Economic and Social Interactions in the Piedmont Village Tradition-Mississippian Boundarylands of Southeastern North America, AD 1200–1600

Eric E. Jones, Maya B. Krause, Caroline R. Watson, and Grayson N. O'Saile

This research seeks to understand the economic and social interaction patterns among dispersed Piedmont Village Tradition communities in the North American Southeast, AD 1200–1600. Piedmont Village Tradition communities lived adjacent to Mississippian societies and have been categorized as a peripheral society because of this spatial relationship. We examine economic behaviors by constructing fall-off curves of local versus nonlocal lithic material proportions at settlement sites and examining the reduction behaviors and tool types at sites. The results support a possible gateway model for the acquisition and distribution of nonlocal materials that linked spatially proximate communities. To examine social interaction patterns, we conducted a Brainerd-Robinson analysis of ceramic attributes from six sites and combined our results with work by Rogers (1993). The results show sites with stylistic similarities are not the same sites that share lithic resources. We conclude that these spatially non-overlapping artifact patterns result from a heterarchical social organization with a high degree of independence between economic and social interactions. Finally, we contextualize our results within the current knowledge of Mississippian and Piedmont Village Tradition societies in the region to broaden the discussion of gateways in reciprocity-based economies, societies traditionally thought of as peripheral to complex societies, and coalescence.

Keywords: lithic analysis, ceramic analysis, southeastern North America, interaction, Late Woodland, core-periphery

Este proyecto quiere entender los modelos interactivos sociales y económicos entre las comunidades de Piedmont Village Tradition en el Sureste de América del Norte, 1200–1600 dC. Los grupos de Piedmont Village Tradition vivían adyacente a las sociedades Mississippi, así que tradicionalmente han sido caracterizadas como sociedades periféricas. Caracterizamos los modos de funcionamiento económico a través de (1) construyendo las curvas "fall off" que comparan las proporciones del material lítico local y no local en los sitios Piedmont Village Tradition y (2) examinando en una muestra de sitios los niveles de reducción lítica y los tipos de herramientas líticas. Intentamos entender cómo fueron usado los materiales locales y no locales, y preguntamos qué nos revelan sobre los métodos de adquisición y distribución que empleaban las comunidades de Piedmont Village Tradition. Los resultados sugieren un modelo posible, que llamamos el "gateway", que explica la configuración de la adquisición y distribución del material no local que vinculó las comunidades espacialmente cerca. Para examinar los modelos sociales e interactivos, empleamos el análisis Brainerd-Robinson. Este análisis nos permitió analizar los atributos cerámicos de seis sitios, y luego combinamos aquellos resultados con los de Rogers (1993). Los resultados revelan que los sitios con atributos cerámicos similares no siempre son los más próximos espacialmente ni son los sitios que comparten recursos líticos. Concluimos que las configuraciones espaciales entre material lítico y cerámico son distintos y resultan de una organización social heterárquico que mantiene independencia entre las interacciones sociales y económicas. Terminamos el análisis contextualizando nuestros resultados con lo que ya sabemos de las sociedades Mississippi y Piedmont Village Tradition en esta zona. Esta contextualización nos permite empezar una discusión de la presencia de los "gateways" en economías que se basen en reciprocidad, y también puede cambiar la manera en que estudiamos las sociedades periféricas y la coalescencia.

Palabras clave: análisis lítico, análisis ceramic, sureste de Norteamérica, interacción, período del Bosque Tardío, área principal-periferia

Eric E. Jones ■ Department of Anthropology, Wake Forest University, P.O. Box 7807, Winston-Salem, NC 27109, USA (jonesee@wfu.edu, corresponding author) https://orcid.org/0000-0001-8032-3894
Maya B. Krause ■ Department of Anthropology, Vanderbilt University, VU Station B #356050, Nashville, TN 37235, USA
Caroline R. Watson ■ Department of Anthropology, College of William & Mary, PO Box 8795, Williamsburg, VA 23187, USA
Grayson N. O'Saile ■ School of Law, Wake Forest University, Winston-Salem, NC 27109, USA

American Antiquity 85(1), 2020, pp. 72–92

doi:10.1017/aaq.2019.91

In the archaeology of southeastern North America, research into the economic activities of post-AD 1200 non-Mississippian societies has been relatively uncommon, but it has been productive when undertaken (e.g., Cobb and Garrow 1996; Rogers 1993, 1995; Woodall 1990, 1999, 2009). In contrast, archaeologists have extensively studied several aspects of Mississippian economic systems, from household production to interaction patterns within and between polities (e.g., Blitz 1993; Brown et al. 1990; Muller 1997; Pauketat 1987, 1989, 1997; Peregrine 1992; Prentice 1985; Welch 1991). Late precontact non-Mississippian societies are an important part of the cultural landscape and can contribute to our broader understanding of the economic and social organization of small-scale societies. In addition, we use our results to challenge current theorizing of core-periphery models in the region. Building on Parker's (2006) definitions, we suggest a new term, *boundarylands*, which describes areas with no clear border between societies and lack evidence of influence of complex societies on those around them.

To accomplish these goals, we build upon studies by Rogers (1993) and Woodall (1990) to describe and explain economic and social interaction patterns among Piedmont Village Tradition communities in the upper Yadkin River Valley during AD 1200–1600, when they lived adjacent to Mississippian societies. We characterized economic behaviors by analyzing the acquisition and distribution of nonlocal rhyolite to test three competing models. We first determined the relative concentrations of local and nonlocal lithic materials at four settlement sites in the valley dating from AD 1200 to 1400 and compared our data to an existing dataset of 10 sites examined by Rogers (1993) dating to the same period and two sites examined by Woodall (1999, 2009) dating from AD 1400 to 1600. We also assessed the range of reduction activities at sites, using Andrefsky's (1986) experimental archaeological work. These data served as a measure of a community's access to unworked or lightly worked material based on the idea that the more sites the material travels through, the more reduced it will be (Beck et al. 2002). We then examined what types of tools were made from local and nonlocal materials to compare lithic industries and assess the value Piedmont Village Tradition people placed on different materials. To describe social interaction patterns, we compared ceramic attributes using the Brainerd-Robinson analysis of stylistic properties from the four aforementioned sites and two others.

After AD 1200, Piedmont Village Tradition communities in the upper Yadkin River were adjacent to Mississippian societies and have been described as peripheral by King and Meyers (2002:114; Figure 1). Examining their economic and social interactions is beneficial for several reasons. First, non-Mississippian exchange networks in the Southeast during that period are often only broadly discussed without analyses of specific activities, such as acquisition and distribution of materials. Similarly, studying exchange in Late Woodland reciprocity-based economies is underrepresented. Second, as research has intensified in the cultural processes and historical events on the edge of the Mississippian world (King and Meyers 2002; Meyers 2002, 2015), there is an increased need to examine the non-Mississippian side of that boundary to keep pace with the Mississippian research. This last point has broader appeal to the study of core-periphery models in general. Finally, the causes behind and processes of coalescence have recently gained significant interest among North American archaeologists (Birch 2010; Birch and Williamson 2013, 2018; Drooker 2002; Hill et al. 2004; Jeffries 2018; Rodning 2002). Piedmont Village Tradition communities did not spatially coalesce when many of their neighbors did (Jones 2018), and this offers an opportunity to explore some cultural dimensions of this phenomenon.

Background

Late Woodland Piedmont Village Tradition

Beginning around 200 BC and extending to around AD 1200, the general Piedmont Village Tradition cultural pattern was egalitarian, semi-sedentary forager-farmers living in one-to-five-household communities in larger floodplains and usually aligned linearly and parallel to a river. After AD 1200, we begin to see coalescence of communities into villages of eight to 15

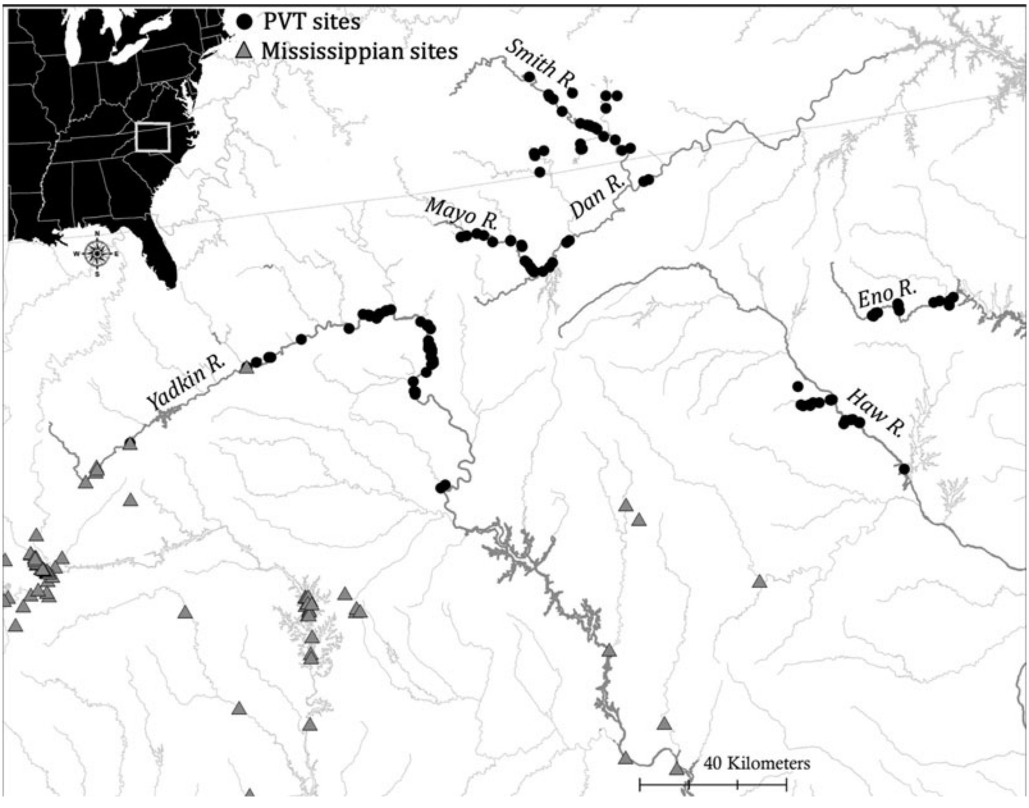

Figure 1. Map of the northern Piedmont showing the location of all identified Piedmont Village Tradition (PVT) and Mississippian settlement sites.

households in the Dan River valley. Similar villages also appear in the Eno and Haw River valleys after AD 1500 but were likely constructed and inhabited by migrants or a combination of local residents and migrants (Davis and Ward 1991; Dickens et al. 1987; Jones and Ellis 2016; Simpkins 1985; Ward and Davis 1993).

