

THE COULTER SITE
AND LATE IROQUOIAN MIGRATION TO THE
UPPER TRENT VALLEY

by

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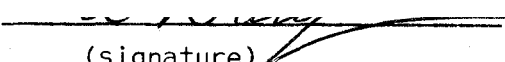
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The Coulter Site and Late Iroquoian

Migration to the Upper Trent Valley

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Abstract

The Coulter site is a large Iroquoian village located in the upper Trent Valley of south-central Ontario. The site appears to represent part of a migration to the area during late prehistoric or early protohistoric (ca. A.D. 1550) times, probably originating along the north shore of Lake Ontario. This thesis provides detailed descriptions of settlement and pottery data resulting from excavations at the Coulter site in 1977 and 1978. The data are used to 1) determine the settlement life-history of the site, and 2) determine whether the site represents a coalescence of two or more ethnically distinct population segments.

The results indicate a complex site history. Beginning as a relatively small palisaded village, it underwent at least five expansions resulting in more than a five-fold increase in village area. Data suggest that such an increase was not anticipated when the village was first established but, rather, that people were subsequently drawn to the site by some combination of factors. Evidence of warfare suggests that defense may have been one of these factors, and the presence of a small amount of European metal suggests involvement in the early fur trade. The expansions are thought to represent the amalgamation of ethnically similar peoples, ceramic differences between them being, largely, a result of chronological separation. Although making up only a small proportion of the total site assemblage, distinctive St. Lawrence Iroquoian artifacts suggest the presence of St.

Lawrence Iroquoian women at Coulter and, further, that their numbers increased through time. Contacts with the St. Lawrence area may have been related to the early European fur trade.

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As part of the Upper Trent Valley Archaeological Project, this thesis is a result of the efforts of many people. I would first like to thank the project's director, Dr. Peter Ramsden for the opportunity to play an active and responsible role in the project and for the support, encouragement and friendship he has shown over the years.

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To the land owners, Mr. and Mrs. Leslie Coulter, I am grateful for permission to excavate and set up a field camp on their property, and for the many courtesies they showed us. The active interest and help of George Shepard of Bexely is also appreciated.

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1. INTRODUCTION

This thesis describes the analysis of settlement pattern, midden, and pottery data recovered in excavations of a protohistoric Iroquoian village in the upper Trent Valley of south-central Ontario. These data are used to address two specific intra-site problems:

1. What is the settlement history of the site in terms of physical and demographic change over time?
2. Is there evidence that the site is the net result of coalescence of two or more distinct population segments at this location?

The thesis is divided into seven chapters. The first discusses the research context of the project and provides a brief description of the local environment; Chapter 2 describes the settlement pattern data; Chapter 3 the middens; and Chapter 4 the pottery data. Chapters 5 and 6 address the two intra-site problems mentioned above and Chapter 7 provides a summary.

1.1 Research Context

While Ontario Iroquoian archaeology is perhaps the most heavily studied in Canada, its methodology remains very much in a developmental stage. However, recent years have seen significant changes in approach, both theoretical and methodological, one of the most important of which has been the realization that previous frameworks for reconstructing

Iroquoian prehistory have tended to be oversimplified, attempting to synthesise materials over broad geographic areas, and relying heavily on the ethnohistoric record. As Ramsden states:

The tendency in the past has been to excavate and analyse sites in relative isolation from their immediate cultural environment, and to make comparisons, instead, with sites that happened to be available in the literature, often located a hundred miles away or more (1977b:298).

Most models for reconstructing Iroquoian culture history (i.e. MacNeish 1952; Ridley 1952; Emerson 1954, 1959; Wright 1960, 1966; Noble 1968) have relied heavily on the direct historical approach (Steward 1942; Wright 1966:2; Trigger 1968) "which means that archaeological data are used to trace a known historical group sequentially back into prehistoric times"(Trigger 1978:82).

The result has been a universal tendency on the part of Huron prehistorians to interpret the data in such a way as to get the supposed ancestors of the Huron and Petun into their respective homelands in time to be met and described by the early French explorers (Ramsden 1977b:23).

This approach relies on the accuracy and comprehensiveness of the historic record as it is interpreted by historians and prehistorians. Although the ethnohistoric record has been an invaluable aid in interpreting and supplementing the

archaeological record, 1) it was written from an undoubtedly biased viewpoint; 2) describes only fragments of Iroquoian society; 3) appears to include numerous errors of interpretation; 4) is often ambiguous, and 5) describes a society probably already heavily impacted by the European presence. Although archaeology, too, suffers from important limitations, by relying so heavily on the ethnohistoric record, prehistoric archaeologists have limited their interpretive possibilities and have been prevented from evaluating their data in ways other than the development of broad historical models of events leading up to the post-contact situation. Because the picture painted by ethnohistorians indicates a relatively unified political entity, prehistorians have tended to view the archaeological record in a similar sense of overall long-term political unity, as shown by the broad generalized syntheses of Emerson (1954), MacNeish (1952), Ridley (1952, 1963) and Wright (1960, 1966).

More recently, these problems and the need for a new approach have been recognized. Perhaps foremost in explicating this problem has been Ramsden who argues that:

Iroquoian cultural events in Ontario took place in an essentially local context; within the context of a few villages restricted to a local drainage system or to a few square miles of territory...(and)... there have been many of these relatively discrete local developments (1977b:295).

He further suggests that we must abandon our reverent treatment of the ethnohistoric records and be "prepared to encounter events and relationships which the ethnohistoric records can neither explain nor accomodate" (1977b:27).

The obvious implication of these comments is that Iroquoian prehistory is most profitably studied by concentrating on local developments. These are, in turn, best examined through an extensive program of excavation within a local area. While the definition of a local area is arbitrary, ethnohistoric records indicate that village relocations normally involved movements of only a few km. This allowed prior preparation of the new village site and agricultural fields, and simplified the transport of belongings. Also, construction materials from the old village could be taken to the new village for re-use (Tooker 1967:42; Heidenreich 1971:153; Trigger 1976:41). Furthermore, the tendency was to remain within areas that had long been inhabited because they contained the second growth forests (as a result of aboriginal agriculture) necessary as suitable construction materials (Trigger 1976:44). Given this pattern, and the fact that there was usually 15-30 years between village relocations, the 'local area' can be envisaged as encompassing roughly 100 sq. km, perhaps centred around a local drainage system.

A shift to concentrating on local areas has become increasingly apparent over the last decade with the initiation of a number of localized projects, including one

centred in the upper Trent Valley of south-central Ontario (Figure 1). This project, conceived and directed by Ramsden, was based on hypotheses developed in his re-evaluation of Huron ceramic analysis (1977b). The Coulter site and this report form part of that project.

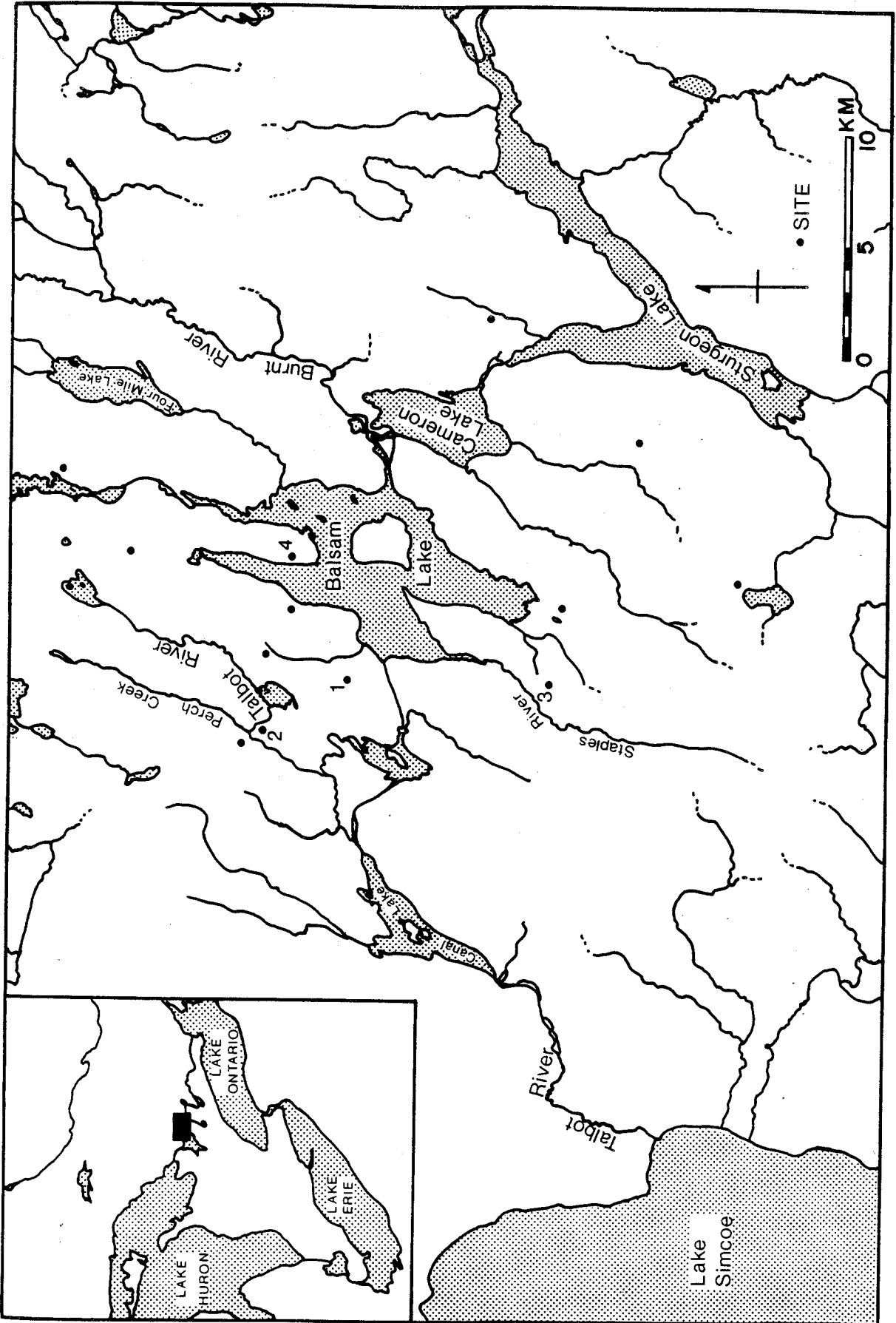
1.1.1 The Upper Trent Valley Archaeological Project

In his earlier study, Ramsden (1977b) made use of previously excavated material (Emerson 1954) from the upper Trent Valley to suggest that the area had been:

occupied by two distinct late Iroquoian groups which were at least partially contemporaneous in the protohistoric period. One of these groups, typified by the Hardrock site on Balsam Lake, was seen as being a long term indigenous population and part of a wider population occupying almost the entire Trent Valley. The second group, as exemplified by the Benson site near Bexley, was seen as a late immigrant group, drawn to the upper Trent area in protohistoric (ca 1550 AD) times from the Toronto-Oshawa area by the potential of the area for trade contact with European people in the St. Lawrence River region via the St. Lawrence Iroquois living in the area between Prince Edward County and Montreal (1977a).

In 1976, Ramsden initiated the Upper Trent Valley Archaeological Project (UTVAP). This project was designed to

Figure 1: Upper Trent Valley Archaeological Project study area showing sites tested or excavated by the project. Sites referred to in text are 1) Coulter, 2) Benson, 3) Kirche, and 4) Hardrock.



"investigate Iroquoian culture history in the upper Trent Valley...between approximately AD1450 and 1615, by which time the area had been abandoned" (Ramsden 1977a:ii). Specifically, the project sought to shed light on the hypothesis of two distinct Iroquoian groups in the upper Trent Valley as represented by the Hardrock and Benson sites (Figure 1).

We are particularly interested in defining these two Iroquoian groups and demonstrating the differences between them with respect to material culture, demography, settlement pattern, economy and socio-political structure. We are further interested in identifying the area of origin of the immigrating group, and determining the effects of this immigration upon the indigenous population. (Ramsden 1977a:ii)

A second major aim was "to determine the nature and effects of the early European fur trade in the Trent valley upon the two Iroquoi(an) populations" (Ramsden 1977a:ii).

The UTVAP began in 1976 with extensive excavations at the Benson site and a program of site survey and testing within approximately a 10 km radius of Benson (Figure 1). This work continued in the summer of 1977, at which time the Coulter site was discovered and tested.

These test excavations suggested that Coulter was closely related to the Benson site but appeared to date slightly earlier, as suggested by pottery attributes.

Indeed, Coulter appeared to be one of the earliest Benson complex sites known in the area. As such, the site held considerable potential to address the problems defined by the project and excavations were carried out between July 15 and August 30, 1977 and between June 1 and August 30, 1978.

In particular, it was hoped the site would prove useful in characterizing initial Benson-complex occupations in the upper Trent Valley and would provide information on the nature of migration into the area -- specifically: where did the migrants come from; did they come from a single source area, or several; and was there a single migration or multiple events?

It is in this research context that the goals of this thesis, as outlined above, are important. The first goal, to determine the settlement history of the site, could suggest whether migrants, at least to this site, arrived as a single body or in waves. It has been suggested by Ramsden (1978) that early 16th century Huron communities involved, even indirectly, in the beginnings of trade with Europeans, occupied large villages which had reached their size through the accretion to an original small village, of several new population segments over time. He further suggested that such sites would be characterized by increased internal heterogeneity, compared with earlier sites, and that incoming population segments would maintain "their spatial separateness within the new community to such an extent that they remained archaeologically recognizable" (Ramsden

1978:103). The second goal addresses this hypothesis.

1.2 Site Location

The Coulter site is located in Bexley Township, Victoria County, south-central Ontario (44° 35' 36" N, 78° 54' 23" W). It lies about 2 km northwest of West Bay on Balsam Lake and about the same distance south of the much smaller Raven Lake. The nearest creek, about 1 km to the northeast, is small and unnamed. In addition, the site is bordered by marshy areas on the west and southeast sides. Constructed primarily on the northeast end of a drumlin, it also extends off the end of the drumlin in an easterly direction to cover, in total, an estimated 3.3 ha.

1.3 Natural Environment

The Coulter site is in an area of flat-lying limestone overlain by a thin mantle of glacial drift. The Precambrian shield adjoins the limestone about 17 km to the north. The landscape is mostly flat, a reflection of the limestone bedrock, with intermittent drumlins and eskers. While the local soils are well to excessively drained, (Gillespie and Richards 1957), their shallowness and the low relief result in numerous tracts of wet and swampy land and many small lakes and streams. The site lies within the Lake Simcoe watershed which flows west and southwest, however, it is only 15 km from a height of land separating it from the

Trent River watershed which flows northeast and east. This divide, between Cameron and Sturgeon lakes, is now traversed by the Trent Canal System which allows small watercraft to travel between Georgian Bay and the Bay of Quinte on Lake Ontario. Even prehistorically, though, this system of lakes and rivers would have provided an ideal travel route to Lake Ontario and the St Lawrence Valley in the southeast and Lake Simcoe and Georgian Bay in the northwest.

Within 2 km of the Coulter site, soils are primarily of the Brown Forest Great Soil Group, made up of calcareous, gravelly, loam on till, with an extensive tract of 'muck' immediately to the east of the site (Gillespie and Richards 1957). In terms of present-day agriculture, the soil is considered non-agricultural except for pasture (Gillespie and Richards 1957:57; Canada Land Inventory 1968) although fair crops of hay, oats and corn are grown in a few patches of successfully 'improved' land.

Coulter falls on the juncture of three climatic regions defined for Southern Ontario -- Simcoe and Kawartha Lakes; Muskoka; and Haliburton Slopes (Brown et al 1968:6). Mean daily temperatures range between -9 C in January and 19 C in July with an annual mean of 5.8 C. Length of the growing season (defined as the number of days with mean daily temperature above 5.6 C) is 190 days while the frost-free period is only 125 days. Mean annual precipitation is 85.1 cm with a very uniform rate of precipitation throughout the year. Snowfall averages 203.2 cm and lasts from late

November to late March (Brown et al 1968; Phillips and McCulloh 1972).

Coulter is within Dice's (1943) Canadian biotic province. While technically a northern hardwoods region dominated in its climax state by sugar maple (Acer saccharum) and beech (Fagus grandifolia), mixed with eastern hemlock (Tsuga canadensis) and/or northern white pine (Pinus Strobus) (Braun 1950), most of the area around Coulter is better characterized by a number of subclimax forest types including northern white pine, hemlock, Balsam fir (Abies balsamea) red spruce (Picea rubens), northern white cedar (Thuja occidentalis), red pine (Pinus resinosa) and trembling aspen (Populus tremuloides). While this is probably due, in part, to the extensive logging of the area over the past century, it is possible that the poor quality soils of the area would not support a hardwood dominated forest (Dice 1943:15). Within the numerous areas of bog and swamp, hemlock and northern white pine predominate. In the immediate vicinity of the site, hawthorne is a dominant species but this is likely due to early 20th Century agricultural disturbance and the recent grazing of cattle (Eyre 1980:38).

While the main ungulate occurring in the area is white-tailed deer (Odocoileus virginianus), most of the area around Coulter has moderate to severe limitations to their production, due mainly to poor soils. Moose, generally, are restricted to the shield area 15 km to the

north but, again, production capabilities are considered limited (Canada Land Inventory 1968). Other common mammals include varying hare (Lepus americanus), woodchuck (Marmota monax), eastern chipmunk (Tamias striatus), beaver (Castor canadensis), wolf (Canus sp.), black bear (Ursus americanus), porcupine (Erethizon dorsatum), red fox (Vulpes vulpes), long-tailed weasle (Mustela frenata), mink (Mustela vison), marten (Martes americana), fisher (Martes pennanti), and striped skunk (Mephitis mephitis) (Peterson 1966).

The many lakes and rivers in the area support a variety of fish species including: northern pike (Esox lucius), suckers (Catostomus sp. and Moxostoma sp.), catfish (Ictalurus sp.), burbot (Lota lota), rock bass (Ambloplites rupestris), sunfish (Lepomis sp.), yellow walleye (Stizostedion vitreum), and yellow perch (Perca flavescens).

2. SETTLEMENT PATTERNS

2.1 Introduction

This chapter deals with the intra-site settlement pattern at Coulter as revealed by post moulds, hearths and pits associated with habitation structures (Figure 2 and 3)

Excavations had two primary objectives concerning the recovery of settlement pattern data, the first of which was given highest priority:

1. To locate sufficient house and palisade structures to allow the re-construction of general village layout. Such data could provide important insights into village history and organisation and a spatial context in which to evaluate artifact distributions;
2. To further expose house walls and interiors in order to characterise house-shape and internal organisation. Such data could be evaluated on inter and intra-site levels, much like artifact data, to reveal cultural and possibly chronological patterns.

Ideally, these goals would best have been met by total excavation of the site to reveal all settlement features, however, this was impractical and undesirable for several reasons:

1. Because of the site's large size (about 3 ha), the effort required to expose the entire area by hand would have been prohibitive both in terms of time and

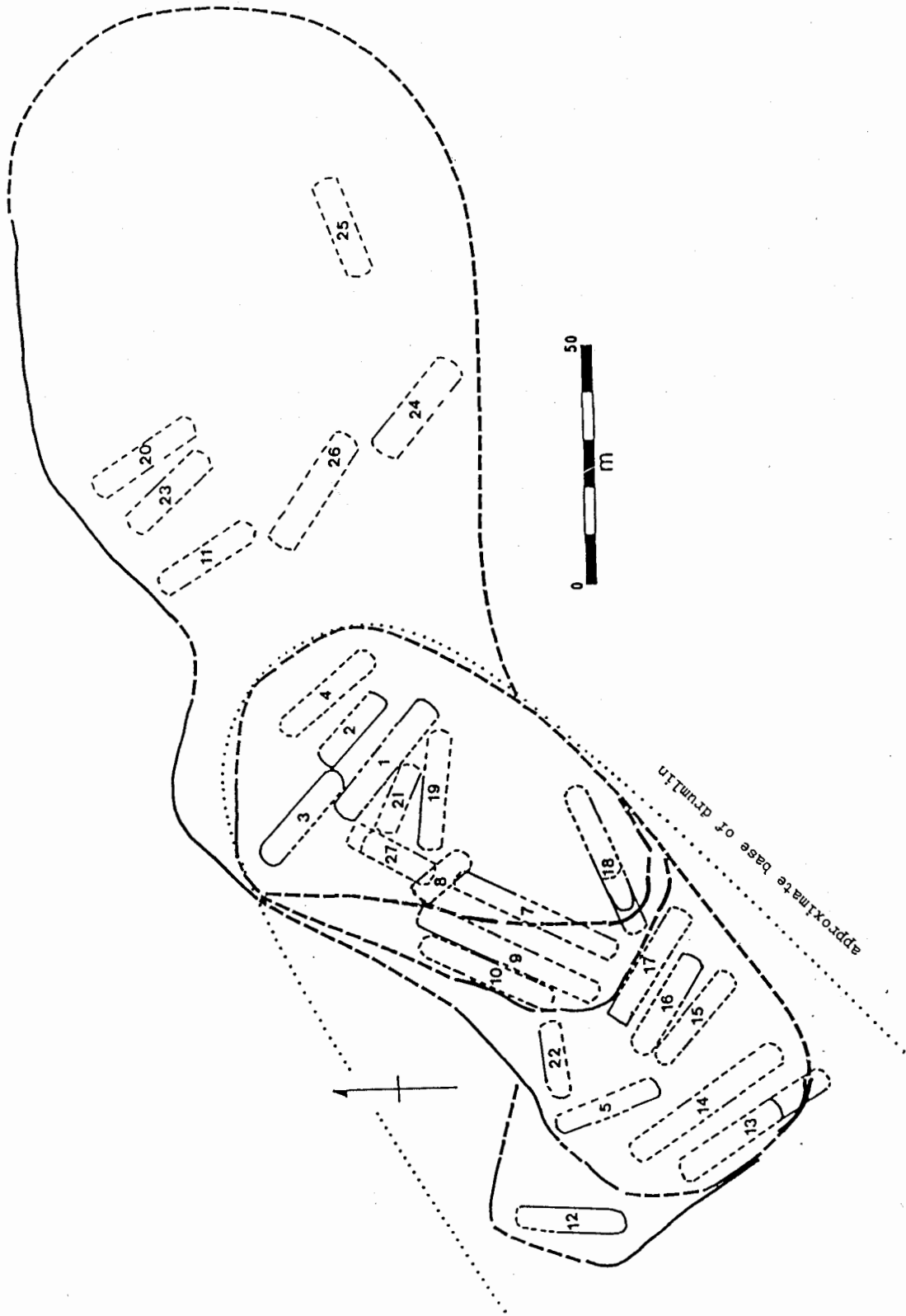


Figure 2: Coulter site village plan.

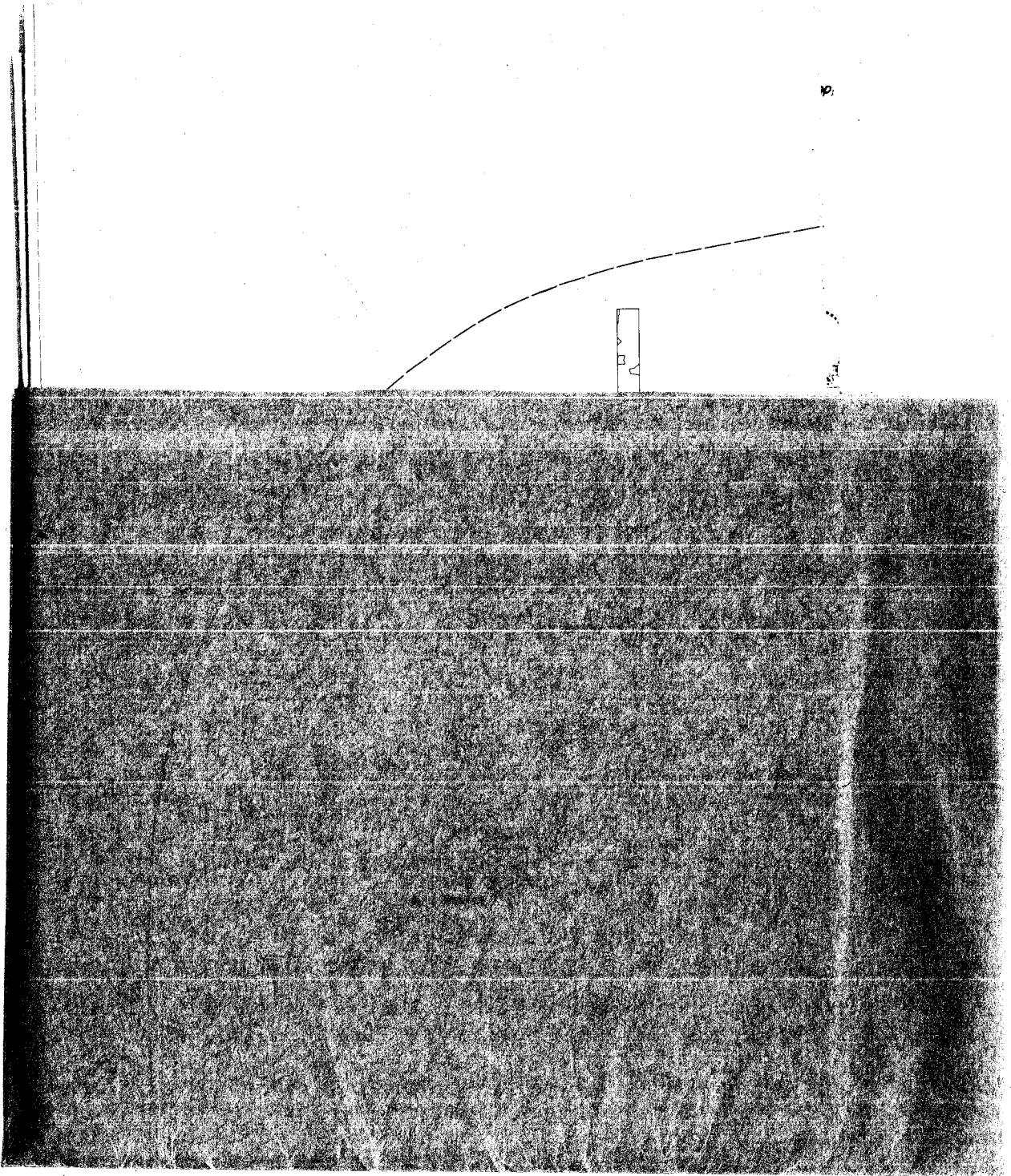


Figure 3

manpower. This would be particularly true if all deposits were screened.

2. To clear the area more quickly, power machinery could have been employed, however, problems with this methodology include:
 - a. There would be essentially no artifact recovery in bulldozed areas;
 - b. It would be difficult to avoid destroying middens, and
 - c. The area is covered, to varying degrees, with trees and boulders which would make the use of heavy equipment difficult.
3. Because the site is not in danger of destruction, it seemed undesirable to disturb it more than minimally necessary, particularly with power equipment.
4. It was felt that sufficient data could be collected without total site excavation.

With these points in mind, an excavation strategy involving trenching techniques was adopted. This is described below, together with brief descriptions of data recording and computer processing methods. The terms 'topsoil' and 'subsoil' are used to refer to the excavated matrix. Topsoil refers to dark, organic-laden soil horizons (A and B), whether disturbed by ploughing or not. Subsoil is the largely organic-free horizon (C) underlying the topsoil. While the terms are technically non-specific, they are used here because of their wide-spread occurrence in Iroquoian

archaeological literature.

2.1.1 Methods of Excavation

As with other Iroquoian sites, settlement features at Coulter were visible as variously coloured stains in the subsoil. The topsoil layer, generally 20 to 25 cm in depth, was removed by shovel. Initially, all of the topsoil, most of it disturbed through ploughing, was screened through 6mm (1/4 inch) mesh, but meager artifact returns and the considerable time expended forced abandonment of this procedure part way through each field season. Approximately 16% of the 2580 sq. m of settlement excavation was screened, including most of the House 12 floor which was excavated in 1 m subsquares and screened through 6mm mesh.

The primary unit of excavation was a 2x5 m rectangle, usually employed in series to form a 2 m-wide trench. Following removal of topsoil, units were scraped by trowel to reveal post moulds and features which were then marked with small colour-coded wooden stakes. Housewalls and palisades were recognized by characteristic linear patterns of post moulds. In many cases, walls were further exposed and followed using narrow trenches.

Fully exposed features were vertically sectioned to reveal profiles to further characterize shape and size and help distinguish them from natural disturbances. Small features were divided in half, usually longitudinally, while larger features were quartered. Feature excavation was done

by trowel without screening, although 3 to 4 l flotation samples, taken from each excavated feature, were processed using a water and screen technique (3 mm mesh). Features which extended horizontally into unexcavated areas were left intact, as were all features towards the end of the second field season, due to time restraints. Post moulds were occasionally sectioned as a means of verification and to characterize depth and shape.

The gravelly nature of much of the site matrix and the numerous trees greatly slowed excavation and hindered feature and post mould detection and delineation. Many squares were trowelled several times to attain maximum recovery of settlement data.

2.1.2 Methods of recording

In order to standardize recording procedures in the field, preprinted forms were used. Feature recording involved four main steps. First, a sketch map illustrated approximate location, shape and extent of each post mould, non-post feature, and natural disturbance. This field sketch acted as a double check for recording accuracy and allowed a composite site map to be maintained throughout the field season. Second, the exact location and size of each post mould was recorded by trilateration with tape measures stretched from two predetermined points. Post mould associations (e.g. "west side-wall of House 2") were noted and if any post moulds were sectioned, those data were also

recorded. Third, each non-post feature was trilaterated and a plan sketch illustrated the points of trilateration. Circular features were recorded with a single centre point and diameter, while ovate and irregular features were given enough points along their perimeters to allow reconstruction of plan shape. Additionally, dimensions, feature associations, nature of fill, artifact contents, weight of fire-cracked rock, number and size of soil and flotation samples taken, and one or more profile drawings were recorded when appropriate. Natural disturbances and edges of excavation were also recorded by trilateration. Finally, a summary form provided general information, such as depth and nature of topsoil, nature of subsoil, and conditions and methods of excavation.

2.1.3 Computer Processing

To translate the large quantity of recorded numerical data into graphic illustrations, a computer plotting program (ARCHPLOT) developed at McMaster University was employed. This program contains plotting instructions for three classes of features: post moulds, circular features and irregular features. As mentioned above, the location of post moulds was recorded by a single trilaterated point. Given this information, together with the post mould diameter, a properly scaled circle would be drawn in the appropriate location. The circle was then filled with a number of '*' characters to make it a solid dot. Circular features, also

recorded by a single triangulated point, were simply drawn as a circle of appropriate size. Irregular features and edges of excavations were drawn by joining a series of trilaterated points with straight lines.

2.2 Site Topography

Site topography is included within the discussion of settlement pattern because of the important influence it undoubtedly had on village morphology.

Coulter covers approximately 3.3 ha at the northeast end of a low drumlin (Figure 4). Roughly one half of the village (the western half) is situated well up on the drumlin, while the eastern half extends off the end of the drumlin in an easterly direction (Figure 5). The elongated shape of the western half is primarily a reflection of the shape of the drumlin, but is also influenced by the distribution of subsoil varieties favorable to Iroquoian construction techniques (see 5.1.4) The shape of the eastern half is not particularly affected by topography (probably more by subsoil conditions). In short, the restricting effects of topography resulted in a village that is almost three times as long as it is wide.

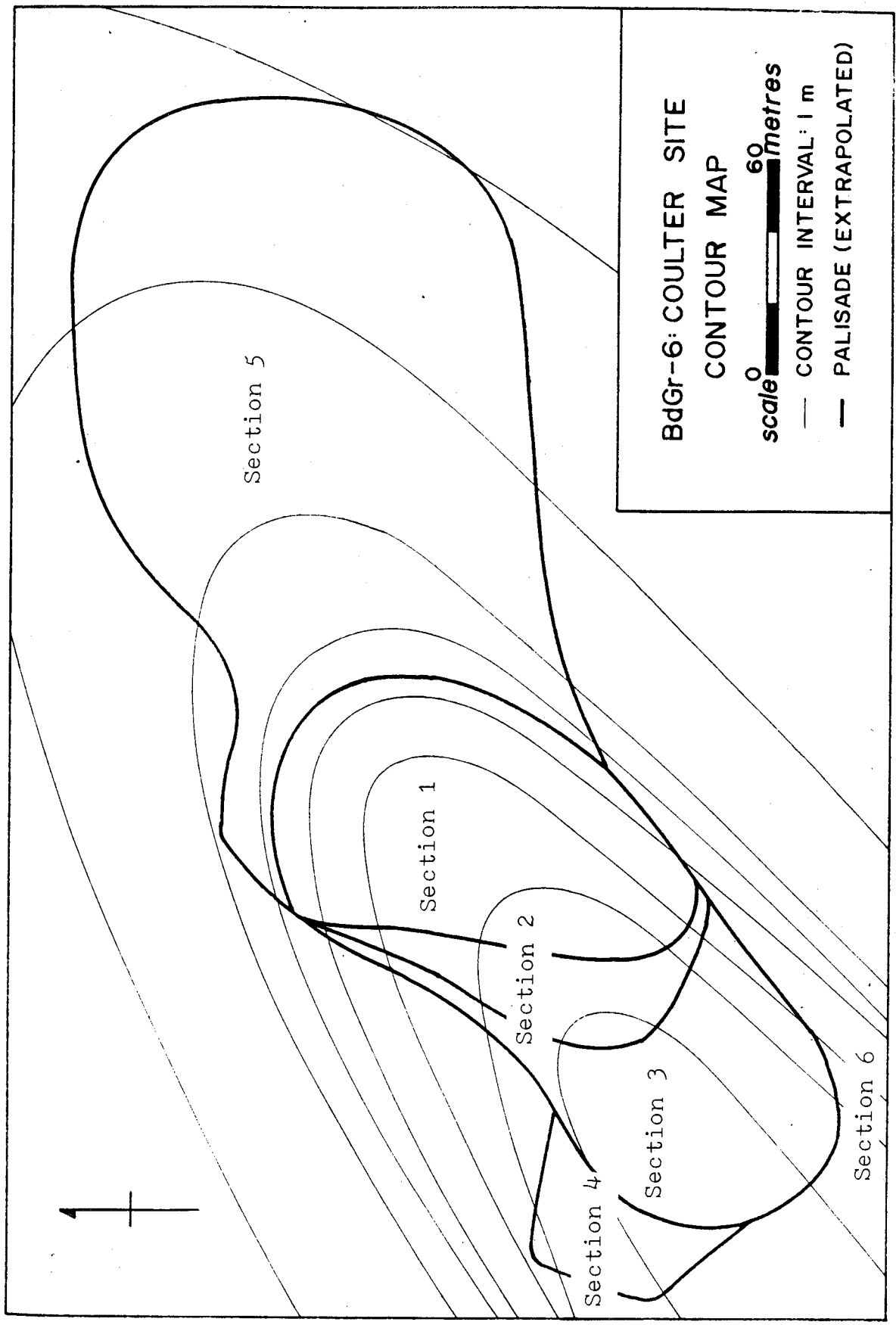


Figure 4

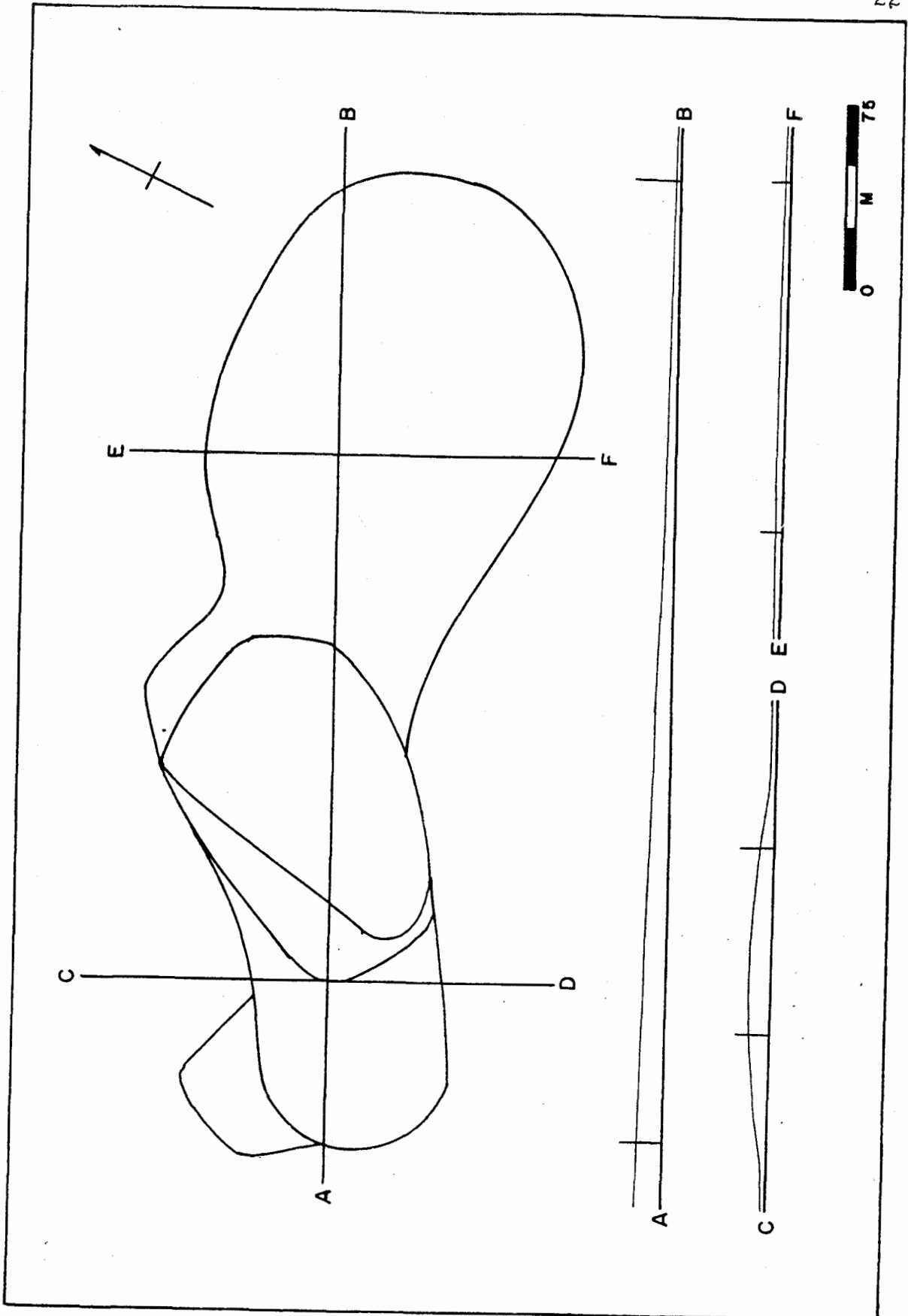


Figure 5: Coulter site cross-sections.

2.3 Palisade

There is an estimated 1600 m of palisade at Coulter, some of it containing as many as five rows. Clearly, the task of delimiting such a structure by hand excavation is an enormous one. The excavation strategy employed at Coulter was designed to cover as much of the site as possible, requiring that excavations be scattered with relatively sparse coverage of any one area. As a result, while small sections of palisade were revealed in many areas of the site, much was left unexcavated and a great deal of extrapolation is necessary in order to reconstruct the total palisade plan. It is important to stress that some of the extrapolations, especially those spanning large distances, are hypothetical and are provided as interpretive aids only. While details of the palisade, as illustrated in Figure 2, will undoubtedly change with future excavations at the site, the basic pattern is expected to remain the same.

As well as encircling the village, palisade lines cross-cut it in four places. The presence of cross-cutting palisade suggests at least four possibilities:

1. Internal palisades were constructed to divide the village into spatially discrete areas.
2. The village expanded in areal extent over time.
3. The village contracted over time.
4. There are two or more overlapping villages.

The first of these is considered unlikely, largely because internal palisades, apart from small 'fences' (e.g. J.V.

Wright 1974; M.J. Wright 1978; Nasmith 1981), are unknown in Iroquoian archaeology and because at least one of the cross-cutting palisades passes through house structures indicating that the palisade and houses were not contemporaneous.

The second suggestion, that the village expanded, is fairly common in Iroquoian archaeology (Noble 1975; Pearce 1978, Finlayson and Pihl 1980, Nasmith 1981). Typically, expansions have a lobe-like appearance and, often, houses and middens overlap former palisade lines. These conditions are present at Coulter and so expansion is a likely possibility.

Village contraction, the third possibility, has never been identified archaeologically, however, it is expected that it could result in a pattern similar to that produced by expansion (i.e. lobe-like sections of palisade are possible, depending on the shape of the original village; and house-palisade overlaps) except that middens would not be expected to overlap cross-cutting palisade lines. In order to distinguish house-palisade overlaps produced by contraction from those produced by expansion, it is necessary to look at them in detail. Specifically, if cross-cutting palisade post moulds intersect archaeological features associated with a house (e.g. pits or hearths), it indicates that the palisade post-dates the house and that contraction is the most likely explanation. Alternatively, if house-associated features have obliterated part of the

palisade, expansion is the most likely explanation. At Coulter, there is, unfortunately, little evidence either way. The only possible case of intersection is at the southwest end of House 18 where a small hearth may have obliterated part of one row of palisade, suggesting village expansion rather than contraction. Also, the presence of a midden (Midden 75) overlying an inner palisade line suggests expansion. Village contraction is therefore considered an unlikely explanation.

Finally, there is the possibility that Coulter is made up of two or more overlapping villages. In this case, a large number of overlapping houses would be expected where the villages overlap. While there are some house overlaps at Coulter, all but one are clearly cases of destroyed houses being rebuilt, probably by their former occupants. This, together with the fact that village overlaps are extremely rare in Iroquoian archaeology, makes it an unlikely explanation.

Village expansion thus emerges as the most plausible explanation for the observed pattern of cross-cutting palisade lines. Additional evidence bearing on the hypothesis of expansion, as well as the other possible explanations, are presented and evaluated in Chapter 5. The purpose of introducing the arguments here is to justify expansion as the general premise under which the settlement pattern data are discussed.

