Piedmont Village Tradition Lithic Economy along the Mississippian Border

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Introduction

This research examines how Piedmont Village Tradition communities in the upper Yadkin River Valley acquired, distributed, and used non-local rhyolite. Three current models exist: down-the-line exchange, gateway community distribution, and direct acquisition (Rogers 1993; Woodall 1990:113-115). To assess these models, we determined the relative concentrations of local and non-local lithic materials by count and weight at four late Late Woodland (AD 1200-1600) settlement sites in the upper great bend area of the valley (Figure 1). We then compared the count data to existing datasets from Rogers (1993) and Woodall (1999, 2009) to create fall-off curves of non-local-to-local lithic material proportions. We also analyzed the attributes of lithic artifacts from three sites to determine the stages of reduction represented at each and the number of flake tools, utilized flakes, and bifacial projectile points recovered at each.

Our larger goals are to begin to provide an understanding of PVT economic behaviors within the valley and in the wider region and to use these behaviors to explore potential related social and political interactions. These societies lived on the edge of the Mississippian world, placing them in an important position to better understand the complexity of this oft-studied boundary from the perspective of non-Mississippian societies.

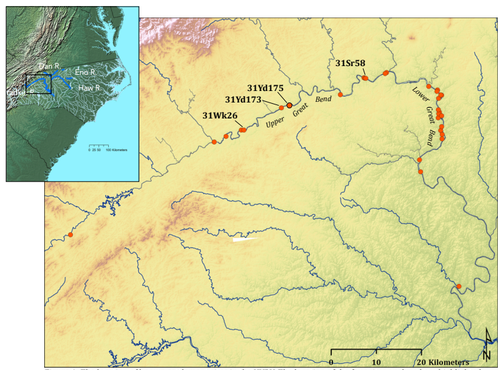


Figure 1: The location of known settlement sites in the UYRV. The location of the four sites analyzed are highlighted. The total set of 15 sites used in this study come from the UGB area.

Background

Culture History

The Piedmont Village Tradition (PVT) is an archaeological culture that existed in the northern Piedmont Southeast during the Woodland Period (1000 BCE - 1700 CE). Most PVT people lived in dispersed settlements of 2-5 households until 1300 CE, when they began to coalesce into planned villages in Dan, Eno, and Haw River valleys (Ward & Davis 1993). However, in the upper Yadkin River Valley (UYRV), they remained in dispersed settlements until out-migration in the 1600s.

Lithic Materials

Local lithic material within the upper Yadkin River valley is limited to quartz, quartzite, and a small amount of jasper (Rogers 1993). Non-local materials include rhyolite, chert, and chalcedony (Figure 2). Rhyolite dominates the non-local material in assemblages, except in the extreme upriver sites where chert is more prevalent (Woodall 1999, 2009). Rhyolite comes generally from two sources to the east. These sources can be difficult to distinguish visually (Daniel and Butler 1996). However, for our purposes here, it matters more that they come from the same general area and are non-local (i.e. greater than 70km away). There is a third source of rhyolite to the north, Mt. Rogers, but it can be distinguished by color.

Lithic Economic Models

1. **Down-the-line**: Woodall (1990:113-115) proposed that in the upper great bend area rhyolite was acquired by the closest settlement (31Sr50 in this case) and passed upriver (to the west) from there.

2. **Gateway**: Woodall (1990:113-115) proposed a separate model for the lower great bend area, which has earlier sites (800-1200 CE) that show greater site size variability than the upper great bend area. He hypothesized that larger settlements had preferential access to rhyolite and distributed it to smaller communities. However, he (1990:113) recognized that the larger sites might have been longer or more occupations not larger settlements. These longer occupations could explain the higher proportions of non-local materials there (Ammerman et al. 1976).

3. **Direct Acquisition**: Rogers (1993) originally concluded that the upper great bend area had a similar gateway system. However, she settled on direct acquisition by each community, after finding similar proportions of cortical flakes across sites, suggesting they had similar access to unworked material. Her model proposes that differences in rhyolite proportions between sites are the result of individual community decisions of how often to travel to the quarry sites.

Methods

Hypotheses

1. If a down-the-line exchange system existed, then we should see a gradual decrease in rhyolite proportions as a percentage of the total lithic assemblage at sites farther upriver
2. If a down-the-line exchange system existed, then we should see less evidence of early stage rhyolite reduction at sites farther upriver as those settlements had less access to unworked material.
3. If a down-the-line exchange system existed, we should see more use of local quartz for tools at sites farther upriver also because of less access to rhyolite.
4. If gateway community distribution existed, then we should see particular sites, regardless of distance from the source, with higher proportions of rhyolite
5. If gateway community distribution existed, then we should see more evidence of early stage reduction of rhyolite at the same sites with higher proportions of rhyolite.
6. If gateway community distribution existed, we should see more use of local quartz for a range of tools at sites with lower proportions of rhyolite.
7. If direct acquisition of rhyolite was occurring, we should see similar stages of rhyolite reduction at all sites, indicating similar access to unworked or lightly worked rhyolite.