In the upper Yadkin River valley, we have yet to identify evidence of coalescence or village formation (Jones 2018; Woodall 1990). From AD 800 to 1200, there were a few medium-sized settlements (i.e., three to five households) with several dispersed households in the nearby floodplains (Newkirk 1978; Woodall 1984). Jones (2017) proposed that only the dispersed household pattern is seen after AD 1200, but this has yet to be tested. The evidence for incorporation of Mississippian cultural characteristics into Yadkin Piedmont Village Tradition communities dates after AD 1500 and is limited to the two sites closest to Mississippian settlements (Woodall 1999, 2009).

The most common flaked stone tools at Late Woodland Piedmont Village Tradition sites are small triangular projectile points. Drills, end scrapers, side scrapers, and expedient flake tools were made only in small quantities (Woodall 1984, 1990, 1999, 2009). Local lithic materials include quartz, quartzite, and small quantities of jasper (Rogers 1993). Nonlocal materials (i.e., those sourced at least 60 km from the valley) include rhyolite, chert, and, farther afield, jasper. Rhyolite is the most common nonlocal material found at AD 1200–1400 sites and originates mainly from two different sources: Morrow Mountain and Asheboro (Daniel and Butler 1996).

The Late Woodland Piedmont Village Tradition ceramic industry is essentially a complex of various surface and interior treatments and tempers with no clear chronological trends (Rogers 1993). However, types have been defined in the past, and we discuss them here to

https://doi.org/10.1017/aaq.2019.91 Published online by Cambridge University Press

show the problematic nature of the current typology. The Uwharrie type, which is the earliest Late Woodland ceramic style dating AD 800–1200, features coarse net impression on exterior surfaces. The Dan River type is usually dated AD 1200–1600 and is tempered with crushed quartz. The interior surfaces are heavily scraped, and most vessel exteriors are also net impressed. To complicate the issue further, some also feature cord marking, smoothing, corncob impressing, and brushing. Other treatments included notches along the lip, incised or brushed lines around the neck, or sometimes fingernail pinches or punctations in the neck (Ward and Davis 1999). Furthermore, there are a number of slight regional variations on this type that are specific to the Yadkin and Dan River valleys (Ward and Davis 1999). The chronology of Piedmont Village Tradition pottery types is also problematic, as they are found in a number of different strata at different sites. Finally, some attributes of earlier types are also found on later types, meaning that an earlier design choice, such as cord marking, is not strictly tied to chronology. Thus, it is more effective to focus on the co-occurrence of specific attributes rather than types (Rogers 1993:144).

Previous Research

Woodall's (1984, 1990, 1999, 2009) work at settlement sites along the upper Yadkin River recorded percentages of local and nonlocal lithics at each. At the Porter (31Wk6) and T. Jones (31Wk33) sites, which are the farthest upriver (Figure 2) and were occupied AD 1400–1600, Woodall (1999, 2009) recorded the percentages of Knox chert in the total lithic assemblages as 24% and 31%, respectively. Knox chert is located 60 km west of the Piedmont in the Ridge-and-Valley area of eastern Tennessee, an area inhabited by Mississippian communities at that time. Moving downstream (eastward), and thus away from the source, percentages of chert decrease, and artifacts indicate previous bifacial reduction and tool resharpening, indicating a down-the-line system (Woodall 2009).

For rhyolite distribution, Woodall proposed two separate processes. In the upper Great Bend area of the Yadkin River (Figure 2), he hypothesized a down-the-line exchange system based on relative proportions of rhyolite and quartz (Woodall 1990:116). In this model, the farthest downriver site, Hardy (31Sr50), functioned as a "procurement locus for the region," where rhyolite from the east was collected and then distributed upriver. In the Lower Great Bend area, Woodall (1990) proposed a community gateway model based on Hirth's (1978) economic model in highland Mexico and his own finding that there was no recognized distance-decay pattern (see Renfrew 1977). Similar to patterns in the Dan and Eno River valleys (Simpkins 1985), Woodall (1990:113) identified a positive correlation between site size and the percentage of rhyolite in the debitage inventory. He concluded the larger settlements directly acquired nonlocal rhyolite and distributed it to smaller neighboring communities. Noting findings by Ammerman and colleagues (1978), Woodall (1990) concluded, based on stratigraphic distribution of the material, that access to the rhyolite was regular, and he found there was little evidence that rhyolite was hyperflaked in an attempt to conserve or reuse it. Thus, the higher proportion at larger sites was not simply a result of longer occupations. There may also be temporal trends in these data, as Jones (2017) suggested that upper Great Bend sites tend to date from AD 1200 to 1600, whereas lower Great Bend sites date from AD 800 to 1200 (Figure 2).

The gateway model was first applied from geography (Burghardht 1971) to archaeology to examine complex societies with redistributive or market economies (e.g., Hirth 1978; Kelly 1991). Hirth (1978:37) described the function of gateways as settlements that "satisfy demand for commodities through trade," and he further stated that "the location of these communities reduces transportation costs involved in their movement." He also added that they are often located along natural transportation corridors, at critical passages between resources and populations, and at economic shear lines, and they acted as "commercial middlemen." Kelly (1991) focused on the role of gateways in long-distance trade and expansion of influence in his discussion of Cahokia. Woodall (1990) applied Hirth's model to the small-scale, egalitarian Piedmont Village Tradition. We agree that the

https://doi.org/10.1017/aaq.2019.91 Published online by Cambridge University Press

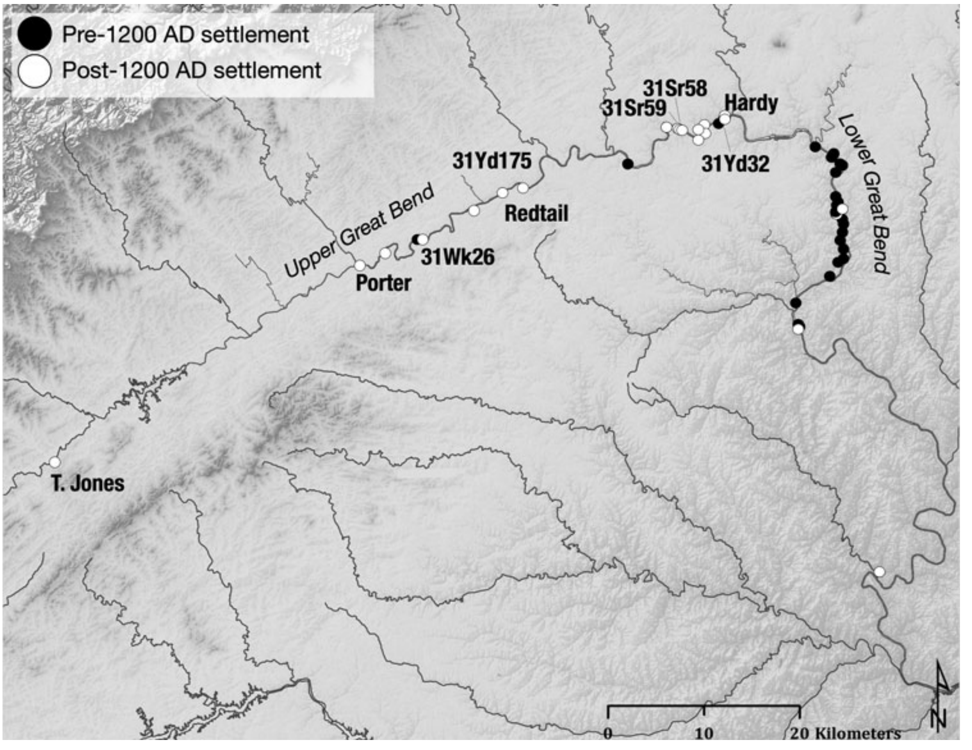

Figure 2. Map of the upper Yadkin River valley showing the upper and lower Great Bend areas, sites used in this study, and general chronology.

gateway model is not confined to complex societies, particularly given that Piedmont Village Tradition settlements in the upper Yadkin River valley fulfill all of Hirth's requirements above. Although they may not have been expansionist as Kelly (1991) described, they were taking a resource centrally located among Piedmont Village Tradition societies to the edge of that area and distributing it to nearby communities.

In contrast to Woodall's models, Rogers (1993) proposed a direct acquisition model for the entire valley. She found no clear distance-decay pattern and no noticeable difference in primary or secondary flake frequencies among sites (Rogers 1993:182). She also found that sites with high proportions of rhyolite do not necessarily have more flakes with cortex (Rogers 1993:183). She concluded that each site had equal access to raw rhyolite and that households may have obtained it during foraging expeditions (Rogers 1993:187). Rogers (1993) also conducted a Brainerd-Robinson analysis of combined exterior surface treatments and temper from survey-collected sherds at 29 sites in the upper Great Bend area and found similarities between sites 31Yd32, 31Sr58, 31Sr59, and the Redtail site (31Yd173). However, 31Yd175 was dissimilar.

Rogers used her lithic and ceramic results in combination with mortuary, settlement pattern, and ethnohistoric data to characterize the social organization of the upper Yadkin River valley as follows:

> A group of villages formed a nexus of cooperation, sharing land, food produced from the land and hunting resources, and perhaps engaged in a tributary relationship. Some sort of sociopolitical apparatus linked such villages together into emically recognized cooperative units [1993:73].

She concluded that the system was heterarchical in structure, where associations and cooperative units varied in location and size over time, depending on the environmental, social, political, or economic situations. Her work shows how the combined analysis of the technical and spatial properties of several complementary lines of material evidence can help to reconstruct broad patterns of past interaction.

Rogers (1993) applied *chaîne opératoire* theory to her ceramic analysis to connect attributes to social behaviors, and we followed her method here. Many researchers have demonstrated the suitability of this theory in a variety of ceramic analysis contexts (Berg 2011; De La Fuente 2011; Gosselain 2000; Minar 2001; Sassaman and Rudolphi 2001). *Chaîne opératoire* proposes that the process of crafting a material or object indicates the culture and ideology of the individual creating that product. Throughout the manufacturing process, a multitude of decisions must be made regarding the technological and decorative elements to incorporate into the object. These decisions are inherently influenced by the sociocultural identity of the individual, as described by Roux (2016:3):

> At the collective level, transmission occurs within groups made up of individuals linked by social ties. These ties determine the social perimeter into which ways of doing are transmitted and, by the same token, the boundaries beyond which there are other networks with other ways of doing.

