LEST THE BEAVER RUN LOOSE

LEST THE BEAVER RUN LOOSE: The Early 17th Century Christianson Site and Trends in Historic Neutral Archaeology

By

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ABSTRACT

The following aspects of the _ca_. A.D. 1615 Neutral Iroquoian Christianson village site will be emphasized: 1. an examination of the ecological factors which may have influenced its placement; 2. the morphology of the site, focusing on interior longhouse planning; and 3. analysis of the artifact assemblage. The artifact descriptions are primarily directed at those parts of the assemblage which could be attributed to ethnohistorically documented accounts of contacts the Neutral had with aboriginal groups and Europeans. While many of the connections are inferred archaeologically to have been based in the pre-European contact period, certain branches developed or, more possibly, were amplified after the Neutral became involved on a large scale in the fur trade some time around A.D. 1615. The desire of Europeans to deal directly with the Neutral about this time is interpreted as being the initiation of intensive participation of the Neutral in the fur trade.

Ceramic, lithic, shell, and European artifacts, perhaps certain faunal remains, and aspects of longhouse interments indicate the Christianson site belongs to the period when Europeans, perhaps Étienne Brûlé in 1615, first

entered Neutralia.

As such, the identification of the intensity of foreign manifestations are important in identifying the pervasiveness of the effect of Europeans on Neutral relationships. While there does appear to have been notable consequences of the Neutral involvement in the fur trade, such as the Neutral-Fire Nation wars and an increased trade in marine shell, the overall intensity is not as great for the entire network as may have been suspected from an ethnocentric point of view.

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The archaeological approach is severely limited by the nature of the evidence with which it can work, and it is also clear that a number of pieces of the skeleton-like picture puzzle are still missing.

Where key data are lacking the writer will not hesitate to postulate its nature,... Prediction of this sort is one of the most useful features of a historical model, and it is essential to logical programs of field research.

(Ford 1969:183)

And so, onward....

CONTENTS

CHAPTER 1

INTRODUCTION

Late 16th and early 17th century Neutral archaeology around the western end of Lake Ontario is now at the stage where preliminary temporal and spatial syntheses can be undertaken. If the proposed date of ca. A.D. 1615 for the Christianson (AiHa-2) site (Noble 1970) is accurate, then this site would prove to be significant in understanding the early historic period. This thesis has three major aspects with the Christianson site artifact assemblage and settlement patterning being the focus:

1. The description of the artifacts and settlement data from the two weekend 1968 test excavations undertaken by Ian Kenyon and David Stothers under the direction of Professor C.E. Stortroen; the 1969 excavations directed by Dr. W.C. Noble; selected surface material collected by Dr. P.N. Christianson; and primarily, the 1979 excavations undertaken by the author. Kenyon and Stothers' investigations were limited to excavation of one rich midden and some testing over the site; artifactually the midden was productive. The one month 1969 excavation focused toward the centre of the village, produced the first historic Neutral house to be identified (Noble 1970), as well as, the excavation of a rich midden in Area A. Peripheral testing

and mapping helped to delimit the site, and in all a total of 262m^2 were excavated in 1969. Excavation for the 1979 season was directed at increasing the artifact sample, but primarily the intent was to increase the settlement information from various areas of the site and confirm the presence of standard Neutral longhouse structures, as well as to observe village morphology. The resultant extensive excavations over a six week period examined 953m^2 (Figure 1), and thus, 1215m^2, or approximately 12%, have been excavated from this 1.6 hectare (3.5 acre) village.

Aspects of the settlement patterning which will be examined in detail will be (a) the ecological factors which were conducive to site placement, as outlined by Trigger (1963), and (b) the discussion of historic Neutral longhouse interior planning. Detailed descriptions of the Christianson site structures and the relationships between the interior features produces a pattern for Neutral structures which, while exhibiting some intra- and inter-site variability, tends to be quite repetitive.

2. The amount of archaeological investigation of the late 16th and early 17th century Neutral has resulted in the identification of distinct spatial groupings with temporal distributions. A cluster of excavated sites, situated about the headwaters of the Spencer and Bronte creeks, include the Christianson, Bogle I, Bogle II, Hood,

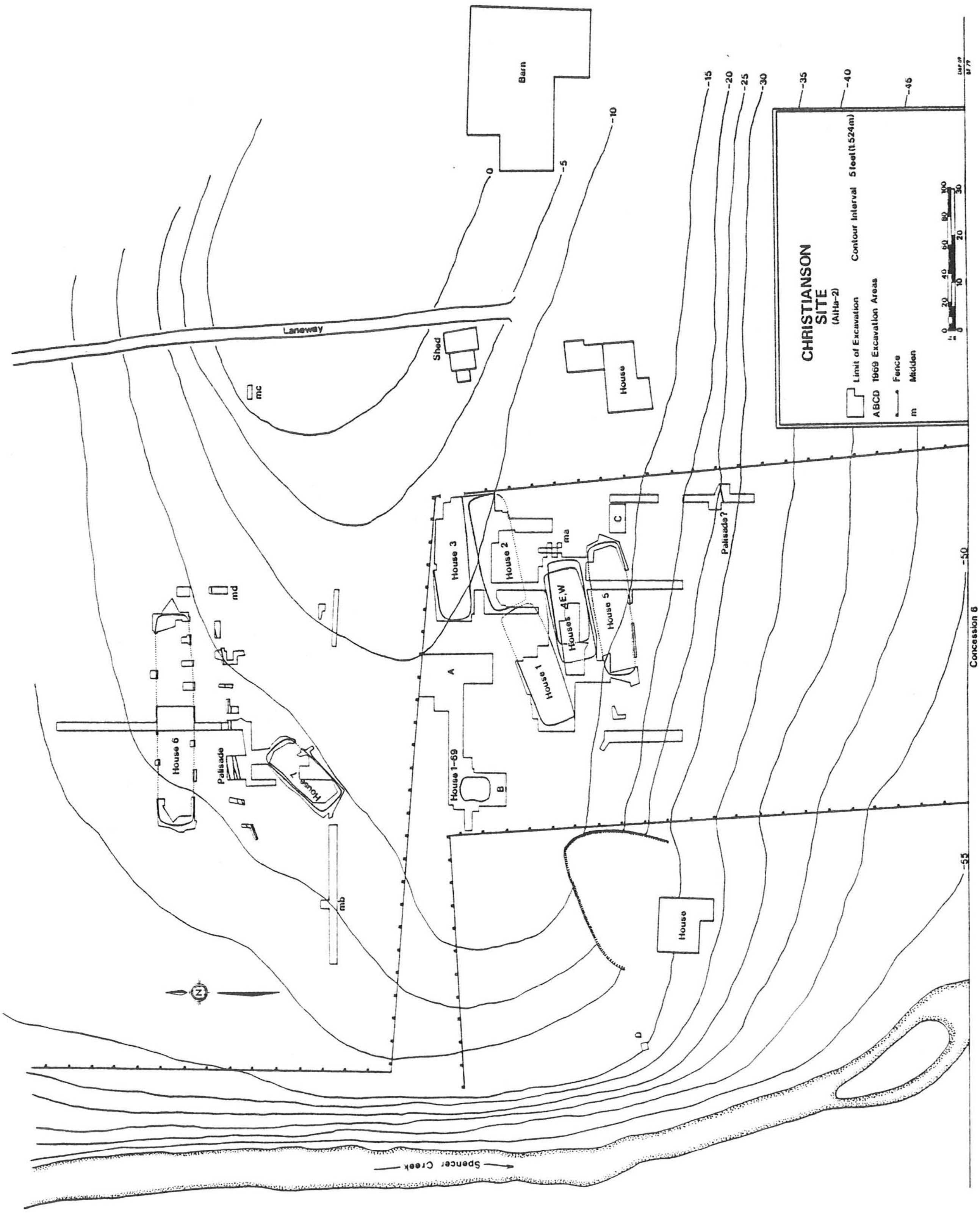


FIGURE 1. Christianson site village plan.

and Hamilton sites (Noble 1970, Lennox 1977a, 1978, personal communication 1980). Three other sites, Cleveland, Fonger, and Walker, are more centrally located along primary and secondary tributaries of the Grand River (Noble 1972, Warrick 1979, Wright 1977). More recently, the southerly Thorold site has been excavated (Noble 1980a); it is situated along the Niagara Escarpment near St. Catharines (Figure 2). Not only is there some spatial separation between these excavated sites, but some temporal variations also exist spanning the early and late protohistoric to various stages of the historic period. The Cleveland and Fonger sites date to the period prior to direct contact of the Neutrals with Europeans in Neutralia, with Cleveland dating to ca. 1540 (Noble 1972) and Fonger to ca. 1600-1610 (Warrick 1979a, 1979b). The large Walker town appears to have been occupied during the ca. 1626-1640 period (Wright 1977). Aside from the Christianson site, the other four Spencer-Bronte drainage sites all date to the later stages of Neutral existence; Hood and Bogle I to ca. 1630-1641, and Hamilton and Bogle II to ca. 1638-1651 (Lennox 1978, personal communication 1980, 1977a).

This now permits the potential for comparisons between what may be as many as nine distinct tribal entities within a Neutral confederacy which have been delineated ethnohistorically, cartographically, and

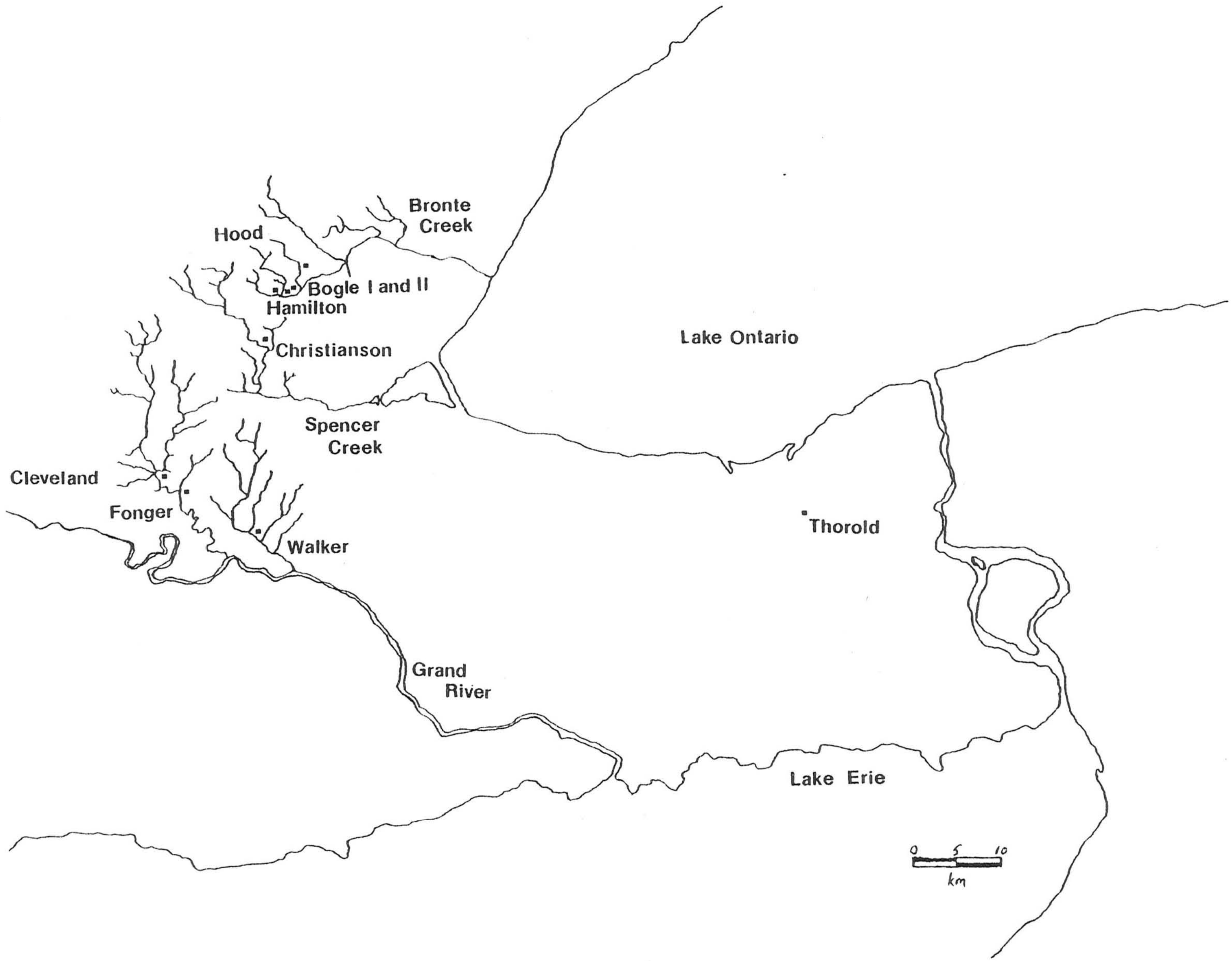


FIGURE 2. Excavated late 16th and early 17th century Neutral sites in Ontario.

archaeologically. Seven groups have been identified by the first two means; the Attiouandaronk in the middle of Neutralia, the Onguiarahronon in the Niagara Peninsula, the Aondironon in western New York, the Antouaronon on the lower Grand River, the Kakouagoga at extreme southeastern Lake Erie, the Ontontarounon in from the Lake Ontario shoreline in Halton County, and the Annochiaronon at the northwest end of Lake Ontario extending eastward from Milton (White 1972:71, Noble 1977:19, 1978:163 note 5). Trigger (personal communication 1981) contends that the Kakouagoga may be the Erie. At least two additional unnamed tribes may be identified archaeologically; one around Strabane, nortwest of Hamilton, and a second, between Port Colbourne and Point Albino (Noble 1977:19, 1978:163 note 5). The possible unnamed tribe in the Strabane vicinity may in fact be several tribes, however, such identifications are beyond the scope of this thesis. What will be sought are preliminary inter-site temporal trends of certain artifact types. Problems inherent in such comparisons are whether the differences are actually of temporal significance or if the physical separation of the various sites also influenced the results. Comparing the Spencer-Bronte drainage, early historic Christianson site with the historic, central region Walker site to produce a seriation of some ceramic feature may be misleading, or even invalid, because they may be separate tribal entities. It is anticipated, however, that more detailed examinations of sites from various chronological stages in a small area, for example, the headwaters of the Spencer Creek on which the Christianson site is located, will be much more valuable in identifying distinct cultural groupings within the confederacy.

3. The presence of certain artifact assemblage features may be attributable to ethnohistorically documented contacts the Neutrals had with Europeans and various aboriginal groups during the ca. 1615-1651 period. Unlike the Huron, primary accounts of European visitations to the Neutrals are limited to two direct encounters: the first during the late fall of 1626 by the Recollet Joseph de la Roche Daillon (Sagard 1866 iii:800), and the second over the winter of 1640-1641 by the Jesuits Jean de Brébeuf (Thwaites 1896-1901 xx:95, 103, 105) and Pierre Marie Joseph Chaumonot (Chaumonot 1858:53, 58, Thwaites 1896-1901 xviii:37-41). These references can be augmented by the secondary accounts given by Champlain (Biggar 1922-1936 iii:213-226) of the travels of Etienne Brûlé which presumably took him through Neutralia in 1615 and again in 1616 on his return from the Susquehannock, and in 1623 by Sagard (Sagard 1866:800). From these accounts Brûlé appears to have been to or through Neutralia at least twice (Noble

1980a:43). Various other passages in the Jesuit Relations, including Jerome Lalemant's lengthy discussion (Thwaites 1896-1901 xxi:187-237), permit temporal and spatial identifications of the interaction between the Neutrals, other Iroquoian and Algonkian groups, and Europeans, through confrontation and exchange. These limited written references tend to be borne out archaeologically, and despite their paucity help to provide important insight into the cosmopolitan nature of the Neutrals and their inter-tribal and inter-cultural relations, particularly as they appear to have been developed or magnified as a result of their increased involvement in the European fur trade after 1615.

Foreign manifestations within Neutral artifact assemblages and the intricacies of their presence which were the results of direct and indirect links in trading networks, and as consequences of, or as activities ancillary to the physical conflicts, can be more readily interpreted with the increased archaeological research on the late 16th and early 17th century Neutrals. Based on archaeological recoveries and aided by the ethnohistoric accounts, a date of *ca*. 1615 is forwarded for the Christianson site, which places it in a transitional stage where the effects of the burgeoning fur trade and the Neutrals' increasing involvement in it should be observable.

What is anticipated is that the accounts of Neutral connections and relations with various groups will all be interrelated as a direct result of their participation on a large scale in the European fur trade. Various artifact types, most notably European goods and marine shell, and particularly the frequencies in which they begin to appear on the Christianson site, may be the result of Neutral participation in wide ranging trade networks. According to Heidenreich (1971:227, 229), such networks developed historically as a result of the fur trade, and not prehistorically since Huron and Neutral economies both permitted a self-sufficiency which did not require trade on any large scale. This, Heidenreich contends, is substantiated by the very limited quantities of foreign goods on pre-contact Huron sites. That trade may have largely been in perishable goods, as it continued to be in the historic period, was not considered by Heidenreich. Hunt (1940:16-17), Trigger (1976:168-176), and Ramsden (1978:102), to the contrary contend that trade connections were simply expansions or extensions of already existing prehistoric networks which could have readily accommodated the Europeans into intertribal trading systems perhaps as early as A.D. 1500 in southern Ontario on an indirect basis (Ramsden 1978:101).

Aspects of the Christianson site assemblage appear to mark a threshold in the nature or intensity of European fur trade developments in southern Ontario around ca. 1615, a pattern which had been developing slowly and on a limited scale since the 16th century (Trigger 1978). The proliferation of trade items after ca. 1615 may indicate more intensive trade through neighbouring Iroquoian and Algonkian groups, likely a result of direct involvement with Europeans coming from Huronia. Natural resources offered by the Neutrals and their political neutrality were important factors which led to the profitable position they began to capitalize upon in widespread trading networks around the turn of the 17th century. The presence of certain artifact attributes, such as increasing amounts of shell tempered ceramics and cherts from southwestern Ontario, Michigan and Ohio, may be attributable to alterations in Neutral political developments which are substantiated from ethnohistoric accounts.

The Neutrals' involvement in realignments of alliances, as well as hostilities, during the historic period as mirrored in the artifact assemblage and documented in the ethnohistoric record will permeate the artifact descriptions which are to follow.

CHAPTER 2

SETTLEMENT PATTERN

Christianson Site Location

The Christianson site is situated on the south half of Lot 35, Concession VI of Beverly Township, Regional Municipality of Hamilton-Wentworth (Figure 3). This locality has four favourable features: (1) an elevated position, (2) a permanent water supply, (3) an arable hinterland, and (4) proximity to an area of abundant wild game.

Defensible Positioning and Site Size

This area of Beverly Township is part of the Flamborough Plain, a limestone plain characterized by thin bouldery glacial till or sandy and gravelly soils, steep-sided but frequently irregularly contoured drumlins in the northern section, and by numerous swamps (Presant, Wicklund and Matthews 1965:19, Chapman and Putnam 1973:203). The Christianson site itself lies on the southern boundary of the drumlin field, toward the western edge of the southernmost of three interconnected drumlins. Consequently, the western and southern flanks of the site are protected by abrupt breaks in elevation of approximately ten metres (Figure 1). The eastern edge of the site opens onto the flat expanse of the drumlin while the northern boundary is defined by an inter-drumlin depression which does not

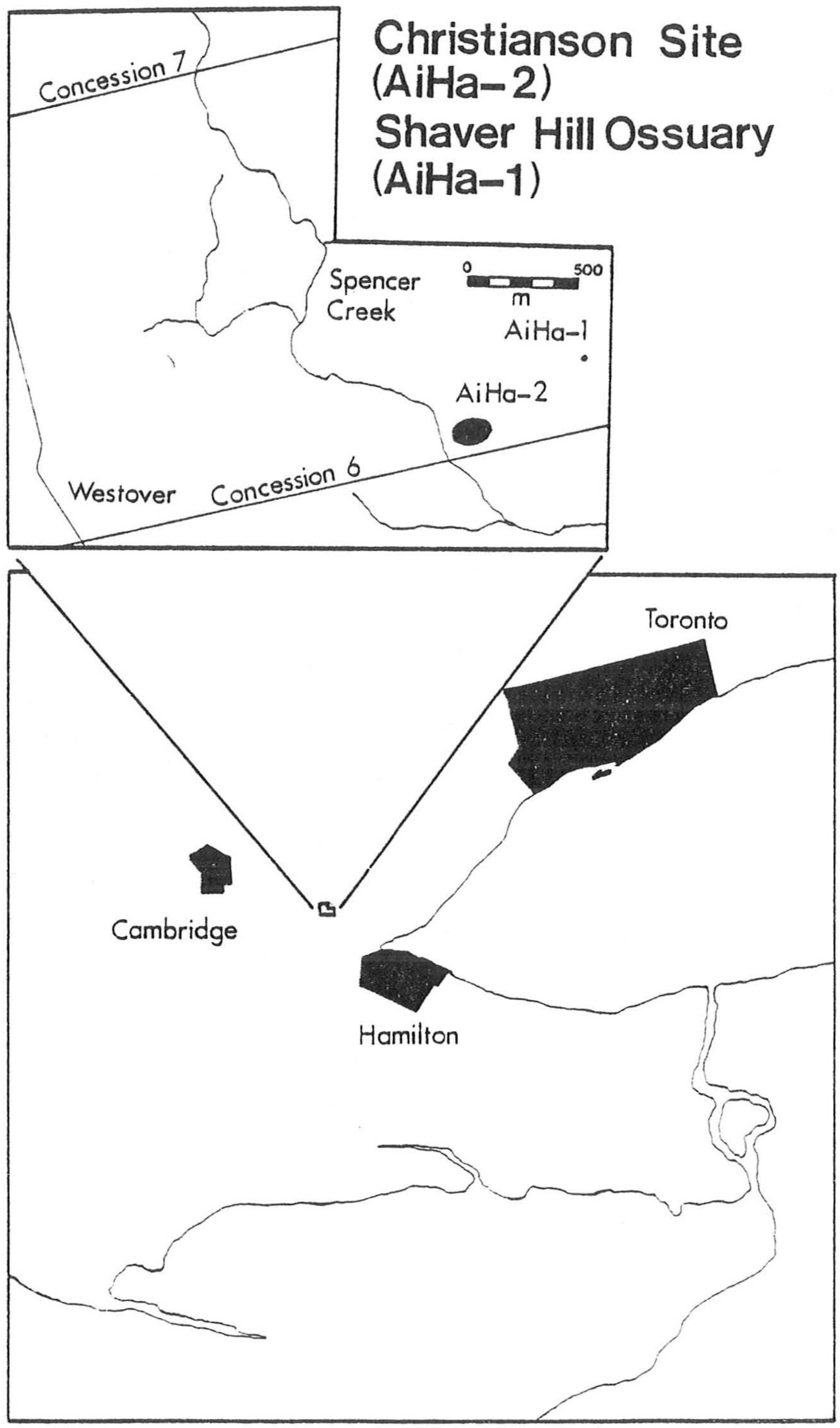


FIGURE 3. Christianson and Shaver Hill sites location.

present the same magnitude of slope as seen along the southern and western boundaries of the site. Extensive testing in 1968 and 1969 indicated that the village did not continue eastwards past the laneway. Furthermore, while investigations in the area to the immediate west of the laneway produced no readily identifiable house structures, Midden C was encountered in 1979, and directly west of it, three rows of post moulds between Houses 6 and 7. On this basis, the size of the Christianson site can be estimated at 1.6 hectares (3.5 acres), covering the southwestern corner of the drumlin. Breaks in the slope along the southern and western boundaries are naturally defensible, while palisading may have been necessary to provide protection along the north and presumably eastern edges. Extensive disturbance caused by 19th and 20th century house and barn construction towards the eastern section of the site has obscured any remnants of defensive structures in that area.

Water Supply

Flowing at the base of the western slope of the drumlin is Spencer Creek, one of the two major streams which drain the Flamborough Plain, and whose permanent flow is maintained by swamps, particularly the Beverly Swamp, four kilometres north of the site (Chapman and Putnam 1973:203). Erosion by the creek, particularly before the construction of the Valens Dam, has been intensive, and has undoubtedly steepened the bank defining the western edge of the village.

Soil Types in the Christianson Site Vicinity

Continuous water supply and arable land were perhaps the two most important considerations when choosing a location for a village the size of Christianson. As previously mentioned, the site is located at the intersection of a high relief drumlin field to the north and a relatively flat expanse to the south. Soils of differing types and agricultural potential are associated with each topographical region. Generally, good soil in the Flamborough Plain is not plentiful, being either too wet, stony, or shallow, particularly between the drumlins (Presant, Wicklund and Matthews 1965:18, Chapman and Putnam 1973:203). These limitations are further compounded by the effect of erosion on the relatively steeply sloped drumlins of the northern section.

An examination of soil types and their potential for sustaining 20th century agriculture may allow a preliminary insight into this aspect for the location of the 17th century Christianson site. Agricultural hinterland, pedological, and locational analyses have been undertaken for the Huron (Heidenreich 1971, Mulstein and Bowman 1979) and the Neutral (Konrad 1975, Stevens 1974). While such detailed analyses were not undertaken here, a presentation of soil capability and other attributes of the physical environment may complement the research into this aspect of Neutral archaeology.

Agricultural lands in the vicinity of the Christianson site are bounded to the northwest and southeast by large tracts of marshland (Figure 4). A corridor running in a northeast-southwesterly direction, some four kilometres wide and interspersed to the northeast with inter-drumlin marshland, provides a potentially arable hinterland which could have been exploited by the Christianson site inhabitants.

Accessibility to the soils to the west and southwest of the site is not hindered by marsh, but the predominant Farmington loam and Colwood silt loams are of such a shallow and either moisture deficient or poorly drained nature as to preclude their utilization for pursuits other than pasture (Presant, Wicklund and Matthews 1965:38, 55). To the north of the site, Guelph series loams are the characteristic drumlin soils, while inter-drumlin areas are comprised of low-lying marsh or London series loams. The Guelph and London loams are potentially the premium soils in the immediate vicinity of the Christianson site, extending in a north-northeasterly direction from the site for a distance of approximately six kilometres. The London

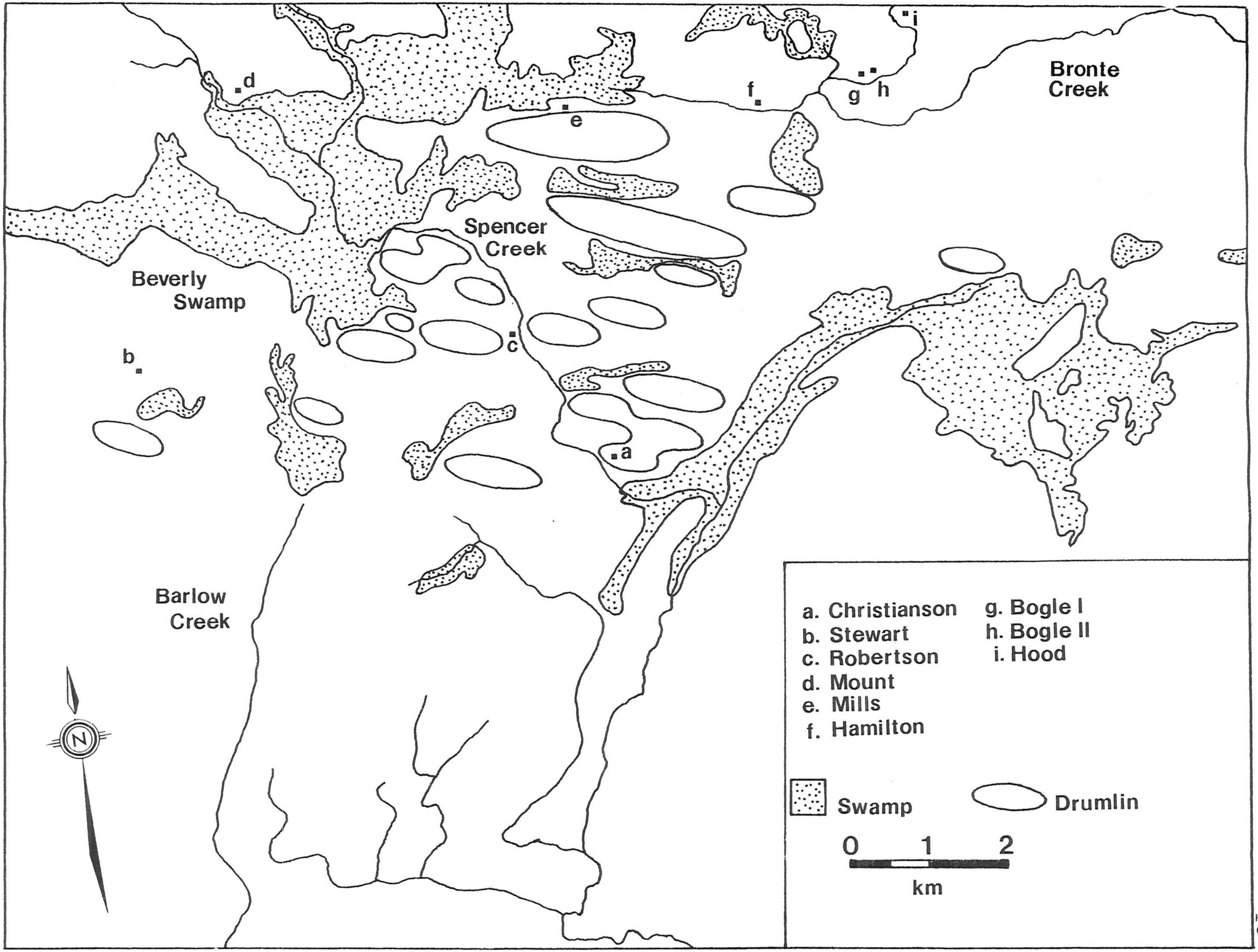


FIGURE 4. Physiography of the Christianson site vicinity.

loam, while imperfectly drained, does possess a good moisture retention capability, is relatively stone-free, and when combined with the gentle slope of between 2% and 5% in the area which counteracts the mineral and soil depletions caused by erosion, its soil capability for agriculture is rated as Class 1 (Presant, Wicklund and Matthews 1965:30). Guelph loams are also classified as Class 1 soils when the slope is less than 5%. However, the area to the north of the site is characterized by steep-sided drumlins with slopes between 6% and 30%, with resultant classification being reduced to Class 2e, "e" denoting that damage caused by erosion is a limitation on agricultural practices (Presant, Wicklund and Matthews 1965:48, 49). Class 2 soils, however, like Class 1 soils are considered suitable for sustained production of common field crops, and the well-drained Guelph loams currently support forage crops, spring grains and winter wheat, while some level areas are used for growing silage, grain corn and potatoes. The London loams, again at present, are utilized more extensively than the Guelph soils for row and market crops (Presant, Wicklund and Matthews 1965:29, 30, 47).

In a strip approximately 1.5 kilometres wide between the swamp to the east of the site and the London and Guelph loams to the north and northeast is a stretch of Class 2 soils extending from two kilometres from the site outward in a northeasterly direction. In this section, from two to six kilometres from the site, Vineland sandy loams, Burford loams, and Parkhill loams predominate. Respectively, their subclasses are "f", "fm", and "w", "f" signifying soil which possesses low fertility but which may be corrected through the use of fertilizers, "m", soils that are affected by droughtiness which is a result of inherent soil characteristics, and "w", soils whose use for agriculture is limited by excess water (Presant, Wicklund and Matthews 1965:48).

Vineland sandy loams are suited for field and sweet corn and tomatoes, crops which require considerable moisture during the summer, while the Burford loams, at present, support forage crops, spring grains, winter wheat and corn (Presant, Wicklund and Matthews 1965:42). Conversely, poorly drained Parkhill loam areas have reverted to bush or are used as unimproved pasture (Presant, Wicklund and Matthews 1965:31).

To the immediate south of the site, and more precisely, to the south of the southwestern projections of the swamp, Vineland and Grimsby sandy loams extend to the area just east of Barlow Creek. The Grimsby sandy loams are also rated as Class 2fm soils (Presant, Wicklund and Matthews 1965:50), with the major limitation being moisture deficiency during dry periods, but which presently can support forage crops, grain and sweet corn, spring grains, fall wheat, tomatoes, and strawberries (Presant, Wicklund and Matthews 1965:40).

While an extensive examination of historic Neutral site distributions would be necessary to attempt to identify associations between site location and certain soil types, there is a notable proximity of all sites in the area to London loams, even the apparently isolated Stewart site, which is, however, adjacent to only a small pocket. There is an almost peripheral distribution of these sites about the drumlin field, in Class 2 soil areas, around the Class 1 London and Guelph soils. The late historic Robertson site is the only site in the inter-swamp area to be isolated from Class 2 Burford, Vineland, Grimsby, and Parkhill soils. Tentatively, it would seem that, with the exception of the Robertson site, agricultural hinterlands consisted of a portion of the premium London and Guelph loams as well as localized pockets of soils of lower capability around the individual sites.

The location of the Christianson site along the southern boundary of the better soils may permit speculation that such a site placement was intentional planning which, while allowing exploitation of the premium soils, also depended on the secondary class soils, perhaps in order to avoid exhaustion of the London and Guelph loams so as to preserve some against the time when village movement was required.

While premature at this point, the identification of such village movements about the Spencer and Bronte creek drainage systems along the lines of that undertaken by Tuck (1971) for the Onondaga may ultimately permit the definition of discrete tribal entities within the Spencer-Bronte drainage cluster of northern Neutral sites.

Wild Game Availability

The physical environment of southern Ontario, and particularly that in the vicinity of the Christianson site, was capable of supporting large quantities of wild animals. Swamps and stands of towering pines, while acting as barriers inhibiting initial attempts at pioneer settlement in this section of Beverly Township (Cornell 1889:9), provided aboriginal inhabitants with a food source which was available throughout the year. Scarcity of game around the villages which necessitated hunting expeditions over great distances for the Huron (Thwaites 1896-1901 xxxiii: 83, Tooker 1967:65, Gramly 1977) was not a problem for the Neutral (Trigger 1976:95), especially those settled near the swamps. The Beverly Swamp in particular, and no doubt the other swamps, were, and still are, the most important areas for wildlife in the Spencer Creek watershed. Heavy concentrations of white-tailed deer (*Odocoileus virginianus*) and the eastern cottontail (Sylvilagus floridanus) are still found in and around the Beverly Swamp (Thomson 1965: 41), while the presence of wolves (Canis lupus) and beaver (Castor canadensis) was reported in the region during the 19th century (Kernighan 1971:x).

Ethnohistorically, the Neutral were reported to have hunted "Stags, Cows, wild Cats, wolves, black beasts, Beaver, and other animals of which the skin and the flesh are valuable" (Thwaites 1896-1901 xxi:195-197). Animals referred to as Stags and Cows may be deer, wild Cats, raccoon (Procyon lotor), and the black beasts, black bears (Ursus americanus) or possibly black squirrels (Sciurus carolinensis). Deer were particularly plentiful in the area according to Sagard (Wrong 1939:225), and wild turkeys (Meleagris gallopavo) roamed the fields and woods in large flocks (Thwaites 1896-1901 xxi:197).

A summary of the analysis of the 8426 faunal elements from the 1979 excavations at the Christianson site (Prevec 1980) confirms the ethnohistoric documentation of the faunal potential and diversity for the area.

Mammals

The frequency of mammal remains constitute the largest portion of the sample, 80.75% (Table 1), with 41.8% of the identifiable mammal species being white-tailed deer (Table 2). While this is the predominant mammal, it does not

TABLE 1. 1979 Christianson site sample faunal classes.

Class	N	%
Mammalia	6804	80.75
Osteichthyes	602	7.14
Mollusca	540	6.41
Aves	139	1.65
Amphibia	42	.50
Reptilia	35	.42
Crustacea	2	.02
Class uncertain	262	3.11
TOTALS	8426	100.00

approach in frequency the amount of deer recovered from the Hamilton and Walker sites, where it is 61.4% and 70.2% respectively (Lennox 1977a:176, Wright 1977:217-219). Quantitatively, beaver (19.1%), Canis sp. (12.5%), and raccoon (9.1%) were the next most prevalent species. As a presumed source of meat, but just as likely as a source of hides, deer was the primary source at Christianson, followed by elk, beaver, black bear, raccoon, and Canis sp.. The presence of almost all parts of each body portion, butchering marks on bones, and signs of heat exposure indicate that these animals were used as food, and that they were killed in the vicinity of the site, brought back whole, and butchered at the site. Deer hides, as they did

TABLE 2. 1979 Christianson site sample mammal species.

Species	N	%
White-tailed deer	586	41.8
Beaver	268	19.1
Canis sp.	175	12.5
Raccoon	127	9.1
Elk	34	2.4
Woodchuck	30	2.2
Fisher	29	2.1
Cervidae	27	1.9
Black bear	27	1.9
Leporidae sp.	23	1.6
Black/Grey squirrel	13	1.0
Muskrat	12	.9
Chipmunk	9	.6
Marten	6	.4
Peromyscus sp.	4	.3
Carnivora sp.	4	.3
Red squirrel	3	.2
Meadow vole	3	.2
Fox sp.	3	.2
Skunk	3	.2
Felidae sp.	3	.2
Eastern cottontail	2	.1
Red fox	2	.1
Domestic dog	2	.1
Shorttail shrew	1	.1
Wolf	1	.1
Grey fox	1	.1
River otter	1	.1
Lynx sp.	1	.1
TOTALS	1403	99.9

for the Huron (Gramly 1977), likely provided the major source of clothing material.

The relatively high percentage of beaver from the Christianson site is not observed at either of the later Walker, Hamilton, Bogle I, or Bogle II sites (Table 3).

TABLE 3. Comparative species frequencies from five historic Neutral sites.

Species	Christianson	Walker	Hamilton	Bogle I	Bogle II
MAMMAL					
White-tailed deer	41.8	70.2	61.4		
Beaver	19.1	3.6	3.1	0	.3
Raccoon	9.1	6.5	16.9	.8	.6
Black/grey squirrel	1.0	10.3	1.8		
BIRD					
Passenger pigeon	58.3	84.7	63.5		
Wild turkey	2.8	3.9	7.7		

Prevec 1980
Wright 1977
Lennox 1977a, personal communication 1981

While there appears to be a decrease over time in the amount of beaver, perhaps a result of over-hunting for their fur, there is a corresponding temporal increase in the presence of raccoon in the faunal inventories, suggesting their pelts may have begun to replace, or at least supplement the shortage caused by the decreasing beaver population between the 1630's and 1650's. The high percentage of black or grey squirrel remains from the Walker site (10.3%) in comparison to the 1.0% at the Christianson site and the 1.8% at the Hamilton site substantiate that this was an important fur animal to the Neutrals living farther south in the middle of Neutralia during the 1630's and 1640's, a pattern which is also evident at the ca.1615-1630 Thorold site (Noble: personal communication 1981). It is recorded that there was a preference for the fur of the black squirrel which was made into robes for trade, likely to Algonkian groups to the north (Trigger 1976:62).

Nine human elements were recovered from non-burial contexts: four molars, a maxillary first incisor, a distal phalange, the proximal portion of the shaft of a right fibula, a left naviculum, and a 25mm long bead cut from the posterior section of the shaft of a right ulna (Prevec 1980:A26). The teeth, phalange, and fibula were recovered from midden deposits; the naviculum from House 1 Feature 25; and the ulna bead from hearth/refuse Feature 1 on the south slope of the site (Table 4).

Fish

Sucker (Catostomidae sp.) and catfish (Ictaluridae sp.)

TABLE 4. Provenience of human element recoveries

Element	Location
Molar	MB-2PZ
Molar	MB-36
Molar	MC-23PZ
Molar	MA1-11PZ
Incisor	MA2-9
Phalanx	MA1-10PZ
Fibula	MA1-15PZ
Naviculum	H1 F25
Ulna bead	F1
Burial	H4E F15
Burial	H4E F25
Burial	F20

comprise 72.4% of the identified fish remains (Table 5), and are varieties which could be obtained locally. The low frequencies of other varieties probably reflect non-local origin, as in the case of sturgeon, lake trout, bowfin, muskellunge, perch, and drum. A variety of procurement techniques are indicated, as a netsinker, fish hooks of bone and iron, and antler harpoons were recovered from the site.

Birds

While passenger pigeon remains dominate the avian sample (58.3%), as is common on other Neutral sites, the larger, but infrequently appearing wild turkey and Canada goose (Branta canadensis) provided a greater quantity of food (Table 6). The low percentage of wild turkey remains on all Neutral sites (Table 3) would seem to contradict the ethnohistoric reports of abundantly available flocks which inhabited the area during this period. The variety seen in the Hamilton site inventory is absent at the Christianson site, where passenger pigeon, goose, duck and grouse comprise the bulk of the sample.

TABLE 5. 1979 Christianson site sample osteichthyes species.

Species	N	%
Ictaluridae sp.	43	28.3
Catostomidae sp.	34	22.4
Brown bullhead	20	13.2
Lake sturgeon	13	8.6
Yellow walleye	10	6.6
Channel catfish	6	3.9
White sucker	5	3.3
Lake trout	5	3.3
Bass sp.	3	2.0
Bowfin	2	1.3
Brook trout	2	1.3
Longnose sucker	2	1.3
Largemouth bass	2	1.3
Muskellunge	1	.7
Smallmouth bass	1	.7
Yellow perch	1	.7
Percidae sp.	1	.7
Drum	1	.7
TOTALS	152	100.3

TABLE 6. 1979 Christianson site sample avian species.

Species	N	%
Passenger pigeon	63	58.3
Anatidae sp.	8	7.4
Ruffed grouse	8	7.4
Canada goose	7	6.5
Ringed-neck duck	7	6.5
Turkey	3	2.8
Chicken*	3	2.8
Anserinae sp.	1	.9
Mallard (Black) duck	1	.9
Wood duck	1	.9
Tetronidae sp.	1	.9
Galliformes sp.	1	.9
Columbidae sp.	1	.9
Raven	1	.9
Crow	1	.9
Passeriformes sp.	1	.9
TOTALS	108	99.8

*domesticated intrusive elements

Local Bivalves and Snails

Unionidae sp. particularly, and *Elliptio* sp. bivalve fragments dominate the local molluscan inventory (Table 8). They served multiple usages, including a food source and ceramic temper.

> Of the 73 *Unionidae* sp. bivalves which could be assigned to a side, only one was unbroken anterior to the pseudocardinal tooth. The rest were all broken immediately above the tooth, and twelve of these had a very definite notch broken at that point. Five right and seven left valves show these notches. Confirming Pihl's similar observation at the Hamilton site, it can be concluded

> that the Neutral used an established technique to pry open the local shells, probably to obtain live food (Prevec 1980:39).

Land and river snails tend to be concentrated in loosely packed undisturbed features and midden deposits which suggest that while the river snails may have been used as a food source, it is probable that the land varieties are intrusive.

TABLE 7. 1979 Christianson site sample molluscan species.*

Species	N	%	Variety	Source
Unionidae sp.	190	50.5	bivalve	freshwater
Prunum apicinum	59	15.7	snail	marine
Anguispira alternata	54	14.4	snail	land
Elliptio sp.	23	6.1	bivalve	freshwater
Megogastropoda sp.	13	3.5	snail	marine
Triodopsis albolabris	11	2.9	snail	land
Blood ark	6	1.6	bivalve	marine
Helicodiscus parallelus	5	1.3	snail	land
Ponderous ark	3	.8	bivalve	marine
Pleuracera acuta	3	.8	snail	river
Lasmigona costata	2	.5	bivalve	marine
Lampsillis ventricosa	1	.3	bivalve	freshwater
Discus cronkhitei	1	.3	snail	land
Allongona profunda	1	.3	snail	land
Triodopsis tridentata	1	.3	snail	land
Triodopsis sp.	1	.3	snail	land
Goniobasis livescens	1	.3	snail	river
Stylommatophora sp.	1	.3	snail	land
TOTALS	376	100.2		

*Shell beads aside from Prunum apicinum not included.

Reptiles

Aside from two garter snake vertebrae, all reptilian elements belonged to turtles, including in descending order of frequency: painted (23); Blanding's (2); spotted (1); and map (1) (Table 8). Several fragments were charred.

TABLE 8. 1979 Christianson site sample reptilian species.

Species	N	%
Painted turtle	23	65.7
Emydidae sp.	4	11.4
Blanding's turtle	2	5.7
Chelonia sp.	2	5.7
Garter snake	2	5.7
Spotted turtle	1	2.9
Map turtle	1	2.9
TOTALS	35	100.0

Amphibians

Frog and toad elements were recovered (Table 9), but their presence may be intrusive in that they have the ability to burrow to depths of three feet (Prevec 1980:24).

TABLE 9. 1979 Christianson site sample amphibian species.

Species	N	%
Anura sp.	40	95.0
Toad sp.	1	2.5
Frog sp.	1	2.5
TOTALS	42	100.0

Crustaceans

A crayfish claw and pincher were recovered from undisturbed localities of the site. However, they may be intrusive in that crayfish can be found burrowing in fields near water (Prevec 1980:30).

The above fauna is to be expected on sites located near swampy areas. These are favoured as feeding and assembly areas, especially by mammals, particularly during the late autumn and winter. White-tailed deer concentrate in localities opened by logging, burning, settlement, and other activities which have resulted in the partial clearing of the land, with cedar swamps being the preferred wintering grounds even though food may be more plentiful in open areas (Peterson 1966:324, Banfield 1974:393).

As deer congregate in large numbers in the swamps during the late fall and winter, co-operative drives involving hundreds of individuals in drives and surrounds were the predominant and most productive of deer hunting (Biggar 1929 iii:60-61, Wrong 1939:82, Thwaites 1896-1901 xv:183, xxii:273, xxxiii:83). The proximity of the Christianson site and other sites in the area to large swamps would have made deer huntingthat much easier, in that long distances did not have to be traversed to reach the deer, as was common in historic Huronia.

Similarly, black bear, beaver, and raccoon habitats are forested areas near marshes and streams (Banfield 1974:160, 306, 314). Corn in the milk or roasting stage is a favourite food for raccoons which were no doubt drawn to the cornfields surrounding the village (Peterson 1966:227, Banfield 1974: 314).

Clearly then, the environment in this section of Beverly Township did, and still does, favour and support large quantities of wild game. Furthermore, the activities of the inhabitants, such as land clearance and agriculture, increased the density and availability of the animals. Unlike the Huron, the Neutral rarely suffered meat scarcities. This is not surprising, in light of the potential of the land surrounding the Christianson site.

All in all, the physical environment did not leave the occupants lacking in any resource. The Christinason site, as well as the other Spencer-Bronte drainage sites, was no doubt situated so as to exploit the constellation of resources found together in such proximity.

The Christianson Site

The village, as defined by physical boundaries, palisading, and surficial midden deposits occupies approximately 1.6 hectares (3.5 acres).

Palisade

Three rows of what may be palisade were found in 1979 toward the northwestern corner of the site between Houses 6 and 7 (Figure 5). Palisade I, the northernmost of the three, consisted essentially of a sporadic row of smaller post moulds ranging between 3cm and 8cm in diameter ($\bar{x}$= 5.17cm).

Palisade II, ranging from 1.0m to 2.7m south of Palisade I, differs noticeably in that it consists of larger posts ranging in diameter from 4cm to 11cm ($\bar{x}$= 6.78 cm) in single rows and clusters. From the mass of posts to the northwest of House 7, two single rows separate toward the west with the north one being further segmented into two additional rows, and then returning to its single alignment. Numerous posts in this section of palisade contain a fill of ash and fire reddened soil suggesting it may have been burned at some point.

Some 2.25m to the south of Palisade II, Palisade III presents yet another configuration before it apparently ends just north of House 7 and before what is now believed to be an additional house to the immediate north of House 7. Posts ranged in diameter from 4cm to 10cm ($\bar{x}$= 6.76cm), a near identical range and mean observed from Palisade II. Ten pairings of post moulds comprised most of the portion of Palisade III which was investigated. The pairings were

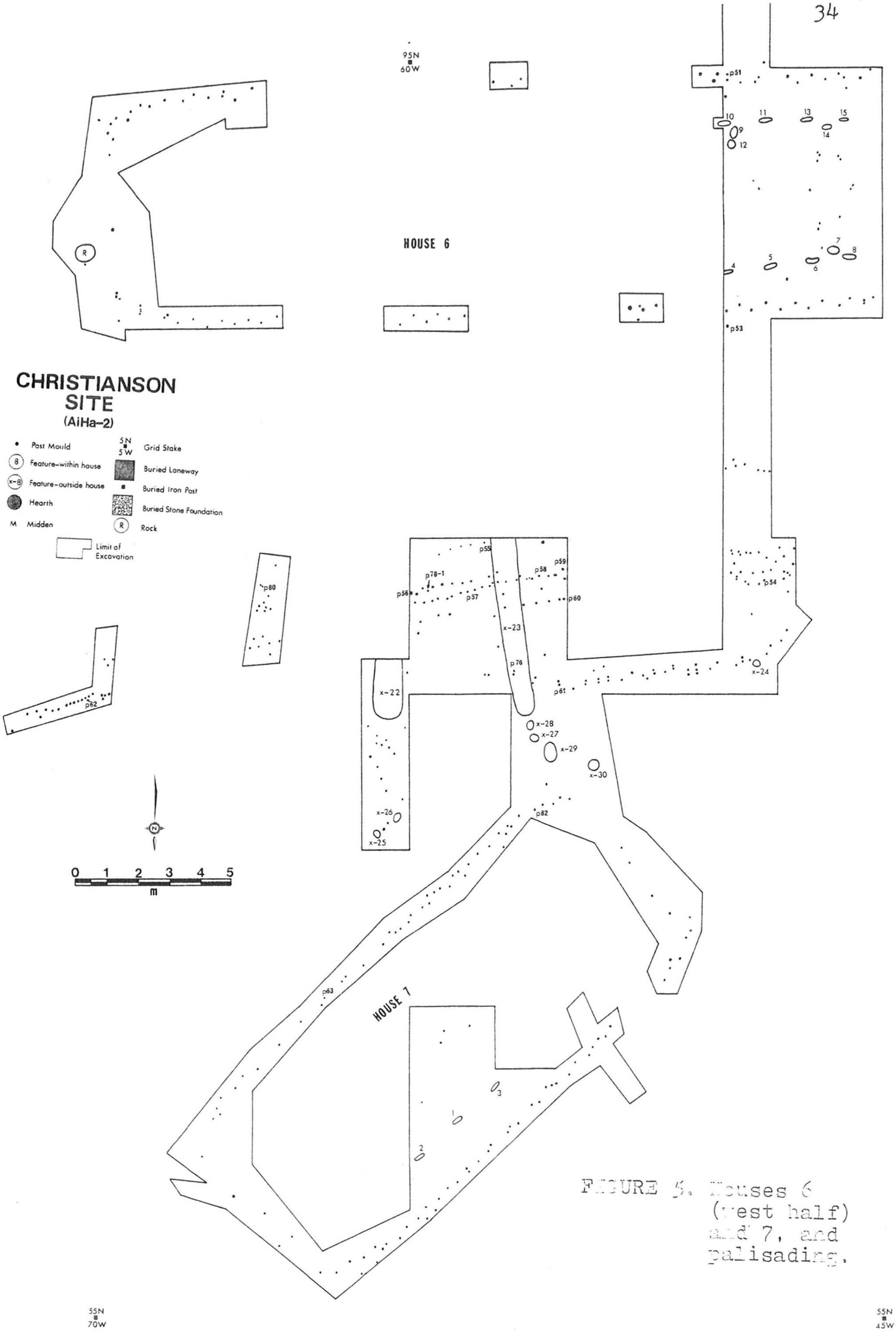


FIGURE 5. Houses 6 (west half) and 7, and palisading.

separated by distances ranging between 3cm and 7cm. It may be that this palisade portion was constructed by placing poles with diameters between 3cm and 7cm horizontally between the closely spaced, vertically implanted pairs of posts. Its sudden termination, and the presumably solid surface provided by the poles stacked in such a way suggests that this structure may have acted as a windbreak or snow fence for breaking the strong northerly winds blowing over the drumlin. That Palisades I and III do not appear to continue much further to the east of the major concentration may further support the interpretation that the palisade patterns were not defensive.

Superficial examination may suggest that Palisades I and III were the walls of a longhouse overlapping Palisade II. However, the notable difference in post mould sizes in Palisade I and III, their different style of construction, as well as the absence of any features characteristic of a Neutral longhouse, does not support an interpretation other than the one presented.

A 30m by 1.5m trench was excavated downslope to the west of House 7 in an attempt to locate the continuation of the palisade. The remnants of a midden in the ploughzone were encountered, but there was no indication of further exterior palisade (Figure 1).

After House 6 had been identified outside of Palisade

I, a 20m by 1.7m trench was excavated to the north to ascertain if House 6 was in fact located outside of the village or if it was a part of a village expansion. Aside from several isolated post moulds and a burial, nothing resembling a house wall or palisade was observed. In this section of the village the downward slope is increasing, and with House 6 on the last stretch of level terrain it is likely that the house was simply built outside of the crowded village.

The previously mentioned burial, Feature 20, contained a flexed infant interred on its right side with the head pointing southeast. There were no grave inclusions. The bone was in poor condition, being compressed and fragmented by the underlying rocky soil. Consequently, only the basilar and dentition could be utilized to estimate age at death. The basilar produced a range between 18 months and three years (Redfield 1970:215). With the exception of the second molars, all deciduous teeth had erupted, suggesting an age of between 17 and 24 months (Anderson 1962:138). However, based on the calcification of unerupted permanent dentition (maxilla: the four incisors and both canines;

mandible: two central incisors) an age of between 30 and 42 months could be assigned (Sundick 1972:33, 48). The absence of the lateral mandibular incisors would suggest an age closer to, if not younger than 30 months.

While it was documented that recent newborns were interred along paths outside of the village in order that they might be reborn (Thwaites 1896-1901 x:273), the advanced age of the infant may preclude it from being considered such a case.

Investigation for palisade along the southern edge of the site consisted of three exploratory trenches excavated down the steep southern slope. Toward the base of the slope in the easternmost of the trenches, a relatively large refuse/hearth, Feature 1, was encountered, as was an irregular clustering of post moulds. The identification of this as a section of palisade was made difficult by the extremely gravelly nature of the soil.

Midden Deposits

Six refuse concentrations were investigated. Aside from the deposits in the centre of the village (Area A Pit 5, Midden A-1, and Midden A-2) which appear to have been natural depressions filled with refuse, the peripheral middens tended to be surficial.

Midden A

Situated at the northeast corners of the superimposed

Houses 4E and 4W were two discrete shallow midden remnants (Figures 6, 10, 12). That each of the middens can be distinguished as belonging to the separate houses is suggested not only by their position, but by certain artifact attributes, most notably ceramic tempering. House 4W and Midden A-1 contained respectively 4.00% and 4.81% shell tempered ceramics; while affinities between House 4E with 20.41% and Midden A-2 with 9.03% are not as convincing, the overall higher frequencies would tend to support such a relationship (Table 10, Figure 7).

The undisturbed subsurface extent of Midden A-1 was approximately 320cm by 230cm by 12cm, with that of Midden A-2 being 520cm by 310cm by 20cm. That Midden A-1 and Midden A-2 are separate depositions is suggested by the differing stratigraphy of the undisturbed portions. Midden A-1 consists primarily of a grey-brown ash layer mottled with charcoal, topsoil and subsoil, while Midden A-2 contains distinct layers of ash, charcoal, and those which have varying amounts of topsoil and subsoil intermixed with the former two.

Midden B

On the western slope, some 20m west of House 7, artifact and faunal remains were concentrated in an area of approximately 7m by 4m within the ploughzone. No undisturbed sections of this peripheral midden were encountered.

FIGURE 6.

AiHa-2 Midden A-2 Profiles

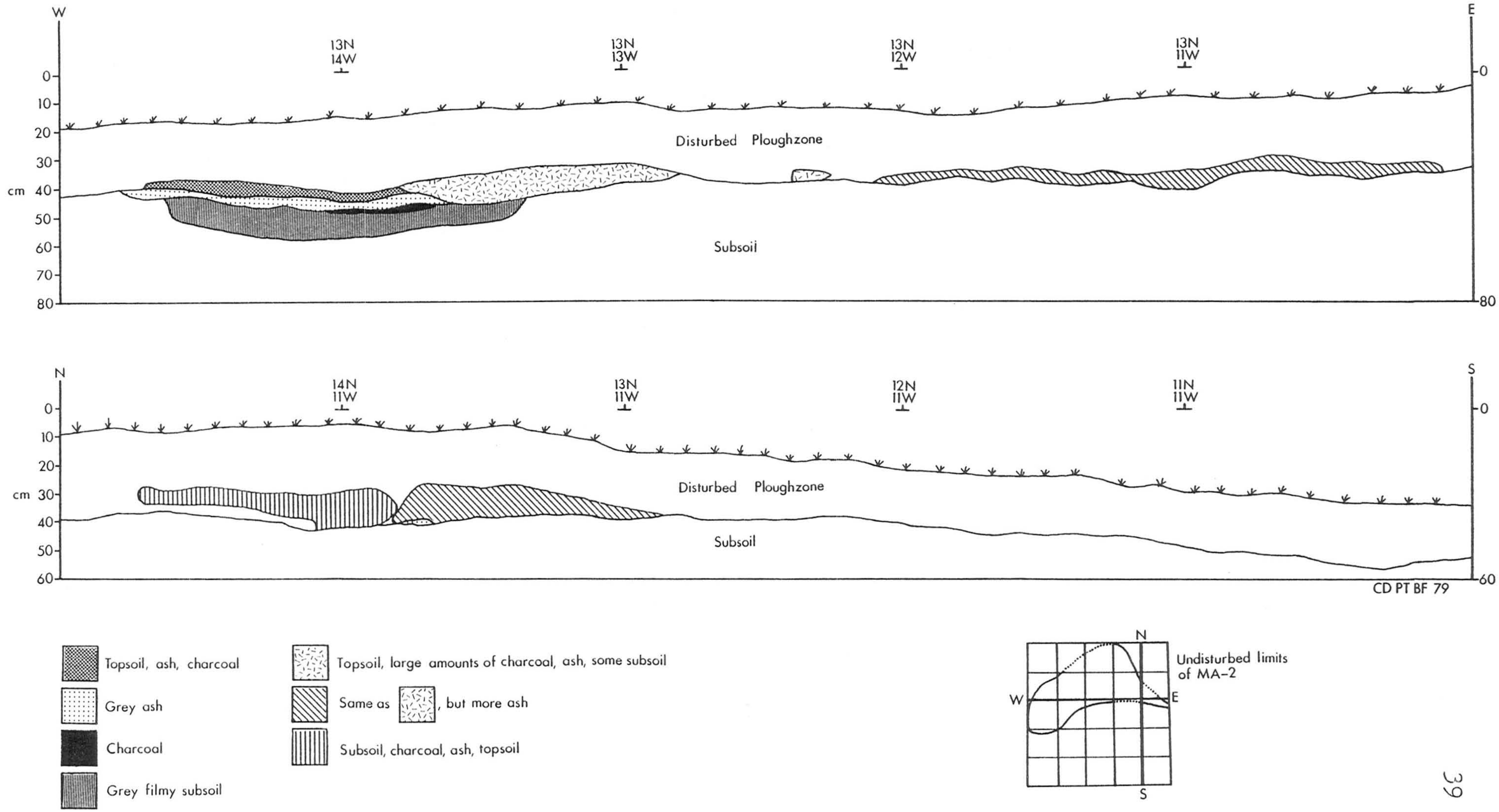
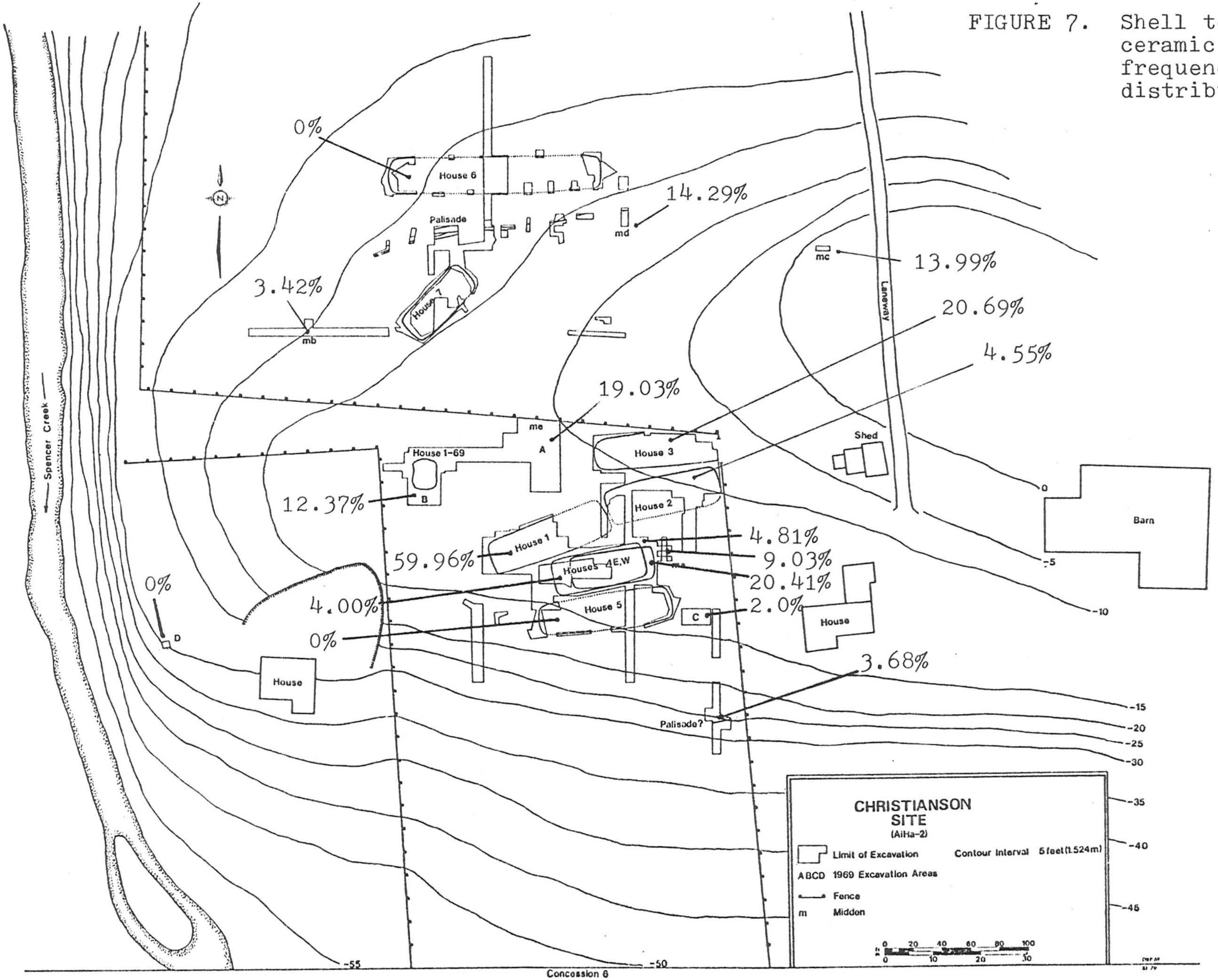


TABLE 10. Areal distributions of ceramic tempering.

