25-Archaeological Investigations of 200K476: A Late Eighteenth Century Native American Site on Apple Island, Oakland County, Michigan

David S. Brose

Western Michigan University, david_brose@sbcglobal.net

Follow this and additional works at: https://scholarworks.wmich.edu/archaeological_reports

Part of the Archaeological Anthropology Commons

Report Number: 25

WMU ScholarWorks Citation


This Report is brought to you for free and open access by the Intercultural and Anthropological Studies at ScholarWorks at WMU. It has been accepted for inclusion in Archaeological Reports by an authorized administrator of ScholarWorks at WMU. For more information, please contact wmu-scholarworks@wmich.edu.
Archaeological Investigations of 20OK476:
A Late Eighteenth Century Native American Site on Apple Island

Oakland County

Michigan

by

David S. Brose, Ph.D.

*Imprints from the Past, 24 (2) 1-28 + xvii*

June 2015

Archaeological Report # 25

Department of Anthropology

Western Michigan University

Kalamazoo, Michigan
Abstract

Archaeological investigations of Apple Island in Orchard Lake, Oakland County, Michigan, were casually begun in the early decades of the 20th century when the owners of the centrally located Campbell family, farm plowed up and then reinterred a Native American burial accompanied by a pewter bowl filled with white shell beads. 2000 and 2003 discontinuous shallow excavations conducted by local middle school students under the direction of Michael Stafford of the Cranbrook Institute of Science, yielded quantities of animal bone and a scattering of European trade goods. Stafford assigned these to a “Fur Trade” site but never fully reported on the site or its contents.

In 2008 excavations supported by the Greater West Bloomfield Historical Society and the University of Detroit - Mercy, were conducted by West Bloomfield School science teachers, directed by David S. Brosc. Careful stratigraphic and geomorphological analyses documented the extent of the 18th century occupation and revealed a sequence of prehistoric occupational events, overlain by up to 20 centimeters of colluvial soils overlaying the aboriginal occupation surfaces, below which intact sub-surface features such as fire-reddened hearth areas were preserved intact.

With additional support from the Greater West Bloomfield Historical Society, Imprints From The Past, LLC., and Western Michigan University, test excavations were conducted by Brose in 2013 along with detailed analyses of all recovered soils, faunal remains and artifacts. These studies demonstrate that the earliest scattered evidence for human occupation occurred during the Late Woodland Period, ca. AD 1000 - 1500. The major Native American occupation took place during the summer of 1763 by perhaps 3 sets of three or four related males. Statistical analyses of archaeological distributions along with historical documents strongly suggest that these were almost certainly a war party of Pottawatomi temporarily associated with Pontiac’s siege of Fort Detroit.
Table of Contents

Introduction 1

Background History 1

Previous Archaeological Investigations 3

Natural and Cultural Stratigraphy 7

Archaeology Recovered 11

Material Culture and Chronology 13

Interpretations 22

Conclusions 26

Maps and Illustrations Following page 28

Appendices

Appendix A: Recovered Artifacts and Environmental Remains

Appendix B: Table of Recovered Fauna and Fire-Cracked Rock

Appendix C: References Cited

Appendix D: Notes to the Manuscript

Appendix E: 2008 Archaeological Test Unit Descriptions
Introduction

The following report has been prepared for the Greater West Bloomfield Historical Society (GWBHS), Orchard Lake, Michigan, as the conclusion to a multi-year effort to understand the significance of known and potential historical archaeological resources still preserved on Apple Island. While scattered recovery of fragmented late prehistoric ceramics have been identified at several locations on the island, the significant archaeological resources represent the traces of an ephemeral mid-to late 18th century Native American occupation of a small area on the northwestern shore of the island (Stafford 2003; Brose 2008), as well as a possibly contemporary burial on an individual on the higher ground at the center of the island. However, the vast bulk of the significant archaeological resources recovered (and yet to be recovered) from the island represent a time-transgressive palimpsest of upper middle class Detroit merchant families who exploited the region and island first as a bucolic farm in which the role of a Scots Laird could be replicated, and subsequently as a caretaker-managed retreat heralding the aquatic summer vacation culture of the early 20th century in the upper midwest (Wurst 2014).

Historical Background

Aboriginal Politics in the Late Colonial Era
The end of the French and Indian War (1754-1761) and the subsequent occupation of the former French posts and forts led to a completely new inter-ethnic statuses for the American Indian occupants of the Great Lakes region and the British Colonial Ministry: a charged military and political relationship that continued through 1796 transfer of hegemony to the new American republic. The events of 1763-1764 surrounding what Parkman called *The Conspiracy of Pontiac*, defined
many of the political and military aspects of the expansion of the United States into the Territory Northwest of the River Ohio after the Revolution; a revolution which was in part occasioned by the Crown's imposition of taxes to pay for its military campaigns during those previous decades.

Since the mid-19th century American historians such as Theodore Roosevelt, Francis Parkman, and Howard Peckham, wrote in a romantic mode (White 1964; Fischer 1977) that stressed the significance of individual American Indian leaders of native revivals and the military resistances they usually inspired. Perhaps the most familiar, but least well delimited of those Native leaders is the Ottawa (Adawa) war chief, Pontiac. From the visions of the Delaware (Lenape) prophet, Nemacollin, Pontiac forged a broad coalition of Algonquian-speaking tribes. In his name, if not under his control, they rose against British occupation of the region from the western Great Lakes to the Upper Mississippi and eastern Ohio River Valleys.

Numerous journals, narratives and memoirs, some nearly contemporaneous with the events, have described Pontiac's siege of the Fort at Detroit as the logistical and psychological centerpiece of his military strategy. These accounts have been either presented in terms of simple military chronicle (e.g. Francis Jennings' footnotes in his history of the Iroquois Covenant Chain, or the journals of British Lieutenant Jenkins) or as personal dramatic "Tragedies" (one by the Queen's Ranger Major Robert Rodgers in 1769 and one by U. S. General Alexander Macomb in 1826) or as heroic visual art (e.g. the Fredrick Remington 1894 painting, "The Siege of Detroit"). Yet little is known about the composition, the equipment or the daily subsistence of the multi-ethnic war parties which actually conducted these military operations.
Recent scholarship (e.g. Ferris 2012) suggests that among more thoroughly acculturated late 17th century American Indian groups in New York and Ontario, the nature of ethnic identity was markedly affected by warfare. But in the absence of scientific archaeological investigation for this era and area, the nature of the social interactions among Pontiac's followers or allies have either been ignored or are assumed to be similar to those identified at other more well-studied but more homogeneous coeval sites (Fitting 1970; Brose 1978; Halsey [Editor] 1999) or drawn from less than coeval historical reports (Kinietz 1940; Greenman 1957; Cleland 1992).

Previous Investigations of Apple Island

Early Records and Digging

Some time in the early 20th century, in the field across from their house in the center of Apple Island, the Campbell family had unintentionally excavated and then reburied a skeleton accompanied by a small pewter bowl filled with "white beads." The beads may have been either "wampum" (drilled quahog shell) or glass, but they were disbursed without recording their material or style at the time. The bowl was donated to the Cranbrook Institute of Science.

In addition, there is a birch bark canoe in the collections of the Cranbrook Institute of Science that was said to have been found buried in Orchard Lake. The Cranbrook Institute’s collections also include several dugout canoes, most of which are from Canada but one of which was said to have come from Apple Island. In the GWBHS collections there is a dugout canoe which is not from the Orchard Lake region but which was donated by the Cranbrook Institute of Science (note 5).
The Greater West Bloomfield Historical Society brochure (GWBHS 2011) reports that the original 1817 land surveyor, Samuel Carpenter, Jr., remarked that 5 excellent and high acres on Apple Island had been cultivated by the Indians and that 20 or 30 apple trees were present. That brochure added, “In 1928 a daughter of Colin Campbell who purchased the island in 1856 recalled the following: “[On the island] are still to be seen ridges where corn was planted, and in several places on the higher land are circular hollows which were filled with shelled corn and all covered with bark to keep out the rain. This corn was still in the hollows when my father bought the island.”

Based on the donated pewter bowl at the Cranbrook Institute of Science, along with these and references in the Campbell family oral history compiled by Catherine Cangany suggesting that other Native American artifacts had been excavated at Apple Island in the early 20" century, and following discussion with Mr. Charles Martinez of the Oakland County Historical Society in the 1960s, the Michigan State Historic Preservation Office assigned the USNM designation 20OK52 to the entire island.

By the mid-twentieth century, after the abandonment of the island by the Campbells, the West Bloomfield School District was designated the owner and manager of Apple Island as a nature preserve. Annually, with Greater West Bloomfield Historical Society volunteer docents, school groups and visitors tour the island for a day. In the past, casual visitors occasionally collected historic artifacts as souvenirs. Some of these materials were donated to the Historical Society, as were various aboriginal artifacts including chipped stone points and decorated, albeit fragmented, prehistoric pottery rimsherds, none of which were
accompanied by information indicating where they had been obtained (Brose 2005: personal correspondence with Richard Brown).