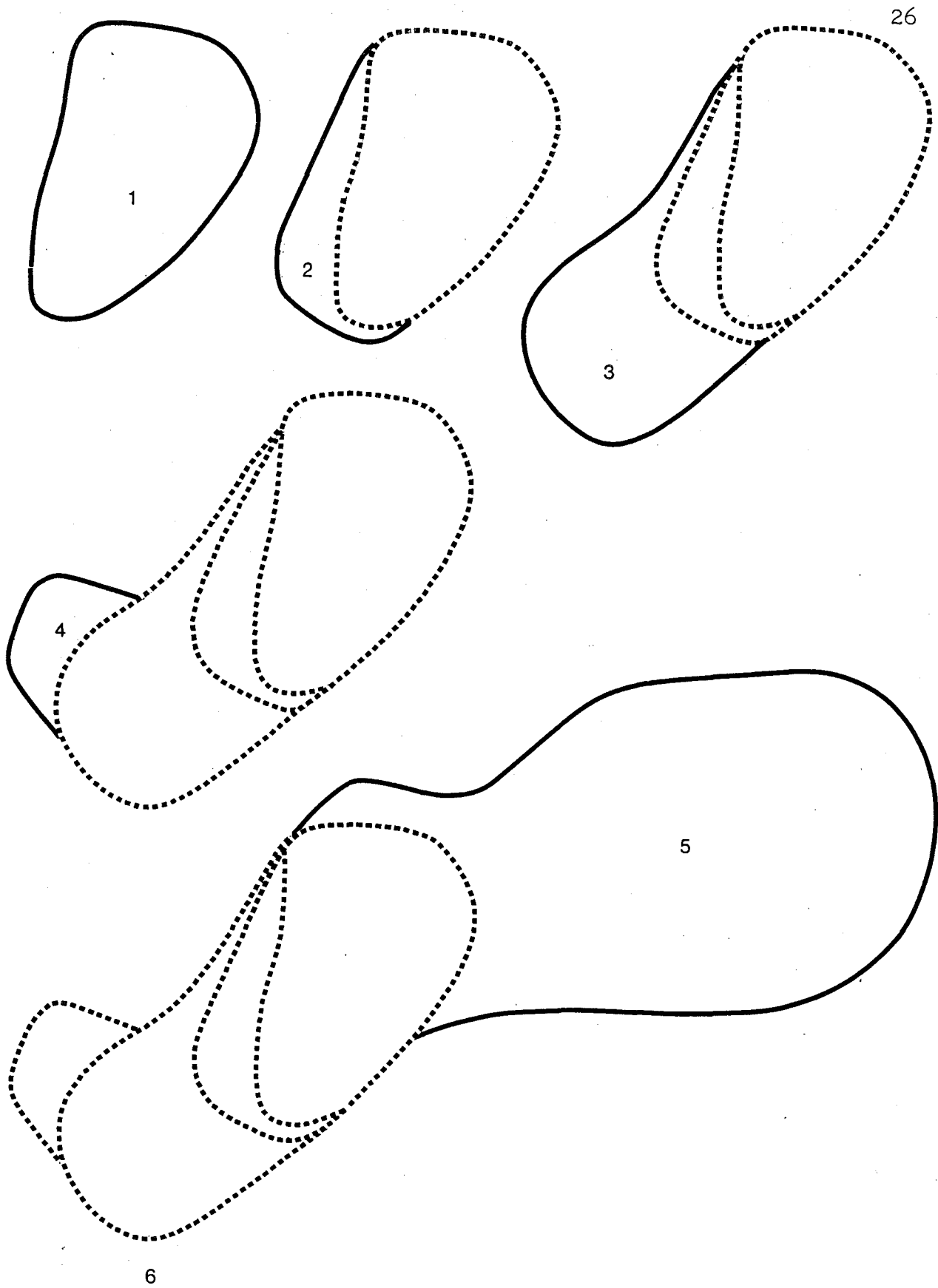


Figure 6: Coulter site palisade sections showing one of several possible sequences of expansion.

Figure 6 presents a schematic illustration of the palisade. In addition to five discrete village sections (labeled 1 to 5) defined by palisade, the presence of a sixth is suggested by an overlap between House 13 and the palisade in the southwest corner of the site. Each of these sections is interpreted to represent a phase of construction. This is not necessarily the same as phases of occupation since some areas could have been occupied prior to being enclosed by palisade or, alternatively, some areas could have been abandoned before others were built.

Because not all of the expansions are sequentially overlapping, their exact order of construction is not certain and must be inferred from circumstantial data (this is attempted in Chapter 5). However, two points can be made based on palisade data alone. First, Section 1 is probably the initial phase of construction. This is suggested by its shape which, in the absence of the other sections would still have the appearance of a complete settlement with no cross-cutting palisade, whereas, each of the other sections, taken alone, would have one concave side where it joined on to another section. Second, because some of the sections are sequentially overlapping, their relative orders of construction can be determined (i.e. Section 2 pre-dates Section 3 which predates Sections 4 and 6). The section numbers assigned in Figure 6 represent one possible sequence, but certainly not the only one.

Three basic assumptions are made concerning the palisade:

1. Palisades are primarily defensive structures;
2. Most, or all, of the rows in multi-rowed palisades are contemporaneous, and
3. Post mould diameter is systematically related to original post or pale diameter.

The first two assumptions find support in the ethnohistoric records where palisades are described as being multi-rowed and having "galleries" from which "they defend their ramparts with great courage and skill" (Wrong 1939:92). The third assumption is tentatively supported by experimental palisade and longhouse reconstruction where pales were matched to individual post mould diameters.

2.3.1 Section 1

It seems clear that this represents the first substantive phase of construction at Coulter. Section 1, which is considered the village core, appears to have covered an area of approximately 0.65 ha with an estimated 315 m of encircling palisade. It was evidently a multi-rowed palisade with anywhere from two to four, and possibly five, rows. Because of the scattered nature of the excavations and because much of the palisade is overlain by house structures, and middens, it remains poorly defined. The entire southeast portion is extrapolated. Its suggested path follows the break in slope in that area which is the usual

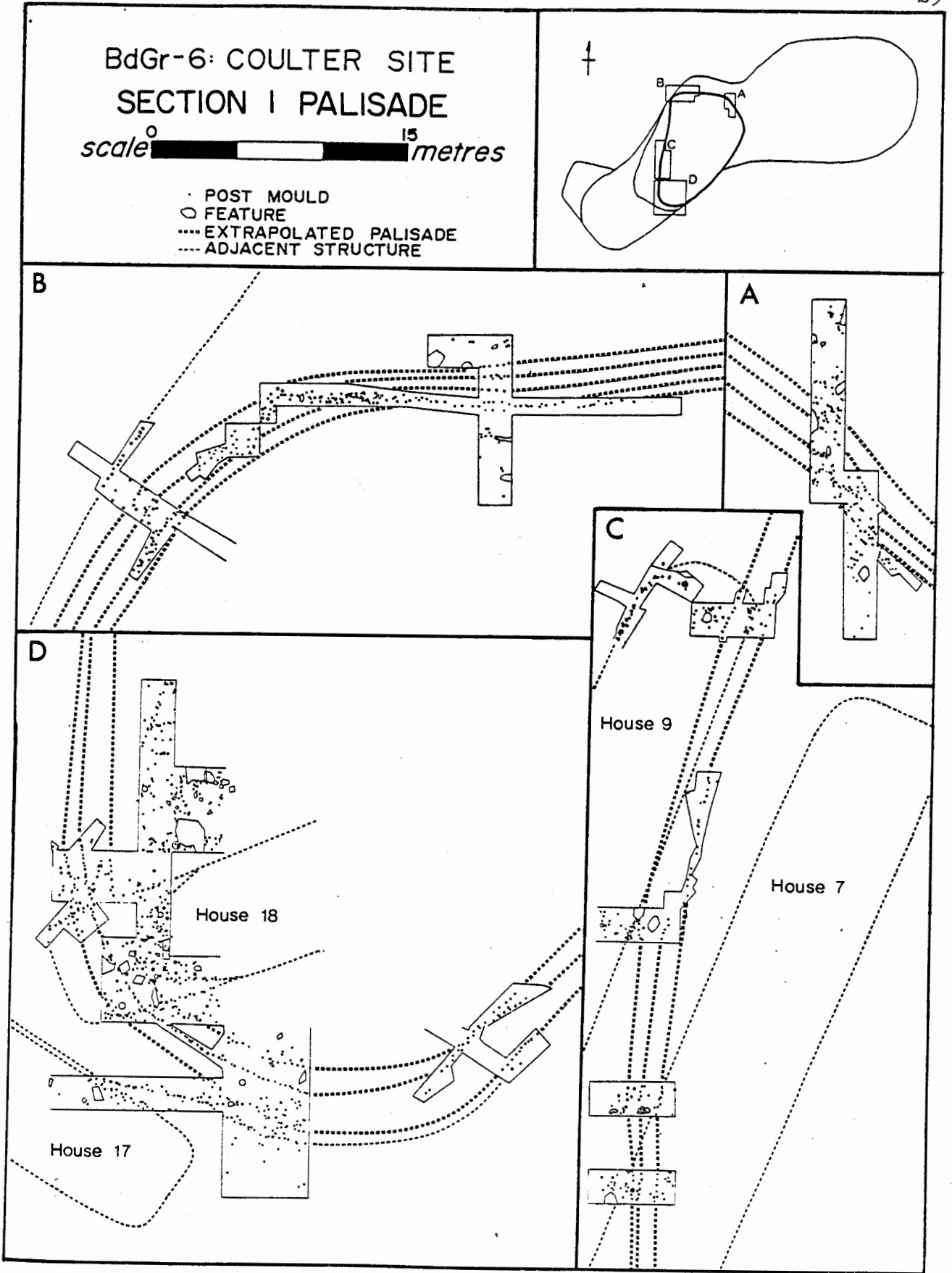


Figure 7

pattern for Huron palisades (Heidenreich 1971:140). The Section 1 palisade is illustrated in Figure 7. Clearly, little detailed information can be extracted from these plan drawings. All of Area A and portions of Areas B and C are particularly obscured, however, the larger exposure of Area D, provides more detail.

No individual rows are apparent in Area A -- it is even possible that the palisade does not pass through the area, however, it is equally possible that the palisade has been obscured by later activity. Area B appears to include up to five parallel rows with the inner two possibly merging into a single line. Area C, which passes through Houses 7 and 9, is thought to include three rows although this is far from clear. Although Area D is obscured by the overlapping House 18, the larger excavation units employed provide a somewhat clearer picture than in the other sections. There appears to be three rows belonging to Section 1 while a fourth outer row is part of Section 2.

2.3.2 Section 2

Section 2 represents the addition of a lobe to the western side of Section 1, increasing village size by 0.16 ha. While an estimated 150 m of new palisade was built, approximately 120 m of the Section 1 palisade was presumably torn down. This palisade extension differs most significantly from Section 1 in the number of rows -- the latter having up to four or five rows while Section 2

BdGr-6: COULTER SITE
SECTION 2 PALISADE

scale  15 metres

- POST MOULD
- FEATURE
- EXTRAPOLATED PALISADE
- ADJACENT STRUCTURE

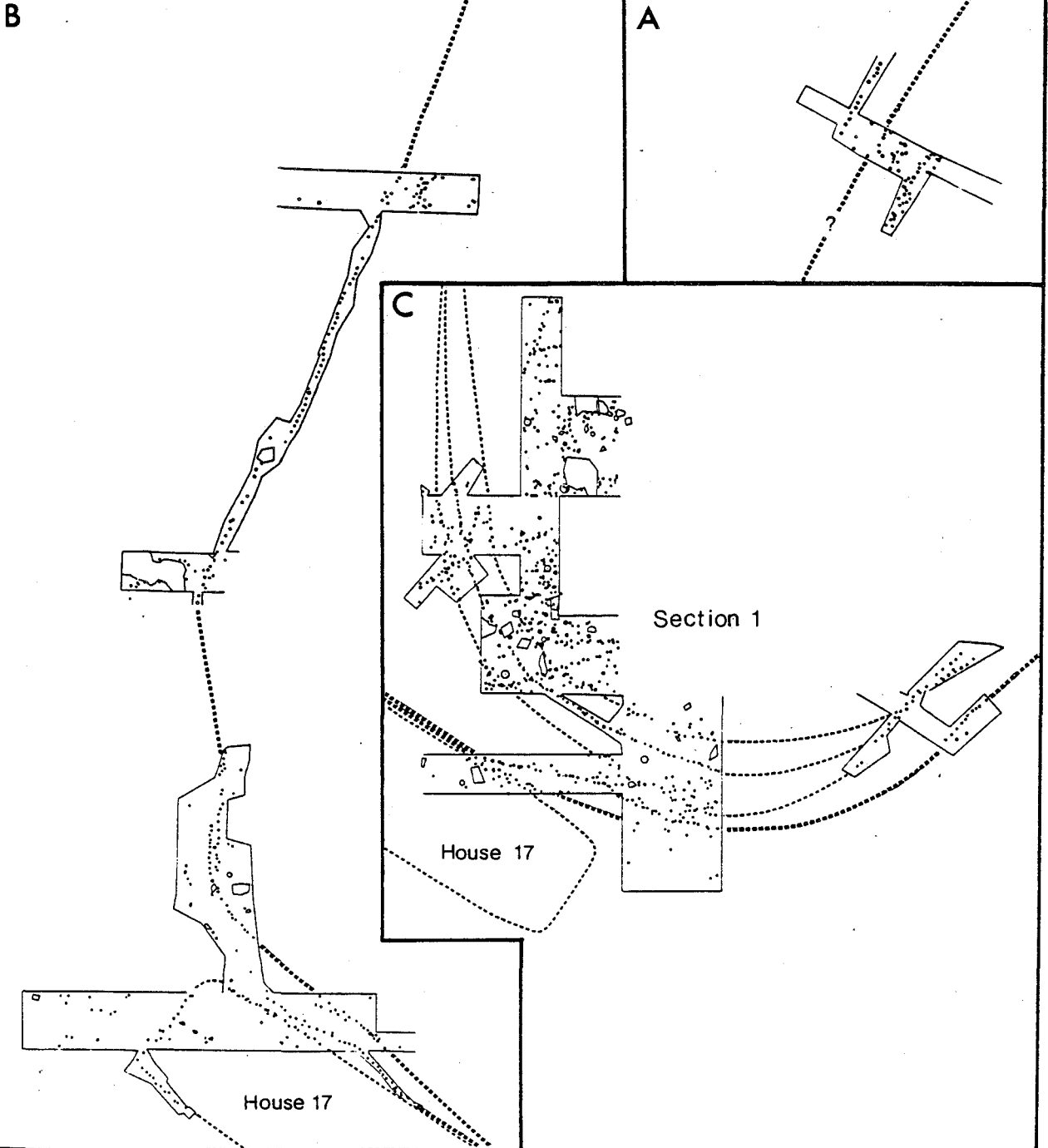
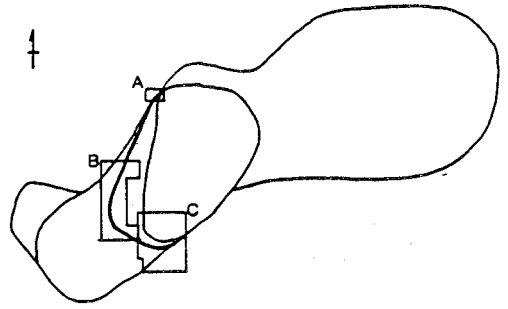


Figure 8

appears to have only two and, in places, one row (Figure 8).


Area A is very tentatively suggested to be approximately where the Section 2 addition and the several rows of Section 1 merge. Area B is relatively clear and appears to include one to two rows, although in places, traces of three rows are evident. At the southern end, the palisade comes very close to the northeast side of House 17 and may actually be overlapped. In Area C, only a single row attributable to Section 2 is apparent. Section 1 and Section 2 palisades appear to merge close to this point.

2.3.3 Section 3

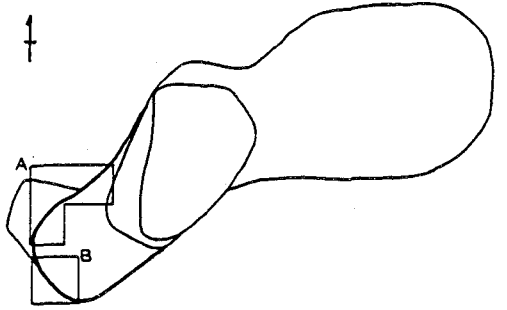
Section 3 represents a large extension, again to the western side of the village, completely overlapping the Section 2 extension. Roughly 235 m of new palisade was erected increasing village size by 0.46 ha. It is not clear whether the Section 2 extension was left standing -- there are no obvious overlaps, although House 17 may overlap slightly. The extension appears to be made up of two to three, and possibly four, rows (Figure 9).

Area A, while clear in its extent, is less clear in terms of the nature of the palisade. In places, there are at least two and possibly three rows, each separated by roughly a metre. One long portion appears to contain only a single row, however, this may simply be a reflection of the narrow excavation unit employed. Area B is essentially the southward extension of Area A. Again, multiple rows are

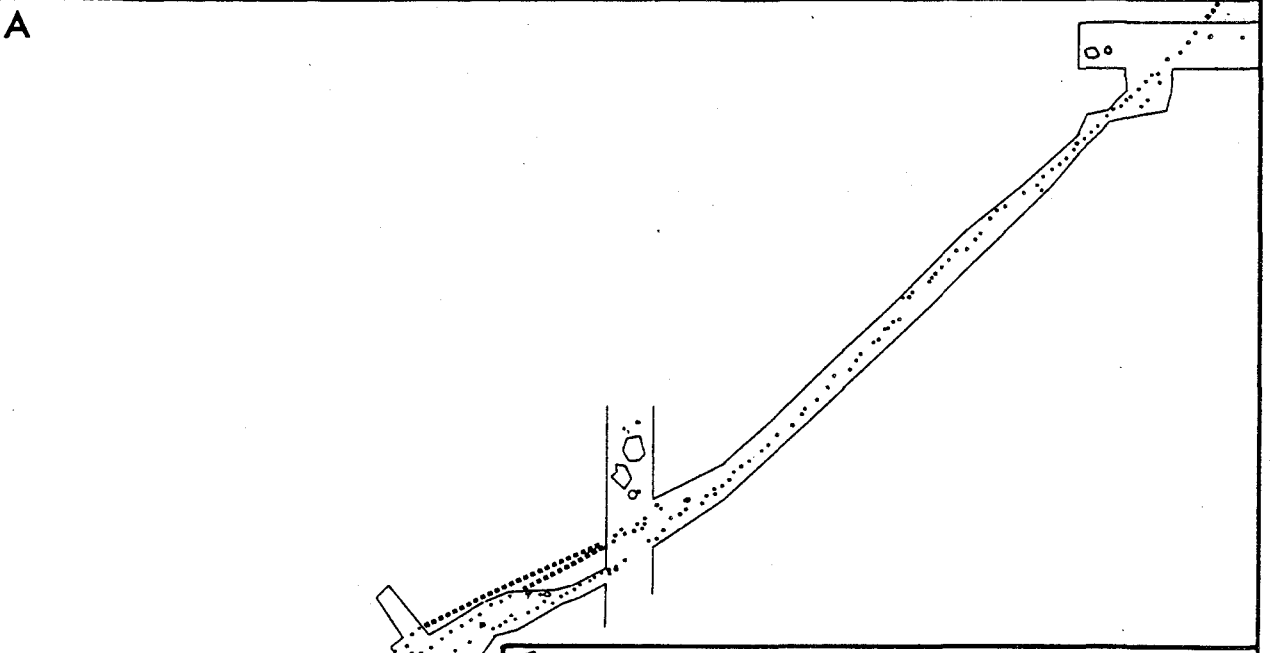
BdGr-6: COULTER SITE
SECTION 3 PALISADE

scale  metres

- POST MOULD
- FEATURE
- EXTRAPOLATED PALISADE
- ADJACENT STRUCTURE



A



B

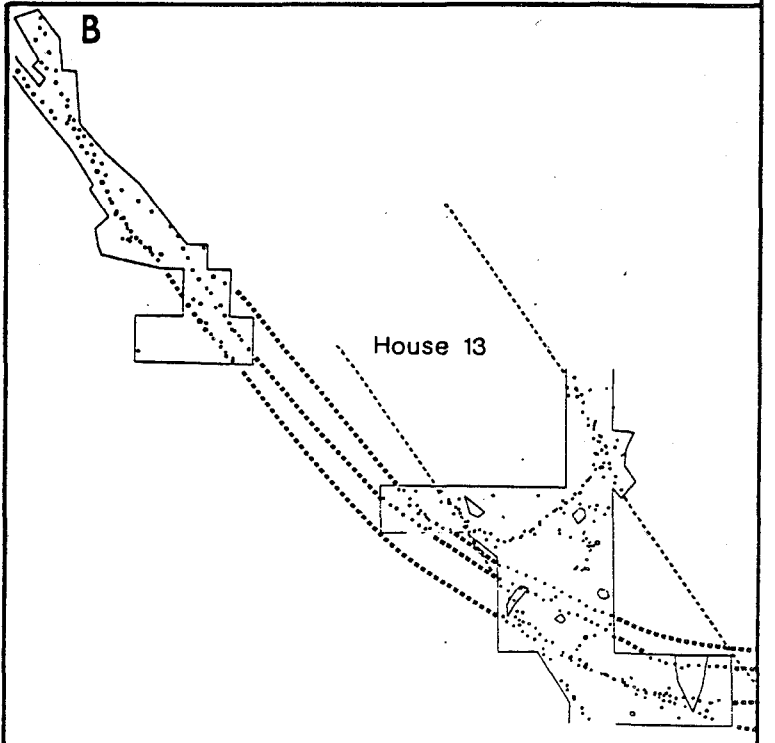


Figure 9

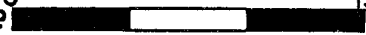
evident with at least two rows in the northwest portion and three rows in the southeast. In the extreme southeast portion, where the palisade is overlain by a section of House 13, the outer row appears to bifurcate, suggesting that beyond this there may be four rows.

2.3.4 Section 4

Section 4 is a small lobe, attached to the westernmost part of the Section 3 expansion, adding only 0.14 ha to the village. Approximately 115 m of palisade is estimated to have been constructed, all of it apparently a single row. No house structures are known to overlap the adjoining portion of Section 3 which was quite possibly left standing (Figure 10).

While most of Area A is revealed by only a narrow trench which would be unlikely to detect multiple rows, the 2x5 m unit to the west strongly suggests that only a single row exists. The easternmost portion, passing through a 2 m wide trench, is very obscure but is considered a palisade mainly because it seems to line up with the rest of Area A. Area B encompasses roughly the southern half of the Section 4 expansion, including the point where it merges with the Section 3 palisade. Although exposed only by a narrow trench, Area B is also thought to be a single row.

BdGr-6: COULTER SITE
SECTION 4 PALSADE

scale 0  15 metres

- POST MOULD
- FEATURE
- EXTRAPOLATED PALISADE
- ADJACENT STRUCTURE

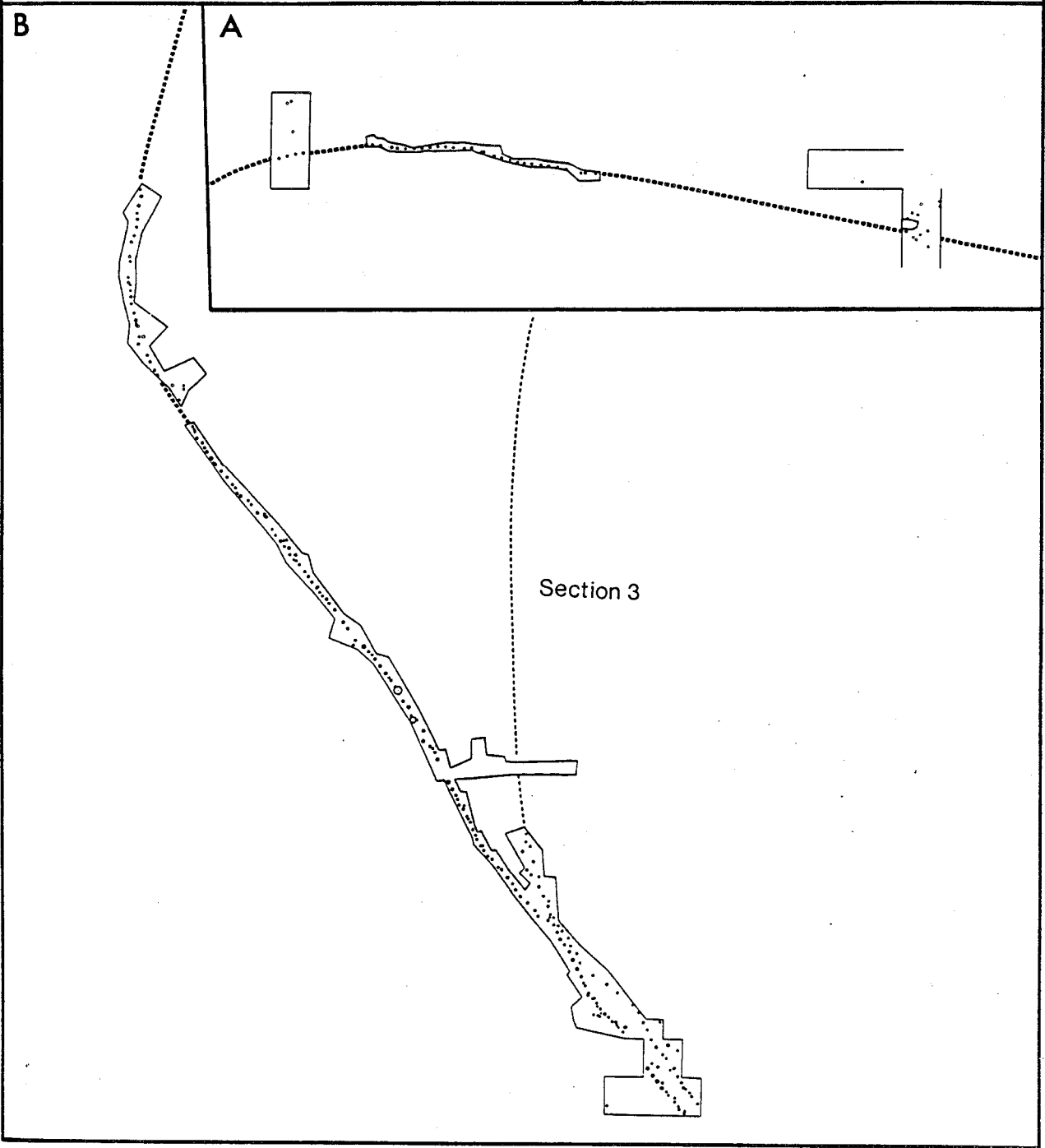
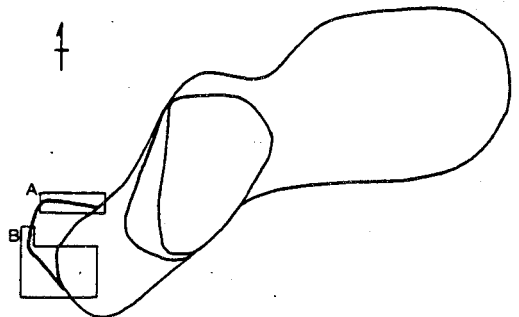


Figure 10

2.3.5 Section 5

Section 5 is by far the largest expansion adding 1.82 ha, more than doubling the size of the village and requiring the construction of over 500 m of new palisade. It appears, to have included only one row, although the presence of additional rows cannot be entirely ruled out. The intermittent nature of the excavations is partly a reflection of excavating in a heavily wooded environment (Figure 11).

There is a single clear alignment visible in the scattered excavations of Area A, however, some of the posts located just interior to this line suggest the presence of, perhaps, a second row. Areas B,C and D, on the other hand, provide evidence of only a single row. The interpretation of Area E as part of the palisade is tenuous. It is suggested, however, because: 1) no houses are known to extend beyond this point; 2) Midden 77 is located here and it is common, at Coulter as at other Iroquoian sites, for middens to be built up along palisades and, 3) no better candidate was found in the 40 m of excavation extending south of House 24.

2.3.6 Section 6

The most poorly defined expansion is one which appears to have taken place at the southern extreme of the site near the western end. As no palisade relating to this apparent expansion was discovered, it is indicated solely by the apparent extension of House 13 (see Appendix I) to overlap a

BdGr-6: COULTER SITE SECTION 5 PALISADE

scale $\overset{0}{\rule{1.5cm}{0.4pt}}$ $\overset{15}{\rule{1.5cm}{0.4pt}}$ metres

- POST MOULD
- FEATURE
- EXTRAPOLATED PALISADE
- ADJACENT STRUCTURE

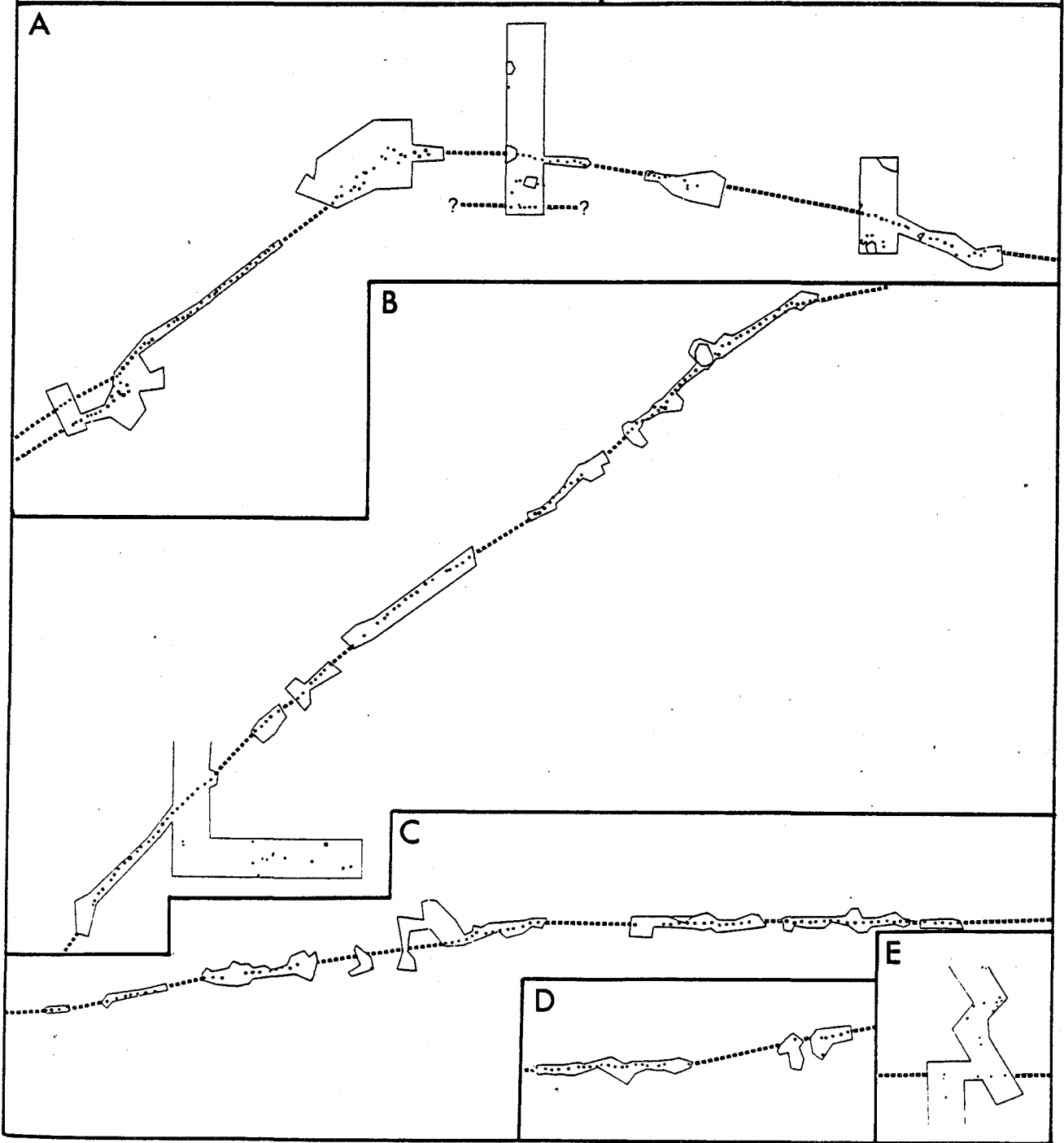
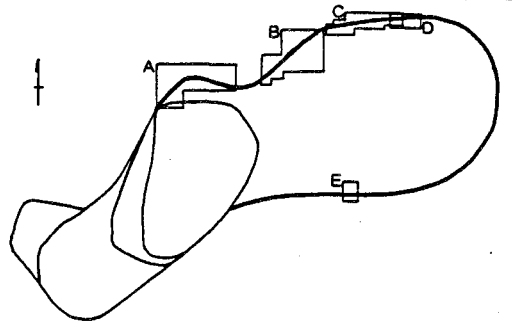


Figure 11

portion of the Section 3 palisade suggesting that the palisade was, at least in part, removed. Whether it was replaced by a more southerly extending section of palisade remains unknown. A number of excavation units extending south of House 13 failed to reveal anything that could, with confidence, be considered palisade or, indeed, any significant cultural features. However, tree-root disturbance was noted to be particularly heavy just south of House 13. An attempt to follow the southwest side wall of House 13 proved useless because of this disturbance.

2.3.7 Discussion

Aboriginal construction of palisades at Coulter involved upright emplacement of posts or pales, probably into individual holes (as no evidence of trenching was encountered), extending from 20 cm to 96 cm into the subsoil. Post mould profiles were parallel-sided with tapering ends. Where post-hole patterning is clear, pales appear, typically, to have been placed one after another in a line, rather than being staggered as is sometimes the case with house wall construction. The posts are separated by between 23 cm and 40 cm and, where multiple rows occur, they are separated by 0.5 m to 2 m. Both post separation and row separation appear to vary as much within sections as between them and no systematic inter-section differences could be detected. Table 1 gives mean post mould diameters for various areas of Sections 1 to 5 (only the less ambiguous

Table 1: Palisade Post Mould Diameters.

Section	Area	Row	(portion)	Diameter (cm)	
				Mean	S
1	A	outer		13.5	1.0
		middle		13.9	1.2
		middle		13.5	2.8
		inner		12.7	2.4
	D	outer		8.2	1.8
		middle		8.8	2.6
inner			7.9	1.4	
2	B	all		7.7	2.4
	C			9.0	2.8
3	A	outer	(south half)	8.4	2.1
		inner	"	7.9	1.5
		all	(north half)	8.4	1.4
	B	outer	(southeast half)	8.5	1.7
		middle	"	9.5	2.0
		inner	"	8.1	1.9
		outer	(northwest half)	11.3	3.5
		inner	"	10.4	2.2
4	A			8.8	1.7
	B			10.5	2.7
5	A	outer?		10.3	2.9
	B,C,D			11.5	2.3

portions were used in making these calculations). The mean diameters range between 7.9 cm and 13.9 cm with only a few notable trends. The largest posts occur along the northern part of Section 1 (Area A), with fairly large posts also in the southwest portion of Section 3 (Section B), in adjacent portions of Section 4 (Section B) and in all of Section 5 at the east end of the village. Whether any significance can be tied to these distributions is not clear, however, it may be of consequence that, in general, palisades in the northwest half of the site are made up of somewhat larger post moulds than in the southeast half, possibly reflecting a need for stronger defenses on the lowest half of the site. "This general pattern is repeated at other sites, namely that the flat approaches to a village were more heavily fortified than the perimeters along breaks in slope" (Heidenreich 1971:140). However, the possibility that the observed pattern is due simply to a shortage of construction materials cannot be ruled out.

The number of rows apparent within a given section seems to vary but this may be due, in part, to preservation problems and the limited extent of excavations. The heaviest fortifications, in terms of number of rows, appears to be in Sections 1, 2 and 3, with Section 2 being somewhat lighter than either 1 or 3. Sections 4 and 5, on the other hand, are, for the most part, single rowed except, possibly, Area A of Section 5.

Excavations are not of sufficient extent to indicate whether, as at Benson, there was a concentration of outdoor activities along the inside perimeter of the palisade (Ramsden 1977b). However, evidence of cultural activities, as reflected by artifacts, posts and features, drops off rapidly outside the palisade, suggesting that most such activities were conducted inside the village. Also, the disposal of refuse along the inside perimeter of the palisade seems to have been a common practice.

2.4 Houses

Portions of 26 houses were discovered at Coulter. Descriptions of individual structures are presented in Appendix I together with computer-generated plan drawings. It will be noted that there is no House 6 -- this is due to the fact that what was initially called House 6 proved to be palisade and, in order to avoid confusion, that number was not reassigned.

Time restraints limited the extent to which excavation was able to go beyond the primary goal of simply locating these structures and most remained substantially unexcavated. The limited nature of the house data becomes especially evident in the following section where inter-house comparisons are made. Some data are totally missing or are available for only a few houses (e.g. house length) while other data, although available for most

houses, are biased by differences in the extent and location of excavations within each structure (e.g. interior post density). Still, the available information is used in an attempt to characterize inter-house variation, particularly within the context of the sections of construction as defined by the palisade.

2.4.1 Orientation

Orientation can be determined, with reasonable accuracy, for each of the 26 houses and is presented in Table 2 and Figure 12. There is considerable variation in orientation, however, a preferred direction of 130 degrees E of N (NW-SE) shows up as a peak in Figure 12a. A second minor peak is evident at 20 degrees E of N (NNE-SSW). When the orientations are separated by section (Figure 12b,c,d,e,f), some additional patterning is evident.

2.4.1.1 Section 1

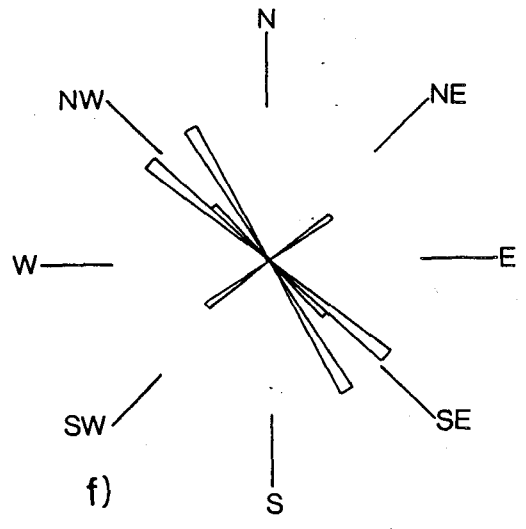
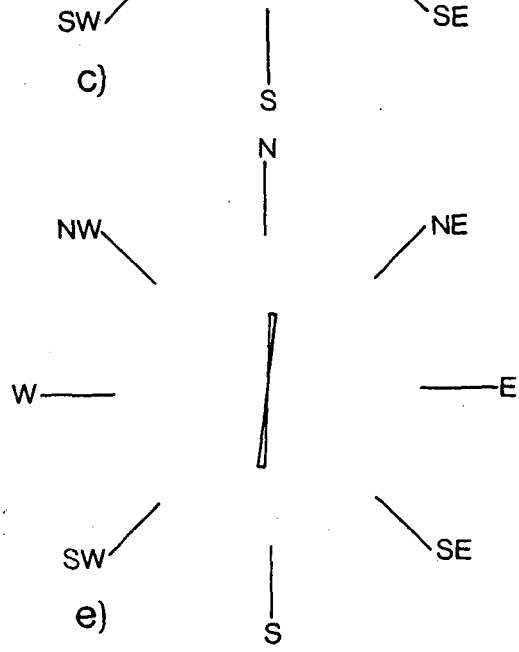
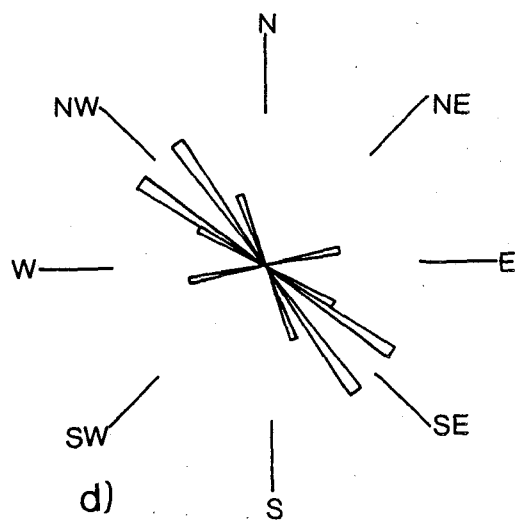
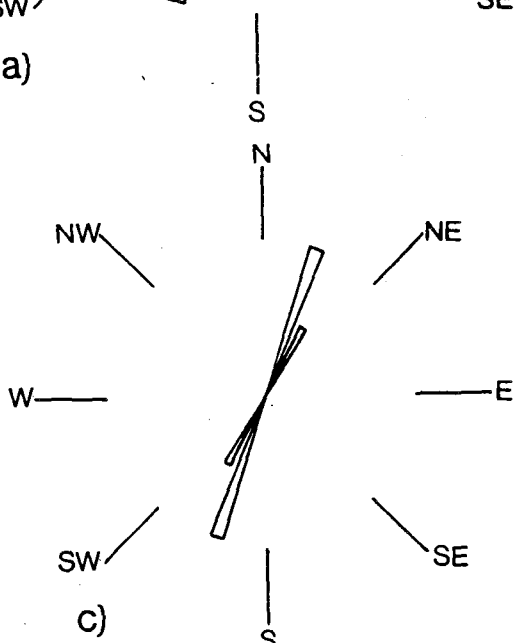
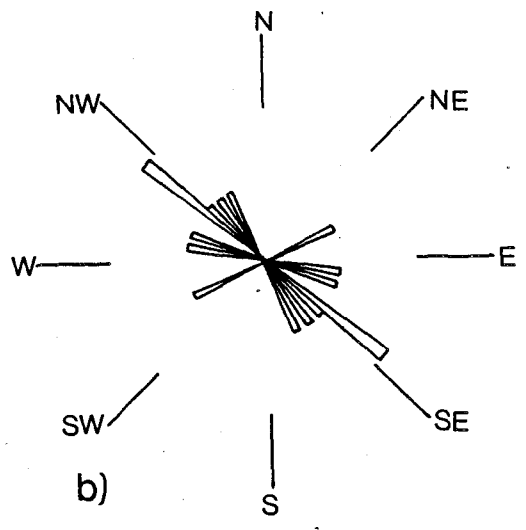
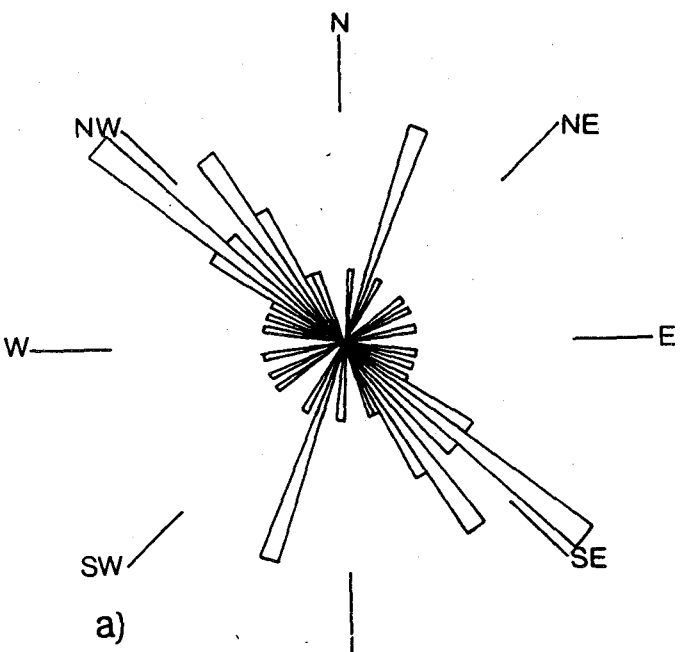
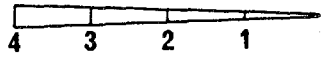
Seven of the nine houses in the Section 1 area are between 100 and 155 degrees E of N and, in rough terms, can be considered to cluster around a NW-SE orientation. All of these structures are found in the northern half of Section 1. Of the two remaining structures, one (House 27) is found within this northern cluster running roughly perpendicular to the others and the second (House 18) is located at the southern extreme of Section 1 at 65 degrees E of N (ENE-WSW). A large area separating House 18 from the

Table 2: House orientations.

