Exploring the Woodland Period Within the Lake Wawanosh Region Through Two Archaeological Sites: AgHn-12 and AgHn-14

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A thesis submitted in partial fulfillment of the requirements for the Master of Arts degree in Anthropology

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Abstract

This thesis focuses on two archaeological sites from the Woodland Period, Blackwell One (AgHn-12) and Blackwell Two (AgHn-14), which lie roughly 8 km northeast of Sarnia, Ontario. Specifically, the sites are situated near the historic Lake Wawanosh, which was drained in the late 1800s, and roughly 400 m south of the Lake Huron shore. Blackwell One has evidence of an Early Woodland occupation in its West Locus and Late Woodland, Younge to Springwells Phase of the Western Basin Tradition within its East Locus. Blackwell Two falls within the Middle Woodland period. The analysis of these sites, which focuses on feature contents, considered a variety of materials from the lithic, ceramic, faunal and floral assemblages. This cultural material was considered within the context of environmental interaction in this area which required a reconstruction of the Woodland period environment and of Lake Wawanosh. The settlement patterns identified, and their functionality, were also analysed. Overall, these analyses developed a brief window on how the occupants of these sites thrived within the environment near Lake Wawanosh during the Woodland period.

Keywords

Early, Middle, Late Woodland Period, Western Basin Tradition, Younge Phase, Springwells Phase, Ceramic Attribute Analysis, Feature Analysis, Lithic Analysis, Cultural Ecology, Cultural Landscape, Lake Huron, Kettle Point chert.
Summary for Lay Audience

Blackwell One and Blackwell Two are two archaeological sites east of Sarnia and south of Lake Huron. Together these sites span the Woodland period, which is divided, roughly, into Early (900 BCE to 400 BCE), Middle (400 BCE to 700 CE) and Late (700 CE to 1650 CE) sub-periods. This area is poorly understood archaeologically due to a lack of extensive previous archaeological work and research. A shallow lake known as Lake Wawanosh existed in the area prior to its draining in the late 1800s. Based on environmental reconstruction and the proximity to both Lake Huron and Lake Wawanosh, this was an area of rich, exploitable resources for past peoples. The analysis of these sites was conducted through the cultural material recovered from sealed deposits from within the subsoil. The cultural material ranged from stone tools and their debitage (by-products of manufacture), pottery, faunal (animal) and floral (plant) remains. The goal of these analyses was to broadly consider how the occupants of these sites interacted with the environment, how the cultural material was used within their environment and their subsistence strategies. The data from the animal and plants remains also allowed for interpretations of the seasonality of occupation. Data compiled from previously identified sites in the area generated a broader understanding of the landscape and how past peoples interacted within it. The knowledge presented within this study will aide future archaeological work within the area by providing a framework to draw upon.
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1 Introduction

This thesis focuses on analyzing and interpreting two archaeological sites Blackwell One and Blackwell Two, also identified by their site registration numbers AgHn-12 and AgHn-14, located in the City of Sarnia, Ontario. In the Ministry of Citizenship and Multiculturalism’s site database, the sites are known as Maaten Location 1 and Merrington 1994, respectively. Discussions with Aamjiwnaang to rename these sites were made, but unfortunately new site names were never realized. To move away from the site names reflecting the developers who required the archaeological assessments, the sites were re-termed Blackwell One and Two within this thesis.

Broadly, these sites fall within the Woodland period (roughly 800 BCE to 1650 CE) based on the analysis of cultural material from the feature contents such as the presence of ceramics and other characteristic artifacts (TMHC 2019a; 2021a). As such, this thesis explores the Woodland period in the Lake Wawanosh area through these two sites and the cultural material contained within them. This analysis is framed through a theoretical cultural ecological lens which views the cultural material within the context of environmental interaction in this area, including interpretations of subsistence strategies, and develops a brief window on how the occupants of these sites thrived. To develop this view, a variety of materials were analyzed, from the lithic and ceramic assemblages, faunal and floral remains, settlement patterns and features. Additional factors were also considered such as the environmental context and numerous other previously identified archaeological sites within the area and possible seasonal rounds (Figure 1). Synthesizing this information also aided in a consideration of a cultural landscape within the Lake Wawanosh region and beyond.

This chapter provides brief summaries of both AgHn-12 and AgHn-14 intending to situate the reader before more in-depth analyses and discussions of the sites and their artifacts in subsequent chapters of this thesis.
1.1 Cultural Resource Management Background

Both AgHn-12 and AgHn-14 were located during cultural resource management (CRM) assessments conducted by Timmins Martelle Heritage Consultants (TMHC) under my direction in the field (TMHC 2018a; 2019b). CRM archaeology in Ontario follows documentation developed by the Ministry of Citizenship and Multiculturalism (MCM), which governs the process and methodology of archaeological assessments through a series of Standards and Guidelines, with the most recent iteration released in 2011.

Archaeological assessments are divided into a four-tiered stage system, with sites progressing to further stages if they meet certain thresholds of significance. Stage 1 involves background research and property survey, which is often combined with the Stage 2 assessment. Stage 2 assessments involve either a pedestrian survey (if the area of interest lies within a ploughed agricultural field) or a test pit survey (if the area of interest
lies outside of a ploughed area). Typically, both survey types are based on five-metre interval transects.

Following a Stage 2 assessment, if a site meets the specified criteria laid out in the Standards and Guidelines, Stage 3 site specific assessment may be required (Standards and Guidelines 2011: Section 3). Stage 3 assessment involves test excavations to determine if a site requires Stage 4 mitigation. Depending on the site type and consultation with interested Indigenous communities Stage 4 mitigation can involve long term preservation or excavation.

1.2 AgHn-12 Background

AgHn-12 was initially identified during an archaeological assessment conducted in the autumn of 2017. This assessment was required for a proposed severance of lands adjacent to Blackwell Road in Sarnia, Ontario. Concerning the broader physical landscape, AgHn-12 lies approximately 300 metres north of the former Lake Wawanosh and 350 metres south of Lake Huron (Figure 1). Lake Wawanosh was drained in the mid-1800s (Elford 1967: 93). A large portion of the survey area contained previous disturbances, however, a small lithic scatter comprising 19 pieces of chipping detritus and two pieces of fire-cracked rock was identified within a small agricultural field located at the rear of the property (TMHC 2018a: 14). Due to the number and concentration of artifacts identified, AgHn-12 qualified for a Stage 3 assessment.

In the Stage 3 assessment of AgHn-12, 81 one-metre square units were excavated across the 100-metre by 70-metre survey area resulting in the recovery of 1,327 artifacts (TMHC 2018a: 20). Two projectile points were recovered and provided diagnostic information. The morphology of the two projectile points was determined to relate to point types common during the Early Woodland period, specifically a Meadowood type (ca. 950 BCE to 400 BCE) and a Kramer type (ca. 400 BCE to 0 CE) (TMHC 2018a: 22; Justice 1987: 170-171, 184). The pottery recovered was believed to be early Wayne Ware from the Transitional Woodland Period (500 CE to 900 CE) or earlier (TMHC 2018a: 22; Fitting 1965: 40, 158). As such, the Stage 3 findings positioned AgHn-12 broadly within the earlier segments of the Woodland period.
The subsequent Stage 4 excavations altered these conclusions. During the Stage 4 excavations, 30 one-metre square units were excavated in the plough zone. Based on the Stage 3 assessment findings, the placement of these units was concentrated around areas of high artifact density (TMHC 2019a: 9). Following the block excavation, the site area, as determined by the Stage 3 assessment, was mechanically stripped. This process involved an excavator with a straight-edged bucket removing the plough zone soils just above the subsoil. Subsequently, 12 subsurface features were identified, of which nine were considered cultural (TMHC 2019a: 12). These features clustered within the east and west ends of the site and were separated by 75 metres (Figure 2).

Upon analysis, these feature clusters appeared to represent temporally distinct occupations based on recovered artifacts. The West Loci (three features) represents an Early Woodland period occupation, while the East Loci (six features) represents a Late Woodland period occupation (TMHC 2019a: 35-36). In sum, the block and feature excavations recovered 3,953 artifacts, including a range of lithic, ceramic and bone artifacts and a relatively small sample of ecofacts consisting of animal bone, shell, and plant remains. The total artifact collection from all stages of investigation is summarized in Table 1.
1.3 AgHn-14 Background

AgHn-14 was identified in 2017 during an archaeological assessment required for a planned severance involving lands south of Blackwell Road near Sarnia, Ontario (TMHC 2018b). The site lies approximately 700 metres northeast of the former Lake Wawanosh and 600 metres south of Lake Huron (Figure 1). The assessment primarily occurred within an agricultural field, but test pitting also occurred within an adjacent wooded area. The survey recovered 78 artifacts, including chipping detritus and cores, a projectile point and other lithic tools, a few fragmentary pottery sherds, and one piece of fire-cracked rock (TMHC 2018b: 12). Morphologically, the projectile point resembled an extensively reworked Saugeen-type attributed to the Middle Woodland (Kenyon 1979: 10; TMHC 2018b: 13). The pottery was too fragmentary to provide any specific temporal or cultural affiliation. Due to the large number of artifacts recovered, a Stage 3 assessment was required.

The Stage 3 assessment of site AgHn-14 involved the excavations of 59 one-metre square units across a 60-metre by 75-metre area (TMHC 2019b: 19). A total of 1,589 artifacts were recovered, of which the majority were chipping detritus, faunal and fragmentary ceramics follow, respectively. (TMHC 2019b: 21). Formal and informal lithic tools are also relatively well represented throughout the assemblage.

The Stage 4 assessment, completed in 2019, involved the excavation of 46 one-metre square units (TMHC 2021a: 8). Mechanical topsoil stripping of the entire site area followed the block excavation. The removal of topsoil identified sixteen subsurface features, of which 14 were determined to be cultural (TMHC 2021a: 13). Two post moulds were also determined to be of cultural origin (ibid).

In sum, all stages of assessment resulted in the recovery of 15,458 artifacts, including a range of lithic and ceramic items along with a sample of ecofacts consisting of animal bone, shell, and plant remains (TMHC 2021a: 22). Over half of the artifacts recovered came from features (TMHC 2021a: 23). The complete artifact collection is summarized in Table 2.
This chapter aimed to introduce the two archaeological sites that are explored within this thesis, Blackwell One and Blackwell Two. A broad overview of the two sites is included which considers their placement within the Lake Wawanosh region and the previous stages of assessment the two sites were subject to. This overview also includes brief discussions of the artifacts recovered from all stages presented in Tables 1 and 2 which includes artifact classes and their frequencies. Brief explanations of the four archaeological assessment stages required in Ontario’s CRM regulations were also provided.

In the next chapter, an in-depth discussion of the Woodland period is provided which includes a chronological and cultural overview, including settlement-subsistence patterns. This discussion is followed by an overview of the previous archaeological work conducted within the Lake Wawanosh region more broadly. In Chapter 3, the theoretical framing for this thesis is discussed. Chapter 4 is an overview of the methods used in this study. Chapter 5 discusses the environmental reconstruction of the Lake Wawanosh area using historic survey data and pollen data. Chapter 6 discusses the analysis and the results achieved from application of the methods. Finally, Chapter 7 discusses interpretations and reviews the results with reference to the theoretical framework introduced previously.
2 Archaeological Context

2.1 Introduction

As previously mentioned, the Blackwell One (AgHn-12) and Blackwell Two (AgHn-14) sites include components that relate to much of the Woodland Period. Specifically, AgHn-12 is primarily attributed to the Late Woodland period, with six features located in the east end of the site identified to this period. However, one large feature in the west end of the site had several artifacts recovered that are interpreted to originate from the Early Woodland period. In addition, two features were identified in this area that lack diagnostic artifacts. Finally, AgHn-14, based primarily on the pottery recovered, appears to belong to the Middle Woodland period.

This chapter provides a chronological and broad cultural overview of the Woodland period in the Great Lakes region. This chapter also provides an in-depth exploration of previously ascribed settlement-subsistence patterns within the broader Lake Huron Basin region. Finally, this chapter concludes with a more detailed consideration of previous archaeology conducted within the Lake Wawanosh and the Port Edward - Sarnia areas.

2.2 Early Woodland

Traditionally the Early Woodland period in Southern Ontario is divided into two cultural complexes, Meadowood and Middlesex, which also roughly divide the period temporally from 800 BCE - 400 BCE and 450 BCE – 0 BCE respectively (Spence et al. 1990: 125). As such based on the traits identified from the cultural material recovered, the Early Woodland component identified at AgHn-12 is attributed to the Meadowood Complex. Therefore, the following discussion of the Early Woodland will focus on the Meadowood Complex. I should note, recently researchers have shifted their focus from the use of broad cultural complexes defined from a culture history perspective in favour of considering the characteristics of more localized populations.

Over 30 years ago, Spence and colleagues noted that knowledge of the Early Woodland in Ontario was limited, with most early information originating from mortuary sites (Mason 1981; Spence et al., 1990: 125). Some of these sites include Liahn II, where two
burials contained numerous Meadowood bifaces manufactured on Onondaga chert, copper, and the use of red ochre (Spence et al. 1990: 131). Another important burial site was Bruce Boyd. At the Bruce Boyd site, seventeen burials were associated with the Meadowood Complex, and numerous artifacts recovered suggested a complicated procurement (Spence et al. 1990: 133). These artifacts ranged from Meadowood preforms and bifaces, scrapers, trapezoidal gorgets, copper artifacts, abraders and celts (ibid.).

Conversely, most research from Early Woodland sites in southeastern Michigan has been based on habitation sites, which tended to be small, with evidence for a considerable degree of seasonal mobility (Garland and Beld 1999: 138-139). However, in the western and the extreme southern portions of the state, evidence for sunflower cultivation occurred as early as 1000 BCE, and squash cultivation occurred around 500 BCE (Garland and Beld 1999: 126). It is believed there were numerous interacting groups throughout Michigan during this time (Garland and Beld 1999: 146).

Due to the rise of CRM and subsequent research, more information about the Early Woodland in the Great Lakes region has been synthesized, specifically in Ontario. This research has supported earlier work, but more importantly, it has furthered knowledge of the Early Woodland beyond just mortuary sites and what was known in the early 1990s.

As mentioned previously, the Early Woodland component identified at Blackwell One likely involved the Meadowood Complex. This conclusion is based on the presence of a projectile point that morphologically resembles the Meadowood type and the style of pottery recovered. Mason (1981) believes the Meadowood type projectile point is the most numerous and diagnostic of the Meadowood artifacts (211). Meadowood points are usually manufactured on Onondaga chert, even on sites far from the source material (Mason 1981: 212; Spence et al. 1990: 128). Onondaga chert played a vital role within the Meadowood interaction sphere, possibly acting as a currency (Taché 2011: 46). Taché (2011) considers the focus of Onondaga chert to be one of the factors distinguishing Meadowood Complex from both previous and succeeding phases (48; also, Ellis and Deller 2014: 6). Interestingly, the Meadowood projectile point recovered from Blackwell One West Locus is manufactured on Kettle Point chert.
Evidence from Ontario appears to blend with adjacent areas, suggesting people had close and frequent interaction throughout the region, especially during the Meadowood Complex, for which a Meadowood interaction sphere has been defined (Spence et al. 1990: 131; Taché 2005: 168; Taché 2011). As briefly discussed below, this interaction sphere supports the overall similarities in the pottery found throughout this period. However, Spence and colleagues do not support this interpretation, as they view ceramics recovered in Michigan and Ohio as dissimilar to those identified in Ontario (Spence et al. 1990: 131), although they fail to mention to which areas of Ohio or Michigan they are referring.

Despite some slight variations, ceramics resembling the thick-walled, interior-exterior cord-marked vessels found in Ontario on Meadowood sites are also found in Michigan, along with Meadowood projectile points made on Onondaga chert (Garland and Beld 1999: 126, 131). Yet, Meadowood projectile points become rarer on sites further west in Michigan, as Kramer-type projectile points become more dominant (Garland and Beld 1999: 130). Taché (2011) interprets the presence of these shared traits as evidence for participation within this interaction sphere rather than representing a single, coherent unit (44).

For most of the Great Lakes Region, the emergence of ceramics, specifically coil-manufactured, thick-walled, and interior-exterior cord-marked vessels, provides the most significant archaeological distinction of the Early Woodland (Garland and Beld 1999: 126). The pottery recovered from Blackwell One West Locus resembles this, as it is thick, coil manufactured and exhibits interior and exterior cord marking.

In Ontario, this style is usually attributed to the Vinette I type originally defined on sites in upper New York State (Ritchie and MacNeish 1949: 100, 119). However, this Early Woodland ceramic style has a broad regional occurrence of closely related forms, such as Leimbach Thick from Ohio and Schultz Thick from Michigan (Spence et al., 1990: 131; Fischer 1972: 147). Some minor variations were present, such as lug handles or flatter bases versus more conoidal ones more commonly identified in Ontario or New York. Mason notes interior cord marking is not present on Leimbach Thick sherds (1981: 230).
Furthermore, these early pottery types are usually associated with Meadowood points (Pratt 1981: 74).

Some researchers have argued that the use of these early vessels was limited to boiling water for nut oil extraction or nut storage (Jackson 1986: 397; Ferris and Spence 1995: 90); however, recent research has shown conflicting evidence. For example, Skibo and colleagues (2016) have shown through residue analysis that various foods, such as meats and plants, were being processed in ceramic vessels during this period. However, Taché and colleagues (2019) believe these Early Woodland vessels were used almost exclusively for the processing of fish (also Taché & Craig 2015). This research has fueled debate between these two camps over the methodology used in lipid extraction. Regardless, these studies suggest more than just nut oil extraction was occurring (Taché et al. 2019: 1340).

Earlier research has suggested that, throughout most of the Early Woodland period and specifically within the Meadowood Complex, lifeways changed little from those identified for the Late Archaic. Specifically, earlier research hypothesized that small local bands would amalgamate into larger regional bands dependent upon the season or activity, like fish spawning (Ferris and Spence 1995). As a result, Early Woodland subsistence practices were thought to have relied quite extensively on fishing, favouring locations close to streams, lakes, or rivers (Fitting 1975: 94; Mason 1981: 209; Pratt 1981: 103; Garland and Beld 1999: 134). During colder seasons, these amalgamated bands would disperse, forming smaller familial groups seeking out deer and mast species for immediate consumption and storage (Cleland 1966; Mason 1981: 209; Pratt 1981:77).

Recent research suggests that these lifeways cannot always be defined as continuing the Late Archaic practices that utilized mobile hunting and gathering subsistence strategies. Recent research does not negate what these earlier researchers argued but expands and refines their ideas with new findings.

Wood (2015) summarizes several settlement-subsistence models that different researchers have generated to help define the Meadowood Complex (1). Three models were suggested: cold season amalgamation of peoples followed by warm season dispersal
into extractive camps, a continuation of Late Archaic practices, or the use of small, fall-occupied sites associated with larger camps occupied year-round, such as the Billiard Site (Timmins 1992; Wood 2015: 125).

Regardless of models, regional variability existed and mainly depended upon the resources available within different locales (Wood 2015: 130). Ellis and Deller (2014) suggest evidence for one of these models through an exploration of a collection of large and small sites identified within the Caradoc Sand Plain southwest of London.

Sites identified near the Thames River were interpreted as spring extraction camps for exploiting spring fish spawns. The inland sites, away from water courses, were interpreted as fall or winter camps where people exploited nut-bearing forests supplemented with deer or other mammal species (Ellis and Deller 2014:11-12). However, Ellis and Deller (2014) caution against oversimplifying these sites into more general categories to fit models. Evidence from these sites varies, with some sites nearer the river lacking evidence of spring spawning fish (Ellis and Deller 2014: 14). This evidence suggests inherent myopic views present in settlement-subsistence models and reveals how regionally varied these sites can be.

Somewhat contrary to these models but supporting regional variance is the evidence from the Peace Bridge site near Fort Erie, Ontario (Williamson et al. 2008). This site is a large lithic quarry site with evidence for both spring (fish remains and netsinkers) and fall occupations (mast, small mammals, and deer). Furthermore, this site was possibly occupied consecutively throughout these seasons, as evidence suggests extensive occupation over time (Williamson et al. 2008: 61-62). Ultimately, both Ellis and Deller (2014) and Williamson and colleagues (2008) suggest that these Meadowood peoples occupied large and small sites throughout the year in more complex ways than merely continuing Late Archaic patterns.

2.3 Middle Woodland

In southern Ontario, the Middle Woodland is generally accepted to begin around 400 BCE and persist to 700 CE or 900 CE, depending on the criteria used. Traditionally, in
southern Ontario, the Middle Woodland has been divided into three cultural complexes: Saugeen, Couture, and Point Peninsula. (Spence et al. 1990: 142; Ferris and Spence 1995: 97). These complexes are generally represented regionally, but their borders are poorly delineated due to high mobility and inter-marriage (Spence et al., 1990: 143). Defining sites exclusively through these traditional cultural-historically complexes is limiting and has fallen out of use. More recent research suggests that most major river drainages in southern Ontario had Middle Woodland populations exhibiting gradual changes in material culture, specifically ceramics, occurring from one drainage to the next (P. Timmins, personal comm.). A general overview of the Middle Woodland is provided below. As AgHn-14 lies near Lake Huron, previous research exploring that region more broadly is discussed in further detail beyond the general Middle Woodland summary.

Broadly, Middle Woodland ceramics differ from the Early Woodland period by generally depicting more decorative styles and greater refinement. However, these vessels continued to use the coiling method for manufacturing, forming conoidal-shaped vessels (Spittal 2017: 110).

Beyond shifting pottery styles, Ferris and Spence (1995: 99) note a new development seen broadly in the Middle Woodland with the emergence of more significant living sites with possible repeat occupations resulting in a higher density of the material culture (Prowse 2003: 127). Additionally, the importance of fish for subsistence is usually highlighted during the Middle Woodland where a variety of aquatic environments were exploited using various methods (Fitting 1975: 98, 129; Mason 1981:262; Ferris and Spence 1995: 100; Prowse 2008-2009; Gates St-Pierre and Chapdelaine 2013: 78; Curtis 2014: 157; Spittal 2017). The Blue Water Bridge site, a Middle Woodland site near the study area and other Middle Woodland sites further afield, such as the Donaldson site and the Inverhuron-Lucas site, support this interpretation (Finlayson 1977; O'Neal 2002, Prowse 2003).

It is suggested that fish were so abundant that they were dried and stored for later use during lean winter months (Spence et al., 1990; Prowse 2003: 73). Fish procurement involved various techniques depending upon the season and location, ranging from nets,
spears, harpoons, or possibly weirs (Prowse 2003: 100,128). Fishing generally occurred
during the warmer seasons and was supplemented by hunting medium to large
mammalian prey throughout the year (Gates St-Pierre and Chapdelaine 2013: 78; Curtis
2014: 157). Depending on resource availability, fruits, nuts, and plants were also
exploited (Gates St-Pierre and Chapdelaine 2013: 78). Finlayson (1977) notes relatively
high occurrences of carbonized raspberry and elderberry seeds recovered from several
Middle Woodland sites near Lake Huron. The presence of shell middens in some areas
suggests the exploitation of freshwater mussels (Curtis 2014: 157).

The exploitation and subsequent processing of nuts continued to be an essential
supplementary resource during the cooler months (Crawford and Smith 2003: 199).
Subsistence during the winter months was further supplemented by hunting - another
important subsistence activity (Cleland 1966: 66; Fitting 1975, Brose and Hambacher
1999: 191; Kingsley 1999: 157). There is little evidence to suggest that cultigens or
horticulture had a significant role during the Middle Woodland in Ontario (Ferris and
Spence 1995: 100). However, it is possible horticulture was just starting to emerge in
parts of southwestern Ontario during the latter part of the Middle Woodland period
resulting in subsistence shifts (Curtis 2006: 96). While several settlement-subsistence
models have been formulated that suggest broad similarities. Inherent variability exists
within sites, locales, and occupations, making it difficult to assign a singular subsistence-
settlement model to the Middle Woodland.

In many parts of North America, the Middle Woodland is synonymous with the Hopewell
culture, perhaps best known for their large earthwork mounds, which are possibly the
widest recognized and most researched archaeological manifestation in the eastern United
States (Fitting 1975: 96; Kingsley 1999: 148). The major cultural confluence of Hopewell
culture is believed to be within the river valleys of central and southern Ohio, but the
extent of the Hopewellian culture was quite widespread (Abrams 2009: 170; Schwarz
2016: 13; Lepper 2018: 1). Some early researchers speculated that the dominant
expansion of the Hopewellian culture throughout the Midwest and elsewhere was due to
agriculture, predominantly maize (Fitting 1975:97). More recent evidence reveals that no
substantial amounts of maize have been recovered from Hopewell sites, instead cultivated
plants include the exploitation of the carbohydrate-rich seeds extracted from goosefoot, knotweed, may grass, as well as sunflower, and sump weed (Abrams 2009: 179; Lepper 2018: 1).

Hopewellian peoples also traded widely in exotic raw materials and goods, a phenomenon termed the Hopewellian Interaction Sphere (Ferris and Spence 1995: 102). There is evidence in Ontario for participation within this sphere, including large earthwork mound burials, such as the Serpent Mound near Rice Lake associated and exotic mortuary offerings. Artifacts suggestive of a Hopewellian interaction occur from various sources, such as bifaces manufactured on exotic cherts, copper panpipes, mica, and marine shells (Fitting 1975: 98; Spence et al. 1990: 145-158). Furthermore, Finlayson (1977) suggests that some decorative motifs commonly seen in the Middle Woodland, such as dentate stamping or rocker dentate, are influenced by the Hopewellian culture (597-598; also, Ritchie and MacNeish 1949: 119).

2.3.1 Eastern Lake Huron Region

The Middle Woodland material present at AgHn-14 exhibits some similarities to the cultural material described within the eastern Lake Huron region by previous researchers. While somewhat dated, most information originates from Finlayson's (1977) work on numerous archaeological sites near Lake Huron in Bruce County. Focusing on three Middle Woodland period sites near Lake Huron, Finlayson proposed a three-part seasonal round model comprising a spring-early summer macroband settlement followed by a late summer-late fall microband settlement (Finlayson 1977: 577). Finally, a winter microband settlement or late winter-early spring settlement was proposed; however, a site associated with this seasonal occupation was not identified by Finlayson (Finlayson 1977: 577-578).

Finlayson described typical characteristics of the vessels in this region providing general traits that he believed defined them. That is, flat or rounded lips, wide necks, and outflaring rims (Finlayson 1977; Spence et al. 1990: 148). Compared to ceramics generally seen further east near Rice Lake, the ceramics in the eastern Lake Huron region generally have thick walls, coarse grit temper, and poorly knit paste (Spittal 2017: 110).
Finlayson (1977) divided the ceramics into two phases, one characterized by the dominance of pseudo scallop shell motifs, and one characterized by dentate stamp motifs (604). Pseudo scallop shell motifs occurs earlier and gradually declines as dentate stamped techniques become common. Additionally, criss-cross and the combination of two or more decorative motifs are thought to be common on the vessels of this region when compared to other regions further east (Spittal 2017: 111).

The lithic assemblage in this region is thought to be varied, with some distinct items noted, including cobble spall scrapers, end-notched net sinkers, and Saugeen-type projectile points characterized by broad, shallow side notches and convex bases (Kenyon 1979: 10; Spence et al. 1990: 148). Additionally, small end scrapers are considered an important artifact class at sites in this general region and, in some cases, are the dominant tool type within an assemblage (Spittal 2017:107). Broadly, evidence from lithics suggests that local chert types were being utilized more often, with only limited evidence for higher quality exotic materials (Spittal 2017: 107).

2.4 Late Woodland

Two archaeologically defined cultural traditions divide the Late Woodland period in southern Ontario, the Iroquoian Tradition in the east and the Western Basin Tradition (WBT) in the west (St. John and Ferris 2019). These traditions, outlined in Table 3, are further divided into chronological phases marked by distinct changes in material culture. The Ontario Iroquoian Tradition in southern Ontario commences around 900 CE and lasts until roughly 1650 CE. However, the WBT chronology for the Late Woodland begins with the Riviere Au Vase Phase around 600 CE, which is a transitional Middle to Late Woodland phase. Most WBT phases are defined through their ceramic vessel forms. This section will focus on the WBT, as analyses of the Late Woodland ceramics from AgHn-12 supports a WBT affiliation for that site. Settlement-subsistence patterns will also be discussed for each phase.

Most early research involving the WBT was conducted in Michigan and Ohio. Fitting’s work significantly influenced the development of the cultural sequence now known as the WBT. Initially, Fitting termed the WBT the Younge Tradition (Fitting 1965), influenced
by Greenman's 1939 article that detailed the cultural relationships of sites excavated in southeastern Michigan, which Greenman called the "Younge Focus" (Fitting 1965: 130). This name was taken from the Younge site in southeastern Michigan, which Greenman excavated in the late 1930s (Fitting 1965: 130). The Younge site was the first Late Woodland site in southeastern Michigan to be reported in detail (Fitting 1965: 130).

To further develop this sequence, Fitting expanded on Greenman's earlier work and compared several prominent sites in southeastern Michigan, focusing on the ceramic vessels recovered (Watts 2008: 27). Fitting identified several common traits throughout the tradition, such as collared and castellated ceramics with oblique or chevron motifs applied with varied techniques, triangular projectile points and sites reflecting a sedentary or semi-sedentary settlement pattern (Fitting 1965: 130). Furthermore, through comparing these sites, Fitting believed they were representative of particular phases within the Younge Tradition sequence (Watts 2008: 28).

In the late 1980s, while conducting archaeological excavations in northern Ohio, Stothers refined and renamed the Younge Tradition the Western Basin Tradition (Crawford and Smith 2003: 125). Stothers kept the initial phases mostly intact but altered the later sequences in the tradition. Stothers' views on how developments from different phases unfolded do not agree with most other researchers (Murphy and Ferris 1990; Suko 2017: 243). Trying to resolve this difference in developmental sequences is beyond the scope of this thesis. Suffice it to say that the following section will focus on the phases and developments described by Murphy and Ferris (1990) with supporting research from adjacent areas. Due to regional variations inherent in past cultures, this framework is viewed as a guideline and more of a temporal positioning. A singular, overarching cultural historical template is unrealistic as cultures and people typically do not adhere to strict boundaries to which we try to confine them archaeologically (St. John and Ferris 2019: 47 - 48).

2.4.1 Riviere au Vase Phase (600-900 CE)

As mentioned above, Riviere au Vase is the earliest phase within the Western Basin Tradition. The Riviere au Vase site, the type site for the phase, had single burials
containing transitional Middle Woodland period ceramics (Fitting 1965: 151). These transitional, early Riviere au Vase Phase vessels are called Wayne Ware and are possibly related to Couture-like vessels (Murphy and Ferris 1990: 195; Watts 2008: 33). They are commonly described as being cord-marked, small, globular, with constricted necks and pronounced shoulders (Watts 2008: 33). Collars and castellations have not been identified, typically exteriors depict minimal decoration, but lips and interiors can be decorated utilizing similar techniques (Watts 2008:33; Murphy and Ferris 1990: 195). Vessels of this type are primarily seen as stylistically homogenous throughout sites within southeastern Michigan (Holman and Brashler 1999: 214). Wayne ware types are later replaced by Riviere ware, which are slightly larger, thicker vessels and commonly adorned with horizontal bands of cord-wrapped stick motifs (Watts 2008: 33).

Though limited information is available, it is believed settlement- subsistence patterns during this phase continued those typical of the Middle Woodland period favouring seasonal mobility focused on hunting-fishing-gathering strategies (Murphy and Ferris 1990: 261). Specifically, this pattern involved a warm-weather macroband aggregation focusing on the exploitation of resource-rich environments, likely littoral regions (Watts 2008: 30). With the onset of cooler weather, people would disperse inland, forming smaller groups to hunt mammals supplemented with nut harvesting (Stothers and Abel: 2002: 78; Watts 2008: 30).

No substantial evidence for agriculture appears during this phase. A similar settlement- subsistence pattern involving a seasonal movement of peoples was also noted in the Saginaw Valley in Michigan (Holman and Brashler 1999: 215). As Riviere au Vase sites tend to be prevalent near aquatic or marshy environments, these areas were likely favoured as part of a seasonal round (Murphy and Ferris 1990; Holman and Brashler 1999). The lithic assemblage for the Riviere au Vase Phase is not very distinctive, save for a corner-notched projectile point type that is morphologically like the Jack's Reef type (Murphy and Ferris 1990: 198).
2.4.2 Younge Phase (900-1200 CE)

The Younge Phase comprises a relatively short span, but arguably has seen the most research of any of the WBT phases. Within Ontario, early research conducted on a variety of sites, including Robson Road, Cherry Lane, Bruner-Colasanti, Krieger, Van Bemmel and Dymock, helped to inform an initial conception of the Younge Phase in Ontario (Murphy and Ferris 1990; Watts 2008: 30). More recent research originates from a group of sites dubbed the Arkona Cluster northwest of London, including sites such as Van Bree, Figura, and Bingo Pit (Gostick 2017: 11). These Arkona Cluster sites have been the product of several theses, dissertations, and articles.

Fitting (1965) noted that none of the earlier ceramic types seen at the Riviere au Vase site were present at the Younge site (141). Therefore, Fitting decided the ceramics identified at the Younge site were later than the early ceramics from the Riviere au Vase site and determined these must belong to the second phase of the WBT (Fitting 1965: 141).

Younge Phase settlement-subsistence patterns suggest a general continuity from the preceding phase (Murphy and Ferris 1990: 262). Specifically, sites positioned within this phase are commonly identified near lakes and rivers, although sites have also been identified more inland (Gostick 2017: 11). Occupations likely involved short-term warm weather occupations near littoral areas, followed by inland cold weather dispersals along rivers to exploit nuts and deer (Suko 2017: 245). The seasonal subsistence pattern focused on exploiting resource-rich areas (Foreman 2011; Gostick 2017: 11; St. John 2020: 21).

Evidence for structures, when present, are poorly defined but often consist of small, circular to oval dwellings (Watts 2008: 30). Sites like Krieger, Dymock, and the cluster of sites near Arkona may support prolonged occupations with greater evidence of habitation structures, and occasional evidence for palisades (Murphy and Ferris 1990; St. John and Ferris 2019: 50). The presence of palisades and more substantial settlements suggests increasing sedentism throughout this phase (St. John and Ferris 2019: 50). Further evidence for more prolonged occupations is depicted by numerous storage pits interpreted as food or resource caches, which may have functioned as small cellars during
seasonal rounds (Watts 2008: 30; Dewar et al., 2010; St. John and Ferris 2019: 50). Pit features of this type are typically quite common throughout Younge Phase sites (Gostick 2017: 27).

Foreman (2011) concluded that fishing was significant, especially during the spring spawn, but fishing likely remained important throughout the year (150-151). Fishing was supplemented with other aquatic-based animals during warmer seasons, such as rodents, waterfowl, mussels, and reptiles (Foreman 2011: 150). Various avian species and larger, more terrestrial-bound mammals were also hunted throughout the year, but with greater dependency during the colder seasons of the late fall through to the early spring (Foreman 2011: 151). Analysis from faunal assemblages suggests that bone marrow and grease extraction, typically from deer, was a common and vital part of subsistence during this phase and beyond (Foreman 2011: 153, 156).

More recently, greater evidence of maize consumption has been suggested from some sites attributed to this phase (Dewar et al. 2010; Watts et al. 2011). Sites like the La Salle-Lucier site near Windsor had maize present in over 70% of the Younge Phase features excavated but quantities totaled less than one gram of fragmented kernels and cupules (Lennox and Dodd 1991: 43). It is believed that maize would have been grown in small garden plots more akin to a horticultural adaptation (ibid). Maize was likely stored in the large pits described above, which allowed for longer-term consumption (St. John and Ferris 2019: 50).

Despite greater evidence for increased maize consumption, it is likely communities remained flexible in their subsistence patterns exploiting seasonally abundant foods from favoured locations near lakes and rivers (Foreman 2011: 153; St. John and Ferris 2019: 50). Other plant types recovered from Younge Phase sites include tobacco, *setaria*, and elderberry (Crawford and Smith 2003: 210). As varied and flexible subsistence patterns existed, these patterns may reflect localized regional adaptations (Watts 2008: 30).

Lithics occur infrequently and are usually manufactured on local materials (Murphy and Ferris 1990: 207). Projectile points are often dominated by a triangular form (Fitting 1965: 48; Fitting 1975: 156-157). Various bone and ground stone tools, such as anvils,
hammerstones, abraders, and gorgets, have also been recorded (Fitting 1965; Murphy and Ferris 1990). Some researchers have considered the Younge Phase to be a transitional period between the Riviere au Vase and Springwell Phases (Stothers and Graves: 1983: 112).

2.4.3 Springwells (1200-1400 CE)

The Springwells Phase was initially identified from material recovered from intrusive pits at the Fort Wayne Mound (Fitting 1965: 141). As these mounds originally date from the Middle Woodland, the Springwells name was taken from the old place name for the mounds to avoid confusion (ibid.). This Phase saw an emergence of new vessel and decorative forms and a decrease in previously noted vessel trends.

A typology of Springwells vessels was initially defined by Fitting (1965) and has recently been refined by Carroll (2019) to include more definitive types. Yet broadly and compared to earlier forms, these vessels are characterized as being larger with more elongated necks and ill-defined shoulders, which morphologically, Murphy and Ferris (1990) deemed "bag-shaped" (Carroll 2019:187). Additionally, these vessels exhibit greater evidence of castellations and collars with a prevalence of horizontal linear motifs (Watts 2008: 34). Seemingly unique to this phase is the use of a self-slip or slip roughened surface treatment which results in a stucco-like appearance (Murphy and Ferris 1990: 216).

Lithic assemblages continue to resemble those identified in the earlier Younge Phase and focus on local materials for manufacture (Murphy and Ferris 1990: 217). Triangular points trend toward narrower forms than broader Younge Phase forms (Murphy and Ferris 1990: 218). Bone tools are also somewhat common (Fitting 1975: 158).

In southwestern Ontario, the Springwells Phase is relatively well represented in the literature by a variety of sites excavated in the 1980s and the 1990s, such as the Dick site (Reid 1982), the Robson Road site (Kenyon et al. 1988), the Bellamy Site (Murphy 1987), and the La Salle-Lucier site (Lennox and Dodd 1991) among others. Springwells
sites are generally identified in the Lake St. Clair and Windsor areas and seem to have a limited occurrence elsewhere in Ontario.

Broadly, Springwells settlement-subsistence patterns continue Younge Phase patterns, however, evidence suggests a greater reliance on cultigens, mainly maize, indicating a greater population density or an amalgamation of peoples (Watts 2008: 31; Carroll 2019: 184-185). This amalgamation seems to have occurred primarily during warmer seasons, forming base camps or centralized "quasi" village occupations of approximately 100 people (Ferris and Spence 1995: 114; Dewar et al. 2010: 2245; Carroll 2019:184). Further evidence of larger settlements and greater sedentism is the presence of both longhouses and palisades identified on several Springwells Phase sites (Murphy and Ferris 1990; Lennox and Dodd 1991; Watts 2008: 31). During the cold seasons, these larger settlements were abandoned, and the occupants dispersed into single familial groups, and moved inland where they hunted and gathered nuts (Murphy and Ferris 1990: 244; Watts 2008: 31; Dewar et al., 2010: 2245; Carroll 2019:185).

Warm season settlements tended to be positioned near arable land and close to exploitable aquatic or marsh environments with a high degree of resource variability (Carroll 2019:185). As suggested by site locations and supported by stable isotope analysis, fish continued to play a significant role in subsistence practices during this time (Kenyon et al., 1988: 8; Dewar et al., 2010: 2249, 2251). Murphy and Ferris (1990) suggest that smaller extraction or hunting sites could be periodically accessed without abandoning base settlement sites adjacent to agricultural fields.

Research suggests maize began to play a much more significant role during the Springwells Phase than in the earlier WBT phases (Kenyon 1988; Lennox and Dodd 1991; Dewar et al., 2010). Yet the quantities of maize recovered are typically much smaller when compared to the amounts identified at contemporary Iroquoian sites in eastern Ontario (Kenyon 1988: 20). It has been argued that during the Springwells Phase, maize cultivation was limited to a more horticultural approach, favouring small, lower yielding harvests from garden plots (Dewar et al. 2010: 2249). Yet, in some areas, more substantial maize harvests were occurring, with surpluses stored for later consumption.
Thus, the extent of maize consumption varied throughout Springwells Phase populations as subsistence practices would have differed regionally. For example, isotopic analysis from a Younge - Springwells Phase site in northwestern Ohio documented lower amounts of maize consumption compared to a contemporary site near Detroit (Dewar et al. 2010: 2251-2252). More research is required to elucidate the significance of maize to regionally diverse Springwells Phase subsistence patterns.

Storage pits continue to be a common and essential aspect of the subsistence pattern practiced on Springwells Phase sites (Reid 1983; Murphy and Ferris 1990; Dewar et al. 2010: 2251). These storage pits, also called cache pits, would have allowed for storing surplus foodstuffs beyond immediate needs acquired through maize harvests or exploitation of seasonally abundant resources (Dewar et al. 2019: 2251). Kenyon (1988: 21) describes Springwells Phase pits as flat bottomed with a roughly one-metre diameter (see also Murphy and Ferris 1990: 246).

2.4.4 Wolf Phase (1400-1600 CE)

As this phase is beyond the material identified at AgHn-12, only a brief discussion is provided. The Wolf Phase is the least understood WBT Phase in Ontario due to a lack of identified sites (Murphy and Ferris 1990: 255). This phase was named for the Wolf site in eastern Michigan, near Lake St. Clair (Fitting 1975: 158). Ceramics dominated the assemblage with minimal lithics identified. Fitting (1975) notes that ceramics recovered at Wolf Phase sites, such as the Furton site, were unlike anything else previously identified within the WBT (160). Additionally, a large amount of chert material exotic to Michigan was recovered from the Furton site (Fitting 1975: 160).

The dominant ceramic type of the Wolf Phase is the distinct Parker Festooned vessel type. These vessels have out-flaring rims, castellations and constricted necks, with applique strips and handles also being common traits (Fitting 1965: 141; Murphy and Ferris 1990: 218,221). Further descriptions of Wolf Phase vessels suggest some morphological similarities to Springwells Phase vessels, with their elongated necks and ill-defined shoulders (Murphy and Ferris 1990: 218).
Wolf Phase sites are often characterized by defensive earthworks surrounding the main site area, as documented at the Parker Earthwork and Weiser sites (Murphy and Ferris 1990: 256). The earthworks are typically interpreted as circular or “horseshoe-shaped” (Zurel 1999: 244). Wolf Phase sites depicting earthworks have also been identified in Michigan and Ohio and tend to ring the southeastern shores of Lake Erie and the southern shores of Lake Huron (Zurel 1999: 245). There is speculation that these earthwork sites were roughly spaced a day's travel apart (Zurel 1999: 247). Evidence of posts, possibly representing a palisade, have also been identified in association with these earthwork embankments (Zurel 1999: 245).

Despite these earthworks, Wolf Phase settlement and subsistence is generally thought to continue the Springwells Phase pattern but with even greater amalgamations of people into single sites and possible reductions of territory due to disparate peoples moving into the region from the east (Murphy and Ferris 1990: 260; Ferris and Spence 1995: 121). Specifically, the Wolf Phase settlement pattern is thought to involve warm weather aggregations into the large earthwork sites with possible cold weather group dispersals westward into Michigan, although this reconstruction is admittedly speculative given the lack of supporting data (Murphy and Ferris 1990: 261).

Murphy and Ferris (1990) propose that the Wolf Phase sites identified in Ontario are not suitable for substantial agriculture but were well located to exploit other resources, such as fish (261). They also suggest that agricultural fields may have been established away from these larger settlements (Murphy and Ferris 1990: 261). Based on the recent isotopic evidence discussed above from the Younge and Springwells Phases, it is likely maize continued to be an essential aspect of the diet. However, given the paucity of sites identified, there is limited data to make accurate conclusions. Following the Wolf Phase, much of southwestern Ontario appears to be primarily abandoned by indigenous peoples until resettlement in the 1700s (Murphy and Ferris 1990: 260).
2.5 Previous Archaeological Work in the Lake Wawanosh Area

The archaeological research around Lake Wawanosh has mainly been limited to work conducted through Cultural Resource Management (CRM) to meet MCM requirements. A search of previous reports and surveys held within the MCM suggests that surveys conducted within the area began in the early 1980s. William Fox, who was the Southwest Region Archaeologist for the Ontario Ministry of Culture in the 1980s, was active in this area at that time and registered significant sites that came to his attention which are detailed below (MCM Sites Database). Most of this early work was due to emerging legislation that sought to combat the destruction of archaeological sites through development (Ferris 2002: 57-58).

Based on the artifacts recovered, these surveys located sites that span the Late Archaic to Euro-Canadian settlement periods, demonstrating the importance of this area throughout the deep past. The sites have been arranged within Table 4. The following review is of sites deemed more significant within ten kilometres of the Lake Wawanosh area.

Within this ten-kilometre radius lies the Sarnia/Point Edward area. Several significant sites were identified here, and it is important to include them here to provide a broader regional and cultural context. Furthermore, some of the sites in this area have been subject to more extensive research as they have been the focus of several theses.

Figure 27 shows the distribution of sites by period in the Lake Wawanosh and Sarnia-Point Edward areas. While the Lake Wawanosh area does contain more registered sites than the Sarnia/Point Edward area, many of these sites are more generally defined pre-contact with an unknown period affiliation. Interestingly, near Lake Wawanosh, Late Archaic sites have the greatest representation of the single-component sites. The general Woodland period comprises the most sites identified, with 18 Woodland sites identified near Lake Wawanosh, while 15 Woodland sites are registered in the Sarnia/Point Edward area. Specifically, the Late Woodland period has the greatest representation near Lake Wawanosh. Conversely, the Early and Middle Woodland exhibit a greater representation within the Point Edward-Sarnia area. Sites generically registered as “Woodland Period”
that lack a more specific temporal designation are common. Typically, this designation is
assigned to sites containing pottery, but the sherds recovered are too fragmentary or lack
specific diagnostic identifiers. Several multi-component sites, which in this region
typically span the Late Archaic to the Late Woodland periods, have also been identified.

As discussed further in Chapter 5, the lack of earlier sites is likely due in part to the
fluctuating levels of Lake Huron during the higher water stages of both the Lake
Algonquin (11,000 to 10,500BP) and Lake Nipissing (5500-4500BP) phases (Karrow
1980: 1272; Morgan et al. 2000: 12). Furthermore, the intervening Low Water Stage
(10,000 to 5500BP) would have positioned these areas more inland and as a result, they
were potentially less favourable areas for use by earlier peoples (Morgan et al. 2000: 13;
P. Timmins personal comm.).

2.5.1 Lake Wawanosh Area Sites Overview

An overview of the Lake Wawanosh sites is provided below, greater description is
provided for more extensive excavations. Table 4 provides a summary of the sites
identified according to the MCM Sites Database. The earliest recorded archaeological
surveys were conducted in the 1980s, and most were conducted several kilometres to the
northeast, east, or south of Lake Wawanosh (Figure 28). One of the first sites to be
excavated in the area was AgHn-1. The site was brought to Fox’s attention in 1979
following the discovery of human remains. The associated storage pit and ceramics
recovered led to the conclusions that AgHn-1 was from the early Late Woodland period
(Fox 1980: 33). A variety of mammal and fish species were identified from the faunal
remains. A miniscule amount of maize was also recovered (Fox 1980: 11).

Most of the early surveys identified sites through surface collection activities. Loose site
type designations were given to these sites, with most deemed fishing camps due to the
presence of netsinkers (AgHn-2-3, AfHn-1, AgHo-2). Others were more generically
labelled as campsites (AgHn-4, AfHn-4-6) (MCM Database 2021). The more north-
easterly positioned sites are closer to Lake Huron than Lake Wawanosh (AgHn-2, 3, 4).
These northeastern sites and the others located to the south (AfHn-1-4) were largely
given Late Archaic period designations, although a few are multi-component (AgHn-4 and AgHo-2) (MCM Database 2021).

In 2004 AfHo-24 (the Wawanosh site) was identified by TMHC (TMHC 2004). This was likely the first Stage 4 mitigative excavation in the Lake Wawanosh area. The site is roughly two kilometres southwest of the historic Lake Wawanosh shore and is adjacent to Perch Creek. The Stage 4 assessment involved the excavation of 730 one-metre squares and 74 cultural features (TMHC 2004: 9, 44).

The Indigenous artifact assemblage recovered during Stage 4 excavations from the Wawanosh site numbers 25,990 artifacts which spans the Late Archaic to the Late Woodland periods (TMHC 2004: 10). The ceramic assemblage recovered from AfHo-24 primarily consisted of Green Point wares which is associated with the Middle Woodland Period (TMHC 2004: 38). The projectile point types recovered are interpreted as representing a broad span, from the Archaic to Late Woodland (ibid).