	Grit N	Grit %	Shell N	Shell %	TOTALS
House 1	201	43.04	266	56.96	467
House 1 excluding Feature 3	127	94.78	7	5.22	134
House 2	21	95.45	1	4.55	22
House 3	23	79.31	6	20.69	29
House 3 excluding Feature 29	15	100.00	0	0.00	15
House 4E	39	79.59	10	20.41	49
House 4W	96	96.00	4	4.00	100
House 4 association unknown	3	23.08	10	76.92	13
Houses 4E, 4W, unknown totalled	138	85.19	24	14.81	162
House 5	1	100.00	0	0.00	1
House 6	9	100.00	0	0.00	9
Midden A-1	851	95.19	43	4.81	894
Midden A-2	1209	90.97	120	9.03	1329
Midden B	339	96.58	12	3.42	351
Midden C	123	86.01	20	13.99	143
Midden D	6	85.71	1	14.29	7
Feature 1	131	96.32	5	3.68	136
Area A (1969)	1736	80.97	408	19.03	2144
Area B (1969)	85	87.63	12	12.37	97
Area C (1969)	49	98.00	1	2.00	50
Area D (1969)	1	100.00	0	0.00	1

FIGURE 7. Shell tempered ceramic frequency distributions.



Midden C

Substantial quantities of artifacts were recovered from this area adjacent to the laneway. Three, one-metre squares were excavated to subsoil from this presumed northeastern peripheral midden. As with Midden B, Midden C appears to have been a surface deposit, for there were no indications of undisturbed deposits.

Midden D

The area from Midden C to Midden D consisted of a ploughzone which was deep and dark black. Where surficial recoveries were greatest in the Midden D area, which is to the southeast of House 6 and perhaps incorporated into the palisade, $4.80m^2$ were excavated. There were no undisturbed deposits and ploughzone recoveries were negligible. However, the general scattering of refuse essentially defines the northeastern periphery of the site.

Feature 1

As previously mentioned, a 246cm by 140cm by 20cm refuse pit/hearth was located midway down the slope toward the southeastern corner of the site. That it exhibited distinct fire reddened soil, ash and charcoal layers, and contained 458 pieces of faunal material, many of which were charred and calcined, suggests it was a hearth, with the post moulds found about it perhaps having been related to food preparation activities. The abundance of artifacts:

136 pieces of pottery, 1 pipe fragment, 44 flakes, 3 cores, 2 biface fragments, a netsinker, a piece of rolled and folded copper, 10 shell beads and a human ulna bead, is uncharacteristic for a hearth. The available evidence suggests that Feature 1 was used as a peripheral refuse pit.

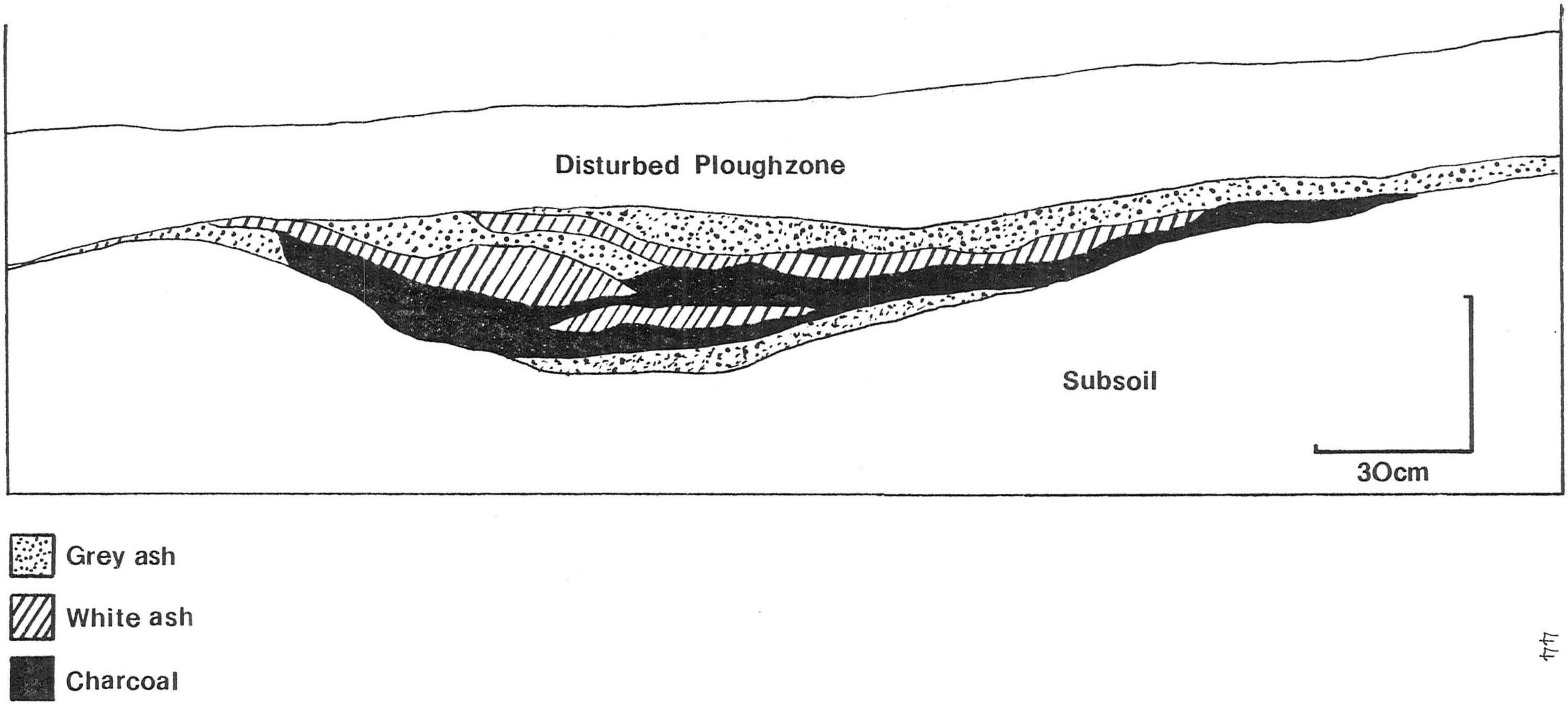
Area A Pit 5 (x-5)

Excavated in 1969, this centrally located refuse pit measures 381cm by 198cm by 33cm (Figure 8). Situated in a natural depression, this midden was composed of undisturbed alternating layers of grey ash, white ash, and charcoal. The recovery of two iron axe fragments and two glass beads from the upper 8cm of the midden provides a partial basis for dating the site.

Neutral Longhouse Structural Features

Previous investigations of protohistoric and historic Neutral houses (Noble 1972a, 1972b, Lennox 1977a, Wright 1977, Lennox 1978, Warrick 1979a) permit the identification of certain structural features which appear to be characteristic of Neutral structures of this period. Longhouse interiors tend to be uncluttered with ancillary pits and many of the internal features repeatedly found have structural interpretations. Consequently, there is some uniformity and predictability in the internal organization of the Neutral

FIGURE 8. Area A Pit 5 (x-5) north wall profile.



longhouse, although those from Walker (Wright 1977) and Thorold (Noble 1980) exhibit variability.

Post Mould Patterns

Initial side wall construction frequently appears to have taken the form of a regular staggered pattern. Assumed long term occupation would tend to obliterate this pattern with the addition of further support posts. Instances of both were observed from the Christianson site house walls. Such regularity was not always present. On houses which were apparently short term, such as House 7, post moulds along the side walls were placed in no apparent pattern.

There tends to be greater spacing between end wall post moulds than between those in the side walls at Christianson. Also, there tends to be but a single row, not a staggered or cluttered appearance, as with the side walls. Where there are extremely cluttered side walls, as in House 1, cluttered ends, through rebuilding, may also be expected.

Linear End Features and End Sections

Elongated features, interior and parallel to the ends of protohistoric and historic Neutral longhouses, may be remnants of partitions that divided the habitation portion from the storage end sections (Noble 1972a, Lennox 1977a, 1978, Wright 1977, Warrick 1979a). Linear end features at the Christianson site ranged in length from 108cm to 222cm, in width from 14cm to 20 cm, and in depth from 16cm to 37cm.

Mean measurements were 163.50cm, 17.50cm, and 24.67cm, respectively. In profile they tend to be straight-sided and flat-bottomed, and rarely contain any artifactual material. At the Hood site, three vertically placed planks measuring about 20cm wide by 2cm thick were preserved edge to edge in a linear end feature indicating the method of construction of these partitions (Lennox 1978:22). Elsewhere, Noble (1972a, 1972b) and Wright (1977) believe the linear end features are the result of disintegrated bark curtains.

Where linear end features were present in the Christianson site longhouses, the end sections so defined ranged in length from 3.2cm to 6.7cm, with a mean of 4.8cm.

"Slash Pits"

Another diagnostic feature of Neutral longhouses, first found and defined in 1970 by Noble (1972a) at the Hamilton site, is the presence of straight-sided, flat-bottomed oval pits which run parallel to the interior of house side walls. At Christianson, "slash pits", where they occur, lie inside the side walls, between 90cm and 130cm. Again, preservation of non-carbonized wood in such pits at the Hood site indicates that the pits functioned to support two planks placed edge to edge. Boards measured approximately 8cm wide by 2cm thick, and presumably extended to the roof of the longhouse to act as a partition between the central communal section and the storage and sleeping sections of the houses

(Lennox 1978:22).

Rarely observed in the continuous nature seen in Houses 1 and 2 at the Hamilton site (Noble 1972a, Lennox 1977a:15), "slash pits" are more frequently seen sporadically along the house walls in small clusters. Christine Dodd (personal communication:1980) contends that such a patterning may indicate that the platform was not continuous along the length of the longhouse. Furthermore, ethnohistoric documentation suggests raised platforms along the side walls were used for storage, or as vantage points for ceremonies, games and meetings, and not exclusively for sleeping (Dodd 1980:7, 12).

The "slash pits" in the Christianson site longhouses ranged in length from 22cm to 66cm, with a mean of 39.25cm; in width from 5cm to 36cm, with a mean of 16.15cm; and in depth from 4cm to 40cm, with a mean of 25.65cm. Rarely did they contain anything aside from small amounts of miscellaneous debris. Dimensions of "slash pits" from the Hamilton and Hood sites, with the exception of the depths from the Hamilton site, are comparable (Table 11).

Internal Division Pits

Other recurring features observed in the Christianson longhouses appear to compartmentalize the central corridor. There are four varieties of features appearing immediately inside of the "slash pit" line: 1. those exhibiting "slash

TABLE 11. Mean "slash pit" dimensions from Neutral sites.

	Christianson (cm)	Hood* (cm)	Hamilton** (cm)
Length	39.25	38	35.56'
Width	16.15	16	15.24
Depth	25.56	21	12.70

* Lennox 1978:22
** Lennox 1977a:19

attributes, 2. oblong basin-shaped pits, 3. circular basin-shaped pits, and 4. large post moulds.

The relationship of the internal division pits to the "slash pit" line is shown in Figure 9. In some instances

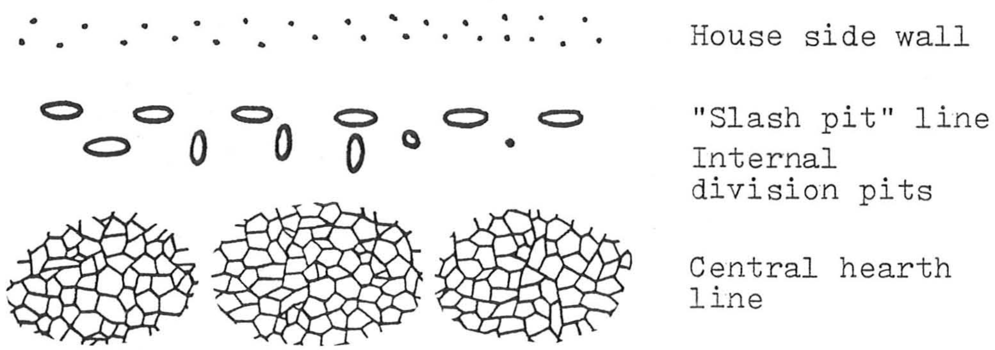


FIGURE 9. Varieties of internal division pit alignments with "slash pits".

these internal division pits are bilateral (e.g. House 1 Features 25 and 35, House 4E Feature 4 and Post 37, House 4W

Features 9 and 23, House 6 Features 7 and 14), suggesting that some sort of partition may have continued across the interior. However, in the majority of the Christianson site longhouses these pits were not symmetrically expressed, suggesting that the divisions did not compartmentalize the interior to the same extent that the linear end partitions did.

While statements regarding the size of individual compartments may be premature in that not all interiors were completely excavated, of the 10 or 11 compartments identified, the mean length was 4.18m, or 3.95m, if the 1.75m compartment in House 4W was included (Table 12). This compartment size corresponds favourably with the average of 15 feet (4.55m) of living space per family estimated by Heidenreich (1971: 117) based on hearth spacing.

The repetitive nature of Neutral longhouse interiors is substantiated by the Christianson site data. Staggered, and cluttered side wall post mould patterns are seen, as are both well defined and amorphous end walls. The interiors are commonly divided by linear end features into central living and storage end sections. The storage sections are generally about five metres in length. Within the living section of the longhouse a series of oval features running parallel to, and about one metre in from the house wall probably represent the supports for a raised platform used for storage or as an

TABLE 12. Christianson site longhouse compartment metrics.

Compartment	Compartment Size
House 1	
Feature 9 - Features 25/35	4.75m
Features 25/35 - Feature 45	4.50m
House 2	
Feature 14 - Feature 20	5.25m
House 3	
Feature 4 - Post 68	3.50m
Post 68 - Feature 29	3.50m
Feature 29 - Features 45/46	5.25m
Features 45/46 - Features 47/50	3.75m
House 4E	
Feature 4/Post 37 - Feature 22	4.25m
House 4W	
Features 9/23 - Feature 18	1.75m
Feature 18 - Feature 26	4.00m
House 6	
Features 7/14 - Feature 9	3.00m

observation point for events in the longhouse. Further division of the central corridor into family units is suggested by a variety of features which are consistently placed just inside of the "slash pit" line. Delineated compartments are consistent in size.

The only non-structural features which are observed, or at least readily identifiable, are large centrally aligned hearths. Smaller hearths do appear occasionally toward the "slash pit" lines. Absent, however, are central support posts.

Overall, there are relatively few pits cluttering the interior of historic Neutral longhouses.

House Structures

A total of nine, or perhaps ten, structures have been identified from four areas of the site; the central core and adjacent southern edge, the west central area, the northwest periphery inside the palisade, and the area outside of the northern section of palisade. The first and the last two areas were investigated in 1979, while the west central area was excavated in 1969.

With the exception of House 1-69 from the west central area which measured 6.1m by 5.9m (Noble 1970:14), all other structures conform in length and width with longhouses recovered from other protohistoric and historic Neutral sites (Table 13), ranging in length from 16.5m to 44.5m and in width from 7.0m to 7.8m. House 6, at 44.5m is exceedingly long, and if it is excluded, the next longest structure is 28.5m, a result more consistent with longhouse length from other Neutral sites. House lengths at the Fonger site range from 17.0m to 28.5m (Warrick 1979:10), at the Walker site from 6.4m to 35.5m (Wright 1977:14), at the Hamilton site from 18.9m to 32.0m (Lennox 1977a:18), and at the Hood site from 7m to 24m (Lennox 1978:20). Shorter structures, such as House 1-69, were found at the Walker and Hood sites.

TABLE 13. Christianson site house metrics and orientations.

House	Length (m)	Width (m)	Orientation (degrees)	Extensions west	Extensions east
1	26.0	7.8	65	no	no
2	21.5 maximum	7.8 estimated	80	no	yes
3	34 estimated	7.6	82	yes	?
4E	18.5	7.1	85	no	no
4W	20.5	7.2	75	no	no
5	28.5	7.0	80	not apparent	
6	44.5	7.5	87	not apparent	
7	16.5	7.2	45	not apparent	
1-69	6.1	5.9	90	not expected	

A notable aspect of the settlement patterning at the Christianson site is the closeness of structures, indicating a crowded settlement, assuming contemporaneity of structures. The minimum distances between adjacent houses presented in Table 14 gives an idea of the compact arrangement of longhouses.

As with the longhouse spacing, orientations of the structures tend to be rather consistent, essentially in an ENE-WSW direction, which is generally perpendicular to the prevailing winds.

TABLE 14. Minimum distances between adjacent longhouses.

House	House	Distance (m)
1	2	1.5
1	4E	1.9
1	4W	.6
2	3	1.2
2	4E	7 (estimate)
2	4W	5 (estimate)
4E	5	1.7
4W	5	1.3
7	8?	2.5

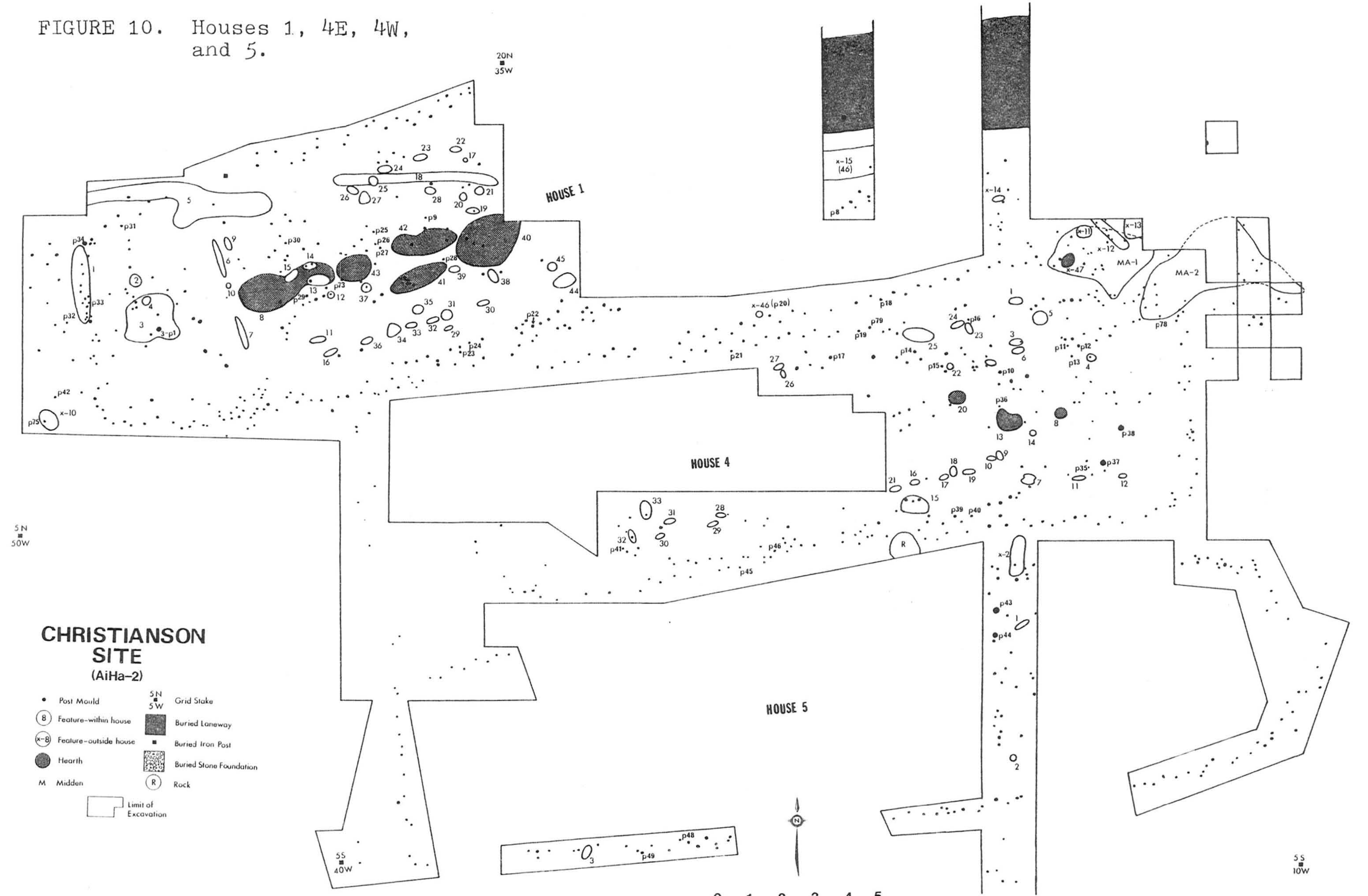
House 1 (Figure 10)

The western half, and portions of the eastern end wall of this 26m by 7.8m longhouse were excavated. Tree roots and a buried laneway prevented further excavation in the eastern section of this structure.

Ends and Doorways

Only the west end wall was completely excavated, and it is a well defined square end. There is a possible doorway toward the southwest corner, approximately 60cm in width. Incorporated into the northern half of the end wall is an elongated pit, Feature 1, 235cm by 38cm by 13cm, which contains numerous post moulds suggesting that it may be the remnants of a wall trench, a feature commonly found in the

FIGURE 10. Houses 1, 4E, 4W, and 5.



undisturbed houses at the Walker site. The contention is that these features are the remains of entrenched bark flaps which would act to insulate the longhouse (Wright 1977:60).

Interior Features and Divisions

Linear End Features and End Sections

In the excavated western end, two linear end features were found, 4.5m from the end wall.

Centrally aligned, and one metre from the west end wall, Feature 3 is a large (184cm by 134cm by 30cm) pit with four distinct layers. An abundance of carbonized wood and other floral remains lined the bottom of the pit. Above this was a layer containing a large number of artifacts. While artifacts were scattered throughout the various layers of the pit, the major concentration was from this layer. In total, Feature 3 produced 333 pieces of pottery from at least seven vessels (4 shell tempered, 3 grit tempered), 12 lithic flakes, and a single shell discoidal bead. Of note, 77.78% of the ceramics were shell tempered, while for the rest of the house only 5.22% of the 134 pieces of pottery were tempered with shell.

Covering the artifact layer were two layers of fill, primarily consisting of subsoil, topsoil, and some charred material. Post moulds and Feature 4 were found beneath Feature 3, but one large post mould (3-p.1), post-dates the apparent closure of the pit. That the pit may have functioned for something other than refuse deposition is suggested by the patterning of posts around its periphery, as well as the abundance of floral material, ceramics and by-products of a hearth. Carbonized encrustations on the interior of several rimsherds suggest that it may have functioned as a food preparation pit. Notable, however, by their general absence, were faunal remains.

"Slash Pits" and "Slash Pit" line Features

Along the south "slash pit" line, eight features were identified. However, there may have been additional features east of Feature 31 which have been obliterated by tree root disturbances. Four of the features, 16, 30, 33 and 36, possess "slash pit" attributes; Feature 34 differs in plan, Feature 32 in profile, and Features 31 and 44 differ in both respects. These last two features also differ from the 1.2m distance from the south wall of the other features, being 1.1m distant.

Probable historic disturbances, Features 5 and 18 run parallel to a removed iron fence. Feature 5 contained abundant aboriginal material, including 89 pieces of lithic detritus, two projectile point fragments, one preform, 15 pottery fragments, a complete pipe bowl, and a brass bracelet fragment, suggesting that the feature may have disturbed an aboriginal feature within the northwestern area of the house. As a result of such disturbance, only three "slash pits" were identified inside the north wall, Features 23 and 24 being 1.0m inside, and Feature 22 being 1.2m inside the wall. The three "slash pits" are, however, equidistantly spaced from each other at 70cm.

Internal Division Pits

Three features, 25, 35, and 45 are all basin-shaped, similar in size and location inside their respective "slash pit" lines, and such regularity, particularly with the opposing situation of Features 25 and 35, may indicate that these features may have functioned to demarcate living sections. Furthermore, Feature 9 runs parallel to linear end Feature 6 toward the projected "slash pit" line, a pattern also seen in House 3, perhaps being another means of delineating living space.

Hearths

The most striking feature of House 1 is the number and size of the hearths. Nowhere else within the other houses were such concentrations observed. The depth of the ploughzone in this area suggests that, if anything, these hearths should not have been preserved. Consequently, the lack of disturbance of the living floor cannot be an explanation why such a density of larger hearths is present. Longevity of occupation may more profitably be offered as an explanation.

Three of the hearths, Features 8, 42, and 43 are centrally aligned with distances between the edges and corresponding "slash pit" lines ranging from 180cm to 200cm. Located much closer to the south "slash pit" line are Features 40 and 41 at distances of 80cm and 100cm, respectively, which would appear to have affected maneuverability, if not occupation, in this section of the longhouse.

Generally, the hearths are elongated in form, but vary in length and width. Feature 8 is the longest, stretching from just outside of the linear end features for some three metres. In length, Features 41, 42, and 43 are shorter, but have relatively similar widths, ranging from 66cm to 120cm. Feature 40, in overall size is the largest, being 250cm by 160cm. In depth, the hearths range from 6cm to 15cm.

Distances between hearths are not great, ranging from 10cm to 70cm, distances which were likely smaller before disturbance of the living floor occurred. Clustered around, and within Features 8 and 43, are numerous post moulds and features, perhaps remnants of cooking and/or drying structures. Such patterns are not present to the same extent around the peripheries of the other hearths.

A variety of artifacts were found in the hearths, with lithic detritus predominating. In Features 42 and 43, 75 and 38 pieces of chert, respectively, were recovered. All were burnt, and they tended to be substantially smaller than lithic material recovered from other features. For example, the 42 complete flakes in the 0g-.49g weight category from Feature averaged .10g, compared to a more normal mean of .25g. From Feature 8, 11 pieces of chert, a pipe bowl fragment, and a burnt scraper were recovered, while Feature 40 produced 5 pieces of chert and one neck sherd. Three body sherds, a shoulder sherd, and five pieces of chert came from Feature 41. Aside from chert in Features 42 and 43, three body sherds and an iron hook fragment came from Feature 42, while a pipe stem, 3 body sherds, and a glass bead fragment of the IIIm- variety (Kidd and Kidd 1970) were recovered from Feature 43.

Remarks

Further evidence, aside from the clustering of hearths, which may indicate relatively long term occupation of the house is the cluttered nature of the house walls. A regular, offset post mould pattern is not evident, suggesting either rebuilding as a result of fire, or simply the addition of further support posts over a long period of occupation. The former is indicated by the abundance of ash filled post moulds in the southwestern corner of the house.

A notable feature of House 1, aside from the concentration of shell tempered pottery in Feature 3, is the relative abundance of European items. Besides the glass bead fragment in Feature 43, and the iron hook fragment in Feature 42 (Figure 60:4), a glass bead fragment of the IIIa12 variety (Kidd and Kidd 1970) was found in "slash pit" Feature 30, while an iron knife blade was recovered from Feature 17 (Figure 60:11). Other features which deviate from either being sterile or containing limited ceramic or lithic detrital refuse include Feature 25 which had 25 pieces of lithic detritus and a single piece of pottery, and Feature 29, with 57 pieces of ceramics and 7 of lithic detritus. Feature 23 contained a variety of artifactual material; 9 pieces of pottery, a pipe mouthpiece, a projectile point, 25 pieces of lithic detritus, and bone bead and bone bead blanks from a dog tibia and a white-tailed deer phalanx (Prevec 1980:B8).

House 2 (Figure 11)

The area of House 2, particularly the central and southern sections, was disturbed by a stone fence row and laneway which are at present covered by the ploughzone. As a result, it was possible to excavate only the northern half of the house.

Ends and Doorways

The lack of clear definition makes it impossible to say anything substantive about the ends. There was, however, perhaps an earlier end toward the eastern end of the house as evidenced by a sporadic and somewhat irregular alignment of posts passing through Feature 1, to the west of the rock, and between Features 3, 5 and 6. While not totally convincing, its nature does not preclude it from being a squared east end. Continuing from the northeast corner is a further line of post moulds which appear to be turning but which also end abruptly. If the curvature is extrapolated it would give a length of 21.5m to the house, but if it is not included, the house measures 19.5m in length.

Interior Features and Divisions

Linear End Features and End Sections

Toward the western end, a linear end feature was found in the excavated northern section, approximately 3.5m in from the presumed west end wall. No such feature was observed in the eastern end, but a large refuse pit/hearth, Feature 1, was located in the northeastern corner. Measuring 280cm by 135cm by 56cm, Feature 1 fill consisted of topsoil, subsoil, and fire reddened soil, with distinct lenses of ash and charcoal. Two posts found beneath the shallower edges of the pit may be part of the initial east end wall, suggesting the feature belongs to the expanded end. Found within the pit were 51 pieces of lithic detritus, 13 pieces of pottery, 2 brass bracelet fragments, a core, a lithic drill fragment, a pipe mouthpiece, a sharpening stone, and two netting needles manufactured

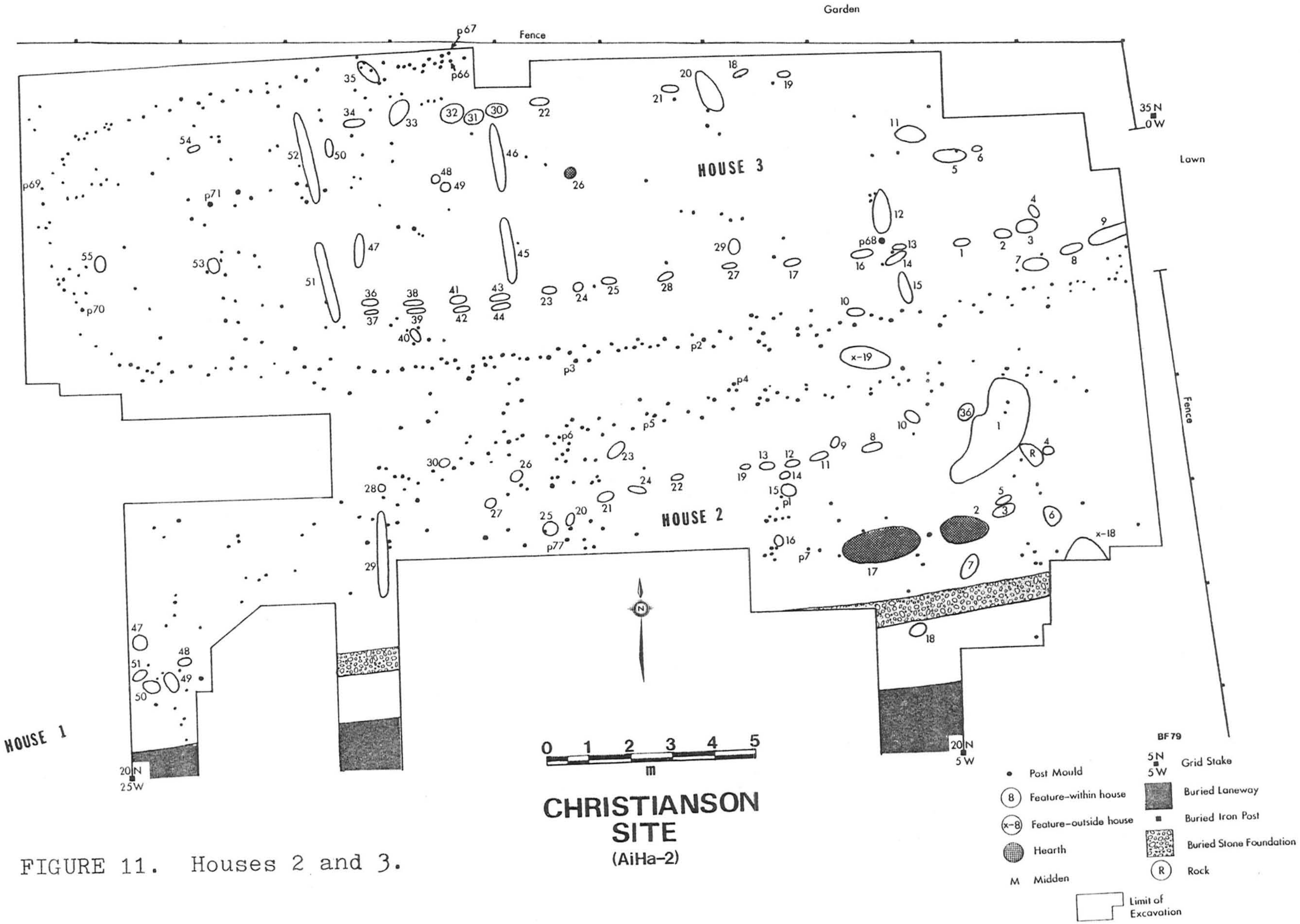


FIGURE 11. Houses 2 and 3.

from mammal bone (Prevec 1980:B14). A variety of faunal remains were recovered from the feature. Most notable were the number of dog remains which showed evidence of charring and cutting. Specimens ranging in age from immature to very old were represented (Prevec 1980:69). To the immediate northwest of Feature 1 is Feature 36 which contained charcoal, ash, and fire reddened soil, suggesting it may have been a refuse pit associated with Feature 1.

"Slash Pits" and "Slash Pit" Line Features

Nine features comprise the north "slash pit" line, five which conform with "slash pit" plan and profile; Feature 8, 11, 13, 19 an 21. Features 12, 22 and 27 exhibit a more basin-shaped profile. Distances of these features from the north wall range from 90cm to 130cm. This variance is not a result of their lack of alignment from each other, but rather that the "slash pit" line feature alignment does not run exactly parallel to the house wall. Consistency, however, is lacking in distances between the features in the "slash pit" line, being irregularly spaced from 20cm to to 240cm apart, perhaps indicative of several discontinuous raised platforms.

Internal Division Pits

Approximately 10cm to the south of and parallel to "slash pit" line Features 12 and 13, the elongated basin-shaped Feature 14 may be a remnant of some sort of divider between groups within the longhouse. Feature 20, which is oriented perpendicular to the "slash pit" line and 20cm to the south, resembles a "slash pit" and may also have served to divide the living section of the house.

Hearths

Two centrally aligned hearths were identified, approximately 180cm south of the "slash pit" line. Separated by 50cm, Features 2 and 17 measure 120cm by 58cm by 9cm, and 190cm by 60cm by 8cm, respectively. A clustering of posts around Feature 17 may reflect its usage for cooking or some other undertaking which would require a rack. Features 15 and 25 contain ash, charcoal, and fire reddened soil, and are located approximately two-thirds of the way to the "slash pit" line from the central hearth line.

Remarks

Historic disturbances and the gravelly nature of the area may account for the sketchy nature of House 2. Nonetheless, through the confusion, the essential and basic features of the Neutral longhouses are present.

Outside of the artifacts found in Feature 1, recoveries were limited to Features 8, 17, 24 and 28 in quantities of but one or two pieces of pottery or lithic detritus.

House 3 (Figure 11)

The portion of the longhouse located within the ploughed field was excavated almost in its entirety; however, the eastern section which continued into the lawn and garden was not investigated. Consequently, it is not known with any precision how much longer than the 25.8m investigated the structure was. Assuming symmetrical construction, an overall length of 34m was estimated. House 3 has a width of 7.6m.

Ends and Doorways

Two separate western ends are readily discernable. The original end is rounded and particularly well defined by clusterings of posts in the southern half. A doorway with a width of approximately 60cm appears to have been present in the middle where the pattern is broken.

The 3.8m expansion also tapers into a well defined rounded end. Toward the southwest corner, a 50cm separation between posts may be identified as a doorway.

Interior Features and Divisions

Linear End Features and End Sections

Two sets of linear end features demarcate the end sections for both the original and expanded house, with Features 45 and 46 being 6.5m in from the original end wall, measuring 160cm by 20cm by 37cm, and 166cm by 20cm by 36cm, respectively. The linear end features, 51 and 52, associated with the extension were notably larger, 200cm by 15cm by 17cm, and 222cm by 18cm by 24cm respectively, but are similarily situated at a distance of 6.7m from the end wall.

"Slash Pits" and "Slash Pit" Line Features

That an expansion of the house did take place is also reflected in the nature and arrangement of "slash pits" and "slash pit" line features in that a differing pattern is seen in the extended section, which was initially the original end section. The "slash pit" line associated with the unexpanded house consisted of, along the south line, eight straight-sided, flat-bottomed pits, and four pits, Features 3, 13, 24 and 28, which did not exhibit typical "slash pit" attributes, particularly in their shallow basin profiles. With the exception of Feature 14 which, while possessing characteristic "slash pit" features, is oriented diagonally to the rest of the features in the "slash pit" line and differs further from the more consistent 1.30m to 1.45m range of distances exhibited by the other features. Spacing between pits, in most instances, is also consistent, ranging from 1.0m to 1.2m; however, the spacing is less when the more questionable pits are included.

The corresponding north "slash pit" line does not exhibit similar density, for there are but four features, 18, 19, 21 and 22 in the "slash pit" line. All of these features possess characteristic "slash pit" attributes. Feature 18 however, is not in alignment with the other "slash pits", being directed in a more northeasterly direction. Spacing between Features 19, 21 and 22 are more than twice the distance than that observed between definite "slash pits" in the south line, 2.4m and 2.8m, respectively. Soil conditions cannot be cited as an explanation for the absence of a more closely spaced north "slash pit" line.

Following expansion of House 3, a corresponding extension of the "slash pit" lines was undertaken between the two sets of linear end features; however, the nature of the north and south lines differ markedly. Four sets of "slash pits" comprise the south line with the line of Features 36, 38, 41 and 43 being an extension of the original south "slash pit" line. Their corresponding Features 37, 39, 42 and 44 are approximately 10cm to the south, and between the pairs of 36 and 37, and 38 and 39, flat rocks were positioned in an upright position. Rocks were also found in Feature 41 and these may have acted as supports for the planks or bark dividers. Distances between the "slash pits" are quite uniform, with 60cm separating the pits of the northernmost row, while distances between the southern members are either 60cm or 70cm. The individual "slash pits" of the western pair are both 60cm from linear end Feature 51. The southern row ranges from 1.1m to 1.2m from the house wall, while the northern row varies from 1.4m to 1.5m.

In contrast to the patterning along the southern wall, there is a single, not so regular alignment of features, some which could be classified as "slash pits", and others which morphologically are not "slash pits", but which are located in the "slash pit" line. Features 33 and 34 are notably larger than the other "slash pits" in House 3, being 60cm and 66cm respectively, and also are closer to the house wall, at 90cm. Features 30 and 32, and 31 to a lesser extent, are also in alignment with the north "slash pit" line; however, their surface plan and basin shape precludes them from being classified as "slash pits". They ranged from 80cm to 120cm in from the north wall, and were but a hair's breadth from each other. Furthermore, these features contained rocks which may suggest that while they do not resemble "slash pits", they may have served a similar function.

Internal Division Pits

Perpendicular to, and to the immediate northeast of Feature 3, the straight-sided, flat-bottomed Feature 4 may be a remnant of an internal living section division. Similarily, the large post mould, Post 68, which is 22cm in diameter and greater than 50cm in depth, and Feature 29 placed perpendicular to Feature 27 may have functioned similarily in the original, unexpanded structure. Feature 29 contained a rock toward the bottom, and in profile is is identical to Feature 4.

There were not, however, pairings for Feature 29 and Post 68 inside the north "slash pit" line, but the consistency in distance between these features may be more than coincidental.

Likely associated with the expansion of House 3 are two pits, 47 and 50, which may have served as internal division pits. This seems especially likely with Feature 50 which is located perpendicularly to, and 40cm south of the north "slash pit" line, half way between the last "slash pit", Feature 34, and the linear end Feature 51. Also, it is larger, shallower, and does not possess straight sides.

Hearths

Feature 26 is the only feature in House 3 which could be identified as a hearth, and it is but a small and extremely shallow example. Slightly closer to the north "slash pit" line, 1.8m as compared to 2.6m, the presence of a single, small hearth may be explained, although not convincingly, as a result of deep ploughing which disturbed the living floor. As other features do not, in depth, seem to have suffered from such a practice, it may be more probable that the hearths were either shallow, suggesting lack of intensive utilization and/or occupation of the house, or simply that there were no large hearths, perhaps suggesting that cooking, drying, and such other activities were done elsewhere, and heating of the house was unnecessary.

Remarks

Various features were found throughout the house whose function or relationships with other identifiable features were not discernable. Contents of these pits also do not present any diagnostic attributes. As far as artifact content of pits is concerned, only Feature 18, 29 and 39 contained quantities or varieties of artifacts which deserve mention. Generally, if the pits were not sterile, their yields of ceramics and lithics were low. Aside from 8 pieces of lithic detritus, Feature 18 produced an intact pipe bowl/ elbow (Figure 50:2). Feature 29 may not be notable for the variety of artifacts, but with 14 pieces of pottery (6 shell tempered) and 14 pieces of lithic detritus (1 Kettle Point), it is notable for its quantity. From Feature 39, 2 pieces of pottery, 3 of lithic detritus (1 Kettle Point), a projectile point, and a scraper were recovered.

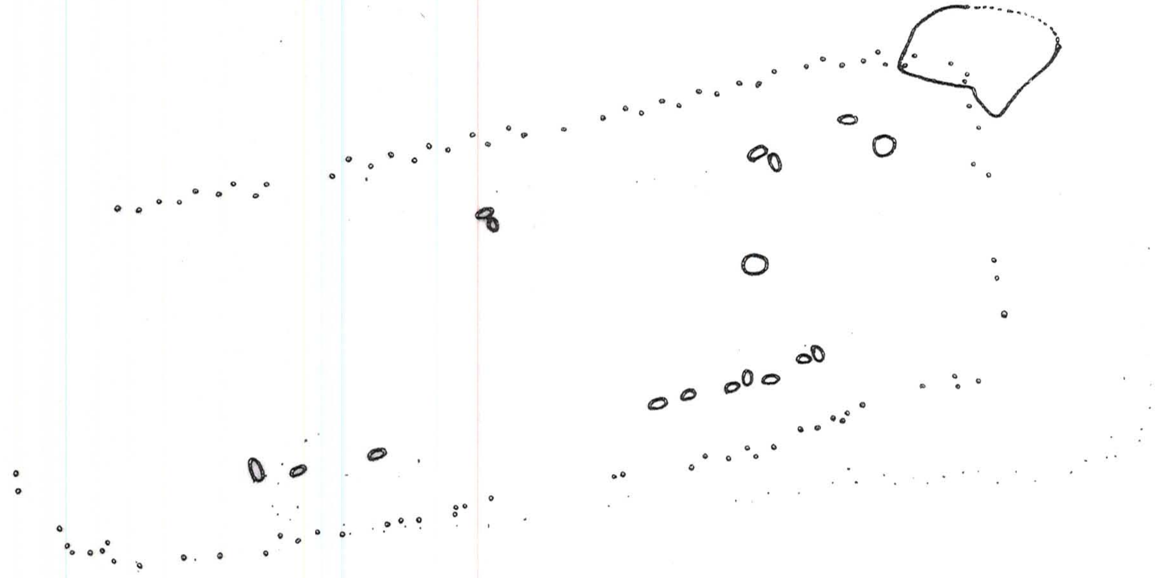
While not overwhelming, there are, however, several features of the artifact assemblage which deserve comment. The frequency of shell tempering in House 3 is 20.69%; however, shell tempered ceramics are restricted to Feature 29. Only House 1 has a higher frequency, but as was the case with House 1, the overall percentage is not reflective of the house as a whole in that shell tempered ceramics were concentrated in a single pit. Furthermore, the presence of 3 pieces of Kettle Point chert reflects incursions into, or results of contact with groups in southwestern Ontario or Michigan.

The relatively cluttered nature and irregularity of the post mould pattern indicative of reinforcement of the walls, as well as the addition of an end extension suggests occupation over an extended period of time. This seems to contradict the axiom that the quantity and size of hearths, and cluttered interiors indicate a long duration of occupation. By no means, however, does the clustering of posts approach that seen in House 1 walls. The presence of ash and fire reddened soil in Features 30, 32, 33 and 45, and posts along the north wall between the two sets of linear end features suggests rebuilding may have been necessitated, perhaps not too long after initial construction of the house. House 3 inhabitants may well have been dumping their ash and refuse into midden Area A, Pit 5. The similarity in frequencies of shell tempering for House 3 (20.69%) and Area A (19.03%) would tend to support such an association.

House 4E (Figures 10 and 12)

With the exception of the west central section and the northern portion of the western end, the house was

House 4W and Midden A1



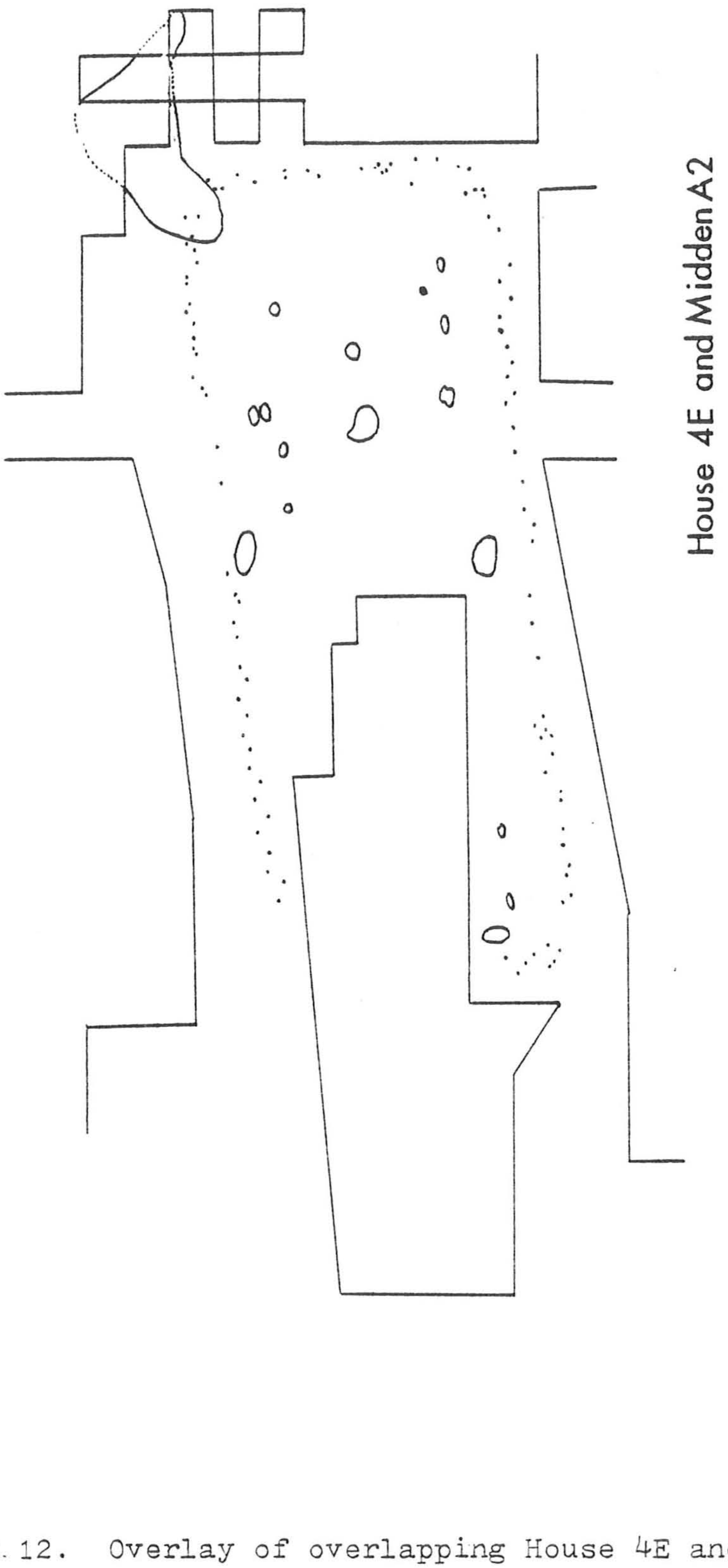


FIGURE 12. Overlay of overlapping House 4E and 4W.

excavated in its entirety. House 4E was 18.5m in length and 7.1m in width.

Ends and Doorways

The squared east end wall is well defined with several post mould clusters along the end and at the corners. There may be a doorway just south of the centre, approximately one metre in width. The west end is poorly defined in that during excavation it was not realized to be a separate end of an overlapping house. However, the abruptness at which the south wall seems to be turning suggests a square end. The gap between the last identified post mould and the edge of excavation may then have been a doorway, which was during excavation interpreted as the end of a random scatter of posts.

Interior Features and Divisions

Linear End Features and End Sections

No linear end features were identified in House 4E, and the proximity of "slash pits" to the end walls further suggests there were no end storage sections.

"Slash Pits" and "Slash Pit" Line Features

Features 7, 11, 12, 28 and 31, situated toward the ends of House 4E are all that appear to remain, or perhaps just as likely, existed, of a regularly spaced south "slash pit" line. The eastern three, 7, 11 and 12 are spaced 1.0m apart, while 28 and 31 are 1.4m apart. The reason for the

9.3m gap between Features 7 and 28 is not readily apparent. It may indicate that the "slash pit" line (raised platform) need not be continuous along the house wall, as suggested by Christine Dodd (personal communication 1980).

As previously mentioned, the south "slash pit" line continues almost to both ends, being 2.2m from the east end wall and 1.4m from the west end. The "slash pit" line is about 1.3m in from the south wall of House 4E.

A north "slash pit" line is not so readily defined. Features 3 and 6 resemble the matching "slash pits" found in House 3, being 5cm apart. Respectively, they are 90cm and 120cm inside the north house wall. The only other feature which could be classified as a "slash pit" is Feature 2, but being only 4cm deep and slightly out of alignment, may question its designation. Feature 22 has been associated with House 4E as a "slash pit" line feature only because of its alignment with Features 2,3 and 6.

Internal Division Pits

Post mould 37, with a diameter of 23cm and a depth of 36cm, located some 35cm north of, and midway between "slash pit" Features 11 and 12, and Feature 33, may have served as interior living section divisions along the south wall. Feature 4 has a similar position as Post 37 in relation to both end and side walls, at distances of 2.7m and 1.6m, respectively.

Feature 33 is but 70cm in from the west end wall, suggesting that storage was in some other structure or within the living section proper.

Hearths

Proceeding under the assumption that the larger hearths were centrally aligned, Features 8 and 13 are shallow hearths associated with House 4E. The respective edges of Feature 13 are then 3.0m from both the north and south walls.

Burials

Two infant interments were located in the House 4E-4W complex, but have, for various reasons, been identified as belonging to House 4E.

Parallel to, and 70cm in from the south wall, Feature 15 appears to be a part of this house. That three post moulds are intrusive into the greatly disturbed burial confirms the association with the initial House 4E. There was no articulation of human bone among the few fragments which consisted of phalanges, teeth, and some vertebral and innominate fragments.

Intentional grave inclusions were 92 small discoidal shell beads, 57 marginella (<u>Prunum apicinum</u>) shell beads, 4 tubular shell beads, 3 large discoidal shell beads, 2 globular shell beads, and four European glass beads; 3 of the IIa56 variety and a single IIIm1 type (Kidd and Kidd 1970), for a total of 162 beads (Figure 56:1-5, 61:4-5).

One strand of 43 discoidal shell beads was recovered in the southeast corner of the pit, but the rest, like the bone, were scattered throughout the pit. If the paucity of bone is any measure, there must have been many more inclusions which at the time of excavation were also missing, indicating the individual was afforded a lavish interment. Such treatment was also observed in certain of the interments at the Hood site where infants had been buried in the living section of the longhouse (Fitzgerald 1979a).

Aside from the posts within the burial, other forms of disturbance and refuse were present within the burial fill, including a small rodent skull, fish vertebrae, undiagnostic bone fragments, chipping detritus, pottery fragments, shell, and charred wood and corn. No burning on the human bone was apparent, suggesting the latter two inclusions may just be miscellaneous refuse, despite the fact that carbonized corn was included in large quantities in the House 10 Feature 36 burial at the Hood site, while lacking evidence of burning on the bone (Fitzgerald 1979a: 54). Feature 15, however, lacked the concentration seen in the Hood site burial.

The fragmentary nature of the skeletal remains made aging of the infant difficult, however, the pubis provided an approximate age of 6 months (Reynolds 1945:334), but it seems that this measurement underestimates the age of individuals as will be seen with burial Feature 25.

Directly across from Feature 15, parallel to, but only 5cm in from the north wall, was the other burial, Feature 25. Again, its orientation would suggest it belonged to the earlier house in that it would be in the "slash pit" line of House 4W. This burial, in contrast to Feature 15, was a complete extended skeleton lying on its back, hands to the sides, and with the head directed toward the west. With the exception of a IIa13 glass bead fragment (Kidd and Kidd 1970) (Figure 61:7), in the top of the burial fill, grave inclusions were absent. Age estimates ranged from 3 months to 14 months with the majority of estimates in the 6 month to 12 month range. Basilar, pubis and ischium lengths produced age estimates of between 3 months and 6 months, ilium length 6 months to 9 months, sciatic notch breadth 12 months, and ilium breadth 12 months plus (Reynolds 1945: 334, Redfield 1970:215,216). Longbone estimates were not as precise as the other indicators, simply giving a range for all longbones as 6 months to 18 months (Johnston 1965:251). Dentition was fragmentary, but the unerupted right maxillary canine and molars suggest an age of less than 11 months (Anderson 1962:138) or between 6 months and 15 months (Sundick 1972:31).

If the model derived for burial types from the Hood site has any validity, this burial would then be of a temporary nature (Fitzgerald 1979a).

Remarks

Generally, the house walls are uncluttered, presenting a regular offset post mould pattern, and the relative lack of non-structural features and shallow hearths suggests a short period of occupation for House 4E. A possible reason for this may be that an abundance of posts from the house walls are filled with ash or fire reddened soil, indicating that fire may have destroyed the structure. Such apparent complete destruction of the house resulted in the construction of another, House 4W, over but on a slightly different alignment than the initial structure.

Notable is the relatively high percentage of shell tempered pottery recovered from House 4E, 20.41%. Otherwise, and aside from the artifacts in Feature 15, pit contents were few and of a nondescript nature, either being ceramic fragments or lithic detritus.

House 4W (Figures 11 and 12)

All but the northwest quadrant of the 20.5m by 7.2m house was excavated.

Ends and Doorways

As with its precursor, House 4W exhibits squared eastern and western ends. There are several wide gaps in the eastern end wall but there seems to be a central space defined on both sides by several posts which are 1.5m apart.

Such a central doorway was also observed in the eastern end of House 4E. Also, House 4W seems to follow the pattern set by House 4E in having a one metre wide doorway at the west end toward the southwestern corner.

Interior Features and Divisions

Linear End Features and End Sections

As with House 4E, linear end features are absent at both ends, however, "slash pits" and interior division pits do not continue to the end walls, apparently in this case allowing space for end storage sections. If Features 9 and 23 demarcate the boundary between living and storage space in the east end, and Feature 32 serves the same function in the west end, then end storage sections are both four metres in length.

"Slash Pits" and "Slash Pit" Line Features

Almost identical to the south slash pit line of House 4E, the corresponding line seen in House 4W is quite regular at either end. There is, however, a 4.9m space toward the centre where no "slash pits" were identified. The "slash pit" line runs parallel to the south wall with individual pits at distances of 1.2m and 1.3m. As were Features 28 and 31 in the House 4E "slash pit" line, the corresponding west end "slash pits" of House 4W are 1.4m apart. However, the respective distances between the eastern five "slash pits"; 10, 19, 17, 16 and 20, are 50cm, 50cm, 60cm and 30cm, a much closer placement than that of eastern "slash pits" from the south line of House 4E.

As with the south "slash pit" line, there is a notable separation, 5.3m, between the two features which could be classified as "slash pits", Features 24 and 27, even though the latter does not possess the straight-side, flat-bottom profile. Their respective distances from the north house wall are 1.3m and 1.2m. The shallowness, non-alignment, and location in the proposed end section has precluded Feature 1 from being considered as a "slash pit".

Internal Division Pits

Features 9 and 18 are both perpendicularly placed to the immediate east of "slash pits" 10 and 17 respectively, and possess "slash pit" attributes. Along the north "slash pit" line, Feature 23 appears to be the match for Feature 9. The pair, as mentioned previously, demarcate the living/storage boundary in the absence of linear end features. Feature 26 is also placed at right angles to, and along the long side of "slash pit" Feature 27 instead of at its corner as was the relationship between the three previously mentioned internal division pits and their associated "slash pits". Both north line division pits also possessed the attributes of "slash pits".

The sequence of "slash pits" 28 and 31 in combination with interior division pit 33 in the southwest corner of

House 4E is identically reconstructed in House 4W, where Feature 32 is located 60cm west and 5cm north of, and perpendicular to Feature 30. Feature 32, however, in comparison with Feature 33, resembles more closely the "slash pits".

Hearths

Feature 20 can be associated with House 4W if for no other reason that its edges are located equidistantly at 3.3m from both side walls. Toward the northeast corner in the end section is an additional hearth which probably belonged to House 4W.

Remarks

The walls for House 4W are similarly uncluttered, if not moreso, than those of House 4E, and the relatively sterile end and living sections of the house suggest less intensive occupation than, for example, House 1.

Of interest, along the north wall the majority of posts contained ash fill. This line of evidence was given for House 4E as suggestive of the house having been destroyed by fire. However, such fill was restricted to the north wall, whereas in House 4E posts from all sections of the house contained ash or fire reddened soil, perhaps further confirming that House 4E preceded House 4W. If the north wall of House 4W was burned, it does not appear to have been rebuilt, as the regular, offset post mould pattern has not been altered.

As mentioned previously, artifact recoveries from House 4W were minimal. Features 30 and 32 contained the only significant quantities with 24 pieces of pottery in the former, and 56 pieces of pottery and a pipe stem fragment in the latter. While House 4E had a shell tempered ceramic frequency of 20.41%, House 4W had but 4.00% of its ceramics tempered with shell.

House 5 (Figure 10)

The end walls, portions of the side walls, and a 1.7m trench toward the eastern end of the house is the extent excavated in House 5. Consequently, little can be said concerning the internal structuring of this 28.5m by 7.0m house.

