

The Rentner and McKean Sites: 10,000 Years of Settlement on the Shores of Lake Huron, Simcoe County, Ontario

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Excavations at two sites located on a prominent ridge attributed to the mid-Holocene Nipissing transgression yielded diagnostic stone tools, radiocarbon dates and faunal remains relating primarily to Early and Middle Archaic occupations of this area, one kilometre south of Georgian Bay in the Huron basin, east of Collingwood, Ontario. At the Rentner site, flaked and ground stone tools in good association with charcoal dated to 5,900±90 radiocarbon years B.P. indicate a Middle Archaic occupation that was most likely situated on the Huron shore of a Nipissing high-water stand. Cultural materials recovered at Rentner indicate that Late Archaic and Late Woodland peoples continued to use this site, with its adjacent creek, as an inland camp. At the McKean site, corner-notched, Thebes-Cluster projectile points indicate an Early Archaic occupation, likely during the time of falling water levels in the Huron basin about 9,500 years ago. Fish bone from a subsoil feature at the McKean site provides some of the earliest evidence for fishing in the Great Lakes.

Introduction

During 1988 and 1989, Ontario Ministry of Transportation archaeologists conducted a survey along the proposed re-alignment of Highway 26 east of the city of Collingwood (Murphy 1989). The re-alignment follows a prominent bluff, roughly five metres high, located about one kilometre inland from the present day southern shore of Georgian Bay, Lake Huron (Figure 1). This bluff is attributed to the post-glacial high-water stage in the basin of Lake Huron and Georgian Bay known as the Nipissing transgression (Burwasser 1974; Eschman and Karrow 1985:90). During test pit survey, we identified two archaeological sites that required mitigation: the Rentner site (BcHb-42) and the McKean site (BcHa-59). In 1994, we conducted excavations to define the limits of these sites and recover larger samples of material. These excavations are reported here, together with an analysis of materials recovered and an overview of the significance of this work to our interpretation of occupation along the evolving shores of the Great Lakes on the part of Ontario's native peoples.

Rentner Site: Context and Excavation

Archaeological survey in 1989 revealed a site at the intersection of Batteaux Creek with the former Nipissing phase high-water bluff. In 1994, we excavated nearly 200 m² of plough zone and several subsoil features above the bluff and immediately east of the creek (Figure 2). Most of the excavation occurred in a continuous block centred on the main artifact concentration within the proposed right-of-way. Finds from excavation units placed outside of this concentration within the proposed right-of-way confirmed that few artifacts occurred beyond our block excavation. Our survey indicated, however, that more cultural material was located to the southwest, beyond the impact of proposed construction—specifically, a Late Woodland component. This area, which remains intact for future study, is the probable source for the small amount of Late Woodland material recovered during the excavations.

Most of the cultural material excavated from Rentner is attributed to a number of small Archaic occupations. The site provides several advantages for people: it is located on a natural

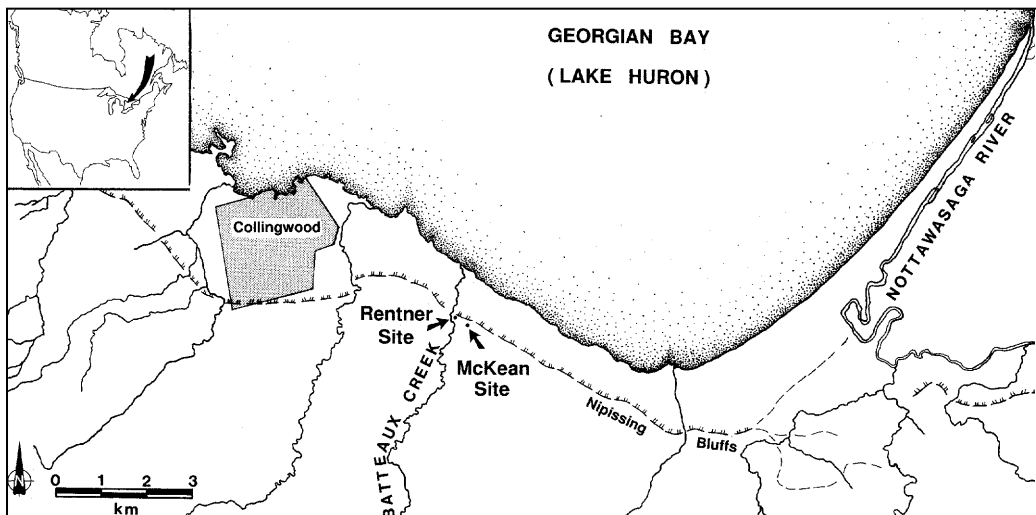


Figure 1. The location of the Rentner and McKean sites.

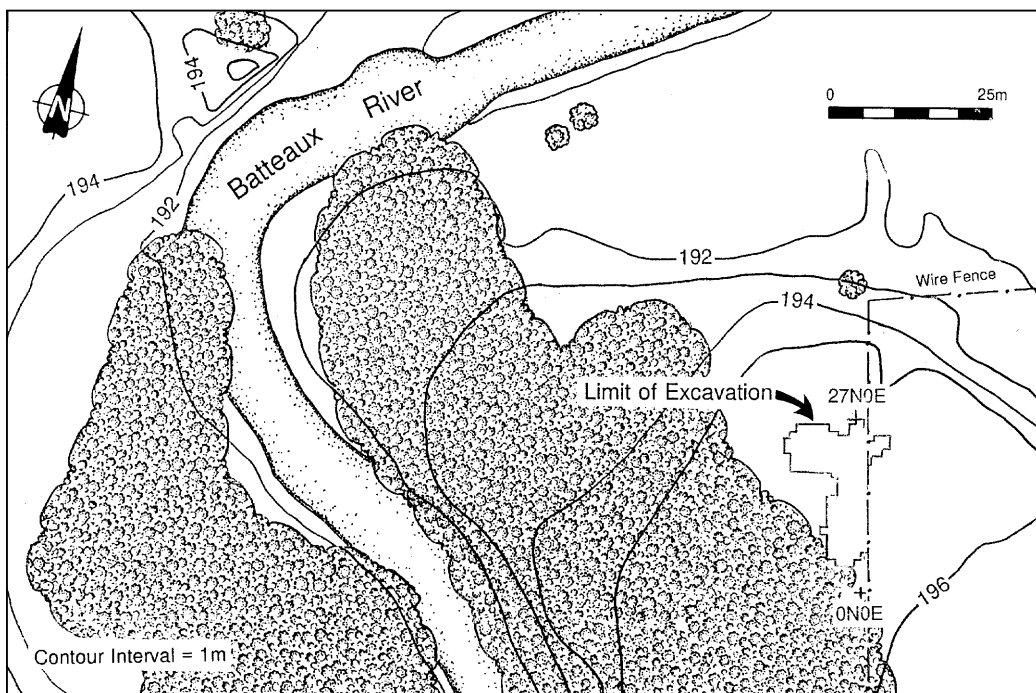


Figure 2. The topography and limits of excavation at the Rentner site.

east-west transportation corridor (the bluff edge); the ground is elevated, dry, and relatively flat for settlement; and the creek was available for fishing. Finally, plants and animals may have

been concentrated along the ecotonal bluff boundary, where the site occurs, between the dry sandy uplands to the south and the wetlands to the north.

Excavations proceeded outward from unit squares that yielded more than 10 flakes and were discontinued otherwise. The plough zone soils were excavated by shovel and screened through six millimetre mesh. Artifact location was recorded within one metre squares. Higher resolution was deemed unnecessary because of the ploughed condition of the topsoil and the multi-component nature of the site. Excavation squares were labelled by their northwest grid coordinates, as shown for the labelled square 20N15W in Figure 3. This one-metre coordinate system is used to assign provenience to artifacts recovered from the plough zone. The location of material recovered from sub-plough zone features is identified by square number and also by feature number, assigned consecutively as features were located.

Rentner Site Features

Subsoil features and post moulds were identified by soil colour differences and by concentrations of artifacts occurring at the interface between topsoil (plough zone) and subsoil. Several post moulds were identified but could not be attributed to a specific occupation of the site. Their configuration offers few insights as to possible structures or functions. Features were carefully excavated using shovels, trowels, brushes and screens, and sampled as their complexities warranted.

Several soil anomalies were also recorded at the base of the plough zone and, for excavation and recording purposes, were regarded as cultural features in the field until they were determined to

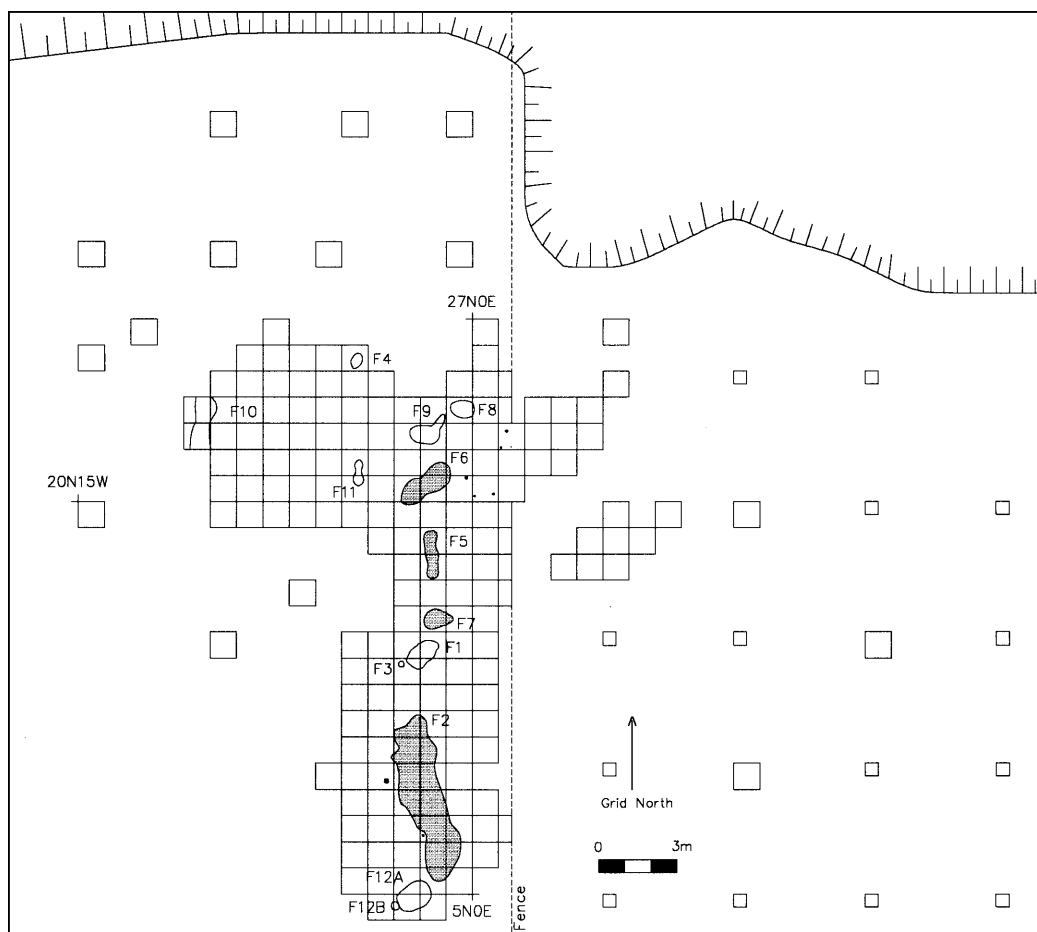


Figure 3. The location of subsurface features at the Rentner site (cultural features are shaded).

be features of questionable significance or non-cultural soil anomalies. Ultimately, it was determined that four features (Features 2,5,6,7) were of cultural origin (Figure 3, Table 1).

Feature 2, the most complex and intriguing feature at the site, was first recognized at the topsoil-subsoil interface by its large size, irregular plan form and strong colour contrast with the surrounding subsoil, attributes which suggested that it may have been a recent disturbance rather than a cultural feature. However, as excavations proceeded to confirm this interpretation, its association with one of the Archaic components was well supported by the presence of a flaked stone point, a ground stone point fragment, an abundance of flaking debitage and calcined bone fragments. The absence of ceramics strengthened the

Table 1. Maximum dimensions of features at the Rentner site.

Feature	Length (cm)	Width (cm)	Depth (cm)
2	700	200	32
5	185	50	31
6	232	83	38
7	117	75	10

association with a pre-Woodland component. Unlike many “invisible” subsoil features excavated from Archaic sites (Lennox 1999) this feature was identified easily by its dark colour.

Figure 4 shows the plan and two profile drawings of Feature 2. Notable in longitudinal profile a-b (Figure 4) is the feature’s undulating bottom (which attained a maximum depth of 32 cm below the bottom of the plough zone) as well as concentrations of fire-cracked rock and fire reddened soil, found toward the centre of the feature.

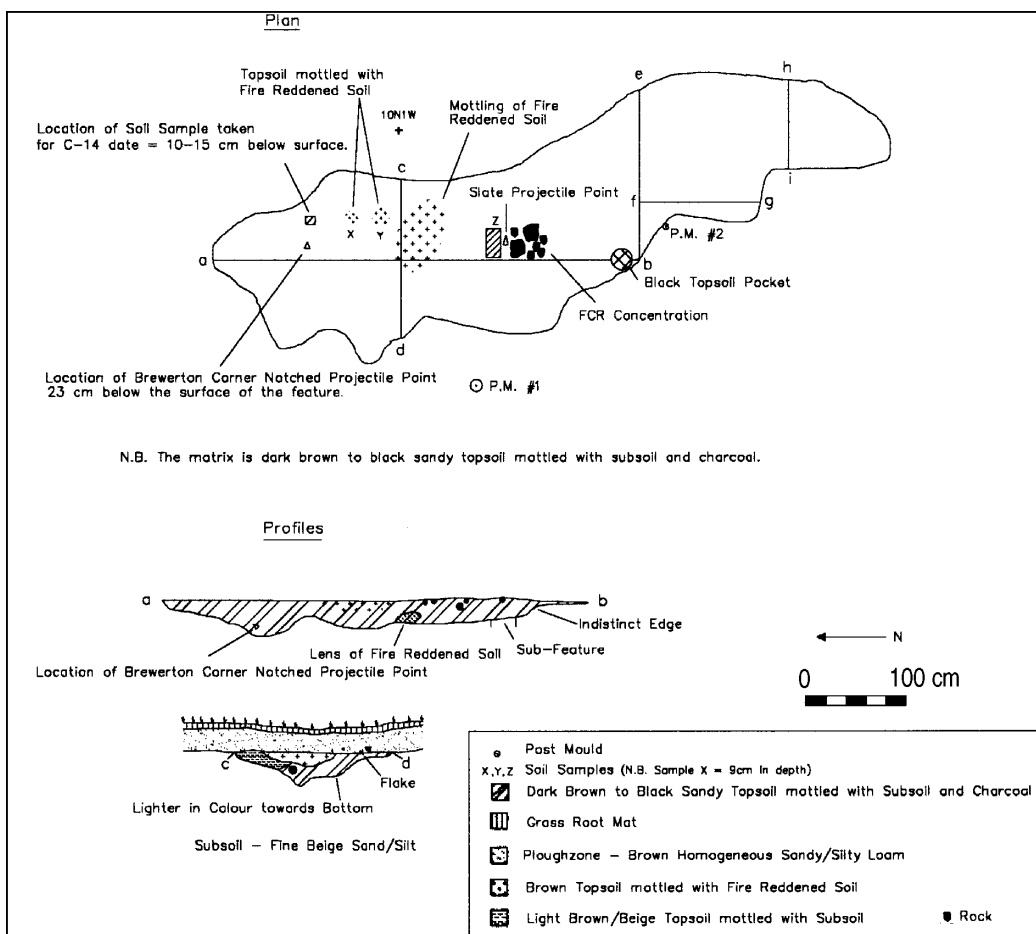


Figure 4. Plan and profile of Feature 2 at the Rentner site.

About half of the 391 pieces of debitage recovered from Feature 2 was obtained from these concentrations. Also shown in Figure 4 are the locations of projectile points and the soil samples taken nearby for the extraction of charcoal for radiocarbon dating. Charcoal was extracted manually, producing enough for a standard (non-AMS) radiocarbon date of 5,900±90 B.P. (BGS-1718). Using the program CALIB 4.0, this return calibrates to 6,700 cal B.P. with a two sigma range of 6,910-6,490 cal B.P. (Stuiver and Reimer 1993; Stuiver et al. 1998). The charcoal sample, closely associated with the flaked stone projectile point, suggests that the Archaic occupation which produced Feature 2 dates roughly to the period of the Nipissing high water level.

Seven soil samples from Feature 2, totalling 91.5 litres of feature fill, were subjected to flotation. The heavy fraction was captured and screened through one millimetre mesh, producing 189 pieces of microdebitage. The rest of the fill from these samples was coarse-screened (six millimetre mesh). The combined sample from both methods consisted of 391 pieces of debitage (mostly chert), one flake scraper, two possibly utilized flakes, a celt fragment, a bipolar core of quartz, five small biface fragments, and three projectile points (see artifact descriptions, below). Flotation samples also included a large number of small bone fragments (see discussion of faunal material, below). Charred plant remains were not examined in detail.

Feature 5 (Figure 3 and 5a), although smaller than Feature 2, possessed a similar north-south orientation, a gently undulating bottom, and a fill which included a scatter of fire reddened soil, fire cracked rock and calcined bone fragments in its south half. It contained no diagnostic artifacts, although 61 flakes, 50 pieces of microdebitage and more than 50 calcined bone fragments were recovered. This feature cannot, therefore, be assigned to any particular cultural period. The absence of ceramics in the vicinity of the feature suggests, however, that it was affiliated with one of the Archaic occupations.

Feature 6 (Figure 3 and 5b) had a basin-shaped longitudinal profile with two layers: a light-coloured upper layer and a darker lower layer.

After dividing the feature into longitudinal halves, fill was removed in two layers. One half was field screened and the other floated. Both layers contained lithic debitage and bone fragments, but carbonized plant remains were noted only in the lower fill layer. A ground slate point fragment recovered from the southwest end of the feature's lower level most likely associates this feature with one of the Archaic components, perhaps the same component that produced Feature 2. Other inclusions were: six small secondary chert flakes; 27 pieces of chert microdebitage; 36 pieces of quartz debitage, apparently from the bipolar reduction of a pebble; two small pieces of crystal quartz; two pieces of slate, perhaps related to the production of slate points; a small piece of white chalcedony, likely a bipolar core fragment; and a piece of schist, apparently a splinter from the lateral edge of a celt. Faunal remains are detailed below.