According to the MCM Site Database, 2015 onwards saw an influx of numerous new sites being recorded each year. This increase is likely related to increased development and newer regulations from the MCM in the form of the 2011 Standards and Guidelines for Consultant Archaeologists.

In 2018 AgHn-13, which lies only 130 metres southwest of AgHn-12 (the Blackwell One site analyzed in this thesis), was subject to Stage 4 excavations conducted by TMHC. This assessment involved excavating 234 one-metre units across a 21 by 18-metre area (TMHC 2019c: 9). Based on interpretations from three different projectile points recovered, the occupations at AgHn-13 span the Early to Late Woodland periods. AgHn-13 lacked subsurface features, artifact clusters were identified in the northern and southern portions of the site, suggesting differing occupations. The northern cluster contained a Middle Woodland projectile point with mainly Bayport chert chipping detritus recovered (TMHC 2019c: 21). The southern cluster had primarily Kettle Point chert and contained both Early and Late Woodland projectile points (ibid.).
AgHn-17 was identified during 2019 and was subject to the excavation of 28 one-metre units, followed by the mechanical removal of topsoil (TMHC 2021b: 1). AgHn-17 is a relatively small site located roughly 200 metres northeast of AgHn-14. This site was attributed to the Riviere au Vase Phase, based upon the recovery of a Jack's Reef projectile and the limited pottery recovered (TMHC 2021b). Only two of the four identified features were related to the indigenous occupation (TMHC 2021b: 22). Unit and feature excavation recovered a total of 165 lithic materials, including one projectile point, five pieces of indigenous ceramics, and one ground stone fragment (TMHC 2021b: 25). Ultimately, this site was interpreted as a short-term, small group occupation during the spring and fall (TMHC 2021b: 34).

Another site identified during 2019 was AgHn-18. This site lies roughly 300 metres east of the shore of Lake Wawanosh. AgHn-18 is also near AgHn-12 (Blackwell One), lying approximately 500 metres to the southwest. In total, 2,398 lithic artifacts (mainly chipping detritus) and 221 sherds of indigenous pottery were recovered from 36 one-metre units and ten cultural features (TMHC 2021c: 36). The faunal remains recovered from features suggests a focus of exploitation on aquatic habitats, likely those associated with Lake Wawanosh. Notably, a few maize cupules were identified (TMHC 2021c: 48). This site is moderately sized and, based upon the artifacts recovered, has been attributed to the Middle Woodland and the Younge Phase of the WBT (TMHC 2021c). Likely occupied for a moderate length by a small group of people, likely during the spring to fall seasons (TMHC 2021c: 58).

The final site included in this review is AgHo-7. First identified in 2010 by Golder Associates it was subject to Stage 4 excavations in 2020 by Lincoln Environmental Consulting Corp. (LEC). As the site report was under Ministry review at the time of writing, limited information is available. AgHo-7 was determined to be from the Late Woodland period with a general Western Basin affiliation (MCM Database 2021). The site lies roughly 800 metres west of Lake Wawanosh and nearly two kilometres southwest of AgHn-12. AgHo-7 was subject to the excavation of 407 units that yielded 13,365 artifacts which includes 145 net sinkers (MCM Database 2021).
2.5.2 Sarnia-Point Edward Area Sites Overview

The sites identified in the Sarnia-Point Edward area follow a similar temporal trajectory as the Lake Wawanosh sites in terms of their discovery. Figure 29 depicts an overview of the sites identified within this area and Table 5 summarizes the sites according to the MCM Database. Again, more extensive excavations are highlighted and discussed in more detail below. Based on historical mapping, most of the sites in this area are associated with the original shoreline of Sarnia Bay which has been altered and filled in over the years. As a result, many sites were identified under deep layers of fill.

Like Lake Wawanosh, the number of sites identified were minimal until the 2000s. During the late 1980s and into the 1990s only a few sites are provided within the ministry’s database. AfHo-3, a burial site was identified in 1986 by Willam Fox near the Bluewater Bridge. AfHo-3 was considered a multi-component site involving Middle and Late Woodland and Post-Contact periods (MCM Database 2021). The site was subject to the excavation of 30 one-metre square units, which recovered 3000 indigenous artifacts; the MCM database summary emphasized the recovery of netsinkers and fish bones (MCM Database 2021).

The early 2000s saw numerous newly discovered sites (AfHo-12, 16, 19, 20, 26-28, 31, and 32) in the Sarnia-Port Edward area, with consultant archaeology firm Mayer Heritage identifying most. Many of these sites were identified under several layers of fill and in some instances were disturbed. Most were interpreted as campsites and were given Woodland Period designations. The original location of these sites would have been along the natural shoreline of the St. Clair River near Lake Huron.

In 2004, AfHo-26 and 27 were identified by Mayer Heritage. AfHo-26 is located within a landscaped park near the mouth of the St. Clair River at Lake Huron. AfHo-26 was likely situated on the edge of a marsh that existed before modern wetland reclamation (MCM Database). Below various fill overburden layers, which exceeded 100cm in some areas, cultural remains were present within the intact sandy layers below, resulting in the recovery of at least 500 artifacts. Subsequent Stage 4 excavations occurred in 2008 and
2009, identifying cultural materials from the Late Archaic to the early Late Woodland period (MHCI 2010: 4).

Located near AgHo-26, AgHo-27 was identified by Mayer Heritage Consultants in 2004 during a test pit survey of a landscaped property following the demolition of two houses (MCM Database). The survey recovered 885 artifacts, including chipping detritus, faunal remains, netsinkers, projectile points, and fire-cracked rock (ibid.). These artifacts led to an interpretation of the site as a fishing camp dated to the Early Woodland period, with a Meadowood cultural affiliation (MCM Database).

AfHo-4, initially identified by Fox in 1986, did not have extensive Stage 4 excavations conducted until 1999 by Mayer Heritage. The site was subject to a major excavation of 2604 one-metre square units, resulting in the recovery of 300,000 artifacts (ibid.). Additionally, excavations uncovered three hundred fifty subsurface features (MCM Database). Four burials were discovered and disinterred from the site (ibid.). Based on the interpretations from the artifacts, AfHo-4 is believed to be a sizeable warm-season fishing camp with continuous occupations spanning from the Late Archaic to the Late Woodland Period (ibid.). AfHo-4 was subject to additional Stage 4 excavations from 2012 to 2014 and later in 2017 to 2019.

AfHo-7 was initially identified by Mayer Heritage in 1993 during archaeological surveys in advance of the Blue Water Bridge Additional Capacity project. Eight of 20 bridge pier locations were tested, with Pier K2 and K3, containing significant archaeological materials (MHCI 1996). Due to a large amount of archaeological material identified, subsequent Stage 4 excavations were conducted in areas of potential construction impact.

Excavations at Pier K3 recovered substantial artifact collections and uncovered hundreds of cultural features. The excavation area covered 156 square metres and identified twelve different layers, of which only three were considered cultural (MCHI 1996: 20). Specifically, the excavations from Pier K3 recovered 410,237 artifacts, including materials recovered from block and feature excavations (MCHI 1996). The artifact and faunal assemblage, points to a heavy reliance on fishing (MCHI 1996).
Excavations identified approximately 940 cultural features, including storage pits, hearths, and post moulds from structures and other subsistence activities (MHCI 1996: 26). Interpretations from the cultural material place AfHo-7 within the Middle Woodland period (MHCI 1996). However, additional Stage 3 excavations in 2014 led to temporal affiliations spanning the Late Archaic to the Late Woodland Periods (MCM Database).

The wealth of cultural information recovered from this site has produced two theses (O'Neal 2002; Prowse 2003). O'Neal's Master's thesis involved a summary of the archaeological work and artifacts collected from Pier K3 to demonstrate temporal change through artifacts within a stratified site. Prowse's (2003) Master’s thesis investigated the fishing technology and methods employed by the Middle Woodland occupants at AfHo-7.

AfHo-11 is another Middle Woodland site initially identified by Mayer Heritage in 1999 and is just south of AfHo-7. Previous disturbances had impacted the upper portion of the site, and some areas had up to 100 centimetres of fill added to aid in the reclamation of the shore (MCM Database). Excavations conducted by Mayer Heritage in 1999 involved 120 one-metre square test units and recovered roughly 5,000 artifacts (MCM Database). Additional Stage 3 excavations resulted in the recovery of 1,469 artifacts, which included a projectile point, identified as a Saugeen type (MCM Database).

The final site included in this review is AfHo-18, identified during a test pit survey in 2002. The site lies less than 100 metres east of the St. Clair River and north of the Blue Water Bridge. The site is noted for its disturbance and fill layers due to previous construction in the area (MCM Database). A more substantial Stage 4 excavation was carried out by TMHC in 2017, which, despite disturbance and 1.2 metres of fill, 875 artifacts were recovered (MCM Database). The interpretations of the artifacts recovered resulted in a Middle Woodland period designation for AfHo-18 (ibid.).

### 2.6 Conclusion

Several objectives were pursued within this chapter. The first was a review of the Woodland period in southern Ontario to better position the reader to understand the temporal setting of the sites within this thesis. This review included summaries of the
Early, Middle, and Late Woodland periods but also more detailed discussions of the cultural material and settlement-subsistence patterns within the broader Lake Huron Basin region.

Secondly, a discussion of previously identified sites near Lake Wawanosh followed which sought to identify possible trends in the sites identified and to also explore evidence for a potential cultural landscape based on the types and ages of sites identified. Establishment of a cultural landscape within the region allows for a better understanding of the roles of the Blackwell One and Blackwell Two sites within a seasonal round.

Broadly considered, the sites discussed within this overview point to the long-term reliance on fishing for the pre-contact inhabitants of this region. This reliance is perhaps unsurprising given the proximities to different aquatic environments, including Lake Huron, Lake Wawanosh, and various small rivers. While there is good evidence for a focus on the Sarnia Bay area, numerous sites are also positioned around the shores of Lake Wawanosh, and the lake would have undoubtedly been a vital source of various resources.

Furthermore, these sites demonstrate that this area was returned to repeatedly from at least the Late Archaic into the Late Woodland. This range of periods represents at least three thousand years of human occupation, further evoking the significance of the lake as a place that beckoned past peoples. The collection of sites which are emerging around the historic lake suggest the presence of a cultural landscape, linking these sites to the lake and the lake to the sites and beyond.

More in-depth discussions of cultural landscapes and cultural ecology are provided in the next chapter.
3 Theory

3.1 Introduction

Lake Wawanosh is a focal point within the broader environment and provided a unique setting and exploitative resource for the peoples who inhabited the area. In addition, the general area encompasses Lake Huron and resource-rich rivers, wetlands, and forests, which were utilized for their floral and faunal species in distinct ways throughout the Woodland period. This distinctiveness can be explored through the theoretical lens of cultural ecology to extrapolate how past peoples lived within the Lake Wawanosh environment. Determining how the inhabitants of the Lake Wawanosh area lived within their environment will be achieved by comprehensively analyzing the material culture, settlement patterns and subsistence practices as derived from faunal and floral remains with support from reconstructed environments. As matrices of cultural ecologies develop, they weave into a network of areas across a seasonal round to assist in the formation a cultural landscape.

3.2 Cultural Ecology

Cultural ecology, which has origins in human ecology, possesses numerous definitions (Lapka et al., 2012). Broadly, cultural ecology seeks to explore the adaptations to a given environment of a specific group of individuals and how those adaptations influence that group’s cultural behaviour. Steward, in 1955, described cultural ecology as ascertaining how the adaptation of a culture may entail specific changes in the environment (Steward 2006: 9). Steward believed that cultural ecology should focus on features thought to be the most involved with utilizing the environment in culturally prescribed ways (Steward 2006: 5). Steward was combating the concept that culture originates from human behaviour and that the environment has no impact (Steward 2006: 6). He wanted to explain the origins of specific cultural patterns rather than the general principles involved in any cultural-environmental situation (Steward 2006).

Steward believed cultures had distinct foundational features that were less affected through variability or adaptations (Steward 2006: 5 and 9). He believed the real focus of
cultural ecology was the focus of different techniques or technologies and how they are utilized within different environments by differing groups (Steward 2006: 6). Steward elaborates on this, suggesting that different societies equipped with similar hunting devices will differ among themselves due to the differing nature of the terrain or fauna (Steward 2006: 6). To support this approach, Steward developed the cultural core concept to refer to elements directly articulated with the environment, such as subsistence or economic activities (Bettinger 1980: 190; Steward 2006: 5).

Other early definitions see cultural ecology as the study of the role of culture as a dynamic component of any ecosystem of which man is a part (Frake 1962: 53). Netting (1965: 82), viewed cultural ecology in a circular diagram in which specific environmental features are crucial to cultural adaptation. Clarke elaborated on this approach and defined cultural ecology as mutual relationships between integrated cultural systems, their environment and the adaptative changes of the systems through time and space (Clarke 1968: 84). More straightforward attempts to describe cultural ecology state that it is based on an interaction of culture, man, and the environment (Gunn 1980: 19).

Similarly, cultural ecology has been described as the study of interrelations between man and the environment (Ingold 1987: 8). More recent attempts to define cultural ecology suggest it is a systematic way to examine the interdependence between environment, technology, and patterns of human behaviour (Sadowski 2008: 41). Lapka and colleagues (2012: 19) describe cultural ecology as an integrative approach that aims to understand different aspects of the relationship between culture and nature. The main commonality within these definitions is the interactive relationship between culture and nature. It should be reinforced that culture may be influenced and stimulated by the environment, but it is never determined by it (Steward 2006; Lapka et al., 2012). Thus, this approach should describe rather than explain change (Trigger 1989: 308).

There have been numerous contributions and alterations to cultural ecology since Steward’s 1955 foundational work. David Clarke furthered ideas about cultural ecology by intertwining them with systems theory. Clarke also advanced concepts of how the environment and cultural processes are integrative, like those mentioned above. Clarke
described cultural systems as essentially behaviour information systems created by countless individuals who carry within them their cultural values and norms (Clarke 1968: 88). This broader cultural system comprises five subsystems that Clarke arbitrarily assigns as social, religious, economic, psychological, and material culture (1968: 102). As everything comprises a system and a series of subsystems, the environment is also viewed as such. Thus, cultural systems are woven in a complicated, entwined, almost symbiotic interaction with environmental systems (Clarke 1968: 88, 125).

Furthermore, as these systems are so tightly networked, Clarke suggests the subsystems of each system convey a complex overall behaviour (1968: 126). Three equilibrium levels exist within the system and subsystems that ultimately decide adaptations if fluctuations occur within the equilibrium (1968: 104). Essentially the cultural system continuously seeks equilibrium with the environmental system, and the cultural system will shift to maintain that equilibrium, thus creating adaptation (Clarke 1968: 128). The material culture subsystem and its output are of greater interest here. The material culture and its associated cultural activities are sources of information which, through repeated cultural activities and continuous use of the material culture in response to a perceived environment, generates a unique, coded cultural message (Clarke 1968: 101). Ultimately, these coded cultural messages reflect interactions within this perceived environment which are made visible through the material culture and cultural traditions found in the archaeological record.

Butzer (1982) incorporated some ideas from Clarke’s work but drew more heavily on the environment, different ecological factors and processes identified in varying environmental sciences. These were coupled with different archaeological components, such as zooarchaeology, geoarchaeology, and archaeobotany. Butzer developed a holistic approach that sought to examine interactions and cultural adaptations between the environment and its human occupants. This holistic approach is favoured here and highlights the benefits of cultural ecology. This holistic approach seeks to avoid viewing archaeological sites in isolation and to perceive them through an environmental matrix within a subsistence-settlement system comprised of spatial, economic, and social interactions (1982: 12). Others support this approach, proposing that cultural ecology
draws attention to the significance of climate, topography, fauna, flora, and soils (Netting 1965: 82; Sadowski 2008: 44; Sutton and Anderson 2010: 115).

For Butzer, adaption is the strategy for survival, and adaptability is the capacity to adjust or incorporate new information, which forms an adaptive system (Butzer 1982: 285). Cultural adaptations are reflected by subsistence strategies and settlement patterns which respond, and shift based on internal processes or resource availability (Butzer 1982: 285; 288). Perceived versus real environments also impact the process of cultural adaptation for a given area. The perceived environment is drawn from humans’ real environment through a socio-cultural context (Butzer 1982: 253). Butzer (1982) suggests that the relationship between the perceived and real environment is critical for adaptation as a new environment is assessed with existing cultural technologies or information (255). Thus, people may unsuccessfully impose previously effective adaptations on an unsuitable environment, or multiple groups may occupy the same environment while exploiting different resources (Sutton and Anderson 2010: 100). These can reflect unique ecological adaptations which may exhibit differing toolkits (Butzer 1982: 280).

These differing toolkits or technologies, which Ingold (1987) terms material expressions, allow for further adaptations that often provide greater visibility within the archaeological record. As archaeologists attempt to determine how these cultural expressions were made and used, analyzing the material culture can further insights into the relationship between user and environment (Ingold 1987: 43; Sutton and Anderson 2010: 100). Sadowski (2008) believes the most immediate and accessible relationship between culture and the environment is expressed through technology and economic (subsistence) adaptations (52). I am inclined to agree, thus incorporating this approach, and considering how people used their resources will inevitably deepen an understanding of the culture and its adaptations. Adopting the holistic approach noted above provides the most effective means of applying cultural ecology to this study.

Understanding cultural adaptations to the environment requires reconstructing past environments and climates. How the resources within the environment were exploited requires an analysis of the floral and faunal remains to elucidate subsistence strategies.
These strategies are furthered through the material culture, their forms, and how they were utilized within their culture. This approach is essential when considering that culture furnishes the forms and nature, the materials (Ingold 2012: 432). These, in turn, etch their cultural form upon the physical world (Ingold 2012:438). Archaeologists dig up these cultural expressions and attempt to infer how these forms were manufactured or used within the environment (Ingold 1987: 43). Settlement patterns and features can also exhibit evidence of cultural interaction within the environment, for example, by revealing feature functions (i.e., storage) and contents (Sutton and Anderson 2012).

Like most theoretical approaches this perspective is not without critiques. Material culture can be interpreted and utilized in a variety of ways; the meanings attached to them are actively manipulated (Johnson 2020: 115, 123). We, as archaeologists, will never truly know the meanings ascribed to different materials (Johnson 2020: 124). People do not necessarily act in strict mechanistic input-output fashions as suggested by the systems theory that is woven into the cultural ecological perspective (P. Timmins, personal comm.). Despite this, a cultural ecological approach is the most productive theoretical orientation for this research. To mitigate some of the critiques ascribed to cultural ecology I have also integrated a cultural landscape perspective.

### 3.3 Cultural Landscape

Traditionally, archaeologists have viewed the landscape as solely a physical phenomenon. However, this approach has shifted such that archaeological sites can be linked or unified as elements in cultural landscapes and studied from various archaeological and socio-cultural perspectives (Darvill 1999). Carl Sauer, a geographer, is often attributed for first using the term cultural landscape in a 1925 work (Sauer 1963). Sauer (1963) viewed each landscape as having a degree of individuality or uniqueness, not merely as scenes to be viewed (322). Sauer wanted to define landscapes beyond the physical and divided a landscape into physical and cultural entities, thus introducing the idea that a cultural landscape bears the imprint of past human activities (1963: 321). Though divided, the physical and cultural landscapes remained entwined with concepts that echo cultural ecology.
Specifically, Sauer believed that the cultural landscape is fashioned from the physical landscape; thus, the natural landscape supplies the materials from which the cultural landscape is formed (Sauer 1963: 343). Furthering notions of culture, these cultural landscapes, which often destroy or alter the physical landscape, are derived from the minds of humans and are not necessarily dictated by natural forces (Sauer 1963: 340, 343). Essentially the natural world is devoid of meaning to an individual as there is no inherent meaning in things; as such, landscapes exist only through human perceptions (Kempf 2020: 1,8). Ingold (1993) suggests a certain intangibleness to the land that is not something you can necessarily see any more than you can see the weight of an object (153).

Thus, landscapes become a cultural process that results in a cultural product that contains the entirety of a community's activities and beliefs, transforming the physical into a meaningful cultural space (Anschuetz et al., 2001: 160, 161). However, cultural landscapes should not be viewed simply as an imposition of culture onto nature (Anschuetz et al. 2001: 185). Defined more anthropologically, landscapes are dynamic entities through which communities move, develop and influence as each generation imposes their cognitive map upon an environment of interconnected morphology and coherent meaning (Anschuetz et al., 2001: 161; Kempf 2020: 1). Defined another way, landscapes comprise symbols and meanings that reflect a cultural group's relationship to the physical environment (Kempf 2020: 1). Alternatively, landscapes may also be seen as places where the human-nature dialogue manifests (Lapka et al., 2012: 21). Cultural landscapes overlap past, present, and future, constantly moving but on a scale immeasurably slow compared to our own activities (Ingold 1993: 161; Kempf 2020: 5).

As suggested above, modifications within the landscape involve more than just physical changes; they also entail changes and patterns linked to social and ideological dimensions (Anschuetz et al., 2001: 172). Linked to contributions from cultural ecology, viewing the landscape in this way led to the development and concept of settlement patterns in the 1960s (Anschuetz et al., 2001: 174). When preserved, settlement patterns are vital attributes to further understanding how group’s structure and organize their use and occupations of places (Anschuetz et al., 2001: 179).
However, to truly incorporate the concept of a cultural landscape, areas of apparent emptiness or areas without remnants of past cultures need to be considered, as past people were not solely confined to borders of definable sites (Darvill 1999: 108). This emptiness is evident in Ontario, where archaeology is largely conducted in advance of development, leaving substantial areas unknown in the archaeological record. In addition, intact areas where archaeological assessments have been conducted with no archaeological evidence recovered should also be considered under a cultural landscape framework.

It is likely these areas were still interacted with, potentially exploited, and have significance despite the lack of evidence for such. The difficulty is to identify and weave these areas and archaeological sites into an accurate cultural landscape fabric. Several factors compound attempts to understand a cultural landscape, such as areas of prior development that preceded requirements for archaeological assessments, which leaves voids within the landscape. Another factor is the lack of surviving place names indigenous cultures may have had for specific, sacred, or unique areas (Darvill 1999: 109). These factors can be somewhat mitigated through attempts to reconstruct past landscapes via historical mapping, environmental reconstruction, and compiling site locations (Darvill 1999: 107, 108). Engaging with indigenous communities could also aid in determining significant locations.

Despite these problems, precisely reconstructing how cultures viewed a specific landscape is unattainable as it is a uniquely culturally prescribed construct. Still, meaning exists to be discovered in the landscape, not by solely interpreting its many layers of representation but by probing ever deeper into it (Ingold 1993: 167). If nothing else, perhaps an attempt at teasing apart the significance and utilization of the landscape will provide a frame of reference. As seen through the above discussion, it is clear how cultural ecology and cultural landscapes harmonize with each other. They seem to have the ability to inform each other. Cultural ecologies can be formulated, united, and woven, thus helping to create a cultural landscape tapestry or mosaic. Archaeological sites cannot necessarily be viewed in isolation, as they do not have strict boundaries. The people
inhabiting the sites interacted and moved within their broader culturally perceived landscape.

As discussed, numerous explanations and definitions exist for the cultural landscape concept. A cultural landscape is not necessarily static, it can be fluid and is shaped and given meaning to the people who move within it. For this study, it involves those lands the occupants of AgHn-12 and AgHn-14 moved through and interacted with during seasonal rounds. As such, these occupations cannot only be seen in isolation, but also through a lens encompassing the broader environment, regions, and additional nearby sites.

Attempting to develop a notion of how these past peoples moved within their cultural landscape is important. The Lake Wawanosh sites discussed in this thesis and those discussed within its vicinity are only one segment of a broader cultural landscape through which these past peoples interacted. While somewhat speculative, latter sections (Chapter 7) of this thesis will briefly explore how the peoples occupying these sites may have traversed their own perceived cultural landscapes through a consideration of additional sites and areas.

3.4 Conclusion

This chapter discussed two theoretical frameworks, cultural ecology, and cultural landscapes. A brief history of each was provided in their respective sections. These histories shifted into discussions of their meaning and structure and how they might be applied within an archaeological context. Having addressed the theoretical position and framework, the next chapter details the methodology used within this thesis.
4 Methods

4.1 Introduction

This chapter will explore the methodology used in the analysis of the cultural components focused on within this thesis. Areas of focus include ceramics, features, lithics, faunal and floral remains and an intra-spatial analysis. Several aspects are explored within the ceramics, such as decorative attributes, morphology, and function. Features are also considered for their function. Several categories of the lithic assemblage are explored such as chipping detritus, material, formal and informal tools, and possible use wear. The floral and faunal assemblages were previously analyzed, but their methods are discussed. Finally, the intra-spatial analysis combines various aspects of the results from the data acquired from the analyses listed above.

It should be noted that most discussion of artifacts is limited to those recovered from features. This approach was taken as features have sealed qualities and usually have not been plough disturbed. It is also generally assumed that everything deposited within the feature is from the same occupation or was at least deposited over a relatively brief period. This allows for a more discrete consideration of a site’s occupation and its cultural material.

4.2 Ceramic Vessels

As noted above, only ceramics originating from subsurface features were utilized for this analysis. The ceramic vessel analysis throughout this study looked at various types of data. As most ceramics depict manufacturing and decorative trends through time, ceramics were also integral to determining the temporality of features present at AgHn-12 and AgHn-14. This temporal positioning helped situate AgHn-12 and AgHn-14 more distinctly within the Woodland period. First the ceramic assemblages were identified in terms of vessels.

Sherds were laid out by feature to identify those belonging to the same vessel, which was done through making physical or inferred mends. Searching for mends was conducted first within the feature the sherd originated from and then extended to other features
within their respective sites. Physical mends involve pieces that directly fit together, whereas inferred mends amongst sherds were recognized based on distinct similarities suggesting that they belonged to the same vessel. Inferred mends involved identifying distinctive traits of the interior and exterior surfaces in terms of colour, decoration, surface treatments, core properties, temper type and sherd thickness. As these traits can vary throughout the same vessel, at least three attributes must be present to be considered as a possible mend. Sherds were excluded from analysis if they were smaller than 20 mm in diameter unless the sherd could directly mend to an identified vessel. This same consideration was applied to sherds lacking either an interior or exterior.

As the ceramic assemblages present at AgHn-12 and AgHn-14 were relatively small, vessels were assigned to mending sherds even if they lacked a rim, which sometimes involved recognizing vessels based on either neck or body sherds. The ceramic assemblage at AgHn-14 was particularly fragmented, likely due to the friability of the vessels.

To determine the potential period for all vessels their decoration, surface treatments, and construction were considered. Additional cultural material recovered from the features containing these vessels were also considered when assigning a possible period affiliation.

At AgHn-12, one Early Woodland vessel was identified in the Western Locus, comprised of numerous body sherds. Ten vessels were identified in the Eastern Locus as belonging to the Late Woodland, comprising eight vessels associated with rims, and two represented by only neck and body sherds. Due to the vessel morphology present with the Late Woodland assemblage from AgHn-12, vessel necks often exhibit more elaborate decorative motifs compared to rim sherds. As a result, neck sherds are an important diagnostic at AgHn-12.

Ten vessels were identified at AgHn-14, six comprised of body sherds and four associated with rim sherds. Most features at AgHn-14 contained body sherds, which typically mended. As a result, several vessels at AgHn-14 consist solely of body sherds. The body sherds in each feature also appeared to be distinct, which negated the likelihood
of inflating vessel counts. Diagnostic qualities can also exist in body sherds which should not be overlooked. Diagnostic markers occur more frequently on the body sherds of Early and Middle Woodland vessels where specific decoration, surface treatments or manufacturing techniques can be important attributes unique to these periods. Thus, to exclude these sherds based solely on their position on the vessel seemed unwise.

After identifying vessels from the two sites, forty-three attributes involving manufacture and decoration were selected. Attribute selection followed methods defined by Sherratt (2003; Figures 30 to 34) and Watts (2008; Figures 35 to 37). Additionally, seven attributes of use wear were also determined. The use wear attribute analysis followed numerous previous studies (Rye 1981; Braun 1993; Philpots and Wilson 1993; Skibo 2013; Kooiman 2016; Driue et al. 2019).

The attributes focused on are provided in Table 6. The attribute analysis had three goals. First, to determine how the vessels were manufactured, second, how they were used in the context of a broader cultural ecology and third, how these vessels fit more generally within the Woodland Period in this region of southwestern Ontario. thus, contributing to a cultural landscape. The remainder of this section details the significance of these different methods and the way that they were carried out.

### 4.3 Ceramic Vessel Function

Vessels bear evidence of how they were manufactured and subsequently used (Braun 1993: 108). During the Woodland period, ceramics played a significant role in subsistence. Functional analysis of pottery can lead to inferences about culinary practices and their role in subsistence practices (Kooiman 2016: 208). These vessels could have functioned as storage or cooking vessels and, in some cases, may have done so interchangeably. However, barring lipid residue analysis, specifically knowing what was cooked or stored in these vessels, is speculative. The assemblages lack complete vessels; thus, the goal was to identify what the vessel remnants could reveal about possible uses (e.g., cooking, storing, boiling or direct or indirect fire cooking). Some use wear elements may not be present on incomplete vessels, or incomplete traces may limit interpretations altogether.
4.3.1 Manufacturing Attributes

It is generally agreed that as vessel manufacture techniques became more refined, vessels typically became larger with thinner walls and finer tempers (Braun 1993: 118). Manufacturing techniques shift from a coiling technique to a paddle and anvil technique. Coiled vessels were created through layering coils of clay which were then smoothed together. As such, weak points exist where these coils met resulting in characteristic breaks. Attempts to mitigate these weak points have been made through mortice and tenon joins.

The changes in these vessels may also signal a difference in their desired use (Braun 1993: 126). The shift to thinner walls during the latter half of the Woodland period suggests greater desirability for heat conductivity over resistance to breakage or flexural strength (Braun 1993: 119). Consideration of these changes in refinement included a macroscopic approach such as the recording of body sherd thickness, determining construction technique (coil method or anvil and paddle), and temper qualities. These findings were synthesized with the additional analyses described below to generate a more complete assessment of a vessel’s affiliation.

4.3.2 Morphological Attributes

Vessel morphology was determined based on various attributes, such as vessel orifice diameter, and rim orientation. However, as the assemblages are somewhat fragmentary, more definitive morphologies could not be determined for all vessels. This is because morphologies are more visible with a greater representation of the overall vessel, and many vessels were represented by only a few sherds. Regardless these traits were compared amongst the vessels to determine trends.

Vessel morphology can also be used to infer intended use, as use may affect morphology (Braun 1993: 108; Skibo 2013: 34). For example, as a vessel is inherently designed to contain different contents, a wider orifice would allow for ease of access (Skibo 2013: 29). However, if the same vessel is also used for cooking, a constricted neck is also beneficial to prevent heat loss or boil over; thus, some compromise is needed (ibid.).
Everted rims may also suggest pouring out of contents or allowing a covering to be fastened over the vessel opening (Henrickson and McDonald 1983: 632).

Morphological qualities can also be applied to determinations of temporal periods or regional similarities. Forms tend to shift throughout time and have been extensively described in the literature (Fitting 1965; Murphy and Ferris 1990; Spence et al. 1990, Watts 2008). Vessels associated with the WBT generally have elongated necks with poorly defined shoulders and increasing capacities over time (Murphy and Ferris 1990). To determine if the vessels identified in this thesis followed these WBT trends, general vessel curvature was assessed, when possible, to consider the presence of elongated necks.

4.3.3 Firing and Colouration

The colour of the sherds' interior, exterior, and core was identified and recorded for each vessel. The colour of a vessel can vary considerably as numerous factors ranging from firing methods to the chemical makeup of the clay used affect colouration. Therefore, this analysis sought to determine how these vessels were fired and possible changes in firing through time. Additionally, firing can determine how a vessel is to be used as it imparts certain qualities, such as permeability, strength, and thermal shock resistance, discussed further below.

The goal of pottery firing is to ensure a vessel is heated long enough to destroy the clay-mineral crystals, which creates a cohesiveness that typically produces an iron oxide called hematite in oxidizing conditions (Rye 1981: 25, Philpotts and Wilson 1993: 615). The firing process and the clay makeup characteristics contribute to the eventual colouration depicted on the vessel (Philpotts and Wilson 1993). The quantity of iron and organic material will produce a variety of colorations ranging from browns to oranges or reds (Manitatis 2009: 7). These differing colourations may also reflect different firing practices (Feathers et al. 1998: 69). Additionally, differential access to air during firing and cooling can cause considerable colour variation (Rye 1981: 120). For example, more reddish colouration indicates temperatures were high enough to achieve hematite production and oxidization (Philpotts and Wilson 1993: 614 - 615). Without oxidization,
vessels will have a blackened or grey surface (Rye 1981: 117; Skibo et al. 1997: 313). Conversely, vessels lacking organic material fired in an oxidizing atmosphere will typically have a more uniform colour (Rye 1981: 115). However, surface colouration can be altered further through use, depositional factors, and decoration.

The coloration of cores may also reflect clay composition. For example, black or grey cores might suggest remnant carbon could not be burned out, particularly if the firing was quickly achieved (Feathers et al. 1998: 68; Rye 1981:115). Furthermore, black cores may occur if the pottery was fired in oxidizing conditions with an incomplete oxidization of carbon (Feathers et al. 1998, Malainey 2011, Rye 1981). A black core can also occur when a highly ferric paste is fired at temperatures that exceed 800 Celsius (Malainey 2011). However, this higher temperature is less likely given the open-fire ceramic production common to the Woodland period (Skibo et al. 1997).

4.3.4 Permeability

Vessel permeability directly correlates with how a vessel may have been used. Therefore, a water droplet test was conducted to determine vessel permeability. For assessing irregularities that may be present in the vessel, this test was conducted across all categories of sherds such as body, neck, and rim, depending on what was available for the given vessel. However, testing each sherd category proved irrelevant as permeability was broadly consistent across each category. A small droplet of water (~1 ml) was placed on the interior vessel surface, and the absorption rate was timed. Results were recorded and considered regarding the temporal designation of the vessel and other factors, such as the presence of interior surface treatments. Figures 39 and 40 provide examples of water permeability.

Generally, lower firing temperatures will result in a higher vessel surface permeability (Skibo 2013: 52). Vessel permeability, which can be linked to other factors such as surface treatments like smudging, also plays an essential role in how a vessel is utilized. Higher permeability allows for liquid contents to pass through the vessel surfaces more quickly; even a small amount of water on the vessel exterior will significantly reduce heating effectiveness (Skibo 2013: 50). As a result, vessels with high permeability will
never boil using direct flame cooking; several tests by various researchers support this (Longacre et al. 2000; Skibo 2013; Rueff et al. 2021). Thus, it is likely vessels with higher permeability, including the Early and Middle Woodland vessels in this study, were heated through hot stone cooking methods allowing the contents to be heated from within. However, as mentioned above, this method is quite ineffective and is labour and resource intensive.

4.3.5 Residues

Various interior surface treatments were applied to vessels to combat permeability. A common and visible technique called smudging is included in this category. Several other less visible and temporary methods were also noted in the literature. These involve coating a still-hot pot in resin or other organic material like fat (Skibo et al. 1997: 315; Drieu et al., 2019). This coating could also occur fortuitously by cooking fatty meats or nuts (Skibo et al. 1997: 316). However, these surface treatments tend not to survive the depositional process and cannot be effectively identified without deeper scientific analyses. Therefore, a macro-analysis was utilized to determine remnants of any visible traces, such as evidence of smudging or food resides, and were recorded if present.

4.3.6 Carbonization/Sooting

Sooting occurs when a vessel is placed near a flame. The resultant carbon from the smoke adheres to the vessel’s exterior surface, forming a blackened patch of soot (Kooiman 2016: 212). Carbonization was assessed for both the interior and exterior of vessels. Both types are important indicators of how a vessel may have been used in the past. Exterior carbonization is generally attributed to sooting, whereas internal carbonization is usually created by contents cooked within the vessel. However, a vessel’s contents can adhere and carbonize to the exterior via boiling over or during serving. Despite this, it is easy to differentiate between exterior carbonization and sooting. During analysis, darker or blackened patches were first identified on vessel exteriors. Sooting obtained through cooking use should appear patterned versus a more arbitrary deposit acquired through an initial firing episode (Skibo 2013: 107). This assumes that vessels were always used and
positioned in consistent, uniform ways. This determination was a more complicated process for smaller sherds and incomplete vessels.

Conversely, internal carbonization is a more straightforward determination. It is either present or absent and is typically only created through direct flame cooking. If available, the location of the carbonization (e.g., neck or body) was recorded.

Temperature is a crucial variable in soot deposition, but other factors can also impact the development of soot, such as wood type, distance from fire and contents of the vessel (Skibo 2013: 83). Water absorbed into the vessel wall can lower the vessel's temperature or cause the vessel to "sweat," preventing sooting (Skibo 2013: 49; 92). Soot also reflects long-term use (Skibo 1992: 91).

Skibo (2013) suggests there are three types of soot deposits. The first type occurs when the vessel is initially placed on or near a fire, which is unlikely to survive in the archaeological record (91). The second is the most identified on archaeological vessels and is a more permanent deposit resistant to environmental breakdown consisting of a mix of by-products from the fire such as coke, char, and ash (Duddleson 2008: 185; Skibo 2013: 91). Finally, the third type involves a reduced amount of soot which is a result of the vessel surface being oxidized due to high heat (ibid.). Skibo (2013) also mentions that if a pot exceeds 400 degrees Celsius during use, soot will be burned off (91). Kooiman (2016) identified a greater soot occurrence on Late Woodland vessels versus vessels attributed to earlier periods (214).

As internal carbonization is essentially charred food remains adhering to the vessel's surface, the occurrence of internal carbonization is vital for determining how vessels were used and how their contents were cooked. Unlike sooting, it is unlikely that the deposition of these deposits would occur outside of cooking. Additionally, due to the nature of the carbonization, it would have been difficult to clean or remove (Duddleson 2008: 185). Certain conditions are required for carbonization, and it will only occur when the vessel surface exceeds 300 degrees Celsius (Kooiman 2016: 216; Duddleson 2006: 185). Several variables will impact the likelihood of carbonization occurring, such as the type of food cooked, the presence of water, or the cook's skill (Skibo 2013: 83).
If the cooking method involved boiling with a direct flame, the liquid would act as a buffer and the contents would not exceed 100 Celsius. However, residue commonly occurs near the water level, where contents may have boiled up and adhered to the hot vessel wall (Duddleson 2008: 186). As a result, carbonization will typically not occur below the waterline (Skibo 2013: 97). If the vessel is too full, the contents could boil over, which may be evidenced on the upper vessel interior or exterior. This carbonization would also suggest that the vessel achieved temperatures hot enough to allow for boiling. If vessels were left to boil with their contents cooking down, residue rings might occur. Furthermore, this could indicate repeated cooking episodes as these rings may grow and coalesce over time (Skibo 2013: 87).

However, boiling was not the only cooking technique to be utilized. "Dryer" techniques, such as stewing, would typically result in carbonization covering a larger area and occur lower in the vessel (Skibo 2013: 104). If carbonization is more common on one side of the vessel, the vessel may have been placed laterally during cooking (Taché et al. 2021: 7). Conversely, this lateral carbonization may also indicate that the vessel was adjacent to a flame, with the surface closest to the heat exceeding the temperature required for carbonization (Taché et al. 2021: 6).

4.3.7 Attrition

Attrition involves physical traces such as, scratches, chips, abrasion, or spalls (Duddleson 2008: 183). Attritional marks can show evidence of how the vessel was used, from cooking to transport and storage (Duddleson 2008: 194). A conservative approach was taken to avoid misassignment of traces as the assemblage is fragmented. Several factors can affect the accumulation of attrition such as firing temperatures and properties of temper. Typically, higher temperatures and larger, higher amounts of temper will reduce attrition (Skibo 2013: 120).

Scratches vary in width, depth and orientation and are generally created through stirring or serving of contents. These can also occur on the exterior suggesting how the vessel was placed (Skibo 2013: 127). Abrasion typically occurs in patches involving an accumulation of scratches within one area (Duddleson 2008: 183). Chipping occurs most
often along the lip and usually when the vessel is moved. Spalling occurs when moisture present within the vessel wall is heated. It can also occur if the vessel is heated too quickly (Rye 1981:105). The resultant pressure from steam results in the expulsion of a minor, usually circular, portion of the vessel surface. This is like “pot-lidding” on heated lithic materials. Spalling is also more common on highly permeable vessels as water more readily penetrates the surface (Skibo 2013: 49). The vessels were visually assessed for the presence of these various physical traces. The attrition type and their location on the vessel were recorded.

4.3.8 Decorative Attributes

Analyses of decorative attributes are a common focus of Ontario researchers. Decorative elements are arguably the most readily accessible attributes exhibited by ceramic vessels. As a result, extensive literature exists discussing decorative attributes. In addition, certain decorative attributes are more prevalent in certain periods or regions as variations or decorative trends tend to occur throughout time and space. Therefore, assessing decorative attributes can provide pertinent information about the people and communities who manufactured these vessels. This information was the primary goal of this analysis. For the Late Woodland vessels, I was also curious whether the decorative attributes resemble those previously described by Fitting (1965, 1975) and Murphy and Ferris (1990) and Watts (2008) for the WBT.

This analysis used the methods Watts (2008) described, who compared Late Woodland vessels from Iroquoian and Western Basin Traditions in southern Ontario. Motifs were first recorded based on their location on the vessel and to which surface they were applied. Following this, motifs were described based on the tool and technique employed following diagrams and definitions from Watts (2008: 46-48). Next, zones were included to differentiate between motifs on the same vessel section. For example, if a neck had multiple motifs, each distinct motif was assigned a zone. This zoning was repeated for each vessel section, interior, lip, rim, neck, shoulder, and body as required (Figures 35 to 37).
While not always considered a decorative element, I include surface treatments here, which differ from decorative motifs as they more greatly alter the physical texture of the vessel. These techniques have been noted to increase ease of handling and may increase certain physical properties such as strength, heating effectiveness or thermal shock resistance, reducing spalling (Skibo et al. 1997: 311; Skibo 2013: 49; Rueff et al. 2021: 1). However, it is possible that these surface treatments also act as decorative elements (Longacre et al. 2000: 274).

Most surface treatments in this study involve cording elements of some design. These were differentiated based on how they appeared on the vessel. Based on my own observations in conjunction with Schumacher (2013: 78; Figure 38), surface treatments were determined as follows. Vessels with regular, tight cord marks were placed in a cord-marked category. Vessels with surfaces that were “mottled”, or dimpled were attributed to looser cord marking resembling hammered metal and were categorized as cord malleated. Cord roughened is a somewhat intermediate category between these two. It was further noted if any smoothing over of these treatments was exhibited. Rib paddling was assigned if linear impressions were present with no visible cord use. A unique surface treatment called slip-roughened was also identified. This treatment gives the vessel a flakey, stucco-like appearance, first described by Greenman at the Younge site in 1937 (Kenyon 1988: 15, Murphy and Ferris 1990: 216). Finally, the location of these treatments was also recorded.

### 4.4 Functional Analysis of Features

Cultural features were identified during the stage 4 excavations. The features were recorded, mapped, photographed, and drawn following their discovery. Once completed, depending on their size, features were sectioned in half or in quadrants and excavated by layer. Once one section was excavated, a profile of the exposed feature wall was drawn, photographed, and recorded. Finally, the remaining feature soil was excavated. Soil samples for flotation were taken if the feature contained high amounts of ash or charcoal. Soil samples were also taken if the feature was believed to contain a high amount of faunal or floral remains. Generally, most features were categorized as storage pits, refuse
pits, or hearths. These categories were assigned based on contents and feature dimensions. It is likely for storage pits to eventually be used as refuse pits if they become unusable due to contamination or infestation (Stewart 1977: 151; Dickens 1985: 35; Moeller 1992: 94).

Features are significant due to their sealed qualities; the preserved portion below the ploughzone usually has not been disturbed. It is also generally assumed that everything deposited within the feature is from the same occupation, or a relatively brief period, unless there is evidence for a long period of use through depositional episodes. Groups of features can also suggest that an occupation was significant enough to warrant the labour involved in digging the pits (Syms 1974: 314; Stewart 1977: 149). Features can offer a snapshot of a specific occupation that typically does not exist in sites where the entire archaeological deposit is plough disturbed. Furthermore, features usually exhibit the activity occurring at a site during the specific depositional episode that created the feature. However, experiments involving feature formation identified that animal disturbances could homogenize layers and alter depositional locations (Timmins 1997: 156).

Features were explored in various ways, and their interpretation incorporated other analyses. Based on the diagnostic artifacts present in each feature, tentative temporal assignments were given to each deposit. The other contents of each feature, such as faunal and floral remains, were assessed to determine potential season of occupation. The contents were also examined and compared across periods to identify trends, patterns, or differences throughout time. Furthermore, features were considered spatially within their respective sites as part of the spatial analysis described below. Their contents were further explored to determine if spatial patterns existed among features to identify clustering, or if any features were linked through artifact cross mending which suggests contemporaneity. If layers were present, the layer-by-layer contents were assessed to determine depositional episodes or possible repeated occupations. Feature dimensions, volumes and their contents were explored to evaluate feature types/functions. Feature volumes were calculated using formulas best suited to the feature’s dimensions. Given the irregularity, size and non-uniform layering of some features encountered it was
somewhat difficult to accurately calculate volumes, as such, these are approximations. Artifact densities were also considered for each feature based on the ratio of artifacts to feature volume. Analyzing the features and their contents in this way involves a holistic approach and is paramount for identifying how past people experienced and lived within their environments.

4.5 Lithics

4.5.1 Lithic debitage

The lithic debitage assemblages at both AgHn-12 and AgHn-14 are relatively small, comparatively, AgHn-14 has a much larger debitage assemblage than AgHn-12 (Table 7). Therefore, lithic debitage from both the features and plough zone was considered to explore differences or similarities which may inform relationships between the plough zone and features. The majority of the debitage was recovered using a 6 mm hardware cloth. As such, debitage smaller than that aperture was less likely to be recovered. However, flotation samples did recover numerous minuscule flakes.

Table 7 depicts the debitage identified in both contexts at each site. Analyzing the debitage further followed Pearce's (2008) technological typology method utilized in her thesis research. The flake typology is based on stages of reduction and corresponding flake types. This analysis aimed to reveal how the lithic industry operated at the Blackwell One and Blackwell Two sites. Specific production episodes can be inferred when considering the features from which they were recovered. The debitage can also be considered with other feature contents, such as faunal remains, to assess whether specific patterns emerge based on associated contents. Practices through time can also be explored.

Early stages of reduction include primary, secondary, and tertiary, determined by the amount of cortex present and the striking platform, dorsal flake scars, and bulb of percussion (Pearce 2008: 157-158). Also included in early reduction are bipolar flakes and shatter. Bipolar debitage, as the name suggests, are flakes showing evidence of being struck at their proximal and distal ends (Pearce 2008:158). Furthermore, these flakes
generally lack platforms and bulbs of percussion but have pronounced rippling (Pearce 2008: 158). Finally, shatter is usually defined as blocky pieces, lacking orientation and bulbs of percussion, produced during early stages of core reduction (Pearce 2008: 158).

Late stages of reduction primarily involve categories associated with bifacial reduction. Biface thinning flakes are defined as being large with ground and faceted platforms that exhibit a lip (Pearce 2008: 159). These flakes also have expanding lateral edges and numerous bidirectional flake scars on the dorsal surface. Bifacial retouch flakes lack a bulb of percussion and have faceted, thin, and lipped platforms (Pearce 2008: 159). The flake is usually curved, with many bidirectional or multidirectional dorsal flake scars (ibid.). The dulled tool edge is often visible. Biface reduction errors are small in length, and their platforms are always ground, faceted and acute angled with large, pronounced lips (Pearce 2008: 160). Unifacial retouch flakes are the final type in this category. These often originate from the reworking of scrapers. They are characterized as having right-angled platforms, which are occasional circular and can have a pronounced bulb of percussion (Pearce 2008: 160). The flakes also exhibit marked curvature, with expanding lateral edges, and the old working edge of the scraper is often visible (ibid.). Fragmentary flakes and potlids are two flake types that do not fit any specific reduction category. Fragmentary flakes dominated the assemblages at both sites. These are generally characterized as flakes that are broken and lack a striking platform (Pearce 2008: 161). As a result, it is difficult to identify the flake type as platforms distinguish how the flake was struck, which informs the level of reduction or type. Potlids are the result of heating and are not the product of purposeful manufacturing techniques (Pearce 2008: 161). These flakes are usually circular and lack platforms.

