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Approved by:

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Chert Availability and Exploitation at Three Late Archaic Sites in Southwestern Ohio

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Abstract

It is hypothesized that prehistoric populations in the central Ohio Valley experienced a reduction in mobility that would be manifested by the increase use of locally available resources. Accordingly, samples of chipped stone assemblages of three Late Archaic sites located along primary tributaries of the Ohio River in southwestern Ohio were examined in an effort to determine the sources of the chert raw material exploited and utilized. Cortication and debitage/artifact type were included in the analysis in order to infer the exploitative areas of these populations with attention to whether such raw material were acquired at their outcrops or were gleamed locally in hydrologically or glacially redeposited contexts. Classification according to debitage/artifact type allows for inferences to be made as to the types of activities occurred on the site and whether or not specific materials were knapped at the site or were brought in as finished product. The conclusions reached based on this investigation includes a suggestion that Late Archaic populations in the region focused primarily on local gravel bars and glacial deposits, as well as natural outcrops, for the procurement of their chert raw material depending largely on geographic proximity.

Acknowledgments

The research presented in this paper would never have been possible without the help and support of a great number of people. I would like to express my sincere appreciation to all who have helped in this undertaking. My Dr. Kent D. Vickery, my committee chair, offered valued guidance and support throughout the research and write-up phases. I would also like to thank Dr. Vern Scarborough for serving on my committee and for all of his support and assistance. Appreciated is the generous time and effort several people took in helping with the analysis of the material: April Sargent, Judy Knapp, Allison Lolli, Matt Purtill, Blair Henley, Matt Owens, and Stacy Dunn. This undertaking would not have been possible without the support from my family, including my parents and my husband Stephen, whose encouragement was always valued. All of the help and support of those mentioned above and of many additional friends and colleagues are deserving of my sincerest gratitude.

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Chapter 1: Introduction

This thesis attempts to enhance the understanding of chert procurement patterns of Late Archaic populations in the middle Ohio River Valley. Chert debitage and artifacts from three sites dating between 5,000 and 3,000 B.P. was studied for this purpose. The raw material, cortex, and artifact type of each was recorded. The three sites (Bullskin Creek, DuPont Village, and Maple Creek) are located along tributaries of the Ohio River (Figure 1). Bullskin Creek (33Ct29), the easternmost site, is located along Bullskin Creek in southeastern Clermont County. DuPont Village (33Ha11), the westernmost site, is located in southwestern Hamilton County along the Great Miami River. Maple Creek (33Ct52), which sets along Maple Creek in south-central Clermont County, is located between Bullskin Creek and DuPont Village.

It is hypothesized that these Late Archaic populations procured chert raw materials non-selectively from local streambeds and nearby outcroppings. Local sources of raw materials are treated as occurring within 25 km of the study area. If the hypothesis were true, then it is expected that 1) the Bullskin Creek and Maple Creek populations would have procured chert raw material from local sources east of the site and, therefore, their assemblages would contain higher percentages of Bisher and Brassfield chert; 2) DuPont Village populations would have traveled to local sources west of the site and, therefore, the assemblage should contain a higher percentage of Laurel chert; 3) materials that do not outcrop locally should have a higher frequency of patina in relation to soft cortex in the assemblage; and 4) locally available materials should have a lower artifact-to-debitage ratio than chert varieties that could not be acquired locally.

One method of inferring the exploitative territory of desired resources obtained throughout the Ohio River Valley is through an analysis of the chert raw materials utilized by the inhabitants of the region. Chert varieties outcrop in specific locales, thus by determining the kind of chert utilized in the manufacture of stone tools at a given site, the range a group traveled to procure the specific resource (exploitation area) can be inferred. It is assumed that the farther away a specific chert type outcropped from an archaeological site where it is recovered as artifacts or debitage, the greater the size of the resource area of that group.

Chert procurement patterns of the Late Archaic differ significantly from other culture periods. In earlier and later periods, there had been a conscious effort to obtain high quality raw material to fashion projectile points, knives, and other chipped stone tools. During the Late Archaic, however, less energy appears to have been expended in chert procurement, with low-grade materials commonly used in tool and other artifact manufacture (Cantin 1988, Jeske 1989, Litfin 1993). Further investigations of this procurement pattern are warranted to fully understand how different populations acquired chert raw materials.

The goal of this study is to analyze the procurement strategies of these Late Archaic populations on a broad, regional scale, as well as to investigate how these sites differ in resource extraction practices on a smaller, intersite basis. Rather than existing as single groups of individuals acting in the same manner over a large area, it is acknowledged that distinct populations adapted to site-specific environmental conditions. Small-scale systems need be explored in order to gain an understanding of the larger universe in which they lived and to which they adapted.

Chert was chosen as the basis of this study due to its durability. This study examines the debitage from the three Late Archaic sites for raw material type, cortex type, and artifact type to determine where the material originates, how the populations were procuring it, and why the resources were exploited.

It became evident during the excavation and early inventory of Bullskin Creek and DuPont Village that these two sites exemplified different patterns of chert procurement. However, an extensive analysis of the materials had not been performed prior to this study.

By studying the raw material type, coupled with a geological knowledge of the region, the source of the chert outcrop can be determined. From this, it can be inferred whether the material is local to the area or exotic. If the material is local, then it is reasoned that the site inhabitants are not traveling far for their raw materials. If the material is exotic, then it must be determined whether it could have reached the study area by natural means (and thus acquired locally) or if the material was procured from its outcrop source.

The cortex of the material was examined to determine if the chert was procured from its outcrop or from redeposited locales away from the source area. Soft cortex on raw material indicates procurement directly from the outcrop or from residual deposits within the immediate vicinity. However, if hard cortex (patina) is present on the dorsal surface of a flake or other artifact, then the material was procured away from its source area. Patina forms when chert is transported and redeposited by natural means; e.g., by glacial action, rivers, streams, etc (Vickery 1996). The cortex type on debitage can be used to determine whether the chert was collected as redeposited material or acquired from the outcrop's source.

The function of an artifact or the stage of manufacture in the reduction sequence producing debitage allows inferences regarding the kinds of activities that were occurring at a site (Morrow and Jefferies 1989). For instance, the presence of a specific material where all stages of reduction are represented indicates that the artifact was manufactured and perhaps also utilized at the site, while the presence of a finished tool with no corresponding debitage of that raw material indicates that the tool was manufactured at another location and brought onto the site for use – perhaps through trade, migration, or some other means of human transport (Appleby 1989).

By looking at these three attributes among the manufacturing debitage and artifacts recovered from the three sites in Clermont and Hamilton Counties in Ohio, an attempt will be made to show that Late Archaic populations in the central Ohio River Valley were procuring chert from local sources rather than traveling long distances to their source areas. If so, these populations exhibit a pattern similar to that of other Late Archaic groups in the Midwest whose mobility was reduced during this period (Brown and Vierra 1983, Cantin 1988, Griffin 1983, Janzen 1977, Stafford 1991, Tankersley 1987). Comparison of the data to Early Archaic and Early Woodland populations would be useful in determining whether or not the resource territories of these Late Archaic people correspond to the general trends occurring during these periods.

The following outlines the presentation of methods and research results bearing on the problem orientation as specified. Chapter 1 introduces the research goals and expectations of this study. Chapter 2 provides background information on the study area and describes previous work in the area and the Late Archaic period. Chapter 3 specifies the methodology used in this study. Chapter 4 presents the results of the analysis. Chapter 5 interprets the data presented in the previous chapter. Chapter 6 offers conclusions regarding how the information obtained corresponds to the hypothesis as stated above.

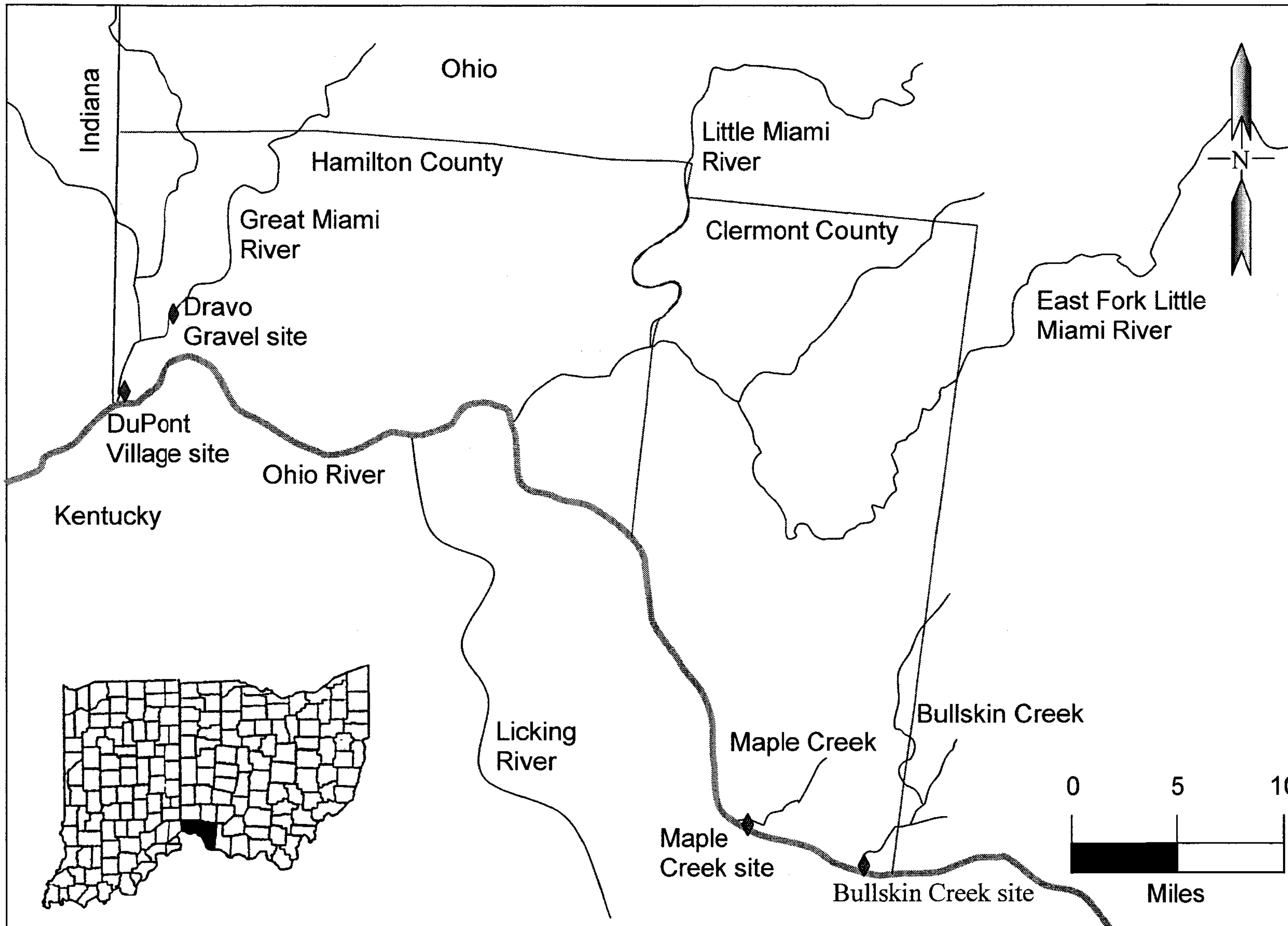

Figure 1: Location of sites in the study area.

Chapter 2: Background

Physiography

The study area lies in the physiograhic region known as the Till Plains. The Plain, a broad, flat region that covers the entire southwestern portion of the state, formed by the deposition of glacial debris, or till, and the smoothing action of glaciers. The Till Plain stretches from the Ohio River north into the Lake Plains and from the Allegheny Mountains in eastern Ohio into Indiana (Durrell and Durrell 1979).

Approximately 20 glaciers covered Ohio during the last one million years, many of which advanced and retreated several times. Remnants of the last four glacial periods are still evident on the states landforms. Both the Illinoian and the Kansan glaciers went as far south as to cover both Clermont and Hamilton Counties in Ohio, and continued into northern Kentucky (Goldthwait 1979).

The southern reaches of the Till Plain are older than the northern portions. Stream channels in the south are deeper with a stronger gradient than northern channels. As the glaciers retreated, sand and gravel was washed south, filling in the stream valleys. Later, water eroded some of the sand and gravel, leaving behind glacial terraces along modern stream valleys (Durrell and Durrell 1979).

Bedrock Geology

Southwestern Ohio lies at the heart of the geological feature known as the Cincinnati Arch. The Arch is a broad, low, dome-like feature that formed by the upward thrust of the bedrock. A narrow belt extending from Cincinnati to Toledo, the tilted strata of the Arch allows for the exposure of multiple ages of bedrock in Ohio, including Ordovician, Silurian, Devonian, Mississippian, Pennsylvanian, and Permian age deposits (Bates 1979). The Cincinnati Arch can be recognized throughout Ohio and into Indiana and Kentucky.

Ordovician age rocks dominate the study area. Consisting of beds of limestone and shale, these rocks are the oldest exposed faces in Ohio and contain some of the oldest known fossils (Bates 1979).

Climate

Ohio's climate is characterized as continental. Predominately influenced by the powerful jet stream that flows west to east across Canada and the United States, the state's weather can form out of any direction and bring pleasant, sunny days to torrential rains, tornadoes, and blizzards. The average annual temperature for Ohio ranges from –5 degrees in the winter to 88 degrees in the summer. On average Ohio receives an annual precipitation of 39 inches, with an average annual snowfall of 20 inches (Goddard 1979).

Late Archaic Period

The Late Archaic period is a time of increasing sedentism and population. During the Middle Archaic period, populations of highly mobile hunter-gatherers that subsisted on a broad variety of natural resources began to focus on more specific resource procurement strategies (Brown and Vierra 1983). By the Late

Archaic, these disperse populations had began to coalesce into larger settlements, occupying specific environmental niches and exploiting resources that were locally available.

Whether these populations were being "pulled" into more productive, lowland environments or "pushed" out of the decreasingly productive uplands, they appear to focus on resources that required less time and energy to exploit (Brown and Vierra 1983, Jeske 1989, Lurie 1989). As these populations begin to converge in along riverine environments a system of base camps and extractive camps begin to emerge. Base camps are habitation sites that were utilized for several seasons and may have been repeatedly visited on annual basis. Extractive camps are smaller, possibly single-occupation sites that were utilized for the sole purpose of extracting resources that were transported to the base camp for consumption (Brown and Vierra 1983, Jansen 1977, Stafford 1991, Stothers and Able 1993). This pattern reflects Binford's logistical foraging model in which specialized task forces were employed to extract specific resources that were transported to a central base camp for consumption (Binford 1980, Lurie 1989).

During the Late Archaic, populations relied heavily on white-tailed deer, fish, musses, and other aquatic resources; shifting away from more terrestrial mammals such as squirrels (Funk 1983, Griffin 1983, Styles and Klippel 1996, Tuck 1978). Plant cultivation also began during the Late Archaic with the emergence of squash and gourds and the specialization of specific wild plants (Emerson and McElrath 1983, Porter 1984). These populations also exhibited a heavy reliance on nut procurement, such as acorns, black walnuts, hazelnuts, and hickory nuts (Emerson and McElrath 1983, Fortier 1983, McElrath, et al. 1984).

The reduction of mobility witnessed during the Late Archaic is reflected in the stone technology of these populations, which focuses more on locally available materials. Changes between temporal periods can be identified through the lithic resources recovered from archaeological contexts (Amick and Carr 1996, Fortier 1983, Janzen 1977, Seddon 1992).

Literature Review

The literature review for chert sourcing during this time period shows that little attention has been devoted to fully understanding the procurement patterns of these populations. Litfin's (1993) study of Early Archaic territoriality through raw materials and projectile points is one of the few studies extant for southwestern Ohio. Litfin hypothesized that exploitative territories during the Early Archaic period were reflected in geographically restricted projectile point styles and in the distance traveled to obtain the chert for their manufacture. His analysis of projectile points from the Cincinnati Museum of Natural History supported this hypothesis. Litfin concluded that the Early Archaic period witnessed an increase in the number of projectile point styles. He also concluded that the majority of the chert utilized during this period was derived from local deposits (Litfin 1993). Litfin's conclusion that late Early Archaic populations relied on local deposits of chert supports the generalization that during the Archaic period populations replaced less accessible, high quality resources with those that were of lesser quality but more easily accessible.

Cantin (1988) published the findings of an extensive survey in southwestern Indiana designed to determine resource areas of populations throughout the prehistoric period in the area. Cantin discovered that the majority of the raw materials recovered from Paleoindian sites were of "foreign" materials (outcrops greater than 30 km from the site) or "semi-local" material (outcrops between 3 and 30 km from the site). During the Early Archaic period, a shift from foreign chert to semi-local and "local" materials (outcrops less than 3 km from the site) occurred. Although foreign chert still comprised the majority of the specimens examined, these populations utilized an increasing variety of local and semi-local materials. During the Middle and Late Archaic periods a rise in the use of local chert occurred at the expense of foreign materials. Nearly half of the Middle and Late Archaic sample consisted of local chert. However, shortly after the Late Archaic period, this trend began to change, and during the Early Woodland period Cantin recognized a reversal back towards the higher quality, foreign materials that prevailed during Early Archaic times (Cantin 1988).

Cantin explains the transition towards local materials during the Middle and Late Archaic periods as a result of greater sedentism and the movement of populations out of deforested uplands towards forested river bottoms. He suggests that in earlier periods, higher quality foreign chert was specifically sought after and may have influenced settlement patterns. During the Middle and Late Archaic periods, however, chert acquisition was of lower priority in relation to other activities, such as procurement of food resources – the latter of which would have altered with changing climatic conditions. He claims that local chert also may have been acquired opportunistically, rather than by means of specialized task groups (Cantin 1988).

Appleby (1989) examined raw material type and cortex in a sample of Adena and Hopewell sites in southeastern Indiana, northern Kentucky, and southwestern Ohio to determine if social ties would be maintained between and daughter populations that migrated a short distance from their homeland. Appleby analyzed chert assemblages from five Adena sites and six Hopewell sites to determine if the material was gathered locally, having been transported by natural agencies, or acquired by trade or travel (Appleby 1989).

Appleby's findings supported her hypothesis that populations migrating from northern Kentucky into southwestern Ohio maintained social connections to their homeland. The analysis also shows that in the Adena populations materials that were present outside of this migration corridor occurred in a north south alignment that generally coincided to the corridor while materials present in the Hopewell assemblages followed an east-west alignment reflective of the distribution of that cultural complex (Appleby 1989).

Although both Litfin and Appleby study populations in southwestern Ohio, Litfin focuses on Early Archaic groups while Appleby investigates chert procurement of the Early to Middle Woodland period. Litfin and Appleby investigate chert utilization in southwestern Ohio, however, this examination deviate from theirs in that it is studying the chert procurement patterns of the Late

Archaic period, a temporal period that has received little attention in this region. Cantin includes the Late Archaic period in his analysis of shifting chert acquisitions, but his study focuses on changes that occur in southwestern Indiana. Research such as this has not been preformed for this period in southwestern Ohio.

Similar studies to this have been performed on Late Archaic populations in Illinois, the southeast, and the northeast (Amick and Carr 1996, Bergman et al. 1992, Gatus 1983, Janzen 1977, Morrow and Jefferies 1989, Seddon 1992). Although these studies may be used to imply procurement strategies in southwestern Ohio, they fail to document what actually occurs in this region. Studies such as the one preformed here are required to determine if this region employs similar procurement models as other Late Archaic populations located throughout the Eastern United States.

Previous studies of Archaic chert acquisition have generalized about procurement strategies while few have focused on such exploitation at the level of individual sites. These patterns may differ, acknowledging that not all Archaic populations behaved in exactly the same manner. Understanding how particular groups, as they are represented at geographically separated sites, respond to their unique environmental settings may significantly enhance the understanding of how and why populations changed over time.

Study Area

Three Late Archaic sites were examined during this investigation. All three sites are located along primary tributaries of the Ohio River in southwestern Ohio. The sites are Late Archaic base camps dating between circa 2,600 and circa 1,300 B.C. (Vickery n.d., 1974, 1976, 1980). The University of Cincinnati, typically by means of summer field schools, excavated the sites during the early to mid 1970s. Radiocarbon dates were obtained from all three sites and places the populations roughly contemporaneous with one another. Components in all three sites date to the Central Ohio Valley Archaic (circa 1,750-1,000 B.C.) as defined by Vickery (1980, Vickery n.d.). The Maple Creek site also contains material from a later occupation of the Maple Creek phase (Vickery 1974, 1976, 1980, n.d.).

The Bullskin Creek site (33Ct29) is situated on a high terrace overlooking Bullskin Creek above its confluence with the Ohio River in eastern Clermont County, Ohio. The University of Cincinnati excavated the 2.5- to 3.0-acre base camp in 1974. Midden deposits within the site were fewer than 60 centimeters thick. Thirteen features were recovered during excavations. The site was occupied throughout the fall and winter seasons, with possible occupations occurring in the early spring and late summer. Two radiocarbon samples yielded dates of 2,600 B.C. +/- 355 and 2520 B.C. +/- 75 (Vickery 1980).

DuPont Village (33Ha11) is located on a low-lying terrace in western Hamilton County, Ohio, overlooking the Great Miami River slightly north of its confluence with the Ohio River. The University of Cincinnati excavated the 11- to

14-acre base camp during 1974 and 1975. Midden deposits at the site were fewer than 45 centimeters thick. The site was occupied from late summer to late fall, and perhaps as early as early- to mid-summer. Radiocarbon dates from DuPont Village are 2,535 B.C. +/- 75; 2,485 B.C. +/- 70; 2,175 B.C. +/- 65; 2,150 B.C. +/- 65 (Vickery 1980).

The Maple Creek site (33Ct52) is located on the relict of a buried point bar in what was the floodplain of the Ohio River. The site is near the confluence of Maple Creek and the Ohio River in south-central Clermont County, Ohio. The University of Cincinnati's field school excavated the 5.6-acre base camp in 1971 and 1972. The site was occupied from summer to fall, with occupation of the site possibly occurring during the spring. Three cultural horizons within the Late Archaic period were identified during excavations (Horizon I probably continued into the Early Woodland period). Two radiocarbon dates were obtained from Horizons I and III. The samples yielded dates of 1,310 B.C. +/- 330 and 2,115 B.C. +/- 150, respectively (Vickery 1974). Horizon I contains deposits from the late Late Archaic (Maple Creek Phase) and possibly Early Woodland; therefore, it was excluded from the analysis in order to confine the temporal range of the study to the Late Archaic period. The date of 1,310 B.C. +/- 330 was taken obtained Horizon I.

An early partial analysis of the chert material from these sites revealed that the populations were utilizing diverse raw materials. It appeared that the populations at Bullskin Creek utilized chert materials that outcropped east of the site area while DuPont Village populations utilized chert that outcropped west of the site (Vickery personal communication 2001). The Maple Creek site occurs between the Bullskin Creek site and DuPont Village and, as such, its assemblage is expected show either a blending of the two procurement models or exhibits a pattern similar to Bullskin Creek, to which it is the closest geographically.

Chapter 3: Methodology

Manufacturing debitage and finished tools fashioned from chert materials were examined from Bullskin Creek and DuPont Village for this study. The chert from the Maple Creek site was examined and identified by Vickery in the early 1970s (Vickery 1974). At the time of his analysis, several raw material types were unknown and, as a result, a percentage of the materials that was classified as undetermined raw material types at the time can be identified today. Although additional chert sources have been identified that would allow for the identification of more of the undetermined specimens during this investigation, the goal of the study was to compare the chert raw material procurement strategies of all three sites. Therefore, the earlier identifications of chert raw materials were utilized for this study.

Of the 3162 specimens from the study, 50 were excluded in the final analysis. These include items that were deemed non-cultural (river pebbles), non-chert materials (huronian tillite and quartzite), and items that were manufactured during later periods (stylized Hopewell bladelets and Woodland typed projectile points).

Raw Material

Chert raw material identification was determined by using a low power (10x) binocular microscope. Identification was based on texture, luster, fossils, inclusions, color, and other identifiable characteristics (Table 1). See Appendix A for a description of chert varieties and Appendix B for age, formation, and location of individual chert types. County locations of outcrops are not inclusive; varieties may appear outside of the listed counties. References given in Appendix B should not be viewed as an exhaustive list. Rather as archaeological and geological references of the material type.

Archaeological specimens were compared with chert samples from known outcrops (Figure 2). In cases where the chert variety could not be determined, it was recorded as unknown. Exotic materials included those chert varieties whose known outcrops occurred more than 25 km from the site. Glacial erratics include those materials that entered the area through glaciation.

Table 1: Chert varieties recovered in the study area.

Raw Material	Color	Luster	Texture	Inclusions
Bisher	Light purple to tan	Non-vitreous	Coarse	None
Boggs	Medium gray to black	Non-vitreous	Medium	Iron pyrite, quartz-like particles, fossiliferous
Boyle	White, cream, to bluish-white with tan, red, blue, yellow, or green	Vitreous	Medium	Black and red specks, highly fossiliferous
Brassfield	White to creamy white	Non-vitreous	Medium	Quartz, quartz-like inclusions, low to moderate fossils
Brush Creek	Tan and brown mottled	Slightly vitreous	Medium	Orange spots on cortical surface
Cedarville-Guelph	Pinkish tan to tan with gray spots	Non-vitreous	Coarse	Red specks
Columbus	Light to medium brown	Non-vitreous	Coarse	None
Delaware	Dark grayish-brown or tan	Slightly vitreous	Medium	Ostracods in medium to low densities
Haney	Tan to light brown to light gray to light bluish-gray	Non-vitreous	Medium to fine	Muscovite, oolitic

(Table 1 Continued)

Raw Material	Color	Luster	Texture	Inclusions
Harrison County	Bluish-gray	Vitreous	Fine	Iron pyrite, muscovite, fossils are rare
Harrodsburg	Creamy white to light gray	Non-vitreous	Medium	Conglomeratic, highly fossiliferous
Indian Creek	Tan with gray spots	Non-vitreous	Medium	Ostracods
Kanawha Black	Black	Non-vitreous	Coarse	None
Kentucky Flint Ridge	Gray, yellow, to brown	Slightly vitreous	Coarse	Muscovite
Laurel	White to tan (weathers yellow)	Slightly vitreous; vitreous	Medium to fine	Fossils occur in some varieties
Paoli	Grayish-blue, blue, red, to reddish-brown	Vitreous	Fine	Black and red specks
Plummer	Dark gray to black	Slightly vitreous	Medium to fine	Quart, quartzite, moderate to high fossils
Plum Run	White, tan, brown, orange, red, to green	Slightly vitreous	Fine	Quartz-like and quartz crystals
Sonora	Purplish-black to bluish-gray (weathers purple)	Slightly vitreous	Fine	Black specks, muscovite
Tygart	Tan, pinkish-tan, to reddish orange	Slightly vitreous	Medium to fine	Red specks
Upper Mercer	Bluish-black to black	Vitreous	Fine	White streaks and spots
Zaleski	Brownish-black to black	Vitreous	Medium to fine	White streaks and spots – low

Raw material types were given a high, medium, or low designation regarding the probability of the material occurring in gravel bars of streambeds and glacial deposits near each site. These designations were based upon the distance between the source of the material and the site and whether or not the material could be moved into the area by glacial action or hydrological agencies. These designations were then used to interpret the means of procurement of chert raw materials. Varieties with a low designation are unlikely to occur locally while materials with a high designation are likely to occur near the site.