Section	House	Orientation (Degrees E of N)
1	1	130
	2	135
	3	130
	4	155
	8	145
	18	65
	19	100
	21	110
2	7	20
	9	20
	10	20
	27	30
3	5	160
	13	145
	14	145
	15	125
	16	120
	17	125
	22	80
4	12	5
5	11	150
	20	150
	23	130
	24	135
	25	55
	26	130

Figure 12: Coulter site house orientations.

- a) total site
- b) Section 1
- c) Section 2
- d) Section 3
- e) Section 4
- f) Section 5



northern cluster of houses remains unexplored. The deviation in House 18 may be attributable to its proximity to the palisade; a change in orientation being the best way to fit it within the confines of Section 1. House 27, as will be argued below, may be attributable to the second phase of construction, accounting for its different orientation.

2.4.1.2 Section 2

Section 2 includes the addition of at least three new houses, all with identical orientations of 20 degrees E of N. Like House 27, they are roughly perpendicular to the northern cluster of Section 1 houses. Moreover, House 27 is close enough to the three Section 2 structures that it seems plausible to suggest that it is essentially part of the Section 2 expansion. This seems particularly likely in view of the fact that House 7 extends well into Section 1 indicating that the palisade separating these two construction phases was removed. Additionally, the fact that both Houses 7 and 27 overlap House 8 suggests that the latter was removed prior to the construction of Section 2.

Also probably added at this time, is an extension of House 18 across the palisade providing further evidence that the palisade was removed.

The reason for a change in preferred orientation from that of Section 1 is difficult to ascertain. Perhaps the most parsimonious explanation is simply that this configuration allowed addition of these houses within the

smallest areal expansion of the village.

2.4.1.3 Section 3

In terms of orientation, the Section 3 expansion is very similar to Section 1. While no houses are oriented exactly 130 degrees E of N, six of the seven are within 30 degrees of this figure. Only a single small structure, House 22, differs significantly, being 80 degrees E of N.

2.4.1.4 Section 4

The only structure found in Section 4, House 12, is oriented 5 degrees E of N. As with the Section 2 structures, this deviation from the more common orientation of roughly 130 degrees E of N may be related to the efficient use of space.

2.4.1.5 Section 5

Only a relatively small proportion of Section 5 was excavated so the representativeness of the sample of houses is uncertain. Again the pattern is similar to that of Sections 1 and 3 with all but one house falling close to 130 degrees E of N. The easternmost structure differs in being 55 degrees E of N.

Clearly, there is an overall preference in orientation of ca. 130 degrees E of N (NW-SE), small scale deviations from which may be due to:

1. An attempt to conserve space when small additions were

- made to the village, when houses were squeezed in among existing ones, or where a house bordered the palisade;
2. Defensive measures -- by ensuring that attackers had to pass through narrow gaps between houses and,
 3. Cultural preferences for distinct orientations to emphasize household or group identity.

There are no large scale systematic deviations attributable to major social divisions within the village as appears to be the case at Benson (Ramsden 1977a) and Kirche (Nasmith 1981). Neither the groups of parallel houses, or the overall preference for a single orientation, need to be interpreted as evidence for cultural homogeneity. Groups of parallel houses seem, in general, to make more efficient use of space.

The choice of a single preferred orientation may be explainable in terms of environmental factors. Since Norcliffe and Heidenreich (1974), it has become standard practice to consider longhouse orientations in relation to prevailing winter winds. As Norcliffe and Heidenreich point out (1974:18), late prehistoric wind patterns were likely similar to those of today which can be generalized as prevailing from the NW to NNW. They found that late Iroquoian longhouses tended to have similar orientations and suggested that this was related to an attempt by the Iroquoians to maximize the thermal efficiency of their houses. As noted above, the houses at Coulter, though varying across almost the entire range of orientations, show

a clear preference for approximately a NW-SE (135 degrees E of N) orientation supporting Norcliffe and Heidenreich's pattern.

2.4.2 House Length

Total length could be measured for only seven of the 26 Coulter houses and of these, two (Houses 7 and 8) are somewhat tentative since each has a poorly defined end. The lengths of three other houses can be estimated -- House 18 has one end exposed while the extent of the other end is limited by a steep slope; the sidewalls of Houses 22 and 24 bevel inwards, usually an indication that the end walls are being approached.

Table 3 gives the respective lengths of these houses while Figure 13a presents them graphically. With a range of over 30m between the smallest and largest structures, a sample of 10 houses (or 12 if House 18 is counted three times) is not adequate to detect any but the most obvious distributions. As far as can be determined at present, the houses range between 16 and 49 m in length with a mean of 30.8 m and no clear evidence of a polymodal distribution. The data are not sufficient for an inter-phase comparison of house lengths.

Table 3: House length and width.

Phase	House	Length	Width
1	1	38.5	7.5
	2	22.5	7.5
	3	28.5	7.5
	4	>5.0	7.5
	8	16.0	7.0
	18a	22.5(est.)	7.25
	18b	39.0(est.)	7.25
	18c	45.0(est.)	7.25
	19	>21.0	>3.2
	21	>7.5	6.75
2	7	49.0	6.25
	9	>36.0	7.5
	10	>25.0	6.75
	27	>23.0	7.0
3	5	29.0	7.5
	13	>16.0	7.5
	14	>14.0	7.5
	15	>11.0	6.5
	16	>12.0	>7.5
	17	>32.0	7.5
	22	20.0(est.)	>5.0
4	12	30.5	7.5
5	11	>10.0	>6.9
	20	>7.5	7.25
	23	>20.0	7.5
	24	27.5(est.)	7.5
	25	>6.0	7.5
	26	>15.0	>6.75

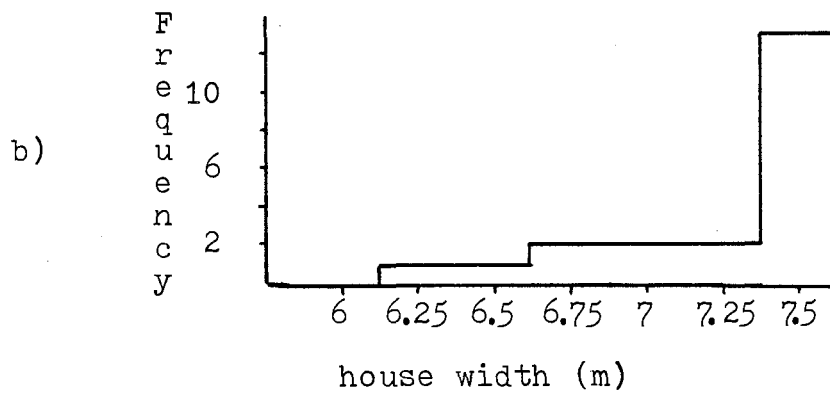


Figure 13: House length and width.

2.4.3 House Width

Width can be determined for 20 of the 26 houses. Table 3 and Figure 13b present these data. Seven and one half metres, while by far the most common width, is also the maximum width, the mean being 7.26 m. The means for Sections 1,3,4 and 5 are very similar (range= 7.3-7.5 m). Section 2, however, has a mean width of only 6.9 which may reflect a cultural preference for narrower houses by the Section 2 inhabitants, although it may also be due to space restrictions.

2.4.4 House Shape

Most variation in shape, which is slight, occurs at the ends of the houses. There are two major components to end shape: 1) the side walls, which usually bevel inwards beginning about 2 m from the end and, 2) the end wall itself, which is usually slightly rounded or flat. Non-bevelled sides may be present on one corner of Houses 16 and 17, however, in both cases the corner in question is not fully exposed.

Other aspects of shape include the apparent constriction in the middle of House 1, and the narrowing of extensions in House 18 and possibly House 18.

2.4.5 Doorways

The doorways of Iroquoian structures, or at least what are commonly thought to be doorways, tend to be narrow, inconspicuous features usually appearing as small gaps (less than 1 m) in the side or end walls. This makes them difficult to distinguish from gaps caused by poor preservation and, for this reason, some of the Coulter doorways are tenuous. Others are made more obvious by the presence of wall overlaps, probably to produce a wind-break (Figure 14a; House 2), or by concentrations of posts on either side of the gap (House 3). Also, several of what are interpreted to be doorways have one or two posts apparently obstructing them. It is possible that during winter months some doorways were closed off or made narrower. Figure 14 illustrates the types and locations of doorways found at Coulter.

2.4.6 House Extensions

Only two houses show clear evidence of a change in length, in both cases interpreted to be extensions. House 18 (Figure 48), located in Section 1, underwent at least one and probably two extensions, roughly doubling its length. A single extension is evident in House 13 (Figure 43), increasing its length by an estimated 13 m.

In the House 13 extension, and the first of the House 18 extensions, the side wall on at least one side appears to have started from the corner of the former end, resulting in

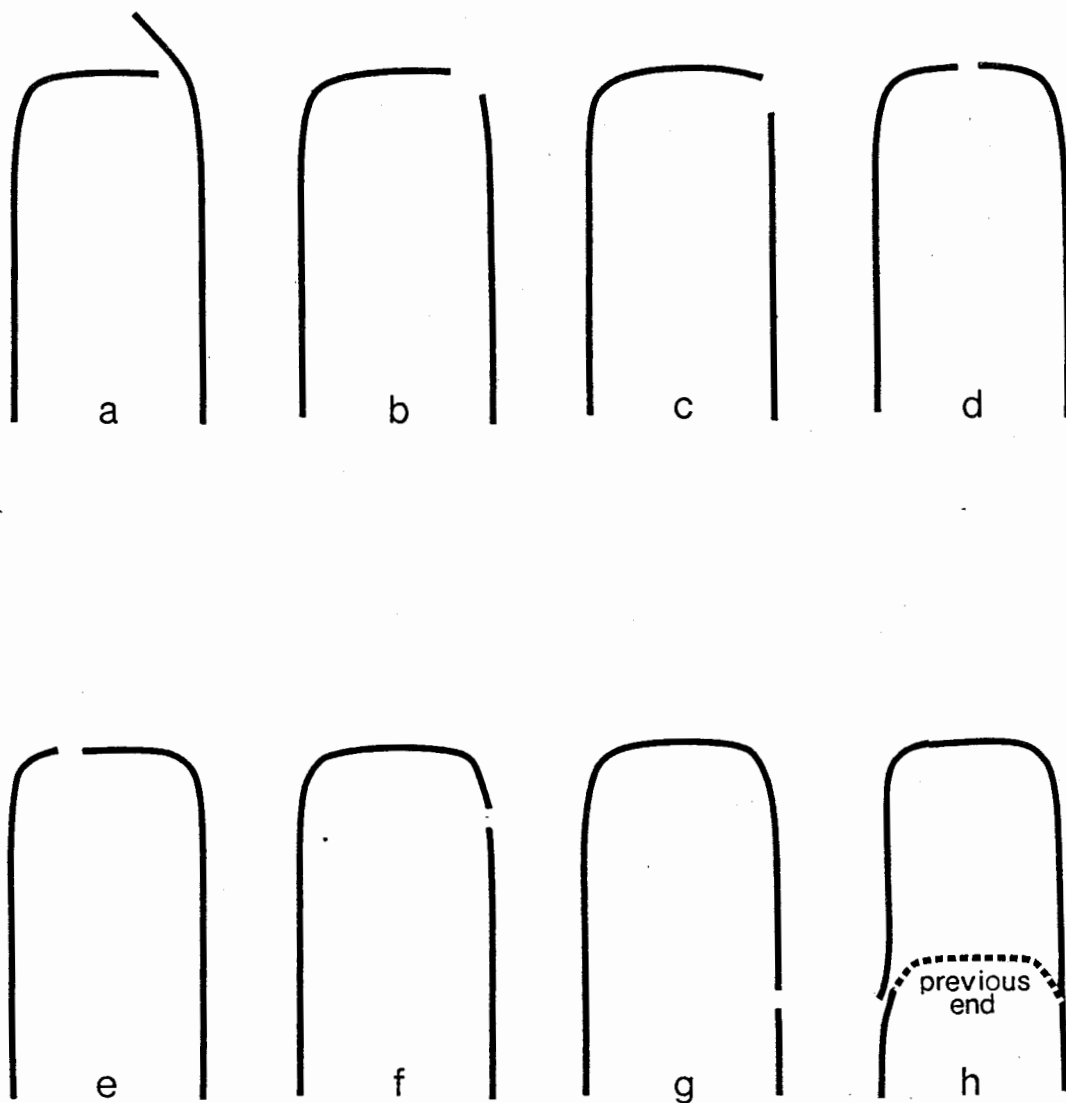


Figure 14: Coulter longhouse doorway types.

a slight narrowing of the house at that point. The second House 18 extension, on the other hand, starts where the side begins to level, thereby maintaining a constant width. Both houses extend across previously palisaded areas and House 13 provides the only evidence of an apparent Section 6 site expansion.

2.4.7 Rebuilt Houses

Houses 19, 21, and 27 have double walls. All three houses are in close proximity and are situated in the Section 1 area. During excavation of House 19, it was found that the northern-most wall was difficult to distinguish, portions of it being covered by disturbances, some of them containing fired soil. Digging below these disturbances improved the pattern considerably and revealed an unusually high number of post moulds containing ash and fired soil. Although less disturbed, the walls of Houses 21 and 27 also include several post moulds containing ash and fired soil. Additionally, the northern-most wall of House 21 is partially covered by Midden 74.

This pattern of double walls, disturbances, an overlapping midden, and fired soil and ash, suggest that the three structures were destroyed by fire and subsequently rebuilt in approximately their former locations. The presence of multi-rowed palisades and scattered human bone, especially in the Sections 1 and 2 area, suggest that warfare was a real concern and possibly played a role in the

destruction of these houses.

2.4.8 House Walls

Little patterning is evident in the distribution of house wall post moulds -- they can be described simply as linear scatterings. There is some evidence, although limited, that this absence of patterning is, at least in some cases, the result of maintenance and repair of the wall over time. Patterning, in the form of staggered pairs of posts, occurs in the House 13 and 18 extensions and in the rebuilt Houses 21 and 27. In each case, it may be argued that the patterning occurs in sections which were not in existence for as great a length of time as other unpatterned sections and so underwent fewer repairs.

House wall post mould densities are presented in Table 4. Densities range from 3.1 - 9.6 posts/m, however, these are extreme values and when the two structures with these densities (Houses 9 and 12) are excluded, the range narrows to 4.1 - 7.9 posts/m. Reasons for the particularly sparse walls of House 12 and the dense walls of House 9 are only speculative. However, the low value for House 12 may reflect a short period of occupation since post mould density can be expected to increase over time as a result of wall maintenance and repair. The dense walls of House 9 may be explainable in terms of superior construction and/or longterm maintenance.

Table 4: House wall post mould densities and diameters.

Section	House	Est. Circumference (m)	Wall Exposed * (m)	Density (posts/m)	Diameter (cm)		
					Mean	Range	S
1	1	87.5	45.0	6.5	8.2	5-15	1.8
	2	54.0	28.0	6.8	8.2	4-20	2.1
	3	66.0	45.0	7.5	8.7	5-18	1.8
	4	>22.0	3.0	6.0	9.9	5-15	3.7
	8	46.0	12.5(0)				
	18	100.0	48.0(25.0)	7.6	7.4	4-12	1.5
	19	>50.0	22.0(0)				
21	>22.0	9.5(0)					
2	7	105.0	31.0(19.5)	6.6	7.7	4-14	1.8
	9	>85.0	26.8(23.3)	8.5	7.5	3-13	1.6
	10	>63.0	14.0	6.5	7.9	5-15	2.0
	27	>60.0	7.0(0)				
3	5	68.0	28.0	4.8	8.3	5-16	2.0
	13	>45.0	24.5(18.0)	5.2	8.1	5-12	1.3
	14	>40.0	6.8(5.6)	6.6	8.8	4-15	2.6
	15	>34.0	6.3	5.2	8.4	4-14	2.2
	16	>35.0	20.0(17.0)	5.5	7.5	4-15	2.0
	17	>75.0	20.7	3.8	7.7	5-12	1.5
	22	>50.0	17.0(15.0)	4.5	7.0	5-10	1.2
4	12	70.0	54.0	3.5	7.4	4-13	1.9
5	11	>35.0	3.7	5.3	9.9	6-15	2.5
	20	>25.0	4.5	5.2	5.9	5-7	0.8
	23	>50.0	17.0(15.0)	4.8	7.0	5-10	1.2
	24	>70.0	12.0	4.3	9.2	5-15	2.4
	25	>23.0	4.0(3.0)	4.3	11.3	8-16	3.1
	26	>40.0	3.8	5.0	7.3	4-11	2.1

* Amount analysable in brackets if different from amount exposed.

Average wall post mould diameters are presented in Table 4. They range between ca. 5.9 and 11.3 cm, but are more commonly ca. 8 cm.

2.4.9 Interior Posts

This section deals only with interior posts not interpreted as major supports. The latter are dealt with in the next section.

The limited extent of interior excavations permits only generalized observations regarding interior post patterning. In general, posts are concentrated down the central one third of a structure's length but are rare in approximately the last 3 m at either end. Where excavations are sufficient, they indicate intermittent clusters of posts along the central corridor, often associated with a hearth and a cluster of pits. The only deviation is in House 15 where posts, along with all other features, are concentrated along the SW half of the house. However, because only a small amount of House 15 is exposed, it is not certain that this pattern is representative of the entire house. Within single structures, post densities vary from central clusters of over 100 posts/sq.m, to fewer than 5 posts/sq.m at the ends. Table 5 presents interior post diameters.

Table 5: House interior post mould densities and diameters.*

Section	House	Est. Total House (sq. m)	Interior Exposed ** (sq. m)	Density (p/sq. m)	Diameter (cm)		
					Mean	Range	S
1	1	250	30.0	0.7	8.9	6-14	1.9
	2	150	18.0	12.7	7.3	3-15	2.5
	3	148	0				
	4	>37	6.0	2.3	7.7	5-12	2.3
	8	112	20.0(0)				
	18	325	125.0(94.0)	6.1	6.4	3-15	1.8
	19	>75	18.0(0)				
	21	>50	15.0(0)				
2	7	300	35.0(25.0)	4.0	6.6	4-13	1.7
	9	>270	46.0(40.0)	6.2	6.9	3-15	2.5
	10	>168	25.5	4.2	7.2	3-15	2.5
	27	>160	14.0(0)				
3	5	205	34.0	2.2	5.8	3-12	2.0
	13	>115	65.0(25.0)	1.3	7.1	3-12	2.1
	14	>105	24.0	2.0	4.7	2-10	1.6
	15	>70	18.5	2.3	5.4	3-9	1.2
	16	>90	13.0(11.0)	1.6	6.1	3-9	1.5
	17	>225	34.0	4.6	4.7	3-14	3.1
	22	>100	10.0(8.0)	0			
4	12	205	135.0	1.2	6.3	4-15	2.1
5	11	>70	15.0	1.1	7.8	6-9	1.1
	23	>150	30.0	2.4	6.8	2-13	2.0
	24	205	34.0	0.4	7.9	4-13	3.1
	25	>45	17.5	1.2	7.5	4-13	1.9
	26	>100	40.0	2.2	7.2	3-15	2.4

* Excluding interior posts 16+ cm in diameter.

** Amount analysable bracketed when different from amount exposed.

2.4.10 Interior Support Posts

Interior posts over 15 cm in diameter are considered to have functioned as major house supports. While the selection of >15 cm is arbitrary, Figure 15 shows that there are relatively few posts in this size range, possibly because of their specialized function. Although some of these posts may not have served as supports, there are no objective criteria by which to distinguish supports from other large posts and it is considered preferable to look at a set range of post sizes rather than to subjectively select only those posts which might fit an expected spatial distribution. As an aid in distinguishing these post moulds from small circular pits, some were vertically sectioned to reveal their profile. Support posts, as defined, were found to be between 16 and 29 cm in diameter (mean=19.1, S=2.8) and between 30 and 47 cm in depth (X=41.0, S=7.0) with parallel-sided and flat to round-based profiles.

The distribution of these posts was evaluated largely in terms of their distance from the nearest side wall. While they occur throughout the width of the house, they are concentrated about 1.9 m from the sides. They seem often to occur in pairs, one close to each side, at intervals of several metres along the length of the house.

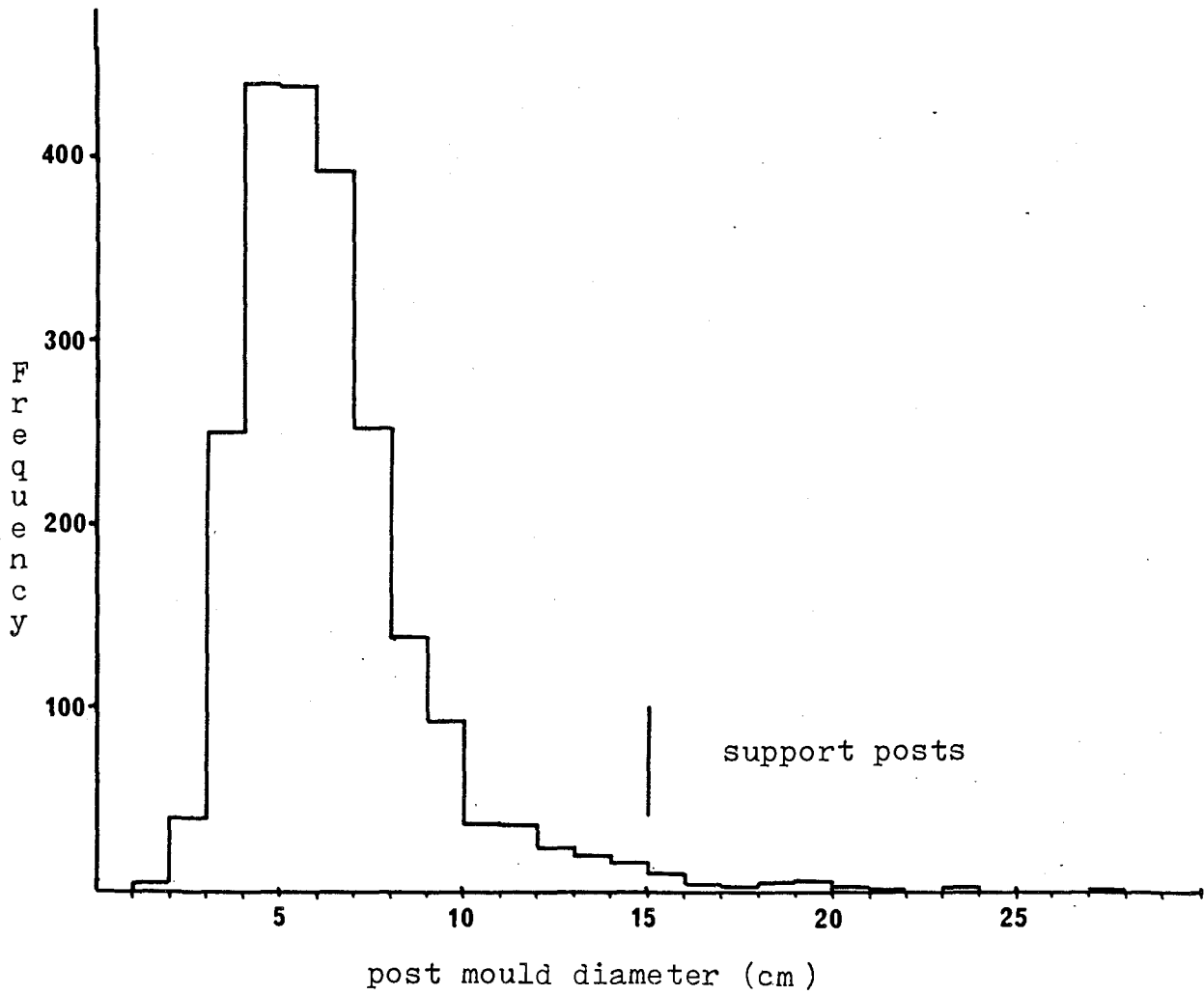


Figure 15: House interior post mould diameters.

2.4.11 Interior Features:

A variety of non-post feature types were found within house interiors, including hearths, pits, refuse-filled natural depressions, midden deposits and natural disturbances. The following discussion deals only with those features which were visible in the subsoil and clearly of cultural origin -- hearths and pits.

2.4.11.1 Hearths

A total of 22 hearths were either fully or partially exposed. Typically, hearths were relatively large (mean dimensions: 64x76 cm); contained oval or rectangular areas of fire-reddened soil, extending slightly into the subsoil; and were often overlain by a thin layer of ash with little associated charcoal or artifactual material.

Hearths were usually found along the central long axis of the house. In only a few cases (Houses 2,9,15) were they significantly offset from this central axis -- in one case (House 2) a small hearth, likely used only temporarily, was less than 1 m from the side-wall; while two larger and probably permanent hearths (in Houses 9 and 15) were offset by about 1.5 m.

Distances separating adjacent hearths could be measured in only a few cases and ranged from 1.5 to 8 m with a mean of 3.6 m. The larger distance of 8 m is considered more representative, however, since three of the four measurements were taken from House 18 where there appear to

have been shifts in hearth position over time, probably in conjunction with house expansion.

2.4.11.2 Pits

It was frequently difficult to distinguish pits from refuse-filled natural depressions and natural disturbances on the basis of plan-view alone. For this reason, only those features which were excavated to reveal their vertical profile could be confidently identified as pits. Of the 175 features excavated inside houses, 128 were classified as pits, the others being primarily natural disturbances. Pits were evaluated in terms of five variables: dimensions (length, width, depth), plan shape, profile shape, fill and contents.

Dimensions

Figure 16 graphically presents lengths, widths and depths of the 128 pits. All are unimodally distributed.

Plan Shape

Figure 17 illustrates the distribution of pit plan shapes. Pits are usually regular in outline--circular and oval pits accounting for 93.7% of the sample.

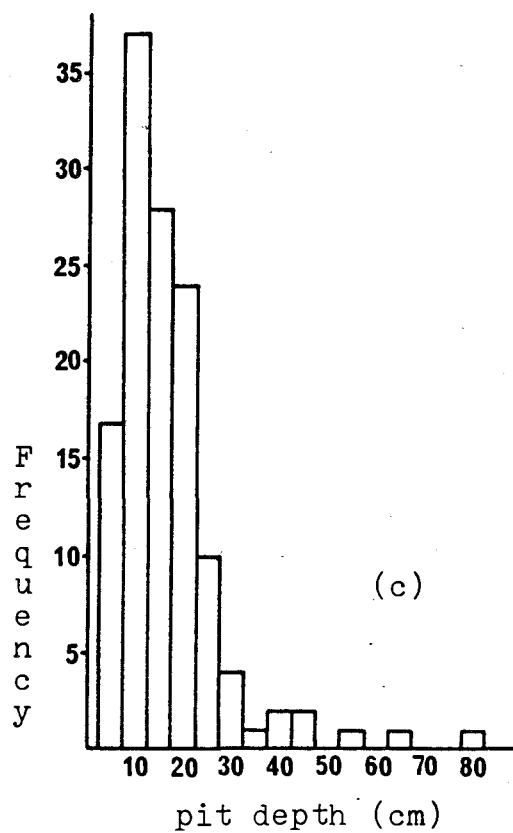
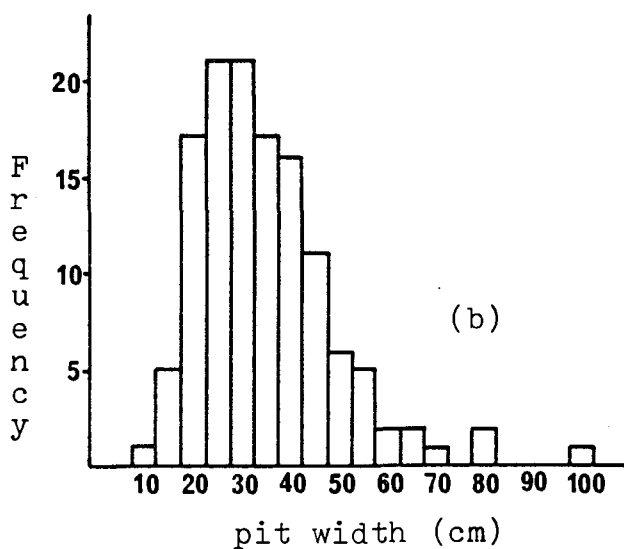
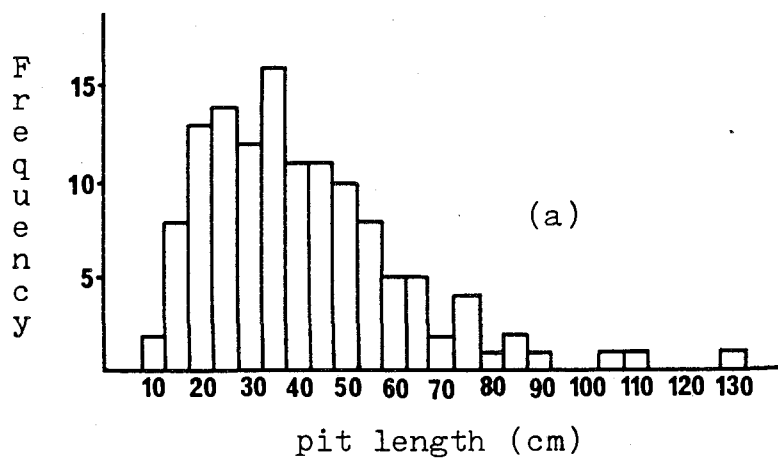


Figure 16: House interior pit (a) length, (b) width, and (c) depth.

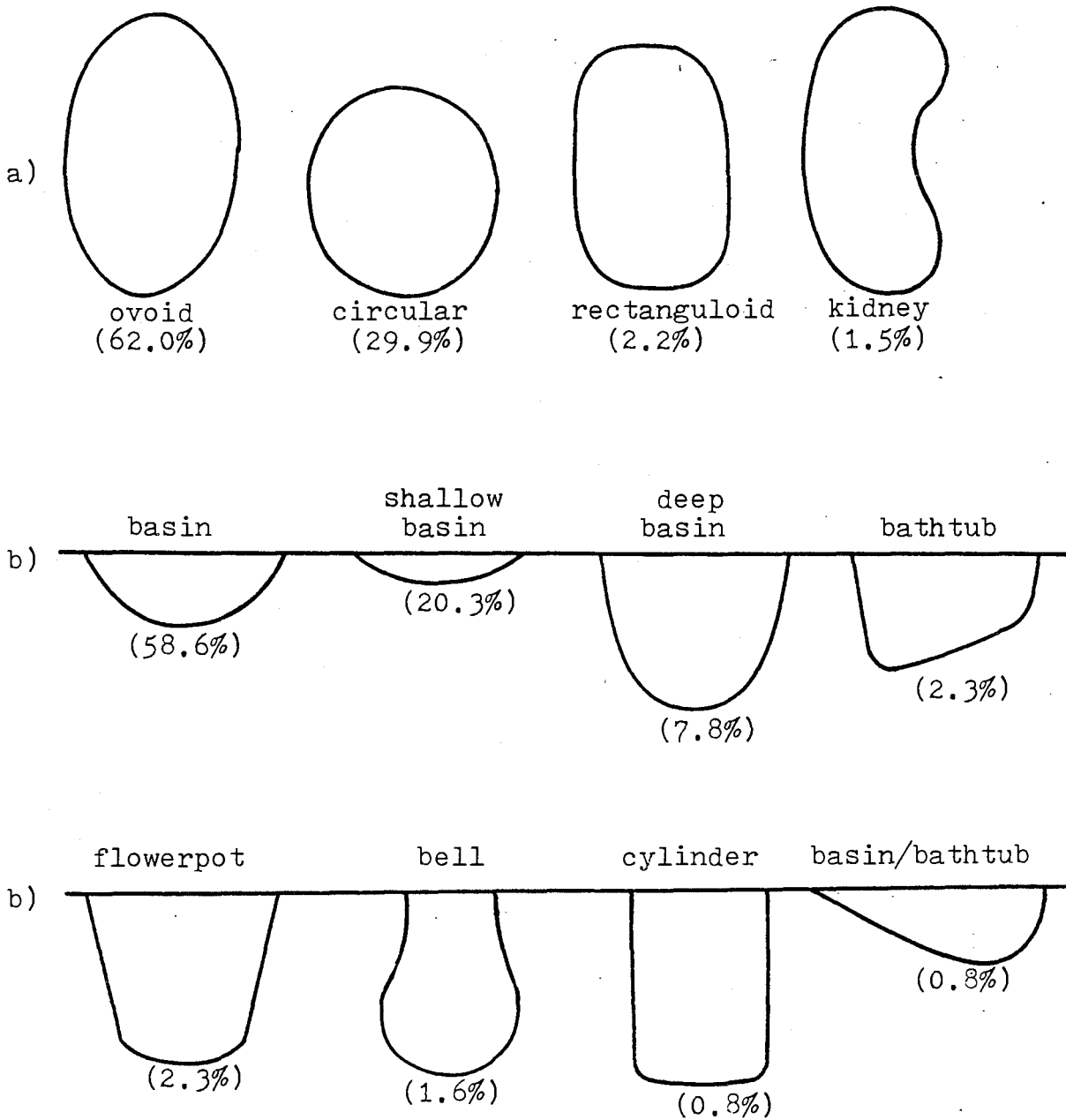


Figure 17: House pit a) plan shapes and b) profile shapes.

Profile Shape

Pit profiles are presented in Figure 17. Again, regular profiles predominate with 86.7% being basin-shaped.

Fill

No specialized analyses were carried out on pit fill, they were simply characterized visually during excavation. In most cases, subsoil and/or topsoil made up almost all of the fill with only small amounts of charcoal, ash and fire-oxidized soil. However, ash predominated in 10 pits, frequently with small amounts of fire-oxidized soil. Often located close to hearths and in some cases showing clear layering, ash pits appear to have functioned as receptacles for hearth ash.

In most pits the fill was either homogeneous or mottled -- only eight pits, excluding ash pits, were clearly layered, possibly indicating that they were filled gradually over a longer period of time than non-layered pits.

Contents

Pits do not appear to have been used for refuse disposal. While most contained some cultural material, mostly pottery and faunal remains, all of these can be considered inadvertent inclusions, always occurring with low frequency.

2.4.11.3 Pit Distribution

Like interior post moulds, pits are usually concentrated along the central one third of the house's length but are rare or absent from the last 3 m at either end. They sometimes occur in clusters close to a hearth along with clusters of posts. Pits also occur closer to the side-walls but in much lower frequencies.

As mentioned earlier, the only major exceptions to the normal pattern are in House 15, where a hearth and all of the posts and pits are concentrated along only one side of the house, and possibly House 9 where a small cluster of unexcavated features may be associated with an offset hearth.

3. MIDDENS

3.1 Introduction

Middens are localized concentrations of cultural refuse, presumably deriving from nearby houses, consisting of a matrix of humus, ash and, occasionally, subsoil. Often such deposits are stratified, probably reflecting accumulations of refuse over time. Small, horizontally localized strata, here called lenses, average about 1 m in diameter and are usually 2-5 cm in thickness. Most frequently they are made up of light grey ash, sometimes with small amounts of fire-reddened soil, and may represent single dumpings of ash collected from hearths inside houses. Such a method of disposal may have been a summer alternative to using ash pits inside houses as described previously.

The formation processes resulting in larger strata, here called layers, are not as well understood. Layers extend horizontally for several metres, are usually continuous throughout the excavated portion of the midden, and are usually between 5 and 15 cm thick. While often containing a large amount of ash, layers generally have, visually, a much higher humic content than lenses, resulting in a darker grey colour. Layers can also contain small amounts of subsoil giving them a dark brownish-grey colour. The number of cultural layers in each midden is few, sometimes only one, with deeper middens possessing the

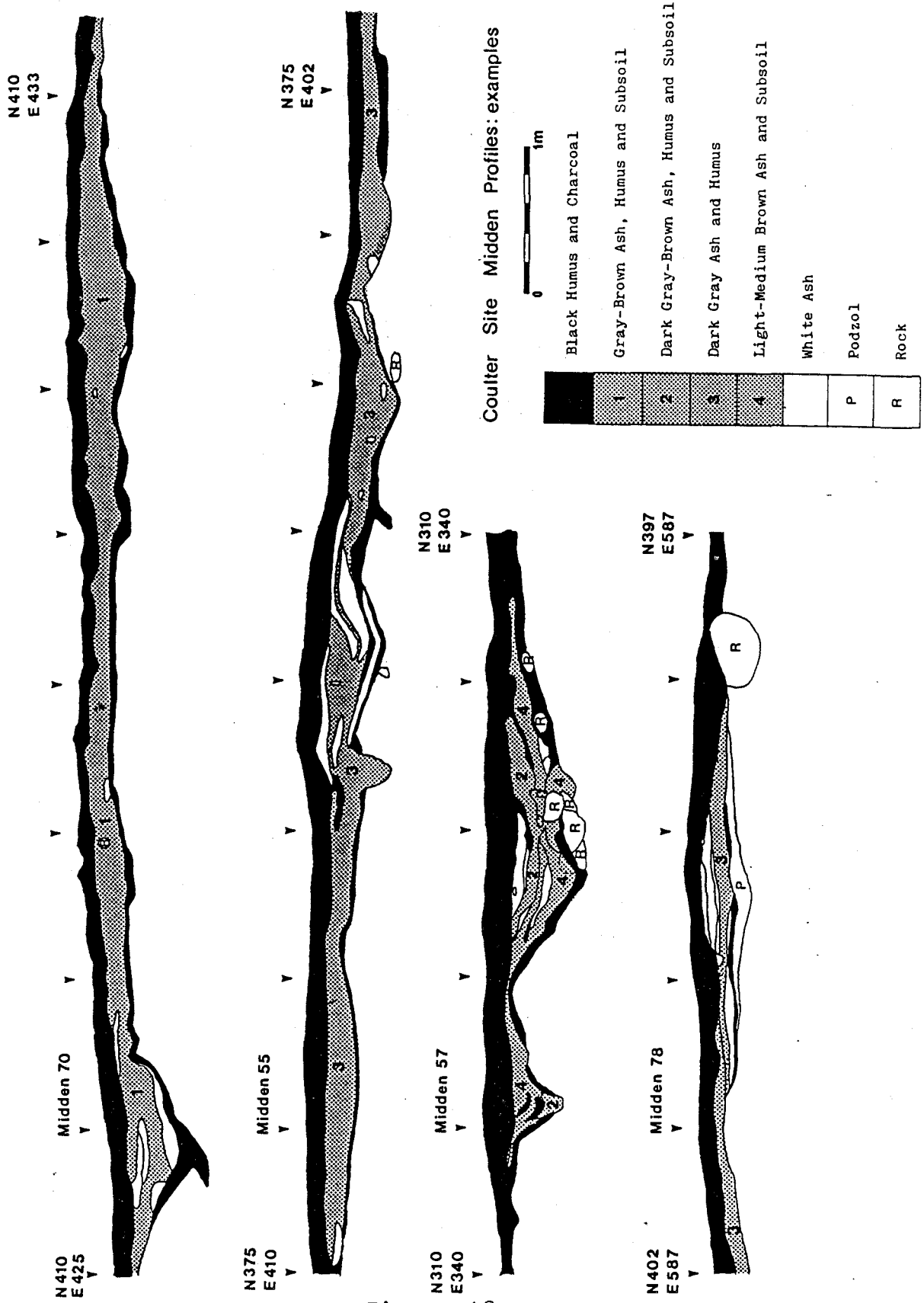


Figure 18

highest frequency.

In addition to cultural layers, each midden is capped by a topsoil layer, usually disturbed through ploughing, and underlain by a thin (2-10 cm) black humic layer representing the soil surface prior to midden formation.

Twenty-eight middens were encountered during the course of excavations at Coulter of which 22 were sampled. Because middens were generally not indicated on the surface, they were usually discovered while searching for structural features and post lines. The method employed in midden excavation is described below.

3.1.1 Midden excavation

The primary objective of midden excavation was to provide sizable artifact samples from various parts of the site. The relatively high density of artifacts in middens allow such a sample to be recovered efficiently. Additionally, the stratified nature of these deposits, particularly deep middens, provide some temporal control and allow the use of micro-seriation techniques. It is generally assumed that midden deposits were built up, over time, primarily by people living in close proximity to the midden. During midden excavation, horizontal provenience was maintained through the use of 1 by 1 m subsquares while vertical control was maintained by troweling in 5 or 10 cm simple arbitrary levels. Additionally, natural strata were separated within each level, when possible. Midden deposits,

once recognized, were always screened using either 3 mm or 6 mm mesh hanging screens. During the 1977 field season, only 6 mm mesh screen was used and artifacts were picked out of the screen in the field. In 1978, 3 mm mesh was used most often and rather than picking artifacts out in the field, all materials trapped by the screen were bagged. The contents of these bags were immersed in water, using a bucket equipped with a 3 mm mesh screen bottom, to dissolve the soil which had failed to go through during dry screening and to preliminarily clean the artifacts. The washed materials, largely made up of gravel, were spread out on trays to dry and were sorted in the laboratory on rainy days. This method greatly improved recovery providing a more representative sample of smaller artifacts and faunal materials. Additionally, flotation samples were taken periodically and processed in the same manner as the samples taken from in-house pits.

3.1.2 Midden recording

An important goal was the recognition and recording of natural strata, including layers and lenses. Each was described in terms of colour, texture, composition and extent. Detailed profile drawings were made of each wall of each subsquare and care taken to correlate layers between excavation units. The horizontal extent of lenses, pits and post moulds were trilaterated and recorded on post mould and feature forms as usual.