The Sites

We use Rogers's (1993) data from 14 upper great bend sites. We expanded data for three sites (31Yd173, 31Yd175, and 31Sr58) and added a site (31Wk26) to her data. Ceramic seriation suggests these sites date between 1300-1500 CE (Rogers 1993). Given the 100-200 year occupations identified at the excavated sites, we assumed contemporaneity.

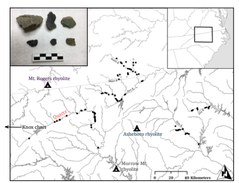


Figure 2: The location of the lithic materials examined in this study in relation to regional PVT settlement patterns.

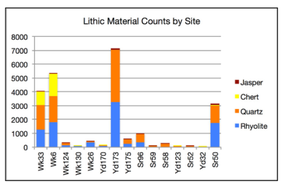


Figure 3: Assemblage sizes and relative material counts from the 15 sites examined.

The Redtail site (31Yd173), which dates to 1275-1400 CE, provides a model for settlement form. Excavations during 2013-2016 uncovered a houseflloor with an associated activity area, defined by 12 pit features. Recent test excavations have identified an additional houseflloor. Given the extensive excavation of one of the houses and surrounding area, we likely have a representational view of the total range of lithic behaviors. Although the other sites are represented by surface collections only (Figure 3), both Woodall's (1990) and our findings suggest surface collections are representative of total site assemblages with regard to lithic material type proportions, flake properties, and tool types.

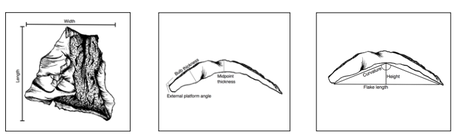


Figure 4: Diagrams of measurements taken on flakes. Drawings by Maya Krause.

Analyses

We counted and weighed the lithic assemblages from 31Wk26, 31Yd173, and 31Yd175 by material type. 31Wk26 and 31Yd175 are only represented by surface artifacts. 31Yd175 has been surveyed and excavated. We grouped together the rhyolite (non-local) and quartz (local) and combined the counts with Rogers' (1993) data. We classified lithics into flakes, shatter, flake tools, utilized flakes, and projectile points.

We then measured several attributes of the rhyolite flakes (Figure 4) to assess the range of reduction stages represented each site as related to Andrefsky's (1986) experimental archaeology study of the production of triangular arrow points, which dominate the tool assemblages in the UYRV. We used curvature to assess the reduction stages present at each site (Figure 5).

We examined a census of the rhyolite artifacts found at 31Wk26 and 31Yd175 and a 29% sample (865/3014) at 31Yd173. We sampled from all contexts at 31Yd173: surface, plowzone, undisturbed strata, and features.

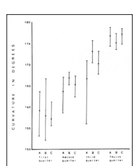


Figure 5: Andrefsky's (1986:51) curvature results from producing triangular projectile points.

Results

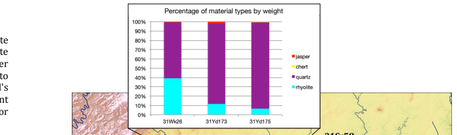
Fall-Off Curves

Figure 6 shows graphs of the proportional counts of rhyolite across all 15 sites and the proportional weights of rhyolite across 3 sites. Both graphs show that 31Wk26 has a higher proportion of rhyolite to the total assemblage compared to 31Yd173 and 31Yd175. These initial results support Woodall's gateway hypothesis. However, we must be aware that different proportions by count can also be a factor of occupation time or the lithic industry.

Reduction Characteristics

Figure 7 shows the absolute counts of flake curvature categories at 31Wk26, 31Yd173, and 31Yd175. These graphs show that 31Wk26 has a higher proportion of early reduction flakes compared to the other two sites. 31Yd173 and 31Yd175 have higher proportions of late stage flakes, possibly showing a dominance of finishing or retouching. Among these three sites, there appears to be a correlation between higher proportions of rhyolite and earlier reduction flakes, suggesting 31Wk26 had more access to unworked or lightly worked rhyolite.

Tables 1 and 2 show the average values for the measurements taken and show the counts of projectile points, tools, and utilized flakes by material at the three aforementioned sites. These suggest that 31Wk26 and 31Yd173 had similar lithic industries, but the latter site has more tools made from quartz. However, these data show that 31Yd175 has considerably different flake characteristics and tool patterns. That combined with a very small pottery assemblage--less than 5% of the total--may indicate that this site was not a settlement.



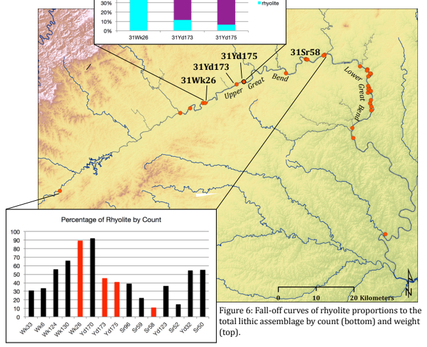


Figure 6: Fall-off curves of rhyolite proportions to the total lithic assemblage by count (bottom) and weight (top).