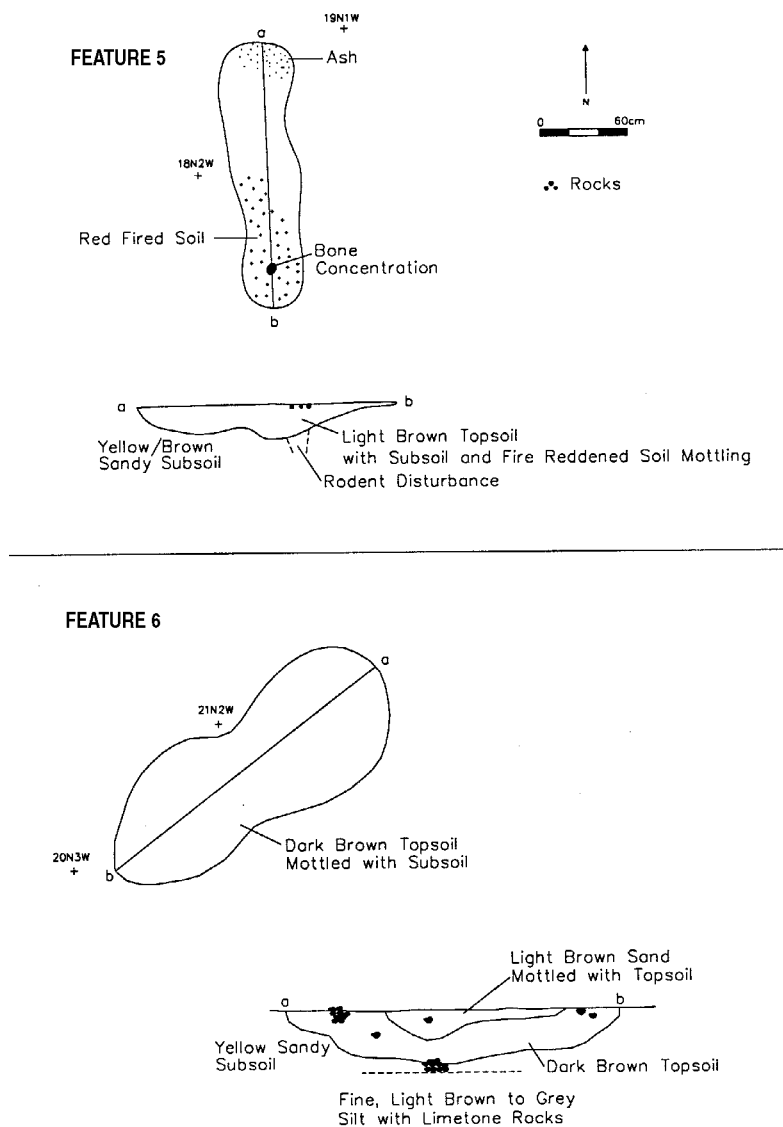
Feature 7 (Figure 3) had a shallow basin-shaped profile containing brown, sandy topsoil with yellow subsoil mottling throughout. The topsoil above the feature produced about 60 pieces of pottery. Ceramics, lithics, bone, fire cracked rock and charcoal were noted both in the feature fill and in a 10-litre flotation sample taken from the feature. Five pieces of chipping debitage, a plain body sherd, 51 unidentifiable microspherds and 165 calcined bone fragments were recovered from this feature. Feature 7 is attributed to the Late Woodland occupation at Rentner on the basis of the high concentration of ceramic fragments in the pit and in the plough zone nearby.

Rentner Site Worked Artifacts

Almost 3000 items of material culture were recovered from the Rentner excavations (Table 2). In this analysis, I emphasize diagnostic specimens (formal lithics and ceramics) and specimens from features that can be assigned to particular components in an attempt to understand the complexity of the multiple occupations at the site.

More than one occupation has contributed to the artifact assemblage. It is impossible to assign the non-diagnostic part of the assemblage (the

Figure 5. Plans and profiles of Features 5 and 6 at the Rentner site.



debitage) to specific components based on its form and material type. Nevertheless, the Late Woodland component produced only a few diagnostic stone artifacts and, therefore, probably contributed little debitage to the Rentner assemblage. Most of the debitage is assumed to relate to Archaic components, each of which may have utilized toolstone similarly. In support of this argument, a single feature, Feature 7, which is assigned to the Late Woodland occupation on the basis of the ceramics it contained, produced only five pieces of microdebitage, one large

(seven centimetre long) slate flake and a hammerstone fragment. Even this material could be intrusive from the earlier components. Assuming that most of the debitage relates to the Archaic components, the consistency of the material suggests that various people during these early occupations used the available toolstone similarly.

Projectile Points

The projectile point assemblage from the Rentner site consists of a total of 22 points and point fragments. A total of five slate points and

Table 2. *Artifact and debitage frequencies at the Rentner site. The debitage count includes only the material recovered from the plough zone.*

Category	Frequency
Debitage	
Chert	1,933
Quartz	614
Slate	82
Total Debitage	2,629
Cores	
Chert	25
Quartz	90
Total Cores	115
Projectile Points	
Flaked Stone	17
Ground Stone	5
Bifaces	50
Drills	4
Scrapers	8
Celts	5
Hammerstones	3
Ceramics	
Vessel Sherds	141
Pipe Fragments	13
Tool blanks (Slate)	8
Total Non-core Artifacts	254

17 flaked chert points were found at the site. In the following description, points are grouped into similar forms that are presumed to be roughly contemporaneous.

Ground Slate Projectile Points. Ground slate points are distinctive because of their material

and their general scarcity on sites in the Northeast. They are generally considered to be diagnostic of the Laurentian Archaic Period (Ritchie 1940:96, 1944:259, 1969:79-83), though others (cf. Ellis et al. 1990:85; Wright 1995:217-297) offer less restricted interpretations. Three of the slate specimens are complete and two are fragmentary (Figure 6, Table 3).

One complete specimen (Figure 6b, Table 3:1) was recovered from Feature 2 in association with a flaked stone projectile point and the charcoal that yielded the date of 5,900±90 radiocarbon years B.P. The relatively short length and other details of the slate artifact suggest that it has been reworked from a basal fragment of a longer point. Proximal and distal ends of the original specimen appear to have been reversed during reworking, the original point base being bevelled asymmetrically to become the blade and tip of the rejuvenated point. Maximum thickness occurs at the crude, roughly square, base. Here, the original point is broken through the lowest of three sets of side-notches that appear on either side of the stem. These notches, now semicircular, were likely drilled when the piece was larger.

Another complete specimen (Figure 6c, Table 3:2) is stemmed with slight, sloping shoulders where its maximum width occurs. The stem is 11 mm long with a rectangular cross section and the blade is slightly bevelled. The third specimen (Figure 6d, Table 3:3) has a long (22 mm) tapering stem below sloping shoulders, accounting for nearly half of the point's total length. The cross-section

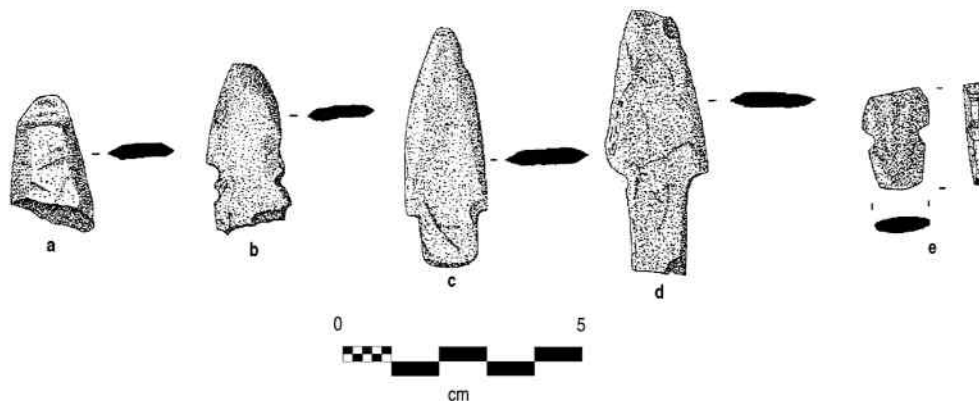


Figure 6. *Ground slate points from the Rentner site: point tip from Feature 6 (a); reworked point from Feature 2 (b); points from the plough zone in 20N10E (c), 19N3W (d), and 7N3W (e).*

Table 3. *Ground slate projectile points from the Rentner site.*

Specimen	Description and Material	Provenience	Length (mm)	Width (mm)	Thickness (mm)	Figure
1	Complete, red-brown.	Feature 2	35	16	5	6b
2	Complete, cream.	Plough, 20N10E	51	17	5	6c
3	Complete, dark red-brown.	Plough, 19N3W	56	21	6	6d
4	Tip, green.	Feature 6	+30	18	5	6a
5	Base, banded green.	Plough, 7N3W	+21	13	5	6e

of the point is rectangular through the stem and bevelled through the blade, changing shape at the shoulders where the maximum width occurs.

Specimens 4 and 5 (Figures 6a, 8e, Table 3) are both fragments. The former is a tip with bevelled lateral edges. The latter is a notched basal fragment recovered from the plough zone close to Feature 2. Unlike specimen 1, the notches on this specimen are ground rather than drilled. The notches are slightly angular in plan view and square in cross section. Despite the distal taper which appears in plan view and which suggests the emergence of a blade beyond the notches, the square cross section, or lack of edge-bevel, indicates that there were at least two sets of side-notches and that the point was originally longer and wider through the shoulders and blade.

Flaked Side-Notched Projectile Points. The two side-notched points (Figure 7, Table 4) recovered from the site are relatively long, narrow and thick with broad, shallow side-notches, typologically resembling Brewerton side-notched (Justice 1987:115; Ritchie 1961:19-20). They were found in close proximity to one another in the

plough zone. The first example (Figure 7a, Table 4:1), a complete point, has a thick irregularity, likely representing the striking platform of the original flake blank. The base, 29 mm wide, is convex and slightly ground. Hafting width is 24 mm. Side-notches are wider than they are deep and the convex lateral blade edges are finely retouched and serrated. The second example (Figure 7b, Table 4:2) is coarsely flaked. Occasional large flake scars deform the edge configuration, giving the appearance of abuse or incomplete reworking. The base is 25 mm wide, coarsely flaked, irregular and has an irregularly straight or slightly convex unground basal edge. Hafting width across the notches is 17 mm. Side-notches are wider than they are deep and lateral blade edges are slightly convex. In outline, the blade has irregular or sinuous lateral edges that are sometimes attributed to preforms.

Flaked Corner-Notched Projectile Points. Nine corner-notched specimens constitute the largest and most variable set of projectile points recovered from the site (Figures 7 and 8, Table 5).

Within this broad category are two or three

Figure 7. *Flaked stone points from the Rentner site: Brewerton side-notched from 7N5W (a); Brewerton side-notched from 8N4W (b); Brewerton corner-notched from 25N0W (c); Brewerton corner-notched from 11N0E (d); Brewerton corner-notched from 12N3W (e); and Brewerton corner-notched from 23N6W (f).*

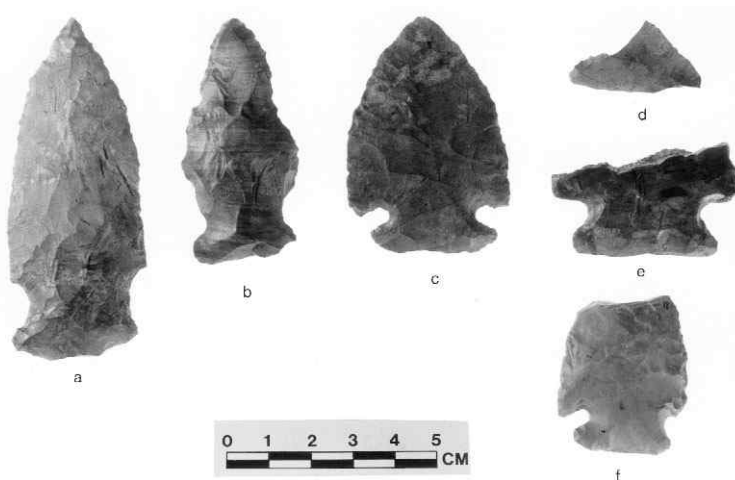


Table 4. *Flaked Brewerton side-notched projectile points from the Rentner site.*

Specimen	Description	Material	Provenience	Length (mm)	Width (mm)	Thickness (mm)	Figure
1	Complete	Onondaga	7N5W	82	33	9	7a
2	Complete	Norwood	8N4W	57	27	10	7b

Table 5. *Brewerton and other flaked corner-notched projectile points from the Rentner site.*

Specimen	Description	Material	Provenience	Length (mm)	Width (mm)	Thickness (mm)	Figure
3	Complete	Onondaga	25N0W	57	39	8	7c
4	Base	Onondaga	11N0E	—	45	7	7e
5	Basal edge	Onondaga	12N3W	—	—	—	7d
6	Missing tip	Kettle Point	23N6W	—	31	8	7f
7	Reworked	Huronian	23N3W-Feature 9	—	—	11	8e
8	Complete	Haldimand	Feature 2	48	30	8	8a
9	Complete	Onondaga	17N1E	37	27	7	8b
10	Complete	Onondaga	15N3W	69	32	—	8c
11	Tip	Onondaga	Feature 4	—	—	—	8d

groups. The first (and largest) group includes five points that appear to be Brewerton corner-notched (Justice 1987:115; Ritchie 1961:16). The only complete specimen (Figure 7c, Table 5:3), with barbed shoulders, is made from a mottled, light grey-brown Onondaga chert. Maximum width occurs just distal from the barbed shoulders. Typically the barbs extend laterally slightly beyond the basal width. The point base, 31 mm wide, is straight and unground. Two point base fragments appear to have been similar to specimen 3 (Table 5). Specimen 4 is 45 mm across the shoulders and 35 mm along a straight basal edge. Both the basal edge and corner-notches are ground. Specimen 5 consists only of a straight and ground basal edge and lower portion of one ground notch and its typological placement is, therefore, tentative.

The remaining two Brewerton point fragments are made from different cherts, one identified tentatively as Kettle Point. Specimen 6 (Figure 7f) is missing its tip—its length is estimated at 55 mm. It is widest at the barbed shoulders (31 mm) and its basal width is 23 mm along a straight, ground basal edge. The notches are narrow and oblique. Specimen 7 (Figure 8e) is very fragmentary, apparently reworked, and damaged from exposure to heat, leaving little to measure. Although this specimen was recovered from Feature 9, this feature also contained a piece of iron hardware and charred, partly carbonized

wood, raising serious doubts as to its significance.

Two complete points (Figure 8a and 8b, Table 5:8 and 5:9) are smaller than the corner-notched points just described and fall outside the normal size range of variation for Brewerton corner-notched points. Specimen 8, for example, made of Haldimand chert, is widest at the shoulder and measures 19 mm wide at the straight and slightly ground basal edge. Two other points are distinguished by their long, narrow shapes (Figure 8c and 8d, Table 5:10 and 5:11). One, a complete point, is slightly barbed and corner-notched or with an expanding stem. The other, a point tip from Feature 4, appears to have been similar. Together, they have affinities to Brewerton corner-notched and Normanskill types—both types belonging to the Laurentian tradition (Ritchie 1961:37).

There is a range of variation in Brewerton points relating, perhaps, to the resharpening of corner-notched points into narrower, side-notched forms (Ellis and Deller 1986:50). Such reduction of points that are transported over long distances may be expected as a result of maintenance and curation of a valued tool form made from scarce or distantly-obtained materials.

Miscellaneous Flaked Projectile Points. Six remaining projectile points (Table 6, Figure 8f-i, l) are unclassifiable, extensively reworked or are single representatives of other traditions at Rentner.

Figure 8. Flaked stone points and drills from the Rentner site: Brewerton corner-notched from Feature 2 (a); Brewerton corner-notched from 17N1E (b); Brewerton corner-notched or Normanskill specimens from 15N3W (c) and Feature 4 (d); Brewerton corner-notched from Feature 9 (e); reworked points from 22N0W (f) and 15N1W (g); Orient Fishtail point from 6N5W (h); Late Woodland Madison point from 13N3W (i); and drills from 23N3W (j), 21N0E (k), and 15N15E (l).

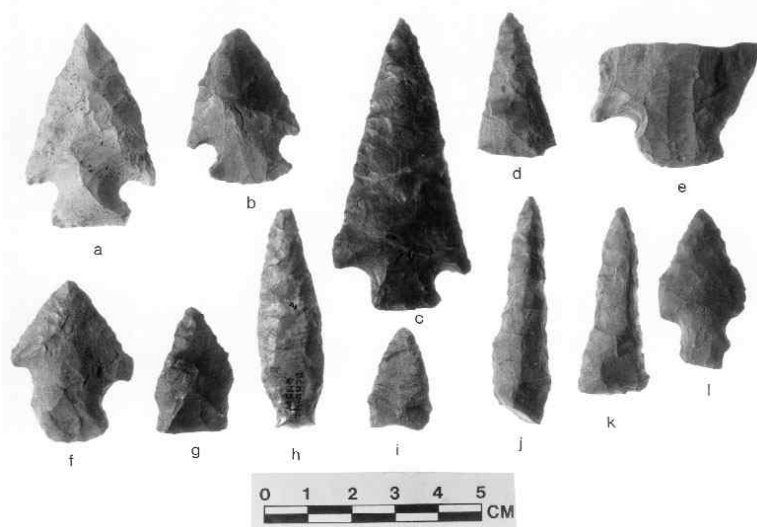


Table 6. Miscellaneous flaked projectile points from the Rentner site.

Specimen	Description	Material	Provenience	Length (mm)	Width (mm)	Thickness (mm)	Figure
12	Reworked	Onondaga	22N0W	38	28	8	8f
13	Reworked	Onondaga	15N1W	30	18	8	8g
14	Complete	Onondaga	6N5W	+51	15	6	8h
15	Complete	Bayport	13N3W	23	15	3	8i, 12e
16	Reworked	Onondaga	15N15E	37	20	6	8l
17	Tip	Onondaga	19N3W	—	—	—	—

Two points (Table 6:12 and 6:13) are complete but unclassifiable because they have been modified, reduced or extensively reworked. Specimen 12 (Figure 8f) is relatively thick for its small size and has a short, asymmetrically bevelled blade which comprises only half the total length of the point. Specimen 13 (Figure 8g) is the tip of a broken point that has been reworked, perhaps by a child or novice flintknapper. Side notches are shallow and the base is poorly thinned. These two specimens might have once been Brewerton side or corner-notched points that are now, after extensive resharpening, unrecognizable.

Two complete points are classifiable and unique in this collection (Table 6:14 and 6:15). Specimen 14 (Figure 8h), a long, narrow, thin point, resembles the Orient Fishtail type of the Late Archaic period (Ritchie 1961:39). These points, though better documented in New York State, appear sporadically in southern Ontario. Its presence as far north as the Rentner site is unexpected and suggests influence from New

York, possibly through eastern Ontario along the Trent-Severn Waterway. Specimen 15 (Figure 8i), an edge-retouched flake of Bayport chert, is likely a Madison type point (Ritchie 1961:33) from the Late Woodland component at Rentner. The base is slightly concave and has not been thinned. In contrast to this specimen, a few points from the roughly contemporaneous Wiacek site (Lennox et al. 1986) are manufactured from locally available cherts by edge-retouch, whereas points made on imported raw materials at that site are better made or more extensively modified.

One specimen (Figure 8l, Table 6:16) has been modified into a drill. It has a double-notched and stemmed hafting element with a thick unfinished basal edge, suggesting that it was reworked from a point tip. The blade was probably resharpened while the artifact was still hafted, resulting in the stepped outline of the blade. Rounding of tip and distal blade edges suggest its use as a drill. Blade form and tip wear is similar

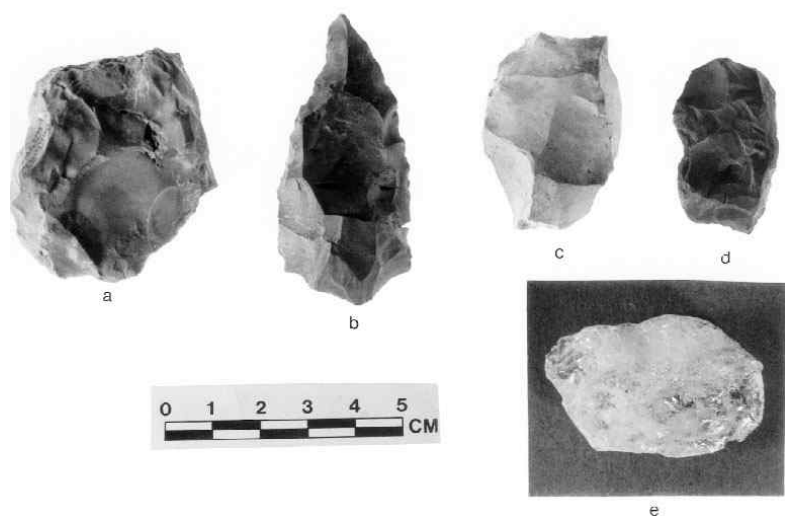


Figure 9. Examples of the Rentner site bifaces: early stage bifaces of Huronia chert from 11N4W (a) and Collingwood chert from 17N2W (c); utilized late stage bifaces of Onondaga chert from 26N6W (d) and quartz from 18N4E (e); and possible point preform fragment of Onondaga chert from 13N2W (b).

to the quartz drill described in the next section. The final point specimen (Table 6:17) is a small tip fragment.