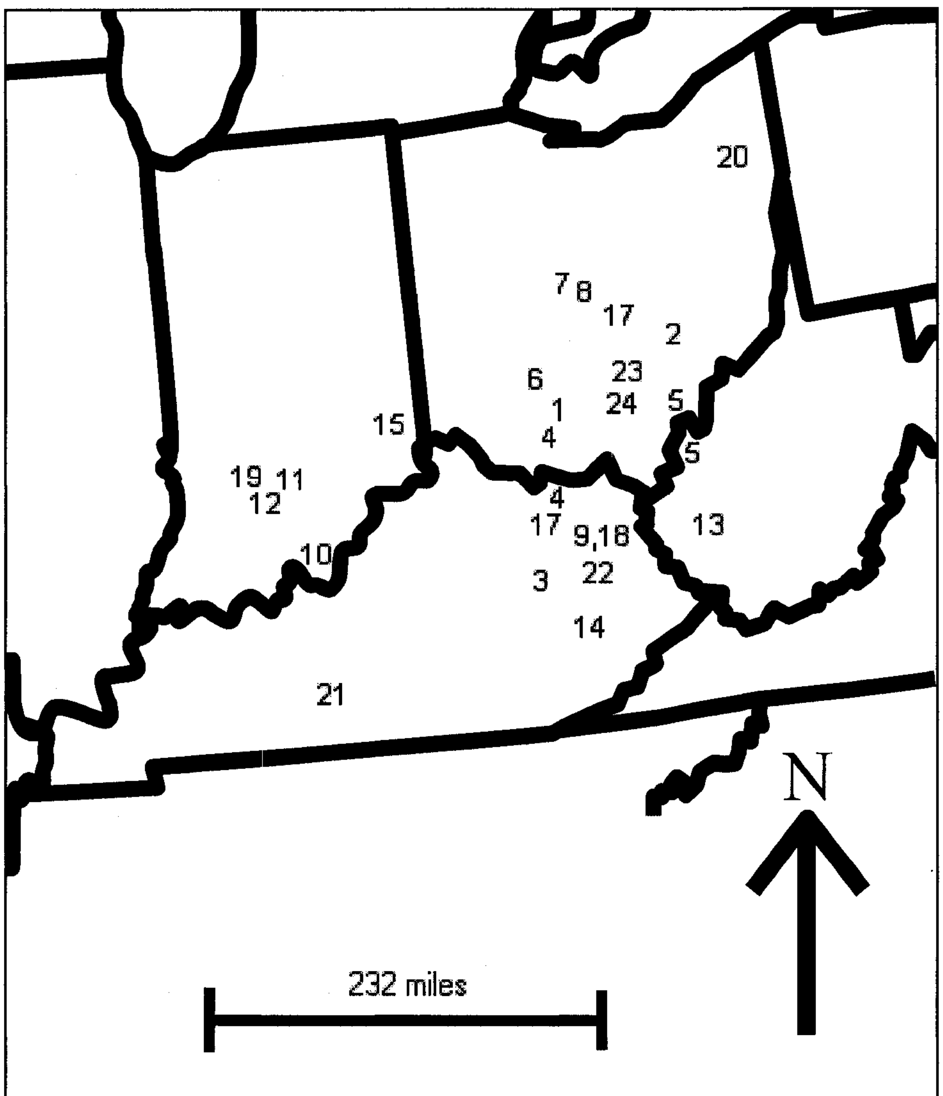

Figure 2: Outcrops of chert varieties in the study assemblage: 1) Bisher, 2) Boggs, 3) Boyle, 4) Brassfield, 5) Brush Creek, 6) Cedarville-Guelph, 7) Columbus, 8) Delaware, 9) Haney, 10) Harrison County, 11) Harrodsburg, 12) Indiana Creek, 13) Kanawha Black, 14) Kentucky Flint Ridge, 15) Laurel, 16) Lewis County, 17) Ohio Flint Ridge, 18) Paoli, 19) Plummer, 20) Plum Run, 21) Sonora, 22) Tygart, 23) Upper Mercer, and 24) Zaleski.

Although this method is not as accurate as physically collecting gravel bars near the sites, it does contribute to an understanding of what chert varieties may appear at a site. Modern collection of gravel bars and glacial deposits may give an inaccurate representation of the material available to prehistoric populations. As stream channels change, they may cut through new source areas and abandon others; the location of gravel bars may shift; new gravel bars may form while others are buried; and other geological activities may affect the type of material available to a given population.

If the mobility of populations was restricted during the Late Archaic period, then it is reasoned that materials with a higher probability of occurrence will appear in greater percentages in the archaeological record than materials with a low probability designation, thus the more available a resource, the more abundantly it will occur in the artifactual assemblage.

Cortex

Upon determination of raw material, the specimens were examined for the type of cortex present – patina, soft, or none. Cortex is formed on the exposed face of the material as the silica content in the chert rehydrates through the natural process of weathering. *Soft cortex* is a thick, porous and, in some instances, chalky-like coating that is easily scratched. *Patina* is a hard, smooth, thin coating that forms when the material is transported some distance away from its outcrop by water, glaciers, or other natural agencies.

Soft cortex appears on material that is located at the source, indicating that the chert was procured from its outcrop or near its base where the material fell after having been eroded from its matrix. Patina is found on materials that have been transported some distance away from their outcrops and indicates that the material was not collected near its geological source.

One commonly encountered characteristic of chipped stone artifacts from the Late Archaic period is the retention of cortex on finished tools. For instance, cortex often occurs along the base of McWhinney Heavy Stemmed points (Justice 1987, Vickery 1983a). This presence of cortex on finished tools during this time period allows the use of both manufacturing debris and artifacts to be constructive in this analysis.

Debitage/Artifact Type

Chert debitage and finished tools were examined to determine the stage of manufacture represented by each specimen when discarded. Debitage was categorized into seven steps of manufacturing: checked pebble, primary decortication flake, secondary decortication flake, primary flake, thinning flake, sharpening flake, and core (Vickery 1983b). Finished tools were categorized into two classes: curated and expedient.

Manufacturing debris can be grouped into four stages of production. In the first stage, the quality of the material is determined. A checked pebble is created during this process. A *checked pebble* is one in which a small amount of the outer cortex is removed to determine if the material is suitable for knapping

(Vickery 1983b). If the material meets the quality standards desired by the knapper, the process continues to the second stage. The flake removed from the material at this stage would be classified as a primary decortication flake.

The second stage of production is the removal of the outer, weathered surface of the material. This stage produces two types of flakes: primary decortication flakes and secondary decortication flakes. The first step in this process creates a primary decortication flake. *Primary decortication flakes* can be determined by the amount of the cortex remaining on the material, which should cover the entire dorsal face of the flake. *Secondary decortication flakes* – the second step in the decortication process – are formed by the additional removal of cortex from the core (ibid 1983b). Secondary decortication flakes often appear wedge-shaped with cortex remaining on one edge of the flake.

The third stage of production is reduction of the mass of the blank or preform. Primary flakes and thinning flakes are created during this process. *Primary flakes*, created by the first step in this process, are characterized by their thick, triangular cross-sections. Small amounts of cortex, often isolated by flake scars, may appear on the dorsal surface of the flake. *Thinning flakes* are created by the continued thinning of the preform, are thinner than primary flakes, and retain scars over all, or nearly all, of the dorsal face. Their platforms are typically small, usually having been removed by soft hammer percussion, punch, or pressure flaking techniques rather than by hard hammer percussion typically employed in earlier reduction stages (ibid 1983b).

The fourth stage of production is the strengthening, shaping, or sharpening of artifact edges. Sharpening flakes (and finished tools) are created during the fourth and final stage. *Sharpening flakes* are very small and thin, detached through punch or pressure techniques (Vickery 1983b). These flakes also may occur due to resharpening of an existing tool and, therefore, are not only classified as manufacturing debris, but also as maintenance debris.

Cores – the expedient chert material from which flakes are knapped – are manufacturing debris, but were treated as a separate category in the present study. Manufacturing debris that could not be assigned to one of the above categories was given a designation of undetermined artifact type.

Finished tools were divided into two categories: curated and expedient. *Curated tools* are those items that took time and skill to create; hence, they were often kept by the individual and carried from one site to another. Curated tools include artifacts such as projectile points, knifes, scrapers, drills, bifaces, preforms, etc. *Expedient tools* include those items that take very little time to create. These tools were often fashioned as items of convenience, such as waste flakes, and were discarded when the task for which they were selected or created was accomplished. Flake tools, such as retouched flakes and some gravers/perforators, are examples of expedient tools commonly recovered from prehistoric sites. Utilized flakes were regarded as manufacturing debris rather than as finished tools because they exhibited no intentional pre- or post-use alteration other than use.

Several assumptions have been made to test the hypothesis presented in this study. First, it is assumed that mobility restriction and shrinkages in the sizes of exploitative territories occurred throughout the Archaic stage. Second, it is assumed that Late Archaic populations did not extensively trade with outside groups to obtain chert raw materials. A third assumption is that the sites reflect the continuous habitation of a single group.

Chapter 4: Results

A total of 3162 specimens of debitage and artifacts was examined from the Bullskin Creek, DuPont Village, and Maple Creek sites. Of them, 59 were excluded from analysis because they were determined to be non-cultural pebbles, were manufactured from non-chert material, or were believed to have been manufactured during a later time period.

For the purpose of this analysis, site-specific data was utilized to investigate how three Late Archaic populations in the study area utilized the chert resources available to them. Examination by site rather than temporal period or individual occupation within a site allowed for the investigation of individual populations rather than the general Late Archaic period, thereby permitting insights into the cultural dynamics of specific group adaptations to the opportunities presented by their particular environmental settings.

Bullskin Creek (33Ct29)

A total of 644 specimens was examined from the Bullskin Creek site. Of them, 32 were excluded from the analysis. These items were not included because they were identified as non-cultural pebbles, were determined to be non-chert material, or believed to have derived from later period occupations at the site. Of the 612 artifacts included in the data set, 461 were classified as manufacturing debris, 85 items were classified as finished tools, while the remaining 66 specimens received an undetermined classification.

Twenty known chert varieties were identified in the Bullskin Creek study sample, including Bisher, Boggs, Boyle, Brassfield, Brush Creek, Cedarville-Guelph, Delaware, Haney, Indian Creek, Kanawha Black, Kentucky Flint Ridge, Laurel, Lewis County, Paoli, Plummer, Plum Run, Sonora, Tygart, Upper Mercer, and Zaleski (Table 2). The majority of these types were present in less than 1% of the sample assemblage. Of the twenty types present, nine occur in frequencies greater than 1%: Boyle, Brassfield, Brush Creek, Cedarville-Guelph, Delaware, Kanawha Black, Kentucky Flint Ridge, Laurel, and Paoli. Boyle, Delaware, Kentucky Flint Ridge, and Paoli appear in amounts greater than 5% of the sample.

Table 2: Chert raw material types recovered from Bullskin Creek.

Raw Material	Number	Percent
Bisher	4	0.65
Boggs	4	0.65
Boyle	67	10.95
Brassfield	10	1.63
Brush Creek	8	1.31
Cedarville-Guelph	15	2.45
Delaware	126	20.59
Haney	3	0.49
Indian Creek	2	0.33
Kanawha Black	13	2.12
Kentucky Flint Ridge	47	7.68
Laurel	8	1.31
Lewis County	3	0.49
Paoli	32	5.23
Plummer	2	0.33
Plum Run	1	0.16
Sonora	1	0.16
Tygart	1	0.16
Upper Mercer	3	0.49
Zaleski	3	0.49
Undetermined	259	42.32
Total	612	100.0

Delaware appears most frequently in the study assemblage, comprising 20.59% (n=126) of the sample. Boyle chert occurs as the second largest portion, comprised 10.95% (n=67). The third largest material type is Kentucky Flint Ridge, consisting of 7.68% (n=47), followed by Paoli at 5.23% (n=32). Undetermined raw material comprised 42.32% (n=259) of the sample.

Less than half (42.16%; n=258) of the sample lacked cortex (Table 3). More than 55.88% (n=342) of the study assemblage retained patina, while less than 2% (1.96%; n=12) retained soft cortex. Cortex was present on all identified chert types except Haney, Lewis County, Sonora, and Tygart.

Table 3: Distribution of cortex by raw material at the Bullskin Creek site.

Raw Material	Patina	Soft	None	Total
Bisher	1	0	3	4
Boggs	1	0	3	4
Boyle	25	3	39	67
Brassfield	3	1	6	10
Brush Creek	7	0	1	8
Cedarville-Guelph	14	0	1	15
Delaware	96	0	30	126
Haney	0	0	3	3
Indian Creek	1	0	1	2
Kanawha Black	5	0	8	13
Kentucky Flint Ridge	21	3	23	47
Laurel	4	0	4	8
Lewis County	0	0	3	3
Paoli	12	3	17	32
Plummer	2	0	0	2
Plum Run	1	0	0	1
Sonora	0	0	1	1
Tygart	0	0	1	1
Upper Mercer	1	0	2	3
Zaleski	1	0	2	3
Undetermined	147	2	110	259
Total	342	12	258	612

Patina was present on at least one specimen of all chert types that retained cortex. Five chert raw material varieties are represented by artifacts with soft cortex. They include Boyle (n=3), Brassfield (n=1), Kentucky Flint Ridge (n=3), Paoli (n=3), and Undetermined (n=2). In all cases where soft cortex was present, the proportion of specimens was at 10% or less for any specific raw material category.

A total of 75.33% (n=461) of the study assemblage consisted of manufacturing debris (Table 4). Of these, primary flakes made up the largest category (21.90%; n=134). Thinning flakes at 16.34% (n=100) of the sample, primary decortication flakes at 15.03% (n=92) of the sample, and secondary decortication flakes at 11.11% (n=68) of the sample occurred as the next highest frequencies, followed by sharpening flakes at 5.07% (n=31), cores at 3.59% (n=22), and checked pebbles at 2.29% (n=14).

Artifacts classified as undetermined with respect to artifact type comprised 10.78% (n=66) of the study assemblage. Finished tools comprised 13.89% (n=85) of the assemblage, with curated tools being represented by 71 specimens 11.60% and expedient tools by the remaining 14 specimens (2.29%).

No obvious pattern emerges when individual artifact types are examined by raw material categories. It was expected that the highest number of artifact type categories would represent materials with the greatest number of specimens. To obtain a better understanding of how material types were utilized, artifacts were examined by artifact groups (manufacturing debris and finished tools) (Table 5). For all raw material types except two, debitage makes up the majority of the raw material assemblage. Brassfield and Tygart chert primarily occur as finished tools rather then manufacturing debris.

Table 4:Distribution of debitage/artifact types by raw material at the Bullskin Creek site.

Raw material	**Checked pebble**	**Primary decortication**	**Secondary decortication**	**Primary flake**	**Thinning flake**	**Sharpening flake**	**Core**	**Curated tool**	**Expedient tool**	**Undetermined**	**Total**
Bisher	0	1	0	0	2	0	0	1	0	0	4
Boggs	0	0	0	2	2	0	0	0	0	0	4
Boyle	1	5	4	17	18	9	1	9	0	3	67
Brassfield	0	0	0	1	1	0	0	7	1	0	10
Brush Creek	0	2	1	2	1	0	2	0	0	0	8
Cedarville-Guelph	1	6	2	2	0	0	0	1	0	3	15
Delaware	4	17	28	31	13	5	8	6	4	10	126
Haney	0	0	0	1	1	0	0	0	0	1	3
Indian Creek	0	0	1	0	1	0	0	0	0	0	2
Kanawha Black	0	0	1	2	4	1	0	4	0	1	13
KY Flint Ridge	1	7	4	13	10	2	0	7	1	2	47
Laurel	0	0	2	1	1	1	0	2	0	1	8
Lewis County	0	0	0	1	0	0	0	1	0	1	3
Paoli	0	4	1	8	10	3	0	2	1	3	32
Plummer	0	0	0	2	0	0	0	0	0	0	2
Plum Run	0	0	0	0	1	0	0	0	0	0	1
Sonora	0	0	0	0	1	0	0	0	0	0	1
Tygart	0	0	0	0	0	0	0	1	0	0	1
Upper Mercer	0	0	0	0	1	0	1	1	0	0	3
Zaleski	0	0	0	1	1	0	0	1	0	0	3
Undetermined	7	50	24	50	32	10	10	28	7	41	259
Total	14	92	68	134	100	31	22	71	14	66	612

Finished tools are represented in over half (13/20) of the raw material categories – Bisher (n=1), Boyle (n=9), Brassfield (n=8), Cedarville-Guelph (n=1), Delaware (n=10), Kanawha Black (n=4), Kentucky Flint Ridge (n=8), Laurel (n=2), Lewis County (n=1), Paoli (n=3), Tygart (n=1), Upper Mercer (n=1), and

Zaleski (n=1). The remaining 35 tools were manufactured of undetermined chert types.

Table 5: Distribution of debitage/artifact groups by raw material at the Bullskin Creek site.

Raw material	Debitage	Artifacts	Undetermined	Total
Bisher	3	1	0	4
Boggs	4	0	0	4
Boyle	55	9	3	67
Brassfield	2	8	0	10
Brush Creek	8	0	0	8
Cedarville-Guelph	11	1	3	15
Delaware	106	10	10	126
Haney	2	0	1	3
Indian Creek	2	0	0	2
Kanawha Black	8	4	1	13
Kentucky Flint Ridge	37	8	2	47
Laurel	5	2	1	8
Lewis County	1	1	1	3
Paoli	26	3	3	32
Plummer	2	0	0	2
Plum Run	1	0	0	1
Sonora	1	0	0	1
Tygart	0	1	0	1
Upper Mercer	2	1	0	3
Zaleski	2	1	0	3
Undetermined	183	35	41	259
Total	461	85	66	612

<u>DuPont Village (33Ha11)</u>

A total of 927 artifacts was examined from the DuPont Village. Of them, 27 were excluded from the analysis. Of the 900 artifacts included in the data set, 814 are manufacturing debris and the remaining 86 items are finished tools.

Eighteen known raw material types were identified in the study sample from this site. They include Bisher, Boyle, Brassfield, Brush Creek, Cedarville-

Guelph, Columbus, Delaware, Haney, Harrison County, Harrodsburg, Indian Creek, Kanawha Black, Kentucky Flint Ridge, Laurel, Lewis County, Ohio Flint Ridge, Paoli, and Plum Run (Table 6). The majority (12/18) of these types were present in small amounts (less than 1%). Those exceeding 1% are Boyle, Cedarville-Guelph, Columbus, Delaware, Kentucky Flint Ridge, and Laurel.

Table 6: Distribution of raw materials at DuPont Village.

Raw Material	Number	Percent
Bisher	1	0.11
Boyle	41	4.55
Brassfield	7	0.78
Brush Creek	8	0.89
Cedarville-Guelph	25	2.78
Columbus	17	1.89
Delaware	28	3.11
Haney	2	0.22
Harrison County	5	0.55
Harrodsburg	1	0.11
Indian Creek	1	0.11
Kanawha Black	2	0.22
Kentucky Flint Ridge	16	1.78
Laurel	366	40.67
Lewis County	1	0.11
Ohio Flint Ridge	2	0.22
Paoli	7	0.78
Plum Run	1	0.11
Undetermined	369	41.00
Total	900	100.0

Laurel comprises a much greater proportion of the total than any other chert variety (40.67%; n=366). The second highest proportion is Boyle, accounting for 4.55% (n=41), nearly 35% less than Laurel. Delaware follows Boyle, comprising of 3.11% (n=28) of the sample. Cedarville-Guelph comprises 2.78% (n=25) of the total, while Columbus and Kentucky Flint Ridge following with 1.89% (n=17) and 1.78% (n=16), respectively. Undetermined raw material comprised 40.89% of the total sample – only 0.33% more than Laurel.

The majority of the specimens, 73.00% (n=657), do not retain cortex (Table 7). One-fourth of the artifacts (25.44%; n=229) retained patina, while soft cortex occurred on less than 2% of the specimens (1.56%; n=14). Five of the identifiable raw materials lacked cortex: Harrodsburg, Indian Creek, Kanawha Black, Lewis County, and Ohio Flint Ridge. Patina was present for all varieties that exhibited cortex. Soft cortex appeared on only three types: Kentucky Flint Ridge (n=2), Laurel (n=8), and Undetermined (n=4). In all varieties where soft cortex was present, the number of specimens exhibiting soft cortex was less than 15% of the total number of artifacts of that specific raw material category.

Table 7: Distribution of cortex by raw material at DuPont Village.

Raw Material	Patina	Soft	None	Total
Bisher	1	0	0	1
Boyle	7	0	34	41
Brassfield	1	0	6	7
Brush Creek	1	0	7	8
Cedarville-Guelph	12	0	13	25
Columbus	6	0	11	17
Delaware	15	0	13	28
Haney	1	0	1	2
Harrison County	1	0	4	5
Harrodsburg	0	0	1	1
Indian Creek	0	0	1	1
Kanawha Black	0	0	2	2
Kentucky Flint Ridge	2	2	12	16
Laurel	66	8	292	366
Lewis County	0	0	1	1
Ohio Flint Ridge	0	0	2	2
Paoli	2	0	5	7
Plum Run	1	0	0	1
Undetermined	113	4	252	369
Total	229	14	657	900

The majority of the artifacts in the study assemblage (57.11%; n=514) were classified as debitage (Table 8). Of these, thinning flakes comprised the largest category with 17.00% (n=153) of the sample. Primary flakes at 15.11% (n=136), sharpening flakes at 8.67% (n=78), secondary decortication flakes at 7.22% (n=65), and primary decortication flakes at 7.00% (n=63) were the next largest categories, followed by cores at 1.33% (n=12) and checked pebbles at 0.78% (n=7).

Table 8: Distribution of debitage/artifact types by raw material at DuPont Village.

Raw material	Checked pebble	Primary decortication	Secondary decortication	Primary flake	Thinning flake	Sharpening flake	Core	Curated tool	Expedient tool	Undetermined	Total
Bisher	0	0	1	0	0	0	0	0	0	0	1
Boyle	0	2	3	4	8	6	0	0	3	12	41
Brassfield	0	0	0	4	0	2	0	0	0	1	7
Brush Creek	0	0	0	3	4	0	0	0	0	1	8
Cedarville-Guelph	1	2	6	2	1	1	0	0	3	9	25
Columbus	1	3	1	4	0	0	0	0	0	8	17
Delaware	0	3	7	5	0	3	0	0	1	9	28
Haney	0	1	0	0	0	0	0	0	0	1	2
Harrison County	0	0	0	0	1	0	1	0	2	1	5
Harrodsburg	0	0	0	0	0	0	0	0	0	1	1
Indian Creek	0	0	0	1	0	0	0	0	0	0	1
Kanawha Black	0	0	0	0	1	0	0	0	1	0	2
KY Flint Ridge	0	1	2	3	2	1	0	0	1	6	16
Laurel	3	13	15	56	82	41	4	9	29	114	366
Lewis County	0	0	0	0	0	0	0	0	0	1	1
Ohio Flint Ridge	0	0	0	1	0	1	0	0	0	0	2
Paoli	0	0	0	0	2	0	0	1	0	4	7
Plum Run	1	0	0	0	0	0	0	0	0	0	1
Undetermined	1	38	30	53	52	20	7	8	28	132	369
Total	7	63	65	136	153	78	12	18	68	300	900

Specimens categorized as undetermined debitage comprised 33.33% (n=300) of the sample. Artifacts comprised 9.56% (n=86) of the study sample. Curated tools made up 7.56% (n=18) of the finished tools, while the remaining 2.00% (n=68) represented expedient tools.

The DuPont Village assemblage was also analyzed by artifact groups to obtain a better understanding of how the material types were utilized at the site (Table 9). Debitage makes up the majority of the specimens in all bur four of material types. Harrison County, Harrodsburg, Kanawha Black, and Lewis County chert have an equal distribution of artifacts to debitage; however, Harrodsburg and Lewis County are only represented by undetermined artifact types.

Table 9: Distribution of debitage/artifact group types by raw material at DuPont Village.

Raw material	Debitage	Artifacts	Undetermined	Total
Bisher	1	0	0	1
Boyle	26	3	12	41
Brassfield	6	0	1	7
Brush Creek	7	0	1	8
Cedarville-Guelph	13	3	9	25
Columbus	9	0	8	17
Delaware	18	1	9	28
Haney	1	0	1	2
Harrison County	2	2	1	5
Harrodsburg	0	0	1	1
Indian Creek	1	0	0	1
Kanawha Black	1	1	0	2
KY Flint Ridge	9	1	6	16
Laurel	214	38	114	366
Lewis County	0	0	1	1
Ohio Flint Ridge	2	0	0	2
Paoli	2	1	4	7
Plum Run	1	0	0	1
Undetermined	201	36	132	369
Total	514	86	300	900

Finished tools were not represented in over half (10/18) of the raw material categories. Boyle (n=3), Cedarville-Guelph (n=3), Delaware (n=1), Harrison County (n=2), Kanawha Black (n=1), Kentucky Flint Ridge (n=1), Laurel (n=38), and Paoli (n=1) are chert varieties represented by finished tools. The remaining 36 tools were of undetermined material type.

Maple Creek (33Ct52)

Data for the Maple Creek artifacts was available on a more limited basis than at Bullskin Creek and Dupont Village. However, this information still remains critical in understanding the relationship between the other two sites. A total of 1591 specimens were included from Vickery's previous examination of the Maple Creek's Horizon II and III (Vickery 1974). Of the 1591 items, 1522 are classified as manufacturing debris and 69 are finished tools.

Twelve known raw material types were identified at the Maple Creek site. They include Boyle, Brassfield, Haney, Harrison County, Kanawha Black, Kentucky Flint Ridge, Laurel, Ohio Flint Ridge, Paoli, St. Louis, Upper Mercer, and Zaleski (Table 10). Undetermined raw material type makes up the majority of the study sample, 74.29% (n=1182). Only four chert types account for more than 1% of the total study sample: Boyle, Brassfield, Kentucky Flint Ridge, and Paoli.

Paoli is proportionately the highest variety in the Maple Creek sample, comprising 10.69% (n=170) of the assemblage. The second highest is Kentucky

Flint Ridge, consisting of 8.61% (n=137) of the sample. Brassfield and Boyle follow, comprising 2.83% (n=45) and 2.39% (n=38) of the sample, respectively.

Table 10: Distribution of raw material at the Maple Creek site.

Raw Material	Number	Percent
Boyle	38	2.39
Brassfield	45	2.83
Haney	5	0.31
Harrison County	2	0.13
Kanawha Black	2	0.13
Kentucky Flint Ridge	137	8.61
Laurel	1	0.06
Ohio Flint Ridge	6	0.38
Paoli	170	10.69
St. Louis	1	0.06
Upper Mercer	1	0.06
Zaleski	1	0.06
Undetermined	1182	74.29
Total	1591	100.0

The presence/absence of cortex was not recorded in the 1974 study from Maple Creek. Although debitage was not classified at the level of the flake type, specimens were categorized as to manufacturing debris or finished tool. Manufacturing debris comprises the majority of the study assemblage. Laurel and Zaleski, both with a 1:0 artifact to debitage ratio, are the only raw material types in which artifacts outnumber debitage.

Finished tools comprise 4.34% (n=69) of the total assemblage. They were not represented in nearly half (5/12) of the raw material categories. Boyle (n=9), Brassfield (n=2), Haney (n=1), Kentucky Flint Ridge (n=5), Laurel (n=1), Paoli (n=13), and Zaleski (n=1) are known varieties represented by finished tools. The remaining 37 tools were manufactured from undetermined raw material.

Table 11: Distribution of debitage/artifact groups by raw material at the Maple Creek site.

Raw material	Debitage	Artifacts	Total
Boyle	29	9	38
Brassfield	43	2	45
Haney	4	1	5
Harrison County	2	0	2
Kanawha Black	2	0	2
Kentucky Flint Ridge	132	5	137
Laurel	0	1	1
Ohio Flint Ridge	6	0	6
Paoli	157	13	170
St. Louis	1	0	1
Upper Mercer	1	0	1
Zaleski	0	1	1
Undetermined	1145	37	1182
Total	1522	69	1591

Raw Material Distribution

Populations at the Bullskin Creek site relied on a variety of chert types for their chipped stone industry. The assemblage from this site contains more varieties than DuPont Village or Maple Creek. Although Delaware stands out as the most widely exploited chert type, Boyle, Kentucky Flint Ridge, and Paoli also appear to have been extensively utilized. Rather than focusing on a specific chert type, this population utilized a broader range of materials.

The populations at DuPont Village exhibit a more focused pattern of chert raw material procurement, concentrating primarily on one chert type – Laurel. The number of varieties recovered from DuPont is fewer than Bullskin Creek. Although several other varieties also appear in the study assemblage, the percentage of specimens of these raw material types occur in low frequencies.

Even combined, these materials do not equal the amount of Laurel utilized at DuPont Village.

The population at Maple Creek exhibits a similar assemblage composition at Bullskin Creek – although the number of varieties recovered is fewer than at Bullskin Creek or DuPont – in that a broader range of materials comprise significant percentages of the assemblage. The smaller amount of material types may represent the fewer varieties known at the time of the analysis of this assemblage. Boyle, Kentucky Flint Ridge, and Paoli comprise the majority of the known chert types. Delaware is absent in the Maple Creek sample; however, this is attributed to a lack of comparative material at the time the sample was analyzed rather than to the absence of the material at the site. Delaware chert does occur in a 2001 analysis of 73 artifacts from Maple Creek by Hill-Ariens and Henley, which confirmed that this chert should be present in the site assemblage (Hill-Ariens and Henley 2001).

