

# Brief and True Report of Projectile Points from *Jamestown Rediscovery* as of December 1998

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## Abstract

Examination of a sample of hafted bifaces from the *Jamestown Rediscovery* assemblage revealed the function and origin of the stone tools and further detailed site chronology. It also identified a correspondence between the different material types of the hafted bifaces and their breakage frequencies. Most of the locally made quartzite triangular hafted bifaces were broken whereas very few of those made of non-local jasper and dark chert exhibited significant breakage. These findings might indicate differential use and offer insight into intercultural exchange or hostilities at the site of the original James Fort.

## 1. Introduction

Staff of the William & Mary Center for Archaeological Research (WMCAR), working closely with the APVA's *Jamestown Rediscovery* project, examined a sample of 179 hafted bifaces recovered from excavations in and around the site of the original Jamestown fort. Excavation contexts ranged from plowzone to secure feature deposits. The purpose of the analysis was principally to evaluate the function and origin of the many small triangular projectile points in the sample, but also to determine the broader temporal range of occupation in the fort area. An inventory of the examined hafted bifaces is provided in Appendix A.

WMCAR staff recorded a standard set of attributes for each artifact. These included qualitative attributes such as context, raw material, and breakage, as well as metric attributes for maximum length, maximum width, and weight. Most metric attributes were recorded only for unbroken artifacts.

## 2. Hafted Bifaces

Hafted bifaces, formally flaked stone tools shaped for attachment to a shaft, were identified on the basis of their high degree of secondary pressure re-touch flaking or the presence of a hafting element, like a notch or stem. As these lithics were commonly used to penetrate, pierce, or cut, they often showed evidence of edge sharpening, beveling, or serrating.

### 2.1 Triangular Hafted Bifaces

Triangular hafted bifaces of different sizes constituted the majority (n=94, 53%) of the artifacts in the sample. They were separated into large (max. length

>3.3 cm) and small (max. length <3.3 cm) categories, as size can potentially distinguish temporal or functional traits. The majority (n=78, 83%) of the triangular types were in the smaller size category with lengths between 1.8 and 3.3 cm. Virtually all of the smaller points were probably true arrowheads. Many of the larger specimens might represent hafted knife blades or projectiles. Larger triangular blades similar to the ones found at Jamestown have been recovered elsewhere in Virginia, including the Shannon Site in Montgomery County. Found there in association with slotted antler handles (Benthall 1969), indications are that they served often as cutting tools rather than weapons.

Several lithic raw materials were represented among the triangular hafted bifaces (see Appendix A). The 16 large triangular specimens were strongly dominated by quartzite (81%) with only two examples made of quartz and one of dark chert. A more diverse range of raw materials was used for manufacture of the smaller arrow points. Locally available quartzite again dominated the sample (51%), but quartz (26%), jasper (14%), dark chert (5%), orthoquartzite (3%), and metavolcanic materials (1%) were represented. Like quartzite, quartz commonly occurs locally in pebble or cobble form, and occasionally metavolcanic cobbles of argillite, rhyolite, or related material can be found in local stream gravels. Jasper, dark chert, and orthoquartzite, on the other hand, are extremely rare if not altogether absent in local gravels. Their sources are known to occur some distance away, specifically in the outer Coastal Plain for pebble jasper (Hodges 1998:60, Geier 1990), in the mountainous Appalachians for dark chert, and northeastern North Carolina for orthoquartzite (Bottoms 1968) (Figure 1). The occurrence of jasper, dark chert, and orthoquartzite projectile points at other reported late prehistoric/ protohistoric sites along the James River from Jamestown to Richmond is very low (Hodges and Hodges, Ed. 1994; McLearn and Mouer 1994).

Patterns of failure, or breakage, among these artifacts can be telling with respect to function. For the purpose of the analysis presented here, the location and frequency of breaks were recorded for each artifact (see Appendix A). Among the large triangular hafted bifaces, 19% (n=3) were unbroken. The broken examples all exhibited failure in only one location rather than in multiple places. The most common damage was a lateral snap across the midsection (44%) which could result from the stress of prying and heavy cutting as readily as it could from an impact. Generally speaking, the lack of massive failure supported the notion that these larger triangular blades served as knives as often as projectiles.

Of the smaller arrow points, 18% were not broken. Among the remainder, failure of exactly half the points was relatively radical as represented by multiple breaks. Failure most commonly occurred in these cases (63%) at the distal tip or midsection and at one corner (Figure 2). Such massive collapse was experimentally demonstrated to be typical of points used as projectiles (Flenniken and Raymond 1986). Distal damage, meaning breakage at the tip or across the midsec-

tion, was the single most common type of damage among the small points (55%), which is also a pattern characteristic of used arrow points.

