PARSONS SITE WORKED BONE AND ANTLER

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INTRODUCTION

The following section provides a discussion of the analysis of all worked specimens from the Parsons faunal assemblage recovered during the 1989-1990 ASI excavations. The sample consists of 156 pieces of bone, antler and shell, and includes formal tools, expedient tools, decorative items, and manufacturing debris. All worked bone, regardless of the level of identification, was examined under either direct sunlight, or high intensity, point source, low angle illumination in order to detect faint cuts any traces of grinding, polish, or use wear.

Almost one-fifth of the material was recovered from House 4. This narrow structure represents an architectural anomaly among the longhouses documented during the investigations (see Robertson, Williamson and Welsh, this volume). Over two-thirds of the worked bone from this house consist of beads and debris related to bead manufacture. A similar ratio was obtained for Midden 2, which was spatially associated with, and may have served, House 4. Beads, tubes and related manufacturing debris from the rest of the site, on the other hand, account for less than half of the worked faunal material.

The possibility that these data may be used to explore one of the functions of the architecturally unusual longhouse has made a consideration of the spatial distribution of the faunal material essential to the present analysis. Where appropriate, the spatial distribution of specific artifact types and groups of types is discussed, based on the following assumptions about the spatial patterning of refuse: (1) most secondarily deposited material would be discarded in a midden or refuse feature close to the living surface from which it was removed; (2) material deposited on a midden could have originated from activities carried out in either nearby houses or nearby exterior activity areas; and (3) material deposited in a house feature most probably originated from activities carried out somewhere in that house.

The overall ceramic vessel assemblage recovered from the site provides evidence for the influence of both St. Lawrence and Neutral Iroquoian traditions of manufacture and decoration (Williamson and Powis, this volume). For this reason, comparisons are made between the ASI Parsons worked faunal assemblage and published accounts of St. Lawrence and Neutral Iroquoian assemblages in order to determine whether or not similar influences could be discerned among the bone artifacts. Further reference is made to material from two fifteenth century Simcoe County sites analyzed by the author. Comparisons are also made to the assemblages from the nearby Keffer and Draper sites, although detailed data on the material from these sites is limited.

The 49 worked items in the University of Toronto collections from Parsons that were analyzed by Peter Hamalainen in the early 1980s were not incorporated into the present study because an unknown amount of this material had been removed previously (Hamalainen 1982:G2, G22). The loss to the worked fraction of Hamalainen's sample may be profound. In the ASI sample, counting only material derived from proveniences included in the subsistence bone analysis, the ratio of worked bone to unworked bone (identified to an analytically useful level) is 67:223 or close to 1:3. In the Hamalainen sample, the ratio is 49:802, or close to 1:16. Given that Hamalainen's worked bone assemblage appears to have been depleted, that the degree of depletion could be assumed to be uneven among types, and that some types might have been totally lost, the present analysis is restricted to the 1989-90 ASI collection.

BONE BEADS AND TUBES

Beads and tubes comprise the single largest category of worked bone, and are perhaps the most distinctive feature of the entire assemblage. This category includes 65 entire and partial items, or 41.7% of the worked bone collection. When the 22 pieces of related manufacturing debris are combined with this total, the bead and tube category accounts for well over half of the collection.

Beads and tubes area major artifact class in other pre-contact and contact Neutral and Huron assemblages (Fitzgerald 1982:199-204; Jamieson 1993: 50; 54; Lennox 1981:305-306; Lennox and Fitzgerald 1990:423; Wright 1981:94-97). Minor quantities also occur in St. Lawrence Iroquoian assemblages (Jamieson 1990a:349; 1992; 1993:50, 54; Junker-Andersen 1984:154, 226-227).

The most basic typological distinction within this general category is the division into beads and tubes. In previous analyses of Neutral Iroquoian assemblages, the distinction between beads and tubes has been based on the criterion of length. In his report on the Hamilton site, Paul Lennox (1981:306) classified those specimens measuring under 100 mm as beads, whereas those measuring greater than 100 mm were classified as tubes. Milton Wright, in his discussion of the material from the Walker site, discriminated between the two artifact types on the basis of a bimodal distribution of lengths (Wright 1981:94). He concluded that beads measured less than 55 mm in length, while tubes measured over that mark. William Fitzgerald, in his analysis of material from the Christianson site (Fitzgerald 1982:200-202), declined to define an arbitrary benchmark for distinguishing between beads and tubes. The longest object he classified as a bead, however, measured 69.6 mm in length.

Differentiation of beads from tubes in the present collection has been made somewhat easier by the fact that the longest measurable finished beads are no more than 47 mm in length, falling comfortably within even Wright's most restricted size range. Wright's definition is based on a bimodal division found within his data. While this arbitrary, measurement-based criterion is convenient and may be valid for the Walker site, it is probably not valid for all sites. Although it may be reasonable to assume that most of the items classified as beads actually functioned as beads, it must also be recognized that some small cylindrical bone artifacts may have functioned as tubular components of other items, such as sockets for feathers in costumes, as parts of containers for small objects, as sliding elements of snares, or as parts of some other types of compound artifacts. In this analysis the three largest cylindrical bone items in the assemblage (in all cases represented by fragments of major long bones) have been classified as tubes rather than as beads. Accordingly, fragments of some larger cylindrical bone items in the Parsons assemblage have been classified as tubes rather than beads. It must be emphasized, however, that such qualitative ascriptions of function are offered only as tentative classifications.

The 62 items falling within the bead category can be divided into three subtypes: distinctive, generalized, and crude (Table 44).

Distinctive Bead

Only one specimen falls into the distinctive bead category. This item is a 36 mm long section of red fox (*Vulpes* vulpes) mandible, recovered from Feature 38 of House 4

Table 44. Spatial Distribution of Beads, Tubes, and Bead/Tube Manufacturing Debris.

Type	Number of Identified Specimens				
	House 4	**Other Houses**	**Midden 2**	Other Exterior Contexts	Total
Beads					
Generalized	12	9	18	11	50
Crude	4	1	5	1	11
Distinctive	1	0	0	0	1
Total	17	10	23	12	62
Bead/Tube	0	0	1	2	3
Bead/Tube Mfg. Debris					
Manufacturing Failure (Blank)	0	3	3	4	10
Manufacturing Waste	3	4	1	4	12
Total	3	7	4	8	22
Grand Total	20	17	28	22	87

(Figure 29:m). The bead was separated from the mandibular body at the proximal end by an intentionally propagated fracture, guided by a deep notch sawn into the ventral border. It is not clear, however, whether the distal fracture was similarly guided. The rough broken edges were then evened off and the bone lightly polished. The object was probably strung through the mandibular canal. While sections of deer mandibles with in-situ teeth have been used as corn processing tools (Waugh 1973:169), the in-situ teeth (fourth premolar and first molar) in this fox specimen bear no obvious traces of implemental use wear.

Generalized Beads

In the manufacture of generalized beads, the cuts in long bones were made much in the way that glass tubing is cut. Rather than sawing completely through the long bone shaft, a transverse notch or a full annular groove was made to initialize and guide fracture propagation, and the shaft was snapped at that point. This groove and snap method of bead manufacture has been more fully described by Guilday et al. (1962:64, 70, Figure 5). Rough spots on the snapped ends were usually smoothed by grinding; the outside rim was often rounded and sometimes the inside rim was rounded as well.

A total of 50 generalized beads and bead fragments were identified, 60 percent of which was derived from House 4 and the adjacent Midden 2. The 19 entire specimens and 15 longitudinal sections and fragments (where both ends are represented) have an average length of 28.6 mm. Beads made from the long bones of birds of prey comprise an interesting subgroup of this type. These include one specimen made from a northern goshawk (Accipiter gentillis) bone, and two examples made from barred owl *(Strix varia)* bones. The former was found in House 4 while the latter were both found in Midden 2. The average length for these three beads is 40.3 mm.