The distribution of the different point types indicates little spatial patterning or clustering that might, otherwise, imply horizontal separation of the different components. The spatial association of several projectile points, including two large, long Brewerton side-notched points (in 8N4W and 7N5W), suggests a Middle Archaic cluster, but the Late Archaic Orient Fishtail point was also found nearby (6N5W) as was a ground slate point fragment (7N3W), similar to one found in Feature 2. This feature also yielded a small corner-notched point. Similar complex groupings of diagnostic artifacts are found elsewhere at the site, indicating mixed components. It is nearly impossible, therefore, to assign undiagnostic tools to specific occupations.

Bifaces

A total of 50 bifaces was recovered. These are predominantly small fragments and were distributed throughout the excavated area. Thirty-eight are manufactured from chert, while most of the remainder are of quartz and few are of quartzite. Few appear to represent early stage biface blanks distinguished by such characteristics as irregular outlines, sinuous edges and large flake scars. Rather, most fragments appear to represent fin-

ished, refined and utilized tools, exhibiting secondary retouch and worn edges.

Though generally rare in this collection, two of the larger and nearly complete examples illustrate early stages of biface reduction. The largest and most complete specimen, from 11N4W (Figure 9a) consists of a primary flake struck from a cobble of Huronia chert. It is roughly ovate measuring 47 mm, 39 mm, and 12 mm in length, width, and thickness respectively. The biface retains nodular cortex along several sinuous edges. Another example, from 17N2W, is made of Collingwood chert (Figure 9c). It is complete and measures 42 mm, 30 mm and 12 mm in maximum length, width and thickness. The specimen retains tabular cortex on a striking platform, evidence of the flake blank from which the biface was made. These two examples are made on locally available cherts while most of the more refined tools and biface fragments from the site are made from Onondaga chert, brought from distant sources.

Of the larger, refined or late stage bifaces, one Onondaga chert and one quartz specimen are ovate-rectangular in form (Figure 9d and 9e). Each possesses a convex end with worn edges interpreted as use-wear. Nine other small biface fragments (seven chert, one quartz and one quartzite) also exhibit worn edges. They may be refined bifaces that have been utilized or ground

in preparation for further thinning. They lack the steep unifacial retouch characteristic of most scraper bit edges. A large, late stage, biface fragment (Figure 9b) of Onondaga chert has a triangular form, suggesting that it may be a projectile point preform. Four fragments from the same excavation unit (13N2W) mend to form this preform's proximal end. It measures +64 mm long, 27 mm wide and 13 mm thick.

As far as can be assessed based on their surviving attributes, a total of 11 biface fragments may represent projectile points or preforms, based on their refined edges and regularity of form. Two short rectangular biface fragments from 26N0E and 20N10E, for example, may be stemmed point bases, similar to specimens shown in Figures 8e and 8f. Another possible basal point fragment, from 24N4E, may represent the wide but unground edge from a point base similar to that shown in Figure 7e. The remaining biface fragments include five possible point blades (22N1W, 20N3W, 16N2W, 13N5W, and Feature 2) and three possible point tips (24N0E, 21N0E and Feature 2). All are made from a mottled grey or grey-brown chert, probably Onondaga.

Drills

Of four bifacial drills recovered at the site (Table 7), one was already described as a modified projectile point (Table 6:16). Another specimen (Table 7:2), made from quartz, has been refitted from two fragments. Both specimens exhibit slight wear at their distal ends, as well as blade modifications, suggesting use as drills or piercing implements.

Two long, narrow, bifacially flaked and pointed bifaces were also recovered (Figure 8j, k). The base of one (Table 7:3) is thick and unmodified—possibly representing the broken end of a missing, longer base. Again, the tip exhibits wear. Tip rounding is not extensive, but polish is

developed on either face of the distal half of the tool suggesting its use on soft material and penetration of the drill bit to some depth. The other specimen (Table 7:4), found nearby, is an expanding base drill. The straight base is slightly ground but distal tip and edge wear is limited, also suggesting its use on soft materials.

Scrapers

Only eight flaked stone scrapers were recovered from the site. The low ratio of scrapers to projectile points (roughly one to three) and their small size suggests either that scraping was a relatively unimportant activity at this site or that an alternative tool form, such as the fine stone celts or perhaps unpreserved bone or even wooden tools such as beamers, were preferred for the preparation of hides.

Five specimens are small end or thumbnail scrapers of Onondaga chert exhibiting dorsal retouch on short, convex, distal edges (e.g., Figure 10c-e). They are all from an area north of Feature 7 (Figure 3), suggesting a focus of scraping activity in the north half of the site. Two other scrapers of Onondaga chert are hafted end scrapers. One, from Feature 2, was made by unifacially retouching a flake (Figure 10b). The other, from 23N2E, was fashioned from a point base (Figure 10a). It exhibits a corner-notched hafting element and a broad, bifacially flaked and worn bit edge. The remaining scraper, from 6N5W, is made on a quartz spall fragment (Figure 10f). Most of its dorsal surface is cortex except where distal retouch has created a convex working edge.

Celts

Five portions of ground stone celts were recovered from the site. All appear to have been relatively small tools made of greenish-grey schist, except for one which is made of slate.

Table 7. Drills from the Renter site.

Specimen	Description	Material	Provenience	Length (mm)	Width (mm)	Thickness (mm)	Figure
1	Reworked Projectile Point: see Table 6, Specimen 16						
2	Refit Biface	quartz	8N4W-7N1W	26	22	5	
3	Biface	Onondaga	23N3W	53	14	8	8j
4	Biface	Onondaga?	21N0E	45	17	7	8k

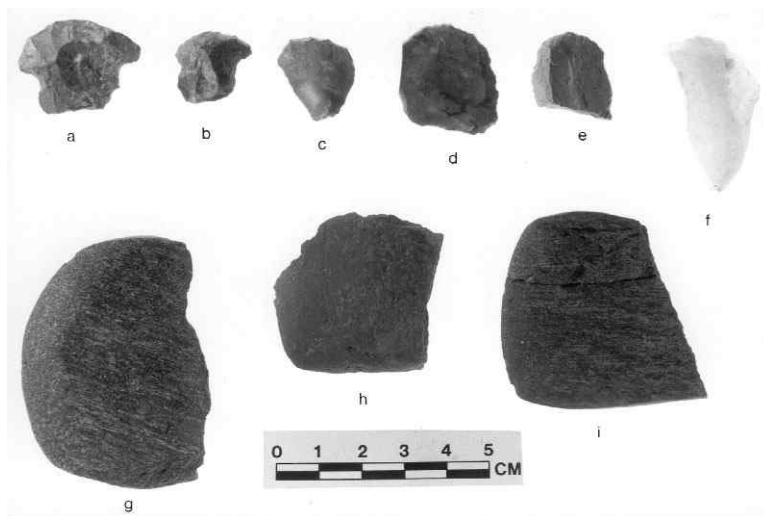


Figure 10. *Rentner site scrapers and celts: hafted end scrapers on a point fragment from 23N2E (a) and on a flake from Feature 2 (b); flake scrapers from 17N1W (c), 23N11W (d), and 19N0E (e); scraper on a quartz spall from 6N5W (f); and celts from 23N2E (g), 21N3W (h), and Feature 2 (i).*

The distal or bit end of a celt was recovered from Feature 2 (Figure 10i). The celt is widest (46 mm) just proximal to the bit and tapers slightly toward the haft end. The artifact is symmetrically biconvex in longitudinal cross section with a maximum thickness of nine millimetres. The bit edge, convex in plan view, is 41 mm long and finely honed with bevelled surfaces on which fine striations run parallel to the edge. These striations give way to worn and polished corners. This pattern might indicate a sequence of initial use on soft materials (e.g., animal hides), producing the polish, and subsequent resharpening, producing the striations, and finally, breakage. A proximal end fragment from the plough zone nearby (unit 9N3W) may represent a portion of the same tool. Slightly narrower, this end would have added an additional 49 mm of length to the bit fragment recovered from Feature 2.

The blade from a larger celt of similar material was recovered from unit 23N2E (Figure 10g). Its bit is also convex in plan view. Longitudinally, it is asymmetrically biconvex—nearly plano-convex. The length of the bit edge is 50 mm. The artifact fragment is 12 mm in maximum thickness, although the complete tool may have been slightly thicker. Another small fragment of ground schist was recovered from unit 22N8W and likely represents a celt fragment.

The remaining celt fragment is slate and was recovered from unit 21N3W (Figure 10h). The

bit is incomplete but was also convex in plan view, 35–40 mm long, and symmetrically biconvex in longitudinal cross section. This specimen was thin (6 mm) and the finely honed blade exhibits striations oriented perpendicular to the blade edge, suggesting use-wear. The small size of the celt suggests it was used to scrape hides.

Hammerstones

Three complete, waterworn, beach cobbles exhibit end or edge facets indicating their use as hammers. All measure approximately 70 mm in diameter and range in weight from 198g to 245g. Two are from the plough zone excavations, (22N7W, 16N3W) and one is unprovenienced. Several granitic cobbles from Rentner may be considered hammerstones or hammerstone fragments because they exhibit occasional peck marks. The availability of cobbles in the vicinity of the site suggests that hammerstones were expedient tools. The few examples highlighted in this analysis are those which were favoured or curated and more extensively used.

Ceramics

The identification of a Late Woodland component is based on the ceramic assemblage from Rentner, as well as the Madison projectile point described above (Table 6:15, Figure 12e). The ceramics are some of the most temporally sensitive artifacts recovered from the site. Despite the

presumably brief Late Woodland occupation, these artifacts are widely distributed across the site. The ceramics occur in two clusters (Figure 11), the largest of which is centred over and within Feature 7 (Figure 3), three metres north-east of the location of the Madison point. A more diffuse group of ceramics is located further north (Figure 11). In addition, an almost complete (reconstructed) pipe bowl was found at the south end of the excavation block, while pieces of another were found in the northern pottery concentration.

There are 141 ceramic vessel fragments, mostly microsherds and small, exfoliated bodysherds that were not further analysed. The few identifiable sherds are predominantly from one vessel.

They suggest a plain, thick base and a body with a smoothed-over ribbed-paddle surface treatment. Two rim sherds from this vessel (Figure 12b and 12c) combine trailed or incised horizontal decorative elements on the collar and neck with short linear impressions or gashes above and below the horizontal elements on a collared rim and form a convex interior profile. The lip and interior of the rim are undecorated. These attributes are of the Black Necked type, regarded as a late Middle or early Late Ontario Iroquoian type (MacNeish 1952a:36), dating to circa A.D. 1450-1500 (cf. Kapches 1981; Lennox and Kenyon 1984; Lennox et al. 1986; Wright 1966). Another rim sherd, from 24N2W, is from a small, juvenile vessel with plain surfaces and a lip thickness of

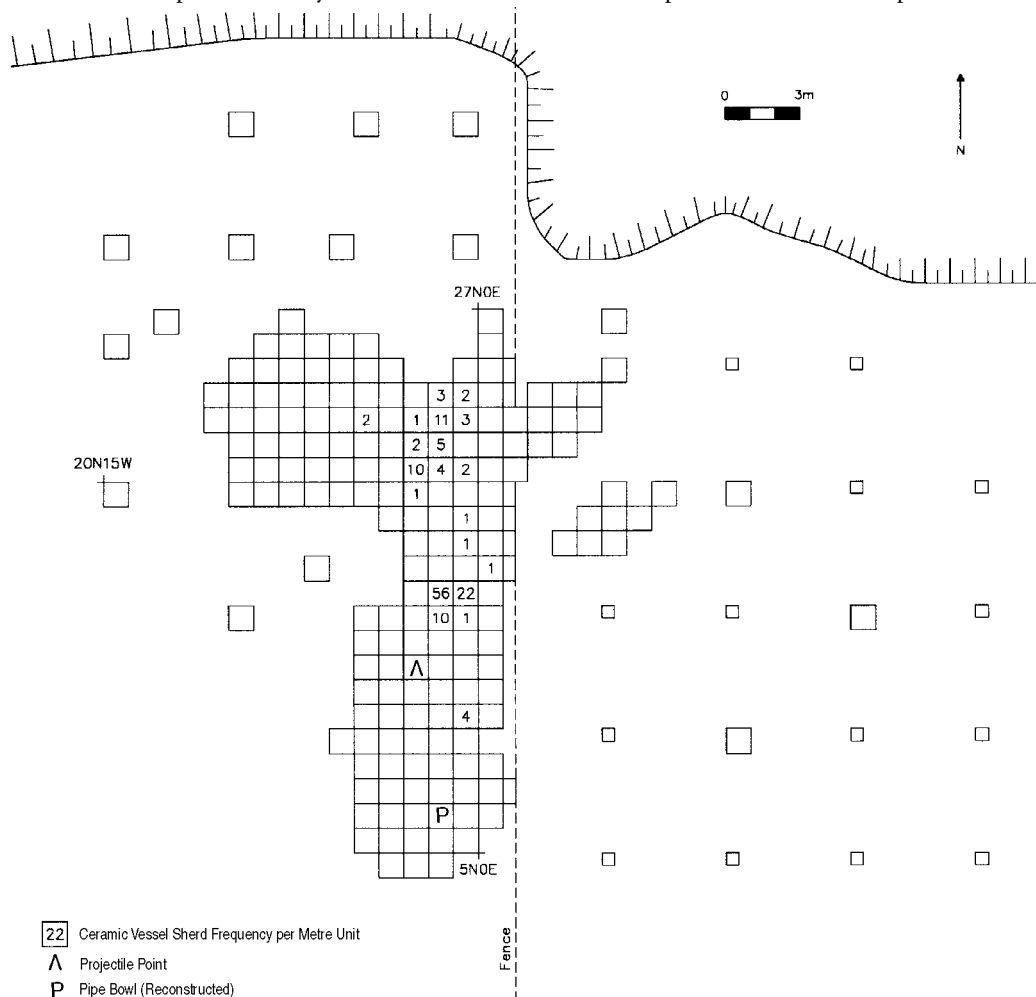


Figure 11. The distribution of selected Late Woodland artifacts at the Renter site.

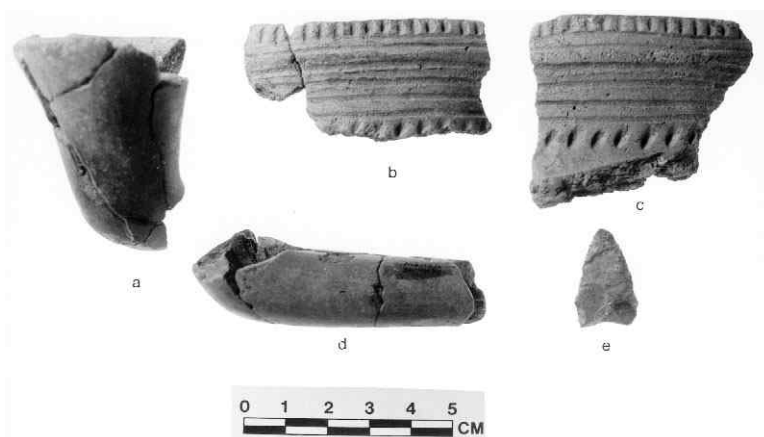


Figure 12. Late Woodland artifacts from the Rentner site: pipe bowl from 6N2W (a); vessel rim sherds from 23-24N2W (b) and 22N3W (c); pipe stem from 23N3W, 22N3W, and 20N4W (d); and projectile point from 13N3W (e).

only a few millimetres. Two bodysherds from an adjacent unit (24N1W), likely from the same vessel, are 3 mm thick and exhibit a smoothed-over ribbed-paddle surface treatment.

One pipe bowl (Figure 12a) was restored from seven fragments recovered from 6N2W Figure 11). It is plain with a flared, conical form (Lennox et al. 1986:60), 41 mm in diameter across the lip and 48 mm high, from the lip to the base of the elbow. A small stem fragment, from 7N2W and likely from the same pipe, has a smooth bore, round cross-section and is 14 mm in diameter. A second pipe consists of a stem (Figure 12d), complete from mouthpiece to elbow. It was reconstructed from 5 fragments from 23N3W, 22N3W, and 20N4W. It measures 70 mm long, is round in cross section measuring 19 mm in maximum diameter and tapering along its length to 15 mm at the mouthpiece. This pipe stem is plain or undecorated and has a smooth bore.

Cores

A total of 115 cores was recovered. They include 25 chert cores, all of which are bipolar, and 90 quartz cores, 86 of which are bipolar. The remaining four quartz cores are random, representing larger nodules.

Of the chert cores, about half their number was recovered from the southern part of the excavation, from the vicinity of Feature 2. All are of cherts found in the local till, including 15 cores of Huronia chert (see below), excepting one specimen of Onondaga chert. Nodular cortex is

found on a total of 15 chert cores and 71 quartz cores. This lack of extensive flake reduction indicates that secondary source material was used and that the material was expediently broken to produce a few flakes for immediate use.

Six bipolar core types were identified on 90 complete cores (22 chert and 68 quartz), based on the appearance of flaked surfaces at either end of each core. The six types reflect paired combinations of three forms of percussion observed on the cores (Binford and Quimby 1963:289): ridge (R), point (P) and area (A). Each of these forms describes the appearance of the percussion surface at each end of the core. Complete cores are shown, by type, in length-width plots in Figures 13 (chert) and 14 (quartz). These figures show that cores with two opposing areas of percussion (AA type) tend to be largest, whereas cores with two opposing points (PP type) tend to be smallest. Reduction in size is associated with progressive change from area to ridge and finally to point percussion surfaces occurring at either end of the core. This typology, similar to the distinction made elsewhere between bipolar cores and wedges (Lennox and Hagerty 1995:23), reflects a sequence of reduction in bipolar cores.