When failure patterns were examined relative to raw material type, notable contrasts emerged. Specifically, the small triangular points made of jasper and dark chert, both non-local materials, have been recovered intact significantly more often (47%) than those made of other materials (11%) (Figure 3). Of the eight points made of these materials that are damaged, only one exhibited damage at the tip and only one had failed in more than one place. In both instances the damage was very slight. The relative lack of damage to these points made of higher quality, non-local materials might indicate special handling or a unique origin in the early 17th-century fort context.

Linking lithic type with failure frequency raises the issue of differential tensile strengths. Based on Callahan's scale of lithic toughness, basic chert and jasper are more prone to breakage than quartzite (Callahan 1979:16). Since they are more brittle and less durable, chert and jasper failure rates are expected to be higher than quartzite. The *Jamestown Rediscovery* assemblage sample includes evidence to the contrary, suggesting that some other phenomenon was responsible for the archaeological correspondence between lithic type and breakage.

## 2.2 Other Hafted Bifaces

A total of 98 other hafted biface types were present in the sample, including two drills (Figure 4). They represented time periods from the Late Archaic (4000 BC) to the Middle Woodland (AD 900). Many of these could not be dated (n=67) due to damage or a general lack of distinguishing characteristics. The most common identifiable type (n=12) was Rossville/Piscataway, defined by a contracting stem on a relatively small hafted biface. These dated primarily to the Middle Woodland period. At least 17 of the hafted bifaces examined could be placed within the Late Archaic period. Most of these were similar to bifaces of the Savannah River type, although they maintained a smaller stem form. Six side-notched points, likely dating to the earlier part of the Late Archaic period, were also identified.

Most of these artifacts are believed to originate from earlier prehistoric occupations on Jamestown Island. Archaeologists working in the vicinity of the Jamestown settlement have routinely recovered prehistoric artifacts from several periods (Cotter 1958). The *Jamestown Rediscovery* project is no exception as prehistoric ceramics from the earlier Middle Woodland period occur fairly frequently in later excavation contexts along with these hafted bifaces. Some of these, however, are artifacts that may have been collected elsewhere and brought to the fort by the English or the indigenous population. One indication of collection activity is the presence of a stemmed hafted biface that is rounded and polished from tumbling on a beach, clearly an item that was moved from a shoreline site to Jamestown.

### 3. Conclusion

Several conclusions can be drawn from this limited study. Prehistoric habitation occurred sporadically within the *Jamestown Rediscovery* project area for at least 6000 years. The intensity of occupation appears to have gradually increased over time, peaking during the Middle and Late Woodland periods (AD 500-1600). Although many of the triangular hafted bifaces probably were deposited on the site after 1607, not all of them were. The precise proportion that dates to the fort period will probably never be known. The numerous triangular points of locally available quartzite and quartz are the most difficult to associate with the fort period. They commonly occur on late-dating native sites across the region, and could well have been deposited prior to 1607.

The anomalous number of relatively undamaged points made of non-local materials is significant. The jasper and dark chert examples especially may be associated with the post-1607 fort. Mottled jasper of this kind is common only in pebbles in the outer Coastal Plain, closer to coastal areas such as the Eastern Shore and Virginia Beach. Dark chert typically comes from extensive formations in the Appalachians. In terms of post-Contact cultural associations, the jasper would be found in areas held by the Accomack, Chesapeake, and Nansemond groups, whereas the dark chert would be more typical in the territories of Siouan speaking groups well to the west. The less-fragmented condition of these points suggests that they were handled carefully and did not function in the fort area as projectiles. They were likely introduced into fort contexts for other purposes, perhaps as gifts or as trophies. Period accounts refer to the presentation of gift arrows to the English and also to the recovery of arrows from natives (Barbour 1986 I:231, II:106).

To resolve the aforementioned questions of hafted biface age and association, this analysis proposes four additional studies. First, establish the context of hafted bifaces relative to other Native American artifacts such as ceramics, debitage, etc. to define patterns of distribution within the excavation area. Second, determine the same associations with early colonial material. Third, analyze data from nearby comparable Protohistoric and Contact-Period sites regarding raw material type, form, and breakage patterns. And fourth, review early colonial records for incidents of native gift-giving and English trophy-taking.

### 4. Appendix A

See separate Excell or HTML file for data chart.

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