Some of the beads were very precisely manufactured, with little trace of the preparatory grooving (e.g., Figure 30:c). On some other examples, however, the preparatory saw work lacked control, leaving marks that strayed up to 10 mm away from the snapped end (e.g., Figure 30:b). For entire beads and for longitudinal fragments and sections, the ratio of precise to poorly controlled saw cuts was approximately 2:1. This variation in precision of manufacture appears to be evenly distributed throughout the excavated area.

Crude *Beads*

The manufacture of crude beads appears to have involved little or no use of the groove and snap technique to section the long bone shaft. In some cases, the thin cortex of the condyles of an appropriately sized long bone was crushed away. The resulting jagged ends were sometimes partially evened by controlled flaking (e.g., Figure 30:a).

Of the 11 crude beads in the collection, nine are derived from the House 4-Midden 2 area. The average length of the eight entire crude beads is 29.6 mm. It is of interest that a number of crude beads were made from the major long bones of small mammals. Three beads made from pine marten *(Martes* americana) long bones were recovered from House 4 features, and another specimen, made from a grey squirrel (Sciurus carolinensis) long bone, was recovered from Midden 2.

Given the similar average lengths for crude and generalized beads, these subtypes may be pooled in the examination of trends from across the site. The sample therefore consists of 42 individual beads, including complete examples and longitudinal sections or fragments that were derived from individual specimens. Overall, the generalized and crude beads have an average length of 29.1 mm, with a range of 13 to 47 mm.

House 4 (14 measurable specimens) was found to have the longest beads, with an average length of 34.7 mm, a median length of 35 mm, and a range of 18 to 47 mm. For Midden 2 (14 measurable specimens), the average and median lengths are substantially lower at 26.9 mm and 24 mm respectively, and the range is 13 to 47 mm. The average and median lengths of those beads recovered from the remainder of the site (14 measurable specimens) are 25.8 mm and 24 mm respectively, with a range of 15 to 35 mm. These statistics include only generalized tubular beads.

It appears that House 4 is also atypical with respect to patterns of bead breakage. Considering only crude and generalized beads, of a total of 16 bead specimens found in House 4, all but five are complete. Of the five incomplete

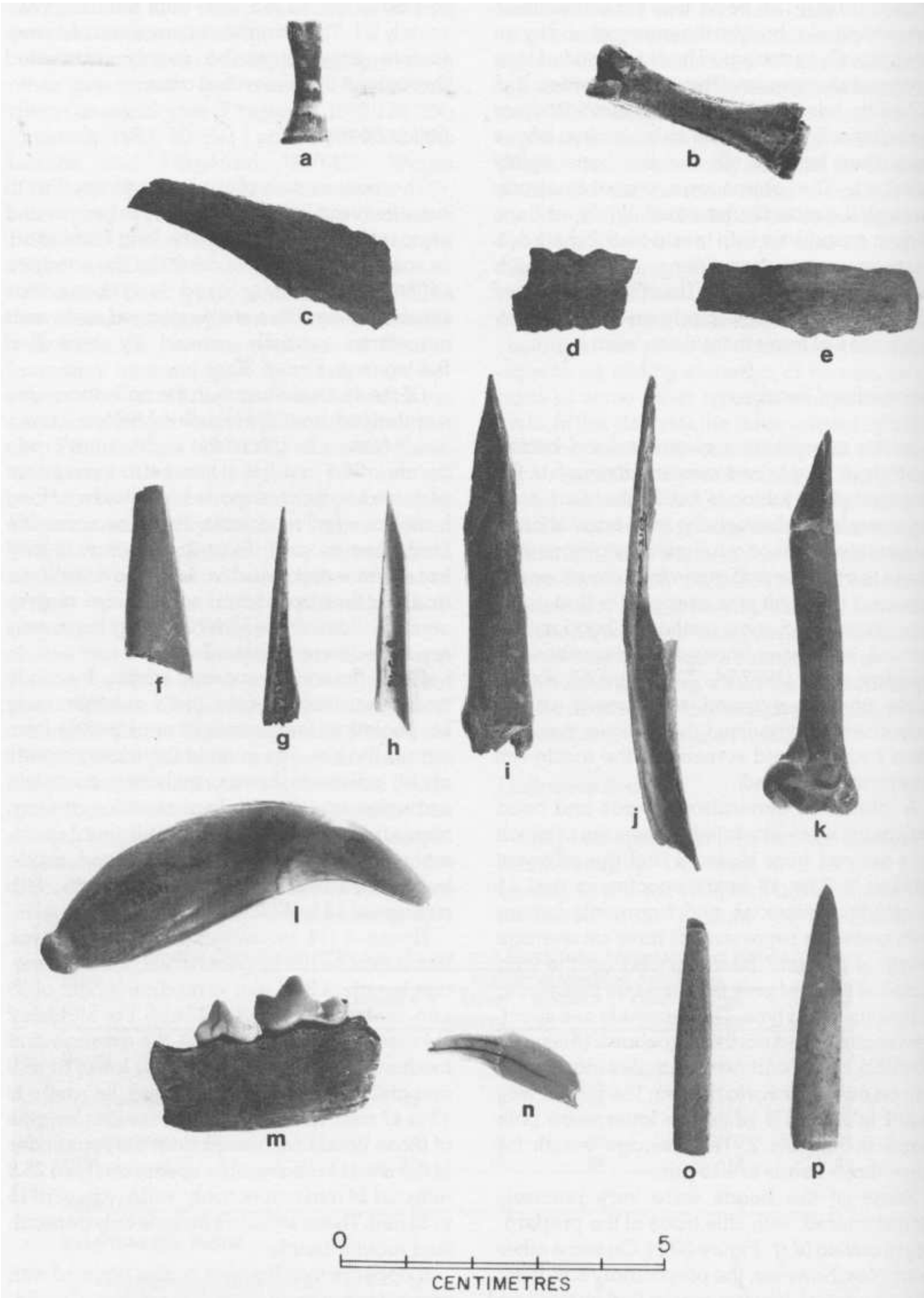

Figure 29. Selected Worked Bone Tools: Turkey Phalanges (a-b), Rib Cortex Objects (c-e), Awls (f-k), Pendants (I, n), Fox Mandible Bead (m), Copper Stained Bipoint (o), Projectile Point (p).

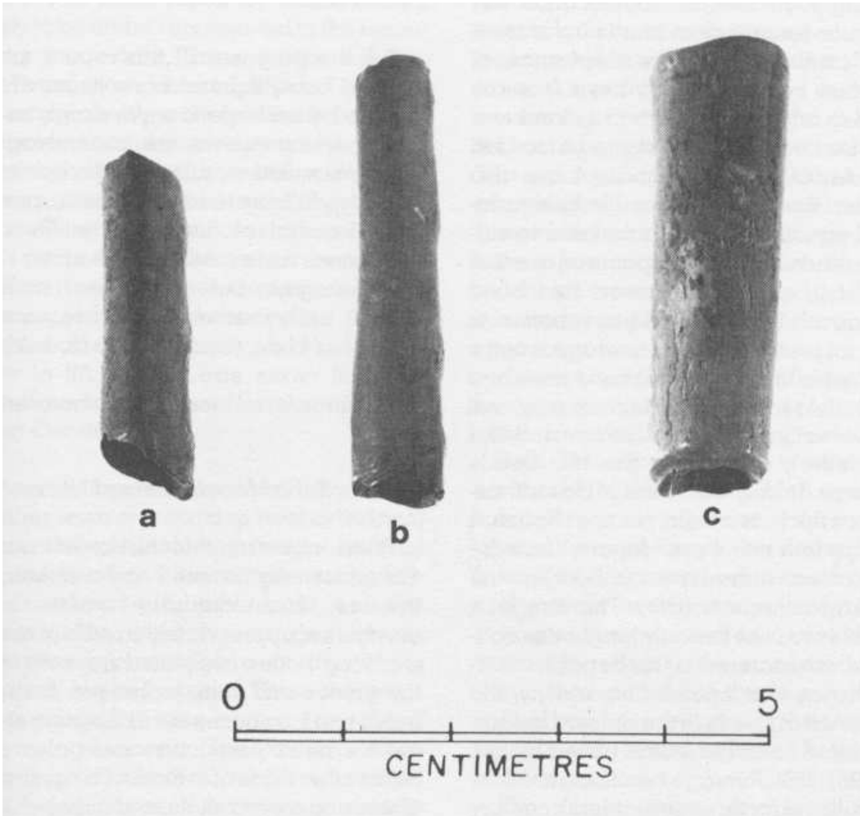

Figure 30. Range of Generalized Bone Bead Manufacture: Crushed and Flaked End (a), Finely Finished Grooved and Snapped End (b), Grooved and Snapped End with Saw Skips (c).