If similar decisions regarding pottery are represented at multiple sites, we assumed this indicated a similar social network of cultural transmission for pottery. The most likely candidates for this interaction would be the women responsible for crafting and teaching pottery-making methods (Rogers 1993). Conversely, a lack of correlation between features did not necessarily indicate a lack of interaction. While similar styles may have represented similar ideologies and social interaction, members of different groups may have preferred individual styles even if interaction took place. Furthermore, certain attributes of the ceramics, such as pottery shape or size, may indicate other factors, such as environmental pressures or utility. Thus, the presence of comparable features is not proof of group interaction but is strong evidence for it.

Excavations at the Redtail site and surveys of several nearby sites (Jones 2017, 2018; Jones et al. 2012) over the past eight years produced larger assemblages for several upper Great Bend sites. In addition, they created the first assemblage for the 31Wk26 site, which has the density of artifacts to be a potential location for a larger three-to-five-household settlement similar to those occupied before AD 1200. Given these new sources of data and the competing models for lithic acquisition and distribution, we felt it would be productive to revisit Woodall's and Rogers' hypotheses for lithic acquisition and ceramic similarity between sites.

Methods

Hypotheses

We focused on sites in the upper Great Bend area as a discrete unit because of Jones's (2017) findings that this part of the valley was the primary settlement area from AD 1200 to 1600. We hypothesized the following:

1. If a down-the-line exchange system existed, then we should see a gradual decrease in rhyolite proportions in the total lithic assemblage as one moves upriver from the Hardy site (Figure 2).
2. If a down-the-line exchange system existed, then we should see a higher proportion of later-stage reduction rhyolite flakes to earlier-stage reduction rhyolite flakes at upriver sites (e.g., 31Wk26) than those downriver (e.g., Redtail).
3. If a down-the-line exchange system existed, then we should see the use of rhyolite for a wider range of tools at downriver sites compared to upriver sites, assuming that with more access, people would have been more likely to use it for more expedient tools, as well as projectile points and formal tools.
4. If gateway community distribution existed, then we should see larger sites (as evidenced by the presence of middens), larger surface areas, or higher artifact densities with higher proportions of rhyolite artifacts.
5. If gateway communities correlated with larger settlements, then we should see a higher proportion of early stage reduction flakes in the flake assemblages at larger sites when compared with smaller sites.

6. If gateway communities correlated with larger settlements, then we should see more use of rhyolite for a range of tools at larger sites.
7. If direct acquisition of rhyolite occurred, we should see similar flake properties at sites, regardless of distance from the source, site size, or rhyolite proportions at a site.
8. For the ceramic attribute analysis and its implications for social interactions, we hypothesized that if communities were interacting regularly, then we should see higher Brainerd-Robinson coefficients across multiple independent comparisons, using variable ceramic attributes in each.
9. Finally, if economic and social interactions were interconnected as has been proposed (Woodall 1990), then we should see communities with similar ceramic stylistic patterns also being part of the same economic interaction networks as outlined in the above hypotheses.

The Sites

The Redtail, Hardy, T. Jones, and Porter sites serve as our models for settlement in the upper Great Bend area. These are floodplain sites that have been subjected to agricultural plowing for well over 100 years, but all four still have undisturbed strata below the plow zone. Redtail has radiocarbon dates of AD 1285–1415 (Jones 2017:35). Excavations there have identified a housefloor with 17 adjacent pit features and two special use areas 50 m and 100 m east of the dwelling (Jones 2018). We have excavated approximately 75%–80% of the housefloor and associated features and 20%–30% of the special use areas, providing a representational view of the range of activities at the site. Dates from Redtail, T. Jones, and Porter (Woodall 1999, 2009) suggest typical one-to-three-household sites were occupied for approximately 150–200 years at a time. The diversity of artifacts and ecofacts at those sites compares favorably to sites in the Dan, Eno, and Haw River valleys that have been determined to represent small, permanent settlements (Dickens et al. 1987). These findings suggest that upper Great Bend sites were contemporaneously occupied from AD 1200 to 1400. This conclusion is supported by previous ceramic and settlement pattern analyses (Barnette 1978; Jones 2017; Rogers 1993).

Sites that were occupied longer, such as the Donnaha site, may have been occupied for 500–800 years during the Middle and early Late Woodland periods (Woodall 1984). The existence of such sites after AD 1200 is still unclear, but the Hardy site is a strong possibility given its 300–400-year occupation and evidence for at least three dwellings (Woodall 1990). Additionally, the 31Wk26 site is represented only by a systematic surface collection (Jones et al. 2012) but might be another location for a long-term settlement in the upper Great Bend area, as there is an obvious surface midden, a feature usually seen only at larger sites.

Lithic Analysis

We used descriptions from Daniel and Butler (1996) and Woodall (1999, 2009) to identify rhyolite and chert types. We counted and weighed the entire lithic assemblage from Redtail, 31Yd175, 31Wk26, and 31Sr58 by material type. The latter three sites are only represented by surface assemblages. We examined the material in broad nonlocal (rhyolite) or local (quartz and quartzite) categories. We compared these sites to one another through both weight and count, and we inserted our count data into Rogers's (1993) distance-decay model.

We examined flake attributes from 100% of the surface lithics found at 31Wk26 and 31Yd175 and 11% (810/7,164) of Redtail, sampled from all excavated contexts and surface collections. We measured the following flake attributes: length, width, midpoint thickness, bulb thickness, height, external platform angle, and percentage of cortex and weathering present (Figure 3). We then calculated flake curvature according to Andrefsky (1986:50). If a modified or utilized flake had recognizable platforms and bulbs, we included it in the examination. We understand that flaking or use could shorten the length of the flake, influencing the calculation of curvature. However, we included them because early reduction flakes are more likely to become tools because of their larger size. Thus, we did not want to skew our results from the earlier portions of the reduction sequence.

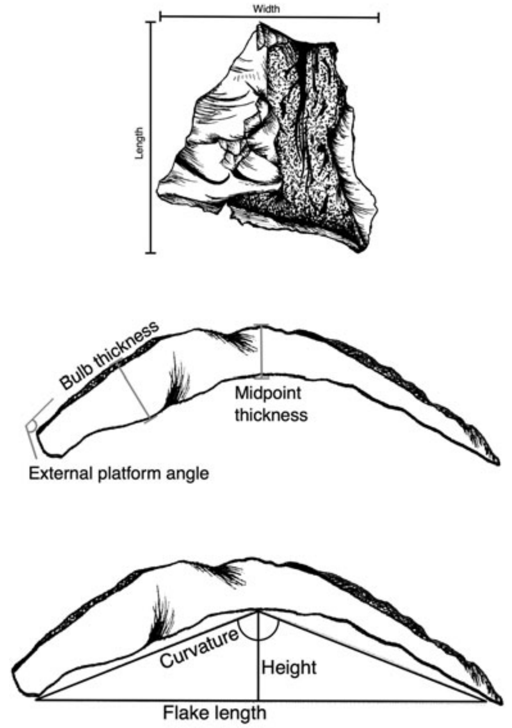

Figure 3. Diagram of flake measurements used in this study. Drawings by Maya B. Krause.

We recognize that comparing survey assemblages from some sites to excavated assemblages from others could create comparability issues. However, Woodall (1990) compared surface to excavated assemblages at the Hardy site and found virtually no differences in both the types of artifacts and the proportional counts of the types of lithic materials. We found similar patterns at Redtail with proportional weights (11.5% rhyolite and 86.9% quartz on the surface and 10.3% and 89.1% in excavated contexts). However, we found proportional counts were not consistent between these contexts (54.4% and 43.3% on the surface and 40.8% and 57.7% in excavated contexts). We are inclined to trust Woodall's results because the surveys at Redtail were conducted by undergraduates at field schools. Distinguishing quartz artifacts from nonartifacts is difficult and often resulted in undercollecting; additionally, students were instructed to collect all rhyolite. During excavations, all lithics were collected and sorted in laboratory settings by more experienced researchers. We believe these factors created a bias toward rhyolite in the surface collections.

Rogers (1993) found similar percentages of flakes with cortex and ratios of primary to secondary flakes across the sites and concluded that each site had direct access to the rhyolite sources. We examined flake assemblages with more categories of reduction to see whether our results varied from Rogers's when we account for more complexity in the reduction process. To do so, we measured curvature for each flake and used Andrefsky's (1984) descriptions of flakes divided into four stages of triangular point production.

Ceramic Analysis

We examined 300 ceramic sherds from Redtail, 50 from 31Sr58, 50 from 31Wk26, 35 from 31Sr59, 32 from 31Yd32, and 20 from 31Yd175. The Redtail sample comes from all contexts, and the samples from the other sites are sherds that met our size requirements. For easier treatment identification, only sherds 3 cm or longer were considered from Redtail. Because plowing breaks pottery into smaller pieces, we included sherds 2 cm or longer for sites with only surface assemblages. For each sherd, we measured the following stylistic attributes: placement on the pot (e.g., neck, lip, or base), weight, length, width, height, diameter, thickness, temper, and exterior and interior treatments. We identified eight types of temper: large quartz (>4 mm), small quartz (<4 mm), soapstone, small quartz and soapstone, large quartz and soapstone, grit/sand, biotite, and small quartz and biotite. We assigned grit/sand temper when no visible temper was apparent.

We then compared exterior treatments to the photographic examples provided by Coe (1964:30–31), Ward and Davis (1993:21), Woodall (1984:77–78), and, more generally, Rice (1987). Treatments included plain, smoothed (achieved using both hands and tools), scraped (using tools), net impressed, simple stamped, fabric marked, and cord marked. Treatments were cumulative, with multiple on many of the sherds. Often, scraping or smoothing was performed over impressing. Smoothing and scraping can be difficult to distinguish, as serrated tools were used for both processes. We

https://doi.org/10.1017/aaq.2019.91 Published online by Cambridge University Press

distinguished them thusly: smoothing left little to no grooving on the surface, whereas scraping left a parallel peak and trough pattern with a 0.5 mm or greater amplitude.