Rentner Site Debitage

Flakes were analysed using previously-established methods which focus on morphology and a four-part classification (Lennox 1981, 1986; Lennox et al. 1986). Primary flakes are interpreted as flakes from cores, representing an early stage of

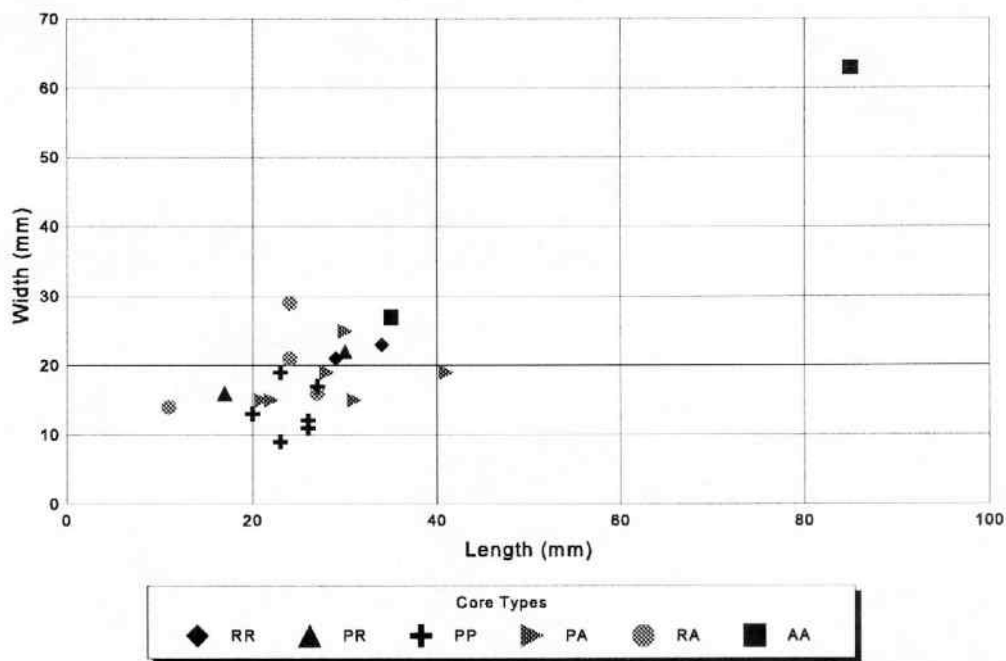


Figure 13. Dimensions of chert bipolar cores at the Renter site showing six types of core based on combinations of three areas of percussion on each core: R=ridge; P=point; and A=area. Only complete cores (n=22) are shown.

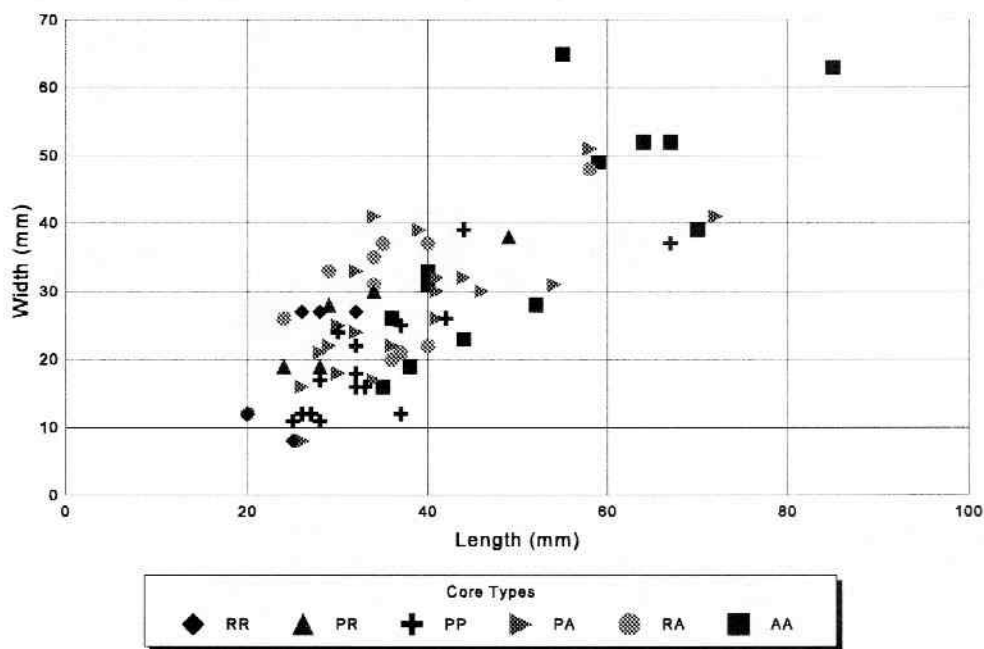


Figure 14. Dimensions and type of quartz bipolar cores at Renter based on combinations of three areas of percussion on each core: R=ridge; P=point; and A=area. Only complete cores (n=68) are shown.

lithic reduction. Generally, large flakes are preferred during attempts to produce flake blanks—flakes of a size and shape suitable for further reduction or use. Primary flakes can exhibit cortex on dorsal surfaces. Cortex may be nodular, which is extensively weathered or abraded and likely water-rolled. This weathering indicates the use of secondary chert from till or beach deposits, possibly located some distance from the primary source or chert outcrop. Cortex may also be tabular, resulting from the breakage and extraction of bedded chert from its bedrock source. Tabular chert has a relatively unweathered flat or planar surface, except where ground water percolating through bedrock has produced staining. At times, planar flaws running across or through tabular surfaces are ‘healed’, only to appear later during lithic reduction. Flakes can terminate at these faults, sometimes breaking the core or tool being worked.

Secondary flakes are flakes removed from bifaces during shaping or thinning of tools. Secondary flakes are usually smaller than primary flakes with an obtuse angle between the striking platform and ventral surface of the flake (or acute angle between platform and dorsal surface). Platform and dorsal surfaces are usually scarred with previous flake removals. Cortex may or may not be present. Flake fragments lack platforms; they are the distal ends of either primary or secondary flakes. Flake fragments are most common on sites with large quantities of thin, secondary flakes, which break more easily than primary flakes, and on sites that have been ploughed extensively. Shatter describes relatively thick, blocky (and generally small) pieces of chert which lack the attributes of percussion flakes—specifically, conchoidal fracturing. Shatter is thought to reflect uncontrolled breakage of chert, sometimes along natural faults or impurities. It is most likely a by-product of initial stages of reduction when the greatest force is being applied to the raw material.

Plough Zone Debitage

In total, 1,933 pieces of chert debitage were recovered from the plough zone (Table 8). The distribution of this material is shown in Figure

15. Erratic and multiple peak densities likely reflect the multi-component nature of the site. Most of the assemblage is composed of secondary flakes (46 percent) and flake fragments (38 percent). The large number of fragments may be attributed to breakage of small, thin secondary flakes. The secondary flakes likely derive from resharpening of used and worn bifaces. Their small size supports this conclusion, as does the dullness or wear which is common on biface edges and secondary flakes—on edges where striking platform meets dorsal surface.

The low percentage of primary flakes (8.1%) in the assemblage and their small size indicates the lack of early-stage production of bifaces from cores at the site. This observation is reinforced by the scarcity of large random chert cores.

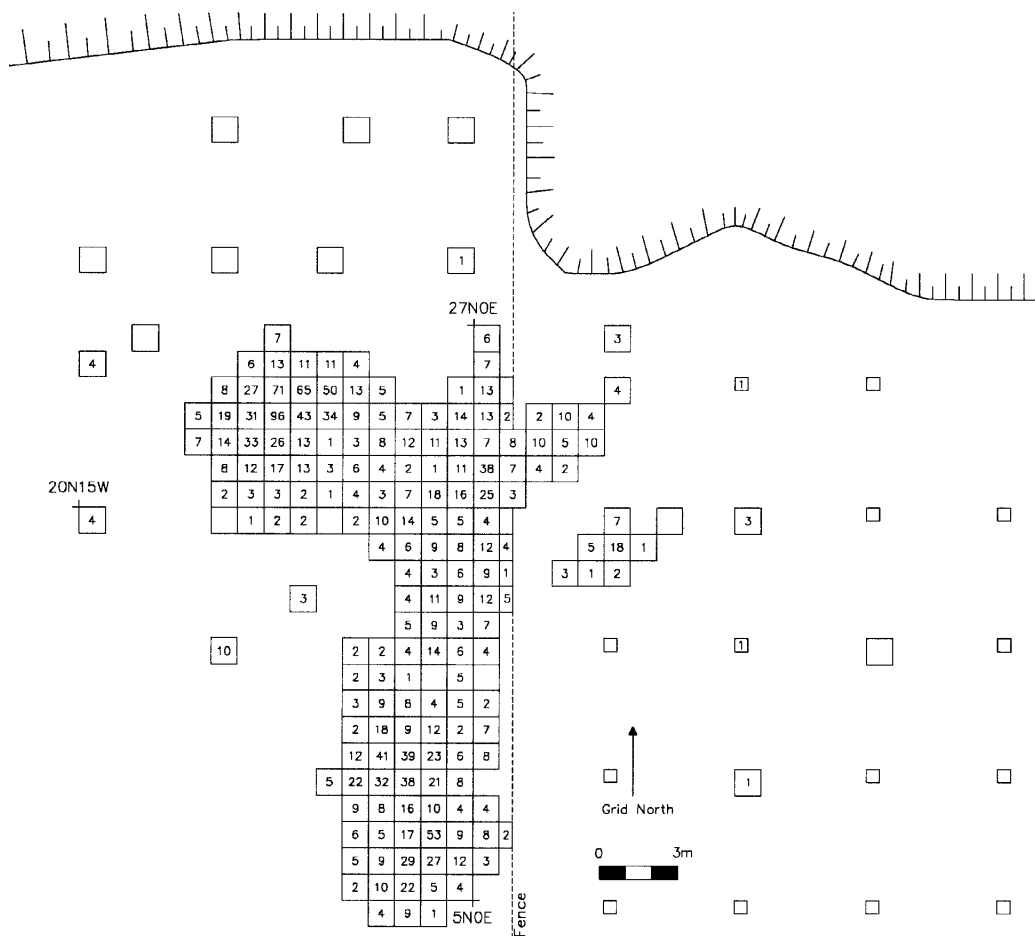
The significant representation of shatter (7.4%) in this analysis is notable. Since shatter is attributed to the uncontrolled breakage of the raw material and is thus most likely a by-product of the initial stages of the reduction sequence (Lennox 1986:226), shatter is generally uncommon where random cores are scarce unless there is a significant bipolar industry represented. At Rentner the high incidence of shatter is undoubtedly a product of the bipolar reduction of local chert pebbles.

Feature 2 Chert Debitage

The large debitage assemblage from subsoil Feature 2 is remarkable for its sealed context and association with diagnostic artifacts and a dated charcoal sample. The sample from Feature 7 is smaller, perhaps representing the same occupation as that from Feature 2. These feature samples may be from some of the earliest components on the Rentner site. They appear to reflect

Table 8. *Percentage breakdown of chert debitage, by morphological flake type, within Feature 2 and within the plough zone at the Rentner site. The material from Feature 2 excludes 433 items of microdebitage.*

Flake Types	Feature 2 (n = 388)	Ploughzone (n = 1,933)
Primary flakes	1.5	8.1
Secondary	58.8	46.2
Flake Fragments	33.8	38.1
Shatter	5.9	7.4
Total	100 .0	99.8



Feature 2 may reflect the large amount of secondary flake material in both of these contexts. The higher frequency of flake fragments in the plough zone is most likely a result of breakage caused by ploughing. The large quantities of microdebitage recovered from Feature 2 is a result of fine screening of feature fill. Despite the great number of plough-disturbed site excavations, many with sub-plough zone cultural features, the relationship between the plough-disturbed portion of the assemblage and the undisturbed portion remains largely obscure.

One bulk soil sample taken from Feature 2 for flotation yielded evidence of flaking debris for one or more knapping events. The debris occurs just south of an area of red mottled earth (Figure 4), suggesting a knapping area next to a hearth. This sample, the largest single flotation sample (35 litres) from the feature, was taken from area Z (Figure 4), located between a concentration of fire-cracked rock and the area of red mottled earth. The sample, taken to capture a concentration of lithic debitage observed during excavation, produced 95 pieces of debitage and 341 pieces of microdebitage. All this material weighed only 30g, reflecting the small size of the individual pieces of debitage. The portion that could be analysed, consisting of 95 flakes, contained 60 small secondary flakes, 25 flake fragments and 10 pieces of shatter. No primary flakes of chert were present but there was one primary decortification flake of quartz, 20 mm long. The lithic concentration from this portion of Feature 2 probably represents the results of one or two knapping events in a preferred location adjacent to the hearth.

The types of raw material in the Feature 2 chert debitage assemblage appear to be mostly local pebble cherts, particularly Huronia chert. There are several flakes of Onondaga, Collingwood and Kettle Point chert. Notable is the absence here, or anywhere else on the site, of Haldimand chert debitage. The only artifact of this material is the projectile point recovered from Feature 2 (Figure 8a, Table 5:8).

Most of the chert debitage from Feature 2, and the site in general, appears to have been obtained locally, whereas many of the stone tools appear to have been imported. The broad range of cherts

represented by the tools suggest that they were imported in a near-finished state and were finished or resharpened on-site, producing a wide range of small debitage. In contrast, most of the identifiable pieces of debitage are from a range of cherts, likely locally derived from pebbles and cobbles on beaches and in exposed till deposits. These beach materials are, however, so small that they likely provided material for only the occasional flake tool. I suggest that extensive use of quartz may have contributed significantly to an expedient flake tool assemblage.

Rentner Site Raw Material Types

A wide range of lithic raw materials is represented at the site—including virtually every type of chert available in southwestern Ontario and several from beyond.

Chert

Chert identifications, by visual macroscopic inspection, are likely to be more accurate for larger tools than for debitage. The low incidence of some exotic materials among debitage suggests that debitage was derived from on-site rejuvenation of imported tools.

The most common chert among debitage may be generically referred to as “local pebble cherts” that are available in local tills. They are dominated by Lower Gull River Formation “Huronian” (or “Huronian”) chert (Eley and von Bitter 1989:26; Fox 1979:80) but also include, less commonly, Upper Bobcaygeon Formation “Balsam Lake” and “Trent” cherts (Eley and von Bitter 1989:24). Waterworn, nodular cortex is often present on cores, small flakes and sometimes on tools made from these materials, indicating that the chert nodules were collected locally and reduced at the site.

Fossil Hill Formation “Collingwood” chert (Eley and von Bitter 1989:22) is also likely present in till, though its primary source is not far from the site. Primary source material does not appear, however, to have been exploited. Several flakes and one bipolar core of Collingwood chert exhibit remnants of nodular cortex, indicating secondary source derivation.

Several flakes of a variety of white chalcedony, similar in appearance to materials from Flint Ridge, Ohio, are present in the assemblage. This material is available, though rare, in local till. No tools of this material were recovered.

Onondaga chert is one of the most common raw materials among both tools and debitage yet its primary sources are about 200 km south of the site. Its high frequency indicates trade or transport of tools and possibly cores or preforms, but it is likely that most debitage of this material was derived from the reworking or rejuvenation of used or worn tools.

Norwood and Bayport cherts appear to be represented among flakes and at least one projectile point (Table 4:2). In Ontario, these cherts are typically regarded as imports from Michigan (Fox 1992; Stafford 1998), but flakes of these materials at Rentner have nodular cortex, indicating that they come from secondary source pebbles found locally which were then bipolarly reduced. One piece of Norwood chert is a split waterworn nodule measuring 30 mm by 26 mm by 11 mm. This specimen is banded with small (< 6 mm long) vugs of chalcedony oriented perpendicular to the brown and grey banding, as is typical of this chert type. Another specimen is grey-brown with fine white linear inclusions, similar in appearance to Bayport chert from Saginaw Bay, Michigan. Two specimens of this material occur in Feature 2, one small (one centimetre) secondary flake and one larger (three centimetre) piece of shatter. The surface of the larger piece appears to represent the interface between the chert bed and its limestone matrix.

Several flakes identified in the lithic debitage assemblage appear to be Hudson Bay Lowland chert while others are Kettle Point chert. However, since no cortex is present on these few specimens it may be that they have derived from the rejuvenation of imported tools. Hudson Bay Lowland chert may be present in small quantities in glacial deposits around Georgian Bay.

Quartz

More than 700 items of quartz and a few pieces of quartzite and crystal quartz were recovered from the site. In addition to the 90 quartz cores

described earlier, a total of 611 quartz flakes were distributed evenly across the entire excavated area. Quartz, like the local chert pebbles, appears to have been used in an expedient manner. Tools of both materials are rare—most are simple flake tools. The large number of bipolar quartz cores suggests that quartz was used to make utilizable flakes in the absence of local cherts of appreciable size.

Slate

The flaked stone assemblage also contains a slate, known colloquially as Huronia Banded slate—a high quality and beautiful material. This assemblage includes 82 pieces of debitage, probably derived from the production of the slate projectile points and celts described earlier, as well as eight cores or tool blanks. These worked slate objects range from sizeable, split or crudely formed cobbles (the largest measuring 174 mm by 79 mm by 36 mm), to smaller, crudely formed rectangular bifaces. The slate material is evenly distributed across the site with the exception of a cluster of 33 pieces found near Feature 2 and another 20 pieces within that feature. This concentration coincides with the distribution of several of the ground slate projectile points.

The flaked slate assemblage is likely the product of the early stages of ground slate tool production, but it is difficult to reconstruct the full reduction sequence from the debris produced. Later stages of reduction, involving grinding, would leave little recoverable evidence. During these later stages, the failure rate may be substantially reduced, leaving few specimens that are partially shaped by grinding and then discarded due to breakage. Also missing from the site assemblage are the tools that were used to grind the slate, though evidence of abrasion on these tools might be lacking due to the softness of the material worked.

Rentner Site Faunal Remains

Three features contain faunal remains which can be attributed to single occupations or components and were selected for analysis. Features 2 and 6 are regarded as Middle Archaic and

Feature 7 as Late Woodland. Faunal remains from other features, not attributable to identifiable occupations, were not analysed. Faunal remains from Features 2, 6 and 7 are in poor condition. Most (96 percent) are calcined, small and friable. The majority of this material (97 percent) was recovered from the heavy fraction of flotation samples collected using one millimetre mesh. Features 2 and 6 contained countless microscopic bone fragments. Only larger fragments from the three features, 4,226 in total (Tables 9 and 10), are discussed.

Only about 40 percent of the individual specimens in the sample could be identified to class (Table 9). Of this identifiable portion, 58 percent of remains are fish and 41 percent are mammal. Only mammal and fish remains were identified to more specific taxonomic groups. More precise identifications for each feature are provided in Table 10. Most of the faunal remains from the site (96 percent) were recovered from the Middle Archaic features, particularly Feature 2 (79 percent). Few remains were recovered from the Late Woodland Feature 7 and none of them

Class	Archaic Features	Late Woodland Feature	Total	Percentage
Fish	950	22	972	23.0
Mammal	674	13	687	16.3
Bird	3		3	0.1
Mollusc	7		7	0.2
Subtotal	1,634	35	1,669	39.5
Unknown	2,427	130	2,557	60.5
Total	4,061	165	4,226	100.0

Table 9. Faunal remains (number of individual specimens) by period at the Rentner site.

Taxonomic group	Features			Total
	2	6	7	
Fish				
Catfish/Bullhead (<i>Ictalurus</i> sp.)		2		2
Sucker/Redhorse (Catostomidae sp.)		1		1
Sucker (<i>Catostomus</i> sp.)		3		3
Freshwater Drum (<i>Aplodinotus grunniens</i>)		4		4
Whitefish/Ciscoe (Salmonidae sp.)	6			6
Whitefish (<i>Coregonus</i> sp.)	7	1		8
Unidentified Fish	739	187	22	948
Subtotal Fish	752	198	22	972
Mammals				
Rodent (Rodentia sp.)	11	1		12
Beaver (<i>Castor canadensis</i>)	1	1		2
Porcupine (<i>Erethizon dorsatum</i>)	15	1		16
Hare (Leporidae sp.)	1			1
White-tailed Deer (<i>Odocoileus virginianus</i>)	1	1		2
Unidentified Mammals	500	141	13	654
Subtotal Mammals	529	145	13	687
Birds				
Unidentified Bird	3			3
Subtotal Bird	3			3
Mollusca				
	7			7
Unidentified	2,055	372	130	2,557
Total	3,346	715	165	4,226

Table 10. Rentner site faunal remains (number of individual specimens) by taxonomic group and feature.

were identified below class level. The remaining discussion focuses, therefore, on finds from the Middle Archaic features.