A fourth artifact assemblage that would also be significant in understanding the procurement practices in southwestern Ohio is the material from the Dravo Gravel site (33Ha377) located in western Hamilton County along the Great Miami River north of DuPont Village. Located on a high terrace, the Dravo Gravel site, a Late Archaic base camp, overlooks the Great Miami upriver of its confluence with the Whitewater River. The University of Cincinnati's field school excavated the site in 1977 and 1979. Vickery published a preliminary report of the site in 1978. In the report, Vickery not only identified chert varieties of artifacts recovered from the site, but he also performed a study of the raw materials available in a gravel bar of the Licking River in an attempt to determine the accessibility of specific materials to the local populations (Vickery 1978).

Forty-seven artifacts from the Dravo Gravel site revealed that the population was exploiting several chert varieties, similar to Bullskin Creek and Maple Creek. Laurel chert comprised the greatest percentage, 27.66% (n=13) of the material from the Dravo Gravel site. However, Boyle and Kentucky Flint Ridge were also heavily exploited by the Dravo inhabitants (21.28%; n=10 and 14.89%; n=7, respectively). Brassfield at 6.38% (n=3), Cedarville-Guelph at 2.13% (n=1), and St. Louis at 2.13% (n=1) were present in the assemblage. Undetermined raw materials comprised 25.53% (n=12) of the total sample (Vickery 1978:96).

The study of available chert resources located in a gravel bar in the Licking River revealed a slightly different break down of varieties. Boyle was the most recognizable material in the gravel bar study comprising 25.37% (n=102) of the sample. Paoli followed Boyle with 6.22% (n=25) and St Louis with 1.74% (n=7). Kentucky Flint Ridge and Haney were also represented in the study sample, but in less than 1%, n=2 and n=1, respectively (Vickery 1978:98).

The material recovered at these Late Archaic sites outcrop in various locations throughout the Midwest (Appendix B). Bisher, Boggs, Brassfield, Brush Creek, Cedarville-Guelph, Columbus, Delaware, Ohio Flint Ridge, Plum Run, Upper Mercer, and Zaleski outcrop north and east of the study area in Ohio. Boyle, Brassfield, Haney, Kentucky Flint Ridge, Lewis County, Paoli, and Tygart outcrop south to southeast of the study area in Kentucky. Sonora also outcrops in Kentucky, southwest of the study area. Harrison County, Harrodsburg, Indian Creek, Laurel, and Plummer outcrop west of the study area in Indiana while Brush Creek and Kanawha Black outcrop to the east in West Virginia. Many of these materials may be transported naturally into the study area and deposited by local streams and rivers and may occur in both glacial till plain and outwash deposits. Materials that outcrop west of the study area, with the exception of Laurel, cannot reach the sites by natural agencies.

Cortex Distribution

Of the 1512 specimens examined in this study (excludes the 1591 specimens from the Maple Creek site), 571 (37.76%) retained cortex. The majority of the artifacts from the study sample do not retain cortex. Of the artifacts that do, patina clearly dominants over soft cortex. At the Bullskin Creek site, 55.88% (n=342) of the artifacts retained patina while 25.44% (n=229) of the artifacts from DuPont Village retained patina. Less than 2% of the artifacts from both Bullskin Creek (1.96%) and DuPont Village (1.56%) retained soft cortex.

The presence of patina is verified on at least one specimen from each of the raw material categories at Bullskin Creek except Haney, Lewis County, Sonora, and Tygart. Patina was absent on Harrodsburg, Indian Creek, Kanawha Black, Lewis County, and Ohio Flint Ridge at DuPont Village. All of these varieties appear in low frequencies (less than 0.5%) on each of the sites.

Soft cortex was present on the specimens of five identifiable varieties of raw material. At the Bullskin Creek site, soft cortex was present on Boyle (n=3), Brassfield (n=1), Kentucky Flint Ridge (n=3), Paoli (n=3), and undetermined (n=2). The DuPont Village sample included the following specimens with soft cortex: Kentucky Flint Ridge (n=2), Laurel (n=8), and undetermined (n=4).

Artifact Type Distribution

Examination of the 1512 specimens at Bullskin Creek and DuPont Village demonstrates that multiple manufacturing processes occurred at both sites. Material is present in every manufacturing stage from checked pebbles to finished tools.

At the Bullskin Creek site, Bisher, Boyle, Brush Creek, Cedarville-Guelph, Delaware, Indian Creek, Kanawha Black, Kentucky Flint Ridge, Laurel, and Paoli occur as early and late stage manufacturing debris, with Bisher, Cedarville-Guelph, Delaware, Kanawha Black, Kentucky Flint Ridge, Laurel, and Paoli also occurring as finished tools, indicating that the raw material was worked at this site. Boggs, Brassfield, Haney, Lewis County, Plummer, Plum Run, Sonora, Tygart, Upper Mercer, and Zaleski occur only as late stage manufacturing debris or finished tools (Tygart occurs only as a finished tool), suggesting that the material was probably originally worked in another location and transported to the site as preforms or finished tools.

Only Brassfield and Tygart occur with a higher distribution of artifacts to debitage. Brassfield is represented by eight artifacts and only two flakes while Tygart is represented by only one artifact and no flakes, inferring that these items were brought to the camp as blanks, performs, or finished tools rather than as raw material. Lewis County chert appears in a 1:1 ratio of manufacturing debris to finished tools. The single piece of debris of Lewis County chert is a late stage manufacturing flake, suggesting that this material was also brought in as a preform or finished tool.

At the DuPont Village, Bisher, Boyle, Cedarville-Guelph, Columbus, Delaware, Haney, Kentucky Flint Ridge, Laurel, and Plum Run all occur as early and late stage manufacturing debris, indicating that this material was worked from its raw form on-site. Bisher and Haney occur only as early stage manufacturing flakes while Boyle, Cedarville-Guelph, Delaware, Kentucky Flint Ridge, and Laurel occur as finished tools as well as manufacturing debris. Brassfield, Brush Creek, Harrison County, Indian Creek, Kanawha Black, Ohio Flint Ridge, and Paoli occur only as late stage manufacturing debris or finished tools, indicating that the material may originally have been worked away from the site and brought into the area. Harrodsburg and Lewis County occur only as undetermined artifact types; therefore, neither can be reliably evaluated or interpreted.

All raw material types from DuPont occur with a higher debitage ratio than artifacts with the exception of Harrison County and Kanawha Black, which have an equal artifact to debitage ratio. Harrodsburg and Lewis County only occur as undetermined artifact type and, therefore, have a 0:0 ratio.

Chapter 5: Interpretations

Subsistence and settlement patterns changed significantly between the Early Archaic and Late Archaic periods in southwestern Ohio. During this time, populations began to move from upland settings to the increasingly more productive lowlands and river bottoms. With their mobility reduced, these populations begin to establish semi-sedentary occupations while engaging in specialized collecting activities rather than the general foraging practices that prevailed during earlier periods. This lifestyle change is reflected in the archaeological record through the type of materials that groups exploited. The procurement pattern of chert resources offers valuable insights into the exploitation areas of these populations.

Intersite studies of chert raw materials have not been researched intensively for the Late Archaic period in southwestern Ohio. It has been hypothesized that Late Archaic populations in southwestern Ohio procured these raw materials non-selectively from local streambeds and nearby outcrops. Although the Late Archaic populations in the study area could have procured most of their chert from nearby gravel bars, it appears that they did not exploit and utilize these raw material resources non-selectively. Rather, they obtained some material through specific procurement activities. The data from the study supports the premise that these populations acquired their materials from local streambeds or outcrops. Although the evidence suggests that they obtained at least some materials from distant outcrops, the percentage of resources procured in this manner was a small fraction of the total sample assemblage.

Chert raw material from three Late Archaic sites (Bullskin Creek, DuPont Village, and Maple Creek) dating from 2,600-1,300 B.C. was analyzed to ascertain how specific populations within this time period exploited and utilized the materials available to them. All three sites are multi-seasonal base camps located along primary tributaries of the Ohio River in Clermont and Hamilton Counties, Ohio, and were occupied during the spring to fall seasons. The chipped stone artifacts were examined with attention given to their raw material variety, cortex condition, and artifact type.

Inferences can be made as to the extent of the resource area exploited by a population by identifying the materials they procured. The availability of such material in local streambeds and gravel deposits also must be taken into account when considering the source areas of specific raw materials. If the exploitative territories of Late Archaic populations were restricted in extent and shifts occurred in procurement strategies whereby a greater reliance was placed on the acquisition of resources from local sources, such as chert cobbles in nearby gravel bars, then the natural availability of these materials in a given area should mirror the proportions in which they occur within a specific artifactual assemblage.

Bisher chert outcrops east of the study area in Adams and Highland Counties, Ohio. It is feasible for Bisher to have been carried into the Ohio River via the Ohio Brush Creek and deposited in gravel bars near the sites. Travel to the source area of Bisher would not have been difficult for these Late Archaic populations, especially for those at Bullskin Creek and Maple Creek. Boggs, located farther away in Muskingum County, outcrops northeast of the study area in southeastern Ohio. Although this material is located farther away, it is conceivable that it too can enter the Ohio River via the Muskingum River and its tributaries to become deposited in local gravel bars along the Ohio.

Boyle chert outcrops in Powell County in west-central Kentucky and may have entered the Ohio River by way of the Licking River and its tributaries. Although Boyle can occur in the study area, the Licking River joins the Ohio River nearly 50 km downstream of the Bullskin Creek and Maple Creek sites. Boyle would not have been present as pebbles in gravel deposits along the Ohio River at Bullskin Creek and Maple Creek; however, it could have occurred locally in such contexts along the Licking River. Expeditions to the Licking River for chert raw materials from any of the three sites would not have been difficult, especially for inhabitants at Bullskin Creek and Maple Creek, which are located less than 20 km north of the Licking River.

Brassfield chert outcrops in Adams County, Ohio, and Lewis County, Kentucky, just east of the study area. The Ohio River separates these two counties and easily could have transported Brassfield chert into the area and deposited it in local gravel bars. Brassfield is the nearest raw material outcrop to the Clermont County populations. Expeditions to Brassfield's source would not have proven difficult. Brush Creek chert also occurs along either side of the Ohio River in Washington County, Ohio, and Wood County, West Virginia. Pebbles of

Brush Creek could have been transported by the Ohio River into the study area and deposited in local gravel bars.

Cedarville-Guelph chert outcrops east of the study area in Highland County, Ohio, and farther to the north. The occurrence of this material in the study area would be expected because the material could be transported into the area by the Ohio River via Ohio Brush Creek and its tributaries. Although slightly more difficult to reach than Bisher and Brassfield, expeditions to the Cedarville-Guelph source area would have been feasible by populations in the study area – especially for those at Bullskin Creek and Maple Creek.

Both Columbus and Delaware chert varieties outcrop to the northeast of the study area in Marion, Union, and Franklin Counties, Ohio. Outcrops of Delaware also appear in Wyandot and Delaware Counties. Both types of material may have reached the Ohio River via the Scioto River and its tributaries. Although expeditions to the source areas for these materials are feasible, the long distance that would have to have been traveled seems unlikely for populations whose exploitative areas were reducing.

Haney, Paoli, and Tygart (all deposits within the Newman Formation) outcrop in northeastern Kentucky in Carter, Elliot, and Morgan Counties. It is possible for these materials to enter the Ohio River by both the Licking River and the Little Sandy River. The Little Sandy River flows through the center of Carter and Elliot Counties and may have been responsible for the northward and westward transportation of these materials.

Harrison County, Harrodsburg, Indian Creek, and Plummer chert varieties outcrop in south-central and southwestern Indiana. Harrison County outcrops primarily in Harrison County, in south-central Indiana, along the Ohio River. Harrodsburg outcrops in Lawrence County, in south-central Indiana, while Indian Creek and Plummer outcrop in Green County, in southwestern Indiana. No geological activity can have transported these materials into the study area. Their presence indicates that either resource procurement expeditions were deployed to obtain these materials or that the populations traded with other groups for them as raw material, blanks or preforms, or finished products.

Kanawha Black chert outcrops in Putnam County, West Virginia, near the Ohio and Kentucky border. The Kanawha River flows through these outcrops and can carry the material into the Ohio River where it can be transported into the study area and deposited locally along its banks.

Kentucky Flint Ridge chert outcrops in southeastern Kentucky in Breathitt County. Both the Licking River and the Kentucky River have their headwaters in this region. It is possible for the Licking River to carry this chert into the study area. Although it could not have been deposited in gravel bars of the Ohio River near Bullskin Creek and Maple Creek, which occur farther upriver from the confluence of the Licking and Ohio Rivers, the Licking River may have been responsible for transporting Kentucky Flint Ridge chert and depositing it near all three sites.

Laurel chert outcrops immediately west of the study area in Franklin County, Indiana. The Whitewater River, which runs through the heartland of

Laurel deposits, merges with the Great Miami River slightly north of DuPont Village. Laurel could have been transported by the Whitewater River and deposited in gravel bars along the Great Miami River near DuPont. It could not, however, have been transported upriver to occur in gravel bars near the Bullskin Creek and Maple Creek sites. The presence of this material at these sites would indicate resource expeditions or trade among populations. It is also feasible that the DuPont populations traveled up the Whitewater River to obtain Laurel from its source, which was closer than 50 km away.

Lewis County chert outcrops west of the study area in Lewis County, Kentucky, along the Ohio River. This material easily could have been picked up by the river and transported to the study area. Procurement expeditions for this material would not have been difficult, especially for the populations at Bullskin Creek and Maple Creek.

Ohio Flint Ridge outcrops in Licking County in central Ohio. The Licking and Jonathan tributaries of the Muskingum River travel through this region and may have transported dislodged Ohio Flint Ridge material to the Ohio River where it could have been deposited in gravel bars within the study area. However, the probability of this occurring is low (but not impossible) due to the extensive distance that the material would have to have traveled before it would reach the study area.

Plum Run chert outcrops in northeastern Ohio in Mahoning County. Sonora chert occurs in Hart and Green Counties in central Kentucky. There are no hydrological or glacial activities that could account for Plum Run or Sonora appearing in the study area. The presence of these materials within a study assemblage would indicate that the populations dispatched procurement parties or traded with other populations near their sources.

Upper Mercer and Zaleski chert varieties outcrop in Perry and Athens Counties in southwestern Ohio. The Hocking River and its tributaries travel through these source areas and could have transported both to the Ohio River where they could have been carried downstream and deposited in gravel bars within the study area.

Materials that outcropped north of the study area in Ohio (such as Boggs, Cedarville-Guelph, Columbus, Delaware, Ohio Flint Ridge, Upper Mercer, and Zaleski) may have been transported south from their source areas by glacial action or outwash channels. Once the material was redeposited, it could have been picked up in pre- or post-glacial streams and worked its way into the study area. For instance Cedarville-Guelph was carried southward by at least the Tazwell stage glacier and was deposited on the terrace along the Great Miami River a short distance up-river from DuPont (this terrace is where the Dravo Gravel site is situated).

Repeated glaciations of the region have filled in many ancient riverbeds while creating new channels. One of the largest is the ancient Teays River, which served as the major drainage of the Midwest into the Mississippi River, prior to the formation of the Ohio River. The Teays ran northwest across Ohio, westward through Indiana, and southwest through Illinois until it was blocked by Kansan glaciation (Goldthwait 1979, Vickery 1996). This river, and other ancient drainages, may have been responsible for transporting chert raw materials from their outcrops to locations where they could have been picked up by post-glacial rivers and deposited near the study sites.

Based on the geological probability of specific chert varieties occurring naturally in the study area, higher proportions would be expected of Bisher, Boyle, Brassfield, Cedarville-Guelph, Haney, Laurel, Lewis County, Paoli, and Tygart within the artifact assemblages of Bullskin Creek, DuPont Village, and Maple Creek if these populations procured chert raw materials non-selectively from local gravel bars – although Laurel could not occur locally at Bullskin Creek or Maple Creek. It is less probable that significant quantities of Boggs, Brush Creek, Columbus, Delaware, Kanawha Black, Upper Mercer, and Zaleski would be present in the study assemblages. Kentucky Flint Ridge, and Ohio Flint Ridge should occur in the lowest frequencies in the assemblages of the study sites because they have the farthest distance to travel. Varieties such as Harrison County, Harrodsburg, Indian Creek, Plummer, Plum Run, and Sonora should not occur within the study assemblages unless procured through trade or travel.

If the Late Archaic populations are primarily relying on local deposits for chert sources than it is expected that the populations at Bullskin Creek and Maple Creek would primarily exploit Brassfield while the populations at DuPont Village would primarily utilize Laurel. The results of this analysis, however, shows that Brassfield is not as abundant at Bullskin Creek and Maple Creek as other varieties, and that Laurel dominates the DuPont Village assemblage (Figure 3).

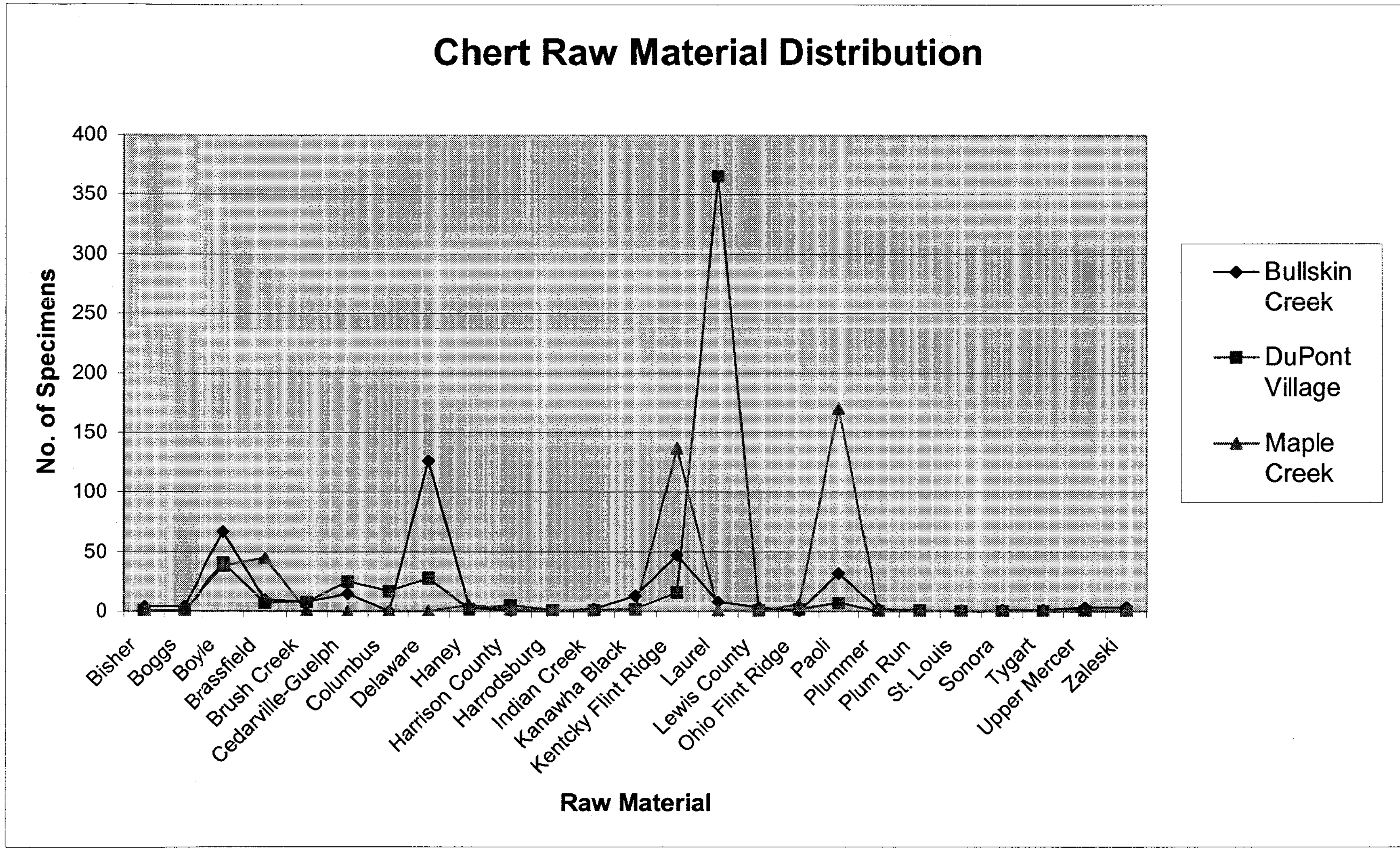

Figure 3: Raw material distribution in the study assemblage.

Boyle, Delaware, Kentucky Flint Ridge, and Paoli comprise the majority of the raw materials in the Bullskin Creek assemblage. Of these, only Delaware and Paoli are expected to occur in local gravel bars along the Ohio River near Bullskin Creek. Boyle, Kentucky Flint Ridge, and Paoli may occur in gravel bars along the Licking River, closer than 20 km south of the site.

The raw material assemblage from DuPont Village reflects what is expected to occur. Laurel chert should appear in the greatest frequencies along gravel bars in the Great Miami River and, indeed, Laurel makes up the highest proportion of raw material utilized at DuPont. The remaining identified materials within the assemblage comprise only a small portion of the raw material utilized at the site.

Maple Creek, similar to Bullskin Creek, exhibits a broader base exploitation pattern. Kentucky Flint Ridge and Paoli comprise the majority of the specimens from Maple Creek. Paoli is expected to occur in the gravel bars along the Ohio River, but both materials may have been present locally in the Licking River gravel bars as well. In according with the previous gravel bar study mentioned above, Kentucky Flint Ridge is not present along the Licking River in as high a frequency as its occurrence in the Bullskin Creek and Maple Creek sites. However, this material may have occurred in higher frequencies during the Archaic period. It is also possible that the populations at these sites traded with other groups for this material or acquired it directly (within an extensive exploitation territory or during a seasonal round of site occupation that brought them nearer to the source area).

Laurel is noticeably absent in the Bullskin Creek and Maple Creek assemblages, which is expected because it outcrops farther to the west and would have required more energy to obtain than other, nearby, materials. Boyle, Delaware, Kentucky Flint Ridge, and Paoli, on the other hand, occur only in minor quantities in the DuPont assemblage, which is not surprising because a more readily available material – Laurel – is present.

The assemblage from the Dravo Gravel site demonstrates a similar distribution of material as that at Bullskin Creek and Maple Creek – the exploitation of a broader resource base. Although Laurel comprises the majority of the sample, Boyle and Kentucky Flint Ridge also occur in significant proportions. All three materials would not occur in gravel bars near the site. In fact, Vickery notes that only Cedarville-Guelph, although it comprises one of the smallest components of raw material at the site, "would have been available in the immediate vicinity of the [Dravo Gravel] site," having been deposited there by Tazwell stage glaciation (Vickery 1978:96). Therefore, the populations at Dravo would have had to travel at least 10-15 km in order to procure the desired chert resources.

It appears that the study populations did not gather chert resources non-selectively from local gravel bars. If this were the case, material such as Bisher, Brassfield, Cedarville-Guelph, and Lewis County should occur in much higher frequencies, especially at Bullskin Creek and Maple Creek. Instead, it appears that the populations from these two sites, although they utilized some locally available resources, may have traveled some distance to procure desired chert material. This may have occurred during seasonal rounds, as intentional resource acquisitions, or through trade with other populations.

The high percent of Laurel recovered in the DuPont Village assemblage indicates that these populations utilized locally available material. Based on the presence of raw material other than Laurel, it is evident that they also traveled at least as far as the Ohio River – a distance of only about 5 km. However, these materials comprise only a minor percentage of the study sample.

The populations at Bullskin Creek and Maple Creek appear to have been utilizing the Licking River Valley as a main area from which they procured chert material, while the populations at DuPont primarily exploited material from the Great Miami Valley. One explanation as to why these populations traveled to tributary rivers of the Ohio, rather than utilizing material present in the gravel bars of the Ohio River, is that the latter may have been seasonally inundated and, therefore, would not have provided a readily available source of raw materials during certain times of the year. This is especially true if these sites were occupied in the spring and fall. It may have been more profitable for the inhabitants of Bullskin Creek and Maple Creek to have traveled to the Licking River and for the population at DuPont to gather along the Great Miami River to have obtained raw material, rather than hazarding the risks of an inundated river.

Some trade is apparent at all three sites by a minor percentage of material that could not have occurred locally. Specimens manufactured from Harrison County, Harrodsburg, Indian Creek, Plummer, Plum Run, and Sonora are present at all three sites, but do not occur in high enough percentages to suggest that they were obtained through procurement expeditions to the materials' source areas. In all cases, the presence of these exotic materials is less than 1% of the total sample assemblage. Due to the low concentration of these materials located at the sites it is inferred that trade occurred among individuals passing through an area rather than the result of an extensive trade network between two populations. The presence of exotic materials in the assemblage, however, may have resulted from later occupations located on or near the site and represent trade of a later date.

Analysis of the cortex present on the artifacts within the study sample provides insights into the source areas of the chert resources that were utilized by a particular population (Figure 4). Artifacts that retain soft cortex indicate that the material was obtained from its outcrops or from nearby residual deposits. The presence of soft cortex implies that the populations either traveled to the source area or traded with other populations for their chert resources. Patina implies that the material was transported away from its source area through geological means such as stream action or glacial movement. Patina present on a specimen indicates that this material was transported away from its source area and deposited in waterways, on gravel bars, or in glacial deposits where it may have occurred locally, even though its outcrop was some distance away.

Cortex analysis of the Bullskin Creek and DuPont Village assemblages suggests that these populations utilized gravel bars or glacial deposits as their primary sources of raw material. In the artifactual assemblages, patina is dominant in relation to soft cortex. It appears that the populations obtained some material from relatively nearby sources (e.g., Brassfield and Laurel) and from the Licking River Valley in Kentucky (e.g., Boyle, Kentucky Flint Ridge, and Paoli). The majority of the raw material was most likely collected from gravel bars along the Great Miami, Licking, and Ohio Rivers.

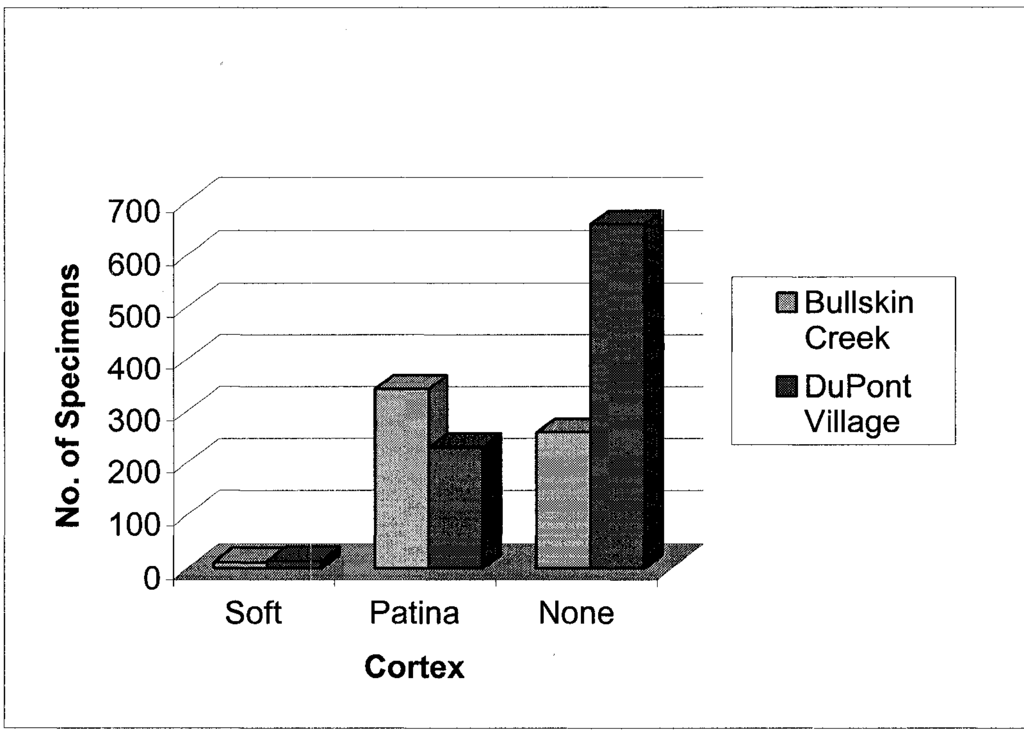

Figure 4: Cortex distribution in the study assemblage.