specimens, only one appears to exhibit fresh bone fracture. Sixteen of the 23 specimens recovered from Midden 2, however, are broken. Nine of these broken examples have evidence of fresh bone fracture. Of the 22 specimens derived from all other areas, 17 are broken, and 11 of these latter appear to exhibit fresh bone fractures.

To summarize, the beads from House 4 have a greater average length than those from elsewhere on the site. Furthermore, the size distribution of the Midden 2 bead population appears to resemble the sample recovered from other parts of the site more closely than it resembles that from the House 4 assemblage. Similarly, House 4 has an atypically high proportion of unbroken beads and, although the numbers are low, relatively fewer of the broken beads suffered fresh bone fractures. The breakage and fresh bone fracture rates for Midden 2 are higher. The rates of breakage and fresh bone fracture for the rest of the site are closely comparable to those of Midden 2.

Intrasite variation in bead length and breakage may be related to patterns of manufacture, use, breakage, and repair of strings of beads. It is inevitable that when a string of beads is worn (especially when many beads have the rough edges typical of the Parsons bead industry) the cord or thong will become abraded and eventually fail, thereby scattering the beads. While many beads would be recovered, some would be lost and some would break. Beads with minor end breaks could be repaired simply by cutting off the broken portion and refinishing the new cut. In terms of fracture propagation, fresh bone behaves more closely to an isotropic substance like glass or chert, and this property diminishes as the bone ages and dries. A groove and snap operation on an older bead is, therefore, less likely to be successful than on the same piece when it was fresh.

Accordingly, the size distribution and fresh bone fracture frequency of beads in House 4 might be attributable to the deposition of relatively new beads in the House 4 features compared to other areas of the site, and to a tendency for bead refurbishing to be carried out in locales other than in House 4. It is also possible that the observed bead length variation could equally well be attributable to cultural preferences of the occupants or users of House 4. It is unlikely, however, that bead length variation is attributable to variation in raw material preference. The average lengths for the 27 measurable beads made from bird bone and the 14 beads made from mammal bone are virtually identical at 29.3 mm and 29.4 mm respectively (excluding the two beads noted above). In any case, the Midden 2 assemblage, which is similar to the House 4 assemblage in some ways, departs from the House 4 pattern with respect to bead metric and breakage characteristics. This suggests that House 4 was not the only longhouse contributing refuse material to this deposit.

With respect to intersite comparisons, the predominance of beads in the present assemblage is reminiscent of Neutral assemblages (Lennox 1981:359). Average bead length statistics are available for three seventeenth century Neutral Iroquoian worked bone assemblages: 40 mm for the Walker site; 44.5 mm for the Christianson site; and approximately 70 mm for the Hamilton site (Fitzgerald 1982:200-202; Lennox 1981:306; Wright 1981:96). These average lengths all substantially exceed that for the Parsons sample. Other sites closer to Parsons in time and space that have major bead components include Draper and Keffer, where beads account for 30.4 percent and 49.8 percent of the worked bone assemblages respectively (Jamieson 1993:50). Unfortunately, however, metric data are unavailable for these collections. Beads also make up the largest proportion of worked items at the Dunsmore and Hubbert sites (42.2 percent and 30.7 percent respectively). The Dunsmore beads range from 27 to 40 mm in length, with an average of 32.9 mm, while those from Hubbert range from 13 to 43 mm in length with an average of 28.2 mm (Thomas 1996b:153; 1996c:104).

Bone Tubes

For the purposes of this report, tubes are defined as cylindrical bone items which appear to be too large to serve simply as beads. Three specimens in the assemblage have been classified as tubes on the basis of size; however, all are end fragments, preventing measurement of their lengths. Two of the specimens were made from the long bones of a large mammal (deer, elk, bear, human size range), while the third was made from a large bird long bone (Canada goose, wild turkey, sandhill crane size range). All of the tube specimens were recovered from exterior contexts.

Bead or Tube *Manufacturing Debris*

Bead or tube manufacturing debris includes manufacturing waste and manufacturing failures. Manufacturing waste includes condyles of appropriately sized bird and mammal long bones separated from the shaft by the groove and snap technique. It should be noted that long bones with diameters appropriate for bead production were also used to make other kinds of artifacts. For example, dog tibias, dog metapodials, and turkey ulnas were used as raw material in the manufacture of both awls and beads.

Manufacturing failures may be defined as worked long bone fragments that have at least one fresh bone fractured break, and have an interior either blocked with unreduced trabecular structures (cancellous bone) or lacking in cord wear; have either one or two obviously unfinished grooved and snapped terminations (no effort having been made to smooth a sharp, jagged termination); or have a notch or annular groove that obviously failed to control the propagation of a transverse fracture. Other, perhaps less reliable, traits that may be used to define manufacturing failures are a lack of cord wear on the inside of the bead cylinder, and a lack of polish on the exterior surface. Many of these are probably spoiled bead blanks.

Twelve pieces of bead or tube manufacture waste are present in the assemblage. The House 4-Midden 2 area accounts for one-third of this material. Ten bead/tube manufacturing failure specimens were identified, three of which were found in Midden 2.

Episodes of bead repair or refurbishment are likely to be under represented in the manufacturing debris data. The operational definition for "bead manufacturing failure," set forth above, can probably reliably identify the products of unsuccessful conversion of long bone stock into beads. It is not, however, specifically intended to distinguish between the broken pieces resulting from unsuccessful bead repair and the fragments generated as beads are worn. Nevertheless, the bead fragmentation data presented above does appear to reinforce the bead manufacturing debris data.

Possible *Expedient* Re-use of Beads *and Manufacturing* Debris

Clusters of fine transverse striations had been either worn or cut into several cylindrical long bone artifacts, including: two generalized beads; one bead or tube manufacturing failure; and one bead or tube fragment. A similar pattern was also noted on a canine humerus shaft section representing a portion of an unidentified worked object. Thus, the bone elements ranged in size from a barred owl ulna to a dog humerus. The cause of these wear patterns is unknown, but it is not related to the scoring phase of a groove and snap operation. Given that most of the striations seem to have rounded rather than sharply cut edges, these objects may have served in some aspect of cordage manufacture. The majority of these items were derived from the House 4-Midden 2 area. One was found in House 4, three came from Midden 2, and one came from Midden 3.

Distribution *of Tubular* Beads *and Manufacturing Debris*

Frequencies of beads and bead manufacturing debris are presented in Table 45. House assemblages contain over twice as many entire beads as bead fragments, while midden assemblages contain over twice as many fragmentary as whole specimens. It is assumed that this reflects post-depositional events, and that beads deposited or redeposited on midden surfaces are generally exposed to more mechanical damage and structural weakening by weathering than items deposited or redeposited in the fill of house features. This assumption is consistent with observations of animal alteration. Carnivore tooth marks were noted on only one bead manufacturing failure from a house context. Carnivore or rodent tooth marks were noted on three bead specimens and six bead manufacturing debris specimens from midden contexts.