We used the Brainerd-Robinson coefficient of agreement as the statistical test for our attribute occurrences (Brainerd 1951; Cowgill 1990; Robinson 1951). We constructed six models, each differing in the attributes (i.e., temper, exterior decoration, and interior decoration) used to define each type. Model 1 did not distinguish small and large quartz temper, included interior and exterior treatment, and distinguished smoothing from scraping. Model 2 was similar to Model 1 but did not distinguish smoothing from scraping. Model 3 did not distinguish small and large quartz, included exterior but not interior treatment, and did not distinguish smoothing from scraping. Model 4 distinguished small and large quartz, included exterior and interior treatment, and distinguished smoothing from scraping. Model 5 did not include temper, included exterior and interior treatment, and distinguished between smoothing and scraping. Model 6 was similar to Model 5 except interior treatment was not included. We then assigned sherds a type based on these attributes for each model run and analyzed the raw data. Our goal was to use a variety of typological classifications so that a single attribute would not sway the comparison and thus provide a test of the significance of our results. Rogers (1993:140) described it as follows:

> The Brainerd-Robinson coefficient of agreement was initially devised as a method for seriating archeological sites, though the logic inherent in the method makes it equally useful for assessing similarity (and hence connectedness).

Because we assumed the sites were roughly contemporaneous, a high coefficient of agreement suggested a similar ceramic assemblage, meaning a similar ideology for the agreeing sites.

The Brainerd-Robinson coefficient relies on creating a typology of the ceramic sample. We relied on empirical, taxonomic classification (Hill and Evans 1972:235) because focusing on the obvious characteristics of the sherds leads to statistically highly nonrandom results. A typology based on the most obvious attributes also agrees with the *chaînes opératoire* approach, as each design choice indicates the designer's ideology, and each obvious attribute represents one of these design choices. To avoid creating biased typologies (Whittaker et al. 1998) and to provide a more convincing statistical comparison, we defined types differently among the six aforementioned models and assigned sherds accordingly. Every potsherd that exactly matched the variables used in each model was placed in one category until all sherds were assigned. We did not use the same attribute combinations Rogers did, but we followed the same methodology. We also subjected the ceramic data collected from this project to a secondary random sample reevaluation, which returned no unacceptable difference between measurements.

Results

Lithic Fall-off Curves

Figure 4 shows the combined assemblage sizes from Rogers's (1993) and our work. Chert occurs only in significant concentrations at the Porter and T. Jones sites, which are the latest and two closest to the chert sources to the west (Woodall 1999, 2009). Figure 5 shows the percentage of rhyolite as the total assemblage at the upper Great Bend sites. As one moves upriver, there is a decrease from Hardy to 31Sr58, then an increase to 31Yd170 and 31Wk26, and finally a decrease to Porter. Site size does not appear to correlate with rhyolite proportions. Sites with larger surface scatter areas do not have higher percentages of rhyolite. In fact, smaller sites tend to. If we examine surface artifact density, which we think may be a better measure of population size given similar occupation times, the denser sites tend to have a higher percentage of rhyolite, but it is a weak positive correlation.

Both Hardy and 31Wk26 were likely occupied the longest, and they are at peaks in the fall-off curve. We do not have access to the Hardy assemblage, but using proportion by weight in addition to count at 31Wk26 helps us assess the extent to which occupation length may be

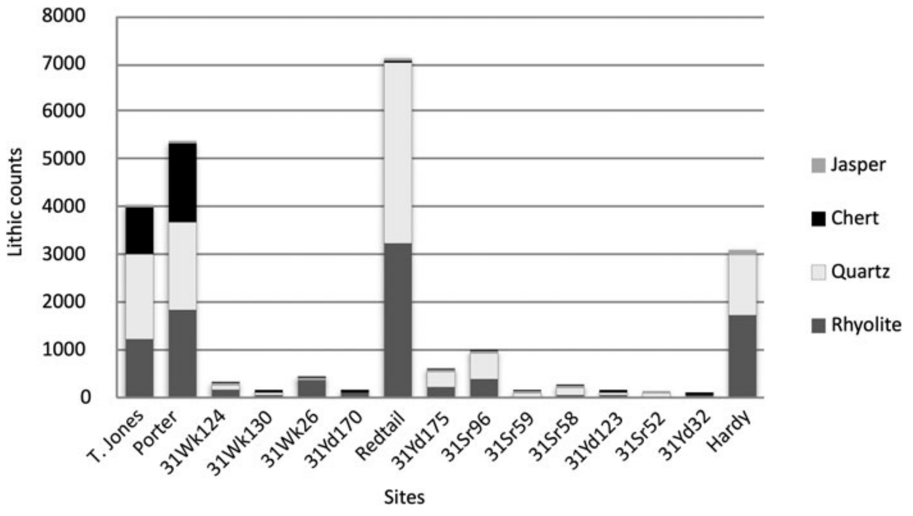

Figure 4. Lithic material counts from each site used in this research.

behind rhyolite proportions. Figure 6 and Table 1 show that the proportion of rhyolite by weight for 31Wk26 is almost four times that at Redtail, whereas the proportion by count is only twice as much. In addition, the average flake weight is twice as high at 31Wk26, indicating that the concentration of rhyolite at 31Wk26 is likely not from hyperflaking or retouching the same amount of rhyolite compared with other sites. Thus, like Woodall, we do not believe site size or occupation length strongly influences these results.

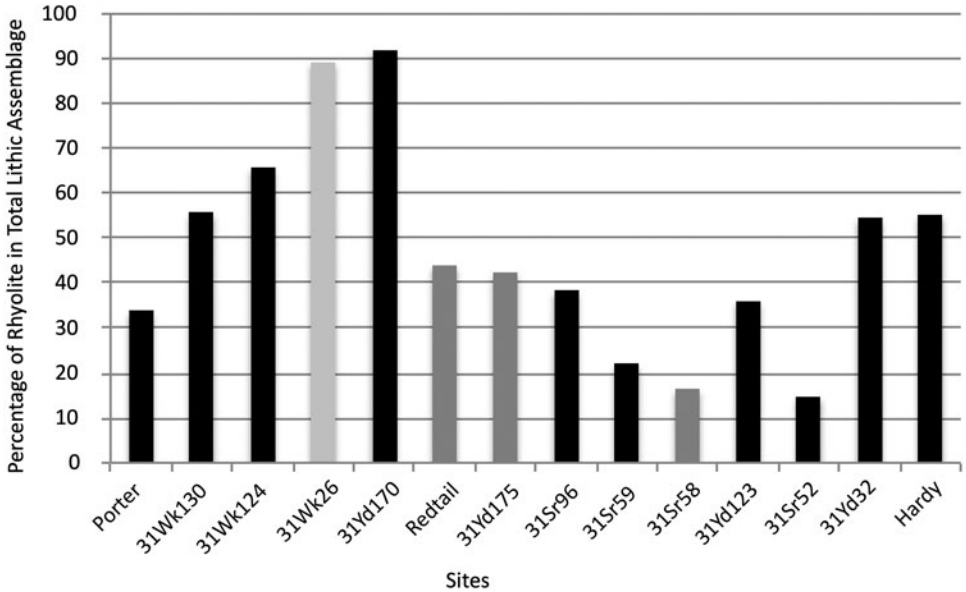

Figure 5. The proportion by count of rhyolite to the total lithic assemblage at each site used in this research. The sites in black are data from Rogers (1993). The sites in light gray are from our research. The sites in medium gray are a combination of data from Rogers (1993) and our work.

https://doi.org/10.1017/aaq.2019.91 Published online by Cambridge University Press

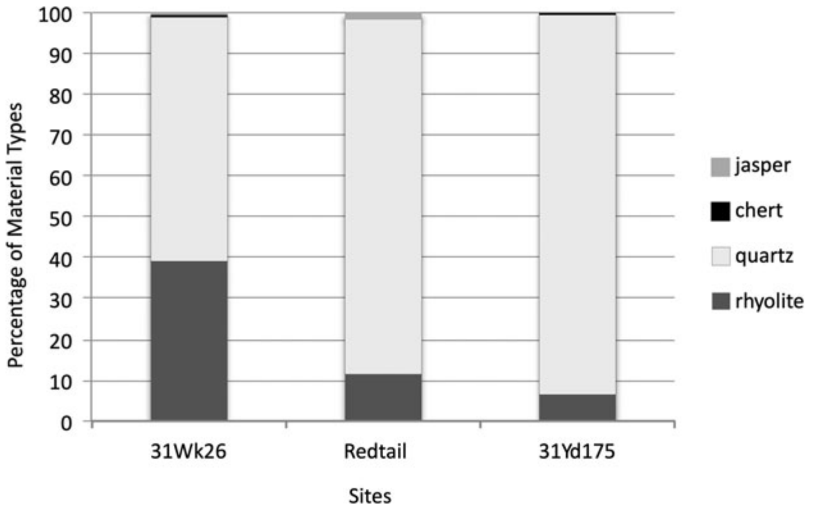

Figure 6. Bar graph of the proportion of lithic materials by weight at three of the analyzed sites.

Table 1. Counts and Weights of Different Lithic Material Types from 31Wk26, 31Yd175, and Redtail.

		Raw Data		Percentages	
Site	Material	*Mass (g)*	*Count*	*Mass*	*Count*
31Wk26	rhyolite	383.3	362	39.0	89.4
	quartz	591.7	36	60.2	8.9
	chert	2.5	4	0.3	1.0
	jasper	5.8	3	0.6	0.7
31Yd175	rhyolite	209.8	208	6.5	40.9
	quartz	3008.7	292	92.9	57.5
	chert	15.1	3	0.5	0.6
	jasper	5.6	5	0.2	1.0
Redtail (surface)	rhyolite	512.8	857	11.5	54.5
	quartz	3865.7	681	86.9	43.3
	chert	4.5	9	0.1	0.6
	jasper	65.6	25	1.5	1.6
Redtail (excavated)	rhyolite	1043.2	2157	10.3	40.8
	quartz	9003.7	3051	89.1	57.7
	chert	14.9	18	0.1	0.3
	jasper	45.5	65	0.5	1.2
Redtail (total)	rhyolite	1556.0	3014	10.7	43.9
	quartz	12869.4	3732	88.4	54.4
	chert	19.4	27	0.1	0.4
	jasper	111.1	90	0.8	1.3

Table 2. Comparison of Average Values for the Attributes Measured across Three Sites.