The presence of patina rather than soft cortex suggests that local populations utilized material from glacial deposits or gravel bars along the rivers and streams as sources of raw material rather than having procured material directly from outcrop sources. Patina forms due to the weathering of the raw material's surface through natural means, such as glacial action and hydraulic movement in streambeds. Because nearly all of the artifacts with weathered surfaces retained patina, it is inferred that the populations did not travel to the source areas of the material, nor did they trade with people who acquired these materials from their outcrops as their primary means of acquisition.

The presence of soft cortex on Boyle, Brassfield, Kentucky Flint Ridge, Laurel, and Paoli indicates that at least some of these materials were obtained from their source locations rather than having been collected from redeposited contexts away from their source areas. Outcrops of Brassfield and Laurel occur within 50 km of the study area and can have been reached easily by river travel. Boyle, Kentucky Flint Ridge, and Paoli source areas all could have been accessed via the Licking River. These materials, however, comprise only a minor portion of the study sample.

The presence of chert materials with soft cortex that would have occurred in the Licking River Valley indicates that the populations from the Bullskin Creek and Maple Creek sites may have sent expeditions into this river valley to acquire chert or that they may have been trading with populations living within the Licking River Valley. The possibility also exists that the populations may have migrated to Ohio from Kentucky and continued to retain social and familial ties with the populations living in the latter area. The results of this study may represent an adumbration of migration movement (from northern Kentucky into southern Ohio) that was inferred by Appleby to have occurred during the Early Woodland period (Appleby 1989). Another explanation is that the Licking River Valley was the southern extent of their exploitative areas and that they migrated between the two regions on a seasonal basis.

The determination of artifact types recovered from a site not only allows inferences about what types of activities occurred there, but also about whether the material arrived at a site as a finished product or in its unmodified raw state (Figure 5). The ratio of manufacturing debris to finished tools provides valuable knowledge as to how these populations exploited and utilized the chert raw materials available to them, and to what regions within or outside of their resource area they may have traveled or with whom they traded in order to acquire them (Figure 6).

Examination of the debitage/artifact types present in the study assemblage confirms that the sites were occupied as base camps, as represented by the presence of manufacturing and maintenance debris as well as utilized and spent tools. A percentage of the sample includes artifacts that do not appear to have been manufactured on-site. This implies trade between Late Archaic populations or that these items were manufactured by the site's inhabitants at a different location (e.g., winter-base camp or quarry site). For instance, the high percentage of artifacts manufactured from Brassfield chert in relation to debitage from the same material implies that the early stages of reduction probably occurred nearer the quarry site, rather than at the habitation site. Brassfield comprises 6.6% (n=8) of the artifacts from the Bullskin Creek site, which is the third highest variety recovered among finished tools. The low occurrence of manufacturing debris of Brassfield may not be representative of the reliance of it inhabitants on this material. Maple Creek, located farther away from Brassfield's source, has a higher proportion of debitage in its assemblage.

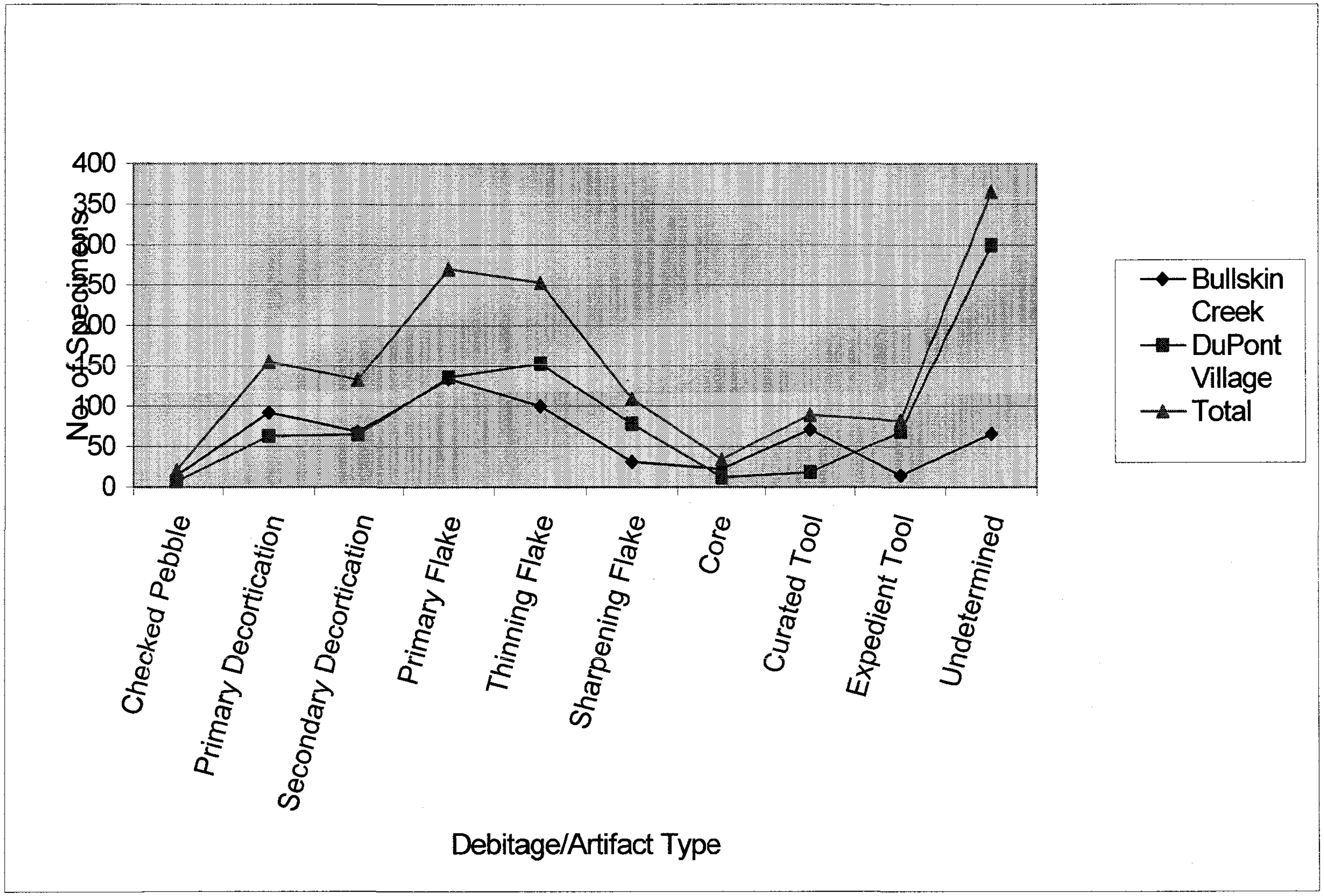

Figure 5: Debitage/artifact distribution in the study assemblage.

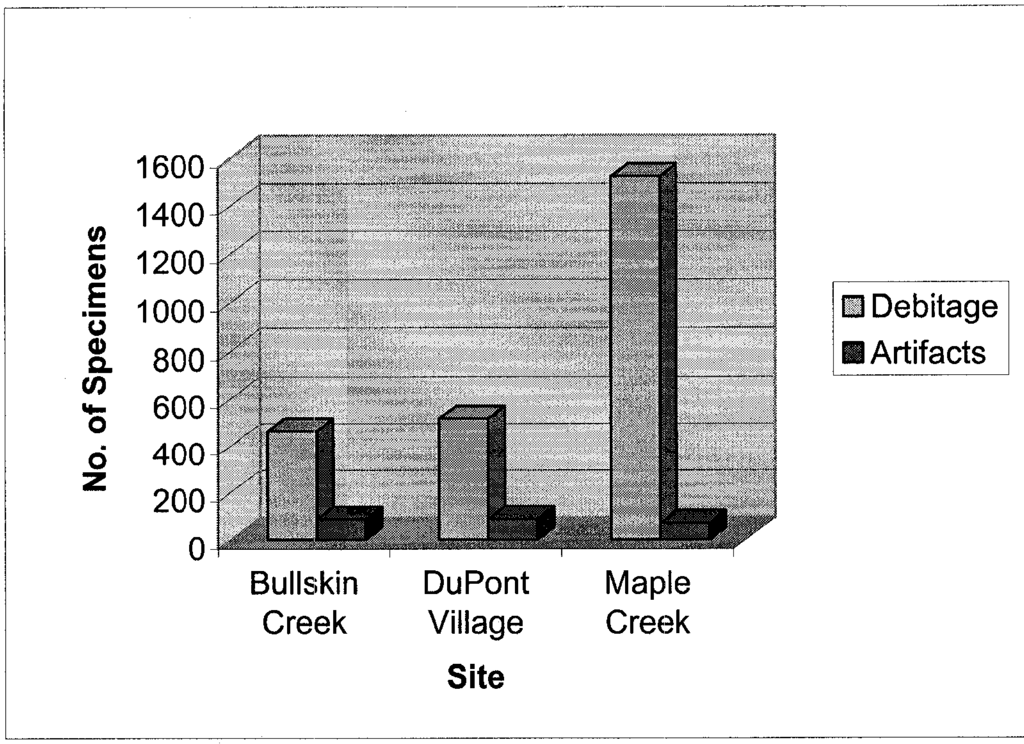

Figure 6: Debitage to artifact distribution in the study assemblage.

The number of specific debitage flake types from Bullskin Creek and DuPont Village reflect a similar curve indicating that analogous activities were preformed on both sites. Bullskin Creek appears to have a higher proportion of early stage manufacturing debris while DuPont Village appears to have a higher proportion of late stage debris. However, this may occur due to the sampling technique rather than an actual representation of material present on the sites. It is possible that the DuPont Village populations performed the initial stage of reduction away from the site. DuPont also has a higher proportion of undetermined debitage/artifact type, which may account for the lower percentage of early stage manufacturing debris in the study assemblage.

Finished tools also depict an intriguing dichotomy at these two sites. The artifacts from Bullskin Creek exhibit a higher proportion of curated tools to expedient tools, while DuPont Village exhibits a higher proportion of expedient tools. As Jeske (1989) notes, as resources become more expensive – due to higher energy expenditure required to procure the material – the more conservative the population is towards that resource. DuPont Village is the only area in which chert materials are available within the immediate vicinity of the site. Since less energy would have been required by the population to procure the desired resource, they are more likely to manufacture expedient tools, which can be produced easily but waste more of the material. The population at Bullskin Creek, whose energy expenditure would have been greater for the material, would be more apt to create an item that can be utilized for longer periods, thus conserving more of the material.

The presence of material that appears to have been manufactured off-site implies trading for finished goods with other Later Archaic populations, or that the same populations manufactured these items at a separate location (e.g., a winter-season base camp). It is also possible that the corresponding debris from the tools was: 1) not recovered during the excavations, or 2) not analyzed in the sampled assemblage.

Two different procurement patterns are evident among Late Archaic populations in southwestern Ohio (Figure 7). At Bullskin Creek and Maple Creek, the site inhabitants appear to have established their resource procurement area to the south and east of their respective sites. These populations appear to have been traveling not only to the Licking River to gather chert resources, such as Boyle, Kentucky Flint Ridge, and Paoli, but also to locations farther upstream along the Ohio River to procure varieties such as Brassfield and Delaware. The populations at DuPont, however, appear to have carved their resource area out of the Great Miami River Valley, to the west of their settlement.

The populations treated in this study exemplify two different procurement patterns in regard to their chert resources (Figure 3). The raw material assemblages from Bullskin Creek and Maple Creek contrasts with that at DuPont Village in that a more dispersed procurement pattern is evident in the two eastern sites with several varieties of raw materials appearing as significant proportions of their respective assemblages. At DuPont Village, however, only one raw material type was exploited in any substantial quantities. This dichotomy probably occurs due to the increased amount of available resources within the immediate vicinity of DuPont Village. Since chert raw materials would not have been present along Bullskin Creek or Maple Creek tributaries, these populations would have had to travel at least some distance to procure the desired material. Therefore, these groups most likely adapted a broader chert resource base in order to negate the risks and energy that would have been involved in relying on a single chert type.

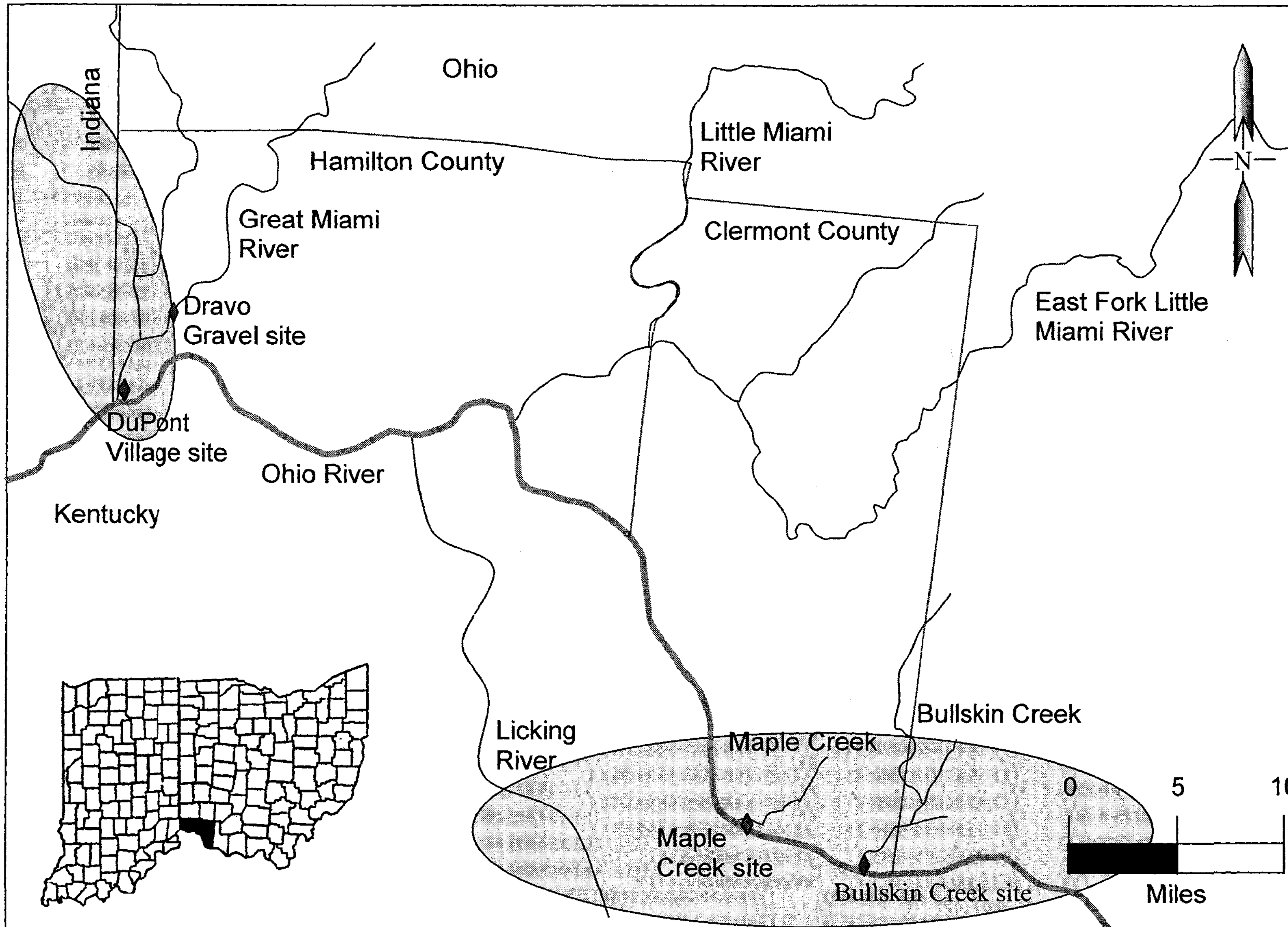

Figure 7: Resource areas of the Bullskin Creek, Maple Creek and DuPont Village populations.

Chapter 6: Conclusions

It is hypothesized that Late Archaic populations procured their chert resources non-selectively from nearby deposits or outcrops. If true, then 1) the Bullskin Creek and Maple Creek assemblages should contain higher percentages of Bisher and Brassfield; 2) DuPont Village assemblage should contain higher proportions of Laurel; 3) patina should occur in higher percentages than soft cortex on materials that do not outcrop locally; and 4) non-local cherts should have a higher tool-to-debitage ratio than locally available materials. The findings from this research support test implications 2 and 3 while rejecting implications 1 and 4.

Based on the first implication, the Bullskin Creek and Maple Creek sites should contain higher percentages of Bisher and Brassfield chert, to outcrops of which they are located closest geographically. Examination of the materials from the study assemblage, however, indicates that Delaware, Boyle, and Kentucky Flint Ridge chert were the desired materials at Bullskin Creek while Paoli and Kentucky Flint Ridge were the preferred materials recovered from Maple Creek. However, the amount of Brassfield utilized by the population may be under represented due to the initial working of the material away from the site.

The DuPont Village assemblage does support the hypothesis. Laurel chert, which is the closet outcrop to the site, is expected to occur in higher proportions than any other material at DuPont. Analysis of the study assemblage indicates that Laurel was the primary variety utilized by DuPont Village populations.

If populations utilized chert materials from local deposits, then a higher proportion of varieties that do not outcrop locally are expected to retain patina remnants. This implication is supported by the high frequency of materials that indeed retained patina. Soft cortex is present only in Brassfield and Laurel (which is expected due to the close proximity of the outcrop to the site), as well as Boyle, Kentucky Flint Ridge, and Paoli (which was not expected). Soft cortex on Brassfield chert only appears at Bullskin Creek while soft cortex on Laurel only occurs at DuPont Village, further supporting test implications 1 and 2. The varieties that were not expected to retain soft cortex – but do – all outcrop in west-central Kentucky and can be reached by way of the Licking River and its tributaries. All three varieties occur at Bullskin Creek, but only Kentucky Flint Ridge occurs at DuPont with soft cortex.

This study does not support the expectation that chert materials that could not be present in local deposits should occur as performs or finished tools. Although the presence of exotic material only in finished tools does occur, some of these materials also occur only as manufacturing debris. Therefore, based on the result of this study, test implication 4 must be rejected.

The results from this analysis infers that the Late Archaic populations in the study area procured chert raw materials from local sources, primarily from gravel bars and glacial deposits although some evidence exits for the limited exploitation of outcrops. It appears – contrary to the study hypothesis – that specific raw material types were preferred by these populations.

Inhabitants at Bullskin Creek and Maple Creek exploited a broader range of materials, particularly those coming in from the east and the south. DuPont Village populations exhibited a more focal exploitative pattern, concentrating on a single chert type that outcropped to the west. This procurement dichotomy may have existed due to the availability of material in the immediate vicinity of their respective sites. Laurel chert would have been immediately available to the DuPont Village inhabitants in the gravel bars adjacent to the site along the Great Miami River. Populations at Bullskin Creek and Maple Creek would have had to travel outside of their respective stream valleys to the Ohio River or other tributaries of the Ohio to procure chert materials. This may have led them to exploit a wider range of varieties in order to reduce their risk of depending on a single chert type.

Conclusions from this study have raised questions that warrant further research and interpretation. Further analysis of the sample assemblage could involve studying the raw material distribution by artifacts types within the site to determine if specific materials were being utilized for specific tool manufacturing. Studies regarding the naturally availability of raw material in gravel bars along the Ohio River and its tributaries – such as the study of the chert varieties occurring in the gravel bars along the Licking River and of a similar studies performed by Vickery in the Scioto River and Gatus in Tennessee – would contribute to the understanding of what materials were available to prehistoric populations and in what quantities (Gatus, 1983, Vickery 1978, 1996). Reanalysis of the Maple Creek site assemblage in an effort to determine what proportion of it is comprised of Delaware also would be beneficial in understanding how procurement areas differ within the southwest Ohio region.

Further studies can examine other Late Archaic samples within and outside of this region to determine whether similar populations were acquiring chert locally from streams and riverbanks, or if they were traveling to their source areas. If the hypothesis tested here is correct – that Late Archaic populations were experiencing mobility restrictions – then one would expect locally acquired chert among the debitage from other Late Archaic sites.

Additional research could, with potentially beneficial results, incorporate analysis of other resources such as botanical and faunal remains. Do the chert resource areas match those of other resources utilized by the populations, and do they represent a constriction or expansion the resource areas of the populations living in southwestern Ohio? This research only suggests the potential of what lies ahead for future studies.

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Appendix A: Chert Variety Descriptions

Bisher chert outcrops in southwestern Ohio, in Adams, Highland, and Ross Counties. Light tan to purplish tan in color, this homogenous chert may occur banded. Coarse grained Bisher lacks mottling and exhibits a non-vitreous luster. Bisher chert formed in the Bisher formation of the Silurian system.

Boggs chert outcrops in Muskingum County in southwestern Ohio. Medium gray to black, this fossiliferous chert exhibits a non-vitreous luster. Quartz-like inclusions and iron pyrite flecks also appear in the medium grained matrix. Patina or frost-cracked surfaces may discolor to a rusty orange. Boggs chert formed in the Boggs member of the Pennsylvanian system.

Boyle chert occurs in Powell County, Kentucky. Highly fossiliferous, Boyle often has a tan, red, blue, yellow, and green discolorations in white to cream to bluish white matrix. Black and red specks are present in the medium grained, vitreous matrix. Boyle formed in the Devonian age Boyle limestone.

Brassfield chert is located in south-central Ohio in Adams and Highland County and in northwestern Kentucky in Lewis County. This white to creamy white chert has a medium texture and a low to moderate density of fossils. Quartz crystals and quartz-like inclusions occur in a non-vitreous matrix. Brassfield formed in the Silurian age Brassfield formation.

Brush Creek chert is located in southeastern Ohio in Washington County and in Wood County, West Virginia. This medium-grained material is tan and brown mottled with small orange spots occurring on its cortical surface. This slightly vitreous material is non-fossiliferous. Brush Creek formed in the Pennsylvanian age Brush Creek limestone.

Cedarville-Guelph chert is located in south-central Ohio in Green, Hardin, and Highland Counties. This coarse-grained material is pinkish-tan to tan with light gray spots. Abundant red specks occur in a non-vitreous to slightly vitreous matrix. Cedarville-Guelph formed in Silurian-age deposits of the Cedarville formation.

Columbus chert outcrops in Marion, Union, and Franklin Counties in central Ohio. The light to medium brown material is coarse-grained and has a non-vitreous luster. Columbus chert formed in Devonian age deposits of the Columbus formation.

Delaware chert outcrops in Wyandot, Marion, Delaware, Union, and Franklin Counties in central Ohio. This medium-textured material occurs in either a dark grayish-brown or a tan matrix. It is fossiliferous, contains ostracods, and has a slightly vitreous luster. Delaware formed in the Devonian age Delaware formation.

Haney chert is located in eastern Kentucky in Carter, Elliot, and Morgan Counties. This oolitic material ranges from tan to light brown to light gray and light bluish-gray in color. The medium- to fine-textured material appears sparkly from minute muscovite inclusions and has a non-vitreous luster. Haney formed in the Mississippian age deposits of the Newman formation.

Harrison County chert outcrops in Harrison County, Indiana, along the Ohio River. This fine-grained, bluish-gray material may contain iron pyrite, and muscovite in a vitreous matrix. Harrison County chert formed in Mississippian age deposits of the Fredonia member.

Harrodsburg chert is located in Lawrence County in south-central Indiana. This conglomeratic and highly fossiliferous material is creamy white to light gray in color and contains numerous crinoid stems. The texture of this chert variety is medium grained. This material is non-vitreous and may contain white, light brown, brownish-red, or dark gray specks. Harrodsburg formed in Mississippian age deposits of the Harrodsburg limestone member.

Indian Creek chert outcrops in southwestern Indiana in Green County. This medium grained material is tan with gray spots and non-vitreous. Ostracods occur in low densities in a fossiliferous matrix. Indian Creek formed in Mississippian age deposits of the Levias member.

Kanawha Black chert outcrops in Putnam County, West Virginia, near the border between Kentucky and Ohio. This non-fossiliferous black chert is coarse-grained and non-vitreous. Kanawha Black formed in Pennsylvanian age deposits.

Kentucky Flint Ridge outcrops in Breathitt County in central Kentucky. It is coarse-grained and can occur in various shades of gray, yellow, brown, and red. Abundant muscovite inclusions give this slightly vitreous material a “sugary” appearance. Kentucky Flint Ridge formed in Pennsylvanian age deposits along the “Flint Ridge.”

Laurel chert outcrops in Franklin County in southeastern Indiana. Laurel's white to tan matrix discolors to yellow upon weathering. This medium- to fine-grained material may occur with visible fossils (although the majority of it does not, the fossils having recrystalized to become virtually invisible) and has a slightly vitreous to vitreous luster. Laurel formed in the Laurel limestone member of Silurian age deposits.

Lewis County chert is located in Lewis County in northwestern Kentucky. The matrix of this medium textured material is black with light blue splotches. It is non-fossiliferous and slightly vitreous. Lewis County chert formed in Pennsylvanian age limestone.

Ohio Flint Ridge chert outcrops in Licking and Muskingum Counties in central Ohio. The matrix of this highly silicified material appears in a wide range of colors. It is fine grained and highly vitreous. Ohio Flint Ridge formed in the Pennsylvanian age Vanport member. *Vanport* commonly refers to chert from this member occurring outside of Licking County and specifically the "Flint Ridge" proper.

Paoli chert outcrops in western Kentucky in Carter, Elliot, and Morgan Counties. This fine-grained chert occurs in a variety of colors from grayish-blue to blue to red and reddish-brown. Red and black specks occur in this vitreous material. Paoli formed in Mississippian age deposits of the Lower Newman formation.

Plummer chert is located in southwestern Indiana in Green County. This dark gray to black chert contains moderate to high fossil densities in its medium- to fine- grained matrix. Quartz and quartzite may occur in this slightly vitreous material. Plummer formed in Silurian age Liston Creek limestone.

Plum Run chert outcrops in Mahoning County in northeastern Ohio. This white to tan to brown to orange to red to gray or green material is fine grained and slightly vitreous. Quartz-like and quartz crystals can occur in the matrix of this chert variety. Plum Run formed in Pennsylvanian age deposits of the Vanport member.

Sonora chert is located in Hart County, Kentucky, in the central portion of the state. This slightly vitreous, purplish black material also may appear light to medium bluish-gray. It is fine-grained and contains black specks, muscovite, and multi-colored streaks and spots in a pitted matrix. Weathering of this material creates a purplish hue.

Tygart chert occurs in western Kentucky in Carter County. The tan to pinkish-tan to reddish-orange matrix of this material is medium to fine grained, contains red specks, and has a slightly vitreous luster. Tygart is believed to have formed at the interface of the Mississippian age Upper and Lower Newman formations.

Upper Mercer chert outcrops in southwestern Ohio in Coshocton, Licking, Muskingum, and Perry Counties. The bluish-black to black matrix of this material contains thin white streaks and splotches. The chert is fine grained and vitreous. Upper Mercer formed in the Upper Mercer member of Pennsylvanian age.

Zaleski chert outcrops in southeastern Ohio in Athens, Jackson, and Vinton Counties. The brownish-black to black matrix contains occasional thin white streaks and splotches. This medium to fine grained material is vitreous. Zaleski chert formed in the Zaleski member of Pennsylvanian age deposits.

Appendix B: Chert Variety Geological and Geographical Locations.