House 4 and the adjacent Midden 2 account for approximately 59 percent of the 80 beads, bead fragments and bead manufacturing debris. This figure is large in relation to the number of features and midden squares excavated. Assuming a tendency for material deposited on a midden to be derived primarily from activities carried out in nearby structures and exterior activity areas, and assuming a strong tendency for material found in a house context to reflect activities carried out inside rather than outside of the house, the patchiness of bead deposition suggests a concentration of bead-related activities in the House 4-Midden 2 area.

The tubular beads and bead fragments found in House 4 and adjacent Midden 2 comprise approximately two-thirds of the 60 generalized tubular beads and bead fragments in the collection. In both House 4 and Midden 2, beads and bead fragments far outnumber pieces of bead manufacturing debris. In House 4 and Midden 2 combined, the ratio of bead specimens to pieces of bead manufacturing debris is close to 6:1. In contrast, this ratio for all other house and midden contexts combined is 6:5. These figures suggest that in relation to bead manufacture, activities which resulted in the deposition of finished beads more often occurred in the House 4-Midden 2 area than in other locales in the excavated area.

Table 45. Generalized Tubular Beads (including Crude) and Bead Manufacturing Debris.

Provenience	**Entire Beads**	**Bead** Fragments, All **Kinds**	Total **Beads** & **Bead Fragments**	**Total Mfg. Debris. All Kinds**	**Total Bead Specimens and Manufacturing** Debris
H4	11	4	15	4	19
Other Houses	7	2	9	7	16
M2	7	16	23	5	28
Other Middens	2	7	9	8	17

AWLS AND BODKINS

At first glance, the definition of an awl is seemingly straightforward. According to Junker-Andersen, the ""two attributes of major importance which serve to distinguish awls from other types of artifacts...are the point and the base." The point should be a sharp prong, and the base should be large and, ideally, rounded to be capable of receiving the force directed at the point (Junker-Andersen 1981:11-12). Jamieson (1993:51) also relies on these two traits, again stressing a rounded base or butt.

The Parsons assemblage (Tables 46 and 47) raises some doubt as to whether the rounded butt is an essential trait. Two of the expedient awls and one of the formal awls have rough, unfinished butts. Both expedient awls, for example, have lightly polished rounding on the jagged projections of the butt end, which is suggestive of prehension wear rather than purposeful shaping in order to adapt the tool to receive the user's force. This suggests that not every awl was intended to receive pressure at the butt end, but that some awls were used in the manner in which one would handle a stiletto-like tool or a stylus. Alternatively, some awls may have been used with a piece of leather or textile folded over the jagged, unfinished butt.

Awls were classified primarily according to the cross-sectional shape of the point. This attribute is related to mode of use. A styloid point with a round cross-section could be used with either a twisting action, as a conventional awl, or with a direct, forceful push, as a punch. An awl with a flat point obviously could not be used efficiently with a twisting motion against a resistant medium such as thick leather, but it could be used with a more or less straight thrusting motion, as a punch, or with a lateral prying motion, as a bark stripper. A point with an oval cross-section has use characteristics intermediate between the styloid and flat point. For the purposes of this study, point angles have not been measured (cf. Junker-Andersen 1981:11, 15); however, the species and element data provided in Table 47 do provide some indication of the amount of compressive and lateral stresses that a particular point can bear. A tool manufactured from a larger element of a white-tailed deer or bear, for example, would be considerably more robust than would an item made from an avian element.

A secondary level of classification, formal versus expedient, is based on the degree of finish. Modification of expedient awls is generally confined to limited shaping of the point — which is often a naturally V-shaped projection of a fresh bone fracture fragment — as well as prehension wear and tip polish consequent to actual use. Formal awls are more extensively modified, and are more likely to have naturally or artificially rounded butts. Shaping of most formal awl handles was limited to longitudinal grinding, but some handles have been at least partly formed by the groove and split technique. Awl points were generally shaped and resharpened by longitudinal grinding, although longitudinal grinding was mixed with transverse grinding on one formal awl, and flaking was used to shape the point of one expedient awl. In contrast with the St. Lawrence Iroquoian awl industry (Junker-Andersen 1981:11), whittling does not appear to have

Table 46. Spatial Distribution of Awls and Bodkins.

Type	Number of Identified Specimens				
	House 4	Other Houses	Midden 2	Other Exterior Contexts	Total
Awl with Flat Point, Formal	0	1	0	0	1
Awl with Flat Point, Expedient	1	0	1	0	2
Awl with Oval Point, Point Portion	0	1	0	0	1
Awl with Styloid Point, Formal	0	0	2	1	3
Broken Awl, Point Missing, Formal	0	1	0	0	1
Broken Awl, Point Missing, Expedient	0	0	0	1	1
Total Awls	1	3	3	2	9
Bodkin or Robust Awl, Body Portion	0	0	2	5	7
Bodkin or Robust Awl, Broken Oval Pt	0	1	0	1	2
Bodkin or Robust Awl, Broken Conical Pt.	0	0	0	1	1
Total Bodkins or Robust Awls	0	1	2	7	10

Table 47. Species and Element Data for Awls and Bodkins.

Description	Element	Provenience
Formal Awl with Flat Point	*Melanitta* fusca (white-winged scoter) humerus, right: distal 2/3 end	House 8 F193
Expedient Awl with Flat Point	*Canis familiaris* (domestic dog) metacarpal 5, right: dist 3/4 end sect, (medium-sized dog).	House 4 F038
Expedient Awl with Flat Point	*Meleagris gallopavo* (wild turkey) ulna, right: central 1/2 section, 78mm long.	Midden 2
Awl with Oval Point (Broken Tip)	Mammalia sp. (medium-large), major long bone (or possibly antler) shaft	House 7 F141
Formal Awl with Styloid Point	Aves sp. (large), major long bone: misc shaft fragment, 38 x 5mm.	Midden 2
Formal Awl with Styloid Point	Aves sp. (large), major long bone: misc shaft fragment.	Midden 2
Formal Awl with Styloid Point	*Canis familiaris* (domestic dog), radius, left: prox 1/2 section less condyle,	Midden 4
Formal Broken Awl (Point Missing)	*Ursus americanus,* fibula, left: shaft section, approx. 1/2 length 118, 104mm long.	House 9 F166
Expedient Broken Awl (Point Missing)	*Canis familiaris* (domestic dog), tibia, left: proximal ' fragment, tibial crest and anterior surface of shaft.	Midden 4
Bodkin or Robust Awl (Broken Shaft/Handle Piece)	Mammalia, probably Cervidae sp., probably metatarsal 3+4:probably medial	Exterior Area 9 F184
Bodkin or Robust Awl (Broken Shaft/Handle Piece)	Mammalia, probably Cervidae sp., probable metatarsal 3+4, misc: extensor	Test Pit
Bodkin or Robust Awl (Broken Shaft/Handle Piece)	Mammalia, probably Cervidae sp., major long bone consistent with metapod	Midden 2
Bodkin or Robust Awl (Broken Shaft/Handle Piece)	Mammalia, probably Cervidae sp., major long bone consistent with metapod	Midden 3
Bodkin or Robust Awl (Broken Shaft/Handle Piece)	Mammalia, probably Cervidae sp., Major long bone consistent with metapod	Midden 3
Bodkin or Robust Awl (Broken Shaft/Handle Piece)	Mammalia, probably Cervidae sp., major long bone consistent with metapod	Midden 2
Bodkin or Robust Awl (Broken Point)	Mammalia sp. (large), major long bone shaft fragment, thick cortex,	House 8 Wall Trench
Bodkin or Robust Awl (Broken Oval	Mammalia sp. (large), major long bone shaft fragment ,12 x 6 x 4mm.	Midden 3
Bodkin or Robust Awl (Broken Conical Point)	Mammalia probably Cervidae sp., major long bone consistent with metapod 3+4: probably metapodial ridge fragment 30 x 11 x 7mm.	Midden 4

been used to shape the awls in the Parsons sample.