Fish

Freshwater drum (*Aplodinotus grunniens*) is the only identified fish species. Drum inhabit large, shallow (12-18 m) bodies of water. They prefer clear water but are able to acclimatize to cloudy conditions (Scott and Crossman 1973:815). They spawn from July to as late as September over mud or sand bottoms in depths of about two metres (Scott and Crossman 1973:814).

Sucker and catfish species are represented in modest quantities in the assemblage. Both are bottom feeders that spawn in spring to early summer but, otherwise, their habitats differ. The most probable species of sucker in the sample is either the longnose or white sucker. Both usually spawn on gravel bottoms in streams or shallow areas of lake margins. The longnose sucker (*Catostomus catostomus*) favours clear, cold water in contrast to the white sucker (*C. commersoni*) which prefers warm water (Scott and Crossman 1973:531-543). The catfish remains recovered from the site may belong to channel catfish or a variety of bullhead. Most of the catfish species are late spring or summer spawners. Channel catfish (*Ictalurus punctatus*) live in clear, cool waters of lakes and larger rivers with gravel or rubble bottoms. Most bullheads, however, prefer shallower, murkier waters with heavy aquatic vegetation (Scott and Crossman 1973:608).

The whitefish remains recovered from the site are most likely lake whitefish (*Coregonus clupeaformis*). This is a cool water species which moves to deeper water in warmer months, though they may not do so in colder lakes (Scott and Crossman 1973:272). Lake whitefish spawn during fall in shallow water, frequently eight metres or less in depth, over hard or stony bottoms or sometimes over sand (Scott and Crossman 1973:271).

The species identified in the two Archaic features are partly distinguished on the basis of spawning season. Only whitefish was identified in Feature 2 whereas drum, sucker catfish and whitefish were present in Feature 6. If these dif-

ferences reflect a difference in the season of occupation, then Feature 6 indicates a spring or summer occupation whereas Feature 2 indicates a fall presence.

Mammals

Of 687 individual mammal specimens, 259 bone fragments could be identified: 137 specimens (53 percent) are from large mammals, such as deer, and 122 specimens (47 percent) belong to medium-sized mammals (e.g., beaver and porcupine). No bones from small mammals were identified to species.

The only large mammal identified to species is white-tailed deer (*Odocoileus virginianus*), which is represented on the site by limb elements. Porcupine (*Erethizon dorsatum*) is the most common mammal species, represented mainly by skull and foot elements. Most porcupine bones (94 percent) were recovered from Feature 2. Fragments of beaver (*Castor canadensis*) incisors were recovered from both Archaic features. Remains of hare could not be identified to species but they most resemble snowshoe hare (*Lepus americanus*).

In contrast to fish, the kinds of mammal remains from Features 2 and 6 are similar: both features contain deer, porcupine and beaver. These species suggest a forest or forest-edge environment, perhaps near a river, swamp or cedar bog (Banfield 1974:82, 160, 234, 393).

Renter Site Human Remains

A single tooth recovered from the plough zone in 20N5E was examined by Dr. Michael Spence (personal communication 1997) who confirmed that it was human and identified the specimen as an upper right, medial incisor. Though the tooth is well worn, it is shovel-shaped, implying that it is native North American. Although an undiscovered human burial may be nearby, premortem loss cannot be ruled out.

Discussion

The Rentner site is located on a fossil lake strandline south of Georgian Bay, where Batteaux Creek now crosses the post-glacial beach that was

formed by a high-water stage in the Huron basin. This high-water stage, known as the Nipissing transgression, is estimated to span the period between 3,700 and 5,500 B.P. (Eschman and Karrow 1985:90). At that time, the site was located on an active beach on the east side of the mouth of Batteaux Creek. The site was no doubt used as a lakeside camp at this time, but was also used later, at least for brief periods, when this shoreline had been abandoned by the lake and the site had become a protected, inland location on a dry ridge, with access to resources in and around the adjacent creek.

Since the site is ploughed, the number of occupations cannot be segregated either vertically or horizontally and cannot be related, confidently, to any specific times or geological events. Furthermore, the non-diagnostic artifacts cannot be assigned to specific components at the site based on their form, context or material type. As a result, much of the assemblage can only be interpreted as part of what were likely similar occupations. Despite the distortions associated with data from ploughed, multicomponent sites (Lennox 1997), Rentner does provide useful information on individual components from details of the assemblage.

The earliest component at the site is attributed to one or (most likely) several occupations during the Middle Archaic period. The flaked stone projectile points—Brewerton notched and Normanskill points—together with the distinctive points of ground slate are attributed to the Laurentian Archaic Tradition. The Laurentian Archaic is a general classification for a broad range of sites and associated artifacts found over much of northeastern North America from about 5,500 to 4,500 B.P., including a few sites that have been investigated in Ontario (Ellis et al. 1990:84-92). This period of significant occupation largely overlaps the estimated age of the Nipissing transgression (5,500 to 3,700 B.P.). This overlap suggests that most Middle Archaic occupation occurred when Nipissing phase lake shores were active just a few metres north of the site.

One problem to be resolved is the radiocarbon date on charcoal of 6,910-6,490 cal B.P. (at two

sigma) from Feature 2, which also contained a Brewerton corner-notched point and a ground slate point, both considered diagnostic of the Laurentian Tradition. The date precedes both the range for the Laurentian Archaic and the Nipissing transgression. Confidence in this single date can be questioned based on the application of the dating technique itself (Timmins 1990) and on the circumstances of deposition of carbonized wood in this region. The Rentner site is near the Niagara Escarpment where living cedar trees older than 1,000 years have been documented (Kelly et al. 1994). Moreover, the site was close to rising Nipissing waters that inundated long-established forests over extensive areas that are now submerged by Lake Huron (Janusas and Amos 1996; Janusas et al. 1997). For these reasons, this date challenges the conventional geological and cultural chronology of events, although based on the evidence of a single assay, the case is weak. The refinement of our understanding of geological events (isostatic rebound, outlet availability and Great Lake water levels)—and the relation of geological with cultural events—is a continuing and long-term endeavour.

Late Archaic occupation is evident in the recovery of an Orient Fishtail point, a type best known from the northeastern United States but rare in Ontario. The presence of this point type at Rentner suggests influences from New York, possibly through eastern Ontario. With our limited understanding of such complexes in the province, little more can be said about this component.

Much of the non-diagnostic flaked and ground stone tool assemblage is assumed to be part of the Archaic components. Among this material are many refined biface fragments but few chert cores, early stage preforms or bifacial tool blanks. This ratio suggests that on-site reduction of cores, flake blanks and preforms was rare. Some finished and broken tools appear to have been recycled. A few broken projectile point fragments, for example, have been reworked into points, drills and hafted scrapers. The extent of reworking reflects the high value of the predominantly exotic raw materials from which the tools were made. Significantly absent are flaked stone scrapers. The scarcity of flaked scrapers at this

site, where toolstone availability was limited, might be associated with the relative abundance of small, finely honed celts which could be used as “skinning stones”. Wright (1972:78-9) indicates a much higher frequency of flaked stone scrapers and fewer ground stone implements on Shield Archaic sites compared to Laurentian Archaic sites, supporting this interpretation. Alternatively, scraping tools might be rare at the Rentner site if season of occupation was predominantly warm.

Late Woodland occupation is indicated by a Madison point and a small ceramic assemblage. Like the Late Archaic component, Late Woodland people were attracted to resources associated with an abandoned, raised shoreline. The small collection of Late Woodland materials, including parts of two ceramic vessels, two pipes and a projectile point, indicate a brief occupation or occupations, probably during the fifteenth century.

The early appearance of materials that have traditionally been regarded as part of the Ontario Iroquoian Tradition is notable because Rentner is considerably north and west of most sites of this cultural affiliation at this time (MacNeish 1952; Wright 1966). The ethnic identity of the Late Woodland occupants, Iroquoian or Algonquian, is an open question: the site is located in an area that was used by both groups of people during the seventeenth century. It is difficult to know how far back in time we can extend these ethnic territories from their original definitions by Europeans in the seventeenth century. The contemporary Nodwell village (Wright 1974) and other sites west of Rentner are located in an area that was historically used by the Odawa. The historically known Petun and Odawa groups in the area were involved in subsistence economies that were at times similar (cf. Fox 1990; Waisberg 1977) and so we must remain open to the possibility that the Late Woodland component at Rentner is Odawa.

The majority of lithic debitage at the Rentner site is assumed to relate to the Archaic components—Late Woodland contributions being relatively negligible. Represented within this assemblage are different uses for a variety of toolstones and toolstone sources. Surprisingly, Collingwood

chert, the primary source of which is located a short distance to the west, appears to have been unknown or relatively unexploited. The small amount of Collingwood chert that is present at the site was derived from secondary source pebble cherts. The most common material used at the site is local pebble chert (most of which can be classed as Huronia chert) that was reduced by bipolar flaking. More than half of the bipolar cores retain portions of nodular cortex, indicating their secondary source derivation and original small size.

Few primary flakes and no random chert cores occur at the site. The flake assemblage is dominated by small secondary flakes (flakes from bifaces) which appear to be the result of sharpening or resharpening tool edges. Given the small size of local chert pebbles, most of the chert bifaces could not have been manufactured from these cherts. Bifacial tools, mainly of Onondaga chert, were imported from distant sources in a finished or nearly finished condition and simply maintained at the site. The small average size of the Onondaga debitage supports this interpretation.

The presence of exotic cherts at Rentner indicates direct or indirect contact with distant chert sources in southwestern Ontario (Onondaga and Kettle Point chert) and, less importantly, in Michigan (Bayport and Norwood chert). It is likely that some finished tools of the Michigan cherts were imported, requiring distant travel or exchange (or both) by people living at the Rentner site (Fox 1992). On the other hand, the presence of small, shattered nodules of these cherts suggests a secondary source for at least some of the same materials—a source which is likely to be local rather than distant, assuming that people would not have carried untested or non-reduced pebbles over great distances. These “exotic” materials might, therefore, be derived from nearby secondary sources, perhaps transported to these locations by glacial ice or lake ice rafting (Shott 1993:7, 28).

There is a large assemblage of quartz cores but few quartz tools at the Rentner site, supporting the idea that this locally common material, available as pebbles and cobbles from till and beach deposits, was used in an expedient manner to

produce useable, sharp edges (Binford 1979), though use wear and retouch are difficult to identify on this material. The use of quartz is limited in southern Ontario, where chert is relatively abundant, either as primary or secondary source material. Even secondary source quartz, where it is available along with chert in the form of pebbles and cobbles, is not used commonly as toolstone. In contrast, quartz is more often used in parts of northern Ontario where it is more common and chert is rarer. The Rentner site appears to share some of the limiting factors that made the use of quartz more frequent in northern Ontario.

Ground slate bifaces may be assigned to the Laurentian Archaic period (Ellis et al. 1990; Lackowicz 1996; Ritchie 1969), an affiliation supported by the association of one of these bifaces with a Brewerton corner-notched point in Feature 2. The site produced evidence for early stage reduction of slate cobbles, but not for the later part of this reduction sequence. The soft nature of the stone suggests that the ground slate points were not functional items.

The faunal remains indicate a variety of fish and mammals were available in the area. Their economic and environmental implications cannot be precisely stated due to the wide range of habitats preferred or tolerated by the animals identified. At the time of the Nipissing transgression, several species of fish may have been taken from the quiet waters of the inundated river mouth at the Nipissing shoreline during particular seasons of the year. Some fish species may have infiltrated upstream, up Batteaux Creek, as water levels rose and then fell again in the Huron Basin. Other species may have been obtained in different seasons from deeper, colder and clearer waters of the lake. Riverine, lacustrine and terrestrial environments were all easily accessible to Archaic period inhabitants of the site.

The Rentner site excavations provide evidence for intermittent use of this site during the Middle and Late Archaic periods. The small amount of cultural material recovered suggests infrequent or brief occupations by mobile people who were exploiting resources in the area. The small size of the Late Woodland component also

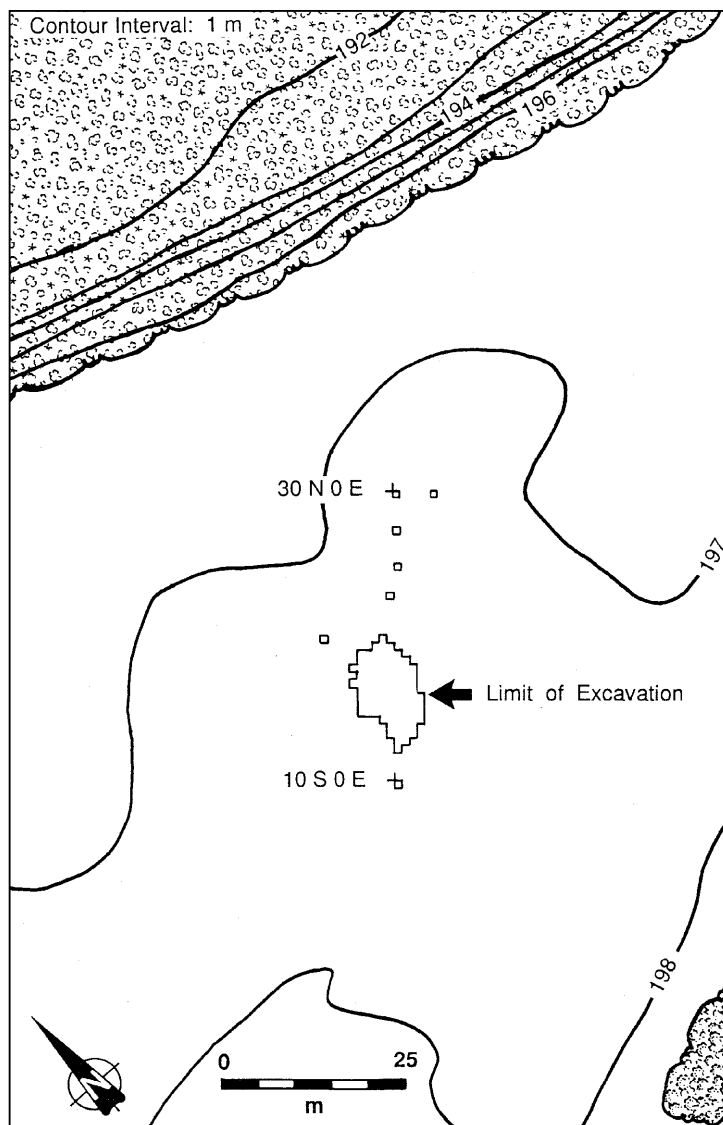
suggests a short occupation, perhaps a stop during long-distance travel or a brief period of resource extraction by people based at a nearby, semi-permanent settlement. This inference of a brief occupation may, however, be biased by an archaeological perspective from southern Ontario where more sites have access to good sources of high-quality chert and contain more worked stone as a result of this easy availability. More restricted access to toolstone at the Rentner site has probably resulted in greater curation of its assemblage, particularly the projectile points which appear to have been made elsewhere, imported to the site, used extensively, resharpened, exhausted and further modified. This curation has no doubt influenced the final appearance of the Archaic points, making them seem unlike their initial form and complicating the interpretation of the assemblage. Adding to this complication are the number of components with similar styles of points or point attributes present at the site.

McKean Site: Context and Excavation

The McKean site is located in a ploughed, sandy loam field about 450 m east of Batteaux Creek, 40 m south of (upslope and inland from) the bluff of Lake Nipissing (Figures 1 and 16). The site was found in 1989 during archaeological survey along the proposed Highway 26 right-of-way. The initial test pit survey produced a few, small pieces of debitage from the site area. Further cultural material was recovered from 18 test units (50 cm square) placed at 10 m intervals (Murphy 1989). Salvage work was carried out in August 1994. An area of about 100 m² of plough zone and feature fill was excavated with shovel and trowel and screened through six millimetre-mesh. Excavations proceeded outward until flake frequencies fell to less than 10 flakes per square. The maximum frequency per square metre that occurred was 52 flakes (Figure 17). Artifact provenience was assigned following the method described for the Rentner site excavation. One subsoil feature was attributed to the precontact occupation of the site.

Several factors have probably caused a gradual

Figure 16. *The topography and limits of excavation at the McKean site.*



loss of information from the McKean site. The field containing the site has been cultivated for about a century, as suggested by the recovery of a coffin plaque inscribed with the date "1884" and the remains of a log house occupied in the early 1900s. The existence of a small collection of arrowheads from the farm, possibly including some from the McKean site, suggests that the excavated artifact sample is missing some of the "collectable" artifacts. During excavations of the site itself, shallow disturbances containing window glass, refined white earthenware and partially car-

bonized wood are evidence for late nineteenth century occupation or use which probably caused artifacts to be thermally altered and fragmented. Nevertheless, the high rate of artifact breakage was undoubtedly also due to the presence of many small, thin secondary flakes, which are susceptible to plough damage.

Despite these observed effects, debitage in the plough zone is concentrated around the single cultural feature which occurs in 6N2W in the north central part of the excavated block. Furthermore, the frequency of debitage generally

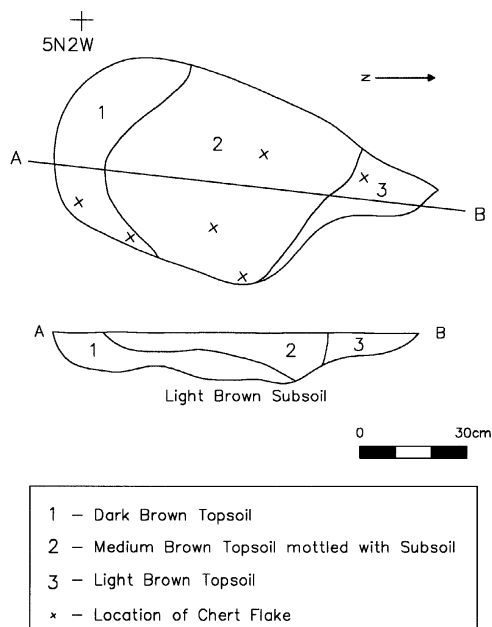


Figure 18. Plan and profile of Feature 2 at the McKean site.

mally altered (discoloured or potlidded or both) or patinated, making it difficult to identify chert type. A total of 13 pieces was identified as Onondaga chert and one flake as Collingwood chert. A small and fragmented sample of charcoal from Feature 2 submitted for AMS radiocarbon dating provided an uncalibrated age estimate of $4,710 \pm 170$ radiocarbon years B.P. (TO-6096). This date is considered to be too late to represent the cultural component of the site, based on evidence of diagnostic artifacts.

McKean Site Worked Artifacts

Just over 1,100 diagnostic and non-diagnostic artifacts, including debitage, were recovered from the McKean site (Table 11) and can be described under one of various bifacial, unifacial and unworked categories.

Projectile Points

The size and form of the five projectile points from McKean (Table 12) fall within the range expected for the Early Archaic period. Although classified as points, these specimens may also be considered as cutting tools. A total of five indi-

Table 11. Artifact and debitage frequencies at the McKean site. The debitage count includes only material from the plough zone.

Artifact type	Frequency
Debitage	1,093
Projectile Points	5
Bifaces	8
Piercers	3
Burins	2
Scrapers	9
Retouched Flakes	6
Hammerstone	1
Total	1,127

vidual projectile points are described here, several representing composites of conjoined fragments.