Raw Material	System	Formation/Member	Location	References
Bisher	Silurian	Bisher formation	Highland & Adams Co., OH; Lewis Co., KY	Rexroad, et al. 1965; Stout 1941
Boggs	Pennsylvanian	Boggs member	Muskingum Co., OH	Morton and Carskadden 1972; Stout 1927
Boyle	Devonian	Boyle limestone	Boyle Co., KY	Savage 1930
Brassfield	Silurian	Brassfield formation	Lewis Co., KY; Adams & Highland Co., OH	Rexroad, et al. 1965; Stout and Scheonlaub 1945
Brush Creek	Pennsylvanian	Brush Creek member	Washington Co., OH and Wood Co., WV	Carskadden and Donaldson 1973; Price 1921; Stout 1927
Cedarville-Guelph	Silurian	Cedarville-Guelph formation	Green, Hardin, & Highland Co., OH	Cowan 1973; Rexroad, et al. 1965
Columbus	Devonian	Columbus formation	Franklin, Marion, and Union Co., OH	Stout 1941; Stout and Scheonlaub 1945
Delaware	Devonian	Delaware formation	Franklin, Marion, Union, and Wyandot Co., OH	DeRegnaucourt and Georgiady 1998; Stout and Scheonlaub 1945
Haney	Mississippian	Upper Newman	Carter, Elliot, and Morgan Co., KY	McFarlan and Walker 1956
Harrison County	Mississippian	Fredonia	Harrison Co., IN	Munson and Munson 1987; Sable and Garland 1990
Harrodsburg	Mississippian	Harrodsburg limestone	Lawrence Co., IN	Bassett 1980; Tomak 1980
Indian Creek	Mississippian	Levias	Green Co., IN	Bassett 1980; Cantin 1994; Tomak 1980
Kanawha Black	Pennsylvanian	Kanawha Black Flint	Putman Co., WV	Price 1921

Kentucky Flint Ridge	Pennsylvanian	Flint Ridge Flint	Breathitt Co., KY	Morse 1931
Laurel	Silurian	Laurel limestone	Franklin Co., IN	Cantin 1994; Pinsak and Shaver 1964
Lewis County	Unknown	Unknown	Lewis Co., KY	Vickery p.c.
Ohio Flint Ridge	Pennsylvanian	Vanport member	Muskingum & Licking Co., OH	Mills 1921; Stout 1927.
Paoli	Mississippian	Lower Newman member	Carter, Elliot, and Morgan Co., KY	McFarlan and Walker 1956
Plummer	Silurian	Liston Creek limestone	Green Co., IN	Bassett 1980; Cantin and Tankersley 1988; Tomak 1980
Plum Run	Pennsylvanian	Vanport member	Mahoning Co., OH	Vickery 1983
Sonora	Unknown	Unknown	Hart Co., KY	Litfin 1993
Tygart	Mississippian	Lower Newman	Carter Co., KY	Vickery 2004
Upper Mercer	Pennsylvanian	Upper Mercer member	Coshocton, Hocking, Licking & Muskingum, and Perry Co., OH	Carskadden 1971; Stout and Scheonlaub 1945
Zaleski	Pennsylvanian	Zaleski member	Athens, Jackson, & Vinton Co., OH	Morton and Carskadden 1972; Stout 1927

Appendix C: Bullskin Creek Assemblage Data

Site #	Acc.#	Cat. #	Unit	Level	Feat.	Raw Material	Cortex	Debitage/Artifact Type
33Ct29	17	80	A	1		Kentucky Flint Ridge	None	Thinning
33Ct29	17	91	F			Delaware	Hard	Secondary Decortication
33Ct29	17	102	F	1		Boyle	Hard	Primary
33Ct29	17	102	F	1		Delaware	Hard	Primary
33Ct29	17	102	F	1		Laurel	Hard	Primary
33Ct29	17	102	F	1		Delaware	Hard	Primary Decortication
33Ct29	17	102	F	1		Kentucky Flint Ridge	Hard	Primary Decortication
33Ct29	17	102	F	1		Paoli	Hard	Primary Decortication
33Ct29	17	102	F	1		Unknown	Hard	Primary Decortication
33Ct29	17	102	F	1		Delaware	Hard	Secondary Decortication
33Ct29	17	102	F	1		Laurel	Hard	Secondary Decortication
33Ct29	17	102	F	1		Boyle	None	Sharpening
33Ct29	17	102	F	1		Kentucky Flint Ridge	None	Sharpening
33Ct29	17	102	F	1		Laurel	None	Sharpening
33Ct29	17	102	F	1		Delaware	Hard	Thinning
33Ct29	17	102	F	1		Boyle	None	Thinning
33Ct29	17	102	F	1		Kentucky Flint Ridge	None	Thinning
33Ct29	17	102	F	1		Paoli	None	Thinning
33Ct29	17	102	F	1		Unknown	None	Thinning
33Ct29	17	102	F	1		Cedarville-Guelph	None	Unknown
33Ct29	17	107	D	1		Kentucky Flint Ridge	None	Curated
33Ct29	17	117	E			Unknown	None	Unknown
33Ct29	17	117	E			Unknown	None	Unknown
33Ct29	17	134	B	1		Boggs	Hard	Primary

Site #	Acc.#	Cat. #	Unit	Level	Feat.	Raw Material	Cortex	Debitage/Artifact Type
33Ct29	17	134	B	1		Boyle	Hard	Primary
33Ct29	17	134	B	1		Delaware	Hard	Primary
33Ct29	17	134	B	1		Plummer	Hard	Primary
33Ct29	17	134	B	1		Plummer	Hard	Primary
33Ct29	17	134	B	1		Unknown	Hard	Primary
33Ct29	17	134	B	1		Unknown	Hard	Primary
33Ct29	17	134	B	1		Boyle	None	Primary
33Ct29	17	134	B	1		Haney	None	Primary
33Ct29	17	134	B	1		Paoli	None	Primary
33Ct29	17	134	B	1		Unknown	None	Primary
33Ct29	17	134	B	1		Boyle	Hard	Primary Decortication
33Ct29	17	134	B	1		Brush Creek	Hard	Primary Decortication
33Ct29	17	134	B	1		Delaware	Hard	Primary Decortication
33Ct29	17	134	B	1		Delaware	Hard	Primary Decortication
33Ct29	17	134	B	1		Unknown	Hard	Primary Decortication
33Ct29	17	134	B	1		Unknown	Hard	Primary Decortication
33Ct29	17	134	B	1		Unknown	Hard	Primary Decortication
33Ct29	17	134	B	1		Unknown	Hard	Primary Decortication
33Ct29	17	134	B	1		Delaware	Hard	Secondary Decortication
33Ct29	17	134	B	1		Kentucky Flint Ridge	Hard	Secondary Decortication
33Ct29	17	134	B	1		Unknown	Hard	Secondary Decortication
33Ct29	17	134	B	1		Unknown	Hard	Secondary Decortication
33Ct29	17	134	B	1		Unknown	None	Sharpening
33Ct29	17	134	B	1		Unknown	Hard	Thinning
33Ct29	17	134	B	1		Boyle	None	Thinning
33Ct29	17	134	B	1		Boyle	None	Thinning

Site #	Acc.#	Cat. #	Unit	Level	Feat.	Raw Material	Cortex	Debitage/Artifact Type
33Ct29	17	134	B	1		Boyle	None	Thinning
33Ct29	17	134	B	1		Laurel	None	Thinning
33Ct29	17	134	B	1		Paoli	None	Thinning
33Ct29	17	134	B	1		Unknown	None	Thinning
33Ct29	17	134	B	1		Unknown	None	Thinning
33Ct29	17	134	B	1		Upper Mercer	None	Thinning
33Ct29	17	134	B	1		Unknown	None	Unknown
33Ct29	17	190	G	1		Kentucky Flint Ridge	None	Primary
33Ct29	17	190	G	1		Unknown	None	Unknown
33Ct29	17	340	A	1		Unknown	Hard	Secondary Decortication
33Ct29	17	340	A	1		Unknown	Hard	Unknown
33Ct29	17	401	E			Boyle	Hard	Primary
33Ct29	17	401	E			Boyle	Hard	Primary
33Ct29	17	401	E			Cedarville-Guelph	Hard	Primary
33Ct29	17	401	E			Delaware	Hard	Primary
33Ct29	17	401	E			Paoli	Hard	Primary
33Ct29	17	401	E			Unknown	Hard	Primary
33Ct29	17	401	E			Unknown	Hard	Primary
33Ct29	17	401	E			Zaleski	Hard	Primary
33Ct29	17	401	E			Boyle	None	Primary
33Ct29	17	401	E			Kentucky Flint Ridge	None	Primary
33Ct29	17	401	E			Delaware	Hard	Primary Decortication
33Ct29	17	401	E			Delaware	Hard	Primary Decortication
33Ct29	17	401	E			Kentucky Flint Ridge	Hard	Primary Decortication
33Ct29	17	401	E			Unknown	Hard	Primary Decortication
33Ct29	17	401	E			Unknown	Hard	Primary Decortication

Site #	Acc.#	Cat. #	Unit	Level	Feat.	Raw Material	Cortex	Debitage/Artifact Type
33Ct29	17	401	E			Unknown	Hard	Primary Decortication
33Ct29	17	401	E			Unknown	Hard	Primary Decortication
33Ct29	17	401	E			Unknown	Hard	Primary Decortication
33Ct29	17	401	E			Unknown	Hard	Primary Decortication
33Ct29	17	401	E			Cedarville-Guelph	Hard	Secondary Decortication
33Ct29	17	401	E			Delaware	Hard	Secondary Decortication
33Ct29	17	401	E			Unknown	Hard	Secondary Decortication
33Ct29	17	401	E			Unknown	Hard	Secondary Decortication
33Ct29	17	401	E			Unknown	Hard	Secondary Decortication
33Ct29	17	401	E			Delaware	Hard	Sharpening
33Ct29	17	401	E			Boyle	None	Sharpening
33Ct29	17	401	E			Boyle	None	Sharpening
33Ct29	17	401	E			Delaware	None	Sharpening
33Ct29	17	401	E			Boggs	None	Thinning
33Ct29	17	401	E			Boyle	None	Thinning
33Ct29	17	401	E			Delaware	None	Thinning
33Ct29	17	401	E			Delaware	None	Thinning
33Ct29	17	401	E			Indian Creek	None	Thinning
33Ct29	17	401	E			Kentucky Flint Ridge	None	Thinning
33Ct29	17	401	E			Paoli	None	Thinning
33Ct29	17	401	E			Paoli	None	Thinning
33Ct29	17	401	E			Paoli	None	Thinning
33Ct29	17	401	E			Paoli	None	Thinning
33Ct29	17	401	E			Unknown	None	Thinning
33Ct29	17	401	E			Unknown	None	Thinning
33Ct29	17	401	E			Unknown	None	Thinning

Site #	Acc.#	Cat. #	Unit	Level	Feat.	Raw Material	Cortex	Debitage/Artifact Type
33Ct29	17	401	E			Unknown	Hard	Unknown
33Ct29	17	401	E			Unknown	Hard	Unknown
33Ct29	17	401	E			Unknown	Hard	Unknown
33Ct29	17	401	E			Boyle	None	Unknown
33Ct29	17	401	E			Delaware	None	Unknown
33Ct29	17	401	E			Kanawha Black	None	Unknown
33Ct29	17	401	E			Kentucky Flint Ridge	None	Unknown
33Ct29	17	401	E			Unknown	None	Unknown
33Ct29	17	401	E			Unknown	None	Unknown
33Ct29	17	486	F	1		Delaware	Hard	Primary Decortication
33Ct29	17	486	F	1		Unknown	Hard	Unknown
33Ct29	17	492	D	2		Paoli	Hard	Primary Decortication
33Ct29	17	492	D	2		Boyle	None	Sharpening
33Ct29	17	501	C	1		Unknown	Hard	Checked Pebble
33Ct29	17	608	A	1		Unknown	None	Thinning
33Ct29	17	626	F	2		Indian Creek	Hard	Secondary Decortication
33Ct29	17	626	F	2		Unknown	Hard	Secondary Decortication
33Ct29	17	636	F	2		Kentucky Flint Ridge	Hard	Primary
33Ct29	17	636	F	2		Paoli	Soft	Thinning
33Ct29	17	691	D	1		Unknown	Hard	Checked Pebble
33Ct29	17	691	D	1		Unknown	Hard	Secondary Decortication
33Ct29	17	782	F	2		Unknown	None	Primary
33Ct29	17	782	F	2		Unknown	None	Thinning
33Ct29	17	790	E	1		Lewis County	None	Primary
33Ct29	17	819	F	2		Laurel	None	Unknown
33Ct29	17	821	C	2		Cedarville-Guelph	Hard	Checked Pebble

Site #	Acc.#	Cat. #	Unit	Level	Feat.	Raw Material	Cortex	Debitage/Artifact Type
33Ct29	17	821	C	2		Kentucky Flint Ridge	Hard	Checked Pebble
33Ct29	17	864	D	2		Unknown	None	Core
33Ct29	17	864	D	2		Boyle	Hard	Primary
33Ct29	17	864	D	2		Boyle	Hard	Primary
33Ct29	17	864	D	2		Boyle	Hard	Primary
33Ct29	17	864	D	2		Brush Creek	Hard	Primary
33Ct29	17	864	D	2		Delaware	Hard	Primary
33Ct29	17	864	D	2		Delaware	Hard	Primary
33Ct29	17	864	D	2		Delaware	Hard	Primary
33Ct29	17	864	D	2		Delaware	Hard	Primary
33Ct29	17	864	D	2		Delaware	Hard	Primary
33Ct29	17	864	D	2		Kentucky Flint Ridge	Hard	Primary
33Ct29	17	864	D	2		Unknown	Hard	Primary
33Ct29	17	864	D	2		Unknown	Hard	Primary
33Ct29	17	864	D	2		Unknown	Hard	Primary
33Ct29	17	864	D	2		Unknown	Hard	Primary
33Ct29	17	864	D	2		Unknown	Hard	Primary
33Ct29	17	864	D	2		Unknown	Hard	Primary
33Ct29	17	864	D	2		Unknown	Hard	Primary
33Ct29	17	864	D	2		Unknown	Hard	Primary
33Ct29	17	864	D	2		Unknown	Hard	Primary
33Ct29	17	864	D	2		Boyle	None	Primary
33Ct29	17	864	D	2		Delaware	None	Primary
33Ct29	17	864	D	2		Kentucky Flint Ridge	None	Primary
33Ct29	17	864	D	2		Unknown	None	Primary
33Ct29	17	864	D	2		Unknown	None	Primary

Site #	Acc.#	Cat. #	Unit	Level	Feat.	Raw Material	Cortex	Debitage/Artifact Type
33Ct29	17	864	D	2		Unknown	None	Primary
33Ct29	17	864	D	2		Boyle	Hard	Primary Decortication
33Ct29	17	864	D	2		Cedarville-Guelph	Hard	Primary Decortication
33Ct29	17	864	D	2		Delaware	Hard	Primary Decortication
33Ct29	17	864	D	2		Delaware	Hard	Primary Decortication
33Ct29	17	864	D	2		Unknown	Hard	Primary Decortication
33Ct29	17	864	D	2		Unknown	Hard	Primary Decortication
33Ct29	17	864	D	2		Unknown	Hard	Primary Decortication
33Ct29	17	864	D	2		Unknown	Hard	Primary Decortication
33Ct29	17	864	D	2		Unknown	Hard	Primary Decortication
33Ct29	17	864	D	2		Unknown	Hard	Primary Decortication
33Ct29	17	864	D	2		Unknown	Hard	Primary Decortication
33Ct29	17	864	D	2		Unknown	Hard	Primary Decortication
33Ct29	17	864	D	2		Unknown	Hard	Primary Decortication
33Ct29	17	864	D	2		Boyle	None	Primary Decortication
33Ct29	17	864	D	2		Boyle	Hard	Secondary Decortication
33Ct29	17	864	D	2		Delaware	Hard	Secondary Decortication
33Ct29	17	864	D	2		Kentucky Flint Ridge	Hard	Secondary Decortication
33Ct29	17	864	D	2		Unknown	Hard	Secondary Decortication
33Ct29	17	864	D	2		Unknown	Hard	Secondary Decortication
33Ct29	17	864	D	2		Unknown	Hard	Secondary Decortication
33Ct29	17	864	D	2		Unknown	Hard	Secondary Decortication
33Ct29	17	864	D	2		Delaware	None	Sharpening
33Ct29	17	864	D	2		Paoli	None	Sharpening
33Ct29	17	864	D	2		Boyle	Hard	Thinning
33Ct29	17	864	D	2		Delaware	Hard	Thinning

Site #	Acc.#	Cat. #	Unit	Level	Feat.	Raw Material	Cortex	Debitage/Artifact Type
33Ct29	17	864	D	2		Delaware	Hard	Thinning
33Ct29	17	864	D	2		Delaware	Hard	Thinning
33Ct29	17	864	D	2		Unknown	Hard	Thinning
33Ct29	17	864	D	2		Unknown	Hard	Thinning
33Ct29	17	864	D	2		Bisher	None	Thinning
33Ct29	17	864	D	2		Boyle	None	Thinning
33Ct29	17	864	D	2		Boyle	None	Thinning
33Ct29	17	864	D	2		Boyle	None	Thinning
33Ct29	17	864	D	2		Boyle	None	Thinning
33Ct29	17	864	D	2		Boyle	None	Thinning
33Ct29	17	864	D	2		Boyle	None	Thinning
33Ct29	17	864	D	2		Delaware	None	Thinning
33Ct29	17	864	D	2		Delaware	None	Thinning
33Ct29	17	864	D	2		Kanawha Black	None	Thinning
33Ct29	17	864	D	2		Kentucky Flint Ridge	None	Thinning
33Ct29	17	864	D	2		Kentucky Flint Ridge	None	Thinning
33Ct29	17	864	D	2		Kentucky Flint Ridge	None	Thinning
33Ct29	17	864	D	2		Paoli	None	Thinning
33Ct29	17	864	D	2		Paoli	None	Thinning
33Ct29	17	864	D	2		Unknown	None	Thinning
33Ct29	17	864	D	2		Unknown	None	Thinning
33Ct29	17	864	D	2		Unknown	None	Thinning
33Ct29	17	864	D	2		Unknown	None	Thinning
33Ct29	17	864	D	2		Unknown	None	Thinning
33Ct29	17	864	D	2		Unknown	None	Thinning
33Ct29	17	864	D	2		Unknown	None	Thinning

Site #	Acc.#	Cat. #	Unit	Level	Feat.	Raw Material	Cortex	Debitage/Artifact Type
33Ct29	17	864	D	2		Unknown	None	Thinning
33Ct29	17	864	D	2		Unknown	None	Thinning
33Ct29	17	864	D	2		Kentucky Flint Ridge	Hard	Unknown
33Ct29	17	864	D	2		Haney	None	Unknown
33Ct29	17	864	D	2		Unknown	None	Unknown
33Ct29	17	867	D	2		Unknown	Hard	Checked Pebble
33Ct29	17	900				Unknown	Hard	Primary Decortication
33Ct29	17	904	G	1		Delaware	Hard	Primary Decortication
33Ct29	17	958	D	2		Unknown	Hard	Primary Decortication
33Ct29	17	975	F	2		Unknown	None	Unknown
33Ct29	17	996	C	2		Delaware	Hard	Primary Decortication
33Ct29	17	1018	F	2		Unknown	Hard	Core
33Ct29	17	1018	F	2		Kanawha Black	None	Thinning
33Ct29	17	1039	F	3		Unknown	Hard	Primary Decortication
33Ct29	17	1044	F	2		Unknown	Hard	Primary Decortication
33Ct29	17	1056	F	2		Unknown	Hard	Primary
33Ct29	17	1072	D	Z		Unknown	Hard	Thinning
33Ct29	17	1072	D	Z		Bisher	None	Thinning
33Ct29	17	1082	D	2		Unknown	Hard	Primary
33Ct29	17	1106	F	2		Unknown	Hard	Primary
33Ct29	17	1119	E	2		Delaware	Hard	Core
33Ct29	17	1119	E	2		Delaware	Hard	Primary
33Ct29	17	1119	E	2		Unknown	Hard	Primary
33Ct29	17	1119	E	2		Delaware	None	Primary
33Ct29	17	1119	E	2		Kanawha Black	None	Primary
33Ct29	17	1119	E	2		Unknown	None	Primary

Site #	Acc.#	Cat. #	Unit	Level	Feat.	Raw Material	Cortex	Debitage/Artifact Type
33Ct29	17	1119	E	2		Unknown	None	Primary
33Ct29	17	1119	E	2		Unknown	None	Primary
33Ct29	17	1119	E	2		Boyle	Hard	Primary Decortication
33Ct29	17	1119	E	2		Cedarville-Guelph	Hard	Primary Decortication
33Ct29	17	1119	E	2		Unknown	Hard	Primary Decortication
33Ct29	17	1119	E	2		Unknown	Hard	Primary Decortication
33Ct29	17	1119	E	2		Unknown	Hard	Primary Decortication
33Ct29	17	1119	E	2		Unknown	Hard	Primary Decortication
33Ct29	17	1119	E	2		Unknown	Hard	Secondary Decortication
33Ct29	17	1119	E	2		Unknown	Hard	Secondary Decortication
33Ct29	17	1119	E	2		Unknown	Hard	Secondary Decortication
33Ct29	17	1119	E	2		Plum Run	Hard	Thinning
33Ct29	17	1119	E	2		Delaware	None	Thinning
33Ct29	17	1119	E	2		Kentucky Flint Ridge	Soft	Thinning
33Ct29	17	1119	E	2		Unknown	None	Unknown
33Ct29	17	1119	E	2		Unknown	None	Unknown
33Ct29	17	1119	E	2		Unknown	None	Unknown
33Ct29	17	1136	C	2		Unknown	Hard	Primary
33Ct29	17	1136	C	2		Delaware	Hard	Secondary Decortication
33Ct29	17	1146	C	2		Unknown	Soft	Primary Decortication
33Ct29	17	1155	C	2		Unknown	Hard	Primary Decortication
33Ct29	17	1155	C	2		Cedarville-Guelph	Hard	Secondary Decortication
33Ct29	17	1155	C	2		Unknown	None	Thinning
33Ct29	17	1156	F	2		Delaware	Hard	Primary
33Ct29	17	1156	F	2		Delaware	Hard	Primary
33Ct29	17	1156	F	2		Unknown	Hard	Primary

Site #	Acc.#	Cat. #	Unit	Level	Feat.	Raw Material	Cortex	Debitage/Artifact Type
33Ct29	17	1156	F	2		Delaware	None	Primary
33Ct29	17	1156	F	2		Unknown	None	Primary
33Ct29	17	1156	F	2		Unknown	Hard	Primary Decortication
33Ct29	17	1156	F	2		Unknown	Hard	Primary Decortication
33Ct29	17	1156	F	2		Unknown	Hard	Primary Decortication
33Ct29	17	1156	F	2		Unknown	None	Primary Decortication
33Ct29	17	1156	F	2		Boyle	Hard	Secondary Decortication
33Ct29	17	1156	F	2		Delaware	Hard	Secondary Decortication
33Ct29	17	1156	F	2		Delaware	Hard	Secondary Decortication
33Ct29	17	1156	F	2		Delaware	Hard	Secondary Decortication
33Ct29	17	1156	F	2		Unknown	Hard	Secondary Decortication
33Ct29	17	1156	F	2		Unknown	Hard	Secondary Decortication
33Ct29	17	1156	F	2		Boyle	None	Sharpening
33Ct29	17	1156	F	2		Boyle	None	Sharpening
33Ct29	17	1156	F	2		Boggs	None	Thinning
33Ct29	17	1156	F	2		Delaware	None	Thinning
33Ct29	17	1156	F	2		Kentucky Flint Ridge	None	Thinning
33Ct29	17	1156	F	2		Unknown	None	Thinning
33Ct29	17	1156	F	2		Unknown	None	Thinning
33Ct29	17	1156	F	2		Boyle	None	Unknown
33Ct29	17	1156	F	2		Boyle	None	Unknown
33Ct29	17	1157	F	2		Delaware	Hard	Primary
33Ct29	17	1157	F	2		Kentucky Flint Ridge	Hard	Primary
33Ct29	17	1157	F	2		Kentucky Flint Ridge	None	Primary
33Ct29	17	1164	D	2		Boyle	Hard	Checked Pebble
33Ct29	17	1164	D	2		Unknown	Hard	Checked Pebble

Site #	Acc.#	Cat. #	Unit	Level	Feat.	Raw Material	Cortex	Debitage/Artifact Type
33Ct29	17	1166	D	2		Unknown	Hard	Secondary Decortication
33Ct29	17	1166	D	2		Unknown	Hard	Unknown
33Ct29	17	1172	D	2		Unknown	Hard	Primary Decortication
33Ct29	17	1177	F	2		Cedarville-Guelph	Hard	Unknown
33Ct29	17	1186	F	2		Delaware	Hard	Primary
33Ct29	17	1186	F	2		Boggs	None	Primary
33Ct29	17	1186	F	2		Boyle	None	Primary
33Ct29	17	1186	F	2		Unknown	None	Primary
33Ct29	17	1186	F	2		Delaware	Hard	Primary Decortication
33Ct29	17	1186	F	2		Delaware	Hard	Primary Decortication
33Ct29	17	1186	F	2		Delaware	Hard	Primary Decortication
33Ct29	17	1186	F	2		Delaware	Hard	Primary Decortication
33Ct29	17	1186	F	2		Paoli	Soft	Primary Decortication
33Ct29	17	1186	F	2		Delaware	Hard	Secondary Decortication
33Ct29	17	1186	F	2		Delaware	Hard	Secondary Decortication
33Ct29	17	1186	F	2		Delaware	Hard	Secondary Decortication
33Ct29	17	1186	F	2		Delaware	Hard	Unknown
33Ct29	17	1186	F	2		Delaware	Hard	Unknown
33Ct29	17	1187	F	2		Delaware	Hard	Checked Pebble
33Ct29	17	1187	F	2		Paoli	Hard	Primary
33Ct29	17	1187	F	2		Delaware	Hard	Secondary Decortication
33Ct29	17	1187	F	2		Delaware	Hard	Secondary Decortication
33Ct29	17	1187	F	2		Paoli	Hard	Secondary Decortication
33Ct29	17	1238	D	2		Boyle	Hard	Primary
33Ct29	17	1238	D	2		Boyle	Hard	Primary
33Ct29	17	1238	D	2		Brush Creek	Hard	Primary

Site #	Acc.#	Cat. #	Unit	Level	Feat.	Raw Material	Cortex	Debitage/Artifact Type
33Ct29	17	1238	D	2		Cedarville-Guelph	Hard	Primary
33Ct29	17	1238	D	2		Delaware	Hard	Primary
33Ct29	17	1238	D	2		Kentucky Flint Ridge	Hard	Primary
33Ct29	17	1238	D	2		Paoli	Hard	Primary
33Ct29	17	1238	D	2		Paoli	Hard	Primary
33Ct29	17	1238	D	2		Unknown	Hard	Primary
33Ct29	17	1238	D	2		Unknown	Hard	Primary
33Ct29	17	1238	D	2		Unknown	Hard	Primary
33Ct29	17	1238	D	2		Unknown	Hard	Primary
33Ct29	17	1238	D	2		Unknown	Hard	Primary
33Ct29	17	1238	D	2		Unknown	Hard	Primary
33Ct29	17	1238	D	2		Boyle	None	Primary
33Ct29	17	1238	D	2		Delaware	None	Primary
33Ct29	17	1238	D	2		Kentucky Flint Ridge	None	Primary
33Ct29	17	1238	D	2		Kentucky Flint Ridge	None	Primary
33Ct29	17	1238	D	2		Unknown	None	Primary
33Ct29	17	1238	D	2		Unknown	None	Primary
33Ct29	17	1238	D	2		Unknown	None	Primary
33Ct29	17	1238	D	2		Unknown	None	Primary
33Ct29	17	1238	D	2		Bisher	Hard	Primary Decortication
33Ct29	17	1238	D	2		Brush Creek	Hard	Primary Decortication
33Ct29	17	1238	D	2		Cedarville-Guelph	Hard	Primary Decortication
33Ct29	17	1238	D	2		Kentucky Flint Ridge	Hard	Primary Decortication
33Ct29	17	1238	D	2		Kentucky Flint Ridge	Hard	Primary Decortication
33Ct29	17	1238	D	2		Paoli	Hard	Primary Decortication
33Ct29	17	1238	D	2		Unknown	Hard	Primary Decortication