As part of this project, in 2013 and 2014 all aboriginal materials in the collections of the Greater West Bloomfield Historical Society known or believed to have come from Apple Island were identified and analyzed. Among those formally excavated there were 38 half-filled five-pound paper bags with unsystematic materials from a 1990 survey along the northeastern shore of Orchard Lake, where the school supervisor noted, "We are digging due north along [the] lake until [we] hit Commerce Road across from St. Mary's Schools." Although in this area the 1817 survey had noted the presence of Indian housing (probably Hinsdale's 1933 Reservation Village"), the collection from the surface of the right-of-way of Indian Trail Road did not recover any evidence of their existence: The middle school students from the West Bloomfield School District, picked up and duly recorded numerous culturally unmodified pebbles, steel nuts, bolts, washers and machine screws of various sizes, shards of bottle glass, plastic container fragments and damaged automobile metalwork.

There was also a collection from areas to the south of Orchard Lake, along Old Pontiac Trail (also noted as an "Indian Trail" on the 1817 map). Among the artifacts collected from this area near where West Bloomfield School pontoon boats docked were several bent and folded pieces of cut sheet brass as well as two puddled lead fragments, perhaps from casting musket balls. There were also numerous common bricks and fragments of porcelain plumbing fixtures, clearly from the late 19th century if not more recent.
2000 and 2003 Archaeological Excavations at site 20OK476

In 2000 and 2003 Dr. Michael Stafford with Matthew Miller as field supervisor directed two differing groups of middle school students excavating portions of an area located near the northwestern side of the island, facing the narrow shoreline ridge across which lies Cass Lake, heading the Clinton River. The general location of the site on a broad sloping ridge, approximately 3.5m above the present level of Orchard Lake, was well known. On the general soils map of the island that Dr. Stafford identified this general region of the island as a "Fur Trade Settlement" which was designated archaeological site 20OK476 by the Michigan Historic Preservation Office⁴.

In 2005, at the request of Richard Brown, then President of the Greater West Bloomfield Historical Society, Dr. David Brose, Director of the Cranbrook Institute of Science, met with representatives of the Historical Society and the West Bloomfield School District, to discuss archaeological excavations which had taken place on Apple Island in 2000 and 2003 under the auspices of Dr. Michael Stafford, former Archaeologist and Director of Cranbrook Institute of Science. Because the Institute remained responsible for the excavated materials and for a final report on those excavations, in 2005 the excavated materials were obtained through Dr. Stafford, then Director of the Milwaukee Public Museum, however, I never did receive the documentation of the excavations (notes, maps, etc.) which was also requested of Dr. Stafford.

As the West Bloomfield School District which owned Apple Island and the Greater West Bloomfield Historical Society were interested in displaying and interpreting the island's history, a 2005 Memoranda of Agreement regarding appropriate archaeological responsibility in dealing with excavation, analysis, reporting and
Curation was prepared to cover a summer archaeology program on Apple Island for West Bloomfield School science teachers. With funding provided by a grant from the St. Francis Foundation of Michigan through the Greater West Bloomfield Historical Society, a Madonna University course linking inquiry-based middle school science teaching was offered as a summer 2008 class with archaeological testing on the previously explored site on Apple Island. On 8 September all archaeological, ecological, and geological materials recovered from Apple Island during the 4-8 August 2008 class were transmitted to the Greater West Bloomfield Historical Society and a technical report (Brose 2008) regarding the excavations and their exact locations and contents, as well as the results of analyses and the interpretation of geological/ecological, prehistoric and/or historical activities that occurred was prepared.

**Natural and Cultural Stratigraphy of the Site**

2008 and 2013 Archaeological Excavations at 20OK476

Although no maps indicating the precise spatial distributions of Stafford's excavation units or recovered cultural materials were available, the unit designations on Stafford's unit screening bags appeared to match a zone shown on an existing photograph showing a 1 meter wide trench crossing the site for a distance approximating 5 or 6 meters. During the summer of 2008 the Madonna field crew discovered a single iron pipe with a small survey flag at the southern approach to this landform. Based on the recollections of Dr. Thadeus Gish, a University of Detroit -Madonna College professor who had accompanied Stafford's students during the earlier dig, this was identified as the E500N00 Datum from which Stafford had laid out his excavation (location 10 on SKMBT Survey map).
During the limited 2008 and 2013 seasons, directed by David Brose for Madonna University and Western Michigan University, respectively, excavation units were chosen both to avoid digging in areas which appeared to have been the location of Stafford's 2003 trench and to avoid places where tree roots would have made clear stratigraphic interpretation impossible. Along the western margin of the site one 2008 excavation unit was placed in an area where partially fallen branches and upper trunk sections had protected the ground from previous disturbance and one 2013 excavation unit was placed at what appeared to be the northwestern edge of the ridge lying just southwest of the late nineteenth century "Water Road" cut. Soils on the site area are predominantly washed lenses of organically stained reddish brown and dark grayish-brown dry Spinks loamy sands overlying medium yellowish- brown Fox sandy loam (Agriculture Extension Service 1972).

All excavation units were excavated by shovel skimming from the existing ground surface (called Level 0) down to an arbitrary depth of 20cm at which depth shaving with a trowel edge carried the excavation down to the point where die greyish brown (Munsell 10YR4/2-4/3) organic staining of the podzolic soil A horizon in the loamy sands could be seen to change to a yellowish brown (10YR5/4) to light yellowish brown (10YR6/4) colored Bl horizon, still in loamy sands. Soil color value, chroma and hues throughout were described by comparison to the Munsell Soil Color Charts. The unit floor at that depth was called Level 1, and it was drawn onto a Floor Plan Form prepared by Imprints from the Past LLC Drawings and photographs noted any natural or cultural features or concentrations which were additionally described and recorded. All depths were measured from the Site Datum which was the ground surface level at the N100E00 stake.
After completing documentation of Floor 1 in each unit, the yellowish brown (10YR5/4) to light yellowish brown (10YR6/4) loamy sands were trowelled down until the floor encountered a dark yellowish brown (10YR 4/4 -4/6) sandy loam, representing the B2 soil horizon (seen as a new light colored somewhat coarser and more compact Fox Sandy Loam floor approximately 10 cm below the lower zone of humic staining). In Unit 08-01 a "prospecting window" 25 cm wide was dug down along the southern and eastern walls for an additional 25 cm in these sandy loams without encountering any changes in soil color, composition or structure. As Cremeens and Hart (1995:15) have stated, "Evaluation of individual soil horizons and sequences of soil horizons in archaeological studies is critical to the meaningful interpretation of archaeological context."

During the 2008 season, a field crew consisting of Middle School science teachers from the West Bloomfield School District, directed by Dr. David Brose, assisted by Drs Joseph Hoffman and Thaddeus Gish, excavated 4.5 square meters of the site. During the early summer of 2013, during the GWHBS Annual May Public Tour of the Island an additional 2.5 square meters of the site were excavated by Dr. Brose assisted by students from the Western Michigan University Anthropology Department as part of an historical archaeology reconnaissance and testing program conducted by Dr. LouAnn Wurst. In both of those years, the site was laid out so that its 2008 and 2013 data could be coordinated with the apparent site layout used by Dr. Stafford in 2000 and 2003. The 2008 site datum point was designated as N100 while all excavated units lay south of that point (see note 6).

In addition to the analyses of the European and aboriginal artifacts recovered in the 2000 excavation, preliminary inspection of Stafford's field screening bags from his 2003 work by Dr. Beverly Smith of the University of Michigan-Flint revealed
quantities of split and butchered animal bone, most appearing to represent deer, although Smith noted that canids, mustelids, rodents, large and small birds, some fish, amphibian or reptile bones, and quantities of turtle plastron and carapace were also present. Subsequent analyses of both the 2000 and 2003 years’ collections were undertaken by Dr. David Brose in 2012 and 2014. Amid the faunal remains Brose identified fragmentary core-trimming and bifacial retouch flakes of somewhat limey tan Dundee and grey Eastport chert, and several small smoothed cord-marked grit-tempered pottery sherds.

As well, these same levels had yielded more recent historic artifacts including late 19th or early 20th century overall buttons and portions of mid-20th century steel safety pins and fragments of blown, clear glass paper-topped milk bottles, cork-stoppered soda water bottles with twist-wire rim-strips, and dark brown 3-piece-molded panel medicine bottles. In addition, kaolin pipe stems and cast brass buttons were present. All of these materials were listed as having been recovered in the grayish-brown organically stained upper 20 cm of the site; there was apparently no documentation (nor was there any recollection during subsequent discussion with Matt Miller, Stafford's field supervisor) that excavation proceeded deeper.

