place is in the home while a man's place is outside. By outlining the types of artifacts recovered and including diagrams, pictures, and records of the attendants who lived at Echo Mountain, Camp allowed the reader to have a clear perspective of how institutions such as schools and corporations imposed citizenship "training" upon Mexican migrants.

Although Camp crafted a well-written argument and theoretical understanding of how citizenship has been defined within the United States, the small comparisons of the African-American experience to the Latino experience were too brief. It is understood how Camp did not want to detract from her argument of how Mexican immigrants were treated by Anglo-Americans through Americanization and unsanitary residencies; however, it would be a great addition for the author to add an analysis of how immigrants and nonwhite citizens have used consumerism and material culture to fit in or aid in their acceptance by Americans. She briefly discussed how a Chinese man wore cultural paraphernalia of Mexican heritage to gain access into the United States and to tap into advancement opportunities after the enactment of the Chinese Exclusion Act of 1882. The book also discusses how light-skinned African-Americans used their fair skin tone in an attempt to "pass" as whites in the 19th and 20th centuries during Jim Crow era. The enactment of these laws intentionally kept African Americans from their full citizenship opportunities. This significant aspect of how African Americans attempted to fit into mainstream society was overlooked, and it would have provided a wider comparison for how Mexican immigrants are receiving discriminatory practices in the West simialr to those that were in place within the American South for African Americans.

In conclusion, the ethnohistorical and archaeological approach taken by Stacey Lynn Camp greatly aided in understanding how citizenship was imposed and denied to Mexican immigrants and other ethnic groups within the United States. In a time when tensions around immigration and citizenship are higher than ever, more Americans would benefit from reading about how citizenship has been awarded and taken away throughout American history. Readers would also benefit from critically thinking about the practices and tactics used by Americans when colonizing and claiming territories that were already inhabited by indigenous groups. Understanding how the United States has handled citizenship in the past makes it very clear how citizenship could potentially be handled in the present, as well as in the future. Camp makes a clear argument for how the nation can move forward in the right direction by ending discriminatory practices of citizenship barring and discussing more about how American citizens and immigrants of color have been disenfranchised by laws, social hierarchies, and xenophobia from Anglo-American citizens.

Tiffany Peacock is a first year Master's student in Anthropology at the University of South Carolina. A cum laude graduate, she obtained her Bachelor of Arts degree with distinction in both Anthropology and History from the University of South Carolina in 2017. Currently, Tiffany works as a Graduate Teaching Assistant in the Department of Anthropology helping undergraduate students in courses such as "Introduction to Biological Anthropology" and "Understanding Other Cultures." Tiffany intends to specialize in Sociocultural Anthropology to answer research questions surrounding topics of identity/cultural expression, social constructions of race, and post-colonial social and political movements of the African diaspora. As a passionate scholar, Tiffany aims to empower and engage more audiences to value anthropological research as a powerful asset in deconstructing and examining the complexities of this world.

King, Adam (editor). Archaeology in South Carolina: Exploring the Hidden Heritage of the Palmetto State **2016. The University of South Carolina Press. ISBN 978-1-61117-608-7.**

Adam King's edited volume, *Archaeology in South Carolina: Exploring the Hidden Heritage of the Palmetto State*, features a diverse collection of essays that span the history of what is currently called South Carolina from the Paleoindian period at the Topper site to present-day outreach activities at the Johannes Kolb site. The chapters in the book highlight the public's participation in archaeological projects and the legal and ethical challenges of doing archaeology. The book culminates with a chapter by the iconic Stanley South on the development of South Carolina archaeology. Together, the chapters in this book summarize the current state of archaeology in South Carolina for both archaeological professionals and non-archaeologists.

Adam King opens the volume by explaining the who, what, and why of archaeology in South Carolina. King is quick to point out that most archaeology in the state is done as part of federal requirements under the National Historic Preservation Act, rather than for purely academic purposes. The public nature of archaeology in South Carolina necessitates the involvement of various interest groups in the state, including Native Americans and an active amateur community. Several projects discussed in the book greatly benefited from the contributions of avocational and volunteer archaeologists. Such projects include: the Topper site (Chapter 1), the George Galphin site at Silver Bluff (Chapter 6), and the Johannes Kolb site (Chapter 11).