Site #	Acc.#	Cat. #	Unit	Level	Feat.	Raw Material	Cortex	Debitage/Artifact Type
33Ct29	17	1238	D	2		Unknown	Hard	Primary Decortication
33Ct29	17	1238	D	2		Unknown	Hard	Primary Decortication
33Ct29	17	1238	D	2		Unknown	Hard	Primary Decortication
33Ct29	17	1238	D	2		Unknown	Hard	Primary Decortication
33Ct29	17	1238	D	2		Unknown	Hard	Primary Decortication
33Ct29	17	1238	D	2		Unknown	Hard	Primary Decortication
33Ct29	17	1238	D	2		Unknown	Hard	Primary Decortication
33Ct29	17	1238	D	2		Unknown	Hard	Primary Decortication
33Ct29	17	1238	D	2		Unknown	Hard	Primary Decortication
33Ct29	17	1238	D	2		Boyle	Hard	Secondary Decortication
33Ct29	17	1238	D	2		Delaware	Hard	Secondary Decortication
33Ct29	17	1238	D	2		Delaware	Hard	Secondary Decortication
33Ct29	17	1238	D	2		Delaware	Hard	Secondary Decortication
33Ct29	17	1238	D	2		Delaware	Hard	Secondary Decortication
33Ct29	17	1238	D	2		Delaware	Hard	Secondary Decortication
33Ct29	17	1238	D	2		Unknown	Hard	Secondary Decortication
33Ct29	17	1238	D	2		Unknown	Hard	Secondary Decortication
33Ct29	17	1238	D	2		Delaware	None	Sharpening
33Ct29	17	1238	D	2		Paoli	None	Sharpening
33Ct29	17	1238	D	2		Paoli	None	Sharpening
33Ct29	17	1238	D	2		Boyle	Hard	Thinning
33Ct29	17	1238	D	2		Unknown	Hard	Thinning
33Ct29	17	1238	D	2		Boyle	None	Thinning
33Ct29	17	1238	D	2		Boyle	None	Thinning
33Ct29	17	1238	D	2		Boyle	None	Thinning
33Ct29	17	1238	D	2		Brassfield	None	Thinning

Site #	Acc.#	Cat. #	Unit	Level	Feat.	Raw Material	Cortex	Debitage/Artifact Type
33Ct29	17	1238	D	2		Brush Creek	None	Thinning
33Ct29	17	1238	D	2		Haney	None	Thinning
33Ct29	17	1238	D	2		Kentucky Flint Ridge	None	Thinning
33Ct29	17	1238	D	2		Unknown	None	Thinning
33Ct29	17	1238	D	2		Unknown	None	Thinning
33Ct29	17	1238	D	2		Unknown	None	Thinning
33Ct29	17	1238	D	2		Cedarville-Guelph	Hard	Unknown
33Ct29	17	1238	D	2		Delaware	Hard	Unknown
33Ct29	17	1238	D	2		Paoli	Hard	Unknown
33Ct29	17	1238	D	2		Unknown	Hard	Unknown
33Ct29	17	1238	D	2		Unknown	Hard	Unknown
33Ct29	17	1238	D	2		Delaware	None	Unknown
33Ct29	17	1238	D	2		Delaware	None	Unknown
33Ct29	17	1238	D	2		Paoli	None	Unknown
33Ct29	17	1238	D	2		Unknown	None	Unknown
33Ct29	17	1238	D	2		Unknown	None	Unknown
33Ct29	17	1238	D	2		Unknown	None	Unknown
33Ct29	17	1238	D	2		Unknown	None	Unknown
33Ct29	17	1238	D	2		Unknown	None	Unknown
33Ct29	17	1240	D	2		Paoli	Hard	Primary
33Ct29	17	1240	D	2		Unknown	None	Primary
33Ct29	17	1240	D	2		Cedarville-Guelph	Hard	Primary Decortication
33Ct29	17	1240	D	2		Delaware	Hard	Secondary Decortication
33Ct29	17	1314	G	2		Delaware	Hard	Checked Pebble
33Ct29	17	1314	G	2		Delaware	Hard	Checked Pebble
33Ct29	17	1314	G	2		Unknown	Hard	Checked Pebble

Site #	Acc.#	Cat. #	Unit	Level	Feat.	Raw Material	Cortex	Debitage/Artifact Type
33Ct29	17	1314	G	2		Unknown	Hard	Primary Decortication
33Ct29	17	1314	G	2		Unknown	Hard	Primary Decortication
33Ct29	17	1329	C	1		Unknown	Soft	Primary
33Ct29	17	1329	C	1		Kentucky Flint Ridge	Hard	Primary Decortication
33Ct29	17	1344	A	2		Delaware	Hard	Primary
33Ct29	17	1344	A	2		Delaware	Hard	Primary
33Ct29	17	1344	A	2		Kentucky Flint Ridge	Hard	Primary
33Ct29	17	1344	A	2		Kentucky Flint Ridge	Hard	Primary
33Ct29	17	1344	A	2		Delaware	Hard	Secondary Decortication
33Ct29	17	1344	A	2		Delaware	Hard	Secondary Decortication
33Ct29	17	1344	A	2		Delaware	None	Unknown
33Ct29	17	1382	C	2		Delaware	Hard	Primary
33Ct29	17	1448		2		Unknown	Hard	Checked Pebble
33Ct29	17	1450	G	2		Kentucky Flint Ridge	Hard	Primary Decortication
33Ct29	17	1450	G	2		Unknown	None	Thinning
33Ct29	17	1450	G	2		Unknown	Hard	Unknown
33Ct29	17	1603	C	2		Kentucky Flint Ridge	None	Thinning
33Ct29	17	1605	C	2		Brush Creek	Hard	Secondary Decortication
33Ct29	17	1605	C	2		Unknown	None	Thinning
33Ct29	17	1608	C	2		Delaware	Hard	Primary
33Ct29	17	1608	C	2		Boyle	Hard	Primary Decortication
33Ct29	17	1644	A	1		Boyle	None	Primary
33Ct29	17	1644	A	1		Unknown	Hard	Secondary Decortication
33Ct29	17	1644	A	1		Unknown	None	Sharpening
33Ct29	17	1644	A	1		Boyle	None	Thinning
33Ct29	17	1644	A	1		Kanawha Black	None	Thinning

Site #	Acc.#	Cat. #	Unit	Level	Feat.	Raw Material	Cortex	Debitage/Artifact Type
33Ct29	17	1644	A	1		Kanawha Black	None	Thinning
33Ct29	17	1644	A	1		Paoli	None	Thinning
33Ct29	17	1660	C	2		Kentucky Flint Ridge	Hard	Primary Decortication
33Ct29	17	1660	C	2		Unknown	None	Unknown
33Ct29	17	1685	E	2		Boyle	Hard	Primary
33Ct29	17	1685	E	2		Brassfield	Hard	Primary
33Ct29	17	1685	E	2		Delaware	Hard	Primary
33Ct29	17	1685	E	2		Delaware	Hard	Primary
33Ct29	17	1685	E	2		Paoli	Hard	Primary
33Ct29	17	1685	E	2		Unknown	Hard	Primary
33Ct29	17	1685	E	2		Delaware	None	Primary
33Ct29	17	1685	E	2		Delaware	None	Primary
33Ct29	17	1685	E	2		Delaware	None	Primary
33Ct29	17	1685	E	2		Unknown	None	Primary
33Ct29	17	1685	E	2		Unknown	None	Primary
33Ct29	17	1685	E	2		Unknown	None	Primary
33Ct29	17	1685	E	2		Unknown	None	Primary
33Ct29	17	1685	E	2		Unknown	None	Primary
33Ct29	17	1685	E	2		Unknown	Hard	Primary Decortication
33Ct29	17	1685	E	2		Delaware	Hard	Secondary Decortication
33Ct29	17	1685	E	2		Delaware	Hard	Secondary Decortication
33Ct29	17	1685	E	2		Delaware	Hard	Secondary Decortication
33Ct29	17	1685	E	2		Delaware	Hard	Secondary Decortication
33Ct29	17	1685	E	2		Unknown	Hard	Secondary Decortication
33Ct29	17	1685	E	2		Delaware	None	Thinning
33Ct29	17	1685	E	2		Unknown	None	Thinning

Site #	Acc.#	Cat. #	Unit	Level	Feat.	Raw Material	Cortex	Debitage/Artifact Type
33Ct29	17	1685	E	2		Unknown	None	Thinning
33Ct29	17	1685	E	2		Delaware	Hard	Unknown
33Ct29	17	1685	E	2		Unknown	Hard	Unknown
33Ct29	17	1685	E	2		Delaware	None	Unknown
33Ct29	17	1685	E	2		Unknown	None	Unknown
33Ct29	17	1687	E	2		Boyle	Hard	Primary
33Ct29	17	1687	E	2		Laurel	Hard	Secondary Decortication
33Ct29	17	1687	E	2		Zaleski	None	Thinning
33Ct29	17	1773		surface		Brassfield	Hard	Curated
33Ct29	17	1826		surface		Delaware	None	Curated
33Ct29	17	1856	F	8		Kanawha Black	Hard	Secondary Decortication
33Ct29	17	2047		surface		Boyle	None	Curated
33Ct29	17	2049		surface		Boyle	Soft	Curated
33Ct29	17	2274	A	3		Delaware	Hard	Primary Decortication
33Ct29	17	2592	C		4	Unknown	None	Primary
33Ct29	17	2592	C		4	Paoli	Soft	Primary
33Ct29	17	2592	C		4	Cedarville-Guelph	Hard	Primary Decortication
33Ct29	17	2592	C		4	Cedarville-Guelph	Hard	Primary Decortication
33Ct29	17	2592	C		4	Delaware	Hard	Primary Decortication
33Ct29	17	2592	C		4	Unknown	Hard	Primary Decortication
33Ct29	17	2592	C		4	Boyle	Soft	Secondary Decortication
33Ct29	17	2592	C		4	Boyle	Hard	Sharpening
33Ct29	17	2592	C		4	Boyle	None	Sharpening
33Ct29	17	2592	C		4	Boyle	None	Sharpening
33Ct29	17	2592	C		4	Delaware	None	Sharpening
33Ct29	17	2592	C		4	Kanawha Black	None	Sharpening

Site #	Acc.#	Cat. #	Unit	Level	Feat.	Raw Material	Cortex	Debitage/Artifact Type
33Ct29	17	2592	C		4	Kentucky Flint Ridge	None	Sharpening
33Ct29	17	2592	C		4	Unknown	None	Sharpening
33Ct29	17	2592	C		4	Unknown	None	Sharpening
33Ct29	17	2592	C		4	Unknown	None	Sharpening
33Ct29	17	2592	C		4	Unknown	None	Sharpening
33Ct29	17	2592	C		4	Unknown	None	Sharpening
33Ct29	17	2592	C		4	Unknown	None	Sharpening
33Ct29	17	2592	C		4	Unknown	None	Sharpening
33Ct29	17	2592	C		4	Boyle	None	Thinning
33Ct29	17	2592	C		4	Unknown	Hard	Unknown
33Ct29	17	2592	C		4	Unknown	Hard	Unknown
33Ct29	17	2592	C		4	Paoli	None	Unknown
33Ct29	17	2592	C		4	Unknown	None	Unknown
33Ct29	17	2592	C		4	Unknown	None	Unknown
33Ct29	17	2592	C		4	Unknown	None	Unknown
33Ct29	17	2592	C		4	Unknown	None	Unknown
33Ct29	17	2592	C		4	Unknown	None	Unknown
33Ct29	17	2592	C		4	Unknown	None	Unknown
33Ct29	17	2592	C		4	Unknown	None	Unknown
33Ct29	17	2592	C		4	Unknown	None	Unknown
33Ct29	17	2592	C		4	Unknown	None	Unknown
33Ct29	17	2592	C		4	Unknown	None	Unknown
33Ct29	17	2592	C		4	Unknown	None	Unknown
33Ct29	17	2623	A	3		Delaware	Hard	Primary
33Ct29	17	2644		surface		Unknown	Hard	Expedient
33Ct29	17	2651	C	4		Unknown	Hard	Curated

Site #	Acc.#	Cat. #	Unit	Level	Feat.	Raw Material	Cortex	Debitage/Artifact Type
33Ct29	17	2659		surface		Unknown	None	Curated
33Ct29	17	3869	A	2		Kanawha Black	None	Primary
33Ct29	17	3869	A	2		Unknown	Hard	Primary Decortication
33Ct29	17	3869	A	2		Unknown	Hard	Secondary Decortication
33Ct29	17	4026	A	4		Unknown	Hard	Core
33Ct29	17	4027	A	4		Delaware	Hard	Expedient
33Ct29	17	4165		surface		Brassfield	None	Curated
33Ct29	17	4420	F	5		Brush Creek	Hard	Core
33Ct29	17	4532	F	4	Burial I	Brush Creek	Hard	Core
33Ct29	17	4615	D	4		Unknown	None	Curated
33Ct29	17	4616	D	4		Delaware	None	Curated
33Ct29	17	4648	A	5		Kanawha Black	Hard	Curated
33Ct29	17	4684		surface		Laurel	Hard	Curated
33Ct29	17	4719	A	4		Boyle	Soft	Core
33Ct29	17	4866		0		Unknown	Hard	Core
33Ct29	17	4902		0		Delaware	Hard	Primary Decortication
33Ct29	17	4902		0		Kentucky Flint Ridge	Hard	Secondary Decortication
33Ct29	17	4903		0		Unknown	None	Curated
33Ct29	17	4905	F	6		Delaware	Hard	Core
33Ct29	17	4906		0		Kentucky Flint Ridge	Soft	Primary
33Ct29	17	4908		0		Unknown	None	Core
33Ct29	17	4910	G	4		Unknown	Hard	Secondary Decortication
33Ct29	17	4910	G	4		Delaware	Hard	Thinning
33Ct29	17	4910	G	4		Sonora	None	Thinning
33Ct29	17	4911		0		Kanawha Black	Hard	Curated
33Ct29	17	4915		0		Unknown	Hard	Curated

Site #	Acc.#	Cat. #	Unit	Level	Feat.	Raw Material	Cortex	Debitage/Artifact Type
33Ct29	17	4916		0		Unknown	Hard	Curated
33Ct29	17	4958	A	4		Kentucky Flint Ridge	Soft	Expedient
33Ct29	17	5099		0		Delaware	Hard	Expedient
33Ct29	17	5164		surface		Unknown	None	Curated
33Ct29	17	5172		surface		Unknown	Hard	Curated
33Ct29	17	5177		0		Unknown	Hard	Checked Pebble
33Ct29	17	5239		0		Tygart	None	Curated
33Ct29	17	5240		surface		Kanawha Black	Hard	Curated
33Ct29	17	5242		surface		Unknown	None	Curated
33Ct29	17	5243		surface		Delaware	Hard	Curated
33Ct29	17	5288	B	4		Upper Mercer	None	Curated
33Ct29	17	5323		0		Unknown	Hard	Expedient
33Ct29	17	5418		surface		Unknown	Hard	Curated
33Ct29	17	5425		surface		Delaware	Hard	Expedient
33Ct29	17	5436		surface		Unknown	None	Expedient
33Ct29	17	5505	D	5		Delaware	Hard	Core
33Ct29	17	5575	F	6		Unknown	None	Curated
33Ct29	17	5646		surface		Unknown	Hard	Curated
33Ct29	17	5678		surface		Brassfield	Soft	Expedient
33Ct29	17	5679		0		Unknown	None	Curated
33Ct29	17	5684		0		Brassfield	None	Curated
33Ct29	17	5685		surface		Delaware	Hard	Core
33Ct29	17	5686		0		Unknown	Hard	Expedient
33Ct29	17	5687		0		Upper Mercer	Hard	Core
33Ct29	17	5693	B	2		Bisher	None	Curated
33Ct29	17	5842	C	2		Boyle	None	Curated

Site #	Acc.#	Cat. #	Unit	Level	Feat.	Raw Material	Cortex	Debitage/Artifact Type
33Ct29	17	5852	C	2		Kentucky Flint Ridge	Hard	Curated
33Ct29	17	5880	A	2		Delaware	Hard	Secondary Decortication
33Ct29	17	5883	A	2		Unknown	None	Expedient
33Ct29	17	5884	A	2		Unknown	Hard	Expedient
33Ct29	17	5891	A	2		Unknown	Hard	Curated
33Ct29	17	5892	E	2		Lewis County	None	Curated
33Ct29	17	5905	A	2		Unknown	None	Curated
33Ct29	17	5935	A	5		Boyle	None	Curated
33Ct29	17	5942	F	7	Burial I	Delaware	None	Curated
33Ct29	17	6034		0		Unknown	Hard	Core
33Ct29	17	6058	G	4		Unknown	None	Curated
33Ct29	17	6130	G	2		Delaware	None	Core
33Ct29	17	6138	G	2		Unknown	Hard	Primary
33Ct29	17	6143	G	2		Laurel	None	Curated
33Ct29	17	6144	G	2		Unknown	None	Curated
33Ct29	17	6148	G	2		Unknown	Hard	Expedient
33Ct29	17	6151		2		Delaware	Hard	Primary
33Ct29	17	6176	D	2		Unknown	Hard	Primary
33Ct29	17	6178	D	2		Delaware	Hard	Expedient
33Ct29	17	6320	G	2		Cedarville-Guelph	Hard	Curated
33Ct29	17	6476		surface		Unknown	None	Curated
33Ct29	17	6477		0		Boyle	None	Curated
33Ct29	17	6561	F		Burial I	Paoli	Hard	Curated
33Ct29	17	6835	E	2		Unknown	Hard	Core
33Ct29	17	6955	D	5		Unknown	Hard	Curated
33Ct29	17	7227		0		Unknown	None	Curated

Site #	Acc.#	Cat. #	Unit	Level	Feat.	Raw Material	Cortex	Debitage/Artifact Type
33Ct29	17	7320	E	3		Kanawha Black	Hard	Curated
33Ct29	17	7406		surface		Unknown	Hard	Core
33Ct29	17	7443	F	4		Brassfield	None	Curated
33Ct29	17	7445	F	4		Paoli	None	Expedient
33Ct29	17	7449	F	4		Delaware	Hard	Core
33Ct29	17	7803	E			Unknown	None	Sharpening
33Ct29	17	7803	E			Lewis County	None	Unknown
33Ct29	17	7900	C	4		Unknown	Hard	Curated
33Ct29	17	7953	C		4	Brassfield	None	Curated
33Ct29	17	7955		surface		Paoli	None	Curated
33Ct29	17	8024		surface		Brassfield	None	Curated
33Ct29	17	8058		0		Unknown	None	Curated
33Ct29	17	8059				Kentucky Flint Ridge	None	Curated
33Ct29	17	8061		0		Brassfield	Hard	Curated
33Ct29	17	8226		surface		Unknown	Hard	Curated
33Ct29	17	8318	F		12	Delaware	Hard	Thinning
33Ct29	17	8542		surface		Kentucky Flint Ridge	None	Curated
33Ct29	17	8566		surface		Delaware	None	Curated
33Ct29	17	8573		surface		Delaware	Hard	Curated
33Ct29	17	8610	G	5		Delaware	Hard	Secondary Decortication
33Ct29	17	8611				Delaware	None	Unknown
33Ct29	17	8732				Kentucky Flint Ridge	None	Curated
33Ct29	17	8778				Boyle	Hard	Curated
33Ct29	17	8779				Unknown	Hard	Curated
33Ct29	17	8831				Boyle	Hard	Curated
33Ct29	17	8837				Unknown	None	Curated

Site #	Acc.#	Cat. #	Unit	Level	Feat.	Raw Material	Cortex	Debitage/Artifact Type
33Ct29	17	8840				Boyle	Hard	Curated
33Ct29	17	8863				Zaleski	None	Curated
33Ct29	17	8864		surface		Kentucky Flint Ridge	Hard	Curated
33Ct29	17	8871				Kentucky Flint Ridge	None	Curated
33Ct29	17	9015		surface		Unknown	None	Curated
33Ct29	17					Delaware	Hard	Checked Pebble
33Ct29	17					Delaware	Hard	Core
33Ct29	17					Delaware	Hard	Core
33Ct29	17					Unknown	Hard	Core
33Ct29	17					Unknown	None	Core
33Ct29	17			surface		Boyle	None	Curated
33Ct29	17			surface		Unknown	None	Curated
33Ct29	17					Unknown	None	Curated
33Ct29	17					Delaware	Hard	Primary
33Ct29	17					Delaware	None	Primary
33Ct29	17					Kentucky Flint Ridge	Hard	Secondary Decortication

Appendix D: DuPont Village Assemblage Data

Site #	Acc.#	Cat. #	Unit	Level	Feat.	Raw Material	Cortex	Debitage/Artifact Type
33Ha11	18	138			ZZ	Laurel	Hard	Curated
33Ha11	18	139	NWQWT		ZZ	Unknown	Hard	Curated
33Ha11	18	268			AA	Unknown	Soft	Core
33Ha11	18	392	NWQWT		Burial 27	Unknown	Soft	Expedient
33Ha11	18	484	NWCT/NCCT		VV	Laurel	None	Expedient
33Ha11	18	485	NCCT		VV	Laurel	None	Curated
33Ha11	18	491	NCCT		NVV	Laurel	None	Curated
33Ha11	18	492	NCCT		NVV	Unknown	None	Curated
33Ha11	18	493	NCCT		NVV	Laurel	None	Curated
33Ha11	18	494	NCCT		NVV	Unknown	Hard	Curated
33Ha11	18	495	NCCT		NVV	Laurel	Hard	Core
33Ha11	18	648	NWQWT		B/G	Paoli	Hard	Expedient
33Ha11	18	649	NWQWT		B	Laurel	None	Expedient
33Ha11	18	829	E	2		Laurel	Soft	Expedient
33Ha11	18	831			B/G	Unknown	Hard	Expedient
33Ha11	18	844			B/E	Laurel	None	Curated
33Ha11	18	854			Burial 4	Unknown	None	Expedient
33Ha11	18	856			Burial 2	Unknown	Hard	Primary Decortication
33Ha11	18	1004			B/J	Unknown	None	Curated
33Ha11	18	1007			C	Cedarville-Guelph	Hard	Curated
33Ha11	18	1008			C	Unknown	Hard	Curated
33Ha11	18	1009			VV?	Laurel	None	Curated
33Ha11	18	1010			VV	Unknown	None	Curated
33Ha11	18	1018			AA	Unknown	None	Curated
33Ha11	18	1020			AA	Unknown	None	Curated
33Ha11	18	1022			AA	Laurel	None	Expedient

Site #	Acc.#	Cat. #	Unit	Level	Feat.	Raw Material	Cortex	Debitage/Artifact Type
33Ha11	18	1025			ZZ	Unknown	None	Curated
33Ha11	18	1026			ZZ	Unknown	None	Curated
33Ha11	18	1028			ZZ	Unknown	Hard	Expedient
33Ha11	18	1512			P	Laurel	None	Curated
33Ha11	18	1513			P	Laurel	None	Curated
33Ha11	18	1520			A	Unknown	None	Curated
33Ha11	18	1529			L	Unknown	None	Curated
33Ha11	18	1530			L	Laurel	None	Curated
33Ha11	18	1725			Burial 10	Unknown	None	Curated
33Ha11	18	1776			E	Laurel	None	Curated
33Ha11	18	1782	Trench 1	surface		Unknown	Hard	Curated
33Ha11	18	1783			K	Laurel	None	Curated
33Ha11	18	1787			FF	Laurel	None	Curated
33Ha11	18	1789	Trench 1		H	Kentucky Flint Ridge	None	Curated
33Ha11	18	1800	Trench 1		EE	Unknown	None	Curated
33Ha11	18	1804			NVV	Unknown	None	Curated
33Ha11	18	1807			E	Laurel	None	Curated
33Ha11	18	1809			X	Unknown	None	Curated
33Ha11	18	1810			E	Laurel	None	Curated
33Ha11	18	1814			G	Kanawha Black	None	Curated
33Ha11	18	1816	Trench 1		(Big) D	Boyle	None	Curated
33Ha11	18	1818			R	Unknown	None	Curated
33Ha11	18	1819			A	Unknown	None	Curated
33Ha11	18	1826			Y	Laurel	None	Curated
33Ha11	18	1832			G	Unknown	None	Curated
33Ha11	18	1834		1	E	Unknown	Hard	Expedient
33Ha11	18	1835			H	Laurel	None	Curated

Site #	Acc.#	Cat. #	Unit	Level	Feat.	Raw Material	Cortex	Debitage/Artifact Type
33Ha11	18	1841			N	Laurel	None	Curated
33Ha11	18	1842			V	Delaware	None	Curated
33Ha11	18	1846			V	Unknown	None	Curated
33Ha11	18	1850			M	Laurel	None	Curated
33Ha11	18	1853			V	Harrison County	None	Curated
33Ha11	18	1857			X	Laurel	None	Curated
33Ha11	18	1862			(Big) D	Laurel	None	Curated
33Ha11	18	1863			E	Laurel	None	Curated
33Ha11	18	1868			P	Harrison County	None	Curated
33Ha11	18	1872			D	Laurel	None	Curated
33Ha11	19	619	A	3		Unknown	Hard	Curated
33Ha11	19	623	G	3		Unknown	Hard	Primary Decortication
33Ha11	19	623	G	3		Unknown	Hard	Primary Decortication
33Ha11	19	623	G	3		Unknown	Hard	Secondary Decortication
33Ha11	19	623	G	3		Unknown	Hard	Unknown
33Ha11	19	807	G	2		Boyle	Hard	Primary Decortication
33Ha11	19	807	G	2		Boyle	None	Thinning
33Ha11	19	807	G	2		Boyle	None	Unknown
33Ha11	19	807	G	2		Brush Creek	None	Unknown
33Ha11	19	807	G	2		Cedarville-Guelph	Hard	Secondary Decortication
33Ha11	19	807	G	2		Cedarville-Guelph	None	Unknown
33Ha11	19	807	G	2		Delaware	Hard	Primary
33Ha11	19	807	G	2		Delaware	None	Primary
33Ha11	19	807	G	2		Delaware	None	Unknown
33Ha11	19	807	G	2		Laurel	Hard	Primary Decortication
33Ha11	19	807	G	2		Laurel	Hard	Primary Decortication
33Ha11	19	807	G	2		Laurel	Hard	Primary

Site #	Acc.#	Cat. #	Unit	Level	Feat.	Raw Material	Cortex	Debitage/Artifact Type
33Ha11	19	807	G	2		Laurel	Hard	Primary
33Ha11	19	807	G	2		Laurel	Hard	Primary
33Ha11	19	807	G	2		Laurel	None	Primary
33Ha11	19	807	G	2		Laurel	None	Primary
33Ha11	19	807	G	2		Laurel	Hard	Secondary Decortication
33Ha11	19	807	G	2		Laurel	Hard	Secondary Decortication
33Ha11	19	807	G	2		Laurel	None	Thinning
33Ha11	19	807	G	2		Laurel	None	Thinning
33Ha11	19	807	G	2		Laurel	None	Thinning
33Ha11	19	807	G	2		Laurel	None	Thinning
33Ha11	19	807	G	2		Laurel	None	Thinning
33Ha11	19	807	G	2		Laurel	None	Thinning
33Ha11	19	807	G	2		Laurel	None	Thinning
33Ha11	19	807	G	2		Laurel	None	Thinning
33Ha11	19	807	G	2		Laurel	Hard	Unknown
33Ha11	19	807	G	2		Laurel	None	Unknown
33Ha11	19	807	G	2		Laurel	None	Unknown
33Ha11	19	807	G	2		Unknown	Hard	Primary Decortication
33Ha11	19	807	G	2		Unknown	Hard	Primary Decortication
33Ha11	19	807	G	2		Unknown	Hard	Primary Decortication
33Ha11	19	807	G	2		Unknown	Hard	Primary Decortication
33Ha11	19	807	G	2		Unknown	Hard	Primary Decortication
33Ha11	19	807	G	2		Unknown	Hard	Primary
33Ha11	19	807	G	2		Unknown	Hard	Primary
33Ha11	19	807	G	2		Unknown	Hard	Primary
33Ha11	19	807	G	2		Unknown	Hard	Primary
33Ha11	19	807	G	2		Unknown	None	Primary

Site #	Acc.#	Cat. #	Unit	Level	Feat.	Raw Material	Cortex	Debitage/Artifact Type
33Ha11	19	807	G	2		Unknown	None	Primary
33Ha11	19	807	G	2		Unknown	None	Primary
33Ha11	19	807	G	2		Unknown	None	Primary
33Ha11	19	807	G	2		Unknown	None	Primary
33Ha11	19	807	G	2		Unknown	None	Primary
33Ha11	19	807	G	2		Unknown	None	Primary
33Ha11	19	807	G	2		Unknown	Hard	Secondary Decortication
33Ha11	19	807	G	2		Unknown	Hard	Secondary Decortication
33Ha11	19	807	G	2		Unknown	Hard	Secondary Decortication
33Ha11	19	807	G	2		Unknown	Hard	Secondary Decortication
33Ha11	19	807	G	2		Unknown	Hard	Thinning
33Ha11	19	807	G	2		Unknown	None	Thinning
33Ha11	19	807	G	2		Unknown	None	Thinning
33Ha11	19	807	G	2		Unknown	None	Thinning
33Ha11	19	807	G	2		Unknown	None	Thinning
33Ha11	19	807	G	2		Unknown	None	Thinning
33Ha11	19	807	G	2		Unknown	None	Thinning
33Ha11	19	807	G	2		Unknown	None	Unknown
33Ha11	19	807	G	2		Unknown	None	Unknown
33Ha11	19	830	G	2		Cedarville-Guelph	Hard	Secondary Decortication
33Ha11	19	924	G	2		Boyle	None	Primary
33Ha11	19	924	G	2		Boyle	None	Thinning
33Ha11	19	924	G	2		Boyle	None	Unknown
33Ha11	19	924	G	2		Brush Creek	Hard	Thinning
33Ha11	19	924	G	2		Brush Creek	None	Thinning
33Ha11	19	924	G	2		Brush Creek	None	Thinning
33Ha11	19	924	G	2		Cedarville-Guelph	Hard	Primary