Measurements	31Wk26	Redtail	31Yd175
Flake length (mm)	13.4	11.8	16.3
Flake width (mm)	12.8	11.1	12.0
Thickness (mm)	2.4	1.9	2.7
Bulb thickness (mm)	2.5	2.0	2.8
Height (mm)	1.2	0.9	1.0
External platform angle	62.2	63.8	74.0
Surface weathering (%)	14.6	10.8	6.7

Lithic Industries

At Redtail, 105 of 113 projectile points (92.9%) are made from rhyolite, and quartz flake tools outnumber rhyolite tools by over 3:1. Utilized rhyolite flakes outnumber quartz utilized flakes 6.5:1. Quartz flakes are also much larger on average and have higher external platform angles, suggesting more early-stage reduction. If we compare assemblages across sites, tool types are similar between 31Wk26 and Redtail and match descriptions from other sites (Woodall 1984, 1990), suggesting a similar lithic industry throughout the valley. One difference between these two sites is that rhyolite was used more often for scrapers, drills, and cutting tools at 31Wk26, whereas quartz was used more often for these tools at Redtail.

Curvature and Reduction Profiles

In comparing Redtail and 31Wk26, we found the former's assemblage had significantly smaller flake width, thickness, bulb thickness, and percentage of weathered surface, as well as a higher external platform angle (Table 2). Site 31Yd175 generally shows larger flakes but much fewer flakes with cortex. These data provide an initial indication that there were different reduction activities at these three sites. Figure 7 shows the curvature results from 31Wk26, Redtail, and 31Yd175. As shown by Andrefsky (1986), flakes with a curvature range of 150–165 degrees are produced during the first quarter of the reduction process; 165–170 degrees, during the second quarter; 170–175 degrees, during the third quarter; and 175–180 degrees, during the last quarter. Site 31Wk26 has a higher proportion of flakes less than 160 degrees than Redtail and 31Yd175, and Redtail has a higher proportion of flakes less than 160 degrees and greater than 175 degrees than 31Yd175. Site 31Wk26 and Redtail have flakes with curvatures less than 150 degrees, which are not discussed by Andrefsky (1986). He did not describe the beginning condition of his material. If his was already in flake form and knappers at our sites began with less reduced material, that could explain the presence of flakes with lower curvature values in our study. As support for comparing excavated and surface assemblages, we saw the same pattern when just the surface assemblage at Redtail was examined.

Our results do not support the first three hypotheses related to the down-the-line model, nor do they indicate that these communities were all connected through one distribution system. Our results support Woodall's gateway model. We interpret the higher ratio of rhyolite flake tools at 31Wk26 as indicating that knappers had greater access to rhyolite and the relatively low proportion of high curvature flakes at Redtail as indicating rhyolite arrived already reduced. Because of this greater accessibility, the residents of 31Wk26 also had the ability to use rhyolite for tools other than projectile points, for which the rhyolite—as a higher quality material than the local quartz—was preferred. Given that there is no indication that different lithic industries existed among these sites, we interpret our findings as support for a scenario in which 31Wk26 was a gateway community for rhyolite acquisition and distribution in the upper Great Bend area. Thus, the distribution may have been a combination of gateway and down-the-line methods, with the latter describing how material moved from the gateways to nearby communities.

Ceramic Attribute Patterns

Table 3 shows the results of the Brainerd-Robinson tests for Model 4. Models 1–3, 5, and 6 showed the same patterns of similarity among sites. In most studies involving Brainerd-Robinson (Robinson 1951; Plog 1976), coefficients of agreement are in the 180s or the 190s. Like Rogers's (1993:148), ours are smaller; however, the coefficients are highly sensitive to the total number of ceramic types in each

https://doi.org/10.1017/aaq.2019.91 Published online by Cambridge University Press

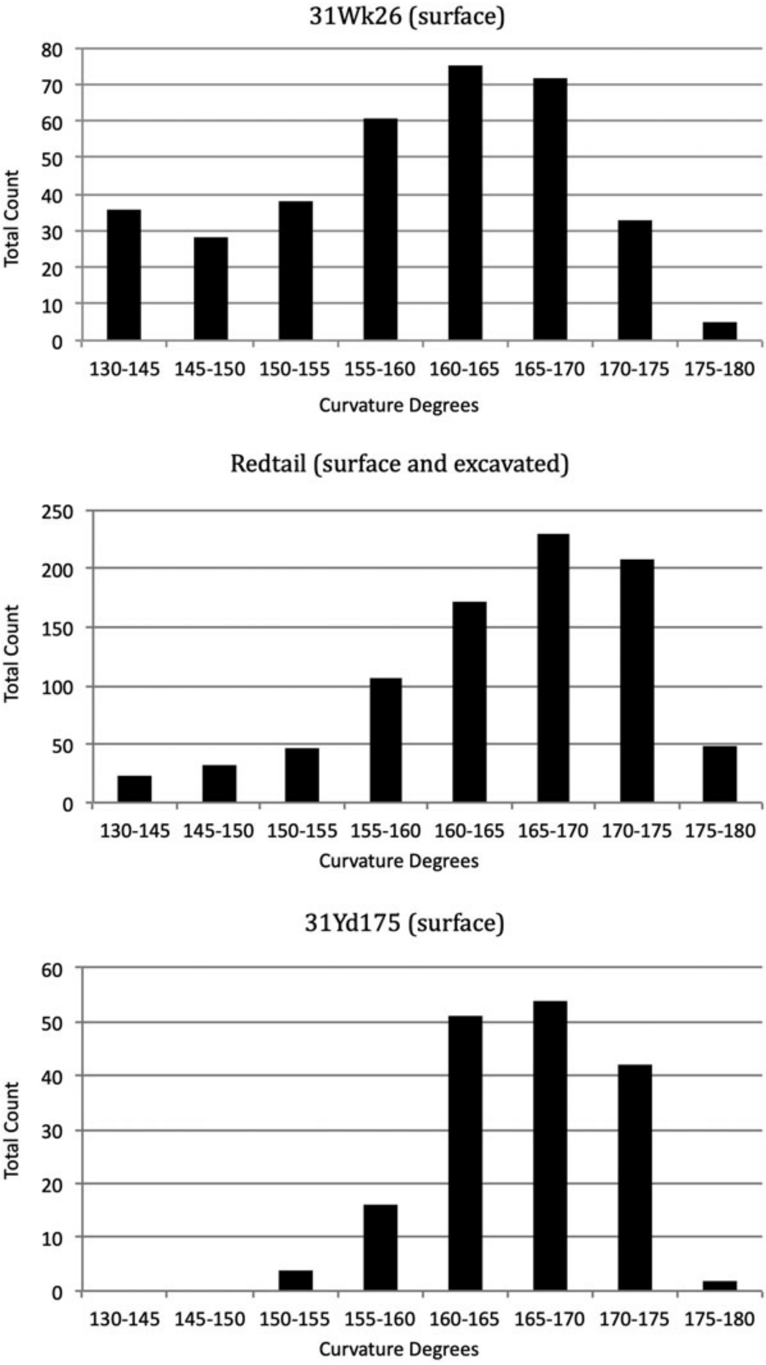

Figure 7. Bar graphs of the number of flakes of particular five-degree ranges of curvature at 31Wk26, Redtail, and 31Yd175.

model, with more types producing lower coefficients. We have many types in each model given the variability in attribute combinations for Piedmont Village Tradition pottery. This statistical effect occurred across our models, as those with the most variables (i.e., 1 and 4) showed lower coefficients than the model with the least variables (i.e., 6). Therefore, relative

https://doi.org/10.1017/aaq.2019.91 Published online by Cambridge University Press

Table 3. Matrix of Brainerd-Robinson Results for Model 4.

	31Sr58	31Sr59	Redtail	31Yd175	31Yd32	31Wk26
31Sr58	-	101	110	52	100	80
31Sr59	101	–	99	40	92	75
Redtail	110	99	–	32	105	80
31Yd175	52	40	32	–	48	56
31Yd32	100	92	105	48	–	71
31Wk26	80	75	80	56	71	–

Note: P-values were below 0.05 for all results except the Redtail comparisons to 31Sr58, 31Sr59, 31Yd32, and 31Wk26, the 31Yd32 comparison to 31Sr58, and the 31Sr58 comparison to 31Sr59.

values within each model rather than absolute values are important.

One reason for running six models was to measure significance. Changing variables across several models and achieving the same results, which occurred with our models, strongly suggest significant results. As an additional test of significance, we ran Monte Carlo tests in accordance with a methodology developed by DeBoer and colleagues (1996) and operationalized by Peeples (2011). Research (Greenland et al. 2016; Halsey 2019) is increasingly showing that *p*-values alone are unreliable in assessing significance, so we evaluated significance using both our approaches. From the Monte Carlo tests, only Model 4 produced a large majority of results (nine out of 15) most likely to not result from random effects. This model has the most attributes and is thus the most likely to accurately reflect past ceramic production decisions. In addition, when we compared our findings to Rogers's (1993), we found agreement in the same sites (31Sr58, 31Sr59, Redtail and 31Yd32) she did. Site 31Yd175 had a low coefficient of agreement in both studies. Rogers did not examine 31Wk26. Finally, samples of about 50 ceramics from each site were reanalyzed by an independent researcher and produced the same coefficient patterns. Together, these significance tests suggest our analyses are showing real patterns. The one caveat is that the site with nonsignificant *p*-values in Model 4 was Redtail, so its similarity to other sites can be questioned. However, it is likely a result of Redtail having a much larger sample size because the independent analysis showed significant *p*-values for comparisons with all but two sites. In addition, it is important to note that the coefficient patterns for this site are similar across all our models, to Rogers's results, and to the results of the independent analysis.

Discussion

Heterarchy and Gender Roles

Our results combined with Woodall's (1990) model for earlier sites suggest a consistent rhyolite gateway acquisition and distribution strategy throughout the Middle and Late Woodland periods. Cobb and Nassaney (1995) found evidence that Late Woodland communities were preserving old exchange patterns to retain interactions with socially close communities during times of cultural upheaval. As mentioned, there was an increased Mississippian presence in the Piedmont after AD 1200, which may have caused Piedmont Village Tradition people to migrate upriver in the Yadkin Valley to a less productive environment (Jones 2017, 2018). Comparisons with Middle and early Late Woodland sites downriver (e.g., Newkirk 1978; Woodall 1984) suggest this move may have necessitated smaller settlements with shorter occupations. Despite these changes, our findings suggest that existing interaction networks remained unchanged until around AD 1500.