Wright (1981:98-99) and Lennox (1981:312) have distinguished between awls and punches depending on whether the use wear striations ran transverse to, or parallel to, the axis of the point. This procedure was not practical in the present study, as the examination was confined to the use of a 7X hand lens. More importantly, however, the marks left from the longitudinal grinding used to shape and resharpen some awls are difficult to differentiate from some use wear striations. Finally, as is often the case with lithic tools, it seems unlikely that the user of a particular artifact would have adhered to any rigorous functional specialization beyond that absolutely required by the constraints of the tool's basic morphology.

For the purposes of the present study, the term "bodkin" is used to refer to a slender, robust, usually prong-like awl or similar pointed implement, the body of which has an oval or subrectangular cross-section. Hence, depending on the size, a bodkin could function as a dagger, an awl, or even a large hair pin.

Awls and bodkins, including both complete and incomplete specimens, account for 19 items or 12.2 percent of the worked assemblage. The spatial distribution of awl types is summarized in Table 46.

Of the 19 items in the awl-bodkin category, three have rodent gnaw marks. None exhibit evidence of carnivore gnawing. These stand in sharp contrast to the animal alteration rate for the remaining 137 worked bone specimens in the assemblage, 15 (10.1 percent) of which bore marks of carnivore gnawing, and two (1.5 percent) of which had been gnawed by rodents. The Parsons awl sample is too small to support a statement about the relative frequency of carnivore gnawing, although, it may be noted that among a collection of 37 awls from the Myers Road site, only one was found to be carnivore altered (Thomas 1998:192). This rate was considerably lower than the 28 percent observed for perforated deer phalanges, the next most numerous Myers Road worked bone type. Such variation may be attributed to the fact that most carnivore alteration is likely attributable to domestic dogs, and that some effort was probably made to discourage the chewing of such pointed objects, which would benefit neither the tools, nor the local dog population (Thomas 1998:192).

Three flat pointed awls were found, all of which appear to be complete. The first of these is a formal awl made from a humerus of a white-winged scoter *(Melanitta fusca,* Figure 29:k). It appears to have been laid aside long enough to have been found by a small rodent and then re-used, as the rodent gnaw marks are overlain by light polish. The second specimen, made from a turkey *(Meleagris gallopavo)* ulna, is an excellent example of an expedient awl (Figure 29:j). The third specimen, which is also expedient, was manufactured from a domestic dog (Canis *familiaris)* metacarpal. The formal white-winged scoter awl was found in House 8, while the two expedient awls were recovered from Midden 2 and House 4 respectively.

One oval pointed awl was recovered from House 7. It is a calcined point section with dry bone fractures at the proximal and distal ends. It is differentiated from the bodkin or robust awl point specimens on the basis of its more gradual taper, although this is not an infallible criterion.

Three styloid pointed awl specimens were recovered. The only complete example is a formal awl made from the proximal end of the radius of a dog (Figure 29:i). The other two are broken point and tip sections. The break at the proximal end of the first of these two is a fresh bone fracture (Figure 29:h), while that at the proximal end of the second appears to be intermediate between a fresh and a dry bone fracture (Figure 29:g). The former break is probably use-related. Each specimen has use-related attrition in the form of one or more very small flake scars at the tip, which has been smoothed at the edges by use wear polish. All came from exterior contexts: two from Midden 2 and the other from Midden 4.

The two broken awls, lacking their tips, could not be typed according to point shape. One of these is the handle of a (probable) formal awl made from a bear *(Ursus* amen-canus) fibula, and was recovered from House 9. The break, an old dry bone fracture, occurred proximal to the tapered portion. The other is the major portion of an expedient awl made from a fresh bone fracture fragment of a dog tibia, and was found in Midden 4. Its tip was also broken by an old dry bone fracture.

All of the recovered items classified as bodkins are made from a major long bone of a large mammal, and most bear traces of the groove and split technique. In the curvature of the medullary and cortical surfaces and in the straightness of form, the raw material usually appears consistent with a buttressing ridge of a deer metapodial.

All items in the bodkin or robust awl category are broken, so that only seven body sections and three point sections are available to reconstruct how an intact artifact of this type . may have appeared. The body sections are consistent in form and manufacturing technique. All appear to have been grooved and split, probably from a buttressing ridge of a deer metapodial, and all are polished or at least smoothed. Their average maximum diameter is 8.4 mm, with a range of 7 to 10 mm. One of the body sections has an 18 mm long shallow indentation, either ground or whittled into the cortical (outer) surface. It has also been gnawed by a small rodent, but the texture of the carved indentation is distinct from the rodent tooth marks, and it has been polished over, while the rodent marks have not. This piece is thought to represent a hafting area near the base or butt. Two of the specimens were recovered from Midden 2, while the remaining examples were derived from various other exterior contexts.

Two bodkin/robust awl points with oval cross-sections were recovered from House 7 and Midden 3. Both are made from major long bones of large or medium-to-large mammals (in the deer, elk, bear, human or wolf, large dog, beaver size ranges), and all have been charred or calcined. In size and in their burned condition, these items are consistent with other specimens in the bodkin or robust awl category. The fresh bone fractured breaks of one specimen suggest breakage during heavy use.

One bodkin/robust awl point with a conical cross-section was recovered from Midden 4. It was made from a major long bone of large mammal and was charred (Figure 29:f).

Discussion

Taken as a group, most bodkin/robust awl specimens have a distinctive set of post-use and depositional attributes in common. All but one of the bodkin/robust awl specimens was burned (seven were charred and two were calcined). In contrast, only one awl specimen was burned. Even this specimen, a point section, might conceivably have been part of a bodkin/robust awl. As is the case with the awls, none of the bodkin/robust awl specimens were gnawed by carnivores. The only evidence for animal alteration in this group are the rodent gnaw marks on the one body section described above. With three exceptions, all transverse breaks are dry bone fractures. Breakage patterns on body sections of two specimens, and on the point section of a third are typical of fresh bone fractures, indicating that these artifacts were broken while they were still comparatively new. All three were subsequently burned.

Specimens in the awl category were distributed fairly evenly throughout the site. One specimen was recovered from the interiors of Houses 4, 7, 8, and 9, respectively, while three were recovered from Midden 2 and two were recovered from Midden 4.

The distribution of specimens in the bodkin/robust awl category is more clearly biased towards exterior areas. One specimen was recovered from Midden 4; two were found in Midden 2; Midden 3 yielded three specimens; and two were recovered from features in Exterior Area 9; whereas only one example was recovered from a house interior (House 8). The remaining specimen was recovered from a test pit during the preliminary assessment of the site. It is not certain, however, whether this spatial patterning reflects use or disposal patterns. The fact that only two items were broken by fresh bone fracture, and that most transverse breaks were dry bone fractures that probably occurred consequent to, or after, the artifacts had been burned, favours the latter possibility.

Most styloid- and oval-pointed perforating tools came from midden contexts (two from Midden 2, one from Midden 3 and two from Midden 4) while one each came from Houses 7 and 8. Tools with such points would have been capable of perforating leather.