Ends and Doorways

The eastern end is a well defined rounded end with a 1.4m gap toward the centre which is likely a doorway. Conversely, the west end wall is essentially a single row of posts forming a squared end. A possible doorway for this end is located toward the southwest corner and is 80cm wide.

Interior Features and Divisions

The small amount excavated in House 5 precludes any substantive comments on the interior arrangement and distribution of structural features and hearths. Feature 1 may be a "slash pit" at 1.3m inside of the north wall, and Feature 2 may be a "slash pit" line feature 1.2m in from the south wall.

Remarks

From what can be seen from the west end at least, there does not appear to be an abundance of posts, particularly along the western end of the north wall where there is but a single offset row. Greater clusterings are evident toward the northeast where additional posts seem to have been set up to replace those which had evidently burned. Ash and fire reddened soil filled posts are restricted to this section of the house, a result perhaps related to the events of adjacent House 4E.

The abundance of posts in the 1.7m trench may substantiate the contention that House 5 was occupied over a relatively long period of time. No artifacts were recovered from the features which were excavated.

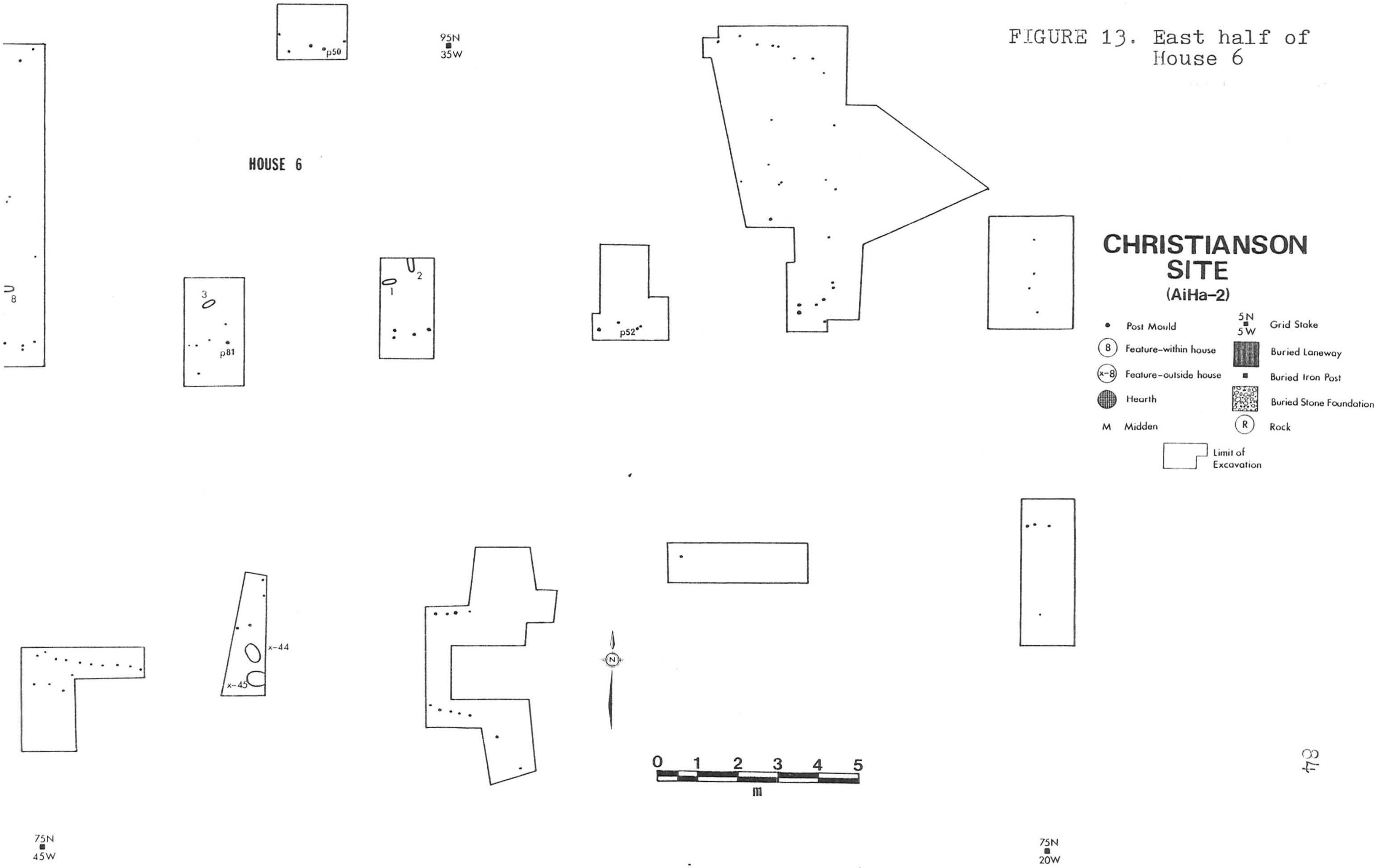
House 6 (Figures 5 and 13)

End walls, sections of the side walls, and a 5m by 7m section of the central portion of the 44.5m by 7.5m house were investigated.

Ends and Doorways

The curvature of the walls indicate an abrupt end,

FIGURE 13. East half of House 6



and despite spacing of approximately one metre between posts, a square eastern end is present. A similar situation exists for the west end where the side walls begin to turn but where the actual end is poorly defined. With such sketchy ends, doorways could not be located.

Interior Features and Divisions

Linear End Features and End Sections

Not enough of the ends of House 6 were excavated to identify linear end features, or to comment on the nature of the end sections. A portion of the northeast corner was excavated, but aside from several post moulds, no features were identified.

"Slash Pits" and "Slash Pit" Line Features

In the centrally excavated section, matching north and south "slash pit" lines were identified; Features 4, 5, 6, and 8 along the south wall, and corresponding to these along the north wall, Features 10, 11, 13, and 15. This is the only instance where such a symmetrical pattern was observed in the Christianson houses.

Distances between south "slash pits" ranged from 80cm to 100cm, while being 100cm to 120cm from the south wall. All possessed "slash pit" attributes. The south "slash pit" line was identified in squares to the east, where Features 1 and 3 were 110cm and 90cm respectively in from the south wall.

The four corresponding "slash pits", from 1.2m to 1.3m inside the north wall, were also consistently spaced from 80cm to 90cm apart.

Internal Division Pits

Equally symmetrical are Features 7 and 14, parallel to and inset by 10cm from the "slash pit" lines. Both are located midway between two "slash pits" and have straight sides and flat bottoms.

Immediately southeast of Feature 10, a perpendicularly placed basin-shaped Feature 9 may have served a similar function. There is not, however, a corresponding feature inside the south "slash pit" line. Features 9 and 14 are separated by 2.8m which may define a group's living section. Toward the eastern end of the south wall a similar, but not such an adjacent arrangement as between Features 9 and 10 is seen between Features 1 and 2. Feature 2, however, resembles the "slash pits" in profile moreso than does Feature 9.

Hearths

No hearths appeared in the excavated five metre section.

Remarks

The uncluttered nature of the small portion of the house interior that was excavated also characterized the post mould pattern for many of the house wall areas. House

6, with its bare structural essentials, moreso than any of the other houses with the possible exception of House 7, indicates short term, or at least non-intensive occupation. In sections of the walls where the offset pattern of post moulds has been added to, or where it is non-existent, post mould fill consisted of ash and fire reddened soil indicative to some degree of burning of the structure. Such fill is predominant toward the western end and along the south wall.

The contents of "slash pit" Feature 6 are notable in that the four pieces of Onondaga chert are exceedingly large, weighing up to 59.87gm individually. Other than that, artifactual recoveries were limited, consisting primarily of low frequencies of ceramic fragments and lithic detritus.

House 7 (Figure 5)

The house walls were excavated almost in their entirety. Only a small section, however, was investigated to ascertain its nature.

Ends and Doorways

Both ends are sketchy but square, and it was only the cessation of side wall patterns and indicators of their turning that indicated end walls were present. The great spacing between end wall posts, as with House 6, would allow identification of end walls almost anywhere.

Interior Features and Divisions

The limited excavation of the house interior was directed at obtaining a cross section of features across the centre of the house. A line of three "slash pits" regularly spaced 1.2m to 1.3m apart, parallel to, and 1.2m in from the south wall, and several centrally aligned interior posts were the extent of features identified in the section of the interior investigated. No hearths were present even though a span of nearly four metres was excavated along the central axis.

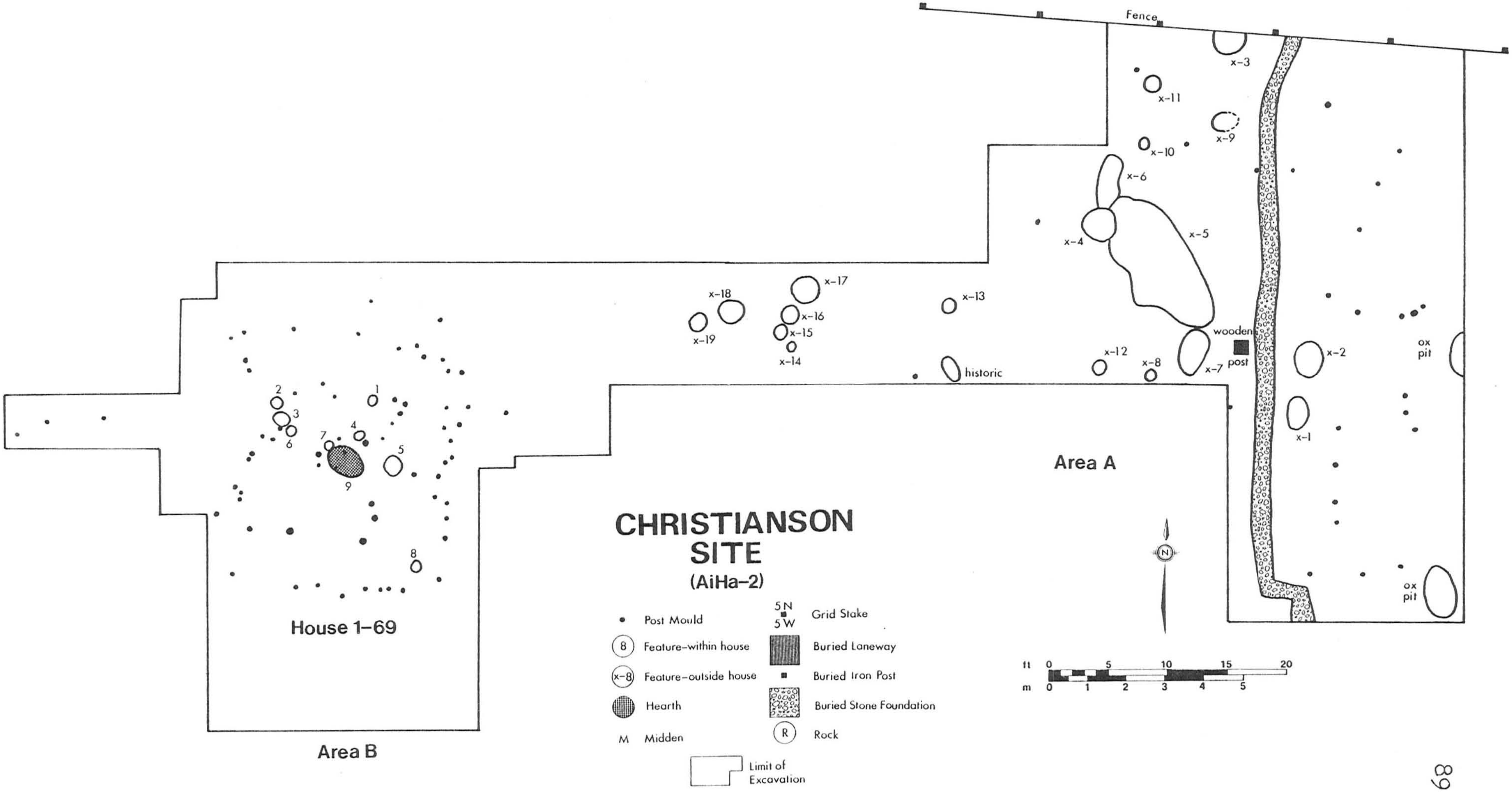
Remarks

The side walls lack a clear offset pattern of post moulds. A general cluttering of posts suggests the addition of reinforcing posts, however, the relatively sterile interior and poorly defined ends are not suggestive of ling term occupation. Aside from a bone bead in Feature 1, there were no artifacts recovered from the pits or posts of House 7.

House 1-69 (Figure 14)

Excavated in 1969, this type of structure, while the first of its kind to be identified on an historic Neutral site, has since been observed at the Walker (Wright 1977) and Hood (Lennox 1978) sites. Not only does House 1-69

FIGURE 14. 1969 excavation area.



differ in size from the houses excavated in 1979, its wall pattern and internal organization are also dissimilar.

> "Nearly square, 20 ft. N-S by 19 ft. E-W, the Christianson house is bounded by a single staggered line of closely-spaced pickets averaging 2 to 3 in. thick. An entranceway is not clearly demarcated; poor preservation of post moulds, particularly along the west wall, inhibits such identification.
>
> Within the structure a single hearth 3.5 ft. wide is centrally positioned. It is ringed on the north side by a series of small 1.5 to 2 in. thick posts, presumably used during cooking activities. Other post moulds appear to form a single interior line running 5 ft. out an parallel to the east wall of the house structure. It seems probable that this interior post line served to support upraised sleeping platforms. Additional posts are more randomly distributed throughout the house.
>
> Seven small circular pits lie entirely within the north half of the structure. Averaging between 10 to 18 in. in diameter, they produced scant refuse of habitation nature only- broken bone and fragmented pottery.
>
> ...The central hearth and the presence of internal bunk posts at Christianson, however, is common to many historic and prehistoric Iroquois longhouses (Noble 1970:14)".

Longhouse Summary

While the Neutral longhouses share many standardized features, and the descriptions of the Christianson site structures bears this out, there is a variety within the pattern that deserves brief discussion.

Length and Width

Lengths are quite variable, ranging from 16.5m to 44.5m, while widths tend to be rather consistent between 7.0m and 7.8m, with a mean of 7.34m. Length obviously is a function of population requirement (Trigger 1976:116), whereas the width would be determined more on structural limitations. Not all Neutral structures were longhouses, as small, nearly square cabins have been identified at the Christianson, Walker, and Hood sites.

Post Mould Patterns

Within the Christianson longhouses, wall patterning ranges from regular offset patterning through cluttered, apparently random distributions. It would appear that an irregular pattern cannot be inferred to be exclusively a result of structural reinforcement over an extended period of occupation. Rather, variability in quality of wall construction, regardless of the age of the structure, seems to be the norm. End walls also vary in shape from square, to tapered to rounded, and doorways may occur either centrally or offset to one corner of the end walls (Noble, personal communication:1981). The tapered ends observed at the Thorold site (Noble 1980a) may indicate regional variations of longhouse construction within Neutralia, a contention which would tend to be supported by the limited distribution of certain other structural features such as "slash pits".

Interior Longhouse Organization

A division between living and storage sections of the longhouse defined by linear end features, while frequently observed, is not always present at both ends. In some houses they are completely absent. That raised platforms were used for storage may have alleviated the need for having end storage sections, such as in House 4E. If "slash pits" are remnants of raised platforms, the absence of continuous "slash pit" lines may not any longer be blamed on poor soil conditions or lack of visual acuity by the excavators. With the ethnohistoric sources stating that they were not used exclusively for sleeping, their presence along the entire length of the house walls may not have always been deemed necessary. When clusters of "slash pits" do occur along various sections of the longhouse wall, it may likely be that the platforms were located only along certain stretches of the house wall. Where the pattern appears to be continuous, as in Houses 6 and 7, and which the reports that such platforms were also used as vantage points in ceremonies and meetings, the function of certain structures may be inferred. House 6, for instance, exhibits such a regular pattern, and is notably larger than any other structure on the site. In addition it is outside of the village proper, and is essentially devoid of any indicators of intensive occupation. It may not be inconceivable that House 6 served some other function than a residence. That the larger houses of the village were used for large gatherings is documented (Thwaites 1896-1901 x:181, 233, xiii:59, xv:173, Wrong 1939:115, 149), and the presence of continuous raised platforms along both walls could provide ample vantage points for the villagers.

Within the living portion of the longhouse, further spatial divisions are now being recognized. The consistency of a variety of features in from the "slash pit" line appear to compartmentalize the interior into what may be personal or family cubicles. Also consistent are the sizes of the compartments, ranging from 3.00m to 5.25m with a mean of 4.18m.

CHAPTER 3

POTTERY

Ceramics constitute, as they do on all Iroquoian sites, a substantial portion of the assemblage. A correspondingly high percentage of the ceramics are fragments from various sections of pots, while the remainder comprise the pipe assemblage (Table 15).

TABLE 15. Christianson site ceramics.

Item	Grit temper N	Grit temper %	Shell temper N	Shell temper %	TOTALS N
Pottery					
Body sherds	4360	84.17	820	15.83	5180
Rim sherds	769	86.70	118	13.30	887
Neck sherds	537	89.95	60	10.05	597
Shoulder sherds	270	85.17	47	14.73	317
Castellations	37	97.37	1	2.63	38
Handles (separate)	4	50.00	4	50.00	8
Juvenile vessels	11	100.00	0	0.00	11
Ceramic pipes and fragments	152	98.70	2	1.30	154
Ceramic waste	1	100.00	0	0.00	1
TOTALS	6141	85.37	1052	14.63	7193

Temper

Grit, in the form of quartz, feldspar and mica particles, was used to temper the paste of 85.37% of the entire ceramic sample, the remaining 14.63% being shell. Generally, protohistoric and historic Neutral sites produce shell tempering frequencies of less than 5%. A group of sites in the region of the headwaters of the Spencer and Bronte creeks do, however, produce frequencies ranging between 25% and 75% (Kenyon 1972:4). The incidence of shell tempered ceramics on more southerly and easterly sites such as Fonger, Walker, and Thorold, approximately 3% (Warrick 1979a:14), 3.8% (Wright 1977:90), and 1.1% (Noble 1980a:52) respectively, and the Spencer-Bronte drainage sites, Christianson, 14.63%; Bogle I, 16%; Hood, 26%; Bogle II, 64%; and Hamilton, 64%, substantiates Kenyon's observation that there are regional differences in Neutralia (Table 16). While there is an increase in shell tempering in the Spencer-Bronte drainage area from the late protohistoric onward, there does not appear to be a corresponding increase within the other areas of Neutralia. That the late prehistoric ancestral Neutral Lawson and Southwold sites in southwestern Ontario are devoid of shell tempered ware (Robert Pearce and David Smith, personal communication:1980) lends credibility to the contention that shell tempering appears during the protohistoric, but reaches high concentration only on the more northerly historic Neutral sites after _ca_. 1615.

TABLE 16. Frequencies of shell tempered ceramics from seven protohistoric and historic Neutral sites.

Spencer-Bronte drainage sites		
Hamilton	ca. 1638-1651	64%*
Bogle II	ca. 1638-1651	64%**
Hood	ca. 1630-1641	26%***
Bogle I	ca. 1630-1641	16%**
Christianson	ca. 1615	15%
Central and southern cluster sites		
Walker	ca. 1626-1640	4%****
Thorold	ca. 1615-1630	1%*****
Fonger	ca. 1580-1600 1600-1610	3%******

* Lennox 1977a:188
** Lennox, personal communication:1980
*** Lennox 1978:97
**** Wright 1977:90
***** Noble 1980a:52
****** Warrick 1979a:14

The source of this item of ceramic technology cannot confidently be identified, however, a perusal of the ethnohistoric sources and recent archaeological investigations in northeastern Ohio (Tucker 1980) may provide some insight. While among the Cheveux relevés in 1616, Champlain noted that the Neutral were at war with the Fire Nation (Biggar 1922-1936 iii:97), who have variously been identified as the Potawatami and Mascouten (Hunt 1940:107). On the other hand, it may be that the designation Fire Nation simply refers to the various Algonkian-speaking groups of the Michigan peninsula who were considered as a single ethnic group because of language similarity (Brose 1971:57-58, Trigger 1976:319). Goddard (1978:671) discounts the contention that the Fire Nation were Potawatami and also that the designation used by the French referred to any group of unidentified Algonkians to the west. Rather, the Fire Nation appears to be the poorly known Mascouten who, during the first half of the 17th century probably occupied the southwestern quadrant of the Lower Peninsula of Michigan, but due to increased hostilities from Iroquoian groups moved to the west of Lake Michigan (Goddard 1978:668). Archaeologically the Fire Nation may be represented by the Dumaw Creek culture of western Michigan (Quimby 1966:89).

Jerome Lalemant, in 1641 and 1643, reported that the Neutral were continually warring with western nations and particularly the Fire Nation. In 1640, 1641, and 1643 increased hostilities resulted in the return of 100, 170+, and 800 Fire Nation men, women, and children to Neutralia (Thwaites 1896-1901 xxi:195, xxvii:25). While these figures may be inaccurate, they suggest a trend towards numerous and intensive attacks against the groups in Michigan, particularly during the 1630's and 1640's. Perhaps more than coincidental, and perhaps mirroring the increased number of prisoners, among them women who were presumably potters, is the increase in shell tempered ceramics observed on Spencer-Bronte drainage sites from ca. 1615, which was the time when Champlain first noted hostilities, to the time of the Neutral dispersal ca. 1651, which includes the period when more than 1000 Fire Nation captives were brought back to Neutralia. That the Spencer-Bronte drainage cluster of sites has unusually high frequencies of shell tempering suggests that it may not have been the entire Neutral confederacy, or chiefdom (Noble 1980a:43), but only the northern tribe, or tribes, which were allied with the *Cheveux relevés* and Petun against the Fire Nation. Despite Daillon's report that the Neutral were unified under a single war leader, Souharissen (Sagard 1866:802), archaeologically, such a homogeneity as may be expected from such a political system, does not appear to be the case, especially if shell tempering can be attributable to Fire Nation captives. If the attacks were a concerted effort on the part of all Neutral tribes, foreign artifact attributes would be expected on all Neutral sites and not just the more northerly ones. What would appear to be a more plausible reconstruction is that the group, or groups, of Neutrals who were adjacent to the Petun and *Cheveux relevés*, that is, the Spencer-Bronte drainage group, undertook the offensive against the Fire Nation, knowing that they had the backing of the rest of the Neutral tribes should the need arise. If such were the scenario, then the time depth of these particular hostilities probably did not extend back much further than the arrival of Europeans in southern Ontario. This is consistent with the increase in shell tempering from the late protohistoric onward (Table 17). Hostilities between

TABLE 17. Chronological sequence of Spencer-Bronte drainage sites and Neutral-Fire Nations contacts.

Spencer-Bronte drainage site	Event	Date	Percentage of shell temper
Christianson		*ca.* 1615	14.6
	Champlain reports raids	1616	
	Sagard reports raids*	1623	
Hood		*ca.* 1630-1641	26.0
	100 Fire Nation captives	1640	
	170+ Fire Nation captives	1641	
	800 Fire Nation captives	1643	
Hamilton		*ca.* 1638-1651	64.0

*Wrong 1939:158

Michigan groups and ancestral Neutrals in southwestern Ontario appear to have been likely, and it may be that the Spencer-Bronte drainage historic Neutral were the descendents of the southwestern Ontario Neutrals who were driven away from the area by the intensity of conflicts, and/or attracted by the developing European fur trade to their historic location. Now, exercising more political clout as a result of their position in the developed Neutral confederacy, or chiefdom, this group could renew their traditional battles to gain access to the potentially valuable hunting grounds in their prehistoric homeland. All of the above arguments hinge upon the assumption that the shell tempering present on the Spencer-Bronte drainage sites, and its increase over time is attributable to captive Fire Nation potters.

Experimentation with shell as a tempering material was initiated around A.D. 800 in the Mississippi Valley (Stimmell 1978:1). Shell tempering first appeared in Michigan around A.D. 1000 and persisted into the historic period (Bettarel and Smith 1973:51). Southern Michigan during the early 17th century was by no means the only area in the lower Great Lakes region producing shell tempered pottery, as it has been found on Whittlesey Focus and Fort Ancient Aspect sites in Ohio (Bettarel and Smith 1973, Brose 1976), Chautauqua Phase sites in southwestern New

York (Schock 1976), and Monongahela Complex sites in Pennsylvnia and Ohio (Brose 1976). Attributes associated with shell tempering on Neutral sites, such as decorative appliqué strips and strap handles on necks; corded, dentate stamp and punctuate stamp decorative techniques on rim, neck and shoulder exteriors; large triangular plat motifs on exterior rim surfaces; and podial feet (Lennox 1977b), do, however, appear to be restricted to Berrien Phase ceramics in southern Michigan (Bettarel and Smith 1973), some Whittlesey Focus sites (Brose 1976:38), and some Madisonville Focus sites of the Fort Ancient Aspect (Griffin 1943), and most notably at the protohistoric (ca. 1610) Indian Hills site in northeastern Ohio (Tucker 1980). That assemblage consists exclusively of shell tempered ceramics with decorative motifs and techniques identical to those observed in the shell tempered assemblages from Spencer-Bronte drainage sites. The correspondence of ethnohistoric documentation with archaeological evidence would suggest that the increasing occurrence of shell tempered ceramics on the northern cluster of sites after ca.1615 is a manifestation of the influx of foreign potters which arrived in Neutralia as a result of attacks against the Fire Nation.

Vessel Construction and Surface Treatment Techniques

No body sherds from the Christianson site showed evidence of having been manufactured by the coiling method. Rather, the paddle and anvil technique described by Sagard as the Huron method of construction appears to have been used (Wrong 1939:260). The nature of the paddle surface can be inferred from impressions which are frequently observed on vessel exteriors. Two paddle types are identifiable; corded, and ribbed. A third treatment, plain, may be a paddle type or the plain exterior exhibited on many sherds may simply be the result of purposeful obliteration of corded or ribbed paddle treatments. Where corded and ribbed surfaces are present, the former surface treatment technique is expressed to various degrees which have been differentiated as to whether the initial corded surface had been left unaltered or had been modified through smoothing. Consequently, the four surface treatments which were identified were: 1. plain, 2. cord roughened, 3. smoothed-over cord, and 4. ribbed paddled.

While the material used on the corded paddles can readily be identified as various forms of cord, the parallel grooves characteristic of ribbed paddling may have been produced not only with a grooved paddle as commonly thought, but perhaps also by a thong-wrapped paddle (Wright 1966:30). The purpose for wrapping or grooving a paddle is likely to provide an interrupted surface which would decrease the degree to which the paddle would adhere to the vessel during manufacture. Sidoroff (1979:5) has suggested that a roughened surface with its increased area will aid in the diffusion of heat if the pot was used for cooking.

In classifying a surface treatment as either cord roughened or smoothed-over, it had to be determined whether smoothing was intentional treatment of the initially cord roughened surface, or whether smoothing resulted from handling after the vessel had been fired. Aside from subjectivity, a further complication that arises if the incidences of the two treatments are to be used for comparative purposes is that on some body sherds unmodified and smoothed cord surfaces were simultaneously observed.

A difference between the analysis of the Christianson site ceramics and that undertaken by Lennox (1977a, 1978) for the Hamilton and Hood sites, concerns the classification of surface treatment as either decorative or technological. In this analysis, cord roughening, smoothed-over, and ribbed paddling will be considered as surface treatments, whereas Lennox classed them as decoration when found on rim sherds. As will be seen, there is a strong association between the presence of corded and ribbed surface treatment and shell tempering. There may be a technological reason for using such paddles on shell tempered vessels, rather than on grit tempered ones. Consequently, when comparisons are made between Christianson, and Hamilton and Hood, percentages of plain surface treatments and decorations will include paddled occurrences. This will involve the recalculation of frequencies in Lennox (1977a, 1978).

Decorative Techniques

A variety of decorative techniques were observed on ceramics from the Christianson site. The motor habits used can be divided into those which involve the dragging of an implement along the surface, those which involve pushing it into the surface, and those which combined both dragging and pushing motions. Classification of decorative techniques is largely a subjective undertaking and this analysis will be no exception. However, a presentation of various investigators' definitons of the techniques may clarify some biases. One archaeologist's incising may be another's trailing. Comparative statements regarding decorative techniques must be evaluated in that light.

Dragging Techniques

Incising

This technique involves the dragging of a pointed instrument such as a bone awl through the clay producing a relatively deep and narrow V-shaped incision (Emerson 1967: 156, Wintemberg 1972:47, Wright 1972:94, Ramsden 1977:92).

Trailing

Unlike incising, trailing involves the drawing of a blunt point or corner of a wooden, bone, or antler implement across the wet surface, producing wide, continuous, and somewhat rounded grooves which do not penetrate as deep as the incised lines (Emerson 1967:157, Wintemberg 1972:46, Finlayson 1977:96). Noble (1968:159) defines trailed lines as those which are greater than 1.5mm in width. As a result of this dragging technique, small amounts of clay tend to accumulate along the edges of the trailing (Emerson 1967:157).

Wright and Anderson (1969:33) consider trailing as simply a form of incising which is dragged across, rather than cut into the clay, while Noble (1968:159) believes that trailing is a later development out of the incising technique. Finlayson (1977:96) uses the term "trailing", while Ramsden (1977:92) uses "incising" to encompass both forms of the dragging technique. The differing means of technique designation must be taken into consideration when inter-site comparisons are to be attempted, particularly when analyses were undertaken by investigators employing differing terminologies. In the following analysis, incising and trailing will be differentiated, with the latter characterized by wider, flat-bottomed grooves, compared to the V-shaped profile produced by incising.

Impression Techniques

Also referred to as stamping, impression includes a variety of techniques. In the Christianson site sample, four impression techniques were identified: 1. linear, 2. punctated, 3. dentate, and 4. notching. As a technique, it involves the impressing of an edge or end of variously shaped tools, usually perpendicualr to the vessel surface and without any secondary movement, but not uncommonly at differing angles to produce numerous variants (Emerson 1967: 158, Wright and Anderson 1969:31, Finlayson 1977:98). The repetition of minute irregularities on the tool surface in the separate impressions, when visible, characterizes the technique (Lennox 1977a:79).

Linear Impression

The impressing end of the instrument used for this method tend to be relatively long and thin, and generally smooth-edged (Wright and Anderson 1969:31, Finlayson 1977: 95). Wright (1972:94) classifies an impression as linear if the length is three or more times greater than the width. In this analysis, such a rigid definition was not adhered to; rather an impression was classified as linear if it tended to be longer than it was wide, and if it was a relatively smooth and shallow basin.

Punctate

The motor ability involved in this technique does not differ from that used with linear impression. They differ morphologically rather than functionally, tending to be either circular or angular in shape (Wright 1972:94, Finlayson 1977:95). The angular shapes result from the oblique impressing of a square-ended instrument.

Dentate Stamp

An instrument with closely spaced teeth, or notches, was used to produce a variety of generally square or rectangular impressions. Variants of these shapes were produced by implanting the tool at differing angles (Wright and Anderson 1969:37).

Notching

This technique tends to be restricted to areas of the vessel which protrude, such as the lip or base of the collar. It involves the impressing of the edge of a tool into the clay (Emerson 1967:157).

Combinations of Techniques

Push-pull was the only technique observed in the Christianson ceramic assemblage which combined dragging and impressing. It was produced by dragging a pointed or blunt instrument while simultaneously impressing it forward in a rhythmic fashion in the opposite direction from the dragging motion (Wright and Anderson 1969:29).

Body Sherds

Temper

A total of 5180 body sherds were analysed for the purpose of ascertaining the grit:shell tempering ratio. Grit tempering predominates at 84.17% compared to 15.83% for shell tempering (Table 15).This is in contrast to Walker, where shell is far less common (3.8%), and also to Hood and Hamilton where it is more so (26.9% and 69.0%, respectively) (Wright 1977:90, Lennox 1978:99, Lennox 1977a:64).

Vessel Form and Decoration

Of the 5180 body sherds examined, 4127 possessed external surfaces which, with the exception of ten grit tempered specimens, exhibited curvatures characteristic of globular-shaped vessels. Body curvature of the other ten sherds was acutely angled, indicating the presence of flat-bottomed vessels, a feature found in similarily small frequencies at the Hamilton, Hood, and Walker sites (Lennox 1977a:65, 1978:98, Wright 1977:89). All but one of the angular sherds were decorated by the trailing method in combinations of oblique, horizontal, or vertical linear motifs. The exception was a specimen exhibiting truncated semi-circular curvilinear designs reminiscent of some Upper Mississippian Fort Ancient motifs. Five additional grit tempered body sherds decorated by trailing may also belong to flat-bottomed vessels. It would appear then, that this type of vessel differs from the larger globular pots not only in size but also in temper and decoration.

Red pigment on the interior of nine body sherds, six grit tempered and three shell tempered, was probably not a decorative element. It has been suggested that these pottery fragments were used as paint dishes or palettes (Wintemberg 1972:41, Lennox 1977a:69).

Surface Treatment, Temper, and Thickness

The Christianson site body sherds display a notable correlation between tempering material and surface treatment (Table 18). While 80.72% of the grit tempered sherds were plain, only 6.79% of those tempered with shell had a plain surface treatment. A correspondingly high percentage of shell tempered sherds had been treated during manufacture with cord wrapped paddle, 60.61% being smoothed-over cord and 31.92% being left in the cord roughened state. Similarily, low percentages of smoothed-over cord and cord roughened treatment were present on grit tempered body sherds; 15.23% and 2.01% respectively. Ribbed paddle surface treatment was afforded relatively low frequencies on both grit and shell tempered sherds, being 2.04% and 0.68% respectively. Overall, it would appear that surface treatment was strongly influenced by the type of temper. This pattern is also seen at the Hood, Hamilton and Walker sites (Table 19), but the dichotomy is not as pronounced as at the Christianson site.

A further correspondence is seen between tempering material and thickness of body sherds. Grit tempered sherds

TABLE 18. Body sherd surface treatment, temper and thickness.

		Plain	Smoothed-over cord	Cord roughened	Ribbed paddle	TOTALS
No.	Grit	2856	539	71	72	3538
	Shell	40	357	188	4	589
%	Grit	80.72	15.23	2.01	2.04	100.00
	Shell	6.79	60.61	31.92	.68	100.00
Total	Sample					
	No.	2896	896	259	76	4127
	%	70.17	21.71	6.28	1.84	100.00
Thickness(mm)						
r	Grit	3-19	2-14	2-10	3-11	3-19
	Shell	3-10	3-13	3-9	4-6	3-13
x	Grit	6.77	6.14	5.35	6.60	6.65
	Shell	6.32	5.87	5.98	5.00	5.93

which are plain or whose surface possesses smoothed-over cording or ribbed paddling are on the average at least 0.45mm thicker than corresponding shell tempered sherds (Table 20). Surprisingly, and perhaps the result of a relatively small sample size, the grit tempered cord roughened body sherds average 0.63mm thinner than those which are shell tempered. The Hamilton site is the only other historic Neutral site with metrics on cord roughened body sherds, and the pattern of thicker grit tempered specimens is present. Similarily, grit tempered wares, regardless of surface treatment, also

TABLE 19. Body sherd temper percentages and surface treatments from four historic Neutral sites.

	Plain	Smoothed-over cord	Cord roughened	Ribbed paddle	TOTALS (N)
Christianson					
Grit	80.7	15.2	2.0	2.0	3538
Shell	6.8	60.6	31.9	0.7	589
Hood*					
Grit	50.8	35.8	5.0	8.4	946
Shell	19.8	40.4	20.3	19.5	349
Hamilton**					
Grit	39.8	31.5	17.8	10.8	1358
Shell	9.3	53.5	29.2	8.0	2093
Walker***					
Grit	91.9	5.2	0.0	2.9	2183
Shell	70.2	15.5	0.0	14.3	84

* Lennox 1978:99
** Lennox 1977a:68
*** Wright 1977:91

tend to be notably thicker than shell tempered ware on both the Hamilton and Walker sites where metrics are available (Table 20). The great difference between grit and shell tempered cord roughened body sherds at the Christianson site then is likely statistical rather than cultural, due to sample size, as the predominance of thicker grit tempered ware is manifested for the other

TABLE 20. Body sherd temper, surface treatment, and mean thickness from three historic Neutral sites.

	Christianson		Hamilton*		Walker***	
	G (mm)	S	G (mm)	S	G (mm)	S
Plain	6.8	6.3	7.0	6.3	8.6	8.5
Smoothed-over cord	6.1	5.9	6.5	5.6	7.8	6.8
Cord roughened	5.4	6.0	5.9	5.3	-	-
Ribbed paddle	6.6	5.0	6.3	5.4	7.6	7.3
TOTALS	6.7	5.9	6.6	5.6	8.5	8.1

* Lennox 1977a:68
** Wright 1977:92

surface treatments.

Layering of Sherds

The nature of four exfoliated shell tempered sherds provides insight into a unique method of vessel manufacture. While numerous exfoliated grit and shell tempered body sherds were examined, the fact that only four shell tempered specimens showed evidence of the addition of further layers suggests that such a practice was not pervasive.

Intact exterior sherd surfaces presented either cord roughened or smoothed-over cord treatment, while the intact interiors were plain. Where the surfaces had exfoliated, exposed exterior surafces had in three of the four instances cord roughened surfaces. Similarily, surfaces of the three exfoliated interiors were altered by either cord roughening or a rough form of trailing. It would appear then, that initial vessel formation involved a technique whereby both interior and exterior surfaces were altered to facilitate construction assuming paddle and anvil were used, or to aid in the attachment of a further layer.

The added layers, whose surfaces form the interior and exterior surfaces of the sherd, lack treatment on the interior, but the exterior surfaces are treated with a cord wrapped paddle. Thickness of the exterior layers ranges from 0.10mm to 0.20mm, while interior layers tend to be thinner, from 0.03mm to 0.08mm. While the interior layers do contain temper, their lack of apparent surface treatment and relative thinness may be an attempt to decrease permeability by rubbing finer material into pores (Shepard 1968:191). Conversely, on the exterior surfaces where a layer has been added, tempering is present, albeit in a much finer form than in the central section of the sherd, and in a much higher concentration. Increase in vessel thickness, rather than attempting to reduce permeability may have been the purpose for adding an exterior layer. However, it may also have been an attempt to improve surface texture by placing a layer of more finely tempered paste over a coarser initial surface.

Shoulder Sherds

The identification of shoulder sherds was difficult in the case of small sherds, or when the convex exterior could be mistaken for that of a body sherd. Consequently, classification of a sherd as a shoulder sherd was biased toward those which had: 1. a neck element in association, 2. decoration (a feature generally absent on globular body sherds), or 3. presence of notable variance in thickness (suggesting transition from one element to another). Such a classificatory bias may then to some extent lessen the reliability which may be placed on statements regarding the use of certain attributes on shoulder sherds.

Temper

A total of 336 shoulder elements, of which 317 were shoulder fragments exclusively, were analysed. From the latter total, a grit:shell tempering ratio of 85.17%:14.73% was obtained (Table 15).

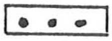
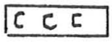
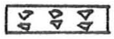
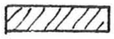
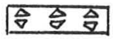
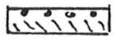
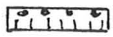
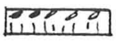
Shoulder Form

While 24 (7.14%) of the 336 Christianson site shoulder elements exhibited profiles approaching a carinated form (Emerson 1966:155), the majority of shoulders were sinuous (Noble 1968:150). Similarily, small frequencies of carinated shoulders are found in the assemblages of other historic Neutral sites. The shoulders which have been identified as incipient carinated forms at the Hamilton site apparently are technologically the result of the boundary formed by the plain neck and the corded shoulder (Lennox 1977a:70). While this was the case for one of the shoulders in the Christianson sample, the majority had such a profile which incorporated some form of decoration and which was not defined as a boundary between two sections of the pot.

Decoration

Of the 329 sherds which could be examined for decoration, 72.04% exhibited various forms of decorative motifs (Figure 15). While 68.09% of the grit tempered sherds were decorated, decoration was present on a significantly higher 98.74% of the shell temperd shoulder elements. Not only is there a correlation between tempering material and frequency of decoration, but also between temper and type of decoration.

Horizontal bands of punctates were the pre-eminent form of decoration on shell tempered sherds, 87.23%, as opposed to 12.41% on grit sherds. Linear impressions (20.21%), combinations of trailing (13.50%), combinations of punctate and trailing motifs (10.28%), and combinations of linear impression and trailing motifs (7.81%) were the major forms of decoration on grit tempered shoulders. No one single form, however, dominated the sample as did punctation on shell tempered shoulders, and consequently, no other decorative technique was present in appreciable quantities on sherds tempered with shell. When both tempers are combined,

	Grit		Shell		TOTALS	
	N	%	N	%	N	%
	90	31.91	2	4.26	92	27.96
Punctates						
	24	8.51	17	36.17	41	12.46
	3	1.06	16	34.04	19	5.78
	6	2.13	7	14.89	13	3.95
	2	.71	1	2.13	3	.91
Linear impressed						
	22	7.80	1	2.13	23	6.99
	18	6.38	0	0.00	18	5.47
	11	3.90	1	2.13	12	3.65
	6	2.13	0	0.00	6	1.82
Trailing						
	11	3.90	0	0.00	11	3.34
	11	3.90	0	0.00	11	3.34
	7	2.48	0	0.00	7	2.13
Dentate stamp						
	0	0.00	2	4.26	2	.61
	1	.36	0	0.00	1	.30
Combinations of punctate and trailing motifs						
	11	3.90	0	0.00	11	3.34
	10	3.54	0	0.00	10	3.04
	3	1.06	0	0.00	3	.91
	1	.36	0	0.00	1	.30
Other	4	1.42	0	0.00	4	1.22
Combinations of impressed and trailing motifs						
	4	1.42	0	0.00	4	1.22
	2	.71	0	0.00	2	.61
	2	.71	0	0.00	2	.61

Continued

	Grit		Shell		TOTALS	
	N	%	N	%	N	%
	2	.71	0	0.00	2	.61
	2	.71	0	0.00	2	.61
	2	.71	0	0.00	2	.61
	2	.71	0	0.00	2	.61
	2	.71	0	0.00	2	.61
Other	4	1.42	0	0.00	4	1.22
Combinations of Trailing motifs						
	9	3.19	0	0.00	9	2.74
	3	1.06	0	0.00	3	.91
	2	.71	0	0.00	2	.61
Other	5	1.77	0	0.00	5	1.52
TOTALS	282	99.98	47	100.01	329	100.01

FIGURE 15. Shoulder element decorative motifs, techniques and temper.

punctation still dominates at 23.10%, with linear impression present on 13.03% of the shoulder elemnts.

When the decorated sherds alone are examined, which presumably would eliminate the identification bias mentioned previously, several temporal patterns of generalized decoration emerge (Table 21). All impressed motifs combined (linear impressions, punctates and dentates) become increasingly predominant over time.

Seriations for trailing decorations (which include the incised motifs at the Walker site) and combinations of impressed and trailed motifs produced results which correspond to the sequence seen for impressed decoration.

TABLE 21. Shoulder element decorative trends.

	Impressed	Trailed*	Combinations
Hamilton ca. 1638-1651**	94.69%	2.45%	2.86%
Hood ca. 1640-1641***	92.42%	1.52%	6.06%
Walker ca. 1626-1640****	82.09%	10.45%	7.46%
Christianson ca. 1615	58.23%	20.25%	21.52%

* includes Walker incised

** Lennox 1977a:72

*** Lennox 1978:102

**** Wright 1977:100

In these two instances, however, the technique declined in frequency over time. In only one instance, trailed decoration, were site orders reversed, and the frequency difference was of such a minor degree that contemporaneity of the Hood and Hamilton sites may be suggested. Such proximity was also seen for impressed decoration. Overall, a patterning for method of shoulder decoration is quite evident.

The exterior surface of a single grit tempered, plain shoulder sherd was covered with red pigment, which perhaps was a form of decoration.

Surface Treatment, Temper, and Thickness

A correlation between tempering material and surface treatment exists (Table 22), particularly with grit

TABLE 22. Shoulder element surface treatment, temper, and thickness.

		Plain	Smoothed-over cord	Cord roughened	Ribbed paddle	TOTALS
No.	Grit	253	13	13	10	288
	Shell	18	23	7	0	48
%	Grit	87.50	4.51	4.51	3.47	99.99
	Shell	37.50	47.92	14.58	0.00	100.00
Total	Sample					
	No.	270	36	20	10	336
	%	80.36	10.71	5.95	2.98	100.00
Thickness (mm)						
r	Grit	4-13	6-11	6-11	6-11	4-13
	Shell	6-10	4-10	6-9	-	4-10
$\bar{x}$	Grit	7.59	7.67	7.39	8.46	7.61
	Shell	7.63	6.91	7.50	-	7.27

tempered sherds where 87.50% are devoid of surface treatment. Smoothed-over cord, cord roughened, and ribbed paddle treatments are approximately equally represented in small amounts within the remaining 12.50%. Conversely, while 37.50% of the shell tempered sherds are plain, a total of 62.50% have smoothed-over cord and cord roughened surface treatment. This strongly suggests a technological association for a particular type of surface treatment required by the use of grit and shell tempering.

This pattern is replicated to a different degree with the Hamilton site shoulder sherds (Lennox 1977a:73). There are higher percentages of smoothed-over cord and cord roughened treatment on grit tempered sherds (27.0% and 15.3% respectively), but for shell tempered sherds there is a greater homogeneity of surface treatment, being almost exclusively some form of cord roughened paddle (94.1%: 51.8% smoothed-over cord, 39.6% cord roughened). This would tend to corroborate an association of surface treatment with at least shell tempering.

There is no readily apparent or significant relationship between temper, surface treatment, and thickness as was the case with body sherds. Shell tempered plain and smoothed-over cord shoulder elements tended to be slightly thicker than corresponding grit tempered specimens. However, those tempered with grit and which were cord roughened were notably thicker, 0.76mm, than those which were shell tempered.

Neck Sherds

Temper

While 1284 neck elements were examined, 597 of these were fragments of necks exclusively, with the remainder comprising neck elements associated with rims or shoulders. The grit:shell temper ratio for neck sherds was determined using only the 597 neck fragments, with a resulting 89.95%: 10.05% ratio (Table 15).

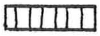
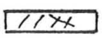
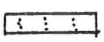
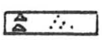
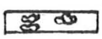
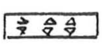
Decoration and Appendages

Of the 1286 analysed neck elements only 7.93% were decorated (Figure 16). There is, however, a greater frequency of decoration on those neck sherds tempered with shell, (39.72%) than on grit tempered sherds (4.02%). Furthermore, as Table 23 indicates, there appears to be an association of decorative motif with temper. Appliqué strips, either of the horizontal continuous nature or vertical strap handle variety, predominate on shell tempered sherds as do dentate stamps and punctates, while various combinations of trailing are exclusively found on grit tempered sherds.

Evidence for the presence of vertical appliqué strips take the form of: 1. scars where the appliqués have exfoliated, 2. appliqué strips which have fallen off, 3. *in situ* strips, and 4. strip attachment areas on neck sherds.

TABLE 23. Vertical appliqué varieties and temper.

	Grit		Shell		TOTALS
	N	%	N	%	N
Handle	7	100.00	0	0.00	7
Strip	3	10.71	25	89.29	28
TOTALS	10		25		35

	Grit		Shell		TOTALS	
	N	%	N	%	N	%
	1099	95.98	85	60.28	1184	92.07
Appliqué strips						
Continuous horizontal impressed	1	.09	19	13.48	20	1.56
Vertical appliqué/ scar/attachment area	10	.87	25	17.73	35	2.72
Trailing						
	7	.61	0	0.00	7	.54
	4	.35	0	0.00	4	.31
	4	.35	0	0.00	4	.31
	2	.17	0	0.00	1	.16
	1	.09	0	0.00	1	.08
	1	.09	0	0.00	1	.08
	1	.09	0	0.00	1	.08
	1	.09	0	0.00	1	.08
	1	.09	0	0.00	1	.08
	1	.09	0	0.00	1	.08
	1	.09	0	0.00	1	.08
	1	.09	0	0.00	1	.08
	1	.09	0	0.00	1	.08
Punctates						
	3	.26	5	3.55	8	.62
	0	0.00	2	1.42	2	.16
	0	0.00	1	.71	1	.08
Dentate stamp						
	0	0.00	3	2.13	3	.23
	0	0.00	1	.71	1	.08
	1	.09	0	0.00	1	.08

Continued

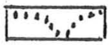
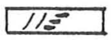
	Grit N	Grit %	Shell N	Shell %	TOTALS N	TOTALS %
Linear impressed						
	3	.26	0	0.00	3	.23
Trailing with linear impression						
	1	.09	0	0.00	1	.08
	1	.09	0	0.00	1	.08
TOTALS	1145	100.02	141	100.01	1286	100.03

FIGURE 16. Neck element decorative motifs, techniques and temper.

Two varieties of vertical appliqués were present (Figure 17): 1. the convex type which is attached to the vessel at the base of the rim and the upper portion of the shoulder, spanning the neck and forming a true handle; and

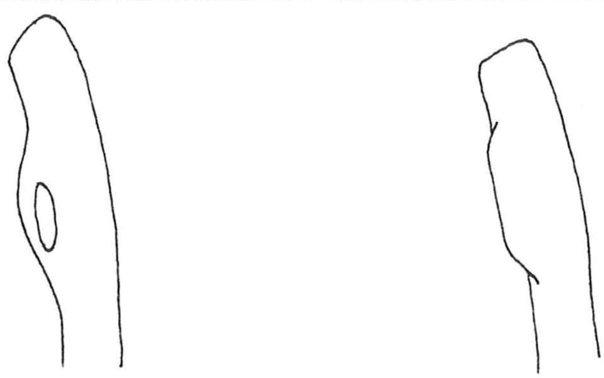


FIGURE 17. Vertical appliqué profile varieties.

2. those which appear to be decorative in nature in that they are concave strips applied directly to the neck with no resultant opening. It may be that the handle variety was also decorative and served no functional purpose. The true handles are exclusively tempered with grit, while, with the exception of three specimens, the strip variety is tempered with shell (Table 23).

There is, aside from the dichotomy between types of vertical appliqués, a variety of expressions and decorations within the handle and strip categories (Figure 18). While

													?		TOTALS	
	G	S	G	S	G	S	G	S	G	S	G	S	G	S	G	S
	0	3											1	3	1	6
	0	1											2	1	2	2
													0	2	0	2
?	0	6	1	2	1	0	1	0	1	0	1	0	2	7	7	15
TOTALS	0	10	1	2	1	0	1	0	1	0	1	0	5	13	10	25

FIGURE 18. Vertical appliqué decoration, form, and temper.

the majority were too fragmentary to ascertain the nature of the arrangement, three varieties were observed; 1. basally converging pairs, 2. single vertical, and 3. adjacent parallel vertical pairs. Only the single vertical variety is present in frequencies similar for both shell and grit tempering. The other two varieties are predominantly shell tempered, suggesting that vertical appliqués, and particularly strips, are attributes associated primarily with a shell tempered ceramic assemblage.

By far the major decorative motif is impressing on both edges of the appliqués. Impressing on one edge is the next most prevalent, with single occurrences of horizontal trailing, chevron, and single and double rows of punctates. Of the laterally notched appliqués, 92.31% are tempered with shell, while the other varieties are tempered exclusively with grit.

Red pigment was identified on the exterior of a single grit tempered neck sherd which, unlike the interior occurrence of pigment on body sherds, may have been decorative.

Generally, the frequency of neck decoration in historic Neutral ceramic assemblages is relatively low. The Hood and Walker sites have lower incidences of neck decoration, 2.3% and 3.2% respectively (Lennox 1978:102, Wright 1977:99), than the 7.93% at the Christianson site. The Hamilton site, with 10.7% (Lennox 1977a:75), presents the greatest occurrence on an historic Neutral site to date. The relatively high percentages at the Christianson and Hamilton sites are, however, inflated by the high frequencies of vertical, and at Christianson, horizontal appliqués. At the Hamilton site, only 7.9% of the decorated sherds were not appliqué strips, with six being trailed and one punctated (Lennox 1977a:75). Similarly, of the nine decorated sherds recovered from the Hood site, eight were trailed and one punctated (Lennox 1978: 102). Following in suit, decorations on the small number of Walker necks were homogeneous combinations of linear trailing and incision motifs (Wright 1977:99). Decorative techniques at the Christianson site are more heterogeneous than at the other sites, as is the admixture of shell and grit tempering.

That frequencies of neck decoration may have temporal significances is supported if neck appliqués, both vertical and horizontal, are excluded from consideration as a form of neck decoration. The result is that there appears to be a decrease in frequency of decoration over time for the three dated historic Neutral sites: Walker, ca. 1626-1640, 3.2%; Hood, ca. 1640, 2.3%; and Hamilton, ca. 1638-1651, 0.8%. Sample sizes were 476 (Wright 1977:99), 382 (Lennox 1978: 102), and 834 (Lennox 1977a:74) respectively. Similarly, if the 55 neck appendages from the Christianson site are not included in the total of neck decorated specimens, a percentage of 3.82 is produced. This would then place the Christianson site, seriationally at least, at a stage earlier than the Walker site.

Surface Treatment, Temper and Thickness

As was the case with the body sherds, there is a correlation, but to a less notable degree, between tempering material and surface treatment (Table 24). Plain sherds

TABLE 24. Neck element surface treatment, temper and thickness.

		Plain	Smoothed-over cord	Cord roughened	Ribbed paddle	TOTALS
No.	Grit	1129	10	4	2	1145
	Shell	122	8	9	0	139
%	Grit	98.60	.87	.35	.18	100.00
	Shell	87.77	5.76	6.47	0.00	100.00
Total	Sample					
	No.	1251	18	13	2	1284*
	%	97.43	1.40	1.01	.16	
Thickness(mm)						
r	Grit	3-14	7-10	6-8	6-7	3-14
	Shell	6-11	6-7	6-10	-	6-11
$\bar{x}$	Grit	7.78	8.00	7.00	6.50	7.77
	Shell	8.03	6.67	7.43	-	7.92

* The total of 1284 differs from the total of 1286 given on page 123 in that two shell tempered specimens exhibited two differing treatments which were counted separately.

predominate, constituting 98.60% and 87.77% of the grit and shell specimens respectively. As was the case with body sherds, smoothed-over cord and cord roughened treatments are more frequently observed on shell tempered sherds with 12.33% being treated to some degree with cord wrapped paddle, while only 1.22% of the grit tempered sherds were afforded such treatment. Ribbed paddling frequencies were negligible.

Overall, surface treatment on neck sherds was 97.43% plain, with minor percentages of the other three methods, indicating they were more infrequently practised than on body sherds, where only 70.19% of the sherds lacked some form of surface treatment.

There is an apparent lack of correlation between sherd thickness, temper and surface treatment. Regardless of surface treatment, shell tempered sherds average 0.15mm thicker than those tempered with grit.

The high frequencies of plain grit and shell tempered necks is duplicated at the Hood and Hamilton sites where, for shell tempered necks 95.8% and 94.5%, respectively, are plain, while 93.0% and 96.5% of grit tempered necks are plain (Lennox 1977a:75, 1978:103). The tendancy for cord wrapped paddle treatments to occur on shell tempered sherds is also present.

Rim Sherds

Analysis of the rim sherds, including castellations, will involve the examination of, and to a limited degree, relationships between tempering material, rim profile, collar height, and decorative motifs and techniques of the exterior, lip and interior surfaces. The Christianson site produced a large sample of analysable rim sherds (Table 15), and it is anticipated that the comprehensive description afforded the assemblage (Figures 19, 20, 22 and 24) will provide a detailed picture of northern cluster Neutral rim treatments from the early historic period.

Profile, Exterior Decoration and Temper

In the sample of 837 rim fragments examined for collar development, 51.49% are collarless and 48.15% are collared (Figure 19). There is an apparent relationship between temper and the presence of a collar. While the 726 grit tempered specimens are divided approximately evenly between collared and collarless forms, 55.37% and 44.63%, respectively, collarless forms represent 96.40% of the 111 shell tempered rim fragments.