4.5.1.1 Analysis of Lithic Raw Materials – Chert Identification

During the lithic debitage analysis, lithic material types were also analyzed. Most of the raw material was identified as chert; however, some non-chert detritus was recovered. This analysis involved a macroscopic approach, using the naked eye or low magnification (10x) when the macroscopic approach was inconclusive. TMHC initially analyzed and identified the chert materials, but several unknown chert types or misidentified materials
required further exploration. Flakes for which raw material could not be identified were classified as unknown chert types. Unknown material types may be attributed to a variety of factors. For example, the chert may be burnt, exceedingly small, from secondary deposits or a rare exotic material. The chert material analysis was completed using physical and digital reference collections, personal experience, and published or unpublished sources (Eley and von Bitter 1989; Luedtke 1992; Keron 2003; Fox 2009). Identifying different chert materials and their sources allows for consideration of possible exchange or trade networks while also providing information on ranges of seasonal rounds. Exploring material types can also provide interpretations of interactions within a broader cultural landscape and the cultural ecology of the group.

4.5.2 Informal Tool Analysis

4.5.2.1 Utilized and Retouched Flakes

Utilized and retouched flakes are expedient tools and lack extensive flaking beyond their modified edges. These tools were not intended for long-term use and were likely discarded once their purpose is fulfilled. However, these flakes differ primarily in how they acquire their flaked edge. Essentially, utilized flakes have an edge that is modified by microflaking from use. The flaking can appear as continuous or discontinuous (clustered) (Andrefsky 2005:175). Retouched flakes are intentionally flaked to improve their effectiveness. Beyond this basic definition of retouched flakes, more specific descriptions of retouched flakes to further differentiate between intentional and incidental flaking are lacking. However, some degree of consistency of the retouched edge should be considered.

Following a cataloging manual from the Florida Museum of Natural History, Russell (2021) differentiated between incidental and intentional retouch requiring at least five continuous flake scars (41). For the analysis presented in this thesis, scarred edges measuring 5 mm and longer were considered. Those exhibiting shorter use wear damage were considered incidental. The presence of a modified edge was first identified macroscopically and then assessed through magnification up to 40x. Metrics were recorded, including modification length, location, and flaking height.
Determining flaking height may allow for a distinction between utilization versus intentional retouch. Unless impact use is involved, flake scars produced through use rarely exceed 2 mm in height, whereas intentional retouching may exceed 3mm in height (Kooyman 2000: 154; King 2018: 4). However, this depends on chert material type as different materials have varying hardness values or "flakeability" (Andrefsky 2005: 196). Numerous natural processes, such as soil movements, can also create flake scars that resemble retouch or utilization damage (Keeley 1980: 4).

The goal of this analysis was to confirm the presence of actual use wear versus flaking acquired post-depositionally. Exploration of use wear on retouched and utilized flakes was assessed under a microscope at 40 – 100x magnification. Examination of these use wear traces could further support determinations of legitimate use versus post-depositional, incidental flaking. The analysis to identify use wear broadly followed Keeley (1980) with consideration of contributions from other researchers (Cahen et al. 1979; Shea 1992; Kooyman 2000; King 2018). Due to the limited availability of stronger magnification and lacking a use wear experimental program, greater specificity of material worked was not realistic. However, it is understood that different materials (bone, wood, flesh) have varying hardness categories, generating differing evidence, such as striations, polishing or types of edge damage (Kooyman 2000: 156).

Keeley (1980) identified four types of edge damage: Large and small deep scalar damage, large and small shallow scalar damage, large and small stepped damage, and half-moon breakages (24; Figure 41). Scalar damage has a more rounded appearance, whereas stepped scarring appears rectangular, and half-moon breakages resemble small half circles. Under magnification, these types of scarring were noted on different specimens and recorded.

Polishing commonly occurs when working with bone, wood or hide (Keeley 1980). Polishing developed through woodworking is consistent, bright, and smooth. While striations are not common on tools used for woodworking, one type appears exclusively: broad and shallow striations (Keeley 1980: 35). Bone polish develops much more slowly than wood polish, resulting in more localized occurrences (Keeley 1980: 43). This polish
visibly contrasts the flake's worked and unworked parts, which appear slightly grainy under magnification (ibid.). Striations are more common on bone and generally appear narrow and deep (Keeley 1980:43). Polishing acquired through butchery appears bright with a "greasy" lustre which contrasts poorly with the unworked part of the flake (Keeley 1980:53). Very few striations occur on flakes used for butchery unless the flake has been used for cutting near the joint (Keeley 1980: 54). The striations that do occur are very minute and are only visible at greater magnification (ibid.). Identifying these traces on expedient tools and how they were possibly acquired helps further illuminate how past occupants of these sites interacted within their environment.

4.5.3  Formal Tool Analysis

Comparatively, formal tools exhibit more purposeful flaking or retouching, which results from a more labour-intensive process. These tools are generally maintained until they are broken or exhausted, where they may be discarded or possibly reworked into another tool (Pearce 2008: 48). The formal tool assemblages identified in this study are relatively small and includes projectile points and bifaces.

4.5.3.1  Projectile Points

Projectile points, or hafted bifaces, were considered separately from unhafted bifaces, which are simply referred to as bifaces in this study. Projectile points were typed, and the metrics of their morphological attributes were recorded. Measurements included blade length, blade width and thickness. Projectile point types were identified utilizing published reference material (Wahla 1969; KEWA 1987, Justice 1987) and personal experience. Projectile points aided in temporal assignments and assisted in determining subsistence practices.

4.5.3.2  Bifaces

Bifaces, lithic tools which exhibit flaking across both planes of the artifact, were identified to their reduction stage following Andrefsky (2005). Andrefsky uses a five-stage process that proceeds from a blank to a finished biface. Essentially, each subsequent stage results in greater thinning and flaking. It is essential to consider that
bifaces do not have a specific function and were used in various ways (Andrefsky 2005: 178, 192). Furthermore, bifaces were not necessarily manufactured with the goal of reaching what is considered "finished" by researchers. For example, a stage three or thinned biface may have been adequate for the desired use of the manufacturer without ever wanting to further refine it to what would be considered a 'finished' biface. Thus, the stages are merely categories based upon perceived characteristics.

General metrics of the bifaces were also recorded involving length, width, and thickness. Width to length ratios were also considered to aid in determining the biface reduction stage (Andrefsky 2005: 188). Evidence of hafting was also assessed and was identified through grinding or dulling wear. As with the utilized flake and retouched flake analyses, edges of the bifaces were examined for possible indicators of use or post-depositional wear. This analysis aimed to determine how these tools were used or on what material. This determination could possibly aid inferences about adaptations including strategies for utilizing different food and material types.

4.5.3.3 Cores and Wedges

Cores and wedges are often grouped in archaeological analysis in Ontario. This grouping is likely due to their similarity in appearance—however, some debate exists over what characterizes a core and wedge (Pearce 2008: 195). I follow Pearce's description: a wedge is a tool used for working bone or wood, which exhibits some degree of faceting or damage incurred through external bashing with at least one flaked modified edge evident from the point of contact with the material worked (Pearce 2008: 155). Conversely, cores are typically blockier with multiple flake scars and generally lack the edge modification found on wedges. Depending on how flakes were removed, cores were classified into unidirectional, multidirectional, or bipolar. Bipolar cores can be more challenging to differentiate from wedges because of their similar form and modification from use (Pearce 2008: 155).

Metrics of both cores and wedges were recorded, involving length, width, and thickness. Types were also recorded; this was more relevant for cores as it involved identifying flaking orientation (e.g., random), and whether the core was exhausted, lacking additional
viability of removable material. Area of modification was also identified, such as opposing ridge, area ridge, or opposing area (Binford and Quimby 1963). Broadly, wedges and cores can further inform how materials were worked and provide information on the procurement of lithic materials. Trends or patterns were also explored to determine potential changes throughout the Woodland Period.

4.6 Faunal and Floral Analyses

The faunal and floral analyses were completed for both sites by TMHC staff specializing in those respective fields for the excavation reports. The floral remains were identified mainly from soil samples following flotation. Both wood charcoal and other carbonized plant remains were identified. Samples were analyzed under a Zeiss Stemi 305 Microscope at magnification ranging between 8-40x (TMHC 2019, 2021). Where possible, the floral remains were identified to species.

The faunal remains were collected during excavation and from flotation of soil samples. If possible, specimens were sorted and identified to the most distinct taxon (TMHC 2019: 115). If the specimen could not be identified beyond class, they were assigned to a size category, e.g., deer sized, bear sized, goose sized, etc. If no determinations could be made, specimens were identified as indeterminate (TMHC 2019: 115). Modifications to faunal remains were also recorded. These involved exposure to fire (either burnt or calcined), gnawing or carnivore damage, and butchery marks (ibid.).

The data that these analyses generated are essential to consider for the cultural ecology approach. The remains identified suggest subsistence strategies that can be correlated with other artifacts recovered in the same deposit to estimate age. Through this temporal correlation, differences in subsistence patterns can be identified throughout time. Further, floral and faunal remains can inform seasonality, illuminating specific adaptive strategies of the peoples occupying the sites. These strategies suggest what food sources were important and when they were exploited.
4.7 Intra-site Spatial Analysis

An intra-site spatial analysis combines aspects of the methods described above into a comprehensive view of the site data. The intra-site analysis conducted for both AgHn-12 and AgHn-14 requires a feature focus. The contents of individual features may reveal general patterns when compared against each other. The contents can be explored further to determine site activities and areas of activity more broadly. Features containing certain materials or artifact types may suggest specific site activities or subsistence strategies.

These data sets may reveal patterns of temporality where certain features can be assigned to specific periods. Repeat occupations or seasonality of the site may also be revealed. Stratigraphy is important as it suggests repeat depositional episodes. The artifacts within distinct layers can be compared to other features with similar layering within the site. Patterning of feature types, such as refuse or storage pits, can further indicate site activities, or broadly, the site type or length of occupation.

Previous site disturbances or project limits also need to be considered for their possible influence on site interpretations. More apparent in a CRM context, project limits are often tied to property boundaries which archaeological sites are not bounded by. These limits force interpretations to be confined to only small segments of a what may be a much larger occupation. Disturbances from development or other impacts within the soil can also hinder interpretations. However, it is difficult to know how much site areas may have changed topographically over the centuries. Occasionally disturbances are visible through aerial mapping which GIS data can help to illuminate. Undoubtedly, the draining of Lake Wawanosh, in conjunction with subsequent agricultural and building activities, has left distinctive marks on the landscape, such as decimating an important environmental area like Lake Wawanosh, resulting in the homogenization of the landscape and partial to full destruction of archaeological sites. Despite current developments in the study area now requiring archaeological assessments, much development occurred before legislation required such assessments. Environmental reconstruction and historical data can only illuminate so much. Having visited and
excavated these sites, I feel I am somewhat familiar with the nuances not depicted by photography or mapping.

### 4.8 Conclusion

This chapter explored the variety of methods utilized in the analysis of the numerous archaeological components examined within this thesis. The chapter sought to provide explanations of the methods while also discussing their significance to the study more broadly. Several goals were pursued. The main goal was to place the data recovered within a cultural ecology framework, that is, how the cultural material or features may have been utilized within the environment through considering their function or use. These methodologies also sought to identify the age and cultural affiliation of the various assemblages. Identifying potential periods of feature use allowed for comparisons across a variety of aspects such as settlement-subsistence patterns or ceramic function. The next chapter will discuss the environmental reconstruction of the Lake Wawanosh area.
5 Environmental Reconstruction

5.1 Introduction

This chapter focuses on developing an understanding of the Woodland period environment that AgHn-12 and AgHn-14 may have been situated within. To achieve this reconstruction, numerous data sources were considered, such as historic survey data, physiographic data, pollen data, climatic data, and geologic data. An environmental reconstruction is vital for understanding the occupations of these sites and for a cultural ecology framework. A brief discussion of the history and eventual draining of Lake Wawanosh is also provided.

5.1 Physiographic Information

As archaeological sites appear to cluster around Lake Wawanosh, it was clearly a focal point within the greater landscape of the Lake Huron basin in precontact times. The land north of Lake Wawanosh toward Lake Huron lies within the Huron Fringe physiographic region (Figure 4; Chapman and Putnam 1973). This physiographic region lies adjacent to Lake Huron and extends from Sarnia to the Bruce Peninsula. Essentially this region is an old shoreline formed by glacial Lake Algonquin and post-glacial Lake Nipissing. Near Lake Wawanosh, it is difficult to distinguish which glacial lake formed the dunes and associated shorelines due to their physical similarities (Chapman and Putnam 1973: 100). Sandplains and relict gravel beaches characterize this land.

Most sites discovered thus far around Lake Wawanosh lie within this sand plain. This is perhaps unsurprising as the land south of the sand plain is comprised of clay soils of the St. Clair Clay Plains physiographic region. This physiographic area extends east, west, and south of Lake Wawanosh (Chapman and Putnam 1973). Chapman and Putnam (1973) describe this area as silty flats containing marl beds, marshland, and black muck (101, 267).
5.2 Historical Background of Lake Wawanosh

Due to the draining of the lake, what is known of it comes from historical accounts. Lake Wawanosh has been described as a shallow lake, roughly between 1.8 to 2.4 metres at its deepest point. Chapman and Putnam (1973) classified Lake Wawanosh as a lagoon (267). The lake covered a relatively large area of 1,800 acres or roughly 7 square kilometres. Historical mapping depicts the placement and extent of Lake Wawanosh (Figures 5 and 6).

In 1827 an area spanning 2.2 million acres was surrendered by Chief Joshua Wawanosh and 17 other chiefs to the crown, which included the land encompassing Lake Wawanosh (Elford 1982: 8). From this land surrender, Chief Wawanosh secured land for four reservations, all of which are located within Lambton County (Elford 1982: 8). Before he moved to a nearby reservation, Chief Wawanosh had a dwelling southeast of the lake and gave his name to the lake (Elford 1982: 9, 82; Valentine and McDougall 2001).
Scarcity of agricultural land preventing further settlement and claims that Lake Wawanosh injuriously affected the inhabitants' health spurred an interest for the lake's
draining (Canada, Bill No. 270, 1857: 439). The negative health impacts Lake Wawanosh was said to cause were never elaborated upon. Plans to drain the lake were finalized in 1857 when a bill was enacted to that effect. The work to drain the lake started in 1859 when a drain was dug from the upper east side of the lake, proceeding northeast, then north directly into Lake Huron (Elford 1967:82). This new drain was named the Cull drain, after James Cull, the civil engineer who led the project (Elford 1967: 93).

In 1867, to extend the Wawanosh Ditch and the Cull Drain, another by-law was passed, which effectively drained the entirety of the lake. In the subsequent years, several additional subsidiary drains were dug to aid the drainage of the marshy land and prevent recurrent flooding. The Perch Creek was altered to serve these drains and ultimately no longer exists north of London Line. The soil beneath the lake was fertile and black and treated with phosphorus to aid in agriculture (Elford 1967:93). Aside from constructing an airport in the southeast section of the drained lake, the area is still predominately used for agriculture, but housing development is accelerating. Despite the efforts to completely drain the area, some marshlands remain which presently consist of recreational areas with hiking trails.

It is problematic to know confidently how Lake Wawanosh may have formed. Following traditional models, Lake Wawanosh may have formed during one of the higher water phases of the Main Lake Algonquin phase ca. 11,000 to 10,500 BP (Morgan et al. 2000: 12). Karrow and Warner (1990) note that several lagoons or embayments existed around the shores of Lake Algonquin during this time, which may have included Lake Wawanosh (28). It seems likely that Lake Wawanosh was linked to Lake Huron through the Perch Creek. Evidence supports this linkage as Lake Wawanosh occasionally has been temporarily re-established in the spring when ice blocks the canal outlet (Chapman and Putnam 1974:101), however, based on anecdotal accounts, this no longer occurs.

It seems more likely that the origins of Lake Wawanosh were associated with the Lake Nipissing phase of 5500 to 4500 BP, which saw lake levels of 605 feet a.s.l., like the previous Lake Algonquin phase (Karrow 1980: 1272). Furthermore, uplift during the Nipissing phase caused drainages to backup, which promoted wetland development and
may have also aided the establishment of Lake Wawanosh (Karrow and Warner 1990: 31). This hypothesis is like Chapman and Putnam's account above, describing the re-establishment of the lake during occurrences of a blocked drainage canal. Mapping of the Algonquin and Nipissing phases both depict the area near Lake Wawanosh as inundated (Lewis et al. 1994: 899; Morgan et al. 2000: 14). The submerged land could explain why no archaeological sites dating before the Late Archaic have been identified in this area. As water levels lowered to their present state, Lake Wawanosh remained in the low marshland, partially positioned within the sandy Algonquin-Nipissing shoreline and fed by the Perch Creek. The water level of Lake Wawanosh would probably have increased in the spring if ice on Lake Huron prevented the outflow from Perch Creek. It is possible that the lake was once much larger than what is depicted on 19th century mapping with the north shore of Lake Wawanosh being bound by the Lake Nipissing beach bar (Fox 1980: 11).

### 5.3 Climatic Information

The Lake Wawanosh region falls within the northern Carolinian biotic province, near the transitional zone with the Canadian biotic province. The Carolinian Province covers a broad area and contains various animal and plant species, such as raccoon, whitetail deer, grey fox, elk, turkey, passenger pigeon, black bear, beaver, oaks, hickories, beech, butternut, elm, and sugar maple (Cleland 1966: 8). The average annual temperature is approximately 10 Celsius with suitable growing, frost-free days, ranging between 140 to 180 (Cleland 1966: 7-8).

The Woodland period climate for southern Ontario was temperate, much like the current one with some fluctuations of warmer or cooler periods occurring in the Middle and Late Woodland Periods (Cleland 1966: 93-94; Ferris and Spence 1995:87). The climatic fluctuations during the Late Woodland could have had a more significant impact as they may have affected agriculture (Cleland 1966: 95), however, it is difficult to say how these fluctuations might have directly impacted the people of Lake Wawanosh. Further, seasonal variations in climate caused changes in plant and animal availability throughout the year resulting in many groups practicing seasonal rounds until agriculture became a

Using various isotopic data from wood, organic and inorganic lake sediments, and mollusc shells. Edwards and Buhay (1994) developed a framework of postglacial climate history for southern Ontario. Their framework broadly supports what Cleland (1966) and others (Karrow and Warner 1990; Ferris and Spence 1995) have put forth about the perceived climate of the Woodland period. Overall, the climatic conditions were like the present with some minor fluctuations, if marginally cooler and dryer (Edwards and Buhay 1994: 202).

5.4 Early Survey Data and Environmental Discussion

Early survey data (ESD) has been an effective tool in creating a baseline for vegetation prior to extensive European settlement, but it is not without limitations (Karrow et al. 2016). These limitations originate not only from the primary data but also from the researcher (ibid.). Karrow and colleagues highlight four main discrepancies that may occur within ESD: Spatial accuracy, accuracy of species identification, biases, and competency of survey crews (2016: 5-6). These discrepancies often involve some level of interpretive judgement on behalf of the researcher (Karrow et al. 2016: 5).

In 1973, while working for the Ontario MCM, Peter Findlay completed a series of county maps detailing historical vegetation accounts extracted from early survey logbooks and anecdotal reports from various Indigenous groups (Findlay 1973; Karrow et al. 2016). However, it is unknown how Findlay may have extrapolated data between survey lines (Karrow et al. 2016: 6).

Findlay divided the maps into various sections based on the primary type of tree or environment type noted, e.g., a willow swamp or an oak forest (Findlay 1973). Findlay refined this further and included abbreviated labels of subordinate tree types identified in these different areas. Most of Findlay’s original maps have been digitized and are accessible through University of Waterloo’s Geospatial Centre. Figure 42 depicts an abbreviated section of Findlay’s map with Lake Wawanosh georeferenced upon it.
As the digitized original map made by Findlay is not always legible, some deciphering or interpretative judgement was required, possibly resulting in errors or misinterpretations. Also, the map that Findlay used does not depict Lake Wawanosh. This exclusion of Lake Wawanosh is surprising given that the map should reflect historical survey data and Lake Wawanosh would have existed at the time of historical surveys. As depicted on Figure 7, the georeferenced Lake Wawanosh appears to straddle both an oak forest and black ash swamp with numerous subordinate trees also shown. The apparent exclusion of Lake Wawanosh on Findlay’s mapping may point to the interpretative difficulties mentioned by Karrow and colleagues (2016: 5,10).

Despite the limitations, Findlay's map does generate a comprehensive image of the vegetation that was present at the time of land surveyed in the early 19th century. The environments and vegetation represented by these maps depict an area replete with sources of food, utility, and medicines for the occupants of this area (Dean 1994: 10). Focusing on a roughly seven-kilometre area surrounding Lake Wawanosh, I created an
updated version of part of Findlay's map for Lambton County (Figure 7). The creation of Figure 7 involved georeferencing Findlay’s map to recent mapping and creating polygons to match Findlay’s areas with GIS software (QGIS). Table 8 provides a breakdown of the environmental areas depicted on Figure 7.

The beech and maple (likely sugar maple) environment type have the greatest representation, with the largest portion lying east of Lake Wawanosh and extending northward to Lake Huron. Some small patches of this forest type also occur to the south of Lake Wawanosh. Other subordinate tree types noted within the beech and maple areas, roughly in descending order, are basswood, ironwood, elm, white ash, hickory, and oak.

The oak environment type is the second most represented and is predominately in the northern section of the map, adjacent to Lake Huron. This area seems to coincide with the sandplain mentioned above. AgHn-12 and AgHn-14 both lie within this environment type. Located to the southeast of Lake Wawanosh is a smaller oak area. In the north, sassafras is common around Lake Wawanosh and further west. Sassafras also appears to coincide with the location of AgHn-14. East of Lake Wawanosh, sassafras is still common, but more subordinate tree varieties are noted, such as pine, tamarack, white ash, basswood, butternut, ironwood, and hickory. Along the north edge near Lake Huron, spruce is quite common.

Black ash swamp is the next major environment type depicted in the Lake Wawanosh area. These areas are primarily directly south of Lake Wawanosh, with a smaller occurrence in the east. The most prominent subordinate trees within this environmental type are alder, elm, and birch. Lesser represented are maple, basswood, cedar, and tamarack. Identified to the southwest of Lake Wawanosh is a large section of tamarack swamp. A smaller tamarack swamp is located just east of the lake beyond a small willow swamp containing alder. The only subordinate tree type depicted in the tamarack swamp was cedar. The preponderance of swampy areas near Lake Wawanosh is not surprising given the physiographic data provided by Chapman and Putnam.

Finally, several areas exist where no environment type was provided by Findlay and are labelled as unspecified. One of these areas lies to the southwest of Lake Wawanosh, with
the others lying to the northeast abutting Lake Huron. These areas have a range of subordinate trees listed; in the southwest section, white and black ash are common, beech, birch, basswood, and hickory are also well represented. Dominating the northeastern areas are elm, cedar, and hickory.

### 5.5 Pollen Data

Pollen samples can further support the vegetation identified by Findlay. McAndrews (n.d.) provided pollen data to the North American Pollen Database (NAPD) from the nearby Sarnia Elk Site (Figure 43). The pollen data were accessed through the Neotoma Paleoecology Database, a relational multiproxy paleoenvironmental community database freely available to the public (Grimm 2008; Williams, Grimm et al 2018). Core samples totalling a depth of 390 cm provided the pollen data. To develop the chronology associated with the core only two radiocarbon samples were collected. Radiocarbon samples were taken at 65 cm and at the final depth of the core sample, 3.8 m. As radiocarbon dates were not taken at other depths, the corresponding age for a given depth was determined through use of a graphic age model. Dates for the various depths were determined where the depth intersected the date on the graphic age model. For this study, the two known radiocarbon dates were calibrated to calendar years Before Present through the OxCal software (Bronk Ramsey 2023).

Once calibrated, the two known radiocarbon dates are 305 +/- 250 calBP and 6283 +/- 352 calBP. As these dates are the only ones generated from radiocarbon sampling, the dates for the depths between this range are not necessarily accurate, especially with the uncertainty range. As such the dates provided in Figures 44 to 46 are approximate. Regardless, this data allows for a deeper understanding of the past environment and climate.

Figures 44 to 46 represent additional pollen data taken from the Sarnia Elk site with a greater focus on the Woodland Period. The abundance percentages depicted on the graphs refers to the amount of pollen present at each depth. For ease of depiction, the two tree pollen diagrams are divided. Figure 45 shows a total of 45% abundance and Figure 46 shows a total of 10% abundance. As such, the data shown in Figure 46 suggests the
occurrence of the species provided in that graph were much less common compared to most shown in Figure 45.

Ultimately, the grasses and sedges had the highest occurrences, however these are combined groups containing a variety of different plant species. Unfortunately, sedges (Cyperaceae) and grasses (Poaceae) which represent broad categories were not further delineated within the pollen data. As maize falls within Poaceae, this data could indicate the rise of maize cultivation within the area. Interestingly, the grasses and sedges reach a peak around 510 calBP before an abrupt drop just beyond the end of the Woodland period. Among other factors, this may indicate the impact of more significant climatic fluctuations during that time.

Broadly, the tree diagrams suggest that sugar maple, beech, black ash, basswood, birch, pine, elm, and oak were all present during the Woodland period in this area. Oak and elm appear to have the greatest representation. Although some fluctuations in the abundance of pollen occurred throughout time, vegetation appeared broadly consistent throughout the Woodland Period. This consistency supports the relative climatic stability of the Woodland Period stated above.

5.6 Conclusion

This chapter first explored the history of Lake Wawanosh itself, from how it may have formed to its demise through a series of parliamentary bills that resulted in numerous drains being cut across the landscape. To develop what the Lake Wawanosh environment may have been like, a variety of sources were used which involved an overview of the physiographic regions within Lake Wawanosh, its biotic province, ESD, and pollen data. Several maps and diagrams were formulated to support these discussions. Ultimately what emerged was that AgHn-12 and AgHn-14 were likely positioned within an oak forest with sandy soils. Surrounding these sites were a variety of environments that would have been replete with numerous exploitable resources, including Lake Wawanosh, creeks, and Lake Huron. The next chapter will discuss the results of the various analyses introduced in Chapter 4.
6 Analysis and Results

This chapter discusses the results from the various analyses conducted at AgHn-12 and AgHn-14. Based on the findings, the results are arranged in sections divided by their perceived cultural chronology. Each section explores the data and interpretations gathered from the settlement patterns, faunal and floral assemblages, lithic assemblages, and ceramic vessels.

6.1 Early Woodland: Blackwell One (AgHn-12) - West Locus

6.1.1 Settlement Patterns

The Early Woodland period in this study is represented by a single archaeological feature, Feature 2, located in the West Locus of AgHn-12. Two other smaller features (1 and 7) also occur in this area (Figure 2). Based on their spatial similarities, it is possible Features 1 and 7 are associated with Feature 2 and thus related to the Early Woodland occupation, but their contents were limited to minor amounts of chipping detritus of Kettle Point chert (n=11 and 3 respectively). When these features are considered together, they do little further the understanding of the Early Woodland occupation.

Feature 2 has an irregular-shaped plan, which is 410 cm in length, 230 cm in width and its depth ranges from 15 to 66 cm (Figures 47 to 51). During the Stage 3 excavations a one metre unit partially impacted this feature. The artifacts recovered from this unit reflect what was recovered during the feature excavation. The pottery recovered in the Stage 3 unit resembles the vessel identified within this feature, no other significant finds were identified (Table 9).

Two layers were also present in Feature 2 (Figures 48 to 51). Layer 1 consisted of 5 to 47 cm of brown sandy loam (TMHC 2019a: 13). Layer 2 consisted of 15 to 35 cm of dark brown sandy loam soil and had a soil sample taken during excavation (ibid.). Based on the examination of each layer, except for the limited presence of charcoal and carbonized plant remains in layer 2, no significant trends were identified between the two layers (Table 9). Unfortunately, this feature was roughly 1 m east of a large, heavily disturbed
area exhibiting a mix of clay and brick soils, raising the possibility that other Early Woodland features in the area may have been destroyed. This area was likely impacted by modern developments, such as demolished built structures and the construction of the adjacent artificial pond.

6.1.2 Faunal and Floral Remains

Fish, specifically lake sturgeon or lake sturgeon sized remains (NISP=153), dominate the faunal assemblage (Table 10). In terms of frequency, fish is followed by deer, beaver and duck or goose-sized remains. Lake sturgeon were likely acquired during their spawning when these fish move to shallower water, such as rivers (Prowse 2003: 91). Lake sturgeon generally spawn from May into June (ibid.). These fish were likely acquired with nets, lacking evidence for harpoons or other fishing implements. When not spawning, these fish generally prefer deeper, cooler waters, so they are unlikely to be commonly found in the shallow Lake Wawanosh. It is possible Lake Sturgeon returned to Lake Wawanosh during spawning through Perch Creek which had an outlet connected to Lake Huron.

The mammal assemblage recovered from Feature 2 was quite varied, including deer, beaver, and other small mammals (Table 10). Deer is generally thought to have been hunted during the fall, though not exclusively so. Deer would not have only been hunted for their meat but also for their hide, bone, or antlers. Beaver and other small mammals were likely opportunistic kills. Beaver can be hunted any time of year as they do not hibernate. However, their coats are least desirable during the winter months (TMHC 2019a: 33). Due to the migratory nature of ducks and geese, these were likely hunted in the fall or spring. These birds may have utilized Lake Wawanosh during migration or roosting. Only a minimal amount of floral remains was recovered from Feature 2, and they were either too fragmentary for identification or deemed intrusive (TMHC 2019a)
6.1.3 Lithics

6.1.3.1 Chipping Detritus

The chipping detritus from Feature 2 is comprised of 121 specimens which are dominated by Kettle Point chert, totalling 89 flakes, 18 of which are burnt (Table 11). Fragments dominate the assemblage, numbering 58, followed closely by tertiary flakes (n=23) and shatter (n=20). Very minimal amounts of late stage detritus suggest that little bifacial reduction occurred on the site. Early stage primary (n=2), secondary flakes (n=8) and tertiary flakes have a greater occurrence. The evidence from the chipping detritus suggests tools were finished elsewhere as there are relatively many tertiary flakes but nearly no late-stage reduction flakes identified. As noted, due to modern disturbances just west of Feature 2, more features may have been associated with this Early Woodland occupation resulting in skewed data. Two other small features were identified near this deposit. However, as these only contained minimal amounts of chipping detritus, associations to a period could not be confidently made. Despite this, the chipping detritus identified is like that in Feature 2 as they both lack late-stage reduction detritus. However, the chipping detritus recovered from the plough zone above Feature 2 did contain a greater amount of late-stage detritus, such as biface thinning flakes, indicating that some biface production possibly occurred on this part of the site.

6.1.3.2 Formal Tools

6.1.3.2.1 Cores

Two cores were recovered, both manufactured on Kettle Point chert. One core is a randomly flaked fragment and lacks cortex or evidence of bashing. The second core also appears randomly flaked, but the cortex is present on the exterior. Most evidence for bashing appears to be on opposing ridges which may indicate the use of bipolar flaking. The small number of cores recovered on the west locus is not surprising given the lack of additional lithic tools.
6.1.3.2.2 Projectile Point

The single projectile point is side notched with a lenticular cross-section (Figure 8). It is well made and morphologically resembles the Meadowood type projectile point described by Kenyon and others (1980; see also, Ritchie 1971: 35; Justice 1987: 170). The projectile point has a length of 54.63 mm, a width of 24.72 mm and its thickness is 6.62 mm. Pomranky or Hodges points, commonly identified in Michigan, resemble Meadowood points; however, these are generally described as somewhat smaller comparatively (Wahla 1969; Justice 1987: 171). This projectile point was manufactured on Kettle Point chert, which is significant given that Meadowood type points are typically found, almost exclusively, manufactured on Onondaga chert. No other lithic tools, including informal tools, were recovered. The lack of stone tools suggests little processing or butchery was taking place here and may indicate that the West locus may have served as a short-term extraction site exploiting the nearby resources.

![Figure 8: AgHn-12 (West Locus) Feature 2 - Meadowood Projectile Point](cm)

6.1.3.2.3 Bone Tools

A single modified bone tool was recovered from Feature 2 (Figure 9). Based on the analysis of the bone, it is believed to be a turtle long bone. However, species identification was not definitive. The tool measures roughly 55 mm in length, 9.39 mm in width and 6.53 mm thick, but is broken at both ends. A hole runs through the length of specimen with a diameter of roughly 2 mm. Due to its fragmentary nature, it is difficult to ascertain how this tool may have been used.
6.1.4 Ceramics

The ceramic assemblage for the Early Woodland consists of parts of a single vessel recovered from Feature 2. It is comprised of 15 body sherds (Figures 64 and 65). These sherds are quite thick, ranging from 10 to 12 mm. The temper used in the vessel is large and coarse, possibly a quartzite material. The sherds are marked by a corded surface treatment that occurs on the vessel's interior and exterior. The cord marking appears to be oriented horizontally.

Additionally, several coil breaks are present, suggesting an early period of manufacture. Various factors position this vessel within the Early Woodland period, such as the construction technique, the interior-exterior corded surface treatments, and the overall vessel thickness. This Early Woodland designation is further supported by the presence of the Meadowood point recovered within the same feature. Specifically, an interior corded surface treatment has been attributed to wide-ranging Early Woodland vessel types, including Vinette 1, Leimbach Thick and Schultz Thick (Fischer 1972: 142, 147). These vessels tend to be very similar despite their broad regional occurrence.

The vessel's exterior exhibits a dark brown to brown coloration, while the interior displays an orange hue. The core coloration is grey which suggests low firing temperatures (Rye 1981: 108,118, 119; Malainey 2011: 269). The vessel exhibited good water permeability, which is generally unfavourable for the boiling of liquids. Indeed, there is little evidence (minimal sooting or carbonization) on the vessel to suggest use on or near an open flame. This vessel was possibly used for storage or hot-stone cooking.

During the Early Woodland, decorative styles were limited and were generally the same throughout broad areas. Different names, such as Vinette 1, Schultz Thick, and Leimbach, were applied to various regional ceramics that generally shared the same traits.
(Fischer 1972; Fitting 1975: 91; Mason 1981; Spence et al. 1990). Decoratively, these ceramics were typically cord-marked externally and often on the vessel's interior. This internal cord marking does not appear in later periods. Some decorative variability has been noted on Early Woodland vessels in the northeast, such as punctates, incised lines and rectangular impressions (Taché 2005: 201).

6.1.5 Early Woodland Conclusions

Based on the conclusions gathered through this analysis, it is likely that the Western Locus of Blackwell One represents only one aspect of the Early Woodland settlement pattern within this area. This locus confirms that Early Woodland peoples were present in the region exploiting fish and other aquatic food sources from Lake Wawanosh and utilizing the relatively local Kettle Point chert material. Based on the findings presented above, this locus likely represents an early summer to fall occupation focused on short term extraction of resources.

6.2 Middle Woodland: Blackwell Two (AgHn-14)

6.2.1 Settlement Patterns

The Middle Woodland period in this study is represented by the Blackwell Two site (AgHn-14). A total of 13 cultural features were identified at AgHn-14 (Figure 3). These features tended to cluster at the southern edge of the excavated area, however, the site likely extends further south into an area that could not be excavated due to project limits. Table 12 provides summary data on the features.

Most features were shallow, ranging from 14 cm to 44 cm. The majority were oval or irregular in plan and were described as basins in profile. The features range in size, from lengths of 36 cm to 580 cm and widths from 35 cm to 247 cm. Feature depths ranged from 17 cm to 44 cm. As the plough zone depth is relatively shallow (avg. 22 cm), it is possible that ploughing has affected the appearance and dimensions of some features or obliterated them entirely. By assessing both the form and contents of the features, their possible functions can be considered.
All features contained fire-cracked rock, except for Features 3 and 14; these two features also contained the least number of artifacts. The TMHC report makes no mention of purposeful placement of fire-cracked rock; thus, these were probably just pieces discarded following use.

Charcoal was present in all but two features - Feature 3 and 6. These features also lacked other floral remains. Numerous activities could have resulted in the deposition of wood charcoal within the features at AgHn-14. Wilson Jr. (1985) suggests charcoal, in conjunction with fire-cracked rock, potsherds, and high amounts of food remains, may indicate use in food processing (75). Moeller (1992) suggests pits containing charcoal could have originated from periodic cleaning of hearths (54). The presence of charcoal may also indicate the use of smoke to dry or cure fish and other meats (Prowse 2003: 73). The smoking may not have required hot fires persisting long enough to chemically alter the soil, resulting in characteristic fire reddened soils. No conclusive evidence of hearths in the form of fire reddened soil was found on the site.

It seems plausible that the shallower features with few contents are natural depressions that were opportunistically filled with refuse. Feature volumes were varied, having a range from 1486.1 L to 11.7 L and an average of 221.42 L. Calculations of artifact densities do not show strong patterning between volumes and amounts of artifacts recovered (Table 12). Like the feature volumes, feature artifact densities were also quite diverse. Overall, the features had a density range of 0.23 to 66.14 artifacts per litre and an average density of 10.56. Interestingly, Feature 9 (Figure 57) and Feature 10 (Figure 58) had the highest artifact densities (66.14 and 14.56 artifacts per litre respectively) and they were also the smallest by volume.

Feature 6 (Figure 53 and 54), the largest feature by volume, had one of the smallest artifact densities at 0.34. As seen with some later sites in southwestern Ontario, specifically WBT sites, feature size does not always correlate with greater numbers of artifacts (Gostick 2017: 20). Despite Blackwell Two being associated with the Middle Woodland Period this finding is also true here.
The shallower features identified at AgHn-14 may indicate shorter-term occupations not requiring deeper storage for a larger quantity of items but a more expedient use (Knapp 2002: 174). Storage may have been less of a concern at more temporary, seasonal camps (Knapp 2002: 175). It is difficult to know how far these features may have extended into the plough zone or how much was lost to ploughing (Moeller 1992: 70). Moeller suggests shallow features may be just the bottoms of much larger ones that once extended far into the ploughzone (1992: 70).

Moeller argues that old storage or refuse pits from previous occupations were possibly visible during later reoccupations of a site. These older storage pits may have been repurposed to serve as refuse pits and new storage pits may have been placed nearby to these older pits which could potentially coalesce over time (Moeller 1992: 94). This interpretation could explain the undulating profiles of Features 6, 7, and 16 indicating possible additional storage features dug adjacent (Figures 53, 56, and 59). It is also equally possible that these features’ functions changed over time, requiring more extensive facilities.

Based on Stewart’s (1977) definition of refuse pits as “containing quantities of broken pottery, tools and animal bones indicating a container for garbage”, the features of AgHn-14 were ultimately used as such (24). Based on Stewart’s research, refuse pits likely originated as storage pits and were later used to dispose of rubbish (1975: 29). Gostick (2017) also suggests refuse pits were likely not intentionally dug for that purpose but are a result of reusing pits once their original function was no longer required (116). Based on these conclusions it seems unlikely that the refuse pits at Blackwell Two were originally dug for that purpose.

Several post moulds (Figures 3 and 61) forming a straight line roughly 3 metres in length were also identified in one section of the site. Interestingly these post moulds lie within an open area positioned between features. Based on the subtle orientation of what was identified, the structure appears to have a general north-south alignment. The section of post moulds identified is interpreted as an eastern wall, and the structure would likely have extended westward. Two post moulds of larger diameters were identified roughly
1.5 metres west of this eastern wall, indicating a central row of support posts. Due to the lack of other identified posts, it is difficult to say how substantial this structure may have been.

### 6.2.2 Faunal and Floral remains

The faunal assemblage at AgHn-14 contained a high number of fragmentary specimens for which species could not be determined (TMHC 2021a: 38; Table 13). Considering identifiable specimens, fish remains dominate the assemblage across most features (n=2479, 39.22%). Mammals follow fish in terms of frequency (n=312, 4.94%). The prominent mammals identified include rodents and deer. Turtles follow mammals in frequency (n= 96, 1.52%), with birds being the least commonly identified (n=21, .33%).

Perhaps unsurprisingly, the amount of burnt (n=572) and calcined bones (n=618) correlates with the amount of charcoal identified in each feature. More charcoal equates to a greater frequency of heat-altered remains. This suggests that these features were possibly involved in food processing and disposal of refuse. Burnt and calcined bones may also suggest possible marrow extraction for use as bone grease (Foreman 2011: 128).

Features 3, 8 and 14 contained the least amount of faunal remains. These features also had low amounts of other artifacts as well. The MCM report interpreted these features as natural depressions that had refuse deposited within them (TMHC 2021a). This conclusion was likely due to their relative shallowness. However, based on Moeller’s definition, Feature 3 could have had a primary function as a storage pit, given its dimensions, profile and low artifact count. If Features 3, 8 and 14 were used extensively as refuse pits or for processing, they would likely have greater concentrations of faunal materials which does not appear to be the case.

Feature 12 was unique regarding the faunal and floral remains recovered. This feature contained a relatively high amount of maize (n=20). To a lesser degree, Features 2 and 16 also contain maize (n=6 and n=2 respectively). However, the maize remains were identified as maize cupules and not kernels. Having only cupules made the identification
of the maize as archaeological more tenuous as the cupules could not be identified to a certain specie, such as northern flint which was utilized exclusively during the Late Woodland period in this area (TMHC 2021a: 34).

Maize was not common in this region until at least 900 CE (Ferris and Spence 1995: 104). However, some argue that maize was possibly introduced into the general area by about 450 CE (Crawford and Smith 2003: 199). Furthermore, Watts and colleagues (2011) suggest maize was adopted in adjacent Michigan and Ohio between 600-1200 CE. Given the evidence of chert materials such as Bayport (Michigan) and Upper Mercer (Ohio) identified within Feature 12, it is plausible the maize was acquired from these adjacent areas that the site occupants had begun to incorporate maize into their subsistence strategies.

Regardless, features containing maize could indicate a late Middle Woodland occupation or possible modern intrusions. No indications suggestive of a Late Woodland period occupation have been recovered. Barring modern intrusions, the three features containing maize could potentially indicate these features were contemporary deposits. However, spatially these features are not in proximity to each other, nor are there any other obvious patterns linking them. Feature 12 also contained <0.1 grams of indeterminate carbonized plants, 1.1 grams of indeterminate seeds, and 2.5 grams of nuts identified to Juglans sp. (walnut/butternut) (TMHC 2021a: 34).

Feature 12 contained the highest amounts of mollusc remains and a relatively high amount of turtle remains. While exploitable year-round, shellfish were likely harvested during warmer months as in the fall they would tend to burrow deeper into muddy lake bottoms, or ice would have been present (Waselkov 1987: 111). Lacking a large shell midden, these were likely a supplementary food. Their shells could have also been used in various ways, from temper to decorative elements. Turtles would have been more easily exploited in warmer months. Considering the maize and the presence of the mollusks and turtle remains, it is likely this feature represents a warm-weather occupation. The other two features which had maize identified also exhibit faunal remains indicative of exploiting aquatic environments during warmer seasons such as
turtle or muskrat. However, a minor amount of nutshell was recovered from Features 12 and 16 and may also indicate use of these features in late summer or early fall correlating with the harvesting of maize.

Feature 13 contained the highest number of identified deer specimens. The deer remains also had extensive modification involving heat alteration and evidence of butchery. The heat alterations involved burning and calcination. Evidence of butchery was exhibited through fine cut marks identified on the remains and spiral fracturing on several long bones. Spiral fracturing is often associated with marrow extraction or bone grease production. Bone grease extraction would require extensive crushing of the bones, which may provide insight into the highly fragmented assemblage (Foreman 2011: 112; Morin 2020: 537). However, bone grease extraction is typically conducted on ungulates, so this process cannot provide reasoning for the fragmentation of other specimens.

Lithics will be discussed in further detail below, but it is important to note that Feature 13 also had the largest lithic assemblage of all the features. Not only did it contain a large amount of chipping detritus but also several bifaces and utilized flakes. Given the data from the faunal remains and the relatively high occurrence of lithics, this feature shows evidence that processing of the deer remains possibly occurred on the site. The bifaces and utilized flakes could have been used in the butchery process and the chipping detritus is possibly evidence of tool revitalization or tool creation during that process.

The most charcoal from one feature was also recovered from Feature 13, which may be unsurprising given the many heat-altered remains. Additionally, a significant amount of carbonized plant remains were identified from the flotation samples. However, due to these specimens' fragmentary nature and small size, they could not be identified to species. Nutshell was also identified and was attributed to Juglans sp., indicating either butternut or walnut. As all nut species typically ripen in the fall, features containing their remains would have been in use around that season (Scarry 2003: 57), unless nuts were stored for future use. It is believed that nuts were usually processed for their nutrient dense oil which may have supplemented food resources in the winter (Pratt 1981: 77; Jackson 1986: 398). Supporting a fall occupation is the presence of deer remains which
are commonly believed to be hunted in the fall and throughout the winter. However, evidence suggesting deer hunting exclusively occurred in the fall is limited and it likely occurred throughout the year (Madrigal 2001: 67).

6.2.3 Lithics

6.2.3.1 Chipping Detritus

Both the chipping detritus from the features and the plough zone were analyzed. In total, 1,730 flakes were identified from features, and 3,806 flakes were identified from the plough zone. This number is slightly less than what was indicated in the TMHC report due to the identification of a few additional cores and utilized flakes. Kettle Point chert dominates the lithic assemblage for both the features (71.45% and 18.32% burnt) and plough zone (79.08% and 14.93% burnt). Furthermore, the plough zone and feature flake typology assemblages depict similar trends. Fragmentary flakes dominate both assemblages, 75.09% in features and 56.49% in the plough zone. Biface thinning flakes follow in frequency, comprising 12.31% of the feature assemblage and 21.28% of the plough zone assemblage.

Biface thinning flakes exhibit a variety of chert materials. Onondaga, Bayport, Flint Ridge Chalcedony, and Normanskill cherts were all identified within the features. Onondaga originates along the northeastern shore of Lake Erie, Bayport’s source is near Saginaw Bay in Michigan, Flint Ridge Chalcedony originates in central Ohio, and Normanskill originates in the Hudson Valley of eastern New York. The chert types are similar for the plough zone, except that Normanskill was not identified, but Norwood chert was present. The source of Norwood chert lies in the northwest of Michigan’s lower peninsula. However, these more exotic and distant chert types occurred in significantly lower amounts than the Kettle Point flakes. As such, it is likely the exotic materials were already somewhat refined, perhaps as preforms, for ease of transport. Indeed, both primary and secondary flakes were identified only on Kettle Point chert. As no other materials were identified for these flake types, it seems unlikely that larger unworked pieces of exotic material were transported to the site.
Feature 13 had the greatest variety of chert types identified. However, this feature also had the largest amount of chipping detritus on the site. While this feature was still dominated by Kettle Point chert, Feature 13 had a preponderance of cherts that originated relatively distant from AgHn-14, such as Norwood (~350 km), Normanskill (~700 km), and Flint Ridge Chalcedony (~330 km). Most of these materials occur on fragmentary flakes, but some occur on biface thinning flakes. Onondaga occurred in three other features (1, 7 and 12) but in no significant amount and was primarily identified on biface thinning flakes.

Features 1 and 12 also contained exotic chert types as well. Feature 1 contained fragments of Flint Ridge Chalcedony and Norwood. Feature 12 contained a single fragment of Upper Mercer chert and a few biface thinning flakes on Bayport chert. Upper Mercer chert outcrops in Central Ohio, roughly 300 km south of AgHn-14. Bayport is relatively closer, roughly 140 km to the northwest. Interestingly, except for Feature 7, Onondaga (n=20) only occurs within features (1,12,13) containing more exotic cherts. The Onondaga material identified appeared to be of high quality which may indicate the chert originated from its primary source, roughly 250 km away on the eastern side of Lake Erie (P. Timmins, personal communication 2022). Some material types could not be identified, with most of the unidentified flakes (n=115) showing signs of burning, which affects identification.

Except for Feature 1 (n = 244) and Feature 13 (n = 1,065), the chipping detritus assemblage in the other features does not exceed 100 specimens, averaging roughly 39 flakes. Excluding fragmentary flakes, biface thinning flakes (12.3%) and tertiary flakes (6.2%) have the highest frequencies. This occurrence is relatively consistent throughout all the features. Biface finishing (0.7%) and biface retouch (0.17%) flakes occasionally occur throughout the features suggesting either maintenance of these tools or manufacturing episodes. As these flake types have relatively low occurrences, these were likely minor activities. Primary (0.06%) and secondary (0.58%) flakes have similarly low levels of occurrence suggesting that the initial reduction of cores was conducted at the chert source. However, the relatively high amount of shatter (4.6%) may indicate that some larger pieces of chert were being worked, as shatter typically occurs when
detaching pieces from a larger objective piece (Andrefsky 2005: 12). Shatter may also indicate less skilled flintknappers (Andrefsky 2005: 83). Bipolar flakes occur in a limited amount, which is a somewhat common with Kettle Point chert as it typically does not occur in thick layers or nodules (Luedtke 1976: 244; Janusas 1984: 2). Bipolar flaking would maximize the usable material from smaller cores (Andrefsky 2005: 28).