The awl and bodkin/robust awl types comprise 12.2 percent of the worked bone assemblage. This figure is roughly similar to that found at the Neutral Christianson, Hamilton, and Walker sites, and Toronto area Keffer site, and approximately half that found at the Dunsmore and Hubbert sites in Simcoe County. The Draper representation is substantially higher, and the St. Lawrence Iroquoian Roebuck, McKeown, and Steward sites have much higher awl frequencies (Fitzgerald 1982; Jamie-son 1993; Lennox 1981; Thomas 1996b, 1996c; Wright 1981).

OTHER UTILITARIAN ARTIFACTS

The distribution of nine miscellaneous utilitarian artifacts made from faunal material is summarized in Table 48.

One item is a copper stained bone bipoint made from the cortex of a major long bone of a large mammal, possibly a buttressing ridge of a deer metapodial. It is 33 mm long and, has a maximum diameter of approximately 8 mm (Figure 29:o). In contrast with typical bipoints, which have two opposing conical points, the base point of this specimen has a flat screwdriver-shape blade. The distal end has a conical point which has been broken with a hinge-like fresh bone fracture, apparently from end impact or compressive loading close and perpendicular to the long axis. This specimen was found in Feature 49 of House 3, in conjunction with a lithic tool kit (R. MacDonald, this volume).

Using several lines of evidence, Junker-Andersen (1984:148-149) has suggested that such bipoints may have functioned as elements of fishing leisters or as compound fish hooks. Jamieson (1993:52) concurs with this

Table 48. Spatial Distribution of Miscellaneous Utilitarian Worked Bone, Antler, and Shell Artifacts.

Type	Number of Identified Specimens				
	House 4	Other Houses	Midden 2	Other Exterior Contexts	Total
Bipoint	0	1	0	0	1
Bone Projectile Point	0	1	0	0	1
Antler Harpoon Point	1	0	0	0	1
Rodent (Beaver) Incisor Chisel	3	0	0	0	3
Small Rodent Mandible+Incisor Perforator	1	1	0	0	2
Freshwater Mussel Shell Scraper	0	0	1	0	1

suggestion. It is also possible that some bipoints served as hafted awl prongs or as trigger components in snares. It is rather less likely that they would have functioned as "brads" (Wright 1981:101), or similar nail-like fasteners.

Jamieson demonstrates that bipoints, or "barbs and prongs" occur in significantly higher frequencies on St. Lawrence Iroquoian sites (Roebuck, McKeown, and Steward) than on sites closer to Toronto (Keffer and Draper). He explains this in terms of a greater dependence on riverine resources among the St. Lawrence Iroquoians (Jamieson 1993:52). Bipoints are also represented in trace amounts at the Walker site (Wright 1981:101). Two bipoints were recovered at the Dunsmore site (Thomas 1996c:102), where fishing in streams, inland marshes and nearshore shallow lake habitats were major subsistence pursuits.

A probable antler harpoon point was recovered from House 4. This artifact, which has been reconstructed from eight separate fragments, measures 140 mm in length. The point has been sharpened by whittling, and much of the tine surface has been longitudinally ground. A hole measuring approximately 4 mm in diameter, has been drilled near the base. The base itself appears to have been hollowed out, but the full extent of modification to the basal area is obscured by severe root etching and crumbling of the antler cortex. An almost identical specimen was found at the Hamilton site (Lennox 1981: 397, Figure 47-14).

A projectile point that measures 42 mm in length was found in House 7. It was apparently made from a major long bone of a large or very large avian (Canada goose, wild turkey, sandhill crane to trumpeter swan, bald eagle size range), and was shaped by longitudinal and some transverse grinding into an isosceles triangle (Figure 29:p). There is wear polish on the tip area, but the undifferentiated haft area shows no obvious binding wear.

Three beaver incisor chisel end fragments were found in Features 24 and 38 of House 4. All were made from mandibular incisors which are straighter than maxillary incisors. Both specimens from Feature 24 were longitudinally split, isolating the flat mesial surface. Polish over the split surface of one of these indicates that the tool was re-used after it had split. The incisor chisel from Feature 38 had also split longitudinally, isolating the curved distal (lateral) surface, and use polish on the split surface indicates that it, too, had been reused after original failure. Jamieson (1993:52) found a weak tendency for greater representation of rodent incisor chisels among the St. Lawrence Iroquoian sites in his sample than in the Draper or Keffer assemblages. The one rodent incisor chisel recovered from the Hubbert site was made from woodchuck *(Marmota monax)* (Thomas 1996b:144).

Two expedient rodent mandible and incisor perforators were found in Houses 3 and 4. The House 3 perforator was made from a muskrat *(Ondatra zibethicus)* mandible with an in-situ incisor. Transverse grooves at the occlusal end of the incisor suggest use with a twisting motion. The House 4 specimen is made from a grey squirrel (Sciurus carolinensis) mandible. Evidence for implemental use is less firm, but the incisor has been forced far back into the socket, suggesting that some time after the animal died the point of the tooth had been pushed with some force into a resistant medium that was, nevertheless, too soft to cause breakage or flaking.

A unionid shell cutting-scraping tool from House 4, with a butterknife-like form, was made from a freshwater mussel similar to a lady finger or spike *(Elliptio dilatata)*. The ventral margin (the side opposite the hinge) was ground to a keen knife edge. The anterior part of the ventral margin is rounded and polished. The middle part of the ventral edge has suffered attrition in the form of pressure spalls removed from the interior surface of the shell. There appears to have been a longitudinal fracture along the central part of the shell, or the top of the shell dome, which was slightly reshaped by flaking and crushing. Freshwater mussel shell cutting/scraping tools are particularly well represented at the Hubbert site, where they made up almost 20 percent of the worked faunal assemblage (Thomas 1996b:145). According to Jamieson (1992) "modified shell" (presumably freshwater mussel) occurred in trace amounts at Draper, Keffer, Roebuck, McKeown, and Steward. It also occurred in trace amounts at Hamilton (Lennox 1981:303) and Christianson (Fitzgerald 1982:218).

The items placed in this rather small but diverse utilitarian group tend to occur more in longhouse interiors than in exterior locations, and six of the nine occur within House 4. The fact that four out of five of the rodent incisor tools, including all beaver incisor chisels, came from House 4 is of interest. In spite of the relatively high frequency of decorative artifacts and the relative paucity of awls in House 4, there is still evidence for manufacturing activities in the House 4 assemblage, and the utilitarian tool component differs from that found in the other longhouses and exterior areas. Presumably, this difference in representation of utilitarian tool types reflects patterned differences in cultural activities.

OTHER NON-UTILITARIAN AND MISCELLANEOUS FINISHED SPECIMENS

This category includes decorative artifacts (excluding cylindrical bone beads), unidentified artifact types that are likely to have had a decorative function, and established types that may have had non-utilitarian "sociotechnic" or" idiotechnic" functions (cf. Binford 1971:252). The distribution of these seven objects is summarized in Table 49.

Table 49. Spatial Distribution of Other Non-Utilitarian and Miscellaneous Finished Artifacts.

Type	Number of Identified Specimens				
	House 4	Other Houses	Midden 2	Other Exterior Contexts	Total
Carnivore Canine Tooth Pendant	0	1	1	0	2
Decorated Turkey Phalanx	1	0	0	0	1
Perforated Turkey Phalanx	0	1	0	0	1
Perforated Deer Phalanx, Holes at Ends	0	0	0	3	3
Perforated Deer Phalanx, Hole on Top	0	0	0	1	1
Ovate Cranial Bone Disk	0	0	0	1	1
Flat Bone Strip	1	0	0	5	6

Two carnivore canine tooth pendants were recovered. One specimen, recovered from House 10, is a bear mandibular canine with an annular groove near the tip of the root, presumably for suspension from a cord (Figure 29:1). Polish on the rest of the root does not extend into this groove. Therefore, the groove interior was not subject to the prehension wear that seems to cover the rest of the root. Furthermore, this binding was so firmly attached that no polish developed from slippage. A simple cord is likely to have slipped enough for some polish to develop. The lack of polish suggests that some form of resin was used to stabilize the attachment. Two broad, slightly concave facets have been worn into the crown of the canine, one on the buccal surface (cheek side) and the other on the mesial surface (anterior side). Transverse striations indicate that the facets were not caused by natural occlusal wear, but resulted from post-mortem cultural modification. The fine nature of these striations suggests that the tooth had been rubbed against a surface which was only slightly abrasive, such as dried, unfired clay rather than stone. It is suggested that this could have served as a pottery burnishing tool, perhaps for smoking pipes.