3.2 Midden summary

Figure 3 illustrates the location of each midden and Appendix II provides a brief description of each. They tend to occur in three types of situations: 1) in open areas, primarily in natural depressions; 2) along palisade lines; and 3) along side walls of houses. Those occurring in open areas are generally deeper (averaging 55 cm), have more layers and seem to cover larger areas than other types. Those found along palisades are not quite as deep, averaging 50 cm. Although they tend to be narrower than open area middens, they can extend along a palisade for up to 10 - 15 m. Middens built against house walls are distinctly smaller, averaging only 32 cm in depth and covering less area.

Variation in size of middens can probably be attributed to both the duration and intensity of their use. Larger, open area middens and some palisade middens were likely established soon after that section of the site was occupied and were probably used simultaneously by the occupants of several houses. Almost all open area middens and many palisade middens were situated over what would have been natural depressions. Such areas may have been chosen because they were unsuitable for other purposes. The smaller middens along house walls are probably more expedient disposal areas, possibly used by a single household during winter, when a midden located just outside the doorway of a longhouse would be desirable.

Two of the middens are unique. Midden 66 appears to have been moved aboriginally to make room for the construction of House 7 and the extension of House 18. Midden 63 is the only midden located outside the limits of the village as defined by the palisade.

4. POTTERY

As at most Iroquoian sites, fragments of pottery vessels are the most numerous artifacts recovered at Coulter. The sherds are categorized according to which part of the vessel they represent and their frequencies are summarized in Table 6.

Despite the fact that all Coulter pottery occurs as sherds, general vessel form is well known from other sites. Figure 19 illustrates a typical Huron collared vessel. The present study looks only at analysable rimsherds, as defined below, and excludes vessels thought to be the work of juvenile potters. Other classes of sherds are not included in this analysis either because a) they show little variation and so are relatively uninformative (ie. bodys sherds, shoulder sherds); b) they are highly variable but occur with relatively low frequency (ie. rim castellations, shoulder castellations, handles); or c) they are too fragmentary to be easily evaluated (ie. fragmentary rims, neck sherds, unanalysable sherds).

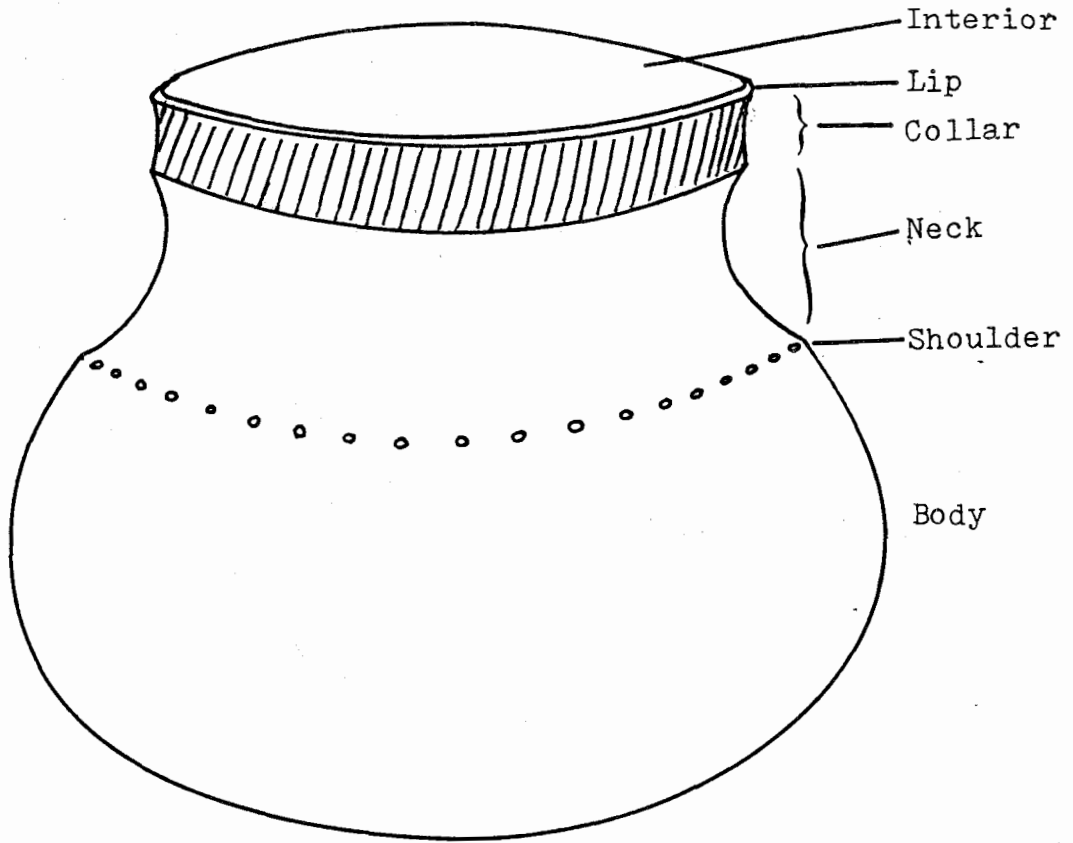
4.0.1 Analysable rimsherds

To be considered analysable, rimsherds must include the following characteristics:

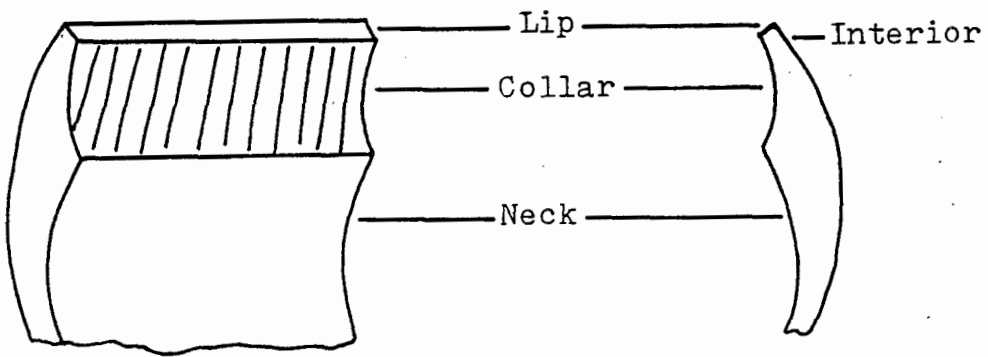
1. An intact interior extending from the lip down as far as the base of the collar (or in the case of collarless sherds, extending downward for at least 10 mm);
2. An intact lip, sufficient in extent to allow determination of lip shape and nature of decoration, if

Table 6: Pottery sherd counts.

Analysable rim	1422
Fragmentary rim	2403
Neck	2429
Neck/shoulder	1152
Shoulder	1115
Body	14435
Basal	36
Handle	2
Unanalyzable	92783
TOTAL	<u>115777</u>



(a)



(b)

Figure 19: Typical Huron collared pot.

present;

3. An intact collar, (or in the case of collarless sherds, an intact exterior to at least 15 mm below the lip); and,
4. A section of neck sufficient to allow determination of the presence or absence of neck decoration.

In order to establish the amount of neck required to make the latter determination, a sample of 120 neck-decorated sherds was randomly selected. The vertical distance between the base of the collar and the beginning of neck decoration was measured and in no case was it over 7 mm (it was usually much less). It was decided that at least 3 mm of decoration was needed to confidently detect its presence, thus resulting in a 10 mm requirement. It is important to note that the above definition of analysable rims creates a bias against vessels with high collars, since sherds of such vessels must be larger to satisfy the requirements than those of low collared or collarless vessels. In all cases, the section of rim being considered must be sufficiently distant from any castellation to be unaffected by it in terms of rim form and decorative motif. Castellated sherds can be used provided they include a section of rim which meets this condition.

4.1 Method of analysis

Pottery has traditionally been the primary focus of Iroquoian archaeology in Ontario. While recent years have seen an increasing interest in other aspects of Iroquoian archaeology, particularly settlement pattern data, pottery continues to be of major importance in tracing temporal and cultural relationships between sites.

The study of Iroquoian pottery has undergone considerable change over the last half century beginning with generalized descriptions (Boyle 1910, Wintemberg 1946); then formalized typologies (MacNeish 1952, Emerson 1954, Noble 1968), and, in recent years, attribute analyses (White 1961, Wright 1966, Ramsden 1977b, Pendergast 1981). The history of this development has been discussed by others and will not be repeated here. However, the rationale behind the recent shift from typological studies to attribute studies does bear re-examination. This shift began in the 1960's (White 1961, Wright 1966) with the recognition that type analyses, as they had been employed by Iroquoianists, were providing what appeared to be relatively simple explanations of what were probably complex events. In particular, late prehistoric developments in Southern Ontario were interpreted as a south to north migration ending in the areas known historically as Huronia and Petunia. While it was recognized that the typology developed by MacNeish (1952), and added to by Emerson (1954, 1959), Wright (1966), Noble (1968), and others, had played an important role,

especially in demonstrating the probability of in-situ Iroquoian development and in providing a ceramically-based chronological framework, a growing consensus felt that the type approach had several weaknesses, including:

1. It masked too much data. By including a range of variation within a single type, the details of that variation were not available for study, leading to relatively gross descriptions of ceramic assemblages.
2. Type determination was often subjective. Many researchers differed over the taxonomic assignments of particular specimens, or the definition and validity of new types. Alternatively, some types were viewed as unnecessary and were deleted and subsumed under another type. In other words, some researchers were 'splitters', while others were 'lumpers'.

The use of individual ceramic attributes is seen as a method to overcome some of these difficulties. Attribute studies provide more detailed tabulations of ceramic assemblage variability. Each specimen can be described more fully (in terms of the attributes as defined), incorporating individual variation and avoiding the subjective assignment of types.

Despite the apparent advantages of attribute analyses, they have not provided a panacea for pottery studies. Some of the problems include the following:

1. While the recording of attributes for each specimen enables the analyst to quantify variation more

completely, it tends to produce such a large volume of data that the analysis becomes unwieldy. This difficulty is overcome, to some extent, through the use of computers.

2. The communication of attribute data to other researchers is more complicated, sometimes requiring several tables and graphs to convey, albeit more precisely, the information that a type analysis could convey in a single table.
3. Subjectivity is still present, both in terms of how an attribute is defined and how it is interpreted. One difficulty in defining attributes is that they can always be further broken down (i.e. 'lumping' and 'splitting'). For example, where one analyst may treat all forms of incising the same ('lumper'), another ('splitter') may record numerous forms (e.g. see Pratt 1980). While 'splitter' analyses can often be translated into 'lumper' terms, the reverse is not true and so attribute studies are not always fully comparable.

Subjectivity in interpreting attributes can further be caused by poorly defined methods. While this can be largely corrected by more careful and precise descriptions, assignment of some attribute states is inherently subjective (ie. distinguishing between different techniques of applying decoration) and so will always be susceptible to inter-observer bias, depending on researcher experience.

4. There is some disagreement over which attributes to record (see Pratt 1980). This is due, in part, to the varied goals of different archaeologists, but also to the fact that we still do not understand the correlations with time and space of many ceramic attributes. Most analyses are, in part, exploratory, recording attributes whose utility may not be at first apparent or which may eventually prove meaningless. However, only by recording those attributes which appear, sometimes only intuitively, to offer potential for yielding information beyond description, can a data bank be built up to allow research and testing for temporal and cultural patterning. Obviously, the number of possible attributes to be recorded is very large -- in theory infinite -- so that some consensus is required to achieve comparability between researchers. As a common beginning point, it is logical that, at least, those attributes considered by MacNeish (1952) in formulating his typology be recorded in a standardized format.

These problems are merely symptomatic of the developing state of attribute analysis in Iroquoian ceramic studies. Each will be largely or wholly overcome with further research. Thus, attribute analysis appears to hold greater potential than type analysis as an analytical technique and, while typologies can always be developed from attribute data, the reverse is much more difficult.

The most explicit attempt to standardize an attribute analysis of Huron ceramics was by Ramsden (1977b). He provided clear definitions of a number of attributes and explored the apparent behaviour of each through time and space, arriving at new interpretations of some aspects of Huron prehistory. The attributes used by Ramsden were largely the same attributes considered by MacNeish (1954) in his typology -- they were simply taken out of their typological contexts and evaluated individually. The present study makes use of Ramsden's coding system because:

1. It is well documented;
2. A large number of sites have already been analysed using this method; and
3. It is the method being applied to other sites in the upper Trent Valley (e.g. Nasmith 1981; Ramsden 1977a).

Pottery attributes were translated into numeric form and entered into computer files to aid in data manipulation. 'MIDAS' (Fox and Guire 1976), a package of statistical techniques available through the Michigan Terminal System (MTS) at Simon Fraser University, was used as the main analytical tool.

4.2 Sherd Quantification

There are two primary methods of quantifying pottery sherds:

1. By number of sherds; and,

2. By number of vessels represented by those sherds.

The question of which method to use is an important one because of the possibility of biasing a sample with unusually large numbers of sherds from individual vessels. The matter has been argued in the literature for some time (White 1961, Ramsden (1977b), Pearce 1979, Finlayson and Pihl 1980). It seems clear that when time permits, it is preferable to use vessels, rather than sherds, as the unit of analysis and this procedure is followed here. This means that when two or more sherds can be determined to have come from the same vessel (either through a physical match or because the decoration and metric attributes are virtually identical) they are counted only once. It must be remembered, however, that they remain pottery fragments rather than complete vessels and this introduces its own biases. First, as mentioned above, low collared vessels are more likely to produce analysable rim sherds than are high collared vessels. Second, attributes are not always consistent around the circumference of a vessel. For instance, simple oblique decoration may extend along a collar for several centimeters and then change direction, technically producing an opposed motif. Therefore, a sherd from such a vessel may be classified either as having a simple collar motif or an opposed motif depending on which section of the collar it includes. Moreover, larger sherds are more likely to include a section of opposed motif than smaller sherds. In this sense it is the motif of the sherd,

rather than of the vessel, that is being recorded.

These problems are most important when comparing heavily ploughed sites, where average sherd size may be small, with unploughed sites where sherds tend to be larger.

4.3 Technology

A detailed discussion of the ceramic technology employed at Coulter is beyond the scope of this report. Briefly, Coulter pots are made from clays of probably local origin which have been mixed with varying amounts of grit temper, primarily clasts of quartz, feldspar and mica, up to 10 mm in size, but more commonly under 3 mm. Temper particle size and density varies, with larger, thick-walled pots tending to have larger temper fragments and more of it. Firing is thought to have been accomplished in open hearths following thorough air drying. Firing produced a variety of colours depending on peculiarities of the clay, duration and intensity of firing, extent of fire blackening (i.e. soot accretion) and, the addition of colour-altering agents such as iron oxide sometimes applied to the exterior as a slip. There are no coil-breaks among Coulter sherds.

Although terminology used for the various methods of pottery decoration is common to most Iroquoian literature, brief definitions are provided below.

4.3.1 Incising

This refers to the drawing of a pointed object across the surface of the wet clay leaving a line, the width and depth of which depends on the shape of the pointed object, the plasticity of the clay and the amount of pressure exerted. Incised lines can be identified by the presence of striations paralleling the line and sometimes by an irregular ridge along both edges of the line where clay has been pushed up by the incising tool.

4.3.2 Miscellaneous Linear Stamping

Lines are also produced by impressing the wet clay with the edge of a tool (perhaps a stone or bone fragment), without drawing it across the clay. In linear stamping, tools are used which leave narrow, elongate impressions. Again, the width, depth and length of the lines depend on the shape of the stamping instrument, plasticity of the clay and amount of pressure applied. Stamped lines lack striations (unless such striations were present on the stamping tool) and lateral ridges typical of incised lines, and can usually be distinguished by the impressions left by tiny imperfections in the edge of the stamping tool which are repeated in several adjacent stamped lines.

Stamping is a relatively uncommon technique at Coulter and so several varieties, which might be differentiated in assemblages with a higher frequency of stamping, are subsumed under this single term (i.e. dentate stamp, rocker

stamp, ridge stamp, finger-nail stamp).

4.3.3 Punctates

Punctates are similar to linear stamps in that they are produced by impressing an object into wet clay. They differ in not being linear but, rather, being roughly round.

"Circular punctates", a special variety, appear to be produced with a hollow, tubular object, perhaps a hollow reed or the shaft of a small longbone.

4.3.4 Cording

This term applies to a group of techniques in which cordage, probably wrapped around a stick or paddle, is impressed into, or wiped over the surface of the wet clay. The former technique leaves fairly clear impressions of the cord while the latter method serves mainly to roughen the surface of the vessel.

4.3.5 Modelling

This is a generalized term applied to the manipulation of wet clay to produce desired shapes.

4.3.6 Pinching

As the term implies, this involves pinching wet clay between two fingers, and is most commonly used to produce large notches on the collar.

4.4 Cultural affiliation

It is clear from a comparison of the Coulter rims with those from other Southern Ontario sites that a small percentage have no antecedent forms in the Huron archaeological tradition. Instead, they are clearly derived from the St. Lawrence Iroquoian archaeological tradition of southeastern Ontario and southern Quebec. This includes the distinctive 'corn-ear motif', several 'complex collar motifs', collarless sherds with 'criss-cross' lip decoration, and the presence of circular punctates (e.g. Wintemberg 1936, Pendergast (1966,1973,1981)). Figure 20 illustrates typical examples of both Huron and St. Lawrence Iroquoian sherds found at Coulter.

The St. Lawrence Iroquoian sherds are analysed separately to allow characterization of their distribution across the site. However, because this includes only those sherds which are distinctly St. Lawrence Iroquoian in style, it is probably a conservative estimate of their overall frequency in the assemblage.

4.5 Huron ceramics

This section deals with all rims which are not distinctly St. Lawrence Iroquoian in style, the latter are discussed in a subsequent section. Table 7 summarizes the rimsherd attribute data. Note that attribute frequencies are not always calculated as a percentage of total rims but,

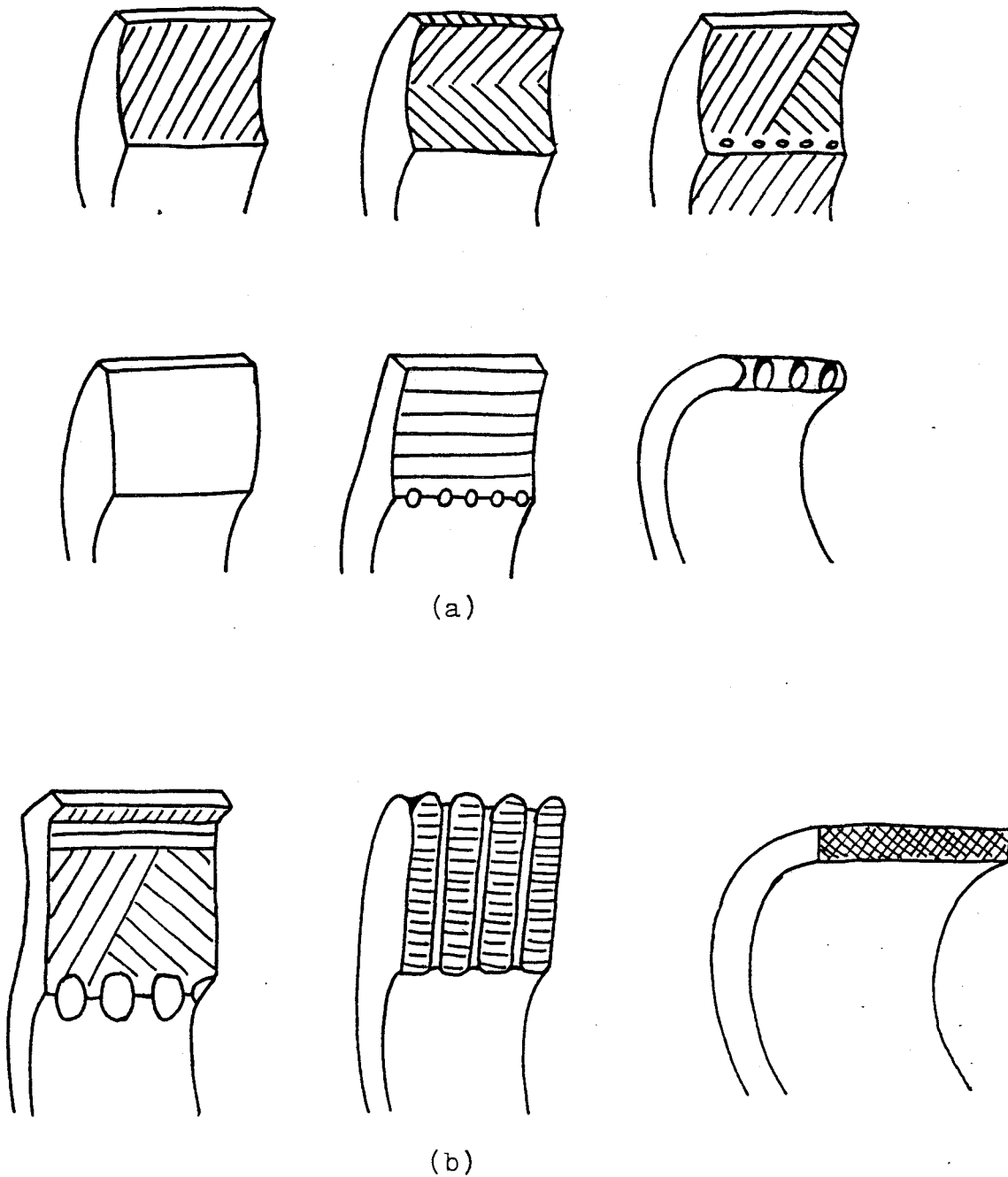


Figure 20: Typical (a) Huron and (b) St. Lawrence Iroquoian rims found at Coulter.

	Huron	St. Lawrence	Both
1. n=	1382	40	1422
A. Collarless plain (%1)	2.2	5.0	2.3
B. Collarless decorated (%1)	0.7	2.5	0.8
C. Collared plain (%1)	6.1	-	5.9
D. Collared decorated (%1)	91.0	92.5	91.0
a. Incised (%D)	66.3	70.3	66.4
b. Stamp (%D)	14.1	5.4	13.8
c. Mixed Stamp (%D)	3.0	8.1	3.2
d. Other (%D)	0.2	-	0.2
e. Indeterminate (%D)	16.4	16.2	16.4
E. Collar motifs (%D)			
a. Simple	68.1	-	66.2
b. Opposed	10.8	2.7	10.6
c. Crossed	6.1	-	6.0
d. Hatched	6.1	-	6.0
e. Horizontal	4.3	10.8	4.5
f. Complex	2.0	59.5	3.6
g. Plain	0.6	-	0.6
h. Interrupted	1.4	-	1.3
i. Other	1.4	27.0	2.1
F. Neck Decoration			
a. Total (%D)	34.8	8.1	34.0
b. Horizontal (%a)	12.8	5.4	13.2
c. Horizontal?/ (%a)	2.3	2.7	2.5
d. Simple (%a)	38.9	-	38.6
e. Opposed (%a)	30.4	-	30.2
f. Horizontal/simple (%a)	4.6	-	4.5
g. Horizontal/opposed (%a)	3.9	-	3.9
f. Indeterminate motif (%a)	7.1	-	7.0
G. Secondary decoration (%1)			
a. Interior	9.0	65.0	10.6
b. Lip	7.0	22.5	7.5
c. Frontal lip	3.8	17.5	4.1
d. Upper punctates	3.1	37.5	4.1
e. Lower punctates	0.7	-	0.6
f. Dividing punctates	0.9	22.5	1.5
g. Basal notches	7.8	65.0	9.4
h. Sub-collar decoration	3.5	-	3.4
H. Interior profile (%1)			
a. Convex	57.5	2.5	56.4
b. Concave	17.3	20.0	16.9
c. Straight	8.8	7.5	8.8
d. Concave-convex	8.0	2.5	7.9
e. Convex-concave	8.2	57.5	9.6
f. Other	0.9	7.5	1.1
I. Exterior collar form (%C+D)			
a. Convex	8.6	16.2	8.9
b. Concave	80.8	64.9	74.5
c. Straight	15.9	10.0	15.7
d. Other	1.5	5.0	1.6
J. High collars (%C+D)	3.6	81.1	5.7

Table 7: Coulter rimsherd attribute frequency data.

rather, as a percentage of the appropriate ware category as described below (e.g. collar motifs are expressed as a percentage of collarred decorated ware).

Following Ramsden (1977b:77), the sherds are divided into four 'ware' categories based on general rim form (i.e. the presence or absence of a collar) and general decorative form (i.e. the presence or absence of a major exterior zone of decoration). The resulting categories are:

1. Collarless plain ware,
2. Collarless decorated ware,
3. Collared plain ware, and
4. Collared decorated ware.

4.5.1 Collarless plain ware

Collarless plain sherds lack a collar and any major exterior decoration, although they can bear secondary decoration, as described below. As on most Huron sites, this type of ware is relatively uncommon (2.2%). Examples of collarless plain sherds are illustrated in Figure 21a.

4.5.2 Collarless decorated ware

Collarless sherds with a major exterior zone of decoration are rare at Coulter (0.7% of Huron rims), again, typical of Huron sites. Motifs are similar to those found on collared decorated rims. Examples of collarless decorated rims are illustrated in Figure 21b.

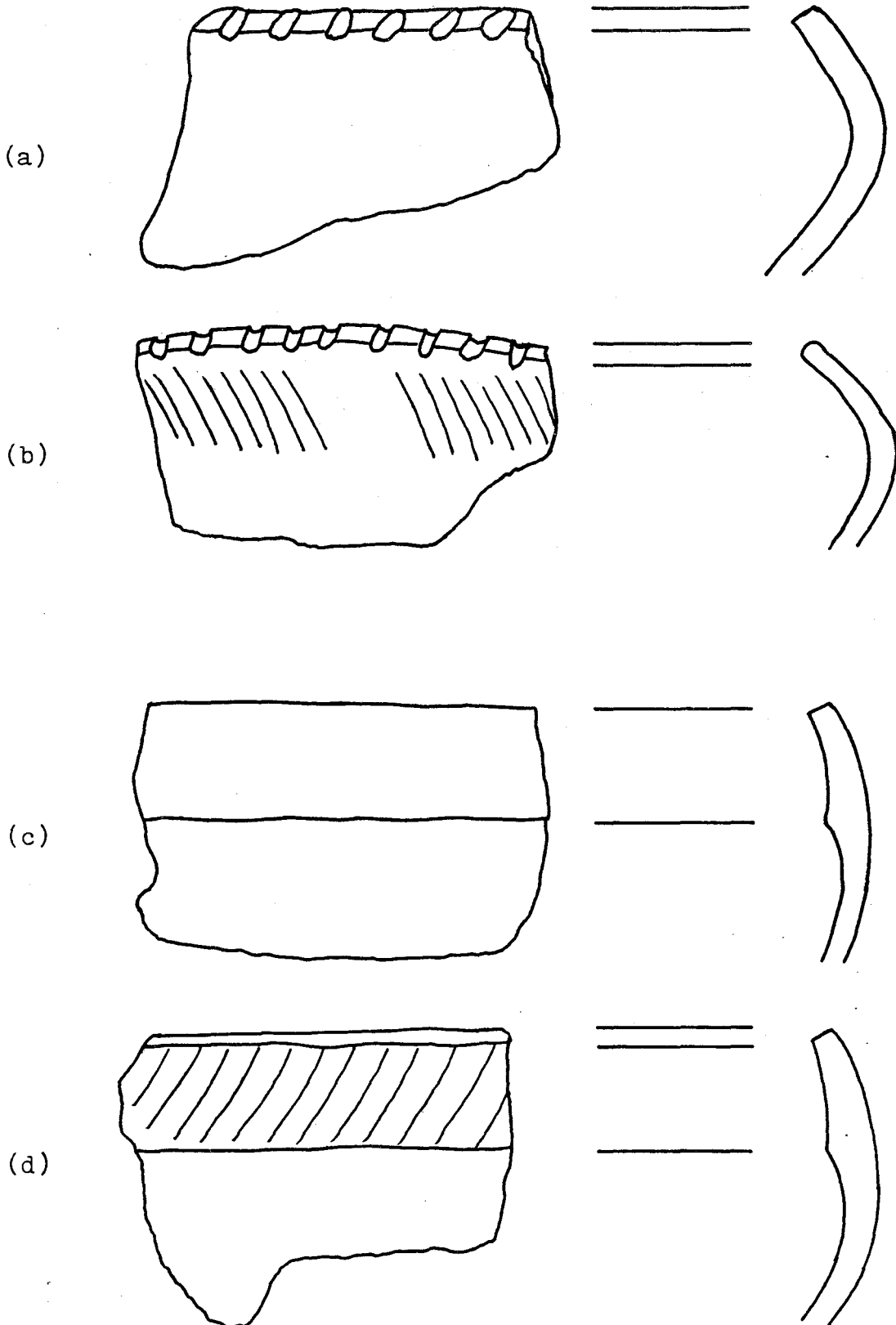


Figure 21: Huron pottery ware types: a) collarless plain, b) collarless decorated, c) collared plain, and d) collared decorated.

4.5.3 Collared plain ware

These are collared rims which lack any major exterior decoration but can bear secondary decoration (Figure 21c). They account for 6.1% of Huron sherds.

4.5.4 Collared decorated ware

The great majority of Huron sherds (91.0%) fall into this category. In addition to having a collar, they are distinguished by the presence of major decoration on the collar, neck, or both. Examples are illustrated in Figure 21d.

4.5.5 Major collar decoration

Major collar decoration is present on 99.4% of the collared decorated rims, the rest are plain. Major collar decoration is distinct from secondary collar decoration which is described below. In total, 156 different collar motifs are found on the Huron collared vessels. These are divided into nine categories based on Ramsden 1977b. Figure 22 illustrates the most common motifs in each category.

4.5.5.1 Simple

Simple motifs consist of a band of parallel lines running vertically or obliquely from top to bottom of the collar. This results in only three varieties of simple motif: 1) oblique lines running right to left as they go down the collar, 2) oblique lines going from left to right, and 3)






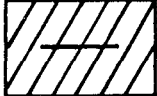














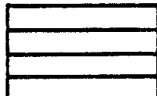
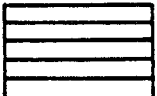
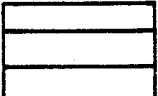
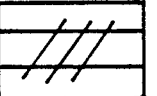
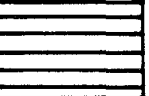


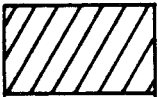


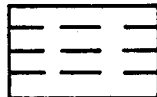
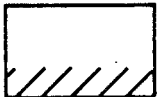
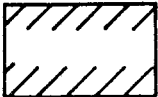
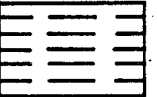


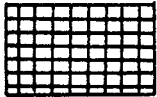
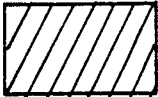

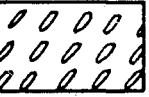
Motif Type					
Simple (68.1%)	(% of type) 68.5	16.4	15.2		
Crossed (6.1%)					
	32.5	18.2	11.7	10.4	10.4
Hatched (6.1%)					
	19.5	15.8	9.1	7.8	6.5
Opposed (10.8%)					
	11.0	9.6	6.6	5.9	5.1
Horizontal (4.6%)					
	20.4	18.5	14.8	11.1	3.7
Complex (2.0%)					
	8.0	8.0	8.0	8.0	8.0
Interrupted (1.4%)					
	23.5	17.6	11.8	5.9	5.9
Miscellaneous (1.4%)					
	17.6	11.8	11.8	5.9	5.9

Figure 22: Examples of major Huron collar motifs at Coulter.

vertical lines (Figure 22a). Separation into these categories can be somewhat subjective since variation in the orientation of the lines makes the categories run into each other. A sherd may have some lines which are vertical and some which are slightly oblique. Assignment to the appropriate category in such cases is based on a judgement of what was thought to be the intended orientation -- an unavoidably subjective judgement, but affecting only a minority of specimens. In an attempt to objectify the categorization of simple motifs, the angle of the lines was measured to the nearest 5 degrees and only those within 2.5 degrees of vertical were classified as such. Simple motifs account for 68.1% of Huron collared decorated ware. There is a prevalence of right-to-left motifs (68.5%).

4.5.5.2 Crossed

Crossed motifs are otherwise simple motifs which have one or more added horizontal lines of limited length within a band of simple decoration (Figure 22b) Crossed motifs account for 6.1% of the collar motifs.

4.5.5.3 Hatched

Hatched motifs are similar to crossed motifs except that the crossing lines are oblique rather than horizontal (Figure 22c). Hatched motifs occur with the same frequency as crossed motifs (6.1%).

4.5.5.4 Opposed

Opposed collar motifs are made up of sections of parallel lines which change orientation periodically as one proceeds horizontally around the collar (Figure 22d). The frequency with which lines change direction ranges from occasional to sufficiently frequent to produce opposing triangular areas of parallel lines. Opposed motifs account for 10.8% of all Huron collar motifs.

4.5.5.5 Horizontal

Horizontal motifs consist of one or more horizontal lines sometimes accompanied by one or more oblique or vertical lines (Figure 22e). Horizontal motifs occur with a frequency of 4.3%.

4.5.5.6 Complex

Complex motifs consist of a single band of simple or opposed decoration, together with one or more continuous horizontal lines running either above, below, or both above and below the band of decoration (Figure 22f). They account for only 2.0% of all Huron collar motifs.

4.5.5.7 Interrupted

Interrupted motifs can consist of either a single band of simple decoration occupying less than half of the vertical extent of a collar, two horizontal bands of simple decoration separated by an undecorated horizontal band, or horizontal lines separated by undecorated vertical bands

(Figure 22g). It is a relatively uncommon motif (1.4%).

4.5.5.8 Miscellaneous

This category includes those motifs which do not fit into one of the above categories (Figure 22h), accounting for 1.4% of the collar motifs.

4.5.6 Collar decorative technique

There are two techniques by which major collar decoration was applied -- incising (66.3%) and stamping (14.1%). Occasionally (3.0%), these two methods occur together (mixed stamp).

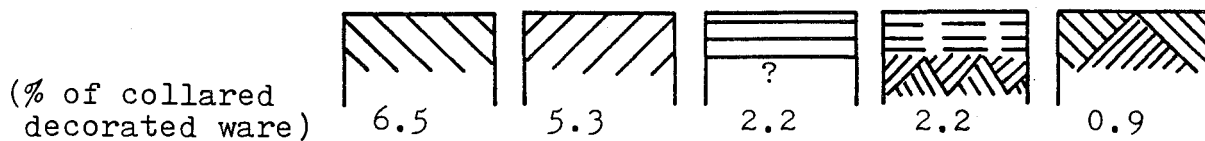
4.5.7 Neck decoration

Because most rimsherds do not include the entire neck down to the shoulder, analysis of neck decoration is based largely on fragmentary motifs. Classification is similar to that used with collar motifs: simple, opposed, horizontal, and combinations of these three. Figure 23a illustrates the most common neck motifs. Neck motifs are found on 33.7% of the Huron collared decorated sherds.

4.5.8 Secondary decoration

Secondary decoration occurs on the rim interior (just below the lip), lip, collar, neck, and shoulder. The most common motifs of each type are illustrated in Figure 23b.

a) Neck decoration



b) Secondary decoration

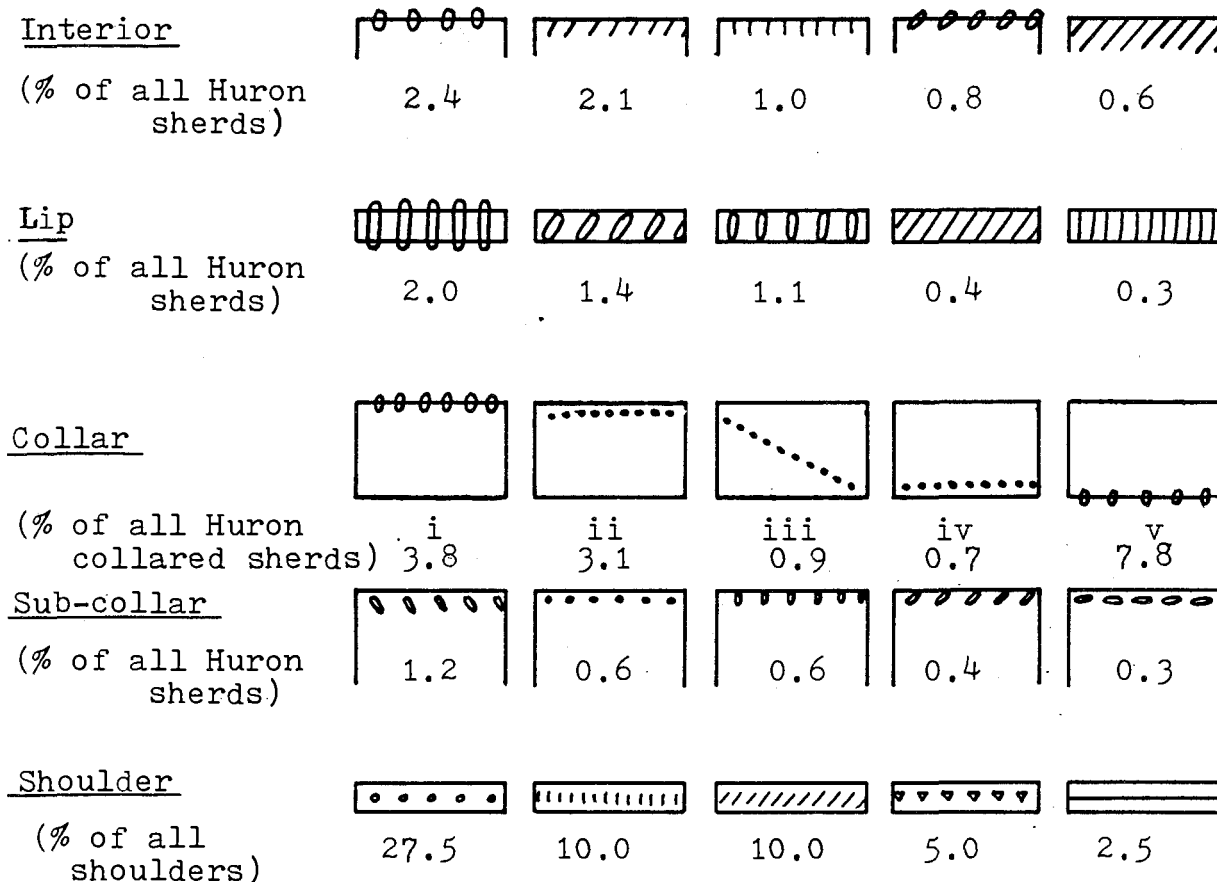


Figure 23: Examples of Huron (a) neck decoration, and (b) secondary decoration.

4.5.8.1 Interior decoration

Interior decoration occurs on 9.0% of all Huron rimsherds. It usually takes the form of a narrow band of small lines or elongate notches just below the lip.

4.5.8.2 Lip decoration

Lip motifs are similar to interior motifs, usually consisting of a narrow band of small lines or elongate notches. They occur on 7.0% of the assemblage.

4.5.8.3 Secondary Collar Decoration

Secondary decoration, usually in the form of notches or punctates, may occur in five locations on the collar

1. Frontal lip notching where lip and collar exterior meet (Figure 23b:i);
2. Upper punctates along the top of the collar just below the lip, but not intersecting the lip (Figure 23b:ii);
3. Dividing punctates consist of a row of punctates running diagonally from the top to the base of the collar (Figure 23b:iii). They are situated so as to divide sections of collar motif, usually opposed or complex motifs;
4. Lower punctates form a horizontal row along the base of the collar, but do not cross the junction between collar the neck (Figure 23b:iv), and
5. Basal notching at the junction between collar the neck (Figure 23b:v).

Secondary collar decoration is present on 12.5% of Huron

collared sherds.

4.5.8.4 Sub-collar decoration

The majority of sub-collar decoration takes the form of punctates, linear stamps, or short incisions (gashes) just below the base of the collar but not intersecting the junction of collar and neck. Rarely, secondary decoration is located further down on the neck, either as horizontal or diagonal rows. Only 3.5% of the sherds have sub-collar decoration.

4.5.8.5 Shoulder Decoration

Only 43 sherds have intact shoulders and of these, 62.8% have shoulder decoration. Figure 23b illustrates most common varieties. For the most part, shoulder decoration can be considered a form of secondary decoration inasmuch as it usually comprises a row of punctates, stamps or gashes.

4.5.9 Morphological attributes

4.5.9.1 Collared sherds

Exterior, interior and lip profiles are recorded individually. Figure 24 illustrates the most common of these. Most often, rims have a concave exterior collar profile, a convex interior profile, and a flat lip. Figure 25 shows the distribution of collar height and lip thickness. Collars 30 mm or greater in height are considered 'high collars' and account for 6.3% of all Huron collared

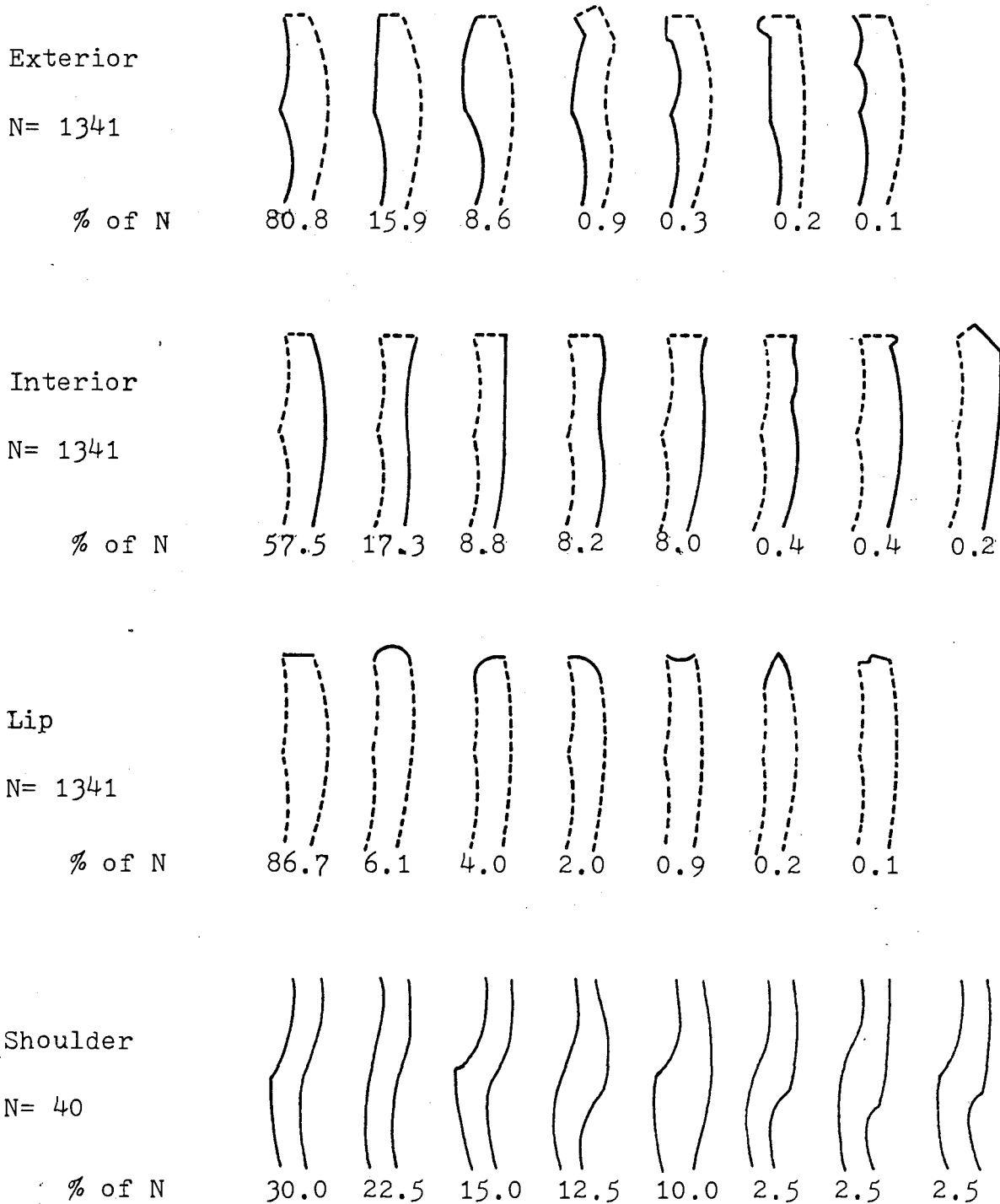


Figure 24: Examples of Huron collared rim a) exterior, b) interior, c) lip, and d) shoulder profiles.