At the Apple Island site 20 OK 476 excavation and back-filling strategies prior to 2008 appear to have dug through weakly formed colluvial surface soils and then terminated excavation at the surface of the strongly stained and relatively well-compacted paleosols formed on the Fox clay loams. Many of the American Indian and European-made trade artifacts recovered during the 2000 and 2003 excavations at Site 20OK476 had come from the upper, colluvial stratigraphic contexts in which historic 19th to 20th century artifacts were also incorporated.
Unfortunately, the detailed unit by unit associations of artifacts from such excavation contexts can never be certain since some degree of their spatial concentrations could reflect downs slope deposition as much as human deposition or discard. However, recent, albeit limited excavations, with careful stratigraphic control, have shown that it is possible to identify undisturbed stratigraphy in which aboriginal cultural features can be discerned.

Additionally, detailed morphological and stylistic identification provided temporal limits for many specific artifacts recovered from the earlier excavations. These factors offer a firmer interpretation of what the site represented in terms of its having been called part of a native village, a military outpost, a fur trade settlement or a trailside mid-voyage meal stop. Equally important, it is possible to ascertain within a few years when those potential events may have occurred.

**Archaeological Recovery**

**Non-Artifactual Evidence**

Fire-cracked rock and broken bone from white-tail deer represent the most common archaeologically recovered materials from Site 20OK476 (by count, weight and extent of spatial distribution) in the 2008 excavations and in the earlier excavations undertaken by Stafford's student crews. Unfortunately, the nature of site stratigraphic records for the earlier digging left it uncertain that the fire-cracked rook or animal bone was deposited on the site at a single time. With that possibility in mind, the 2013 excavations were designed to determine whether sealed features, such as fire-pits or storage pits occurred below the levels at which the 2000 and 2003 excavations were stopped.
However, reanalysis of previously recovered materials and bag counts identified significant unit to unit differences in the densities of fire-altered rock and faunal remains suggesting that the application of several nearest-neighbor statistical tests (c.f. Brose and Scarry 1972) reveals occupational spatial patterning from which socially significant clustering may be reconstructed. In addition, the careful attention to the morphological characteristics differentiating sequences of soil horizons in archaeological studies is critical to the meaningful interpretation of archaeological context.

It appears unlikely that radiocarbon dating of the animal bone could determine with any degree of acceptable statistical significance the difference between animals who lived in 1763 AD and animals who lived in AD 1856 when the Campbell farm was established. And while there was no time in the past 10,000 years during which cooking methods and/or the use of stone-boiling for sweat bathing did not take place among most Great Lakes native groups, there is no currently feasible method for determining the date of the thermal alterations to the heat-shattered granitic cobbles.

The initial interpretation, based on partial analyses of artifacts and fauna recovered in 2000 and 2003, referred to the site as an early 19th Century fur trading station (Stafford 2002, 2003). Later, a preliminary site assessment based on limited re-testing in 2008, identified distinct stratigraphic provenances and recovered aboriginal ceramic fragments along with early European glass beads, suggesting the possibility that the site had been occupied as early as the end of the 17th century (Brose 2008). However, limited geo-archaeological excavation in 2013 and detailed laboratory analyses of all recovered materials clearly reveal the existence of three non-conforming stratigraphic deposits. These distinct geomorphologic
deposits represent a stiff loamy sand glacial outwash whose upper 20 cm contained a discontinuous scatter of Late Woodland ceramic and lithic fragments related to the terminal prehistoric occupation of southeastern Michigan prior to incursions of Upper Mississippian groups relocated from northern Ohio (Fitting 1964, 1970; Brose 1978, 1996; Stothers and Abel 1991).

Overlying that loam, and occasionally intruding into it, a thick stratum of colluvial silt loam yielded a relatively large and broad spectrum faunal assemblage, a small hearth, small concentrations of fire-shattered and burned rock, and a few male-related European materials all of whose periods of popularity occurred in the later 18th Century. Finally, the western portions of the site area contained several informal deposits of broken window and bottle glass, shards of highly vitrified and burned creamware and rim fragments of transfer-printed plates; all dated to the late 19th and early 20th century resort housing on the island (Brose 1967; Jordan and Brose 1967; Wurst 2013).

**Material Culture and Chronology**

**Aboriginal Artifacts**

The small fragments of relatively thin grit-tempered and shell-tempered smoothed surface aboriginal ceramics recovered from the various excavations, and the very few chipped stone artifact sections, are all too small and fragmented to display the stylistic attributes useful for determining reliable chronological or ethnic assignment. While grit-tempered clay vessels of a thickness similar to those recovered at Apple Island were common throughout southern Michigan after the 7th century AD (Fitting 1964, 1975; Brose 1978; Mason 1980) the addition of crushed and burned clamshell to the clay used to build up the pots occurs in southwestern Michigan and southern Ohio in the 13th century but does not become
common in southeastern Michigan until the accelerating relocation of native populations from northern Ohio in the mid-17th century (Brose 1996, 2001; Brashler et al. 2000; Stothers and Abel 1999).

Also, while the few pieces of local Dundee chert deliberately flaked by prehistoric American Indians could have been left on the site at any time during the past 10,000 years, the fragment of a bifacial tool chipped of flint from north-central Ohio or southwestern Ontario is most likely to have been carried to the site on Apple Island as part of a widespread exchange system that swept across this region in the four or five centuries between 300 BC and 200 AD. Alternatively, this fragment may have been part of a tool used by some member of a group that was part of the rapid 17th century ethnic population relocation that resulted from indirect European pressures on aboriginal tribes farther east in New York and Ontario.

It is worth noting that even these small potsherds and chipped flint fragments certainly represent manufacture by American Indians well before the 18th century. By that time the Great Lakes tribes, especially those in Michigan, had completely abandoned their use of chipped stone tools and their manufacture of clay vessels for the muskets, iron knives, axes, and fish hooks, and copper brass or iron containers first brought into the region by unlicensed French and British traders in the mid-17th century (Brose 1978,1983). But while these fragmentary aboriginal artifacts suggest a date of occupation as recent as the early 17th century, all of the silver, iron and copper/brass European artifacts from Apple Island are of styles most commonly made for trade to the American Indians in the mid-18th century (see note 7).
European Artifacts

European artifacts such as those found at 20OK476 on Apple Island were represented by both French and British gunflints, iron tools and copper or brass containers and reworked scrap (Appendix A). Similar artifacts have been found at numerous contact period Native American sites from Manitoba to Georgia, and from Quebec to Louisiana; sites all unquestionably dated between 1750 AD and 1800 AD, subsequent to the hundred year period during which native manufactures also survived (see Anderson, 1992; 1994).

Glass Trade Beads

The most sensitive indicators of exactly when such sites were occupied at any period between 1575 AD and 1875 AD are the glass beads made in Venice or Amsterdam. When the pewter bowl-accompanied burial from the central portion of Apple Island was disturbed and reinterred in the early 20th century not one of the "hundreds" of beads reported to have been found therein was described in detail or saved for analysis. Fortunately during the 2013 excavations, one large light blue glass bead was recovered from a lens of wood ash and sand at the upper western edge of Feature 1 in the southeast half of Test Unit 13-01. The feature, a small pit lined with ash and charred cedar bark, originated at the interface of colluvial and undisturbed silt loam, also yielded a cut and polished beveled mammal bone "gaming piece".

This blue hot-tumbled glass bead is what Stone (1974), following Kidd and Kidd (1970), identified a Class 1, Series A, Type 1 variety n: a light blue, doughnut-shaped, single-structure, hollow-cane made seed bead. Such beads were commonly used by Dutch, French and British traders in North America from as early as 1670 through the end of the American Revolution, after which their popularity declined:
They were among the most frequent at the Fletcher Site, a 1754-1765 Ottawa cemetery (Mainfort 1979:283, 381) along the lower Saginaw River, and at the pre-1781 occupation at Fort Michilimackinac (Stone 1974).

Miscellaneous Metal Artifacts

Site 20OK476 also yielded a range and variety of unidentifiable iron artifact fragments and cut and native-reworked folded brass or copper sheets. These also resemble the numerous specimens from Fletcher especially those Mainfort called "plaque and bangle assemblies (1979:394, figure 64). The Fletcher Site also yielded several "bulbar armed crosses" of silver and a few of silver-plated brass (Mainfort 1979:392, figure 61 f,g), and 17 silver and pewter ball and cone "ear bobs" (Mainfort 1979:396, figure 61e). These appear identical to those from Site 20OK476 and Mainfort noted (1979:396-7) that the silver pieces from the Fletcher Site which carried identifiable touch-marks all had been made in the last third of the 18th century or earlier. The excavations at Fort Michilimackinac (Stone 1974) recovered examples of all of these artifact types, the great majority being attributed to the British occupation which began in 1759. However, as has been argued (Brose 1983), this may have been because there was far more industrial metal manufacture in Britain than in France during the 18th century. To the extent that the European artifacts provide a good estimate, Site 20OK476 was occupied some time between 1754 and 1781 with the most likely period during the 1760s.