The first specimen (Table 12:1, Figure 19d) is heavily patinated and thermally altered. Potlid scars that expose non-patinated raw material, tentatively identified as Onondaga chert, indicate that thermal alteration is comparatively recent. Most of the base is missing but the original length can be estimated at 10-20 mm greater than the 70 mm of extant length. The remaining portion of the left shoulder suggests that it was side-notched or (less likely) corner-notched or stemmed. Lateral edge length from shoulder to tip is 62 mm and the original shoulder width is estimated at 48 mm. Alternate bevelling of lateral edges seen in transverse cross-section view and concavity of edges in plan view are attributes of blade resharpening. Flake removal from probable use damage, edge rounding and polish are most developed at the tip and shoulder along one blade edge, suggesting that the central portion of this edge had been resharpened most recently.

This type of point is rare in Ontario. It is known as Archaic Bevel in Ohio where it is associated with two other point types—Dovetail (circa 9,400 B.P.) and MacCorkle (circa 8,800 B.P.) (Bowen 1992). Its form also falls within the formal range of projectile points belonging to the Thebes Cluster (Abel 1990). They include Thebes and St. Charles types which have been securely associated with the Early Archaic by two mid-tenth millennium B.P. radiocarbon dates from Zone IV at Graham cave, Missouri (Justice 1987:54).

A tip fragment (Table 12:2, Figure 19c), measuring 39 mm long, 22 mm wide and 6 mm

Table 12. *Projectile points from the McKean site.*

Specimen	Description	Material	Provenience	Length	Width	Thickness	Figure
1	Blade	Onondaga?	4N3W-6N5W	—	—	8	19d
2	Tip	Onondaga	2N5W	—	—	—	19c
3	Base	Unidentified	6N4W	—	—	—	19f
4	Base	Collingwood	2S0E-3S1E-0N1E	—	—	6	19e
5	Basal Fragment	Onondaga?	6N2W (Feature 2)	—	—	—	—

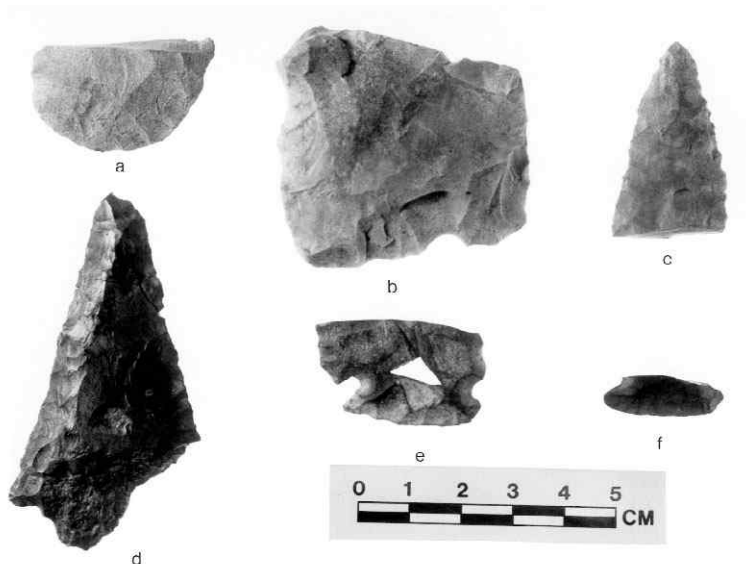


Figure 19. *Bifaces from the McKean site: Collingwood chert refined biface or knife from 5N0E (a); Collingwood chert biface blank from 4S0E-4S1E (b); Onondaga chert point fragment from 2N5W (c); thermally altered Onondaga chert point or Thebes knife from 4N3W-6N5W (d); Collingwood chert point base from 2S0E-3S1E-0N1E (e); unidentified chert point base from 6N4W (f).*

thick, has convex lateral edges with fine, intermittent serrations, and a thin, lenticular cross section. These attributes associate it with the Thebes Cluster, especially the St. Charles point type, which may also exhibit fine serrations (Justice 1987:55, 57). Wear on both lateral edges, extending proximally from the tip, may relate to edge grinding for platform preparation and further retouch and serration.

A point base (Table 12:3, Figure 19f) made from an unidentifiable, extensively weathered chert, is thin (five millimetres) with a lenticular cross section. The 24 mm-wide basal edge is straight and well ground. Side notches are also heavily ground. It resembles Thebes and Dove-tail points (cf. Luchterhand 1970), but the thinness of the specimen is more like that of the St. Charles point type (Justice 1987:57).

Specimen 4 (Table 12, Figure 19e), a point base in three fragments, is made of Collingwood chert. Two of the fragments are light grey or white and the other point fragment is reddened.

This range in colour demonstrates the importance of microenvironmental context to patina development (and the relative unimportance of age and raw material, at least for this specimen). Colour differences may have developed at the time of deposition or, later, as a result of different post-depositional conditions of exposure, burial or association with other materials in the soil. The point fragment has narrow corner-notches which are angled, creating slightly barbed shoulders. The remaining lateral edges indicate a convex blade outline. The basal edge is also convex and lightly ground. The width of the base is 27 mm, the haft (width between notches) 22 mm, and shoulder about 30 mm (a small portion of one shoulder is missing). This specimen is likely a St. Charles or Dove-tail point type.

Specimen 5 (Table 12) is the basal corner of a refined biface, likely a projectile point. It is made of a dark grey chert which has been thermally altered (potlided), possibly Onondaga, and is basally thinned. There is a stepped contraction

(about one millimetre in width) along the lateral edge of the biface at what appears to be the distal end of the hafting element. This is an attribute of early point forms, such as the Dalton type (cf. Justice 1987:30-40), on which similar contractions toward the tip appear to be a result of the point being resharpened while hafted. The straight basal edge and lack of basal and lateral grinding on this specimen is, however, not typical of these point forms.

The few point specimens recovered from this site exhibit attributes that are shared with a cluster of Early Archaic point types in eastern North America. The McKean site is small and probably represents a single-component site. Assuming this to be true, the range of variability exhibited by the small number of projectile points may reflect several factors. The specimens may have served multiple functions. They may have been curated—subject to extensive reduction and reuse. Finally, variability may reflect a wide range of external influences on flintknappers working at the site.

Biface Blanks and Preforms

Eight biface fragments were recovered (Table 13), five of which (Table 13:1-5) are small fragments from early stage bifaces and are made from locally available stone (Collingwood chert or quartz). They appear to be from thick, unrefined bifaces, indicating limitations in the usefulness of locally available materials.

Specimen 6 likely represents the base (48 mm long) of a large triangular biface blank of Collingwood chert (Figure 19b). Thinning flake scars extend across one face while the other face retains attributes of the ventral surface of the original flake blank. Short, retouch flake scars

extend around the edge of the biface. The specimen broke during manufacture when the knapper tried to remove a 12 mm thick stack (or “pig”) located dorsally on one lateral edge next to the break—a classic knapping error (Whittaker 1994:109).

Specimen 7 (Figure 19a) is the base of an ovate biface. The fine bifacial flaking, thinness of the tool and regular form suggest that it is a point preform or knife. Specimen 8 may be the midsection of a narrow, thick biface, possibly a projectile point, made of Onondaga chert that has been heavily patinated (red).

Piercers

Four flake tools, with small spurs that have been accentuated by retouch, are variously referred to elsewhere as piercers, borers, gravers, perforators and awls. They are referred to here as piercers. All are finely pointed, unifacial, flake tools.

The largest example (Table 14:1; Figure 20b and 21d), made on a primary flake, is retouched along converging lateral edges, creating a spur at the proximal end. Fine retouch along both lateral edges of the tool may be intentional or use-related with the effect that these edges are dulled, perhaps for hafting or holding. Like specimens 2 and 3 (Table 14), the spur of this specimen is strengthened by being placed at the intersection of retouched lateral edges with a dorsal ridge. Patination is not pronounced on this specimen but potlidding indicates that the piece has been thermally altered. Specimen 2 (Figure 21c) is made on the proximal end of a flake of Onondaga chert and specimen 3 (Figure 20a, 21a) on the distal end of a flake that is patinated.

The remaining specimen (Table 14:4, Figure 21b), made on a heavily patinated secondary

Table 13. *Bifaces from the McKean site.*

Specimen	Description	Material	Provenience	Length	Width	Thickness	Figure
1	Fragment	Collingwood	1N1E	—	—	—	—
2	Fragment	Collingwood	1N0E	—	—	—	—
3	Fragment	Quartz	6N2W	—	—	—	—
4	Fragment	Quartz	4N2W	—	—	—	—
5	Fragment	Quartz	4N4W	—	—	—	—
6	Base	Collingwood	4S0E-4S1E (Feature 1)	—	45	8*	19b
7	Base	Collingwood	5N0E	—	35	4	19a
8	Midsection	Onondaga?	4N5W	—	19	7	—

*thickness of biface not measured through stack (see text)

Table 14. *Piercers from the McKean site.*

Specimen	Material	Provenience	Flake Length	Flake Width	Flake Thickness	Figure
1	Onondaga	3S1W	31	20	5	20b, 21d
2	Onondaga	2N1E	+23	18	3	21c
3	Onondaga	1N0E	+11	13	2	20a, 21a
4	Onondaga	2S2E	25	15	2	21b

flake, has several spurs and might best be called a multiple graver (Deller and Ellis 1992) or cutter (Gramly 1982). This piece has at least two projections formed by unifacial retouch of notches on either side of the spurs. One or more additional spurs are possibly located on the distal end of the flake. Use-wear studies of multiple graters suggest their use in scribing and removing disks from wood, bone or shell (Tomenchuk and Storck 1997).

In general, piercers were likely used to pierce or engrave soft materials such as hide, wood or bone. They are common on Palaeo-Indian sites in the Great Lakes region (cf. Deller and Ellis 1992:68, Tomenchuk and Storck 1997:518) but become rare during the Archaic period.

Burins

Burins are occasionally identified on sites in south-western Ontario and are inconsistently identified by researchers over a much wider area. My limited experience with burins prompted a request to half a dozen researchers to examine several possible burins from the McKean site. Following wide-

spread agreement that one of the items was indeed a burin, a re-examination of the assemblage led to the identification of a second burin that had been previously overlooked in the collection.

One specimen, recovered from unit 2S0W, is made on a portion of a highly refined biface (Figure 20c and Figure 22b). The piece is heavily patinated, having a glossy red surface which mostly obscures the chert's characteristics. The small biface, now roughly pentagonal in form, measures 25 mm long by 22 mm wide by 5 mm thick. The biface, perhaps originally a projectile point, has been extensively reworked, leaving few of the original edges of the tool intact. Three edges have been removed by at least five burin spalls, leaving what may be described as a burinated biface or perhaps a burin core (Crabtree 1972:48, 50). Four of the five spalls originated from a notch formed by steep unifacial retouch along one edge of the biface (Figure 22b). Based on its location and unusually steep angle, the notch appears to have been intentionally formed as a striking platform for removal of the burin spalls.

The other burin, recovered from unit 4N6W,

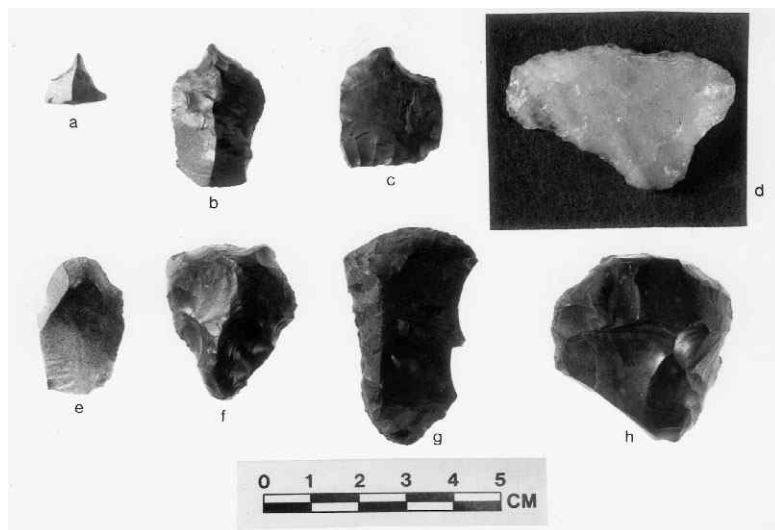


Figure 20. *McKean site piercers burin and scrapers: Onondaga chert piercers from 1N0E (a), and 3S1W (b); burin on an Onondaga chert biface from 2S0E (c); quartz sidescraper from 2N0E (d); Collingwood chert endscraper from 3S1E (e); exhausted triangular endscraper from 2S0E (f); spurred endscraper from 0N0E (g); endscraper from 2N5W (h). Items e-h are all Onondaga chert.*

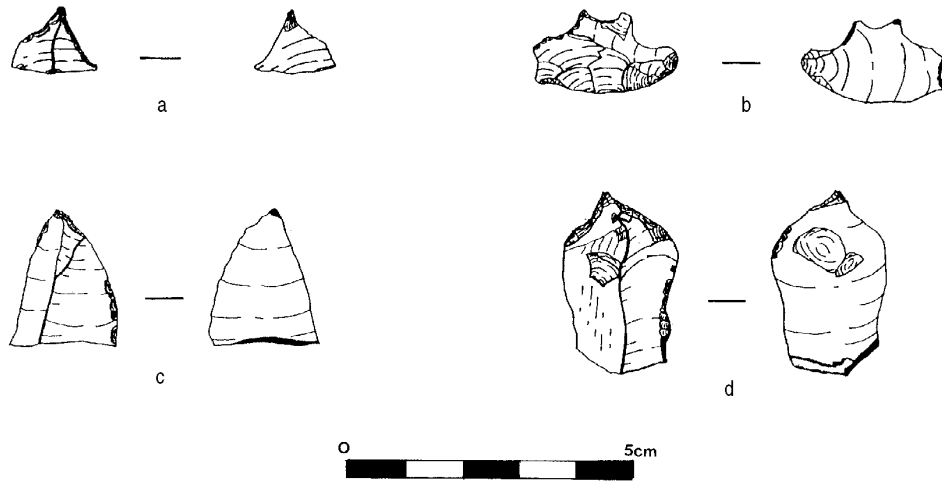


Figure 21. McKean site piercers from 1N0E (a), 2S2E (b), 2N1E (c) and 3S1W (d). All specimens are Onondaga chert.

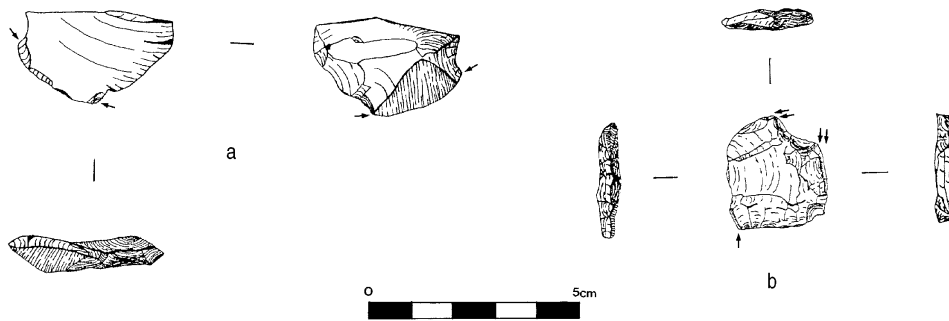


Figure 22. Burins from the McKean site: burin on a flake from 4N6W (a), burin on a biface from 2S0W (b).

measures 21 mm long, 37 mm wide and 7 mm thick (Figure 22a). It also is formed on a heavily patinated (glossy reddish-brown) primary flake of unidentified chert. Several large flake scars dominate the dorsal surface. On this face are two notches, similar to the notch described for the first specimen, providing two striking platforms for the removal of two or three burin spalls from opposite directions (Figure 22a). The strong, right-angled edges formed where spalls meet notches have been heavily worn, presumably through use.

Scrapers

Nine scrapers were found (Table 15), plus two possible fragments that have been described as retouched flakes (Table 16). These artifacts are

mostly large end scrapers with steep retouch along thick working edges, a characteristic often associated with extensive resharpening. Some of the scrapers are modified along lateral edges, perhaps to assist hafting or manipulation by hand, and a few have graver spurs. Three end scrapers of Onondaga chert appear to form a use-life sequence. The sequence starts with a relatively unused long, thin tool form with an acute bit-edge angle and progresses to a short, thick form with a more steeply retouched bit.

The first in this sequence (Table 15:6, Figure 20g) has a smoothly worn, distal bit edge which is acutely angled, measuring about 45 degrees. The left lateral edge of the specimen is steeply retouched, probably to shape and dull the edge for hafting. Several snap fractures occur on the

Table 15. Scrapers from the McKean site

Specimen	Provenience	Flake Type	Chert Type	Length (mm)	Width (mm)	Thickness (mm)	Retouched Edge		
							Location	Shape	Length (mm)
1	4N1W	Fragment	Onondaga	—	—	—	—	—	—
2	4N2W	Fragment	Unidentified Chert	—	—	—	—	—	—
3	2N5W	Primary	Onondaga	38	38	9	Distal Dorsal	Convex	30
4	2N4W	Fragment	Unidentified Chert	—	—	—	—	—	—
5	2N0E	Primary	Quartz	45	31	11	Lateral Dorsal	Convex	47
							Lateral Dorsal	Concave	24
							Distal Dorsal	Convex	13
6	0N0E	Primary	Onondaga	47	29	8	Distal Dorsal	Convex	29
7	2S0E	Fragment	Collingwood	+11	+17	3	Distal Dorsal	Convex	17
8	2S0E	Bifacial	Onondaga	34	34	11	Distal Dorsal	Convex	29
9	3S1E	Primary	Collingwood	18	29	7	Distal Dorsal	Convex	29

right lateral edge, leaving a prominent piercer or graver spur at the junction of the lateral and distal edges. The second scraper in the sequence (Table 15:3, Figure 20h) is a broad, short end scraper with a thick, steep, bit edge, angled approximately 80 degrees. Part of one lateral edge is missing, but the surviving edges are uniaxially retouched resulting in a triangular form in plan view. Retouch may have aided in hafting. The remaining scraper in the series (Table 15:8; Figure 20f) is probably made from Onondaga chert, though it is heavily patinated. The bit edge, which is wide and convex in plan view, is thick and overhanging—the edge angle ranging from 90 to 100 degrees. Lateral edges converge towards the proximal end. They are thick, rounded, and worn, perhaps indicating haft wear or use as a drill. This specimen appears to be extensively curated and exhausted.

While most scrapers are large and extensively modified—reused and resharpened as if curated—three exceptions are more expediently made. Two of these are made of Collingwood chert and were found close to one another—one is a thin, retouched flake with a narrow bit edge and acute edge angle (Table 15:9, Figure 20e). The third exception (Table 15:5, Figure 20d) is a side scraper made on a flake of quartz. It has steep uniaxial retouch along both lateral edges, one of which is concave and the other convex. In contrast to the curated specimens, these three scrapers are simply made by edge-retouching a flake.

Retouched Flakes

Flakes or fragments that appeared to have been intentionally retouched are summarized in Table 16. Flakes that may have sustained use-wear damage are not considered since ploughing has probably affected their integrity (McBrearty et al. 1998).

Specimens 2 and 6 (Table 16) may represent scraper fragments. They exhibit steep uniaxial retouch typical of formal scrapers.