Collar height of 406 specimens ranged from 5mm to 42mm with a mean of 11.72mm (Figure 20). In the analysis of the Huron Sopher site rims, Noble (1968:162) established a separation between high and low collared rims at a height of 30mm. Similarly, in an attribute analysis of Onondaga Chance Phase ceramics, LaFrance (1979:14) defines high collared rims as those with heights of 35mm or greater. As indicated in Figure 20, there was but one rim with a height which could be classified as high collared. The majority (96.62%) of

															?		Collar subtotal N		%	
	G	S	G	S	G	S	G	S	G	S	G	S	G	S	G	S	G	S	G	S
Linear impressed																				
	79	0	51	0	20	0	17	0	29	0	8	0	0	0	15	0	219	0	54.5	0
	24	1	11	0	10	0	1	0	2	0	0	0	0	0	5	0	53	1	13.2	25.0
	8	0	9	0	9	0	5	0	5	0	2	0	1	0	4	0	43	0	10.7	0
	2	0	1	0	0	0	1	0	1	0	0	0	0	0	0	0	5	0	1.2	0
	2	0	0	1	0	0	1	0	0	0	0	0	0	0	0	0	3	1	.8	25.0
	2	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0	4	0	1.0	0
	0	0	2	0	0	0	0	0	0	0	1	0	0	0	0	0	3	0	.8	0
	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	1	1	1	.3	25.0
	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	.3	0
	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	1	0	.3	0
	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	.3	0
	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	.3	0
	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	.3	0
	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	0	.3	0
	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Subtotal	120	1	76	1	40	0	27	0	37	0	11	0	1	0	25	1	336	4	83.6	75.0
Trailed																				
	1	0	2	0	2	0	2	0	3	0	0	0	0	0	2	0	12	0	3.0	0
	0	0	0	0	3	0	2	0	0	0	1	0	0	0	1	0	7	0	1.7	0
	0	0	1	0	2	0	0	0	1	0	0	0	0	0	0	0	4	0	1.0	0
	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	.5	0
	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	1	0	.3	0
	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	1	0	.3	0
	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	.3	0
	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	.3	0
	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	1	0	.3	0
	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	.3	0
	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Subtotal	1	0	8	0	9	0	5	0	4	0	1	0	0	0	3	0	31	0	7.7	0
Notched																				
collar base	3	0	0	0	2	0	9	0	0	0	0	0	0	0	0	0	14	0	3.5	0
collar lip	1	0	0	0	1	0	1	0	0	0	0	0	1	0	0	0	4	0	1.0	0
lip and base	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	2	0	.5	0
	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Subtotal	4	0	0	0	3	0	12	0	0	0	0	0	1	0	0	0	20	0	5.0	0
Plain																				
	1	0	1	0	1	1	0	0	0	0	1	0	1	0	0	0	5	1	1.2	25.0
Punctates																				
	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	2	0	.5	0
	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	2	0	.5	0
	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	1	0	.3	0
	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Subtotal	0	0	0	0	4	0	1	0	0	0	0	0	0	0	0	0	5	0	1.2	0
Incised																				
	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	1	0	.3	0
	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	.3	0
	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Subtotal	1	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	2	0	.5	0
Dentate stamp																				
	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	1	0	.3	0
	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Subtotal	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	1	0	.3	0
Push pull																				
	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	1	0	.3	0
	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Subtotal	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	1	0	.3	0
Linear impressed/ Punctates	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Trailing/ Linear impressed																				
	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Subtotal	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Notched/ Push pull	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Notched/Push pull/Trailing	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Trailed/Dentate stamp	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Linear impressed/ Punctates/ Trailing/ Punctates	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Subtotal N	127	1	85	1	57	1	47	0	44	0	12	0	2	0	28	1	402	4	100.4	100.0
%	31.6	25.0	21.1	25.0	14.2	25.0	11.7	0	10.9	0	3.0	0	.5	0	7.0	25.0	100.0	100.0		
TOTALS %	17.5	.9	11.7	.9	7.9	.9	6.5	0	6.1	0	1.7	0	.3	0	3.9	.9	55.4	3.6		

																			?		Collarless subtotal N		%		TOTALS N		%	
	G	S	G	S	G	S	G	S	G	S	G	S	G	S	G	S	G	S	G	S	G	S	G	S	G	S	G	S
Linear impressed																												
	9	1	18	0	7	0	3	0	2	0	5	0	0	1	1	0	0	0	2	0	47	2	14.5	1.9	266	2	36.7	1.8
	3	0	0	0	1	0	0	0	3	0	0	0	0	1	0	0	0	0	0	0	7	1	2.2	.9	60	2	8.3	1.8
	1	33	5	4	5	16	0	2	1	0	0	0	0	0	0	0	0	0	0	2	12	57	3.7	53.3	55	57	7.6	51.4
	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5	0	.7	0
	0	0	0	0	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	2	0	.6	0	5	1	.7	.9
	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4	0	.6	0
	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	0	.4	0
	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	.1	.9
	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	.1	0
	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	.1	0
	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	.1	0
	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	.1	0
	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	.1	0
	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	.1	0
	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	.3	0	1	0	.1	0
	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	1	0	.3	0	1	0	.1	0
	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	1	0	.3	0	1	0	.1	0
	0	0	0	0	0	0	0	0	0	0	0	0	1	11	0	0	0	0	0	0	1	11	.3	10.3	1	11	.1	9.9
Subtotal	14	34	23	4	13	16	4	2	8	0	5	0	2	13	1	0	0	0	2	2	72	71	22.2	66.4	409	74	56.3	66.7
Trailed																												
	0	0	1	0	1	0	1	0	1	0	1	0	0	0	0	0	0	0	0	0	5	0	1.5	0	17	0	2.3	0
	1	1	3	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0	4	3	1.2	2.8	11	3	1.5	2.7
	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4	0	.6	0
	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	1	0	.3	0	3	0	.4	0
	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	.3	0	2	0	.3	0
	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	.1	0
	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	.1	0
	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	.3	0	2	0	.3	0
	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	.3	0	2	0	.3	0
	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	.1	0
	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	.3	0	1	0	.1	0
	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	1	0	.3	0	1	0	.1	0
Subtotal	4	1	4	0	2	0	1	1	3	0	1	1	0	0	0	0	0	0	0	0	15	3	4.6	2.8	46	3	6.3	2.7
Notched																												
collar base	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	14	0	1.9	0
collar lip	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4	0	.6	0
lip and base	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	.3	0
	1	0	2	0	12	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0	17	0	5.3	0	17	0	2.3	0
	2	0	0	0	9	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	12	0	3.7	0	12	0	1.7	0
	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	.3	0	1	0	.1	0
	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	.6	0	2	0	.3	0
Subtotal	5	0	2	0	22	0	2	0	0	0	1	0	0	0	0	0	0	0	0	0	32	0	9.9	0	52	0	7.2	0
Plain																												
	90	6	47	2	25	2	15	3	6	1	2	1	0	0	0	0	0	0	0	0	190	15	58.6	14.0	195	16	26.9	14.4
Punctates																												
	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	.3	0
	0	0	1	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	2	.3	1.9	3	2	.4	1.8
	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	.9	1	1	.1	.9
	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	1.9	0	2	0	1.8
	0	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	2	.6	1.9	2	2	.3	1.8
	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	1.9	0	2	0	1.8
Subtotal	0	5	2	3	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	9	.9	8.4	8	9	1.1	8.1
Incised																												
	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	.1	0
	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	.1	0
	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	.3	0	1	0	.1	0
	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	.3	0	1	0	.1	0
Subtotal	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	.6	0	4	0	.6	0
Dentate stamp																												
	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	.1	0
	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	.3	0	1	0	.1	0
	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	.9	0	1	0	.9
Subtotal	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	.3	.9	2	1	.3	.9
Push pull																												
	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	.1	0
	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	.9	0	1	0	.9
Subtotal	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	.9	1	1	.1	.9
Linear impressed/ Punctates	0	4	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5	0	4.7	0	5	0	4.5
Trailing/ Linear impressed																												
	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	.3	0	1	0	.1	0
	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	.3	0	1	0	.1	0
	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	.3	0	1	0	.1	0
	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	1	0	.3	0	1	0	.1	0
Subtotal	1	0	0	0	2	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	4	0	1.2	0	4	0	.6	0
Notched/ Push pull	0	0	0	0	0	0	0	0	0	0	4	0	0	0	0	0	0	0	0	[illegible]	4	0	1.2	0	4	0	.6	0
Notched/Push pull/Trailing	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	1	0	.3	0	1	0	.1	0
Trailed/Dentate stamp	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	.9	0	1	0	.9
Linear impressed/ Punctates/ Trailing/ Punctates	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	.9	0	1	0	.9
Subtotal N	114	51	79	9	66	22	23	6	17	1	15	2	2	13	1	0	1	0	6	2	324	107	99.8	99.9	726	111	100.1	100.0
%	35.2	47.7	24.4	8.4	20.4	20.6	7.1	5.6	5.3	.9	4.6	1.9	.6	12.2	.3	0	.3	0	1.9	1.9	100.1	99.2						
TOTALS %	15.7	46.0	10.9	8.1	9.1	19.8	3.2	5.4	2.3	.9	2.1	1.8	.3	11.7	.1	0	.1	0	.8	1.8	44.6	96.4					100.0	100.0

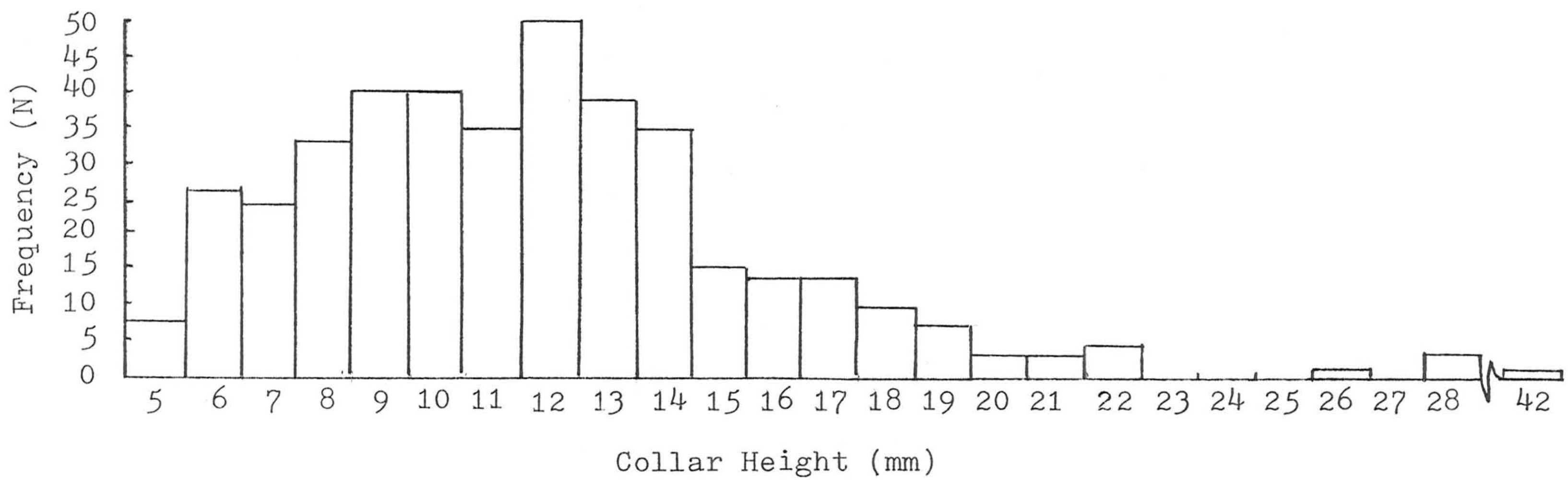


FIGURE 20. Christianson site collar height distribution.

collared rims had heights between 5mm and 19mm.

While high percentages of collarless vessels are also observed at other historic Neutral sites: Hood, 45% (Lennox 1978:108), Hamilton, 52% (Lennox 1977a:93) and Walker, 55.7% (Wright 1977:104), their occurrence does not approach the 77.5% at the Thorold site (Noble 1980a:52). Of interest, however, is the difference observed between the later Hood and Hamilton sites and the Christianson site. At the former, collarless vessels are predominantly associated with grit tempering, and collared rims, especially high collared, are more frequently shell tempered (Lennox 1977a:93, 1978: 111).

Collar height tends to be low on Neutral sites, and this is particularly true of Christianson. The collared Walker site rims are significantly higher, averaging 19.03mm and ranging between 3mm and 80mm (Wright 1977:101). Furthermore, of the collared rims at the Hood site, 27.69% were high collared (Lennox 1978:111), and at the Hamilton site, 28.79% (Lennox 1977a:93), while only 0.25% of the collared rims at the Christianson site could be classified as being high collared.

Seven decorative techniques were used on the exterior surfaces of the collared Christianson rim sherds. Linear impression (83.74%) was by far the predominant form. Minor occurrences of trailing (7.64%), notching (4.93%), punctating

(1.23%), incising (0.49%), dentate stamping (0.25%), and push pull (0.25%) comprise the remainder of the techniques present. Additionally, 1.48% of the rim exteriors were devoid of decoration. Of the four shell tempered collared rims, three were decorated by the linear impression technique, with the other being plain.

Aside from the plain motif, a variety of motifs were identified on collared rims. Of the 340 linear impressed collared rims, 92.94% were decorated with but three motifs: 219 with the left oblique motif, 54 with the right oblique motif, and 43 with the vertical motif. Similarly, for those decorated by the trailing technique, left oblique and right oblique motifs predominated at 61.29%. The opposed triangular motif accounted for an additional 12.90% of the trailed motifs. Notching on the collared rims was expressed primarily (70.00%) at the base of the collar.

If technique is disregarded and similar motifs combined, the left oblique motif at 54.17% is the most commonly observed motif on the exteriors of the Christianson site collared rims. By comparison, right oblique motifs at 15.27% is the second most frequently occurring motif. If the vertical linear motif is included with the latter two, the three motifs account for 83.25% of the collared rims.

The seven decorative techniques used on the collared rims were also observed on the collarless rims. However, as

Figure 19 indicates, various combinations of techniques were exclusively present on collarless forms.

While only 1.48% of the collared rims lacked decoration, 47.56% of the collarless rims were undecorated. The other notable divergence in percentages of techniques is seen in linear impressing. For collarless rims, only 33.18% were decorated by that technique, while 83.74% of the collared rims were afforded such treatment. Otherwise, percentages of the other techniques are quite similar (Figure 19).

Since the majority of the shell tempered rims are collarless, there are interesting associations between tempering material and techniques used on collarless forms. While only 22.22% of the grit tempered collarless rims were linear impressed, 66.36% of those tempered with shell were decorated with such a technique. A similar skewing is also seen on undecorated collarless rims where 58.64% of the grit tempered specimens were afforded such a treatment compared to 14.02% of those tempered with shell. Notching (9.88%) and trailing (4.63%) appear to be more commonly associated with shell tempering. Incising, dentate stamping, and push pull techniques are generally found in lower frequencies, but their respective occurrences with the tempering materials are quite similar. Where combinations of techniques are observed, those techniques which are combined tend to be those which are more commonly observed with a specific type of temper. For example, the rims decorated linear impression and punctating techniques were exclusively tempered with shell.

Grit and shell tempered collarless rims differ in frequencies of motifs. While in the collared sample undecorated rims were infrequent, they are more common among collarless rims. However, when divided into tempering material categories, while 58.64% of the grit tempered collarless rims are undecorated, only 14.02% of those tempered with shell are plain.

Yet, while plain exteriors predominate in the overall collarless sample, the three motifs which constituted the majority of the collared motifs are also the most common collarless motifs: 23.15% for grit tempered, 58.88% for shell, and 32.02% overall. Again, as with the grit:shell dichotomy for plain collarless rims, there is such a division for left oblique and vertical motifs. Right oblique motifs are represented in approximately even percentages (Figure 19). Whereas 16.05% of the grit tempered collarless rims consisted of left oblique motifs, only 1.87% tempered with shell had such a motif. Conversely, 53.27% of the shell tempered, but only 3.70% of the grit tempered collarless rims were decorated with the vertical motif.

Overall, certain techniques, combinations of techniques, and motifs appear to correlate with temper used, regardless of collar development. Linear impression, as noted on several previous occasions, represents a substantial portion of the assemblage for both grit and shell tempered wares. However, at 66.67% it appears to be more frequently used on shell tempered ceramics compared to 56.34% on those tempered with grit. Conversely, undecorated rims tend to be more commonly tempered with grit: 26.86% to 14.41%. Also, trailing (6.34%:2.70%), notching (7.16%:0.00%), and incising (0.55%:0.00%) are techniques which occur more frequently with grit tempered ceramics. Aside from linear impression, punctating (8.11%: 1.10%), dentate stamping (0.90%:0.28%), and push pull (0.90%:0.14%) techniques are practised on shell tempered rim exteriors more commonly. Combinations of techniques are observed in greater percentages on shell tempered ceramics: 3.60% to 0.69%.

Briefly then, the major motifs; left oblique, right oblique, and vertical, comprise the majority of decorative motifs for both grit and shell tempered exterior rims, 56.75% and 57.65% respectively. While left oblique is predominant among grit tempered motifs (39.12%), vertical is so for rims tempered with shell (51.35%).

Seven collared, and nine collarless rim profiles were identified in the Christianson site sample. In decreasing order of frequency, the collared profiles are: 1. convex-straight (interior surface-exterior surface) (31.28%), 2. convex-concave (21.18%), 3. concave-straight with a rounded collar base (14.29%), 4. concave-straight with a distinct angular collar base (11.58%), 5. straight-concave (10.84%), 6. concave-concave (2.96%), and 7. thickened and distinct lip which forms a collar by its outward protrusion (0.49%). There were 29 collared rims which could not be classified due to their fragmentary nature (Figure 19).

The collarless varieties, again in order of decreasing frequency are: 1. everted and splayed on interior and exterior surfaces (38.28%), 2. everted with flat lip (20.42%), 3. everted and splayed on exterior surface (20.42%), 4. everted with rounded lip (6.73%), 5. rolled with rounded lip (4.18%), 6. straight (3.94%), 7. everted and splayed on exterior surface with horizontal appliqué strip below lip (Moccasin Bluff Notched Appliqué Strip) (Bettarel and Smith 1973:65-66) (3.48%), 8. convex-straight (0.23%), and 9. everted with thickened lip (0.23%0. Eight collarless rims were too small to be classified (Figure 19).

Collarless profiles 2., 4., 5., 6., and to lesser degrees because of small samples, 8. and 9. tend to be more frequently associated with grit tempered ceramics, while profiles 1. and 7. are moreso with shell tempered specimens. The percentage of profile 3. is nearly identical for grit and shell tempered rim assemblages.

Without delving into detail, there are several notable combinations of profiles and decorations which tend to characterize the Christianson rim sample. For collared wares, profiles 1. through 5. have associated with them, as mentioned previously, the three varieties of linear impression, left oblique, right oblique, and vertical. Collarless rims are by no means as predominantly tempered with grit as are the collared forms. Collarless grit tempered wares with profiles 1., 2., and 3. dominate the sample, and while the three previously mentioned motifs of collared rims are the pre-eminant decoration, grit tempered collarless rims are generally undecorated. Profiles 1., 3., and 7. account for 80.5% of the collarless shell tempered rims. Vertical linear impression associated with profiles 1. and 3., and parallel rows of linear impressions on profile 7. predominate.

Despite their small numbers, a shell tempered Parker Festooned rim type (collarless profile 1. with motif consisting of a row of vertical linear impressions and a sequence of a curvilinear row of punctates, wide trailing, and another row of punctates), such as that seen at the Keeney site in southeastern Michigan (Prahl, Brose, Stothers 1976:276-277); the Moccasin Bluff ware, found not only at the Moccasin Bluff site in southwest Michigan but also at

Fox Farm, a Fox Farm Component site of the Madisonville Focus of the Fort Ancient Aspect in Kentucky (Griffin 1943: Plate CIII) and from Whittlesey sites in northern Ohio (Fitting 1964); as well as Five Nations Iroquois pottery types such as Dutch Hollow Notched and Seneca Barbed Collar (MacNeish 1952), indicate, as does the entire shell tempered assemblage which originated from northwestern Ohio (Tucker 1980), and notable quantities of well made Huron ceramics (Noble, personal communication: 1981), a wide sphere of ceramic influences.

Inter-site comparisons, particularly involving decorative techniques and motifs for rims, must be undertaken with the limitations resulting from the variations in personal interpretations of motifs and decorations in mind. As Table 25 indicates, there are notable differences in the frequencies of various techniques, particularly trailing and linear impression, and for the Hood and Hamilton sites, the association of the techniques with grit and shell tempered rims is similar to the pattern observed on the Christianson site rims.

Such is also the case for the motifs. The three major motifs at the Christianson site: left oblique, right oblique, and vertical, comprise 56.87% of the sample, however, as seen in Figure 21, on no other site do these three motifs dominate the rim motifs. Particularly notable

TABLE 25. Percentages of exterior rim decorative techniques from four historic Neutral sites.

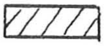
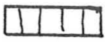
	Christianson			Walker*	Hamilton**			Hood***		
	G	S	T	T	G	S	T	G	S	T
Linear impressed	56	67	58	14	17	12	14	28	32	29
Plain	27	14	25	32	49	51	51	29	32	30
Notched	7	0	6	11		?			?	
Trailed	6	3	6	31	25	27	26	39	22	36
Punctated	1	8	2	1	3	<1	1	0	0	0
Incised	1	0	<1	11	3	4	3	6	4	5
Dentate stamp	<1	1	<1	0	1	5	4	0	4	1
Push pull	<1	1	<1	<1	0	0	0	0	0	0
Crescentic impressed		?		3		?			?	
Fingernail impressed		?		3	1	1	1	0	0	0
Corded stick	0	0	0	1	1	0	<1	0	0	0
Combinations	1	6	2	?		?			?	

* Wright 1977:95
** Lennox 1977a:80
*** Lennox 1978:105

by their paucity at the Christianson site are opposed triangular motifs.

Lip Decoration and Temper

While 53.20% of the 921 lip regions examined were devoid of decoration, there were six techniques utilized to decorate the other 46.80%: 1. linear impression (37.46%), 2. notching (5.76%), 3. punctation (2.17%), 4. incising (0.54%), 5. trailing (0.43%), and 6. dentate stamping (0.43%).

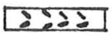
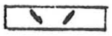
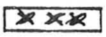
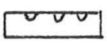
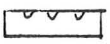
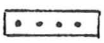
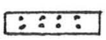
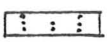
	Christianson			Walker*	Hamilton**			Hood***		
	G	S	T	T	G	S	T	G	S	T
	39	2	34	19	14	24	21	24	25	24
	8	51	14	9	9	3	5	7	7	7
	10	5	9	10	12	8	9	5	18	8
Percentage of sample	57	58	57	39	35	35	35	36	50	40

* Wright 1977:95
** Lennox 1977a:85
*** Lennox 1978:107

FIGURE 21. Comparison of major Christianson site exterior rim motifs with other historic Neutral sites.

Of the decorative motifs, left oblique (20.26%) and vertical (18.55%) predominated (Figure 22).

Certain decorative techniques appear to correlate with the type of temper utilized. While 58.88% of the 801 grit tempered lips were undecorated, only 17.50% of the 120 shell tempered lips were correspondingly left untreated. Linear impression comprises 32.33% of the grit tempered lips compared to 71.67% of the lips tempered with shell. Notching appears to be more frequently practised on grit tempered lips (6.12%:3.33%). Incising is absent on shell tempered while it is present on 0.62% of the grit tempered lips. Punctation as a technique is more frequently observed on

	Grit		Shell		TOTALS	
	N	%	N	%	N	%
	469	58.55	21	17.50	490	53.20
Linear impressed						
	164	20.47	3	2.50	167	18.13
	72	8.99	80	66.67	152	16.60
	15	1.87	3	2.50	18	1.95
	3	.37	0	0.00	3	.33
	1	.12	0	0.00	1	.11
	1	.12	0	0.00	1	.11
	1	.12	0	0.00	1	.11
	1	.12	0	0.00	1	.11
	1	.12	0	0.00	1	.11
Subtotal	259	32.33	86	71.67	345	37.46
Notched						
	27	3.37	3	2.50	30	3.26
	14	1.75	1	.83	15	1.63
 int.	3	.37	0	0.00	3	.33
 ext.	3	.37	0	0.00	3	.33
	2	.25	0	0.00	2	.22
Subtotal	49	6.12	4	3.33	53	5.76
Punctates						
	13	1.62	4	3.33	17	1.85
	0	0.00	2	1.67	2	.22
	0	0.00	1	.83	1	.11
Subtotal	13	1.62	7	5.83	20	2.17

Continued

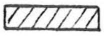
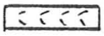
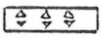
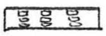
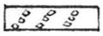
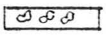
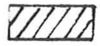
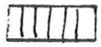
	Grit		Shell		TOTALS	
	N	%	N	%	N	%
Incised						
	2	.25	0	0.00	2	.22
	1	.12	0	0.00	1	.11
	1	.12	0	0.00	1	.11
	1	.12	0	0.00	1	.11
Subtotal	5	.62	0	0.00	5	.54
Trailed						
	2	.25	0	0.00	2	.22
	1	.12	0	0.00	1	.11
	1	.12	0	0.00	1	.11
Subtotal	4	.50	0	0.00	4	.43
Dentate stamp						
	1	.12	0	0.00	1	.11
	1	.12	0	0.00	1	.11
	0	0.00	1	.83	1	.11
	0	0.00	1	.83	1	.11
Subtotal	2	.25	2	1.67	4	.43
TOTALS	801	99.99	120	100.00	921	99.99

FIGURE 22. Christianson site rim element lip decoration.

shell tempered lips (5.83%:1.62%).

Similarly, certain decorative motifs seem to predominate on lips tempered with either grit or shell. The three linear motifs: left oblique, vertical, and right oblique, comprise 31.33% of the 32.33% of the grit tempered lips, while all of the lips tempered with shell were decorated with these three motifs, particularly the vertical motif. Within this grouping such similarity between tempering is not seen when the individual motif frequencies are examined. Left oblique is much more frequently seen on grit tempered lips (20.47%:2.50%), with the opposite being the case for vertical and right oblique motifs where on shell tempered lips they are more commonly found (66.67%:8.99% and 2.50%:1.93%). Notable also is the fact that notched edges were restricted to grit tempered lips.

In order to facilitate comparison of lip decoration between historic Neutral sites, motifs alone were examined. The Christianson site differs from the other sites in that it has a higher frequency of decorated lips (46.80%). The Hamilton site has the next highest percentage at 44.8%. There is then a sizeable gap between these two sites and the Hood and Walker sites where 31.93% and 33.83% of the lips were decorated. Also, a strikingly large amount (82.50%) of the Christianson site shell tempered rims had decorated lips as compared to 39.3% at the Hood site (Lennox 1978: 108) and 47.2% at the Hamilton site (Lennox 1977a:91) (Figure 23). That shell tempered rim lips were more commonly decorated than those tempered with grit is a feature seen at both the Hood and Hamilton sites where

					Other	TOTALS (N)
Christianson						
Grit	58.55	22.60	12.48	2.12	4.24	801
Shell	17.50	3.33	69.17	2.50	7.50	120
Total	53.20	20.09	19.87	2.17	4.67	921
Walker*						
Total	66.17	7.19	20.45	2.48	3.71	807
Hood**						
Total	68.07	8.40	15.97	2.52	5.04	119
Hamilton***						
Grit	60.6	9.4	10.0	5.3	14.7	170
Shell	52.8	18.9	11.0	8.0	9.3	365
Total	55.2	16.0	10.6	7.1	11.1	535

*   Wright 1977:97
** Lennox 1978:108-109
*** Lennox 1977a:91

FIGURE 23. Major lip decorative motifs from four historic Neutral sites.

sizeable amounts of shell tempering were found.

Three motifs, left oblique, vertical, and right oblique, predominate on the decorated lips, ranging from 75.22% of the decorated lips at the Hamilton site to 90.02% at the earlier Christianson site. Notching appears to be notably more frequent at the later Hamilton and Hood sites, a form of decoration which would appear to counter the predominance of the three previously mentioned motifs which seem to have greater occurrence on the earlier Christianson and Walker (89.03%) sites.

Interior Rim Decoration and Temper

Rim interiors were predominantly (88.76%) undecorated. While 87.54% of the grit tempered interiors were undecorated, 96.64% of those tempered with shell were devoid of decoration (Figure 24). Furthermore, that there

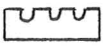
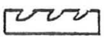
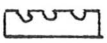
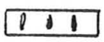
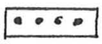
	Grit		Shell		TOTALS	
	N	%	N	%	N	%
	675	87.54	115	96.64	790	88.76
Notched						
	40	5.19	0	0.00	40	4.49
	20	2.59	1	.84	21	2.36
	3	.39	1	.84	4	.45
Subtotal	63	8.17	2	1.68	65	7.30
Linear impressed						
	17	2.20	1	.84	18	2.02
	5	.65	1	.84	6	.67
	5	.65	0	0.00	5	.56
Subtotal	27	3.50	2	1.68	29	3.26
Punctates						
	6	.78	0	0.00	6	.67
TOTALS	771	99.99	119	100.00	890	99.99

FIGURE 24. Christianson site interior rim decoration.

were only three decorative techniques and seven motifs present indicates the relative conservatism afforded interior decoration. Notching was the most common form of decoration for grit tempered rim interiors, while for shell tempered specimens notching and linear impression were equally represented. Punctation was exclusively observed on grit tempered interiors.

Generally, decoration on interior surfaces of rims from historic Neutral sites is infrequently found, with the 13.83% overall occurrence at the Hamilton site (Lennox 1977a:92) and 1.68% at the Hood site (Lennox 1978:68) being the extremes. Christianson (11.24%) and Walker (10.91%) (Wright 1977:91) site frequencies cluster closer to the Hamilton value. As with the Christianson site motifs, decorative homogeneity is apparent with notching and the three varieties of linear motifs predominating the decorated interiors. Neither grit nor shell tempered rims show any pre-eminence of association with any particular motif or for that matter frequency of decoration.

Castellations

Of the 38 castellated rim fragments recovered from the Christianson site, 23 were complete enough to be separated into five distinct varieties, four of which appear to be restricted to collarless vessels (Figure 25).

Thirteen of the 23 (56.52%) are of the incipient turret

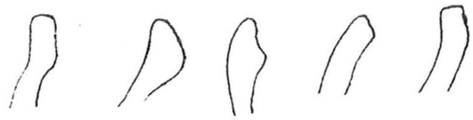
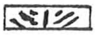
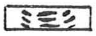
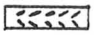
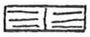
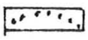
Form						?	TOTALS
Profile							
	2	0	0	0	0	0	2
Linear impressed							
	3	0	0	0	0	2	5
	2	1	0	0	0	1	4
	2	0	0	0	0	1	3
	1	0	0	0	0	1	2
	0	1	0	0	0	0	1
	0	1	0	0	0	0	1
	0	0	1	0	0	0	1
	0	0	1	0	0	0	1
	0	0	1	0	0	0	1
Trailed							
	1	0	0	0	0	0	1
	0	1	0	0	0	0	1
	0	0	0	0	0	1	1
Punctate							
	0	0	0	0	0	1	1
Combinations							
	0	0	0	1s	0	0	1
	0	0	0	1	0	0	1
?	2	0	0	0	0	9	11
TOTALS	13	4	3	2	1	15	38

FIGURE 25. Christianson site castellation varieties.

type (Emerson 1954:73, 77), and where enough of the castellated region is intact, they are exclusively present on collared rims, being essentially vertical extensions of the rim. While Emerson's incipient turret variety possessed a notched lip, only three of the Christianson specimens had modified lips. The other seven that had intact lips were devoid of decoration. Due to the small exterior area of the turrets, decoration on the turret proper is usually absent. Then, decoration described will be for the castellated region in general. No single motif dominates the sample, however, oblique, vertical, and varieties of chevron motifs account for the majority of the castellation region treatments.

The next two castellated varieties consist of decorated collarless lips which develop into the castellation proper. As a result there is, in addition to the vertical development, protrusions caused by the thickening of the lip on the exterior surface. Four pointed castellations with rolled profiles, that is, inverted lips, are decorated with chevron, vertical, and oblique motifs. The other castellation variety with such a profile has a notable exterior protrusion. It also differs from the previous type in that the shape is flattened rather than pointed. The three examples are decorated by horizontal and vertical chevron motifs.

Castellation types four and five are also collarless, but they differ from the previous two in that there is no exterior surface alteration or addition, only a vertical extension separates the castellated area from the rest of the rim. The incipient rounded variety particularly, consists of a gentle rise, and of all five castellated varieties, the abruptness of this type is of a minor degree. Also, decorative motifs are more ornate. The only shell tempered castellation is present in this type and is decorated with a Parker Festooned motif. The other specimen possesses an inward curving profile at the castellation. Elsewhere the rim is vertical in profile. Decoration in the castellated region consists of a curvilinear row of linear impressions about the peak with opposed trailing below. Curvilinear lines of impression are also observed in the neck region of the specimen.

Type five is a high turret, distinctive from the incipient variety. There are no exterior protrusions and the single example is decorated with vertical linear impressions.

CHAPTER 4

PIPES

A total of 159 pipe fragments were recovered from the Christianson site, 154 being manufactured from clay and five ground from stone. Only two of the ceramic pipe fragments were tempered with shell. These frequencies do not differ appreciably from the low frequencies observed at the Walker, Hood, and Hamilton sites (Table 26).

TABLE 26. Shell tempered ceramic pipe and lithic pipe frequencies from four historic Neutral sites.

	Christianson		Walker*		Hood**		Hamilton***	
	N	%	N	%	N	%	N	%
Shell tempered ceramic pipe fragments	2	1.30	0	0.00	0	0.00	15	3.55
Lithic pipe fragments	5	3.14	6	4.88	0	0.00	16	3.65

* Wright 1977:109, 111
** Lennox 1978:120
*** Lennox 1977a:105

Mouthpieces

There were 40 mouthpiece elements, 39 ceramic and one lithic. Four varieties of mouthpiece form were identified, and in order of descending frequency they are: 1. constricted, 2. round tapered end, 3. square tapered end, and 4. expanded.

As seen in Figure 26 there is variability within each of these categories.

	Ceramic		Lithic	
	N	%	N	%
Constricted				
	13	33.33		
	1	2.56		
	1	2.56		
	1	2.56	1	100.00
Subtotal	16	41.01	1	100.00
Expanded				
	2	5.13		
Subtotal	2	5.13		
Round tapered				
	5	12.82		
 *	4	10.26		
	2	5.13		
Subtotal	11	28.21		

Continued

	Ceramic N	Ceramic %	Lithic N	Lithic %
Square tapered				
	7	17.95		
 *	1	2.56		
	1	2.56		
	1	2.56		
Subtotal	10	25.63		
TOTALS	39	99.98	1	100.00

* These mouthpieces have been reground into these shapes.

FIGURE 26. Christianson site pipe mouthpiece varieties.

Five mouthpieces which have had the mouthpiece broken away from the stem have been reground to either a round tapered end (4) or square tapered end (1).

Mouthpieces are generally circular in cross section with diameters ranging from 9mm to 15mm ($\bar{x}$= 12.33mm). Bore diameters range from 3mm to 6mm ($\bar{x}$= 4.61mm).

Only three mouthpiece elements exhibited decoration, and these were continuations of decorations on the pipe stem. The decorative motifs in two instances was a single row of punctates along the side of the stem, and in the other, vertical banding.

Pipe Stems

Of the 94 stem elements, the majority were circular in cross section, of ceramic stems, 84.62%, and all three of those manufactured from stone. Similarly, 71.43% of the ceramic, and all of the lithic stems are undecorated (Figure 27). Thus, the most frequently occurring stem was the

		Stem Cross Sections										TOTALS
		64(31)				1	1		1	1		68
	D*			4	2							6
	D	1										1
	D L	1										1
	L	1										1
	D L							1				1
	L							1				1
	D L V										1	1
	L	2										2
	L	3										3
	L	1										1
	L	1										1
	D L	1										1

Continued

		Stem Cross Sections										TOTALS
	L**	1										1
	V	1										1
	L	1										1
	L D L V	1										1
	L	1										1
	L		1									1
TOTALS		80	1	4	2	1	1	2	1	1	1	94

* D (dorsal) L (lateral) V (ventral)
** Elbow fragment (all other elbow fragments were undecorated and were included with the stem fragments.

FIGURE 27. Christianson site pipe stems, shapes, and decoration.

undecorated circular variety: 67.03% of ceramic stems and all three of the lithic specimens.

Nine additional stem cross sections were identified. Multiple offsetting rows of punctates on the dorsal surfaces of pentagonal and ridged cross section stems constitute the major decorative motif. While the majority of circular stems are plain (80.00%), the majority of the other stem varieties are decorated (71.43%).

Pipe Bowls

The homogeneity of major forms and decorations is the most notable aspect of the Christianson site pipe bowl sample. Of the 51 identifiable pipe bowl fragments, 56.86% are of the flared variety. Conical (15.69%), trumpet (11.76%), coronet (9.80%), diamond flared (1.96%), disc topped (1.96%), and collared (1.96%) comprise the remainder of the sample (Figure 28). The diamond flared variety is so far known only from the Christianson site (Figure 50:5).

The paucity of collared pipe bowls is notable in view of the fact that 41.88% of the Hamilton site (Lennox 1977a: 111) and 68.75% of the Hood site (Lennox 1978:124) pipe bowls had such a form.

Eleven of the 52 pipe bowls, including both lithic specimens, were undecorated. Horizontal banding was the most commonly observed decorative motif on the ceramic pipe bowls (18.00%), with various combinations of horizontal banding and punctation being present on 48.00% of the specimens. Only single examples of triangular plat and vertical banding motifs were observed.

Comparison of the four major motifs from the Christianson, Hood, and Hamilton sites may indicate temporal patterning (Table 27). Horizontal banding and triangular plat motifs appear to be more frequently observed on the later Hood and Hamilton sites, while undecorated bowls and

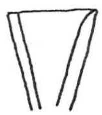
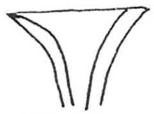
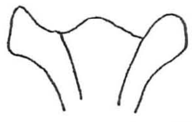
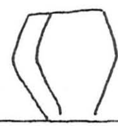
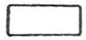
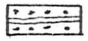
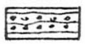
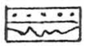
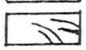
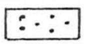
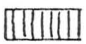
								?	TOTALS
	1	3(1)	6			1(1)			11
	3	1		5					9
	8								8
	5	1							6
	6								6
	2								2
		1							1
							1		1
	1								1
	1								1
		1							1
		1							1
	1								1
	1								1
					1				1
								1	1
TOTALS	29	8	6	5	1	1	1	1	52

FIGURE 28. Christianson site pipe bowl form and decoration.

TABLE 27. Major pipe bowl decorative motifs from historic Neutral Spencer-Bronte drainage sites.

	Christianson		Hamilton*		Hood**	
	N	%	N	%	N	%
Combinations of horizontal banding and punctates	25/46	54	31/105	30	0/17	0
Plain	11/46	24	10/105	10	0/17	0
Horizontal banding	9/46	20	41/105	39	8/17	47
Triangular plat	1/46	2	23/105	22	9/17	53

* Lennox 1977a:111
** Lennox 1978:124

motifs which combine horizontal banding with punctates tend to predominate on the earlier Christianson site.

Effigy Pipes

An elbow fragment in the collection of Dr. N. Paul Christianson contained the representations of the arms, backbone, and buttocks of a sitting or crouching individual, and as such is the only example of what may confidently be identified as a human effigy pipe. There are six other stem and elbow elements from which the presence of human effigy pipes of the blow face or pinched face varieties may also be inferred. While pentagonal and ridged cross sectioned stems decorated with three rows of offsetting punctates tend to be associated with such effigies on Neutral sites, such is not an exclusive association as they are also present on coronet pipes (Noble, personal communication: 1981).

Juvenile Pipes

Because of their nature of manufacture, two stems and a bowl have been classified as juvenile attempts. The stems are both crudely formed, and one lacks a bore. Similarly, a triangular, shallow bowl was very roughly formed, and the two punctates on either side of the anterior projection could be identified as a rough attempt at a bird effigy.

Chillums

While stemmed varieties dominate Iroquoian pipe assemblages, minor frequencies of chillum mouthpiece fragments have been recovered from the Christianson (2), Hamilton (3) (Lennox 1977a:109), and Hood (1) (Lennox 1978: 123) sites, and the Huron Downsview and Black Creek sites (Emerson 1954:111, 112, 131, 132). These fragments have been identified as either flat pipe stems (Emerson 1954, Lennox 1977a), or as monitor pipes (Lennox 1978), but their resemblance to a complete specimen in the McMaster University collections indicates that these identifications are erroneous (Figure 29). Rather, this particular form of pipe is a laterally flattened smoking implement which essentially a bowl with a mouthpiece. A stemmed pipe which had been broken and whose elbow directly below the bowl had been reground to serve as a mouthpiece may be an attempt to imitate the true chillum (Figure 29).

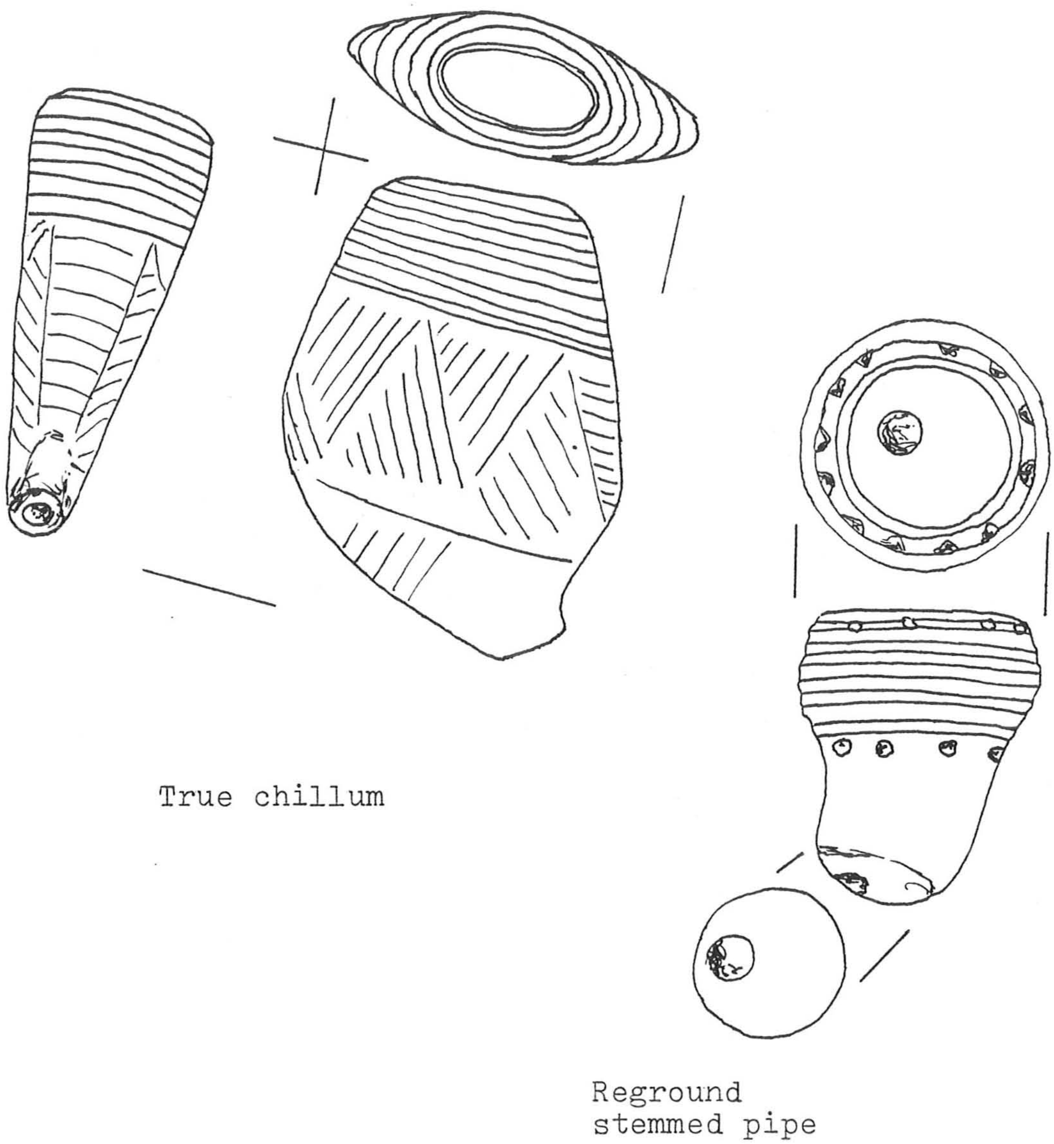


FIGURE 29. Chillum varieties.

The mode of smoking chillums differs from that of stemmed pipes, in that the hands are cupped about the bowl in such a manner that the mouthpiece would not have to be directly touched. Also, to maintain an upright position of the bowl, the head of the smoker must be cocked in order to smoke it properly.

Just as plausible an interpretation would have these stemless pipes being the calumets referred to by Sagard (Wrong 1939:). With these implements detachable reeds were utilized as the stems.

That chillums, or calumets, are rare, tend to be more ornately decorated than the majority of the stemmed varieties, and are smoked in a different manner, suggests that they were not used for everyday smoking, perhaps being reserved for special occasions, as calumets were.

<u>Lithic Pipes</u>

Three stem fragments and two bowls were recovered from the Christianson site. The stems were ground and smoothed from a light grey sedimentary material, perhaps limestone. The undecorated disc topped bowl was ground from dark green metamorphic chlorite (Bill Haskett, personal communication: 1980). Visual identification of such material frequently results in its classification as steatite (talc). Chlorite is found in eastern Ontario among intrusive and volcanic rocks near Stanleyville (North Burgess Township, Lanark

County), in Tudor Township (Hastings County), and in Barrie Township (Frontenac County) (Hewitt 1972:27). A complete, yet unfinished tapered pipe bowl measuring 29mm by 24mm by 49mm ground from igneous rock, perhaps granite, has the beginnings of three bored holes: the bowl proper, a hole for the insertion of a stem, and an air circulation hole on the side opposite the stem hole.

While the chlorite and granite bowls were undecorated, sedimentary pipes are commonly associated with human and animal effigies on Neutral sites (Noble, personal communication: 1981).

CHAPTER 5

LITHICS

As one of the foci of this thesis is to identify foreign manifestations in the Christianson site inventory, the lithic section will not be as detailed in aspects of lithic technology, as a more comprehensive analysis of historic Neutral lithics, including the Christianson site sample, are presently being undertaken by Susan M. Jamieson (Washington State University). Consequently, the focus of the lithic section will be an examination of chert types, and what information the presence and quantity of non-local cherts suggests. Basic artifact metric descriptions were undertaken, and a classification of projectile points from the Christianson site will be forwarded.

Chert Types

The 5916 identified pieces of chert detritus from the 1979 excavations at the Christianson site present a distribution of chert types which is generally indicative of the distribution found on Spencer-Bronte drainage sites (Tables 28 and 29). While local Onondaga chert dominates the sample in frequency (94.08%) and weight (87.51%), Ancaster and Kettle Point cherts were recovered in nearly identical frequencies, 2.97% and 2.87% respectively. Ancaster chert, however, constituted a much larger portion of the sample by

TABLE 28. Identified chert detritus types: 1979 Christianson site sample.

Chert type	Source	N	%	Weight (gm)	%
Onondaga	North shore of Lake Erie	5566	94.08	3803.69	87.51
Ancaster	Hamilton vicinity	176	2.97	444.93	10.24
Kettle Point	Southeast shore of Lake Huron	170	2.87	92.12	2.12
Flint Ridge	Licking County, Ohio	2	.03	4.32	.10
Balsam Lake	Trent Valley	1	.02	1.22	.03
Collingwood	Beaver Valley vicinity	1	.02	.36	.01
TOTALS		5916	99.99	4346.64	100.01

TABLE 29. Comparative frequencies by weight of major chert types from Spencer-Bronte drainage historic Neutral sites.

	Christianson	Hamilton*	Hood**
Onondaga	87.51	87.8	75.1
Ancaster	10.24	9.1	16.6
Kettle Point	2.12	3.1	8.3
TOTALS	99.87	100.0	100.0

* Lennox 1977a:35
** Lennox 1978:68

weight (10.24%) as compared to the Kettle Point cherts (2.12%), as would be expected by the proximity of the source to the sites. Two pieces of Flint Ridge chert from Ohio, and single pieces of Balsam Lake and Collingwood cherts indicate a variety of cherts from quite widespread sources. Presumably they were imported into the area by the Neutral, through visitations or as items of exchange.

Tables 30, 31, 32, and 33 present the weight distributions of the chert types for complete flakes, broken flakes, block/shatter, and cores.

Six chert varieties (with Onondaga and Ancaster cherts being indigenous to Neutralia) were identified from the 5916 pieces of detritus, and their occurrence, both quantitatively and by weight, indicate the extent of their desirabilty

TABLE 30. Onondaga chert detritus weight (gm) distribution: 1979 excavated sample.

		0- .49	.50- .99	1.00- 1.99	2.00- 4.99	5.00- 9.99	10.00- 29.99	30.00+	TOTALS	% (N)
Complete Flakes	N	2748	753	265	79	5	2	1	3853	
	%	71.32	19.54	6.88	2.05	.13	.05	.03	100.00	
	Wt.	645.54	511.62	349.96	226.57	32.21	31.28	30.62	1827.80	69.22
	%	35.32	27.99	19.15	12.40	1.76	1.71	1.68	100.01	
	$\bar{x}$	.24	.68	1.32	2.87	6.44	15.64	30.62		
Broken Flakes	N	867	117	25	7	-	-	-	1016	18.25
	Wt.	183.68	79.53	31.72	18.47				313.40	
Block/ Shatter	N	275	156	121	55	31	23	4	665	11.95
	Wt.	80.75	107.76	161.49	147.10	212.76	386.60	179.39	1275.85	
Cores	N	-	-	2	11	4	14	1	32	.58
	Wt.			3.77	46.47	30.54	246.98	58.88	386.64	
TOTALS									5566	100.00
									3803.69	

TABLE 31. Ancaster chert detritus weight (gm) distribution: 1979 excavated sample.

		0- .49	.50- .99	1.00- 1.99	2.00- 4.99	5.00- 9.99	10.00- 29.99	30.00+	TOTALS	% (N)
Complete Flakes	N	73	28	9	1	-	1	-	112	
	%	65.18	25.00	8.04	.89		.89		100.00	
	Wt.	19.80	17.93	11.56	2.20		10.97		62.46	63.64
	%	31.70	28.71	18.51	3.52		17.56		100.00	
	$\bar{x}$	.27	.64	1.28	2.20		10.97			
Broken Flakes	N	18	5	1	-	-	-	-	24	13.64
	Wt.	4.62	3.70	1.28					9.60	
Block/ Shatter	N	3	4	5	6	7	13	2	40	22.73
	Wt.	.93	3.10	6.73	17.45	49.80	231.59	63.27	372.87	
Cores	N	-	-	-	-	-	-	-	-	
TOTALS									176 444.93	100.01

TABLE 32. Kettle Point chert detritus weight (gm) distribution: 1979 excavated sample.

		0- .49	.50- .99	1.00- 1.99	2.00- 4.99	5.00- 9.99	10.00- 29.99	30.00+	TOTALS	% (N)
Complete Flakes	N	93	15	12	1	-	-	-	121	
	%	76.86	12.40	9.92	.83				100.01	
	Wt.	20.51	10.06	16.42	2.69				49.68	71.18
	%	41.28	20.25	33.05	5.42				100.00	
	$\bar{x}$	.22	.67	1.37	2.69					
Broken Flakes	N	29	5	1	1	-	-	-	36	21.18
	Wt.	6.76	3.32	1.27	2.07				13.42	
Block/ Shatter	N	5	3	2	1	-	-	-	11	6.47
	Wt.	1.41	1.78	2.15	3.19				8.53	
Cores	N	-	-	-	1	-	1	-	2	1.18
	Wt.				2.71		18.27		20.98	
TOTALS									170 92.12	100.01

TABLE 33. Minor chert type varieties: 1979 excavated sample.

	N	Weight (gm) r	$\bar{x}$	Flake type
Flint Ridge	2	1.50-2.82	2.16	Complete
Balsam Lke	1	1.22	1.22	Block/shatter
Collingwood	1	.36	.36	Block/shatter

degree of selectivity when the factor of distance is taken into account.

Onondaga chert

This medium and light grey to dark grey and bluish-grey mottled finely textured and opaque siliceous chert has its primary outcrops in the Middle Devonian Onondaga Formation limestone members along the north shore of Lake Erie between Port Maitland and Fort Erie and to the northwest as far as Villa Nova (1978b:8). It is also found in secondary deposits along the Lake Erie shoreline, and in pebble form from stream beds and agricultural fields located on gravel bearing glacial deposits throughout Neutralia (Fox 1977:4, Lennox 1978:67).

Ancaster chert

Located about the west end of Lake Ontario this granular white, or off-white, opaque chert occurs in pebble form in the Goat Island Formation of the Niagara Escarpment.

Secondary deposits of nodules are frequently encountered in the soils adjacent to the escarpment (Fox 1977:4, 1978b:6-7, Lennox 1978:67). The higher percentage of large detrital material (Table 31) in comparison to further distant and better quality cherts indicate that, despite its poorer flaking capabilities, its proximity to the sites of the Spencer-Bronte drainage result in its substantial utilization.

Kettle Point chert

This highly siliceous, finely textured and slightly translucent chert varies in colour from a dark blue-grey with occasional darker banding to a mottled medium grey. It is derived from the Ipperwash Formation of the Hamilton Group at the interface between the Upper Devonian Kettle Point Formation shales and the Middle Devonian Ipperwash Formation along the southeastern shore of Lake Huron (Fox 1978b:8). The substantial quantities of the material recovered from the historic Spencer-Bronte drainage sites, considering the distance of the source, attest to the desirability of this high quality chert.

Flint Ridge chert

Highly translucent, this finely textured light blue chert is derived from Licking County in central Ohio (W.A. Fox, personal communication:1980), and despite its infrequency on Neutral sites in this area, its presence nonetheless is significant.

Balsam Lake chert

This dark grey chert has dark grey, medium grey and clear granules in a light grey coloured matrix and occurs as nodules in the Middle Member of the Ordovician Bobcaygeon Formation in the Trent Valley (Fox 1978b:5).

Collingwood chert

Cobbles of this high quality Silurian cream coloured chert occur in glacial moraines derived from the Fossil Hill Formation, particularly in the Beaver Valley vicinity (Fox 1978b:6).

As with shell tempered ceramics, the amount of Kettle Point cherts on Spencer-Bronte drainage sites appears to increase during the historic period. By weight, 2.12% of the 1979 Christianson sample consisted of this type of chert, while the later Hamilton and Hood sites produced 3.1% and 8.3% respectively (Table 29). While it may be that the southwestern Ontario and Ohio cherts were reaching the Neutral via the Petun who could have obtained it from the Cheveux relevés (Fox 1977:5), as there are notable amounts of Kettle Point and Michigan cherts on Petun sites (Fox, personal communication:1980), it may be more conceivable to attribute its presence and increasing frequencies to chert collecting activities which were ancillary to the previously discussed raids the Neutral and *Cheveux relevés* undertook against the Fire Nation. Alliances between the Neutral and the *Cheveux relevés* may also account for the presence of the Grey County Collingwood chert on the northern Neutral sites.

Algonkian-speaking groups of eastern Ontario favoured Balsam Lake chert (Fox 1979:80), and with the presence of chlorite and steatite on Neutral sites, may be manifestations of the visitations of lower Ottawa Valley Algonkians, such as the *Onontchateronon*, who paid the Neutral for permission to hunt beaver in their territory (Trigger 1976:350, 354).

Projectile Points

Of the 302 complete and fragmented triangular projectile points from the Christianson site, 85 finished and 29 roughly finished points were complete enough to be examined for three attributes: lateral edge configuration, basal edge configuration, and length:width ratio. This has resulted in the identification of four broad, but distinct projectile point categories: 1. elongated isosceles, 2. bowed lateral edges, 3. bowed equilateral, and 4. serrated equilateral. Within each of these categories various subgroupings have been identified (Tables 34, 36, 37, 38 and Figure 30).

To date, analyses of projectile points for the historic Neutral have been restricted to metric observations,

TABLE 34. Complete and fragmented projectile point raw material.

	Classified	Unclassifiable	Non-triangular	TOTALS
Finished				
Onondaga	83	95	1	179
Ancaster	1			1
Kettle Point	1	2		3
Balsam Lake			1	1
Collingwood		1		1
Quartz		1		1
Unfinished/ roughly worked				
Onondaga	25	74		99
Ancaster	4	6		10
Kettle Point		9		9
TOTALS				
Onondaga	108	169	1	278
Ancaster	5	6		11
Kettle Point	1	11		12
Balsam Lake			1	1
Collingwood		1		1
Quartz		1		1
Total	114	188	2	304

with the only attempt at distinguishing types being a separation of serrated from non-serrated styles (Fox 1977, Noble 1978). It was suspected that the variability observed in ceramics should perhaps also be expected among projectile points. Whether the types observed are the result of functional or simply stylistic differences will not be discussed here. Intensive metrical and use wear analyses will have to be undertaken before substantive comparisons can be made, or to discern whether such a classification has any validity. At this point it is intended only as a preliminary statement intended to illustrate the variability of Neutral projectile points.

Fox (1977:5) and Noble (1978:157-158) have used projectile point length:width ratios to seriate Neutral sites, observing a decrease in length and width after the protohistoric period, particularly after the peak of the ca. 1615-1630 Daniels site. Tuck (1971:202) also observed a decrease in length and width among the Onondaga of the historic period. As Table 35 indicates, there does appear to be an increase in projectile point length and width during the protohistoric period up to ca. 1615-1630 with a subsequent decrease.

As Table 35 indicates, the 1979 Christianson site sample was not included. While there appears to be some significance to the seriation, the diversity of projectile point configurations within the Christianson site sample suggests that a seriational examination of the proposed types, if they are valid, would be more beneficial than combining the quite diverse collection of points to produce

TABLE 35. Neutral mean projectile point lengths and widths.

		Length (mm)	Widths (mm)
Cleveland*	ca. 1540-1580	25.7	15.4
Fonger**	ca. 1580-1610 ca. 1600-1610	27.8	
Christianson* (1969 sample)	ca. 1615	26.3	15.3
Daniels*	ca. 1615-1630	30.3	18.8
Walker***	ca. 1626-1640	28.8	17.7
Hood****	ca. 1630-1641	25.7	16.1
Hamilton*****	ca. 1638-1651	24.8	16.6

* Noble 1978:158
** Warrick 1979:17
*** Wright 1977:80
**** Lennox 1978:81
***** Lennox 1977a:51

a single length:width ratio for an entire site.

The classification was developed with a relatively small sample of 85 intact finished points which may be a major weakness. Finished points are defined as those regularly shaped and thinned points finely retouched bifacially on lateral and basal edges. Wright (1977:83) distinguished finished points from preforms simply on metric terms; averaging 4mm thickness and 17mm width for the former, and 8mm and 21mm respectively for the latter. Such classifications including the one for the development of this typology, perhaps are as artificial as the types developed for the stage at which a point would effectively be utilized, can only be speculated. There were numerous points which could be typed but which I would not classify as being finished. As such, they were excluded primarily for the metrics which were to be presented as an aid in the definition of the types (Table 36).

Type I. Elongated Isosceles

The relatively high length:width ratio (1.13:1-3.67:1) was the major attribute utilized to separate the gross category of Type I. Basal edge configuration, primarily, and also length:width ratios and lateral edge configuration were implemented to define subtypes. Generally, however, lateral edges tended to be straight to slightly convex. Subtype Ia is characterized primarily by straight to very slightly convex lateral edges and concave basal edges, while Ib subtypes tend to be slightly more convex laterally, particularly toward the tip and exhibit convex bases. Subtype Ic exhibits straight lateral edges toward the tip, but become parallel toward the base. The basal edge is straight.

Type II. Bowed Lateral Edges

The lateral edges of this type tend to be notably convex, more so than on any Type I variety. Furthermore, the convexity is centred midway along the edge, not toward the tip as in Ib1 or Ib3 or the base as in Ic1. There are a variety of basal edge configurations and the length:width

TABLE 36. Typable finished projectile point metrics.

Type		Ia1	Ia2	Ia3	Ia4	Ia5	Ib1	Ib2	Ib3	Ic1	IIa1	IIa2	IIb1	IIIa1	IVa1
N		4	9	18	28	5	3	4	4	1	2	2	3	1	1
r	l	30-39	27-29	25-34	18-27	17-29	30-33	29-33	22-25	14	27-28	19-20	22-28	14	15
	w	13-17	15-16	13-17	11-19	15-22	9-14	15-18	14-15	10	19	14-16	18-22	13	13
$\bar{x}$	l	34.3	28.0	28.9	22.3	22.6	31.3	30.8	24.0	14	27.5	19.5	24.7	14	15
	w	14.5	15.5	14.7	14.6	18.6	12.0	16.5	14.5	10	19.0	15.0	19.3	13	13
s.d.															
	l	4.03	.82	2.45	2.38	4.56	1.53	1.71	1.41	-	.71	.71	3.06	-	-
	w	1.73	.58	1.18	1.97	2.88	2.65	1.29	.58	-	.00	1.41	2.31	-	-
l:w ratio															
	r	2.12-2.79	1.58-2.20	1.75-2.21	1.29-1.73	1.13-1.32	2.14-3.67	1.67-2.20	1.57-1.71	1.43	1.42-1.47	1.25-1.36	1.22-1.33	1.08	1.15
	$\bar{x}$	2.38	1.81	1.97	1.54	1.21	2.73	1.88	1.66	1.43	1.45	1.31	1.27	1.08	1.15
chert		On	On	On-17 KP-1	On-27 An-1	On	On	On	On	On	On	On	On	On	On

ratios tend to be smaller (1.22:1-1.47:1) than seen in Type I points.

TABLE 37. Type I point subtypes.

	Lateral Edges	Basal Edges
Ia1	Straight to very slightly convex	Straight to slightly concave
Ia2	Straight to very slightly convex	Deep concave
Ia3	Straight to very slightly convex	Slightly concave
Ia4	Slightly convex	Slightly concave (between Ia2 and Ia3)
Ia5	Straight to very slightly convex	Slightly concave to concave
Ib1	Slightly convex toward tip	Slightly convex
Ib2	Slightly convex along entire edge	Slightly convex
Ib3	Slightly convex toward tip (more than Ib1)	Slightly convex
Ic1	Straight toward tip, parallel toward base	Straight

Subtypes IIa1 and IIa2 are essentially differentiated by size, with IIa2 being a shorter variety of IIa1. Subtype IIb1, while exhibiting similar lateral convexity, differs in that the basal edge is slightly concave rather than straight.

TABLE 38. Type II point subtypes.

	Lateral edges	Basal Edges
IIa1	Convex	Straight
IIa2	Convex (slightly more than IIa1)	Straight
IIb1	Convex (like IIa1)	Slightly concave

Type III. Bowed Equilateral

There is but a single point identified for Type III, defined by an almost 1:1 length:width ratio, pronounced midline lateral covexity (more so than that observed on Types IIa1, IIa2 and IIb1), and a slightly concave basal configuration. It is afforded a separate type classification from Ic1 in that it has a smaller length:width ratio and lateral convexity is directed more basally.

Type IV. Serrated Equilateral

There was but one point which approached equilaterality. While possessing straight lateral edges and a very slightly concave base it was the only point to exhibit serration along both lateral edges. Lateral edges measured 16mm in length with serrations approximately 3mm each in length. Such a frequency of serrations appears to be more durable than the 6 serrations per centimetre which Fox defines as delicate (Fox 1977:6).