Gunflints

The differences among and between French and British gunflints and their lithic source areas has been thoroughly researched (Witthoft 1966; Quimby 1966; Cleland 1971; Hume 1976:220; White 1976; Hamilton 1976; Hamilton and Emory 1988). Good (1972:136-139) and Hamilton (1981) have documented large, single-
event deposits from French or British occupations. Their thorough statistical analyses, among the work of others (Hamilton 1968; Noel Hume 1976; Quimby 1966), support the assignment of the dark grey to black blade gunflints and gun-spalls to British manufacture. And from well before the 1701 establishment of Fort Pontchartrain at Detroit, the French were supplying their Indian military clients with what must have seemed an unending supply of typically honey-colored blade and spall gunflints for the fusils and muskets they had provided (Anderson 1991: 223; Birk 1991: 251; Brose 1972: 23; Brown 1992: 40; Hamilton 1981).

As Russell (1962:343, fn 38) reports, at the beginning of the 19th century in both the American and British armies, the standard musket flint was between 1.2 and 1.5 inches long, 1.08 and 1.13 inches wide, .26 and .33 inches thick at the back edge, and between .39 and .55 inches along the bevel (the French had not then invented the metric system). The standard flint for a rifled fusil was between .97 and 1.2 inches long, .79 and .88 inches wide, .20 and .29 inches thick at the back edge, and between .41 and .71 inches along the bevel. The average flint for a pistol was quite similar to that for a fusil except was even shorter along the bevel than a musket flint, ranging from .30 to .42 inches.

If these rather exacting dimensions were carried forward from the late 18th century, as were nearly all of the arms traded to the Indians (Russell 1962: 16-39, 240), then the assemblage of gunflints from site 20OK476 on Apple Island could represent as many as 4 muskets and 2 rifled fusils. There do not appear to have been any flints of a size that would have readily fit the lock of British or French or American pistols (Russell 1962: 82-88, 198-232), suggesting that neither European or American officer may have been present at the site. The crude reworking of one of the smaller fusil flints of likely British origin also points to the lack of proximate
replacements, a situation of scarcity and want indicative of something other than a fur trade encampment given the very low prices and the large gun flint inventories of European and most early American traders in the Old Northwest or the mid-South (Russell 1962:240; Foster and Boehm 2013).

**Kaolin Pipes**
During their early archaeological work at Fort Michilimackinac Moreau Maxwell and Lewis Binford (1961) devised a statistical analysis of the bore diameters of the kaolin pipestems they excavated, measuring them with a series of drill-bits in graduated 1/64 inch diameters (Binford 1962)8. The method has been applied to many of the Colonial sites in the southeast (Noel-Hume 1976) and after years of critical refinement can now be used to estimate occupation span, in addition to modal chronological placement (Shott 2012). The calculated value of 4.686 for the kaolin pipes recovered from the Apple Island site lie between the 4.77 mean calculation for Brunswick Town, North Carolina, with a mid-point date of occupation at 1752, and the 4.61 calculated mean value for Fort Ligonier, Pennsylvania with a mid-point date of occupation at 1762 (Harrington 1954; Binford 1962).

The large number of kaolin pipe-stems recovered from early British structural areas at Fort Michilimackinac (Stone (1979:145-154, Tabic 38) had an average value of 4.5 indicating a date just after 1759. Shott's refinements of officer earlier formulae for the values at Site 20OK476 would indicate it represented a two or three year span of kaolin pipe manufacture about that date although the sample size is much too small for statistical significance.
These data strongly point to the period of acquisition by the occupants of the Apple Island site around the end of the 1750s and, given the notoriously short lives of these fragile clay pipes (Shott 2012), more likely in the early years of the 1760s.

**Faunal Remains**

Among the more plentiful items from archaeological excavations at site 20 OK 476 conducted under the direction of Dr. Michael Stafford, were faunal remains largely consisting of split and/or fragmented mammal bone. While there had been no formal analysis of these remains, discussions by participants in the 2000 and 2003 excavations and by education and exhibits staff of the Cranbrook Institute of Science, led to the erroneous supposition that these consisted entirely of white-tailed deer (*Odocoileus virginiana*).

After a series of discussions by Dr. Brose, representing the Greater West Bloomfield Historical Society and the West Bloomfield School District, Dr. Stafford, then working in Milwaukee agreed to have several dozens of plastic bags of faunal material transferred from his former field supervisor's private garage to the Institute. Dr. Brose made arrangements for their study by Dr. Beverly Smith, University of Michigan-Flint. However, before this analysis could be undertaken Dr. Stafford recalled them to the Institute to which he had returned in 2006. When the Historical Society and Madonna University initiated the 2008 education and archaeological program for the West Bloomfield School District, Dr. Brose negotiated the return of these archaeological specimens to the Historical Society (as curating organization for the schools) where they could be studied.

During the fall of 2014 the complete series of faunal materials recovered from excavations in 2000, 2003, 2008 and 2013 were formally analyzed.
These analyses of faunal remains from site 20 OK 476 have not been carried to the level of minimal pairs of skeletal elements for each species identified. Nonetheless, even with the differing levels of provenance control and field supervision, an overall summation of materials collected from 2000 to 2013 is instructive (Appendix B).

Deer represent approximately 85% of the fauna by overall count and weight of bone fragments. However, much of this is due to the overall larger and more readily recoverable size of many of the bone pieces, especially the few larger and older specimens which were taken by the site's occupants. For White-tailed deer in the Great Lakes region the usual breeding season runs from late September to early December. Rutting begins with the shorter days of Fall and activity increases and then ends within a relatively short period of time. The gestation period of the typical white-tailed deer is about 7 months and in the lower Great Lakes fauns are typically born in May or June (Burt 1957). Inspection of dental eruption and wear is a long tested method for determining the age of deer. When jaw or tooth portions of the skeleton arc present, the age of death can generally be determined with some accuracy (Knight 2001; Schwartz 2011) bearing in mind that the younger the animal the more narrowly the age can be specified.

While matching highly fragmented long bone to age and specific individual is always provisional, it appears that by segmenting cranial fragments and using epiphysis closure, between 7 and 10 deer are represented in the recovered 20 OK 476 remains. This assemblage is in turn composed of 4 to 6 fauns or very young yearlings and only 3 or 4 adult deer. This composition, along with the cut-marked condition of one adult skull pedicle (for antler removal) suggests the deer hunting at the site occurred predominantly during the summer or early fall. Whenever they
were taken, the nutrition to be derived from the deer appears to have been extensively obtained: nearly every anatomical portion of the animals was represented and nearly every long bone had been shattered or split, presumably for marrow extraction. The lack of crazing or charring further suggests most venison was prepared by boiling, rather than direct fire-roasting.

Other elements represented in the recovered faunal assemblage included at least 11 other mammals; three of which were large rodents (probably muskrat or beaver) and five of which represented mid-sized canids (perhaps foxes the size of a standard beagle). The remaining mammal bone which was identifiable only to the level of family possibly represented mustelids. Several large tortoises or turtles (including one relatively large snapping turtle) and a surprising number of frog bones were also recovered. As many as three large birds, most likely geese but possibly cranes or herons, and perhaps a similar number of small passerine birds were represented by proximal limb and thoracic bones.

A number of rather small fish were represented by vertebrae and pharyngeal or gill plates: at least 2 sets of pike or muskellunge jaw fragments were also present. Unlike the widely distributed mammal bones, these bird reptile and fish remains were encountered in only a small number of neighboring excavation units. They may represent individually consumed foods rather than food shared among the entire group.

In all, the fauna recovered from the site 20 OK 476 excavations indicates a scanty and very inefficient system of hunting or selective trapping: the focus on very young deer, small fish and a few waterfowl is quite unlike patterns of village or economic extraction camp or ceremonial site provisioning by coeval Ojibwa,

**Interpretations**

**Location and Nature of “Fur Trade” Sites**

Through the comparative analysis of artifacts similar to those at other, well-dated sites, it is now possible to determine approximately how often and for how long the site was occupied by American Indians and approximately when this occurred. It is most likely that the aboriginal ceramics and occasional local chert flakes found in the general site area and encountered elsewhere on the higher portions of the island (Wurst, personal communication 2014) represent one of many local archaeological sites in the headwaters of the southeastern Michigan water systems used casually and ephemerally by various American Indian groups between the 14th and 15th century (Fitting 1970; Brose, 1978,1996; Stothers and Abel 1999). The site was then occupied again, possibly by very different peoples, some time in the last half of the 18th century, and then again by related but possibly different ethnic groups of Native Americans in the first half of the 19th century.

In the preliminary report of the 2008 excavations it appeared possible that 20OK476 was one of those extremely rare sites occupied between 1625 AD and 1725 AD when both aboriginal stone-working and ceramic manufacturing technologies and European trade co-existed. However, carefully planned and executed archaeological excavation in 2013, and professional analyses documenting undisturbed deposits, have demonstrated the temporal and stratigraphic disjunction separating the pre-European from the late eighteenth
century aboriginal occupations of Apple Island. The chipped stone work and the construction and use of aboriginally produced earthenware ceramics, predates the introduction of European artifacts by several centuries, and it is quite possible there is little but general linguistic affinity between those sequential aboriginal groups.