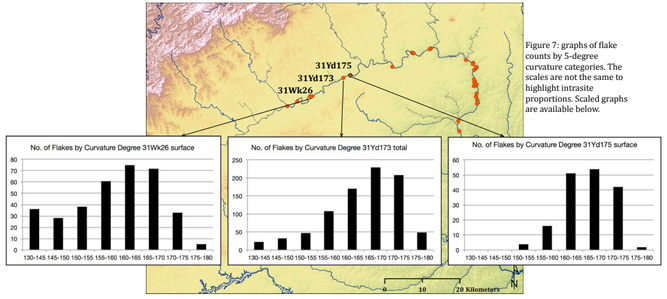


Figure 7: graphs of flake counts by 5-degree curvature categories. The scales are not the same to highlight intrasite proportions. Scaled graphs are available below.

	31Wk26	31Yd173	31Yd175
Flake length	13.40	12.68	16.31
Flake width	12.84	11.43	12.05
Flake thickness	2.43	2.05	2.67
Bulb thickness	2.46	1.87	2.79
Height	1.18	1.11	0.96
EPA	62	67	74
Percent weathered	14.6	6.2	6.7

Table 1: average values for the flake characteristics measured across three sites.

	Material	Points	Tools	Utilized Flakes
31Wk26	rhyolite	9	14	4
	quartz	1	4	0
	chert	1	0	0
	jasper	0	0	0
31Yd173	rhyolite	105	5	13
	quartz	6	17	2
	chert	0	0	0
	jasper	2	0	0
31Yd175	rhyolite	8	7	23
	quartz	0	0	11
	chert	0	0	0
	jasper	0	0	1

Table 2: projectile point, flake tool, and utilized flake counts.

Discussion

Gateway, it is

We can reject hypotheses 1, 2, 3, and 7. Thus, our results do not support a down-the-line or direct acquisition model. The data do support hypotheses 4, 5, and 6, which relate to the gateway model. There appears to be a direct correlation between sites with higher proportions of rhyolite and sites with evidence of earlier reduction rhyolite flakes. There is an indirect correlation between sites with higher proportions of rhyolite and sites using quartz for non-projectile point tools. More specifically, our results suggest 31Wk26 was a gateway community that either had direct access to rhyolite sources or access to it in less worked forms. It then appears that nearby sites, like 31Yd173, obtained rhyolite from gateway communities, in this case 31Wk26 specifically, through down-the-line exchange.

But, let's be cautious...

Before expanding on the implications of these finds, we want to address potential errors and alternative interpretations. If we are wrong in our assumptions of contemporaneity, our patterns could be showing a change in rhyolite access or use over time instead of how rhyolite was acquired and distributed at any one time. Furthermore, the results from 31Yd175 suggest it was not a settlement site. There may be others like it that need to be removed from this model. Although removing this site does not significantly change the model, the removal of additional sites may. Finally, 31Yd175 may indicate that these sites were not as sedentary as we are assuming. This would follow Rogers' (1995) model of seasonally sedentary PVT inhabitants in the upper Yadkin River Valley. In this scenario, differences in reduction stages at sites could be related to the types of tools being used at permanent vs. special use sites.

Economics on the edge of the Mississippian world

If the pattern we are proposing is accurate, then there are implications for economic and sociopolitical behaviors in the upper Yadkin River valley. Economically, it shows that the communities were not restricted to the valley. Even if rhyolite was acquired by traveling to the source, which is the simplest explanation at this time, the sources were used by PVT communities in the Dan, Eno, and Haw river valleys as well. It is hard to imagine a scenario in which these different groups did not at least need to divvy up the quarry sites or coordinate their activities around shared sources. The higher proportions of western-located chert found at the 16th-century T. Jones and Porter sites (31Wk6 and 31Wk33 in Figure 3) suggest that communities in the UYRV shifted away from their PVT neighbors and toward their Mississippian neighbors after 1500 CE. This shows a long term shift from violent clashes during the earliest PVT-Mississippian interactions around 1200 CE to more friendly economic echanges after 1500 CE. The Mississippian boundary may have become fairly permeable over time with regard to economic and social interactions.

A different type of village?

Recently, Jones suggested ecological and sociopolitical conditions factored into the lack of village formation in the upper Yadkin River valley after 1300 CE. This work here does not provide any evidence to suggest that villages--circular arrangements of 10-12 houses with communal spaces and cooperative structures--formed there. However, we are tempted to interpret these economic data--particularly the clusters of settlements that appear to be connected to the gateway communities--as larger economic, and by extension, social and political interaction groups. Perhaps environmental conditions and living on the edge of Mississippian polities discouraged dense clusters of people on the upper Yadkin valley landscape, but that does not mean that social networks were not growing or that households were not becoming more interdependent. We acknowledge that more work is needed to explore this idea, but these economic data may point to spatially dispersed households with integrated economic, social, and political activities. This is a sociopolitical organization that has been documented for Algonquian farmer-foragers in the Northeast. Perhaps a similar sociopolitical organization was formed in the upper Yadkin River valley.

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