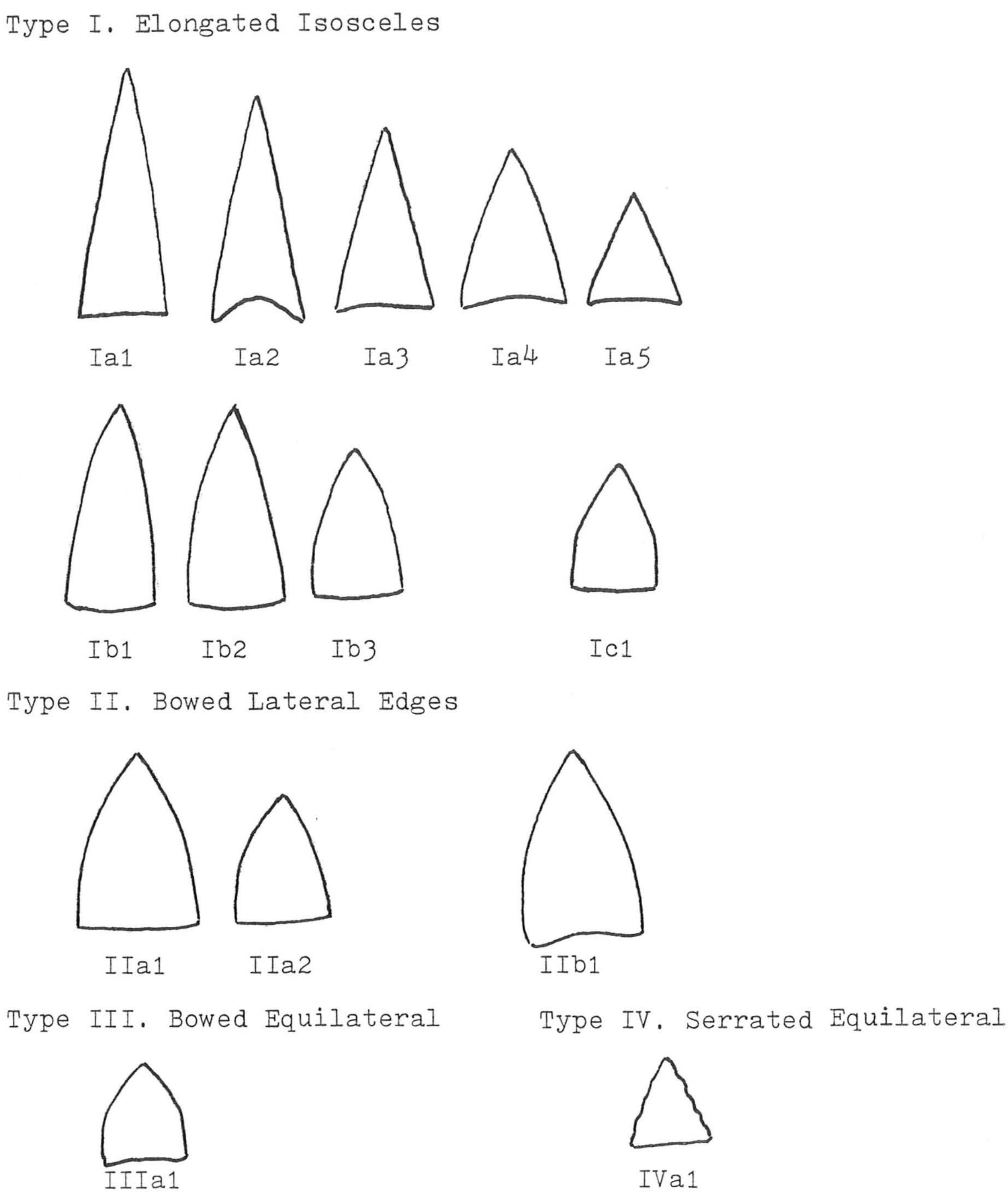


FIGURE 30. Projectile point varieties from the Christianson site.

Projectile Point Raw Material

As with detritus, Onondaga chert predominates the projectile point inventory with 278 of the 304 (91.44%) points (Table 34). Similarly, points made from Kettle Point and Ancaster cherts comprise 3.95% and 3.62% respectively. Of interest, the majority of Kettle Point (9/12) and Ancaster (10/11) chert points are in an unfinished or roughly worked state. Single examples of projectile points made from Balsam Lake and Collingwood chert and quartz were recovered from the site. The Balsam Lake point, however, does not appear to be from the Neutral occupation of th site; rather, it resembles a Brewerton side-notched point characteristic of the Archaic period (Ritchie 1971:19). It measures 58mm in length, and has widths at the shoulder, notch, and base of 33mm, 21mm, and 25mm respectively. It has a thickness of 10mm. Archaic projectiles also occur in small numbers at the Hamilton, Walker, Thorold and Cleveland sites (Noble, personal communication:1981).

Retouched Flakes

Sixteen flakes recovered from the 1979 excavations exhibited unifacial retouching; twelve on one or both lateral edges (two for the latter), one along the distal edge, and three on both lateral and distal edges. Two of the latter flakes presented alternate edge retouch where adjacent edges had dorsal and ventral retouch. One of the flakes had been retouched concavely along both edges. It may be that this implement, and another flake which had been bifacially notched, were utilized as spokeshaves (Lennox 1977a:50).

Lengths of the retouched edges for the alternately retouched pieces were 14mm and 19mm, and 16mm and 18mm, respectively. Where the complete retouched edge was intact, the length of retouch ranged from 9mm to 25mm with a mean of 16.35mm. One broken flake had retouch of at least 31mm.

Fifteen of the sixteen flakes (93.75%) were of Onondaga chert with the other being Kettle Point.

Serrated Flakes

Three flakes (two complete) from the 1979 excavations possessed serration. The fragment and one of the complete flakes had serration along only one of the lateral edges, with the latter possessing four serrations along 12mm of the edge of the flake.

The other complete flake was unifacially flaked on the dorsal surface with serrations along both lateral edges, while on the ventral surface serrated retouching was present along only one lateral edge. While morphologically a projectile point, it probably was not because of the extreme curvature of the flake.

All three of the flakes were manufactured from Onondaga chert.

Preforms and Blanks

Twenty roughly worked pieces from the 1979 excavations, defined as such by a rough flaking technique, could have been preforms or blanks for projectile points (13), various types of scrapers (2), drills (1), or some other unidentifiable type of biface (4).

Cores

Forty-two cores were recovered from the 1979 excavations; 35 (86.67%) random and 7 (13.33%) bipolar. No cores of Ancaster chert were identified which is surprising because of the proximity of the outcrops of chert. Table 39 presents the details of the Christianson site cores.

TABLE 39. 1979 Christianson site cores.

	Random			Bipolar			TOTALS
	N	Wt. (gm) r	$\bar{x}$	N	Wt. (gm) r	$\bar{x}$	N
Onondaga	33	1.82-58.88	16.05	7	1.95-24.01	7.03	40
Kettle Point	2	2.71-18.27	10.49	0			2
TOTALS	35	1.82-58.88	15.73	7	1.95-24.01	7.03	42

Mean weights differ notably between the heavier random cores ($\bar{x}$= 15.73gm) and the bipolar cores ($\bar{x}$= 7.03gm), for the bipolar technique is a means to extract additional material from the core. Unlike the later Hood and Hamilton sites (Lennox 1977a:43, 1978:80), this technique was used more freqently on Kettle Point chert, likely as an attempt to conserve a relatively scarce material.

Drills

Two varieties of drills were observed; flattened and elongated conical. The flattened variety morphologically resembles elongated isosceles projectile points, but exhibits extremely concave lateral edges which form the bit of the drill. Five drills could be attributed to this type. One specimen exhibited a shorter drill section and also had flaking on alternate edges rather than bifacially. While the flattened drills were finely flaked, the elongated conical types were, aside from being morphologically different, roughly worked (Table 40). All drills were manufactured from Onondaga chert.

Miscellaneous Bifaces and Fragments

Twenty-two pieces have been placed in this category. Twenty which exhibit one or more bifacially worked edges are either too fragmentary or small to tell from what type of artifact it came from or what it may have been used for. Eight of these biface fragments have been broken but tend to be rectangular in shape and exhibit bifacial retouch on the three intact edges.

A previously described broken flake had a notch

TABLE 40. Christianson site drill types.

		Flattened	Elongated conical	Fragmented	TOTALS
N		5	3	2	10
Length (mm)	r	25-30	34-44		
	$\bar{x}$	27.50	40.67		
Width (mm)	r	15-22	13-15		
	$\bar{x}$	17.50	14.33		
Thickness (mm) (bit)	r	3-6	6-7		
	$\bar{x}$	4.75	6.67		

bifacially flaked along an edge, with it perhaps being utilized as a spokeshave.

An ovate bowed biface measuring 31mm by 12mm by 5mm has been finely retouched around its periphery. A function, however, could not be attributed.

Scrapers

Certain metric attributes of scrapers, such as length and bit angle, perhaps more so than any other lithic artifact are difficult to interpret because the scrapers likely are from various stages of manufacture from unfinished through exhausted, including rejuvenated. Most of the scrapers from the Christianson site did not exhibit a finely worked distal end, suggesting either that the scrapers were unfinished or that it was not necessary to complete this section of the scraper. While several distal ends were finely tapered, perhaps to aid in hafting, the majority were blocky and unworked, possessing in some instances cortex or the striking platform of the flake. As such, difficulties arise when attempting to define what is a usuable, unexhausted scraper. Scrapers possessing ventral retouch along the working edge, for example, have been variously attributed as a separate type of scraper as in the classification of Lennox (1977a:45) and Wright (1977:76), while they both contended that such a feature is but a finishing or resharpening stage of unifacial scraper production. Fox (1977:7) contends that this ventral retouch increases over time, and Wright (1977:76) agrees, based on the Walker snubnose scrapers. Such is the confusion that it was stated that such retouch may simply be a part of the scraper reduction. Such is the difficulty encountered when attempting to analyze scrapers on a typological basis when so many factors must be considered and which are, and will remain hindrances, until intensive scraper analyses are undertaken.

Consequently, the analysis of the Christianson site scrapers will be restricted to basic morphology, an examination of chert types utilized, working edge (bit) angles, and widths, lengths and thicknesses simply to give an indication of the variability in size.

Of the 92 scrapers examined, 90 were of the tabular snubnose variety, possessing an essentially flattened and unworked ventral surface. Longitudinally, the scraper profiles exhibited blocky cross sections (8) or various degrees of tapering from the working edge (82). There are 84 Onondaga chert scrapers, 4 Kettle Point, and only 2 Ancaster.

The other two scrapers were bifacially worked, possessing acutely angled working edges. Both scrapers were manufactured from Onondaga chert.

Working edge angles of the snubnose variety ranged from 52° to 90° with a mean of 71.24°. Figure 32 presents the distribution of bit angles.

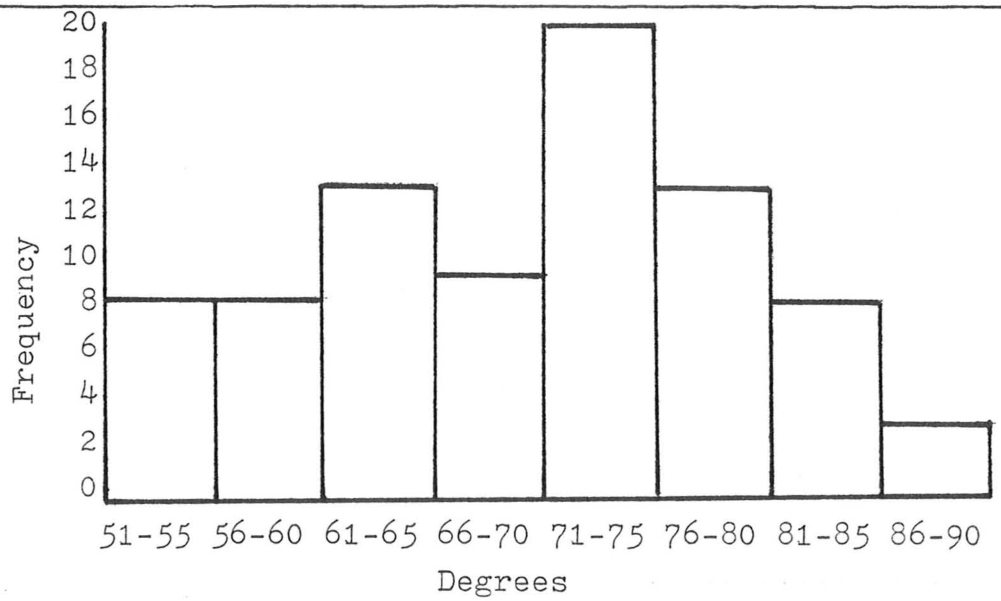


FIGURE 31. Christianson snubnose scraper bit angles.

Figure 32 presents length, width, and thickness distributions, ranges, and means. Figure 33, despite the previously mentioned cautions concerning the utilization of length measurements, shows that the majority of scrapers have a length:width ratio between 1:1 to 2:1. Only two exhibited widths which were greater than their lengths.

Summary

As is the case on the later historic Spencer-Bronte drainage sites, frequencies of Kettle Point chert for utilitarian implements at the Christianson site tend to differ for certain artifact types. From the small amounts (frequency 2.87%, weight 2.12%) observed in the detritus, Kettle Point frequencies of retouched flakes (6.25%), cores (4.76%), scrapers (4.35%), projectile points (3.95%), and drills, serrates and preforms (all 0.00%) indicate there was a preference, but not as pervasive as on later sites, for Kettle Point utilization at ca. 1615. While frequencies of this distant, premier quality chert do increase on the later Hood and Hamilton sites, perhaps reflective of the increased Neutral incusrions into the southwestern Ontario-Michigan area, there appears to be a greater selectivity for this chert for certain artifact classes, most notably scrapers, where at the Hood site 25.0% of the snubnose scrapers were manufactured from Kettle Point chert

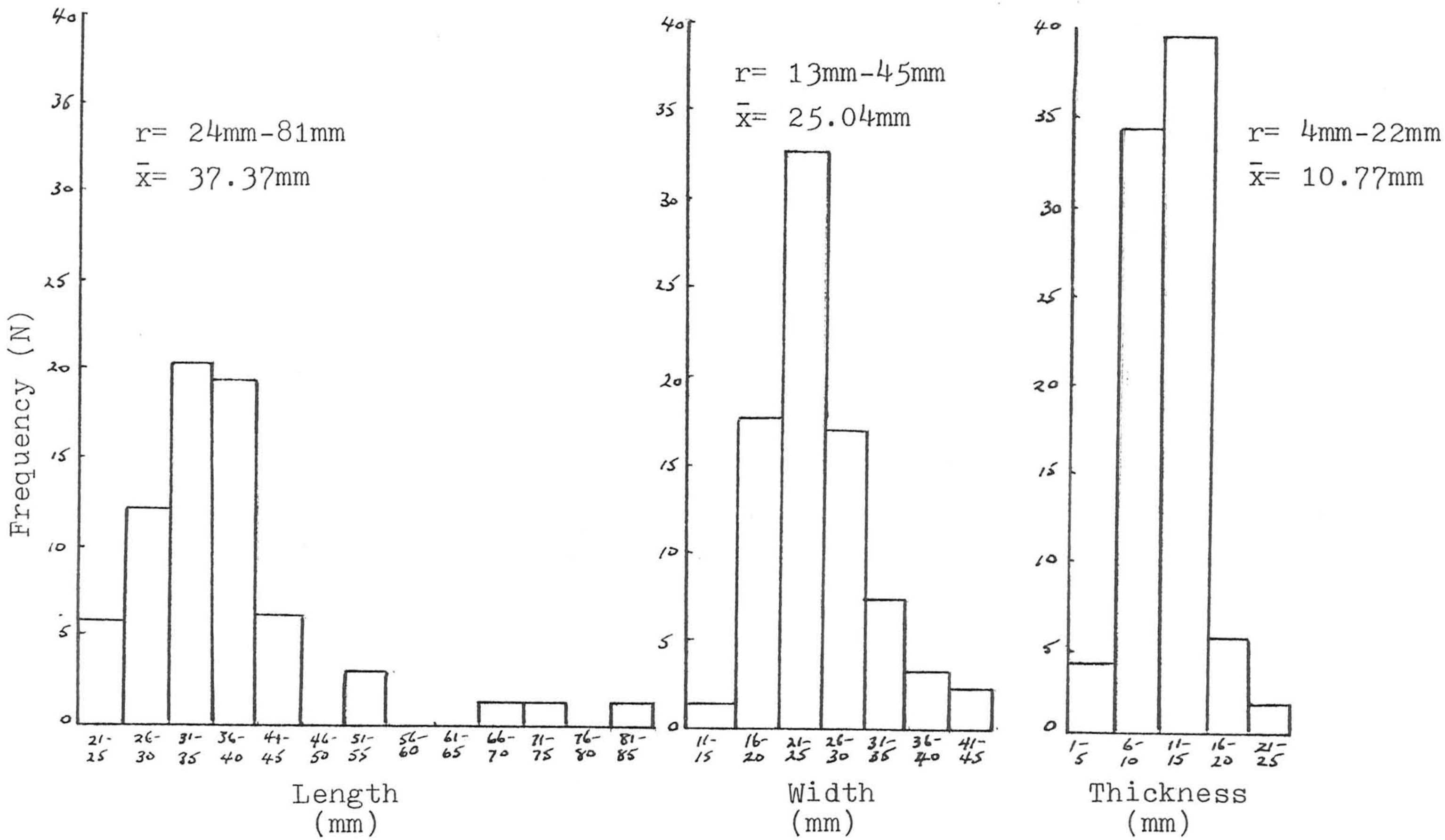


FIGURE 32. Christianson site snubnose scraper length, width, and thickness distributions.

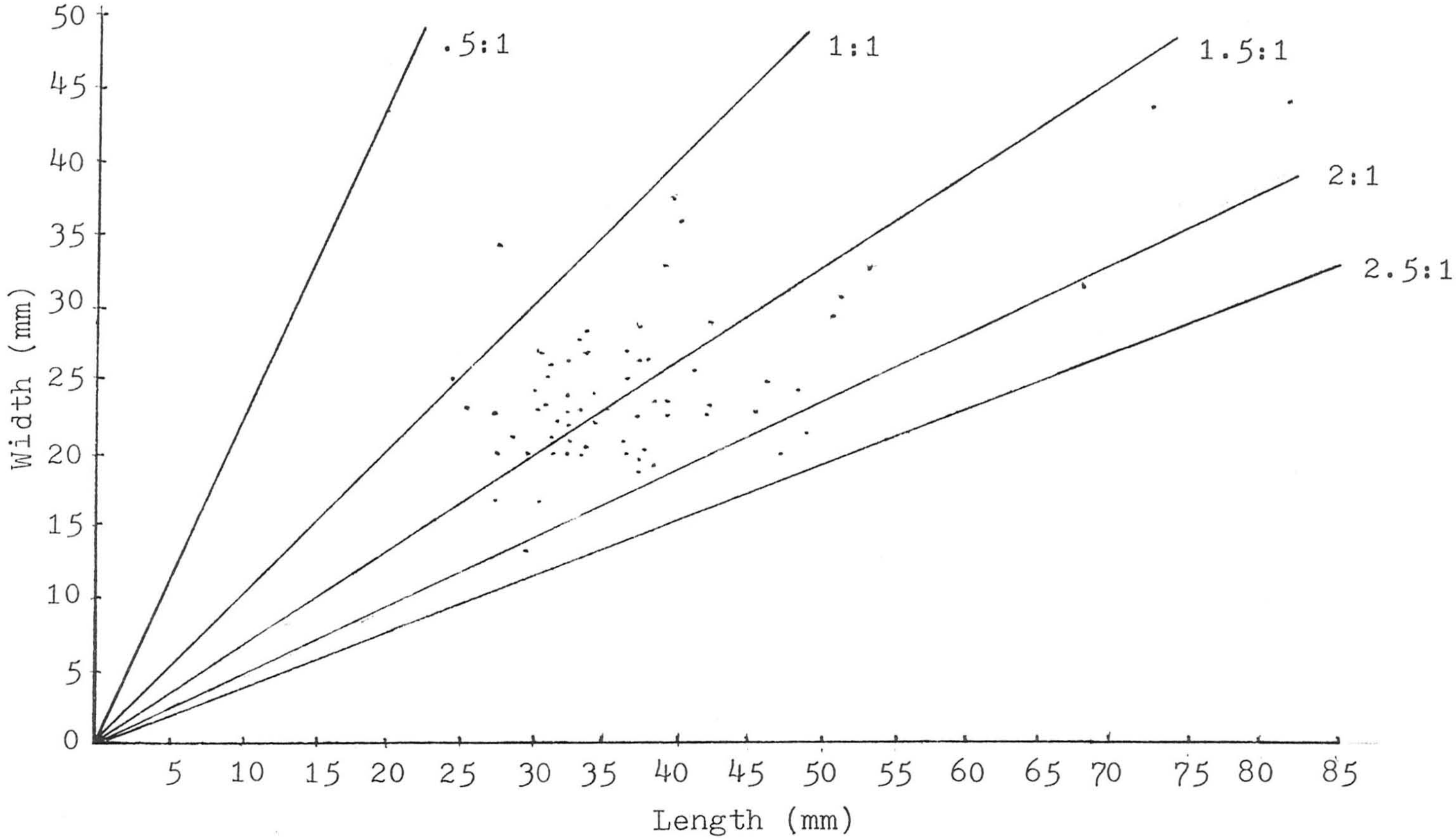


FIGURE 33. Length:width distribution of Christianson site snubnose scrapers.

(Lennox 1978:86), while at the Hamilton site the value was 13.1% by weight (Lennox 1977a:47). Respective values of Kettle Point detritus by weight at the sites were 8.3% and 3.1%. Such a relative predominance was not observed at the Christianson site. Frequencies of certain worked lithics manufactured from Kettle Point chert did, however, show greater ocurrences than the value observed for the detritus (Table 41). Cores, as may be expected, most closely approximated the frequency of the detritus.

TABLE 41. Kettle Point chert frequencies.

	Christianson	Hood	Hamilton
Detritus	1.71% (wt) 2.87% (fr)	8.3% (wt)	3.1% (wt)
Retouched flakes	6.25%	13.33%	-
Cores	4.76%	5.56%	3.70%
Scrapers	4.35%	25.00%	13.1%
Projectile Points	3.95%	9.24%	6.02%

Ground Stone

Lithic material which shows evidence of having been altered by grinding constitutes a minority of the overall lithic assemblage. Aside from the five pipe fragments described in Chapter 4, the inventory consists of five beads, two pestles, a netsinker, a sharpening stone, and a smoother. While there was an abundance of rocks recovered from the site whose surfaces could have permitted them to be used as smoothers or abraiders, they lacked the wear which would make such a classification possible.

Beads

Table 42 presents the details of the completed and unfinished beads recovered from the Christianson site.

TABLE 42. Lithic bead data.

Provenience	Type	Material	Diameter (mm)	Thickness (mm)	Colour, State
MA-17PZ	tubular	limestone	6	7	medium grey finished
Surface	discoidal	slate	13	5	black, finished
A-2	discoidal	siltstone/ slate	12	5	red, finished
MA2-7	discoidal	siltstone/ slate	15	3	red, unfinished (hole not drilled through, roughly worked)
A-5	discoidal	siltstone/ slate	16	3	red, preform (roughly circular and worked no hole started)

The red siltstone/slate utilized in the manufacture of the beads is probably derived from secondary deposits in cobble form in the summer occupation areas of the Cheveux relevés such as on Manitoulin Island at Wikmiking and along the north shore of Georgian Bay (Fox 1978a:3, 7). It is likely that it was but one of the many items supplied to the Neutral by this group in a raw and/or finished state as suggested by the more frequent manifestations on historic Huron and particularly Petun sites (Fox 1978a:8, 1979:81), and which tends to be confirmed as two of the three red siltstone/slate beads from the Christianson site were in an unfinished condition.

Catlinite, also used for bead and pendant manufacture, is found primarily in western Minnesota (Fox 1979:81), and along with such western products as hides and native copper, could have been assembled by the Winnebago or Nassauketon and traded to the Ontario horticulturalists indirectly through the _Cheveux relevés_ and/or the Nipissing (Brizinski 1980:181, Heidenreich 1971:227, Waisberg 1977:32) . Catlinite beads and pendants tend to be very rare on prehistoric sites in Ontario (Ridley 1961:52). Fox (1978a:6) contends that the red siltstone industry, and no doubt the catlinite industry could be included, did not become widespread until some time around 1620 among the Huron and Petun, which may represent attempts by Algonkians to expand their participation in the burgeoning fur trade (Trigger 1976:347, Fox 1978a:9). This also appears to be the case for the Neutral, despite a relative infrequency of such material on later Neutral village sites. The Christianson site had but three red siltstone/slate beads, and from the later Hood site only two catlinite beads, both from burial contexts, were recovered (Lennox 1978:94), and Hamilton site but four red slate and two catlinite beads (Lennox 1977a:60). However, large quantities of these beads have been recovered from the Walker, Daniels and Dwyer ossuaries (Noble, personal communication:1981).

Of interest though, the beads from the Hood site burials were found in association with red glass beads, which would appear to substantiate the contention that there were attempts by certain groups of Algonkians to get into the lucrative European trade by producing items similar in nature to those introduced by the Europeans. While there was trade for such western and northern products, it does not appear that it was as extensive among the Neutral as it apparently was with the Petun.

Net Sinker

An elongated piece of sandstone which tapers at both ends is bevelled on both surfaces and which has two centrally located parallel grooves encircling the piece is likely a net sinker. Recovered from the hearth/refuse pit Feature 1 along the southern slope of the site, it measures 82mm by 49mm by 25mm.

Pestles

Two roughly circular bifacially flat pieces of limestone exhibited on one surface notable central pitting. Both pieces were similar in size, 110mm by 104mm by 23mm and 106mm by 97mm by 32mm, as were the dimensions of the central pitting, being 24mm and 26mm in diameter, respectively. It is suggested that these flattened pebbles, one of which was recovered from the undisturbed context of House 1 Feature 2, served as pestles, but their small pitted sections would preclude usage for grinding of large quantities at a single time. Perhaps they were used to grind material other than foodstuffs. Of interest, the pestle found in the ploughzone of square 30N5W was comprised almost exclusively of fossils.

Sharpening Stone

An irregularly shaped fragment of a sandstone slab from House 2 Feature 1 has on one surface two obliquely set pair of roughly parallel narrow grooves. The granular nature of the rock would have facilitated the sharpening of bone or iron implements, and in this instance because of the width of the grooves, awls.

Smoother

As previously mentioned, while the majority of smoothed limestone slabs from the site could have been utilized as smoothing or grinding stones, the one found in House 3 Feature 1 may merit such a classification. The piece is 56mm in diameter, 33mm thick and weighs 123gm. It is generally smooth with rounded edges, however, the presumed smoothing surface is flatter and noticeably smoother than the other surfaces.

CHAPTER 6

WORKED BONE AND ANTLER

Kinds and amounts of worked bone and antler specimens are listed in Table 43. That ornamental items, their waste, and preforms dominate the worked bone inventory may indicate that by the early historic period bone tools were being replaced by more durable European items. This trend is substantiated when examining frequencies of utilitarian worked bone and antler from the protohistoric Fonger site (50.00%)(Warrick 1979a:20), the transitional Christianson site (21.13%), and later historic Neutral sites such as Walker (26.97%)(Wright 1977:121), Hood (17.92%)(Lennox 1978:129, 134-135) and Hamilton (14.02%)(Lennox 1977a:125, 137). Furthermore, the mid-thirteenth century Bennett site indicates the importance of bone for utilitarian purposes in precontact times. Close to 90% of the bone artifacts could be assigned utilitarian usages (Wright and Anderson 1969:59).

Beads, Bead Waste, and Bead Preforms

The majority of bone beads were fragmentary examples recovered from midden deposits. Of the 98 beads, 59 (60.20%) are mammal, 22 (22.45%) avian, and 17 (17.35%) unidentifiable. Among the 59 mammal bone beads, the following species could be identified: Canis sp. (6), raccoon (5), white-tailed

TABLE 43. Christianson worked bone and antler.

	N	%
Beads	98	63.64
Modified beaver incisors	10	6.49
Bead waste	8	5.19
Needles	6	3.90
Drifts/flakers	5	3.25
Bead preforms	5	3.25
Awls/punches	5	3.25
Cut and ground antler tines	5	3.25
Harpoon fragments	2	1.30
Incised deer phalange	1	.65
Turtle carapace pendant or rattle fragment	1	.65
Fish hook	1	.65
Spoon fragment	1	.65
Disc	1	.65
Miscellaneous modified bone and antler	5	3.25
TOTALS	154	100.02

deer (2), eastern cottontail (1), and human (1). For the avian beads, single examples of whistling swan (<u>Cygnus columbianus columbianus</u>), raven (<u>Corvus corax</u>), and goose sp. were identified (Table 45).

While long bones provided the major source of material for tubular beads, ribs were also utilized (Table 44).

Nine mammal beads complete enough to provide lengths (raccoon, 2; <u>Canis</u> sp., human, eastern cottontail and

TABLE 44. Tubular bead raw material utilization.

	tibia	femur	humerus	ulna	radius	rib	TOTALS
Canis sp.	2	2		1	1		6
Raccoon	2	2			1		5
White-tailed deer	1					1	2
Whistling swan				1			1
Goose sp.				1			1
Raven		1					1
Human				1			1
Eastern cottontail	1						1
Avian sp.			2				2
Mammal sp.			1				1
TOTALS	6	5	3	4	2	1	21

white-tailed deer, all one; and mammal sp., 3), ranged from 23.9mm to 69.6mm with a mean of 52.29%. Four avian beads (three avian sp. and one raven) had a range of 22.6mm to 41.7mm with a mean of 31.83mm. One unidentifiable bead had a length of 24.8mm. Together, the 14 beads had a range of 22.6mm to 69.6mm with a mean of 44.48mm. With the exception of one piece of waste, there were no tubes from the Christianson site.

Decoration was limited to fine transverse incising on eight of the beads, a *Canis* sp. radius, a human ulna, a white-tailed deer anterior thoracic rib, and five mammal

TABLE 45. Faunal implementation for bone bead manufacture.

	Beads	Bead waste	Bead preforms	TOTALS
MAMMAL				
sp.	44		1	45
Canis sp.	6	1	1	8
Raccoon	5	2		7
White-tailed deer	2	1	1	4
Human	1			1
Eastern cottontail	1			1
Subtotal	59	4	3	66
AVIAN				
sp.	19		1	20
Canada goose		2		2
Whistling swan	1			1
Goose sp.	1			1
Sandhill crane			1	1
Turkey		1		1
Raven	1			1
Subtotal	22	3	2	27
UNIDENTIFIABLE	17	1		18
TOTALS	98	8	5	111

sp. long bones. The incising was present in a variety of expressions, being either restricted to certain sections of prominent ridges or continuing along the length of the bead. Single and multiple rows were observed on intact beads.

Distal and proximal epiphyses and adjoining shaft sections of long bones which exhibit transverse incising with concomitant breakage are presumably the waste of tubular bead manufacture. A single anterior thoracic rib of a white-tailed deer exhibits the same features. Species and elements are summarized in Table 46.

TABLE 46. Bone bead waste material.

	raccoon	Canada goose	turkey	white-tailed deer	*Canis* sp.	avian or mammal	TOTALS
ulna		1	1				2
femur					1		1
humerus		1					1
tibia	1						1
radius	1						1
rib				1			1
unidentified long bone				1		1	2
TOTALS	2	2	1	2	1	1	9

Five elements have been identified as preforms in various stages of bead manufacture. Three long bone shaft fragments (avian, mammal, and a *Canis* sp. femur) exhibit incomplete deep transverse scoring indicating that the pieces were discarded prior to completion while a complete proximal phalange of a white-tailed deer and the proximal end of the tarsal metatarsus of a sandhill crane (<u>Grus canadensis</u>) have been finely scored about the epiphyses, being perhaps the initial stage of bead manufacture.

<u>Modified Beaver Incisors</u>

Ten beaver incisors and incisor fragments (6 mandibular, 3 maxillary, 1 indeterminate) exhibit altered occlusal surfaces. The working edge of one of the incisors has been flaked, perhaps to enhance its scraping capability. This phenomenon was also observed on several beaver incisors from the ancestral Huron Draper site (Ferguson 1979:110).

<u>Needles</u>

Portions of six needles of the centrally-eyed variety were recovered. Three were complete enough to provide estimated lengths: 84mm, 96mm and 116mm. Widths at the centre of the needles were uniformly 7mm.

<u>Drifts or Flakers</u>

Manufactured from tine sections of <u>Cervidae</u> sp. antlers, five cylindrical pieces (four broken) have been identified, largely by convention, as being drifts for indirect percussion perhaps used to rough out bifaces (Ridley 1961:52, Fox 1977:5), or as pressure flakers used in the production of chert implements, although there is no wear on the pieces to suggest such a function.

The ends of the four fragmentary specimens have been ground flat, and in cross section they have been ground and smoothed into a rectangular shape. Lengths and widths of the ends range from 6mm to 13mm by 5mm to 8mm respectively, with means of 8.25mm and 6.25mm.

Measuring 95.8mm in length, the complete piece also has a flattened end, but it has been longitudinally cut into a faceted but roughly circular shape with a diameter of 7mm at the flaking end.

Awls or Punches

Five bones with ends ground to a point were presumably utilized as perforating tools, either awls or punches. Four were manufactured from mammal long bones or splinters (including a Leporidae sp. tibia and a raccoon ulna) with the other being an avian long bone. The raccoon ulna has a working end which, unlike the other four, possesses a bevelled surface, exposing the marrow cavity. The other four awls have been ground to sharp points.

Cut and Ground Antler Tines

Five antler tines have been altered by cutting, grinding, and carving. Three tips were removed by cutting and snapping as shown by deep incisions around the circumferences. The two intact pieces measure 24mm and 42mm in length, while the other, with a portion of the tip missing would measure approximately 35mm in length.

The other two larger tips have been removed in a different fashion, the bases having been thinned by carving down the length and then being snapped off. While the tips have not been further modified, these tines, which still possess the curvature of the antler, have been carved longitudinally, producing a faceted appearance. These two pieces measure 57mm and 76mm in length. The longer has two rows of transverse incisions along the distal 20mm, reminiscent of those observed on several of the beads.

Functions of the worked tines are unknown, but the three shorter specimens which lack any modification, aside from basal cut marks, may be by-products of the manufacture of some other antler artifacts.

Harpoon Fragments

A 77mm long portion of the tip of a unilaterally barbed harpoon and a central portion of a bilaterally barbed harpoon, both manufactured from antler, were recovered from the site.

Incised Deer Phalange

A proximal phalange of a white-tailed deer exhibits seven roughly parallel transverse incisions along the medial surface, perhaps functioning as a dice or counter (McCullough 1978:92-93). Such a form of modification was predominant on the Hamilton site modified deer phalanges (Lennox 1977a: 131).

Turtle Carapace Pendant or Rattle Fragment

A portion of the pygal, a marginal plate, from a *Terrapene* sp. has had two bevelled 5mm holes drilled from the outside equidistantly (10mm) from the midline of the carapace and 13mm in from the distal margin. While its fragmentary state prohibits a definite identification of its function, it could be either a portion of a pendant or rattle.

Fish Hook

Carved and ground from a mammal long bone splinter is a substantial portion of a fish hook. The proximal area of the stem which would contain the eye appears to have been broken away. The transition from the stem to that section is demarcated by an expansion in size and flattening to the area where an eye might have been. The maximum thickness of the stem is 3.0mm by 3.5mm. The hook portion is 20mm in length and lacks a barb. From the base of the hook to the previously mentioned transition area is 41mm. From the point of the hook to the stem is 12mm.

Spoon Fragment

A portion of what may be either the scapula of a large mammal or a section of the broad portion of the antler rack of a large cervid has been ground and perhaps warped to form a spoon. While only a fragment, it does resemble a spoon recovered from the early protohistoric Neutral

Cleveland site (Noble 1972b , Tuck 1978:333 Figure 12).

Disc

A mammal bone fragment has been ground into a roughly circular shape 11.7mm in diameter and 3.8mm thick. One surface is slightly domed and exhibits the natural structure of the bone while the other is flat. Radiating from the centre of this side are striations. This possible gaming piece was recovered from Midden A1-10PZ.

Miscellaneous Modified Bone

The left pectoral spine of a channel catfish (Ictalurus punctatus) has had the edge opposite the barbs of the spine modified by notching to produce a symmetrically barbed appearance along that surface. Also, the tip of the spine has been rounded. Noticeable is the smoothness and glossiness. It may have served as some form of an awl/sawing implement.

The diaphysis of a Canis sp. radius appears to have been whittled along its entire length. The intact end of the specimen has been cut from the remainder of the radius by first whittling the shaft thin and then breaking it off. That the end of the fragment is blocked by cancellous bone precludes its classification as a tubular bead.

Two pieces which are either antler or long bone splinter fragments, while having been worked on all surfaces, appear to be, because of their rough state, unidentifiable unfinished items. A third piece has been ground and finely smoothed on all of its intact surfaces.

CHAPTER 7

WORKED SHELL AND MARINE SHELL WASTE

The substantial quantity of worked shell (Table 47) indicates the importance such an assemblage had among the early historic Neutral, with the abundance of marine shell further attesting to the extensive measures which were taken to obtain such material. Within historic Neutral sites, decorative worked shell is recovered primarily from burial contexts, as for example at the Hood site (Lennox 1978:127), Shaver Hill ossuary (Stothers 1970, 1972), and Dwyer ossuary (Ridley 1961:26-30). Of the 195 shell beads recovered from the Christianson site excavations of 1979, 158 (81.03%) were grave inclusions from House 4E Feature 15. The abundance of shell, and also of European items, on later historic

TABLE 47 . Christianson site worked shell and marine shell waste.

	N
Beads	222
Undiagnostic worked marine waste fragments	11
Worked conch/whelk fragments	10
Undiagnostic worked pieces	5
Pendants	4
Pendant preforms	2
Bead blanks	1
TOTALS	255

Neutral and Huron sites, particularly in association with interments appears to be a 17th century manifestation related to the developing fur trade (Kenyon 1972:5, Ramsden 1979:4-5). The Fonger site (*ca.* 1580-1610) produced only one marine snail bead, twelve marine shell discoidal and tubular beads and three marginella (*Prunum apicinum*)beads (Warrick 1979:20-21), which may indicate that the extensive use of shell observed at the *ca.* 1615 Christianson had not yet developed by the beginning of the 17th century.

> You might say that all their exertions, their labours, and their trading, concern almost exclusively the amassing of something with which to honour the dead. They have nothing sufficiently precious for this purpose; they lavish robes, axes, and porcelain in such quantities that...you would judge that they place no value upon them; and yet these are the whole riches of the country. You will see them often, in the depth of winter, almost entirely naked, while they have handsome and valuable robes in store, that they keep in reserve for the dead; for this is their point of honour. It is on such occasions they wish to appear magnificent (Thwaites 1896-1901 x:265).

It was not only the individual who possessed a soul, but all material objects (Thwaites 1896-1901 iv:201, vi: 175), and such is the reason for the placement of food, the belongings of the deceased, and gifts in the grave, for the human souls made use of the souls of the goods in the afterlife just as they would when they were alive. That the conception that life in the land of the dead in no way differed from that of the living (Thwaites 1896-1901 1:265, 189, iv:201, vi:179, x:147, xxvi:125, xxx:25) conceivably could have been an early 17th century alteration of beliefs regarding the afterlife. The paucity of inclusions in such pre-17th century interments such as the ancestral Petun-Huron Sopher ossuary (Noble 1971) has led Ramsden (1979) to suggest that the extensive use of such items as shell, European goods and beaver pelts as grave inclusions was one means of dispersing a sudden influx of these goods by means other than those inferred to have been implemented prehistorically. Concomitant with an alteration in the type of grave goods included must have been a change in the beliefs justifying their inclusion.

While the shell used for discoidal beads has been identified as marine (Lennox 1977a:118, Wright 1977:145), it may be that large freshwater clams from the numerous streams and rivers in Neutralia, or even the Lake St. Clair-Lake Huron area could also have provided the necessary raw material. Lalemant's account of the source of shell as being a Western Nation which dwelled not far from the sea (Thwaites 1896-1901 xxi:201), may be interpreted as being the Fire Nation. It may be that his direction could be wrong and that this is a reference to the Susquehannocks (Trigger, personal communication:1981), as it is clear that the main reason for Hurons visiting the Susquehannocks was to trade, presumably for marine shell (Trigger 1976:63, 244). Regardless, there are shell types on Neutral sites which indicate connections with groups that were either along the eastern United States coast or who had access to the shell from that area.

From the Christianson site, 59 Prunum apicinum shells, 57 of which came from burial Feature 15 of House 4E, have had one side of the apex ground to produce a hole allowing them to be strung as beads. These shells are found along the eastern seaboard from North Carolina southward, and around the Gulf states (Emerson and Jacobson 1976:158).

Marine shells used for the manufacture of discoidal and tubular beads and pendants include the Lightning Whelk (Fulgor perversa/Busycon perversum) (Heidenreich 1971:228) which ranges from New Jersey to Campeche, Mexico (Emerson and Jacobson 1976:144), Wavy Whelk (Buccinum undatum)which is distributed from the Arctic seas to New Jersey, and the conch (Strombus sp.) from southeastern Florida (Wright 1977:144, Prevec 1980:45, Emerson and Jacobson 1976:84, 134).

As previously mentioned, marine shell items begin to appear on Ontario Iroquois sites in noticeable quantities around the beginning of the 17th century, and it is probable that they were obtained from the Susquehannocks (Andaste) of Pennsylvania who had river access to the sea (Biggar 1922-1936 iii:218) and who were allied militarily with the Huron as early as 1615 (Biggar 1922-1936 iii:53-55).

Marine shell artifacts performed an important role in numerous aspects of historic Iroquois society (Beauchamp 1901:). The variety and quantity of such items recovered from historic Neutral sites suggests that the Neutral were an integral part of the network through which they were transported from the east coast.

Two hundred and fifty-five pieces of worked and marine shell have been recovered from the Christianson site. Such large quantities distinguish it and the later historic sites from the earlier protohistoric sites of Cleveland and Fonger. That a similar pattern can be seen in European items, both in terms of quantity and variety suggests a developing involvement in the fur trade, beginning about the time of the occupation of the Christianson site, ca. 1615.

Beads and Bead Blanks (Table 48)

While the tubular, thick discoidal, and globular beads appear to have been manufactured from the columella of the conch or whelk, it could not be determined whether the 136 thin discoidal beads were produced from the columella or from large freshwater bivalves. Comprising 61.26% of the shell bead inventory, the thin discoidal beads ranged in diameter from 6.2mm to 14.9mm with a mean of 7.79mm (Figure 33) and in thickness from 0.8mm to 4.0mm with a mean of 2.36mm.

TABLE 48. Christianson site shell beads.

	N	%	Thickness/ Length (mm) r	$\bar{x}$	Diameter (mm) r	$\bar{x}$
Thin discoidal	136	61.26	.8-4.0	2.36	6.2-14.9	7.79
Prunum apicinum	59	26.58		complete shells		
Tubular	19	8.56	6.3-22.0	12.19	3.6-12.7	7.08
Thick discoidal	6	2.70	5.2-10.8	7.00	7.0-20.2	10.77
Globular	2	.90	9.9-11.1	10.50	11.1-16.1	13.60
TOTALS	222	100.00				

A single roughly-formed disc of apparently freshwater clam appears to be a blank for a thin discoidal bead.

Six thick discoidal beads produced smaller diameter: thickness ratios, clustering into a group distinct from the higher ratio thin discoidal beads (Figure 34). Diameters ranged from 7.0mm to 20.2mm with a mean of 10.77mm, while thicknesses were between 5.2mm and 10.8mm with a mean of 7.00mm. The beads from House 4E Feature 15 consistently measured between 7mm and 8mm in diameter.

While 17 complete tubular beads produced a range in length of 6.3mm to 22.0mm with a mean of 7.08mm, an incomplete columella bead fragment measured 50mm+. Diameters ranged between 3.6mm and 12.7mm with a mean of 7.08mm. In cross section the tubular beads varied from modified circular to multi-faceted to the unmodified form of the

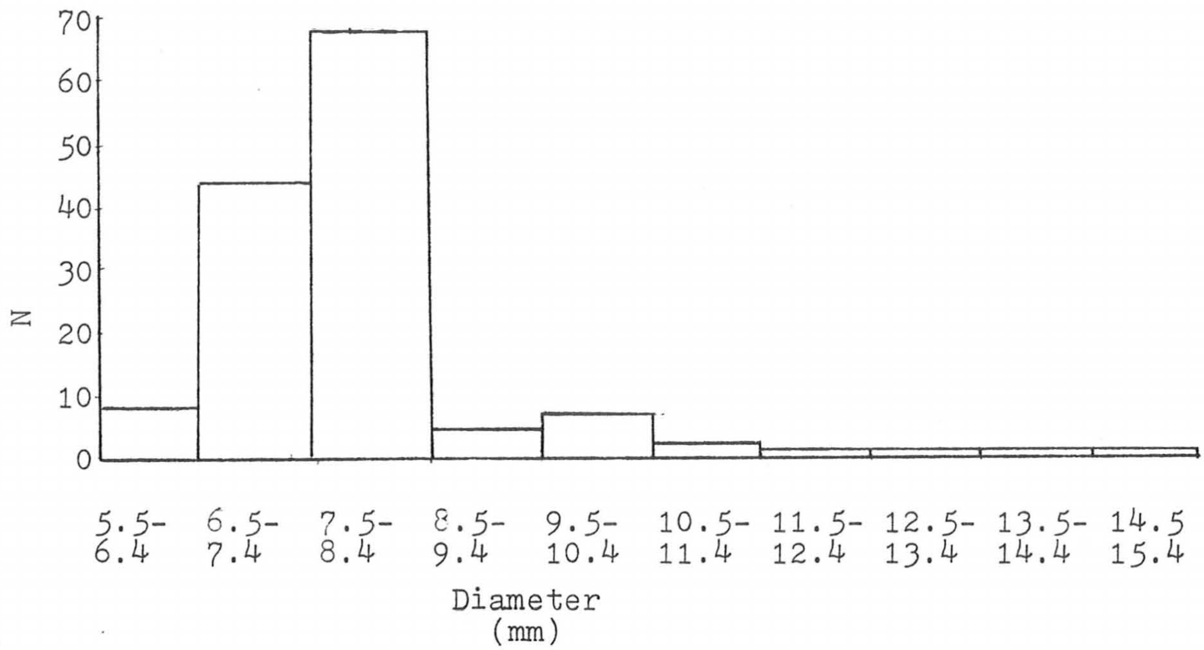


FIGURE 34. Christianson site thin discoidal bead diameters.

twisting columella.

Two large beads were ground into near globular forms averaging 10.50mm in thickness and 13.60mm in diameter.

Fragments of 59 <u>Prunum apicinum</u> shells were the only complete shells to be utilized as beads. In size the shells average 11mm in height and 7mm in width (Emerson and Jacobson 1976:158).

While the identification of thin discoidals as marine or freshwater shell varieties would provide more insight into the extent of trade for marine shell, the fact that the other varieties are marine, and the presence of relatively large amounts of marine shell in other forms suggests that trade

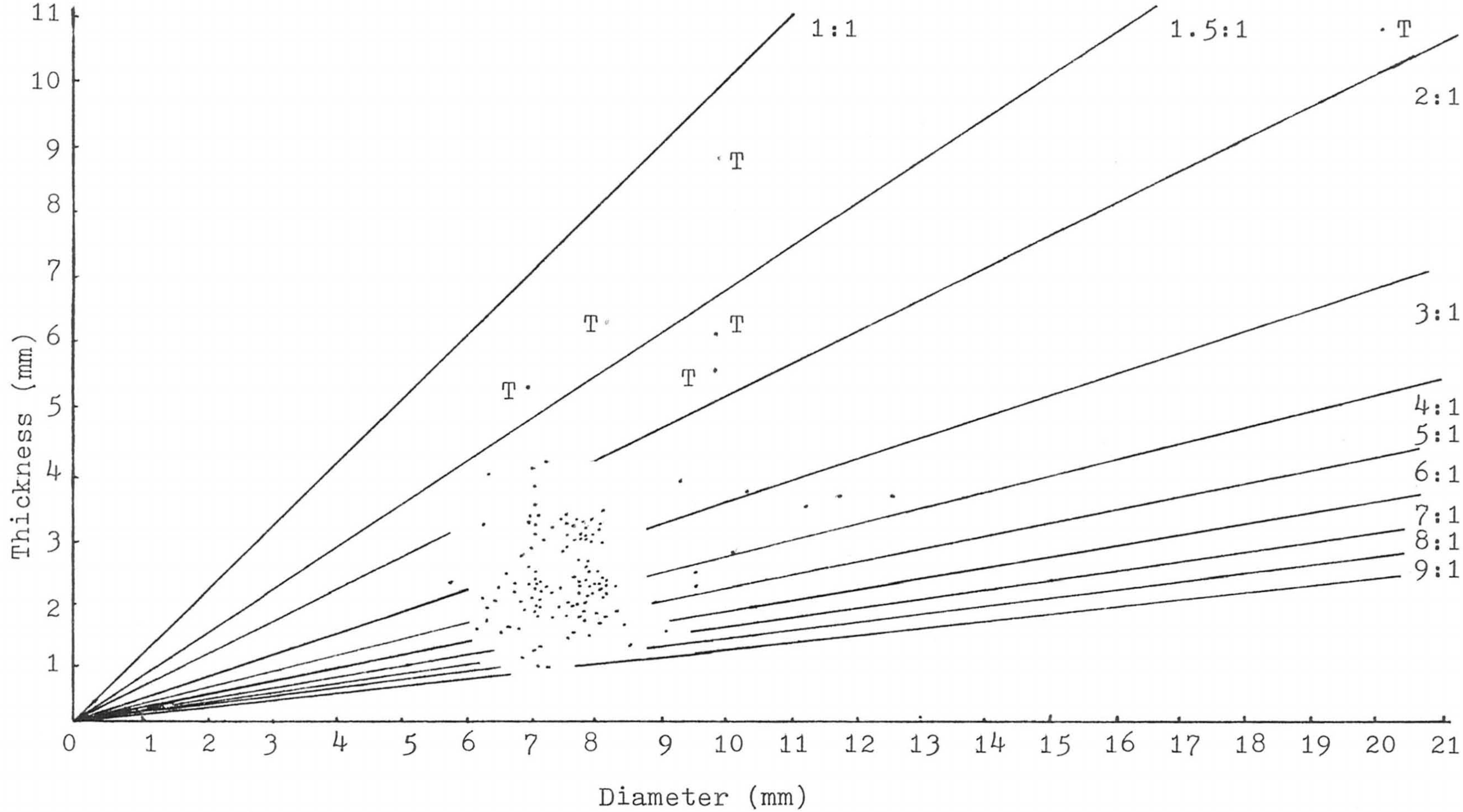


FIGURE 35. Diameter:thickness ratios of thin and thick (T) discoidal beads.

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for this commodity was extensive.

Undiagnostic Worked Marine Waste Fragments

Six mantle portions and four fragments of the keel show evidence of having been cut and/or broken, then ground vertically or bevelled on one or several edges and/or surfaces. No single piece, however, was worked or completed to such a stage as to permit identification of a function. A piece of keel has a widely cut groove and several smaller cuts which permitted the removal of a length of shell approximately 15mm long by 7mm by 6mm perhaps for the manufacture of a bead.

Unworked Conch/Whelk Fragments

Ten unworked fragments were identified: two nearly complete shells, and substantial portions of two spires, two columellas and four mantles.

Undiagnostic Worked Marine and Freshwater Shell

Two pieces of possible marine shell have been cut and ground into roughly rectangular forms 27mm by 22mm and 24mm by 14mm. The latter is in a more finished state with the shorter ends being bowed, one of the long sides being straight, and the other which is concave. These could have been inlay tablets (Lennox 1977a:122) or pendant preforms.

Two lengths of shell may have been preforms for tubular beads, reminiscent of the piece believed to have been removed from the keel previously described. One specimen measures 15mm by 7mm (maximum), is roughly square in cross section and tapers slightly. The other is much more irregularly faceted and tapered, measuring 25mm by 9mm (maximum).

Only one worked freshwater Unionidae sp. artifact was recovered (MA1-3, 4, 5PZ) (Prevec 1980:50), being a laterally bowed piece with edges ground round. Both ends had been broken, but if the configuration was continued, the ends may have been pointed. Seven notches were situated along a portion of one of the edges. The piece has a maximum width of 9mm and a broken length of 44mm.

Pendants and Pendant Preforms

Four pieces of marine shell possess perforations suggesting that they were used as pendants. There are three varieties: gorget (2); intact shell (1); and strip (1).

An intact specimen of a gorget is in the shape of a right-angled triangle with rounded corners, measuring 51mm by 41mm. Suspension holes are located midway along the base and at the apex. A fragment from a substantially larger gorget shows no evidence of having been remodified. Half of a suspension hole is present along one of the breaks toward the presumed centre of the pendant, and six shallow holes have been drilled along a section of the pendant edge.

The peripheral portion of the body whorl of a complete marine whelk has been removed, the spire ground, the entire shell smoothed, and a hole drilled through the parietal edge toward the spire to produce a pendant 47mm in length. The base of the columella has also been grooved.

An 8mm wide highly polished tan banded strip, recovered from MA1-11PZ, while only fragmentary, appears to be a portion of a pendant. Two holes have been drilled, one 3mm in diameter which continues into the end producing two inward pointing hooks, and the other 1.7mm in diameter directly beneath it. Both are centrally aligned.

Two possible pendant preforms have been cut and ground along all edges into three dimensional forms, one resembling a large canine tooth (from MA1-15PZ) and the other a longitudinally compressed iron knife blade and handle. Such descriptions are not intended to suggest purposeful manufacture into such forms. The canine measures 45mm by 15mm by 6mm and toward the proximal end a shallow hole has been drilled which, if completed, could have served as a suspension hole. The knife exhibits all features of an iron knife including a well defined heel. Maximum dimensions are 60mm by 26mm by 8mm.

CHAPTER 8

METAL AND GLASS BEADS

Two problems arise when dealing with the artifacts that have been classified as European trade items. First, since a part of the Christianson site is presently located beneath a farm house dating to the latter half of the 19th century, with evidence of other earlier structures being encountered toward the western portion of the site, items of recent European and Canadian manufacture were frequently recovered from the ploughzone. Consequently, of those artifacts recovered from the surface and ploughzone, only those which could confidently be identified as being of 17th century origin were analysed. Thus, certain artifact types which may in fact date to the 17th century may have been excluded. There was, however, a substantial sample recovered from undisturbed contexts which, in combination with those from the surface and the ploughzone, should provide an idea of the nature of this portion of the assemblage.

Second, while visual separation of brass from copper is possible when the patina is removed (brass being bright yellow, and copper being brownish-orange), problems arise when attempting to differentiate between North American and European copper. Structure of the metal may be misleading as an indicator in that aboriginal hammering of European copper would result in an appearance resembling hammered North American copper while heat treating and annealing of North American copper could result in a thinner, more regular appearance resembling European shhet copper (Horst Neumeyer, personal communication:1980). A case in point is a piece of brass which has been cut and hammered to form a blade. Such aboriginal modification of European metals would make visual differentiation, particularly for scrap, tenuous. However, at this stage it will be assumed that there were technological limitations on the degree to which natives could form copper, and that the structure of the copper recovered from the site is of such a refined nature that it probably is of European origin and manufacture.

Trace element analysis of the copper would provide definitive source identification of sample deposits in both the New and Old Worlds. However, such a study is beyond the scope of this investigation. The brass can without reservation be attributed to European origin, and despite the previously mentioned hazards, and until further research can be undertaken, copper showing regularity of thickness and smoothness of surface texture will be considered to be of European origin.

Despite these two handicaps, the quantity and particularly the nature of European items (Table 49), may substantiate placement of the Christianson site in the early historic

TABLE 49. Christianson site metal and glass beads.

	Copper	Brass	Iron	Glass	TOTALS
Undiagnostic scrap	56	38	1		95
Subtotal %	58.95	74.51	5.88		
Ornamental					
Bracelet fragments	22	2			24
Beads	2			16	18
Tinkling cones	2				2
Finger ring	1				1
Subtotal %	28.42	3.92		100.00	
Utilitarian					
Knife/blade fragments		6	4		10
Kettle rim fragments	5	3			8
Axe fragments			6		6
Bail fastener fragments	3	1			4
Awls			3		3
Kettle patch		1			1
Fish hook			1		1
Hook fragment			1		1
Subtotal %	9.47	19.61	88.24		
Miscellaneous	3	1	1		5
Subtotal %	3.16	1.96	5.88		
TOTALS	95	51	17	16	179
	100.00	100.00	100.00	100.00	

period (Fitzgerald 1980).

Of the 163 17th century metal items, 95 were copper, 51 brass, and 17 iron. Sixteen glass beads completed the European assemblage.

Undiagnostic Scrap

Scrap constituted the majority of brass (74.51%) and copper (58.95%) recoveries. Seventy-two of the 94 (77.42%) pieces of brass and copper pieces show evidence on at least one side of having been modified by cutting or chiselling. No iron scrap from the ploughzone was included in the analysis because of the likelihood of its being a later historic manifestation. Its corrosiveness would prevent it from being preserved from the 17th century.

Ornamental Items

A relatively high 28.42% of the copper, and 3.92% of the brass assemblages consisted of what may have been personal adornment articles.

Bracelet fragments and rings

Of the 24 bracelet fragments, identified by curvature and method of manufacture, 22 were made of copper and two of brass. In cross section, the bands exhibit a variety of forms (Figure 36) with all being tightly rolled. No complete bracelets were recovered, but six of the fragments possessed ends which had been rolled to a tapering closure. They were excavated from a variety of undisturbed contexts, including house pits (e.g. House 1 Feature 5, House 2 Feature 1), post

								TOTALS
N	15*	3	2	1	1	1	1	24
%	62.50	12.50	8.33	4.17	4.17	4.17	4.17	100.01
Width of band(mm)								
r	3-9	2-5	12-14	8	3	6	5	
$\bar{x}$	6.33	3.33	13.00	8.00	3.00	6.00	5.00	
Thickness of band								
r	2-5	2-4	3-4	6	5	3	2	
$\bar{x}$	4.00	3.33	3.50	6.00	5.00	3.00	2.00	

*2 of the specimens are brass

FIGURE 36. Bracelet cross section varieties.

moulds (e.g. Post 28 in House 1), and midden deposits (e.g. MA2-4PZ, A-30 Pit 5).

A complete, tightly rolled piece of copper, circular in cross section, has been identified as a finger ring. It measures 28mm by 23mm. Unrolled, the length of the 3mm by 4mm rolled strip is 88mm. While one end of the strip has been tapered closed, the other apparently was left in the state it was after having been broken off a longer strip.

The tight and uniform rolling of the ring and bracelets may indicate that they were of European manufacture when compared to the relatively crude technique observed on the rolled beads and tinkling cones.

Rolled beads and tinkling cones

Two tubular beads rolled from sheet copper, measuring 29mm by 9mm (maximum) and 63mm by 11mm (maximum) exhibit irregular diameters and overlapping edges. Only the edges which form the bead ends appear to have been cut prior to rolling while the longer edges were simply snapped.

Similarly, the copper tinkling cones appear to be of native manufacture. Rolled with overlapping edges into the form of cones, the two examples measure 43mm and 34mm in length with base diameters of approximately 10mm and 11mm.

Glass beads

That only 16 beads were recovered from the Christianson site, five of them from burial features (4 from H4E F15, 1 from H4E F25), may in itself give an indication of the early historic placement of the site, despite the arguments against such an assumption by Townsend (1976) and Ramsden (1977:38-39). Ian Kenyon has developed a glass bead sequence for historic Neutral sites, identifying four periods. On the basis of four beads available in 1968, the Christianson site was placed in Period 2 (Kenyon 1969:12), to which a date of 1600 to 1615-1620 was given (Kenyon 1969:31). Also included as a Period 2 site is the Shaver Hill ossuary (Stothers 1970, 1972), because of its proximity to the Christianson site, has been identified as the village's ossuary (Kenyon 1969:4). However, the coefficient of similarity between the Christianson site and the Shaver Hill ossuary determined from glass beads, including the 1969 and 1979 samples from the Christianson site, is a very low 59.85 out of a possible 200.00 (Tables 50 and 51). While there are certain types that do exhibit similar percentages at the two sites, Ia5, Ia19, and IIa13 (Kidd and Kidd 1970), a larger percentage of the beads consist of types found exclusively at one or the other of the sites, such as IIa15 at the Shaver Hill ossuary, and IIa56, IIb18, IIIa12 and IVk3 at the Christianson site. When star bead types IIIm-, IIIm?, IIIm1 and Ivk3 are combined, they comprise 37.50% of the Christianson site assemblage, but only 4.92% of the Shaver Hill assemblage. Kenyon contends that star beads are more typical of the later Periods 3 and 4, and as such Shaver Hill probably dates to late Period 2 (Kenyon 1969:12-13). If such were the case, the predominance of star bead types at the Christianson site would suggest a much later date for the site. However, "gooseberry" beads (IIb18) and translucent indigo seed beads (IIa56) are considered to be diagnostic of the earlier Period 1 (Kenyon 1969:10, 13).

Several weaknesses are apparent in Kenyon's approach, most notable of which is the assumption that there was a constant, readily available, and equal distribution of glass

TABLE 50. Christianson site glass bead frequencies and metrics.