Lennox (1981:313)reports a bear canine with a crown modified by grinding, but in the form of a chisel-like implement from the Hamilton site. Junker-Anderson (1984:153) reports a knife made from a split bear canine from the Steward site. None of these artifacts, however, seems to be similar to the Parsons specimen. The Walker site, on the other hand, yielded two bear canines that exhibit ground tips. One of these also had "marked grinding on the buccal and mesial surfaces" (Wright 1981:101).

The other pendant is the maxillary canine of a dog (Figure 29:n), recovered from Midden 2. A hole has been made in the root approximately one-third of the way down from the tip, presumably for suspension. A fresh bone fracture through the hole obscures the perforation, but the estimated diameter is 2 mm. The root and interior of the hole are polished.

A decorated turkey phalanx, made from a first pedal (foot) phalanx, was found in a House 4 feature. Four parallel lines were painted or burned across the extensor (upper) surface (Figure 29:a). McCullough (1978: Plate lj) illustrates a similar pattern on a deer phalanx from the Draper site. No utilitarian purpose for this artifact is suggested.

A perforated turkey phalanx was found within House 3. The proximal condyle has been ground to expose the medullary cavity, and a

4 mm diameter hole was drilled in the distal condyle (Figure 29:b). The effect is similar to some "cup and pin" pattern perforated deer phalanges. It is suggested that this specimen served as a strung bead or a bangle, similar to a "tinkling cone," attached to an item of clothing.

Three axially perforated deer phalanges were recovered from exterior contexts. None are complete, and two have been gnawed by dog-sized carnivores. The proximal perforation on one specimen may have been made by drilling a pilot hole into the proximal articular surface, then expanding it until the rim of the hole was even with the interior of the medullary cavity. The other two specimens (e.g., Figure 31:b) are incomplete; only the distal ends are represented. In contrast to the more broadly tapered conical hole usually found in the distal perforation (McCullough 1978:15; Thomas et al. 1995: Plate 29), the holes in these specimens are almost cylindrical. This suggests an atypical drilling method. Around the distal perforation in one item there are concentric striae that suggest abrasion, either from the tool used to drill the hole or, if the phalanx had been part of a string of beads, from a neighbouring rough-ended bead.

Various functions have been proposed for perforated deer phalanges of various types, including components in cup and pin games, components of other types of game, strung beads, bangles attached to clothing, and toggles (McCullough 1978:86-97). The most persuasive interpretation of axially perforated deer phalanges, which is based on their archaeological context, is that they served as toggles (Wright 1974:100).

One top-perforated, ventrally flattened deer phalanx was found in Midden 4 (Figure 31:c). This item has a large oval hole at the proximal end of the extensor (dorsal) surface, and the salient projections on the ventral surface have been partly reduced by grinding. The area of the hole has deteriorated, destroying any traces of the perforation technique. This item falls into McCullough's Class 17 (1978:28).

One ovate cranial bone disk, made from a

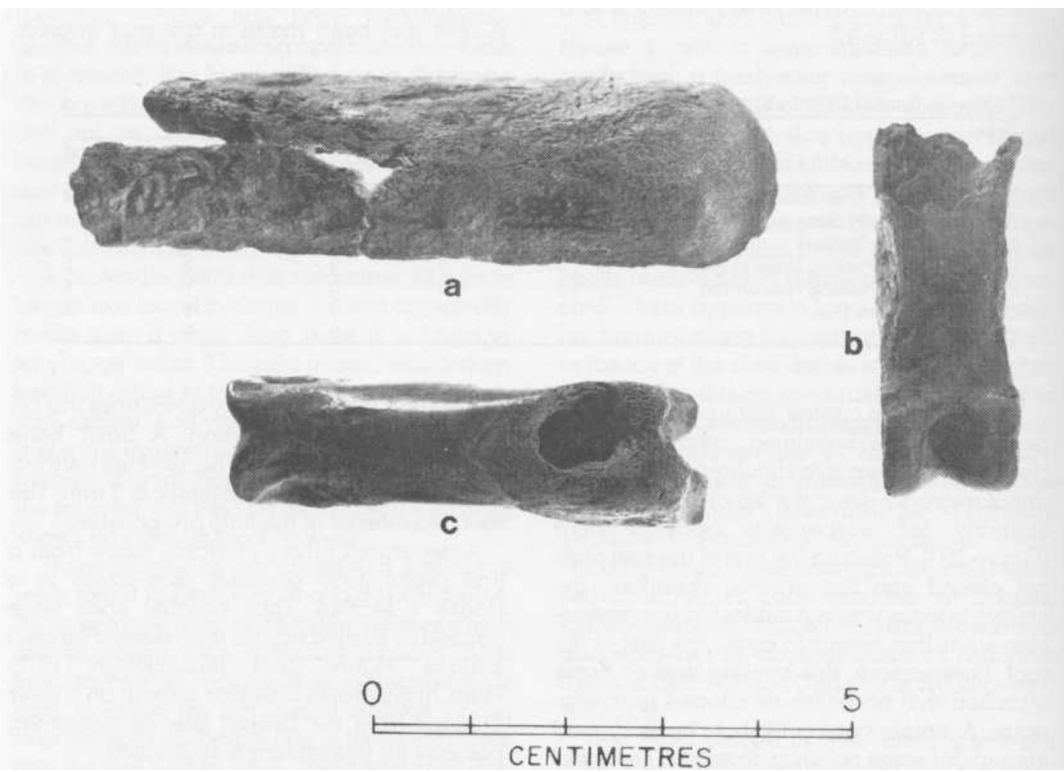

Figure 31. Selected Worked Bone Items: Antler Tool (a), Perforated Deer Phalanges (b, c).

human frontal bone, was recovered from an exterior area feature. Poor preservation and post-depositional breakage obscure the original form, but it appears to have been pentagonal or hexagonal. This specimen appears to have been shaped by flaking rather than by the groove and split technique and it has no marginal perforations. It may represent a manufacturing failure. Similar, but more carefully finished and marginally perforated, items, are frequently found on St. Lawrence Iroquoian sites, and are thought to be lenticular rattles (Jamieson 1983:163, 166; 1990a:394).

Six pieces representing several broken, flat, strip-like bone artifacts that were made from outer cortex of cervid ribs, were recovered. Three of these items were recovered from Feature 184 of Exterior Area 9. In all cases, the cancellous (spongy) bone of the rib interior had been almost completely removed by grinding, leaving the thin layer of cortex. They appear to be sections from the same tongue-depressor shaped artifact with rounded ends and irregularly scalloped edges (Figure 29:c-e). The pieces are approximately 12-13 mm wide, between 1 and 1.5 mm thick, and their combined length is 99 mm. An isolated 1.5 mm circular depression centered 5 mm from the rounded end of one of the specimens may indicate that an attempt was made to drill a hole. While the thin, elongated shape of these items is reminiscent of some netting needles, the scalloped edges and the attempted perforation at the end are not in accord with this interpretation. The fact that all have fresh bone fracture surfaces suggests that the artifact(s) broke during manufacture.