6.2.3.2 Informal Tools

6.2.3.2.1 Utilized and Retouched Flakes

Most utilized flakes were recovered from the plough zone (n=6) and only one was recovered from a feature - Feature 13 (Table 18). All were manufactured on Kettle Point chert. Comparatively, retouched flakes were less common as only four were recovered, all from the plough zone (Table 19). The retouched flakes were all manufactured on Kettle Point chert.

All the utilized flakes exhibited scalar edge damage, with most of the flake scars identified as large (2 mm or greater) (Keely and Newcomer 1977). Shallow and deep scarring were roughly equal. The depth of the scarring is assessed visually and not measured (Keely and Newcomer 1977: 45). Three of these flakes were identified to have evidence of polishing associated with large scalar edge wear. No relationship between size or depth of scarring and polishing appeared evident. When the polish is assessed in conjunction with the scalar edge damage, it may indicate woodworking. One specimen, which was catalogued initially as a notched flake, was determined to be a utilized flake. The edge-use damage occurs along a curve, exhibiting large shallow scalar scars with some half-moon breakages. Polishing is also present. These half-moon breakages occur at the curve's apex, which suggests it may have been used as a spokeshave or other woodworking tool. Keely and Comer (1977) note half-moon breakages are common on edges of saws and wedges (45).

The retouched flakes primarily exhibited large, deep scalar edge damage. Additionally, all exhibited small step scars or half-moon breakages along their edges. Also, small, shallow scalar scars were common. Polishing was identified on a single flake. The lack of polishing may indicate working with bone, as Keeley (1980) suggests that polish
acquired from bone takes longer to develop than polish acquired through wood use (43). The presence of step or half-moon fracturing also suggests possible lateral or sawing movements (Keely 1980: 25).

In summary, it appears likely that the utilization damage exhibited on these utilized and retouched flakes indicate they were used to process wood or possibly bone.

6.2.3.2.2 Notched Flakes

Three notched flakes were identified, all recovered from the plough zone (Table 20; Figure 10). These were all manufactured on Kettle Point chert. Some debate exists over the actual function of notched flakes, whether they were intentional to meet a variety of tasks, simply for hafting of the tool, or incidental due to the recycling of edges (Eren 2012: 5, 12). If used for hafting, it seems probable that notched flakes would be associated with edge utilization or intentional flaking, which is not always the case. As hafting would indicate some intended use for a flake’s edge, lacking some degree of use wear or retouch, these flake types may be misinterpreted. Two notched flakes exhibited use wear elsewhere on the flake (Table 20). This use wear manifested as small and large shallow scalar edge damage (Table 20). Polishing was also present around the notches of two flakes suggesting probable hafting. Interestingly, one notched flake with additional use wear did not exhibit polishing around the notched area.

In summary, it is difficult to ascertain how these notched flakes were used. However, it does seem likely that these notched flakes were hafted given the evidence of polishing at the notch on two specimens and the additional use wear. Hafting of these small expedient tools may have extended their use-life and made them easier to use in the hand (Eren
Scalar use wear damage occurs in higher frequencies when working with harder materials such as wood or bone which may indicate how these specimens were used.

6.2.3.2.3 Graver

Only a single graver was identified at AgHn-14 and recovered from Feature 13 (Figure 11). It is manufactured on Kettle Point chert. Gravers are typically described as having a small, sharp protrusion or spur formed by unifacial retouch. Like notched flakes, gravers probably had various functions, possibly for perforating hides, tattooing, or engraving (Maika 2012: 2-3). However, this graver did not exhibit any distinct polishing or noticeable evidence of use damage.

6.2.3.3 Formal Tools

6.2.3.3.1 Bifaces

Numerous bifaces were identified within the plough zone (n=9; Figure 12) and throughout the features (n=6; Figure 13; Table 21). Except for a biface manufactured on Norwood chert and one manufactured on an indeterminate burnt material, all the bifaces recovered were manufactured on Kettle Point chert. Only three of the bifaces recovered from the plough zone were complete, while only one from the features was complete. Therefore, most were fragments and were identified to their portion if possible (i.e., tip, base, midsection). However, no pattern was discerned as the distribution of portions recovered was arbitrary. Thus, these biface fragments were likely discarded due to breakages during manufacturing or use. Of those bifaces that had identifiable cross-sections, they tended to favour a lenticular shape.

Based on width to thickness ratios, most bifaces fall within earlier stages of production (Andrefsky 2005: 188; Table 21). However, Andrefsky states that this is not a definitive
guide, and it is likely not accurate for fragmentary pieces (2005: 189). Despite this problem, based on appearances, I conclude that most bifaces fall within the early to middle stages of production. This designation is accurate for both the plough zone and the feature bifaces. Bifaces may be used at any production stage and will not necessarily achieve a “completed” status within their use life (Andrefsky 2005). Bifaces could have been utilized in various ways during the processing of various food items. Despite some evidence for use wear, it is difficult to confidently know if the fragments were broken through use or manufacture.

Notably, one of the bifaces recovered from the plough zone, cat. 373, was inferred to be a hafted knife manufactured on Kettle Point chert (Figure 12, middle image). This determination is based on the presence of flaking on one lateral edge and the occurrence of slight indentations near the wider end of the specimen. These indentations were created through flaking and appear smoothed or worn which further suggests hafting. The worked lateral edge also exhibited use wear in the form of step and deep scalar scar ing.

Feature 13, discussed earlier for its faunal assemblage, contains three fragmentary bifaces, identified as portions of a tip, lateral edge, and an end. While it is understood that tools are not necessarily deposited where they were used, these three bifaces may have been involved in food processing, evidenced by the butchery marks on the deer remains.

Figure 12: AgHn-14 Bifaces from Plough zone – Top, Left to Right: Cat. 208, 209, 230, 271; Middle: Cat. 373; Bottom, Left to Right: Cat. 313,314,378,408
Bifaces were also identified within Features 1 and 6, which contained relatively high amounts of deer remains (NISP= 8 and 10 respectively). Possibly these bifaces were also utilized for the butchery of these larger mammals. However, the biface recovered from Feature 6 is quite fragmentary and burnt. In addition, a burnt biface with a missing tip was recovered from Feature 12, which comparatively, has somewhat limited faunal remains. Perhaps this biface was discarded following breakage, as it could no longer function as intended.

![Bifaces from Features](image)

*Figure 13: AgHn-14 Bifaces from Features - Clockwise from Top Left: Cat.429, 437, 481, 568, 584, 594*

Regarding possible evidence of use, half-moon scarring was commonly identified along the lateral edges of most bifaces. The occasional shallow or deep scalar edge scar was also noted, but typically in conjunction with half-moon use wear. No polishing could be determined. As mentioned previously, half-moon scarring is generally associated with a transverse or cutting motion. Therefore, most of these were likely utilized on some material to cut or saw.

### 6.2.3.3.2 Projectile Points

Seven projectile points were recovered from the plough zone at Blackwell Two, and a single tip fragment was recovered from Feature 13. Only two were complete specimens (cat. 266 and 312), with all others being fragments (Figure 14; Table 22). Except for cat. 223, all cluster relatively close together in the centre of the site in proximity to Feature
13. The projectile points also exhibit a variety of materials, such as Kettle Point, Onondaga, and Bayport.

Due to variation inherent within projectile points, it can be challenging to assign a type to complete projectile points confidently. Nevertheless, doing so has been traditionally employed to aid in positioning sites within a temporal range or how they compare regionally. Regarding possible use, most use wear was inconclusive under magnification, although two (cat. 284 and 315) exhibit possible half-moon scarring.

The associated MCM report for AgHn-14 assigns one of the complete projectile points (cat. 312, Figure 14) as a Middle Woodland Saugeen variant manufactured on Kettle Point chert (TMHC 2021a). Based on additional analyses, the Blackwell Two site does lies within the spatial range provided for the Saugeen point type (Kenyon 1979). This point has a concave base and shallow side notching, resulting in poorly defined shoulders. The specimen is relatively thick with slight convex lateral edges and is lenticular in cross-section. These metrics and formal traits fit within the description provided by Kenyon (1979).

The other complete projectile point (cat. 266, Figure 14) is manufactured on an unknown, whitish-brown material. This specimen also appears quite waterworn or smoothed, making the raw material identification difficult. It is a relatively narrow, side-notched or expanding stemmed projectile point. Although this point appears quite different from the projectile point described above, it could also be a variant of the Saugeen type (1979) based on Kenyon's descriptions.

Two projectile points are relatively thick and crude, indicating they are possibly incomplete and were potentially abandoned during manufacture, making a type assignment tenuous. Despite this, they have notching present, which suggests they may have been hafted and used despite their lack of refinement. One is made of Bayport (cat. 284, Figure 14) (originally catalogued as Kettle Point chert) and the other of Selkirk (cat. 384, Figure 14). The specimen made of Selkirk has eroded fossil inclusions present on one portion of its base, which must have made removing that material difficult as the notching is just above it. This specimen exhibits shallow side notches and a short,
probably resharpened blade. It may also be a Saugeen type variant. The Bayport specimen (cat. 284) is arguably more refined than the Selkirk specimen. This projectile point is roughly plano-convex in cross section. Based on what is present, the Bayport specimen appears to be stemmed. The flaking appears random with one side exhibiting more flaking. The opposing side has one large flake removed spanning half the specimen resulting in a much thinner section. Furthermore, the Bayport specimen has one convex lateral edge which also appears more extensive retouching, suggesting this may have been used as a hafted knife.

Another projectile point was manufactured on Bayport chert (cat. 223; Figure 14). This specimen is a fragment that resembles the base of a point and would have been rather large if complete. In profile the specimen has a plano-convex shape. The metrics and general morphology somewhat resemble the broad, stout Manker or Affinis Snyder type projectile points of the Snyder cluster which are associated with the Middle Woodland period (Justice 1987: 201-204). Of what remains, only one notch is present, which appears corner notched. Perhaps the notching is misinterpreted as no notching is present on the opposing side. However, it is possible that this specimen broke during manufacture prior to developing a notch on the opposing side and may have been utilized for some other function. Interestingly, the base has been thinned and in conjunction with its plano-convex shape, the specimen resembles a shallow angled scraper. It is challenging to confidently interpret possible function due to its fragmentary nature and lack of definitive use wear patterning.

The projectile point manufactured on Onondaga chert (cat. 285, Figure 14) is missing its base but is extensively thinned (6.3 mm thick). Of what remains of the base, it appears it was likely corner notched with the tangs likely extending beyond the notching. While speculative, based on that morphology, it somewhat resembles a Jack’s Reef point (Justice 1987: 217). However, the tip of this specimen was not completed and still has cortex present. The presence of the unfinished tip and cortical material is interesting when the remainder of the point appears well made and nearly complete. Several possibilities emerge. The point may have broken at the base during manufacture before the tip could be finished leading to its abandonment. Alternatively, it may have been used
for cutting or chopping, with the lack of a tip being irrelevant to its function. Additionally, one lateral edge is more convex with greater flake removal than the other, suggesting use as a cutting implement. These conclusions are speculative as no definitive use wear is apparent. Also, the specimen did appear slightly worn either through sand abrasion or inundation in water.

Figure 14: AgHn-14 Projectile Points - Clockwise from Top Left: Cat. 223, 266, 284, 285, 312, 384, 385, 583.

The final projectile point recovered from the plough zone is a base fragment manufactured on Kettle Point chert (cat. 385, Figure 14). It appears lenticular in profile. The base has shallow and wide side notching which gives it a somewhat stemmed appearance. Based on its morphology it is possibly another variant of the Saugeen type (Kenyon 1979). A small amount of cortex is present on one face. The basal edge has been thinned and the flaking present suggests possible use wear. As such, this specimen likely continued to be used after it was broken, possibly as a hafted knife.

Feature 13 contained a tip fragment from a projectile point manufactured on Kettle Point chert (cat. 583, Figure 14). While only the tip present, the specimen appears extensively thinned with straight to slightly convex edges. It is lenticular in cross section. Based on these findings it is likely this point tip broke during use.
6.2.3.3.3 Scrapers

Two scrapers were recovered from the plough zone excavations (cat. 225 and cat. 369). Cat. 225 is a triangular end scraper manufactured on Kettle Point chert (Figure 15). It measures 34.12 mm in length, 21.14 mm wide and has a thickness of 9.6 mm. The modified end has an angle of 40 degrees and a flaking height of 5 mm. Opposite the modified end, the specimen tapers to a point. This constricted end was likely hafted into a socketed handle (P. Timmins personal comm.). On the bit end, some shallow scalar and step scarring were noted. The other scraper identified, cat. 369, is a bifacially worked end scraper, also manufactured on Kettle Point chert (Figure 16). It measures 32 mm in length, 25 mm wide and has a thickness of 10.4 mm. The bit end has an angle of 30 degrees and a flaking height of roughly 5.05 mm. Opposite the bit end, the specimen constricts slightly, indicating possible hafting.

6.2.3.3.4 Uniface

A uniface is a catch-all term that includes any tool with flakes removed from only one side. This definition may encompass tools like scrapers, however, in this study, specimens exhibiting unifacial flaking but lacking more deliberate morphology or refinement are placed within this category. The uniface in this assemblage was recovered from the plough zone (cat. 210, Figure 17). This uniface is manufactured on a primary flake of Kettle Point chert. Flaking is present on the proximal end of the dorsal edge of
the flake. The function of this uniface cannot be confidently determined based upon this flaking, and it lacks any use wear indications. Possibly it was decided to discard this specimen prior to its completion.

![Image of flake](image)

*Figure 17: AgHn-14 Uniface - Cat. 210*

6.2.3.3.5 Cores

Numerous cores (n=17) were identified from the plough zone; most from the central excavation block (Figure 18; Table 23). During the feature excavations, only three other cores were identified, one from Feature 1 and two from Feature 6. All the cores recovered were identified as Kettle Point chert. This pattern supports my previous interpretation, based on the chipping detritus analysis, that exotic cherts were brought to the site in either a preform stage or some other reduced state for ease of transport. Transportation constraints would not necessarily be a significant concern for Kettle Point chert as the source is relatively nearby. Secondary source material may have been in even closer proximity.

Some of the cores recovered from the plough zone also exhibited evidence of burning. Research has suggested that heat alteration of chert improves flaking properties through a reduction in fracture toughness (Domanski and Webb 1992; Brown et al. 2009: 859-860 Hurst et al. 2015: 208). Improved flaking properties includes traits such as more predictable fractures, longer flake removals and increased sharpness (Domanski and Webb 1992: 612; Brown et al. 2009: 859-860 Hurst et al. 2015: 214).

Compared to other features, the two features containing cores tended to have higher amounts of chipping detritus and more formal and informal tools. This may indicate that these features were associated with more significant episodes of lithic manufacturing.
Most of the plough zone cores are identified as fragments with random flaking, and many were exhausted. Two cores also exhibited evidence of bipolar flaking. The most common percussive form was opposing ridge (n=6) (Binford and Quimby 1963); however, this was equal with indeterminate types. Opposing area and area ridge percussive forms were represented by two cores, while the point ridge percussive form had a single occurrence. Regarding the cores recovered from features, the core from Feature 1 (cat. 432) exhibited unidirectional flaking and was determined to be an area ridge percussive form. The two other cores from Feature 6 (cat. 471 and 482) were fragmentary with random flaking, one was an opposing ridge percussive form, and the other was an area ridge percussive form.

6.2.3.3.6 Wedges

Six wedges were identified, all manufactured on Kettle Point chert, four from the plough zone and two from Feature 1 (Figure 19; Table 24). Two wedges were identified during the chipping detritus analysis. Wedges are commonly believed to be a tool involved in splitting materials, usually wood or bone. One or multiple edges will show evidence of bashing or extensive chipping. Edges opposite the bashed edges are typically the wedge bit which is usually more pointed and typically exhibits flaking acquired through use. As Feature 1 contains many faunal remains identified as deer, possibly these wedges were used to manipulate or process the bone or ligaments. Wedges could have also been used in the processing of different wood materials. Indeed, all the bit ends displayed large deep
scalar or step scarring, suggesting forceful contact with a hard surface (Keeley 1980: 38; 46-47).

6.2.3.4 Netsinkers

In total, two netsinkers were recovered during the Stage 4 assessment at AgHn-14 (Figure 20). A single netsinker was recovered from Feature 6 (cat. 483) and is manufactured on highly fossilized limestone. The notching is located on the lateral edges of the netsinker and is determined to be a side-notched netsinker following Prowse’s (2003) netsinker classification. Through experimentation Prowse determined that most notching was accomplished through chipping with a hammerstone (Prowse 2003: 51). This specimen shows evidence of the notches being ground or worn through use. This specimen measures 101.62 mm long, 70.42 mm wide, with an inter notch width of 58.97 mm, and a thickness of 22.55 mm. The notch lengths are 24.06 mm and 27.68 mm. A netsinker was also recovered from the unit excavation (cat. 258). This netsinker was manufactured on limestone and meets the criteria for a side-notched type. These notches also exhibit evidence of being ground or worn through use. This specimen measures 81.07 mm long, 78.22 mm wide, with an inter notch width of 68.4 mm and a thickness of 32.38 mm. The notch lengths are 18.55 mm and 19.33 mm.
6.2.4 Bone Tools

A single bone tool was identified which was recovered from Feature 6 (Figure 21). This tool was determined to be manufactured on a piece of antler. The tool is roughly cylindrical and tapers to a rounded end. 55.16 mm long, 10.09 mm wide and 8.03 mm thick. It is difficult to determine the function of this tool and it appears somewhat worn and brittle. If a pointed tip previously existed, it may have been used as awl. It is possible it was also used in pottery decoration.

6.2.5 Ceramics

The ceramic assemblage from Blackwell Two comprises a variety of fragmentary rim, neck, and body sherds. While some variation is present, this ceramic assemblage broadly resembles other ceramics recovered from the eastern Lake Huron region. As detailed in
Chapter 4, a vessel search was conducted to facilitate a description of the assemblage. Due to the fragmentary nature of this assemblage and the preponderance of body sherds, I approached the vessel search somewhat conservatively, deliberating over what could be gained through vessel assignment versus just considering the characteristics of the overall ceramic assemblage. In total, nine vessels were identified from the features, and one was recovered from the plough zone. The ceramic assemblage analysed from Blackwell Two is summarized below.

Detailed descriptions of these vessels are provided within Appendix B. Tables 38 to 47 provide the attribute data for the vessels. Table 48 provides various use wear data identified on each vessel. These attribute tables and vessel images are provided in Appendix C.

6.2.5.1 Ceramic Vessel Summary

Six of the vessels from Blackwell Two were comprised solely of body sherds, with the remaining four having rim sherds associated with them. Broadly, the ceramics identified in the features have evidence of coil breaks, indicating a coiling method of manufacture. This coiling manufacturing technique, coupled with a predominance of dentate tool impressions and rocker stamping, indicates that these ceramics were likely made during the Middle Woodland. One body sherd exhibited evidence for a mortise and tenon joint with the presence of two oval indentations within the exposed core at a coil break.

The temper used within most of these vessels was large and poorly sorted. Furthermore, the potters at AgHn-14 seemed to favour a black mineral, possibly feldspar or mica, for their use as temper. The thicknesses recorded for the body sherds ranged from 7.65 mm to 15.56 mm with a mean of 10.53 mm. This larger temper may result in thicker walls which could have a functional desirability, such as, greater vessel strength or it may merely reflect technological constraints which force a requirement for thicker walls, like lower firing temperatures resulting in lower overall flexural strength and greater friability. Temper plays a significant role in ceramics as it aids in various physical properties such as thermal conductivity, making the vessel less susceptible to thermal shock or reducing the propagation of cracks that would eventually cause the vessel to fail.
(Skibo 2013: 14). However, there is some compromise involved as higher amounts of mineral temper result in greater porosity but allows for greater overall strength.

As the assemblage is so fragmented, it is difficult to know much about the vessel morphology for AgHn-14 accurately. Middle Woodland vessels are typically described as having conoidal to sub-conoidal bases with poorly defined shoulders and vertical to out-flaring rims (Spence et al. 1990). As the vessels at AgHn-14 are interpreted as belonging to the Middle Woodland, they likely follow this trend. The flat and rounded point lip form of the rim sherds recovered from AgHn-14 also follow the Middle Woodland vessel descriptions of Spence and colleagues (1990).

Five of the vessels have decorations created by a dentate tool. Four of these dentate motifs, located on all the rim sherds (Figure 71 72, 74, and 79), are applied through a stamping technique, and one body sherd (Figure 67) has the dentate tool applied through a rocking motion (rocker stamped). Another body sherd exhibits a rocker stamped motif created by a narrow curved linear tool giving the vessel surface an almost scaled appearance (Figure 78). The body sherds associated with Vessel 8 may have similar decorations, however, its smaller size and more faint impressions make it challenging to discern if it is a rocking motif or simply a series of superimposed incised lines. Of the remaining four vessels comprised of body sherds not depicting any decoration, two exhibited smoothed over cord marked exterior surface treatments (Figure 69 and 70). One has a cord malleated surface (Figure 76), and the final one is plain or smooth (Figure 73). Dentate tool motifs were also the most common motifs among the ceramic sherds that could not be assigned to specific vessels.

Overall, the dentate tools used at AgHn-14 were of a polygonal shape and broad, not like the more delicate types seen in Point Peninsula or Vinette 2 types (Spence et al. 1990: 158). Occurrences of pseudo-scallop shell or cord-wrapped instrument motifs were negligible (a cord-wrapped instrument motif was present only faintly on Vessel 2). If basing interpretations on Finlayson’s (1977) observation that pseudo-scallop shell decoration occurs earlier in the Middle Woodland period, these data could indicate a later
Middle Woodland period occupation at Blackwell Two given the lack of pseudo-scallop shell motifs (576; See also Ferris and Spence 1995: 99).

Due to the fragmented nature of the ceramics, it was sometimes difficult to identify evidence for distinct use wear confidently. Despite this, most vessels exhibited quick absorption when tested for water permeability. The water withstood absorption for thirty seconds to one minute for the few sherds that did not absorb instantly. However, the sherds associated with Vessel 2 withstood absorption the longest, at around three minutes. It is possible that organic residues were used to reduce vessel permeability but would have deteriorated over time. However, permeability may have been desirable if a vessel’s function was to store water. As water permeates to the outer vessel, evaporation from this exterior surface would promote cooling (Rye 1981: 26; Skibo 2013: 40).

The interior of all vessels and intact sherds that were analyzed did not exhibit any evidence of carbonized food remains indicative of higher overall vessel temperatures or direct fire use during cooking. A few sherds associated with Feature 3 (Figure 66) Feature 6 (Figure 70) and Feature 11 (Figure 75) exhibited distinct darker patches of brown or black on their interiors. Others exhibited minor darker staining on their interiors, contrasting their light brown or orangey colouration. This staining or residue may be evidence of cooking use, but likely not the boiling of contents over a direct flame due to the poor heat conductivity of thicker walls and the greater water permeability. If these darker patches present on vessel interiors were acquired post-depositional, it seems plausible that both sherd surfaces would exhibit darker staining. However, this is not the case at AgHn-14, as most exteriors are broadly consistent in their colouration, from light brown to orange.

Significant differences in surface colour may reflect shifts in firing practices or the use of different clays. Changes in the fire temperature, oxidization, and the chemical makeup of the clay will impact the coloration of the clay (Feathers et al. 1998: 69; Maniatis 2009: 7). Vessels were fired and cooled in an oxidizing atmosphere, given the lack of blackened surfaces. Furthermore, as sherds varied in friability from low to high and in colouration,
firing temperatures were likely variable (Rye 1981: 121; Philpotts and Wilson 1993: 614; Skibo 2013: 47).

No sherds depicted evidence of patterned sooting or oxidization that would suggest repeated use near fires. Specifically, sooting is more commonly deposited on a vessel's upper portion but occasionally occurs lower on the vessel body (Hally 1983: 8). Contrary to Hally, Duddleson (2008) noted that duller black or gray soot was more common near the vessel's base, which transitioned to a glossier appearance further up the vessel (185).

Gray to black cores were typical throughout most of the assemblage. Cores are generally the final portion of the vessel to undergo fire related changes. This dark core colour indicates a high occurrence of organic material that failed to be burned out of the vessel during firing. It may also indicate that the pottery was fired in oxidizing conditions, but incomplete oxidization of the carbon had occurred (Rye 1981: 115). Regardless, it indicates a presence of organics in the clay, intentionally or incidentally.

Based on the evidence from most of these Middle Woodland vessels, hot-stone boiling was likely the most plausible food processing method. While this is a less effective and less efficient method than direct flame cooking, it allowed for heating from the inside-out, which was suited for the technological constraints inherent within the Middle Woodland vessels at AgHn-14 with the preponderance of thicker walled, high permeability vessels (Braun 1993: 117; Skibo 2013: 94). Given the relative lack of evidence for nut processing and the highly fragmented faunal assemblage at AgHn-14 it seems likely the vessels were utilized in the extraction of bone grease (Foreman 2011: 112; Morin 2020). It should not be ruled out that these vessels may have been used for processing a variety of items that required greater heat and time to become palatable or for extraction (Skibo et al. 2009: 58).

While recognizing the inherent limitations of cultural historical approaches and their taxonomic categories (P. Timmins personal comm.), most of the ceramic assemblage at AgHn-14, somewhat resembles other Middle Woodland ceramic assemblages identified within other river drainages in proximity to the Lake Huron shoreline. Historically these ceramics have been referred to as Saugeen Complex pottery. Furthermore, evidence
suggests a significant and possibly related Middle Woodland occupation in and around the Pinery Provincial Park, located just northeast of AgHn-14 along the Lake Huron shore (Finlayson 1977: 608-609). Finally, dentate tools, either impressed or rocked across the surface, are commonly associated with Middle Woodland occupations in this general area (Finlayson 1977: 618-620).

Finlayson (1977) also suggests that rocker stamping was a typical decoration for vessel bodies (636). More general vessel morphology, such as coarseness of paste, wall thickness and lip form, also fit within vessels of this region as identified by Finlayson (1977) and Spence and colleagues (1990).

6.2.6 Middle Woodland Conclusions

The Middle Woodland settlement pattern at Blackwell Two (AgHn-14) consisted of several features which were typically shallow but varied widely in size and shape. Their artifact densities also varied greatly with smaller features generally exhibiting greater artifact densities. The faunal assemblage was dominated by fish but a high frequency of unidentifiable remains also occurred. These remains were largely unidentifiable due to their fragmented nature, which suggests marrow extraction. The lithic assemblage is dominated by Kettle Point chert and a variety of formal and informal tools were identified which suggests a range of tasks were taking place. Ten ceramic vessels were identified; however, the ceramic assemblage was quite fragmentary and largely consisted of body sherds. Based on the conclusions from this analysis these vessels lacked carbonization or sooting indicative of direct fire cooking use and had high water permeability which suggests hot stone cooking, or perhaps the processing of bones for grease. The thick walls of these vessels would have aided in heat retention generated by the stones. The floral and faunal assemblage suggests that the Blackwell Two site was mainly occupied during the warm season.
6.3 Late Woodland: Blackwell One (AgHn-12) - East Locus

6.3.1 Settlement Patterns

Based on their contents, six features located in the eastern cluster of AgHn-12 were interpreted to be associated with Late Woodland occupations. This is a small number of features compared to other Late Woodland Western Basin Tradition sites in southwestern Ontario. Some well-documented sites like Robson Road, Bruner-Colsanti, Cherry Lane, Liahn 1 and Figura contained well over 100 features, albeit these were likely larger sites than AgHn-12 (Kenyon 1988; Murphy and Ferris 1990; Gostick 2017). This may indicate that the Late Woodland occupation at AgHn-12 was not very long, or that the site was occupied during short, repeated occurrences, possibly to exploit seasonally rich resources. Furthermore, all the features contained a variety of contents suggesting their final use was as refuse pits. The feature data is summarized in Table 25 below.

As noted, the Late Woodland features all clustered within the eastern section of the site. Further, within this larger cluster, the three features that exhibited layering clustered together and the three features with single layers clustered together. This pattern may indicate differing occupations of shorter and longer terms as layering is typically indicative of episodes of reuse (Gostick 2017: 14). It is also possible these single layered pits could be contemporaneous with the layered pits. The layering episodes may also indicate the feature was being used for different functions (Moeller 1991: 108). No evidence of structures was identified. In the analysis of Younge Phase Western Basin sites in the region, Gostick notes that dwellings and storage pits may be separated (2017: 28).

Except for one kidney-shaped plan, the remaining features were circular or oval in plan view. The feature profiles all resembled basins, with layered basins being the most common. With one notable exception (Feature 10), most of the features were consistent in surface size, but their depths varied from 25 cm to 110 cm. As a result, their volumes were quite varied, ranging from 356.2 L to 2,050 L with an average of 918.68 L (Table 25). Artifact densities were also varied ranging from 0.07 to 2.14 with an average of 1.37.
Feature 3 had the greatest artifact density (2.14), and Feature 12 had the lowest density (0.07). As previously stated, volume has little association with overall feature contents and artifact density calculations support this conclusion. No obvious patterns or correlations were noted between volume and artifact densities. The findings from the feature volumes and densities supports Gostick’s conclusions that feature size does not always correlate with numbers of artifacts on WBT sites (Gostick 2017: 20). Based on feature dimensions and their profiles, most of the features were interpreted as storage pits which were possibly later used as refuse pits given their relatively diverse contents.

Three features were recorded as having two or more layers. Features 3 and 5 contained three layers, and Feature 8 had two layers. The stratigraphy present in Feature 3 was unique in that it did not appear as contiguous layering. According to the profile diagram (Figure 62), Layer 1 was a shallow orange-brown sand deposit roughly 13 cm deep and spanned 60 cm. Layer 2, comprised of a dark brown sandy loam, took up most of the deposit, and Layer 3, a light brown sandy loam, only occurred on either side of Layer 2. Layer 2 had the highest concentration of artifacts (density = 2.43). Layer 1 had the lowest artifact concentration (density = 1.47), but the chipping detritus and some of the faunal remains recovered had evidence of burning, which may explain the orange colouration of the soils. However, no ash was noted. The appearance and somewhat low artifact concentration of Layer 3 may suggest that the walls of the deposit had slumped or there had been some animal disturbance. The nature of the stratigraphy does not suggest repeated depositional episodes. Thus, it is likely that this was originally a storage pit and was later repurposed as a refuse pit, possibly when the vegetal lining started to rot. The presence of layer 1 is curious; perhaps a hearth was built on an infilled refuse pit.

The layers identified in Feature 5 appeared as more contiguous deposits (Figure 63). This feature was also the deepest, with a depth of 106 cm. In terms of artifact concentration, layer 1 had the highest (density = 0.37), followed closely by layer 3 (density = 0.28). Despite layer 2 being the thickest, minimal artifacts were recovered from it (density = 0.02). This can be interpreted in several ways. Layer 2 may indicate a very minimal occupation following the abandonment of the pit, which comprised layer 3. It is also possible that layer 2 indicates post-abandonment infilling, and the refuse comprising
layer 1 was subsequently deposited in the remnant depression. Based on this evidence, Feature 5 is interpreted as a storage pit later used as a refuse pit.

Feature 8 had two layers, but the layers lacked stark contrasts. Layer 1 was described as a dark brown/black sandy loam, and layer 2 as a black sandy loam. Given the similarities of the layers, only one homogenous layer may exist. Regardless both layers (Layer 1: n=36, density 0.17; Layer 2: n=45, density 0.55) had relatively small amounts of artifacts dominated by faunal remains (n=35 and n=39 respectively). However, the artifact counts per layer may be skewed slightly as only the northern half of the feature was excavated in layers. The southern half of the feature yielded 316 artifacts (density= 2.17), 291 of which were faunal remains. Given the high occurrence of faunal remains, Feature 8 likely functioned as a refuse pit.

The remaining three features (10, 11, 12) exhibited a single dark brown sandy loam layer. Features 10 and 11 exhibited relatively high artifact counts with varied contents, with Feature 11 containing the most. However, artifact densities from Features 10 and 11 were comparatively low at 0.19 and 0.81 artifacts per litre respectively. Feature 10 exhibited a somewhat amorphous, kidney-shaped plan and lacked evidence for possible overlapping of pits. Since storage pits are commonly circular, Feature 10 was possibly always intended as a refuse pit. In profile, Feature 11 exhibits a deep basin with a shallower basin directly adjacent to it. Feature 11 was likely a storage pit later used for refuse. The shallower basin may indicate a repeat occupation or reuse over time. Feature 12 was relatively shallow with a low concentration and minimal variety of artifacts (n=26, 0.07 artifact per litre) which suggests this was possibly a natural depression subsequently filled with refuse.

6.3.2 Faunal and Floral Remains

6.3.2.1 Faunal Remains

Regarding the faunal remains, one category does not necessarily dominate the assemblage. In terms of the number of identified specimens (NISP), birds (n=503) have the highest occurrence, followed by turtles (n=383) and fish (n=349) which are comparatively similar in their occurrences. Mammal is the least represented at 181
specimens (NISP). Just over 400 remains were considered indeterminable to class. Superficially, these numbers indicate that the occupations associated with these features were likely during warmer weather. The faunal assemblage is summarized in Table 26 below.

When including passenger pigeon sized specimens, passenger pigeon comprises roughly 90.5% of the Late Woodland bird assemblage or 24.85% of the entire Late Woodland feature faunal assemblage. Passenger pigeon remains were present in all features except Feature 12. This indicates that passenger pigeons would have been a significant source of subsistence for the Late Woodland occupants at AgHn-12. Most of the passenger pigeon remains were identified within Feature 3 (n=317), comprising roughly 63% of the entire Late Woodland bird assemblage at AgHn-12. Passenger pigeons became extinct in the late 1800s following overhunting. They were known to winter in the southern United States and return north in the spring, resulting in large spring and fall migrations (Bomberger 2020: 27). Historical accounts claimed that migratory flocks were so large they would span miles and occasionally block out the sun (Madrigal 2001: 72).

Supplementing the passenger pigeon remains is a moderate number of fish and reptile remains. All the reptile remains (n=383; 100%) are identified as turtle. A large portion of the fish remains from Feature 3 have been identified as lake sturgeon and ray-finned fish. The latter comprises an extensive group of species. As lake sturgeons favour deep, cool waters, they are likely captured during their spawn, which typically occurs in shallower waters during late spring or early summer (Prowse 2003: 91). Furthermore, the evidence of turtle remains suggests a warm-weather occupation as turtles hibernate in the winter. The turtle remains identified were comprised mainly of the carapace or plastron, but some skeletal elements were identified. These warm season remains suggest that Feature 3 was used during a warm season occupation and that the passenger pigeons deposited in the feature were likely squabs taken during spring roosting.

Feature 5 had a mix of different faunal remains. The most prominent identified were deer or deer-sized remains (n=32; 15.1%). However, fish, such as lake sturgeon (n=13; 6.13%; includes lake sturgeon sized specimens) and passenger pigeon (n=30; 14.15%; includes
passenger pigeon sized specimens) were well represented. The overall faunal assemblage is the fourth largest of the six features identified (n=212; 11.58%). Layer 1 contained the only turtle (n=14; 6.6%) and sturgeon identified within the feature’s three layers. Layer 3 had the most deer (n=13), and the only goose remains (n=3) recovered from the layers. Most of these remains exhibited evidence of spiral fractures (n=9) and some cutting.

Layer 2 in Feature 5 had minimal faunal remains identified. Layer 3 may represent a fall occupation given the high amount of deer present. The goose remains could represent birds taken during their fall migration, and the same could have occurred with the low frequency of passenger pigeon remains in this layer. The presence of turtle and sturgeon in Layer 1 supports a warmer weather occupation. Thus Feature 5, functioning as a refuse pit, would have seen a depositional event in the fall before the site was abandoned in winter. Layer 2 had low frequencies of all artifact types, not just faunal remains, suggesting that this deposit occurred during site abandonment. Whenever the site was reoccupied, likely in the following spring or early summer, this existing depression could have been utilized again as a refuse pit, creating Layer 1.

Feature 8 comprised a variety of remains and was unique in that it was the only feature to contain bear. Historical accounts suggest that bears were likely targeted in the early spring or late fall while hibernating and less lean (Waselkov 2020: 22). Historical accounts also speak to the multitude of resources extracted from bears. Most important was bear oil or grease used in various applications from mixing with food, insect repellent, mediums (carrying substance), and ritual purposes (Waselkov 2020: 37-38). Bearskins or hides were another vital resource utilized as ritualistic costumes or for applications requiring greater durability than what deer hide offered (Waselkov 2020: 30-35). It seems the meat procured was less significant or desirable. However, some evidence suggests bear meat was used for feasts (Waselkov 2020: 26, 28, 42).

Feature 8 also has the highest frequency of fish remains (132; 37.82%) across the Late Woodland features. Most (n=70) could only be identified to the class of ray-finned fishes (perch, trout, salmon, sturgeon), but a high amount of remains (n=57) could be identified specifically to lake sturgeon and lake sturgeon size. This feature also had the second-
highest amount of passenger pigeon bones (88) though still many fewer than Feature 3. A moderate amount of turtle remains was also recovered, and Feature 8 was one of two features to contain river mussels. Furthermore, Feature 8 was the only feature in the Late Woodland assemblage to not contain deer remains. The remains identified here suggest Feature 8 was associated with a springtime occupation.

Comparatively, Feature 10 had fewer remains identified than the features mentioned above. The assemblage is dominated by fish and turtle remains. The small number of bird remains identified were attributed to passenger pigeons. This feature also had a small number of deer remains identified. However, this feature also had limited evidence for beaver remains, which was the only feature to exhibit this. Despite research suggesting that beaver was a significant source of food and furs across pre-historic North America, the negligible amount of beaver remains recovered suggests that beaver was not significant for the peoples of AgHn-12 (Crader 1997: 234). Research suggests that beavers were a vital winter resource due to their fat storage and their pelts being prime during the winter (Crader 1997: 235). The minimal beaver remains associated with Feature 10 suggest an opportunistic kill as the additional remains comprising Feature 10 suggest a warm weather occupation and not a winter occupation.

Turtle remains appear prominently within Feature 11, comprising just over 200 specimens, or just under 60% of the entire turtle assemblage at AgHn-12. While most specimens could not be identified to species, seven were identified as snapping turtles. Most of the remains were either carapace or plastron, with a few exhibiting evidence of burning. Given hibernation practices, these would have likely been taken during a warmer season.

A few specimens comprising fish (n=65), birds (n=40) and mammals (n=68) were also recovered from Feature 11. The fish comprised various types, including ray-finned fishes, lake sturgeon and perch, the latter two of which spawn in the spring. The bird assemblage for Feature 11 includes ducks, geese, and passenger pigeons. Deer dominated the mammal remains and many specimens exhibited evidence of burning and butchering,
such as fracturing and impact scars. If the deer were taken in the fall, Feature 11 depicts a seasonal range from spring to the fall.

Feature 12 had minimal faunal remains, numbering only nine mammal specimens, five of which were identified as deer. Most of these remains exhibited evidence of impact scars and spiral fracturing, with only a few depicting evidence of burning. Table 27 summarizes the evidence for modified faunal material from all Late Woodland features.

6.3.2.2 Floral Remains

The floral assemblage at AgHn-12 is dominated by charcoal which comprises 93.46% of the Late Woodland floral assemblage (Table 28). Feature 5 had the highest occurrence of charcoal, numbering 119 (55.61%) specimens, followed by Feature 11, which numbered 63 (29.44%). Features 3 and 8 had occurrences both below 20. Table 29 summarizes the identifiable tree species from the charcoal specimens. The charcoal in Feature 5 was identified as beech, cherry, elm, and oak, which was most common. Feature 11 had charcoal from ash, hickory, and oak. Barring cherry, the prominence of the species identified from the charcoal further supports the pollen evidence from the Elk site in Sarnia (NAPD) and the work of Findlay (1972).

Excluding Maize, carbonized plants were identified within Feature 3, Feature 5, and Feature 8, superficial unidentifiable charred material was present in all features except for Feature 5. The only identifiable specimens came from Feature 3 and were attributed to Setaria sp. (foxtail). It is mentioned in the CRM report for AgHn-12 that the presence of Setaria indicates disturbance as these plants are native to Eurasia and did not arrive until Europeans arrived (TMHC 2019a: 28). However, this is not necessarily the case as some species of Setaria are native to North America (Rominger 1955; Crawford and Smith 2003: 235).

A minimal amount of maize was identified in Features 3 and 5 (n=1 in each feature). Interestingly, no nuts were recovered from any features. As nut collecting is traditionally considered a fall time activity presence of them usually leads to interpretations of fall occupations. However, it is essential to consider that floral remains within the
archaeological record are generally only preserved if heat altered; thus, many of the plants utilized by the past peoples at AgHn-12 are likely not represented.

6.3.3 Lithics
6.3.3.1 Chipping Detritus

Overall, the Late Woodland lithic assemblage from the East locus of the Blackwell One site is small. The chipping detritus totals 526 specimens (n=183 from unit excavation; n=343 from feature excavation; Tables 30 and 31). Chipping detritus from the plough zone was analyzed along with the feature data and is included in this discussion. The features contain Kettle Point and Onondaga (including burnt) chert at near equal frequencies, with 135 (39.36%) and 105 (30.61%) specimens, respectively. Interestingly, these frequencies contrast with what was recovered from the plough zone where Kettle Point dominated the assemblage at 155 (84.7%) specimens, and Onondaga occurred minimally with only two specimens. Minor amounts of additional Ontario chert types were identified in the plough zone and features (Table 30 and 31), and more exotic cherts were identified, which had greater visibility in the features; these included Bayport (n=16) from Michigan and Flint Ridge Chalcedony (n=5) from Ohio. A relatively high amount of non-chert detritus, primarily quartz, was also recovered from the plough zone.

Feature 11 had the highest frequency of chipping detritus within the feature assemblage, with 268 specimens or 78.13% of the entire feature flake assemblage. Due to the high occurrence of chipping detritus, it also had the greatest variety of materials recorded. Onondaga had a slightly higher occurrence over Kettle Point in Feature 11. This is significant given the much closer proximity of Kettle Point over Onondaga, although it is possible that some of the Onondaga material is from secondary sources. Despite Onondaga frequencies being marginally greater, the amounts of Kettle Point and Onondaga per flake type were typically similar, e.g., biface thinning flakes include ten specimens on Kettle Point chert and fourteen on Onondaga chert. Onondaga dominates the secondary flake and shatter types, suggestive of larger pieces being stuck. However, outside of Feature 11, Onondaga occurs very marginally.
Regarding flake types more generally across the features, fragments comprise the largest type (n=227; 66.18%). However, amounts of more significant types include comparatively high amounts of biface thinning flakes (n=40; 11.66%), shatter (n=41; 11.95%) and tertiary flakes (n=24; 7%). Shatter occurred across most features, with the most common materials being Kettle Point and Onondaga. As mentioned previously, shatter typically occurs when larger pieces of chert are being struck. However, these activities are most associated with the occupants using Feature 11, as most other features have relatively small amounts of chipping detritus. Broadly, the flaking assemblage suggests there was a higher occurrence of tool refining and finishing than core reduction. As such, it is possible that cores were reduced in proximity to their source to allow for ease of transport.

### 6.3.3.2 Informal Tools

#### 6.3.3.2.1 Utilized and Retouched Flakes

Informal tools included retouched flakes and utilized flakes (Tables 32 and 33). Each of these classes is represented by three specimens in the original catalogue. However, one of the retouched flakes was re-classed as a utilized flake during the analysis. For utilized flakes, two made of Kettle Point chert were recovered from the plough zone, and two made of Onondaga chert were recovered from Feature 11. For retouched flakes, one specimen was recovered from the plough zone and catalogued as slate. However, amphibolite is a more probable identification, as it resembles material commonly used for ground stone implements such as celts. The final retouched flake was recovered from Feature 11 and manufactured on Onondaga chert. It is somewhat surprising that more of these informal tools were not recovered from the features, given the numerous faunal remains in the features, assuming expedient tools were required for processing these remains.

All but one utilized flake exhibited large shallow scalar scarring, with one (cat. 215) displaying deep scars. This flake also has evidence of narrow striations. Polishing was also noted on three of the utilized flakes. However, one utilized flake (cat. 354) appears to have slightly worn and rounded edges that could have been acquired post-
depositionally. The two retouched flakes exhibit large scalar scarring, one deep and one shallow. The flake exhibiting large deep scalar scars also has slight polishing and possible pock or pit marking, which indicates working with bone (Keeley 1980: 43)

6.3.3.3  Formal Tools

6.3.3.3.1  Bifaces

A total of five bifaces were recovered, three from excavated units and two from features (11 and 12) (Figure 22; Table 34). Most of these were broken pieces comprising tips and midsections. However, one biface recovered from Feature 11 was intact (cat. 367). The biface is manufactured on Onondaga chert and has a leaf to lanceolate shape with a lenticular cross section. This shape is due to the tapering of the specimen to a stemmed haft element. Hafting is further supported by the presence of polishing on the stemmed element indicative of haft wear. Based on Andrefsky’s width to thickness ratio this biface would fall within stage 2 or edged biface with a ratio of 2.51. However, this biface appears much more complete, and I would place it within a stage 3 (thinned biface) or possibly stage 4 (preform).

The additional fragmented bifaces are all relatively well thinned and well made. Despite their fragmentation, their width to thickness ratios suggests stage 3 or thinned bifaces. A large biface, which is not extensively thinned, was recovered from Feature 12 (cat. 376).
Most of this biface appears to be cortex, but one lateral edge is extensively flaked, suggesting use as a knife or other cutting tool. It also appears to have been heat altered, which in addition to the presence of cortex, makes material identification difficult. A large section of what is interpreted as the base has been removed intentionally or accidentally, yet it seemingly has not affected its use.

Of the five bifaces identified, only two of these, from Feature 11 and 12 (cat. 367 and 376 respectively), showed traces of possible use wear (Figure 22). One biface (cat. 367), discussed above, exhibited large shallow scalar scarring and some half-moon breakages along one edge. The other biface (cat. 376) exhibited half-moon and small stepped scarring, which appeared to be reminiscent of impact damage seen on wedges.

6.3.3.3.2 Projectile Points

Two projectile points were recovered from the Late Woodland features and resemble those commonly associated with the Late Woodland period (Figure 23; Table 35). These triangular Late Woodland projectile points are also commonly found on Younge and Springwells sites in the area. Furthermore, morphologically both points resemble the Madison type, known for being narrow, straight sided and resembling isosceles triangles. (Justice and Kudlaty 2001: 43).

![Figure 23: AgHn-12 (East Locus) Projectile Points - Left to right: Cat. 396 and 353](image)

The projectile point recovered from Feature 5 (cat. 396) is triangular, resembling a narrow isosceles triangle, and is manufactured on Kettle Point (Figure 23). Overall, the point has straight lateral edges with a straight, thinned and slightly ground base. It
appears lenticular to median ridged in cross-section. The second projectile point recovered was from Feature 11 (cat. 353) and is made on Kettle Point chert (Figure 23). This point is somewhat like the specimen identified in Feature 5 as it also resembles a straight-sided isosceles triangle. However, basally it does not exhibit grinding, but it is slightly thinned. This point also appears lenticular in cross-section. These small triangular points commonly found on Late Woodland sites are typically interpreted to be used as tips for arrows (Justice 1987: 228)

6.3.3.3.3 Wedges

Two wedges were identified (Figure 24; Table 36). A small fragmentary wedge was recovered during the unit excavation (cat. 212). This wedge is manufactured on Kettle Point and exhibits bashing along one edge. This wedge displays a range of small to large scalar scars along the utilized edge, ranging from shallow to deep. The other wedge was initially catalogued as a biface, but during analysis, it was changed to a wedge given evidence of bashing, which produced flaking upon both faces. Along the utilized edge, small and large deep scalar scarring was noted. The use wear displayed here is like that identified on wedges found at the Blackwell Two site (AgHn-14).

Figure 24: AgHn-12 (East Locus) Wedges - Left to Right: Cat. 212 and 283.
6.3.3.4 Miscellaneous Stone Tools

6.3.3.4.1 Anvil

A single rough stone tool was recovered from Feature 5 (Figure 25). It was determined to be an anvil and appears to be of a granite-like material. The anvil inference is based primarily on the presence of pitting on both sides of the central area of the stone. Some additional chipping was noted along one lateral edge. Anvils could have been in a variety of ways, such as nut cracking, bipolar knapping, bone, or plant processing (de la Torre et al. 2012).

6.3.4 Miscellaneous Bone Artifacts

Two fragmentary bone artifacts were recovered during the feature excavations, one from Feature 5 (cat. 430) and one from Feature 11 (cat. 373; Figure 26). Due to the fragmentary nature of these specimens limited interpretations can be generated. Cat. 430 measures 60.52 mm long, 10.56 mm wide and 4.02 mm thick and has evidence of polishing. The artifact appears split in half.
The bone was determined to be of either mammal or turtle origin. Cat. 373 is quite fragmentary, measuring 45.58 mm long, 7.58 mm wide and 4.82 mm thick. This bone artifact was determined to be deer in origin and exhibits polishing.