Specimen 3 is the distal fragment of an overshot (*outré passé*) flake struck from a bifacial tool. This type of flake is often interpreted as flint-knapping error during bifacial reduction wherein a flake struck from a biface hinges through it, removing a portion of the opposite lateral edge of the biface (Crabtree 1972:80). After removal, one of the flake's lateral edges has been retouched uniaxially. The large size of the flake reflects the size of the bifacial core from which it came. Whereas most secondary flakes from the site appear to be the result of resharpening finished tools, this specimen indicates that secondary flakes, used as blanks, were also derived from large biface cores. The transport of large bifacial cores over long distances is a chert conservation technique best known from Palaeo-Indian assemblages at sites that are far from their primary sources of raw material (cf. Ellis 1989; Lothrop 1989).

Specimen 4 also appears to be a large flake of (distantly-derived) Onondaga chert struck from a large biface. It has been retouched, bifacially, along one lateral edge and is heavily patinated

Table 16. *Retouched flake tools from the McKean site.*

Specimen	Description	Material	Provenience	Length (mm)	Width (mm)	Thickness (mm)	Retouched Edge		
							Location	Shape	Length
1	Secondary?	Onondaga	9N2W	48	29	6	Lateral Dorsal	Straight	25
2	Scraper Fragment?	Unidentified	8N3W	+18	+17	7	Lateral Dorsal	Concave	+7
3	Secondary Fragment	Onondaga	6N2W	+26	40	6	Lateral Dorsal	Straight	20
4	Secondary Fragment	Onondaga	6N5W	+37	+36	5	Proximal-Lateral Bifacial	Convex	+34
5	Primary Fragment	Collingwood	1N1E	+25	16	4	Lateral Ventral	Concave	10
6	Scraper Fragment	Onondaga	2S0E	+21	+13	5	?	Convex	+21

(coloured red) and highly glossy. Retouch appears to have been expedient whereas the flake itself was probably a tool blank that was no longer useful as such after it broke.

On specimen 1, the orientation of flake scars on the dorsal surface and the small size of the striking platform suggest that this flake was also derived from a large bifacial core. Retouch appears to have been continuous along one lateral edge before several recent breaks removed parts of this edge.

Specimen 5, the only retouched flake of Collingwood Chert, is a small primary flake. Fine ventral retouch is located along a concave lateral edge, suggesting the tool may have functioned as a spokeshave.

Hammerstone

One rounded waterworn granitic cobble from unit 1S1E measures 74 mm by 62 mm by 34 mm. Marks clustered at either end of the cobble appear to represent hammering facets.

McKean Site Debitage

A total of 1,093 items of debitage were recovered from plough zone excavation (Figure 17, Table 17). The distribution, raw material, morphology and evidence for thermal alteration were all examined.

Spatial Distribution

Debitage is distributed in an oblong pattern oriented approximately northwest-southeast, possi-

bly containing two clusters of material (Figure 17). The size and oblong shape of the overall distribution conforms to a pattern found at other excavated Archaic sites. This pattern is characterized by a central elongated area of high artifact frequency of between 20 and 50 flakes per m², surrounded by a two or three metre-wide belt of decreasing frequency, down to less than 10 flakes per m² at the limit of excavation. At other sites with this pattern, clusters of debitage and tools have been interpreted as debris that was left in an open activity area or within the confines of a structure (cf. Lennox 1986, 1990, 1993; Timmins 1996; Woodley 1988, 1989).

Patination and Identification of Raw Material

Debitage is predominantly Onondaga and Collingwood chert. In contrast to the Rentner site, local pebble cherts, quartz and quartzite account for only a small portion of the assemblage at McKean: 10 out of the 1,093 specimens. The presence of patina on the surfaces of lithic artifacts made identification of cherts difficult at McKean. The intensity of coverage by patina on individual specimens ranges from negligible to extensive. At the former end of this spectrum is a light yellow-orange-brown staining through which some details of the lithic material can be discerned. At the other end is a deep red discolouration which obscures most characteristics of the stone.

Patinated artifact surfaces have been observed on sites in southern Ontario that were inundated

Table 17. *Debitage frequency by flake type and raw material at the McKean site (excludes 50 pieces of microdebitage).*

Flake Morphology	Onondaga		Collingwood		Unidentified		Total	
	f	%	f	%	f	%	f	%
Primary	17	5.1	15	9.3	21	3.9	53	5.1
Secondary	116	34.9	51	31.7	160	29.6	327	31.6
Fragments	198	59.6	88	54.7	344	63.7	630	61.0
Shatter	1	0.3	7	4.3	15	2.8	23	2.2
Total	332	99.9	161	100.0	540	100.0	1,033	99.9

at one time, particularly in the Lake Huron basin. For example, the Baxter site (Dodd 1996), located near the mouth of the Severn River on Georgian Bay, is predominantly a Middle Woodland site that also has heavily patinated Early Archaic artifacts. Apparently the site was inundated during the Nipissing transgression long after these artifacts were left there. The Late Archaic Crawford Knoll site (Ellis et al. 1990:107; Kenyon 1980) is another site where high water levels may have caused artifact patination and also mineralization of the site's faunal remains (I. Kenyon personal communication 1996). Patination is also considered by Ellis and Deller (1986) at sites on the southeast shore of Lake Huron. The implication of these studies for the McKean assemblage, where there are a range of patinas, is that several components might be represented at the site. If patina development were related to episodes of site inundation during lake transgressions, the patinas might allow these various components to be distinguished.

To investigate this possibility, the spatial distribution of variously patinated surfaces across the site and on individual artifacts was examined. Spatial patterning did not support the idea that different components, if they existed, were horizontally separated. Moreover, among artifacts within Feature 2, probably representing a single depositional event, a range of patinas was observed. Development of patina even varied across the surfaces of individual artifacts and among fragments of a broken artifact.

This wide variation in patina development suggests that it relates, at least in part, to the composition and structure of cherts, and to specific soil environments of deposition and weathering, rather than simply to age or site inundation. Honea (1964) classifies various chemically induced surface alterations collectively called patina. He indicates that "artifacts made of pure or nearly pure silica ... are not susceptible to patination if the impurities contained in them are chemically stable" (Honea 1964:16). Ellis and Deller (1986:41) and Kenyon (1980) note that artifacts from once-inundated sites in southwestern Ontario exhibit variation in patination that is related to raw material type: Onondaga chert is

consistently less patinated than other materials, particularly Kettle Point chert:

Most of the artifacts lacking or having a poorly developed patina (8 of 11 cases) were made of Onondaga chert. This might indicate Onondaga chert has a low ferrous mineral content and has tended to react less strongly to submergence in Nipissing waters and/or sediments [Ellis and Deller 1986:41].

A similarly complex relationship between patina and raw material can be observed at the McKean site. Here, patina ranges from virtually undetectable, particularly on chert identified as Onondaga, to light red patina on materials identified as Collingwood chert, to deep red or brown discolouration on unidentified raw materials. These unidentified materials do not appear to be Kettle Point chert, though they may be another chert with equally high ferrous mineral levels. Variation, which can be pronounced on fragments of the same specimen, may be caused by differences in porosity of the chert or variability in depositional environment.

The identification of raw material is, therefore, complicated by the presence of patina. From a total of 1,033 specimens, only about half was identifiable to chert source (Table 17). Identifications were not possible for the remainder because of thermal alteration (245 specimens), patina (179), or the small size of the flakes (48). There are also 68 specimens belonging to an unrecognized category of grainy chert. Of the identified items, Onondaga chert is more than twice as common as Collingwood (Table 17) despite the fact that the primary source of Collingwood chert is only about 15 km away, whereas that of Onondaga chert is 200 km to the south.

Flake Morphology

The breakdown of chert debitage by flake type and raw material (Table 17) shows that fragments, followed by secondary flakes, dominate the debitage assemblage.

The high frequency of fragments is, perhaps, the combined result of a high number of small and thin secondary flakes occurring in a field that has been ploughed repeatedly. Of the non-fragmented debitage, secondary flakes are far

more common than primary flakes (30 compared to five percent), indicating greater emphasis on later stages of manufacturing. Shatter accounts for only two percent of the debitage, consistent with assemblages dominated by later stages of reduction.

For both Onondaga and Collingwood chert, the high incidence of secondary flakes indicates thinning and resharpening of tools. Despite the predominance of secondary flakes overall, primary flakes are more important within the Collingwood assemblage (9.5 percent) than are primary flakes within the Onondaga assemblage (5.1 percent). Although sample sizes are small, this pattern is not unexpected given the proximity of the Collingwood primary chert source. Generally, however, flake type percentages for both Collingwood chert, procured nearby, and the more distantly procured Onondaga chert, show little difference (Table 17). This correspondence between the two chert types suggests that, despite the short distance to source for Collingwood chert, tools of both raw materials were being manufactured, transported, used and curated similarly at the site. The scarcity of primary flakes and early-stage (blank, preform) tool rejects suggests that tools brought to the site were in a finished or advanced state.

Thermal Alteration

The spatial distribution of thermally altered chert might have provided evidence for the location of hearths at the McKean site since much of the chert in the assemblage exhibits ring cracks, potlidding and lightening or greying. Unfortunately, nineteenth century use of the site, in addition to original use at the time of occupation, appears to have produced thermal alteration. Recent alteration is indicated on flakes that are heavily patinated where potlidding has removed some of the patinated surface of the flake. Given this complication, further study of the distribution of the material was abandoned.

McKean Site Faunal Remains

Most faunal material was obtained through fine (one millimetre) screening of the heavy fraction

of a flotation sample of fill from the south half of Feature 2. A few items were recovered from coarse (six millimetre) screening of plough zone and the north half of Feature 2 fill. Preservation is attributed to thermal alteration and mineralization. A total of 103 pieces of bone were examined. Only a small portion of the set of extensively fragmented specimens was identifiable. No specimens were identifiable to the species level and only 18 fragments could be assigned to class. Results of the analysis are presented in Table 18.

Fish

Feature 2 (south half) produced 83 small fish bone fragments (with a total weight of 1.2 g), including a calcined vertebra and two pieces of spine, rib or ray. This is the only unit of the site to contain a class other than mammal. No specimen could be identified beyond class. This information indicates the probable use of Batteaux Creek—or the lake, assuming the site was close to its shore at the time—for fishing. The manner and seasonal timing of fishing are conjectural as none of the artifacts recovered are associated with fishing.

The association of fish bone with this Early Archaic feature provides some of the earliest evidence for fishing in the upper Great Lakes region. Until now, the earliest evidence has been the fish weirs at Atherley Narrows (Johnston and Cassavoy 1978) and copper fish hooks, spear heads and gaff hooks (Cleland 1982) dating to the Late Archaic. Late Archaic groups of the upper Great Lakes were hunter-gatherers, with fishing a part of their seasonal subsistence round (Cleland 1982:774; Peterson et al. 1984). The development of this settlement-subsistence pattern could easily have started during the Early Archaic period, if not earlier.

Mammals

Two plough zone units produced bone identifiable to the deer family (Cervidae). A small fragment of calcined antler was recovered from 2N1W. More precise identification could not be made. The other occurrence of cervid was four molar fragments from 6N4W. After comparison with caribou, white-tailed deer, moose and wapiti, these fragments were identified as either moose (*Alces*

Table 18. *McKean site faunal remains. Recoveries were made with six millimetre mesh except for the south half of Feature 2 where one millimetre mesh was used to screen the heavy fraction of the float sample.*

Class	Sub-class Identification & Description	Provenience & Details of Recovery	NISP
Mammal	Cervid molar fragments (see text)	6N4W	4
	Cervid antler fragment	2N1W plough zone	1
	Small rodent incisor fragment	Feature 2, south half	1
	Unidentifiable fragments	Feature 2, south half	5
		7N2W plough zone	1
		4N2W plough zone	2
Fish	Vertebra fragment	1N3E plough zone	1
		Feature 2, south half	1
	Spine/ray fragments	Feature 2, south half	2
	Unidentifiable	Feature 2, north half	5
		Feature 2, south half	80
Total			103

alces) or wapiti (*Cervus canadensis*), based on their large size and the lateral wall pattern of the molar enamel. Modern comparative specimens of wapiti used to identify the archaeological sample belonged to the western subspecies of wapiti, which is larger than that of eastern Canada (Peterson 1966:321). This identification of either moose or wapiti was confirmed by Arthur Spiess (personal communication 1997) who also noted that the specimens are not calcined but appear to be slightly mineralized “subfossils”.

Both moose and wapiti are likely to have been present in this region during the Early Archaic, a time when forests were dominated by pine but contained deciduous species (Cleland 1966:20; Karrow and Warner 1991). Lowered lake levels at this time would have allowed vegetation to become established on the former lake bottom in the Huron basin, potentially attracting both these species. Moose prefer to feed on broad-leaved trees and shrubs, aquatic vegetation and balsam fir in areas of secondary growth around lakes and streams (Peterson 1966:328). The wapiti tolerates a wide range of conditions, excepting dense forest (Peterson 1966:321), feeding on grasses, herbs, shrubs and trees. These species successfully co-exist today on the north shore of Georgian Bay, near the French River.

Discussion

The impressive range of culturally diagnostic tool forms in this assemblage suggests that the McKean site was occupied briefly by a small group of people during the Early Archaic. The

small size of the surface artifact scatter belies the significance of the site, one of a small number of sites from the poorly understood and under-investigated Early Archaic period in southern Ontario (Lennox 1997). Under different circumstances, it might not have been found at all or otherwise “written off” as an insignificant “lithic scatter” (Kenyon and Lennox 1997). Instead, it has revealed itself as a potentially important source of information on the Early Archaic, containing early evidence for fishing in the upper Great Lakes and contributing to at least four other issues: internal site (community) spatial patterning of tools; exotic material use and curation as it relates to people’s mobility over the landscape; the identification of burins in North American tool assemblages; and continuity of tool forms with preceding Palaeo-Indian complexes.

Spatial Distribution of Tools

The distribution of excavated cultural material at the McKean site covers an area measuring approximately 10 by 15 m. Within this area, there are two clusters of material, each containing debitage (Figure 17) and worked tools (Figure 23). Projectile points and scrapers are weakly segregated between the two clusters, the points tending to occur in the northern cluster, the scrapers in the southern cluster (Figure 23). This pattern suggests some separation of tasks which, given the proximity of all materials, may have taken place within a small, oblong structure. The work indicated by the tools would have included the repair and maintenance of hunting

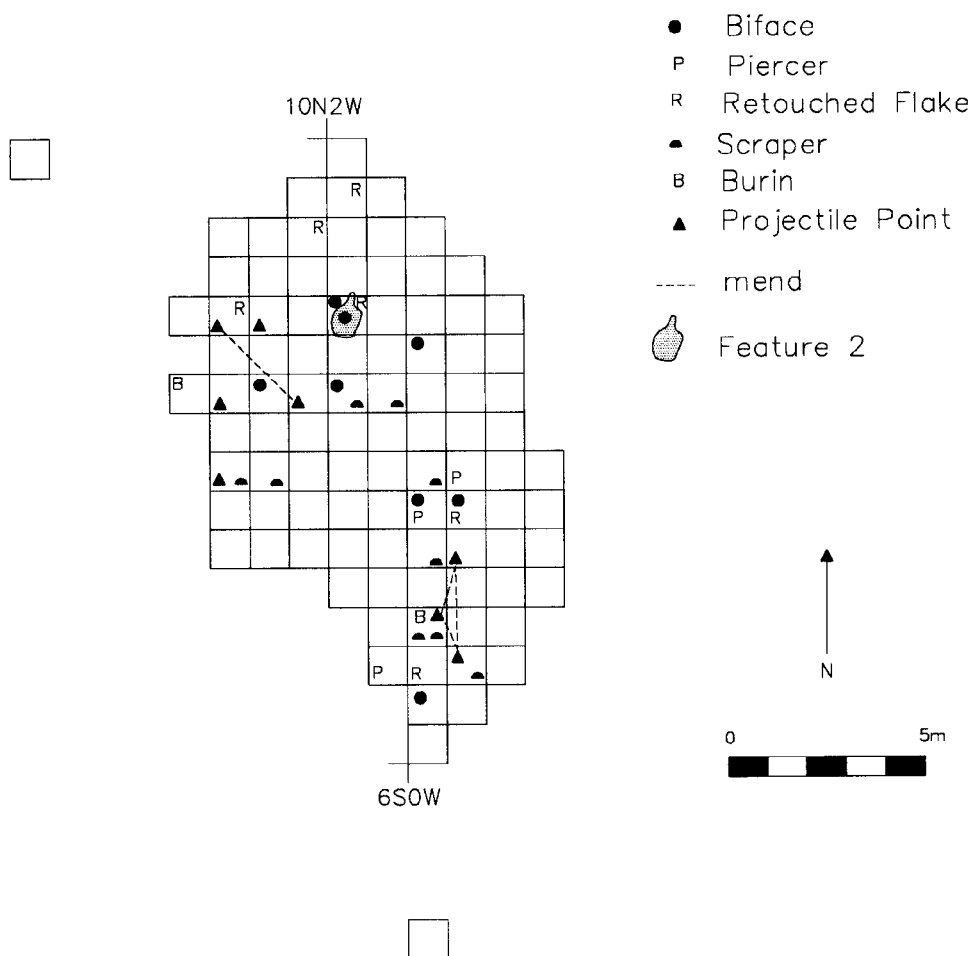


Figure 23. The distribution of tools at the McKean site.

equipment, the processing of meat from large (and perhaps small) mammals and fish and the preparation of hides. Other activities expected to occur within such an encampment are, so far, invisible in the archaeological record.

The small size of this single-component site and comparatively large number and range of tool forms suggests that the site was occupied by a small but diversified group—perhaps an extended family for a period ranging from a few days to several weeks. Interpretation of size is, however, restricted by the condition of the site and method of artifact recovery. Ploughing, the size of mesh used during excavations, and the arbitrary cut-off of 10 items per one metre unit used

to define the limits of the excavation all limit this interpretation.

Raw Material, Tool Maintenance and Mobility

The small size of the debitage assemblage and the small range of raw materials used, principally Onondaga and Fossil Hill, in that order, suggest that people were careful and selective in their use of raw materials and travelled far in the course of obtaining them. For example, Onondaga chert, which accounts for about a third of the debitage at the site (Table 17), could only have been obtained by travelling to outcrops along the north shore of Lake Erie, some 200 km south of the site. By contrast, Fossil Hill chert, which

accounts for less than one fifth of the site's debitage, is available from the local highlands. In general, people at McKean transported only a few tools, in a finished or partially refined state, and maintained these items as needed—resharpening worn edges, replacing and recycling broken tools and making expedient tools from flakes obtained from bifacial cores, from waste flake by-products of tool maintenance or from locally available toolstone.

The presence of substantial amounts of Onondaga chert at the McKean site indicates that occupants moved north, at least once, over a long distance across the southern part of Ontario. Storck's model of the seasonal availability of Fossil Hill chert to Palaeo-Indians (Storck 1984) suggests a similar seasonal pattern for Early Archaic occupants of the McKean site. The suggested seasonal round includes collecting Onondaga chert from the distant Niagara Peninsula (near Lake Erie) during the winter and Fossil Hill chert from the nearby Blue Mountain highlands during spring or summer. Storck (1984:13) suggests that Fossil Hill chert is located in an area of heavy snowfall and would only have been accessible during the snow-free season of the year, requiring people using this chert to be in this region during the warm season. The dominance of Onondaga chert over Fossil Hill chert in the McKean assemblage suggests that people had recently returned to the site from the Niagara Peninsula area with tools of Onondaga chert but that they had not yet completely replenished their tool kit with local materials. This profile of lithic material use, supported by the exploitation of fish, argues for a spring or early summer occupation of the McKean site.