Based largely a preliminary assessment of artifacts recovered from his 2000 test excavations, Stafford (2002) referred to the 20OK476 site as an early 19th century "Fur Trade Period" site (Stafford 2002). He went on to note,

"... the small settlement on Orchard Lake's Apple Island is one of only a handful of smaller Fur Trade Period sites known from the southern portion of our state. As such, it represents an especially valuable locale to help elucidate the cultural dynamics of one of our most dramatic periods of change in Michigan's human past."

Unfortunately, over the next several years, Stafford's assignment of the site to a "Fur Trade Period" has been taken as identifying it as a "fur trading" site. There is, of course, a considerable difference between a location at which such inter-cultural exchange took place, and some other type of location occupied at some time in the two and a half centuries from 1625 to 1875 during which Europeans and then Americans engaged in trade with the Native American Indians.

Stafford's more extensive 2003 excavations recovered very few more of the European-made artifacts that had led him to those initial conclusions but they did result in the recovery of a larger sample of faunal remains. While those remains were not at the time analyzed, the assumption that they represented only deer seemed to affirm the presumption of a single, time-limited occupation related to inter-cultural exchange. Recent, more thorough analyses of all of the faunal
remains from site 20OK476 (2000, 2003, 2008 and 2013) have revealed the time-
transgressive and non-economic nature of that occupation.

At the end of the 18th century Hugh Heyward, an Indian Trader operating out of
Montreal, composed a number of brief journal entries while crossing the river and
lake systems of southeastern Michigan to trade with local groups (Guthe 1940).
His journals describe a number of the "in country" campsites at which he stopped,
usually for a single night. Those sites would be nearly invisible to today's
archaeological methods however important they may have been in the strategy of
mobile exchange in a frequently hostile landscape. And their ephemeral
archaeological signature can be nothing like what we see in the diverse recovery of
a plethora of Native and Euro/American artifacts recovered from excavation of
numerous securely dated archaeological village sites in which European/Native
American exchange is known to have taken place (Brose 1978, Mason 1981).

Nearly all of the very few European artifacts which the Apple Island site 20OK476
has yielded represent military equipment or male ornaments typical of the later
decades of the 18th century. (see Stone1974 for a detailed review of exactly the
coeval Native Americans at Fort Michilimackinac would have had in the way of
military or ornamental trade goods). These are accompanied with summer and
autumn-killed terrestrial fauna among which deer predominate but which also
includes canids and mustelids of several sizes and species along with a number of
large waterfowl but very few fish or reptiles. The deer bone showed a diversity of
highly splintered body parts of both young and relatively old individuals. This
unusual assemblage bears little resemblance to usual assemblages resulting from
purposeful hunting indicated for even small village sites during the historic period
(e.g. Jackson and Scott 1995). And it is certainly more diverse and spans much
broader seasonal indicators unlikely to have resulted from the types of ephemeral 18th or 19th century Native American site occupied for the purposes of trade with a European or American... or for the hit-and-run tactics typical of male-centered war-parties of those times.

The near absence of fish remains and the great differences in the sizes of those which are present strongly suggests that despite its location in the middle of one of southeastern Michigan’s most productive lakes, the criteria for site location had nothing to do with maximizing the subsistence economy, but that a variety of relatively unsystematic subsistence activities were performed at the site during the several months it was occupied (Colaninno 2011; Lyman, R. Lee 1987; Reitz et al. 2008). Thus, the Apple Island site 20OK476 is almost certainly not a village site and it is most unlikely to be a European fur-trade site.

There is added significance to the location of this eighteenth century site on an island in Orchard Lake, in distinction to the isthmus where the 1817 Land Survey identified a cluster of “Indian Hutts" between Orchard and Cass Lake (the latter heading the Clinton River system), or on the narrow short portage over the ridge separating Orchard and Pine Lakes (the latter heading a branch of the Rouge River). This choice of site locations on Apple Island represented a decision based less on economic or logistic considerations than on tactical and strategic ones. Review of current anthropological studies of warfare among tribal societies (Arkush and Allen 2007) and the many historical treatments of the centuries of American Indian military resistance to the westward movement of European missionaries, traders and colonists (Parkman 1878; Peckham 1947; Van Every 1966; Cleland 2092; Brose 1983, 2002; Ferris 2008) consistently reveal the importance of close and unobserved attack by relatively small Native
American war parties. The 1,000 meters of open water were what now would be called a clear field of fire. That would have been impossible to create along the densely wooded lakeshore typical of southeastern Michigan visited by British Major Rogers, sent to relieve Fort Detroit at the time (Rogers 1765): woodlands which Alexis DeToqueville described as visually impenetrable more than a generation later (Beaumont 1835).

**Conclusions**

**Spatial Analyses**

Over a decade of archaeological excavation (2000 - 2013) at Site 20 OK 476, coupled with critical analyses of recovered artifacts and faunal remains, has yielded information assigning the most probable period of its occupation to a few summer months in the later half of the 18th century. Careful stratigraphic controls demonstrated the potential for intact cultural features representing cooking areas with differing densities of faunal remains, potentially reflecting short-term spacing of discrete social segments. Controlled excavation of the undisturbed portions of Site 20 OK 476, both interstitial and underlying earlier excavations, reveal additional differing distributions of fire-altered rock and chaired animal bones, representing several discrete areas of cooking (Karr 2015; Karr and Outram 2012). Application of a Poisson Distribution test to the differing counts of fauna and artifacts considered as point data within the excavated quadrants (Stafford from 2000 to 2003, and Brose in 2008 and 2013), documented the non-random spatial patterning of the two sets of archaeological specimens (Silk 1979: 95-130) and the evidence of cooking hearths. This non-random pattern paralleled the concentrated distribution of European trade goods of military function across this discrete campsite. Further nearest-neighbor statistical analysis (Hodder and Orton 1974: 30-51, 198-224) revealed the few significant correlations between areas of faunal
remains which Karr (2015) considered representative of quality meat consumption and male-related military artifacts. These weak archaeological concentrations offer interesting perspectives on the social nature of the site’s short occupation. The variability in initial recording limited the accuracy from which these quantitative data are derived limits the confidence intervals while elevating their potential statistical significance. These offer some insight into potential status differentiation among participants in this native resistance, information lacking from current historical expositions. Given these caveats, it is highly probable that the Native American Indians who occupied Apple Island Site 20 OK 476 were a war party of from ten to twelve male relatives in three or four family groups, one of which was headed by a possibly senior leader but not one significantly more well-equipped or decorated. The group appears to have spent most of one summer on Apple Island with little activity devoted to their own subsistence or to the collection of peltry for the fur trade.

Documenting Ethnic Identity
While it is reasonably clear the site was occupied some time in the 1760s, and quite probably during the summer of 1763 during which the siege of Fort Detroit took place, the ethnic identity of its occupants is much less certain. The Greater West Bloomfield Historical Society brochure reported that in the 1830s the Ottawa Chief Okemos claimed to have been born 60 or so years earlier on an island in a lake near Pontiac. However, nothing yet recovered archaeologically (intentionally or accidently) indicates the island held a village site with women or children, although by 1817 such a site was recorded on the lakeshore to the northeast. Mainfort (1979:287) cited late 18th century journals noting the presence of Ottawa and Chippewa warriors from the Saginaw River and Bay in Pontiac's siege of Detroit (Dowd 2002; Gilbert 1955), while Parkman (1878) discussed the presence
of Pottawatomi warriors from villages at the mouths of the Rouge and Raisin rivers who camped upstream during that summer of 1763.

But although archaeology alone cannot give us the native or tribal name or names by which the site's occupants identified themselves, such designations appear to have been relatively fluid throughout the 18th century Great Lakes region (see note). This is nowhere more apparent than in the various ethnic labels cartographers from the 17th to 19th centuries splashed on lake and river margins and on the little visited upland regions that separated those shores (Brose 1994, 2001). It is most likely that the group came from one of the several Pottawatomi bands that since early in the century had occupied villages near the mouths of the Huron and St. Clair rivers along the western shores of Lakes St. Clair and Erie and the Detroit River.
FIELD NOTES
SITE 200K52/476
2008 GENERAL EXCAVATIONS