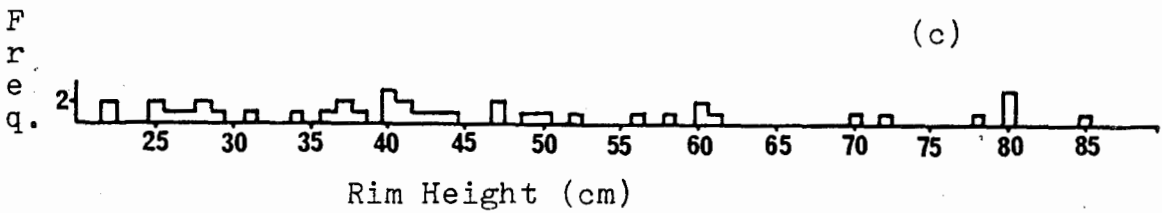
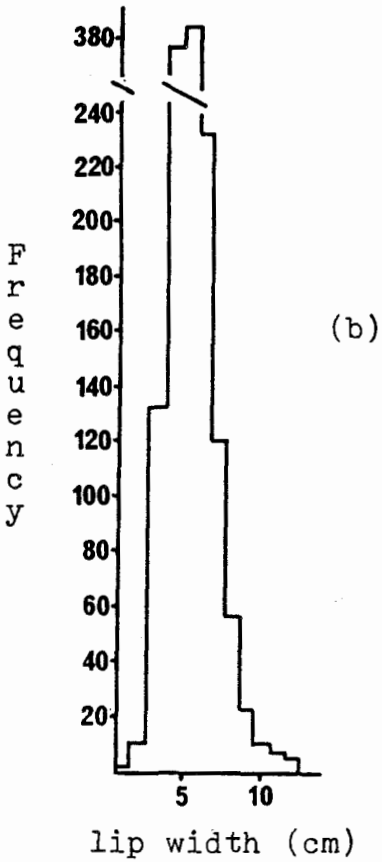
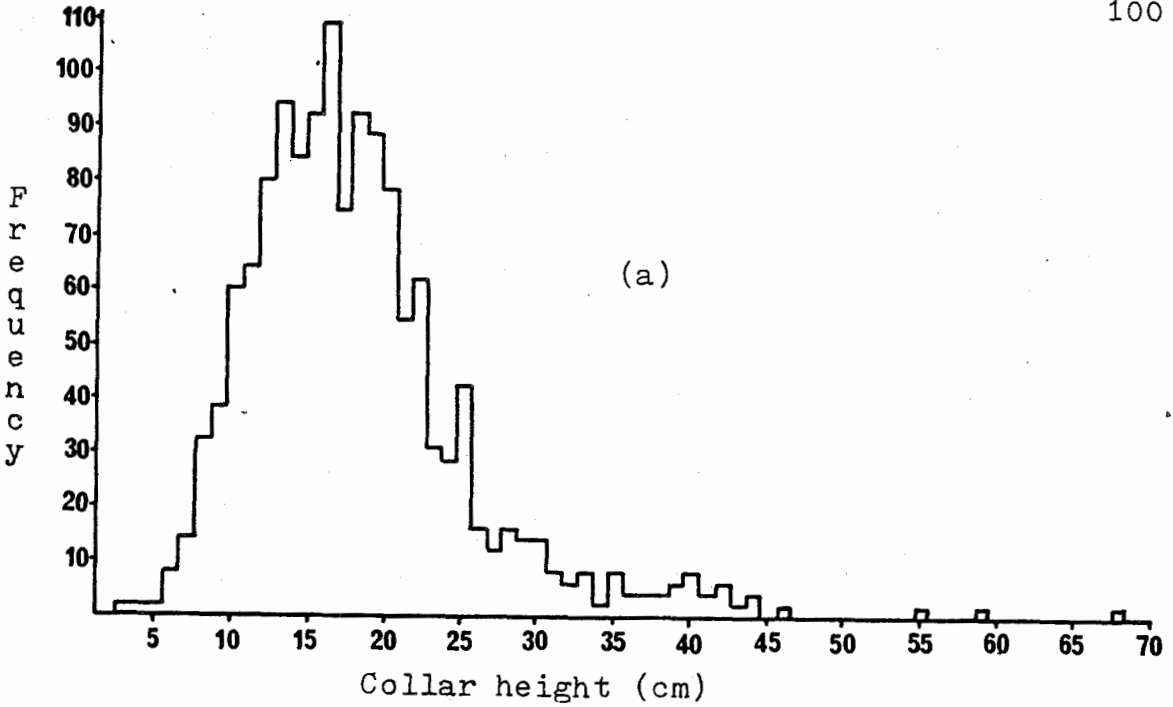


Figure 25: Huron collared rim metric data.

rims

4.5.9.2 Collarless sherds

There are 41 Huron collarless sherds. Above the shoulder these invariably have concave exteriors and convex interiors. Most have either flat (61.5%) or round (33.3%) lips which are thicker than those on collared sherds (mean=7.8 mm; range 4-17 mm; Std. Dev 3.2 mm).

4.5.9.3 Shoulder form

Although shoulder sherds were not analysed, 43 rims are sufficiently intact to include part of the shoulder. Shoulder profiles, based on this limited sample, are illustrated in Figure 24. Both carrinated and plain shoulder forms occur, with the former being more common. Interior channeling of the shoulder is infrequent (7.5%). Rim height, the distance from the shoulder to the lip, averages 47.9 mm.

4.6 St. Lawrence Iroquoian rims

The sample includes 40 rims which are of distinctive St. Lawrence Iroquoian style.

4.6.1 Collarless plain ware

There are only two collarless plain sherds (5.0%), both distinguishable as St. Lawrence Iroquoian by the presence of criss-crossed lip motif (Figure 26a).

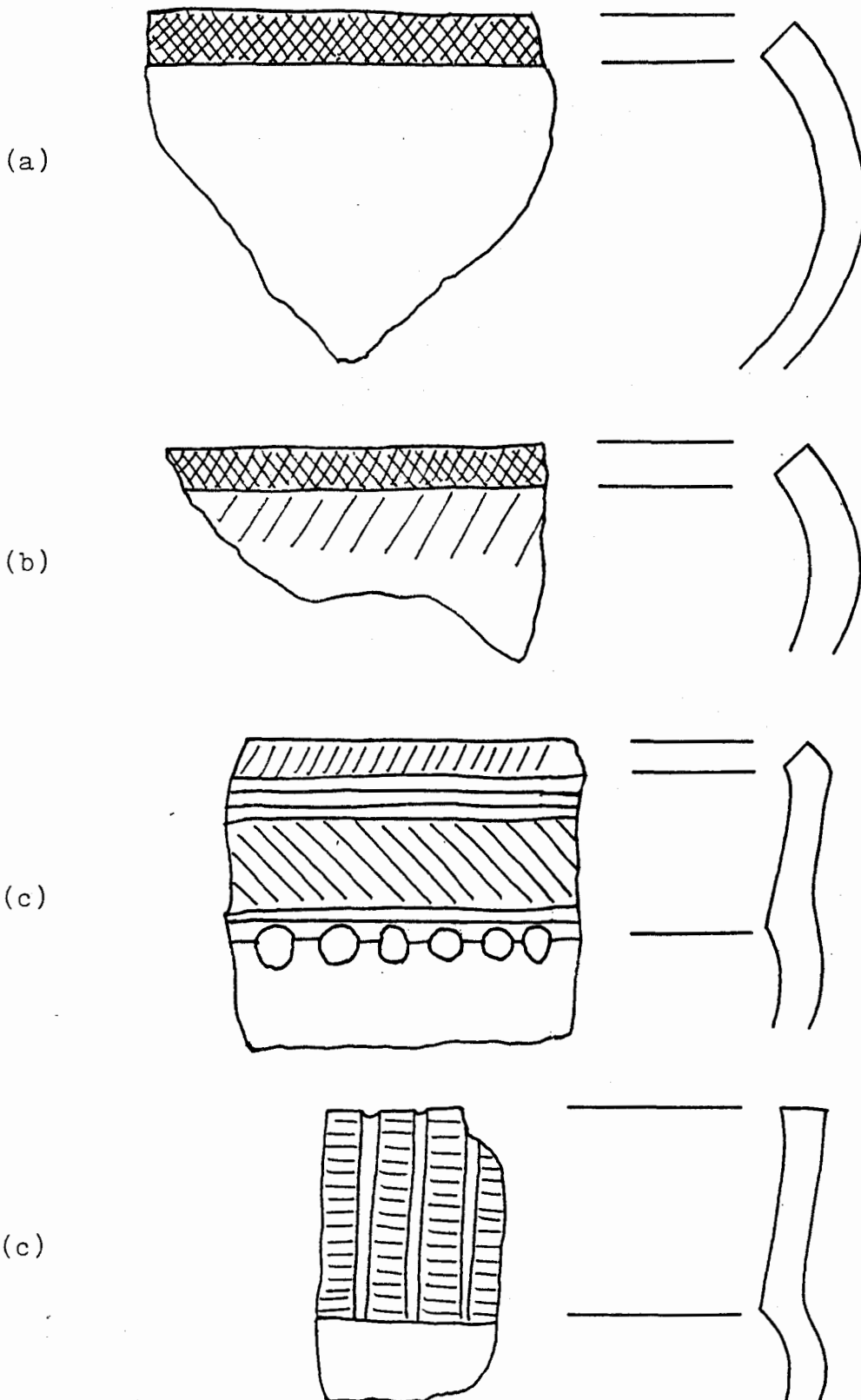


Figure 26: St. Lawrence Iroquoian pottery ware types: a) collarless plain, b) collarless decorated, and c) collared decorated.

4.6.2 Collarless decorated ware

The single specimen (2.5%) is decorated with an exterior band of oblique lines just below the lip. As with collarless plain ware, it bears criss-cross lip motif (Figure 26b).

4.6.3 Collared plain ware

No collared plain ware could be identified as St. Lawrence Iroquoian.

4.6.4 Collared decorated ware

Like Huron sherds, most St. Lawrence Iroquoian rims bear major exterior decoration (Figure 26c).

4.6.5 Collar Motifs

Figure 27 illustrates most of the motifs. No simple, crossed, hatched, or interrupted motifs occur because these are not distinctive St. Lawrence Iroquoian styles.

4.6.5.1 Opposed

A single sherd with opposed motif is considered St. Lawrence Iroquoian because it has a 'high collar', frontal and large basal notches, and interior decoration, which is a typical St. Lawrence Iroquoian combination (Pendergast 1980a).

Motif
Type

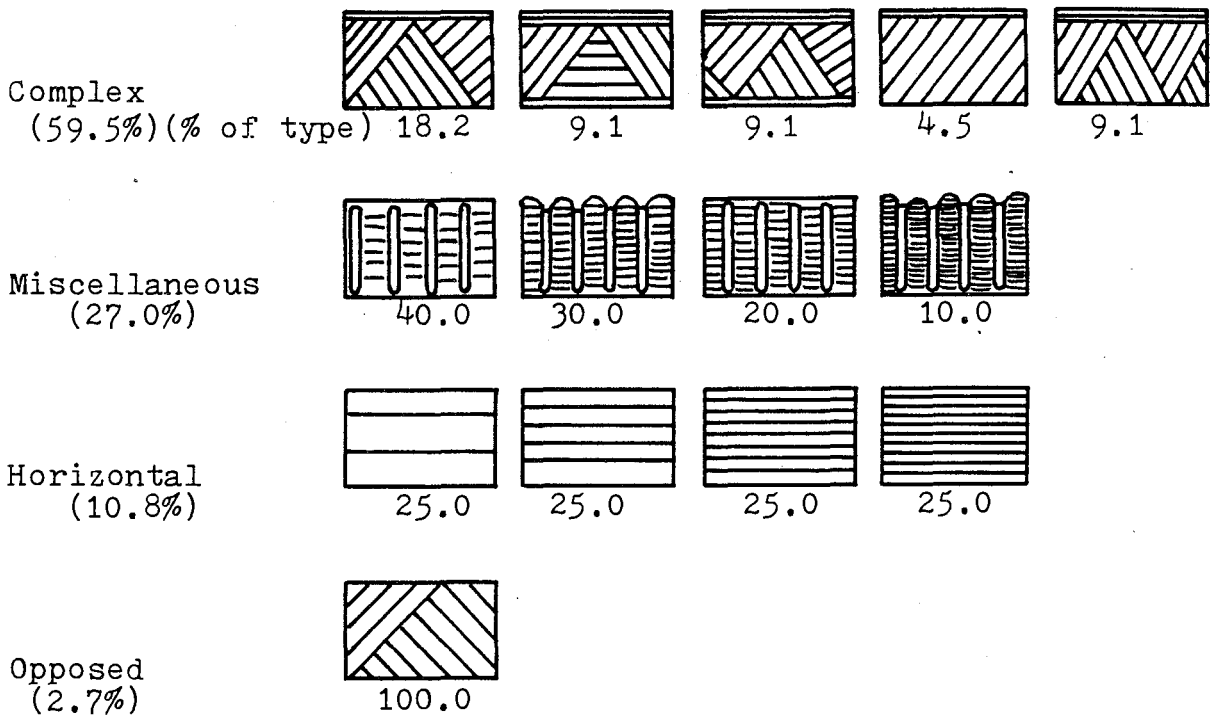


Figure 27: Examples of St. Lawrence Iroquoian major collar motifs at Coulter.

4.6.5.2 Horizontal

There are four rims (10.8%) with horizontal motifs. They occur with high collars, frontal and large basal notches, and interior decoration.

4.6.5.3 Complex

Complex motifs predominate (59.5%), unlike the Huron assemblage where they are rare. High collars, large basal notches, and interior decoration are usual.

4.6.5.4 Miscellaneous

All of the sherds in this category (27.0%) are of the 'corn-ear' motif, perhaps the most distinctive of all St. Lawrence Iroquoian pottery styles. It consists of deep vertical lines, less than 1 cm apart, with from 6 to 20 short horizontal lines occupying the area between the lines. In some cases, the top of the collar is 'scalloped' along the junction of lip and collar. Secondary decoration is less common than with other motifs.

4.6.6 Decorative technique

Incising is the main technique of applying primary collar decoration. Stamp and mixed stamp occur with lower frequency (5.4% and 8.1% respectively).

4.6.7 Neck decoration

Only three St. Lawrence Iroquoian sherds have neck decoration, in all cases horizontal varieties.

4.6.8 Secondary decoration

Secondary decoration is, for the most part, similar to that found on Huron vessels, however, it occurs with much higher frequency, particularly interior decoration and basal notches. Also, basal notches are distinctive in being much larger than those of Huron sherds and are usually produced by 'pinching'.

4.6.9 Morphological attributes

Figure 28 illustrates the most common interior, exterior, and lip profiles. Typical St. Lawrence Iroquoian collared sherds have a concave exterior collar profile, a convex/concave interior profile, and a flat lip. The three collarless sherds all have concave exteriors, convex interiors and flat lips. The two intact shoulders are carinated, one with a channeled interior. Figure 29 presents metric data on collar height, lip width, and rim height. It can be seen that these attributes are consistently larger than those in the Huron sherds. Moreover, a large majority of collars (83.3%) fall into the 'high collar' category.

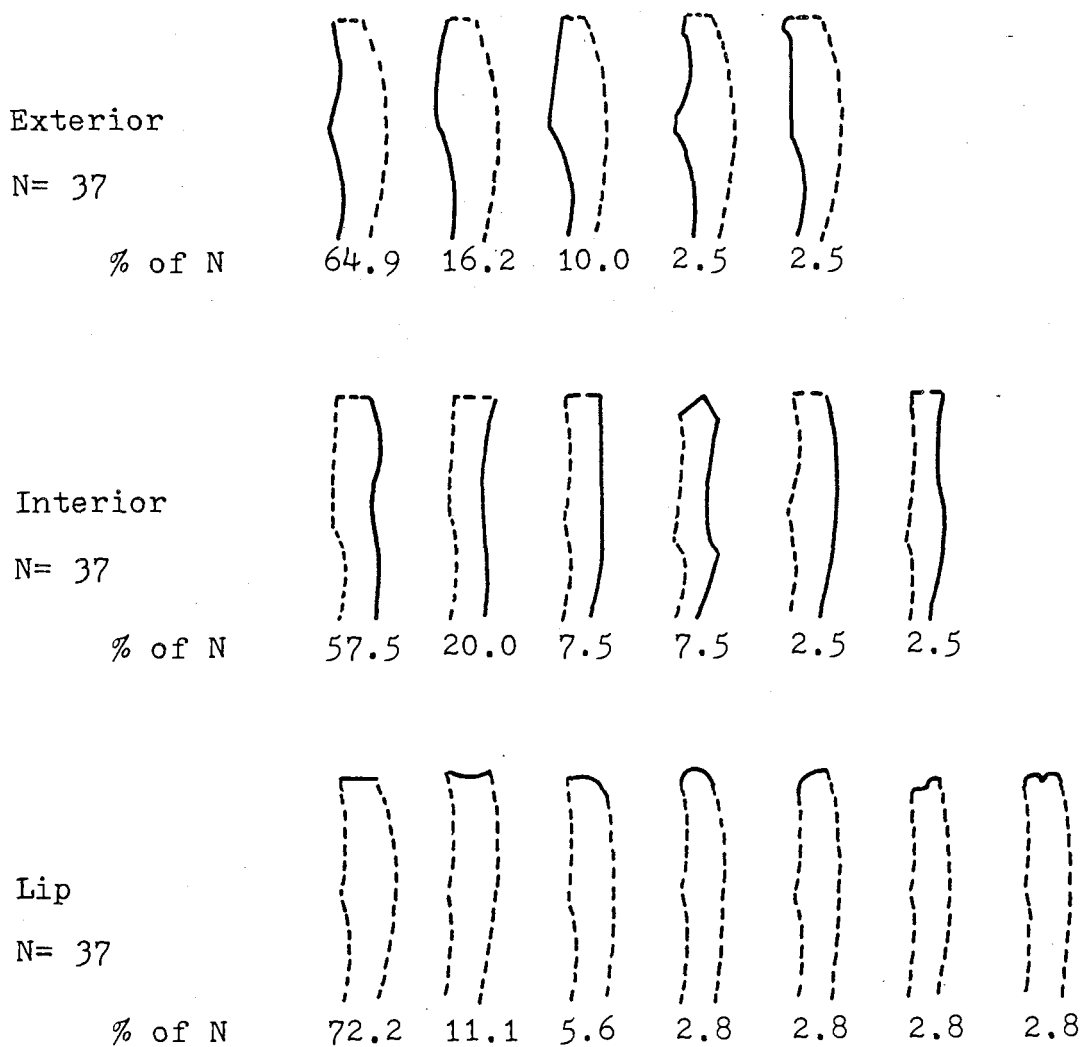


Figure 28: Examples of St. Lawrence Iroquoian collared rim a) exterior, b) interior, and c) lip profiles.

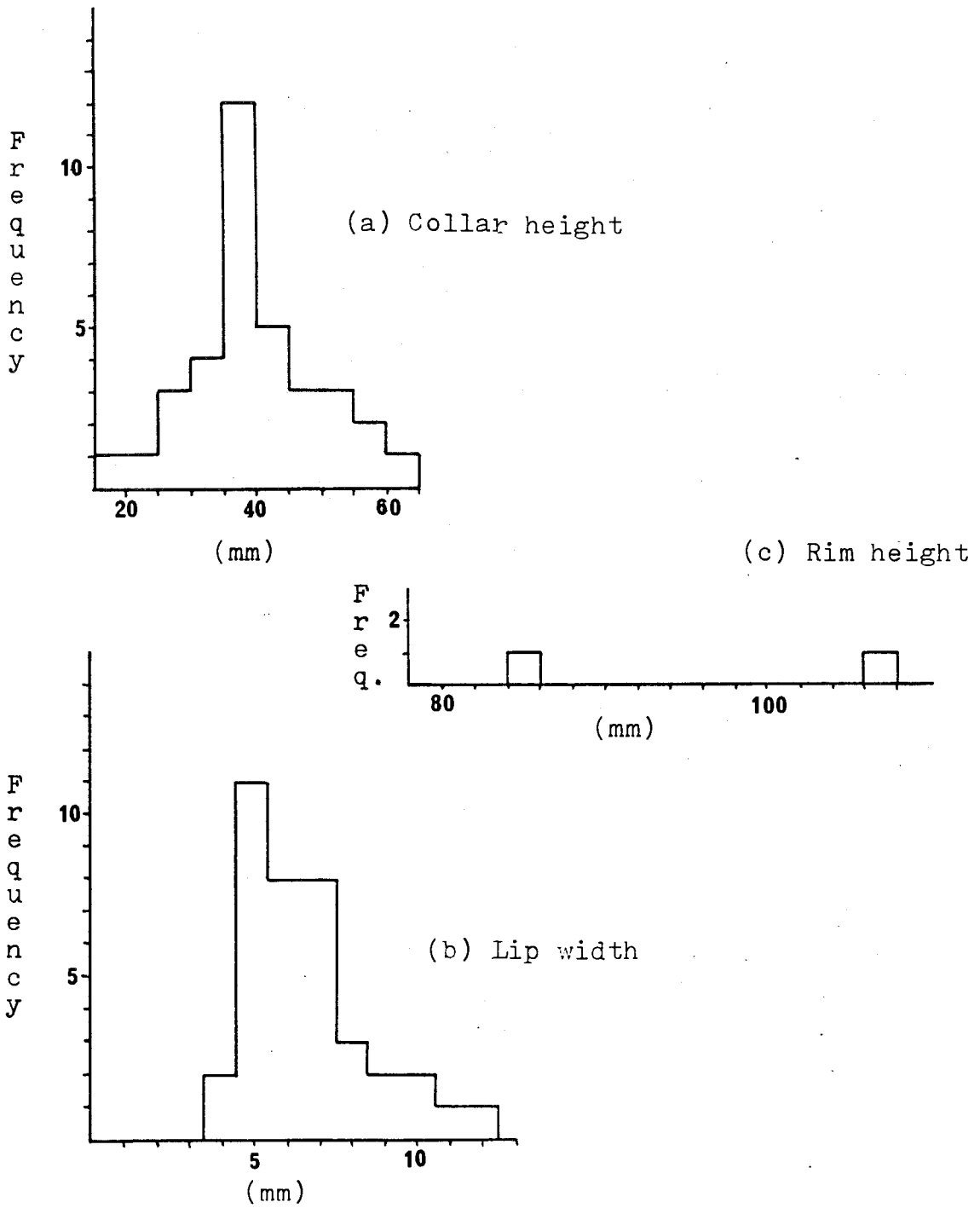


Figure 29: St. Lawrence Iroquoian collared rim metrics
(a) collar height, (b) lip width, (c) rim height

4.7 Huron-St. Lawrence Iroquoian "mutations"

In his analysis of the Glenbrook site, a St. Lawrence Iroquoian village in southeastern Ontario, Pendergast (1981) found Huron influences on some of the St. Lawrence Iroquoian pottery -- what he called "mutations". At Coulter, St. Lawrence Iroquoian influences can be seen on some of the Huron pottery. It is difficult to quantify because some of the influences are in traits that normally occur on Huron pots but seem to have been influenced, to a limited degree, in terms of their frequency and expression. For example, basal notches usually found on Huron pots are much smaller than those typical of St. Lawrence Iroquoian pots. Some of these large 'pinched' notches are found with otherwise typical Huron sherds. Other attributes, such as interior decoration and high collars, do not differ in their expression but may, on some parts of the site, occur with higher frequency because of St. Lawrence Iroquoian influence. In general, however, St. Lawrence Iroquoian influences appear minimal in the Huron assemblage. They are more commonly found on castellations (which are not considered in this report), usually in the form of circular punctates.

5. SETTLEMENT HISTORY

The purpose of this chapter is to document the settlement history of the Coulter village. More specifically, it will look at how the village physically changed during its occupation. This will be done using the two lines of evidence discussed previously - namely, settlement pattern data and pottery attribute data.

For the purposes of this study an understanding of the settlement history of the Coulter site involves determining whether there are sections within the village which appear to be independent in terms of their coalescence or fission with the rest of the settlement. In other words, is there evidence that one part of the village was occupied prior to another or, alternatively, that one part was abandoned prior to another?

It has already been tentatively suggested on the basis of palisade data that Coulter underwent expansion during its occupation. This chapter evaluates the settlement pattern and pottery data in terms of this hypothesis, and the alternate hypotheses of contraction, village overlap, and section contemporaneity (see 2.3).

5.1 Settlement pattern data

5.1.1 Palisade

In addition to encircling the Coulter village, palisade lines cross-cut it in several places. These cross-cutting palisades are used to define five separate spatial units within the village, and the presence of a sixth unit is suggested by an overlap between House 13 and the palisade in the southwest corner of the village. Each of the six units, or 'sections', is assigned a number as illustrated in Figure 6.

Several partially independant lines of evidence are examined below in terms of the four hypotheses mentioned above.

1. Shape of the Sections: Only Section 1, if correctly extrapolated, has, by itself, the shape of a village; that is, in the absence of the other phases, it would still have the appearance of a complete settlement with no internal palisade lines. This cannot be said of any other section for each has a concave side where it joins another section. Thus, Section 1 can be interpreted as the village 'core'. This pattern could be explained by either expansion or contraction, however, the lobe-like shape of Section 4 suggests that it, at least, has been added to the village, supporting the hypothesis of expansion.

While the shape of Section 1 could also, in theory, be explained as a result of two separate villages overlapping in the Section 1 area, this hypothesis does

not explain the presence of the other internal palisade lines. A fourth hypothesis, that all of the sections are fully contemporaneous, and that internal palisade lines were erected to divide the village into discrete spatial units, is difficult to evaluate since such a pattern has never been detected archaeologically and so it is not known what form it could be expected to take. Intuitively, however, the shape of the sections do not seem easily explainable by this hypothesis.

2. Overlapping houses: In all, at least four houses overlap sections of palisade. These can be divided into two types: a) Houses 7 and 9 overlap in such a way as to indicate that they were never contemporaneous with the palisade. b) Houses 13 and 18 appear to have undergone changes in size, thought to be extensions and in both cases it is only the extended portion of the house which intersects the palisade, so the rest of the house was probably contemporaneous with the palisade. The presence of such overlapping structures tends to suggest village expansion rather than contraction.

Other evidence of expansion vs contraction can be found in the effects that one overlapping structure may have on another. If one structure detectably alters the remains of another (i.e. destroys post moulds or intersects pits), it should be possible to determine which came first. At Coulter, only House 18 appears to hold potential for this kind of interpretation. A small

hearth, clearly associated with the final expansion of House 18, appears to have obliterated a small portion of the overlapped palisade indicating that it must post date the palisade. This not only supports the hypothesis of village expansion, but also the contention that House 18 underwent extension.

3. Overlapping middens: Because the processes involved in midden formation are so poorly understood, interpretation of midden-palisade overlaps must be tentative.

The proximity of middens to palisades seems to be fairly consistent in Iroquoian sites. It is usual to find midden deposits running, often for some distance, along the line of a palisade, evidently the result of refuse disposal against the inside of the stockade and, less frequently, between rows of pales or against the outside of a palisade. Where midden deposits overlap a palisade, it is usually attributed to slumpage of a midden heap after decay or removal of the palisade and breakdown of degradable refuse. This interpretation is favoured for most of the overlaps seen in the Coulter excavations. One exception, however, is Midden 75. This midden lies between Houses 7 and 9 and overlaps a section of the Section 1 palisade. Its relationship to the houses, occupying a small depression in the corridor between them, is a common one at Coulter. However, its relationship to the palisade, centred towards the

outside but with its deepest part directly over the palisade line, is unique. The total absence of stockade post moulds passing through this midden, although possibly explainable in terms of later slumpage of its deposits, tends to support the hypothesis that the midden was built after removal of the palisade supporting the expansion hypothesis.

In addition to supporting the expansion hypothesis, the palisade sections provide some information on the sequence of village expansion. If Section 1 was the original village core, as suggested by its shape, then either Section 2 or Section 5 must have been next. Also, Section 3 must logically postdate Section 2, and Sections 4 and 6 must post-date Section 3. This sequence can be further refined by other structural-settlement data.

5.1.2 Houses

Portions of 27 houses were uncovered in the Coulter site excavations. These are described individually in Appendix I and as a group in Chapter 2. Their distribution across the site can be seen in Figure 2.

5.1.2.1 Orientation

Figure 12 shows that there are two preferred orientations (roughly NNE-SSW and NW-SE) at Coulter and that

each section tends to be characterized by only one or the other of these. As was argued in Chapter 2, the choice of orientations may be related to one or more factors including cultural preference, thermal efficiency considerations, or efficient use of space. What is important in terms of settlement history is not so much what orientations were chosen but, rather, the fact that there is a distinct difference in orientation between adjacent sections.

If the sections represent contractions, it suggests that the original village was made up of several distinct groups each of which preferred to orient their houses differently from their immediate neighbours, and that each group left the site separately, with those from Section 4 leaving before Section 3, Section 3 before Section 2, and Sections 2 and 5 before Section 1.

If the sections represent expansions, house orientations suggest that the village started out relatively small (Section 1) and that each phase of expansion saw a change in orientation, either due to cultural preference or, as seems more likely, requirements of the efficient use of space. Moreover, the orientation pattern suggests that it was the smaller sections (2 and 4), where space considerations were more important, that were forced to differ from an otherwise preferred orientation of NW-SE.

5.1.2.2 House walls

It is probable that houses required periodic maintenance of their walls, including the installation of additional wall posts. Thus, the density of wall posts should increase with length of occupation and be reflected archaeologically in the density of house wall post moulds.

The number of post moulds per metre of house wall was calculated by marking walls into one metre sections and counting the post moulds in each. Mean values for each section are presented in Table 8a along with range and variance. A F-test and Bartlett's test for homogeneity of variances (Sokal and Rolf 1981) both indicate a lack of homogeneity of variances, thereby restricting the statistical tests which can be used to compare the means. The Games and Howell (1976; Sokal and Rolf 1981:409-410) method for testing equality of means when variances are heterogeneous was employed resulting in Table 8b. This table allows systematic testing of the differences between means. The numbers above the diagonal are the computed 'minimum significant difference' values (MSD) for an experimental 0.05 level of significance and the numbers below the diagonal are the differences between means. Differences greater than the corresponding MSD are significant.

If these differences are attributed to time-dependant accumulations of posts, Table 8b suggests:

1. That Sections 1 and 2 were occupied longer than either Sections 3,4 or 5.

a)

Section	n*	Density (posts/m)		
		mean	range	variance
1	128	6.46	2-17	6.38
2	52	7.38	3-16	6.63
3	94	4.89	1-11	3.73
4	50	3.52	0-16	2.21
5	32	4.69	2-10	3.83

* number of 1 metre units.

b)

Section	MSD				
	1	2	3	4	5
1	0	1.68	1.15	1.21	1.67
2	0.93	0	1.63	1.65	1.99
3	1.57**	2.49**	0	1.14	1.62
4	2.94**	3.87**	1.37**	0	1.64
5	1.77**	2.70**	0.21	1.17	0

differences between means

** Significantly different means at 0.05 level of significance.

Table 8: (a) House wall post mould density data.
 (b) Test of equality of means using Games and Howell method.

2. That Section 3 was occupied longer than Section 4. Differences between Sections 1 and 2, 3 and 5, and 4 and 5 are not significant. The pattern is compatible with either village expansion or contraction.

5.1.2.3 Interior posts

Accumulation of post moulds over time would also be expected in house interiors. Interior post mould densities were calculated by marking excavated house interiors with 1x1 m squares and counting the number of post moulds in each. Table 9a presents interior post mould densities by section. Again, F-tests and Bartlett's test (Sokal and Rolf 1981) indicate variance to be heterogeneous and so the Games and Howell (1976) method is employed to compare means. Table 9b presents MSD values and differences between means. In this case, we conclude:

1. That Section 1 was occupied longer than Sections 3, 4 and 5.
2. That Section 2 was occupied longer than sections 4 and 5.

Sections 1 and 2, 2 and 3, 3 and 4, 3 and 5, and 4 and 5, do not differ significantly from each other. Again, the results are compatible with either expansion or contraction.

5.1.2.4 Superimposed houses

There are only four cases of superimposed houses and three of these (Houses 19, 21, 27) seem attributable to reconstruction of burnt structures, probably by their former

a)

Section	n*	Density (posts/m ²)		
		mean	range	variance
1	119	6.01	0-37	75.91
2	67	5.49	0-29	33.01
3	132	2.47	0-34	27.15
4	135	1.23	0-20	7.45
5	144	1.43	0-14	6.64

* number of 1 metre² units.

b)

differences between means	Section	MSD				
		1	2	3	4	5
	1	0	4.10	3.54	3.21	3.19
	2	0.52	0	3.27	2.94	2.92
	3	3.54**	3.02	0	1.97	1.94
	4	4.78**	4.26**	1.24	0	1.23
	5	4.58**	4.06**	1.04	0.20	0

** Significantly different means at 0.05 level of significance.

Table 9: (a) House interior post mould density data.
(b) Test of equality of means using Games and Howell method.

occupants. The fourth house (House 8), which appears to be overlapped by houses 7 and 27, is easily explainable in terms of village expansion. The general lack of superimposed structures runs counter to expectations if Coulter represents two or more overlapping villages.

5.1.2.5 House extensions

As argued above, the two houses which appear to have undergone extensions, seem to support the hypothesis of expansion.

5.1.3 Site Topography

The Coulter village is situated on the northeast end of a low drumlin. In view of the large size of the village, this seems an unusual site location. Elevated sites are common in Huron archaeology but, usually, the elevated area is sufficiently large to accommodate the entire village. At Coulter, roughly half the village (Section 5) extends off the end of the drumlin. The site location does make sense, however, if Section 1 is considered the first phase of settlement. Furthermore, it suggests that the village grew beyond what had been originally expected (if any significant growth had been expected) forcing eventual expansion off the drumlin. This supports the argument for progressive expansion rather than contraction.

5.1.4 Subsoil Conditions

Figure 30 , based on data collected during excavation and shovel testing, shows the approximate distribution of subsoil varieties across the site. With the possible exception of the small area of 'loose sand', the subsoil at Coulter would clearly have provided a firm foundation for palisade and house structures. The majority of the area is composed of 'clay, silt, and sand' which, especially when dry, is very hard-packed. Elsewhere, 'coarse sand and gravel' and 'gravel and cobbles' predominate. It appears that posts were inserted by excavating individual holes for each post as no evidence of trenching was found. If trenching had been employed, the gravel areas may not have provided as solid a footing as the clay, silt and sand. It was found that areas of gravel, although well consolidated before excavation, remained loose after excavation. Clay, silt and sand, on the other hand, was easily recompactd following excavation. If, as suggested, post holes were excavated individually, this would not have been a problem. However, although systematic replication of post hole excavation was not done, it is clear from the archaeological excavations that this procedure would be much more difficult in areas of gravel especially since large cobbles, immovable without more extensive excavation, would block some holes before reaching an adequate depth. It is suggested, therefore, that clay, silt, and sand areas were more 'desirable' for Iroquoian construction. If Section 1 defines

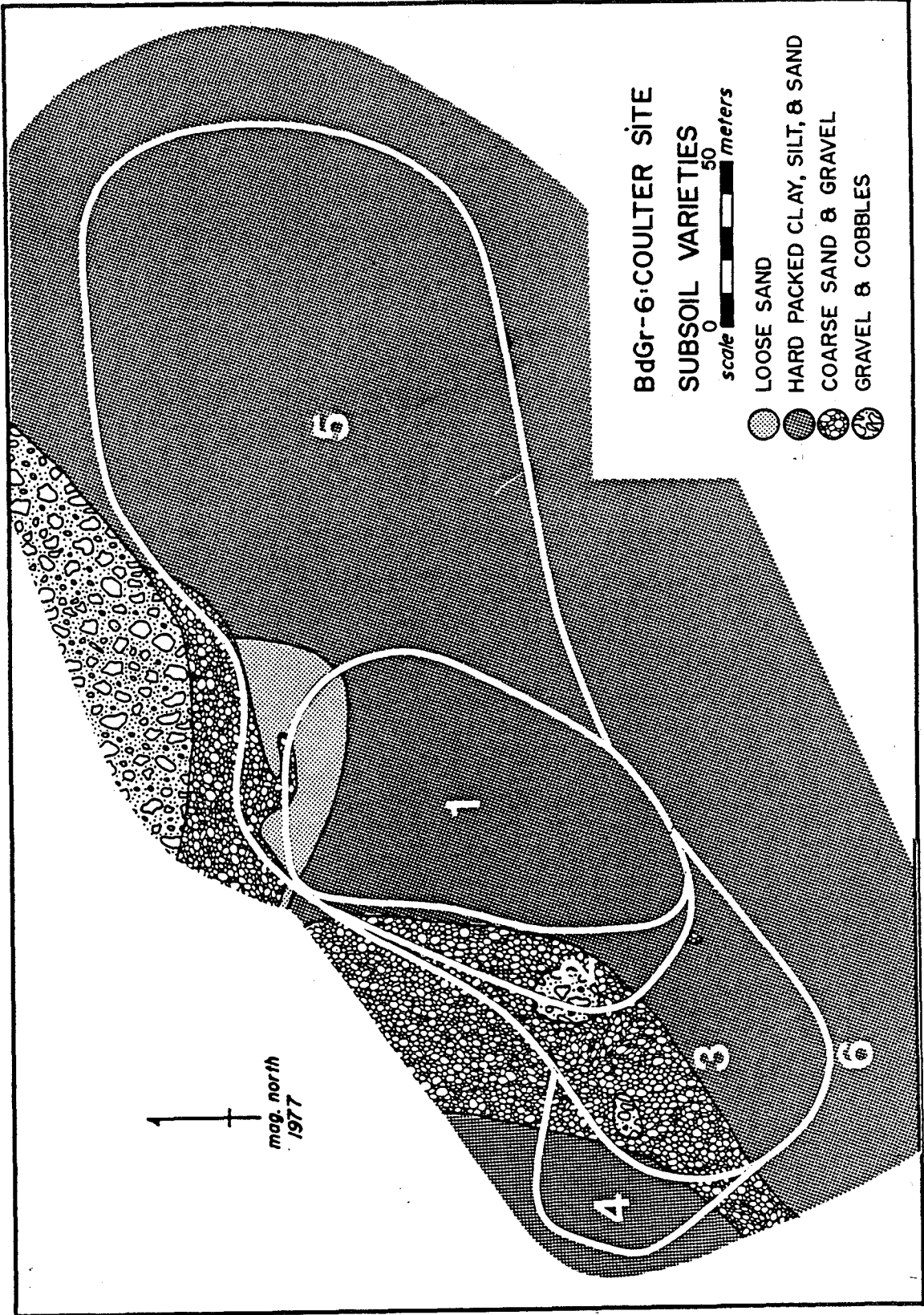


Figure 30

the limits of the initial village, it is notable that it almost entirely avoids areas of gravel. Section 3, although including a large amount of gravel, extends to the southern edge of the drumlin thus maximizing the clay, silt and sand area. Section 4, extending to the northwest, similarly maximizes clay, sand and silt. Finally, Section 5 largely avoids gravel areas. Although the northwest portion borders gravel, conditions are less severe than even a few metres further north. Section 2, which shows no sign of attempting to avoid gravel, was probably restricted by the shape of Section 1. If these evaluations of the desirability of subsoil varieties are reasonably accurate, the data suggest village expansion and, furthermore, that expansion was not anticipated when the village was first established.

5.2 Middens

There appears to be systematic between-section variation in average midden depth and density. If this variation can be linked to length of occupation of each section, it suggests that Section 1, which has deeper middens and more of them, was occupied longest. Section 4, where no middens were found, and Section 5, which had a few shallow middens, appear to have been occupied for less time. While the density of houses, which appears to be lower in Sections 4 and 5, may be a contributing factor, the pattern seems to corroborate either expansion or contraction.

However, it has previously been suggested that the overlap between Midden 75 and the Section 2 palisade indicates village expansion. Therefore, expansion is the best explanation of the midden data.

5.3 Huron pottery

Rimsherds are separated by section and presented in Table 10. Only rims which could be associated with reasonable certainty to one of the palisade-defined sections were used. Thus, many of those recovered from palisade lines were not included. It is also possible that people from one unit contributed refuse to neighbouring units, but this cannot be controlled for.

Using pottery data to determine a chronological ordering of sites is a standard procedure in Iroquoian archaeology. Applying methods of seriation within sites is much less common, undoubtedly because few multi-phase sites have been recognized. Where it has been attempted (Finlayson and Pihl 1980), it has met with limited success. In a simulation study (Damkjar nd.), it was shown that while seriation of multiphase sites is theoretically possible, chances of success are highly dependant on total length of occupation of the site; temporal spacing of expansions or contractions; amount of population increase or reduction within individual sections; and degree of heterogeneity in pottery decorating habits within and between sections. Part

Table 10: Huron pottery attribute frequencies by village section.