The Topper and Johannes Kolb sites both epitomize public archaeology in South Carolina. Archaeology at Topper (Chapter 1) is conducted largely by volunteers and through donations to the Southeastern Paleoamerican Survey (formerly named the Allendale Expedition). According to Al Goodyear, excavations at the Topper site in Allendale County establish the presence of humans by at least 15,000 years before present (p.6). This date is several thousand years earlier than what was previously thought to be the oldest human culture in the Americas, known as Clovis. The Johannes Kolb site in Darlington County (Chapter 11) was a public excavation from its very first season in 1997 (p. 175). The Kolb site continued to educate future archaeologists and members of the general public until fieldwork was completed at the close of the spring excavations in 2016.

At the 18th-century George Galphin site on the Savannah River, volunteers provided much of the labor to define and excavate the site beginning with the first investigations by the South Carolina Institute of Archaeology and Anthropology (SCIAA) in 1979-1980 (p. 88). More than a decade later, the Savannah River Archaeological Research Program (SRARP) again enlisted the aid of volunteers to conduct a gridded surface collection, 5-meter interval shovel testing, test unit excavations, and remote sensing (p. 89-94). In 1999, the SRARP, Augusta State University, and the Silver Bluff Plantation Sanctuary sponsored a field school whose work was continued by volunteers after the course ended in June of that year (p. 93).

In the chapters on the Yamasee and the *H. L. Hunley*, the ethical and legal challenges of doing archaeology are discussed. When human remains were encountered during excavations at the Yamasee settlement of Altamaha Town, the burials were only exposed enough to confirm that they were human (p. 77). After confirmation of human remains was made, the Catawba were consulted and the graves were preserved in place (p. 77).

The *H. L. Hunley* presented its own set of legal challenges. When the vessel was discovered in 1995 by Clive Cussler's National Underwater and Marine Agency (NUMA), questions of control and ownership created a media storm (p. 141-142). The location of the artifact determined what organization would be responsible, but Cussler initially refused to reveal that information. Even after ownership and control were decided, controversy surrounding the *Hunley's* preservation and interpretation continued (p. 143).

Stanley South closes the book with a brief history of archaeology in South Carolina from his perspective at SCIAA beginning with his move to the state in 1968 (p. 214). Not only does South's chapter summarize the history of historical archaeology in South Carolina, it also provides insight into some of the theoretical and methodological debates that occurred (and are still occurring) within the discipline (p. 230). South's presentation of these issues will be eye-opening for everyone interested in archaeological discourse.

In the introduction to archaeology in South Carolina, Adam King states that he hopes the book will be useful for scholarly research and will communicate effectively with the interested public; the essays in this book easily accomplish this goal. Scholars will find the research valuable, and the public will find the discussions of the methodological, legal, and ethical challenges of archaeology informative.

Jessica M. Cooper received her M.A. in Anthropology from the University of South Carolina in 2017 and her B.A. from George Mason University in 2011. She has been doing archaeology in South Carolina since 2012. Her research interests include the Woodland period in the Southeast, lithics, and feminist archaeology.

Kenneth E. Lewis. The Carolina Backcountry Venture: Tradition, Capital, and Circumstance in the Development of Camden and the Wateree Valley, 1740-1810. **2017. University of South Carolina Press, Columbia, SC. ISBN-978-1-61117-744-2**

Kenneth Lewis' book, *The Carolina Backcountry Venture* is a compendious culmination of bibliographical and archaeological research undertaken since the 1970s. In it, Lewis traces the settlement, social, economic and political development of Camden, South Carolina, and the Wateree River Valley from its West Indian origins in the 17th century through its growth from a backcountry colonial frontier into a political, economic and social hub in the young United States.

Lewis offers a perspective of how the settlement of the Wateree River Valley stemmed from the establishment, influences and pressures of large, profitable lowcountry plantations. These plantations, he argues, were an extension of wealthy establishments in the Caribbean. South Carolina, he says, was originally settled as the colony of a colony.

The author goes on to describe how central colonization (in the lowcountry) and peripheral colonization (in the backcountry) served each other mutually and allowed for socioeconomic development independent of the motherland(s). Settlement of the backcountry helped stabilize British presence in the colony, Lewis says, creating a buffer between the lowcountry and both foreign and domestic rivals. At the same time, this isolation allowed the settlers of the backcountry to establish and organize their own systems of government and law beyond the control of English rule from the capital (Charleston).

Lewis describes the establishment of Pine Tree Hill (Camden) in a broad historical and global context, as well as on a much narrower scale. The sparsely settled region served as a microcosm of backcountry development in the early 18th century and can be linked to a much broader process of change.