The remaining three specimens (one from House 4 and one from the east palisade area, and one recovered in a test pit) are edge fragments of thin, straight-sided artifacts. They too appear to be made from rib cortex. Each specimen retains only one finished edge, so the actual widths of the artifacts represented are unknown. Two of the items are probably too wide to be netting needle fragments. They are also more robust (approximately 2 mm thick) than the specimens from Feature 184. The third specimen, which has a centrally located perforation and a width of 9 mm or more, could conceivably be a netting needle fragment. All three were fresh bone fractured.

While the specimens from Feature 184 are almost certainly derived from the same artifact, or at least the same type of artifact, it is less clear whether the other three represent this hypothetical type. At this time, the most likely function for the Feature 184 artifact is an article of personal adornment. The rib cortex is believed to be thin enough to have allowed it to be bent into an arm band or bracelet configuration.

While the numbers are low among the artifacts of the "other non-utilitarian and miscellaneous finished artifacts" group, most finds were derived from exterior contexts (Table 49).

MISCELLANEOUS BROKEN ARTIFACTS AND MANUFACTURING DEBRIS

This group includes 26 miscellaneous pieces of broken, unidentified artifacts and debris from the manufacture of artifacts other than beads. The distribution of this material is summarized in Table 50.

One item is a recycled piece of worked antler. It is a 75 mm long fragment of the main beam which includes the part at the very base of the antler where the shaft is completely ossified all the way through the center. This object was first shaped into something resembling a cylindrical antler "drift" or "faker" used in the manufacture of flaked stone tools. The solidly ossified end has been rounded like the

Table 50. Spatial Distribution of Miscellaneous Worked Specimens and Manufacturing Debris.

Type	Number of Identified Specimens				
	House 4	Other Houses	Midden 2	Other Exterior Contexts	Total
Miscellaneous Worked Specimens: Unidentified Worked Antler	1	0	0	4	5
Unidentified Worked Bone	0	2	4	8	14
Unidentified Worked Shell	0	0	1	0	1
Miscellaneous Manufacturing Debris: Manufacturing Failures	0	1	0	3	4
Manufacturing Waste	0	1	0	1	2

end of a broom handle, and the knobby ridges typical of the antler base have been ground *away* (Figure 31:a). There is no direct evidence for the drift or faker function because the rounded end bears no dents or nicks attributable to use wear from chert knapping. A deep longitudinal groove incised at least 6 mm into the item indicates an intention to recycle this object for some other purpose.

One fragment of an unidentified worked item derived from the mid-shaft section of a large mammal major long bone bears eight parallel cuts that appear to have been made with a metal tool.

The distribution of the miscellaneous worked specimens should provide an indication of where bone, antler, and shell artifacts were used, refurbished, or where their broken remains were deposited. The distribution is skewed towards external contexts by a ratio of almost 6:1. Some of the objects in this group may actually represent artifacts that broke during manufacture.

The miscellaneous manufacturing debris category includes items that were broken during manufacture (manufacture failures or broken blanks), as well as other waste material and scrap derived from artifact manufacture. The most frequent cause of manufacture failure appears to be the failure of a groove and split operation to successfully propagate a fracture along the intended path. Distribution of this material should indicate where bone and antler artifacts (excluding beads and tubular artifacts) were manufactured or where the consequent refuse was ultimately deposited. There are fewer items in this class than in the miscellaneous worked specimen group, but the distribution is skewed in favour of exterior contexts by a ratio of 2:1.

POSSIBLY UTILIZED OBJECT

Although there is no evidence for its modification, an incomplete series of six striped skunk *(Mephitis mephitis)* caudal (two anterior, three central, and one posterior) vertebrae was recovered from Quadrant I of Feature 141, a semi-subterranean sweat lodge located in House 4. In all likelihood, these elements were articulated, and may be interpreted as representing a major portion of a single skunk tail. It should be noted that complete recovery of all caudal vertebrae is unlikely since elements in the size range of the central and posterior caudal vertebrae are likely to pass through the 6 mm screens used in the excavation. No other striped skunk elements have been identified in either the University of Toronto sample examined by Hamalainen (1982) or the ASI faunal assemblage (Thomas [Zooarchaeologyl this volume).

On the basis of several lines of inference, it may be suggested that the skunk tail was used as an item of decoration or for some other non-utilitarian purpose. The fact that all elements attributable to this species were derived from one part of a single feature indicates that they were from the same individual, and suggests that they were deposited as an articulated series. It also seems reasonable to reject the possibility that striped skunk was used for subsistence purposes because none of the larger and more easily recovered elements were recovered. The bushiness and highly contrasting black and white fur of the skunk's tail, together with the attention and respect that a skunk with a raised tail will command, would render it an effective decorative item. Finally, the skunk tail was deposited in a semi-subterranean sweat lodge, a feature which may have served as the focus of ritual and social activity (MacDonald 1988, 1992). Similar distinctive, yet unmodified, objects are frequently found in such contexts, such as a great horned owl wing at the Myers Road site (Ramsden et al. 1998:73; Thomas et al. 1998:94-95), a juvenile black bear cranium at the Wiacek site in Barrie (Robertson et al. 1995:49-50), and a deer skull at the Grandview site in Oshawa (Austin 1999:11-12; Thomas 1999:133-134).

SUMMARY

It is possible that the bead/tube category, the most abundant worked bone category in the ASI collection, is over represented relative to the rest of the site. The 1989-1990 excavations resulted in the exposure of a comparatively small proportion of the site, yet this area encompassed an anomalous structure (House 4) and its potentially related refuse deposit (Midden 2). Beads and bead manufacturing debris accounted for 69.6% of the worked material from the House 4-Midden 2 area, but for only 44.8% of worked material from other contexts. Parenthetically, it may be noted that beads accounted for only 14.2% of the worked faunal items in Hamalainen's (1982) sample, although this figure is unlikely to be representative. Many of the worked items in his sample had been removed in the 1950s and were unavailable for study (Hamalainen 1989:G2, G22).

Given the assumptions about artifact deposition listed above, several conclusions follow. The bead-related refuse deposited in Features 24, 26, 30, and 38 of House 4 is more likely to represent activities that took place inside than outside of the structure. House 4 contained a disproportionately large amount of bead-related items-more than all other houses combined. The fact that the average length of beads in the House 4 assemblage exceeds that from other contexts suggests the existence of another differentiating factor. Above, we discussed the process of repairing a bead with a chipped end by shortening it, and suggested that the average length of a group of new beads could exceed that of older beads. We also suggested that cultural preference for greater bead length could be a factor.

Again, accepting the assumptions about artifact deposition listed above as they apply to midden catchment areas, it follows that bead-related material deposited or redeposited in Midden 2 is likely to have been derived from activities carried out relatively nearby. Midden 2 contained a disproportionately large amount of bead-related items-more than all other middens combined. This suggests that there may have been proportionately more bead-related activity carried out within the Midden 2 catchment area than elsewhere in the area excavated by in 1989-90. Since Midden 2 is directly outside an end doorway of House 4, House 4 probably would have contributed substantially to Midden 2 deposits, and should be considered part of the Midden 2 catchment area.

Table 45 shows that the distinctiveness of the House 4-Midden 2 area with respect to bead-related materials relates to beads and bead fragments, but not necessarily to bead manufacturing debris. Therefore, the activities reflected in the House 4-Midden 2 deposits are more likely to involve beads themselves than the production of beads. House 4 also stands out with respect to the distribution of other worked bone types in that it appears to contain an unusually low concentration of items classified as awls and bodkins.

Nevertheless, the non-utilitarian character of the House 4 assemblage is somewhat offset by the distribution of other utilitarian artifact types. House 4 contained all of the beaver incisor chisels in the ASI collection, as well as a rodent incisor and mandible perforator, and an antler harpoon point. Beyond this, of 15 artifacts in the miscellaneous non-utilitarian category, all but two were found in contexts other than House 4.

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