1.	Section	n =					
		1	2	3	4	5	6
A.	Collarless plain (% of 1)	1.2	-	3.4	3.0	2.6	-
B.	Collarless decorated (%1)	0.5	-	0.6	-	3.3	-
C.	Collared plain (%1)	6.7	6.6	5.1	9.1	6.6	7.1
D.	Collared decorated (%1)	91.6	93.4	90.9	87.9	90.1	92.9
a.	Incised (%D)	63.1	69.7	61.6	79.3	73.7	46.2
b.	Miscellaneous stamp (%D)	16.8	16.9	11.9	-	10.9	30.8
c.	Mixed Stamp (%D)	3.4	2.8	3.8	-	2.2	-
d.	Other (%D)	0.5	-	-	-	2.2	-
e.	Indeterminate (%D)	16.2	10.6	22.6	20.7	16.9	23.1
F.	Collar motifs (%D)						
a.	Simple	64.7	72.5	66.7	75.9	68.6	92.3
b.	Opposed	12.0	8.5	10.7	6.9	11.7	7.7
c.	Crossed	6.8	4.9	5.7	3.4	6.6	-
d.	Hatched	6.3	4.9	6.9	3.4	7.3	-
e.	Horizontal	5.5	7.0	1.9	3.4	3.6	-
f.	Complex	1.6	1.4	2.5	3.4	2.9	-
g.	Plain	0.5	-	12.6	-	-	-
h.	Interrupted	1.0	0.7	2.5	3.4	1.5	-
i.	Other	1.6	-	1.9	-	1.5	-
F.	Neck Decoration						
a.	Total (%D)	40.3	46.5	26.5	17.2	11.7	30.8
b.	Horizontal (%a)	13.6	7.6	11.9	40.0	31.3	50.0
c.	Horizontal? (%a)	1.9	1.5	-	-	-	-
d.	Simple	42.2	39.4	26.2	40.0	31.3	25.0
e.	Opposed (%a)	25.3	42.4	50.0	20.0	18.8	25.0
f.	Horizontal/oblique (%a)	5.8	3.0	2.4	-	-	-
g.	Horizontal/simple (%a)	1.9	-	4.8	-	6.3	-
f.	Indeterminate motif (%a)	9.1	6.1	4.8	-	12.5	-

.....continued

Table 10 continued.

G. Secondary decoration (%1)													
a. Interior	7.9	8.6	10.3	9.1	10.5	42.9							
b. Lip	7.9	5.9	10.3	9.1	11.2	7.1							
c. Frontal lip	2.4	3.3	4.0	3.0	7.2	7.1							
d. Upper punctates	3.6	3.9	2.3	3.0	3.9	-							
e. Lower punctates	1.0	2.6	1.1	-	-	-							
f. Dividing punctates	0.5	0.7	0.6	-	1.3	-							
g. Basal punctates	6.2	7.2	9.1	18.2	15.8	7.1							
h. Sub-collar decoration	4.1	3.9	6.3	3.0	-	14.3							
H. Interior profile (%1)													
a. Convex	54.7	53.3	69.7	60.6	48.7	35.7							
b. Concave	16.8	19.7	13.1	15.2	20.4	21.4							
c. Straight	9.1	9.9	6.9	12.1	10.5	7.1							
d. Concave-convex	8.4	11.8	6.9	-	9.9	14.3							
e. Convex-concave	10.1	5.3	4.0	9.1	9.2	21.4							
f. Other	1.2	-	0.6	3.0	0.7	-							
I. Exterior collar form (%C+D)													
a. Convex	6.6	3.9	7.7	15.6	13.6	7.1							
b. Concave	74.9	79.6	76.8	65.6	67.3	85.7							
c. Straight	16.8	13.8	14.9	18.8	21.1	7.1							
d. Other	2.0	2.6	0.6	-	1.4	-							
J. High collars (%C+D)	3.4	2.6	6.0	6.3	19.0	7.1							

of the difficulty with such intra-site seriation is that the units being seriated overlap temporally, thereby reducing potential differences.

Another problem is determining which attributes are temporally sensitive. An attempt was made to identify patterned change in the stratigraphic levels of middens, however, sample sizes proved too small. Instead, we must again turn to Ramsden's (1977b) study. To assess an attribute's behaviour through time, Ramsden compared frequencies from sites producing European trade goods with sites not yielding such items. From this he suggested that the following attributes show wide-spread chronological trends:

1. Simple collar motif - increase through time
2. Opposed collar motif - decrease through time
3. Horizontal collar motif - decrease through time
4. Neck decoration - decrease through time
5. Interior decoration - decrease through time
6. Sub-collar decoration - decrease through time
7. Convex rim interior - increase through time
8. Concave rim interior - decrease through time
9. Concave collar exterior - increase through time
10. Straight collar exterior - decrease through time

Of these, neck decoration showed the most 'dramatic' change, with convex rim interior and straight collar exterior also showing quite strong change (Ramsden 1977b). Arranging the Coulter sections in accordance with these trends using

relative frequency data from Table 9 produces the following orderings:

1. Simple collar 1, 3, 5, 2, 4, 6
2. Opposed collar 1, 5, 3, 2, 6, 4
3. Horizontal collar 2, 1, 5, 4, 3, 6,
4. Neck decoration 2, 1, 6, 3, 4, 5,
5. Interior decoration 6, 5, 3, 4, 2, 1
6. Sub-collar decoration 6, 3, 1, 2, 4, 5,
7. Convex rim interior 6, 5, 2, 1, 4, 3
8. Concave rim interior 6, 5, 2, 1, 4, 3
9. Concave collar exterior 4, 5, 1, 3, 2, 6
10. Straight collar exterior 5, 4, 1, 3, 2, 6

When tests of association are conducted using the G-test with Williams' correction (1976; Sokal and Rolf 1981), only neck decoration, subcollar decoration, and convex rim interior are found to be significantly associated with village sections (at <0.05% level of significance). However, when additional G-tests are performed on these three attributes using all possible pairs of sections (i.e. 2x2 contingency tables), not all pairs are significantly associated. Table 11 shows the pairs for which G-tests were run and indicates those with a significant association. For example, Sections 1 and 3, 1 and 4, 1 and 5, 2 and 3, 2 and 4, 2 and 5, and 3 and 5, are significantly associated with neck decoration.

Although there is little overall consistency in the orderings produced by the ten attributes, the significant

		Section					
		1	2	3	4	5	6
Section	1	-		X	X	X	
	2		-	X	X	X	
	3	X	X	-		X	
	4	X	X		-		
	5	X	X	X		-	
	6						-

b) Secondary collar decoration

		Section					
		1	2	3	4	5	6
Section	1	-				X	
	2		-			X	
	3			-		X	
	4				-		
	5	X	X	X		-	
	6						-

c) Convex rim interior

		Section					
		1	2	3	4	5	6
Section	1	-		X			
	2		-	X			
	3	X	X	-		X	
	4				-		
	5			X		-	
	6						-

Table 11: Significant associations of a) neck decoration, b) secondary collar decoration, and c) convex rim interior with pairs of village sections. Based on G-tests with level of significance less than 0.05.

pairs of sections associated with neck decoration, sub-collar decoration, and convex rim interior do show some patterns. Sections 1 and 2 always occur 'earlier' than Sections 3, 4, and 5. Section 3 twice occurs before Section 5. Although limited, these results are best explained by expansion.

5.4 Site abandonment

The sequence of village abandonment at Coulter is apparently less obvious than the sequence of expansion. If abandonment was slow and gradual it would likely be evidenced in the archaeological record by the presence of middens overlying house structures, perhaps indicating destruction without reconstruction of the structure, but continued occupation of neighbouring houses. Simultaneous abandonment of large areas or of the entire site would be less likely to leave detectable traces. In only one case is there evidence that a house had been abandoned prior to surrounding structures. House 22 has a thin layer of hard-packed refuse (but not a midden) covering parts of one wall possibly indicating that the house was abandoned before the rest of the village. However, in the general absence of midden-house overlaps, such as were found at Benson (Ramsden 1977a) and Kirche (Nasmith 1981), it is tentatively suggested that Coulter was depopulated over a relatively short period of time. The fact that no other sites of

comparable size are known in the upper Trent Valley may suggest that the site fissioned, resulting in two or more new communities, or with some people moving to join already established villages.

5.5 Conclusions

Based on settlement pattern, pottery, and midden data, several points regarding site history are suggested:

1. Of the four hypotheses originally put forth to account for the presence of cross-cutting palisade lines (overlapping villages; expansion; contraction; and internal partitions), it seems most likely that the Coulter village underwent sequential expansion over time.
2. Section 1 most likely represents the original village.
3. Expansion was first to the southwest on top of the drumlin with expansion off the drumlin, in an easterly direction coming later.
4. The original occupants of Section 1 do not seem to have anticipated the eventual growth in village size.

These conclusions indicate that occupation of the Coulter site involved successive aggradation events or "waves" of incoming people. Whether they moved from other sites in the upper Trent area or directly from more southerly areas cannot be determined.

6. INTER-PHASE DISTINCTION

The question of whether the phases of expansion at Coulter represent the amalgamation of a number of ethnically distinct groups (i.e. immigrants from different local areas), or the periodic arrival of people of the same ethnic group, is difficult to address. There is little precedent in the Iroquoian literature for recognizing the existence of more than one ethnic unit within a single site. Moreover, the degree of heterogeneity to be expected in a "normal" village, as reflected in artifact and settlement pattern data, is not well understood.

This chapter addresses this question. However, because there are no standards for determining what constitutes "different" ethnic units as opposed to variation within a single ethnic unit, the evaluation must remain tentative.

6.1 Settlement Pattern Data

Inasmuch as settlement features are artifacts, they should have an element of "style" reflecting ethnic identity, whether consciously expressed or not. However, recognition of stylistic vs. functional attributes is a perpetual problem in archaeological analysis. Also, although an attribute may be stylistic, its utility for distinguishing ethnic groups depends on its being uniquely expressed by each of the ethnic groups being compared. Both of these appear to be problems with Iroquoian settlement

pattern data in general. The approach taken here is to consider all of the variation observed in the settlement pattern analysis and to eliminate that which seems better explained as functional in nature, and that which varies as much within village sections as between them. As a result, however, no settlement pattern data are found to indicate inter-section ethnic differences.

Thus, while settlement data are important in spatially delineating potentially distinct ethnic units, at Coulter, they are of little value in demonstrating that the units are, in fact, ethnically distinct.

6.2 Huron Pottery data

Ceramics, by virtue of their plasticity, are commonly held to be the most style-laden items recovered from Iroquoian sites. In addition, they are the most numerous artifacts recovered and there is little doubt that they hold considerable potential for detecting cultural variation.

Nevertheless, a major analytical problem is our poor understanding of the degree of ceramic variability normally characterizing individual sites. This is largely attributable to the normative approach taken by most Iroquoianists in the past. In attempting to define the ideational bases of ceramic decoration, patterns and sources of variation and complexity within sites have been largely ignored. One of the only studies to look at intra-site

variation in what appears to be a "normal" village -- that is, one that does not appear to represent the amalgamation, through time, of several population segments -- is Wright's (1974) analysis of the Nodwell site. This showed a "great range of pottery type variability" (p. 241) across the site and suggested that households were variously "progressive" or "conservative" in their pottery decorating habits. It must be recognized, too, that pottery was probably produced almost exclusively by females and so can be expected to reflect only part of a group's ethnic identity -- other artifacts, such as pipes, which are presumably male-produced, should be examined to get a more complete picture.

The method used at Coulter to evaluate inter-section relationships is the same method used by Ramsden (1977b) to evaluate inter-site relationships. In his study, Ramsden isolated 13 ceramic attributes whose numerical frequencies appeared to show social or spatial significance across 28 sites. 'Significant' attributes were those which appeared to show synchronic variation across space though they might also show systematic change through time. These are:

1. collarless plain;
2. collarless decorated;
3. collared plain;
4. stamping technique on collar;
5. opposed collar motif;
6. hatched collar motif;

7. neck decoration;
8. interior secondary decoration;
9. lip secondary decoration;
10. frontal lip notching;
11. sub-collar secondary decoration;
12. concave-convex interior rim profile; and
13. high collars (30 mm and over).

To quantify the relationship between two sites, Ramsden summed the differences in frequency of each of the 13 attributes arriving at a "measure of difference" -- the lower the resultant coefficient, the more similar the two sites. For example, if Site A has frequencies of 50%, 20%, and 70% for three attributes and Site B has frequencies of 15%, 35%, and 60%, the measure of difference is:

$$(50-15)+(35-20)+(70-60)=70.$$

This procedure is similar in principle to Brainerd's (1951) coefficient of similarity. However, the latter has several problems including a) it requires the use of types rather than attributes, b) the frequency of each type is partially dependent on the frequencies of other types inasmuch as they must sum to 100%, and c) it requires the use of all of the types in an assemblage, not just those which are thought to be significant in terms of identifying ethnic units. While the measure of difference largely overcomes these problems, it retains two others. First, it does not take sample size into account, and second, those attributes which vary most widely in frequency, contribute disproportionately to the measure

of difference.

Table 12 presents the measures of difference for each pair of spatial units. The results reveal a great range of variation, with some units being very similar (e.g. Sections 1 and 2) and some very different (e.g. Section 2 and 5). It should be pointed out that the small sample sizes for Sections 4 and 6 make comparisons between them and other units very tentative. A single-linkage (nearest neighbour) dendrogram was produced (Figure 31) based on the measures of difference. The result is a "chain cluster" which Doran and Hodson(1975: 176) point out is relatively uninformative.

However, two important patterns emerge. First, assuming that the sections represent phases of expansion, and that the sequence is roughly 1,2,3,4,5, it can be seen that as the site grew, new expansions differed increasingly from the 'core' (i.e. Section 1). Second, there appears to be a general trend towards increasing inter-unit difference as the site expands. Section 1 and its nearest neighbour, Section 2, share a measure of difference of 21.0 while Section 5 and its nearest neighbour, Section 3, share a measure of difference of 48.7. Also reflecting this trend is a tendency for each expansion to be more similar to a preceding expansion than to a succeeding one.

Thus, while the results are meant to reflect ethnic relationships, they seem rather to parallel hypothesised chronological events (expansions) at the site. This may be due, in part, to the chronological information contained in

	Sections					
	1	2	3	4	5	6
1		21.0	37.3	68.0	72.0	96.5
2			52.3	75.2	85.6	92.5
3				47.3	48.7	94.6
4					64.6	119.9
5						123.9

Table 12: Measures of difference between village sections based on ceramic attribute frequencies.

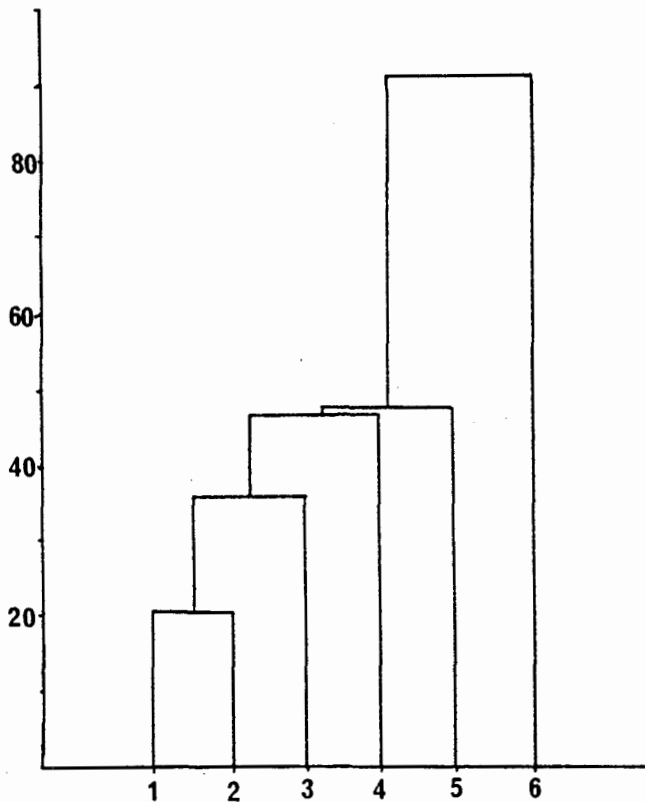


Figure 31: Single-linkage dendrogram based on ceramic measures of difference.

the 13 attributes employed in the analysis. While these attributes have proved of spatial and social significance in distinguishing sites of different local areas (and so presumably different ethnic units), they would, logically, be of no such value within a single ethnic group. Assuming that the 'ethnic unit' is ceramically homogeneous (except for 'random' variation due to such things as Wright's (1974) 'progressive' and 'conservative' households) the only systematic variation expected is change through time. All attributes go through phases of increasing and decreasing popularity. What makes some of them socially or spatially significant is lack of synchronicity between ethnic units in the degree of an attribute's popularity, so that at a given point in time, Group A might have a high frequency of the attribute while Group B would have a low frequency. However within each group the attributes would have temporal significance, although some might change so slowly that no patterned change in frequency could be detected except over a long period of time.

What this implies about the Coulter data is that all of the sections belong to a single ethnic unit and that inter-section variations result mainly from differences in the period of occupation of each section. This hypothesis fits well with the first trend noted above, namely, increasing difference from Section 1. It does not, however, fully explain the trend of increasing between-section difference over time. There are at least three reasonable

explanations for this trend:

1. The length of time between expansions increased.
2. As the village grew, it attracted immigrants from a wider area who's pottery decorating habits were increasingly dissimilar from the group that originally established the village.
3. Virtually all of the immigrants originated from the same area, but because each successive group had been separated from the original immigrants for a longer period of time, their pottery decorating habits had correspondingly diverged.

Which, if any, of these possibilities is correct is not known.

6.2.1 St Lawrence Iroquoian Pottery

The above discussion deals only with the Huron pottery. While the St. Lawrence Iroquoian pottery will not be subjected to the same levels of analysis as above, its frequency, relative to Huron pottery, in each of the sections may reflect the approximate proportion of St. Lawrence Iroquoian potters in each section. The probability that St. Lawrence Iroquoian pottery was produced at Coulter, rather than traded in, for instance as containers, is suggested by:

1. The presence of 'juvenile' (i.e. 'crude') pottery of obvious St. Lawrence style;
2. The presence of St. Lawrence traits on Huron pots

suggesting the transmission, between potters, of decorating ideas;

3. The fact that, logically, one would expect the long distance trade of materials requiring vessels to make use of more light weight, durable containers (e.g. skin or bark);
4. Other St. Lawrence Iroquoian traits are present, most notably, very distinctive 'milled' clay beads (Pendergast 1981); and
5. Trace-element analysis of St. Lawrence Iroquoian sherds from the Benson site suggest that they were locally produced (Trigger et. al. 1980:129).

The frequency of St. Lawrence Iroquoian pottery in each section is presented in Table 13. Although the frequencies are small, there is a trend of increasing frequency with each expansion. However, when G-tests are carried out to evaluate the association between amount of St. Lawrence Iroquoian pottery and village sections, only Sections 1 and 5 are significantly associated (i.e. Section 5 has significantly more St. Lawrence Iroquoian pottery than Section 1 at <0.05% level of significance).

These data allow the tentative suggestion that the number of St. Lawrence Iroquoian women at Coulter increased through time. Their presence may be related to the increasing establishment of social ties with St. Lawrence peoples to the east via marriage, or to warfare, resulting in either captives or refugees. The likelihood that St.

Section	Huron		St. Lawrence Iroquoian	
	n	(%)	n	(%)
1	417	(98.6)	6	(1.4)
2	152	(97.5)	4	(2.5)
3	175	(97.2)	5	(2.8)
4	33	(97.1)	1	(2.9)
5	152	(95.0)	8	(5.0)
6	14	(93.3)	1	(6.7)

Table 13: Frequencies of Huron and St. Lawrence Iroquoian rim sherds by section. Based on a series of G-tests, Huron and St. Lawrence Iroquoian rims are significantly associated with Sections 1 and 5 only (i.e. Section 5 has significantly more St. Lawrence Iroquoian rims than Section 1 at the 0.05 level of significance).

Lawrence Iroquoian men were not present is suggested by the fact that a small pipe fragment is the only male-related artifact which appears to be of St. Lawrence Iroquoian design.

As was mentioned above, some Huron pottery appears to show St. Lawrence Iroquoian influence (i.e. "mutations"). This raises the possibility that the pattern noted earlier of increasing measures of difference in Huron pottery as the village grew, is attributable to increasing numbers of, and influence from, St. Lawrence Iroquoian women. An examination of Table 9 shows that several of the attributes most popular among St. Lawrence Iroquoians increase in the Huron sample with each expansion (i.e. plain necks, frontal lip notches, basal notches and high collars). While some of these attributes may have increased independent of St. Lawrence Iroquoian influence (especially plain necks which show a wide-spread increasing trend on Huron sites in general), these data tend to support the above hypothesis.

7. SUMMARY AND CONCLUSIONS

In addition to providing descriptions of the settlement pattern and pottery data from the Coulter site, this thesis set out to address two questions.

1. What is the settlement history of the Coulter site?
2. Is there evidence of the amalgamation of more than one ethnically distinct population segment at Coulter?

Excavation and analysis of the Coulter site forms part of the Upper Trent Valley Archaeological Project, designed to investigate late prehistoric and protohistoric events in the upper Trent Valley of south-central Ontario. More specifically, the project seeks to shed light on the nature of, and interaction between, two archaeological "complexes" in the upper Trent area -- the Benson complex and the Hardrock complex. Benson people are thought to have migrated to the upper Trent Valley about the middle of the 16th century, A.D., probably from the Toronto-Oshawa area. Hardrock people appear to have a longer prehistory in the upper Trent Valley and are considered indigenous. Both appear to have abandoned the area by the early 17th century. (Ramsden 1977a).

The Coulter site belongs to the Benson "complex" and, based on pottery and pipe attributes, is early in the local sequence (Damkjar 1979, Nasmith 1981). As such it was expected that excavation and analysis of the site would shed light on the nature of early Benson "complex" settlements and, hopefully, on the nature of migration into the area. It

is in this context that the two questions addressed by this report are important.

Excavations at Coulter, carried out in 1977 and 1978, reveal a large palisaded village covering about 3.3 ha. Most importantly, the site has several cross-cutting palisades which are thought to represent expansions in areal extent through time. Based primarily on settlement pattern data, a hypothesised sequence of expansion begins with the initial establishment of a 0.65 ha village on the northeast end of a low drumlin. There are at least five subsequent extensions. The first several seem to have been in a southwesterly direction, staying on top of the drumlin. Expansion to the southwest was largely into gravely subsoil conditions which may have made house and palisade construction difficult. The contours of the drumlin forced the village to become long and narrow, not a common shape for Iroquoian villages, and probably not a desirable one for defensive reasons and because it required more palisade construction. These factors suggest that expansion of the village was not anticipated at the time the village was initially established. Evidence of burned and rebuilt houses, multi-rowed palisades, and scattered human bone, especially in the area of Sections 1 and 2, suggest that warfare was a real concern and may have influenced the decision to expand onto the more readily defensible drumlin rather than into a lower-lying area to the east. Defense and 'security in numbers' may, in fact, have been one of the reasons for

amalgamation (Hayden 1978). One of the last expansions differed in extending off the drumlin in an easterly direction. This was necessary because of the large size of the expansion (ca. 1.82 ha) which roughly doubled the village's area.

Portions of 26 houses were excavated. Suggested correlations between post mould density (both in the walls and the interior) and length of occupation support the above-mentioned pattern of expansion as does the apparent expansion of two houses to overlap previously palisaded areas. Three houses in the central part of the village were destroyed by fire and subsequently rebuilt in approximately their former locations. Whether their destruction is a result of warfare is speculation, but the above mentioned concern for defense and the scattered human bone make it a plausible hypothesis.

While a sequence of construction (expansion) can be roughly determined, there are no corresponding data to indicate the sequence of abandonment. The absence of such data is taken, tentatively, to indicate that the entire site was abandoned at one time. Inasmuch as no sites of a comparable size are known in the upper Trent area, it is again, tentatively suggested that the village fissioned probably forming two or more new villages with some people possibly joining other previously established settlements.

In terms of social relationships between the various village segments, as revealed by pottery analysis, there

appears to be time-related variability. Early on, immigrants were quite similar to the original settlers in terms of pottery decorating habits, but as the site grew in size, new immigrants were increasingly different from the core group. However, this is not interpreted to reflect significant ethnic differences, but rather, differences in period of occupation. Because each successive expansion is, essentially, a later occupation, it follows that each will be increasingly different from the core group in terms of time-sensitive ceramic attributes. Thus, the between-section variation in ceramic attributes at Coulter is attributed, largely, to chronological differences. This suggests that migration into the upper Trent area involved groups of ethnically closely related peoples which eventually coalesced to form what must have been a village of major importance and influence in the area.

Contact with St. Lawrence Iroquoians to the east is reflected most clearly in the presence of pottery typical of that area, although other St. Lawrence Iroquoian artifacts are also present. Rather than trade, the pottery is thought to reflect the presence of St. Lawrence Iroquoian women in the village. Whether they represent marriages (for the purpose of establishing social ties to the St. Lawrence area), or refugees, or captives, is not known. While they make up only a small proportion of the village population, based on the frequency of their pottery, there is a significant increase in the amount of pottery (from 1.4% to

8.2%) between the original village core (Section 1) and what is thought to be one of the last expansions (Section 5). Also, the presence of a number of "mutated" ceramic vessels (i.e. those that show both Huron and St. Lawrence Iroquoian stylistic influences) suggests that the two sets of potters were exchanging decorating ideas. This exchange, and the fact that it appears to have increased over time, also further explains the suggested time-dependent increase in variation of Huron ceramics noted above.

The identification of several metal beads at Coulter as being European in origin (Stapp 1982), is suggestive of the probable reason for contact with the St. Lawrence region and, ultimately, for migration into the upper Trent Valley and coalescence at Coulter.

8. APPENDIX I

8.1 Houses

Twenty-six houses were discovered at Coulter. House numbers extend to 27, however, a section of wall, which was assigned house number 6, later turned out to be palisade. To avoid any confusion, this number was not reassigned. Each house is discussed below in terms of general morphology, house wall post moulds, interior post moulds and interior features. House data are summarized in Table 14.

8.2 House 1 (Figure 32)

House 1 was encountered during excavation of the first 2 m wide E-W exploratory trench in 1977. Additionally, a N-S 2 m wide trench intersected the southwest side wall in 1978. Both end walls and portions of the sides were outlined by 'chasing' with a roughly 1 m wide trench.

8.2.1 General Morphology:

This house is 38.5 m in maximum length and 7.5 m in maximum width and is oriented in a NW-SE direction. The house appears somewhat constricted at the centre where the width is just under 7 m. The close proximity of House 21 may explain this phenomenon on the southwest side, but no explanation is evident on the northeast side. If the former is true, it suggests that House 21 predates House 1 which

House #	Section	Orientation (° of N)	Length (m)	Width (m)	Est. Circumf. (m)	Wall Exposed (m)*	Wall Post Density (posts/m) range	Wall Diameter (cm) mean	Est. Area (sq. m)	Interior Exposed (sq. m) range	Interior Post Density (sq. m) mean	Interior Diameter (cm) range
1	I	130	38.5	7.5	87.5	45.0	6.5 5-15	8.2 1.8	250	30.0	0.7 6-14	8.9 1.9
2	I	135	22.5	7.5	54.0	28.0	6.8 4-20	8.2 2.1	150	18.0	12.7 3-17	7.3 2.6
3	I	130	28.5	7.5	66.0	45.0	7.5 5-18	8.7 1.8	148	0		
4	I	155	> 5.0	7.5	>22.0	3.0	6.0 5-15	9.9 3.7	> 37	6.0	2.3 5-12	7.7 2.3
5	III	160	29.0	7.5	68.0	28.0	4.8 5-16	8.3 2.0	205	34.0	2.3 3-19	5.8 2.7
7	II	20	49.0	6.25	105.0	31.0(19.5)*	6.6 4-14	7.7 1.8	300	35.0(25.0)	4.0 4-16	6.7 2.0
8	I?	145	16.0	7.0	46.0	12.5(0)			112	20.0(0)		
9	II	20	>36.0	7.5	>85.0	26.8(23.3)	8.5 3-13	7.5 1.6	>270	46.0(40.0)	6.2 3-16	7.2 2.8
10	II	20	>25.0	6.75	>63.0	14.0	6.5 5-15	7.9 2.0	>168	25.5	4.2 3-21	7.3 2.9
11	V	150	>10.0	>6.9	>35.0	3.7	5.3 6-15	9.9 2.5	> 70	15.0	1.1 6-9	7.8 1.1
12	IV	5	30.5	7.5	70.0	54.0	3.5 4-13	7.4 1.9	205	135.0	1.2 4-19	6.6 2.8
13	III	145	>16.0	7.5	>45.0	24.5(18.0)	5.2 5-12	8.1 1.3	>115	65.0(25.0)	1.3 3-12	7.1 2.1
14	III	145	>14.0	7.5	>40.0	6.8(5.6)	6.6 4-15	8.8 2.6	>105	24.0	2.0 2-10	4.7 1.6
15	III	125	>11.0	6.5	>34.0	6.3	5.2 4-14	8.4 2.2	> 70	18.5	2.3 3-9	5.4 1.2
16	III	120	>12.0	>7.5	>35.0	20.0(17.0)	5.5 4-15	7.5 2.0	> 90	13.0(11.0)	1.6 3-9	6.1 1.5
17	III	125	>32.0	7.5	>75.0	20.7	3.8 5-12	7.7 1.5	>225	34.0	4.6 3-14	4.7 3.1
18	I	65	>41.0	7.25	>93.0	48.0(25.0)	7.6 4-12	7.4 1.5	>325	125.0(94.0)	6.1 3-15	6.4 1.8
19	I	100	>21.0	>3.2	>50.0	22.0(0)			> 75	18.0(0)		
20	V	150	> 7.5	7.25	>25.0	4.5	5.2 5-7	5.9 0.8	> 55	17.5	0.8 5-14	8.3 3.2
21	I	110	> 7.5	6.75	>22.0	9.5			> 50	15.0		
22	III	80	>20.0	>5.0	>50.0	17.0(15.0)	4.5 5-10	7.0 1.2	>100	11.0	0 0	0 0
23	V	130	>20.0	7.5	>50.0	8.5(6.8)	4.8 4-12	7.8 2.2	>150	30.0	2.4 2-13	6.8 2.0
24	V	135	>27.0	7.5	>70.0	12.0	4.3 5-15	9.2 2.4	>215	34.0	0.4 4-12	7.9 3.1
25	V	55	> 6.0	7.5	>23.0	4.0(3.0)	4.3 8-16	11.3 3.1	> 45	17.5	1.2 4-13	7.5 1.9
26	V	130	>15.0	>6.75	>40.0	3.8	5.0 4-11	7.3 2.1	>100	40.0	2.2 3-18	7.4 2.7
27	I	30	>23.0	>7.0	>60.0	7.0(0)			>160	14.0(0)		

Table 14: Summary of Coulter house data.

*Amount analysable bracketed if different from amount exposed.

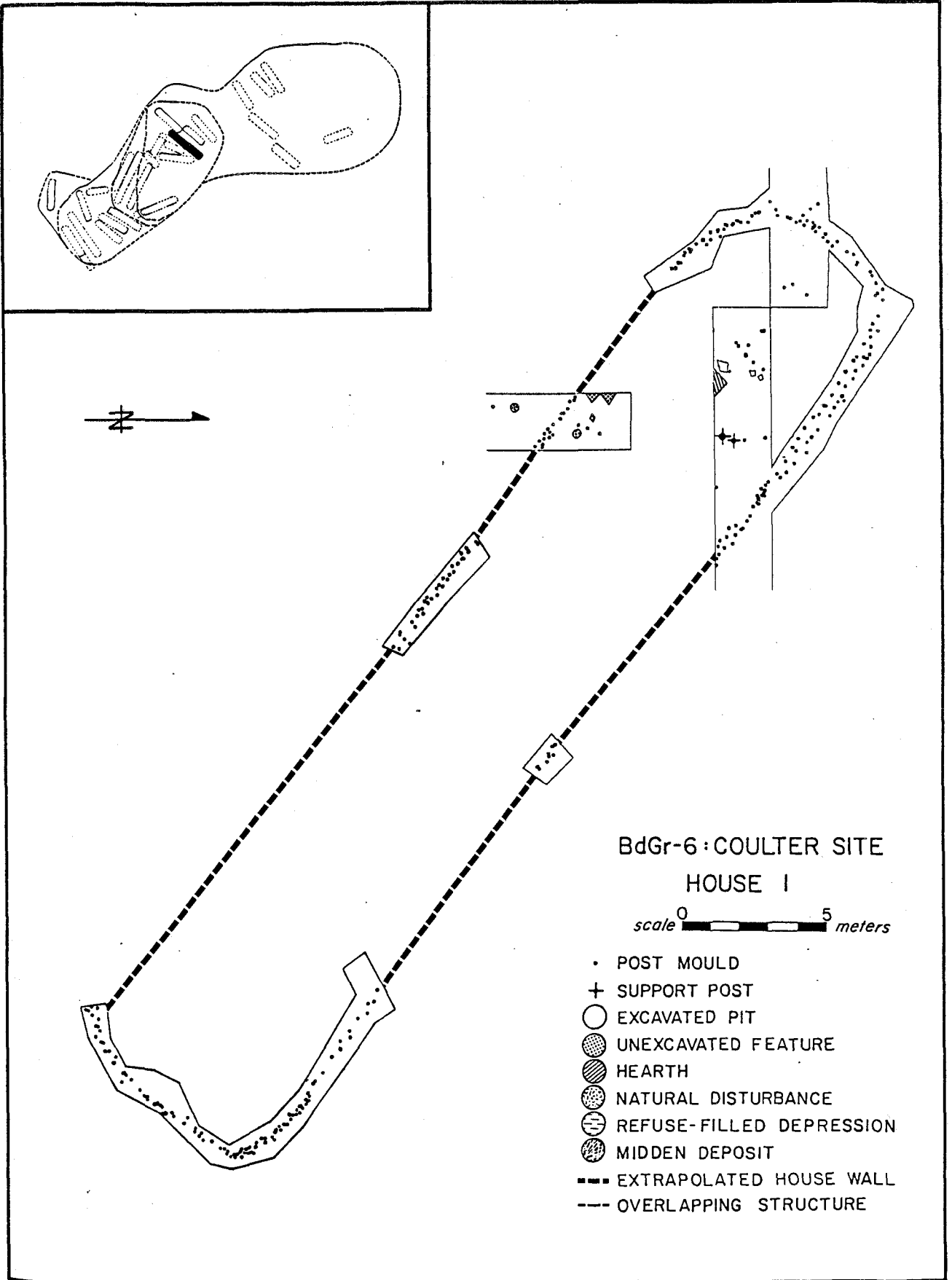


Figure 32

may have been 'squeezed' to fit the space available. Both ends are slightly rounded, with the side walls "beveled" near the ends. No doorways are readily apparent although small gaps in both corners of the northwest end could have functioned as narrow doorways.

8.2.2 Wall Posts:

Forty-five (51%) of an estimated 88 m of house wall were excavated. Post density averages 6.5 posts/m with a particularly dense section at the southern end of the northeast side, possibly indicative of rebuilding or strengthening of this section. Post patterning is generally random although roughly paired posts are found along portions of the northeast side wall. Post mould size averages 8.2 cm.

8.2.3 Interior Posts:

Only 30 (12%) of an estimated 250 sq. m of house interior was excavated, revealing 20 postmoulds (0.7/sq. m) of which 2 are considered support posts. The latter are 16 and 24 cm in diameter and are both about 2 m from the northwest side. The remaining 18 posts have a mean diameter of 8.9 cm. The limited excavation reveals no patterned distribution of posts.

8.2.4 Interior Features:

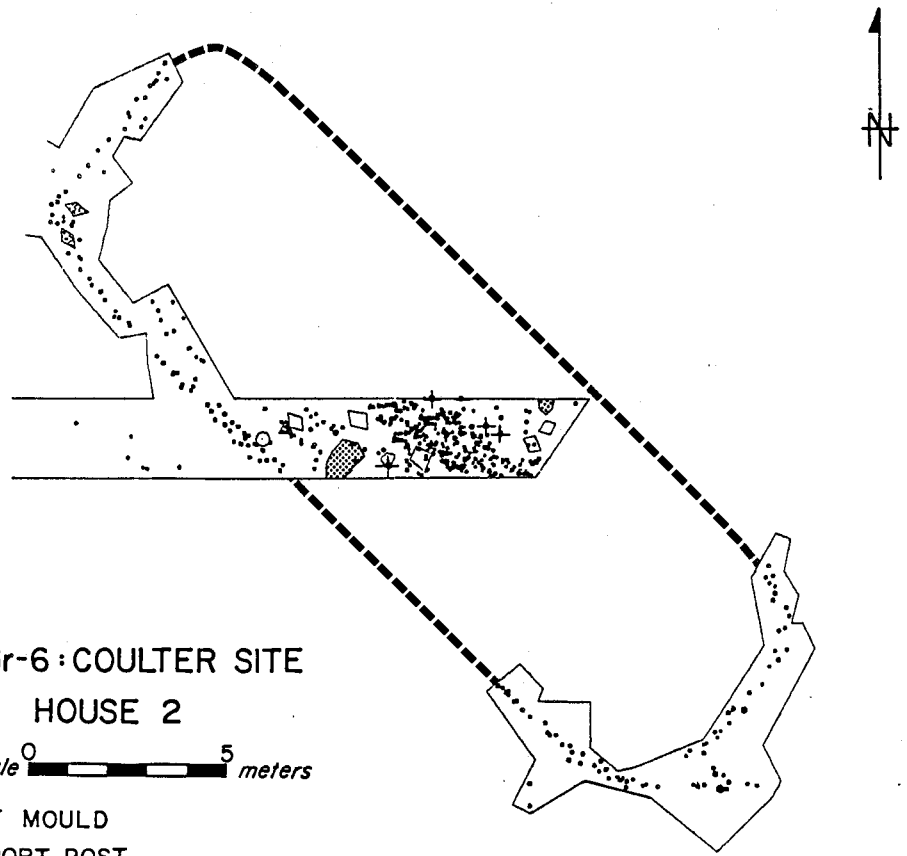
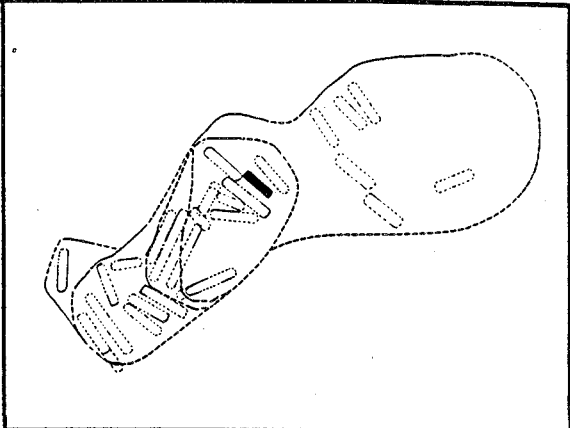
Excavation revealed one hearth and seven possible pits of which three were excavated and confirmed to be cultural and four, all close to the southwest side wall, left unexcavated. Little can be said regarding interior feature distribution except that, as expected, there appear to be central hearths and the end of the house seems to be free of features. Possible features near the southwest side may indicate a break in, or absence of, bunks along this side.

8.3 House 2 (Figure 33)

House 2 was intersected by the same E-W exploratory trench as House 1. Subsequent 'chasing' revealed all of the southeast end, and portions of the northwest end and southwest side.

8.3.1 General Morphology:

The maximum length of House 2, which parallels House 1, can be measured accurately at 22.5 m, but, because little of the northeast side is exposed, width measurement is less precise and is estimated to be about 7 m. The southwest wall appears to be straight, with bevels near both ends. The northwest end is flat while the southeast end is slightly rounded and appears to include an overlapping doorway in the southeast corner.



BdGr-6 : COULTER SITE
HOUSE 2

scale 0 5 meters

- POST MOULD
- + SUPPORT POST
- EXCAVATED PIT
- ◐ UNEXCAVATED FEATURE
- ◑ HEARTH
- ◒ NATURAL DISTURBANCE
- ◓ REFUSE-FILLED DEPRESSION
- ◔ MIDDEN DEPOSIT
- EXTRAPOLATED HOUSE WALL
- - - OVERLAPPING STRUCTURE

Figure 33

8.3.2 Wall Posts:

Excavations revealed 28 m (52%) of an estimated 54 m of house wall, as well as an apparent overlapping doorway. Mean post density along the walls is 6.8 posts/m with an average diameter of 8.2 cm. Apart from a small section of paired posts along the southwest side, no patterning is apparent in post placement. A doorway, located in the south corner of the house, appears to include a 2 m extension of the southwest side to form an overlapping doorway, probably to function as a weather-break.

8.3.3 Interior Posts:

About 18 of an estimated 155 sq. m (11.6%) of house interior was excavated. This includes a 2 m wide trench and several small sections close to the walls, revealed during 'chasing'. Mean post mould density is 12.7/m. They are heavily concentrated along a central corridor about 1.8 meters wide in what appears, at first glance, to be a random scatter. Within this scatter, however, can be seen four linear concentrations paralleling the long axis of the house. The reason for this phenomenon is uncertain, but, it is possibly the result of selective destruction of post moulds through ploughing. Interior posts average 7.3 cm in diameter, about 1 cm smaller than wall posts. While most posts are found in the central cluster, a light scattering is distributed elsewhere, including some quite close to the side walls. A single house-support post is 20 cm in diameter

and extends 34 cm into the subsoil. It is located about 2 m from the southwest side.