Quartz, the most abundant local lithic material, is poorly suited for making small triangular projectile points, which were the focus of the Piedmont Village Tradition lithic industry. Gateways may have existed primarily to acquire rhyolite as a necessary—or at least highly advantageous—raw material. While gateways could have also served social, political, and religious functions, our ceramic results combined with Rogers's (1993) show that interactions involving pottery did not include the same groups of

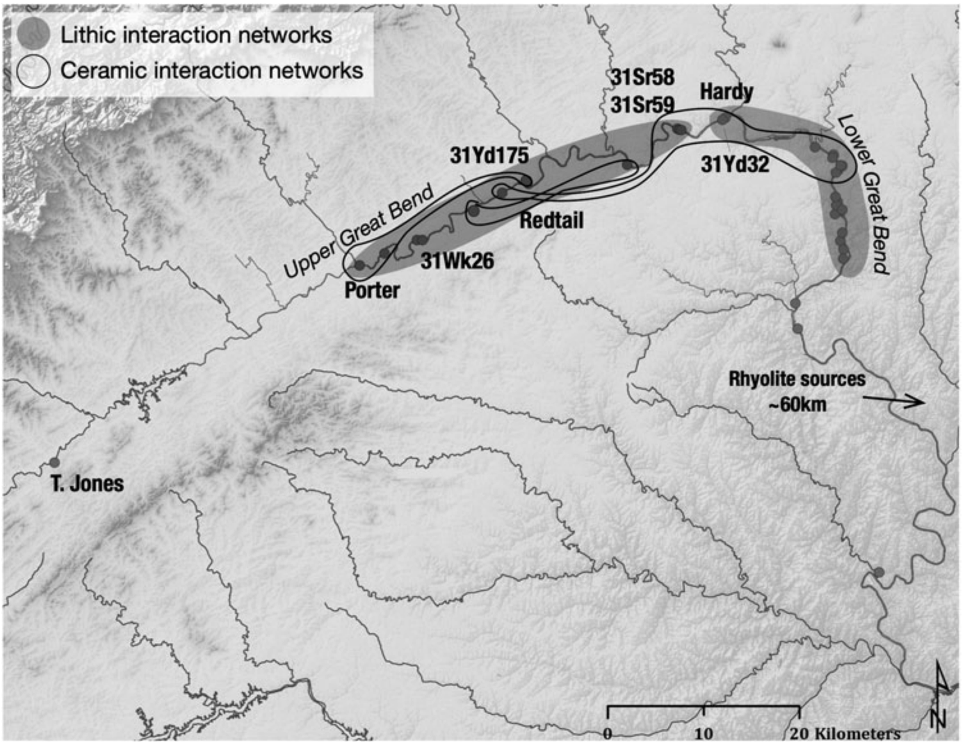

Figure 8. Map of proposed lithic and ceramic style interaction networks. This is based on a combination of our results and those of Rogers (1993:154).

households as lithic interactions did (Figure 8). This suggests gateways were not the focus of all activity, contradicting the traditional cultural ecological models for the Piedmont Village Tradition that assumed most or all interactions were outgrowths of economic interactions (Woodall 1990).

Given that our proposed gateways appear to have had more access to less-worked rhyolite compared to other sites, it is likely the associated interaction network integrated several dispersed households into a larger group with gateway communities as the organizing entity, as Rogers (1993, 1995) discussed. However, we do not see patterns in these data that suggest the relationships were tributary in nature. Thus, in this dispersed settlement system, a multihousehold organizational structure may have formed to obtain a necessary and nonlocal resource. It seems less likely that ceramic styles were distributed or dictated by more centralized communities, given that Rogers's (1993) and our results show that potters did not interact primarily with nearby households.

While rhyolite exchange may have been organized and carried out by gateway communities that linked several nearby households, we interpret the lack of spatial proximity in ceramic attribute patterns to an exchange of stylistic ideas at the household level and was strongly connected to social relationships. Rogers (1993, 1995) suggested that interactions and community composition were fluid and kin based, and this may explain the ceramic patterning. In particular, it is likely that women were the primary Piedmont Village Tradition potters (Eastman 2001; Rogers 1993) and that residence patterns were patrilocal (Rogers 1993). Thus, related women were potentially moving more widely throughout the valley and taking their pottery-making methods with them. Perhaps just the pots were moving among households, but we think our first explanation is the stronger of the two given the aforementioned residence patterns.

We should more explicitly examine the gender component to these patterns as well. If men were the primary flintknappers as mortuary data from other Piedmont Village Tradition sites suggest (Eastman 2001), an alternative or addendum to the heterarchical model is that the spatial distribution of rhyolite reflects the spatial pattern of related men. Men established new households near their male kin in the same floodplain or one nearby. Married women moved to their husbands' residences regardless of the location of their consanguineal kin. In this scenario, women were responsible for the spatial patterning of ceramic styles, and gateways were tied to patrilocal communities where men were responsible for moving rhyolite to nearby male relatives.

The patterns of nonlocal lithic acquisition and distribution changed with the shift toward more interaction with Mississippians after AD 1500. The T. Jones and Porter sites (Woodall 1999, 2009) located farther upriver were occupied after AD 1400 and had a much higher proportion of western-sourced chert. Woodall (2009) proposed T. Jones was a Lamar phase Mississippian outpost in the valley established by migrants from the mountains looking for warmer, lower-elevation locations during the Little Ice Age. As Mississippians migrated into the upper Yadkin Valley, the Piedmont Village Tradition communities could have had two reactions. First, Piedmont Village Tradition people may have shifted from the existing gateway network toward more interaction with Mississippian communities. This change could have been similar to the increased interaction between Mississippian and local, nonhierarchical communities observed by Meyers (2015:236) in southwestern Virginia. She proposed that the settlement at the Carter-Robinson site was built specifically to take advantage of the frontier trade and that power dynamics at frontier Mississippian sites may have been less rigid, allowing for more individually directed interaction (Meyers 2015, 2017). Second, Piedmont Village Tradition people may have mostly left the upper Yadkin Valley as Mississippians moved into upriver locations. T. Jones and Porter are the only sites with dates after AD 1400, and the artifact styles suggest they were occupied by Mississippians and Piedmont Village Tradition residents. It is possible that a few Piedmont Village Tradition people may have remained in the valley and established communities with the newcomers.

Woodall (1999, 2009) describes women buried with Mississippian items and projectile points at the T. Jones and Porter sites. These could be Mississippian women who married into these Piedmont Village Tradition communities. However, future work should test the alternative hypothesis that Piedmont Village Tradition women began to take on more significant roles in economic exchange as interaction shifted toward Mississippian societies to the west. In other similar situations, men buried in such fashion have been interpreted as local leaders adopting Mississippian ideology to strengthen their positions (Cobb and Garrow 1996). Piedmont Village Tradition women may have been doing the same in the upper Yadkin River valley, and this pattern of women as traders and liaisons may have arisen with the change in trade partners or may have grown out of their earlier roles as primary ceramic producers.

Boundarylands and Frontiers

Archaeology in the southeastern United States regularly employs core-periphery models to discuss relationships between Mississippian and non-Mississippian societies (e.g., Comstock and Cook 2018; King and Meyers 2002; Lambert 2000; Meyers 2002). Few scholars have discussed this relationship for Piedmont Village Tradition societies, with King and Meyers (2002) generally labeling the area as a periphery and Woodall (1999) calling it a frontier after AD 1500. Given our data and the aforementioned changes that occurred in Piedmont Village Tradition lithic exchange patterns, our results provide an opportunity to evaluate application of these labels in the context of more specific cultural processes.

The influence of Mississippian societies on Piedmont Village Tradition communities does not appear to have been uniform across time and space. From AD 1100 to 1200, the lower Great Bend fits the commonly used definition of a periphery, given the evidence for the political influence exerted on Piedmont Village Tradition communities by Mississippian migrants to the south of this area. Around AD 1200, Piedmont Village Tradition people moved upriver into the upper Great Bend area as a result of violent interactions with their new neighbors (Jones 2017). From AD 1200 to 1500, there is little archaeological evidence to suggest that the presence of Mississippians in the region impacted the economic, social, or settlement activities of Piedmont Village Tradition people. Thus, we feel their general characterization as a periphery should be reassessed. King and Meyers (2002) define peripheries as the physical margins of Mississippian dominated areas, and societies there may or may not have interacted with Mississippians. By that definition, the upper Yadkin River valley certainly is a periphery. However, we disagree with the definition because it is Mississippian-centric. Labeling non-Mississippian societies as peripheral solely because of their proximity to Mississippians marginalizes them, which has a tendency to devalue research and precludes examinations of demographic, political, social, ideological, and economic interactions from their perspective. If we conceptualize and use terms with cultural processes in mind, then given a lack of evidence for Mississippian influence or interaction between these two groups, we do not see justification for labeling Lamar Mississippians as the core and Piedmont Village Tradition communities as the periphery during this 300-year span. Perhaps Piedmont Village Tradition people thought of themselves as the core and Mississippians as their periphery.

Drawing on Parker (2006), we characterize the upper Yadkin River valley from AD 1200 to 1500 with a new term—“boundarylands.” It is tempting to follow Parker’s lead and call this area a borderland—the region around or between political or cultural entities—particularly given the complexity the term encompasses. In fact, we do not strongly object to this term. However, Parker (2006:80) himself identifies that borderlands are based on the concept of borders, which may have been quite rare in the ancient world. There does not appear to be a clear line in this Piedmont Village Tradition-Mississippian case. Furthermore, his examples of ancient borderlands all involved state-level societies, and it is conceivable that something similar to modern notions of borders did exist. Finally, Parker correctly identifies that borderland studies are becoming an important part of modern cultural anthropological discussions of national borders and migration and thus have a specific meaning tied to the processes involved in them that might not be applicable to ancient cases.

How, then, do we describe boundaries while researching less sedentary, geographically dispersed, and more sociopolitically fluid groups like the Piedmont Village Tradition who might not have had a strong notion of territorial borders? Parker defines a boundary as an unspecific divide between two groups of people distinguished by different cultural practices and language. This is a good start for our example, but something needs to be added to account for the human settlements around such a divide. Thus, we define boundarylands as the areas of settlement near the unspecified divide between two cultural groups. Our proposed term is similar to borderlands in that it can accommodate a wide range of interactions—including demographic, political, and economic—but takes out the problematic border requirement. It also does not assume primacy for either group. We suggest that boundarylands may be considered as an alternative to borderlands in archaeological cases where borders as we know them today almost certainly did not exist and where the power dynamic between groups is unclear, nonexistent, or predicated on equal standing.