Type*	Frequency N	%	Length (mm) r	$\bar{x}$	Diameter (mm) r	$\bar{x}$	Shape/ Dominant colour	Remarks
Ia5	2	12.50	11.0	11.0	4.0	4.0	tubular/ white	metrics available for one only**
Ia19	1	6.25	-	-	-	-	tubular/ dark blue	no metrics available**
IIa13	1	6.25	4.2	4.2	4.0	4.0	round/ white	
IIa56	3	18.75	1.9-2.1	2.0	3.1	3.1	circular/ dark blue	
IIb18	2	12.50	-	-	-	-	round/ white	no metrics available**
IIIa12	1	6.25	-	-	-	-	tubular/ dark blue	fragment
IIIm-	1	6.25	9.0	9.0	8.9	8.9	ground tubular/ dark blue	colour sequence differs: b/w/r/w/c/w/***
IIIm?	1	6.25	-	-	-	-	ground tubular/ dark blue	fragment
IIIm1	2	12.50	4.9-13.8	9.4	5.1-13.1	9.1	ground tubular/ dark blue	
IVk3	2	12.50	7.0	7.0	6.7	6.7	milled barrel/ dark blue	metrics available for one only**
TOTALS	16	100.00						

* Kidd and Kidd 1970

** These beads have been reported in Kenyon (1969:15) but are not in the McMaster collections.

*** b (blue) r (red) /(over)
w (white) c (clear)

TABLE 51. Comparative glass bead frequencies from the Shaver Hill ossuary and the Christianson site.

Type	Shaver Hill Ossuary N	Shaver Hill Ossuary %	Christianson Site N	Christianson Site %
Ia2	1	.27		
Ia5	105	28.69	2	12.50
Ia13	1	.27		
Ia19	23	6.28	1	6.25
Ia21	1	.27		
Ia22	36	9.84		
IIa8	3	.82		
IIa13	23	6.28	1	6.25
IIa15	123	33.61		
IIa55	11	3.01		
IIa56			3	18.75
IIa57	3	.82		
IIb18			2	12.50
IIe2-	5	1.37		
IIg-	1	.27		
IIIa12			1	6.25
IIIc1	1	.27		
IIIk1	3	.82		
IIIm-			1	6.25
IIIm?			1	6.25
IIIm1	18	4.92	2	12.50
IVb1-	1	.27		
IVbb5-	7	1.91		
IVk3			2	12.50
TOTALS	366	99.99	16	100.00

Coefficient of similarity (Robinson 1951) 200.00-140.15=59.85

beads throughout Neutralia. Moreover, one can question the representativeness of the samples utilized. Many of the collections examined by Kenyon were recovered from "excavations" from the late 19th and early 20th centuries, and have since become distributed among many individuals and institutions. Consequently, Kenyon did not have the complete site samples. As an illustration of possible bias introduced by this factor, two separate intact collections from the Hamilton site were compared: one of 53 glass beads surface collected by George Gee (Kenyon 1969) and the other excavated in 1970, 1972, and 1976 by Noble and Lennox (Lennox 1977a). A coefficient of similarity of 145.98 was obtained (Fitzgerald 1978:25). Similarly, comparison of the Sealey "village" collection, which in fact includes beads collected from the surface, screening of midden backdirt and disturbed burials, with the Sealey ossuary sample, which in fact was only seven burial recoveries in 1967 (Kenyon 1969: 5), produced a coefficient of but 107.58 (Fitzgerald 1978:25).

An additional problem in the utilization of glass beads is that their distribution on sites is strongly influenced by the fact that, unlike ceramics, their purpose is decorative and ornamental rather than of daily functional usage, and as such they may not have a distribution throughout the site as ceramics presumably have. In the late protohistoric Carton ossuary, 89% of the 611 beads were of the translucent indigo seed bead variety (IIa56). All of these, however, were recovered from a small area of the ossuary, perhaps originally having been part of an embroidered decoration on an article of clothing (Kenyon 1969:10). Thus, the inclusion of a single garment in the ossuary may severely distort the picture of the nature of beads from the ossuary. Similarly, of the 292 beads recovered from the Hood site, 106 small white (IVa-), 72 small black (IIa-) and 16 small clear dark purple (IIa-) beads formed a strand in Burial B of Feature 38 in House 6 (Lennox 1978:161, 163, Fitzgerald 1979:52). Despite the fact that these bead types were restricted to this burial, their numerical predominance biases the entire site sample. As a result, the concentration of glass beads, particularly from burial contexts within villages may not mirror the nature of the glass bead assemblage within the village. While the problem of representativeness plagues all artifact classes, with glass beads it should be of greater concern when seriations are attempted, especially when dealing with small samples.

As previously mentioned, the Christianson site glass bead assemblage consists of 16 beads of 8 varieties (Table 50). Three circular translucent dark blue/indigo IIa56 type recovered from burial Feature 15 of House 4E constitute the predominant type, with ground tubular star bead type IIIm1, (H4E F15, MA1-15PZ), milled star bead type IVk3 (Midden B), white tubular type Ia5 and white "gooseberry" type IIb18 being represented with two examples each. A small fragment has been identified as a variety of IIIm (H1 F43), but is too small to classify it further. Single specimens of the translucent dark blue/indigo tubular type Ia19, opaque white round type IIa13, and dark blue layered tubular type IIIa12 (H1 F30) complete the assemblage.

The predominant colours of the beads from the Christianson site are white and dark blue. This would tend to corrobarate Kenyon's (1969:36) statement that the Huron, particularly at an early stage of French-Huron-Neutral trade, may have filtered out the red beads received from the French, since red was noted by Sagard as being an important colour among all groups except the Nipissing (Wrong 1939:250). It was not until later, perhaps when the Neutral had more say in what they received, that red beads began to appear, like other European goods, in greater numbers.

An interesting and perhaps important aside to the dating of sites using glass beads may be seen in the examination of inclusions in village burials. Burial feature 15 from House 4E contained 158 shell beads and only four glass beads.

Burials in House 6 Feature 38A and 38B and House 12 Feature 7 from the later Hood site contained exclusively strands, or earrings manufactured from large numbers of glass beads. While the House 2 Feature 9 burial at the Hood site had shell beads included with numerous glass beads, the shell beads were likely a part of clothing and not a strand (Fitzgerald 1979:47). It would appear that the proportion of shell beads to glass beads in village burials decreases over time, and thus may indicate the relative age of the site.

That the presence of grave goods, particularly shell and glass beads, may be a method of disposing of large quantities of fur trade related items (Ramsden 1979), the transition from large amounts of shell to large amounts of glass beads in burials would appear to indicate when glass beads were being exchanged in quantities that would necessitate such a dispositon. As such, it would appear that the Christianson site dates to a period when glass beads may have begun to appear in greater frequencies but also to a time when their occurrence was not as predominant as shell items in the trade inventory.

Functional Items

Only 9.47% of the copper artifacts could be identified as being of a functional nature. In contrast, 19.61% of the brass and 88.24% of the iron assemblages were classified as being non-decorative.

Knife/blade fragments

Six brass fragments have been classified as fragments of knife blades since they possessed a single bevelled and rockered edge, all presumably modified by native hands from European manufactured wares. None, however, show any indication of how they were hafted to a handle, perhaps due to their fragmentary nature. Where the tip is intact on three of the specimens, it is squared with rounded corners. Three of the blades are of particular interest in that they may provide insight into who manufactured them. One blade fragment, recovered from square A-30 in 1969, exhibits series of two and three parallel lines running obliquely to the cutting edge. On the opposite side oblique lines are also present. However, they are irregularly spaced, and not as sharp or parallel, perhaps being added later to give a symmetrical appearance when the piece was used as a blade. Another specimen has along one edge the bases of a linear impressed motif which is observed on several of the kettle rims.

The most complete blade, from A-15, has both edges and tip intact, appearing to have been hammered since it has a pock-marked surface, irregular thickness and cracks. The blade measures 92mm in length, with a cutting edge of 85mm, has a width of 34mm and is 2.1mm thick.

It would appear that all of the brass blades were aboriginally manufactured from European brass scrap into a form quite different from iron knives.

Fragments of four iron knives were found, consisting of three blade fragments and a blade fragment with a portion of the handle. While blade widths were intact on all specimens, ranging from 25mm to 27mm, no measurements were possible for lengths. Twofragments, however, appear to be nearly complete rockered blades with lengths of 141mm (House 1 Feature 17) and 142mm (A-17). On the former the tip is broken off. The cutting edge of the latter blade has been reformed by removing strips from the edge producing a long straight distal cutting edge and a shorter straight cutting edge which runs into the handle.

The blade and handle fragment possesses a straight cutting edge and conforms to the Type 2 knife described by Garrad (1969) for the Petun, possessing in this instance an oval collar between the blade and handle. The heel of this knife is pronounced and on the preserved portion of the handle there is a rivet in place. The other iron blade fragment was recovered from the 1968 excavation from M1-5.

Kettle elements

Only 13 brass and copper pieces, aside from undiagnostic scrap, can be attributed to European manufactured kettles: eight rim fragments (5 copper, 3 brass), four bail fastener fragments and a kettle patch.

Kettle rims

Four of the rims were identified by the presence of tightly folded or rolled lips. The other four possessed similar lips, as well as exterior decorative motifs, three being a single band of right oblique linear impressions, and the other being a series of horizontal incisions. The former motif is frequently observed on cermaic vessels, and it is interesting to speculate whether their placement is a native addition to the kettle or if, when manufactured, the decoration was added to cater to aboriginal requirements. These three rims were all from copper kettles.

The other decorative motif, on a brass rim fragment from Area B-W, consists of regularly spaced groupings of single and paired finely incised and precisely parallel lines. The first set of closely spaced lines are 4mm down from the lip, with the next set a further 4mm down. A space of 11mm separates the second pair from a single incised line. Three sets of paired lines continue beneath the single line, all being separated by 3mm. The precision and uniformity may suggest the decoration was European.

Bail fasteners

While no complete bail fasteners were recovered, the thickness of the metal and presence of rivets and/or rivet holes permitted the identification of one brass and three copper examples.

Kettle patch

A 39mm by 24mm cut piece of brass with two small rivet holes was the only identified patch.

Axes

Portions of six iron axe blades were recovered, but none from any of the areas examined in 1979 (Area A-30 Pit 5, A-30, A-23, Area B (House interior), 1968 - Pit 1 (2)). Three of the fragments were simply small sections of the cutting edge, while the others were intact enough to provide some metrical data. Cutting edge lengths were 63mm, 86mm and 90mm, while the blade lengths for the first two were 94mm and 115mm respectively. Blade width at the shaft for the second blade was 50mm. The two intact blades were corroded to such an extent that it prevented the identification of the maker's stamp.

Awls

All of the three iron awls appear to have been broken. The shafts of two are circular in cross section, both with diameters of 4mm, and the third is rectangular, measuring

11mm by 5mm. The latter specimen has been ground from a rectangular strip whose original function is unknown. On the side of the awl is a 6mm square indentation, perhaps a stamp. One of the circular awls was recovered in context from MA2-11PZ.

Fish hook

Recovered from the 1969 excavations was, from Area A-22, a broken iron fish hook, barb missing, manufactured from a 3mm by 3mm strip of iron. From the eye to the curvature of the hook is 82mm. Where the eye has been drilled the strip has been pounded thinner than the 3mm thickness of the shaft proper.

Hook fragment

Recovered from the top of hearth Feature 42 of House 1 is what appears to be the pointed tip of a relatively large iron hook. At the break it has a diameter of 11mm.

Miscellaneous Unidentifiable Copper, Brass and Iron

A 75mm long, partially rolled and folded piece of copper from Feature 1 may be an unfinished bead or bracelet fragment.

Of unknown function is a pounded copper strip 224mm in length, 3mm thick and varying between 4mm and 9mm in width. A seam is present along the edge in some places.

A rectangular copper piece, 36mm by 28mm, has had the shorter ends folded loosely over in roughly equal lengths, forming a laterally constricted "C" in cross section, as if it had been folded over something that has since decayed or has been removed.

A pointed piece of brass exhibits intact bowed lateral edges which have been unifacially bevelled. The base has been broken but there appears to have been lateral indentations toward the base. The fragment measures 50mm by 34mm.

A 27mm wide strip of iron has had both ends broken. Originally at least 104mm long, the absence of bevelling suggests it was not a knife blade.

Comments

While undiagnostic scrap constituted the majority of the brass and copper assemblages, there is an interesting dichotomy between ornamental and functional categories with brass and iron being predominantly used as functional items, particularly cutting implements, and the less durable copper being primarily used for the manufacture of decorative items. Only for kettle construction do brass and copper appear to be utilized in similar frequencies.

High amounts of soft lead (Pb) in the bronze (copper (Cu) and tin (Sn) alloy) and lower amounts in copper from the late protohistoric Neutral Fonger site indicate that inferior quality metal products were being traded to the natives, products that would wear out quite rapidly (Warrick, personal communication:November 1980).

Ethnohistoric Accounts of Trading Protectionism

While the Jesuit Jerome Lalemant reported that by 1641 many Frenchmen had ventured into Neutralia for the purpose of trade (Thwaites 1896-1901 xxi:203), the desirability to control the distribution of European goods is evident by the attempts various aboriginal groups undertook to prevent the Neutral from dealing directly with prominent Europeans such as Champlain, Daillon, Brébeuf and Chaumonot.

Champlain reported the initial contact Europeans had with the Neutral in their homeland when Etienne Brûlé journeyed to enlist the aid of the Susquehannocks against the Onondaga in 1615 (Biggar 1922-1936 iii:58). While among the Cheveux relevés in early 1616, Champlain desired to continue onto Neutralia but he was advised that it could result in his death, for a Neutral the previous year had been killed by a Frenchman while on the warpath against the Onondaga. Neutral who were present assured him such would not be the result (Biggar 1922-1936 iii:100-101).

Based on Brule's accounts of his return trip in 1623, Recollet Joseph de la Roche Daillon was sent in 1626 to establish a series of missions with Frenchmen Grenolle and la Vallée. When he reached the Neutral he told them he came on behalf of the French to form an alliance and invite them to trade (Sagard 1866:800). Once the Huron had heard of the attempts to initiate direct trade between the French and the Neutral, they began to undermine Daillon's credibility and warned the Neutral of the disaster which would result if they associated with the French. Daillon did recognize these harrangues as attempts by the Huron to maintain their monopoly which was extremely profitable (Sagard 1866:800). After some four months, Daillon was forced to return to Huronia when attempts had been made on his life by the Neutral.

The last recorded expedition to Neutralia was that of Jesuit Fathers Jean de Brébeuf and Marie Joseph Chaumonot during the winter of 1640-1641 (Thwaites 1896-1901 xxi 187-237). They received the same treatment afforded Daillon, and with Huron warnings of Brébeuf's demonic powers and alliances with the Seneca, they were not openly welcome (Thwaites 1896-1901 xxi:207). However, the Jesuits also came with the pretext of trade which permitted easier passage into Neutralia. Yet fears that the Huron had in 1626 were no doubt the same ones which necessitated the spread of slanders and threats again in 1640. Since 1626 the Neutral had heard nothing but that the French were evil, and as incidences of physical abuse continued, largely instigated by visiting Huron who brought European goods, the Jesuits were forced to return to Huronia in the spring of 1641.

Not only were Huron attempts to protect their middleman position directed at the French, but in 1623 when their position as supplier was threatened by increasing trade with the Five Nations Iroquois, and particularly the Seneca, war almost ensued (Wrong 1939:156-158). Heidenreich (1971:228-229) believes that such an instability of relationships indicates that the Huron-Neutral trade alliance had not been in existence long before the contact period, (i.e. ca. 1615).

While the Neutral may have desired to trade directly with the French, it appears that they were content to let the Hurons, and possibly Cheveux relevés, act as middlemen in the supply of European goods.

Short-term, periodic encounters with the French were likely the rule, with Huron attempts to keep them isolated apparently being successful. Such success is readily seen in the nature of European goods on Neutral sites from the late 16th century onward. A relatively sudden, rather than gradual or steady increase in the amount and variety of European goods in proportion to aboriginal items, despite being a very gross indicator, is seen (Figure 37, Table 52).

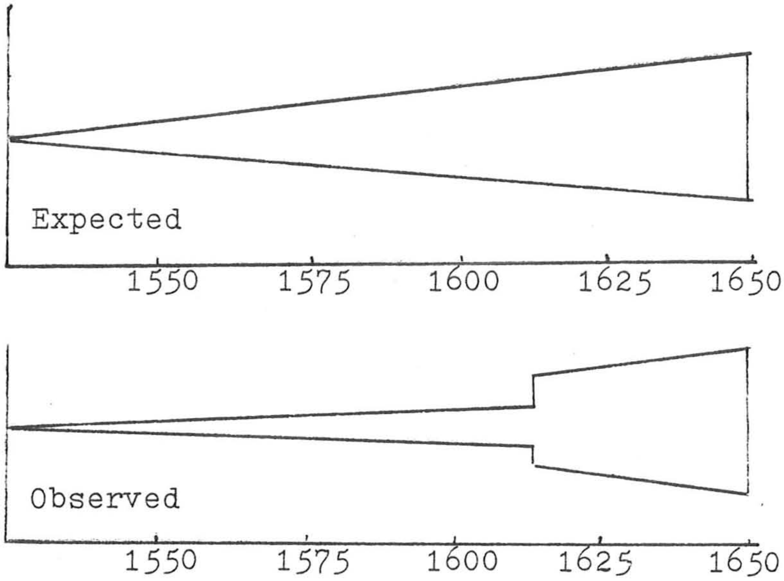

FIGURE 37. Expected and observed introduction of European items on Neutral sites.

While only 0.28% of the Christianson site, and 0.39% of the Fonger site assemblages are European items, significantly higher percentages, 3.76% for the Walker site, 7.14% for the Hamilton site and 8.36% for the Hood site, along with a greater variety of European goods are observed from later dated sites.

The contention is that direct initial contact with Europeans, perhaps in the personage of Brûlé in 1615, resulted in the breaking of the Neutral's isolation, and that once they were made aware of the increasing amounts of European goods after 1609 (Trigger 1978) which could be

TABLE 52. Frequency of European goods from Neutral sites.

		N	%
Northern sites			
Hamilton+	ca. 1638-1651	976	7.14*
Hood++	ca. 1630-1641	488	8.36**
Bogle I	ca. 1630-1641	24	3.7***
Bogle II	ca. 1638-1651	16	.7***
Christianson++	ca. 1615	27	.28
Southern sites			
Walker+	ca. 1626-1640	323	3.76****
Fonger+	ca. 1580-1610	32	.39*****

\+ Percentages combine surface and excavated artifacts.

++ Excavated artifacts used exclusively. Only the 1979 sample was used for the Christianson site.

* Lennox 1977a:32 **** Wright 1977:65
** Lennox 1978:65 ***** Warrick 1979:13
*** Lennox 1981: personal communication

obtained in exchange for their furs they could demand more from the Huron while avoiding intensive direct contact with the French, thus allowing the Huron to maintain their distribution role. The variety and quantity of European goods on Neutral sites suddenly increased, indicating an awareness of their newly developed bargaining position following a decline in the fur bearing, and particularly beaver population in Huron territory which likely resulted in a competition between the French and aboriginal groups to expand trade relations with the Neutral around 1615. In 1626 the _Onontchataronon_, a lower Ottawa Valley Algonkin group, trapped 500 beaver in Neutral territory, with European goods probably being the form of payment (Trigger 1976:350). As such, the sudden increase of European goods may be a reflection of the Neutral's developing involvement in the fur trade around 1615. To maintain their middleman position the Huron had to cater to the demands of the Neutral once the Neutral had realized the importance of their resource. As previously stated, Neutral and _Cheveux relevés_ attacks against the Fire Nation may have intensified about this time to gain control over the beaver grounds in the Thames and Sydenham Valleys in southwestern Ontario. It may have been that attempted contacts by Europeans with the Neutral triggered such an awareness.

The Christianson site then might present what may be a transitional stage in the type of European material recovered from Neutral sites. Proportionally, the amount of European goods approaches the values observed on the earlier Cleveland (Noble 1972b) and Fonger (Warrick 1979) sites. However, it resembles the later Walker (Wright 1977), Hood (Lennox 1978), and Hamilton (Lennox 1977a) sites in the variety of goods, and most notably by the presence of glass beads, a feature which is significant in identifying contact from protohistoric sites (Fitzgerald 1980).

The European inventories differ both quantitavely, and perhaps more importantly, qualitatively, on pre-ca. 1615 and later sites (Figure 38). Unmodified brass, copper and iron scrap, aboriginally manufactured ornamental items from brass and copper scrap, and utilitarian items modified from broken iron appear on all Neutral sites. Intact European brass and copper ornaments such as bracelets and rings, utilitarian iron items such as knives, and modified brass and copper utilitarian implements appear toward the end of the pre-contact period at the Fonger site. Complete iron axes do not appear on village sites until well into the contact period.

While all of the above artifact types were recovered from pre-contact sites, diversity within the groups did not appear until contact times. Variety then, in combination with increasing occurrences of such goods may then indicate the temporal placement of the site. Distinguishing contact period artifact categories appear to be most notably glass beads, and with more restricted distributions, religious paraphernalia and firearms.

The only evidence for firearms on Neutral sites comes from the Hood site where several pieces of lead shot, a Nordic gunflint, and a gunspall were found. Nordic gunflints

1540 1550 1560 1570 1580 1590 1600 1610 1620 1630 1640 1650

Cleveland Fonger Christianson Walker Hood Hamilton

Brûlé Brûlé Brébeuf
Daillon Chaumonot

Fire Nation wars----------------

Unmodified brass, copper, iron scrap---

Aboriginally manufactured items from brass and copper scrap--------------------------------

Utilitarian items mofified from iron scrap---

Intact European copper and brass ornaments----

Intact European utilitarian iron items--------

Utilitarian items manufactured from-----------
brass and copper

Glass beads-------------------------

Religious
paraphernalia----------

Guns-----------

FIGURE 38. Introduction of European items on Neutral sites.

were in use between 1620 and 1675, being replaced by gunspalls between 1650 at the latest and 1700 (Wittoft 1966).

Artifacts which may be relics of the religious incursions into Neutralia are restricted to the Hood site where parts of seven Jesuit rings and a single medallion were recovered (Lennox 1978), the Shaver Hill ossuary where a medallion was found on the surface (Stothers 1972), and the Donovan site where a black, multi-faceted rosary bead of the _pater noster_ size was recovered (Noble 1977: 13).

It would appear then that the period around 1615 was pivotal in the presence of certain types and quantities of European goods on Neutral sites, and this is surmised to be a consequence of the initiation of the Neutral as major participants in the fur trade.

CHAPTER 9

SUMMARY AND CONCLUSIONS

The Christianson site, on Concession VI Lot 35 S½ Beverly Township, has long been identified by local historians as Ganastogue Sonontoua Outinaouatoua (Tinawatawa) where, on September 24, 1669, the Sulpician priests René de Bréhant de Galinée and Francois Dollier de Casson met explorers René Robert Cavelier, Sieur de LaSalle and Louis Jolliet (Anonymous 1967:328, Coyne 1903:xxiv, Emery and Ford 1967:8-9, Woodhouse 1969a:3-5, 1969b:6-7). That such an identification is improbable, despite its entrenchment in earlier literature and local lore, is apparent when the vagueness of Galinée's account (Coyne 1903:37-51) is examined and the archaeological recoveries considered.

On July 6, 1669, Casson and Galinée, along with twenty-one men, including a surgeon, interpreters and two canoes of Seneca, left Montreal. LaSalle followed several days later. Thirty-seven days later they reached a major Seneca village in western New York State where they stayed for more than a month. Their intention was to continue to the southwest where Casson had heard of numerous tribes, however, the Seneca were unwilling to guide them for fear that the French would blame the Seneca for their imminent deaths at the hands of the Toaguenha and the Antastoez. However,

> We were extricated from all these difficulties by the arrival of an Indian who came from the Dutch and camped where we were. He was from a village of Iroquois of the Five Nations, collected at the end of Lake Ontario for the convenience of hunting roebuck and bear, which are plentiful at that place. This Indian assured us we should have no difficulty in finding a guide; there were a number of slaves there from the nations to which we desired to go, and he would willingly take us there. We thought it well to adopt this course, both because we were always making headway and nearing the place we wished to go, and because, the village consisting of only eighteen or twenty cabins, we persuaded ourselves we should (all the more) easily become its masters and make them do through fear a part of what they would not be willing to do for friendship (Coyne 1903:39).

> We discovered a river one-eighth of a league wide and extremely rapid, which is the outlet or communication from Lake Erie to Lake Ontario... This outlet (may be 40 leagues in length, and) contains, at a distance of 10 or 12 leagues from its mouth in Lake Ontario, one of the finest cataracts or water-falls in the world; for all the Indians to whom I have spoken about it said the river fell in that place from a rock higher than the tallest pine trees; that is about two hundred feet. In fact, we heard it from where we were...
> Our desire to go to our little village called Ganastogue Sonontoua Outinaoutaoua prevented our going

to see that wonder,... (Coyne 1903: 39-41).

We passed this river, accordingly, and at last, after five days' voyage arrived at the end of Lake Ontario, where there is a fine large sandy bay, at the bottom of which is the outlet of another little lake discharging itself. This our guides made us enter about half a league, and then unload our canoes at the place nearest the village, which is however, five or six good leagues away (Coyne 1903:41).

We set out from this place with more than fifty Indians, male or female, about the 22nd of September, and our Indians, sparing us, obliged us to take two days in making our portage as far as the village, which was only, however, about five leagues away. We camped, accordingly in the vicinity of the village, (where our Indians went hunting and killed a roebuck, and it was in that place that) we learned there had arrived two Frenchmen at the village we were going to, who were on their way from the Ottawas (and were taking back an Iroquois prisoner belonging to the latter) (Coyne 1903:43).

At last we arrived at Tinawatawa on the 24th of September, and found that the Frenchmen who had arrived the day before was a man named Jolliet, who had left Montreal before us with a fleet of four canoes loaded with goods for the Ottawas, and had orders from the Governor to go up as far as Lake Superior to discover the situation of a copper mine, specimens from which are seen here that scarcely need refining, so good and pure is the copper (Coyne 1903:45).

> We set out then from Tinaouataoua on the 1st of October, 1669, accompanied by a good number of Indians, who helped us carry our canoes and baggage, and after making about 9 or 10 leagues in three days we arrived at the bank of the river (Grand River?) which I call the rapid, because of the violence of the current, although it had not much water, for in many places we did not find enough to float our canoes, which did not draw a foot of water (Coyne 1903:49).

> At last (après 8 jours de marche pendant lesquels il nous fallait toujours être a l'eau, puis trainer les canots) we arrived, on the 13th or 14th, at the shore of lake Erie,... (Coyne 1903:50-51).

Such is the detail of Galinée's narrative concerning the trip to Tinawatawa. Its vagueness, combined with the knowledge of several ossuaries along Spencer Creek around Westover from the time the 6th Concession was settled in 1837 by Andrew McKnight and his sons (Kernighan 1971:x), has led to the development of the association of the site on the Christianson, originally Ironside and later Nicol, property with the meeting place of Galinée, Casson, LaSalle and Jolliet. Increased archaeological investigation in the area since 1968 has now dispelled such an association, for the Christianson site is of early 17th century Neutral affiliation. The precise location of Tinawatawa remains unknown today.

Detailed descriptions and interpretations of the settlement patterning and artifact assemblage of the Christianson site, in the light of comparative Neutral archaeological samples and ethnohistoric documentation, were undertaken in the preceding chapters. Waht will be undertaken in this chapter is threefold:

1. the identification of features which can be used to characterize the Christianson site as a Neutral Iroquoian site and
2. which permit its temporal placement of <u>ca</u>. A.D. 1615, and
3. summarizing the features of the assemblage which are attributable to the Neutral trading network, particularly those aspects and events which are related to their developing participation in the fur trade aroun 1615.

Cultural Affiliation

There are certain basic aspects of the Christianson site which distinguish it as being Neutral. Temporal and spatial differences are notable between the numerous historic Neutral sites, but there are features from the archaeologically investigated sites which provide a constellation of traits that may be considered as diagnostic of the late 16th and early 17th century Neutral.

1. Location

Approximately fifty-eight historic Neutral villages have been identified in an area extending east-west from extreme western New York State to the Grand River, and north-south from Milton to the north shore of Lake Erie. The majority are concentrated in a triangular area around the western end of Lake Ontario on top of the Niagara Escarpment between Milton, Brantford and Hamilton (Kenyon 1972: 8 , Noble 1977:11, 1978:154 Figure 1). It is toward the northwest of this concentration, in an area designated by Lennox (1977a) as the "northern tier", the central historic Neutral homeland (Lennox 1977a: , Noble 1977:11) amongst the drumlin field in the Flamborough Plain along Spencer Creek that the 1.6 hectare (3.5 acres) Christianson site is situated.

2. Longhouse Structural Features

Of the nine structures investigated, eight exhibited features diagnostic of historic Neutral longhouses, while the other, a small, squarish structure 5.8m by 6.1m (Noble 1970), resembles other smaller structures which have since been observed at the Walker (Wright 1977:16) and Hood (Lennox 1978:51-55) sites.

Aside from the smaller structure, lengths and widths range from 16.5m to 44.5m ($\bar{x}$= 26.25m) and 7.0m to 7.8m ($\bar{x}$= 7.34m) respectively. These results are consistent with other protohistoric and historic Neutral longhouses.

Figure 39 illustrates what may be, at least by its component parts, the plan of a typical historic Neutral longhouse. Side wall post mould patterns range from a regular offset through cluttered distributions while end wall posts are sparse and intermittently distributed with doorways being located between the centre line and the corners.

Within the longhouse, linear end features, the remnants of divisions between end storage sections, or food preparation areas, which are commonly but not always found, take the form of elongated straight-sided, flat-bottomed features perpendicular to the side walls toward the ends of the structures. The mean length, width and depth measurements of these pits at the Christianson site were 163.50cm, 17.50cm and 24.67cm respectively. End sections defined by what appears to have been three or more implanted upright planks within each feature ranged from 3.2m to 6.7m with a mean of 4.8m.

Another internal structural feature characteristic of historic Neutral longhouses are straight-sided, flat-bottomed oval pits, so-called "slash pits", which run parallel to the

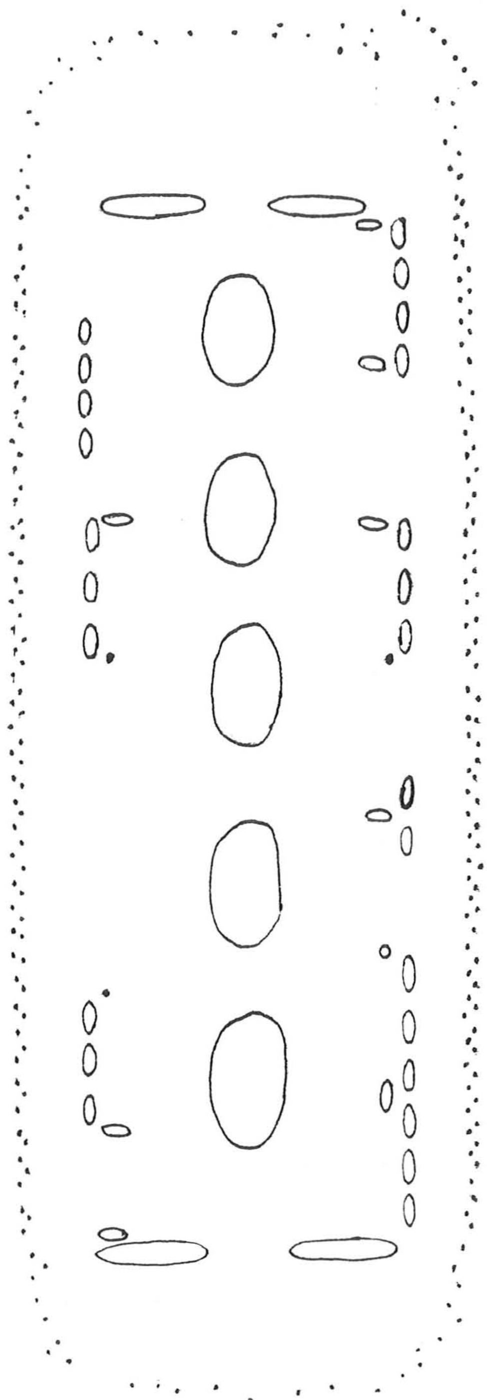

FIGURE 39. Neutral longhouse structural features

side walls at distances, at the Christianson site, between 90cm and 130cm. They commonly appear in groups of varying numbers or more infrequently in a regular pattern along the entire length of the living section of the longhouse. They do not continue past the linear end features into the storage areas. They appear, as do the linear end features, to have contained two planks of bark sheets which probably partitioned the central communal section from sleeping sections to the side. They may also have provided additional storage space. The latter may be a more plausible explanation in light of the discontinuous nature of the "slash pit" patterns commonly observed. Mean measurements, length, width and depth from the Christianson site are 39.25cm, 16.15cm and 25.56cm respectively. Their measurements are almost identical to those recorded from the other northern cluster Hamilton and Hood sites.

The central sections exhibit a variety of features which abutt against the "slash pit" lines. The regularity in their spacing from one another suggests they may be the remnants of partitions or served as markers that divided the interior into individual family units on either side of the central hearth line. Bilateral and asymmetrical occurrences about the hearth line were observed. Recognized compartments in the Christianson site longhouses ranged in length from 3.00m to 5.25m, with a mean of 4.18m. The lengths of these compartments compare favourably with the lengths of the smaller cabins, from which may be interpreted that these latter structures contained two family units (Noble 1970).

Central support posts appear not to have been required structurally in historic Neutral longhouses, as indicated by the arrangement of hearths down the central axis.

3. Pottery

Relative simplicity and homogeneity of design motifs on generally poor quality pots tend to characterize Neutral ceramics (Noble 1978:156). The crumbly nature of many of the vessels can be attributed to the large size of granitic temper utilized, and poor firing.

Temper

While grit is the major tempering material, shell is implemented in varying frequencies in various areas of Neutralia. On the Spencer-Bronte drainage sites shell has noticeably higher occurrences, ranging from 14.63% at the Christianson site to 64% at the Hamilton and Bogle II sites (Lennox 1977a:188; personal communication 1980). Generally, shell tempering constitutes less than 5% of the ceramic assemblage on Neutral sites (Kenyon 1972: , Wright 1977:90, Warrick 1979:14, Noble 1980). Higher percentages of shell tempered ceramics on the Spencer-Bronte drainage sites may be attributed to influxes of Fire Nation captives after ca. 1615.

Body shape

While globular pots of various sizes predominate at the Christianson and other Neutral sites, smaller, flat-bottomed, straight-sided vessels occur in minor frequencies. Noble (1978:157) considers such flat-bottomed collarless bowls to be distinctive to historic Neutral pottery.

Shoulder form

The majority of shoulder areas are sinuous; however, at the Christianson site, 7.14% exhibited profiles approaching a carinated form. Such frequencies are similar on other historic Neutral sites.

Rim profiles

Overall, 51.49% of the Christianson site rim sherds were collarless, while the remaining 48.51% possessed some form of collar development. An association between tempering material and profile was notable. For the grit tempered rims, 55.37% were collared and 44.67% collarless, while only 3.60% of the shell tempered rims were collared. While there are high percentages of collarless vessels at other historic Neutral sites, associations with tempering material do not correspond with the Christianson site sample. No apparent reasons can be given at this time.

Collars tend to be relatively low on Neutral pottery, but moreso at the Christianson site where a range between 5mm and 42mm ($\bar{x}$= 11.72mm) was observed. The majority, 96.62%, were between 5mm and 19mm in height. While only 0.25% of the collared rims at the Christianson site could be classified as high collared, that is, greater than 30mm to 35mm, the other Spencer-Bronte sites, Hood and Hamilton in particular, had 27.69% and 28.79% respectively.

Homogeneity is indicated by the number of collared (7) and collarless (9) profiles. Two profiles constitute over fifty percent of the collared rims: convex-straight (31.28%) and convex-concave (21.18%). An even greater lack of diversity is observed on the collarless rims where three profiles constitute nearly eighty percent of the sample: everted and splayed on interior and exterior surfaces (38.28%), everted with flat lip (20.42%), and everted and splayed on exterior surface (20.42%).

Castellations

Of 925 rim portions, 38 possessed castellations, 37 being grit tempered. While perhaps an inappropriate means for determining the occurrence of castellated pots, the ratio of castellations to rims does indicate that this attribute is relatively infrequently found on Neutral vessels.

Proportions of approximately 1:14 at the Hood site (Lennox 1978:115), 1:17 at the Walker site (Wright 1977:101), 1:20 at the Hamilton site (Lennox 1977a:101), and 1:24 at the Christianson site confirm this.

Surface treatment

Two forms of paddling, corded and ribbed, were identified, in addition to plain surfaces which likely had been smoothed following initial paddling. Corded surfaces were observed in an unaltered state as well as to various degrees of smoothing. Frequencies of surface treatments of body sherds at the Christianson site were: 70.17% plain; 21.71% smoothed-over cord; 6.28% cord roughened (for a total of 27.99% cord paddled); and 1.84% rib paddled.

There are notable associations between tempering and surface treatment. While 80.72% of the grit tempered body sherds were plain, only 6.79% of the shell tempered sherds were devoid of any form of intact paddling, and 2.04%:0.68% for ribbed paddling. Conversely, the varieties of corded paddling predominated on the shell tempered sherds: smoothed-over cord 60.61%:15.23%; and cord roughened 31.92%: 2.01%.

Decoration

Two varieties of dragging techniques, incising and trailing, four impression techniques, linear, punctate, dentate stamp and notching, and a single combination of the previous two, push-pull, indicate a simplicity of decorative techniques that is not only characteristic of the Christianson site, but present on all historic Neutral sites.

Body

Decoration of body sherds was restricted to the ten angular sherds that belonged to the flat-bottomed vessels. Nine of these were decorated by the trailing method in various combinations of oblique, horizontal or vertical motifs. The other consisted of a truncated semi-circular curvilinear design.

Shoulder

Horizontal bands of punctates are the pre-eminent form of decoration (87.23%) on shell tempered shoulder elements, a predominance not observed on grit tempered shoulders where linear impressions (20.21%), combinations of trailing (13.50%), horizontal punctate bands (12.41%), combinations of punctate and trailing motifs (10.28%), and combinations of linear impression and trailing motifs (7.81%) were the major forms of decoration.

Neck

Only 7.93% of the neck regions were decorated, a value reduced to 3.82% when vertical and horizontal appliques were excluded. There was a greater frequency of decoration on the shell tempered sherds (39.72%) compared to the grit tempered sherds (4.02%). While appliqué strips and handles, dentate stamps and punctates predominate on shell tempered sherds, various combinations of trailing are exclusively associated with grit tempering.

Neck decoration, exclusive of appliqué handles and strips, tends to be low on historic Neutral sites: Hamilton, 0.8%; Hood, 2.3%; Walker, 3.2%; and Christianson, 3.82%.

Rim exterior

Seven decorative techniques were implemented on the collared rims with linear impressing predominating at 83.74%. Only 1.48% were undecorated. Three motifs, left oblique (64.41%), right oblique (15.88%) and vertical (12.65%) comprised 92.94% of the linear impressed collared motifs. Left oblique and right oblique motifs predominated (61.29%) the trailed specimens. If technique is disregarded, left oblique motifs were by far most commonly utilized (54.17%), followed distantly (15.27%) by right oblique motifs. Including the vertical motif, these three motifs comprised 83.25% of the collared rims.

Compared to the collared rims, a large percentage (47.56%) of the collarless rims were undecorated. Grit tempered collarless rims are predominantly undecorated (58.64%) compared to those tempered with shell (14.02%). Also, only 33.18% of these rims were decorated by linear impression. Otherwise, percentages of the other techniques are similar to those present on the collared Christianson rims. Certain associations between tempering material and techniques are particularly evident. Linear impression constitutes 22.22% of the treatments of grit tempered exteriors while 66.36% of the shell tempered exteriors are linear impressed. Notching and trailing techniques are more common on shell tempered exteriors, while incising, dentate stamping and push-pull exhibited similar frequencies.

As with collared exterior motifs, left oblique, right oblique and vertical motifs comprise the majority of decorative motifs: 23.15% for grit, 58.88% for shell, and 32.02% overall. When the individual motifs are examined for grit:shell ratio, preferences are significant for two of the motifs: left oblique 16.05%:1.87% and vertical 3.70%:53.27%. The occurrence of right oblique motifs are similar 2.16%: 3.74%.

Overall, linear impression represents a substantial portion of the techniques for collared and collarless, grit and shell tempered rims, being, however, slightly more frequent on those tempered with shell, 66.67% to 56.34%. Also more frequent on shell tempered rims are punctation, 8.11%:1.10%; combination of techniques, 3.60%:0.69%; dentate stamping, 0.90%:0.28%; and push-pull, 0.90%:0.14%. Lack of decoration, 26.86%:14.41%; trailing, 6.34%:2.70%; notching, 7.16%:0%; and incising, 0.55%:0% are more commonly associated with grit tempered rims.

Three motifs, left oblique, right oblique and vertical comprise the majority of decorative motifs for both grit and shell, 57.65%:56.75%, with left oblique predominating among grit (39.12%) and vertical among shell (51.35%).

Notable differences in techniques are seen when comparing the Christianson site with the other Spencer-Bronte drainage sites, Hamilton and Hood, particularly with the linear impressed (58%:14%:29%) and trailed (6%:26%:36%) techniques. Undecorated percentages also vary, 25%:51%:30%. Associations of techniques with temper used present differing patterns.

Similarly, while the three major motifs comprise 56.87% of the Christianson site sample, such homogeneity is not observed at either Walker, Hood or Hamilton.

Some notable combinations of profiles and decoration which characterize the Christianson sample among the collared rims are profiles 1. through 5. which have associated with them linear impressions of the three predominant motifs. For grit tempered collarless rims, profiles 1. through 3. dominate in combination with the three major motifs. Grit tempered collarless rims, however, tend to be undecorated. Profiles 1., 3., and 7. account for 80.5% of the collarless shell tempered rims with vertical linear impressions primarily associated with the former two profiles and parallel rows of linear impressions with the latter.

Rim lip

With 53.20% of the lips being undecorated (58.55% grit, 17.50% shell), linear impression 37.40% (32.33% grit, 71.67% shell), was the major technique for the remaining 46.80%.

Of four historic Neutral sites compared, the Christianson site has the highest percentage of decorated lips (46.80%), followed by Hamilton (44.8%), Walker (33.83%), and Hood (31.93%). Shell tempered lips tend to be more frequently decorated on all sites with 82.50% at the Christianson site being by far the greatest percentage observed.

The three major linear motifs comprise 31.33% of the 32.33% of the decorated grit tempered lips while all of those tempered with shell possessed these motifs, and in particular, the vertical motif. Such tends to be the pattern at Spencer-Bronte drainage Neutral sites where the percentage of lip decoration with these three motifs ranges from 75.22% at the Hamilton site to 90.02% at the Christianson site.

Rim interior

Overall, interior rim decoration at Christianson has a significant 11.24% incidence that conforms to Walker (10.91%) and Hamilton (13.83%). The Hood site, with only 1.68% interior rim decoration, stands anomalous. Grit tempered interiors are more frequently decorated than shell (12.46%:3.36%).

Notching is the most common technique on the grit tempered interiors, while notching and linear impression are equally represented on the shell tempered interiors. Such homogeneity is observed on the other historic Neutral sites.

4. Pipes

Of the 159 pipe fragments from the Christianson site, 154 are clay (152 grit tempered, 2 shell tempered) and 5 stone (limestone (3), chlorite, granite), frequencies similar to other historic sites. While stemmed pipes are predominant, two unstemmed or reutilized chillums, or possibly calumets, occurred at Christianson.

The most notable aspect of the Christianson site sample is the conservatism of pipe bowl forms and decoration, with 56.86% being flared. Only 1.96% were collared, a notable divergence from the high frequencies at the Hood (68.75%) and Hamilton (41.88%) sites. Concerning decoration, 18.00% possessed horizontal banding with a further 48.00% exhibiting combinations of horizontal banding and punctation.

5. Lithics

The quantity, perhaps more than any other aspect of the lithic assemblage, typifies a Neutral site. This is not to be unexpected since Onondaga and Ancaster chert outcrops are located within Neutral territory. The utilization of the two types is reflected in the quality of the two types. Onondaga chert, the outcrops of which are located further from the Spencer-Bronte drainage sites than are those of Ancaster chert, dominates the chert detritus sample in frequency (94.08%) and weight (87.87%). Ancaster and the distant premier quality Kettle Point cherts were recovered in near identical frequencies (2.97% and 2.87%), but the total weight of the former was noticeably greater (10.28% to 1.71%). This would be expected due to the proximity of the outcrops to the site. Frequency distributions from the other Spencer-Bronte drainage sites were quite similar.

Flaked chert implements were exclusively utilitarian in nature, consisting of a variety of triangular projectile points, retouched and serrated flakes, drills and scrapers. Ground stone artifacts were present in very limited numbers with beads of limestone, slate and siltstone predominating. Utilitarian implements included pestals, a net sinker, sharpening stone and a smoother.

6. Worked Bone and Antler

Primarily, this assemblage is ornamental in nature, with 111 of 154 pieces representing various stages of bead manufacture. Minor occurrences of scraping implements, needles, chert drifts/flakers, awls/punches, harpoon fragments, a fish hook, and a spoon fragment comprise the utilitarian items. A turtle carapace pendant or rattle fragment, an incised deer phalanx and a small disc are the other presumably non-utilitarian bone implements which round out this assemblage.

7. Worked Shell and Marine Shell Waste

Shells utilized for the manufacture of various types of beads constitute the majority of such items recovered from Neutral sites.

Utilitarian implements are rarely found on historic Neutral sites. Three shell scrapers at the Hood site (Lennox 1978:125) and one at Hamilton (Lennox 1977a:128) bear this out.

8. <u>Metal and Glass Beads</u>

The presence of European goods is used to define a Neutral site as being protohistoric or historic. Such an assumption has been criticized by Townsend (1976) and Ramsden (1977), for other groups, but until aboriginal artifacts can be confidently utilized to provide temporal placement, such an assumption will have to be accepted. Interestingly enough however, it is only Neutral sites east of the Grand River which have produced items of European manufacture.

<u>Temporal Placement</u>

While the European artifact inventory in conjunction with events inferred from ethnohistoric documentation remains the principal means of ascertaining dating of the Christianson site to <u>ca</u>. A.D. 1615, there are other artifact classes which help support such a placement. It has been hypothesized that the Neutral became intensively involved in the fur trade around 1615, as a result of direct contact with Europeans. This is manifested by the apparently sudden increase initially, in marine shell items, and soon after, of European materials. The Christianson site appears to belong to this transitional period in that it produced large amounts of marine shell and a wide variety of items manufactured from European metal and glass. Quantitatively though, the European assemblage approximated the low incidence observed on protohistoric sites (Noble 1971, 1972b; Warrick 1979). Such an intensification of European goods presumably was also the case for the Huron between 1609 and 1615 when they began to trade directly with the French (Trigger 1979:215).

With a quantitative difference in the amount of European goods on protohistoric (Fonger, 0.39%) and historic sites (Walker, 3.76%; Hamilton, 7.14%; Hood, 8.36%) there is a corresponding difference in variety. Unmodified brass, copper, bronze and iron scrap items, aboriginally manufactured ornamental items from brass, copper and bronze scrap, and utilitarian items modified from broken iron appear on all protohistoric and historic Neutral sites. Intact European copper and bronze ornaments such as bracelets and rings, functional iron items such as knives, and modified copper and bronze implements appear toward the end of the protohistoric period at the Fonger site (Warrick 1979; personal communication 1981).

An increasing diversity in the variety of European items found on protohistoric sites, in addition to the increase in volume, and the notable addition of glass beads (Noble 1971, Fitzgerald 1980) and to a lesser degree, religious paraphernalia and firearms, characterize historic assemblages.

The Christianson site possesses what may be transitional European assemblage; that is, it has the variety observed on later sites, in particular glass beads, but the quantitative explosion had apparently yet to occur.

Undiagnostic brass and copper scrap constitutes large proportions of the respective assemblages (58.95% and 74.51%) at the Christianson site. Ornamental items are predominantly manufactured from the less durable copper and glass (constituting 28.42% and 100.00% of their respective assemblages), with only minor occurrences of brass (3.92%). The copper and brass adornments include bracelets, tinkling cones, beads and a finger ring, while all glass items at the Christianson site were beads. The predominant colours of the glass beads were blue and white, a feature observed on Nipissing sites (Brizinski 1980:235), and the ca. 1600 Huron Ball site (Knight 1979:63-64). While red was noted by Sagard (Wrong 1939:250) as being a popular colour among the Huron in the early historic period, the absence of monochrome red beads on the Christianson site may indicate either a "siphoning off" by the Huron of these beads, or that blue and white were popular colours during the early part of the 17th century among the Neutral, Huron and Nipissing.

Iron artifacts tend to be predominantly utilitarian (88.24%), with such types being present in substantially lower frequencies in brass (19.61%) and copper (9.47%). Utilitarian iron implements include axe fragments, knife fragments, awls, a fish hook and a hook fragment, with kettles being manufactured from copper and brass, and blades exclusively from brass.

Ramsden (1978:102) has hypothesized that the St. Lawrence River-Ottawa River-Great Lakes trade and communication route had been in operation prior to Cartier's arrival in 1535. The presumed familiarity that the St. Lawrence Iroquoians had with Europeans in the bartering of furs for European goods by the 1530's could have permitted the spread of metal goods to the Huron, and possibly other southern Ontario groups along that route, as far back as 1500 (Ramsden 1978:103).

The means for such a dispersal were no doubt present. Yet, as Trigger (1979:214) contends, the Stadaconas with whom Cartier wintered in 1535 showed little desire to trade systematically, and the Hochelagans showed no desire at all. Hence, a rapid dissemination, while possible, should not be presumed along pre-existing routes. Trigger (1979:214-215) has utilized the limited historical data that are available to present a more conservative estimate of the sequence of the introduction and development of European trade. He suggests that prior to 1535 small amounts of European goods may have been obtained by the St. Lawrence Iroquoians from European fishermen or other Indian groups in their annual hunting excursions for sea mammals in the Gulf area. Following the contacts with Cartier, small and irregular amounts probably reached the upper St. Lawrence and perhaps southern Ontario between 1534 and 1550 (Trigger 1979:215).

Noble (1980), in reevaluating dates for the Sopher site which has early iron goods associated (Noble 1968: ; 1971), places that inland component at 1490-1510 A.D. . A radiocarbon date of 1505 A.D.$\pm$ 80 appears in line with ceramic, pipe and architectural seriation to this earlier period, rather than the ca. 1580 estimate he made fifteen years ago (Noble, personal communication:1981). Regular trading at Tadoussac after 1550 and the presence of professional traders operating there after 1580 likely resulted in the increase of European goods reaching Ontario. Once the Hurons began to trade directly with the French on the St. Lawrence after 1609, an additional increase of European goods should be expected on Huron sites (Trigger 1979:215).

The presence of European goods on Neutral sites, assuming the assigned dates are correct, produces a generalized sequence of events which tends to corroborate the one hypothesized by Trigger for the Huron (Figure 40). The period between 1609 and 1615 appears to have been significant for both the Huron and the Neutral in that it marked the time when direct contact was made between these indigenous natives and the French. One result of the contact seems to have been a sudden and marked increase in the amount of European materials on the sites. Christianson has been classified as a transitional site dating between 1610 and 1620, because it has a wide variety of European goods, but the quantity is substantially less than was observed on the later Walker, Hood and Hamilton sites.

2. Faunal

By frequency, the four major mammal species at the Christianson site were white-taileddeer (41.8%), beaver (19.1%), *Canis* sp. (12.5%), and raccoon (9.1%). The high percentage of beaver from the Christianson site was not observed at the later Walker, Bogle I, Bogle II or Hamilton sites. A corresponding increase in raccoon over time is seen, however. Over-hunting and ultimate extinction of the beaver, as occurred in Huronia in the 1630's, may also have taken place in Neutralia with raccoon pelts replacing or at least supplementing the shortage of beaver from the

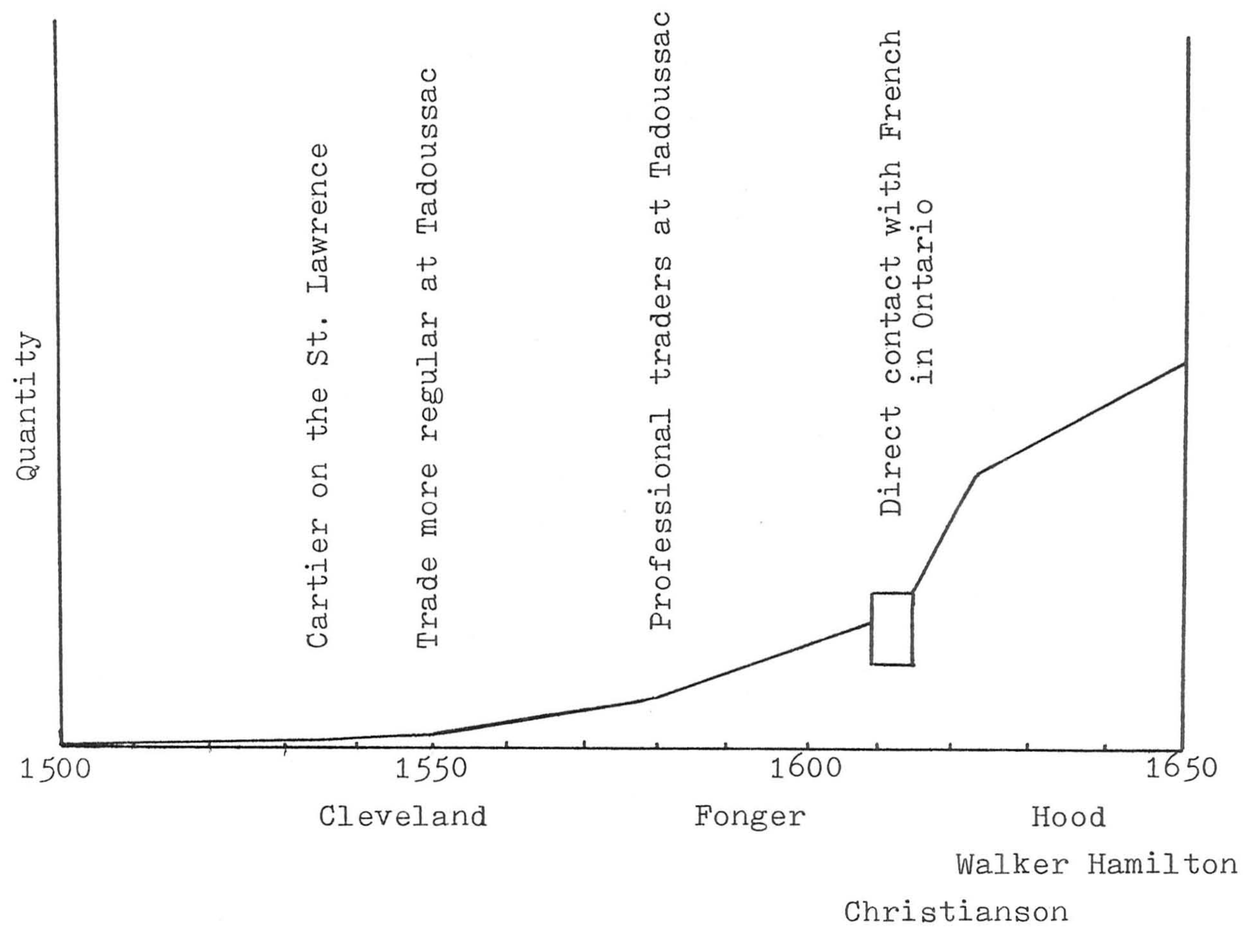

FIGURE 40. Stages of introduction of European goods on Neutral sites.

the 1630's onward. The abundance at the Christianson site may reflect the initial intensive hunting of beaver which took place when the Neutral first became participants in the fur trade.

3. Pottery

Shell Tempering

The high percentage of shell tempering and related attributes in Spencer-Bronte drainage historic Neutral sites appears to be attributable to increasing attacks by the Neutral of this area against the Fire Nation of the Michigan peninsula, which were reported from 1616 through 1643. While attacks may not have been as intensive *ca.* 1616, between 1640 and 1643 they were massive, according to ethnohistoric accounts. There is an increase in shell tempering from the early historic Christianson site onward.

The major assumption is that shell tempering and associated traits are attributable to the Fire Nation captives. Attributes such as decorative appliqué strips and strap handles on necks; corded, dentate stamp and punctate stamp decorative techniques on rim, neck and shoulder exteriors; large triangular plat motifs on exterior rim surfaces; and podial feet (Lennox 1977b), combined with Parker Festooned and Mocassin Bluff wares appear to be restricted to Berrien Phase ceramics in southern Michigan (Bettarel and Smith 1973), some Whittlesey Focus sites (Brose 1976), some Madisonville Focus sites of the Fort Ancient Aspect (Griffin 1943), and most notably the Indian Hills site in northeastern Ohio (Tucker 1980).

While complete ceramic attribute studies have not been undertaken here, certain attributes were examined and they indicate that such analyses may be fruitful in ascertaining temporal sequences. However, an understanding of the effect of spatial separation, among other things, must first be considered. As such, greater samples from particular areas must be obtained.

Shoulder Decoration

Impressed motifs increase from the Christianson site (58.23%) through Walker (82.09%), Hood (92.42%) and Hamilton (94.69%), an order which corresponds to the expected temporal sequence. Trailing motifs, and combinations of impressed and trailed motifs also produce a similar sequence; however, with percentages decreasing over the presumed time sequence (trailed: Christianson, 20.25%; Walker, 10.45%; Hamilton, 2.45%; Hood, 1.52%; combinations: Christianson, 21.52%; Walker 7.46%; Hood, 6.06%; Hamilton, 2.86%). The similarity of occurrences at the Hood and

Hamilton sites suggests near contemporaneity of the two. The Christianson site is notable in that its frequencies are noticeably different from all other sites.

Neck Decoration

The percentage of neck decoration (exclusive of appliqué strips and strap handles) produces the following alignment of sites over time:Christianson, 3.82%; Walker, 3.2%; Hood, 2.3%; Hamilton, 0.8%. Thus, neck decorative attributes also suggest that the expected sequence with Christianson as early historic, is correct.

Rim Lip Decoration

Notching is more frequent at the Hamilton and Hood sites and appears to counter the predominance of left oblique, vertical, and right oblique motifs at the earlier Christianson site, and spatially separate Walker site.

4. Pipes

Horizontal banding and triangular plat motifs are more frequent at the Hood and Hamilton sites. Undecorated bowls and motifs which combine horizontal banding and punctates tend to predominate at the earlier Christianson site.

5. Lithics

As with shell tempered ceramics, Kettle Point chert, which outcrops in the region adjacent to the Fire Nation, exhibits increasing occurrences by weight from 1.71% at the Christianson site to 3.1% at Hamilton and 8.3% at Hood. The presence of Ohio Flint Ridge chert adds further support to the contention that this material increased on Spencer-Bronte drainage Neutral sites as conflicts intensified against the Fire Nation.

Projectile Points

Fox (1977) and Noble (1978) have demonstrated certain trends in Neutral non-serrated projectiles over time. But, a significant pattern appears when central and northern sites are separated (Table 53). Overall, the central Neutral sites have longer and wider projectiles than those from the northern sites; this trend sees increasing length and width through the protohistoric, and decreasing after ca. 1615-1630. On the Spencer-Bronte sites there is also a slight decrease in length from ca. 1615 with a corresponding increase in projectile widths, but at no time do they attain the large sizes as seen at Daniels and Walker.

Siltstone/Slate and Catlinite

The amount of red siltstone slate and catlinite provides a useful means to date historic Petun sites (Fox 1978), and a somewhat similar case appears for the Neutrals. Only small quantities occurred at Christianson, but this

TABLE 53. Central and Spencer-Bronte drainage sites projectile point metrics.

	Date	Length $\bar{x}$ (mm)	Width $\bar{x}$ (mm)
Central sites			
Cleveland	1540-1580	25.7	15.4
Fonger	1580-1610	27.8	-
Daniels	1615-1630	30.3	18.8
Walker	1626-1640	28.8	17.7
Spencer-Bronte drainage sites			
Christianson	1610-1620	26.3	15.3
Hood	1630-1641	25.7	16.1
Hamilton	1638-1651	24.8	16.6

noticeably increases at the Daniels, Dwyer and Walker sites of post-1630 age (Noble: personal communication 1981).

6. Shell

Notable quantities of worked shell, particularly in the form of beads, are common on historic Neutral villages and burial sites. At Christianson, a large concentration of 158 differing shell bead types came from burial Feature 15 of House 4E, and at the Hood site 158 discoidal beads from Feature 138 and 104 tubular beads forming a bib-like necklace in burial Feature 9 of House 2 (Lennox 1978:61, 127). Marine shell beads are sparse, but are present at the 1540 A.D. Cleveland site (Noble 1972) and limited quantities (16) occur at the Fonger site, dated to ca.