On a narrower scale, if *The Carolina Backcountry Venture* had a main character, it would be Joseph Kershaw. He enters the story (from England) as a young employee of the entrepreneurial partnership of Ancrum, Lance & Loocock in Charleston in the mid-18th century. In 1758, he was sent by his employers as an agent to the Wateree River Valley, where he established a series of mills and a supply store centered within the sparsely populated area of small farms. The farmers lacked the wherewithal and infrastructure to participate in transatlantic commerce. Instead, they were limited to subsistence farming and a local economy. Kershaw facilitated their participation in the larger economy by establishing a center where crops could be processed and packaged as well as infrastructure by which they could be transported to the lowcountry for commercial trade.

Lewis describes this population of farmers as being politically, religiously and culturally diverse. Joseph Kershaw served as a sort of "broker of bonds," uniting traders, farmers and Catawba Indians through political, economic and ceremonial (marriage) ties, while rising in importance and influence in the region and in the state. He became a partner of Ancrum, Lance & Loocock in a concerted effort to form what would become Camden, a backcountry hub in trade, politics and, during the American Revolution, military activity.

Due to its geographically central location in the state, according to Lewis, Camden served as a central point of activity during the Revolutionary War. From 1775 to 1778, British authority was widely unrecognized in the Wateree River Valley. Instead, Joseph Kershaw and others of his socioeconomic class organized and implemented their own backcountry governance. With the onset of hostility, militia regiments were mustered to help defeat (with the help of the Catawbas) the English at Fort Moultrie in 1776. In 1777, Kershaw paid for the building of the powder magazine in Camden and commanded militia from the region until 1780 when he was arrested by the British and exiled to Barbados. From this time forward, his political and economic influence was diminished.

The wake of the American Revolution left great umbrage and animosity between former Whigs and Tories in the Wateree River Valley, says Lewis. He explains how these divisions and the economic disaster left by the war were eventually ameliorated by other business and community leaders, such as John Chesnut, Samuel Mathis, Samuel Boykin and James Cantey, whose names remain almost as iconic as that of Kershaw today in Camden.

The Carolina Backcountry Venture features many other characters in many settings. It places them in local, statewide, national and global contexts, resulting in a work rife with valuable information. The book is no easy read, but, laden with the fruits of Ken Lewis' research, is well worth the effort.

Tariq Ghaffar, an archaeologist with the South Carolina Department of Natural Resources (SCDNR), began his career in cultural resource management in 1990. Since that time, he has worked for most CRM organizations in the southeastern United States.

ABOUT THE CONTRIBUTORS

Joseph E. Wilkinson is a recent graduate of the University of South Carolina, where he earned his Bachelors Degree in Anthropology. He has been working in several divisions at the South Carolina Institute of Archaeology and Anthropology, where he has participated in a number of projects conducting lithic analysis. His research is focused on lithic technology during the Early Archaic time period in the Southeastern United States.

Brandy Joy completed her MA at USC Columbia in May 2016. She is currently enrolled in the USC department of anthropology's PhD program where she is studying pre- and post emancipation foodways in the South Carolina Lowcountry.

Robert C. Costello earned his PhD in Biochemistry from Stanford University in 1970. Since 1980 he has served on the faculty of USC Sumter, where he currently holds the rank of Professor of Chemistry. Since 2008 ,he has been involved in collaborative research in archaeology with Kenn Steffy which has resulted in several presentations and publications. He received the 2011 ASSC Article of the Year Award for his South Carolina Antiquities article *Macroscopic Analysis of an Allendale Chert Flake Tool Assemblage from Northeastern Lake Marion*.

Kenneth E. Steffy is a retired USAF Master Instructor; USC graduate with a BAIS degree in Anthro/Archeology; ASSC Distinguished Archaeologist of the Year - 1999; former Topper Project Manager/Lab Director (1999-2007); and SCIAA Research Affiliate (2000-2012).

Albert C. Goodyear is a retired archaeologist affiliated with the SC Institute of Archaeology and Anthropology at the University of South Carolina. He is the Director of the Southeastern Paleoamerican Survey and the project director of the Topper site excavations.

Nena Powell Rice has worked at the SC Institute of Archaeology for nearly 33 years. She is the Director of Outreach and Development, Statewide Coordinator of South Carolina Archaeology Month, Editor of Legacy, Director of the SCIAA Research Library, and Secretary and Staff to the Archaeological Research Trust (ART) Board.

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Jessica M. Cooper received her MA in Anthropology from the USC Columbia in 2017 and her BA from George Mason University in 2011. She has been doing archaeology in South Carolina since 2012. Her research interests include the Woodland period in the Southeast, lithics, and feminist archaeology.

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