[Diagram of a site with labels and scale, showing features like Orchard Lake, a road, and a contour interval of 50 meters at 1 meter.]
The location of the core datum for the 2000, 2003, 2008 and 2013 archaeological excavation and testing at site 20OK476 on Apple Island (N500-E500) is shown as point 10 on the 2012 survey conducted by SKMBT for the Greater West Bloomfield Historical Society.
The location of the core datum for the 2000, 2003, 2008 and 2013 archaeological excavation and testing at site 20OK476 on Apple Island (N500-E500) is shown as point 10 on the 2012 survey conducted by SKMBT for the Greater West Bloomfield Historical Society.
FIGURE 1. UNIVERSITY DETROIT - MERCY 2013 TEACHERS AND NEWSPAPER REPORTERS TESTING THE “PONTIAC’S MOUND” LOCATION ON APPLE ISLAND 2008 SEASON
FIGURE 2  WEST BLOOMFIELD TEACHERS AND THAD GISH SETTING 2008 TEST UNITS AT SITE 20 OK 476
FIGURE 3  2008 WEST BLOOMFIELD TEACHERS AND THADEUS GISH, UNIVERSITY DETROIT - MERCY, SCREENING LEVEL 1 AT SITE 20 OK 476
FIGURE 4   SUB-COLLUVIAL FLOOR TEST UNIT N85W02 IN SITE 20OK476 (FORMER SITE 20 OK 52) IN 2008 EXCAVATIONS
FIGURE 5  CROSS-SECTION OF SUB-FLOOR FIRE HEARTH, FEATURE 1, TEST UNIT N85W02 IN SITE 20OK476 (FORMER SITE 20 OK 52) 2008 EXCAVATIONS
FIGURE 6  2008 EXPOSURE OF UPPER COLLUVIAL SOILS OVER OCCUPATIONAL FLOOR (LEVEL 2) AT SITE 20 OK 476
FIGURE 7  ABORIGINAL CORD-MARKED GRIT-TEMPERED CERAMIC SHERDS FROM 20000 AND 2008 EXCAVATIONS IN UPPER COLLUVIAL LEVELS ACROSS SITE 20 OK 476
ABORIGINALY WORKED BI-POINTED MAMMAL BONE PUNCH FROM 2013 EXCAVATIONS SITE 20 OK 476
FIGURE 9  KAOLIN PIPE STEMS FROM 2003 AND 2008 EXCAVATIONS IN UPPER SOIL LEVELS ACROSS SITE 20 OK 476
FIGURE 10  ENGLISH AND FRENCH GUNFLINTS FROM 2000 AND 2003 EXCAVATIONS IN AND BELOW UPPER COLLUVIAL LEVELS ACROSS SITE 20 OK 476
FIGURE 11
TOP: 1 ENGLISH AND FRENCH SMALL FUSIL OR PISTOL GUNFLINTS FROM 2000 AND 2003 EXCAVATIONS IN UPPER COLLUVIAL LEVELS ACROSS SITE 20 OK 476

BELOW: ENGLISH GUNFLINT RE-WORKED INTO ABORIGINAL BURINATED DRILL
ABORIGINALLY REWORKED SCRAP BRASS (FROM EUROPEAN KETTLE SIDEWALL) FROM 2003 EXCAVATIONS IN COLLUVIAL LEVELS ACROSS SITE 20 OK 476
FIGURE 13  19TH CENTURY NAIL, STAPLE, AND CROCKERY FROM 2000/2003 EXCAVATIONS IN UPPER COLLUVIAL LEVELS ACROSS SITE 20 OK 476
FIGURE 14  FRAGMENTS OF IRON KETTLES AND IRON BUTTON-HOOK FROM UPPER COLLUVIAL LEVELS ACROSS SITE 20 OK 476
FIGURE 15  TOP: ABORIGINALY FLATTENED AND DRILLED 50 CAL MUSKET BALL.

BOTTOM: BLUE GLASS BEAD FROM 2013 EXCAVATION OF LEVEL BENEATH COLLUVIAL SOILS AT SITE 20 OK 476
FIGURE 17  BULBAR ARM SILVER CROSS FROM 2003 EXCAVATIONS IN UPPER COLLUVIAL LEVELS ACROSS SITE 20 OK 476
FIGURE 18  SILVER BALL-AND-CONE EAR-BOBS WITH WIRE LOOP FROM 2003 EXCAVATIONS IN UPPER COLLUVIAL LEVELS ACROSS SITE 20 OK 476
FIGURE 19  IRON FRENCH MILITARY UNIFORM SLEEVE BUTTON FROM 2003 EXCAVATIONS IN UPPER COLLUVIAL LEVELS ACROSS SITE 20 OK 476
FIGURE 19 FRENCH MAP OF FORT DETROIT IN 1740S, COURTESY DETROIT PUBLIC LIBRARY BURTON HISTORICAL COLLECTION.
FIGURE 20  “THE SIEGE OF FORT DETROIT 1763” BY FREDRICK REMMINGTON. COURTESY GOOGLE IMAGES
FIGURE 20  PONTIAC SURRENDERING TO COLONEL BOUQUET IN 1764. IMAGE REPRODUCED WITH PERMISSION OF THE CLEMENTS LIBRARY, UNIVERSITY OF MICHIGAN.
2000 EXCAVATION RECOVERED ARTIFACTS

Kaolin Pipe Bowl

TU 40 - 40 cm  Bowl fragment side and edge. No stem area preserved.

Kaolin Pipe Stems (measurements in mm)

<table>
<thead>
<tr>
<th>Location</th>
<th>Length</th>
<th>External diameter</th>
<th>Internal diameter</th>
</tr>
</thead>
<tbody>
<tr>
<td>T 30.2</td>
<td>66.2</td>
<td>7.85</td>
<td>1.75</td>
</tr>
<tr>
<td>T40.2</td>
<td>48.2</td>
<td>7.3</td>
<td>1.65</td>
</tr>
<tr>
<td>T16</td>
<td>16.3</td>
<td>5.64</td>
<td>1.70</td>
</tr>
<tr>
<td>T24.2</td>
<td>20.6</td>
<td>6.3 / 7.0</td>
<td>1.36</td>
</tr>
<tr>
<td>T24.2</td>
<td>20.0</td>
<td>6.25 / 6.9</td>
<td>1.35</td>
</tr>
<tr>
<td>Means</td>
<td>34.26</td>
<td>6.84</td>
<td>1.852</td>
</tr>
</tbody>
</table>

Cut and folded sheet brass

T19   Quadrilateral sheet 27.5 mm x 12.5 mm x .65mm thick

T20   Quadrilateral sheet 24.5 x 17.9 mm x .65 mm thick

T?    Flat angular “C”-shaped 19.5 long, 15.5 wide with 8 x 8 mm notch; 1.25 mm thick

T40   Flange tab with 1 hole for bale handle and 2 lower holes for pail sidewall attachment. 39.4 x 22.5 mm high x 1.2 mm thick

Iron artifacts

T31.2 Rusty tapered cup handle with rolled edges. 35mm long x 20.0 - 23.5 mm wide x 2.5 mm thick
T31.2 Fender washer 12.2 mm internal dia x 24 mm external diameter x 1 mm thick

T8.2 Iron boot-hook with circular loop handle.


TU45-36 cm. Wire U-shaped staple. 35 mm long x 20 cm wide.

*Lead specimens*

T17.2 Partially flattened musket ball; 38 mm 5 mm x 3 mm

*Pewter Ornaments*

T28.2 Ball and Cone Ear Ornament. Cone 17.5 mm high, solid base 3.7 mm diameter, top with soldered loop 1.25 mm diameter. Ball 5.0 mm diameter with small soldered loop at base 0.5 mm diameter. Ball 5.0 mm diameter. Wire loop 12 mm length

T29.2 Ball and Cone Ear Ornament. Cone 17.0 mm high, solid base 5.0 mm diameter, top with soldered loop 1.25 mm diameter. Ball 5.0 mm diameter with small soldered loop at base 0.5 mm diameter. No wire loop.

*Silver [Alloy] Ornament*

T27.2 Small “bulbar” equal-arm crucifix. 18.7 mm high, 22.0 overall width, 0.35 mm thick. Each element of arm 8.5 mm maximum width near nexus. Upper portion of top arm perforated with 3.5 mm hole traversed by a small flattened ring of the same material, No marks. Not sterling.

*Gun Flints*

T29.2 Pale honey-colored. 26 mm x 20 mm x 9 mm. Heavily battered.

T29.2 Honey-colored. 24 mm 19 mm x 8 mm. Split and heavily used and re-sharpened.
APPENDIX A
RECOVERED ARTIFACTS: SITE 20OK476 ON APPLE ISLAND

T39.2  Dark honey-colored. 32mm x 34mm x 7mm. Split, broken and reworked with helical striations from possible use as borer.

176.TP2  Light grey. 19mm x 25mm x 8mm. Minimal retouch or use.

176.TP2  Very dark grey. 20.5mm x 25.5mm x 6.2mm. No evidence of use.

T45.1  Light Honey-colored. 27mm x 24mm x 9.3mm. Unused.

T49.2  Black. 28mm x 31mm x 12mm. Unused.

Aboriginal artifacts

TU 31- 40cm. 1 burnt decortication flake. Dundee Chert.

TU 40 - 40cm 1 small smoothed bodysherd. Ca. 11mm x 32mm x 6mm thick. Very sparse crushed granitic grit, compact dark core, dark interior, pale salmon exterior.

No Provenance. 2 smoothed over cord-marked bodysherds. Ca. 12mm x 10 mm x 6.8 mm thick. Sparse crushed limestone temper, friable dark core, buff - salmon exterior.

No provenance. 1 Secondary decortication flake, mottled brownish-grey chert resembling Lockport formation.

Euro/American Ceramics

TU 6 - 41cm. Stoneware body sherd, crock. Ca. 15mm x 23.4mm x 11mm thick. Exterior grey salt-glaze, Interior Albany slip. (popularity 1650 - 1920)

TU 42. Creamware blue-on-white edge sherd Ca. 22mm x 26mm x7mm thick. (popularity 1750 - 1840).