With the depletion of the Onondaga material, some local stone was used to make tools to replace the discarded ones. For example, most of the few early-stage bifaces or preforms are made on local materials—quartz and Fossil Hill chert. People at the site had probably just acquired these local materials. There are, however, a few refined items of Fossil Hill chert in the McKean assemblage which they may have obtained during a previous visit to the local Fossil Hill chert source, perhaps a year before the occupation of

the McKean site. These materials returned and were discarded here following their curation on the way to Lake Erie and back.

This seasonal model of mobility, invoked to explain patterns of raw material use at the McKean site, implies continuity in mobility patterns between the Palaeo-Indian and Early Archaic periods. Additional research at other Palaeo-Indian and Early Archaic sites (e.g., Jackson and Morrison 1997; Timmins 1994) is needed to explore the limits of this model and to investigate alternative explanations for these patterns.

Identification of Burins

Like patterns of raw material use, the presence of some early tool forms in the assemblage seems to connect the Early Archaic McKean site to earlier Palaeo-Indian patterns of behaviour. While some of these tools may simply signal a period of transition between Palaeo-Indian and Archaic and the fallibility of our typological constructs, the presence of burins calls for more detailed consideration.

Burins have been recognized as an Old World Palaeolithic tool form since the nineteenth century. Extensive typologies describe their variability there (Semenov 1964:94-96). By contrast, the recognition and classification of burins in the New World is highly controversial and was perhaps first discussed as a result of collaboration between Palaeolithic archaeologist François Bordes and flintknapper Don Crabtree in the 1960s (Crabtree 1972). Most reports of burins in North America occur in the western or northern part of the continent.

In the Yukon Territory, Morlan (1973:23-25) distinguished burins, which exhibit platform preparation for the removal of the burin spall, from burinated flakes, which exhibit no such preparation. Burin spalls have also been used as tools in some northern assemblages (Giddings 1967:265; Morlan 1973:25). They are reported from several Shield Archaic sites in the Northwest Territories and from the Grant Lake site where they were made, using a distinctive technique, on broken lanceolate points that are indistinguishable from Agate Basin points

(Wright 1972, 1976). Wright (1972:70, 85) proposed continuity between Late Palaeo-Indian and Shield Archaic lithic traditions in the Subarctic.

In the east, Deller and Ellis (1992:127) noted the absence of burins on Parkhill phase Early Palaeo-Indian sites in southern Ontario but they are reported from earlier Gainey phase sites, including the Gainey site in Michigan (Simons et al. 1984) and Nobles Pond in northern Ohio (Gramly and Summers 1986). On Late Palaeo-Indian sites, burinated projectile points have been reported from Thompson Island in the St. Lawrence River valley (Wright 1995:106) and burins on flakes occur at Cummins on the north shore of Lake Superior, as well as at other Plano sites in the upper Great Lakes (Julig 1988, 1994:108). Ramsden (1976:18-19) reported the removal of burin spalls from the distal end of biface found at a Late Archaic site on Lake Huron, approximately 100 km west of McKean. Evidence of crushing suggests this specimen might be a result of impact (Frison and Stanford 1982:131).

“Pseudo-burins” or “functional burins” are often distinguished from “technological burins”, which are said to occur in the Old World. MacDonald (1968:86-90), for example, described pseudo-burins and burin-like flakes at the Palaeo-Indian Debert site in Nova Scotia, noting that these North American specimens are pseudomorphs, which lack negative bulbs of percussion and prepared striking platforms typical of technological burins and exhibit evidence for bipolar flaking (MacDonald 1968:86-90). The absence of technological burins in parts of the New World may, however, have more to do with the unfamiliarity of researchers with this tool type than with its actual distribution. The issue of pseudomorphs may, therefore, be misleading. Technological and pseudomorphic burins might have been produced by different people, or even by the same people, under different circumstances—relating, for instance, to raw material suitability or availability. They may, in fact, be equivalent. Progress in the identification of burins and development of terminology depends at least in part on our understanding of their function.

That said, the two artifacts identified as burins from the McKean site (Figures 20 and 22) appear to be true or technological burins, not pseudomorphs. They possess a negative bulb of percussion at the interface between the striking platform and burin facet. At this edge, they show minor crushing, retouch, rounding and polish, possibly from use-wear. They lack signs of bipolar reduction, associated in the Debert assemblage with wedges or *pièces esquillées*. One of the McKean specimens is made on a biface, perhaps once a projectile point. Burin spalls on this specimen were removed from the edges of the tool from several directions and, in contrast to many burin-like tools on projectile points, these burin spalls cannot easily be attributed to impact damage (Epstein 1963). The other specimen, made on a flake, also exhibits several burin spalls that were removed from the same flake edge but from opposite directions. Both burins have steep, uniaxially retouched notches that served as striking platforms for the removal of the burin spalls. Together, these attributes support the interpretation of these tools as technological burins.

The Transitional Nature of the Assemblage

The McKean assemblage might best be described as transitional between Late Palaeo-Indian, or Plano, and Early Archaic lithic traditions. On the one hand, notched projectile points and bevelled knives are Early Archaic traits. On the other, some of the end scrapers—particularly those with graver spurs (Shott 1993:71), piercers or gravers made on flakes, and the burins, as well as the use of distantly-procured toolstone and inferred seasonal mobility patterns, suggest an affinity with Palaeo-Indian traditions and behaviour. Other sites where traits from both periods are combined occur throughout the upper Great Lakes area (Julig 1994:27-33). One of these sites, Coates Creek, only 17 km southeast of the McKean site, contains such transitional forms as a side-notched Plano point (Storck 1978). There are also notable differences between the two assemblages—that of Coates Creek being oriented towards hunting and primary or early-stage reduction of Fossil Hill chert. Onondaga chert is almost entirely absent at Coates Creek and there

are few end scrapers, suggesting a different focus of activity. In contrast, McKean produced a respectable collection of formal end scrapers as well as points and knives and a more diverse range of flake tools. These two sites may represent different aspects of settlement of a transitional culture, perhaps related to the Plano tradition of the upper Great Lakes and further west.

The Occupations of Rentner and McKean: Conclusions

The occupations of both the Rentner site during the middle Holocene and particularly the McKean site during the early Holocene occurred during times of complex environmental and cultural changes in the Huron basin and in the upper Great Lakes. These changes begin with exposure of the landscape about 11,000 years ago after the retreat of continental ice. Pro-glacial Lake Algonquin, which inundated the Huron basin, was contained by ice to the north and rising land to the south—land that was rapidly rebounding from under the weight of the ice. Palaeo-Indian settlements, common along the shore of this lake, reflect the northward movement of people into this new terrain (Ellis and Deller 1990, 2000; Storck 1982, 1997). Results from excavations at both sites contribute to an understanding of change in landscape, settlement and use of resources during the first half of the Holocene.

Raw Material Use

A preferred source of Collingwood or Fossil Hill Formation chert is located only 15 km from the McKean and Rentner sites (Storck and von Bitter 1989). Although this material was used by Palaeo-Indians across much of southern Ontario, it appears to have been mostly ignored by later peoples, including occupants of McKean and especially Rentner. Palaeo-Indians were highly mobile—transporting tools over long distances, perhaps in pursuit of seasonally migrating caribou. This suggestion is based, in part, on the great distances (usually north-south) separating the primary outcrops of cherts that they used (Deller 1989; Ellis and Deller 1990; Storck and

von Bitter 1989). Even though the McKean site was occupied later, this Palaeo-Indian pattern of distant raw material transport and use holds for the site. During the time of occupation of Rentner, distant contact or travel is still evident in the use of imported cherts. Locally available Collingwood chert is, by this time, largely ignored. Primary sources may have become inaccessible under heavy forest cover.

Changing Environments for the Sites

An important change at the time of occupation of the McKean site was the recession of Lake Algonquin and emergence of lowland habitat for plants and animals on the former lake bed, overlooked by a series of successive beach ridges (Eschman and Karrow 1985:89). These raised beaches were attractive to human settlement. The newly exposed landscape was settled by people entering from all directions. The influence of Plano technology from the Plains is seen in lanceolate projectile points in Ontario in the Late Palaeo-Indian period—now basally thinned rather than fluted. The distinctive fluted point gives way, first to unfluted lanceolate projectile point types, such as Holcombe and Hi-Lo, then to notched point types (Ellis and Deller 1990, Ellis et al. 1998). These later changes may have been the result of influences from south of the Great Lakes, coincident with changes in flora and fauna.

As lake levels continued to lower, two lakes were left in the Huron basin—Lake Stanley in present-day Lake Huron and Lake Hough in Georgian Bay. Water drained from Lake Stanley into Lake Hough over a spillway comparable to Niagara Falls and then from Lake Hough eastward through North Bay to the Ottawa River Valley. Large tracts of lowland were now exposed to travel and settlement. Eastern white-cedar wood from the period of low lake level found *in situ* on the bottom of Lake Huron between Tobermory and Manitoulin Island dates to 9,360±80 radiocarbon years B.P. (Janusas et al. 1997).

It was during this period of falling lake levels that the McKean site was occupied. Like earlier Palaeo-Indian sites, its relationship to lakes is

open to question (Ellis and Deller 1990:51; Jackson 1997). According to one scenario, people using the site were on an active shoreline next to the lake; alternatively, they were remote from lakes in the Huron basin—using an inland location on an abandoned, high beach ridge. The competing scenarios cannot be resolved from available data, but despite the complexity of processes leading to patina formation, patina on artifacts from the McKean site may indicate the presence of water—in contrast to its absence at both the Rentner site and the Middle Woodland component artifacts from the Baxter site.

The patina on McKean site artifacts may have formed shortly after the site was occupied as a result of inundation during early post-Algonquin high-water episodes, including the Mattawa flood (Lewis et al. 1994). Although the patina could also have developed thousands of years later from the effects of water on the tools about the time when Lake Nipissing was close to the site, the lack of patina on artifacts from Rentner argues against this possibility. A contrasting example, however, is provided by the Baxter site where an Early Archaic component (ca. 8,000 B.P.) was probably a long way inland from the low water Stanley-Hough stage shoreline in the Huron Basin. The site appears to have been inundated subsequently, probably by the high waters of the Nipissing transgression, causing the artifacts from this component to be heavily patinated (Dodd 1996).

Similarly ambiguous are the data on fish remains. Do they represent the exploitation of a nearby or distant lake or were they taken from the nearby creek? We need a more precise chronological understanding of the geological, biological and cultural events but such a resolution is much to ask, as the changes appear to have been complex and rapid. The scarcity of sites comparable to McKean may be related to a preference for locations along then-active and since-inundated shorelines. The remaining sites of this period that were not inundated and destroyed and are well preserved on dry land today are also undoubtedly elusive due to their small size and low artifact densities (Ellis et al. 1990, 1991; Fitting 1968; Kenyon and Lennox 1997; Lennox

1993, 1997; Ritchie 1969; Roberts 1985; Wright 1978). This limitation is one of the reasons why these sites are so important when they are found.

Around this time of falling lake levels, the influence of Plano becomes apparent in artifact assemblages in Ontario, entering the province on both sides of Lake Superior from the west. In the north, this influence is seen in the Lakehead Complex (Fox 1980; Hinshelwood and Webber 1987; Julig 1994; MacNeish 1952b), which extends east to Killarney (Greenman 1966; Storck 1974), perhaps contributing to the Shield Archaic (Wright 1972:85, 1995:22, 112-14, 126). South of the upper Great Lakes, both the Coates Creek site (Storck 1978) and the later McKean site share affinities with Archaic materials from the south as well as with Plano materials from the west.

Over the next 5,000 years, following the Stanley-Hough low water stage, isostatic rebound of the North Bay outlet(s) caused water levels in the Huron basin to rise and eventually drain southward through outlets at Chicago and Port Huron (Eschman and Karrow 1985:90; Larsen 1985:63; Lewis and Anderson 1989). The rising waters of the Nipissing transgression submerged lowland forests, restricting land available for settlement. Although the flooding of the basin was not catastrophic, implications for settlement change on a large scale are clear—terrestrial animals and people would have been forced to relocate to sites along the shores of the Nipissing phase lake (cf. Butterfield 1986). The Rentner site, on the highest shore of the Nipissing phase lake, is one of these sites, located next to Batteaux Creek where it entered the lake.

Radiocarbon Dates and the Nipissing Shoreline

Different phases of the Nipissing transgression relate to its drainage through different outlets at various times. The period between approximately 5,500 and 4,700 B.P. is recognized as Nipissing I and that from 4,700-3,700 B.P. Nipissing II (Eschman and Karrow 1985:90). In comparison to these ranges, the carbon date from Feature 2 at Rentner (6,910-6,490 cal B.P.) appears to be too early to place the site on the shore of the active lake. Other evidence suggests,

however, that dates on the lake itself are not highly consistent. For example, dates on wood from shallow-water Nipissing sands at St. Joseph Island range from 6,500 to 5,800 B.P. (Karrow 1987; see also Cowan 1978; Farrand and Miller 1968; Karrow 1991). Given, also, the differences in rate and range of uplift with distance to the North Bay outlet, as well as annual and longer-term fluctuations in lake level, this site may well have been a lakeside camp at 6,900-6,500 B.P.

The precision and accuracy of radiocarbon dates are particularly difficult to evaluate for this region, as discussed earlier, and also for this time—in part because flooding of lowland forests may have floated wood of different ages, making it available to people living along the new shoreline. This issue requires further research, but the evidence of the site strongly suggests that the people who used the Rentner site were living on an active shoreline. In general, evaluation becomes more complex as data accumulate and we attempt to reconcile ever more information. Local data may be at odds with regional interpretations of events. We must keep these inconsistencies in mind even when the data gathered seem to agree and to be easily confirmed.

The Cultural Context of McKean and Other Late Palaeo-Indian/Early Archaic Sites

Typological comparison of cultural materials from the McKean site with materials from dated assemblages across Eastern North America indicates that occupation of the site probably dates to between 10,000 and 9,000 B.P. Two diagnostic point types were recovered from McKean—St. Charles and Thebes. They suggest, by comparison with radiocarbon dated sites to the south where these point types co-occur, a date for the occupation of about 9,500 B.P. (Justice 1987, Morrow 1989). Also notable is the burinated biface shoulder fragment (Figure 20c) which probably represents the base of a Plano or Early Archaic projectile point (Justice 1987:30-53). The single radiocarbon date from Feature 2 at McKean (4,710±170 radiocarbon years B.P.) is rejected as being thousands of years later than the date suggested by the typological evidence.

Few of these point types have been recovered

in Ontario and most of the documented examples are “isolated finds” or were recovered from undated contexts. Two sites also with Late Palaeo-Indian-Early Archaic cultural materials are the Coates Creek site (Storck 1978), located 17 km southeast, and the Zander site (Stewart 1984), about 60 km away in the same direction. They are similarly situated on an ancient shoreline, possibly active during the time that the sites were occupied. McKean and Zander both yielded a range of flake tools and scrapers in addition to bifaces, which suggests they represent base camps, whereas Coates Creek produced few scrapers and is interpreted as a small hunting camp or location (Storck 1978:42). In addition to the side-notched point at Coates Creek and the fluted points at Zander, several unfluted lanceolate points and fragments were recovered from both sites. McKean may also have produced at least one (burinated) lanceolate specimen. These lanceolate points may be considered Plano. Although Plano and Early Archaic specimens may be contemporary with each other, their occurrence with fluted points raises the question of how such small and complex assemblages come to have such typological diversity and how to best explain this diversity. What is the relevance, for instance, of distant contact and influence versus multiple occupations or components to explaining the diversity at these sites?

Notable in these assemblages is the similarity of flake tools with those from Palaeo-Indian sites. Similarities between Palaeo-Indian and Early Archaic flake tools have been previously recognized (Ellis et al. 1990:74-75) but one implication is an expansion of the diagnostic scope of these tools and associated cultural behaviour. Sites like McKean that produce “diagnostic” Palaeo-Indian tool types, but are not conventionally regarded as Palaeo-Indian, clearly have affinities with both the Palaeo-Indian and Early Archaic periods and traditions (cf. Ellis et al. 1998:162), underscoring the difficulties of our typological constructs.

Affinities also extend to settlement and subsistence patterns. People living at the McKean site appear to have closely followed the pattern of their Palaeo-Indian ancestors, manifested in

long-distance, north-south, seasonal movements (possibly influenced by seasonal pursuit of caribou in the course of their annual movements) and the replenishment of small, portable tool kits en route (Wright 1995:44). The Early Archaic population at McKean was mobile and the distances travelled appear to have been large, in contrast to the mobility patterns of most later Archaic peoples—although mobile, later people seem to have been adapted to more specifically local conditions. The evidence of flake tools, together with the evidence of tool curation and exotic raw materials suggesting long-distance transport, create a single context for the McKean occupations that embraces the definition of both Palaeo-Indian and Early Archaic patterns of behaviour.

Multiple Occupations at the Rentner Site

In contrast to the McKean site, which by virtue of its small assemblage is interpreted as a single-component base camp occupied by a small number of people within a rapidly changing landscape during the Early Archaic, the Rentner site appears to be a larger, multi-component site located at the shore of Nipissing-phase Lake Huron—a more stable environment, used repeatedly over time in the Middle Archaic. Problems of interpretation at the Rentner site stem from its multi-component nature. For each cultural period represented, for example, does the accumulation of artifacts and debris result from a single occupation or multiple occupations of one or more groups of people over successive seasons, years or generations?

Many smaller Archaic sites are thought of as having been occupied for only short periods—each site reflecting the momentary value of a place with a limited range or amount of local natural resources, an interior knoll, for example. By contrast, the Rentner site is situated where natural resources were concentrated at the junction of lake shoreline and the Batteaux Creek floodplain, attracting repeated settlement. Subsistence opportunities at Rentner were likely exceptionally good, especially from spring to fall. During the winter, the site would have been exposed to harsh weather from the lake and was

likely abandoned. Following the Nipissing transgression, as the waters lowered, and later through the Late Archaic and even into the Late Woodland period, this location maintained its attractiveness, for various reasons. It offered a protected inland environment beside Batteaux Creek (a source of fish). During and after lake recession, the site remained high and well-drained, in contrast to the wet, bouldery clay plain emerging below it to the north. The site's placement, on the old Nipissing shore bluff, gave its occupants access to a high, dry, well-defined interior travel route.

The problems of component admixture are undeniable, especially for the non-diagnostic part of the assemblage. Onondaga chert and some other primary source cherts continued to be preferred for making formal tools. Locally available secondary source raw materials, especially quartz, were used extensively for informal tools, probably utilized flakes. This use of quartz is rare further south in Ontario, where a range of cherts with better flaking qualities are available, but more common throughout northern Ontario and among lithic industries in the upper Great Lakes (Hurley and Kenyon 1970:96-97; Julig et al. 1998; Wright 1972). A common theme for all components and at both the Rentner and McKean sites is the import of toolstone and formal tools. It applies to assemblages in Simcoe County generally, including those of the pre-contact and post-contact Huron. The use of exotic chert reflects the limitation in supply of local materials—the small size of abundant pebble cherts. Curiously, the Fossil Hill chert outcrops seem to have been overlooked by people after Palaeo-Indian and Archaic times—and prior to Late Woodland (Fox 1990). Further research may resolve this apparent incongruity.

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The site originally named Batteaux Vista and then Batteaux Creek was renamed to honour the interest and cooperation of the landowner, Mary Rentner. I thank Dale and Mary McKean for their hospitality and interest in the project and for allowing us prior access to their properties.

H. Beuprie indicated in 1989 that Mary Girdwood-Brown's husband once had a small collection of arrowheads from the farm, some possibly from the McKean site.

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