After AD 1500, Mississippians likely started migrating into the upper Yadkin River valley. Piedmont Village Tradition communities either began living with their new Mississippian neighbors or migrated out to avoid them (Woodall 2009). At that time, it would have been a mixture of Mississippian and Piedmont Village Tradition people, ideas, and objects, which best characterizes the valley as a frontier, as Woodall (1999) did. This label also agrees with definitions by both King and Meyers (2002:114), geographic areas along the edge of an advancing or retreating wave front of Mississippian forms of organization, and Parker (2006:79–80), a zone of interaction with various types of boundaries.

The interaction dynamics between complex and small-scale societies should drive any

https://doi.org/10.1017/aaq.2019.91 Published online by Cambridge University Press

theorizing. From AD 1100 to 1200, the upper Yadkin River valley is best characterized as a periphery because of the political influence Mississippians were exerting on Piedmont Village Tradition communities without inhabiting those communities themselves. From AD 1200 to 1500, the upper Yadkin River valley was not a periphery to Mississippians in the sense that the Piedmont Village Tradition people were not a margin to a core. By migrating upriver, they removed themselves from Mississippian influence. They were certainly geographically adjacent to one another, but without strong evidence for interaction, we hesitate to automatically assign Mississippian societies a central demographic, political, social, ideological, or economic position on the cultural landscape. Finally, once Mississippians begin migrating into the valley after AD 1500, the area became a frontier.

Coalescence

In eastern North American archaeology, non-Mississippian societies are often described and explained using general trends observed for the Late Woodland period. For many areas of the Southeast, Mid-Atlantic, and Northeast, this was a time of coalescence and increasing regional exchange (e.g., Birch and Williamson 2013, 2018; Drooker 2002; Jeffries 2018; Rodning 2002). For the Piedmont Village Tradition, the former trend appears to have only occurred along the Dan River (Dickens et al. 1987; Jones 2018). However, the lack of physical coalescence of households or communities does not necessarily mean that social, political, or economic networks were not expanding to include more people. In fact, we believe our results show that even though communities in the upper Yadkin River valley remained small and dispersed, social and economic interactions may have encompassed 5–10 households spread over 15–20 miles of river valley with populations of 50–100 people, similar in size to other coalesced Piedmont Village Tradition settlements. Such settlement patterns may require us to expand our definition of coalescence in the Eastern Woodlands. If coalescence is about identity and interaction, it is possible that Piedmont Village Tradition households were forming a unified identity and increasing interaction within that group without living proximate to one another.

Conclusion

This research constructed a model for economic and social interaction among Piedmont Village Tradition communities in the upper Yadkin River valley based on a heterogeneous distribution of nonlocal lithic materials across sites and based on patterns of ceramic stylistic similarities that fail to map onto patterns of lithic distribution. Our findings suggest that interaction networks constructed and maintained by small, egalitarian, and dispersed households and communities could be organized on different sociopolitical levels, depending on the type of interaction. In particular, multiple communities may have coordinated when acquiring and distributing rare and necessary materials. Conversely, the movement of objects like ceramics made from local materials may have been handled on the household or even individual level. These social and economic processes may have also been linked to gender roles. Finally, given the types of lithic materials and ceramic styles, it appears that they had little interaction with nearby Mississippian neighbors from AD 1200 to 1500, which challenges labeling them as a Mississippian periphery.

Continuing to examine interaction on a large scale will help us better understand the Piedmont Village Tradition-Mississippian dynamic and the scope of Piedmont Village Tradition interaction networks. We propose adding smaller scales and creating a multiscalar model to better describe and explain particular types of interaction. Intracommunity lithic and ceramic patterns at proposed gateway communities can help us determine other functions they may have served. Household-level analyses within and among sites might also further highlight who was making and moving projectile points and pottery and through what mechanisms. For example, exploring the quality of lithic and clay materials and the conditions of their production may help to evaluate Rogers's proposal of tributary relationships between Piedmont Village

Tradition communities. Finally, in regions with both complex and small-scale societies, we should perform the exercise of decentering any one society based on sociopolitical complexity alone so that we can explore alternative models about interactions between and within particular groups. Research focusing more specifically on demographic, political, social, ideological, or economic interactions in these cases will help to create a more nuanced view that is not captured when small-scale societies are labeled as peripheral solely based on their proximity to a more complex society.

Past small-scale societies that existed alongside more complex societies have traditionally been either an afterthought within American archaeology or have been thought of as having limited applicability to other periods or regions. As such, they have not been a significant part of theory building. However, over the past 2,000–3,000 years, complex and small-scale societies inhabiting the same region have been relatively common in many areas of the world. As such, any society in this situation has the potential to inform us about a past when societies of drastically different sociopolitical organization existed contemporaneously. Furthermore, they may help us understand recent and modern state–nonstate interactions, which are becoming increasingly important in world politics and economics.

Acknowledgments. This work was partially funded by a National Science Foundation grant (BCS-1430945). This article grew out of two honors theses projects by Krause and Watson that became a paper presented at the 2017 Society for American Archaeology Annual Meeting in Vancouver, British Columbia, and a third honors thesis project by O'Saile. We thank Rachel Horowitz and Nathan Goodale for the invitation to that session that inspired us to begin analyzing the lithics at Redtail. We thank a number of Wake Forest undergraduates who helped with data collection and interpretation during this research: Melissa Pouncey, Lindsay Gilliland, Brittany Ezer, Emma Sandifer, Ellie Logan, and Garrett Toombs. Alyssa Walton conducted the independent resampling of the ceramics, and we thank her for her expertise. This work benefited from conversations with Chris Judge, Randy Daniel, Chris Rodning, and K. Pierce Wright and from comments from four anonymous reviewers. Thanks to Sharon DeWitte for comments and editing. Finally, the first author thanks Tom Jones and Charlotte Beck for their mentorship for more than 20 years and for passing on their passion for and knowledge of lithic analysis. As always, any errors or omissions are the responsibility of the authors.

Data Availability Statement. The lithic and ceramic assemblages we analyzed and all statistical and spatial data used in this research are housed in the Anthropological Geographic Analysis Laboratory at Wake Forest University and can be accessed by contacting the first author.

References Cited

Ammerman, A. J., C. Matessi, and L. L. Cavalli-Sforza
1978 Some New Approaches to the Study of the Obsidian Trade in the Mediterranean and Adjacent Areas. In *The Spatial Organization of Culture*, edited by Ian Hodder, pp. 179–190. University of Pittsburgh Press, Pittsburgh, Pennsylvania.

Andrefsky, William, Jr.
1986 A Consideration of Blade and Flake Curvature. *Lithic Technology* 15:48–54.

Barnette, Karen
1978 Woodland Subsistence-Settlement Patterns in the Great Bend Area, Yadkin River Valley, North Carolina. Master's thesis, Department of Anthropology, Wake Forest University, Winston-Salem, North Carolina.

Beck, Charlotte, Amanda K. Taylor, George T. Jones, Cynthia M. Fadem, Caitlyn R. Cook, and Sara A. Millward
2002 Rocks Are Heavy: Transport Costs and Paleoarchaic Quarry Behavior in the Great Basin. *Journal of Anthropological Archaeology* 21:481–507.

Berg, Ina
2011 Exploring the *Chaîne Opératoire* of Ceramics through X-radiography. In *Archaeological Ceramics: A Review of Current Research*, edited by Simona Scarcella, pp. 1–7. BAR Publishing, Oxford, England.

Birch, Jennifer
2010 Coalescence and Conflict in Iroquoian Ontario. *Archaeological Review from Cambridge* 25(1):29–48.

Birch, Jennifer, and Ronald F. Williamson
2013 *The Mantle Site: An Archaeological History of an Ancestral Wendat Community.* AltaMira, Lanham, Maryland.
2018 Initial Northern Iroquoian Coalescence. In *The Archaeology of Villages in Eastern North America*, edited by Victor D. Thompson and Jennifer Birch, pp. 89–105. University Press of Florida, Gainesville.

Blitz, John H.
1993 Big Pots for Big Shots: Feasting and Storage in a Mississippian Community. *American Antiquity* 58:80–96.

Brainerd, George W.
1951 The Place of Chronological Ordering in Archaeological Analysis. *American Antiquity* 16:301–313.

Brown, James A., Richard A. Kerber, and Howard D. Winters
1990 Trade and the Evolution of Exchange Relations at the Beginning of The Mississippian Period. In *The Mississippian Emergence*, edited by Bruce D. Smith, pp. 251–280. Smithsonian Institution, Washington, DC.

Burghardt, Andrew F.
1971 A Hypothesis About Gateway Cities. *Annals of the Association of American Geographers* 61:269–285.

Cobb, Charles R., and Michael S. Nassaney
1995 Interaction and Integration in the Late Woodland Southeast. In *Native American Interactions: Multiscalar Analyses and Interpretations in the Eastern Woodlands*, edited by Michael S. Nassaney and Kenneth E. Sassaman, pp. 205–226. University of Tennessee Press, Knoxville.