6.3.5 Ceramics

Overall, the entire ceramic assemblage from the East Locus of Blackwell One consists of relatively well-made vessels indicative of a Late Woodland Western Basin Tradition occupation. Through a vessel search, ten vessels were identified, most of which had rim sherds associated with them. Late Woodland ceramics in the study area have a greater prevalence of neck vessel decoration which aided in the sorting of vessels. No coil breaks were identified, suggesting that the ceramic vessels were created using an anvil and paddle modelling technique. Cord-wrapped instrument impressions were the favoured tool and technique to create various motifs adorning the vessels. The ceramic assemblage analysed from the East Locus of Blackwell One is summarized below.

Detailed descriptions of the vessels are provided within Appendix B. Table 49 provides a brief overview of the vessels, their respective features, and inferred phase affiliation. Tables 50 to 59 provide the attributes for their respective vessels. Table 60 provides various use wear data identified on each vessel. These attribute tables and vessel images are provided in Appendix C.

6.3.6 Ceramic Summary

As mentioned previously, the Lake Wawanosh study area and extreme southwestern Ontario are commonly associated with the Western Basin Tradition (WBT). While the WBT is commonly seen as distinct from the Iroquoian tradition further east, these distinctions have been blurring thanks to newer research (Murphy and Ferris 1990: 189; Watts 2008: 31, 38; St. John and Ferris 2019: 50). As the ceramic assemblage recovered from the East Locus at Blackwell One represents Younge and Springwells Phase vessels, a brief discussion their respective characteristics are provided below.

Generally, Younge Phase ceramics have smoothed extended necks, predominately decorated with incised triangle or diamond motifs (Murphy and Ferris 1990: 205). Cord
wrapped instrument impressions or other tool impressions are common along the rim, and these vessels are occasionally collared (Murphy and Ferris 1990: 202). Furthermore, Younge Phase vessels are typically larger in capacity. The bodies of Younge Phase vessels are commonly cord malleated, exhibiting a mottled appearance (Murphy and Ferris 1990: 207). Interior and lip motifs are typical and involve tool impressions utilizing the dominant implement that was used elsewhere on the vessel (Murphy and Ferris 1990: 202).

Comparatively, Springwells Phase vessels are larger and generally have more smoothed exteriors (Carroll 2019: 187). Vessels typically have linear motifs created with a plain tool or a cord-wrapped instrument (Murphy and Ferris 1990: 209). Also common is a net-impressed technique (Kenyon et al. 1988: 17; Carroll 2019: 190). The decoration represents similar trends noted in adjacent areas, like those indicated in the Uren-Middleport Phases of the Iroquoian Tradition (Murphy and Ferris 1990: 209). These ceramic influences may, in part, be due to the coexistence of these two groups in the same territories (Ferris and Spence 1995: 114). Unique to this phase is the occurrence of a slip-roughened exterior. This technique is quite common and results in other surface treatments occurring less, but there is evidence for cord-marked surface treatments underneath these slips (Murphy and Ferris 1990: 216).

Of the ten vessels identified within the assemblage, eight are associated with rims. The two remaining vessels are comprised of neck and body sherds. All the vessels and unassigned sherds in this assemblage display evidence for an anvil and paddle construction technique, supporting the several inferred Late Woodland occupations. When present, the rim orientations of nearly all vessels exhibited an out flaring orientation, which may have aided in the ease of pouring out contents. When enough of a vessel is present, it is evident that most have very subtle shoulders, which creates a vaguely cylindrical shape. Additionally, the out flaring rims and very slight outward-curving body generate a slight inward constriction throughout the neck. A constricted neck may have aided in the heating of vessel contents. Only Vessel 6, which is different overall, deviated from this trend, exhibiting an in-sloping orientation (Figure 97).
The temper in the vessels from AgHn-12 (East Locus) differs significantly from those at AgHn-14, which favoured large black or dark coloured minerals. Most of the vessels at AgHn-12 had poorly sorted temper, with inclusions of a variety of different sizes noted. Three vessels (1, 6, and 10) had particularly large temper inclusions (Figures 80-85, 97 and 106 respectively). Additionally, the pinkish quartz and tan mica temper inclusions of Vessels 1 and 6 had very similar appearances. The temper of Vessel 10, in addition to quartz, also had a round-edged, orange-coloured material, possibly some type of granite. The rounded inclusions may indicate that material was acquired near a water body. Four vessels (2, 5, 8, and 9) had poorly sorted fine temper, which is likely sand based on the presence of fine grains (Figures 86-88, 94-96, 102-103, and 104-105 respectively). However, some larger inclusions were also present. As fine-grained temper suggests, these vessels tended to be relatively thin. The variety of temper may suggest differing occupations, with potters favouring different paste recipes.

The use of cord-wrapped instruments (CWI) was the preferred tool for the Late Woodland potters present at AgHn-12. The use of a CWI was typical on the exterior and interior surfaces of the rim. This tool was generally stamped to form right-angled oblique motifs (bands) across the vessel. However, a few vessels did depict a vertical orientation of CWI elements. Most necks were plain, but some necks depicted several repeating bands of horizontal CWI motifs which bound an area of incised triangles or diamond motifs (Figure 86 and 103). Other examples of this motif on similar vessels from other sites occasionally show these triangles or diamonds filled with additional designs, but this was not present at AgHn-12. Additionally, most vessels with rims favoured a flat lip form commonly decorated with a CWI stamp (Figure 82, 92, 99, and 106).

Some vessels deviate from the trend for right-orientated oblique CWI impressions, possibly indicating differing occupations culturally or through time. Specifically, Vessel 6 deviated the most, not only in decoration but also in manufacture (Figure 97). This vessel is interpreted as a Springwells type given its linear trailing and presence of a slip roughened surface treatment, commonly associated with Springwells vessels. However, despite the linear decorative motif present on this vessel being like certain Middle Ontario Iroquoian (MOI) styles, morphologically, the vessel differs and slip roughened
surface treatments do not seem to occur on MOI vessels. More interesting is the presence of this vessel within Feature 10. Vessels 7 and 8 which were also within Feature 10 have cross-mends within Feature 11. These vessels exhibit CWI motifs and have triangular motifs. While the triangular motifs are commonly associated with the Younge Phase of WBT, CWI is not exclusive to that phase and does occur on Springwells vessels. Indeed, the ceramics recovered from Features 10 and 11 depict various styles with evidence of collars and varied decorative motifs such as those noted on Vessels 6 through 10. Therefore, it is possible and likely that these vessels are associated with later Springwells Phase occupations.

Most of the vessels in the Late Woodland features exhibited poor liquid permeability on their interiors. This poor permeability suggests a preference for direct-flame cooking favouring boiling. These vessels also had darkened vessel interiors of either grey or blackened surfaces (example: Figures 81, 88, 90, and 91). This is likely the result of smudging, a technique employed to lower surface permeability. Some researchers consider smudging to be a common technique employed by potters. Hally (1983) notes that this technique became common in eastern North America after 1000 CE, which is also supported by the analysis of the ceramic assemblages here (9).

While different smudging techniques are noted in the literature, an oxygen-deficient environment is essential; additional hot organic material is usually placed within the vessel if vegetal temper is not already present within the paste (Philpotts and Wilson 1993: 616; Skibo et al., 1997:313). Specifically, temperatures exceeding 576 Celsius and a lack of oxygen are fundamental for the smudging process (Philpotts and Wilson 1993: 615). As a result, carbon deposits from the smouldering and smoky organic material accumulate on the vessel wall and within the vessel fabric (Longacre et al., 2000: 277). These carbon deposits essentially “plug” the pores of the vessel, making the vessel less permeable to liquid while also turning the surface black (Drieu et al., 2019: 303,304). George, who conducted experimental research on Ontario indigenous pottery, found that applying animal fats to pots post-firing also imparted a darkened interior colour, perhaps from the fat burning off (2004: 40).
Smudging could have occurred serendipitously as a by-product of the firing process as pots were possibly fired inverted to avoid the quick cooling of rims, which may result in cracking (Rye 1981: 98; Drieu et al., 2019: 319). Interestingly, experimental archaeologists comparing the effectiveness of smudging versus slips found smudging to be as effective as slips against water absorption (Longacre et al. 2000: 282). Smudged pots are also highly resistant to abrasion (Skibo et al. 1997: 315).

Several vessels exhibit additional traces suggesting high heat cooking that involved boiling vessel contents. These traces occur on vessel interiors as carbonization concentrations or darker coloration bands, which indicate possible water lines (example: Figures 85, 90, 96, and 102). These may also indicate residues that have absorbed into the vessel, creating darker colorations against the greyed interior. The majority of these occurred higher up on the vessels at the neck, upper portions of the body or the shoulder. This trend further suggests cooking methods that would have involved liquid. If a liquid buffer were not present, the entire interior would have evidence of carbonization. However, carbonization commonly occurs in areas where the water level would have fluctuated, such as necks, allowing for contents to adhere and carbonize (example: Figures 91 and 104). Nevertheless, a few vessels depict carbonization lower in the vessels indicating this was not the exclusive method employed or possibly that the contents boiled down, either intentionally or not.

Most vessels appear to be well fired with exteriors ranging in colouration from a light brown to brown or orange. As noted previously, colouration is primarily influenced by firing and material present in the clay. Evidence of use is also depicted on the exterior coloration of vessels by the presence of sooting and oxidation. Four vessel necks (Vessels 2, 5, 7, and 8; 33.3%) exhibited prominent glossy sooting, suggesting repeated use near fire (Figures 87, 94, 100, and 102) (Duddleson 2008: 183). If vessels are placed over a fire during use, it is common for the necks or upper vessel sections to acquire evidence of sooting. Sooting is more commonly deposited on a vessel’s upper portion but occasionally occurs lower on the vessel body (Hally 1983: 8). However, Duddleson (2008) noted that vessels placed over flames had the heaviest soot deposits near the vessels’ middle (185). Experiments have shown that the sooting layer would be burned
off and replaced by greyish oxidization at temperatures of 400 Celsius and beyond (Skibo 1992: 160).

However, oxidation was not noted on many vessels or body sherds. This may be due to the small size of the assemblage and low basal and body sherd frequencies. Yet, oxidation was noted within an extensive collection of body sherds identified in Feature 11, some associated with Vessel 8 (Figures 103). In addition, despite the lighter colouration exhibited on Vessel 3, the basal and body sherds comprising this vessel also had some evidence of oxidation which appeared as lighter patches against the light-toned surface (Figure 89).

Vessel 1 appeared to lack any evidence of soot. However, one section of Vessel 1 extending from the rim to the neck and possibly body, appeared lighter and of a greyish colour, contrasting with the predominantly brownish colour of the overall vessel (Figure 80). This coloration is probably a patch of oxidation acquired through heating the vessel by placing it adjacent to a flame, which may explain why no sooting was identified. Given the size of this vessel, it would have been heavy once full and difficult to move off the flame if it were placed above a heat source. The residue on the rim and neck adjacent to or opposite this oxidized section may suggest the vessel was tilted, and the contents were poured out during serving while the vessel was still hot (Figure 80 and 83). The residue does not occur on this oxidized section and may have burned off when exposed to higher temperatures.

6.3.7 Late Woodland Conclusions

The Late Woodland occupation at the East Locus of AgHn-12 is comprised of six features which primarily ranged from circular to oval in plan and were largely basin shaped in profile. Based on artifact to volume ratios, many of the features had low artifact densities. The faunal assemblage indicates a primarily reliance on passenger pigeon which may indicate a spring occupation. This is followed closely by fish and turtle which also suggest a warm weather occupation. Some deer was also noted in the assemblage but at a much lower frequency. Of note, the floral assemblage is dominated by charcoal with
only a few pieces of maize recovered. A small amount of other carbonized plant remains were also recovered; however, some may be intrusive species.

Broadly the chipping detritus suggests a greater occurrence of tool refining and finishing than core reduction. This is supported by a lack of cores recovered from the site. Overall, there were few formal and informal tools identified in the lithic assemblage.

A total of ten vessels were identified within the Late Woodland ceramic assemblage at AgHn-12. The motifs and morphology of these vessels exhibited traits related to the Younge and Springwells Phases of the WBT. Thus, it is possible the occupation represents a transitional period between the Younge to Springwells Phases which is supported somewhat by radiocarbon results discussed below. Most of these vessels had low water permeability and evidence of direct fire cooking with the presence of sooting and carbonization. In addition, many vessel interiors were also blackened which has been interpreted as smudging or some other technique to reduce water absorption.

6.4 Radiocarbon Results

To position AgHn-12 and AgHn-14 better temporally, AMS radiocarbon dating was undertaken on samples from four different features. At AgHn-12, Feature 2 (West Locus), Features 3 and 10 (East Locus) were sampled. At AgHn-14, Feature 16 was sampled. The features were chosen based on the presence of diagnostic materials, such as ceramic vessels and projectile points. The presence of maize was also considered for the selection of features. From AgHn-12 all materials sampled were deer bone. AgHn-14 had a nutshell sampled. Given the relatively limited number of samples these results are not comprehensive, and more testing will be required to confirm and further refine dates. However, the results do provide a basis to position these sites and their cultural materials more confidently within the Woodland Period. The results are summarized in Table 37.

The result of 774-563 calBC from the nutshell recovered in Feature 16 at AgHn-14 positions Feature 16 near the commencement of the Middle Woodland period (400 BCE), following Spence and Ferris (1995) and others (Gates St-Pierre and Chapdelaine 2013; Curtis 2014, AEL AMS Radiocarbon Laboratory 2022). Notably, this feature contained
numerous fish remains, two pieces of maize cupules and Vessel 9 which had a rocker stamp motif. The date provided by the radiocarbon testing is interesting given the association of artifacts from the feature that do not necessarily correlate with the radiocarbon date. Rocker stamping motifs are traditionally associated during the Middle Woodland and maize is generally more common during later periods. While a single radiocarbon date is not definitive, it may suggest influences or trade from Hopewellian peoples.

The result of 1494-1397 calBC from the deer bone recovered from Feature 2 at AgHn-12 (West Locus) positions this feature within the Small Point Late Archaic (1500-800 BCE) (AEL AMS Radiocarbon Laboratory 2022). This date range conflicts with the apparent Early Woodland cultural material recovered from Feature 2 such as the Meadowood projectile point and the exterior and interior cord marked ceramic vessel discussed earlier. Dates for the Meadowood Complex usually fall within ca. 900 – 400 BCE. (Spence et al 1990:125), however, it is noted that Meadowood components at the Dawson Creek site and the Parkhill site have yielded radiocarbon dates in the 1300 – 1400 BCE range (Spence et al 1990:125).

The results from the deer bone within Feature 3 at AgHn-12 (East Locus) (1166-1281 calAD) and the deer bone within Feature 10 (1170-1225 calAD) are very similar dates (AEL AMS Radiocarbon Laboratory 2021, 2022). These dates coincide with the end of Younge Phase (900-1200 CE) and start of the Springwells Phase (1200-1400 CE) as put forth by Murphy and Ferris (1990) and Carroll (2019). The dates also compliment the conclusions found during the analysis of the cultural material, specifically the ceramic vessels, which were that Features 3 and 10 are associated with the Younge and Springwells Phases.

(Thank you to the Association of Professional Archaeologists for their AMS Radiocarbon Date Award which provided one of radiocarbon dates for this thesis.)
7 Discussion and Conclusions

7.1 Introduction

This chapter considers the results of the analyses filtered through a theoretical framework of cultural ecology and cultural landscapes. The discussion begins by exploring the cultural ecology of these sites using interpretations gathered through the various analyses provided in the previous chapter. The cultural ecology section follows the same cultural chronological sequence as in the previous chapter, beginning with the Early Woodland. The section concludes with comparisons of how the cultural ecology may have changed throughout the Woodland Period in the Lake Wawanosh area. This chapter concludes with a discussion of a perceived cultural landscape of the Lake Wawanosh region incorporating data from earlier chapters.

7.2 Cultural Ecology

Based on the environmental reconstruction and barring minor fluctuations, the Lake Wawanosh environment likely changed little throughout the Woodland Period. Drawing on the physiographic data from Chapman and Putnam (1973) and the historical survey data and Indigenous anecdotal evidence compiled by Findlay (1973), AgHn-12 and AgHn-14 were probably sites originally established within a sandy oak savannah setting near the shoreline of the former Lake Wawanosh. This area appears to have been favoured, as several sites have been identified within this environment. Occupants of these sites would have had relatively close access to both Lake Huron and Lake Wawanosh. Before the construction of the various drainage ditches, Perch Creek, which now bisects the area of the former Lake Wawanosh, likely also offered up a variety of resources as it meandered throughout the landscape before draining into Lake Huron.

Additionally, large swaths of resource-rich wetlands, anecdotally deemed "grocery stores" due to their variable resources and food availability, existed just to the south. These wetlands coincide with a clay plain, possibly the source of material for the ceramics recovered. Undoubtedly, these wetland environments were adapted to and favoured, and their presence was a draw on the landscape. Indeed, the cultural remains
recovered from AgHn-12 and AgHn-14 suggest that the occupants relied upon Lake Wawanosh's wetland environment. From the adaptation to this environment that seeped into the culture, it is possible to tease apart and identify the matrices that comprise their cultural ecology.

In addition to the wetlands, sections of maple and beech forests were also identified south of these sites, which would have been important sources of subsistence. However, numerous environmental components are not readily preserved in the archaeological record that would have played important roles for the peoples occupying this area. Specifically, plant remains are poorly preserved unless altered through contact with fire. Pollen can be preserved, as shown in the pollen cores from the Sarnia Elk site, discussed in Chapter 5 indicating various plant species.

Given that the Sarnia Elk site samples were taken roughly 10 kilometres west of Lake Wawanosh, the data may not directly reflect the occurrence of wetland-based species in the immediate vicinity of the sites. Regardless, the pollen indicates a wide variety of species, the exploitation of which would have played a variety of roles, from subsistence to medicine. Furthermore, the significance of these plants would change based on specific cultural ecologies developed to recognize their importance (Densmore 1987).

7.2.1 Early Woodland

As stated by numerous researchers, most Early Woodland peoples in northeast North America favoured adaptations exploiting riverine or lacustrine environments (Williamson et al. 2011; Ellis and Deller 2014; Taché and Craig 2015; Wood 2015). The evidence recovered from AgHn-12 supports this hypothesis, specifically the faunal assemblage. The faunal assemblage recovered shows a focus on aquatic species, of which fish dominates, specifically lake sturgeon. It is unclear if Lake Sturgeon would have gone as far as Lake Wawanosh during spawning. If not, Lake Sturgeon would have been taken elsewhere, possibly in the Perch Creek closer to Lake Huron. The presence of duck, goose, and beaver remains also support a wetland or aquatic environment adaptation. In addition, fishing was an important, possibly ceremonial, springtime occurrence for peoples during the Meadowood Phase (Spence et al. 1990: 136). Despite the lack of
evidence at Blackwell One for how these fish were caught, evidence provided elsewhere suggests the use of nets or weirs (Prowse 2003).

Additionally, a small number of deer remains are present in the assemblage. Deer also frequent oak savannah and wetland environments, but it is impossible to know from which environment these deer were taken. Most of the deer remains exhibit evidence of spiral fracturing, which suggests the extraction of marrow was a possibly significant cultural adaptation during this occupation. Interestingly, the Early Woodland faunal remains contained no evidence of passenger pigeons, which contrasts starkly with the Late Woodland features, which were laden with these remains. This evidence suggests that these Early Woodland occupants perhaps were unaware of this species breeding patterns. This concept is mentioned previously in Chapter 3 and is drawn from Butzer (1982), suggesting viable and exploitable resources may be inadvertently passed up. This may be the case here, or it may indicate a slightly different season between these occupations when passenger pigeon was not present.

The lack of turtle remains from the Early Woodland feature may suggest a similar scenario mentioned above. All Late Woodland features except one contain ample amounts of turtle remains. This is surprising given that numerous other species that frequent wetland environments were recovered from the Early Woodland feature. It is possible that for the Early Woodland occupants at AgHn-12, turtles were either taboo (perhaps given the significance of turtles in numerous Indigenous creation stories), or they did not recognize turtles as a viable, exploitable resource. Much of the faunal assemblage suggests a warm season occupation, such as the high frequency of warmer season spawning Lake Sturgeon, thus it is likely turtles were accessible. Turtle remains are present on other Early Woodland period sites, thus their absence at AgHn-12 may indicate a more unique cultural ecology. Regardless, at some point, adaptations or ideologies shifted as turtle remains were identified from both the Middle and Late Woodland occupations in this study.

Early Woodland pottery has been interpreted to have been used to process a variety of foods. Ozker (1982) interpreted them as having a limited role and not as a culinary
improvement but as an innovation that made significant additions to the subsistence system (78). Specifically, Ozker saw nut oil an essential addition to this subsistence system (Ozker 1982: 78). Ozker believes nut oil extraction was the sole purpose of Early Woodland pottery, and vessels were likely discarded after use (ibid.). The limited evidence of nuts from AgHn-12 suggests this adaptation was not in use there. Furthermore, given the relatively laborious task of making pottery, from acquiring the materials, vessel forming and firing, it seems probable that pottery played a multifunctional role, fulfilling different functions as needed and was not merely discarded.

Taché and colleagues (2008) argue for a more varied use for Early Woodland pottery that included nut processing, but also included cooking of terrestrial and aquatic species. Furthermore, Taché and Craig (2015) put forth isotopic evidence from several Early Woodland period sites suggesting that nut processing and storage was not a common use for vessels from this period (185). Instead Taché and Craig argue, Early Woodland vessels were commonly used to process fish, specifically at episodic gatherings during times of high resource abundance (2015: 186, 187). Skibo and colleagues debate these findings, suggesting that Early Woodland pottery was used for everyday cooking of meats and vegetables (Skibo et. al 2016: 1235). It is difficult to determine what may have been processed in the vessel recovered here based on the variety of faunal material identified. The vessel could have been used in the processing of any of these species.

Based on the use-wear data acquired, the Early Woodland vessel lacked evidence of use near fire, carbonization, and had high liquid permeability. The vessel thickness and lack of elaborate decoration suggests a more expedient, functional, and utilitarian role. However, hot-stone cooking is another possibility, and one that is more challenging to identify through use-wear traces. (Murphy 1991; Skibo et al. 2009). Lacking residue analysis, understanding the cultural adaptations this Early Woodland pottery played within the environmental exploitation of this area is difficult.

It is challenging to know how large of an occupation this small cluster of Early Woodland features was associated with. However, some Early Woodland sites were
relatively small and focused on exploiting seasonally rich resources. It seems probable
that more features were associated with the AgHn-12 Early Woodland occupation and
additional features may have been destroyed through modern disturbances. The presence
of additional features is further supported by the identification of both a Kramer-type
projectile point (400 to 0 BCE) and a Meadowood projectile point (950 to 400 BCE)
recovered during the earlier Stage 3 excavations, albeit from the ploughzone (Spence et
al. 1990: 128; TMHC 2018a: 22). The Kramer projectile point was recovered roughly 5
metres northeast of the feature, but the Meadowood projectile point was recovered
approximately 60 metres to the northeast. Both projectile point types are typically
associated with Early Woodland peoples. These point types are believed to be from
different phases within the Early Woodland period. Regardless, this evidence suggests
longer and possibly repeating Early Woodland occupations.

The floral and lithic assemblages recovered from the Early Woodland component were
relatively small. The floral assemblage was more so, and it lacked useful, relevant
information indicating the cultural ecology of this occupation. The lithics do provide
some insight. The Meadowood projectile point recovered from the feature exhibits some
polishing around the haft area, suggesting it was used, despite limited evidence of use
damage along its lateral edges or tip. Two Kettle Point cores and the general dominance
of Kettle Point chert suggest this material was a vital exploitable resource playing a
critical role in developing and maintaining a lithic toolkit. The dominance of Kettle point
chert is interesting as it is possible that the primary Kettle Point chert outcrop was
underwater during the time of Early Woodland occupation at AgHn-12 (Morrison 2017).

Lake Huron’s water levels rose roughly two metres during the Algoma Highstand,
roughly 3300 to 3000 calBP, which partly coincides with the Early Woodland period
(Morrison 2017: 53). If this were the case, the chert recovered from the Early Woodland
occupation at AgHn-12 would have been from a secondary source, possibly deposited by
glacial activity, or from streams or beaches (Luedtke 1979: 745). Lacking more
sophisticated means, chert types were identified visually, however there can be much
visual variation within a single formation or outcrop making source identification tenuous
(Luedtke 1979: 745). Based on the single radiocarbon date collected from the Early
Woodland feature, the occupation may predate the higher water level. Unfortunately, additional lithic tools, formal or informal, were not identified that could further elucidate the roles lithics played within this Early Woodland Lake Wawanosh cultural ecology.

However, occurrences of other chert materials identified within the debitage such as Onondaga or materials from further abroad, such as Norwood or Flint Ridge Chalcedony suggest a relatively extensive range within a seasonal round or spheres of interaction. Since these materials do not occur as cores or in early-stage reduction categories, they were likely transported as refined or thinned pieces. Interestingly, and perhaps unique to the Early Woodland cultural ecology of Lake Wawanosh, is the utilization and favouring of Kettle Point materials, as Onondaga is generally believed to have been the preferred material during this period (Janusas 1984: 84).

7.2.2 Middle Woodland

The Middle Woodland occupants at AgHn-14 seemed to follow previously identified subsistence patterns of semi-sedentism and seasonally exploiting specific resources (Cleland 1966, Spence et al. 1990; Ferris and Spence 1995; Brose and Hambacher 1999: 191; Kingsley 1999: 157; Prowse 2003; Gates St-Pierre and Chapdelaine 2013: 78; Curtis 2014: 157; Spittal 2017;). Regarding subsistence, the cultural ecology of the Middle Woodland occupation at the Blackwell Two site (AgHn-14) favoured the exploitation of fish. This is evidenced by the faunal assemblage recovered, which is dominated by fish, despite the high amount of fragmented remains. The dominance of fish supports many researchers' claims that, broadly, Middle Woodland peoples used fish as a primary form of subsistence (Fitting 1975: 98; Finlayson 1976: 560; Spence et al. 1990: 167-168; Prowse 2003). At AgHn-14, mammals appear to be a supplementary or secondary food source, with birds and turtles minimally represented. However, the high occurrence of unidentifiable, fragmented remains may skew these conclusions.

Prowse's (2003) thesis on Middle Woodland fishing methods provides insight into how Middle Woodland peoples may have processed and consumed fish. Prowse discusses a few methods derived from ethnographic sources, but it is difficult to know if these methods extend into the deep past. Typically, fish were skewered and roasted whole over
a fire or, alternatively, smoked, dried, and stored for winter use (Prowse 2003: 73). Additionally, fishmeal, essentially ground fish bones, was sometimes mixed with fish oil, grease or berries and was used as a form of seasoning (Prowse 2003: 72). Consumption of fermented fish was also noted within the Great Lakes region (ibid.). While these techniques are not necessarily unique to the Middle Woodland, they suggest how the Middle Woodland occupants at AgHn-14 may have subsisted from this resource. During the excavations of the Peace Bridge site, a smashed vessel containing ten species of fish was identified (R. Williamson, Personal Communication 2023). This evidence further supports the use of ceramic vessels in the processing of fish.

A single net-sinker was recovered from AgHn-14. Previous archaeological work identified a scatter of netsinkers associated with the drained lake bottom of Lake Wawanosh (Ferris, personal communication). Prowse does note several other fishing-related tools present at the relatively nearby Blue Water Bridge sites, such as harpoons, gorges, or spear prongs (Prowse 2003). These artifacts tended to be manufactured of bone or antler. If these tools were used, it seems probable that there would be some trace of them given the high frequency of fish remains. Fish weirs may have been employed, but as these were constructed from wood and usually placed within a river, evidence of these would be lacking on a more inland site (Prowse 2003: 107, 115).

As mentioned in Chapter 6, a significant amount of the deer remains showed spiral fracturing, commonly interpreted as evidence of marrow extraction. As with the Early Woodland occupants, bone marrow or bone grease was a sought-after resource for the Middle Woodland occupants that was only viably extracted from larger ungulates, like deer. Bone marrow was highly valued for its high caloric and fat content (Shaffer 1989: 174; Morin 2020: 535). This suggests a specific subsistence practice that favoured and identified the importance of this resource. It may also indicate preparation for cooler seasons, as the traits of high fat and calories are desired during more lean times.

Floral remains recovered indicate little evidence of nut exploitation. Of what was recovered, the occupants seemed to favour either butternut or walnut species, which only totaled three identifiable specimens or 3.5 g. Ecological studies suggest that, calorically,
nuts could not predictably or economically support human populations (Wagner 2003: 150). Furthermore, nuts vary widely in their nutritional composition from species to species (Scarry 2003: 57). Additionally, trees only bear nuts every few years, with trees of the same species in an area bearing their mast simultaneously (Scarry 2003: 74). As such, acquiring enough nuts for a fruitful harvest would require some advanced knowledge or survey to identify where and if a nut harvest would be viable. As only three nut specimens were recovered, the occupants were likely not too extensively involved in nut harvesting. This data suggests opportunistic gathering, or that the occupations occurred outside of a nut-producing year. As such, nut harvesting was perhaps not integral to the cultural ecologies of the Middle Woodland occupants located at AgHn-14.

Limited evidence of additional floral remains was recovered. Two specimens of elderberry were identified, which the TMHC (2021a) report suggests are not commonly consumed as their raw berries cause gastrointestinal issues (36). However, cooked elderberry has no adverse effects and provides numerous health benefits (Schmitzer et al. 2011: 15-16). Presently, elderberry is employed in various ways, from jams, juices, and wine. Furthermore, elderberry has been recovered from numerous sites in Ontario, suggesting knowledge of its use was somewhat widespread (Finlayson 1976; Crawford and Smith 2003). The elderberries recovered here may have been used medicinally, in the previously mentioned fish gruel, or something similar.

The presence of maize within Features 2, 12 and 16 is significant for this occupation. Most of the maize specimens were recovered from Feature 12 (n = 20), however this feature lacked any diagnostic material to aide in a period designation. Only Feature 16 has additional diagnostic material that can be associated with the Middle Woodland, which is Vessel 9. This vessel has evidence of coil breaks and a decorative motif, rocker stamping, that is typically associated with the Middle Woodland. An AMS date on nutshell from this feature has a mean date of 669 calBC (Table 56), which is early for the typically ascribed date range for the Middle Woodland period in southern Ontario. However, based on the evidence above, the maize recovered must be associated with the Middle Woodland occupation. The AMS date associated with Feature 16 predates the presence of maize in this area by quite some time. The earliest dates for maize, in this
region are roughly between 500-600 CE (Crawford et al. 2006:550-551; Katzenberg 2006:264; Hart et al. 2021). Cooking residues collected from pot interiors from Michigan, New York, and Quebec with values of δ 13C indicate evidence of maize as early as 300 calBC (Hart et al. 2021: 426). In this region, full-fledged agricultural use of maize likely did not occur until around 1000 CE (Ferris and Spence 1995; Stothers and Abel 2002; Dewar et al. 2010; Watts et al. 2011). While not considered a significant part of the diet, maize did have some occurrence in the Ohio Valley amongst Hopewellian peoples between 200 BCE to 400 CE and possibly earlier (Yerkes 2005; Abrams 2009: 179). It is certainly possible then that the Middle Woodland people at AgHn-14 had acquired maize through a trade network from peoples further south. It seems likely the maize recovered from AgHn-14 was not cultivated there or if it was, only in very small quantities and not to the extent evidenced in later period sites.

Based on the relatively high frequency of lithics recovered from both the features and plough zone, they were an integral part of the adaptations of the Middle Woodland occupants at AgHn-14. A variety of tools, both formal and informal, were identified. The chipping detritus includes a high frequency of biface thinning flakes suggesting that biface thinning was a relatively important activity. As Kettle Point chert dominates the assemblage, the occupants of AgHn-14 identified either primary or secondary sources of Kettle Point and transported these materials back to AgHn-14 to be further refined. This is further supported by the high occurrence of cores, although most were recovered from the plough zone. However, additional lithic material indicates either wide-ranging seasonal rounds or relatively extensive exchange networks; as shown in the preceding chapter, some materials have sources 700 km away. To acquire such distant materials, the AgHn-14 occupants may have been involved in the fringes of the Hopewellian interaction sphere.

Lithics also show their significance within this cultural ecology through various formal and expedient tools, indicating that numerous tasks involving stone tools were likely being performed by the occupants at AgHn-14. The lithic data suggests that these individuals were adequately adapted to manipulating their environment. The evidence from the utilized and retouched flakes indicates possible contact with wood and bone. A
portion of the bone assemblage exhibits cut marks, interpreted as traces of human manipulation. Thus, these informal tools were likely also involved in butchery or meat processing. Notched flakes showed similar use wear as that displayed on utilized and retouched flakes, however, these tools were perhaps used in tasks requiring more force as they were hafted, which would have allowed more leverage. Additionally, a bifacial blade with evidence of possible hafting suggests a similar, more substantive role. Manipulation of wood and bone is further supported through the evidence of wedges and their use-wear traces. Finally, likely manipulation of hides or other materials is suggested by the presence of a handheld scraper and a bifacial, possibly hafted, scraper.

Evidence from the ceramic use-wear suggests these Middle Woodland vessels were used in functions that were similar to those of the Early Woodland vessel. Like the Early Woodland vessel, none of the Middle Woodland vessels exhibited evidence of use over fires or any carbonization of contents within the vessel interiors. Technologically the potters utilized a coiling method which created relatively thick vessels. These vessels would have been strong structurally but poor conductors of heat with high rates of liquid absorption. Furthermore, firing temperatures were likely low, creating more friable pottery. Thus, the occupants of AgHn-14 were limited by these technological constraints forcing their adaptations to adhere to the vessel's capabilities. Due to preservation issues, it is unclear if the peoples of AgHn-14 employed coatings, such as fat, to limit absorption and increase heating effectiveness. Based on the findings at AgHn-14, hot-stone cooking seems to be the most plausible use of these vessels, as suggested by several researchers (Skibo et al. 2009; Hanson et al. 2019). This cooking method may partially explain the high occurrence of fire-cracked rock throughout most of the site and within the features.

Unfortunately, it is challenging to know precisely how the Middle Woodland vessels were used and what their contents may have been. It is generally assumed they were used in cooking or other food processing tasks. Kooiman (2016) suggests Middle Woodland peoples in the Great Lakes favoured a stewing technique which would have been somewhat viable with hot-stone cooking (208, 217). Nut oil extraction was likely not a vital task at AgHn-14 given the relative paucity of nutshell remains, but this may reflect the season the site was occupied.
Based on the discussion of fish processing provided by Prowse (2003), pottery was not commonly involved with fish cooking, except perhaps when making fishmeal. Despite this, it is unlikely the techniques mentioned by Prowse were the exclusive cooking techniques employed. Prowse’s view conflicts with the evidence provided by Taché and colleagues (2008) as they suggest fish was commonly processed in ceramic vessels (Taché and Craig 2015). As evidenced by the faunal remains, a variety of meat sources were being processed, cooked, and consumed through various mediums. Skibo and colleagues suggest pottery vessels were being utilized to process a variety of materials and were not used for one specific food (2016).

A moderate frequency of burnt and calcined faunal material suggests a partial preference for open fire cooking. Differing cooking techniques were likely employed based on the requirements of the item to be consumed, with some foods requiring greater processing to be palatable or accessible. Thus, as some foods require more specific techniques before consumption (e.g., elderberries), these different cooking methods would likely exhibit differing cultural ecologies, allowing for the environment to be exploited in varied ways.

7.2.3 Late Woodland

The view of the cultural ecology for the Late Woodland occupation at AgHn-12 likely reflects a seasonal occupation beginning in the spring and continuing to the fall. It is also likely that the ecofacts and artifacts from the features reflect repeated occupations. The Late Woodland adaptation of the occupants of AgHn-12 may be described as being marginally based upon corn agriculture, with fishing and hunting playing the more significant role (Cleland 1966: 68). The Late Woodland cultural ecology at AgHn-12 seemed to be adapted toward passenger pigeons as a primary protein source, as these remains make up nearly a quarter of all faunal materials recovered. However, the broader faunal assemblage suggests it was a diffuse economy overall.

Passenger pigeons had large spring and fall migrations and could be taken in either of these seasons. However, it is generally assumed that they were hunted during their spring roosting, which could encompass areas spanning hundreds of miles (Bomberger 2020: 25). While young, squabs relied on different mast species, which fattened them quickly
before learning flight (Bomberger 2020: 28). The flightless, nut-fattened young pigeons would have made easy and desirable targets following a likely scarce winter, but this flightless period was short (Bomberger 2020: 28). Due to the high frequency of remains recovered overall, hunting during spring roosting seems most likely. Fall migrations would involve more mobile adult birds and flocks typically only remained in an area for a brief time. Reliance on passenger pigeons would require some previous knowledge of migrations and an understanding of their preference for mast species during roosting. The large amount of passenger pigeon remains suggests the occupants of AgHn-12 had at least general knowledge of this. Perhaps features with more minor frequencies of this species indicate differing occupations outside of large migrations. The presence of passenger pigeons of this quantity is significant as they do not seem to be a common occurrence on other Late Woodland sites in the area (Ferris 2023, personal communication). The quantity of passenger pigeon could also indicate an environmental factor that may have affected the availability of fish.

Evidence from the faunal remains suggests passenger pigeons were often supplemented with fish or turtles. This data further indicates that the occupants of AgHn-12 were likely well entrenched within a cultural ecology focused on exploiting the resources present within a wetland environment. The presence of fish also indicates a warmer season occupation. Specifically, remains of lake sturgeon, walleye and catfish, which spawn in the spring to early summer, support this interpretation. Research suggests that, like the Middle Woodland, Late Woodland fish were also cooked on a spit, given a lack of fish residues identified on vessel interiors (Kooiman 2016: 224). When comparing features, the findings at AgHn-12 indicate fish and turtle were likely important food sources, with total frequencies of fish (n=349) and turtles(n=383) being somewhat similar. The frequency of fish remains supports Foreman's (2011) findings that suggest WBT peoples were intensively involved with fishing. This evidence suggests a reliance on aquatic environment exploitation, likely Lake Wawanosh, and its surrounding wetlands.

Turtles would have been a versatile resource providing meat, eggs, and oils (Pearce 2005: 89). Additionally, their shells were used in various ways, from the sacred, e.g., rattles and burial goods, to the profane, e.g., utilitarian ware (bowls or cups) (Pearce 2005: 90). The
turtle remains recovered at AgHn-12 do not show evidence of sacred use, however, it seems unlikely that at least some of their shells were not utilized somehow. Turtles were likely common, favouring the shallow marshy fringes of Lake Wawanosh.

Overall, mammals were the least represented (n=181), with most remains identified as deer or deer sized (n=118). No real patterning of remains appeared evident. Feature 5 had the most mammal specimens and counts of other taxon was low. Feature 12 only had mammal remains with no other type identified.

However, frequencies may be skewed, considering that the faunal remains were primarily identified and reported as NISP and the fact that the assemblage is very fragmented. Given the higher quantity of meat recovered from a deer versus fish or passenger pigeon, deer remains would potentially have a lower representation as NSIP. The data may also indicate processing of deer occurred elsewhere before the meat was transported to the site, resulting in fewer skeletal remains. Deer may have been less common during the occupation of AgHn-12 or involved a more significant resource expenditure than hunting passenger pigeons or fishing.

Another scenario to consider is if the Late Woodland features indicate separate seasonal occupations, then the faunal remains may reflect shifting subsistence patterns throughout a seasonal round. Based on what was identified, passenger pigeon and fish may represent a spring to summer subsistence strategy that was supplemented with turtle. The occurrence of deer remains may represent a shift toward fall subsistence, possibly taken during a maize harvest if a garden plot was nearby. If the evidence for deer does suggest a fall occupation, the general paucity of deer remains could suggest a brief fall occupation prior to a winter dispersal. It is also possible that the deer specimens could have been opportunistically acquired in a warmer season.

Given the limited floral assemblage at AgHn-12, it is difficult to know if the low frequency of remains stems from poor preservation or a lack of use in their cultural ecology. No nuts were recovered, which is surprising, given the information gathered by Findlay (1972), which suggests that large tracts of nut-bearing forests were close to AgHn-12 in the 19th century. Also, wood charcoal indicated the presence of hickory and
beech. Furthermore, if the high frequency of passenger pigeon remains were acquired during roosting, a large crop of nuts would likely have been grown during the preceding fall. Therefore, it is plausible that the occupants of AgHn-12 curated nearby nut-bearing trees to be favourable for a migratory passenger pigeon population which required the AgHn-12 occupants to forego nut collection.

Maize was very poorly represented, with only a few specimens being recovered. This seems to be a relatively common occurrence for earlier Late Woodland Western Basin sites. However, isotopic analyses indicate that maize consumption is much higher than what is generally indicated by floral remains, which has typically led these people to be interpreted as horticulturists (Dewar et al. 2010; Watts et al. 2011). Furthermore, it is possible that the type of maize processing involved at AgHn-12 did not allow for good preservation archaeologically. Watts and colleagues also suggest the possibility of residential mobility for WBT communities occupying southwestern Ontario (2011: 464). Therefore, it is possible that, AgHn-12 was associated with another nearby location where the cultivation of maize was occurring. However, it is tenuous and contrary to a cultural ecological approach to assign a homogenous subsistence trend across all occupations and areas based on limited isotopic data procured from only a few sites, such as the Great Western Park site in Sarnia, Ontario and the Krieger site northeast of Leamington, Ontario (Dewar et al. 2010: 2252; Watts et al. 2011). Stothers and Abel (2002) suggest that other southwestern Ontario isotopic samples suggest maize was a minor contributor to early Late Woodland diets and that maize proliferated over time (81). Judging from the recovered data, the AgHn-12 occupants were likely not focused on consuming or cultivating substantive amounts of maize. It may have merely supplemented their diets. Furthermore, it is impossible to accurately assess what other non-preserved vegetative resources were exploited and consumed.

As indicated in Chapter 6, a relatively small amount of lithics, represented largely by Kettle Point and Onondaga cherts, were recovered from AgHn-12. Despite the small lithic assemblage, the presence of tools, such as bifaces and projectile points and the evidence from the chipping detritus suggests there was some importance within the cultural ecology of the Late Woodland occupants at AgHn-12. Possibly the Late
Woodland occupants at AgHn-12 employed separate processing areas involving lithics. If this was the case, during some occupations, AgHn-12 might have operated as a base camp associated with a nearby hunting or resource extraction camp, possibly closer to the resource-rich Lake Wawanosh and its wetlands.

Of informative debitage types, biface thinning flakes and shatter had the highest frequency. The presence of shatter suggests larger pieces such as cores were being worked on site. However, no cores were identified with the Late Woodland occupation. Manufacturing or curating of tools is evidenced by the presence of relatively high amounts of biface thinning flakes. Tertiary flakes were also present, though in lesser frequencies, indicating further refinement of struck pieces. This suggests that lithic manufacture or curating tools was of some importance at the East Locus of AgHn-12.

Feature 11 exhibited the highest frequency of artifacts and contained the most lithics. While considering cultural ecology, it is worth pointing out that within Feature 11, Onondaga chert occurred slightly more than Kettle Point chert. This more significant occurrence may indicate that the occupants associated with this feature may have been engaged in some form of exchange or trade or were involved in a seasonal round that brought them closer to sources of Onondaga chert. However, if exchange was involved, the desirability for Onondaga material of the amounts recovered seems somewhat unlikely given Kettle Point chert's proximity and higher quality (Janusas 1984: 85). Based on Morrison’s research of Lake Huron’s water level fluctuations throughout time, it is unlikely the primary Kettle Point chert outcrop was underwater during the Late Woodland occupation (Morrison 2017: 59). Furthermore, the high occurrence of Onondaga in Feature 11 is not consistent throughout AgHn-12 and it appears minimally in other features. This pattern may indicate differing occupations. Minimal amounts of chert types from other areas were also identified.

Despite the scarcity of tools recovered these can aid an understanding of cultural ecology present at the East Locus of AgHn-12. Based on the presence of bifaces and projectile points, hunting and butchery activities were of some significance. Use wear patterns further support this. Use-wear damage on utilized and retouched flakes suggests use with
wood or bone, maybe whittling or scraping, respectively. Damage on several bifaces and the presence of wedges further suggests working with bone and wood. Use-wear on both bifaces and wedges suggests impact damage, resulting in splitting or breaking of materials (likely wood or bone) by striking the lithic tools with a percussor. Interpreting these traces indicates that manipulation of wood and bone was likely an essential task for the Late Woodland lithic toolkit at AgHn-12.

Ceramics recovered from the Late Woodland features at AgHn-12 reveal a technological shift which seemingly altered how vessels were utilized within a culturally adapted subsistence paradigm. Most Late Woodland vessels at AgHn-12 exhibited thinner walls, blackened interiors indicative of smudging and low liquid permeability, all improving the boiling capabilities of these vessels. These improved ceramic functions were likely part of a shift in cultural adaptations as new resources could be effectively exploited, possibly allowing new ways to process regularly consumed foods. Furthermore, as most vessels display these traits, it suggests that boiling or better heat effectiveness was an essential trait for subsistence within the cultural ecologies of AgHn-12.

Knowing what was cooked within these vessels would require a residue analysis that is outside the scope of this thesis. However, based on the floral and faunal data, some inferences can be made. Contents were likely being processed into boiled or simmered proteins, possibly supported with maize or other unknown wild vegetal materials, creating a soup or stew. Kooiman (2016), while researching Late Woodland vessels from Michigan, determined a variety of foods were being processed, from lean meats to deer and various plant seeds, roots, berries, and greens (220). The presence of the few pieces of nutshell suggests possible processing into nut oil or merely eating the nuts themselves. Kooiman (2016) suggests acorns saw intensified use during the Late Woodland, being boiled, mashed, and eaten with grease (224). Other nuts, such as the beech or walnuts recovered from the Late Woodland features, may have been consumed in similar ways.

### 7.2.4 Shifting Trends

Shifting cultural ecologies throughout the Woodland period from Lake Wawanosh are primarily visible throughout the ceramics and faunal remains. The ceramic trends
identified throughout AgHn-12 (Early and Late Woodland) and AgHn-14 (Middle Woodland) follow trends identified elsewhere, with changes being observed in construction methods (Finlayson 1977; Spence et al. 1990; Murphy and Ferris 1990; Ferris and Spence 1995; Taché et al. 2008; Watts 2008; Spittal 2017; Carroll 2019). Decorative trends also shift over time, with decoration becoming more elaborate and complex. The most significant changes identified through the ceramic assemblages in this study involve their evidence of use. Both the Early and Middle Woodland period vessels lack evidence of direct fire cooking and are highly permeable. However, most Late Woodland vessels have evidence of being directly used with fire, as shown by the traces of carbonization, sooting and oxidization (Duddleson 2008; Skibo 2013; Kooiman 2016). Additionally, most Late Woodland vessels have blackened interiors which aids in lowering vessel permeability (Skibo et al. 1997; Longacre et al. 2000). These shifting trends indicate that cooking methods were likely fluctuating to take advantage of these new technologies (Braun 1993).

The evidence of shifting subsistence throughout the Woodland Period from AgHn-12 and AgHn-14 is somewhat limited. A more comprehensive study incorporating numerous sites representing the Early to Late Woodland periods would be more fruitful. However, some trends do emerge from this study. Primarily, the subsistence patterns identified from the Early and Middle Woodland occupations follow those trends identified in previous studies, which involve a reliance on fishing (Prowse 2003; Curtis 2006; Williamson et al 2008; Gates St-Pierre and Chapdelaine 2013; Curtis 2014; Ellis and Deller 2014; Wood 2015). The evidence from the Late Woodland suggests that these people were engaged in a more diffuse subsistence adaptation (Stothers and Abel 2002; Watts 2008; Dewar et al. 2010; Foreman 2011; Suko 2017; Carroll 2019; St. John 2020). At AgHn-12, the Late Woodland occupants favoured passenger pigeons. However, this pattern is not necessarily repeated at other Late Woodland occupations in this region, as indicated by several CRM reports (MHCI 1996; TMHC 2004; AECOM 2018a, b; TMHC 2019c; TMHC 2021b, c; MCM 2021). Previous research has indicated that Late Woodland peoples in this area based their subsistence on fishing, however, this was not necessarily the case at AgHn-12 as the occupants appeared to favour a more diverse
subsistence, which accords well with more recent research (Watts 2008; Foreman 2011; St. John and Ferris 2020).