8.3.4 Interior Features

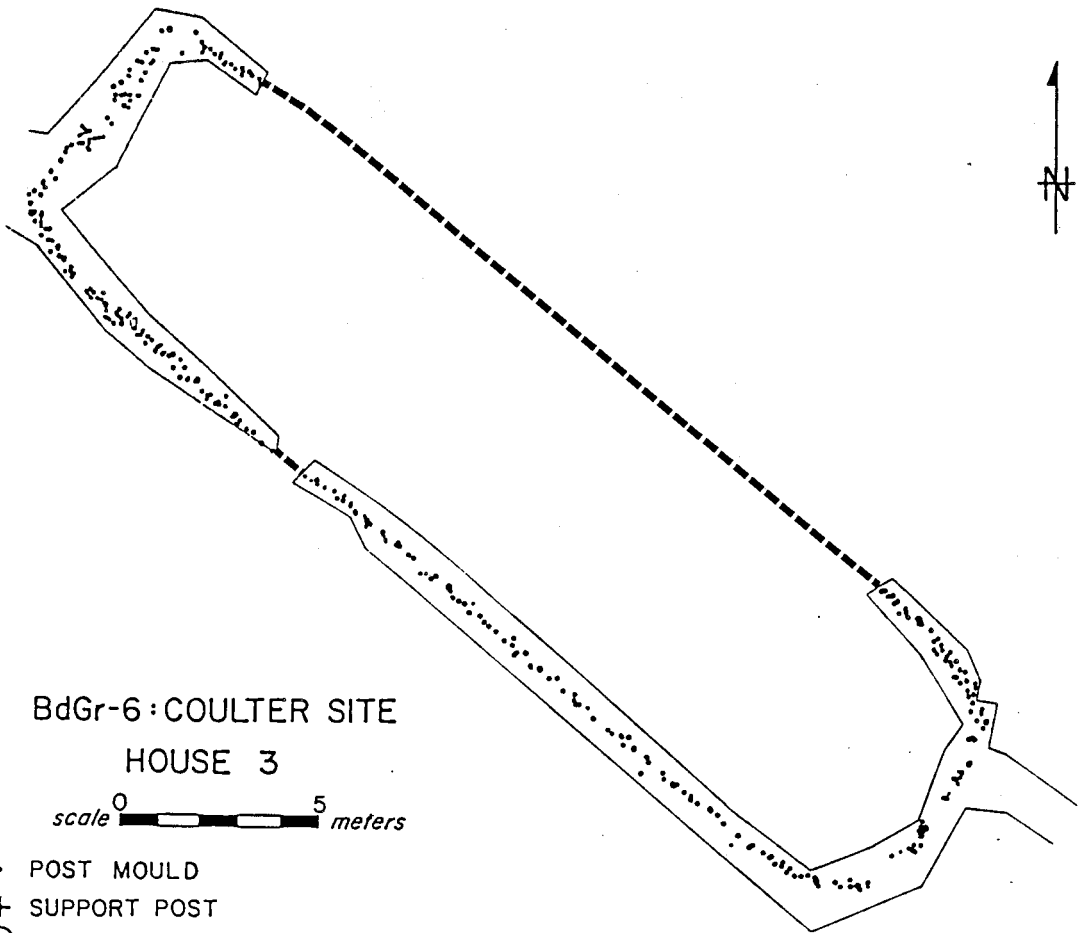
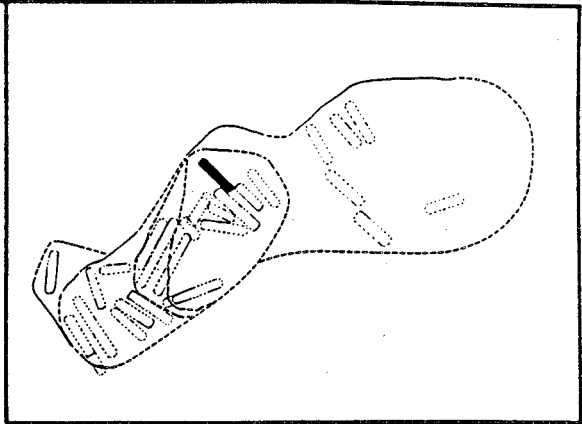
Excavated cultural features include seven pits and one small hearth. Additionally, two possible pits were left unexcavated as they were incompletely exposed. Several features are close to the side walls, including the small hearth which is less than 1 meter from the southwest side. This hearth is intersected by a pit and may not have been used regularly. The presence of posts, pits, and at least a temporary hearth close to the side walls suggests the absence of bunk structures.

8.4 House 3 (Figure 34)

House 3 was discovered while 'chasing' the walls of House 2. Much of the wall of House 3 was exposed by additional chasing, however, no interior was excavated.

8.4.1 General Morphology:

Length and width are 28.5 m and 7.5 m respectively. House 3 is oriented in a NW-SE direction paralleling Houses 1 and 2. The southeast end is flat while the opposite end appears slightly rounded. Bevelling of the sides occurs at both ends as do possible doorways. Two post moulds in the middle of the southeast doorway may be due to closing off or



BdGr-6 : COULTER SITE
HOUSE 3

scale 0 5 meters

- POST MOULD
- + SUPPORT POST
- EXCAVATED PIT
- ⊗ UNEXCAVATED FEATURE
- ▨ HEARTH
- ⊙ NATURAL DISTURBANCE
- ⊖ REFUSE-FILLED DEPRESSION
- ⊗ MIDDEN DEPOSIT
- - - EXTRAPOLATED HOUSE WALL
- - - OVERLAPPING STRUCTURE

Figure 34

reduction in size of the opening, perhaps during winter months. The northwest end also has a medially situated opening which may have served as a doorway, as may a second gap found closer to the north corner.

8.4.2 Wall Posts

Forty-five (62.5%) of an estimated 68 m of house wall, including both ends and most of the northeast side, were excavated. The wall has a mean density of 7.5 posts/m and displays no readily apparent patterning. Diameters average 8.7 cm.

8.4.3 Interior Posts:

No interior posts were exposed.

8.4.4 Interior Features:

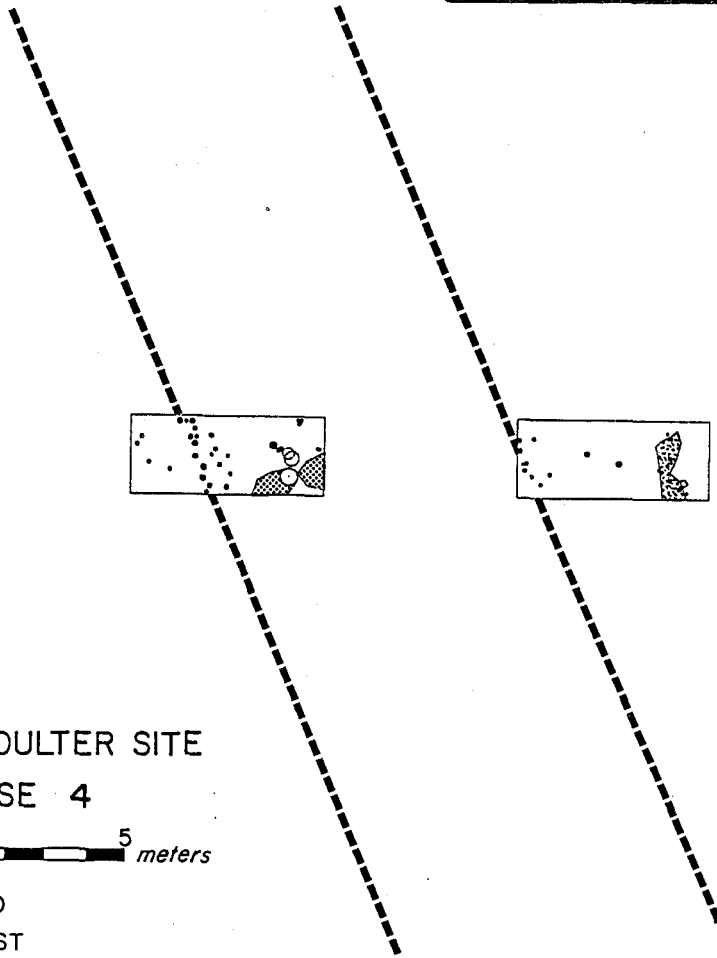
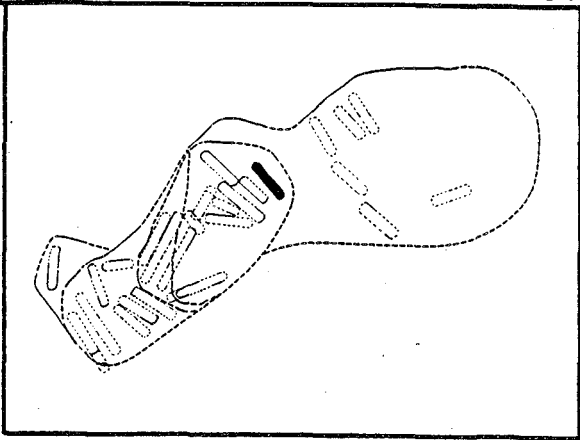
No interior features were exposed.

8.5 House 4 (Figure 35)

Small sections of both side-walls were revealed by a pair of 2x5 m excavation units.

8.5.1 General Morphology

The length of this 7.5 m wide house cannot be determined. The structure is oriented NNW-SSE, roughly paralleling neighbouring houses (Houses 1, 2 and 3).



BdGr-6 : COULTER SITE
HOUSE 4

scale 0  5 meters

- POST MOULD
- + SUPPORT POST
- EXCAVATED PIT
- UNEXCAVATED FEATURE
- ▨ HEARTH
- ▩ NATURAL DISTURBANCE
- ▧ REFUSE-FILLED DEPRESSION
- ▦ MIDDEN DEPOSIT
- - - EXTRAPOLATED HOUSE WALL
- - - OVERLAPPING STRUCTURE

Figure 35

8.5.2 Wall Posts

Only about 3 m of house-wall was exposed, with an average of 6.0 posts/m. Mean post diameter (9.9 cm) was comparatively large although, with a standard deviation of 3.7 cm, it falls within the range of variation seen in most of the other structures.

8.5.3 Interior Posts

There were 2.3 posts/sq.m in the 3 sq.m of interior with an average diameter of 7.7 cm. Most are found close to the south-west side.

8.5.4 Interior Features

Five features were encountered, two of which were incompletely exposed and left unexcavated. The remaining three are small, circular pits, two of them overlapping.

8.6 House 5 (Figure 36)

House 5 was initially encountered by a 2 m wide E-W trench intersecting the southwest side which was subsequently 'chased' north and south. A second trench, running N-S, intersected the south end which was also further exposed by chasing. Subsoil conditions vary considerably in House 5 with the northern half being very stoney and gravelly and the southern half being clay mixed with fine sand. Large areas of disturbance may have masked

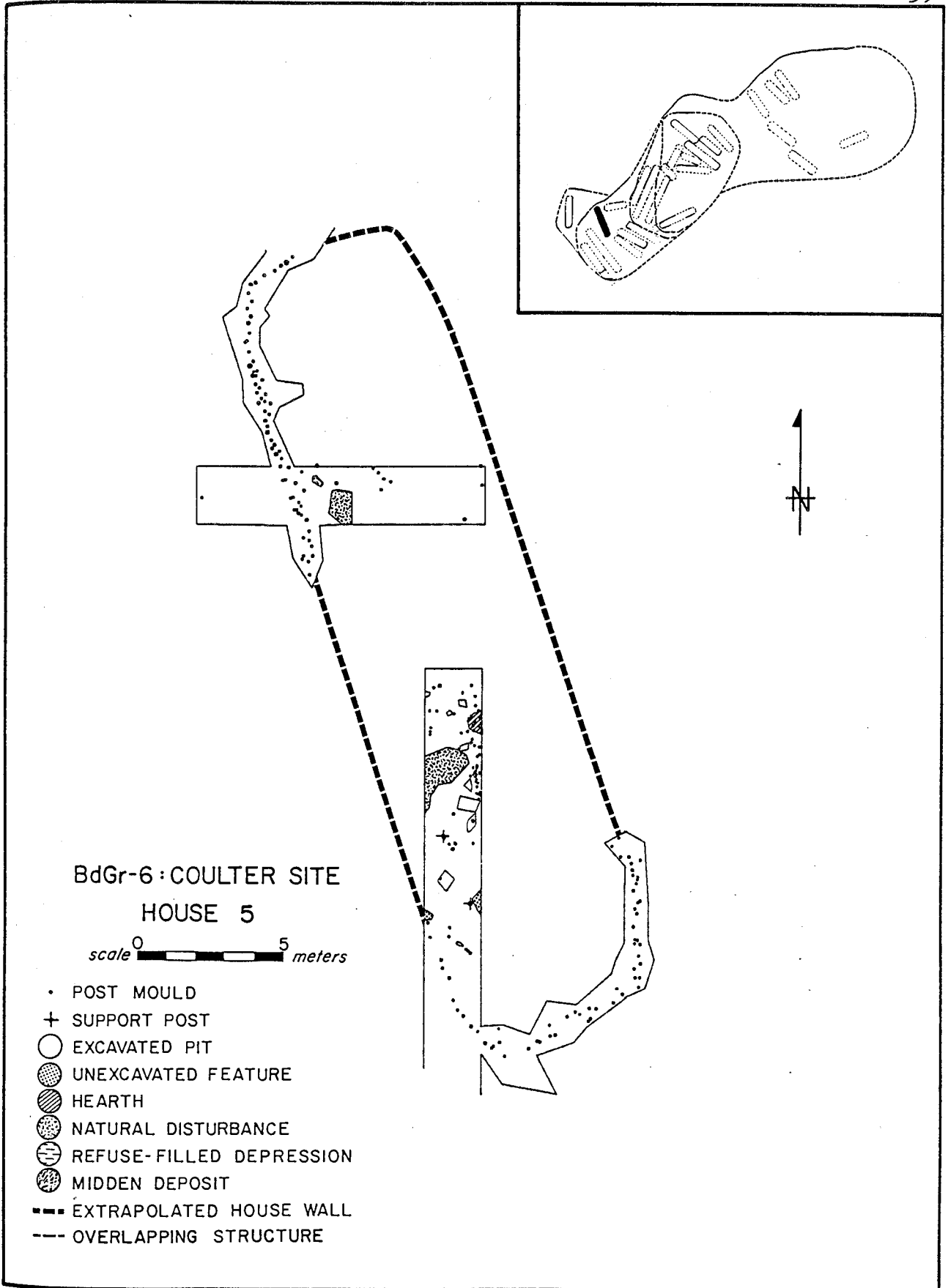


Figure 36

some post moulds and features in the southern half.

8.6.1 General Morphology:

Length and width are 29 m and 7.5 m , respectively, and the house is oriented on a NNW-SSE axis. Both sides are beveled and have straight or slightly rounded ends. No doorways are obvious although a small gap in the southwest corner and the apparent absence of posts in the middle of the north end could represent doorways.

8.6.2 Wall Posts:

The circumference of House 5 is estimated to be about 70 m. Of this, 28 m (40%) was excavated, revealing 4.8 posts/m with a mean diameter of 8.3 cm. Post placement does not seem to be patterned, but the west side is particularly thin at its southern end, possibly because of root disturbance in the area.

8.6.3 Interior Posts:

Only 17.4% (34 sq. m) of an estimated 195 sq. m of house interior was exposed. Mean post density is 2.2 sq. m with the lowest densities occurring in the northern half of the house where the subsoil is very rocky compared with the southern half. Interior posts are small, with a mean diameter of 5.8 cm. Although posts do occur close to the side walls, most appear to be centrally situated. Two support posts, 16 and 19 cm in diameter, occur about 1.5 m

from the west-southwest side.

8.6.4 Interior Features:

Eight pits and one hearth were identified, as well as three unexcavated, but possibly cultural, features. Pit distribution is similar to interior post mould distribution in that some occur close to the southwest side wall but the majority are found along the central corridor. The single hearth is also centrally situated.

8.7 House 7 (Figure 37)

House 7 was initially intersected by a N-S test trench exposing a 4 m section of wall. By extrapolation, the wall was relocated 15 m to the north and chased in a northeasterly direction until a bevel in the wall indicated that the end of the house had been reached. The presence of a hearth in this area, however, suggested that a second house had been intersected. At this point, a larger area was opened up revealing the southeast corner of House 8, overlapped by the northern end of House 7. Excavations at the southern end of House 7 indicated that several rows of palisade were also overlapped. A 2 by 5 m unit was excavated with the hope that it would reveal more of the palisade as well as the west-northwest side of House 7. While at least three rows of palisade could be discerned, the house wall was far from clear. Therefore, a second unit, 5 m to the

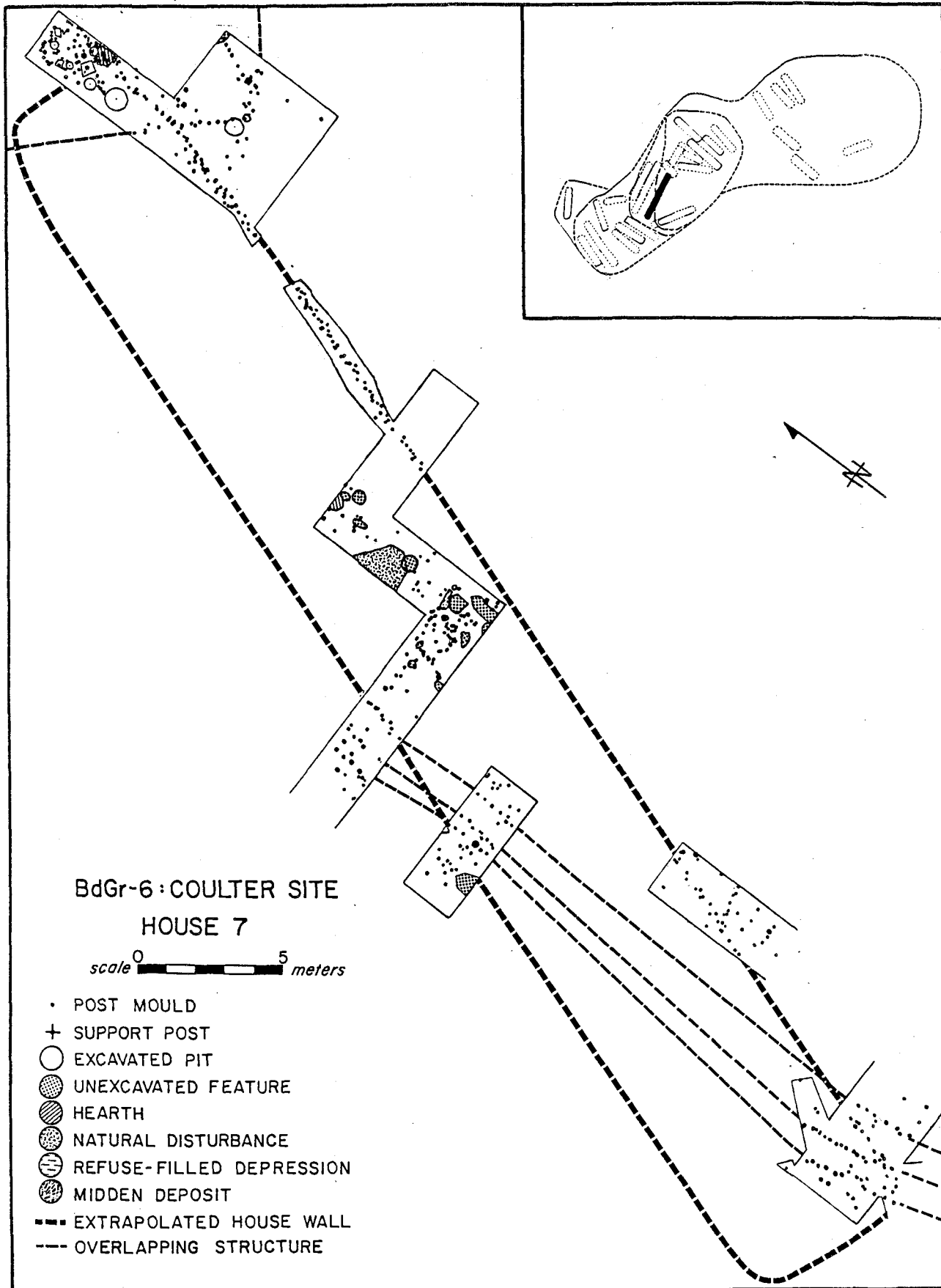


Figure 37

north, was excavated. In this square, which included a portion of Midden 75, the house wall was clear but the palisade was less so. Finally, an L-shaped section of house interior was excavated.

8.7.1 General Morphology:

House 7 appears to be long (ca 49 m) and narrow (6.3 m) and is oriented NNW-SSE. Both ends are obscured by overlapping structures, the south end being only very tentatively defined. If properly interpreted, however, only the north end is beveled.

8.7.2 Wall Posts:

In all, about 30 m (27%) of an estimated 110 m of house wall was exposed. About 5 m of this could not be clearly distinguished from overlapping structures and so was not included in post density and mean diameter calculations which are 6.6/m and 7.7 cm, respectively. No doorways or patterning of post placement were recognized.

8.7.3 Interior Posts:

While about 45 sq. m of house interior was exposed, only 25 sq m was not overlapped by other structures and could be used to characterize the house interior. There is an average of 4.0 posts/sq. m with a mean diameter of 6.7 cm. As usual, interior posts cluster along the axial center of the house.

8.7.4 Interior Features:

The only excavated features occur at the north end and probably belong to House 8. Unexcavated features occur elsewhere, including a single, centrally situated hearth.

8.8 House 8 (Figure 38)

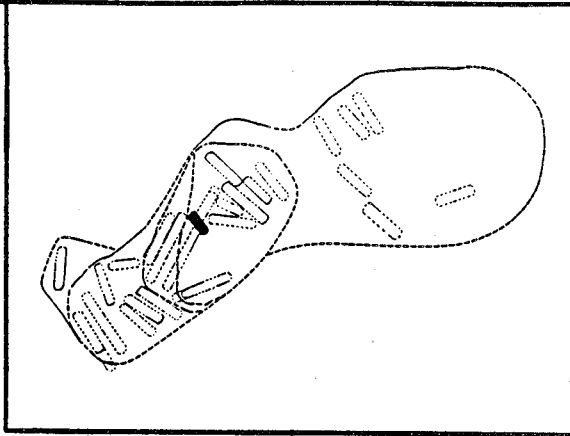
House 8 was discovered during the excavation of House 7. When it was suspected that these two structures overlapped, an area of 35 sq. m was opened up to clarify the nature of the overlap. Additionally, 2 m wide trenches intersected the northwest side of the house and what is probably the southwest corner, revealing additional overlaps with House 27 and with a section of palisade.

8.8.1 General Morphology:

Identification of the northwest end is only tentative, but if it has been accurately interpreted, House 8 has a length of 16 m, a width of about 7 m and is oriented NW-SE. The southeast corner suggests that there is no beveling of the sides and that the ends are slightly rounded.

8.8.2 Wall Posts:

Although 12.5 m of an estimated total of 46 m of house wall (27%) have been exposed, very little is sufficiently clear and distinct from overlapping structures to allow calculations of post mould densities and diameters and so no



BdGr-6 : COULTER SITE
HOUSE 8

scale 0 5 meters

- POST MOULD
- + SUPPORT POST
- EXCAVATED PIT
- ◐ UNEXCAVATED FEATURE
- ◑ HEARTH
- ◒ NATURAL DISTURBANCE
- ◓ REFUSE-FILLED DEPRESSION
- ◔ MIDDEN DEPOSIT
- EXTRAPOLATED HOUSE WALL
- - - OVERLAPPING STRUCTURE

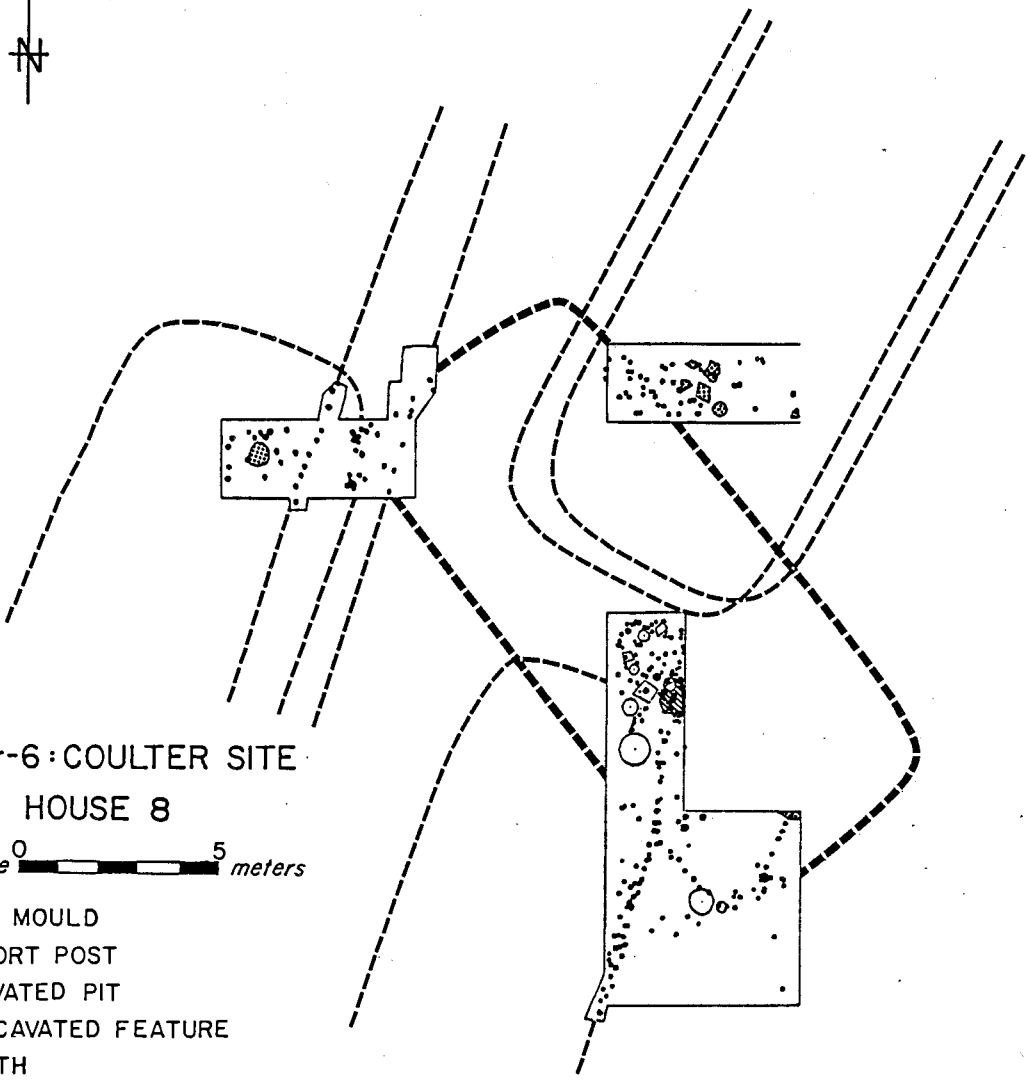


Figure 38

such calculations have been made. It can be noted, however, that densities seem low compared to most other structures. Portions of the southwest side are made up of a single row of posts, while some pairing is evident along the northeast side and possibly at the southeast end.

8.8.3 Interior Posts:

Analysis of interior posts is also hampered by overlapping structures although it appears that densities are greatest towards the centre area of the house.

8.8.4 Interior Features:

Ten cultural features are located within the 20 sq. m of excavated house interior, some of which may belong to House 7. Of these, one is a hearth, centrally situated in House 8, and the others are pits. Two additional pits in the southwest corner appear to post-date the house since wall posts underlay, but did not pass through the edges of the features.

8.9 House 9 (Figure 39)

House 9 was initially encountered by a 2 by 5 m unit, oriented N-S, revealing interior postmoulds and features. A subsequent 2 m wide trench running E-W, intersected both sides with the east side then being chased for 5 m in a north-northeast direction. Extrapolation of this segment

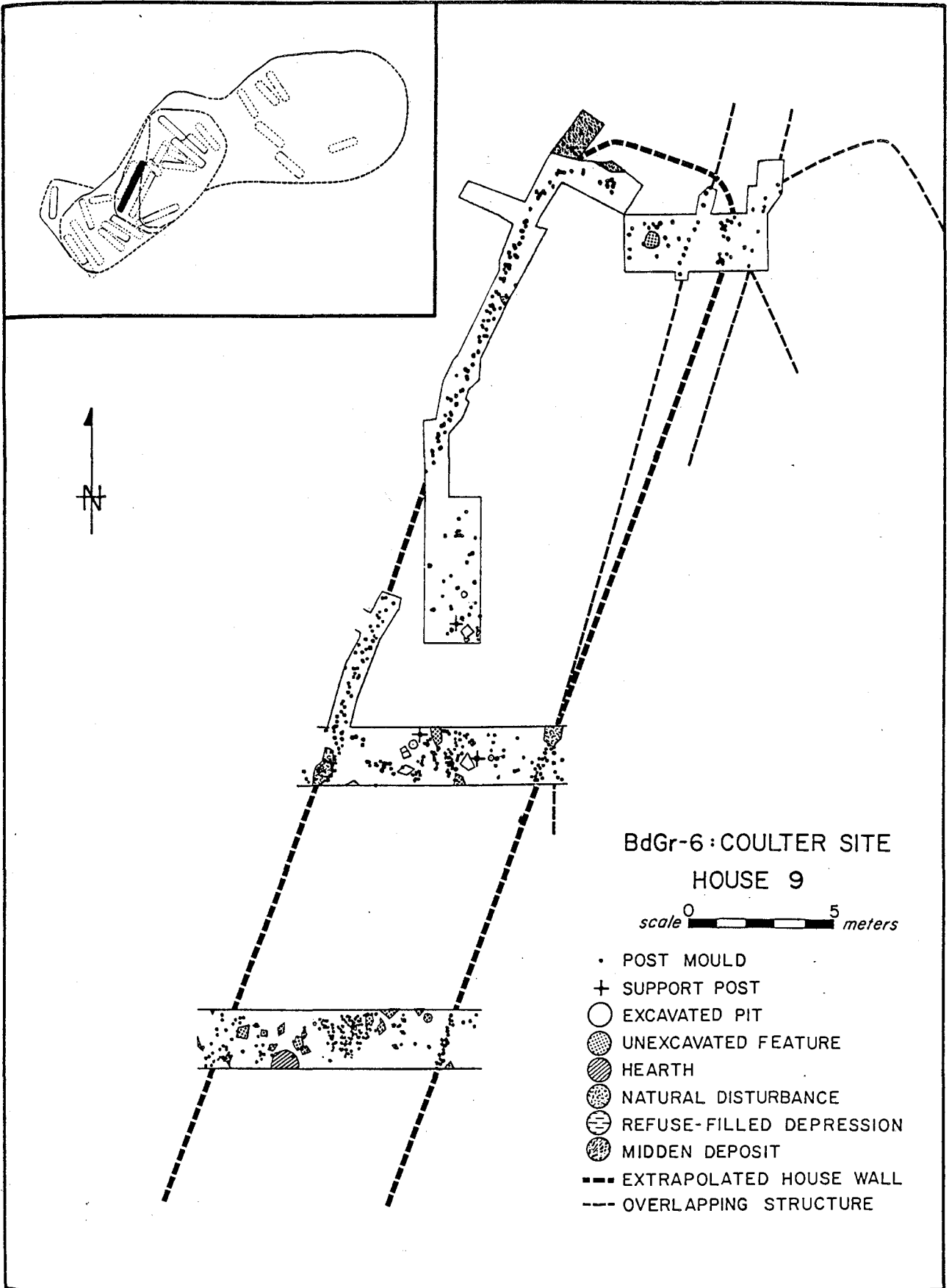


Figure 39

suggested that the wall passed just north of the initial 2 by 5 m unit, prompting additional exploration, again in a north-northeast direction, for about 12 m until Midden 64 was encountered. A second 2 m wide E-W trench, located 10 m south of the first, also cross-cut the house. Finally, a 2 by 5 m unit located near the northeast corner of House 9 revealed a section of palisade partially overlapped by the house.

8.9.1 General Morphology:

Little can be said regarding the general morphology of House 9. Length cannot be determined except to say that it falls between 36 and 55 m. Width, which can be measured, is 7.5 m. The house is oriented in a NNE-SSW direction. A slight bevelling of the side-walls at the north end suggests that the walls terminate close to this point. No doorways are evident.

8.9.2 Wall Posts:

The total circumference of House 9 is estimated to be between 85 and 125 m. Of this 26.8 m of wall were exposed, mostly (21 m) restricted to the north-northwest side. Mean post diameter is 7.5 cm and density is 8.5/m, the highest density of any house at the site by a margin of almost 2 cm. Post patterning is not evident although a notable difference between sides in degree of scattering is apparent, especially in the southern-most excavated area. This

phenomenon may be due to differences in subsoil -- the east wall passes through a clay-silt-sand subsoil while the west wall passes through a gravel and cobble subsoil. The latter might have affected the builder's ability to insert posts exactly where desired.

8.9.3 Interior Posts:

A total of 46 sq. m of house interior was excavated. Of this, 6.5 sq. m overlaps palisade and so was not used in calculating post mould size and density. Interior posts are slightly smaller than wall posts, with a mean diameter of 7.2 cm. Post density averages 6.2 posts/sq.m with heavy concentrations along the central corridor. Three interior support posts, 16 and 19 cm in diameter, are located about 2.75 m from their respective side walls.

8.9.4 Interior Features:

Ten features of confirmed cultural origin were discovered, including a partially revealed hearth offset about 1 m, towards the west-northwest side. All excavated features are located towards the center of the house while 26 unexcavated features, a few of which may not be of cultural origin, are more widely scattered, some of them possibly associated with the hearth.

8.10 House 10 (Figure 40)

This structure was first transected by an E-W 2 m wide trench. To the north of this, two additional E-W trenches intersected the east and west side-walls, respectively. Additionally, a 6.3 m section of the east side-wall was 'chased'.

8.10.1 General morphology:

No end walls were discovered but excavations indicate that House 10 is between 25 and 40 m in length. Probable limits are defined by a palisade to the south and Midden 64 to the north. Width, which can be directly measured, is only 6.75 m. The house runs very close to, and parallels, both a section of palisade and House 9. It is possible that House 10 had to be somewhat narrower than usual in order to fit the space between the two structures. If so, it suggests that both House 9 and the palisade were constructed prior to House 10. Alternatively, it may be argued that a slightly narrower structure is not surprising since the nearby House 7, which was probably built at the same time as Houses 9 and 10, is only 6.3 m in width. The house is oriented in a NNE-SSW direction, paralleling Houses 9 and 7. No doorways are evident.

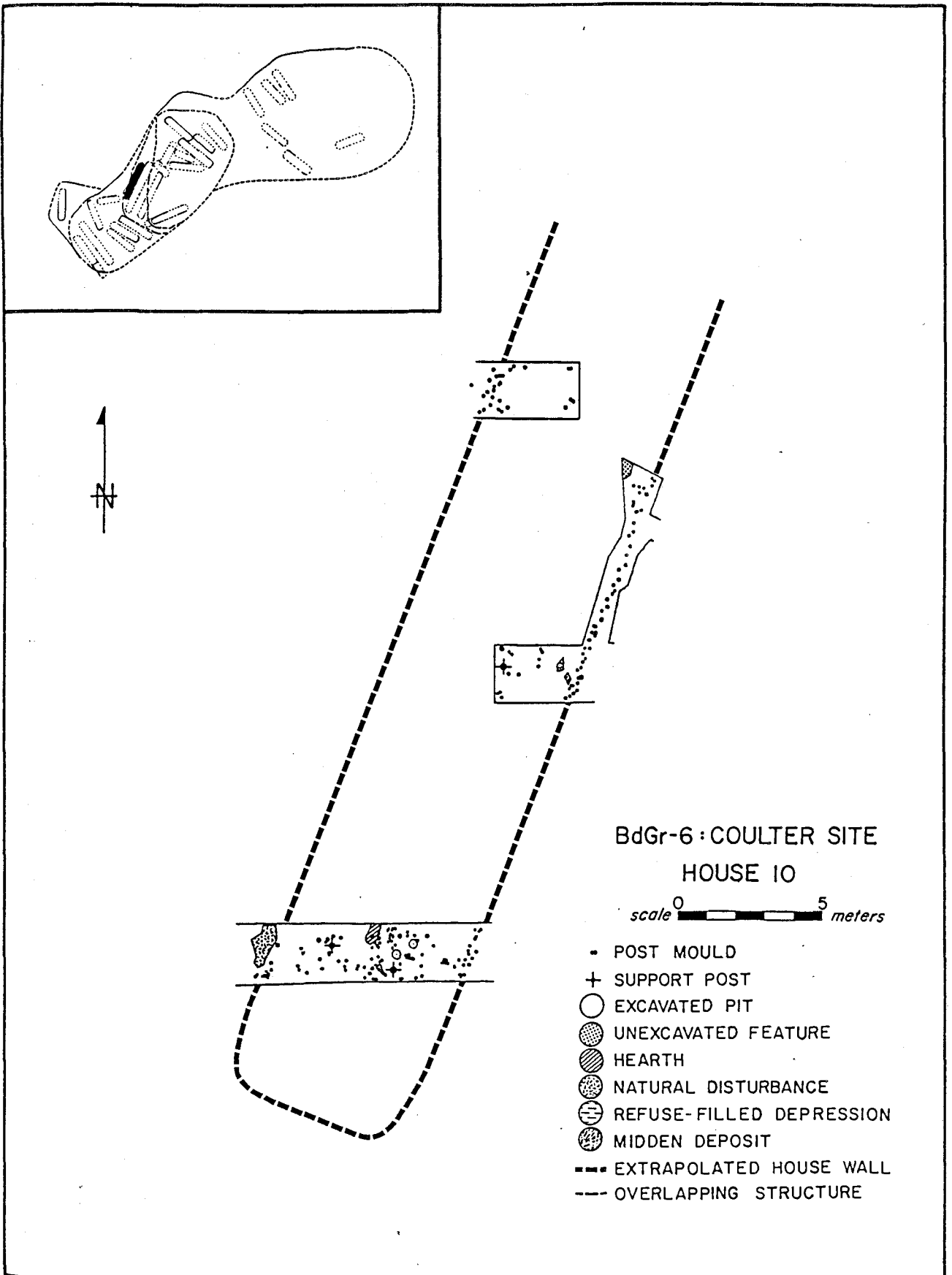


Figure 40

8.10.2 Wall Posts:

Only a small amount (14 m) of the House 10 side-walls was excavated. Mean post mould diameter is 7.9 cm while post density averages 6.5/m. With the exception of some possible pairing of posts in the 'chased' portion of the east side, no patterned distribution of wall posts is evident.

8.10.3 Interior Posts:

A total of 25.5 sq. m of excavated house interior revealed three interior house support posts, measuring 22, 24 and 29 cm in diameter, located between 1.9 and 2.5 m from the nearest side wall. The remaining posts, average 7.3 cm in diameter and occur with an average density of 4.2 posts per sq.m, with lowest densities along the walls.

8.10.4 Interior Features:

A single hearth and two excavated pits are the only confirmed cultural features from House 10. The hearth is situated midway between the two sides and appears to be associated with a clustering of interior posts. A partially exposed feature of possible cultural origin was found while 'chasing' the wall.

8.11 House 11 (Figure 41)

A small portion of House 11 was revealed by the two 2 by 5 m units intersecting it.

8.11.1 General Morphology:

Neither length or width can be determined from the present excavations. The approximate location of the northwest end can be extrapolated to be just north of the excavated area, probably ending before the palisade. Orientation of the structure is WNW-ESE.

8.11.2 Wall Posts:

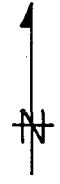
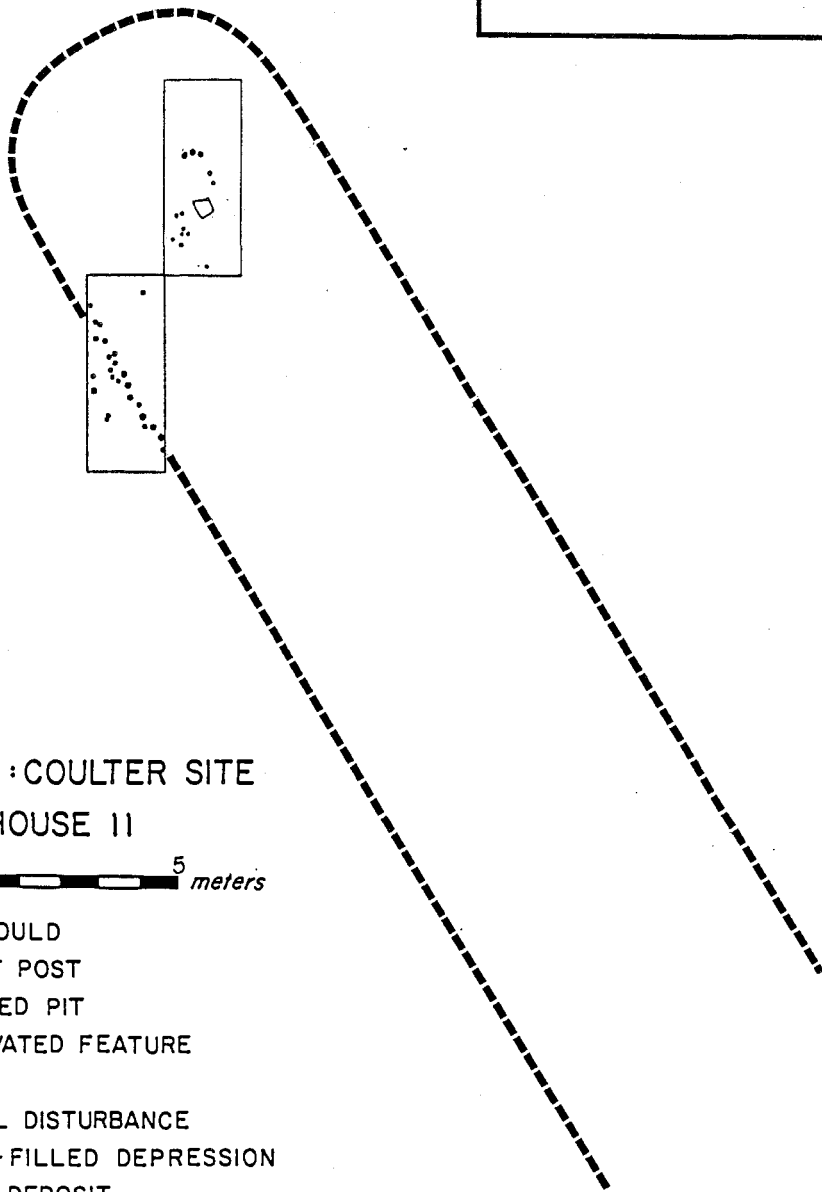
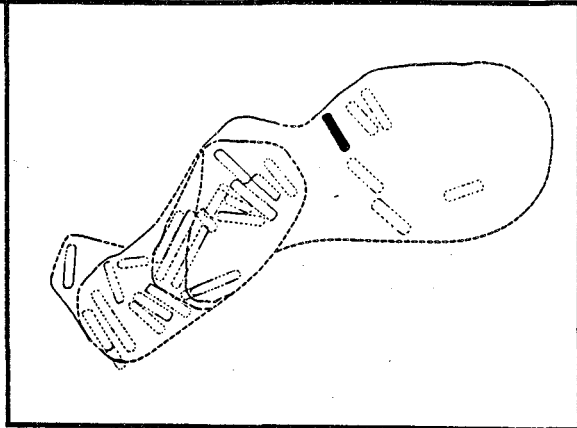
A 3.75 m section of the southwest wall was exposed revealing 5.3 posts/m, with a mean diameter of 9.9 cm, forming no clear pattern.

8.11.3 Interior Posts:

The 15 sq.m of excavated interior contained 1.1 posts/m with a mean diameter of 7.8 cm.

8.11.4 Interior Features:

The only cultural feature is an ash pit.