Cobb, Charles R., and Patrick H. Garrow
1996 Woodstock Culture and the Question of Mississippian Emergence. *American Antiquity* 61:21–37.
Coe, Joffre Lanning
1964 The Formative Cultures of the Carolina Piedmont. *Transactions of the American Philosophical Society* 54(5):1–130.
Comstock, Aaron R., and Robert A. Cook
2018 Climate Change and Migration Along a Mississippian Periphery: A Fort Ancient Example. *American Antiquity* 83:91–108.
Cowgill, George L.
1990 Why Pearson's *r* is Not a Good Similarity Coefficient for Comparing Collections. *American Antiquity* 55:512–521.
Daniel, I. Randolph, and J. Robert Butler
1996 An Archaeological Survey and Petrographic Description of Rhyolite Sources in the Uwharrie Mountains, North Carolina. *Southern Indian Studies* 45:1–37.
Davis, R. P. Stephen, and H. Trawick Ward
1991 The Evolution of Siouan Communities in Piedmont North Carolina. *Southeastern Archaeology* 10:40–53.
De La Fuente, Guillermo A.
2011 Urns, Bowls, and Ollas: Pottery-Making Practices and Technical Identity in the Southern Andes during the Late Period (ca. A.D. 900–A.D. 1450) Catamarca, Northwestern Argentine Region, Argentina. *Latin American Antiquity* 22:224–252.
DeBoer, Warren R., Keith W. Kintigh, and Arthur G. Rostoker
1996 Ceramic Seriation and Site Reoccupation in Lowland South America. *Latin American Antiquity* 7:263–278.
Dickens, Roy S., Jr., H. Trawick Ward, and R. P. Stephen Davis Jr.
1987 *The Siouan Project: Seasons I and II*. Research Laboratories of Anthropology Monograph Series No. 1. University of North Carolina, Chapel Hill.
Drooker, Penelope B.
2002 The Ohio Valley, 1550–1750: Patterns of Sociopolitical Coalescence and Dispersal. In *The Transformation of the Southeastern Indians, 1540–1760*, edited by Robbie Ethridge and Charles Hudson, pp. 118–124. University Press of Mississippi, Oxford.
Eastman, Jane
2001 Life Courses and Gender among Late Prehistoric Siouan Communities. In *Archaeological Studies of Gender in the Southeastern United States*, edited by Jane Eastman and Christopher B. Rodning, pp. 57–76. University Press of Florida, Gainesville.
Gosselain, Olivier P.
2000 Materializing Identities: An African Perspective. *Journal of Archaeological Method and Theory* 7:187–217
Greenland, Sander, Stephen J. Senn, Kenneth J. Rothman, John B. Carlin, Charles Poole, Steven N. Goodman, and Douglas G. Altman
2016 Statistical Tests, *P* Values, Confidence Intervals, and Power: A Guide to Misinterpretations. *European Journal of Epidemiology* 31:337–350.
Halsey, Lewis G.
2019 The Reign of the *P*-Value Is Over: What Alternative Analyses Could We Employ to Fill the Power Vacuum? *Biology Letters* 15:1–8.
Hill, J. Brett, Jeffery J. Clark, William H. Doelle, and Patrick D. Lyons
2004 Prehistoric Demography in the Southwest: Migration, Coalescence, and Hohokam Population Decline. *American Antiquity* 69:689–716.
Hill, James N., and Robert K. Evans
1972 A Model for Classification and Typology. In *Models in Archaeology*, edited by David L. Clarke, pp. 231–273. Methuen & Co., London.
Hirth, Kenneth G.
1978 Interregional Trade and the Formation of Prehistoric Gateway Communities. *American Antiquity* 43:35–45.
Jeffries, Richard W.
2018 Population Aggregation and the Emergence of Circular Villages. In *The Archaeology of Villages in Eastern North America*, edited by Victor D. Thompson and Jennifer Birch, pp. 140–159. University Press of Florida, Gainesville.
Jones, Eric E.
2017 The Ecology of Shifting Settlement Strategies in the Upper Yadkin River Valley, AD 600–1600. In *Settlement Ecology of the Ancient Americas*, edited by Lucas C. Kellett and Eric E. Jones, pp. 29–56. Routledge, London.
2018 When Villages Do Not Form: A Case Study from the Piedmont Village Tradition-Mississippian Borderlands AD 1200–1600. In *The Archaeology of Villages in Eastern North America*, edited by Victor D. Thompson and Jennifer Birch, pp. 73–88. University Press of Florida, Gainesville.
Jones, Eric E., and Peter Ellis
2016 Multiscalar Settlement Ecology Study of Piedmont Village Tradition Communities in North Carolina, AD 1000–1600. *Southeastern Archaeology* 35:85–114.
Jones, Eric E., Madison Gattis, Andrew Wardner, Thomas C. Morrison, and Sara Frantz
2012 Exploring Prehistoric Tribal Settlement Ecology in the Southeast: A Case Study from the North Carolina Piedmont. *North American Archaeologist* 33:159–192.
Kelly, John E.
1991 Cahokia and Its Role as a Gateway Center in Interregional Exchange. In *Cahokia and the Hinterlands: Middle Mississippian Cultures of the Midwest*, edited by Thomas E. Emerson and R. Barry Lewis, pp. 61–82. University of Illinois Press, Urbana.
King, Adam, and Maureen Meyers
2002 Exploring the Edges of the Mississippian World. *Southeastern Archaeology* 21:113–116.
Lambert, Patricia M.
2000 Life on the Periphery: Health in Farming Communities of Interior North Carolina and Virginia. In *Bioarchaeological Studies of Life in the Age of Agriculture: A View from the Southeast*, edited by Patricia M. Lambert, pp. 168–194, University of Alabama Press, Tuscaloosa.
Meyers, Maureen S.
2002 The Mississippian Frontier in Southwestern Virginia. *Southeastern Archaeology* 21:178–191.
2015 The Role of the Southern Appalachian Mississippian Frontier in the Creation and Maintenance of Chiefly Power. In *Archaeological Perspectives on the Southern Appalachians*, edited by Ramie A. Gougeon and Maureen Meyers, pp. 219–244. University of Tennessee Press, Knoxville.
2017 Social Integration at a Frontier and the Creation of Mississippian Social Identity in Southwestern Virginia. *Southeastern Archaeology* 36:144–155.
Minar, C. Jill
2001 Motor Skills and the Learning Process: The Conservation of Cordage Final Twist Direction in Communities

of Practice. *Journal of Anthropological Research* 57:381–405

Muller, Jon
1997 *Mississippian Political Economy*. Plenum, New York.

Newkirk, Judith A.
1978 The Parker Site: A Woodland Site in Davidson County, North Carolina. Master's thesis, Department of Anthropology, Wake Forest University, Winston-Salem, North Carolina.

Parker, Bradley J.
2006 Toward and Understanding of Borderland Processes. *American Antiquity* 71:77–100.

Pauketat, Timothy R.
1987 Mississippian Domestic Economy and Formation Processes: A Response to Prentice. *Midcontinental Journal of Archaeology* 12:77–88.
1989 Monitoring Mississippian Homestead Occupation Span and Economy Using Ceramic Refuse. *American Antiquity* 54:288–310.
1997 Cahokian Political Economy. In *Cahokia: Domination and Ideology in the Mississippian World*, edited by Timothy R. Pauketat and Thomas E. Emerson, pp. 30–51. University of Nebraska Press, Lincoln.

Peeples, Matthew A.
2011 R Script for Calculating the Brainerd-Robinson Coefficient of Similarity and Assessing Sampling Error. Electronic document, http://www.mattpeeples.net/BR.html, accessed June 8, 2019.

Peregrine, Peter N.
1992 *Mississippian Evolution: A World-Systems Perspective*. Prehistory Press, Madison, Wisconsin.

Plog, Stephen
1976 Measurement of Prehistoric Interaction between Communities. In *The Early Mesoamerican Village*, edited by Kent V. Flannery, pp. 255–272. University of Michigan, Ann Arbor.

Prentice, Guy
1985 Economic Differentiation among Mississippian Farmsteads. *Midcontinental Journal of Archaeology* 10:77–122.

Renfrew, Colin
1977 Alternative Models for Exchange and Spatial Distribution. In *Exchange Systems in Prehistory*, edited by Timothy K. Earle and Jonathon E. Ericson, pp. 71–90. Academic Press, New York.

Rice, Prudence M.
1987 *Pottery Analysis: A Sourcebook*. University of Chicago Press, Chicago.

Robinson, William S.
1951 A Method for Chronologically Ordering Archaeological Deposits. *American Antiquity* 16:293–301.

Rodning, Christopher B.
2002 Reconstructing the Coalescence of Cherokee Communities in Southern Appalachia. In *The Transformation of the Southeastern Indians, 1540–1760*, edited by Robbie Ethridge and Charles Hudson, pp. 155–175. University Press of Mississippi, Oxford.

Rogers, Rhea
1993 A Re-Examination of the Concept of the Tribe: A Case Study from the Upper Yadkin Valley, North Carolina. PhD dissertation, Department of Anthropology, University of North Carolina, Chapel Hill.
1995 Tribes as Heterarchy: A Case Study from the Prehistoric Southeastern United States. *Archeological Papers of the American Anthropological Association* 6:7–16.

Roux, Valentine
2016 Ceramic Manufacture: The *Chaîne Opératoire* Approach. In *The Oxford Handbook of Archaeological Ceramic Analysis*, edited by Alice Hunt, pp. 1–17. Oxford, London.

Sassaman, Kenneth E., and Wictoria Rudolphi
2001 Communities of Practice in the Early Pottery Traditions of the American Southeast. *Journal of Anthropological Research* 57:407–425.

Simpkins, Daniel L.
1985 *First Phase Investigations of Late Aboriginal Settlement Systems in the Eno, Haw, and Dan River Drainages, North Carolina*. Report No. 3. Research Laboratories of Anthropology, University of North Carolina, Chapel Hill.

Ward, H. Trawick, and R. P. Stephen Davis Jr.
1993 *Indian Communities on the North Carolina Piedmont, A.D. 1000 to 1700*. Monograph Series No. 2. Research Laboratories of Anthropology, University of North Carolina, Chapel Hill.

Ward, H. Trawick, and R. P. Stephen Davis, Jr.
1999 *Time Before History: The Archaeology of North Carolina*. University of North Carolina Press, Chapel Hill.

Welch, Paul D.
1991 *Moundville's Economy*. University of Alabama Press, Tuscaloosa.

Whittker, John C., Douglas Caulkins, and Kathryn A. Kamp
1998 Evaluating Consistency in Typology and Classification. *Journal of Archaeological Method and Theory* 5:129–164.

Woodall, J. Ned
1984 *The Donnaha Site: 1973, 1975 Excavations*. North Carolina Archaeological Council Publication No. 22. North Carolina Department of Natural and Cultural Resources, Raleigh.
1990 *Archaeological Investigations in the Yadkin River Valley, 1984–87*. North Carolina Archaeological Council Publication No. 25. North Carolina Department of Natural and Cultural Resources, Raleigh.
1999 Mississippian Expansion on the Eastern Frontier: One Strategy in the North Carolina Piedmont. *Archaeology of Eastern North America* 27:55–70.
2009 The T. Jones Site: Ecology and Agency in the Upper Yadkin Valley of North Carolina. *North Carolina Archaeology* 58:1–58.

Submitted April 19, 2019; Revised September 3, 2019; Accepted September 4, 2019