1590-1610 (Warrick 1979:20-21). This suggests that intensive trade in marine shell products did not develop until some time after 1610. The variety of marine shells used included: Prunum apicinum, Fulgor perversa/Busycon perversum, Buccinum undatum, and Strombus sp.. All were available along the eastern seaboard from the Arctic seas to Campeche, Mexico, primarily between New Jersey and Florida.

The source of shells, and their apparent increase in frequency on certain Neutral sites probably represents an increase in alliances and exchange between the Neutrals, the Hurons and the Susquehannocks who controlled the Susquehanna River route to salt water. Even Étienne Brûlé travelled this route to Chesapeake Bay in 1616 (Biggar 1922-1936 iii:217-218). Presumably the Neutral acted as middlemen in the distribution of marine shells to the more northerly Huron and Petun.

7. Longhouse Burial Grave Goods

Longhouse burials are rare on Neutral sites and represent undisturbed interments of individuals who were usually sub-adults in age. The contents of such graves provides some confirmation regarding bead seriation. The proportion of shell beads to glass beads decreases from Christianson times to the exclusive occurrence of glass beads at the Hood site (Fitzgerald 1979). This not only reflects the increasing availability of European goods, but also that trade in shell became intensive slightly sooner than that in European goods. The Christianson evidence indicates that it belongs at a stage where involvement in the fur trade had been initiated but not fully developed.

Neutral Trade Networks

This section examines the recorded and inferred late 16th and early 17th century friendly connections that the Neutral had with surrounding groups, either directly or through intermediaries. Contacts recorded by Europeans between 1616 and the dispersal of the Neutral in 1651 provide the historic temporal limits, and certain material commodities which help to identify some aspects of the Neutral trade networks. Problems obviously arise from the nature of the ethnohistoric documentation and archaeological sampling. Also, complete trade inventories are probably not demonstrable due to some perishable goods. Essentially then, the cultural evidence, those direct and those through intermediaries, are identifiable only from what is recovered through excavation and from what can be gleaned from ethnohistoric sources, and speculated about foreign raw materials.

Trade is a reciprocal traffic, exchange or movement of materials which promotes contact between communities and the interchange of ideas through personal contact (Renfrew 1969:152, 154) and its identification is affected and limited by the inherent weaknesses within these methods. Detailed understandings of the extensiveness and intricacies of Neutral trade during the late 16th and early 17th centuries can only be hypothesized based on assumptions pertaining to source identification of materials and their quantification in conjunction with ethnohistoric accounts of cultural contacts.

In connection with the dissemination of European goods through aboriginal groups, Townsend (1976) has presented an instance where the intensity of contact is not reflected in the presence of European artifacts. Such could also be the case for the archaeological expression of aboriginal items. Quantity and intensity, with the former presumably being the result of the latter, cannot always be assumed and must be a precaution when attempting to identify trade networks, particularly when using non-perishable archaeological data.

In the example presented by Townsend, items which Alaskans Aleuts received in exchange for furs and labour were initially of the type which would not commonly be preserved in the archaeological inventory, namely, snuff, and chewing tobacco, as well as items which the Aleut had produced (Townsend 1976:5). Instead, intensive contact with the Russians brought about great social changes long before European goods were appearing among the material inventory of the Aleut. It was not until after 1840, or about 80 years after initial intensive contact with the Russians that European items of a preservable nature were being utilized by the Aleuts (Townsend 1976:6). While this case is presented as a problem of evidence that should be taken into account when attempting to understand the mechanisms of contact, there are several points which would tend to negate such an outcome for the introduction of European goods into southern Ontario. Firstly, the Russians had a problem in obtaining merchandise for trade with the Aleuts (Townsend 1976:3), and which was alleviated by utilizing locally manufactured goods (Townsend 1976:4). Most notable is the second exception whereby the Russian-American Company had used the Aleut slaves of the Koniags, as hunters and labourers (Townsend 1976:3). It would not be unreasonable to assume that the bargaining power of those Aleuts would not be as great as that of a group of free traders.

Yet, as has been seen, the degree of European contact seems to be closely related to the volume of European goods found on Neutral sites. Townsend, nevertheless, makes a valuable point which is more applicable to the situation in Neutralia and which corresponds to the pattern of rapid dissemination of European goods into Huronia, and presumably Neutralia, presumably through the St. Lawrence Iroquoian middlemen some time shortly after 1500, as proposed by Ramsden (1978:102, 104). The Russian-American Company attempted to establish trade connections with other groups such as the Tanaina and the Tlingit who were not under their domination. This they did by trading various European goods as well as Aleut manufactured products and dentalium shells from the southern Northwest Coast (Townsend 1976:7). While there was definite assimilation and acculturation among the Aleut who, at the time possessed few European items, the other groups who were autonomous of the Russians had in their inventory materials from various sources with which they had no contact. These situations are at odds with what would be expected, which is essentially the precaution which Townsend is presenting when dealing with contact situations which may be represented in the archaeological record.

Late 16th and early 17th century Neutral of southern Ontario were involved with various groups in the Great Lakes region, both directly and through intermediaries, with contacts being mutually beneficial and also aggressive.

It is anticipated that, with the previously mentioned cautions in mind, the present amount of archaeological information about the protohistoric and historic Neutral is substantial enough to permit the evaluation of not only ethnohistorically recorded European and aboriginal contacts, but also ones which may be deduced from the archaeological material alone.

Unlike recorded European contacts, the information concerning native trade networks, especially those involving the Neutral, were poorly documented, and their intricacies even less well understood. Knowledge of the trade relations is largely inferential for those groups not in direct contact with the Europeans, being derived from passing references concerning alliances the various groups may have had, and particularly from archaeological recoveries. While trade is mentioned in some instances, there is little information regarding the members who participated in the network.

The Neutral apparently were involved in several extensive and wide ranging systems with presumed roles of middlemen, recipient, and producer/exporter. Based principally on archaeological information, networks participated in by the Neutral were in operation from the prehistoric period and changed according to the goods available and the demands of the market. Heidenreich (1971: 219-280) has divided the development of Huron trade into five major periods; however, for the Neutral, such divisions may not be so readily discernable. Rather, Late Prehistoric (ca. A.D. 1350 - A.D. 1500-1534). Protohistoric (ca. A.D. 1500-1534 - A.D. 1615), Early Contact (A.D. 1615 -A.D. 1629) and Contact (A.D. 1629 - A.D. 1651) periods may be defined. Yet, they are essentially artificial, and overlapping no doubt occurs, especially when several, perhaps unconnected and unrelated, systems are involved. Changes and realignments of trade networks following European contact are readily apparent and ramifications of such contact and the influence of the fur trade are reflected in certain aspects of the system in which the Neutral were involved.

It is perhaps best to examine the evidence for trade for each of the periods mentioned and to note the change which occurred and the exigencies of such developments.

1. The Late Prehistoric Period

Traces of archaeologically visible trade items during the Late Prehistoric period are infrequently encountered on Ontario Iroquoian sites. The baseline for this period has been given as 1350 for convenience in that it marks the archaeological differentiation of the ancestral Neutral

Erie branch from the ancestral Huron-Petun branch of the Middleport horizon (Wright 1966:66-67). Noble (1978:152) has substituted the Wenro for the Erie in that the latter group is not seen as a developmental branch of the Ontario Iroquoian Tradition.

During this period, trade items will refer to those objects of aboriginal manufacture which had been procured through indigenous trade networks which have been inferred to have been in operation. The boundary between this period and the Protohistoric is perhaps temporally different for the Neutral and the Huron, with both groups receiving European goods indirectly from European suppliers some time between 1500 and 1534 (Ramsden 1978, Trigger 1979, Noble 1980).

As mentioned previously, there is little evidence of trade with other tribes during this period. Concerning the Huron, the only items which appear with any regularity, despite their limited quantity, are marine shell objects and chert, with catlinite and native copper being found occasionally (Heidenreich 1971:227). Chert from the Niagara Escarpment has been found on sites in northern Simcoe County from this period (Trigger 1976:169) which suggests that there were local trade networks, albeit limited in nature, between the Huron and perhaps the Neutral and/or

Petun (Heidenreich 1971:228). Materials whose origins were outside of Ontario indicate the operation of trading networks to the northwest and southeast.

Catlinite, found primarily in southwest Minnesota and South Dakota, and native copper, from the western end of Lake Superior, is found on both historic Huron and Neutral sites, and these, along with other western products such as hides could have been assembled by the Nassaueketon (Waisberg 1977:32) or Winnebago (Heidenreich 1971:227) and traded to the Ontario horticulturalists indirectly through the *Cheveux relevés* and/or the Nipissing (Brizinski 1980: Heidenreich 1971:227, Waisberg 1977:32). Additionally, the *Cheveux relevés* and Nipissing may have supplied directly to the Neutral and Huron respectively, Algonkian products such as dried berries, reed mats and siltstone/slate in exchange for, in the case of the Neutral, furs, meat, fish, nets, wampum, finished chert items, pigments and horticultural items rendered oil, tobacco and corn (Brizinski 1980:251, Hunt 1940:50, 52, Heidenreich 1971:229, Noble 1978:160, personal communication:1980). The presence of Niagara Collared rimsherds at the LM-6 site, a multi-component Woodland site on Manigotagan Lake , northeast of Winnipeg, may also indicate items which were exchanged (Wheeler 1978:93). No doubt some of these Neutral goods also reached the Huron, however, during this period, and the Protohistoric, trade with the Huron may have been of secondary importance to that which the Neutral had with the *Cheveux relevés*. The presence of Onondaga chert on Lake Nipissing from Archaic through Contact times and corn from *ca*. A.D. 1000, and especially from *ca*. A.D. 1300 onward, indicates connections recorded in the historic period between Hurons and Nipissings were well established prehistorically (Brizinski 1980:235, 251). The apparent lack of contact between the Neutral and the Huron may be the result of political or economic events or conditions, or simply because the items which may have been traded were of a perishable, archaeologically non-recoverable nature. Heidenreich (1971:231) contends that 16th century hostilities between the groups, the similarity of their subsistence economies, and the fact that the Neutral traded primarily with the *Cheveux relevés* were reasons why there was no developed trade between these groups during this period.

The presence of marine shell ornaments, despite their rarity on Neutral and other Iroquoian sites of this period (Kenyon 1972:5), still presents evidence of aboriginal exchange networks which were in operation prior to European contact.

Trigger (1976:169, 1979:210) and Wright (1974:304) present different views of the nature of late prehistoric trade involving the Iroquoians in Ontario. Wright believes that trading patterns existent at initial European contact were in existence prehistorically, while Trigger contends that extensive trading was a recent development, based on the paucity of foreign items on sites prior to the Protohistoric period. While the evidence is not quantitatively overwhelming, it is more probable that widespread exchange networks to the south and north which involved the Neutral and adjacent groups were operating. The lack of archaeological confirmation beyond a general level may be due to the nature of the items traded, for even during historic times, exchange of perishable goods constituted a large portion of the trade goods (Noble 1978: 160).

During the Late Prehistoric period it appears that the primary connections in which the Neutral were involved were initiated with the Algonkian _Cheveux relevés_. Similarly, the Huron had as their Algonkian trading partners the Nipissing. As such, and as stated previously, the Huron and Neutral had no need to participate in extensive trade with each other.

2. The Protohistoric Period

This period is defined by the presence of European manufactured items prior to actual contact with Europeans, with dates of initiation for the period among the Huron being some time between 1500 (Ramsden 1978:102) and 1534 (Trigger 1979:215), and for New York Iroquois sites *ca.* 1550 (Engelbrecht 1974:54, Wray and Schoff 1953:55). Three ancestral Neutral sites of this period, Cleveland, Mannen and Fonger have been excavated, the C-14 date of 1540 from the Cleveland site (Noble 1972b:13) may, until additional evidence is accumulated, provide an indication of the time depth of the protohistoric period in Neutralia. The terminal date of this period can more confidently be placed at 1615-1616 for the Neutral when Etienne Brule passed through Neutralia. Prior to direct contact, and also following it, the Neutral probably received the most of their European goods through Huron-Petun intermediaries, or the *Cheveux relevés*.

Aboriginal trade networks in operation during the preceding period probably continued into the Protohistoric period. Yet, alterations and expansions are evident. These may in some way be attributable to the appearance of European goods through indirect contact between the French and Huron. While trade in European goods may have expanded trade during this period (Trigger 1976:244), the growth of Huron trade in French goods began slowly, and was virtually non-existent until the Huron established contact with the French, and in particular Champlain in 1609 (Trigger 1979: 215). Initially, the Huron were more interested in war alliances with the French, and at the time the Algonkian middlemen were hesitant in allowing such a trading network to develop (Heidenreich 1971:233, 237). However, toward the end of this period, the Huron used the European goods to expand essentially non-existent trade connections with the Petun and Neutral (Heidenreich 1971:222).

The Protohistoric period, as mirrored in the archaeology of the Seneca of New York State, has been divided by Wray and Schoff (1953) into three stages based on both aboriginal and European artifact trends. During the 1550-1575 period, European trade material was present in only minor frequencies, and the characteristic types were tubular brass beads and ornaments (Wray and Schoff 1953:55). The succeeding period, 1575-1590, witnesses a quantitative increase in the amount of goods reaching the Seneca, while the latter stage saw a decline in the presence of shell beads and ornaments, perhaps due to the great increase of glass beads at this time, between 1590-1616 (Wray and Schoff 1953:56). This trend of decreasing shell beads is not observed among the Ontario Iroquoians of this period. Engelbrecht (1974:55) presents only a two stage division of the Protohistoric period for the New York Iroquois: 1550-1590, where there is but limited evidence of European materials, and 1590-1615 where significant amounts of European materials are present, sometimes up to one-quarter of the total material recovered from a site. Noble (1971:46) discerned changes within the European assemblages on Huron-Petun sites of the Protohistoric period, and divided the period after 1580 into two stages. The early Protohistoric sites, between 1580 and 1600, produced only a few trade items which were usually of a utilitarian nature. The later Protohistoric period, 1600-1609, possessed a more varied and richer assemblage which reflected post-1600 direct trading and an altered trading route along the Ottawa-French rivers adopted by the Huron. Trigger (1979:214-215) has differentiated three pre-contact stages between 1534 and 1609 for the introduction of European goods on Huron sites based on historical events. Between 1534 and 1550, the sporadic presence of French traders and explorers in the St. Lawrence Valley may have resulted in small and irregular amounts reaching southern Ontario. Participation of fishermen and whalers in the fur trade at Tadoussac on a more regular basis between 1550 and

1580 resulted in a greater increase as did the presence of professional traders at Tadoussac after 1581. Following direct contact, the amount and variety of European goods increased drastically.

On Neutral sites marine shell ornaments became increasingly more common after 1550 (Kenyon 1972:5), and on Huron sites shortly after the turn of the 17th century, largely in the form of discoidal shell beads (Ramsden 1979:3). The low frequency of shell items on the Cleveland site site, ca. 1540 (Noble 1972b) and Fonger site ca. 1600-1610 (Warrick 1979:21) may indicate that the Neutral trade for shell with southern groups had not become well established at this time. The other Protohistoric Neutral site, Cleveland, corresponds with the description of the 1550-1575 Seneca period, where only seven European items were recovered, four of them being rolled brass beads (Noble 1972:10-11). The beads were found in the upper layers of the middens which indicate that the site may have spanned the Late Prehistoric and Protohistoric periods (Noble 1972b:11).

Based on the European articles from the Cleveland and Fonger sites it can be seen that such items were restricted in number and type, and modifications from their original state was the case rather than the exception which indicates the value placed on this commodity during this period. Such is also suggested by the low percentage of non-utilized brass scrap on the Fonger site, approximately 35%, compared to historic sites, approximately 75% (Warrick 1979b:8-9).

Trade with southern groups such as the Andaste, or perhaps through New York Iroquois intermediaries, may have developed during the Late Prehistoric period, and the gradual increase in the amount of marine shell items indicates a continuation of these connections in this period. That shell beads, or wampum chains, were a highly prized decoration and medium of exchange, the demand for such an item by the Huron during the later stages of the Protohistoric period to exchange with the Algonkians for beaver pelts (Ramsden 1979:2), may directly be a result and/or cause of the continued growth of this southern exchange network. Furthermore, it may also have been during this period that the first direct contacts were made between the Andaste and the Huron (Trigger 1976:244).

At least superficially the apparent increase and frequency of contacts with southern groups seems to be a result of the demand for such materials as marine shell by the Huron which may be related to the development of the fur trade during this period. That the Neutral may have established similar connections, at least indirectly, with the southern groups prehistorically, it should have been a natural extension that they serve as middlemen in a developing Huron-Neutral system, which in return brought European goods to the Neutral. Increasing demands by the Huron may have resulted in the Huron desiring to eliminate the Neutral from such a position by establishing direct trade conncetions with the Andaste some time toward the end of the Protohistoric period.

As discussed in the Temporal Placement section, the transition from the Protohistoric period to Contact period is quite distinctive on Neutral sites, particularly with respect to the marine shell items and European commodities. Protohistorically, these items are present, but generally in smaller amounts, whereas there appears to be a sudden and quite dramatic increase in shell initially, and soon after, European items. Such events have been attributed to direct European contact with the Neutrals, and related to the intensification of the fur trade in southern Ontario. The Christianson site appears to belong on the boundary of the two periods in that it possesses large quantities of shell, but smaller amounts of European goods. There is a greater variety of European items on the historic sites. It would also appear that the intensive northern trade of marine shell developed slightly earlier than the return trade in European goods.

3. The Early Contact Period

The period encompassing initial direct European contact with the Neutral and the final dispersal of the Neutral by 1651 could be treated as a single period. However, the florescence of European items on Neutral sites may be dealt with more effectively by dividing the period into two stages: an Early Contact period, which ends with the expulsion of the French from Quebec in 1629, and a Later Contact period. Perhaps arbitrary, this division may allow a more detailed analysis of the development and realignment of various alliances as a result of the fur trade, or at least the sudden increase in the availability of European manufactured goods.

In the case of the Huron, this period saw the establishment of direct trade relations between the Huron and the French which were being formulated in the previous period, and which likely was due to the encouragement and visits of Champlain to Huronia (Heidenreich 1971:249). Realignments in trade networks initiated during the Protohistoric period came to fruition during the Early Contact period when the Huron were able to obtain access to the previously little travelled route to Quebec which had been controlled by the Nipissing and the lower Ottawa Valley Algonkins (Heidenreich 1971:249, Waisberg 1977:38). At direct contact the Cheveux relevés-Petun/Neutral network appears to have been operating in parallel with the Huron-Nipissing arrangement (Waisberg 1977:37); however, requirements of the fur trade initiated an expansion and realignment of the already functioning system.

With the relatively rapid introduction of a wide range of European goods into southern Ontario, the Early Contact northwest-southeast trade netwoks involving Algonkian groups with separate Ontario Iroquoian groups were altered by the development of a new set of alliances between the Cheveux relevés, Petun, Neutral and Huron, with the Huron initially being the middlemen in the system of distribution of European items. As mentioned previously, when Champlain contacted the Cheveux relevés in 1616, they were close political allies and trading partners with the Neutral; however, by 1624, a Huron-Cheveux relevés alliance was established (Waisberg 1977:39), being one in which the Cheveux relevés supplied the Huron with, among other items, furs for the French.

Around 1626 the Neutral-Huron trade network was threatened by certain Frenchmen, notably the priests, who were perceived by the Huron as being powerful, just as

Champlain in 1616 was viewed by the Cheveux relevés (Trigger personal communication:1981) for desiring to trade with the Neutral, bypassing the middlemen. This incursion was attempted by Daillon and the consequences have been outlined previously. At this time the Neutral appear not to have desired so much to trade directly with the French as they were when Champlain had made similar overtures in 1616. Now the Neutral did not want to jeopardize their alliance with the Huron as it would result in a renewal of hostilities which had only ceased in the recent past. Furthermore, it would have been unlikely that the New York Iroquois would give the Neutral permission to utilize the St. Lawrence, a route which had been controlled by the Mohawks since the end of the 16th century (Trigger 1979: 218). The threat of war on two fronts was probably enough to dissuade the Neutral from attempting to develop large scale independent trade relations with the French (Trigger 1976:402). Furthermore, it is reported that in 1626 lower Ottawa Valley Algonkins were present in Neutralia for the purpose of hunting beaver and it was likely that European goods, and perhaps steatite and chlorite, were exchanged for the privilege. The constant supply of foreign goods into Neutralia was perhaps enough to keep the Neutral content in their role as supplier of beaver to other aboriginal groups.

Large marine shell artifacts continue to increase in frequency during the 1600-1620 period (Kenyon 1972:5), which indicates that they remained a desired item. The rapid increase in number and variety of European articles shortly after direct contact with the French in conjunction with the abundance of marine shell may be interpreted as indicating the Neutral acted as middlemen between the Andaste and Huron despite the absence of ethnohistorically recorded alliances between the Andaste and Neutral until 1652. Because the Neutral were on peaceful terms with the New York Iroquois until 1647, they could have visited the Susquehannocks more easily than they could the Huron.

The importance of direct European contact which resulted in the expansion of the fur trade in southern Ontario is reflected in the sudden introduction of a foreign technology which, in the later period, continues to intensify and further alter intertribal relations.

4. <u>The Later Contact Period</u>

In 1632, New France was returned to the French, but it was not until the late 1630's and early 1640's that the Huron-French network reached its maximum development (Heidenreich 1971:219). While the variety of European goods on the Early Contact Christianson site sets this period quite distinctively apart from the Protohistoric period, the sheer volume and diverse nature of European goods on Contact sites such as Walker, Hood and Hamilton, testify to the greater intensity of French-Huron, Huron-Neutral, and possibly French-Neutral relations during this period.

The co-existence of aboriginal and French-Huron net networks, as expected, persist into this period, yet identifiable evidence of the northwestern connections still remain sparse on Neutral sites, while the southern trade for shell continues to flourish. From the three above mentioned Later Contact period sites, the catlinite inventories consist of five beads, one bead blank and three nodules from the Walker site (Wright 1977:85), and from the Hood and Hamilton sites, two beads each (Lennox 1978: 94, 1977a:60). The red siltstone/slate industry is represented by four beads from the Hamilton site. Such low frequencies were also observed at the Christianson site. That relations between the Cheveux relevés and Huron became formalized around 1624 seems to be substantiated by the increasing presence of catlinite and red siltstone/slate after 1620 on Huron and Petun sites (Fox 1978a:6). A malleated piece of native copper in the form of a pin or awl from the Hood site (Lennox 1978:135) is the only other evidence of historic connections to the northwest. That European and native technologies had merged by this time is indicated by the use of a catlinite bead as a handle for an iron awl at the Walker site (Wright 1977:85), and by a gunflint manufactured from Kettle Point chert found at the Hood site (Lennox 1978:94).

From the three habitation sites of the 1629-1651 period there is abundant evidence that southeastern groups were still trading marine shells to, and through the Neutral. Recovered from the Walker, Hood and Hamilton sites were 136, 359 and 445 shell beads, respectively (Wright 1977:45, Lennox 1978:125, 1977a:117), a trend which appears to have initiated some time around 1615, for at the Christianson site 222 beads were recovered, a feature attributable perhaps to Brûlé's visit to the Susquehannocks in 1615, or perhaps more possibly due to the development of these items as a requirement of these goods around this time as a medium of exchange in the expanding fur trade in southern Ontario.

By 1630 the supply of beaver dwindled in the Huron hunting territories which necessitated the Huron obtaining even greater amounts of fur from other sources. This resulted in the continuation of the realignment of trade networks initiated during the Early Contact period, particularly between the Cheveux relevés and Huron. Following the smallpox epidemics of the 1630's among the Nipissing and Ottawa Valley Algonkins, the Huron trade network expanded through that area with an increase in the direct contact they had with the French (Heidenreich 1971: 179). The nature of the trade the Neutral had with the Huron was essentially the same as it was during the 1620's. Once again, the Huron became sensitive when attempts were made by the French, this time through the Jesuits Brébeuf and Chaumonot, to establish formal relations (Thwaites 1896-1901 xxi:207). As suggested previously, the Neutral, for their own presevation, had no real desire to initiate such relations. Rather, as mentioned by Lalemant (Thwaites 1896-1901 xxi:) many independent French traders had been operating in Neutralia for some time prior to 1641. By the amount of European goods recovered from Neutral sites of this period, it does not seem that there would be further advantages if they bypassed the Huron.

The recently attained dominance of the Huron as middlemen for all groups west of about 76 degrees longitude, between 1632 and 1641, started to decline about 1642 as a result of harassment by New York Iroquois through raids into Huronia and ambushes along the trade routes (Heidenreich 1971:264). Until 1647, the Neutral had been spared such confrontations; however, in that year the Seneca instigated the dispersal of the Neutral in order to gain access to the desired Neutral beaver grounds (Trigger 1976:624), as it is hypothesized that the Neutral did against the Fire Nation after 1615. Dispersal of the Neutral in 1651 resulted in the collapse of the highly developed trade networks in which the Neutral had participated.

5. Comments

Since late prehistoric times, the Neutral had been involved in a variety of intertribal exchange networks, which, into the historic period, either persisted or were modified. Alterations documented in the ethnohistoric record or hypothesized from archaeological remains, as well as conflicts, most notably those between the Fire Nation and the Neutral, and the later Seneca attacks into Huronia and Neutralia, all appear to have been attributable to the developing fur trade in southern Ontario following direct contact between the aboriginal groups and the French.

Trigger (1976:169) contends that trade was not extensive prehistorically as suggested by a paucity of foreign items. Such a paucity, except for items related directly to, or whose presence is a result of the fur trade (marine shell, European goods, southwestern Ontario, Ohio, and Michigan cherts, Fire Nation ceramic technology), continues into the historic period, suggesting that if it were not for the intensive participation of the Neutral in the fur trade after 1615 and the demands created, the situation would not have altered and the groups would not have become as cosmopolitan.

Among the Neutral only certain branches of the network expanded to accomodate the fur trade, most notably the Andaste-Neutral-Huron system which involved at the respective ends marine shell and European goods. That the Andaste may have moved to their historic location in Lancaster County, southeastern Pennsylvania in order to more effectively exploit various trade opportunities (Jennings 1978:362, 364), including European items along the eastern seaboard, would suggest that European items were unlikely to have been filtered to the Andaste from the Huron in exchange for marine shell. Rather, it may have been Neutral products or perhaps as indicated by Brûlé's trip in 1615, alliances between the Huron and Andaste against their common enemy, the New York Iroquois, were part of the exchange.

The relatively sudden increase in marine shell and variety of European goods around 1615, as exemplified at the Christianson site, has been attributed to attempts by the French, Huron, and perhaps _Cheveux_ _relevés_ around 1615, to get the Neutral to participate in the developing southern Ontario fur trade. Such lobbying appears to have resulted in the entry of European goods into Neutralia from several groups who desired to trade with the Neutral for their valuable fur resources, so much so that European goods tend to be more numerous on Neutral sites than those contemporaneous Huron sites which were receiving the goods directly from the French (Noble 1978:163). It is then the primary contention that it was this intense competition that likely resulted in the notable change in the marine shell and European inventories about this time.

Aside from the shell and European items, the amounts of other preserved items such as catlinite, red siltstone/slate, foreign cherts (aside from Kettle Point chert which is present for other reasons), steatite and chlorite, suggest not all branches of the Neutral exchange system became intensified as a consequence of the fur trade. However, the effect of the fur trade cannot be underestimated as it had profound effects not only on trade relationships, but perhaps more importantly on the outcome the intertribal conflicts that shaped history in this region.

Basis for Future Research

One aim of this thesis was to be able to identify one of the distinct tribal entities recorded ethnohistorically or hypothesized archaeologically to which the Christianson site belonged. However, at this time it appears that such an endeavour is hampered by the lack of a detailed temporal understanding of cultural trends in a geographically restricted area. Noble (1977:) has presented a model of Neutral settlement patterning which involves village movement upstream over time. Located upstream along the Spencer Creek from the Christianson site, and apparently post-dating it, is the Robertson site which would tend to, at least preliminarily, confirm Noble's hypothesis. Whether the Robertson site represents the movement of the Christianson site inhabitants is a crucial point in furthering the understanding of temporal trends in Neutralia. It would among other problems, help to clarify whether the differences, particularly in ceramics, between the Christianson site and the Bronte Creek drainage sites of Hood and Hamilton are temporal or cultural. The identification of a site that is closely contemporaneous to either Hood or Hamilton would go far in being able to substantiate or refute claims or separate tribal affiliations along drainage clusters.

Analysis of the Christianson and Robertson sites and their presumed associated ossuaries, Shaver Hill and Dwyer, would provide a significant addition of data for the post-contact settlement along upper Spencer Creek. This in turn could be compared with the Bronte Creek drainage sites of Hood, Bogle I, Hamilton and Bogle II sites, and such comparison would lead to a greater understanding of the mechanisms of historic northern Neutral culture change, and the nature of their socio-political structure in the early 17th century.

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FIGURE 41. Body sherds

1.-2.	Cord roughened surface treatment: shell temper
3.	Smoothed-over cord surface treatment: grit temper
4.	Cord roughened and smoothed-over cord surface traetment: shell temper
5.	Ribbed paddle surface treatment: grit temper
6.	Cord roughening present on exfoliated layer of layered sherd exterior: shell temper
7.	Layered sherd exterior: shell temper
8.	Trailing or ribbed paddling present on exfoliated layer of layered sherd interior: shell temper
9.	Cord roughening present on exfoliated layer of layered sherd interior: shell temper
10.	Angled sherd profile: grit temper
11.-13.	Angled sherd with trailed decoration: grit temper
14.	Angled sherd with trailed and linear impressed decoration: grit temper
15.-16.	Angled sherd with trailed decoration: grit temper

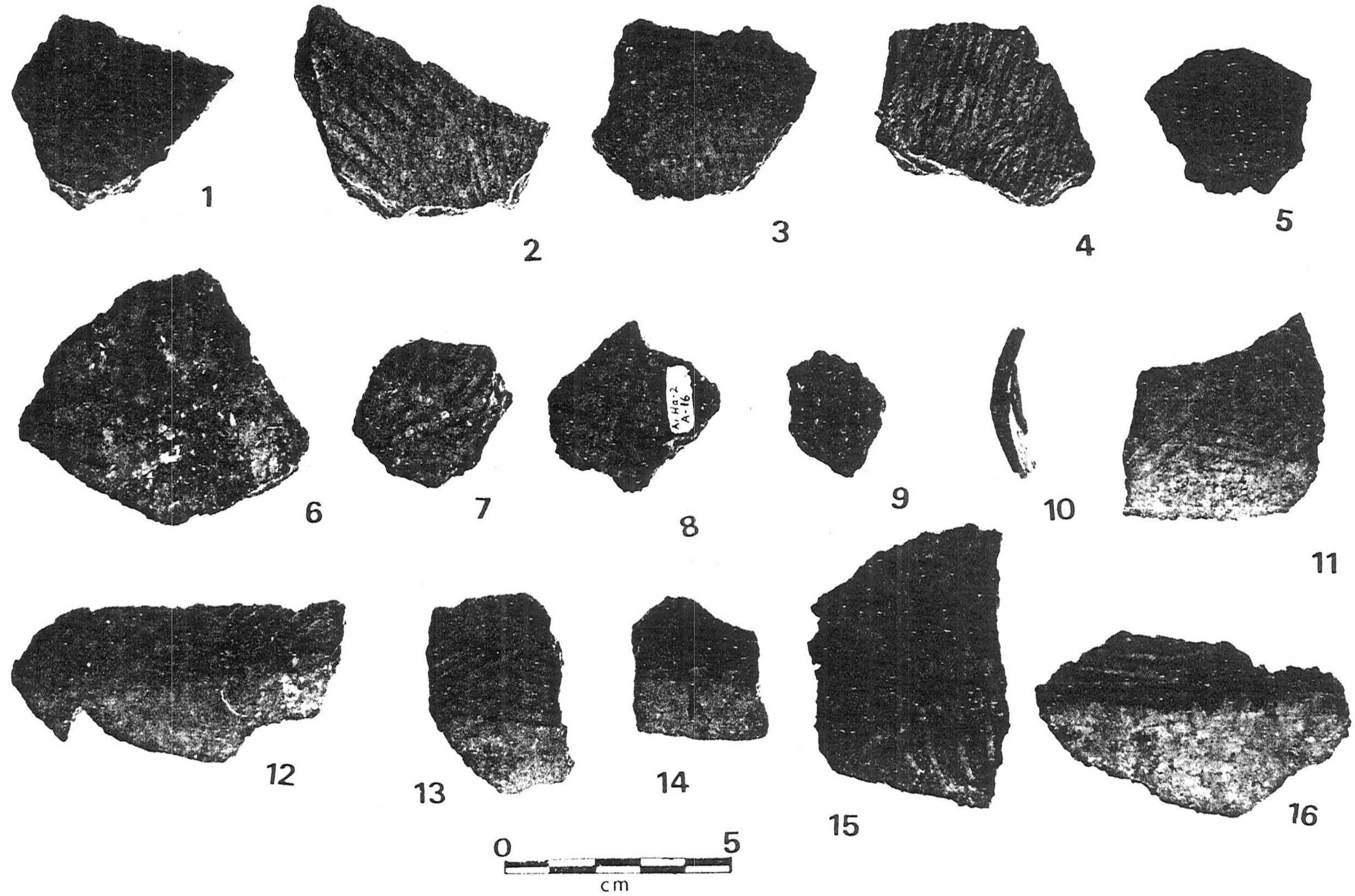
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FIGURE 42. Neck sherd decoration

1.-2.	Trailed: grit temper
3.	Linear impressed: grit temper
4.	Trailed: grit temper
5.	Trailed and linear impressed: grit temper
6.-7.	Punctates: shell temper
8.	Linear impressed: grit temper

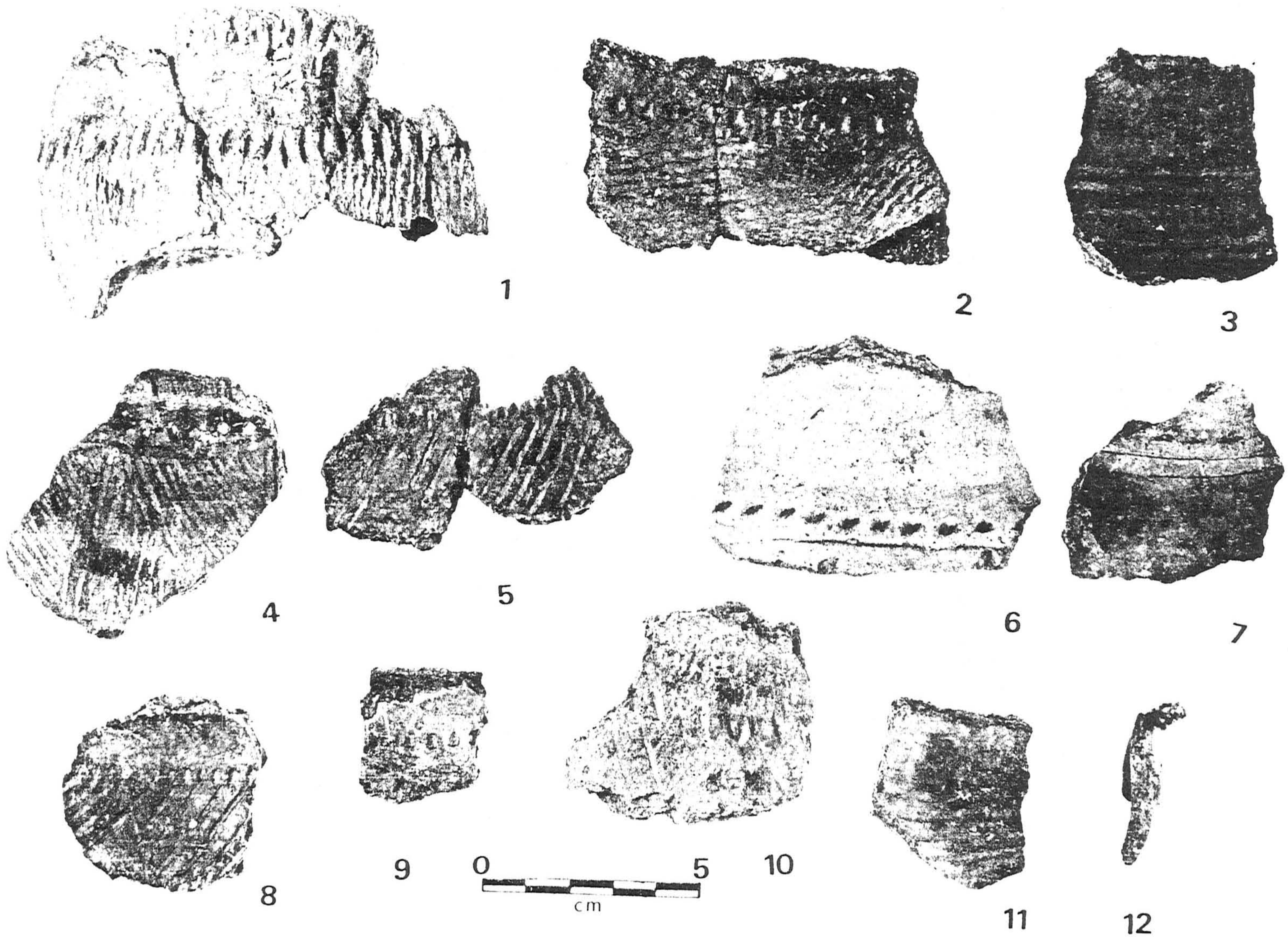
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FIGURE 43. Shoulder sherd decoration

1.	Linear impressed: shell temper
2.	Punctates: shell temper
3.-4.	Trailed: grit temper
5.	Linear impressed and trailed: grit temper
6.	Punctates and trailed: grit tempered
7.	Linear impressed and incised: grit temper
8.	Linear impressed and trailed with carinated shoulder profile: grit temper
9.	Punctates: shell temper
10.	Linear impressed and trailed: grit temper
11.	Linear impressed and trailed with carinated shoulder profile: grit temper
12.	Carinated shoulder profile

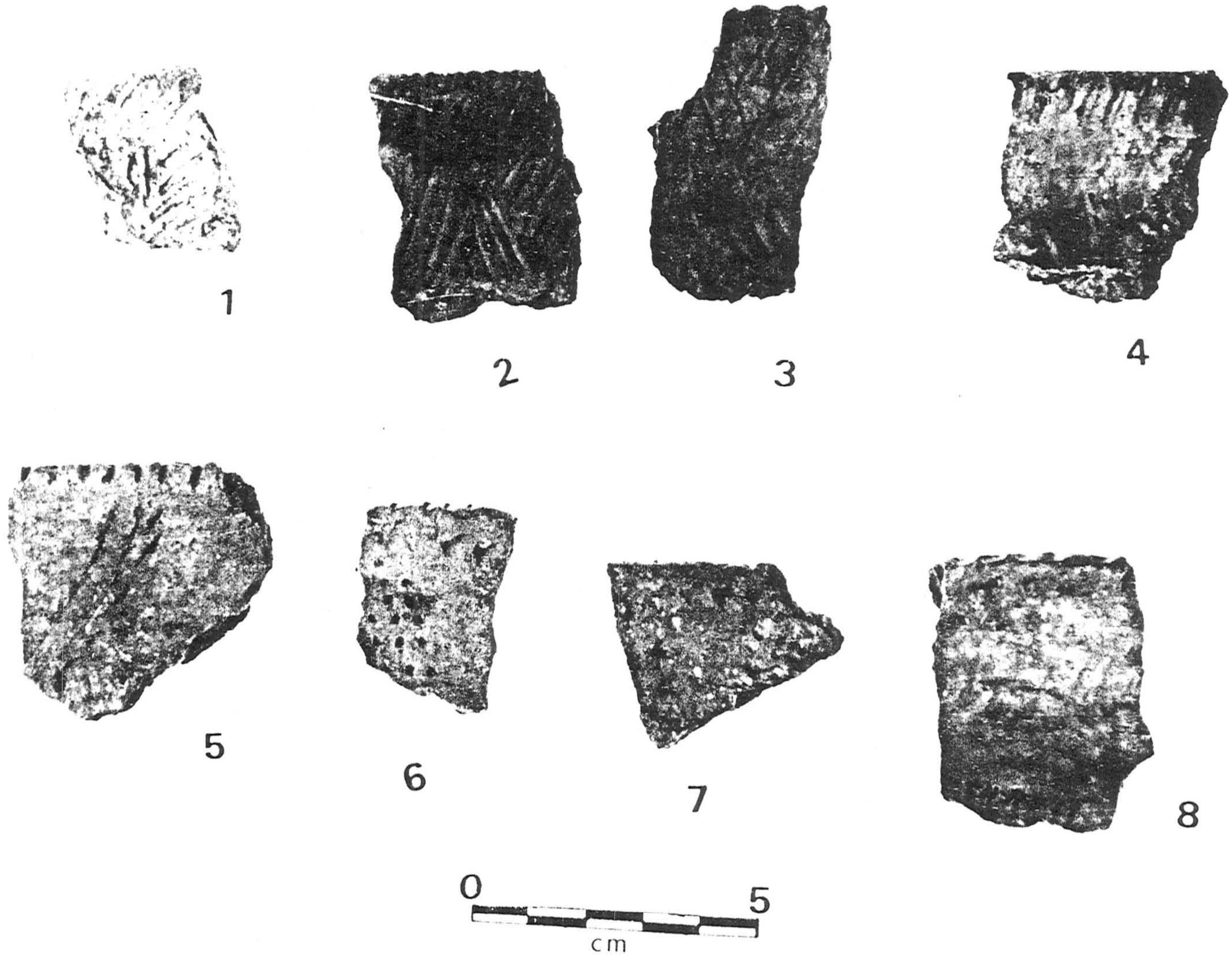
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FIGURE 44. Appliqués and handles

1.	Basally converging strips: shell temper
2.	Vertical strip: shell temper
3.	Basally converging strips: grit temper
4.	Basally converging strips: shell temper
5.	Basally converging handles: grit temper
6.	Basally converging strip scars: grit temper
7.-9.	Handles: grit temper
10.-12.	Strips: shell temper
13.	Strip: grit temper
14.	Basally converging strip scars: shell temper

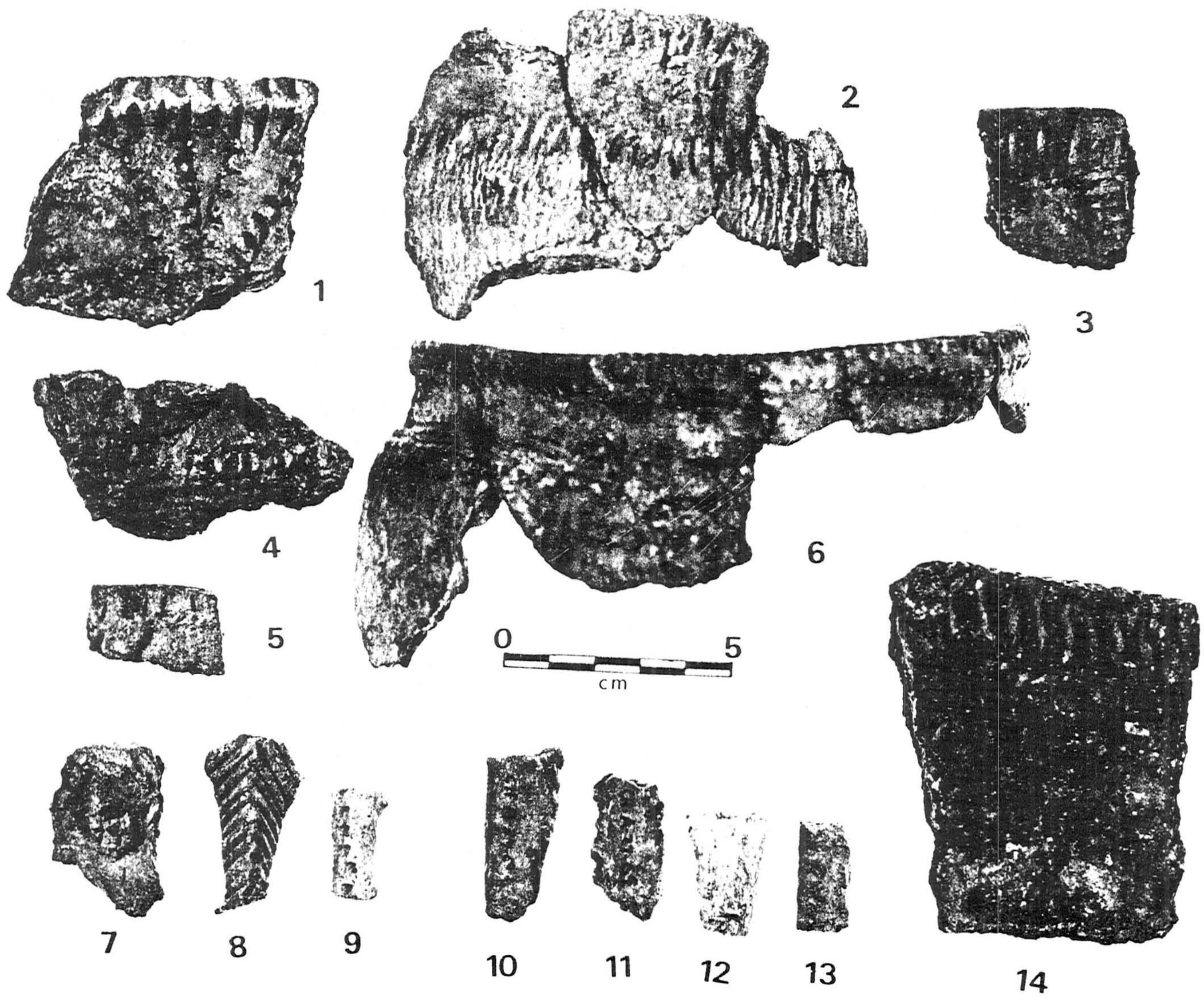
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FIGURE 45. Grit tempered rim sherds

1.	Plain collarless
2.	Trailed collarless
3.	Push pull collarless with notched lip
4.	Trailed collared
5.	Punctate collared
6.	Notched lip
7.	Punctate collared
8.	Trailed and linear impressed collared
9.	Dentate stamp collarless
10.	Notched base of collar
11.	Linear impressed collar
12.	Trailed collarless
13.	Linear impressed collared
14.	Notched lip collarless
15.	Linear impressed collared
16.	Linear impressed base of collar

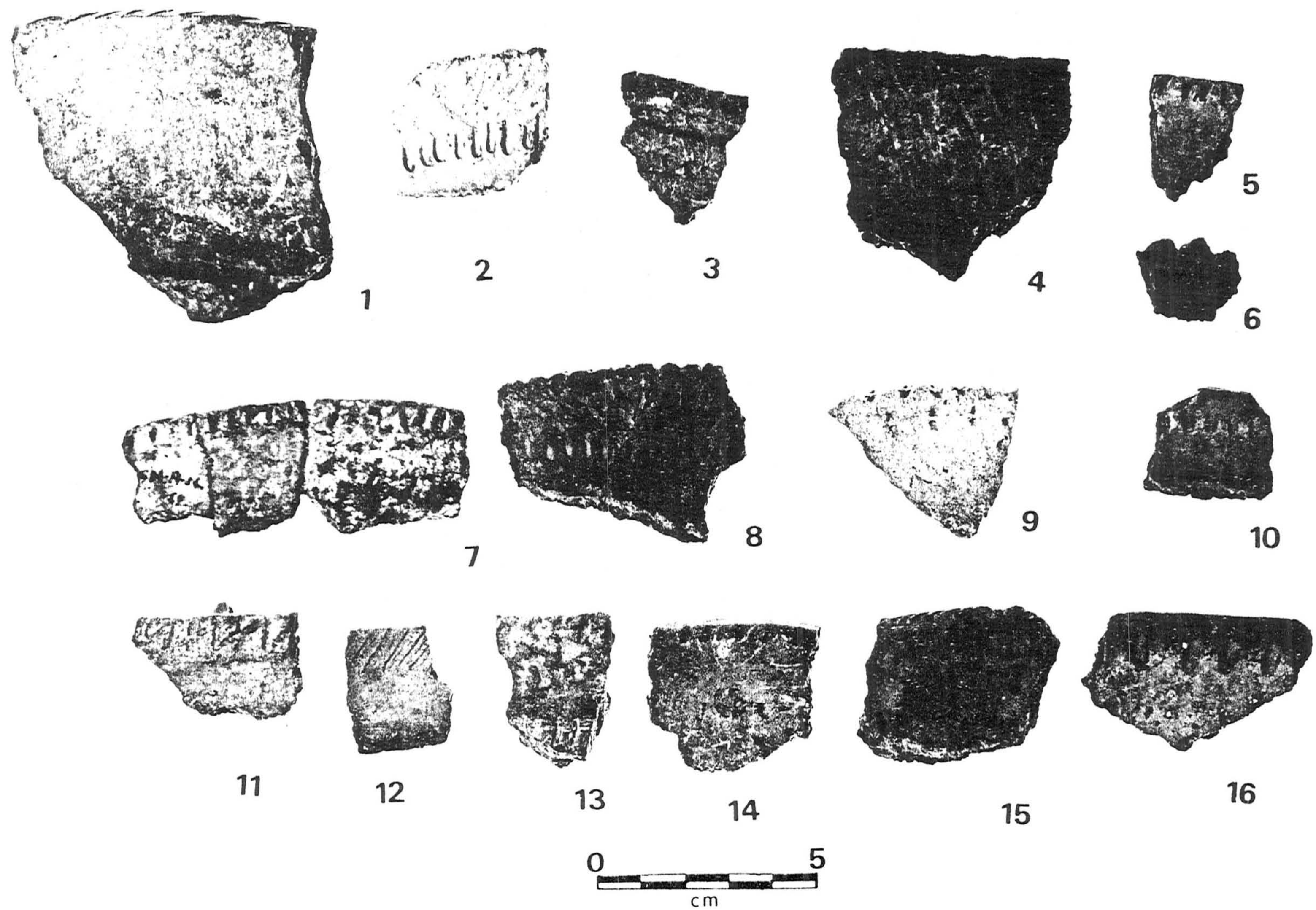
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FIGURE 46. Grit tempered rim sherds

1.-3.	Linear impressed collared
4.	Linear impressed collarless
5.	Linear impressed
6.	Plain collared
7.	Trailed collared
8.	Linear impressed collared
9.	Incised collared
10.	Plain collared
11.	Trailed collared
12.	Trailed collarless
13.	Trailed collared
14.	Trailed collarless

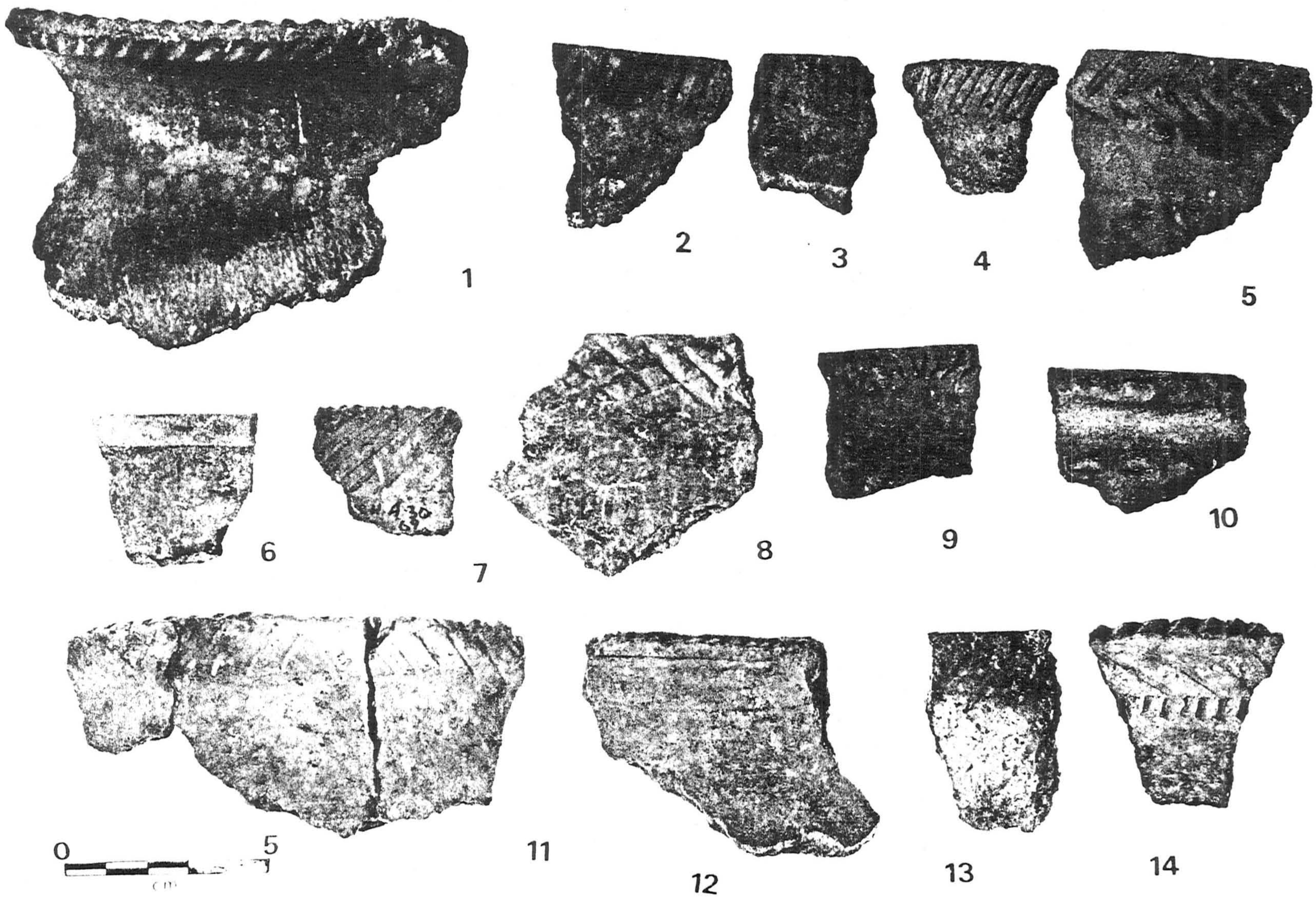
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FIGURE 47. Shell tempered rim sherds

1.	Linear impressed, punctate, trailed and punctate collarless
2.-3.	Linear impressed collared
4.	Linear impressed collarless
5.	Linear impressed and punctate collarless
6.-7.	Punctate collarless
8.	Plain collarless
9.-12.	Linear impressed collarless (Mocassin Bluff notched appliqué)
13.	Plain collarless

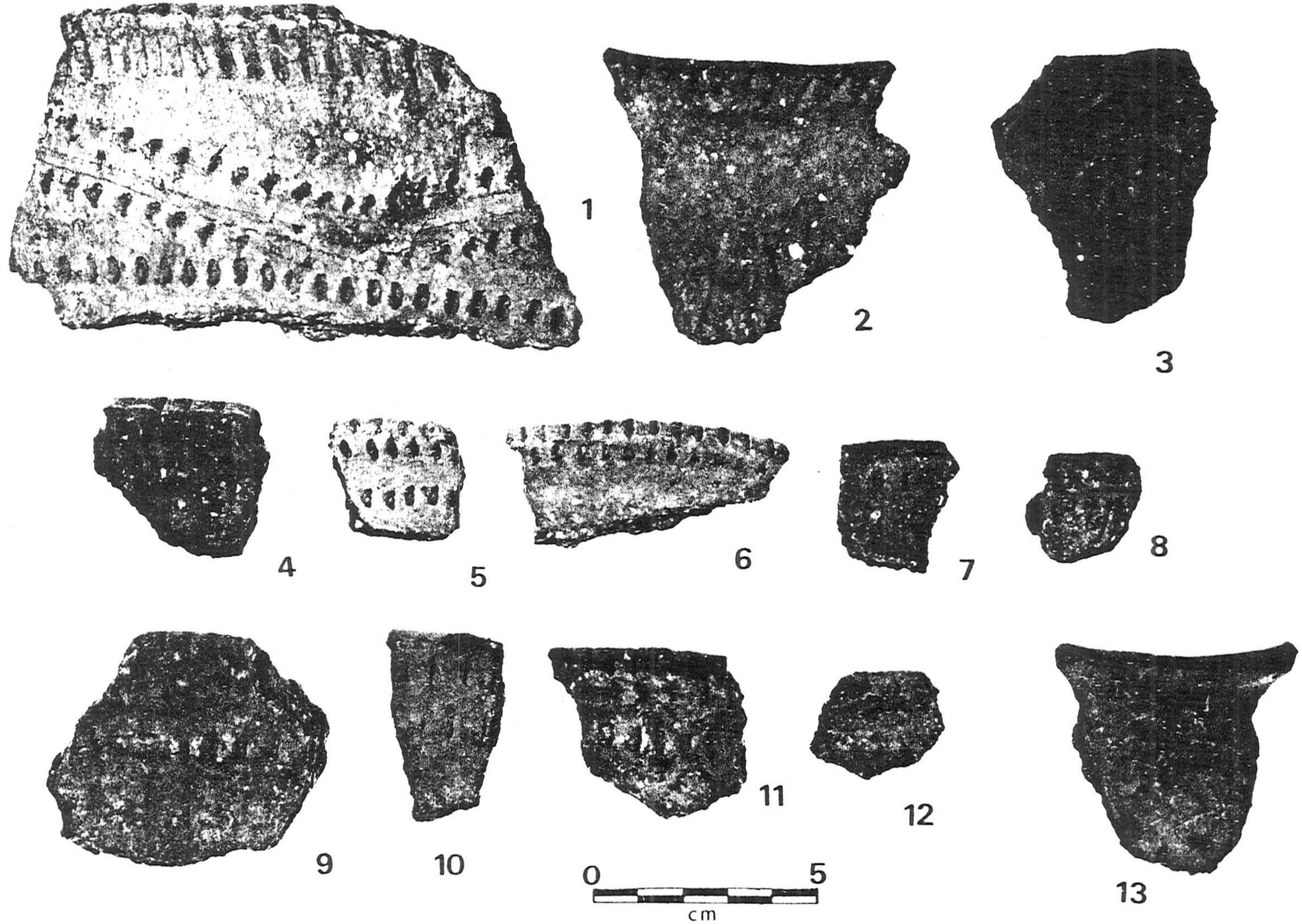
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FIGURE 48. Castellations

1.	Form 4: Linear impressed and trailed: grit temper
2.	Form 1: Linear impressed: grit temper
3.	Form 4: Linear impressed, punctate, trailed, and punctate: shell temper
4.	Form 3: Linear impressed: grit temper
5.	Form 1: Linear impressed: grit temper
6.	Form 3: Linear impressed: grit temper
7.	Form 5: Linear impressed: grit temper
8.	Form 2: Linear impressed: grit temper
9.	Form 3: Linear impressed: grit temper