Site #	Acc.#	Cat. #	Unit	Level	Feat.	Raw Material	Cortex	Debitage/Artifact Type
33Ha11	19	924	G	2		Cedarville-Guelph	Hard	Secondary Decortication
33Ha11	19	924	G	2		Columbus	None	Unknown
33Ha11	19	924	G	2		Delaware	Hard	Primary Decortication
33Ha11	19	924	G	2		Delaware	Hard	Primary
33Ha11	19	924	G	2		Kentucky Flint Ridge	None	Primary
33Ha11	19	924	G	2		Kentucky Flint Ridge	None	Unknown
33Ha11	19	924	G	2		Kentucky Flint Ridge	None	Unknown
33Ha11	19	924	G	2		Laurel	Hard	Primary Decortication
33Ha11	19	924	G	2		Laurel	Hard	Primary
33Ha11	19	924	G	2		Laurel	None	Primary
33Ha11	19	924	G	2		Laurel	None	Primary
33Ha11	19	924	G	2		Laurel	None	Primary
33Ha11	19	924	G	2		Laurel	Hard	Secondary Decortication
33Ha11	19	924	G	2		Laurel	Hard	Secondary Decortication
33Ha11	19	924	G	2		Laurel	Hard	Thinning
33Ha11	19	924	G	2		Laurel	Hard	Thinning
33Ha11	19	924	G	2		Laurel	Hard	Thinning
33Ha11	19	924	G	2		Laurel	None	Thinning
33Ha11	19	924	G	2		Laurel	None	Thinning
33Ha11	19	924	G	2		Laurel	None	Thinning
33Ha11	19	924	G	2		Laurel	None	Thinning
33Ha11	19	924	G	2		Laurel	None	Unknown
33Ha11	19	924	G	2		Paoli	None	Thinning
33Ha11	19	924	G	2		Unknown	Hard	Primary Decortication
33Ha11	19	924	G	2		Unknown	Hard	Primary Decortication
33Ha11	19	924	G	2		Unknown	Hard	Primary Decortication
33Ha11	19	924	G	2		Unknown	Hard	Primary Decortication

Site #	Acc.#	Cat. #	Unit	Level	Feat.	Raw Material	Cortex	Debitage/Artifact Type
33Ha11	19	924	G	2		Unknown	Hard	Primary Decortication
33Ha11	19	924	G	2		Unknown	Hard	Primary Decortication
33Ha11	19	924	G	2		Unknown	Hard	Primary
33Ha11	19	924	G	2		Unknown	Hard	Primary
33Ha11	19	924	G	2		Unknown	Hard	Primary
33Ha11	19	924	G	2		Unknown	Hard	Primary
33Ha11	19	924	G	2		Unknown	Hard	Primary
33Ha11	19	924	G	2		Unknown	None	Primary
33Ha11	19	924	G	2		Unknown	None	Primary
33Ha11	19	924	G	2		Unknown	None	Primary
33Ha11	19	924	G	2		Unknown	None	Primary
33Ha11	19	924	G	2		Unknown	None	Primary
33Ha11	19	924	G	2		Unknown	None	Primary
33Ha11	19	924	G	2		Unknown	Hard	Secondary Decortication
33Ha11	19	924	G	2		Unknown	Hard	Secondary Decortication
33Ha11	19	924	G	2		Unknown	Hard	Secondary Decortication
33Ha11	19	924	G	2		Unknown	Hard	Secondary Decortication
33Ha11	19	924	G	2		Unknown	None	Secondary Decortication
33Ha11	19	924	G	2		Unknown	None	Sharpening
33Ha11	19	924	G	2		Unknown	Hard	Thinning
33Ha11	19	924	G	2		Unknown	Hard	Thinning
33Ha11	19	924	G	2		Unknown	Hard	Thinning
33Ha11	19	924	G	2		Unknown	None	Thinning
33Ha11	19	924	G	2		Unknown	None	Thinning
33Ha11	19	924	G	2		Unknown	None	Thinning
33Ha11	19	924	G	2		Unknown	None	Thinning
33Ha11	19	924	G	2		Unknown	None	Thinning

Site #	Acc.#	Cat. #	Unit	Level	Feat.	Raw Material	Cortex	Debitage/Artifact Type
33Ha11	19	924	G	2		Unknown	None	Thinning
33Ha11	19	924	G	2		Unknown	None	Thinning
33Ha11	19	924	G	2		Unknown	None	Thinning
33Ha11	19	924	G	2		Unknown	None	Thinning
33Ha11	19	924	G	2		Unknown	None	Thinning
33Ha11	19	924	G	2		Unknown	None	Thinning
33Ha11	19	924	G	2		Unknown	None	Unknown
33Ha11	19	924	G	2		Unknown	None	Unknown
33Ha11	19	924	G	2		Unknown	None	Unknown
33Ha11	19	924	G	2		Unknown	None	Unknown
33Ha11	19	924	G	2		Unknown	None	Unknown
33Ha11	19	924	G	2		Unknown	None	Unknown
33Ha11	19	924	G	2		Unknown	None	Unknown
33Ha11	19	924	G	2		Unknown	None	Unknown
33Ha11	19	924	G	2		Unknown	None	Unknown
33Ha11	19	924	G	2		Unknown	None	Unknown
33Ha11	19	924	G	2		Unknown	None	Unknown
33Ha11	19	1651	B	3		Laurel	Soft	Curated
33Ha11	19	2042			6	Laurel	Hard	Secondary Decortication
33Ha11	19	2074	B	5		Delaware	None	Unknown
33Ha11	19	2074	B	5		Unknown	Hard	Unknown
33Ha11	19	2074	B	5		Unknown	None	Unknown
33Ha11	19	2414	A	3		Unknown	Hard	Core
33Ha11	19	2430	E	2		Unknown	Hard	Core
33Ha11	19	2434	B	3	55	Boyle	None	Curated
33Ha11	19	2557	B	2		Harrison County	None	Core
33Ha11	19	2559			5	Laurel	Hard	Curated

Site #	Acc.#	Cat. #	Unit	Level	Feat.	Raw Material	Cortex	Debitage/Artifact Type
33Ha11	19	2600	A	3		Unknown	None	Curated
33Ha11	19	2615			55	Unknown	None	Unknown
33Ha11	19	2620	B	4		Unknown	Hard	Core
33Ha11	19	2624	C		1	Laurel	None	Expedient
33Ha11	19	2625	D	3		Laurel	None	Expedient
33Ha11	19	2626			55	Laurel	None	Curated
33Ha11	19	2627	C		1	Laurel	None	Curated
33Ha11	19	2628	D	2		Laurel	Hard	Curated
33Ha11	19	2629	B	3		Unknown	None	Expedient
33Ha11	19	2630	B	3		Unknown	Hard	Core
33Ha11	19	2631	A	3		Laurel	None	Curated
33Ha11	19	2632	B	2		Unknown	None	Curated
33Ha11	19	2634	F	2		Unknown	None	Expedient
33Ha11	19	2635	D	2		Laurel	None	Expedient
33Ha11	19	2637			55	Unknown	Hard	Curated
33Ha11	19	2640	B	3		Unknown	Hard	Expedient
33Ha11	19	2644	B	3		Laurel	None	Expedient
33Ha11	19	2646	D	3		Laurel	None	Curated
33Ha11	19	2649			5(B)	Laurel	None	Unknown
33Ha11	19	2650	D	2		Unknown	None	Curated
33Ha11	19	2653			55	Unknown	None	Curated
33Ha11	19	2658			5	Unknown	None	Curated
33Ha11	19	2660	D	1	5	Cedarville-Guelph	None	Curated
33Ha11	19	2664	B	7		Laurel	None	Primary
33Ha11	19	2664	B	7		Laurel	Hard	Thinning
33Ha11	19	2664	B	7		Laurel	None	Thinning
33Ha11	19	2664	B	7		Laurel	None	Thinning

Site #	Acc.#	Cat. #	Unit	Level	Feat.	Raw Material	Cortex	Debitage/Artifact Type
33Ha11	19	2664	B	7		Laurel	None	Thinning
33Ha11	19	2664	B	7		Laurel	None	Thinning
33Ha11	19	2664	B	7		Laurel	Hard	Unknown
33Ha11	19	2664	B	7		Laurel	None	Unknown
33Ha11	19	2664	B	7		Unknown	None	Thinning
33Ha11	19	2664	B	7		Unknown	None	Thinning
33Ha11	19	2664	B	7		Unknown	None	Thinning
33Ha11	19	2664	B	7		Unknown	None	Thinning
33Ha11	19	2664	B	7		Unknown	None	Unknown
33Ha11	19	2667	B	3		Boyle	Hard	Secondary Decortication
33Ha11	19	2667	B	3		Boyle	None	Thinning
33Ha11	19	2667	B	3		Boyle	None	Thinning
33Ha11	19	2667	B	3		Boyle	None	Thinning
33Ha11	19	2667	B	3		Boyle	None	Thinning
33Ha11	19	2667	B	3		Boyle	None	Unknown
33Ha11	19	2667	B	3		Cedarville-Guelph	Hard	Secondary Decortication
33Ha11	19	2667	B	3		Cedarville-Guelph	None	Unknown
33Ha11	19	2667	B	3		Delaware	None	Unknown
33Ha11	19	2667	B	3		Kentucky Flint Ridge	None	Unknown
33Ha11	19	2667	B	3		Kentucky Flint Ridge	None	Unknown
33Ha11	19	2667	B	3		Laurel	Hard	Primary Decortication
33Ha11	19	2667	B	3		Laurel	None	Primary
33Ha11	19	2667	B	3		Laurel	None	Primary
33Ha11	19	2667	B	3		Laurel	None	Primary
33Ha11	19	2667	B	3		Laurel	Hard	Secondary Decortication
33Ha11	19	2667	B	3		Laurel	Hard	Secondary Decortication
33Ha11	19	2667	B	3		Laurel	Soft	Secondary Decortication

Site #	Acc.#	Cat. #	Unit	Level	Feat.	Raw Material	Cortex	Debitage/Artifact Type
33Ha11	19	2667	B	3		Laurel	None	Thinning
33Ha11	19	2667	B	3		Laurel	None	Thinning
33Ha11	19	2667	B	3		Laurel	None	Thinning
33Ha11	19	2667	B	3		Laurel	None	Thinning
33Ha11	19	2667	B	3		Laurel	None	Thinning
33Ha11	19	2667	B	3		Laurel	None	Thinning
33Ha11	19	2667	B	3		Laurel	None	Thinning
33Ha11	19	2667	B	3		Laurel	None	Thinning
33Ha11	19	2667	B	3		Laurel	Hard	Unknown
33Ha11	19	2667	B	3		Laurel	None	Unknown
33Ha11	19	2667	B	3		Laurel	None	Unknown
33Ha11	19	2667	B	3		Laurel	None	Unknown
33Ha11	19	2667	B	3		Laurel	None	Unknown
33Ha11	19	2667	B	3		Laurel	None	Unknown
33Ha11	19	2667	B	3		Laurel	None	Unknown
33Ha11	19	2667	B	3		Laurel	None	Unknown
33Ha11	19	2667	B	3		Laurel	None	Unknown
33Ha11	19	2667	B	3		Laurel	None	Unknown
33Ha11	19	2667	B	3		Laurel	Hard	Thinning
33Ha11	19	2667	B	3		Laurel	None	Unknown
33Ha11	19	2667	B	3		Lewis County	None	Unknown
33Ha11	19	2667	B	3		Paoli	Hard	Unknown
33Ha11	19	2667	B	3		Unknown	Hard	Primary Decortication
33Ha11	19	2667	B	3		Unknown	None	Primary
33Ha11	19	2667	B	3		Unknown	Hard	Secondary Decortication
33Ha11	19	2667	B	3		Unknown	Hard	Secondary Decortication
33Ha11	19	2667	B	3		Unknown	None	Thinning

Site #	Acc.#	Cat. #	Unit	Level	Feat.	Raw Material	Cortex	Debitage/Artifact Type
33Ha11	19	2667	B	3		Unknown	None	Thinning
33Ha11	19	2667	B	3		Unknown	Hard	Unknown
33Ha11	19	2667	B	3		Unknown	None	Unknown
33Ha11	19	2667	B	3		Unknown	None	Unknown
33Ha11	19	2667	B	3		Unknown	None	Unknown
33Ha11	19	2670	E		5	Boyle	None	Primary
33Ha11	19	2670	E		5	Boyle	Hard	Secondary Decortication
33Ha11	19	2670	E		5	Boyle	None	Unknown
33Ha11	19	2670	E		5	Brassfield	Hard	Primary
33Ha11	19	2670	E		5	Brassfield	None	Primary
33Ha11	19	2670	E		5	Brassfield	None	Primary
33Ha11	19	2670	E		5	Columbus	None	Primary
33Ha11	19	2670	E		5	Columbus	None	Primary
33Ha11	19	2670	E		5	Delaware	Hard	Primary
33Ha11	19	2670	E		5	Kentucky Flint Ridge	Soft	Secondary Decortication
33Ha11	19	2670	E		5	Laurel	Hard	Primary
33Ha11	19	2670	E		5	Laurel	None	Primary
33Ha11	19	2670	E		5	Laurel	None	Primary
33Ha11	19	2670	E		5	Laurel	None	Primary
33Ha11	19	2670	E		5	Laurel	None	Primary
33Ha11	19	2670	E		5	Laurel	None	Primary
33Ha11	19	2670	E		5	Laurel	None	Primary
33Ha11	19	2670	E		5	Laurel	None	Primary
33Ha11	19	2670	E		5	Laurel	None	Primary
33Ha11	19	2670	E		5	Laurel	None	Thinning
33Ha11	19	2670	E		5	Laurel	None	Thinning
33Ha11	19	2670	E		5	Laurel	None	Thinning

Site #	Acc.#	Cat. #	Unit	Level	Feat.	Raw Material	Cortex	Debitage/Artifact Type
33Ha11	19	2670	E		5	Laurel	None	Unknown
33Ha11	19	2670	E		5	Laurel	None	Unknown
33Ha11	19	2670	E		5	Laurel	None	Unknown
33Ha11	19	2670	E		5	Unknown	Hard	Primary Decortication
33Ha11	19	2670	E		5	Unknown	None	Primary
33Ha11	19	2670	E		5	Unknown	Hard	Secondary Decortication
33Ha11	19	2670	E		5	Unknown	Hard	Secondary Decortication
33Ha11	19	2670	E		5	Unknown	Hard	Secondary Decortication
33Ha11	19	2670	E		5	Unknown	Hard	Secondary Decortication
33Ha11	19	2670	E		5	Unknown	Hard	Secondary Decortication
33Ha11	19	2670	E		5	Unknown	Hard	Secondary Decortication
33Ha11	19	2670	E		5	Unknown	None	Thinning
33Ha11	19	2670	E		5	Unknown	None	Thinning
33Ha11	19	2670	E		5	Unknown	None	Thinning
33Ha11	19	2670	E		5	Unknown	None	Thinning
33Ha11	19	2670	E		5	Unknown	None	Unknown
33Ha11	19	2670	E		5	Unknown	None	Unknown
33Ha11	19	2671	B	3		Bisher	Hard	Secondary Decortication
33Ha11	19	2671	B	3		Brassfield	None	Primary
33Ha11	19	2671	B	3		Brush Creek	None	Primary
33Ha11	19	2671	B	3		Brush Creek	None	Primary
33Ha11	19	2671	B	3		Brush Creek	None	Thinning
33Ha11	19	2671	B	3		Cedarville-Guelph	Hard	Primary Decortication
33Ha11	19	2671	B	3		Cedarville-Guelph	Hard	Secondary Decortication
33Ha11	19	2671	B	3		Cedarville-Guelph	Hard	Secondary Decortication
33Ha11	19	2671	B	3		Cedarville-Guelph	None	Thinning
33Ha11	19	2671	B	3		Cedarville-Guelph	None	Unknown

Site #	Acc.#	Cat. #	Unit	Level	Feat.	Raw Material	Cortex	Debitage/Artifact Type
33Ha11	19	2671	B	3		Cedarville-Guelph	None	Unknown
33Ha11	19	2671	B	3		Cedarville-Guelph	None	Unknown
33Ha11	19	2671	B	3		Cedarville-Guelph	None	Unknown
33Ha11	19	2671	B	3		Cedarville-Guelph	None	Unknown
33Ha11	19	2671	B	3		Columbus	Hard	Unknown
33Ha11	19	2671	B	3		Columbus	None	Unknown
33Ha11	19	2671	B	3		Columbus	None	Unknown
33Ha11	19	2671	B	3		Delaware	Hard	Secondary Decortication
33Ha11	19	2671	B	3		Delaware	Hard	Secondary Decortication
33Ha11	19	2671	B	3		Delaware	Hard	Secondary Decortication
33Ha11	19	2671	B	3		Delaware	None	Unknown
33Ha11	19	2671	B	3		Haney	Hard	Primary Decortication
33Ha11	19	2671	B	3		Harrison County	Hard	Unknown
33Ha11	19	2671	B	3		Harrodsburg	None	Unknown
33Ha11	19	2671	B	3		Kentucky Flint Ridge	None	Thinning
33Ha11	19	2671	B	3		Kentucky Flint Ridge	None	Unknown
33Ha11	19	2671	B	3		Laurel	Soft	Core
33Ha11	19	2671	B	3		Laurel	Soft	Core
33Ha11	19	2671	B	3		Laurel	Hard	Primary Decortication
33Ha11	19	2671	B	3		Laurel	Hard	Primary Decortication
33Ha11	19	2671	B	3		Laurel	Hard	Primary Decortication
33Ha11	19	2671	B	3		Laurel	Hard	Primary
33Ha11	19	2671	B	3		Laurel	Hard	Primary
33Ha11	19	2671	B	3		Laurel	Hard	Primary
33Ha11	19	2671	B	3		Laurel	None	Primary
33Ha11	19	2671	B	3		Laurel	Hard	Secondary Decortication
33Ha11	19	2671	B	3		Laurel	Hard	Thinning

Site #	Acc.#	Cat. #	Unit	Level	Feat.	Raw Material	Cortex	Debitage/Artifact Type
33Ha11	19	2671	B	3		Laurel	None	Thinning
33Ha11	19	2671	B	3		Laurel	None	Thinning
33Ha11	19	2671	B	3		Laurel	None	Thinning
33Ha11	19	2671	B	3		Laurel	None	Thinning
33Ha11	19	2671	B	3		Laurel	None	Thinning
33Ha11	19	2671	B	3		Laurel	None	Thinning
33Ha11	19	2671	B	3		Laurel	None	Thinning
33Ha11	19	2671	B	3		Laurel	None	Thinning
33Ha11	19	2671	B	3		Laurel	None	Thinning
33Ha11	19	2671	B	3		Laurel	None	Thinning
33Ha11	19	2671	B	3		Laurel	None	Thinning
33Ha11	19	2671	B	3		Laurel	None	Thinning
33Ha11	19	2671	B	3		Laurel	None	Thinning
33Ha11	19	2671	B	3		Laurel	None	Thinning
33Ha11	19	2671	B	3		Laurel	None	Thinning
33Ha11	19	2671	B	3		Laurel	None	Thinning
33Ha11	19	2671	B	3		Laurel	None	Thinning
33Ha11	19	2671	B	3		Laurel	None	Thinning
33Ha11	19	2671	B	3		Laurel	None	Thinning
33Ha11	19	2671	B	3		Laurel	None	Thinning
33Ha11	19	2671	B	3		Laurel	None	Thinning
33Ha11	19	2671	B	3		Laurel	None	Thinning
33Ha11	19	2671	B	3		Laurel	None	Thinning
33Ha11	19	2671	B	3		Laurel	None	Thinning
33Ha11	19	2671	B	3		Laurel	None	Thinning
33Ha11	19	2671	B	3		Laurel	Hard	Unknown
33Ha11	19	2671	B	3		Laurel	Hard	Unknown

Site #	Acc.#	Cat. #	Unit	Level	Feat.	Raw Material	Cortex	Debitage/Artifact Type
33Ha11	19	2671	B	3		Laurel	None	Unknown
33Ha11	19	2671	B	3		Laurel	None	Unknown
33Ha11	19	2671	B	3		Laurel	None	Unknown
33Ha11	19	2671	B	3		Laurel	None	Unknown
33Ha11	19	2671	B	3		Laurel	None	Unknown
33Ha11	19	2671	B	3		Laurel	None	Unknown
33Ha11	19	2671	B	3		Laurel	None	Unknown
33Ha11	19	2671	B	3		Laurel	None	Unknown
33Ha11	19	2671	B	3		Laurel	None	Unknown
33Ha11	19	2671	B	3		Laurel	None	Unknown
33Ha11	19	2671	B	3		Laurel	None	Unknown
33Ha11	19	2671	B	3		Laurel	None	Unknown
33Ha11	19	2671	B	3		Laurel	None	Unknown
33Ha11	19	2671	B	3		Laurel	None	Unknown
33Ha11	19	2671	B	3		Laurel	None	Unknown
33Ha11	19	2671	B	3		Laurel	None	Unknown
33Ha11	19	2671	B	3		Laurel	None	Unknown
33Ha11	19	2671	B	3		Laurel	None	Unknown
33Ha11	19	2671	B	3		Laurel	None	Unknown
33Ha11	19	2671	B	3		Laurel	None	Unknown
33Ha11	19	2671	B	3		Laurel	None	Unknown
33Ha11	19	2671	B	3		Laurel	None	Unknown
33Ha11	19	2671	B	3		Laurel	None	Unknown
33Ha11	19	2671	B	3		Laurel	None	Unknown
33Ha11	19	2671	B	3		Laurel	None	Unknown
33Ha11	19	2671	B	3		Laurel	None	Unknown
33Ha11	19	2671	B	3		Laurel	None	Unknown

Site #	Acc.#	Cat. #	Unit	Level	Feat.	Raw Material	Cortex	Debitage/Artifact Type
33Ha11	19	2671	B	3		Laurel	None	Unknown
33Ha11	19	2671	B	3		Paoli	None	Unknown
33Ha11	19	2671	B	3		Plum Run	Hard	Checked Pebble
33Ha11	19	2671	B	3		Unknown	Hard	Core
33Ha11	19	2671	B	3		Unknown	Hard	Primary Decortication
33Ha11	19	2671	B	3		Unknown	Hard	Primary Decortication
33Ha11	19	2671	B	3		Unknown	Hard	Primary Decortication
33Ha11	19	2671	B	3		Unknown	Hard	Primary Decortication
33Ha11	19	2671	B	3		Unknown	Hard	Primary Decortication
33Ha11	19	2671	B	3		Unknown	Hard	Primary Decortication
33Ha11	19	2671	B	3		Unknown	Hard	Primary Decortication
33Ha11	19	2671	B	3		Unknown	Hard	Primary Decortication
33Ha11	19	2671	B	3		Unknown	Hard	Primary Decortication
33Ha11	19	2671	B	3		Unknown	Hard	Primary Decortication
33Ha11	19	2671	B	3		Unknown	Hard	Primary Decortication
33Ha11	19	2671	B	3		Unknown	Hard	Primary Decortication
33Ha11	19	2671	B	3		Unknown	Hard	Primary Decortication
33Ha11	19	2671	B	3		Unknown	Hard	Primary Decortication
33Ha11	19	2671	B	3		Unknown	Soft	Primary Decortication
33Ha11	19	2671	B	3		Unknown	Hard	Primary
33Ha11	19	2671	B	3		Unknown	Hard	Primary
33Ha11	19	2671	B	3		Unknown	Hard	Primary
33Ha11	19	2671	B	3		Unknown	None	Primary
33Ha11	19	2671	B	3		Unknown	None	Primary
33Ha11	19	2671	B	3		Unknown	None	Primary
33Ha11	19	2671	B	3		Unknown	None	Primary
33Ha11	19	2671	B	3		Unknown	None	Primary

Site #	Acc.#	Cat. #	Unit	Level	Feat.	Raw Material	Cortex	Debitage/Artifact Type
33Ha11	19	2671	B	3		Unknown	Hard	Secondary Decortication
33Ha11	19	2671	B	3		Unknown	Hard	Secondary Decortication
33Ha11	19	2671	B	3		Unknown	Hard	Secondary Decortication
33Ha11	19	2671	B	3		Unknown	Hard	Secondary Decortication
33Ha11	19	2671	B	3		Unknown	Hard	Secondary Decortication
33Ha11	19	2671	B	3		Unknown	None	Sharpening
33Ha11	19	2671	B	3		Unknown	None	Thinning
33Ha11	19	2671	B	3		Unknown	None	Thinning
33Ha11	19	2671	B	3		Unknown	None	Thinning
33Ha11	19	2671	B	3		Unknown	Hard	Unknown
33Ha11	19	2671	B	3		Unknown	Hard	Unknown
33Ha11	19	2671	B	3		Unknown	Hard	Unknown
33Ha11	19	2671	B	3		Unknown	None	Unknown
33Ha11	19	2671	B	3		Unknown	None	Unknown
33Ha11	19	2671	B	3		Unknown	None	Unknown
33Ha11	19	2671	B	3		Unknown	None	Unknown
33Ha11	19	2671	B	3		Unknown	None	Unknown
33Ha11	19	2671	B	3		Unknown	None	Unknown
33Ha11	19	2671	B	3		Unknown	None	Unknown
33Ha11	19	2671	B	3		Unknown	None	Unknown
33Ha11	19	2671	B	3		Unknown	None	Unknown
33Ha11	19	2671	B	3		Unknown	None	Unknown
33Ha11	19	2671	B	3		Unknown	None	Unknown
33Ha11	19	2671	B	3		Unknown	None	Unknown
33Ha11	19	2671	B	3		Unknown	None	Unknown
33Ha11	19	2671	B	3		Unknown	None	Unknown
33Ha11	19	2671	B	3		Unknown	None	Unknown

Site #	Acc.#	Cat. #	Unit	Level	Feat.	Raw Material	Cortex	Debitage/Artifact Type
33Ha11	19	2671	B	3		Unknown	None	Unknown
33Ha11	19	2671	B	3		Unknown	None	Unknown
33Ha11	19	2671	B	3		Unknown	None	Unknown
33Ha11	19	2671	B	3		Unknown	None	Unknown
33Ha11	19	2671	B	3		Unknown	None	Unknown
33Ha11	19	2671	B	3		Unknown	None	Unknown
33Ha11	19	2677	B	3		Delaware	Hard	Primary
33Ha11	19	2677	B	3		Kanawha Black	None	Thinning
33Ha11	19	2677	B	3		Laurel	None	Primary
33Ha11	19	2677	B	3		Laurel	None	Primary
33Ha11	19	2677	B	3		Laurel	Hard	Secondary Decortication
33Ha11	19	2677	B	3		Laurel	None	Thinning
33Ha11	19	2677	B	3		Unknown	None	Primary
33Ha11	19	2677	B	3		Unknown	None	Primary
33Ha11	19	2677	B	3		Unknown	Hard	Secondary Decortication
33Ha11	19	2677	B	3		Unknown	None	Unknown
33Ha11	19	2677	B	3		Unknown	None	Unknown
33Ha11	19	2692	B	4		Cedarville-Guelph	Hard	Unknown
33Ha11	19	2692	B	4		Unknown	None	Unknown
33Ha11	19	2698	C		1	Laurel	None	Expedient
33Ha11	19	2703	E	3	2	Laurel	None	Primary
33Ha11	19	2703	E	3	2	Laurel	None	Primary
33Ha11	19	2703	E	3	2	Laurel	None	Unknown
33Ha11	19	2703	E	3	2	Unknown	Hard	Primary Decortication
33Ha11	19	2704	B	5		Laurel	None	Primary
33Ha11	19	2708	C	3		Laurel	None	Thinning
33Ha11	19	2708	C	3		Unknown	None	Primary

