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The Balthaser Home Site Lithic Assemblage: Analysis of Stone Tool Technology in an Ohio Hopewell Site

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Abstract
This poster represents an analysis of the stone tool (lithic) assemblage from the Balthaser Home Site located in Pickaway County, Ohio. The assemblage was collected between 2014-2018 during the collaborative research efforts of the SUNY Geneseo and Bloomsburg University archaeological field schools. While the site was chosen because of its potential as a Ohio Hopewell habitation site, we have also identified an Early Woodland Adena component here as well. The analysis was conducted in an effort to determine the nature of the organization of stone tool technology used during the various occupations of the site. The analysis of the distribution and amount of chert (flint) by means of chert type and size class will allow us to interpret trends in core reduction and tool maintenance. We hope to identify patterns in the size and morphology of complete flakes by raw material type, spatial distribution, and any temporal associations which can be determined. By doing so we endeavor to determine the manner in which and what factors affected the way occupants organized their utilization of chert at this site.

Keywords
Archaeology, Lithic Analysis, Hopewell, Anthropology

Disciplines
Anthropology | Archaeological Anthropology

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**INTRODUCTION**

In the lab, we analyzed all of the lithic assemblage collected at the site since the first field season, excluding bladelets and bifaces as they are not considered flakes under the theoretical analysis employed. We utilized the technological attribute key for debitage analysis first proposed by Sullivan and Rozen (1985) to objectively and systematically measure and catalogue the lithic remains. First we weighed and cataloged the lithics in each unit by flint type and classification under the attribute key (fig. 1). Following this we measured and collected data about the complete flakes, specifically their raw material, whether cortex was present, and their length and width and thickness (mm). After completing this data collection for the recovered lithics from all four field seasons we proceeded with our analysis.

**METHODS**

In the lab, we analyzed all of the lithic assemblage collected at the site since the first field season, excluding bladelets and bifaces as they are not considered flakes under the theoretical analysis employed. We utilized the technological attribute key for debitage analysis first proposed by Sullivan and Rozen (1985) to objectively and systematically measure and catalogue the lithic remains. First we weighed and cataloged the lithics in each unit by flint type and classification under the attribute key (fig. 1). Following this we measured and collected data about the complete flakes, specifically their raw material, whether cortex was present, and their length and width and thickness (mm). After completing this data collection for the recovered lithics from all four field seasons we proceeded with our analysis.

**ANALYSIS AND RESULTS**

An analysis of the overall weight (g) of the recovered lithics indicates an overwhelming amount of Columbus Delaware flint, the raw material which is local to the region, present at this site (fig. 2). There is a large difference in the amount of Columbus Delaware flint in relation to the other types. For example, there is nearly twice as much in weight compared to the next successive type (Flint Ridge). In addition to the large amount of Columbus Delaware debits (fig. 3) most of the cores recovered were of this type. Furthermore, an analysis of the complete flakes in the assemblage shows that regardless of the disproportionate amount of Columbus Delaware chert, the complete flakes of every raw material have similar medians for their length, width, and thickness (fig. 4). However, there are far more Flint Ridge complete flakes (fig. 5) than any other material type, even Columbus Delaware.

Additionally, while the ratio of complete flakes to overall weight is much higher for the Indiana Hornstone type, likely due to the workability of the chert resulting in more complete flakes than other debitage forms, there is still an overall much lower presence of Indiana Hornstone, as well as Upper Mercer and Brush Creek material (for which there are no complete flakes) than the other two chert types.

A spatial analysis of the lithic assemblage was conducted by plotting the distribution of different flint types using Surfer (fig. 9, fig. 10). The location chosen for this analysis is in association with a topographic high spot in the field, which was found to contain the remains of two overlapping Hopewell houses. The first house dates to approximately A.D. 225, while the second dates to approximately A.D. 375. While the flint recovered is clearly concentrated in the area with the structures, there is no clear correlation between features and any particular type of flint, complete flakes or otherwise. Repeating the process with only the complete flakes by type (fig. 13) produced similar results.

**CONCLUSION**

Our analysis tells us that this site was likely a manufacturing site for Columbus/ Delaware stone tools, and perhaps a retouching site for tools of other types, which would have been more difficult to obtain in comparison to the locally available Columbus/ Delaware chert. We acknowledge that the difference in the frequency of complete flakes types in comparison to the overall weights may be due to differential preservation, as transformation processes may have broken complete flakes differential to their chert types. However, we believe this indicates that despite the ease of procuring Columbus/ Delaware flint, the occupants of this site favored retouching tools made of non-local chert types, especially Flint Ridge, which is likely due to its workability, and aesthetic appeal. Other types of flint that yielded complete flakes, such as Indiana Hornstone and Upper Mercer, yielded fewer complete flakes and less broken flakes, fragments, and debris by weight and number. Additionally, the ratio of complete flakes to total weight of recovered chert (53%, 30%, respectively) is much higher than that Columbus Delaware (80%). This is additional evidence that there was likely little manufacture of tools of these flint types at this site, but rather retouching of utilized tools was taking place.