7.3 Cultural Landscape

As the temporal range of the previously identified sites in the area suggests, there was a generational significance that drew people to Lake Wawanosh again and again. The area may not have been returned to consecutively, but the significance of the area was known and was likely an important part of a seasonal round. This seems most evident at AgHn-12 with evidence of both Early and Late Woodland occupations within 100 metres. I am not suggesting the Early and Late Woodland occupations are related, merely that this specific area must have been significant and favourable over millennia. As such, the lake seemingly operated as a focal point within the broader landscape, drawing people to the area beginning in the Late Archaic period and remaining significant across the Woodland Period and beyond until its draining in the 1800s. Lake Wawanosh not only drew human inhabitants but would have been host for a variety of additional exploitable species as evidenced from assemblages discussed above. Unsurprisingly, these sites reveal a reliance upon and a favouring of many wetland or aquatic species.

The significance of Lake Wawanosh within the landscape is evidenced through the positioning of previously identified sites throughout this region, the majority of which seem to ring the northern and western perimeter of Lake Wawanosh. Fox, in an earlier report mentioned above, suggests that Lake Wawanosh once covered a larger area than what is depicted on the 19th century survey data (1980: 11). The positioning of the previously identified sites, which lie some distance from the 19th century shoreline suggests the shoreline once extended further north. Considering that possibility, the occupations were more focused on Lake Wawanosh and not Lake Huron.

The development of a possible cultural landscape for both AgHn-12 and AgHn-14 requires a consideration of potential seasonal rounds of the occupants, looking at these sites and their occupants in a broader context that extends beyond Lake Wawanosh. As an in-depth analysis and comparison of archaeological sites within a proposed seasonal round is outside the scope of this thesis, a generalized seasonal round and cultural
landscape is considered. The seasonal rounds of these people undoubtedly shifted across time and between communities. Regardless, a cultural landscape would be comprised of the land traversed throughout a seasonal round. As discussed above, these sites do not suggest a single year-round occupation. Rather it is likely the occupants of AgHn-12 and AgHn-14, when returning to Lake Wawanosh, targeted areas in proximity to the lake based on previous knowledge of the environment and landscape.

For the Early and Middle Woodland occupants, where ethnohistorical data cannot be as readily associated, developing a seasonal round is speculative. However, previous research has revealed that past peoples during these periods focused on exploiting areas within river drainages and along shorelines. Given the limited information recovered relating to the Early Woodland from AgHn-12, it is a bit more difficult to develop a seasonal round. It does seem likely that the Early Woodland occupants were involved in the Meadowood Interaction Sphere mentioned above, which may have influenced their seasonal round and therefore, their cultural landscape. Nearby, in what is now known as Port Edward and Sarnia at the mouth of St. Clair River and Lake Huron, numerous Middle Woodland, and some Early Woodland sites have been previously identified (O’Neal 2002; MCM Database; see also Chapter 2 and Tables 4 and 5) Some of these sites have been mentioned previously. Netsinkers have been recovered from these St. Clair River sites and from AgHn-14 and Lake Wawanosh itself. The presence of netsinkers suggests a broader connection between these areas using similar technologies or techniques to exploit the environment.

Additional Early and Middle Woodland sites were identified south of Lake Wawanosh favoring the tributaries draining into the St. Clair River (MCM Database 2023). Additional sites have been identified along the southern shore of Lake Huron, north east of Lake Wawanosh, such as those mentioned previously near the Pinery Provincial Park. While lesser known to the author, a clustering of sites, which include Middle Woodland occupations, were identified in Michigan along the Saginaw River, its tributaries and the southwestern shore of Lake Huron (Brose and Hambacher 1999). Clusters of Middle Woodland occupations also extend northward toward the confluence of Lake Huron and Lake Michigan and Michigan’s northern peninsula favouring river drainages (Brose and
Hambacher 1999). A similar pattern is seen along the western and southern shore of Lake Erie into Ohio. As such, a possible seasonal round for the Middle Woodland occupants at AgHn-14 likely involved one that traversed the landscape exploiting these different drainages throughout the year.

The occupants possibly returned to the same place (or nearby) every year or every few years. Certainly, fish spawns would have been significant and the timings of such would have been known, possibly favouring different areas during differing times of the year to exploit the spawns of different species. While it is impossible to trace specific a route and know the exact range of a given seasonal round, the areas mentioned above suggest a possible territory that may have extended from Lake Wawanosh to the St. Clair River and along both the east and west Lake Huron shorelines in Ontario and Michigan. These rounds were likely not nomadic wanderings but purposeful, utilizing collectively known knowledge of the landscape (Ferris 2009: 38). This knowledge of the landscape with purposeful and return visits to previously exploited areas creates a cultural landscape unique to the individuals participating within that community’s seasonal round.

The Late Woodland occupants at AgHn-12 were also involved in a seasonal round and its development can be somewhat extrapolated from ethnohistorical accounts from the 17th to 19th centuries. These accounts are consistent with older patterns of documented Late Woodland subsistence-settlement patterns (Ferris 2009:57). The accounts describe seasonally mobile communities where upwards of five different settlement locales were visited during the year (Ferris 2009: 47). During the spring fish spawn communities were mostly fluid. The communities, which were comprised of various families would coalesce and disperse as they desired over the duration of the spawn. Following the spawn, fields were readied and planted with maize or other crops. Some residents would remain behind, but most dispersed to smaller familial settlements, exploiting different environments (Ferris 2009: 47). It is possible that a central place existed for each group, which helped to define a territorial range (Ferris 2009:36). Lake Wawanosh may have acted as one of these central places for the occupants of AgHn-12 who could develop a seasonal round from this location. However, these areas could change over time or perhaps year to year.
The development of a seasonal round would incorporate detailed knowledge of a landscape which was informed through historically known, successful patterns of behaviour. Perhaps an example of this is the high occurrence of passenger pigeon at AgHn-12 which suggests a previous knowledge of their roosting patterns. There are numerous additional areas in the vicinity that could be incorporated within the cultural landscape for the occupants of AgHn-12. Several other Late Woodland sites have been identified near AgHn-12, which may be places that were returned to, as camp locales were not necessarily visited consecutively year to year.

Further from Lake Wawanosh, Late Woodland sites have been identified to the east and north along the southern shore of Lake Huron. Additional sites are present to the south of Lake Wawanosh and along the St. Clair River. Further west into Michigan, Late Woodland sites cluster around the Saginaw River drainage and Lake St. Clair. While further abroad, numerous sites are located along the southern shore of Lake Erie focused on the mouths of various rivers.

Considering the different sites and areas mentioned above, a possible cultural landscape can be developed from the inferred seasonal round. For the Late Woodland component at AgHn-12 the seasonal round involved the exploitation of passenger pigeon, which likely supplemented additional, likely cached foods, such as maize. As research has suggested maize was a large part of the diet in this area by 1200 CE, it is likely the peoples at AgHn-12 participated in the planting and harvesting of maize in areas which would also be included within their cultural landscape. The fields for planting potentially covered a large area depending on how many families were involved. It is possible that AgHn-12 was returned to during the dispersals after planting. Further, a seasonal round could have incorporated areas south toward the St. Clair River or Lake St. Clair, or west into Michigan to exploit the numerous river drainages there. It is also possible the occupants at AgHn-12 favoured areas closer to the lake shores, possibly following the shoreline of Lake Huron or the St. Clair River toward Lake Erie.

Few sites in the area have been excavated to the extent of AgHn-12 and AgHn-14. However, AgHn-18, a nearby Middle to Late Woodland period site excavated by TMHC
(2021c), further supports the Lake Wawanosh-centric pattern, with an assemblage
dominated by a variety of fish and turtle remains. Additionally, carbonized plant remains
identified as cattail were also recovered, suggesting exploitation of wetland and aquatic
environments around Lake Wawanosh. The presence of maize at AgHn-18 is also
significant as it was identified at AgHn-12 and AgHn-14, albeit in small quantities.
Incorporation of maize in the diet indicates shifting relationships to the landscape and
less reliance directly upon the natural environment.

However, while a general dependency on Lake Wawanosh's environment has been
demonstrated, further interpretations from the artifact assemblages and individual
features allow nuanced interpretations based on their contents. These nuances suggest
minor differences in perceptions of importance, or the dynamic qualities of a cultural
landscape, as the occupants moved through and existed within their own perceived
landscapes, such as favoring different subsistence practices or raw materials. Sites
occupied repeatedly indicate importance or significance to that area or specific location.
AgHn-12 has evidence of Early and Late Woodland occupations suggesting that this
location had some significance on the landscape for thousands of years.

Following Anschuetz and colleagues (2001), and considering the cultural ecologies
developed, the occupants of both AgHn-12 and AgHn-14 would have developed or
transformed the physical landscape, lived spaces, environments exploited, and so forth,
into meaningful cultural spaces (160 and 161).

Cultural landscapes force archaeologists to consider the liminal spaces. These spaces may
not leave archaeological traces but were essential areas of exploitation, such as rivers,
lakes, gathering places, or other meaningful spaces. As most landscapes have been
altered significantly by human interaction, it is crucial to understand how the past
environment may have existed when considering these areas of exploitation. Indeed,
these liminal areas, perhaps viewed as culturally empty and unimportant now, were once
potentially significant within broader cultural landscapes (Darvill 1999: 108). The
emptiness is much more evident in Ontario or other areas of heavy development where
the landscape has been severely altered, damaging evidence of sacred or memorable
spaces. Beyond what Lake Wawanosh may have offered up for subsistence, it may have served as one of these memorable spaces, a place to return to for numerous peoples throughout the Woodland Period. Whatever significance Lake Wawanosh may have had within the deep past it is forever altered following its draining and subsequent transformation into farmland.

Unfortunately, in most Cultural Resource Management settings, archaeologists typically are forced to delineate areas or sites into well-defined and bordered entities, generally marked by artifact quantities or modern property boundaries. However, the occupants of archaeological sites did not perceive these definitions imposed by archaeologists. This approach, so common in CRM work, actively undermines a cultural landscape, damaging the mosaic developed through linked cultural ecologies. As this delineating and separative methodology is “business as usual”, most of these liminal spaces or linkages created throughout a cultural landscape are relegated to obscurity and often forgotten.
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TMHC (2019c) Stage 4 Archaeological Assessment, Location 1 (AgHn-13), 1700 Blackwell Road, Proposed Severance, Part of Lot 40, Concession 9, City of Sarnia, Geographic Township of Sarnia, County of Lambton, ON. Report on File, Ministry of Tourism, Culture and Sport

TMHC (2021a) Stage 4 Archaeological Assessment, AgHn-14, Proposed Severance Application, 1994 Blackwell Road, Proposed Severance, Part of Lot 32, Concession 9, City of Sarnia, Geographic Township of Sarnia, County of Lambton, ON. Report on File, Ministry of Tourism, Culture and Sport

TMHC (2021b) Stage 4 Archaeological Assessment, AgHn-17, Proposed Severance Application, 1996 Blackwell Road, Proposed Severance, Part of Lot 31, Concession 9, City of Sarnia, Geographic Township of Sarnia, County of Lambton, ON. Report on File, Ministry of Tourism, Culture and Sport

TMHC (2021c) Stage 4 Archaeological Assessment, AgHn-18, Proposed Severance Application (B12/2019), 1637 Blackwell Road, Proposed Severance, Part of Lot 41, Concession 9, City of Sarnia, Geographic Township of Sarnia, County of Lambton, ON. Report on File, Ministry of Tourism, Culture and Sport


Appendices

Appendix A: Figures and Tables

Chapter 1: Introduction

Table 1: Artifacts collected from AgHn-12 (both Loci) during all stages of investigation

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*Table 2: Artifacts collected from AgHn-14 during all stages of investigation*

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### Chapter 2: Archaeological Context

**Table 3: Late Woodland Phases and Dates in Southern Ontario**

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<td>1300-1400</td>
<td>Younge</td>
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**Figure 27: Site and Period Distribution.**
Figure 28: Overview of Registered Sites in the Lake Wawanosh area
Figure 29: Overview of Registered Sites in the Sarnia-Point Edward Area
Table 4: Archaeological Sites near Lake Wawanosh

<table>
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<tr>
<th>Borden</th>
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<th>Period</th>
<th>Cultural Affiliation</th>
<th>Site Type</th>
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<td><strong>AgHn-18</strong></td>
<td>Location 1</td>
<td>Woodland</td>
<td>Indigenous</td>
<td>fishing, hunting</td>
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<tr>
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<td><strong>AgHo-1</strong></td>
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<td><strong>AgHo-2</strong></td>
<td>Core</td>
<td>Archaic, Late, Woodland, Early, Woodland, Middle</td>
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<td>fishing</td>
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<td><strong>AgHo-3</strong></td>
<td>Kevin</td>
<td>Late Woodland</td>
<td>Indigenous Iroquoian</td>
<td>Other: camp/campsite</td>
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<td>Indigenous; Western Basin</td>
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<td>Unknown</td>
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<td>Borden</td>
<td>Site Name</td>
<td>Period</td>
<td>Cultural Affiliation</td>
<td>Site Type</td>
<td>Location</td>
</tr>
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<td>-----------</td>
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Table 5: Archaeological Sites near Point Edward and Sarnia

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<td>AfHo-3</td>
<td>Bluewater Bridge Burial</td>
<td>Middle to Late Woodland</td>
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<td>burial</td>
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<tr>
<td>AfHo-7</td>
<td>Blue Water Bridge South</td>
<td>Multicomponent</td>
<td>Younge, Saugeen, Meadowood, Iroquoian, Glen Meyer</td>
<td>burial, camp / campsite, fishing</td>
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<tr>
<td>AfHo-8</td>
<td>Voikos</td>
<td>Early Woodland</td>
<td>Indigenous</td>
<td>cache</td>
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<td>AfHo-9</td>
<td>Oak Beach</td>
<td>Middle Woodland</td>
<td>Indigenous</td>
<td>Other: camp/campsite</td>
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<tr>
<td>AfHo-11</td>
<td>Enji-Bekaajwaang Nbiish</td>
<td>Middle Woodland</td>
<td>Saugeen</td>
<td>camp / campsite</td>
</tr>
<tr>
<td>AfHo-12</td>
<td>Forcemain</td>
<td>Archaic, Late, Post-Contact, Woodland, Middle</td>
<td>Indigenous</td>
<td>butchering</td>
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<td>AfHo-16</td>
<td>Donald</td>
<td>Woodland</td>
<td>Indigenous</td>
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<td>AfHo-17</td>
<td>Siobhan</td>
<td>Middle Woodland</td>
<td>Saugeen</td>
<td>camp / campsite</td>
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<td>AfHo-18</td>
<td>Stephanie</td>
<td>Woodland</td>
<td>Indigenous</td>
<td>camp / campsite, fishing</td>
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<td>AfHo-19</td>
<td>Chantal</td>
<td>Woodland</td>
<td>Indigenous</td>
<td>Other: camp/campsite</td>
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<td>AfHo-20</td>
<td>Judith</td>
<td>Middle Woodland</td>
<td>Indigenous</td>
<td>Other: camp/campsite</td>
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<td>AfHo-22</td>
<td>-</td>
<td>Pre-Contact</td>
<td>Indigenous</td>
<td>findspot</td>
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<td>AfHo-23</td>
<td>-</td>
<td>Pre-Contact</td>
<td>Indigenous</td>
<td>findspot</td>
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<td>AfHo-26</td>
<td>Jeanne</td>
<td>Late Archaic</td>
<td>Indigenous</td>
<td>Other: camp/campsite</td>
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<td>AfHo-27</td>
<td>Becky</td>
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<td>Indigenous</td>
<td>fishing</td>
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<td>AfHo-28</td>
<td>Paul</td>
<td>Late Woodland</td>
<td>Indigenous</td>
<td>Other: camp/campsite</td>
</tr>
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<td>AfHo-31</td>
<td>Bephanie</td>
<td>Middle Woodland</td>
<td>Indigenous</td>
<td>Other: camp/campsite</td>
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</tbody>
</table>
Chapter 4: Methods

Figure 30: Nature of Specimen (Sherratt 2003)

10) Rim Form
   - Collarless
   - Collared
   - Everted Collar

   - High Collared
   - Low Collared

11) Rim Orientation
   - 1 vertical
   - 2 outflaring
   - 3 insloping

Figure 31: Rim Form and Orientation (Sherratt 2003)

12) Collar Development
   - Poorly Developed
   - Well Developed
   - Highly Developed

Figure 32: Collar Development (Sherratt 2003)

18) Lip Form
   - Flat
   - Concave
   - Convex
   - Pointed

Figure 33: Lip Form (Sherratt 2003)
14) Exterior Rim Profile

- Straight
- Concave
- Convex

15) Interior Rim Profile

- Straight
- Concave
- Convex

Figure 34: Exterior and Interior Rim Profile (Sherratt 2003)

<table>
<thead>
<tr>
<th>LEVEL 1</th>
<th>LEVEL 2</th>
<th>LEVEL 3</th>
<th>Examples</th>
<th>Examples of elements</th>
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<tr>
<td>Simple</td>
<td>Pointed Instrument</td>
<td>Round</td>
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<td></td>
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<tr>
<td></td>
<td>Polygonal</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Annular</td>
<td></td>
<td></td>
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</tr>
<tr>
<td></td>
<td>Linear/ Curvilinear Instrument</td>
<td>Straight</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Curved</td>
<td></td>
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<tr>
<td>Complex</td>
<td>Denticulate Instrument</td>
<td>Round/Ovate</td>
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<td>Polygonal</td>
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<tr>
<td></td>
<td>Cord-wrapped Instrument</td>
<td>S-twist</td>
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<td>Z-twist</td>
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<td></td>
<td>Cord</td>
<td>S-twist</td>
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<td>Z-twist</td>
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Figure 35: Variable Tool Hierarchical Chart (Watts 2008)
<table>
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<th>Tool motion</th>
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<td>Surface Stamp</td>
<td>Long arc perpendicular to surface</td>
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<td></td>
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<tr>
<td>Long arc oblique to surface</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Long arc parallel to surface</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Furrow</td>
<td></td>
<td></td>
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</tr>
<tr>
<td>Indented</td>
<td></td>
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</tr>
<tr>
<td>Traced</td>
<td></td>
<td></td>
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</tr>
<tr>
<td>Complex</td>
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<td>Push-pull</td>
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<td>Drag-stamp</td>
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<td>Hooker</td>
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<td>Rolled</td>
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Figure 36: Variable Technique Hierarchical Chart (Watts 2008)

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<th>LEVEL 4</th>
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Simple

Strings

Plaits

Clusters

Representational

Super-imposed

Horizontal Difference

Super-imposed |

Horizontal Difference |

Linear |

Linear Vertical |

Linear Right oblique |

Linear Left oblique |

Linear Dash |

Continuous |

Linear Horizontal |

Continuous |

Punctate Vertical |

Punctate Right oblique |

Punctate Left oblique |

Punctate Dash |

Continuous |

Punctate Horizontal |

Continuous |

linear combinations of 1 dimensional linear units |

linear combinations of 1 dimensional strings |

Continuous |

combinations of 1 dimensional linear units |

Punctates |

combinations of punctates |

2 dimensional |

Depiction |

3 dimensional |

Effigy |

superimposed permutations of the above |

superimposed permutations of the above |

superimposed permutations of the above |

superimposed permutations of the above |

superimposed permutations of the above |

superimposed permutations of the above |

superimposed permutations of the above |

superimposed permutations of the above |

superimposed permutations of the above |

superimposed permutations of the above |

superimposed permutations of the above |

Figure 37: Variable Motif Hierarchical Chart (Watts 2008)
Figure 38: Example of Surface Treatments (Schumacher 2013)

Figure 39: Examples of Water Permeability: Low Permeability

Figure 40: Examples of Water Permeability: High Permeability
Table 6: Ceramic attributes included in this study.

<table>
<thead>
<tr>
<th>Use wear Attributes</th>
<th>Manufacturing Techniques</th>
<th>Decorative Attributes</th>
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<tr>
<td>Carbon/Sooting</td>
<td>Temper</td>
<td>Lip Tool</td>
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<tr>
<td>Exterior</td>
<td>Exterior Rim Profile</td>
<td>Exterior Zone B Tool</td>
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<tr>
<td></td>
<td></td>
<td>Exterior Neck B Tool</td>
</tr>
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<td>Carbon Interior</td>
<td>Construction Technique</td>
<td>Lip Motif</td>
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<tr>
<td></td>
<td>Interior Rim Profile</td>
<td>Exterior Zone B Technique</td>
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<td>Exterior Neck B Technique</td>
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<td>Attrition Exterior</td>
<td>Exterior Surface Texture</td>
<td>Lip Tool Technique</td>
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<td>Rim Orifice Diameter at Lip</td>
<td>Exterior Zone B Motif</td>
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<td>Exterior Neck B Motif</td>
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<td>Attrition Interior</td>
<td>Interior Surface Texture</td>
<td>Interior Design Tool</td>
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<td>Collar Development</td>
<td>Exterior Zone C Tool</td>
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<td>Exterior Shoulder Tool</td>
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<td>Residues Exterior</td>
<td>Rim Form</td>
<td>Interior Design technique</td>
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<tr>
<td></td>
<td>Lip Form</td>
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<tr>
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<td></td>
<td>Exterior Shoulder Technique</td>
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<tr>
<td>Residues Interior</td>
<td>Rim Orientation</td>
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<td>Lip Thickness (mm)</td>
<td>Exterior Zone C Motif</td>
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<td>Coloration Exterior</td>
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<td>Exterior Zone A Technique</td>
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<td>Coloration Paste</td>
<td>Exterior Neck A Motif</td>
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<td>Exterior Zone A Motif</td>
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<td>Exterior Neck A Technique</td>
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<td></td>
<td>Exterior Body Technique</td>
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Table 7: Frequency of Chipping Detritus at AgHn-12 (both Loci) and AgHn-14

<table>
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<th>Context</th>
<th>AgHn-12</th>
<th>AgHn-14</th>
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<tr>
<td>Plough Zone</td>
<td>180</td>
<td>3803</td>
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<td>Feature</td>
<td>478</td>
<td>1734</td>
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<tr>
<td>Totals</td>
<td>658</td>
<td>5537</td>
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Figure 41: Edge Damage Type
a) large deep scalar, LD; b) small deep scalar, SD; c) large shallow scalar, LS; d) small shallow scalar, SS; e) large stepped, L step; f) small stepped S step; g) half moon breakages, ½ moon. (Keely 1980: 24)
Chapter 5: Environment Reconstruction

Figure 42: Section of Findlay’s 1973 map with Lake Wawanosh Georeferenced.

Figure 43: Pollen Data from the Sarnia Elk Site from the NAPD (Williams, Grimm et al. 2018)
Acer Saccharum (Sugar Maple); Fagus (Beech); Pinus (Pine); Platanus (Plane); Quercus (Oak); Ulmus (Elm);
Cyperaceae (Sedge); Poaceae (Grasses)
Radiocarbon ages calibrated using OxCal 4.4 (Bronk Ramsey 2023, https://c14.arch.ox.ac.uk/oxcal/) assuming 100
year uncertainty for each age on the original graph in radiocarbon years BP.
Figure 44: Pollen Data from the Sarnia Elk Site. Small Vegetation with 0-100% Abundance. (Williams, Grimm et al. 2018)

Figure 45: Pollen Data from the Sarnia Elk Site. Tree Pollen with 0-45% Abundance. (Williams, Grimm et al. 2018)
Figure 46: Pollen Data from the Sarnia Elk Site. Tree pollen with 0-10% Abundance. (Williams, Grimm et al. 2018)

Table 8: Areas of Environments in Square Kilometres

<table>
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<th>Environment Type</th>
<th>Area Represented KM²</th>
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<tr>
<td>Oak</td>
<td>21.31</td>
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<tr>
<td>Black Ash Swamp</td>
<td>18.42</td>
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<tr>
<td>Tamarack Swamp</td>
<td>7.74</td>
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<tr>
<td>Unspecified</td>
<td>5.36</td>
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<td>Willow Swamp</td>
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<td><strong>Total</strong></td>
<td><strong>75.75</strong></td>
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</table>
Chapter 6: Analysis and Results

Early Woodland – Blackwell One West Locus (AgHn-12)

Settlement Patterns

Figure 47: AgHn-12 (West Locus) Feature 2 - Plan View

Figure 48: AgHn-12 (West Locus) Feature 2 - East Section, Southwest Wall Profile
Figure 49: AgHn-12 (West Locus) Feature 2 - South Section, West Wall Profile

Figure 50: AgHn-12 (West Locus) Feature 2 - West Section, East Wall Profile

Figure 51: AgHn-12 (West Locus) Feature 2 - North Section, South Wall Profile
Table 9: AgHn-12 (West Locus) Feature 2 contents

<table>
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<th>Artifacts</th>
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<td>Chipping Detritus</td>
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<td>Utilized Flake</td>
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<td>Core</td>
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<td>Projectile Point</td>
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<td>Body Sherd</td>
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<td>Frag. Sherd</td>
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Faunal Remains

Table 10: AgHn-12 (West Locus) Feature 2 Faunal Assemblage (TMHC 2019a)

<table>
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<tr>
<th>Taxon</th>
<th>Common Name</th>
<th>N.</th>
<th>%</th>
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<tr>
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Lithics
Chipping Detritus

Table 11: AgHn-12 (West Locus) Feature 2 Chipping Detritus and Material type.

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<td>Fragment</td>
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<td>Tertiary</td>
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<td>Biface Finishing</td>
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<td>Biface Retouch</td>
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<td>Biface Reduction Error</td>
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<td>Bipolar Flake</td>
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Middle Woodland – Blackwell Two (AgHn-14)

Settlement Patterns

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<th>Feature</th>
<th>Levels</th>
<th>Plan</th>
<th>Profile</th>
<th>Dimensions L/W/D (cm)</th>
<th>Volume (L)</th>
<th>Artifacts</th>
<th>Artifact Density</th>
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<tbody>
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<td>1</td>
<td>1 Layer: 0 - 44cm</td>
<td>Oval</td>
<td>Basin</td>
<td>120/60/44</td>
<td>207.2</td>
<td>920</td>
<td>0.23</td>
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<tr>
<td>2</td>
<td>1 Layer: 0-22cm</td>
<td>Irregular</td>
<td>Rounded Bottom Basin</td>
<td>57.5/65/22</td>
<td>51.8</td>
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<td>5</td>
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<td>1 Layer 0 - 35cm</td>
<td>Circular</td>
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<td>37/36/35</td>
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<td>13</td>
<td>0.32</td>
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<tr>
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<td>Basin - 4 contiguous coalescing</td>
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<td>Elongated Basin</td>
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<td>49</td>
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<tr>
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<td>344</td>
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<td>Circular</td>
<td>Rectangular</td>
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<td>1436</td>
<td>66.14</td>
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<td>Pear Shaped</td>
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<td>89/50/24</td>
<td>101.74</td>
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<td>2 Layers: Layer 1: 0-32cm; Layer 2: 0-16cm (Superimposed)</td>
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<td>Layered Basin</td>
<td>100/78/40</td>
<td>L1: 183.15</td>
<td>L1: 149</td>
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<td>2 Layers 0 - 35cm (2nd layer is small lot/soil pocket)</td>
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<td>14</td>
<td>1 Layer: 0-14cm</td>
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<td>50/46/20</td>
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<td>35</td>
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<tr>
<td>16</td>
<td>1 Layer: 0-24</td>
<td>Kidney</td>
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<td>247/67/24</td>
<td>143.23</td>
<td>2086</td>
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Figure 55: AgHn-14 Feature 7 - Profile View.

Figure 56: AgHn-14 Feature 7 - Profile View.

Figure 57: AgHn-14 Feature 9 - Plan and Profile view
Figure 58: AgHn-14 Feature 10 - Profile View

Figure 59: AgHn-14 Feature 16 - Profile View

Figure 60: AgHn-14 Post 1 - Plan and Profile view.
Figure 61: AgHn-14 - Zoomed Map of Potential Post Moulds
## Faunal and Floral Remains

### Table 13: AgHn-14 Faunal Assemblage from Features

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<th>F2</th>
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<th>F5</th>
<th>F6</th>
<th>F7</th>
<th>F8</th>
<th>F9</th>
<th>F10</th>
<th>F11</th>
<th>F12</th>
<th>F13</th>
<th>F14</th>
<th>F16</th>
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<td>0.1g</td>
<td>0.4g</td>
<td>8.0g</td>
</tr>
</tbody>
</table>

Table 14: AgHn-14 Component weights for light fractions from features (TMHC 2021a)
Table 15: AgHn-14 Summary of Analyzed Floral Remains (TMHC 2021a)

<table>
<thead>
<tr>
<th>Context</th>
<th>Juglans cinerea</th>
<th>Juglans sp.</th>
<th>Sambucus sp.</th>
<th>Zea mays (cupules)</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Feature 2</td>
<td></td>
<td></td>
<td></td>
<td>6</td>
<td>6</td>
</tr>
<tr>
<td>Feature 10</td>
<td></td>
<td></td>
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<td>1</td>
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<tr>
<td>Feature 12</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Layer 1+2</td>
<td></td>
<td></td>
<td>1</td>
<td></td>
<td>1</td>
</tr>
<tr>
<td>Layer 2</td>
<td></td>
<td></td>
<td></td>
<td>20</td>
<td>20</td>
</tr>
<tr>
<td>Feature 13</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Layer 1+3</td>
<td></td>
<td></td>
<td></td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Layer 3</td>
<td></td>
<td>1</td>
<td></td>
<td>1</td>
<td></td>
</tr>
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<td>Feature 16</td>
<td>1</td>
<td>2</td>
<td>2</td>
<td>28</td>
<td>33</td>
</tr>
</tbody>
</table>

Lithics

Chipping Detritus

Table 16: AgHn-14 Flake Types and Chert Materials from Features

<table>
<thead>
<tr>
<th>Flake Type</th>
<th>Chert Material</th>
</tr>
</thead>
<tbody>
<tr>
<td>Primary Flake</td>
<td>1</td>
</tr>
<tr>
<td>Secondary Flake</td>
<td>7</td>
</tr>
<tr>
<td>Shatter</td>
<td>48</td>
</tr>
<tr>
<td>Fragment</td>
<td>929</td>
</tr>
<tr>
<td>Tertiary</td>
<td>89</td>
</tr>
<tr>
<td>Biface Thinning</td>
<td>146</td>
</tr>
<tr>
<td>Biface Finishing</td>
<td>9</td>
</tr>
<tr>
<td>Biface Retouch</td>
<td>3</td>
</tr>
<tr>
<td>Biface Reduction Error</td>
<td>3</td>
</tr>
<tr>
<td>Bipolar Flake</td>
<td>1</td>
</tr>
<tr>
<td>Total</td>
<td>1236</td>
</tr>
</tbody>
</table>

KP = Kettle Point, On. = Onondaga; BP = Bayport; NORM = Normanskill; NORW = Norwood; FRC = Flint Ridge Chalcedony; UME = Upper Mercer; Unk. = Unknown; Bur. = Burnt
# Table 17: AgHn-14 Flake Types and Chert Materials from Unit Excavation

<table>
<thead>
<tr>
<th></th>
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<th></th>
<th></th>
<th></th>
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<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
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<tbody>
<tr>
<td>Primary Flake</td>
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<td>7</td>
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<td>Secondary Flake</td>
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<td>Shatter</td>
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<td>176</td>
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<td>0</td>
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<td>17</td>
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<td>4</td>
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<td>0</td>
<td>2</td>
<td>9</td>
<td>11</td>
<td>11.43</td>
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<td>Biface Thinning</td>
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<td>679</td>
<td>97</td>
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<td>2</td>
<td>0</td>
<td>1</td>
<td>0</td>
<td>2</td>
<td>0</td>
<td>0</td>
<td>5</td>
<td>19</td>
<td>810</td>
<td>21.29</td>
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<td>Biface Finishing</td>
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<td>42</td>
<td>4</td>
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<td>0</td>
<td>0</td>
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<td>0</td>
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<td>0</td>
<td>0</td>
<td>0</td>
<td>4</td>
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<td>0</td>
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<td>0</td>
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<td>0.39</td>
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<tr>
<td>Biface Reduction Error</td>
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<td>0</td>
<td>0</td>
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<td>0</td>
<td>0</td>
<td>0</td>
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<td>0.11</td>
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<td>Bipolar Flake</td>
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<td>44</td>
<td>7</td>
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<td>3</td>
<td>1</td>
<td>3</td>
<td>31</td>
<td>31</td>
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<td>Percentage</td>
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<td>79.08</td>
<td>14.93</td>
<td>1.16</td>
<td>0.18</td>
<td>0.26</td>
<td>0.03</td>
<td>0.05</td>
<td>0.08</td>
<td>0.03</td>
<td>0.08</td>
<td>0.08</td>
<td>0.08</td>
<td>0.81</td>
<td>3.21</td>
<td>3805</td>
</tr>
</tbody>
</table>

KP = Kettle Point; On. = Onondaga; BP = Bayport; NORM = Normanskill; NORW = Norwood; FRC = Flint Ridge Chalcedony; UME = Upper Mercer; FH = Fossil Hill; Unk. = Unknown; Bur. = Burnt
### Utilized and Retouched Flakes

#### Table 18: AgHn-14 Utilized Flake Data

<table>
<thead>
<tr>
<th>Cat.</th>
<th>Context</th>
<th>Flake Type</th>
<th>Material</th>
<th>L/W/Th (mm)</th>
<th>Mod. Loc</th>
<th>Mod. L. (mm)</th>
<th>Mod. Height (mm)</th>
<th>Usewear Mag X</th>
<th>Shape, depth</th>
</tr>
</thead>
<tbody>
<tr>
<td>272</td>
<td>875N 645E:21</td>
<td>Tertiary</td>
<td>KP</td>
<td>29.97/22.34/4.14</td>
<td>Dorsal Lateral</td>
<td>24</td>
<td>1.05</td>
<td>Some polishing on edge based on contrast.</td>
<td>Large to small Deep scalar</td>
</tr>
<tr>
<td>386</td>
<td>810N 615E:19</td>
<td>BTF</td>
<td>KP</td>
<td>27.75/31.76/5.46</td>
<td>Dorsal Lateral</td>
<td>23.93</td>
<td>1.67</td>
<td>No polishing</td>
<td>Large shallow scalar</td>
</tr>
<tr>
<td>*224</td>
<td>805N 605E:6</td>
<td>Tertiary</td>
<td>KP</td>
<td>19.72/15.61/7</td>
<td>Dorsal Lateral</td>
<td>7.17</td>
<td>1.27</td>
<td>No polishing</td>
<td>Large Deep Scalar</td>
</tr>
<tr>
<td>*240</td>
<td>805N 615E:22</td>
<td>Fragment</td>
<td>KP</td>
<td>25.6/17.36/8/3.9</td>
<td>Dorsal Lateral</td>
<td>6.4</td>
<td>1.16</td>
<td>Possible striations, some polishing</td>
<td>Large Deep Scalar</td>
</tr>
<tr>
<td>*246</td>
<td>810N 610E:10</td>
<td>BTF</td>
<td>KP</td>
<td>31.79/21.67/7.97</td>
<td>Dorsal Distal</td>
<td>12.45</td>
<td>0.81</td>
<td>No polishing</td>
<td>Small Shallow Scalar</td>
</tr>
<tr>
<td>*306</td>
<td>815N 620E:2</td>
<td>Fragment</td>
<td>KP</td>
<td>21.41/16.39/2.81</td>
<td>Ventral Lateral</td>
<td>9.56</td>
<td>1.55</td>
<td>Some polishing</td>
<td>Large shallow scalar</td>
</tr>
<tr>
<td>595</td>
<td>Feature 13, SW1/2</td>
<td>Tertiary</td>
<td>KP</td>
<td>37.41/17.9/5.79</td>
<td>Dorsal Lateral</td>
<td>12.9</td>
<td>0.78</td>
<td>No polishing</td>
<td>Small shallow scalar</td>
</tr>
</tbody>
</table>

*Indicates identified during CDE analysis.

#### Table 19: AgHn-14 Retouched Flake Data

<table>
<thead>
<tr>
<th>Cat.</th>
<th>Context</th>
<th>Flake Type</th>
<th>Material</th>
<th>L/W/Th (mm)</th>
<th>Mod. Loc</th>
<th>Mod. L. (mm)</th>
<th>Mod. Height (mm)</th>
<th>Usewear Mag X</th>
<th>Shape, depth</th>
</tr>
</thead>
<tbody>
<tr>
<td>213</td>
<td>800N 605E:21</td>
<td>BTF</td>
<td>KP</td>
<td>30.47/22.17/6.84</td>
<td>Dorsal Lateral</td>
<td>12.07</td>
<td>2.02</td>
<td>no polish</td>
<td>Deep scalar, may be due to bashing, some step scars</td>
</tr>
<tr>
<td>245</td>
<td>810N 610E:10</td>
<td>Tertiary</td>
<td>KP</td>
<td>24.14/20.63/7.71</td>
<td>Dorsal Distal</td>
<td>12.88</td>
<td>2.76</td>
<td>No polish</td>
<td>Large Deep Scalar, some small step and scalar scars at edge point</td>
</tr>
<tr>
<td>294</td>
<td>815N 615E:5</td>
<td>Fragment</td>
<td>KP</td>
<td>26.15/25.47/4.4</td>
<td>Dorsal Lateral</td>
<td>13.6</td>
<td>3.36</td>
<td>Polish/Lustre</td>
<td>Large Deep Scalar, some small step and scalar scars at edge point; Faint striations?</td>
</tr>
<tr>
<td>379</td>
<td>810N 615E:17</td>
<td>Tertiary</td>
<td>KP</td>
<td>30.02/24.39/4.45</td>
<td>Dorsal Distal</td>
<td>11.47</td>
<td>2.07</td>
<td>N/a</td>
<td>Small step fractures; Some small shallow scalar</td>
</tr>
</tbody>
</table>
### Notched Flakes

**Table 20: AgHn-14 Notched flake data**

<table>
<thead>
<tr>
<th>Cat.</th>
<th>Context</th>
<th>Artifact type</th>
<th>Flake Type</th>
<th>Mat.</th>
<th>L/W/Th (mm)</th>
<th>Mod. Loc</th>
<th>Mod. L. (mm)</th>
<th>Mod Height (mm)</th>
<th>Polish</th>
<th>Edge Damage Type</th>
</tr>
</thead>
<tbody>
<tr>
<td>226</td>
<td>805N 605E:7</td>
<td>Notched</td>
<td>Frag.</td>
<td>KP</td>
<td>23.01/15.13/3.09</td>
<td>Notching: Ventral Lateral</td>
<td>7.43</td>
<td>1.66</td>
<td>Slight polishing</td>
<td>Shallow, Large Scalar. Some step scarring, more so around apex.</td>
</tr>
<tr>
<td>390</td>
<td>810N 615E:20</td>
<td>Notched</td>
<td>Frag.</td>
<td>KP</td>
<td>35.04/22.34/4.07</td>
<td>Notching: Dorsal Lateral, Utilization: Ventral Lateral</td>
<td>Notching: 12.81; Utilization: 8.73</td>
<td>Utilization: 1.8</td>
<td>Some lustre/polish on notching</td>
<td>Large shallow scalar</td>
</tr>
</tbody>
</table>

### Bifaces

**Table 21: AgHn-14 Biface data from Unit Excavation and Features**

<table>
<thead>
<tr>
<th>Cat.</th>
<th>Context</th>
<th>Mat.</th>
<th>Portion</th>
<th>Cross Section</th>
<th>L/W/H (mm)</th>
<th>W/T Ratio</th>
<th>Stage</th>
<th>Shape</th>
<th>Modification</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>208</td>
<td>800N 600E:25</td>
<td>KP</td>
<td>Com.</td>
<td>Plano-convex</td>
<td>40.2/20.2/8.6</td>
<td>2.35</td>
<td>Early-Mid</td>
<td>Lance.</td>
<td>Minor amount of shallow scalar, larger section of step scar.</td>
<td>Some utilization; lateral edge</td>
</tr>
<tr>
<td>209</td>
<td>800N 600E:25</td>
<td>KP</td>
<td>Base frag.</td>
<td>Lentic.</td>
<td>10.2/20.5/4.5</td>
<td>4.56</td>
<td>Too Fragmented</td>
<td>N/a</td>
<td>Minor step scarring</td>
<td>minor cortex inclusion.</td>
</tr>
<tr>
<td>230</td>
<td>805N 610E:25</td>
<td>KP</td>
<td>Tip Frag.</td>
<td>Indet.</td>
<td>23.1/11.3/8.2</td>
<td>1.38</td>
<td>Early</td>
<td>n/a</td>
<td>step scarring</td>
<td>bashing on lateral edge</td>
</tr>
<tr>
<td>271</td>
<td>875N 645E:21</td>
<td>B.</td>
<td>Mid section</td>
<td>Lentic.</td>
<td>15.6/19.3/3.5</td>
<td>5.51</td>
<td>Too Fragmented</td>
<td>n/a</td>
<td>n/a</td>
<td>Made on flake; platform present</td>
</tr>
<tr>
<td>313</td>
<td>815N 620E:7</td>
<td>KP</td>
<td>End frag.</td>
<td>Lentic.</td>
<td>18.7/13.7/7.8</td>
<td>1.76</td>
<td>Early-Mid</td>
<td>n/a</td>
<td>step scarring</td>
<td>Possible wedge?</td>
</tr>
<tr>
<td>314</td>
<td>815N 620E:7</td>
<td>KP</td>
<td>Indet.</td>
<td>Indet.</td>
<td>15.5/15/4.9</td>
<td>3.06</td>
<td>Too Fragmented</td>
<td>n/a</td>
<td>Typical flaking</td>
<td>Small piece, possibly water</td>
</tr>
<tr>
<td>Cat.</td>
<td>Context</td>
<td>Material</td>
<td>Type</td>
<td>Portion</td>
<td>Cross Section</td>
<td>L/W/Th (mm)</td>
<td>WT / H Ratio</td>
<td>Comments</td>
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</tr>
<tr>
<td>223</td>
<td>805N 605E:6</td>
<td>Bayport</td>
<td>Indet.</td>
<td>Fragment</td>
<td>Indet.</td>
<td>26.61/40.1 /9.37</td>
<td>4.28</td>
<td>More so likely a biface, too large to be a point</td>
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<td></td>
</tr>
<tr>
<td>266</td>
<td>810N 620E:2</td>
<td>Unknown</td>
<td>Poss. Middleport</td>
<td>Complete</td>
<td>Lenticular</td>
<td>43.36/17.1 /5.83</td>
<td>3.04</td>
<td>Some characteristics similar to Middleport.</td>
<td></td>
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*Lentic. = Lenticular; Com. = Complete; Lance. = Lanceolate*
### Cores

<table>
<thead>
<tr>
<th>Cat.</th>
<th>Context</th>
<th>Material</th>
<th>Type</th>
<th>Percussive Form</th>
<th>L/W/TH (mm)</th>
</tr>
</thead>
<tbody>
<tr>
<td>231</td>
<td>805N 610E:25</td>
<td>KP</td>
<td>fragment, exhausted</td>
<td>Opposing Ridge</td>
<td>26.64/18.67/9.92</td>
</tr>
<tr>
<td>232</td>
<td>805N 610E:25</td>
<td>KP</td>
<td>fragment</td>
<td>Ridge point</td>
<td>23.67/27.38/11.13</td>
</tr>
<tr>
<td>238</td>
<td>805N 615E:22</td>
<td>KP</td>
<td>fragment, exhausted</td>
<td>Opposing Ridge</td>
<td>28.55/24.7/12/22</td>
</tr>
<tr>
<td>248</td>
<td>810N 615E:2</td>
<td>Burnt KP</td>
<td>bipolar</td>
<td>Opposing Ridge</td>
<td>44.73/15.69/17.11</td>
</tr>
<tr>
<td>252</td>
<td>810N 615E:6</td>
<td>KP, Extensive burnt damage</td>
<td>fragment, random</td>
<td>indeterminate</td>
<td>36.27/25.33/17.58</td>
</tr>
<tr>
<td>253</td>
<td>810N 615E:6</td>
<td>KP</td>
<td>random</td>
<td>Opposing Ridge</td>
<td>42.46/22.26/15.95</td>
</tr>
<tr>
<td>260</td>
<td>810N 615E:7</td>
<td>Burnt KP</td>
<td>fragment, random</td>
<td>Opposing area</td>
<td>32.75/24.18/22.88</td>
</tr>
<tr>
<td>273</td>
<td>875N 645E:21</td>
<td>KP</td>
<td>exhausted</td>
<td>indeterminate</td>
<td>25/25.67/22.2</td>
</tr>
</tbody>
</table>

Table 23: AgHn-14 Core Data from Unit Excavations and Features

<table>
<thead>
<tr>
<th>Features</th>
<th>Cat.</th>
<th>Context</th>
<th>Material</th>
<th>Type</th>
<th>Percussive Form</th>
<th>L/W/TH (mm)</th>
</tr>
</thead>
<tbody>
<tr>
<td>583</td>
<td>13 Feat</td>
<td>Kettle Point</td>
<td>Tip Fragment</td>
<td>lenticular</td>
<td>Lenticular</td>
<td>24.6/18/8.5</td>
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### Table 24: AgHn-14 Wedge Data from Unit Excavation and Features

<table>
<thead>
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<th>Cat.</th>
<th>Context</th>
<th>Type</th>
<th>Percussive Zone</th>
<th>L/W/Th (mm)</th>
</tr>
</thead>
<tbody>
<tr>
<td>327</td>
<td>875N 640E:25</td>
<td>fragment</td>
<td>Area ridge</td>
<td>36.11/22.46/13</td>
</tr>
<tr>
<td>241</td>
<td>810N 610E:5</td>
<td>fragment</td>
<td>Opposing Area</td>
<td>32.34/19.25/10</td>
</tr>
<tr>
<td>370</td>
<td>810N 615E:12</td>
<td>fragment</td>
<td>Opposing Ridge</td>
<td>38.33/22.78/7.68</td>
</tr>
<tr>
<td>249</td>
<td>810N 615E:2</td>
<td>fragment</td>
<td>Opposing Ridge</td>
<td>21.96/22.19/9.53</td>
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<tr>
<td>430</td>
<td>Feature 1</td>
<td>fragment</td>
<td>Opposing Area</td>
<td>27/19.81/11.33</td>
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<tr>
<td>431</td>
<td>Feature 1</td>
<td>fragment</td>
<td>Opposing Ridge</td>
<td>22.55/17.19/9.7</td>
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</table>

**KP – Kettle Point**

**Wedges**

<table>
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<th>Cat.</th>
<th>Context</th>
<th>Type</th>
<th>Percussive Zone</th>
<th>L/W/Th (mm)</th>
</tr>
</thead>
<tbody>
<tr>
<td>287</td>
<td>810N 615E:25</td>
<td>KP fragment, exhausted</td>
<td>area ridge</td>
<td>37.3/21.44/15.69</td>
</tr>
<tr>
<td>295</td>
<td>815N 615E:5</td>
<td>KP fragment, bipolar</td>
<td>Opposing Ridge</td>
<td>36.55/20.87/11.48</td>
</tr>
<tr>
<td>300</td>
<td>815N 615E:10</td>
<td>KP fragment, exhausted</td>
<td>area ridge</td>
<td>27.22/18.33/11.59</td>
</tr>
<tr>
<td>301</td>
<td>815N 615E:10</td>
<td>KP fragment</td>
<td>indeterminate</td>
<td>15.62/20.24/14.34</td>
</tr>
<tr>
<td>310</td>
<td>815N 620E:6</td>
<td>KP random (Identified from chipping detritus)</td>
<td>indeterminate</td>
<td>45.87/37.15/18.91</td>
</tr>
<tr>
<td>315</td>
<td>815N 620E:6</td>
<td>KP Fragment exhausted (Identified from chipping detritus)</td>
<td>Opposing Ridge</td>
<td>28.89/19.02/8</td>
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<tr>
<td>327</td>
<td>875N 640E:25</td>
<td>KP fragment</td>
<td>Opposing Ridge,</td>
<td>36.48/21.55/13.2</td>
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<tr>
<td>344</td>
<td>880N 640E:10</td>
<td>KP fragment, random</td>
<td>indeterminate</td>
<td>20.01/30.41/12.72</td>
</tr>
<tr>
<td>380</td>
<td>810N 615E:17</td>
<td>KP fragment, random</td>
<td>Opposing Area</td>
<td>31.85/28.53/15.65</td>
</tr>
<tr>
<td>409</td>
<td>880N 640E:4</td>
<td>KP, numerous cortical inclusions</td>
<td>fragment</td>
<td>indeterminate</td>
</tr>
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</table>

<table>
<thead>
<tr>
<th>Features</th>
</tr>
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<tr>
<td>432 Feature 1</td>
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<td>471 Feature 6</td>
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<tr>
<td>482 Feature 6</td>
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Late Woodland – Blackwell One East Locus (AgHn-12)