2003 EXCAVATION RECOVERED ARTIFACTS

Several thin (.7mm) fragments of knife-cut sheet brass:
2008 EXCAVATION RECOVERED ARTIFACTS (See Appendix E for Details)

Upon re-inspection in 2013 it is possible that the artifact recovered from Unit 08-03 Level 2 which had been identified as a grey and black flint biface section may have been a mid-section from a shattered fusil gunflint.

Also, surface recovery from bioturbated and tree-disturbed surface sediments in the region of the 2003 datum stake [E500N500] included fragmented faunal remains, chert debitage and grit/crushed shell-tempered Woodland sherds. Fire-cracked rock was also present as was a fragment of what appeared to be the bone side-plate from a 4-inch clasp knife. From the upper sediments in the Northwest corner of unit 08-04, grid coordinate: N86.5W1.5; scraps of sheet copper, and a single No 8 iron fishhook with corroded shank (and no eye) were recovered. The latter two artifacts may have been in use at any time from the early 18th century through the late twentieth century.

2013 EXCAVATION RECOVERED ARTIFACTS

TU 13-01 Feature 1. One cut and polished deer phalange “gaming piece”

TU 13-01 Feature 1. A large light blue hot-tumbled cane-manufactured glass bead.

TU 13-01 Level 2 - 25cm. Drilled and flattened lead musket ball, originally about 55-60 caliber.

TU 31-01. Linear northeast trench edge along “sunken water road” across from early 1900s Deerdorf Cabin foundations. 46 fragments of milk and medicine 3-mold and pressed bottle glass typical of the late 19th century (Brose, 1967, Rupp and Brose 1967).
### Table 1

<table>
<thead>
<tr>
<th>Unit</th>
<th>Grid</th>
<th>Depth</th>
<th>Long bones</th>
<th>Head</th>
<th>Track</th>
<th>Other</th>
<th>Water</th>
<th>Other</th>
<th>Flat</th>
<th>comment</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>25</td>
<td>3</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>a</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>25</td>
<td>3</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>a</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>25</td>
<td>3</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>a</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>25</td>
<td>3</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>a</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>25</td>
<td>3</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>a</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>25</td>
<td>3</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>a</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>25</td>
<td>3</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>a</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>8</td>
<td>25</td>
<td>3</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>a</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>9</td>
<td>25</td>
<td>3</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>a</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>10</td>
<td>25</td>
<td>3</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>a</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

#### 2000

<table>
<thead>
<tr>
<th>Unit</th>
<th>Grid</th>
<th>Depth</th>
<th>Long bones</th>
<th>Head</th>
<th>Track</th>
<th>Other</th>
<th>Water</th>
<th>Other</th>
<th>Flat</th>
<th>comment</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>20</td>
<td>3</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>a</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>20</td>
<td>3</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>a</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>20</td>
<td>3</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>a</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>20</td>
<td>3</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>a</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>20</td>
<td>3</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>a</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>20</td>
<td>3</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>a</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>20</td>
<td>3</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>a</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>8</td>
<td>20</td>
<td>3</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>a</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>9</td>
<td>20</td>
<td>3</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>a</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>10</td>
<td>20</td>
<td>3</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>a</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

#### 2008 (see Appendix E for details)

<table>
<thead>
<tr>
<th>Unit</th>
<th>Grid</th>
<th>Depth</th>
<th>Long bones</th>
<th>Head</th>
<th>Track</th>
<th>Other</th>
<th>Water</th>
<th>Other</th>
<th>Flat</th>
<th>comment</th>
</tr>
</thead>
<tbody>
<tr>
<td>29</td>
<td>35</td>
<td>5</td>
<td>2</td>
<td>3</td>
<td>3</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>30</td>
<td>35</td>
<td>5</td>
<td>2</td>
<td>3</td>
<td>3</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

#### 2013

<table>
<thead>
<tr>
<th>Unit</th>
<th>Grid</th>
<th>Depth</th>
<th>Long bones</th>
<th>Head</th>
<th>Track</th>
<th>Other</th>
<th>Water</th>
<th>Other</th>
<th>Flat</th>
<th>comment</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>10</td>
<td>5</td>
<td>2</td>
<td>3</td>
<td>3</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>10</td>
<td>5</td>
<td>2</td>
<td>3</td>
<td>3</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Maps in the University of Michigan William Clements Library


A sketch of Lake St. Clair with the depth of water mark’d in feet, as sounded / by Lieut: Robinson. by Robertson, Charles, Published 1763 Map Manuscript William L. Clements Small Clinton Maps Box.

La rivière du Détroit depuis le Lac Sainte Claire jusqu’au Lac Érié. by Chaussegros de Léry, Joseph Gaspard, 1721-1797. Published 1764 Map Range 22 Wheat Box A William L. Clements.

Plan of Detroit with its environs. by Montrésor, John, 1736-1799. Published 1764 Map Manuscript Maps 6-N-7 William L. Clements.

A map of the country on the Ohio & Muskingum Rivers shewing the situation of the Indian towns with respect to the army under the command of Colonel Bouquet / by Thos. Hutchins...by Hutchins, Thomas. Published 1766 C 1766 Sm Map William L. Clements.

Publications and Articles


Albert, Dennis A. 1995. Regional landscape ecosystems of Michigan, Minnesota, and Wisconsin: a working map and classification: Sub-Section VI. I. Southern Lower Michi-


Brose, David S. 1970 Summer Island III: An Early Contact Period Historic Site in the Upper Great Lakes. Historical Archaeology 4: 3-33.


Brose, David S. (n.d.) Identification and Uses of Historical Archaeology in the Third Millennium A.D.


Dowd, Gregory Evans. 1990. The French King Wakes up in Detroit: "Pontiac's War" in Rumor and History: *Ethnohistory*, Vol. 37, No. 3 (Summer,): 254-278


20 OK476 References


1. Without question, the most thorough historical review of the siege of Detroit and the inter-tribal politics of Pontiac and his often fractious allies is found in Edmunds' (1978) history of the Michigan Pottawatomi tribe.

2. Vegetation across the site area in 2008 appeared to consist of secondary partially undisturbed growth, with a few large (50 meter high and 85 centimeters in diameter at breast height) Sugar Maple trees which are dying. Other large trees consist of a few widely dispersed White Oak trees and several dozen 30 to 40 meter tall Eastern White Cedar, most of which also appear to be dead or dying. These trees appear to be 150-200 years in age. Red Oak, White Pine, Tulip Poplar and Linden and at least two species of hickory and of birch are common subdominant trees although few appear older than 75 years. Oak, hazel and viburnum saplings and poison ivy predominate as understory (Otis 1973).

2. Ferris’s recent historical revisions (2008) are a significant historical contribution to the early Colonial period in this region. He recognized that European-induced economic warfare among a number of aboriginal groups exacerbated older systems of raiding and adoption that had maintained the fluidity of "tribal" existence. By documenting how those quasi-ethnic systems adapted to meet Europeans’ changing nationalistic military and clerical demands, Ferris questions the legitimacy of imposed tribal labels in what he calls "master narrative" histories composed by Europeans.

3. Analyses and description of the 2013/14 excavations of the historic 19th and 20th century occupations of Apple Island were conducted by the Western Michigan University Anthropology Department field crews under the direction of Dr. LouAnn Wurst.

4. In Albert's (1995) report he characterized the regional geography as follows: "... the region represents an inter-lobate area between three glacial lobes, which formed approximately 13,000 to 16,000 years B.P.... Topography consists of broad expanses of outwash sands that surround sandy and gravelly
end moraines and ground moraines.... End and ground moraines remain as hills surrounded by flat outwash. Large segments of end moraine and outwash include kames and eskers with many contiguous kettle lakes and ponds.

Extensive wetlands surround many of those kettle lakes where marl and peat deposits were mined in the past. ... The complex of lakes drain north to the Shiawassee, east to the Clinton and south to the Rouge Rivers while headwaters of the Huron, Grand, Kalamazoo, and St. Joseph Rivers originate in wetlands to the west."Slopes are generally in the 0 to 6 percent but on end moraine ridges slopes can be 25 to 40 percent. ... Soils range from sand to clay; the most common soil texture is sandy loam on moraines and sand on outwash plains.

"[Pre-Contact] Vegetation reflects underlying differences in landform and topography. On the sandy moraines, open savannas of black oak, white oak, and hickory were common. GLO surveyors described the open oak forests as "barrens," "oak openings," "barren and scrubby timber," or "scattered timber."... GLO notes quote... numerous historic references to Native-American fires in the oak savannas or barrens.