Site #	Acc.#	Cat. #	Unit	Level	Feat.	Raw Material	Cortex	Debitage/Artifact Type
33Ha11	19	2714	E	3	2	Laurel	None	Thinning
33Ha11	19	2715	D	3		Kentucky Flint Ridge	Hard	Secondary Decortication
33Ha11	19	2715	D	3		Laurel	Hard	Primary Decortication
33Ha11	19	2715	D	3		Laurel	Hard	Primary
33Ha11	19	2715	D	3		Unknown	None	Primary
33Ha11	19	2715	D	3		Unknown	Hard	Secondary Decortication
33Ha11	19	2719	D	2		Laurel	Hard	Primary
33Ha11	19	2719	D	2		Laurel	None	Unknown
33Ha11	19	2719	D	2		Laurel	None	Unknown
33Ha11	19	2719	D	2		Unknown	Hard	Primary
33Ha11	19	2719	D	2		Unknown	Hard	Secondary Decortication
33Ha11	19	2738	C		1	Cedarville-Guelph	Hard	Checked Pebble
33Ha11	19	2738	C		1	Unknown	Soft	Checked Pebble
33Ha11	19	2763	C		1	Laurel	None	Thinning
33Ha11	19	2763	C		1	Laurel	Soft	Thinning
33Ha11	19	2802			55	Laurel	None	Thinning
33Ha11	19	2802			55	Laurel	None	Unknown
33Ha11	19	2802			55	Laurel	None	Unknown
33Ha11	19	2802			55	Unknown	Hard	Primary
33Ha11	19	2808	D	1		Boyle	Hard	Secondary Decortication
33Ha11	19	2808	D	1		Indian Creek	None	Primary
33Ha11	19	2808	D	1		Laurel	Hard	Primary
33Ha11	19	2808	D	1		Unknown	None	Thinning
33Ha11	19	2814	B	4		Boyle	None	Unknown
33Ha11	19	2814	B	4		Cedarville-Guelph	None	Primary
33Ha11	19	2814	B	4		Laurel	None	Primary
33Ha11	19	2814	B	4		Unknown	None	Primary

Site #	Acc.#	Cat. #	Unit	Level	Feat.	Raw Material	Cortex	Debitage/Artifact Type
33Ha11	19	2814	B	4		Unknown	None	Thinning
33Ha11	19	2814	B	4		Unknown	None	Unknown
33Ha11	19	2815	E	PZ-1		Unknown	Hard	Primary Decortication
33Ha11	19	2815	E	PZ-1		Laurel	None	Thinning
33Ha11	19	2815	E	PZ-1		Unknown	None	Thinning
33Ha11	19	2849	D	2		Laurel	None	Primary
33Ha11	19	2849	D	2		Unknown	None	Primary
33Ha11	19	2849	D	2		Unknown	Hard	Secondary Decortication
33Ha11	19	2849	D	2		Unknown	Hard	Secondary Decortication
33Ha11	19	2883	C		1	Unknown	Hard	Secondary Decortication
33Ha11	19	2886	E	2		Delaware	Hard	Secondary Decortication
33Ha11	19	2886	E	2		Delaware	Hard	Secondary Decortication
33Ha11	19	2886	E	2		Laurel	Hard	Primary Decortication
33Ha11	19	2886	E	2		Laurel	None	Primary
33Ha11	19	2886	E	2		Laurel	None	Primary
33Ha11	19	2886	E	2		Laurel	Hard	Secondary Decortication
33Ha11	19	2887	C		1	Laurel	None	Sharpening
33Ha11	19	2887	C		1	Laurel	None	Unknown
33Ha11	19	2887	C		1	Laurel	None	Unknown
33Ha11	19	2887	C		1	Laurel	None	Unknown
33Ha11	19	2887	C		1	Laurel	None	Unknown
33Ha11	19	2887	C		1	Laurel	None	Unknown
33Ha11	19	2887	C		1	Unknown	None	Sharpening
33Ha11	19	2887	C		1	Unknown	None	Sharpening
33Ha11	19	2887	C		1	Unknown	None	Sharpening
33Ha11	19	2887	C		1	Unknown	None	Sharpening
33Ha11	19	2887	C		1	Unknown	Hard	Thinning

Site #	Acc.#	Cat. #	Unit	Level	Feat.	Raw Material	Cortex	Debitage/Artifact Type
33Ha11	19	2887	C		1	Unknown	None	Thinning
33Ha11	19	2887	C		1	Unknown	None	Thinning
33Ha11	19	2887	C		1	Unknown	None	Unknown
33Ha11	19	2887	C		1	Unknown	None	Unknown
33Ha11	19	2887	C		1	Unknown	None	Unknown
33Ha11	19	2887	C		1	Unknown	None	Unknown
33Ha11	19	2887	C		1	Unknown	None	Unknown
33Ha11	19	2890	B	4		Boyle	Hard	Primary
33Ha11	19	2890	B	4		Laurel	None	Primary
33Ha11	19	2890	B	4		Laurel	None	Primary
33Ha11	19	2890	B	4		Ohio Flint Ridge	None	Primary
33Ha11	19	2890	B	4		Paoli	None	Unknown
33Ha11	19	2890	B	4		Unknown	Hard	Unknown
33Ha11	19	2896			5	Boyle	None	Thinning
33Ha11	19	2896			5	Delaware	None	Unknown
33Ha11	19	2896			5	Laurel	Hard	Primary
33Ha11	19	2899	C		suspect feature B	Columbus	None	Primary
33Ha11	19	2899	C		suspect feature B	Delaware	Hard	Secondary Decortication
33Ha11	19	2899	C		suspect feature B	Laurel	Hard	Unknown
33Ha11	19	2900	E	3	suspect feature C	Boyle	Hard	Primary Decortication
33Ha11	19	2900	E	3	suspect feature C	Laurel	Hard	Primary Decortication
33Ha11	19	2900	E	3	suspect feature C	Laurel	None	Primary
33Ha11	19	2900	E	3	suspect feature C	Laurel	None	Unknown
33Ha11	19	2900	E	3	suspect feature C	Paoli	None	Thinning
33Ha11	19	2900	E	3	suspect feature C	Unknown	Hard	Primary Decortication
33Ha11	19	2900	E	3	suspect feature C	Unknown	None	Primary
33Ha11	19	2900	E	3	suspect feature C	Unknown	None	Unknown

Site #	Acc.#	Cat. #	Unit	Level	Feat.	Raw Material	Cortex	Debitage/Artifact Type
33Ha11	19	2901	B	3		Kentucky Flint Ridge	None	Thinning
33Ha11	19	2901	B	3		Laurel	None	Primary
33Ha11	19	2901	B	3		Laurel	Hard	Secondary Decortication
33Ha11	19	2901	B	3		Laurel	Hard	Thinning
33Ha11	19	2901	B	3		Laurel	None	Thinning
33Ha11	19	2901	B	3		Laurel	None	Thinning
33Ha11	19	2901	B	3		Laurel	None	Thinning
33Ha11	19	2901	B	3		Laurel	None	Unknown
33Ha11	19	2902	E	3	suspect feature	Boyle	None	Primary
33Ha11	19	2902	E	3	suspect feature	Unknown	Hard	Thinning
33Ha11	19	2907	D	3		Kentucky Flint Ridge	None	Primary
33Ha11	19	2908	B	4	suspect area	Unknown	None	Thinning
33Ha11	19	2908	B	4	suspect area	Unknown	None	Thinning
33Ha11	19	2908	D	3		Brush Creek	None	Primary
33Ha11	19	2908	D	3		Laurel	Hard	Primary Decortication
33Ha11	19	2908	D	3		Laurel	None	Thinning
33Ha11	19	2908	D	3		Unknown	Hard	Primary
33Ha11	19	2908	D	3		Unknown	Hard	Thinning
33Ha11	19	2911	C		1	Boyle	None	Sharpening
33Ha11	19	2911	C		1	Boyle	None	Sharpening
33Ha11	19	2911	C		1	Boyle	None	Sharpening
33Ha11	19	2911	C		1	Boyle	None	Sharpening
33Ha11	19	2911	C		1	Boyle	None	Sharpening
33Ha11	19	2911	C		1	Boyle	None	Sharpening
33Ha11	19	2911	C		1	Boyle	None	Sharpening
33Ha11	19	2911	C		1	Boyle	None	Sharpening
33Ha11	19	2911	C		1	Boyle	None	Sharpening

Site #	Acc.#	Cat. #	Unit	Level	Feat.	Raw Material	Cortex	Debitage/Artifact Type
33Ha11	19	2911	C		1	Boyle	None	Unknown
33Ha11	19	2911	C		1	Boyle	None	Unknown
33Ha11	19	2911	C		1	Boyle	None	Unknown
33Ha11	19	2911	C		1	Boyle	None	Unknown
33Ha11	19	2911	C		1	Boyle	None	Unknown
33Ha11	19	2911	C		1	Boyle	None	Unknown
33Ha11	19	2911	C		1	Brassfield	None	Sharpening
33Ha11	19	2911	C		1	Brassfield	None	Sharpening
33Ha11	19	2911	C		1	Brassfield	None	Unknown
33Ha11	19	2911	C		1	Cedarville-Guelph	None	Sharpening
33Ha11	19	2911	C		1	Cedarville-Guelph	None	Unknown
33Ha11	19	2911	C		1	Columbus	None	Unknown
33Ha11	19	2911	C		1	Columbus	None	Unknown
33Ha11	19	2911	C		1	Columbus	None	Unknown
33Ha11	19	2911	C		1	Delaware	Hard	Primary Decortication
33Ha11	19	2911	C		1	Delaware	Hard	Primary Decortication
33Ha11	19	2911	C		1	Delaware	None	Sharpening
33Ha11	19	2911	C		1	Delaware	None	Sharpening
33Ha11	19	2911	C		1	Delaware	None	Sharpening
33Ha11	19	2911	C		1	Delaware	None	Unknown
33Ha11	19	2911	C		1	Delaware	None	Unknown
33Ha11	19	2911	C		1	Delaware	None	Unknown
33Ha11	19	2911	C		1	Kentucky Flint Ridge	Soft	Primary Decortication
33Ha11	19	2911	C		1	Kentucky Flint Ridge	None	Sharpening
33Ha11	19	2911	C		1	Kentucky Flint Ridge	None	Unknown
33Ha11	19	2911	C		1	Laurel	Hard	Primary Decortication
33Ha11	19	2911	C		1	Laurel	Hard	Secondary Decortication

Site #	Acc.#	Cat. #	Unit	Level	Feat.	Raw Material	Cortex	Debitage/Artifact Type
33Ha11	19	2911	C		1	Laurel	Hard	Sharpening
33Ha11	19	2911	C		1	Laurel	Hard	Sharpening
33Ha11	19	2911	C		1	Laurel	None	Sharpening
33Ha11	19	2911	C		1	Laurel	None	Sharpening
33Ha11	19	2911	C		1	Laurel	None	Sharpening
33Ha11	19	2911	C		1	Laurel	None	Sharpening
33Ha11	19	2911	C		1	Laurel	None	Sharpening
33Ha11	19	2911	C		1	Laurel	None	Sharpening
33Ha11	19	2911	C		1	Laurel	None	Sharpening
33Ha11	19	2911	C		1	Laurel	None	Sharpening
33Ha11	19	2911	C		1	Laurel	None	Sharpening
33Ha11	19	2911	C		1	Laurel	None	Sharpening
33Ha11	19	2911	C		1	Laurel	None	Sharpening
33Ha11	19	2911	C		1	Laurel	None	Sharpening
33Ha11	19	2911	C		1	Laurel	None	Sharpening
33Ha11	19	2911	C		1	Laurel	None	Sharpening
33Ha11	19	2911	C		1	Laurel	None	Sharpening
33Ha11	19	2911	C		1	Laurel	None	Sharpening
33Ha11	19	2911	C		1	Laurel	None	Sharpening
33Ha11	19	2911	C		1	Laurel	None	Sharpening
33Ha11	19	2911	C		1	Laurel	None	Sharpening
33Ha11	19	2911	C		1	Laurel	None	Sharpening
33Ha11	19	2911	C		1	Laurel	None	Sharpening
33Ha11	19	2911	C		1	Laurel	None	Sharpening
33Ha11	19	2911	C		1	Laurel	None	Sharpening
33Ha11	19	2911	C		1	Laurel	None	Sharpening
33Ha11	19	2911	C		1	Laurel	None	Sharpening

Site #	Acc.#	Cat. #	Unit	Level	Feat.	Raw Material	Cortex	Debitage/Artifact Type
33Ha11	19	2911	C		1	Laurel	None	Sharpening
33Ha11	19	2911	C		1	Laurel	None	Sharpening
33Ha11	19	2911	C		1	Laurel	None	Sharpening
33Ha11	19	2911	C		1	Laurel	None	Sharpening
33Ha11	19	2911	C		1	Laurel	None	Sharpening
33Ha11	19	2911	C		1	Laurel	None	Sharpening
33Ha11	19	2911	C		1	Laurel	None	Sharpening
33Ha11	19	2911	C		1	Laurel	None	Sharpening
33Ha11	19	2911	C		1	Laurel	None	Sharpening
33Ha11	19	2911	C		1	Laurel	None	Sharpening
33Ha11	19	2911	C		1	Laurel	None	Sharpening
33Ha11	19	2911	C		1	Laurel	None	Sharpening
33Ha11	19	2911	C		1	Laurel	Soft	Sharpening
33Ha11	19	2911	C		1	Laurel	None	Thinning
33Ha11	19	2911	C		1	Laurel	None	Thinning
33Ha11	19	2911	C		1	Laurel	None	Thinning
33Ha11	19	2911	C		1	Laurel	None	Thinning
33Ha11	19	2911	C		1	Laurel	None	Thinning
33Ha11	19	2911	C		1	Laurel	None	Thinning
33Ha11	19	2911	C		1	Laurel	None	Thinning
33Ha11	19	2911	C		1	Laurel	None	Unknown
33Ha11	19	2911	C		1	Laurel	None	Unknown
33Ha11	19	2911	C		1	Laurel	None	Unknown
33Ha11	19	2911	C		1	Laurel	None	Unknown
33Ha11	19	2911	C		1	Laurel	None	Unknown
33Ha11	19	2911	C		1	Laurel	None	Unknown
33Ha11	19	2911	C		1	Laurel	None	Unknown

Site #	Acc.#	Cat. #	Unit	Level	Feat.	Raw Material	Cortex	Debitage/Artifact Type
33Ha11	19	2911	C		1	Laurel	None	Unknown
33Ha11	19	2911	C		1	Laurel	None	Unknown
33Ha11	19	2911	C		1	Laurel	None	Unknown
33Ha11	19	2911	C		1	Laurel	None	Unknown
33Ha11	19	2911	C		1	Laurel	None	Unknown
33Ha11	19	2911	C		1	Laurel	None	Unknown
33Ha11	19	2911	C		1	Laurel	None	Unknown
33Ha11	19	2911	C		1	Laurel	None	Unknown
33Ha11	19	2911	C		1	Laurel	None	Unknown
33Ha11	19	2911	C		1	Laurel	None	Unknown
33Ha11	19	2911	C		1	Laurel	None	Unknown
33Ha11	19	2911	C		1	Laurel	None	Unknown
33Ha11	19	2911	C		1	Laurel	None	Unknown
33Ha11	19	2911	C		1	Laurel	None	Unknown
33Ha11	19	2911	C		1	Laurel	None	Unknown
33Ha11	19	2911	C		1	Laurel	None	Unknown
33Ha11	19	2911	C		1	Laurel	None	Unknown
33Ha11	19	2911	C		1	Laurel	None	Unknown
33Ha11	19	2911	C		1	Laurel	None	Unknown
33Ha11	19	2911	C		1	Laurel	None	Unknown
33Ha11	19	2911	C		1	Laurel	None	Unknown
33Ha11	19	2911	C		1	Laurel	None	Unknown
33Ha11	19	2911	C		1	Laurel	None	Unknown
33Ha11	19	2911	C		1	Laurel	None	Unknown
33Ha11	19	2911	C		1	Laurel	None	Unknown
33Ha11	19	2911	C		1	Laurel	None	Unknown
33Ha11	19	2911	C		1	Laurel	None	Unknown

Site #	Acc.#	Cat. #	Unit	Level	Feat.	Raw Material	Cortex	Debitage/Artifact Type
33Ha11	19	2911	C		1	Laurel	None	Unknown
33Ha11	19	2911	C		1	Laurel	None	Unknown
33Ha11	19	2911	C		1	Laurel	None	Unknown
33Ha11	19	2911	C		1	Ohio Flint Ridge	None	Sharpening
33Ha11	19	2911	C		1	Paoli	None	Unknown
33Ha11	19	2911	C		1	Unknown	Hard	Primary Decortication
33Ha11	19	2911	C		1	Unknown	None	Sharpening
33Ha11	19	2911	C		1	Unknown	None	Sharpening
33Ha11	19	2911	C		1	Unknown	None	Sharpening
33Ha11	19	2911	C		1	Unknown	None	Sharpening
33Ha11	19	2911	C		1	Unknown	None	Sharpening
33Ha11	19	2911	C		1	Unknown	None	Sharpening
33Ha11	19	2911	C		1	Unknown	None	Sharpening
33Ha11	19	2911	C		1	Unknown	None	Sharpening
33Ha11	19	2911	C		1	Unknown	None	Sharpening
33Ha11	19	2911	C		1	Unknown	None	Sharpening
33Ha11	19	2911	C		1	Unknown	None	Sharpening
33Ha11	19	2911	C		1	Unknown	None	Sharpening
33Ha11	19	2911	C		1	Unknown	None	Sharpening
33Ha11	19	2911	C		1	Unknown	Hard	Thinning
33Ha11	19	2911	C		1	Unknown	None	Unknown
33Ha11	19	2911	C		1	Unknown	None	Unknown
33Ha11	19	2911	C		1	Unknown	None	Unknown
33Ha11	19	2911	C		1	Unknown	None	Unknown
33Ha11	19	2911	C		1	Unknown	None	Unknown
33Ha11	19	2911	C		1	Unknown	None	Unknown
33Ha11	19	2911	C		1	Unknown	None	Unknown

Site #	Acc.#	Cat. #	Unit	Level	Feat.	Raw Material	Cortex	Debitage/Artifact Type
33Ha11	19	2911	C		1	Unknown	None	Unknown
33Ha11	19	2911	C		1	Unknown	None	Unknown
33Ha11	19	2911	C		1	Unknown	None	Unknown
33Ha11	19	2911	C		1	Unknown	None	Unknown
33Ha11	19	2911	C		1	Unknown	None	Unknown
33Ha11	19	2911	C		1	Unknown	None	Unknown
33Ha11	19	2911	C		1	Unknown	None	Unknown
33Ha11	19	2911	C		1	Unknown	None	Unknown
33Ha11	19	2911	C		1	Unknown	None	Unknown
33Ha11	19	2911	C		1	Unknown	None	Unknown
33Ha11	19	2911	C		1	Unknown	None	Unknown
33Ha11	19	2911	C		1	Unknown	None	Unknown
33Ha11	19	2911	C		1	Unknown	None	Unknown
33Ha11	19	2911	C		1	Unknown	None	Unknown
33Ha11	19	2911	C		1	Unknown	None	Unknown
33Ha11	19	2911	C		1	Unknown	None	Unknown
33Ha11	19	2911	C		1	Unknown	None	Unknown
33Ha11	19	2911	C		1	Unknown	None	Unknown
33Ha11	19	2911	C		1	Unknown	None	Unknown
33Ha11	19	2911	C		1	Unknown	None	Unknown
33Ha11	19	2911	C		1	Unknown	None	Unknown
33Ha11	19	2911	C		1	Unknown	None	Unknown
33Ha11	19	2911	C		1	Unknown	None	Unknown
33Ha11	19	2911	C		1	Unknown	None	Unknown
33Ha11	19	2911	C		1	Unknown	None	Unknown
33Ha11	19	2911	C		1	Unknown	None	Unknown
33Ha11	19	2911	C		1	Unknown	None	Unknown

Site #	Acc.#	Cat. #	Unit	Level	Feat.	Raw Material	Cortex	Debitage/Artifact Type
33Ha11	19	2911	C		1	Unknown	None	Unknown
33Ha11	19	2911	C		1	Unknown	None	Unknown
33Ha11	19	2911	C		1	Unknown	None	Unknown
33Ha11	19	2911	C		1	Unknown	None	Unknown
33Ha11	19	2911	C		1	Unknown	None	Unknown
33Ha11	19	2911	C		1	Unknown	None	Unknown
33Ha11	19	2911	C		1	Unknown	None	Unknown
33Ha11	19	2911	C		1	Unknown	None	Unknown
33Ha11	19	2911	C		1	Unknown	None	Unknown
33Ha11	19	2911	C		1	Unknown	None	Unknown
33Ha11	19	2911	C		1	Unknown	None	Unknown
33Ha11	19	2911	C		1	Unknown	None	Unknown
33Ha11	19	2911	C		1	Unknown	None	Unknown
33Ha11	19	2911	C		1	Unknown	None	Unknown
33Ha11	19	2911	C		1	Unknown	None	Unknown
33Ha11	19	2911	C		1	Unknown	None	Unknown
33Ha11	19	2911	C		1	Unknown	None	Unknown
33Ha11	19	2911	C		1	Unknown	None	Unknown
33Ha11	19	2911	C		1	Unknown	None	Unknown
33Ha11	19	2911	C		1	Unknown	None	Unknown
33Ha11	19	2911	C		1	Unknown	None	Unknown
33Ha11	19	2911	C		1	Unknown	None	Unknown
33Ha11	19	2911	C		1	Unknown	None	Unknown
33Ha11	19	2911	C		1	Unknown	None	Unknown
33Ha11	19	2911	C		1	Unknown	None	Unknown
33Ha11	19	2911	C		1	Unknown	None	Unknown
33Ha11	19	2911	C		1	Unknown	None	Unknown

Site #	Acc.#	Cat. #	Unit	Level	Feat.	Raw Material	Cortex	Debitage/Artifact Type
33Ha11	19	2912	D	3		Columbus	None	Primary
33Ha11	19	2912	D	3		Columbus	Hard	Secondary Decortication
33Ha11	19	2912	D	3		Unknown	Hard	Secondary Decortication
33Ha11	19	2919	D	2		Laurel	Hard	Primary Decortication
33Ha11	19	2919	D	2		Laurel	Hard	Primary
33Ha11	19	2919	D	2		Laurel	None	Thinning
33Ha11	19	2919	D	2		Laurel	None	Thinning
33Ha11	19	2919	D	2		Laurel	None	Thinning
33Ha11	19	2919	D	2		Laurel	None	Unknown
33Ha11	19	2919	D	2		Laurel	None	Unknown
33Ha11	19	2919	D	2		Laurel	None	Unknown
33Ha11	19	2919	D	2		Unknown	None	Primary
33Ha11	19	2919	D	2		Unknown	None	Primary
33Ha11	19	2919	D	2		Unknown	None	Primary
33Ha11	19	2919	D	2		Unknown	None	Primary
33Ha11	19	2919	D	2		Unknown	None	Primary
33Ha11	19	2919	D	2		Unknown	None	Primary
33Ha11	19	2919	D	2		Unknown	None	Thinning
33Ha11	19	2919	D	2		Unknown	None	Thinning
33Ha11	19	2919	D	2		Unknown	None	Thinning
33Ha11	19	2919	D	2		Unknown	None	Thinning
33Ha11	19	2919	D	2		Unknown	None	Unknown
33Ha11	19	2919	D	2		Unknown	None	Unknown
33Ha11	19	2923	D	2		Laurel	None	Primary
33Ha11	19	2923	D	2		Laurel	None	Primary
33Ha11	19	2923	D	2		Laurel	None	Primary
33Ha11	19	2923	D	2		Laurel	Hard	Secondary Decortication

Site #	Acc.#	Cat. #	Unit	Level	Feat.	Raw Material	Cortex	Debitage/Artifact Type
33Ha11	19	2923	D	2		Laurel	None	Thinning
33Ha11	19	2925	D	2		Unknown	Hard	Thinning
33Ha11	19	2927	D	2		Laurel	None	Primary
33Ha11	19	2927	D	2		Laurel	None	Unknown
33Ha11	19	2927	D	2		Unknown	None	Unknown
33Ha11	19	2931	D	2		Unknown	None	Primary
33Ha11	19	2931	D	2		Unknown	None	Unknown
33Ha11	19	2937		7	55	Columbus	None	Unknown
33Ha11	19	2965	B	2		Laurel	Hard	Checked Pebble
33Ha11	19	2965	B	2		Laurel	Hard	Primary
33Ha11	19	2965	B	2		Laurel	None	Primary
33Ha11	19	2965	B	2		Laurel	None	Primary
33Ha11	19	2965	B	2		Laurel	None	Primary
33Ha11	19	2965	B	2		Laurel	None	Primary
33Ha11	19	2965	B	2		Laurel	Soft	Primary
33Ha11	19	2965	B	2		Laurel	None	Unknown
33Ha11	19	2965	B	2		Unknown	None	Primary
33Ha11	19	2965	B	2		Unknown	None	Primary
33Ha11	19	2965	B	2		Unknown	None	Sharpening
33Ha11	19	2968	B	2		Boyle	Hard	Thinning
33Ha11	19	2968	B	2		Boyle	None	Unknown
33Ha11	19	2968	B	2		Delaware	Hard	Unknown
33Ha11	19	2968	B	2		Haney	None	Unknown
33Ha11	19	2968	B	2		Kentucky Flint Ridge	Hard	Primary
33Ha11	19	2968	B	2		Laurel	Hard	Checked Pebble
33Ha11	19	2968	B	2		Laurel	None	Primary
33Ha11	19	2968	B	2		Laurel	Hard	Secondary Decortication

Site #	Acc.#	Cat. #	Unit	Level	Feat.	Raw Material	Cortex	Debitage/Artifact Type
33Ha11	19	2968	B	2		Laurel	Hard	Unknown
33Ha11	19	2968	B	2		Laurel	None	Unknown
33Ha11	19	2968	B	2		Laurel	None	Unknown
33Ha11	19	2968	B	2		Laurel	None	Unknown
33Ha11	19	2968	B	2		Laurel	None	Unknown
33Ha11	19	2968	B	2		Laurel	None	Unknown
33Ha11	19	2968	B	2		Unknown	None	Unknown
33Ha11	19	2968	B	2		Unknown	None	Unknown
33Ha11	19	2968	B	2		Unknown	None	Unknown
33Ha11	19	3140	E		5	Cedarville-Guelph	Hard	Primary Decortication
33Ha11	19	3140	E		5	Unknown	None	Core
33Ha11	19	3149	E	2		Cedarville-Guelph	None	Curated
33Ha11	19	3203	A		3	Laurel	Hard	Primary
33Ha11	19	3203	A		3	Unknown	None	Thinning
33Ha11	19	3211	C		1	Columbus	Hard	Primary Decortication
33Ha11	19	3211	C		1	Columbus	Hard	Primary Decortication
33Ha11	19	3211	C		1	Columbus	Hard	Primary Decortication
33Ha11	19	3211	C		1	Laurel	Hard	Checked Pebble
33Ha11	19	3211	C		1	Laurel	None	Unknown
33Ha11	19	3211	C		1	Unknown	Hard	Primary Decortication
33Ha11	19	3219			55	Unknown	Hard	Primary Decortication
33Ha11	19	3243	D	3		Unknown	None	Primary
33Ha11	19	3246	C		1	Unknown	Hard	Primary Decortication
33Ha11	19	3246	C		1	Unknown	None	Unknown
33Ha11	19	3246	C		1	Unknown	None	Unknown
33Ha11	19	3246	C		1	Unknown	None	Unknown
33Ha11	19	3252	E	3		Harrison County	None	Thinning

Site #	Acc.#	Cat. #	Unit	Level	Feat.	Raw Material	Cortex	Debitage/Artifact Type
33Ha11	19	3296			55	Laurel	Hard	Unknown
33Ha11	19	3296			55	Unknown	Hard	Primary
33Ha11	19	3298			55	Laurel	None	Thinning
33Ha11	19	3301	E	2		Columbus	Hard	Checked Pebble
33Ha11	19	3364			54	Unknown	None	Thinning
33Ha11	19	3364			54	Unknown	None	Unknown
33Ha11	19	3365	D	4	3	Delaware	Hard	Secondary Decortication
33Ha11	19	3645		5		Boyle	None	Curated
33Ha11	19	3647	A		3	Unknown	None	Unknown
33Ha11	19	3663	E		5	Laurel	None	Core