Settlement Patterns

Table 25: AgHn-12 (East Locus) Feature Data

<table>
<thead>
<tr>
<th>Feature</th>
<th>Layers</th>
<th>Plan</th>
<th>Profile</th>
<th>Dimensions (L/W/D)</th>
<th>Vol</th>
<th>Artifacts</th>
<th>Artifact Density</th>
</tr>
</thead>
<tbody>
<tr>
<td>3</td>
<td>3 Layers - Layer 1: 0-13cm; Layer 2: 0-55cm; Layer 3: 0-58</td>
<td>Circular</td>
<td>Layered basin</td>
<td>122/110/63</td>
<td>372.75 (L1: 61.23; L2: 243.22; L3: 86.3)</td>
<td>798 (L1: 90; L2: 592; L3: 116)</td>
<td>2.14 (L1: 1.47; L2: 2.43; L3: 1.7)</td>
</tr>
<tr>
<td>5</td>
<td>3 Layers with one small soil lens: Layer 1: 0-28 cm, Layer 2: 0-72 cm; Layer 3: 0-102 cm; Soil lens (in Layer 3) 5cm</td>
<td>Circular</td>
<td>Layered basin</td>
<td>150/160/110</td>
<td>2050 (L1: 371.46; L2: 986.44; L3: 692.1; First Exc. Half: 1025)</td>
<td>479 (L1: 137; L2: 15; L3: 196; First Exc. Half: 131)</td>
<td>0.23 (L1: 0.37; L2: 0.02; L3: 0.28; First Exc. Half: 0.13)</td>
</tr>
<tr>
<td>8</td>
<td>2 Layers - Layer 1: 0-22cm; Layer 2: 22-30cm</td>
<td>Circular</td>
<td>Layered basin</td>
<td>105/94/35</td>
<td>436.8 (L1: 209; L2: 82.3; First Exc. Half: 145.5)</td>
<td>397 (L1: 36; L2: 45; First Exc. Half: 316)</td>
<td>0.91 (L1: 0.17; L2: 0.55; First Exc. Half: 2.17)</td>
</tr>
<tr>
<td>10</td>
<td>1 Layer: 0-54cm</td>
<td>Kidney</td>
<td>Basin</td>
<td>307/105/54</td>
<td>1164.04</td>
<td>223</td>
<td>0.19</td>
</tr>
<tr>
<td>11</td>
<td>1 Layer: 0-82cm</td>
<td>Oval</td>
<td>Rounded basin</td>
<td>108/174/82</td>
<td>1132.3</td>
<td>915</td>
<td>0.81</td>
</tr>
<tr>
<td>12</td>
<td>1 Layer: 0-25cm</td>
<td>Oval</td>
<td>Shallow basin</td>
<td>137/104/25</td>
<td>356.20</td>
<td>26</td>
<td>0.07</td>
</tr>
</tbody>
</table>
Figure 62: AgHn-12 (East Locus) Feature 3 - Profile

Figure 63: AgHn-12 (East Locus) Feature 5 - Profile
## Faunal and Floral Remains

### Table 26: AgHn-12 (East Locus) Faunal Remains, Summary of Identified Specimens (NISP)

<table>
<thead>
<tr>
<th>Taxon</th>
<th>Common Name</th>
<th>F3</th>
<th>F5</th>
<th>F8</th>
<th>F10</th>
<th>F11</th>
<th>F12</th>
<th>Total</th>
<th>Taxon %</th>
<th>Total Feature Assemblage %</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Family river mussels</strong></td>
<td></td>
<td>4</td>
<td>1</td>
<td></td>
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<td></td>
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<td>Actinopterygii</td>
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<td>18</td>
<td>7</td>
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<td>48</td>
<td>205</td>
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<td>58.74</td>
<td>11.20</td>
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<td>12</td>
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<td>68</td>
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<td>Ictaluridae</td>
<td>family catfish</td>
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<td></td>
<td>1</td>
<td>100</td>
<td>0.05</td>
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<td>Percidae</td>
<td>yellow perch size</td>
<td>3</td>
<td>1</td>
<td>8</td>
<td></td>
<td></td>
<td>12</td>
<td>100</td>
<td>3.44</td>
<td>0.66</td>
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<tr>
<td>Sander sp</td>
<td>sauger or walleye</td>
<td>7</td>
<td>4</td>
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<td>3</td>
<td>14</td>
<td>100</td>
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<td><strong>Total Fish</strong></td>
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<td>52</td>
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<td>Aves</td>
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<td>6</td>
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<td>1.64</td>
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<td>13</td>
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<td>0.71</td>
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<td>33</td>
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<td>F8</td>
<td>F10</td>
<td>F11</td>
<td>F12</td>
<td>Total</td>
<td>Taxon %</td>
<td>Total Feature Assemblage %</td>
</tr>
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<td>---------------</td>
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<tr>
<td><em>Ursus americanus</em></td>
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<td>0.05</td>
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<td>14</td>
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<td>33</td>
<td>18.23</td>
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<td>93</td>
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<td>84</td>
<td>409</td>
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<td>21</td>
<td>36</td>
<td>14</td>
<td>9</td>
<td>183</td>
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</table>

Table 27: AgHn-12 (East Locus) Modified bone specimens (NISP)

<table>
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<tr>
<th>Modification: human subsistence behaviour</th>
<th>F3</th>
<th>F5</th>
<th>F8</th>
<th>F10</th>
<th>F11</th>
<th>F12</th>
<th>Totals</th>
<th>Percentages</th>
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</thead>
<tbody>
<tr>
<td>cut mark</td>
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<td>15</td>
<td>8</td>
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<td></td>
<td></td>
<td>26</td>
<td>12.26</td>
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<td>impact scar</td>
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<td>8</td>
<td>6</td>
<td></td>
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<td>7.55</td>
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<td>spiral fracture</td>
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<td>17</td>
<td>2</td>
<td></td>
<td></td>
<td>28</td>
<td>13.21</td>
</tr>
<tr>
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<td>22</td>
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<td><strong>Totals</strong></td>
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<td>20</td>
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</table>

(TMHC 2019a)

Table 28: AgHn-12 (East Locus) Floral Remains Recovered from Features

<table>
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<th>Context</th>
<th>Charcoal</th>
<th>Maize</th>
<th>Other Carbonized Plants</th>
<th>Totals</th>
<th>Percentages</th>
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<td>11</td>
<td>27</td>
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<td>Feature 5</td>
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<td>0.00</td>
</tr>
<tr>
<td>Feature 8</td>
<td>3</td>
<td>0</td>
<td>1</td>
<td>4</td>
<td>1.87</td>
</tr>
<tr>
<td>Feature 10</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0.00</td>
</tr>
<tr>
<td>Feature 11</td>
<td>63</td>
<td>0</td>
<td>0</td>
<td>63</td>
<td>29.44</td>
</tr>
<tr>
<td>Feature 12</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0.00</td>
</tr>
<tr>
<td><strong>Totals</strong></td>
<td>200</td>
<td>2</td>
<td>12</td>
<td>214</td>
<td>100.00</td>
</tr>
<tr>
<td><strong>Percentages</strong></td>
<td>93.46</td>
<td>0.93</td>
<td>5.61</td>
<td>100</td>
<td></td>
</tr>
</tbody>
</table>

(TMHC 2019a)
### Table 29: AgHn-12 (East Locus) Charcoal Identification of Tree Species

<table>
<thead>
<tr>
<th>Feature</th>
<th>Context</th>
<th>Ash</th>
<th>Beech</th>
<th>Cherry</th>
<th>Elm</th>
<th>Hickory</th>
<th>Oak</th>
<th>Indeterminate Ring</th>
<th>Porous</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>5</td>
<td>W½ 70-106cm</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>2</td>
<td>0</td>
<td></td>
<td>2</td>
</tr>
<tr>
<td></td>
<td>W½ 95cm</td>
<td>0</td>
<td>2</td>
<td>2</td>
<td>0</td>
<td>0</td>
<td>6</td>
<td>0</td>
<td></td>
<td>10</td>
</tr>
<tr>
<td></td>
<td>El½ 0-106cm</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>2</td>
<td></td>
<td>3</td>
</tr>
<tr>
<td>11</td>
<td>S½ 0-30cm</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>4</td>
<td>0</td>
<td></td>
<td>4</td>
</tr>
<tr>
<td></td>
<td>All 0-82cm</td>
<td>2</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>4</td>
<td>2</td>
<td>1</td>
<td></td>
<td>9</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td></td>
<td>2</td>
<td>2</td>
<td>2</td>
<td>1</td>
<td>4</td>
<td>14</td>
<td>3</td>
<td></td>
<td>28</td>
</tr>
</tbody>
</table>

(TMHC 2019a)

### Lithics

#### Chipping Detritus

### Table 30: AgHn-12 (East Locus) Flake types and Chert Materials from Features

<table>
<thead>
<tr>
<th>Flake Type</th>
<th>Chert Material</th>
</tr>
</thead>
<tbody>
<tr>
<td>Primary</td>
<td>1</td>
</tr>
<tr>
<td>Secondary</td>
<td>0</td>
</tr>
<tr>
<td>Shatter</td>
<td>10</td>
</tr>
<tr>
<td>Fragment</td>
<td>75</td>
</tr>
<tr>
<td>Tertiary</td>
<td>8</td>
</tr>
<tr>
<td>Biface Thinning</td>
<td>12</td>
</tr>
<tr>
<td>Biface Finishing</td>
<td>1</td>
</tr>
<tr>
<td>Biface Retouch</td>
<td>0</td>
</tr>
<tr>
<td>Biface Reduction Error</td>
<td>0</td>
</tr>
<tr>
<td>Bipolar Flake</td>
<td>0</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>107</td>
</tr>
<tr>
<td>%</td>
<td>31.20</td>
</tr>
</tbody>
</table>

KP = Kettle Point, On. = Onondaga; BP = Bayport; Hald = Haldimand; FRC = Flint Ridge Chalcedony; FH = Fossil Hill; Unk. = Unknown; Bur. = Burnt
### Table 31: AgHn-12 (East Locus) Flake types and Chert Materials from Unit Excavation

<table>
<thead>
<tr>
<th>Flake Type</th>
<th>KP</th>
<th>Burnt KP</th>
<th>On.</th>
<th>BP</th>
<th>Hald</th>
<th>FRC</th>
<th>Unkn.</th>
<th>Bur.</th>
<th>Total</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Primary</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Secondary</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>2</td>
</tr>
<tr>
<td>Shatter</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>24</td>
</tr>
<tr>
<td>Fragment</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>75</td>
</tr>
<tr>
<td>Tertiary</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>22</td>
</tr>
<tr>
<td>Biface Thinning</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>32</td>
</tr>
<tr>
<td>Biface Finishing</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>0</td>
</tr>
<tr>
<td>Biface Retouch</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>0</td>
</tr>
<tr>
<td>Biface Reduction Error</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>0</td>
</tr>
<tr>
<td>Bipolar Flake</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>0</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>155</td>
<td>15</td>
<td>2</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>0</td>
<td>8</td>
<td>183</td>
<td>100</td>
</tr>
</tbody>
</table>

KP = Kettle Point, On. = Onondaga; BP = Bayport; Hald=Haldimand; FRC = Flint Ridge Chalcedony; Unk. = Unknown; Bur. = Burnt

KP = Kettle Point, On. = Onondaga; BP = Bayport; Hald=Haldimand; FRC = Flint Ridge Chalcedony; Unk. = Unknown; Bur. = Burnt

% = 210
# Utilized and Retouched Flakes

**Table 32: AgHn-12 (East Locus) Utilized Flake Data**

<table>
<thead>
<tr>
<th>Cat.</th>
<th>Context</th>
<th>Flake Type</th>
<th>Material</th>
<th>L/W/Th (mm)</th>
<th>Mod. Loc</th>
<th>Mod. L. (mm)</th>
<th>Mod. Ht. (mm)</th>
<th>Use wear</th>
<th>Shape, depth</th>
</tr>
</thead>
<tbody>
<tr>
<td>354</td>
<td>Feat.11</td>
<td>BTF</td>
<td>On.</td>
<td>25.9/14.22/2.6</td>
<td>Dorsal Lateral</td>
<td>10.7</td>
<td>1.7</td>
<td>Appears Worn, rounded edges, possibly not acquired through use</td>
<td>small stepped?</td>
</tr>
<tr>
<td>368</td>
<td>Feat.11</td>
<td>Tert.</td>
<td>On.</td>
<td>46.9/23.67/9.42</td>
<td>Ventral Lateral</td>
<td>8.82</td>
<td>1.66</td>
<td>Faint polishing. Fine chipping.</td>
<td>Large shallow scalar, half moon on edge</td>
</tr>
</tbody>
</table>

**Table 33: AgHn-12 (East Locus) Retouched Flake Data**

<table>
<thead>
<tr>
<th>Cat.</th>
<th>Context</th>
<th>Flake Type</th>
<th>Material</th>
<th>L/W/Th (mm)</th>
<th>Mod. Loc</th>
<th>Mod. L. (mm)</th>
<th>Mod. Ht. (mm)</th>
<th>Use wear</th>
<th>Shape, depth</th>
</tr>
</thead>
<tbody>
<tr>
<td>229</td>
<td>470N 350E:2</td>
<td>Frag.</td>
<td>slate</td>
<td>63.37/18.46/12.03</td>
<td>Dorsal Lateral</td>
<td>41.39/33.3</td>
<td>2.10-2.76</td>
<td>Slight polishing on edges. Possible pock marking may be from material worked.</td>
<td>Large deep scalar</td>
</tr>
<tr>
<td>370</td>
<td>Feat. 11</td>
<td>Frag.</td>
<td>On.</td>
<td>32.61/17.82/8.53</td>
<td>Dorsal Lateral</td>
<td>11.27</td>
<td>2.12</td>
<td>no polishing,</td>
<td>Large Shallow scalar</td>
</tr>
</tbody>
</table>
**Bifaces**

**Table 34: AgHn-12 (East Locus) Biface data from Unit Excavation and Features**

<table>
<thead>
<tr>
<th>Cat.</th>
<th>Context</th>
<th>Material</th>
<th>Portion</th>
<th>Cross Section</th>
<th>L/W/Th (mm)</th>
<th>W/Th Ratio</th>
<th>Shape</th>
<th>Modification</th>
</tr>
</thead>
<tbody>
<tr>
<td>160</td>
<td>475N 260E:21</td>
<td>Unk.</td>
<td>tip-mid fragment</td>
<td>lenticular</td>
<td>29.22*/25.94/7.33</td>
<td>3.54</td>
<td>Tri.</td>
<td>At edge, possible polishing, small scalar scarring,</td>
</tr>
<tr>
<td>173</td>
<td>480N 260E:6</td>
<td>KP</td>
<td>Mid. fragment</td>
<td>lenticular</td>
<td>14.9*/23.55/7.14</td>
<td>3.3</td>
<td>n/a</td>
<td>n/a</td>
</tr>
<tr>
<td>209</td>
<td>465N 345E:25</td>
<td>Unk.</td>
<td>tip and midsection</td>
<td>lenticular</td>
<td>31.23*/24.86/7.14</td>
<td>3.48</td>
<td>Tri.</td>
<td>No distinct use wear patterning</td>
</tr>
</tbody>
</table>

**Features**

<table>
<thead>
<tr>
<th>Cat.</th>
<th>Context</th>
<th>Material</th>
<th>Portion</th>
<th>Cross Section</th>
<th>L/W/Th (mm)</th>
<th>W/Th Ratio</th>
<th>Shape</th>
<th>Type</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>367</td>
<td>Feat. 11</td>
<td>On.</td>
<td>complete</td>
<td>lenticular</td>
<td>47.84/22.43/8.91</td>
<td>2.52</td>
<td>leaf</td>
<td>Madison</td>
<td>Sections near base more rounded.</td>
</tr>
<tr>
<td>396</td>
<td>Feat. 5</td>
<td>Kettle Point</td>
<td>fragment</td>
<td>lenticular</td>
<td>64.28*/42.82/22.98</td>
<td>1.86</td>
<td>ovate</td>
<td>Madison</td>
<td>Sections near base more rounded.</td>
</tr>
</tbody>
</table>

**Projectile Points**

**Table 35: AgHn-12 (East Locus) Projectile Point Data**

<table>
<thead>
<tr>
<th>Cat.</th>
<th>Context</th>
<th>Material</th>
<th>L/W/Th (mm)</th>
<th>W/Th Ratio</th>
<th>Cross Section</th>
<th>Shape</th>
<th>Type</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>353</td>
<td>Feature 11</td>
<td>Kettle Point</td>
<td>42.17/24.01/5.47</td>
<td>4.38</td>
<td>lenticular</td>
<td>Triangular</td>
<td>Madison</td>
<td>Sections near base more rounded.</td>
</tr>
<tr>
<td>396</td>
<td>Feature 5</td>
<td>Kettle Point</td>
<td>36.8/23.6/5.08</td>
<td>4.64</td>
<td>lenticular</td>
<td>Triangular</td>
<td>Madison</td>
<td>Sections near base more rounded.</td>
</tr>
</tbody>
</table>
Wedges

Table 36: AgHn-12 (East Locus) Wedge Data

<table>
<thead>
<tr>
<th>Cat.</th>
<th>Context</th>
<th>Material</th>
<th>Type</th>
<th>Percussive Zone</th>
<th>L/W/TH (mm)</th>
</tr>
</thead>
<tbody>
<tr>
<td>212</td>
<td>465N 350E:21</td>
<td>Kettle Point</td>
<td>Fragment</td>
<td>Area Ridge</td>
<td>19.52/16.67/6.69</td>
</tr>
<tr>
<td>283</td>
<td>Feature 3</td>
<td>Kettle Point</td>
<td>Fragment</td>
<td>Area Ridge</td>
<td>29.88/29.6/7.79</td>
</tr>
</tbody>
</table>
## Radiocarbon Dating Results

### Table 37: Radiocarbon Dates

<table>
<thead>
<tr>
<th>Lab ID</th>
<th>Context</th>
<th>Material</th>
<th>Collagen yield %</th>
<th>14Cyr BP</th>
<th>±</th>
<th>F14C ±</th>
<th>cal BP</th>
<th>cal BC/AD</th>
</tr>
</thead>
<tbody>
<tr>
<td>UOC-18298</td>
<td>AgHn-14</td>
<td>Nutshell</td>
<td>n/a</td>
<td>2524</td>
<td>14</td>
<td>0.7304</td>
<td>0.0013</td>
<td>2728-2696 (30.8%), 2637-2614 (19.4%), 2592-2514 (45.2%)</td>
</tr>
<tr>
<td></td>
<td>Feat. 16</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>UOC-18480</td>
<td>AgHn-12</td>
<td>Deer Bone</td>
<td>1.51</td>
<td>3149</td>
<td>13</td>
<td>0.6757</td>
<td>0.0011</td>
<td>3443-3427 (5.5%) 3403-3346 (90.0%)</td>
</tr>
<tr>
<td>(West Locus)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Feat. 2</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>UOC-16283</td>
<td>AgHn-12</td>
<td>Deer Bone</td>
<td>~1%</td>
<td>802</td>
<td>44</td>
<td>0.9050</td>
<td>0.005</td>
<td>785-669 (95.4%)</td>
</tr>
<tr>
<td>(East Locus)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Feat. 3</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>UOC-18481</td>
<td>AgHn-12</td>
<td>Deer Bone</td>
<td>1.24</td>
<td>850</td>
<td>11</td>
<td>0.8996</td>
<td>0.0012</td>
<td>781-726 (95.4%)</td>
</tr>
<tr>
<td>(East Locus)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Feat. 10</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*IntCal20 curve (AEL AMS Radiocarbon Laboratory 2021, 2022)*
Appendix B: Ceramic Vessel Descriptions

Middle Woodland (AgHn-14)

Vessel 1 – Feature 3 (Figure 66,67; Table 38)

Several body sherds represent Vessel 1 (cat. 451 to 455). The vessel was manufactured using the coil method, which is evident through the presence of coil breaks on several sherds. The sherds are somewhat friable, likely due to firing methods. They exhibit a coarse grit temper with large black mineral inclusions, resulting in a vessel with a thick body, measuring between 12 mm and 14 mm. No surface treatment is present, but the body sherds exhibit a linear vertical motif (oriented through the evidence of a coil break) formed by a polygonal dentate instrument rocked back and forth against the vessel surface. Specifically, this may have been applied at a slightly oblique angle to the vessel, or the potter employed a slight dragging technique as the dentate motif appears slightly widened in some of the impressions (Figure 67).

The thickness of these sherds suggests poor thermal conductivity. This trait and a general lack of evidence for proximity to a flame indicate this vessel may have been used for storage or hot rock cooking (Rye 1981: 26; Skibo 2013: 124).

Vessel 2 - Feature 6 (Figure 68,69; Table 39)

Numerous body sherds represent this vessel (cat. 460 and 464). The presence of coil breaks points to this vessel’s manufacture being of the coil method. The sherds are moderately friable. The sherds exhibit a coarse grit temper with large mineral inclusions. The sherds are relatively thick, ranging from 11 mm to 13 mm. The vessel exterior appears to be worn. As such, it is difficult to confidently discern the exterior surface treatment, however, it appears to be a form of smoothed over cord treatment. Furthermore, an indistinct cord-wrapped instrument motif may be superimposed on a cord malleated surface (Figure 69). The interior surface treatment is also worn, but it appears to be lightly cord-marked or faintly wiped or combed. The use of a coiling manufacture technique suggests a Middle Woodland period affiliation. The use of a cord-wrapped instrument decoration in adjacent areas has also been attributed to the Middle
Woodland (Kenyon et al. 1988: 11). Finlayson believed decoration utilizing a cord-wrapped instrument may have greater frequency during later periods in the Middle Woodland for the eastern Lake Huron region.

The exterior coloration could suggest proximity to a flame or oxidizing atmosphere during firing or use (Rye 1981: 119-120). The interior colour may result from organics in the clay during firing or some past surface treatment or residue (Rye 1981: 115, 119; Malainey 2011: 321). Vessel 2’s thick walls and general high water permeability likely did not make this practical for boiling near direct heat. However, it may have been utilized in hot stone cooking, storage, or other processing.

Vessel 3 – Feature 6 (Figure 70; Table 40)
Several fragmented body sherds represent this vessel (cat. 461, 476, 479) While no coil breaks are present on these sherds, this vessel was likely manufactured using that technique based on the general similarity to sherds that exhibit coil breaks and the association of those within the same feature. This vessel is somewhat friable and has a coarse grit temper with the occasional rather large black mineral inclusion. These sherds range from 9.5 mm to 10 mm in thickness. The exterior has a smoothed over cord surface treatment and a smooth interior.

Due to the more fragmentary nature of this vessel, it is challenging to glean more about its function. However, sooting and some possible carbonization on the interior suggest a more direct flame cooking method.

Vessel 4 – Feature 7 (Figure 71; Table 41)
Two fragmentary rim sherds represent this vessel (cat. 510 and 511). There is evidence of a coil break on one of the sherds. This vessel is made with a coarse grit temper, with some sizeable black mineral inclusions noted. This vessel appears to have been relatively well fired due to its more indurate nature. At the plain, flat lip, this vessel has a thickness of 7.14 mm. This vessel does not exhibit a collar, and the orientation of the rim is straight. The vessel has a possible rim orifice of 8 cm; however, this may be inaccurate.
due to the fragmentary nature of the sherd. No surface treatment was observed on this vessel, but it exhibits both interior and exterior decoration. The interior decoration is a linear left oblique motif formed through stamping a polygonal dentate tool. This same motif and technique are repeated on the exterior of the vessel (Figure 71).

Given the change in colouration and eroded, rounded edges, it is possible that fire, or some other environmental interaction occurred outside of the vessel’s use life or post-depositional. Due to these sherds' fragmentary nature, little more can be discussed about their use wear.

**Vessel 5 - Feature 7 (Figure 72; Table 42)**

This vessel is represented by two mending fragmentary rim sherds (cat. 491,492,494, and 503) and an inferred mend from a single fragmentary neck sherd. While no coil breaks are exhibited, this vessel was likely constructed using a similar technique due to their association within a feature where coil breaks are present. This vessel has a coarse grit temper with large black mineral inclusions. Like Vessel 4, it appears relatively well fired due to its indurate nature. The rim sherds are relatively thin, with a thickness of roughly 6 mm. Specifically, the plain, rounded lip measures 5.83 mm thick. The associated neck sherd measures slightly thicker. This vessel's potential rim orifice diameter is roughly between 8 cm to 10 cm.

The vessel's interior is decorated with a linear right oblique motif formed through stamping a polygonal dentate instrument. The exterior rim is decorated by a superimposed left and right linear oblique motif formed by stamping a polygonal dentate instrument. The exterior neck of the vessel is decorated with a possible linear horizontal motif formed by a polygonal dentate instrument formed through a stamp angled parallel to the vessel surface. Due to the limited sherds associated with this vessel and its fragmentary nature, little additional information can be discussed.

**Vessel 6 – Feature 10 (Figure 73; Table 43)**

A single body sherd represents this vessel (cat. 536). It was manufactured using a coiling method as indicated by a coil break. This sherd is also unique because it has two
indentations within the paste at the coil break, indicating the use of a mortise and tenon coiling technique (Wright 1967; P. Timmins personal communication 2022) This technique was not identified elsewhere in the assemblage and the sherd was included as a distinct vessel for this reason. The vessel has a sizeable black mineral temper and measures 10.77 mm thick. The sherd is quite indurate. The interior of this vessel is smooth, but the exterior exhibits a cord malleated surface treatment. No decoration is present.

This grey core may suggest a higher firing temperature. However, little more can be discussed due to the vessel's lack of representation and overall fragmentary nature.

**Vessel 7 – Feature 11 (Figure 74; Table 44)**

A single fragmentary rim sherd represents this vessel (cat. 552). The vessel was manufactured using a coiling technique. It is comprised of a coarse grit temper with large black mineral inclusions and is relatively thick, measuring just under 10 mm. This sherd has moderate friability. The vessel is collarless with a straight rim orientation. Unfortunately, the sherd is too fragmentary to measure the vessel rim orifice confidently. The rounded lip of the vessel measures 9.53 mm thick and is decorated with a linear vertical motif formed by a polygonal dentate instrument stamped parallel to the vessel surface. No surface treatment was identified on the sherd. The interior is plain, and the exterior is decorated with a linear, left oblique motif formed using a polygonal dentate instrument stamped at an oblique angle to the vessel surface.

**Vessel 8 – Feature 11 (Figure 75,76; Table 45)**

Several body sherds represent this vessel (n=6), two of which are illustrated in Figure 76 (cat. 553 and 559), which was manufactured using a coiling method. The vessel is comprised of a coarse grit temper with large black mineral inclusions and the body sherds measure between 9.65 mm and 10.3 mm thick. The sherds appear to be moderately friable. The interior is plain except for slight, broad undulations possibly related to the construction process. The exterior exhibits a cord malleated surface treatment. A faint decoration exists and appears to be superimposed on the surface treatment. Based on
what can be discerned, the decoration appears to be incised superimposed obliques that form a hatching motif formed using a straight linear instrument or perhaps a rocker style.

**Vessel 9 – Feature 16 (Figure 77,78; Table 46)**

This vessel is represented by several body sherds (n= 4), some of which are inferred mends (cat. 606 and 609). This vessel was manufactured using a coiling technique as some sherds exhibit coil breaks. The vessels are comprised of a coarse grit temper with moderately sized mineral inclusions. The sherds range from 9.5 mm to 9.75 mm thick. Overall, the sherds have low friability. The vessel exterior is decorated with a linear horizontal motif formed through rocking a curved instrument back and forth across the vessel surface. The interior of the vessel is smooth.

**Vessel 10 – Plough Zone (Figure 79; Table 47)**

This vessel is represented by two neck sherds and a single fragmentary rim sherd (cat. 340, and 396 - 398). It is difficult to determine the manufacturing technique for this vessel as the interior is mainly exfoliated. Additionally, an inferred construction method cannot be confidently made as this was recovered from the ploughzone. The exfoliation of the interior suggests that this vessel is quite friable. The vessel is comprised of a coarse grit temper with moderate quartz inclusions. The interior and exterior surface is present on a small section of the rim which allowed for a measurement of lip thickness of 9.87 mm. The rim orientation appears straight, with a possible incipient collar. As only a small amount of the lip was present, a measurement of the rim orifice could not be adequately made. However, the lip is rounded and is decorated with linear right obliques formed by either an ovate dentate instrument or an elliptical pointed instrument. The rim is decorated with linear right obliques formed using the same technique observed on the lip. This motif and technique are repeated on the neck of the vessel.
**Late Woodland (AgHn-12 East Locus)**

**Vessel 1 – Feature 3 (Figure 80-85; Table 50)**

Vessel 1 is a nearly complete vessel recovered from Feature 3. It is well made, using a paddle and anvil technique as no coil breaks are present. This vessel is relatively large, with a rim orifice diameter of roughly 20 cm. The lip of the vessel is just under 13 mm in thickness, while the body and neck sherds are slightly thinner at around 10 mm. The vessel exhibits an out-flaring, collarless rim with shallow, rounded castellations occurring. As no shoulder is present, there is little transition from the neck to the body and minimal variation to the overall vessel shape. The lack of shoulder definition is a trait of Younge Phase vessels, and this morphology is typical amongst WBT ceramics more broadly through time (Murphy and Ferris 1990: 201; Stothers and Pratt 1981: 95; Carroll 2019:186 -187).

The vessel is decorated on the exterior by a band of repeated stamps of a cordWrapped instrument forming linear right obliques just below the lip. This motif is repeated on the upper interior and the lip of the vessel. On the exterior neck, pairs of roughly equally spaced, deep vertical stamps formed by a cordWrapped instrument are depicted. These impressions have a greater length than the cordWrapped instrument stamps depicted on the upper rim and interior, suggesting a separate tool or, more likely, superimposing or overlapping stamps to generate a greater length. Additionally, two distinct surface treatments are present on the vessel. The first appears on the lower sections of the neck and consists of vertical cord marking. Below this, on the vessel's body, the surface treatment appears to be a cord roughened technique with no discernable orientation to the cording. The morphology, site location, and decorative motif in conjunction with technique suggests a Younge Phase affiliation. This assumption was further supported by a radiocarbon date acquired from the feature, placing it within the terminal 1100s CE or early 1200s CE (see Section 6.4). Given this date, it is possible that the vessel is transitional between the Younge Phase and the subsequent Springwells Phase (Stothers and Pratt 1981, Ferris and Spence 1995, Carroll 2019).
The location of sooting and coloration of the body is likely evidence of direct-fire cooking (Duddleson 2008: 185, Skibo 2013 88-92, Kooiman 2016: 212). Supporting direct fire cooking further is the presence of broad, blackened carbonized rings within the body, which may represent a water line (Kooiman 2016: 216). The glossy residue noted on the neck may be a remnant of a surface treatment, such as pine resin, to address water permeability which is a technique that has been recorded ethnographically (Skibo 2013: 50).

**Vessel 2 – Feature 5 (Figure 86-88; Table 51)**

Vessel 2 is comprised of neck and body sherds and appears to be well made using the paddle and anvil technique. The grit is fine, with minimal inclusions indicating possible sand temper. A finer temper would allow for a thinner vessel. The sherds range from 5 mm to 7.5 mm in thickness, with the neck sherds typically being thicker. A thinner vessel suggests greater importance on thermal conductivity (cooking) versus vessel strength (Rye 1981: 98, 105; Braun 1983: 118-119, Skibo 2013: 103).

In terms of decoration, this vessel exhibits motifs characteristic of the Younge Phase (Stothers and Pratt 1981: 95-96, Murphy and Ferris 1990: 205, Lennox and Dodd 1991: 21). The smooth neck is decorated by several bands (at least 2) of linear horizontals stamped with a tightly cord-wrapped instrument exhibiting an “S” twist. Directly below this is a series of repeating incised left and right obliques forming a triangular motif. Below this, the stamped, cord-wrapped instrument motif of linear horizontals is repeated. Here, there are four repeating bands of this motif, suggesting this number also occurs in the upper zone. This transitions directly to the cord roughened body; as with Vessel 1, no discernable shoulder is present. As no rim sherds could be attributed to this vessel, it is difficult to estimate how large it might have been. Based on the vessel's gentle neck curvature, this vessel likely had a slightly constricted neck which apexed to an out flaring rim, common amongst Younge Phase ceramics (Stothers 1975: 21; Murphy and Ferris 1990: 201; Suko 2017: 245).
With the presence of sooting, oxidization, and carbonization, this vessel has direct evidence of being used near a flame. As such, vessel surfaces likely exceeded 300 Celsius during use. Use for boiling is further supported by the poor water absorption.

**Vessel 3 – Feature 5 (Figure 89 and 90; Table 52)**

This vessel is represented by several rim, neck, body, and basal sherds. Some of these are inferred mends based on construction, temper, and coloration similarities. Vessel 3 appears to be well made using the anvil and paddle technique. It has low friability, suggesting it was well fired. It has a fine grit temper. This results in an overall thin vessel that thickens near the vessel base. The rim, neck and body sherds range from 6 mm to 7 mm thick, while the basal sherds exceed 10 mm. This thicker base would have offered greater mechanical strength.

The vessel rim is out flaring and exhibits a small incipient collar or thickened lip (Figure 89). The rim orifice is roughly 5 cm to 6 cm in diameter, suggesting a small vessel. The lip itself is flat and is faintly decorated. Due to its faintness, the decoration is difficult to discern, but it appears to be a motif of right linear obliques created by a parallel stamp from a cord-wrapped instrument. The faintness of the lip decoration could be due to the presence of possible abrasion or erosion on the lip.

Conversely, this abrasion could indicate the use of some lidded fixture (Skibo 2013: 135). The rim is smooth and minimally decorated. Rounded punctates, roughly equidistant, repeat along the exterior neck. One rim sherd depicts a possible shallow and rounded castellation. Curved linear stamps or possible fingernail impressions that form right linear obliques are depicted on the vessel interior. Faint linear horizontal and oblique incised lines are present on the vessel’s exterior rim. Unfortunately, the motif of these lines cannot be discerned due to the fragmentary nature of the sherds and may be a result of the manufacturing process and not a deliberate decoration.

The vessel is absent from any surface treatment save for the base, where a faint smoothed over cord treatment is present—perhaps utilized there to help with stability or grip when in use. The decorative qualities and morphology of this vessel (punctates, thin incised
lines, small size, and well made) is common on Younge Phase sites (Kenyon et al. 1988: 19). Murphy and Ferris (1990) note that small vessels that are well crafted and show attention to detail are common during the Younge Phase (207).

The transitional coloration on the interior suggests evidence of direct-flame cooking or possibly a surface treatment to aid in boiling. The water permeability tests confirm this. As this vessel is smaller than other vessels identified within this assemblage it may resemble a personal or more transportable cooking vessel.

**Vessel 4 – Feature 5 (Figure 91 – 93; Table 53)**

Vessel 4 is represented by five sherds comprised of one rim, neck and three body sherds. This vessel is well made, manufactured using a paddle and anvil technique, and has a fine grit temper consisting of small inclusions. The rim has a thickness of 9.8 mm at the lip, which thins toward the neck and body to roughly 7 mm to 8 mm. The rim flares outward quite extensively from a slightly constricted neck. The rim orifice has a diameter of roughly 18 cm which suggests a relatively large vessel. A poorly developed incipient collar is present. A cord malleated surface treatment covers the entire vessel. In some areas, this appears to be smoothed over, which could result from handling before firing. The lip is flat and decorated with right linear obliques formed by stamping a loose cord-wrapped instrument parallel to the vessel surface. This motif and technique are repeated along the collar of the vessel. Below the collar are deep linear vertical stamps from a cord wrap instrument, likely the same utilized on the collar and lip. On the interior rim are a band of cord wrapped instrument impressions above a narrow band of drag-stamped cord wrapped instrument impressions. Based on the predominance of cord wrapped instrument impressions and cord malleated surface treatment, this vessel is likely associated with the Younge Phase.

Based on the evidence gleaned from this vessel, it is evident that this vessel was used for braising, roasting or some other “dry” cooking process (Kooiman 2016: 212, 216). The attrition noted suggests scraping or scooping out of contents (Duddleson 2008: 180, 185; Skibo 2013: 140-141). However, as only a minor portion of the vessel was recovered, this conclusion could be unfounded.
**Vessel 5 – Feature 8 (Figure 94-96; Table 54)**

Vessel 5 is represented by a fragmentary rim sherd and several neck and body sherds. The vessel is well made through the paddle and anvil technique. It has few fine visible inclusions, suggesting a sand temper, resulting in a very thin vessel. The neck sherds range from 4 mm to 5 mm thick, and the body sherds from 5 mm to 6 mm making this vessel the thinnest in the assemblage. The fragmentary rim sherd associated with this vessel is relatively small, as such, limited information could be gathered. The rim has a poorly developed collar and is slightly out flaring.

The exterior rim is decorated with a linear right oblique motif formed by stamping a cord-wrapped instrument to form a band running parallel to the vessel lip. This motif and technique are repeated on the interior and along the pointed lip. The neck has a similar linear right oblique motif formed by stamping a cord-wrapped instrument onto the vessel surface at an oblique angle. Compared to the rim decoration, the neck stamps are not as deeply impressed into the surface. These shallower impressions suggest they were done when the vessel had dried somewhat prior to firing. There is a plain band roughly 3 cm to 4 cm below the neck decoration before the transition to the cord malleated body. The decoration and overall thinness of the vessel suggest a possible late Springwells Phase vessel (Murphy and Ferris 1990: 213-215: Abel 1999).

Based on evidence of sooting and oxidization, it is possible this vessel was not used for direct fire cooking but placed adjacent to a flame. However, during water permeability testing, due to the thinness of the vessel, liquid did eventually permeate through to the exterior of the vessel at around eight minutes. This degree of permeation may have prevented the formation of oxidization and aided in the formation of soot (Taché et al 2021: 6-7). This permeability undoubtedly would have been a hindrance for boiling of the contents, thus it is unlikely boiling was the ultimate objective for use of this vessel (Skibo 2013: 52).

**Vessel 6 – Feature 10 (Figure 97; Table 55)**

This vessel is represented by several rim, neck, shoulder, and body sherds. This vessel appears to be well made, likely using the paddle and anvil technique. It has a coarse,
predominantly pinkish, quartz temper. The vessel is quite friable, and several internal surfaces have been exfoliated. The thickness of this vessel varies slightly, ranging from roughly 8 mm to 9.5 mm. The rim is collarless and is slightly in-sloping. The rim orifice diameter is roughly 18 cm. The lip is flat, and at least one short-rounded castellation is present. Overall, the vessel shape resembles the Springwells “bag-shaped” vessels mentioned by Murphy and Ferris (1990: 209). The decoration and surface treatment described below further supports a Springwells Phase designation for this vessel.

The vessel's exterior is decorated by short trailed linear right obliques formed by a straight linear tool. Below these are five trailed linear horizontal furrowed bands formed by a straight linear tool. When the castellation is present, these bands angle upward and follow the castellation, returning to their horizontal orientation at the castellation's termination. Below this is a zone of trailed linear right obliques formed by a straight linear tool. This motif resembles the first decoration noted except with longer obliques. The remainder of the vessel is plain, including the interior and lip. The entirety of the vessel’s exterior is covered in a slip-roughened or self-slipped surface treatment.

Vessel 7 – Feature 10 and 11 (Figure 98-101; Table 56)

Vessel 7 is represented by several rim and neck sherds. It is well made, constructed through paddle and anvil technique, and not friable. Delamination of the exterior and interior surfaces seems somewhat common on this vessel which may speak to its construction technique. The temper for this vessel is a fine grit which results in a relatively thin vessel overall that ranges from 7 mm to 8 mm thick. Due to its deeply impressed cord-wrapped instrument decoration, the lip is flat and thick, at roughly 11 mm to 12 mm. The rim has a poorly developed, everted collar. The rim flares outward and has an orifice diameter of 9 cm, suggesting a relatively small pot. No surface treatment is present on this vessel.

The lip decoration consists of deep cord-wrapped instrument stamps forming a vertical motif. The interior decoration consists of a cord-wrapped instrument utilizing a drag-stamp technique executed at an oblique angle to the lip’s surface, forming a right oblique motif. The exterior exhibits several decorations. At the lip-rim interface, the first motif is
a band of linear right obliques formed by a stamping a curved tool. This motif results in an almost scalloped appearance of the lip exterior. Below this is a band of right obliques formed by a cord-wrapped instrument stamped at an oblique angle. This motif is followed by a plain section roughly 2 cm to 3 cm. On the elongated neck of the vessel is another band of right obliques formed by stamping a cord-wrapped instrument at an oblique angle to the vessel’s surface. Directly below this is a partial motif of superimposed or opposed incised obliques formed by a straight linear instrument. This motif would likely be forming either triangles or diamonds, a typical decoration on the neck of Younge Phase ceramics (Murphy and Ferris 1990: 205).

The findings suggest possible wet cooking/boiling which is also supported by the amount of carbonization around the neck area. Additionally, the darkened coloration and carbonization do not extend beyond the neck’s curvature, suggesting a waterline. A constricted neck would have aided in trapping heat while also providing a buffer for potential boil overs (Taché et al. 2021: 8).

**Vessel 8 – Feature 10 and 11 (Figure 102 and 103; Table 57)**

Vessel 8 is represented by three neck sherds and several inferred body sherds. It is relatively thin and appears well made using the paddle and anvil technique. The temper is a fine grit. The neck is smooth, and a cord roughened surface treatment marks the body. Several bands of decoration are depicted on the sherds associated with this vessel. The first of these, located on what is likely the upper neck of the vessel, is a zone of right obliques formed by stamping a cord-wrapped instrument angled parallel to the vessel lip. Below a brief plain zone, is a band of right obliques formed by a cord-wrapped instrument stamped at an oblique angle to the vessel surface. Directly below this is an incised motif of superimposed lines forming a diamond shape formed using a straight linear instrument. Like the triangular motif mentioned above, diamond motifs are also distinctive designs on Younge Phase ceramics (Murphy and Ferris 1990: 205).
Like the vessel discussed above, the occurrence of a dark grey coloration exhibited on the upper neck that fades to black suggests a possible liquid level (Kooiman 2016: 206). Furthermore, encrustations are present only below this level.

Vessel 9 – Feature 11 (Figure 104-105; Table 58)

This vessel is represented by a single fragmentary rim sherd. Extensive information could not be gleaned about this vessel. The vessel is well made through the paddle and anvil technique and is indurate. The temper is a fine grit and the sherd is relatively thin. The rim has a low poorly developed collar. A vertical cord-marked surface treatment is present across the vessel. The lip is flat and has a thickness of 8.5 mm. A decoration of a stamped cord wrapped instrument is present on the lip. The vessel interior has a shallow stamped left oblique motif formed by a straight linear tool. On the short collar of this vessel is a linear horizontal motif formed by an obliquely angled stamp from a cord-wrapped instrument. However, this may be merely an extension of the surface treatment. Given the small size of the sherd representing this vessel, it may tentatively be associated with the Springwells Phase based on its thickness and decorative motifs (Carroll 2019).

The glossy black interior indicates possible smudging or at least the presence of some residues that would act as a surface treatment to aid in cooking effectiveness (Skibo et al. 1997: 315; Longacre et al. 2000: 277-278; Drieu et al. 2019: 303-304). This vessel was used for cooking or processing foodstuffs based on the degree of encrustations and additional evidence on the vessel’s exterior for being located near a flame.

Vessel 10 – Feature 11 (Figure 106; Table 59)

Vessel 10 is represented by a single fragmentary rim sherd that is relatively well made using the paddle and anvil technique. The sherd is comprised of a coarse temper and is somewhat friable as the exterior, below the collar, is quite cracked. Despite this, the exterior surface seems to be intact. The rim appears thickened by overlapping layers of clay which can be seen in the profile of the sherd. This thickening was likely done to help support the thick everted collar. Indeed, the lip thickness is roughly 18 mm.
The rim flares outward as to be expected with an everted collar. The rim orifice at the lip is roughly 20 cm in diameter, suggesting the potential for a rather large vessel. No interior surface treatment is present, and due to the fragmentary nature of the sherd, it is difficult to determine if one was present on the exterior. The thick lip is adorned with a right oblique motif formed by a cord-wrapped instrument stamp. The interior exhibits a motif formed by stamping a cord-wrapped instrument at a parallel angle to the vessel surface. A similar decoration is depicted on the exterior. The decoration is a motif formed by a cord-wrapped instrument stamped at an oblique angle to the vessel surface. Only a small section of the neck is present. The decoration identified appears to be a right oblique motif formed by a cord-wrapped instrument stamped parallel to the vessel surface. Based on the decorative elements exhibited on this vessel it is likely associated with the Younge phase.

Due to the small size of the sherd, it lacks additional relevant data, and not much can be inferred about the use of the vessel.
Appendix C: Ceramic Vessel Attributes and Images

Early Woodland (AgHn-12 West Locus)

Figure 64: Early Woodland Vessel – Exterior

Figure 65: Early Woodland Vessel – Interior
Middle Woodland (AgHn-14)

Vessel 1 – Feature 3

Table 38: AgHn-14 Vessel 1 Attributes

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<td>Coil</td>
<td>Exterior Surface Texture</td>
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<td>Smooth</td>
<td>Exterior Body Tool</td>
</tr>
<tr>
<td>Exterior Body Technique</td>
<td>Rocker (Slight Dragging or oblique to surface)</td>
<td>Exterior Body Motif</td>
</tr>
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Figure 66: AgHn-14 Vessel 1: Top - Vessel Exterior; Bottom - Vessel Interior.