"Bur oak savannas were located on the smaller "islands" of gently sloping ground moraine and end moraine at the western edge of the sub-subsection. Other dominants of the oak savannas were white oak, black oak, and chinquapin oak.... On droughty ice-contact topography[kettles and kames], black oak (probably including some northern pin oak) was commonly the dominant forest species. White oak and hickory were also common on slightly moister ice-contact sites, and red oak occupied moist foot slopes. In areas of ice-contact topography, wetlands were commonly restricted to narrow belts surrounding kettle lakes. These consisted of shrub, hardwood, or conifer [tamarack] swamps."
5. The Cranbrook Institute of Science currently has on display a bark canoe (Catalog # 894) which was donated to them by Mr. Lloyd Strong in 1939. In May, 1940, Strong wrote to the CIS to correct an earlier misidentification of the person who had donated the bark canoe. His letter to Director Robert Hatt, from Strong’s Pavillion in Keego Harbor stated that he wanted the donor to be recorded as “Strong’s Pavillion”. Strong added, “I have no further information concerning the history of the boat except that it is supposed to have been made on Apple Island by some of Pontiac’s tribe.”

Although the earlier 1940 letter does not mention it, in 1997 Diane Treacy-Cole, a grand-daughter of Strong’s, wrote to the Curator of the Cranbrook Institute of Science that her grandfather had discovered the canoe buried in Orchard Lake and “recovered it” prior to donating it to CIS. Correspondence on file at the GWBHS indicates Strong ran a dance pavilion in the 1920s on Cass Lake Road, which he turned into a canoe livery in the 1930’s. One source indicates Mr. Strong found the canoe, another that he was given the canoe when he ran the livery.

While birchbark canoes were usually of more northern origin, the journals of Hugh Heyward indicate they were used by both Awada and French Canadian traders in the region well into the 19th century. It is true that bark canoes and dugouts were often submerged or buried to keep them from drying out too much or for winter storage (Brose and Greber 1982). However, the shallower waters of Orchard Lake seem neither cold enough in the summer nor oxygen-deprived enough, to preserve a bark canoe for 150 years.

Mr. Richard Zurel, a student of Oakland County archaeology, has mentioned that some time in the 1950s a degraded 4 meter long dugout canoe, found near the island and given to the Historical Society, was donated to the Cranbrook Institute of Science in return for the loan of a 3.5 meter long dugout with no known place of origin but which had been purchased for the CIS in the 1930s. That more well-preserved dugout on loan from Cranbrook is on display in the GWBHS museum.
6. Stafford received his graduate training at the University of Wisconsin where
his major professor, T. Douglas Price had been trained in field work at the Uni-
versity of Michigan. That is where Brose also received his graduate training.
Under the direction of James Bennet Griffin the University of Michigan used this
North and East system of field excavation designations in the era prior to GPS
tagging.

7. Nassaney (2012) has documented the wide array of French and British artifacts
and the very diverse nature of mammals, birds and fish used for food which
have been recovered from excavations at the contemporary French and Indian
occupations at Fort Saint Joseph from 1721 until its 1763 capture. The most com-
prehensive documentary (not archaeological) overview of the general sequences
of European artifacts destined for Native Americans during what has been
called the Fur Trade period will be found in the unpublished Michigan State
University Ph.D. Dissertation in Anthropology by Dean Anderson, current
Michigan State Archaeologist.

8. 1 mm = 3.0 sixtieth-fourth of an inch = .0396875 inches.
1.562mm = 4.686 sixtieth- fourths inch.

9. Many, but not all of the unit bags of recovered faunal material from the 2000
and 2003 excavations contained cut and modified bone, and a few contained arti-
facts. While most of those were late 19th or early 20th century glass or industrial
porcelain fragments, a few of the unit bags contained small prehistoric or
mid-18th century artifacts or pieces thereof (see Appendix A).

Most of the unit bags from 2000 and 2003 carried some notation such as: 43 FCR;
or 103 FCR; or even 1193 FCR, clearly enumerating either the count or the weight
of the fire-cracked rock encountered in the excavation of the levels indicated for
that unit. As the average number associated with the FCR designation on 56 of
more than 110 unit bags analyzed in 2014 was 115 FCR it appeared unlikely that
all of these designations represented a being the mean weight of fire cracked rock
from those units in which it was recovered. The mean weight of firecracker rock recovered from all units excavated at site 20OK476 in the 2000-2003, 2008 and 2013 excavation seasons was 28 grams. The low number is due to the large number of excavated units (nearly 43%) in which no fire-cracked rock was recorded.

10. In 2012 a formal geographic survey of Apple Island was performed by SKMBT Engineering for the Greater West Bloomfield Historical Society. The maps prepared by that survey are incorporated into this report. The survey also identified the core Datum point for all 2000-2013 archaeological test excavations at Site 20OK476 as located at “26.42428’ North Longitude and 83°22”2222.20048’ West Latitude.

[UTM Northing 47180.90.508 Easting 305310.622].
Unit designation: Test Pit #1
Grid location at center of south wall:  N95E00
Size: 50cm x 50 cm
Level:  1
Material Recovered:  No cultural materials

Unit designation: Test Pit #2
Grid location at center of south wall:  N90E00
Size: 50cm x 50 cm
Level: 1
Material Recovered:  1 fragment burned clay, possibly non-cultural
3 flakes Dundee chert, possibly probed

Unit designation: Test Pit #3
Grid location at center of south wall:  N85E00
Size: 50cm x 50 cm
Level: 1
Material Recovered:  1 small probed core of Dundee chert
3 fragments charcoal
3 split sections ruminant (deer?) long bone
2 fragments deer scapulae
5 granitic FCR cobbles -595 grams
3 small fragments granitic FCR – 83 grams

Unit designation: 08-01
Northwest corner grid coordinate: N82E04
Size: 1 meter x 1 meter
Level: 1
Material Recovered:  3 small mammal bone fragments
2 bird/reptile bone fragments
1 rodent incisor
2 unmodified fragments Dundee chert
2 fragments FCR limestone – 85 grams
13 granitic FCR cobbles unmodified –797 grams
1 granite cobble showing battering – 110 grams

Unit designation: 08-01
Northwest corner grid coordinate: N82E04
Size: 1 meter x 1 meter
Level: 2
Material Recovered:  No cultural materials
APPENDIX E
20 OK 476 TEST UNIT RECOVERY 2008

Unit designation: 08-02
Northwest corner grid coordinate: N90W10
Size: 1 meter x 1 meter
Level: 1
Material Recovered: 3 cobbles burned limestone – 120 grams
1 probed Dundee chert pebble
1 fragment clam shell
3 fragments split ruminant long bone
1 small deer mandible with three adult teeth, slightly worn
16 fragments granite and schist FCR – 680 grams

Unit designation: 08-02
Northwest corner grid coordinate: N90W10
Size: 1 meter x 1 meter
Level: 2
Material Recovered: 1 flake cut sheet copper
1 granite FCR cobble – 275 grams
6 probed chunks Dundee chert
1 grit-tempered, smoothed over cord-marking pottery sherd

Unit designation: 08-03
Northwest corner grid coordinate: N86W0.25
Size: 1 meter x 1 meter
Level: 1
Material Recovered: 3 fragmented young deer long bone
1 unfused centroquartal [juvenile] deer bone
2 fragments burned clay
2 grit-tempered smoothed over cord-marking pottery sherds
4 calcined crushed mammal bone fragments
2 fragments amphibian/reptile bone
2 turtle carapace scutes
3 small charcoal fragments

Unit designation: 08-03
Northwest corner grid coordinate: N86W0.25
Size: 1 meter x 1 meter
Level: 2
Material Recovered: 2 fragments [deer?] ruminant vertebrae
1 burned and abraded limestone or gypsum pebble
2 grit and shell-tempered surface-spalled potsherds
1 grey and black [Upper Mercer or Port Franks] flint biface section
5 mid-sized ruminant [deer?] skull fragments
Unit designation: 08-03
Level: 2 (Continued)
Additional Material Recovered:
1 section adult deer temporal bone – no antler core
1 sturgeon skull fragment with teeth
1 fish or amphibian palate/skull fragment
1 piece calcined mammal bone
2 granitic FCR cobbles – 1077 grams
1 piece leached limestone/mudstone
2 unmodified granite cobbles – 397 grams
1 battered-end granite cobbles – 367 grams

Unit designation: 08-03
Northwest corner grid coordinate: N86W0.25
Size: 1 meter x 1 meter
Level: 3
Material Recovered:
1 iron concretion or end of clasp knife handle
4 fragments of crushed calcined mammal bone
4 rough Dundee chert block flakes

Unit designation: 08-03
Northwest corner grid coordinate: N86W0.25
Feature 1: Shallow firepit base
Dimensions: Oval area of reddened and partially fused [burned] coarse sands; 65 cm E-W by 54 cm N-S; 24 cm deep in center
Material Recovered:
fragments of calcined mammal bone
Small fragments of charcoal

Unit designation: 08-04
Northwest corner grid coordinate: N86.5W1.5
Size: 1 meter x 1 meter
Level: 1
Material Recovered:
1 surface-leached Petoskey stone – 567 grams
1 ruminant [deer] calcaneus
1 ruminant [deer] phalange
2 fragments cut sheet copper
1 rusted iron fish hook
1 bird long bone
3 fish jaw/skull bones
1 fish vertebrae
1 fish/amphibian dermal plate