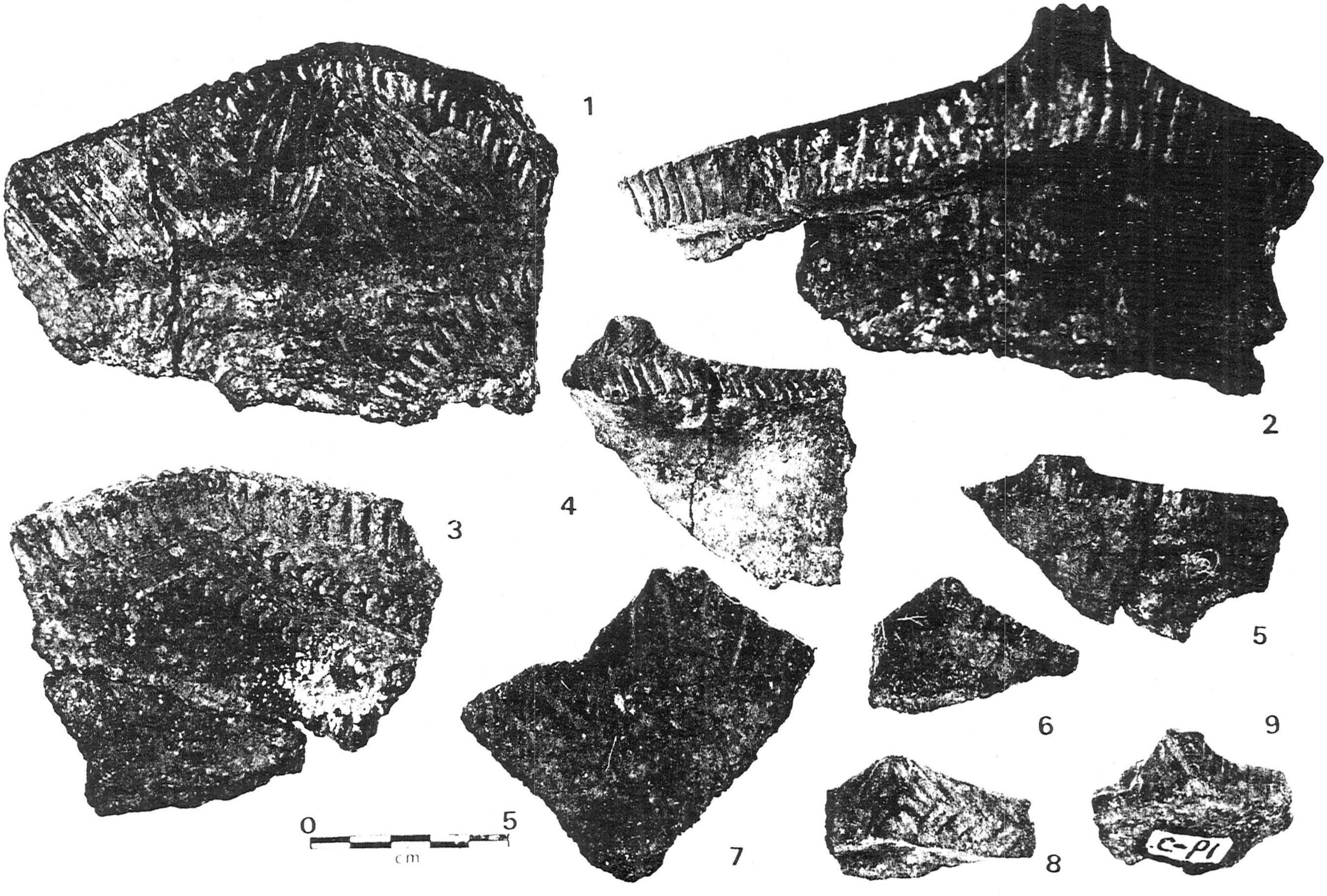
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FIGURE 49. Pipes

1.	Undecorated stem fragment: round tempered mouthpiece
2.	Undecorated stem fragment: constricted tapered mouthpiece
3.-4.	Undecorated stem fragment: square tapered mouthpiece
5.	Decorated stem fragment: lateral notching with central ridge
6.	Decorated stem fragment
7.	Decorated stem fragment: chevron
8.	Decorated stem fragment: vertical trailing
9.	Decorated elbow fragment: lateral and central notching
10.	Unfinished ground igneous conical bowl
11.	Chlorite disc-topped bowl fragment
12.	Undecorated limestone stem fragment: constricted mouthpiece
13.	Undecorated limestone stem fragment
14.-15.	Juvenile stem fragments
16.	Juvenile elbow fragment: no bore
17.	Juvenile bowl

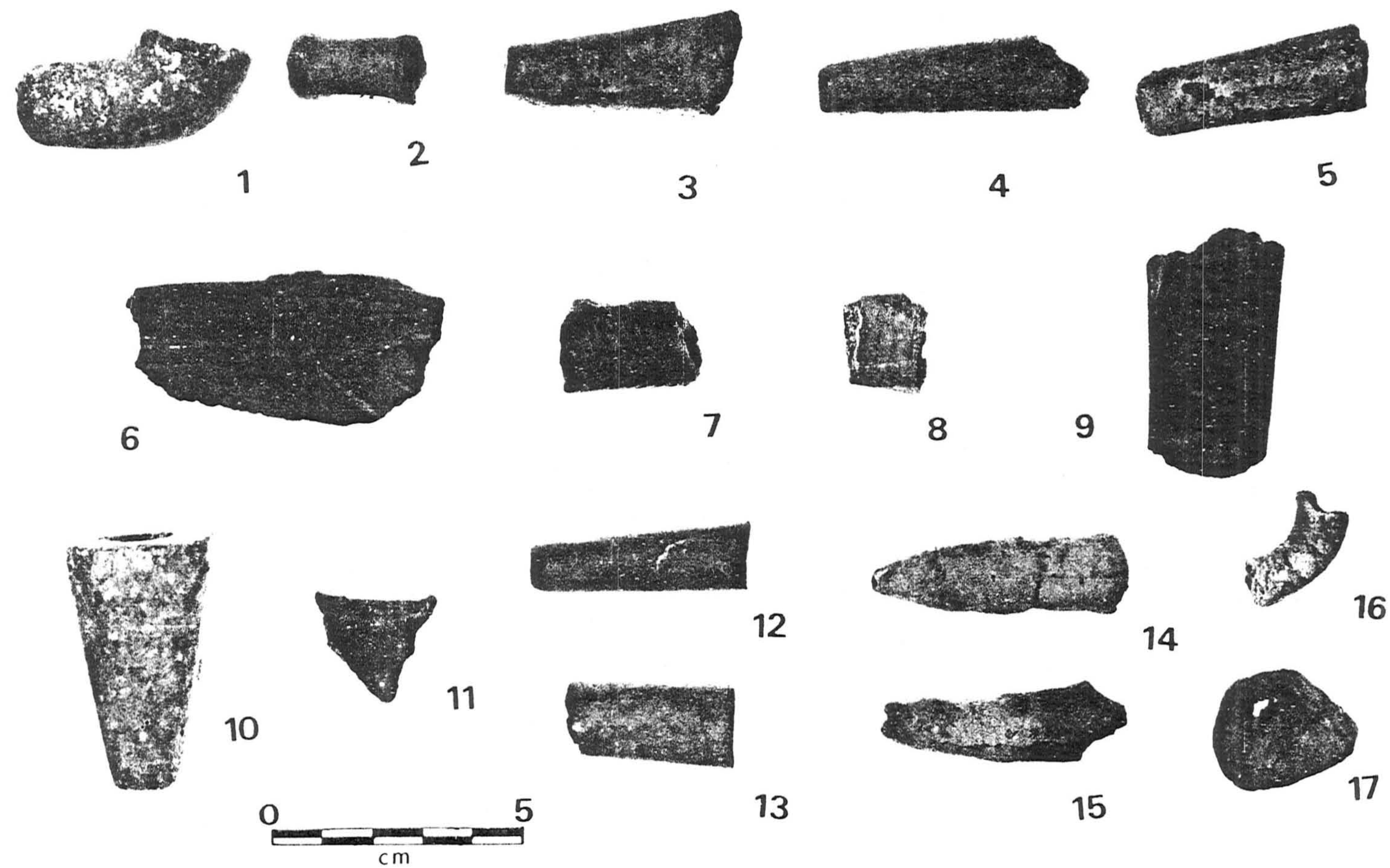
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FIGURE 50. Pipes

1.-3.	Flared bowls
4.	Collared bowl
5.	Diamond flared bowl
6.	Conical bowl
7.-8.	Trumpet bowls
9.	Conical bowl
10.-11.	Coronet bowls
12.	Stemmed pipe with flared bowl reformed into chillum
13.-14.	Chillum stem fragments

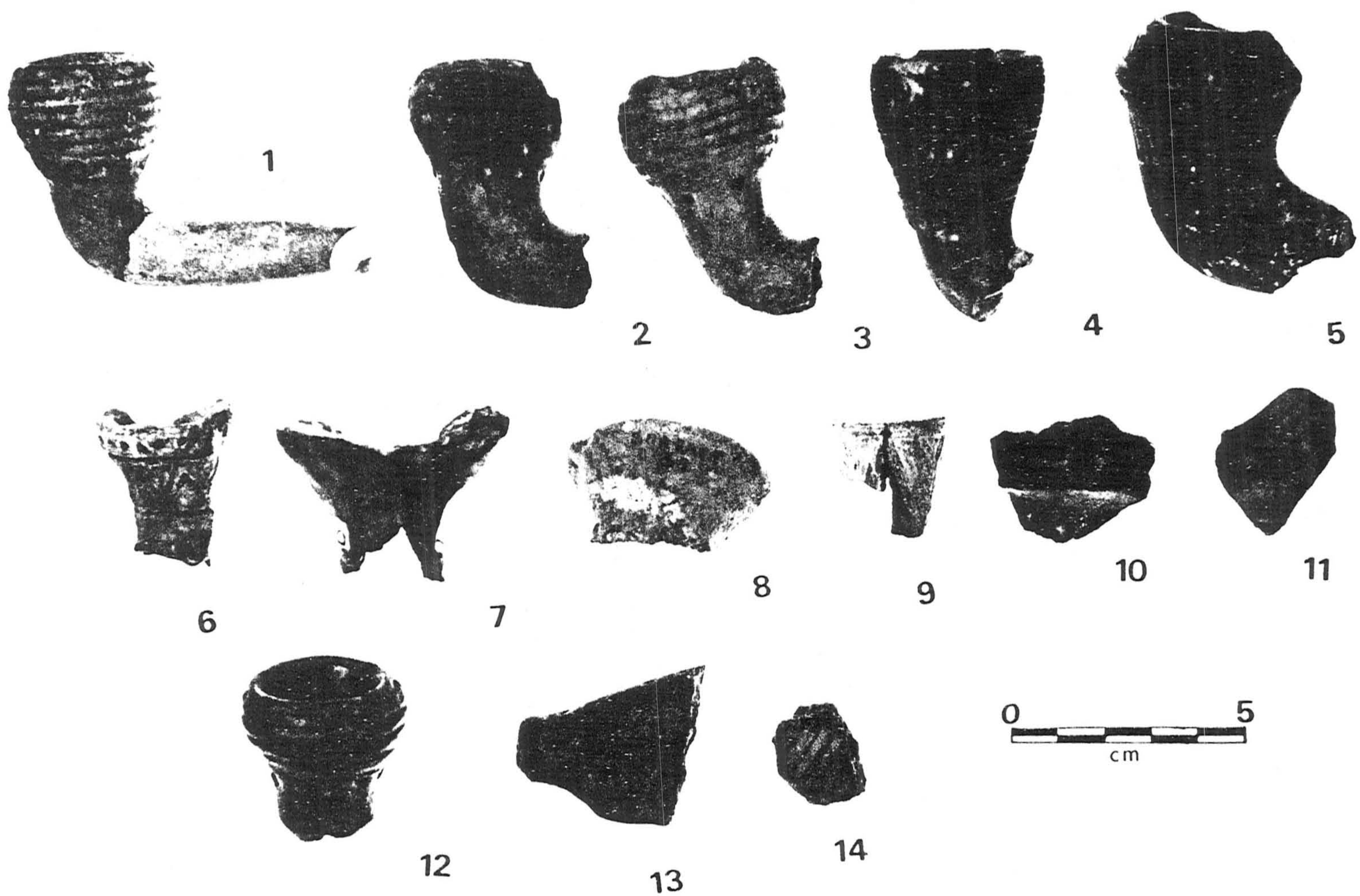
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FIGURE 51. Typed projectile points

1.	Type Ia1
2.	Type Ia2
3.	Type Ia3
4.	Type Ia4
5.	Type Ia5
6.	Type Ib1
7.	Type Ib2
8.	Type Ib3
9.	Type Ic1
10.	Type IIa1
11.	Type IIa2
12.	Type IIb1
13.	Type IIIa1
14.	Type IVa1

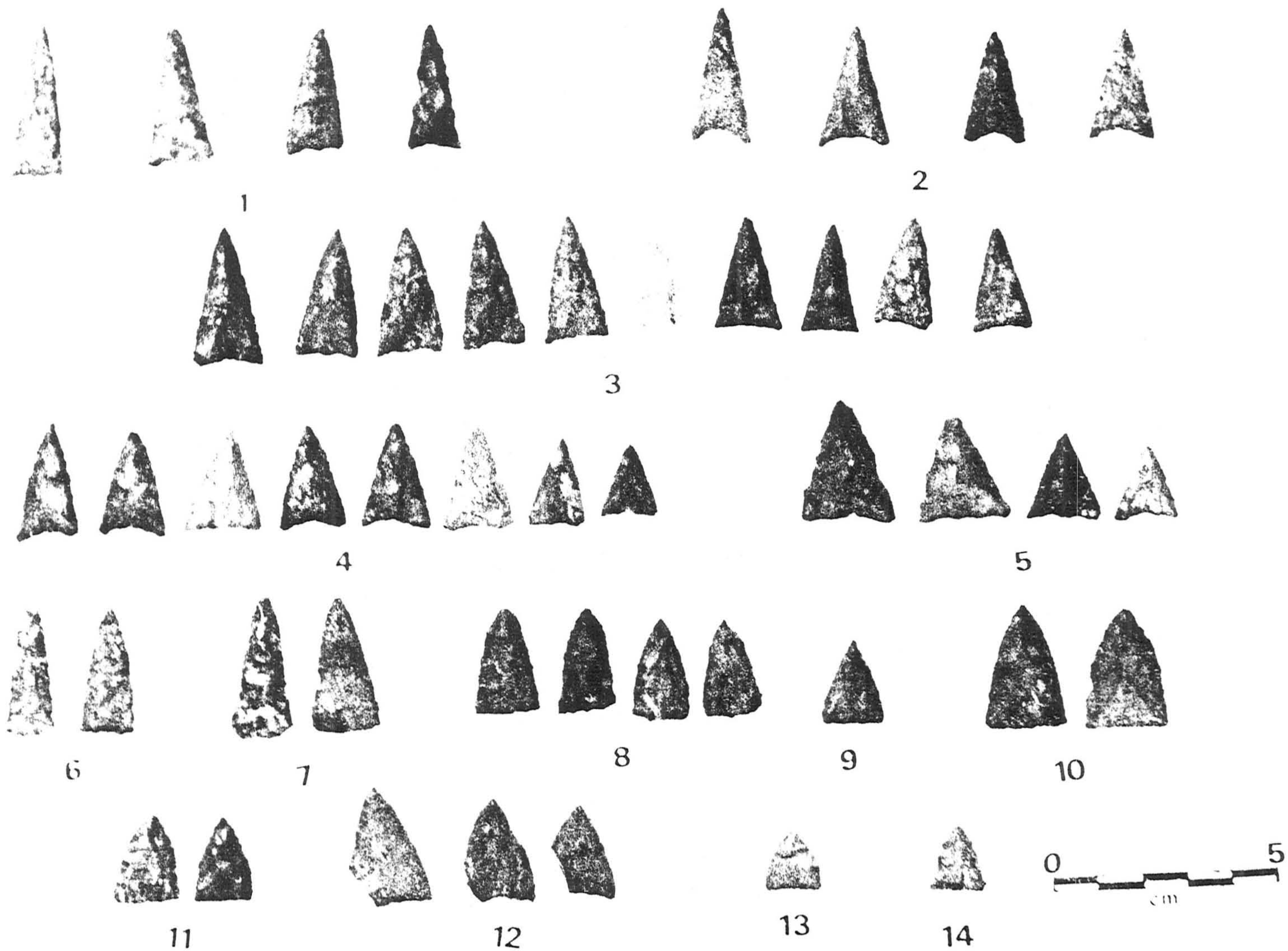
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FIGURE 52. Lithics

1.-18.	End scrapers
19.	Elongated conical drill
20.-21.	Flattened drills
22.	Serrated flake
23.-24.	Notched pieces

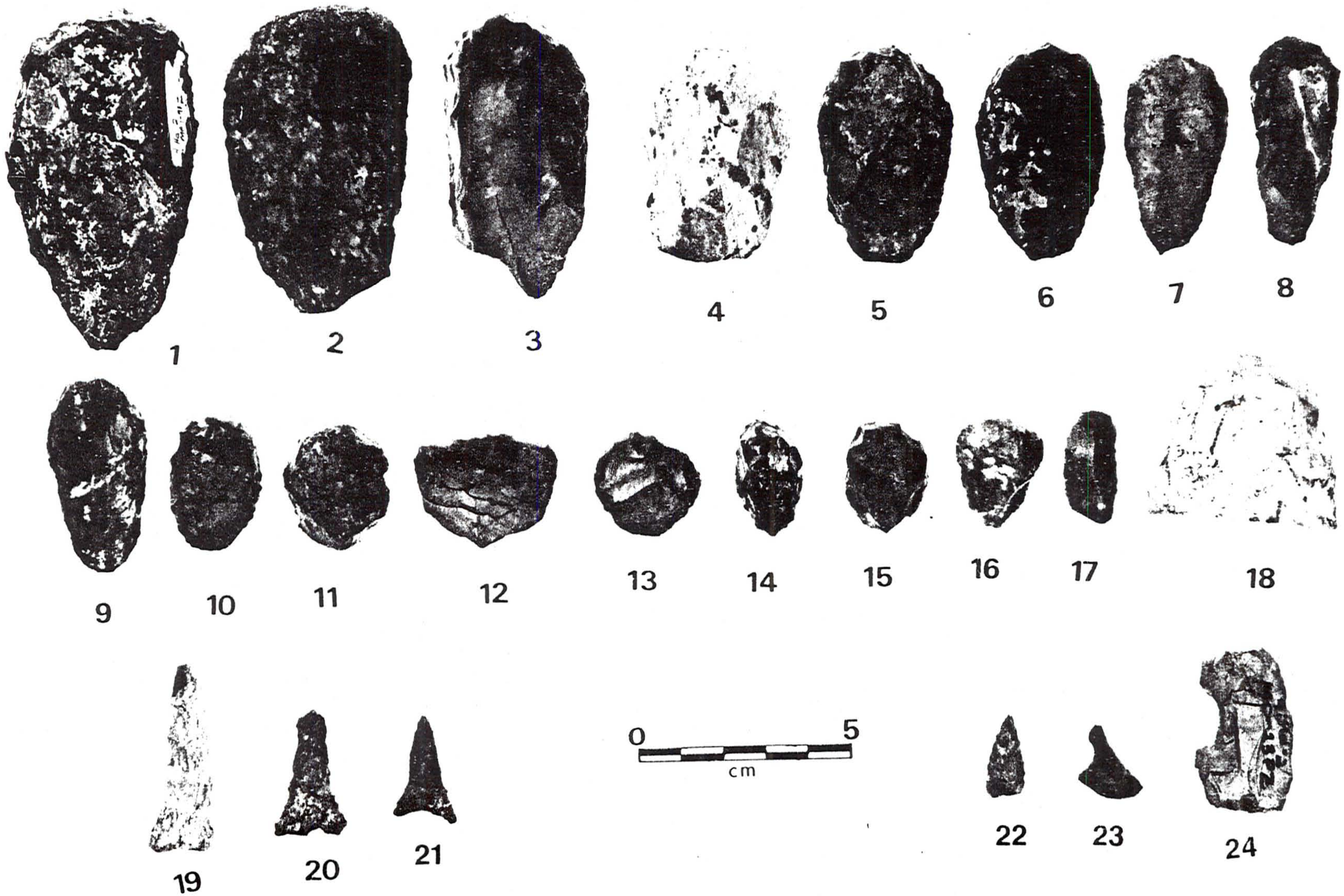
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FIGURE 53. Ground stone

1.-2.	Pestal: note central depressions
3.	Sharpening stone
4.	Smoother
5.-6.	Red siltstone/slate beads
7.	Black slate bead
8.	Limestone bead
9.	Red siltstone/slate bead preform
10.	Netsinker

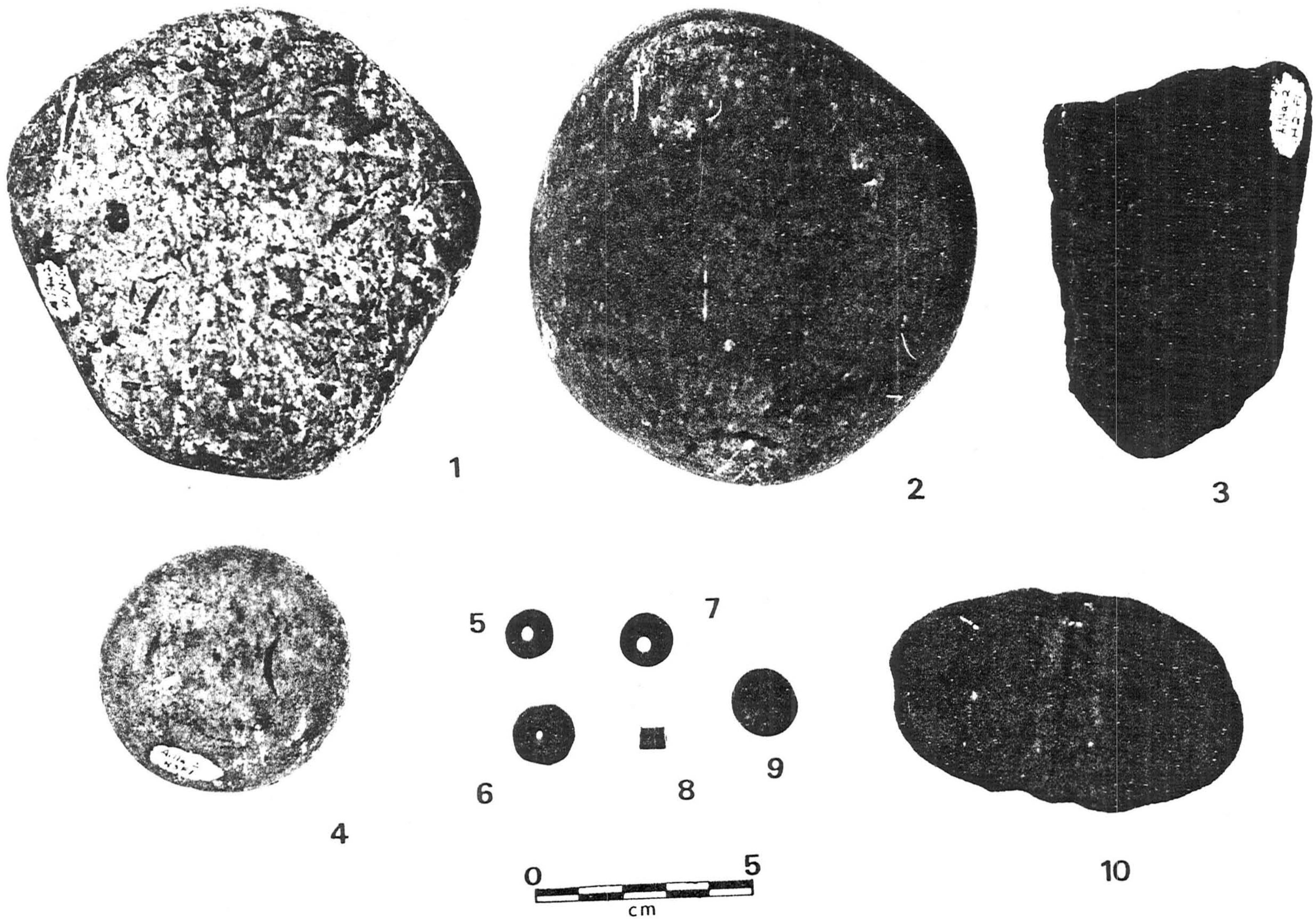
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FIGURE 54. Decorative and utilitarian worked bone and antler

1.	Bead: *Canis* sp. tibia
2.	Bead: Raccoon radius
3.	Bead: *Canis* sp. femur
4.	Bead: *Canis* sp. tibia
5.	Bead: Raven femur
6.	Bead: Human ulna
7.	Bead: Large avian
8.	Bead: *Canis* sp. radius
9.-10.	Unfinished beads: *Canis* sp. femurs
11.	Bead waste: White-tailed deer mid thoracic rib
12.	Bead waste: Raccoon radius
13.	Bead waste: Turkey ulna
14.	Bead waste: Sandhill crane tarsal metatarsus
15.	Bead waste: *Canis* sp. radius
16.	Bead preform: White-tailed deer proximal phalange
17.	Mammal sp. bone disc
18.	Incised white-tailed deer proximal phalange
19.	Box turtle pygal fragment with drilled holes
20.	Bone/antler spoon fragment
21.	Channel catfish pectoral spine: Rounded tip and notched edge
22.-23.	Cervidae sp. antler harpoon fragments
24.	Mammal sp. bone fish hook

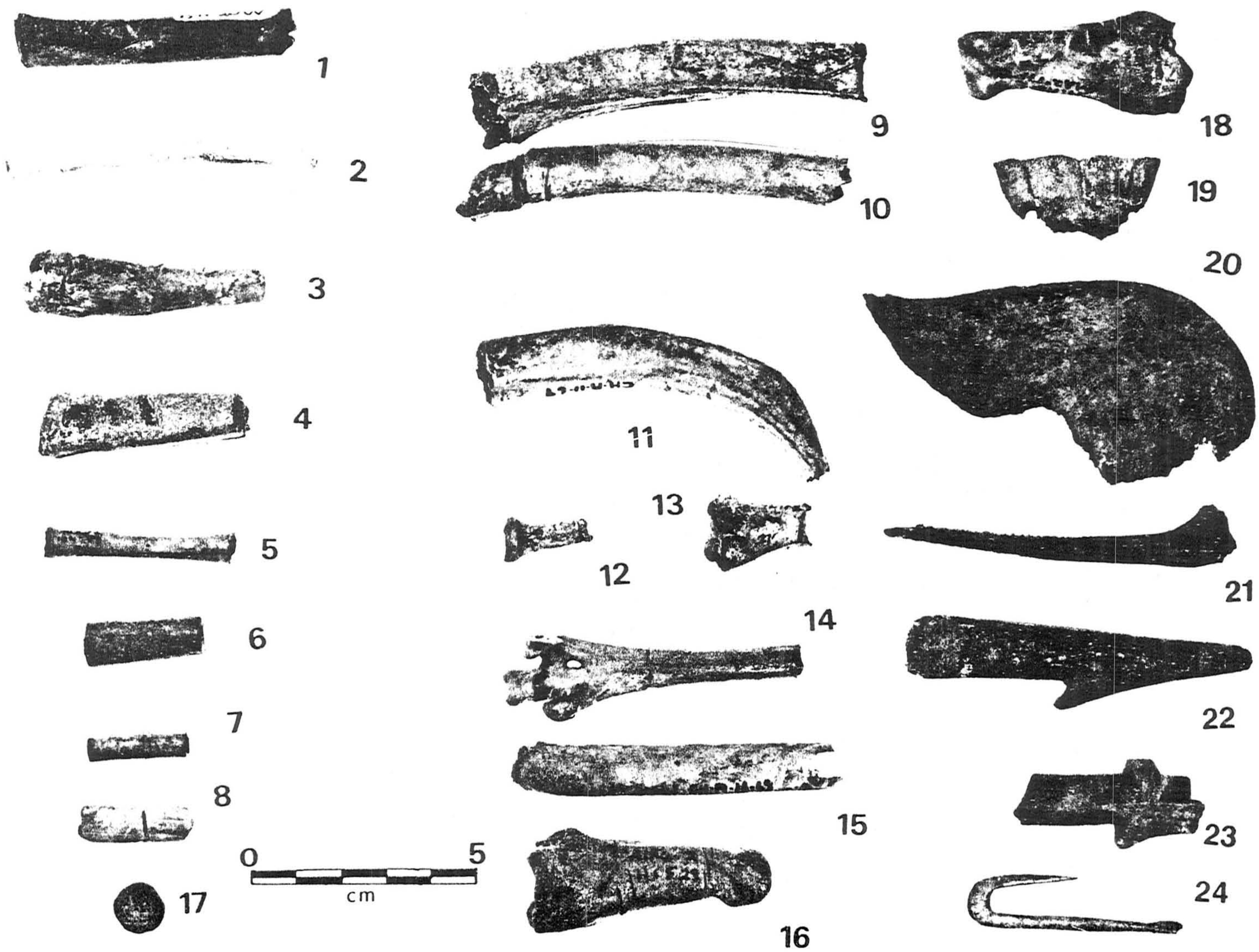
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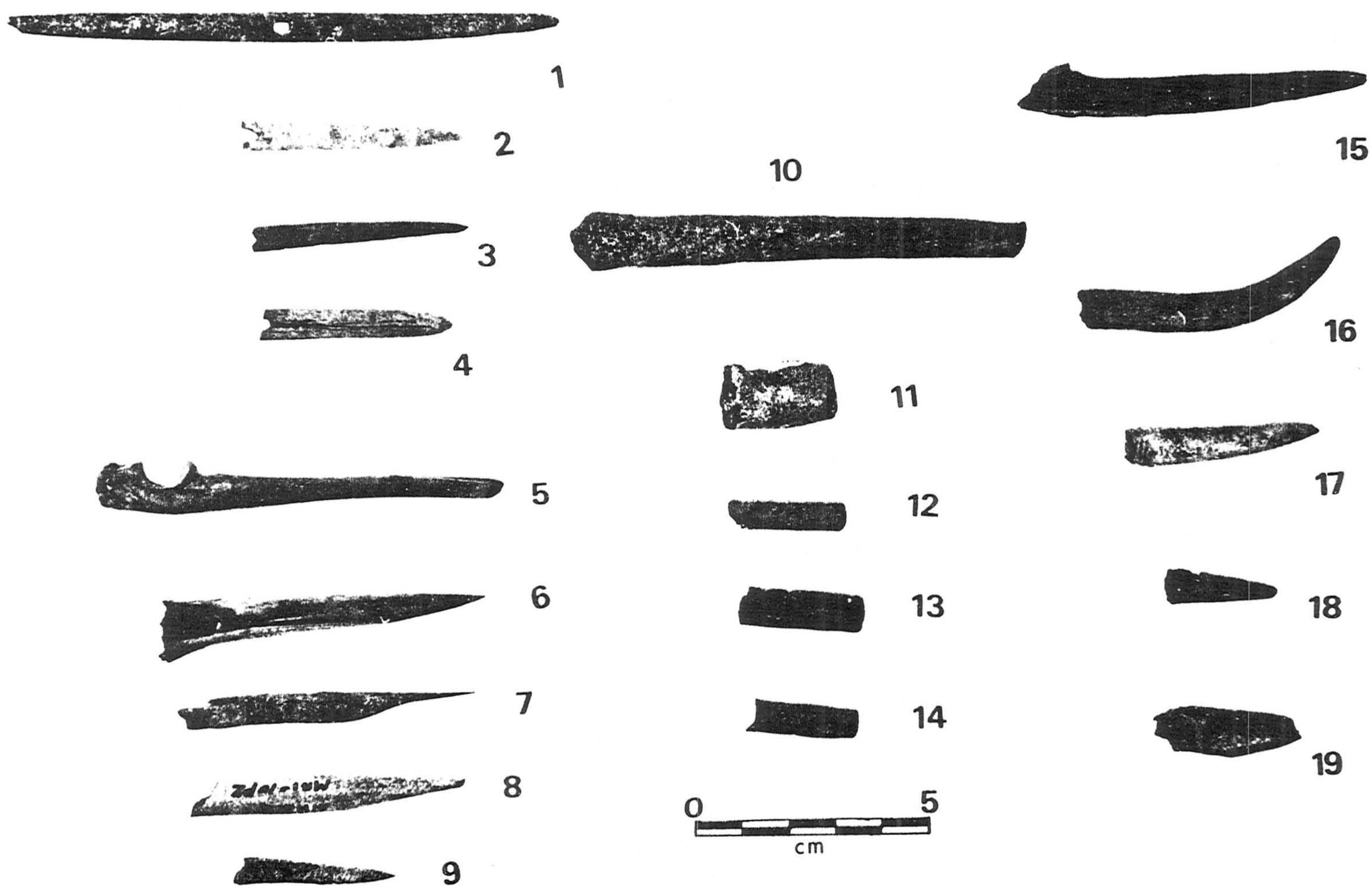
FIGURE 55. Utilitarian worked bone and antler

1.-4.	Mammal sp. bone needle and needle fragments
5.	Awl: Raccoon ulna
6.	Awl: _Leporidae_ sp. tibia
7.	Awl: Avian
8.-9.	Awls: Mammal
10.-14.	Complete and fragmented _Cervidae_ sp. antler drifts/flakers
15.-16.	Cut and ground _Cervidae_ sp. antler tines: note notching at tip of 15
17.-19.	_Cervidae_ sp. antler tine tips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16
17
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19
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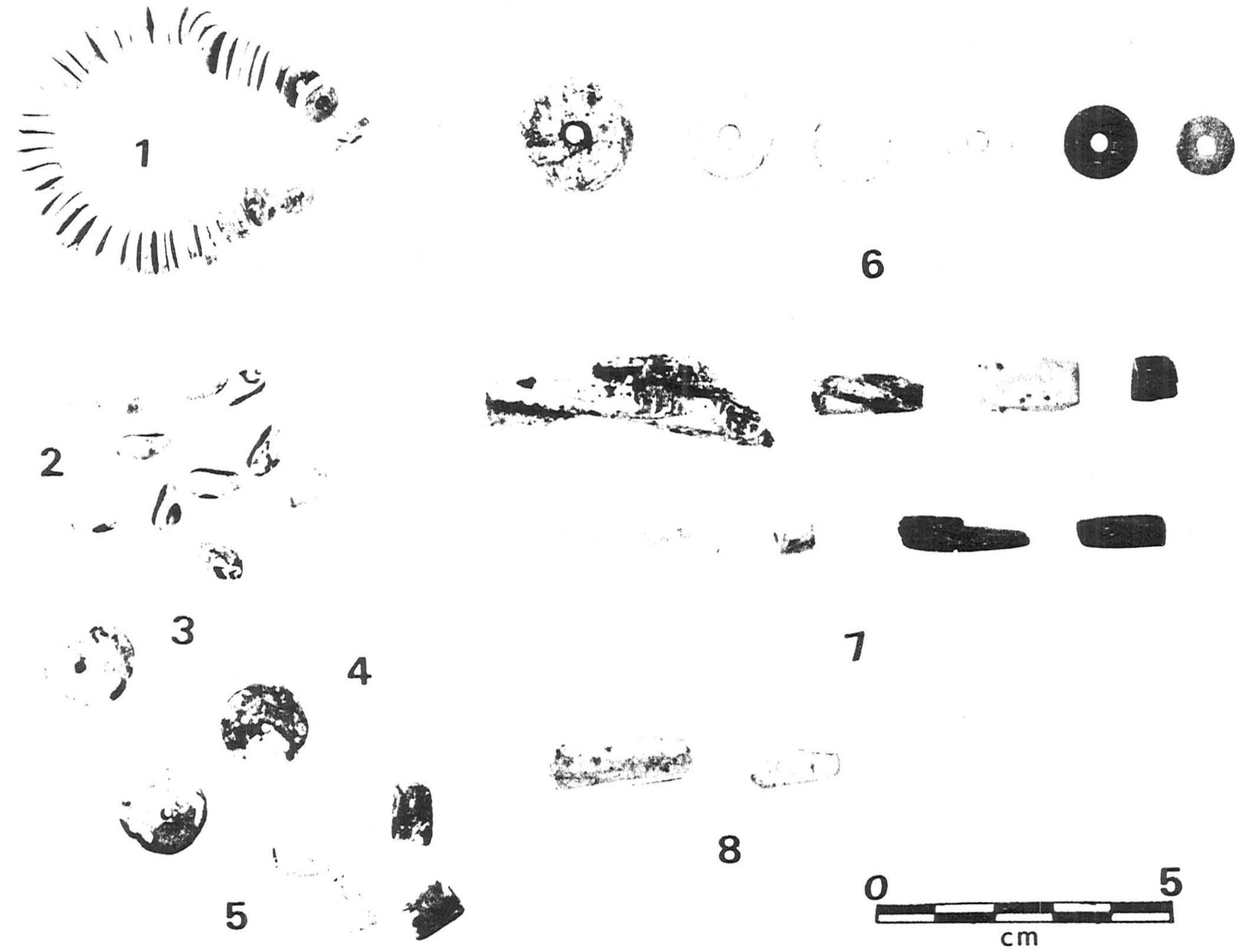
5
cm

FIGURE 56. Shell beads

1. Small discoidal beads: House 4E Feature 15 burial
2. *Prunum apicinum* beads: House 4E Feature 15 burial
3. Globular beads: House 4E Feature 15 burial
4. Large discoidal beads: House 4E Feature 15 burial
5. Tubular beads: House 4E Feature 15 burial
6. Discoidal beads
7. Tubular beads
8. Possible tubular bead preforms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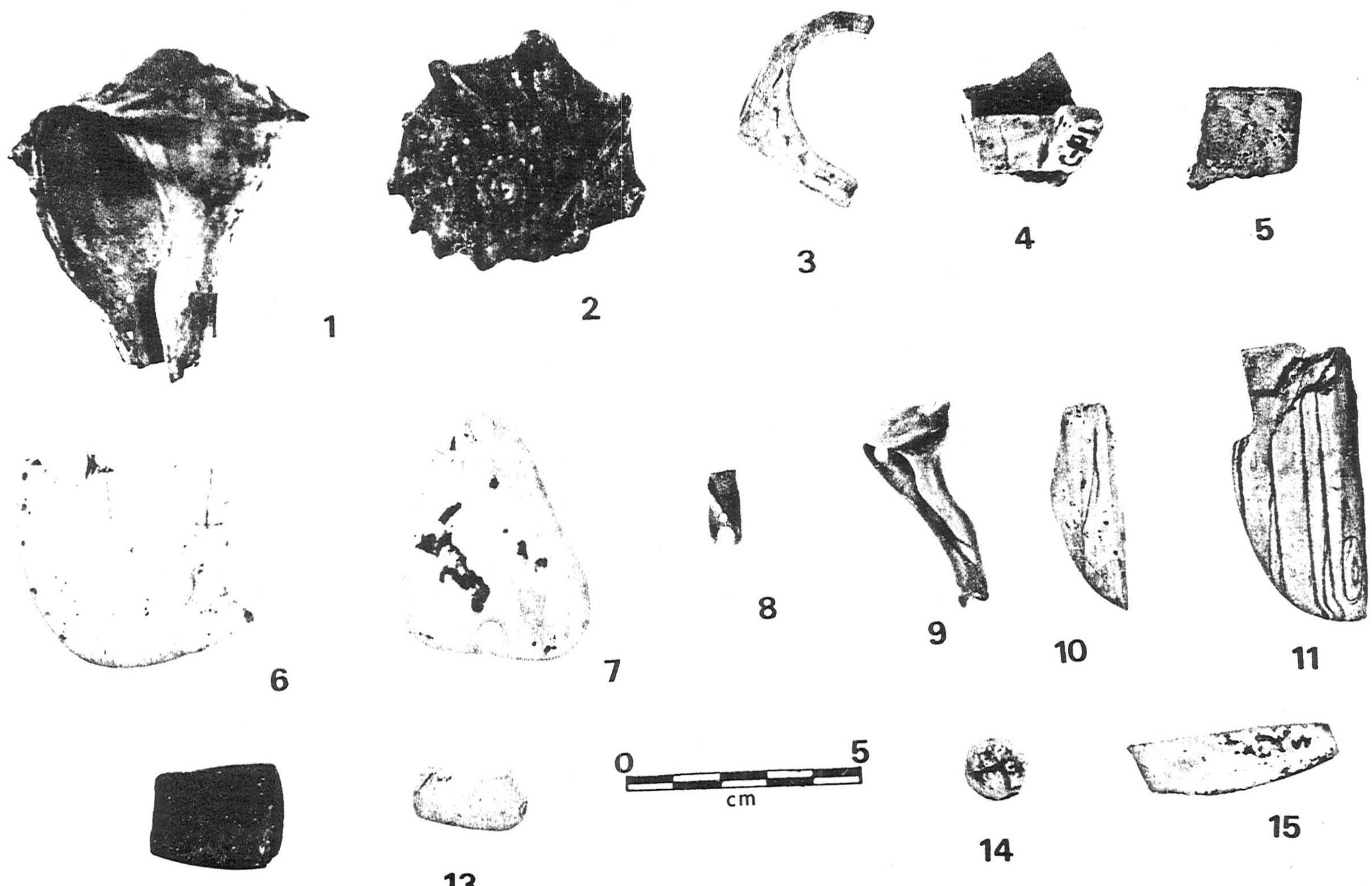
cm

FIGURE 57. Shell

1.-2.	Marine shell fragments
3.	Ground marine shell mantle
4.-5.	Cut marine shell pieces
6.	Gorget fragment: marine shell
7.	Gorget: marine shell
8.	Gorget fragment: possibly coral
9.	Complete ground marine whelk gorget
10.-11.	Gorget preforms
12.-13.	Cut and ground marine shell
14.	Bead preform/gaming disc
15.	Cut and notched freshwater (Unionidae sp.) bivalve fragment



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cm
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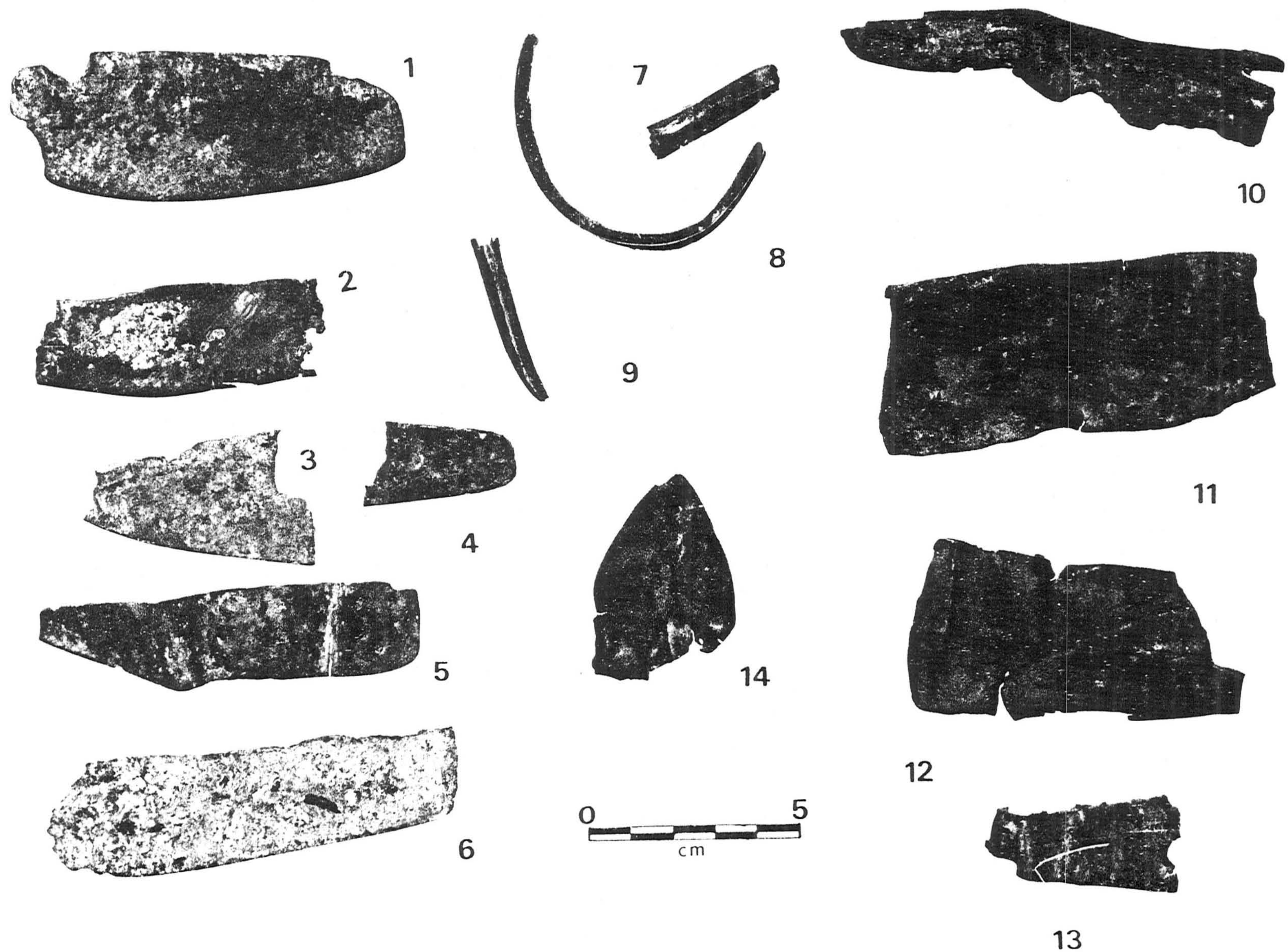
15

FIGURE 58. Brass artifacts

1.-6.	Blade fragments
7.-9.	Bracelet fragments
10.-11.	Undecorated kettle rim fragments
12.	Decorated kettle rim fragment
13.	Kettle lug fragment
14.	Miscellaneous unidentifiable unifacially bevelled pointed piece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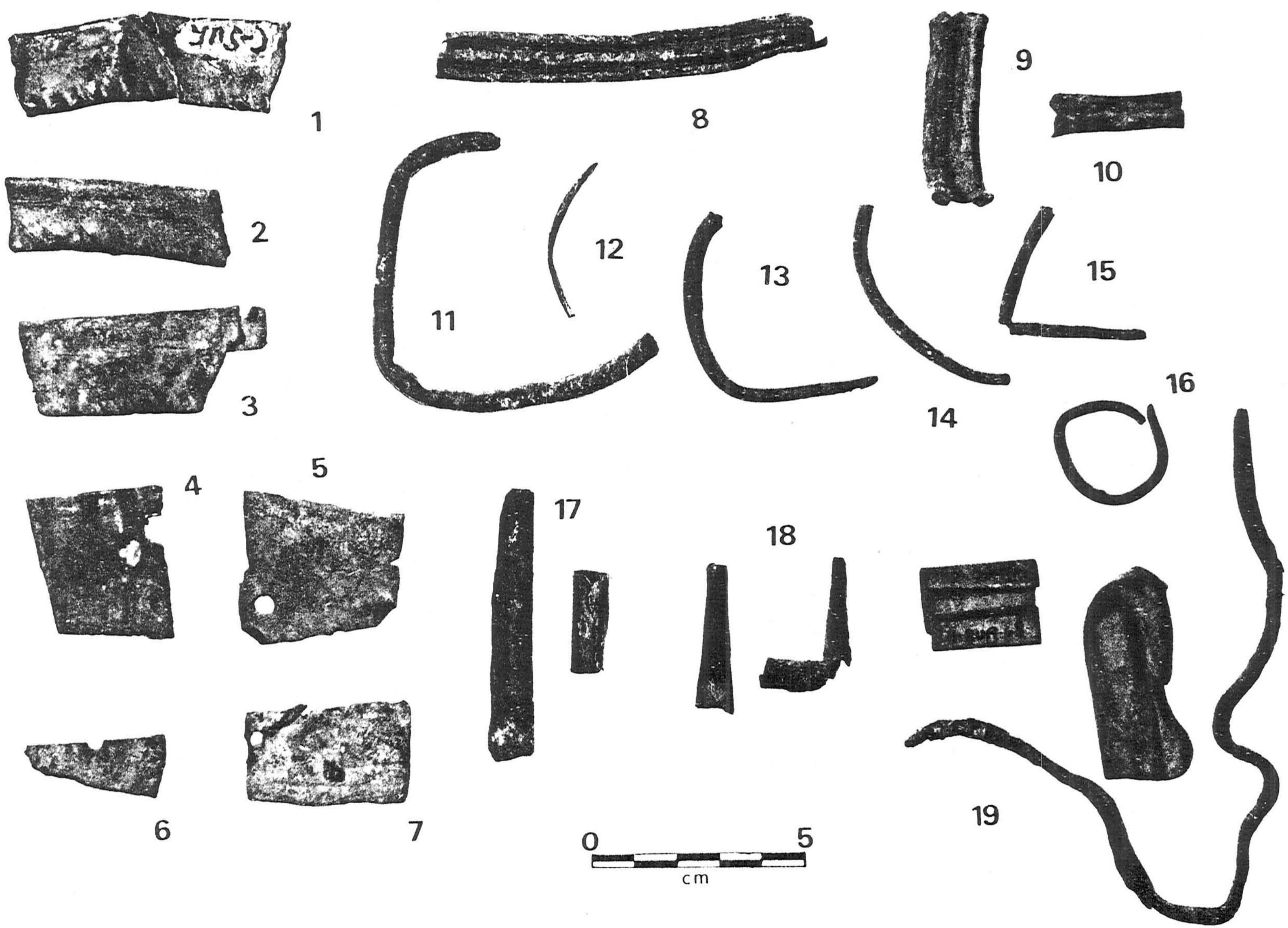
cm

FIGURE 59. Copper artifacts

1.-3.	Decorated kettle rim fragments
4.-6.	Kettle lug fragments
7.	Kettle patch
8.-15.	Bracelet fragments
16.	Finger ring
17.	Rolled beads
18.	Tinkling cones
19.	Miscellaneous unidentified pieces (3)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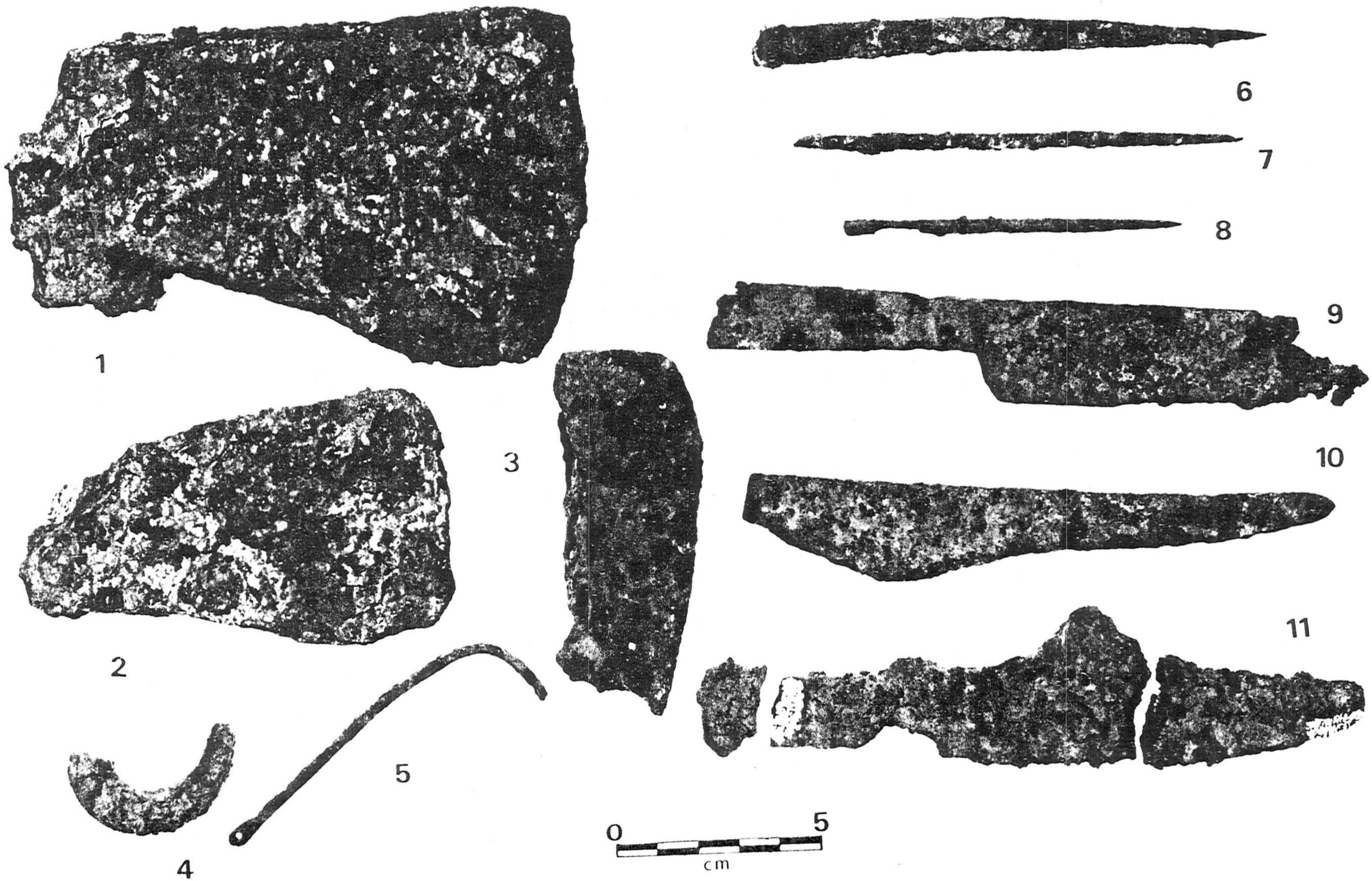
cm

FIGURE 60. Iron artifacts

1.-3.	Axe blade fragments
4.	Hook fragment
5.	Fish hook fragment
6.	Rectangular awl
7.-8.	Circular awls
9.-11.	Knife blades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cm

FIGURE 61. Glass beads

1. Star bead Type IIIm1: MA1-15PZ
2. Star bead Type IIIm: House 1 Feature 43
3. Star bead Type IVk3: MB
4. Star bead Type IIIm1: House 4E Feature 15 burial
5. Indigo translucent Type IIa56: House 4E Feature 15 burial
6. Opaque white Type Ia5
7. Opaque white Type IIa13: House 4E Feature 25 burial

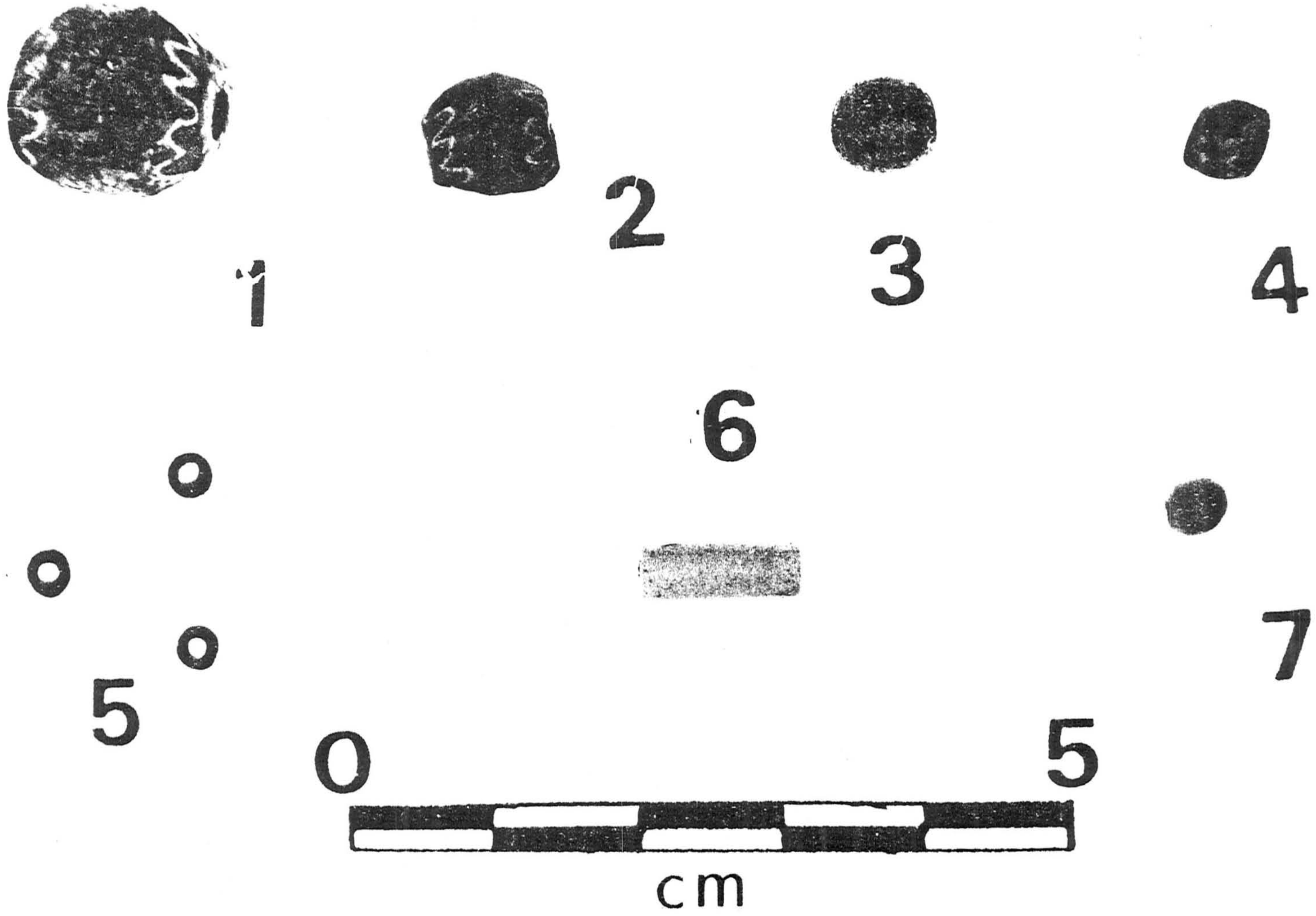
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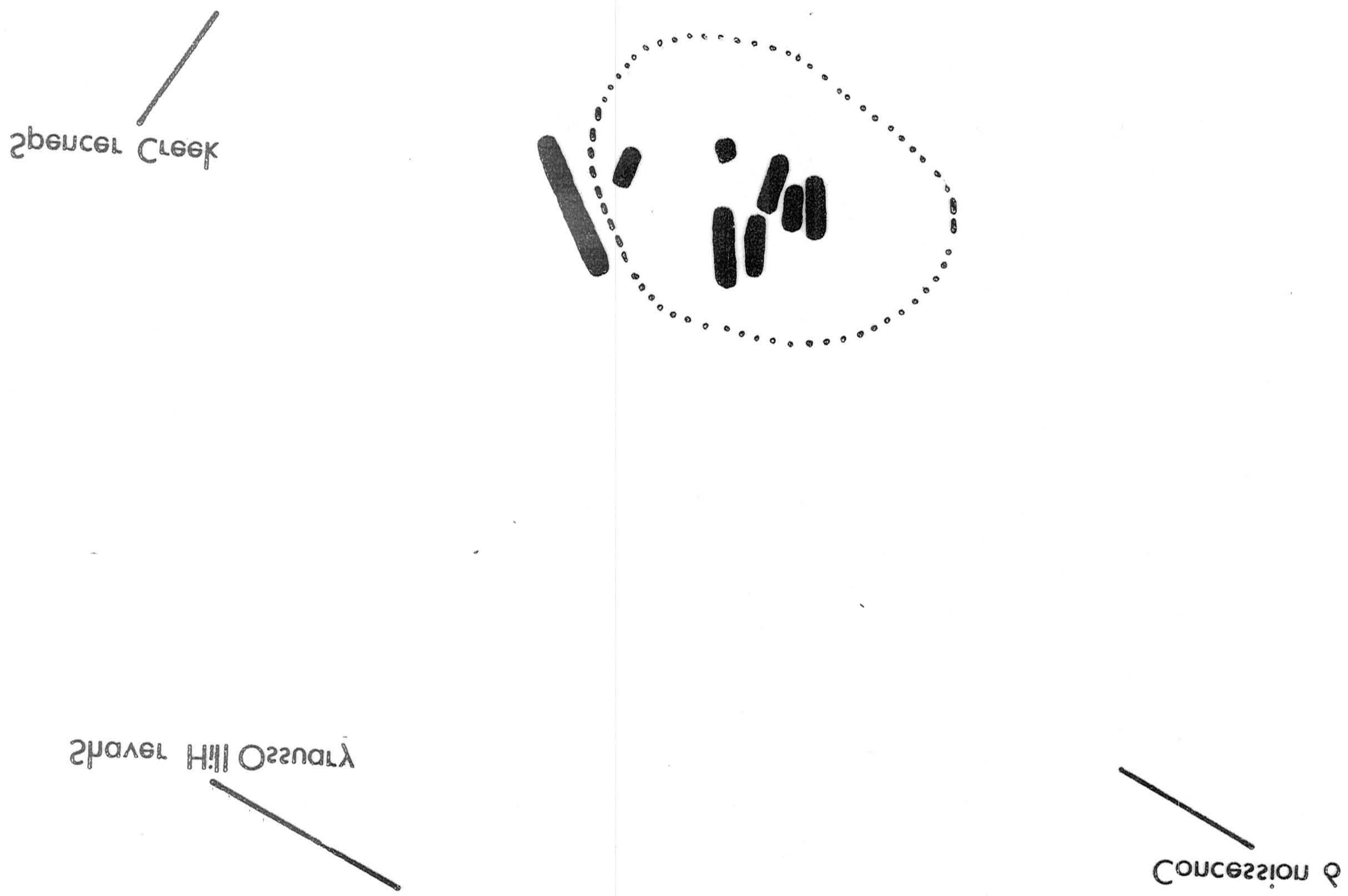
FIGURE 62.

Aerial view of the Christianson site vicinity


Spencer Creek
Shaver Hill Ossuary
Concession 6