Figure 67: AgHn-14 Vessel 1: Close up
Vessel 2 - Feature 6

Table 39: AgHn-14 Vessel 2 Attributes

<table>
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<th>Nature of Specimen</th>
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<td>Plain</td>
<td>Exterior Body Motif</td>
<td>Plain</td>
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</tr>
</tbody>
</table>

Figure 68: AgHn-14 Vessel 2: Left – Exterior; Right - Interior

Figure 69: AgHn-14 Vessel 2: Close Up

231
Vessel 3 – Feature 6

**Table 40: AgHn-14 Vessel 3 Attributes**

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<th>Cat #(s)</th>
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<th>Exterior Surface Texture</th>
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<th>Exterior Body Technique</th>
<th>Exterior Body Motif</th>
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<td>Smooth</td>
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**Figure 70: AgHn-14 Vessel 3: Top Two Rows - Vessel Exterior; Bottom Two Rows - Vessel Interior.**
Table 41: AgHn-14 Vessel 4 Attributes

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<tr>
<th>Cat #(s)</th>
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<td>Exterior Surface Texture</td>
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<td>Construction Technique</td>
<td>Coil</td>
<td>Exterior Surface Texture</td>
<td>Smooth</td>
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<td>Interior Surface Texture</td>
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<td>Rim Form</td>
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<td>Rim Orientation</td>
<td>Straight?</td>
<td>Castellation</td>
<td>n/p</td>
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<tr>
<td>Exterior Rim Profile</td>
<td>Convex</td>
<td>Interior Rim Profile</td>
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<td>Rim Orifice Diameter at Lip</td>
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<td>Collar Development</td>
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<tr>
<td>Lip Form</td>
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<td>Interior Design technique</td>
<td>Stamp (Parallel)</td>
<td>Interior Design motif</td>
<td>Linear R. Oblique</td>
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<td>Exterior Zone A Technique</td>
<td>Stamp (Parallel)</td>
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<td>Exterior Zone C Motif</td>
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Figure 71: AgHn-14 Vessel 4: Top - Vessel Exterior; Bottom - Vessel Interior
Table 42: AgHn-14 Vessel 5 Attributes

<table>
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<th>Cat #(s)</th>
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<td>Temper</td>
<td>Coarse Grit</td>
<td>Exterior Surface</td>
<td>Smooth</td>
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<td>Construction Technique</td>
<td>Coil (?)</td>
<td>Thickness</td>
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<td>Interior Surface Texture</td>
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<td>Castellation</td>
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<tr>
<td>Rim Orientation</td>
<td>Out flaring</td>
<td>Interior Rim Profile</td>
<td>Convex</td>
</tr>
<tr>
<td>Exterior Rim Profile</td>
<td>Concave</td>
<td>Lip Form</td>
<td>Collarless</td>
</tr>
<tr>
<td>Rim Orifice Diameter at Lip</td>
<td>Fragmentary 8-10cm (?)</td>
<td>Collar Development</td>
<td>poor</td>
</tr>
<tr>
<td>Lip Form</td>
<td>rounded</td>
<td>Lip Thickness(mm)</td>
<td>5.83</td>
</tr>
<tr>
<td>Lip Tool</td>
<td>Plain</td>
<td>Lip Motif</td>
<td>Plain</td>
</tr>
<tr>
<td>Lip Tool Technique</td>
<td>Plain</td>
<td>Interior Design Tool</td>
<td>Dentate Instrument (Polygonal)</td>
</tr>
<tr>
<td>Lip Tool Technique</td>
<td>Stamp (Parallel)</td>
<td>Interior Design motif</td>
<td>Linear R. Oblique</td>
</tr>
<tr>
<td>Exterior Zone A Tool</td>
<td>Dentate Instrument (Polygonal)</td>
<td>Exterior Zone A Technique</td>
<td>Stamp (Parallel)</td>
</tr>
<tr>
<td>Exterior Zone A Motif</td>
<td>Superimposed - L and R Linear Obliques</td>
<td>Exterior Zone B Tool</td>
<td>n/p</td>
</tr>
<tr>
<td>Exterior Zone B Technique</td>
<td>n/p</td>
<td>Exterior Zone B Motif</td>
<td>n/p</td>
</tr>
<tr>
<td>Exterior Neck A Tool</td>
<td>Dentate Instrument (Polygonal)</td>
<td>Exterior Neck A Technique</td>
<td>Stamp (Parallel)</td>
</tr>
<tr>
<td>Exterior Neck A Motif</td>
<td>Linear Horizontal?</td>
<td>Exterior Neck B Tool</td>
<td>n/p</td>
</tr>
<tr>
<td>Exterior Neck B Technique</td>
<td>n/p</td>
<td>Exterior Neck B Motif</td>
<td>n/p</td>
</tr>
</tbody>
</table>

Figure 72: AgHn-14 Vessel 5: Top - Vessel Exterior; Bottom - Vessel Interior (only the rim sherd had an intact interior face)
Table 43: AgHn-14 Vessel 6 Attributes

<table>
<thead>
<tr>
<th>Cat #(s)</th>
<th>Nature of Specimen</th>
<th>Body</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tempr</td>
<td>Coarse Grit</td>
<td>536</td>
</tr>
<tr>
<td>Construction Technique</td>
<td>Coil - Mortice and Tenon</td>
<td></td>
</tr>
<tr>
<td>Exterior Surface Texture</td>
<td>Smooth</td>
<td>Exterior Body Texture</td>
</tr>
<tr>
<td>Exterior Body Technique</td>
<td>Plain</td>
<td>Exterior Body Motif</td>
</tr>
<tr>
<td>Exterior Body Motif</td>
<td>Plain</td>
<td></td>
</tr>
</tbody>
</table>

Figure 73: AgHn-14 Vessel 6: Top - Vessel Exterior; Middle - Vessel core with mortice and tenon indentations and coil break; Bottom - Vessel Interior.
### Vessel 7 – Feature 11

**Table 44: AgHn-14 Vessel 7 Attributes**

<table>
<thead>
<tr>
<th>Cat #(s)</th>
<th>552</th>
<th>Nature of Specimen</th>
<th>Frag Rim Thickness</th>
</tr>
</thead>
<tbody>
<tr>
<td>Temper</td>
<td>Coarse Grit</td>
<td></td>
<td>9.94</td>
</tr>
<tr>
<td>Construction Technique</td>
<td>Coil</td>
<td>Exterior Surface Texture</td>
<td>Smooth</td>
</tr>
<tr>
<td>Interior Surface Texture</td>
<td>Smooth</td>
<td>Rim Form</td>
<td>Collarless</td>
</tr>
<tr>
<td>Rim Orientation</td>
<td>Straight?</td>
<td>Castellation</td>
<td>n/p</td>
</tr>
<tr>
<td>Exterior Rim Profile</td>
<td>Straight</td>
<td>Interior Rim Profile</td>
<td>Straight</td>
</tr>
<tr>
<td>Rim Orifice Diameter at Lip</td>
<td>Too fragmentary</td>
<td>Collar Development</td>
<td>Poor</td>
</tr>
<tr>
<td>Lip Form</td>
<td>Rounded</td>
<td>Lip Thickness (mm)</td>
<td>9.53</td>
</tr>
<tr>
<td>Lip Tool</td>
<td>Dentate Instrument (Polygonal)</td>
<td>Lip Motif</td>
<td>Stamp (Parallel)</td>
</tr>
<tr>
<td>Lip Tool Technique</td>
<td>Linear Vertical?</td>
<td>Interior Design Tool</td>
<td>n/p</td>
</tr>
<tr>
<td>Interior Design technique</td>
<td>n/p</td>
<td>Interior Design motif</td>
<td>n/p</td>
</tr>
<tr>
<td>Exterior Zone A Tool</td>
<td>Dentate Instrument (Polygonal)</td>
<td>Exterior Zone A Technique</td>
<td>Stamp (oblique)</td>
</tr>
<tr>
<td>Exterior Zone A Motif</td>
<td>Linear L. Oblique</td>
<td>Exterior Zone B Tool</td>
<td>n/p</td>
</tr>
<tr>
<td>Exterior Zone B Technique</td>
<td>n/p</td>
<td>Exterior Zone B Motif</td>
<td>n/p</td>
</tr>
</tbody>
</table>

**Figure 74: AgHn-14 Vessel 7: Top - Vessel Exterior; Bottom - Vessel Interior**
Vessel 8 – Feature 11

Table 45: AgHn-14 Vessel 8 Attributes

<table>
<thead>
<tr>
<th>Cat #(s)</th>
<th>Nature of Specimen</th>
<th>Body</th>
</tr>
</thead>
<tbody>
<tr>
<td>553, 559</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Temper</th>
<th>Thickness</th>
</tr>
</thead>
<tbody>
<tr>
<td>Coarse Grit</td>
<td>9.65, 10.3</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Construction Technique</th>
<th>Exterior Surface Texture</th>
<th>Exterior Body Texture</th>
</tr>
</thead>
<tbody>
<tr>
<td>Coil</td>
<td>Cord malleated</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Interior Surface Texture</th>
<th>Exterior Body Tool</th>
<th>Exterior Body Motif</th>
</tr>
</thead>
<tbody>
<tr>
<td>smooth</td>
<td>Linear Instrument-Straight</td>
<td>superimposed obliques (hatching)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Exterior Body Tool</th>
<th>Exterior Body Motif</th>
</tr>
</thead>
<tbody>
<tr>
<td>Linear Instrument-Straight</td>
<td>superimposed obliques (hatching)</td>
</tr>
</tbody>
</table>

Figure 75: AgHn-14 Vessel 8: Top - Vessel Exterior; Bottom - Vessel Interior.

Figure 76: AgHn-14 Vessel 8: Close Up
Vessel 9 – Feature 16

Table 46: AgHn-14 Vessel 9 Attributes

<table>
<thead>
<tr>
<th>Cat #(s)</th>
<th>Nature of Specimen</th>
<th>Temper</th>
<th>Exterior Surface Texture</th>
<th>Construction Technique</th>
<th>Interior Surface Texture</th>
<th>Exterior Body Tool</th>
<th>Exterior Body Technique</th>
<th>Exterior Body Motif</th>
<th>Body</th>
</tr>
</thead>
<tbody>
<tr>
<td>606, 609</td>
<td></td>
<td>Coarse Grit</td>
<td>9.67, 9.72</td>
<td>Coil</td>
<td>Smooth</td>
<td>Curvilinear instrument (curved)</td>
<td>Rocker</td>
<td>Linear Horizontal?</td>
<td></td>
</tr>
</tbody>
</table>

Figure 77: AgHn-14 Vessel 9: Left - Vessel Exterior; Right - Vessel Interior.

Figure 78: AgHn-14 Vessel 9: Close Up
Vessel 10

<table>
<thead>
<tr>
<th>Cat #(#s)</th>
<th>340; 396-398</th>
<th>Nature of Specimen</th>
<th>F. Rim and Neck</th>
</tr>
</thead>
<tbody>
<tr>
<td>Temper</td>
<td>Coarse Grit</td>
<td>Thickness</td>
<td>9.54</td>
</tr>
<tr>
<td>Construction Technique</td>
<td>Indeterminant</td>
<td>Exterior Surface Texture</td>
<td></td>
</tr>
<tr>
<td>Interior Surface Texture</td>
<td>exfoliated</td>
<td>Rim Form</td>
<td>Incipient?</td>
</tr>
<tr>
<td>Rim Orientation</td>
<td>Straight?</td>
<td>Castellation</td>
<td>n/p</td>
</tr>
<tr>
<td>Exterior Rim Profile</td>
<td>convex</td>
<td>Interior Rim Profile</td>
<td>indeterminant</td>
</tr>
<tr>
<td>Rim Orifice Diameter at Lip</td>
<td>6-7cm?</td>
<td>Collar Development</td>
<td>poor</td>
</tr>
<tr>
<td>Lip Form</td>
<td>rounded</td>
<td>Lip Thickness(mm)</td>
<td>9.87</td>
</tr>
<tr>
<td>Lip Tool</td>
<td>Dentate instrument (ovate) or Pointed instrument (elliptical)</td>
<td>Lip Motif</td>
<td>Linear L., Oblique?</td>
</tr>
<tr>
<td>Lip Tool Technique</td>
<td>Stamped (oblique)</td>
<td>Interior Design Tool</td>
<td>n/p</td>
</tr>
<tr>
<td>Interior Design Technique</td>
<td>n/p</td>
<td>Interior Design motif</td>
<td>n/p</td>
</tr>
<tr>
<td>Exterior Zone A Tool</td>
<td>Dentate Instrument (ovate) or pointed instrument (elliptical)</td>
<td>Exterior Zone A Technique</td>
<td>stamped - oblique</td>
</tr>
<tr>
<td>Exterior Zone A Motif</td>
<td>Linear R. Oblique</td>
<td>Exterior Zone B Tool</td>
<td>n/p</td>
</tr>
<tr>
<td>Exterior Zone B Technique</td>
<td>n/p</td>
<td>Exterior Zone B Motif</td>
<td>n/p</td>
</tr>
<tr>
<td>Exterior Neck A Tool</td>
<td>Dentate Instrument (ovate) or Pointed instrument (Elliptical)</td>
<td>Exterior Neck A Technique</td>
<td>Stamp (oblique)</td>
</tr>
<tr>
<td>Exterior Neck B Technique</td>
<td>n/p</td>
<td>Exterior Neck B Motif</td>
<td>n/p</td>
</tr>
</tbody>
</table>

Figure 79: AgHn-14 Vessel 10: Exterior view (Vessel interior is exfoliated).
## Table 48: AgHn-14 Vessel Use Wear Data

<table>
<thead>
<tr>
<th>Vessel</th>
<th>Ext. Colouration</th>
<th>Int. Colouration</th>
<th>Core Colouration</th>
<th>Attrition</th>
<th>Residues/Carbonization</th>
<th>Water Permeability</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Light Brown - some orange patches</td>
<td>Dark Brown, blackened patches</td>
<td>Dark Grey with thick orange ext.-int. margins</td>
<td>N/P</td>
<td>N/P</td>
<td>High 1 minute.</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>Grey-Brown to a brown-orange</td>
<td>Grey, some darker grey patches</td>
<td>Dark grey, moderate int. ext. margins of orange</td>
<td>N/P</td>
<td>N/P</td>
<td>High ~ 3 minutes.</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>Orange, some tan</td>
<td>Light Brown</td>
<td>Orange to Light Grey</td>
<td>N/P</td>
<td>Carbonization on Int. Minor Sooting Ext.</td>
<td>High ~ 3 minutes.</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>Light Brown</td>
<td>Dark Brown/Some darker patches</td>
<td>Grey</td>
<td>N/P</td>
<td>N/P</td>
<td>High &lt;1 Minute</td>
<td>Sherds are rounded/eroded.</td>
</tr>
<tr>
<td>5</td>
<td>Light Brown</td>
<td>Light Brown</td>
<td>Black, Minimal Margins</td>
<td>N/P</td>
<td>N/P</td>
<td>High &lt;1 Minute</td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>Brown-Orange</td>
<td>Brown-Orange</td>
<td>Light Grey, Minimal margins</td>
<td>N/P</td>
<td>N/P</td>
<td>High ~3 Minutes</td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>Light Brown to Orange</td>
<td>Light Brown to Orange</td>
<td>Light Brown to Orange</td>
<td>N/P</td>
<td>N/P</td>
<td>High &lt;1 Minute</td>
<td></td>
</tr>
<tr>
<td>8</td>
<td>Light Brown to Orange; Dark Brown patches</td>
<td>Light Brown to Orange; some darker sections</td>
<td>Light Brown to Orange</td>
<td>N/P</td>
<td>N/P</td>
<td>High &lt;1 Minute</td>
<td>Darker sections seem related to post-depositional processes.</td>
</tr>
<tr>
<td>9</td>
<td>Light Brown to Orange</td>
<td>Light Brown to Orange With grey or dark brown patches</td>
<td>Orange to Dark Brown</td>
<td>N/P</td>
<td>N/P</td>
<td>High &lt;1 Minute</td>
<td></td>
</tr>
<tr>
<td>10</td>
<td>Orange</td>
<td>Exfoliated</td>
<td>Orange</td>
<td>N/P</td>
<td>N/P</td>
<td>Exfoliated</td>
<td></td>
</tr>
</tbody>
</table>
### Late Woodland (AgHn-12 East Locus)

*Table 49: AgHn-12 (East Locus) - Vessel, Feature and Associated Phase.*

<table>
<thead>
<tr>
<th>Vessel</th>
<th>Feature</th>
<th>Period Affiliation</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>3</td>
<td>Younge Phase</td>
</tr>
<tr>
<td>2</td>
<td>5</td>
<td>Younge Phase</td>
</tr>
<tr>
<td>3</td>
<td>5</td>
<td>Younge Phase</td>
</tr>
<tr>
<td>4</td>
<td>5</td>
<td>Younge Phase</td>
</tr>
<tr>
<td>5</td>
<td>8</td>
<td>Springwells Phase</td>
</tr>
<tr>
<td>6</td>
<td>10</td>
<td>Springwells Phase</td>
</tr>
<tr>
<td>7</td>
<td>10 &amp; 11</td>
<td>Younge Phase</td>
</tr>
<tr>
<td>8</td>
<td>10 &amp; 11</td>
<td>Younge Phase</td>
</tr>
<tr>
<td>9</td>
<td>11</td>
<td>Possible Springwells</td>
</tr>
<tr>
<td>10</td>
<td>11</td>
<td>Younge Phase</td>
</tr>
</tbody>
</table>
### Table 50: AgHn-12 (East Locus) Vessel 1 Attributes

<table>
<thead>
<tr>
<th>Cat #(s)</th>
<th>Nature of Specimen</th>
<th>Nearly whole</th>
</tr>
</thead>
<tbody>
<tr>
<td>Temper</td>
<td>Coarse Grit</td>
<td>Construction Tech.</td>
</tr>
<tr>
<td>Vertical Cord marking above body. Body - Cord marked</td>
<td>Int. Surface Texture smooth</td>
<td></td>
</tr>
<tr>
<td>Rim Form</td>
<td>Collarless</td>
<td>Rim Orientation Outflaring</td>
</tr>
<tr>
<td>Castellation</td>
<td>Rounded multiple - Ext. Rim Profile Concave</td>
<td></td>
</tr>
<tr>
<td>Nature of Specimen</td>
<td>Int. Surface Texture smooth</td>
<td></td>
</tr>
<tr>
<td>Exterior surface texture</td>
<td>Vertical Cord marking above body. Body - Cord marked</td>
<td></td>
</tr>
<tr>
<td>Int. Surface Texture</td>
<td>smooth</td>
<td></td>
</tr>
<tr>
<td>Ext. Rim Profile</td>
<td>Concave</td>
<td></td>
</tr>
<tr>
<td>Int. Rim Profile</td>
<td>straight</td>
<td>Rim Orifice Diameter at Lip 20cm</td>
</tr>
<tr>
<td>Collar Development</td>
<td>n/a</td>
<td>Lip Form rounded</td>
</tr>
<tr>
<td>Lip Th.(mm)</td>
<td>12.84</td>
<td>Lip Tool CWI</td>
</tr>
<tr>
<td>Lip Motif</td>
<td>Linear R. Obliques</td>
<td>Lip Tool Tech. Stamp (Parallel)</td>
</tr>
<tr>
<td>Int. Design Tool</td>
<td>CWI</td>
<td>Int. Design tech. Stamp (Parallel)</td>
</tr>
<tr>
<td>Int. Design motif</td>
<td>Linear R. Obliques</td>
<td>Ext. Zone A Tool CWI</td>
</tr>
<tr>
<td>Ext. Zone B Tool</td>
<td>n/p</td>
<td>Ext. Zone B Tech. n/p</td>
</tr>
<tr>
<td>Ext. Zone B Motif</td>
<td>n/p</td>
<td>Ext. Zone C Tool n/p</td>
</tr>
<tr>
<td>Ext. Zone C Tech.</td>
<td>n/p</td>
<td>Ext. Zone C Motif n/p</td>
</tr>
<tr>
<td>Ext. Shoulder Tool</td>
<td>n/p</td>
<td>Ext. Shoulder Tech. n/p</td>
</tr>
<tr>
<td>Ext. Shoulder Motif</td>
<td>n/p</td>
<td>Ext. Body Tool n/p</td>
</tr>
<tr>
<td>Ext. Body Tech.</td>
<td>n/p</td>
<td>Ext. Body Motif n/p</td>
</tr>
</tbody>
</table>

---

Figure 80: AgHn-12 (East Locus) Vessel 1: Exterior of rim, neck, and shoulder

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Figure 81: AgHn-12 (East Locus) Vessel 1: Interior of Rim, Neck, and Shoulder

Figure 82: AgHn-12 (East Locus) Vessel 1: Lip
Figure 83: AgHn-12 (East Locus) Vessel 1: Top - Close Up of Exterior Decoration; Bottom - Interior Vessel Decoration.

Figure 84: AgHn-12 (East Locus) Vessel 1: Body/Basal sherd Exterior
Figure 85: AgHn-12 (East Locus) Vessel 1 Body and Basal Sherds: Top - Exterior, Bottom - Interior
### Vessel 2 – Feature 5  

**Table 51: AgHn-12 (East Locus) Vessel 2 Attributes**

<table>
<thead>
<tr>
<th>Cat #(s)</th>
<th>Nature of Specimen</th>
<th>Construction Technique</th>
<th>Nature of Specimen</th>
<th>Construction Technique</th>
</tr>
</thead>
<tbody>
<tr>
<td>Temper</td>
<td>Fine Grit (Sand?)</td>
<td>Paddle and Anvil</td>
<td>Neck and Body Sherds</td>
<td></td>
</tr>
<tr>
<td>Exterior Surface</td>
<td>Neck - Smooth Body - Cord</td>
<td>Smooth</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Texture</td>
<td>roughened</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Thickness (mm)</td>
<td>5-7.5</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Interior Design</td>
<td>n/p</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Tool</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Interior Design</td>
<td>n/p</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Motif</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Exterior Zone A</td>
<td>n/p</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Technique</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Tool</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Exterior Zone B</td>
<td>n/p</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Motif</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Tool</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Exterior Zone C</td>
<td>n/p</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Technique</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Tool</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Exterior Neck A</td>
<td>CWI (S Twist)</td>
<td>Stamped (parallel)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Tool</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Exterior Neck A</td>
<td>Linear Horiz. Continuous At least 2 bands</td>
<td>Linear Instrument</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Motif</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Exterior Neck B</td>
<td>Incised</td>
<td></td>
<td>L/R Obliques, forming repeating triangles</td>
<td></td>
</tr>
<tr>
<td>Technique</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Tool</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Exterior Shoulder</td>
<td>CWI (S twist)</td>
<td>Stamped (parallel)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Tool</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Exterior Shoulder</td>
<td>Linear Horiz. Continuous At least 4 repeating bands</td>
<td>Exterior Body Tool</td>
<td>n/p</td>
<td></td>
</tr>
<tr>
<td>Motif</td>
<td></td>
<td></td>
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<td>Technique</td>
<td></td>
<td></td>
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</tr>
<tr>
<td>Exterior Body</td>
<td>n/p</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Tool</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Exterior Body</td>
<td>n/p</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Motif</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Technique</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Figure 86: AgHn-12 (East Locus) Vessel 2: Exterior Decoration Close Up**

246
Figure 87: AgHn-12 (East Locus) Vessel 2: Exterior Neck and Body Sherds

Figure 88: AgHn-12 (East Locus) Vessel 2: Interior Neck and Body Sherds
Table 52: AgHn-12 (East Locus) Vessel 3 Attributes

<table>
<thead>
<tr>
<th>Cat #(s)</th>
<th>Nature of Specimen</th>
<th>Construction Tech.</th>
<th>Rim, Neck, body and Basal Sherds</th>
</tr>
</thead>
<tbody>
<tr>
<td>386, 387, 394, 400, 401, 402, 406, 407, 414, 419</td>
<td>Coarse to Fine Grit</td>
<td>Smooth, smoothed over Cord on basal</td>
<td>Paddle and Anvil</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Ext. Surface Texture</th>
<th>Int. Surface Texture</th>
<th>Rim Orientation</th>
<th>Collar Development</th>
</tr>
</thead>
<tbody>
<tr>
<td>Smooth, smoothed over Cord on basal</td>
<td>Smooth</td>
<td>Out flaring</td>
<td>poor</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Rim Form</th>
<th>Castellation</th>
<th>Int. Rim Profile</th>
<th>Ext. Rim Profile</th>
<th>Rim Orifice Diameter at Lip</th>
<th>Lip Th.(mm)</th>
<th>Lip Tool Tech.</th>
<th>Lip Tool</th>
</tr>
</thead>
<tbody>
<tr>
<td>Incipient collar</td>
<td>n/p</td>
<td>Convex</td>
<td>Ext. Rim Profile</td>
<td>*9cm</td>
<td>7.23</td>
<td>flat</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Ext. Surface Texture</th>
<th>Int. Surface Texture</th>
<th>Ext. Rim Profile</th>
<th>Collar Development</th>
</tr>
</thead>
<tbody>
<tr>
<td>Smooth</td>
<td>Smooth</td>
<td>Concave</td>
<td>poor</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Ext. Rim Profile</th>
<th>Ext. Orifice Diameter at Lip</th>
<th>Lip Th.(mm)</th>
<th>Lip Tool Tech.</th>
<th>Lip Tool</th>
</tr>
</thead>
<tbody>
<tr>
<td>Convex</td>
<td>*9cm</td>
<td>7.23</td>
<td>Stamp (parallel?)</td>
<td>flat</td>
</tr>
</tbody>
</table>

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<thead>
<tr>
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<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Linear R. Oblique</td>
<td>n/p</td>
<td>n/p</td>
<td>plain</td>
<td>plain</td>
<td></td>
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<table>
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<tr>
<th></th>
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<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>n/p</td>
<td>n/p</td>
<td>Ext. Zone A Tool</td>
<td>Ext. Zone A Tech.</td>
<td>Ext. Zone A Motif</td>
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</tbody>
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|------------------|------------------|------------------|

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<td>plain</td>
<td>Ext. Zone B Tool</td>
<td>Ext. Zone C Tool</td>
<td>Ext. Zone C Tool</td>
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</tbody>
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<thead>
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</tr>
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<tbody>
<tr>
<td>plain</td>
<td>Ext. Zone C Tech.</td>
<td>Ext. Zone C Motif</td>
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|------------------|------------------|------------------|

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<thead>
<tr>
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</tr>
</thead>
<tbody>
<tr>
<td>Punctate Dash</td>
<td>Linear instrument</td>
<td>Incised</td>
<td>Linear instrument</td>
</tr>
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<thead>
<tr>
<th></th>
<th></th>
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</thead>
<tbody>
<tr>
<td>Incised</td>
<td>Linear instrument</td>
<td>Horizontal (Obscured)</td>
</tr>
</tbody>
</table>

Figure 89: AgHn-12 (East Locus) Vessel 3: Exterior Rim, Neck, Body and Basal Sherds
Figure 90: AgHn-12 (East Locus) Vessel 3: Interior Rim, Neck, Body and Basal Sherds
## Vessel 4 – Feature 5

**Table 53: AgHn-12 (East Locus) Vessel 4 Attributes**

<table>
<thead>
<tr>
<th>Cat #(s)</th>
<th>Nature of Specimen</th>
<th>Temper</th>
<th>Construction Tech.</th>
</tr>
</thead>
<tbody>
<tr>
<td>385, 391, 394, 426, 419</td>
<td>Rim, Neck, body</td>
<td>Fine Grit</td>
<td>Paddle and Anvil</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Ext. Surface Texture</th>
<th>Int. Surface Texture</th>
</tr>
</thead>
<tbody>
<tr>
<td>Smoothed over cord malleated</td>
<td>Smooth</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Rim Form</th>
<th>Rim Orientation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Poorly Developed</td>
<td>Out flaring</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Castellation</th>
<th>Ext. Rim Profile</th>
</tr>
</thead>
<tbody>
<tr>
<td>n/p</td>
<td>Concave</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Int. Rim Profile</th>
<th>Ext. Rim Profile</th>
</tr>
</thead>
<tbody>
<tr>
<td>Convex</td>
<td>Concave</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Collar Development</th>
<th>Lip Form</th>
</tr>
</thead>
<tbody>
<tr>
<td>Poor</td>
<td>flat</td>
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<table>
<thead>
<tr>
<th>Lip Th.(mm)</th>
<th>Lip Tool</th>
</tr>
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<tbody>
<tr>
<td>7.35</td>
<td>CWI (s twist)</td>
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<table>
<thead>
<tr>
<th>Lip Motif</th>
<th>Lip Tool Tech.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Linear R. Obliques</td>
<td>Stamp (Parallel)</td>
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<table>
<thead>
<tr>
<th>Int. Design Tool</th>
<th>Int. Design tech.</th>
</tr>
</thead>
<tbody>
<tr>
<td>CWI</td>
<td>Stamp (oblique)</td>
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</table>

<table>
<thead>
<tr>
<th></th>
<th></th>
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</thead>
<tbody>
<tr>
<td>n/p</td>
<td>Stamp (Parallel)</td>
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<table>
<thead>
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<th>Ext. Zone B Tool</th>
<th>Ext. Zone B Tech.</th>
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<td>n/p</td>
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<thead>
<tr>
<th></th>
<th></th>
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</thead>
<tbody>
<tr>
<td>CWI (S Twist)</td>
<td>Stamp (Oblique)</td>
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<table>
<thead>
<tr>
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</thead>
<tbody>
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<tr>
<td>n/p</td>
<td>n/p</td>
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<table>
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<th>Ext. Shoulder Tool</th>
<th>Ext. Shoulder Tech.</th>
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<td>n/p</td>
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<table>
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<th>Ext. Shoulder Motif</th>
<th>Ext. Body Tool</th>
</tr>
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<td>n/p</td>
<td>n/p</td>
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<table>
<thead>
<tr>
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</tr>
</thead>
<tbody>
<tr>
<td>n/p</td>
<td>n/p</td>
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**Figure 91:** AgHn-12 (East Locus) Vessel 4: Right - Exterior Rim, Neck, and Body sherds; Left - Interior Rim, Neck and Body sherds

**Figure 92:** AgHn-12 (East Locus) Vessel 4: Lip Decoration
Figure 93 - AgHn-12 (East Locus) Vessel 4: Top - Exterior Decoration Close up; Bottom - Interior Decoration Close up
Vessel 5 – Feature 8

Table 54: AgHn-12 (East Locus) Vessel 5 Attributes

<table>
<thead>
<tr>
<th>Cat #(#s)</th>
<th>Nature of Specimen</th>
<th>Rim, Neck, Shoulder and body sherds</th>
</tr>
</thead>
<tbody>
<tr>
<td>~299-310</td>
<td>Fine Grit Construction Tech.</td>
<td>Paddle and Anvil</td>
</tr>
<tr>
<td></td>
<td>Smooth and Cord malleated</td>
<td>Int. Surface Texture Smooth</td>
</tr>
<tr>
<td>Castellation</td>
<td>Poorly Developed</td>
<td>Rim Orientation slight Outflaring</td>
</tr>
<tr>
<td>n/p</td>
<td>Ext. Rim Profile Convex</td>
<td></td>
</tr>
<tr>
<td>Int. Rim Profile</td>
<td>Straight</td>
<td>Rim Orifice Diameter at Lip too fragmentary</td>
</tr>
<tr>
<td>Collar Development</td>
<td>poor</td>
<td>Lip Form Pointed</td>
</tr>
<tr>
<td>Lip Th.(mm)</td>
<td>6.82</td>
<td>Lip Tool CWI?</td>
</tr>
<tr>
<td>Int. Design Tool</td>
<td>CWI (s twist)</td>
<td>Lip Tool Tech. Stamp (Parallel)</td>
</tr>
<tr>
<td>Int. Design motif</td>
<td>Linear R. Obliques</td>
<td>Int. Design tech. Stamp (Parallel)</td>
</tr>
<tr>
<td>Ext. Zone A Tool</td>
<td>Ext. Zone A Tool CWI (s twist)</td>
<td>Ext. Zone A Tool CWI (s twist)</td>
</tr>
<tr>
<td>Ext. Zone B Tool</td>
<td>Stamp (Parallel)</td>
<td>Ext. Zone A Motif Linear R. Oblique</td>
</tr>
<tr>
<td>Ext. Zone B Motif</td>
<td>n/p</td>
<td>Ext. Zone B Tech. n/p</td>
</tr>
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<td>Ext. Zone C Tool</td>
<td>n/p</td>
<td>Ext. Zone C Tool n/p</td>
</tr>
<tr>
<td>Ext. Zone C Motif</td>
<td>n/p</td>
<td>Ext. Zone C Motif n/p</td>
</tr>
<tr>
<td>Ext. Shoulder Tool</td>
<td>Plain Ext. Shoulder Tech. Plain</td>
<td></td>
</tr>
<tr>
<td>Ext. Shoulder Motif</td>
<td>Plain Ext. Body Tool n/p</td>
<td></td>
</tr>
<tr>
<td>Ext. Body Tech.</td>
<td>n/p Ext. Body Motif n/p</td>
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Figure 94: AgHn-12 (East Locus) Vessel 5: Exterior
Figure 95: AgHn-12 (East Locus) Vessel 5: Exterior Decoration Close-up

Figure 96: AgHn-12 (East Locus) Vessel 5: Interior
### Table 55: AgHn-12 (East Locus) Vessel 6 Attributes

<table>
<thead>
<tr>
<th>Cat #(#s)</th>
<th>Nature of Specimen</th>
<th>Rim, Neck, Shoulder and body sherds</th>
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<tbody>
<tr>
<td>318-337</td>
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<td>Rim, Neck, Shoulder and body sherds</td>
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<table>
<thead>
<tr>
<th>Feature</th>
<th>Nature of Specimen</th>
<th>Rim, Neck, Shoulder and body sherds</th>
</tr>
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<tr>
<td>10</td>
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<td>Rim, Neck, Shoulder and body sherds</td>
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<table>
<thead>
<tr>
<th>Ext. Surface Texture</th>
<th>Nature of Specimen</th>
<th>Rim, Neck, Shoulder and body sherds</th>
</tr>
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<tbody>
<tr>
<td>Slip roughened</td>
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<td>Smooth</td>
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<table>
<thead>
<tr>
<th>Ext. Rim Profile</th>
<th>Nature of Specimen</th>
<th>Rim, Neck, Shoulder and body sherds</th>
</tr>
</thead>
<tbody>
<tr>
<td>Concave</td>
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<td>Smooth</td>
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</table>

<table>
<thead>
<tr>
<th>Rim Form</th>
<th>Nature of Specimen</th>
<th>Rim, Neck, Shoulder and body sherds</th>
</tr>
</thead>
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<tr>
<td>Collarless</td>
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<td>Smooth</td>
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</table>

<table>
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<th>Castellation</th>
<th>Nature of Specimen</th>
<th>Rim, Neck, Shoulder and body sherds</th>
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<td>Rounded</td>
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<th>Ext. Neck A Tool</th>
<th>Nature of Specimen</th>
<th>Rim, Neck, Shoulder and body sherds</th>
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<td>Plain</td>
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<td>Smooth</td>
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<th>Ext. Neck B Tool</th>
<th>Nature of Specimen</th>
<th>Rim, Neck, Shoulder and body sherds</th>
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<td>Plain</td>
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<td>Smooth</td>
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<table>
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<th>Ext. Shoulder Tool</th>
<th>Nature of Specimen</th>
<th>Rim, Neck, Shoulder and body sherds</th>
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<td>Plain</td>
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<td>Smooth</td>
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<table>
<thead>
<tr>
<th>Ext. Body Tool</th>
<th>Nature of Specimen</th>
<th>Rim, Neck, Shoulder and body sherds</th>
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<table>
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<th>Collar Development</th>
<th>Nature of Specimen</th>
<th>Rim, Neck, Shoulder and body sherds</th>
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<td>Poor</td>
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<td>Smooth</td>
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</table>

<table>
<thead>
<tr>
<th>Lip Th.(mm)</th>
<th>Nature of Specimen</th>
<th>Rim, Neck, Shoulder and body sherds</th>
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<td>9.05</td>
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<th>Nature of Specimen</th>
<th>Rim, Neck, Shoulder and body sherds</th>
</tr>
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<tr>
<td>Linear Straight Tool</td>
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<td>Smooth</td>
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<th>Ext. Zone A Tool</th>
<th>Nature of Specimen</th>
<th>Rim, Neck, Shoulder and body sherds</th>
</tr>
</thead>
<tbody>
<tr>
<td>Linear R. Oblique</td>
<td></td>
<td>Smooth</td>
</tr>
</tbody>
</table>

<table>
<thead>
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<th>Ext. Zone C Tool</th>
<th>Nature of Specimen</th>
<th>Rim, Neck, Shoulder and body sherds</th>
</tr>
</thead>
<tbody>
<tr>
<td>Linear Straight Tool</td>
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<td>Smooth</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Ext. Zone B Tool</th>
<th>Nature of Specimen</th>
<th>Rim, Neck, Shoulder and body sherds</th>
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</thead>
<tbody>
<tr>
<td>Linear Horizontal (5 Bands)</td>
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<td>Smooth</td>
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</table>

<table>
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<th>Nature of Specimen</th>
<th>Rim, Neck, Shoulder and body sherds</th>
</tr>
</thead>
<tbody>
<tr>
<td>Linear R. Oblique</td>
<td></td>
<td>Smooth</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Ext. Zone B Motif</th>
<th>Nature of Specimen</th>
<th>Rim, Neck, Shoulder and body sherds</th>
</tr>
</thead>
<tbody>
<tr>
<td>Linear Straight Tool</td>
<td></td>
<td>Smooth</td>
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</tbody>
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<table>
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<th>Rim, Neck, Shoulder and body sherds</th>
</tr>
</thead>
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<tr>
<td>Linear R. Oblique</td>
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<td>Smooth</td>
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<th>Ext. Shoulder Tool</th>
<th>Nature of Specimen</th>
<th>Rim, Neck, Shoulder and body sherds</th>
</tr>
</thead>
<tbody>
<tr>
<td>Linear R. Oblique</td>
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<td>Smooth</td>
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</tbody>
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<thead>
<tr>
<th>Ext. Shoulder Motif</th>
<th>Nature of Specimen</th>
<th>Rim, Neck, Shoulder and body sherds</th>
</tr>
</thead>
<tbody>
<tr>
<td>Linear R. Oblique</td>
<td></td>
<td>Smooth</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Ext. Body Tool</th>
<th>Nature of Specimen</th>
<th>Rim, Neck, Shoulder and body sherds</th>
</tr>
</thead>
<tbody>
<tr>
<td>n/p</td>
<td></td>
<td>Smooth</td>
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</tbody>
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<table>
<thead>
<tr>
<th>Ext. Body Motif</th>
<th>Nature of Specimen</th>
<th>Rim, Neck, Shoulder and body sherds</th>
</tr>
</thead>
<tbody>
<tr>
<td>n/p</td>
<td></td>
<td>Smooth</td>
</tr>
</tbody>
</table>

*Figure 97: AgHn-12 (East Locus) Vessel 6: Right - Exterior, Left - Vessel Interior.*
### Vessel 7 – Feature 10 and 11

**Table 56: AgHn-12 (East Locus) Vessel 7 Attributes**

<table>
<thead>
<tr>
<th>Cat #(s)</th>
<th>Nature of Specimen</th>
<th>Rim and Neck</th>
</tr>
</thead>
<tbody>
<tr>
<td>332-335, 345, 361.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Temper</th>
<th>Construction Tech.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fine Grit</td>
<td>Paddle and Anvil</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Ext. Surface Texture</th>
<th>Int. Surface Texture</th>
<th>Smooth</th>
<th>smooth</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Rim Form</th>
<th>Rim Orientation</th>
<th>out flaring</th>
</tr>
</thead>
<tbody>
<tr>
<td>Everted Collar?</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Castellation</th>
<th>Ext. Rim Profile</th>
</tr>
</thead>
<tbody>
<tr>
<td>n/p</td>
<td>concave</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Int. Rim Profile</th>
<th>Rim Orifice Diameter at Lip</th>
</tr>
</thead>
<tbody>
<tr>
<td>convex</td>
<td>9cm</td>
</tr>
</tbody>
</table>

| Collar Development  | Lip Form                |
| Poor                | flat                     |

| Lip Th.(mm)         | Lip Tool                |
| 12.63               | CWI (s twist)           |

| Lip Motif           | Ext. Rim Profile Tech.  |
| Linear Vertical     | Stamp (Parallel)        |

| Int. Design Tool    | Int. Design tech.       |
| CWI (s twist)       | Stamp (Oblique); Possibly also drag stamped |

| Int. Design motif   | Ext. Zone A Tool        |
| Linear R. Obliques  | Curvilinear Curved tool |

| Ext. Zone A Tech.   | Ext. Zone A Motif       |
| Incised             | Linear R. Oblique       |

| Ext. Zone B Tool    | Ext. Zone B Tech.       |
| CWI (s twist)       | Stamped (Oblique)       |

| Ext. Zone B Motif   | Ext. Zone C Tool        |
| R. Linear Obliques  | plain                   |

| Ext. Zone C Tech.   | Ext. Zone C Motif       |
| plain               | Plain                   |

| CWI (S Twist)       | Stamp (Oblique)         |

| Linear R. Oblique   | Linear Instrument - Straight |

| Incised             | Superimposed linear Obliques - Triangles? |

| Ext. Shoulder Tool  | Ext. Shoulder Tech.     |
| n/p                 | n/p                     |

| Ext. Shoulder Motif | Ext. Body Tool          |
| n/p                 | n/p                     |

| n/p                 | n/p                     |

---

**Figure 98: AgHn-12 (East Locus) Vessel 7: Top - Exterior Decoration Close up; Bottom - Interior Decoration Close up**

**Figure 99: AgHn-12 (East Locus) Vessel 7: Lip**
Figure 100: AgHn-12 (East Locus) Vessel 7: Top - Vessel Exterior; Bottom - Vessel Interior

Figure 101: AgHn-12 (East Locus) Vessel 7: Interior
Vessel 8 – Feature 10 and 11

Table 57: AgHn-12 (East Locus) Vessel 8 Attributes

<table>
<thead>
<tr>
<th>Cat #(s)</th>
<th>Nature of Specimen</th>
<th>Neck and Body Sherds</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cat #(s)</td>
<td>Nature of Specimen</td>
<td>Neck and Body Sherds</td>
</tr>
<tr>
<td>Temper</td>
<td>Fine Grit</td>
<td>Paddle and Anvil</td>
</tr>
<tr>
<td>Ext. Surface Texture</td>
<td>Neck - Smooth; Body- Cord roughened</td>
<td>Int. Surface Texture</td>
</tr>
<tr>
<td>Ext. Zone C Tool</td>
<td>CW1</td>
<td>Ext. Zone C Tech.</td>
</tr>
<tr>
<td>Ext. Zone C Motif</td>
<td>Linear R. Oblique</td>
<td>Ext. Neck A Tool</td>
</tr>
<tr>
<td>Ext. Neck B Motif</td>
<td>Superimposed linear - Diamonds</td>
<td>Ext. Shoulder Tool</td>
</tr>
<tr>
<td>Ext. Shoulder Tech.</td>
<td>n/p</td>
<td>Ext. Shoulder Motif</td>
</tr>
<tr>
<td>Ext. Body Tech.</td>
<td>n/p</td>
<td>Ext. Body Tech.</td>
</tr>
<tr>
<td>Ext. Body Motif</td>
<td>n/p</td>
<td></td>
</tr>
</tbody>
</table>

Figure 102: AgHn-12 (East Locus) Vessel 8: Right - Vessel Exterior; Left - Vessel Interior.
Figure 103: AgHn-12 (East Locus) Vessel 8 Close-Up
Vessel 9 – Feature 11

Table 58: AgHn-12(East Locus) Vessel 9 Attributes

<table>
<thead>
<tr>
<th></th>
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<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>346</td>
<td>11cm</td>
<td>Rim</td>
<td>Fine Grit</td>
<td>Paddle and Anvil</td>
<td>Vertical Cord marking?</td>
<td>Smooth</td>
<td>Low Collar</td>
<td>Outflaring</td>
<td>N/p</td>
<td>Concave</td>
<td>straight</td>
<td>Stamp (Oblique?)</td>
<td>n/p</td>
<td>n/p</td>
<td>n/p</td>
<td>n/p</td>
<td>n/p</td>
<td>n/p</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Poor</td>
<td>Flat</td>
<td>8.5</td>
<td>Lip Tool</td>
<td>Linear Vertical</td>
<td>Straight Linear Tool</td>
<td>Trailed</td>
<td>Linear L. Oblique</td>
<td>Linear Horizontal. Possibly just a surface Treatment</td>
<td>Linear Horizontal. Possibly just a surface Treatment</td>
<td>Linear Horizontal. Possibly just a surface Treatment</td>
<td>Lip Tool Tech.</td>
<td>Ext. Zone A Tool</td>
<td>Ext. Zone B Tool</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Figure 104: AgHn-12 (East Locus) Vessel 9: Upper Left - Vessel Exterior; Upper Right - Vessel Interior; Bottom - Vessel Lip.
Figure 105: AgHn-12 (East Locus) Vessel 9 Close up: Top – Exterior, Bottom - Interior
Table 59: AgHn-12 (East Locus) Vessel 10 Attributes

<table>
<thead>
<tr>
<th>Cat #(s)</th>
<th>Nature of Specimen</th>
<th>Rim Orifice Diameter at Lip</th>
</tr>
</thead>
<tbody>
<tr>
<td>359</td>
<td>Rim</td>
<td>19-20 cm?</td>
</tr>
<tr>
<td>Temper</td>
<td>Coarse Grit</td>
<td></td>
</tr>
<tr>
<td>Ext. Surface Texture</td>
<td>Cord Marked?</td>
<td></td>
</tr>
<tr>
<td>Rim Form</td>
<td>Everted Collar?</td>
<td></td>
</tr>
<tr>
<td>Castellation</td>
<td>n/p</td>
<td></td>
</tr>
<tr>
<td>Int. Rim Profile</td>
<td>Straight</td>
<td></td>
</tr>
<tr>
<td>Collar Development</td>
<td>Well</td>
<td></td>
</tr>
<tr>
<td>Lip Th.(mm)</td>
<td>18.05</td>
<td></td>
</tr>
<tr>
<td>Lip Motif</td>
<td>R. Linear Obliques</td>
<td></td>
</tr>
<tr>
<td>Int. Design Tool</td>
<td>CWI (s twist)</td>
<td></td>
</tr>
<tr>
<td>Int. Design motif</td>
<td>Linear Vertical</td>
<td></td>
</tr>
<tr>
<td>Ext. Zone A Tool</td>
<td>Stamp (Oblique)</td>
<td>Ext. Zone A Motif</td>
</tr>
<tr>
<td>Ext. Zone B Tool</td>
<td>n/p</td>
<td>Ext. Zone B Tech.</td>
</tr>
<tr>
<td>Ext. Zone B Motif</td>
<td>n/p</td>
<td>Ext. Zone C Tool</td>
</tr>
<tr>
<td>Ext. Zone C Tech.</td>
<td>n/p</td>
<td>Ext. Zone C Motif</td>
</tr>
<tr>
<td>Ext. Shoulder Tool</td>
<td>n/p</td>
<td>Ext. Shoulder Tech.</td>
</tr>
<tr>
<td>Ext. Shoulder Motif</td>
<td>n/p</td>
<td>Ext. Body Tool</td>
</tr>
<tr>
<td>Ext. Body Tech.</td>
<td>n/p</td>
<td>Ext. Body Motif</td>
</tr>
</tbody>
</table>


Figure 106: AgHn-12 (East Locus) Vessel 10: Top - Vessel Lip; Bottom Left - Vessel Exterior; Bottom Right - Vessel Interior
<table>
<thead>
<tr>
<th>Vessel</th>
<th>Ext. Colouration</th>
<th>Int. Colouration</th>
<th>Core Coloration</th>
<th>Attrition</th>
<th>Residues/Carbonization</th>
<th>Water Permeability</th>
</tr>
</thead>
<tbody>
<tr>
<td>2</td>
<td>Brown to Tan</td>
<td>Neck: Black to Dark Grey; Body: Dark Grey</td>
<td>Black, some Grey. Thin exterior margin</td>
<td>N/P</td>
<td>Ext.: Sooting at Neck, possible oxidation on Body.; Int.: Encrustations and Carbonization on Neck.</td>
<td>Poor. Minor absorption beyond 10 Minutes</td>
</tr>
<tr>
<td>3</td>
<td>Light Brown</td>
<td>Black; Upper 5 mm section same as ext.</td>
<td>Black</td>
<td>N/P</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>Dark Brown, with occasional grey to light brown patch. Transitions to light brown at the body</td>
<td>Dark Brown at upper Rim; Transitions to deep glossy black</td>
<td>Grey, minimal margins</td>
<td>Ext.: Sooting on Rim and Neck; Encrustation on rim.; Int.: encrustations on body.</td>
<td>Poor. Minor absorption beyond 10 Minutes</td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>Brown</td>
<td>Grey, transitioning to dark grey-black at body. Some Brown patches</td>
<td>Black, minimal margins</td>
<td>Ext: Thin linear scratches at neck; Abrasion on Body.; Int: Faint linear scratches at body.</td>
<td>Ext: Neck - Soot patches. Body - Soot patches; also, grey patches representative of oxidation.</td>
<td>Lighter sections at neck ~6 Minutes; Darker Neck and Body sherds ~ 8 - 10 minutes.</td>
</tr>
<tr>
<td>6</td>
<td>Orange-Brown, transitions to tan at body.</td>
<td>Orange-Brown</td>
<td>Grey, minimal margins</td>
<td>Possible spalling</td>
<td>Minor Carbonization at Vessel's Interior.</td>
<td>Generally Poor ~4-5 Minutes</td>
</tr>
<tr>
<td></td>
<td>Grey-Brown, transitions to Orange-brown</td>
<td>Tan at Rim, transitions to grey</td>
<td>grey with wide ext. margin</td>
<td>Ext.: Faint Linear Scratches at neck; Int.: Faint Linear Scratches</td>
<td>Ext.: Some sooting at neck. Int.: Faint interior encrustations at neck curvature.</td>
<td>Poor. Minor absorption beyond 10 Minutes</td>
</tr>
<tr>
<td>---</td>
<td>--------------------------------------</td>
<td>--------------------------------</td>
<td>---------------------------</td>
<td>-----------------------------------------------------------------</td>
<td>------------------------------------------------------------------------------------------------</td>
<td>------------------------------------------</td>
</tr>
<tr>
<td>7</td>
<td>Orange, some light brown</td>
<td>dark grey to black</td>
<td>brown to grey</td>
<td>N/P - obscured by lichen/moss</td>
<td>Sooting on neck and body; Int. Carbonization: Lower neck and body.</td>
<td>Poor. Minor absorption beyond 10 Minutes</td>
</tr>
<tr>
<td>8</td>
<td>light brown to grey</td>
<td>Deep glossy Black</td>
<td>grey</td>
<td>N/P</td>
<td>Ext.: Soot patch on neck. Int: dark brown/reddish encrustations</td>
<td>Poor. Minor absorption beyond 10 Minutes</td>
</tr>
<tr>
<td>9</td>
<td>Brown to Dark Brown</td>
<td>Brown</td>
<td>Grey-brown</td>
<td>N/P</td>
<td>N/P</td>
<td>Moderate ~ 5-minute absorption</td>
</tr>
<tr>
<td>10</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
# Curriculum Vitae

**Name:** Matthew Severn  
**Post-secondary Education and Degrees:** York University, Toronto, Ontario, Canada  
2008-2012 Hons. B.A. Anthropology  
**Honours and Awards:** Western Graduate Research Award Funding (GRAF)  
2021-2022  
**Related Work Experience**  
Archaeology Specialist (R1093)  
Timmins Martelle Heritage Consultants  
London Ontario  
2022 – Present  
Licensed (R1093) Full-Time Archaeological Field Supervisor  
Timmins Martelle Heritage Consultants  
London Ontario  
2016 – 2022  
Licensed (R1093) Archaeological Field Technician  
D.R. Poulton and Associates  
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2015 – 2016  
Licensed (R1093) Archaeological Field Technician  
Golder Associates  
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