BdGr-6 : COULTER SITE
HOUSE II

scale 0 5 meters

- POST MOULD
- + SUPPORT POST
- EXCAVATED PIT
- UNEXCAVATED FEATURE
- ▨ HEARTH
- ⊙ NATURAL DISTURBANCE
- ⊖ REFUSE-FILLED DEPRESSION
- ⊙ MIDDEN DEPOSIT
- EXTRAPOLATED HOUSE WALL
- OVERLAPPING STRUCTURE

Figure 41

8.12 House 12 (Figure 42)

House 12 is unique in being the only house found in the 'Section 4' segment of the village. It was initially encountered by an E-W 2 by 5 m trench which intersected the east side and by a N-S trench which revealed the southeast corner. Portions of the wall were then chased to outline most of the house. The interior was selected for more detailed excavation for several reasons.

1. Shallow topsoil (15 - 20 cm) and lack of plough marks suggested little or no ploughing had been carried out.
2. The subsoil was made up of fine sand and silt, with a minimum of gravel, facilitating excavation and feature detection.
3. The low density of wall posts suggested that the house had not undergone much repair and therefore might have been occupied for a relatively short period. Under such circumstances spatial patterning of both features and artifacts would stand a better chance of reflecting activity areas.

About two thirds of the house was divided into 1 by 1 m subsquares, each of which was screened with 6 mm mesh. A 2 by 5 m unscreened unit was used to locate the north end of the house.

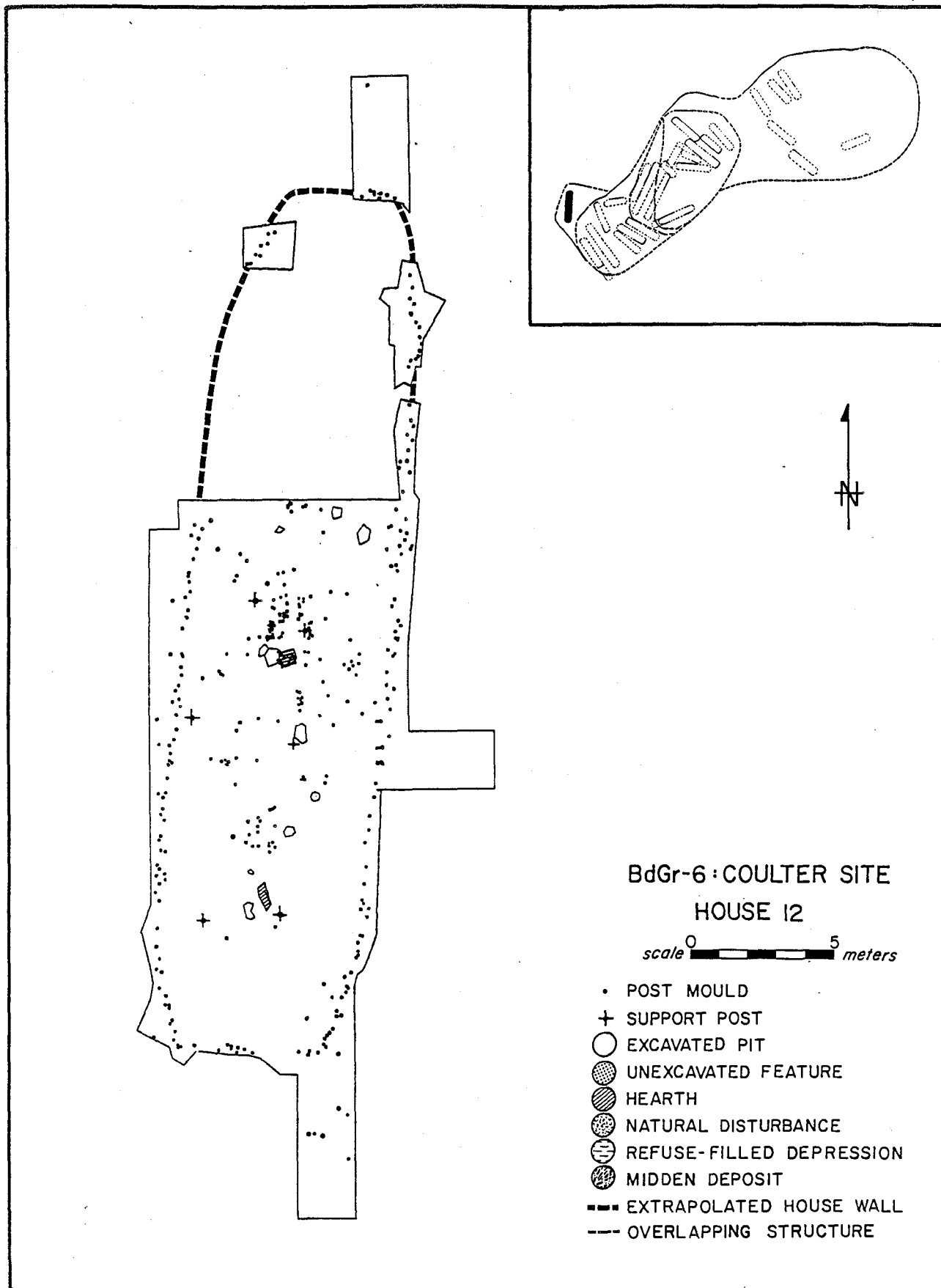


Figure 42

8.12.1 General Morphology:

House 12 measures 30.5 by 7.5 m. Both sides bevel at the ends with the northwest corner possibly bending more sharply to form an especially narrow end. A possible doorway is apparent at the south end close to the east side. Also, a few small gaps in the side-walls may have functioned as doorways. The house is oriented approximately along a N-S axis.

8.12.2 Wall Posts:

Of an estimated 70 m of house wall, 54 m (77%) were excavated, revealing a relatively thin wall with a mean density of only 3.5 posts/m. As mentioned above, this is interpreted as being the result of a relatively short period of occupation with limited repair of the walls. Patterning of post placement is not readily apparent, although the small section excavated near the northern end of the west side appears to contain some paired posts. Post diameters averaged 7.4 cm.

8.12.3 Interior Posts:

Approximately two thirds, or 135 of an estimated 205 m of house interior were exposed. As with the walls, post density is quite low, averaging only 1.2 posts per sq. m. This too is likely a result of a relatively short period of occupation. While a few posts occur close to the sides, most are located in the central one third of the house in what

appear to be small clusters just north of the two hearths. The last 3.5 meters at the southern end of the house was virtually devoid of posts. Six interior posts, interpreted as house support-posts, range in diameter from 16 to 19 cm and are situated from 1.6 to 2.7 metres from the nearest side wall.

8.12.4 Interior Features:

A dozen cultural features were found, again a fairly low concentration. Of these, two are centrally situated hearths, about 8 m apart, with the southern-most one being 5 m from the end of the house. Given this spacing, there is probably only room for one more hearth in the unexcavated portion of the house. The remaining 10 features are all pits, mostly oval in planshape and basin in profile. As with the interior post moulds, these are centrally concentrated and are absent from the southern-most 3.5 m of the house. This is a common phenomenon in Iroquoian longhouse structures and is often thought to reflect the use of house ends for storage.

8.13 House 13 (Figure 43)

House 13 was initially intersected by a N-S 2 m wide trench. East-west extensions were added when several rows of overlapping palisade and what appeared to be an outside hearth were encountered.

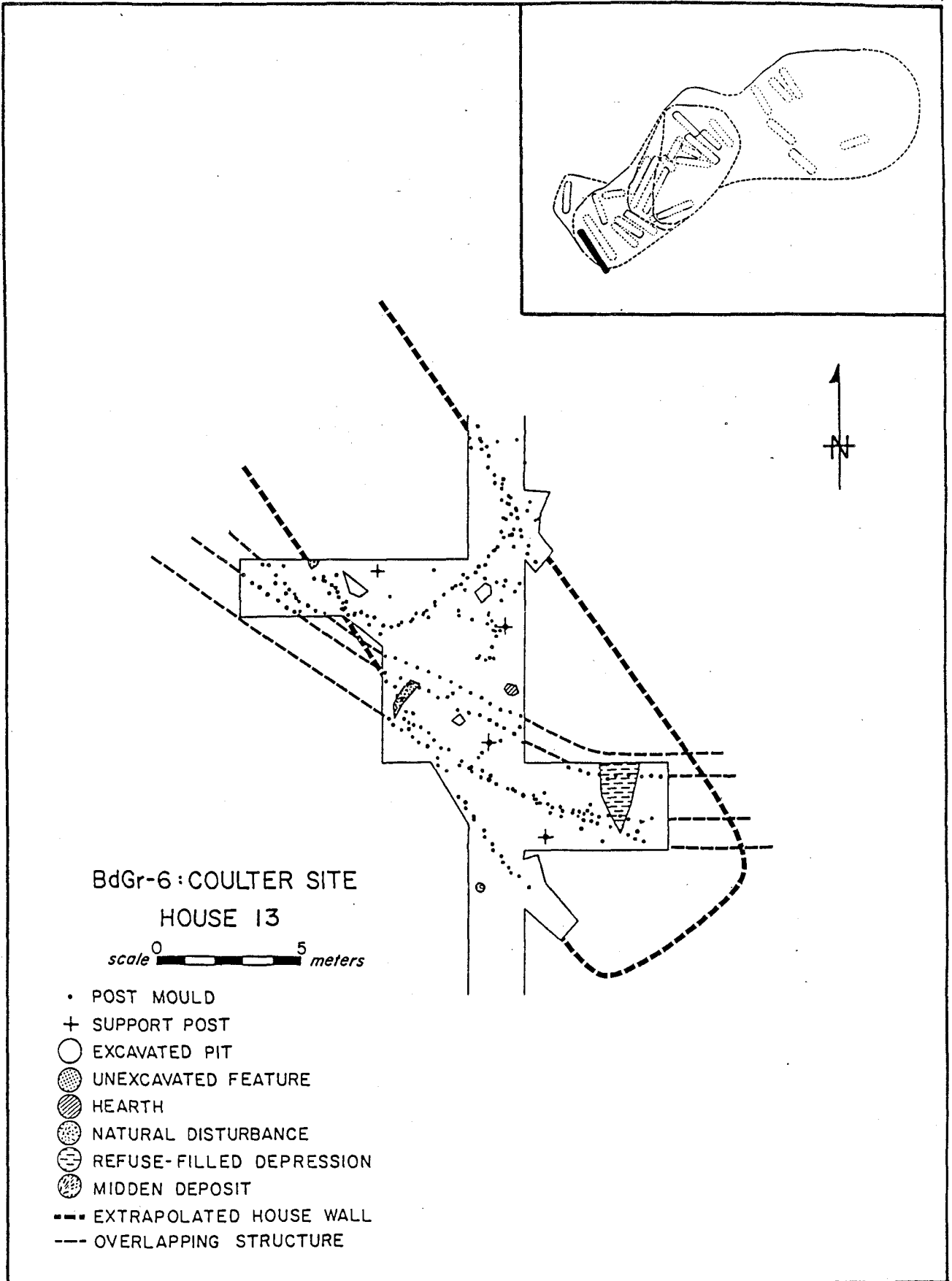


Figure 43

8.13.1 General Morphology

Excavations indicate that House 13 underwent at least two phases of construction. Evidence for this is found in the southwest side wall which appears to cross-cut the palisade, and also in the presence of a central hearth apparently belonging to the extension. Initially, the slightly rounded southeast end terminated just north of the Section 3 palisade and was subsequently extended by at least 11 m, passing through the previously palisaded area. The house is oriented on roughly a NW-SE axis and measures 7.5 m in maximum width. Although only a small amount of the NE side of the expansion is exposed, what little there is suggests tentatively that part of the extension is slightly narrower than the original structure.

8.13.2 Wall Posts

Of the 24.5 m of excavated house wall, 6.5 m is obscured by overlapping palisade or by natural disturbances. The remaining 18 m has 5.2 posts/m which average 8.1 cm in diameter. Post patterning is only evident in a portion of the house extension where paired posts are staggered. It is notable, also, that post density is lower in the extension, reflecting the fact that it was used for a shorter duration than the rest of the structure.

8.13.3 Interior Posts

Only 25 of the 65 sq.m of excavated house interior could be used to generate interior post data because of overlapping palisade and, within the extension, even some of the posts found in the unobscured parts may pre-date its construction. There are 1.2 posts/m which tend to be located towards the centre of the house.

8.13.4 Interior Features

A small centrally situated hearth appears to belong to the extension.

8.14 House 14 (Figure 44)

House 14 is transected by a single N-S 2 m wide trench.

8.14.1 General Morphology

All that can be determined is that the house is about 7.5 m in width and oriented in a NW-SE direction.

8.14.2 Wall Posts

Nearly 7 m of wall was excavated, however, a large disturbance on the south side obscures just over a metre of it. The remainder contains 6.6 posts/m with a mean diameter of 8.8 cm and no apparent post patterning.

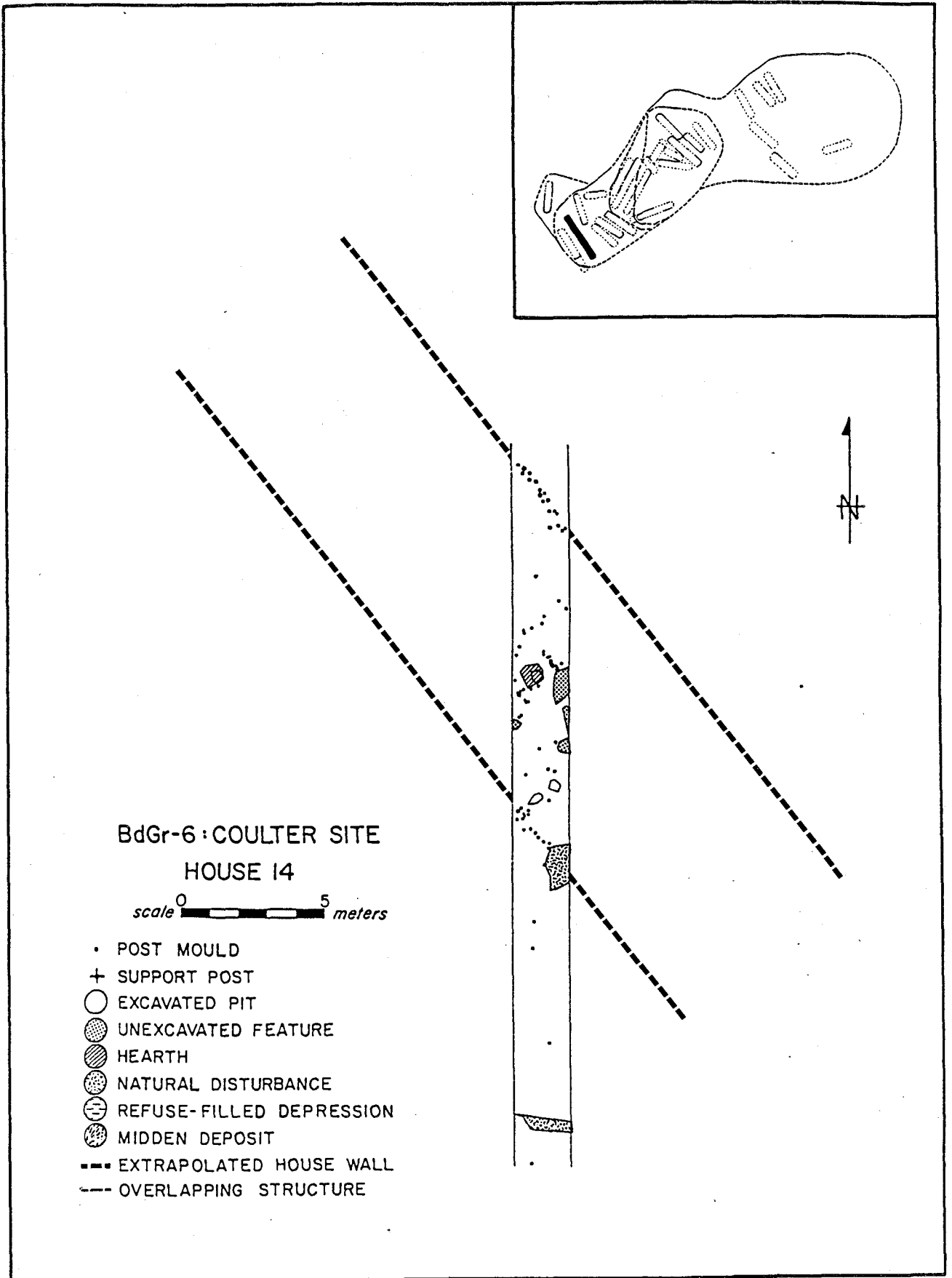


Figure 44

8.14.3 Interior Posts

The 24 sq.m of house interior contains 2.0 posts/sq.m with an average diameter of only 4.7 cm. Post density is greatest in the centre of the house.

8.14.4 Interior Features

Two pits and a centrally situated hearth were excavated while four incompletely exposed features were left intact.

8.15 House 15 (Figure 45)

Only a single 2 m wide trench cross-cut House 15.

8.15.1 General Morphology

Oriented NW-SE, House 15 is the second most narrow house at Coulter measuring 6.5 m.

8.15.2 Wall Posts

Just over 6 m of wall were exposed revealing a generally unpatterned wall post configuration. The 5.2 posts/m average 8.4 cm in diameter.

8.15.3 Interior Posts

House 15 is unique in that all of the interior posts are situated in the SW half of the house. Although only a small portion of house interior was exposed, (18.5 sq.m), the distribution clearly differs from that of other structures.

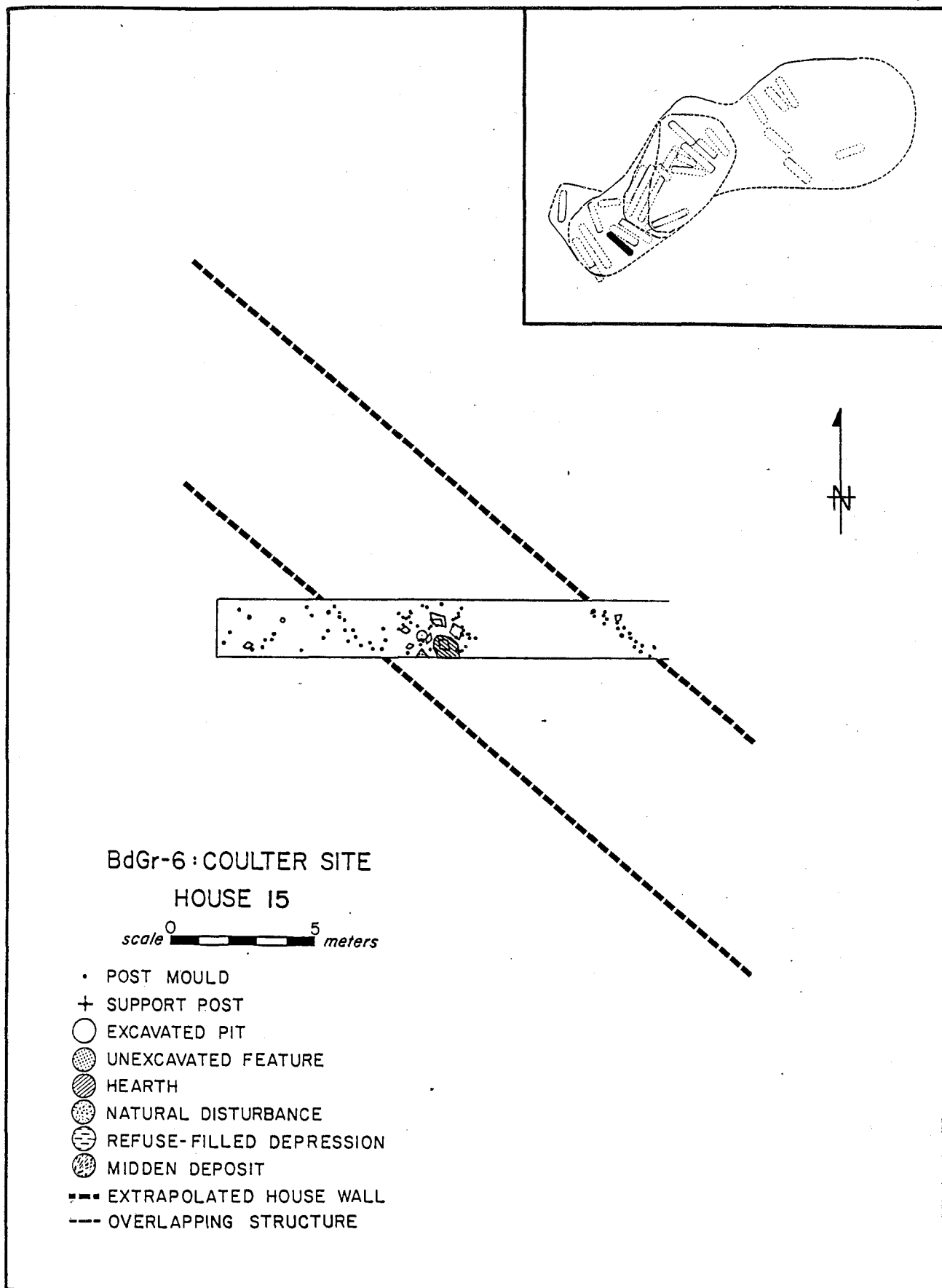


Figure 45

While the overall density of posts is 2.3/sq.m, the actual density in the SW half is about double that figure. The posts are quite small, averaging 5.4 cm in diameter, and appear to be arranged in a circular cluster of roughly 2 m diameter. It should be cautioned, however, that this latter observation may simply be a reflection of the size of the excavation unit.

8.15.4 Interior Features

Like the interior posts, all of the features, including a hearth, seven pits and one unexcavated partly exposed feature, are also found in the SW half of the house. They too, appear to be arranged in a roughly circular cluster.

The fact that all of the posts and features, including the hearth which is about 1.5 m from the SW side, are not centrally situated as is normal in Iroquoian houses, suggests that the internal organization of the occupants was different in House 15. Rather than the ethnohistorically recorded pattern of two families sharing a central hearth, which is usually interpreted to be the case in Iroquoian structures, it seems more likely that the occupants of House 15 lived along one side and carried out their activities along the other. If this was the case, the relative narrowness of the structure also seems more explainable. These interpretations assume, of course, that this pattern is found in the rest of the house as well.

8.16 House 16 (Figure 46)

House 16 was initially encountered by an E-W 2 m wide trench which intersecting the southwest side. The wall was chased in a southeasterly direction until a heavily disturbed area was encountered, at which time an L-shaped excavation unit was opened in the hope that the wall would be easier to distinguish.

8.16.1 General Morphology

Only the southeast end has been excavated of which the northern corner is largely obscured by a natural disturbance. If the small section of posts is properly interpreted as the beginning of the northeast side, the house is at least 7.5 m in width. The side walls bevel, at least in the southeast corner, and what may be a narrow doorway, roughly in the centre of the end wall, is obstructed by a single post.

8.16.2 Wall Posts

No patterning is apparent in the placement of the wall posts which occur with a mean density of 5.5/m and have an average diameter of 7.5 cm.

8.16.3 Interior Posts

While few interior posts (1.6/m) were found in the 11 m of analysable house interior, this is not unexpected since most of the excavations were focused at the end of the house

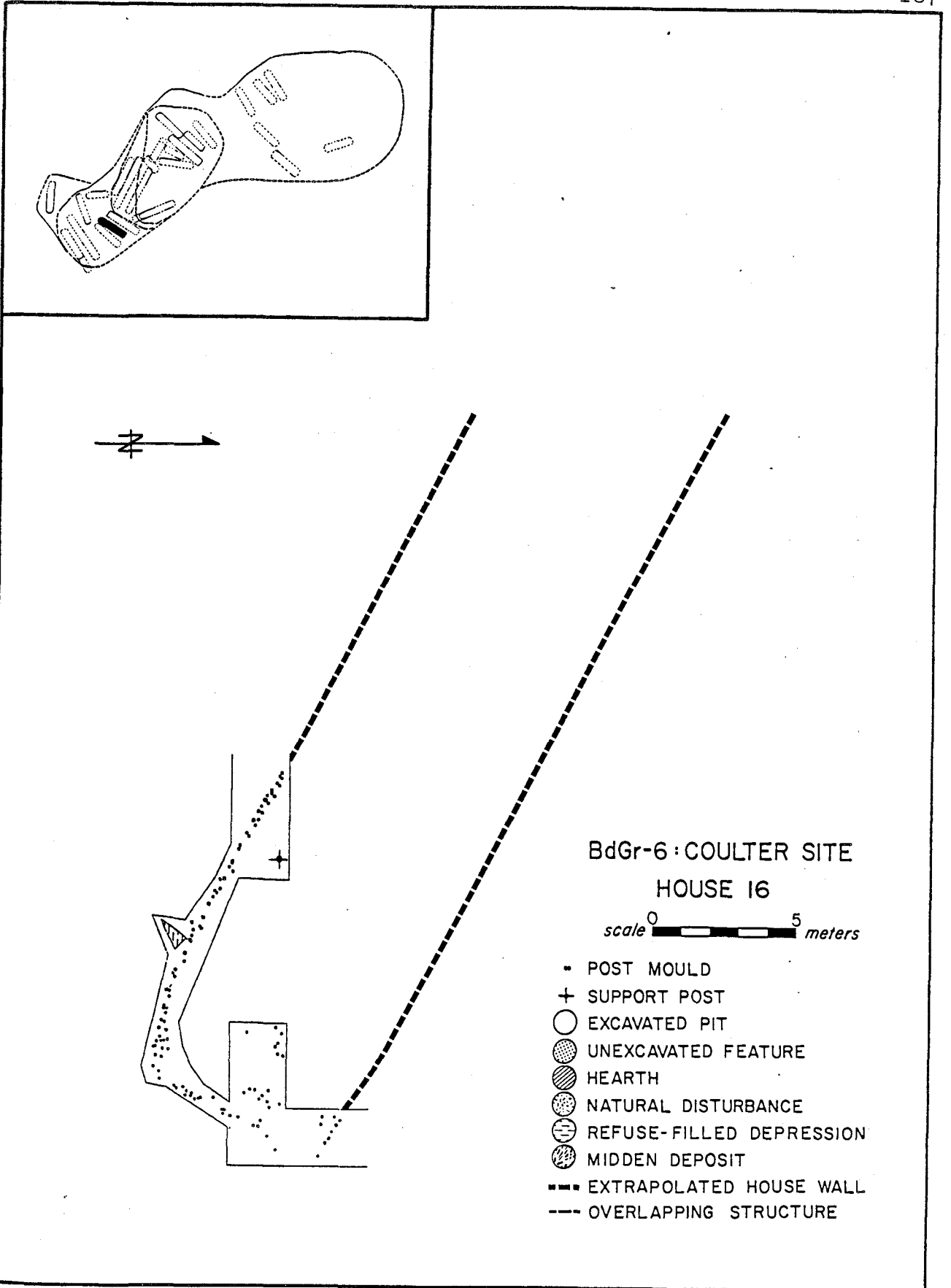


Figure 46

which is usually relatively free of posts and features. A 20 cm support post was found about 1.25 m from the northeast side.

8.16.4 Interior Features

No interior features were discovered.

8.17 House 17 (Figure 47)

Two sections of House 17 have been excavated. Most of the northwest end was revealed by a 3 m wide trench with a limited amount of 'chasing', while a series of 2 m wide units passed through the mid-section of the house.

8.17.1 General Morphology

House 17 is about 7.5 m in width and over 32 m in length. The limited excavations suggest that the structure is slightly narrower towards the northwest end perhaps due to the close proximity of a palisade along the northeast side. The palisade appears to almost touch the house, and may in fact be over-lapped by the house wall, although this cannot be determined definitely with the present data. House orientation is roughly WNW-ESE. The northwest end, although not totally exposed, appears to have a slight bevel on the southwest side only and shows no evidence of a doorway.

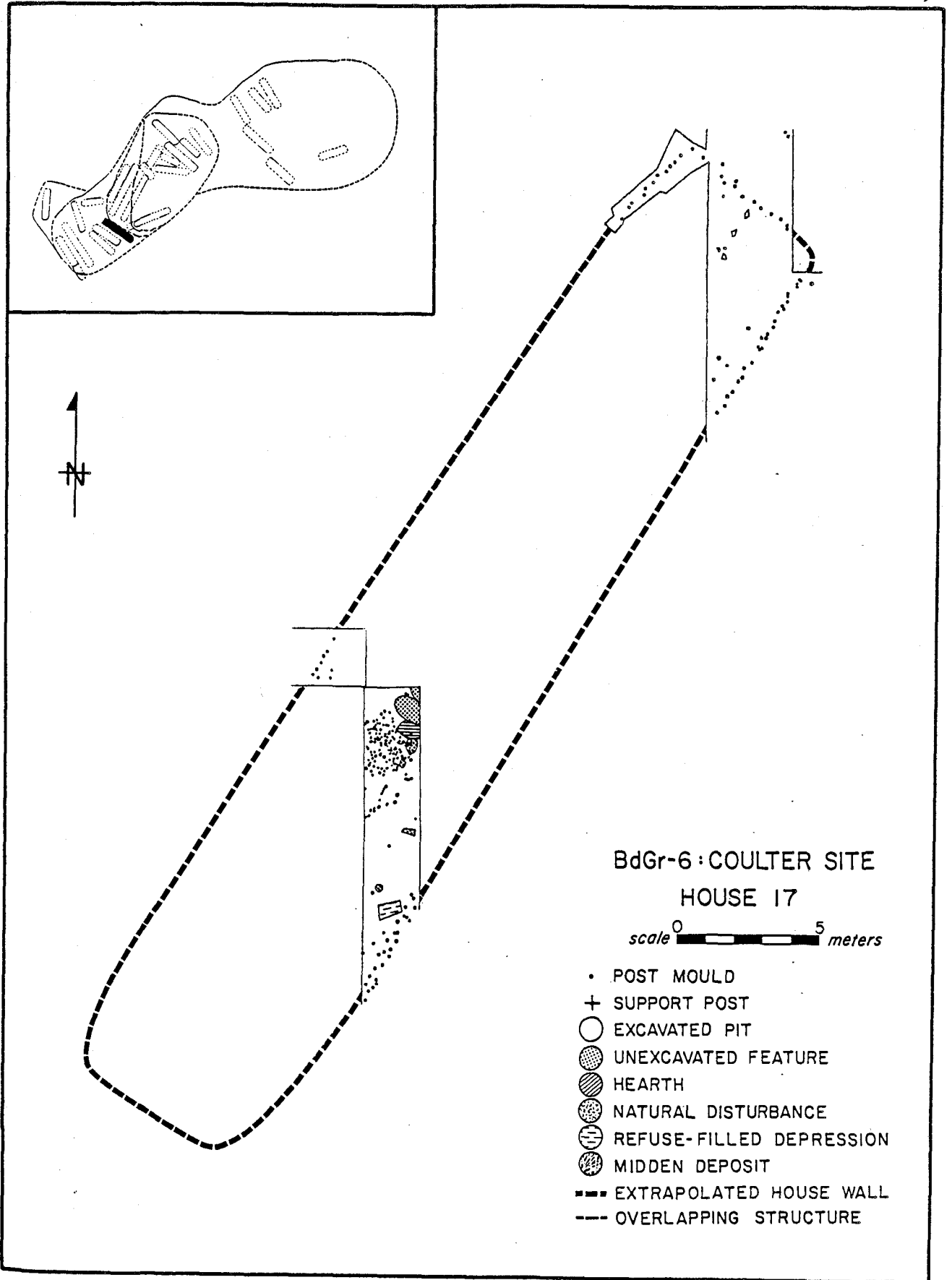


Figure 47

8.17.2 Wall Posts

The 20.7 m of exposed house wall is quite sparse in posts (3.8 posts/m), particularly at the end. The posts average 7.7 cm in diameter and show little distinct spatial patterning except that, in places, they form a single row.

8.17.3 Interior Posts

Thirty-four square metres of house interior were excavated. Almost all of the 4.6 posts/sq.m are situated in a cluster in the centre of the house, close to a hearth area. There are almost no posts along the sides or at the end. The posts are quite small averaging 4.7 cm in diameter.

8.17.4 Interior Features

The main concentration of features is in the centre of the house, near the previously mentioned post concentration, and includes a hearth and four unexcavated probable pits. A fifth unexcavated feature is found closer to the northeast side, as are a refuse-filled depression and a small area of fired soil and ash which may represent a temporary hearth. Finally, four small pits are located near the end of the house.

8.18 House 18 (Figure 48)

This house was initially discovered by a N-S oriented 2 m wide trench which revealed several pits and a confusing series of walls running in several directions. To help clarify the pattern, three 5x5 m squares, a 3 m wide trench and several miscellaneous units were excavated.

8.18.1 General Morphology

House 18 is similar to House 13 in that it appears to have changed in size during its occupation. Like House 13, it was, most likely, extended, eventually to overlap a previously palisaded area. In House 18, however, there is evidence suggesting two expansions; the first stopping just inside the Section 1 palisade, the second overlapping the palisade. Total length of the structure, in its final stage, is probably not over 46 m since to be longer than this, it would have to extend down the relatively steep slope of the drumlin.

Like the House 13 extension, the first of the House 18 extensions starts out somewhat narrower than the original structure, widening only after about 6 m.

No doorways are obvious, although a small gap on the northwest side between the original end and the beginning of the first extension may have been a doorway.

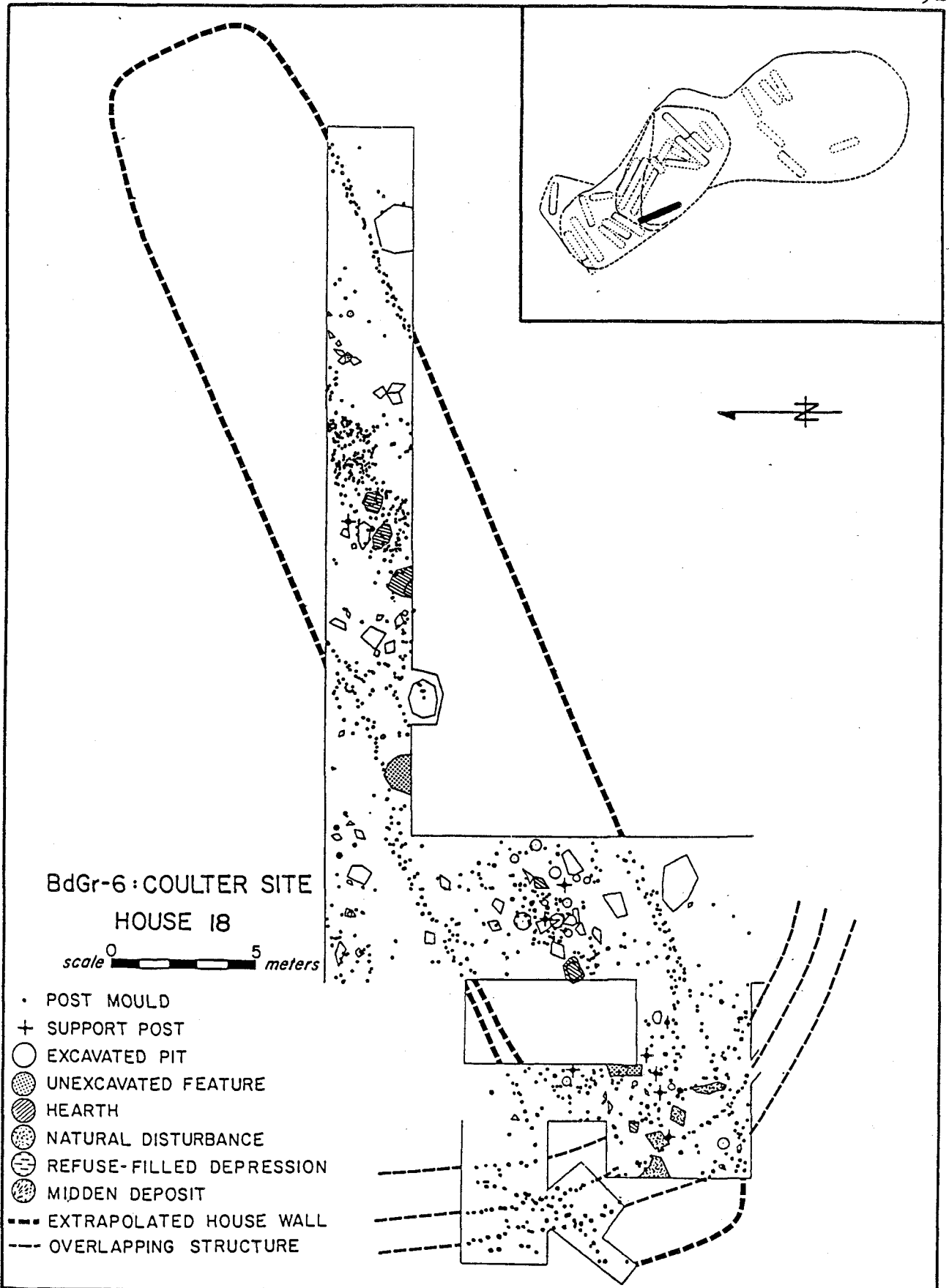


Figure 48

8.18.2 Wall Posts

Forty-eight metres of house wall was exposed, 23 m of which is obscured by cross-cutting lines of palisade and scattered interior postmoulds. The remaining 25 m average 7.6 posts/m, with a mean diameter of 7.4 cm. The only patterning in post placement is found in a portion of the southeast side of the second extension, where a series of posts appear to have been placed in staggered pairs. Of note is the fact that a similar pattern was found in the House 13 extension. Again, the patterning and overall lower density of posts suggests that (1) the extensions were occupied for substantially less time than the original portion of the structure; (2) it may be part of a doorway; or (3) there may have been two extensions

8.18.3 Interior Posts

Because of overlap with palisade, only 94 of the 125 sq.m of excavated house interior could be used to characterize interior post mould distribution. There are 6.1 posts/sq.m, all concentrated along the central corridor of the house, averaging 6.4 cm in diameter. Large posts, interpreted as supports, are restricted largely to the extensions, are between 19 and 21 cm in diameter and, average about 2 m from the nearest side-walls.

8.18.4 Interior Features

More features were excavated in House 18 than in any other house at the site -- a total of 61. Of these, six are hearths, all situated along the central axis of the house. Several are close together and, rather than being contemporaneous, may represent adjustments in space allocation due either to overcrowding, which may eventually have stimulated expansion, or to adjustments made necessary by the extensions themselves.

8.19 House 19 (Figure 49)

The northwest corner and part of the north wall of House 19 were exposed by a single E-W oriented 2 m wide trench.

8.19.1 General Morphology

House 19 shares with Houses 21 and 27 an attribute which sets them apart from all of the other structures at Coulter -- all three have double walls separated by a metre or less. In the case of House 19, the two north side-walls converge towards the west end where they are virtually super-imposed. During excavation, it was found that the northern-most of these two walls was more difficult to distinguish, many parts being covered by disturbances including what appeared, at first, to be root burns. Digging below these disturbances, the posts became clearer and the

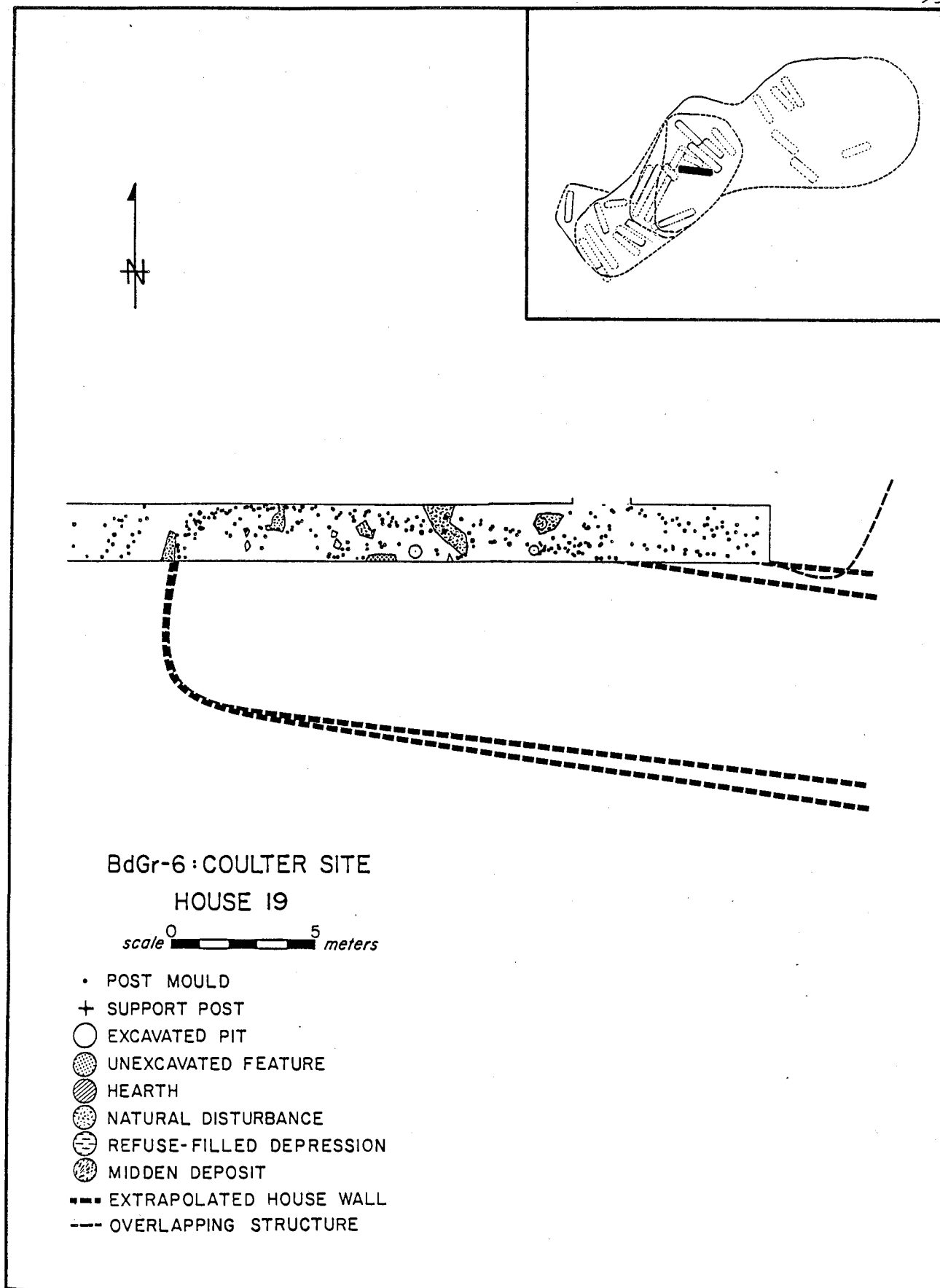


Figure 49

wall was fairly well defined. However, it was noted that an unusually high number of post moulds contained ash and fired soil. This structure, along with neighbouring Houses 21 and 27, appears to have been destroyed by fire and then rebuilt in approximately its former position. Both versions of House 19 are oriented WNW-ESE and appear to have a bevel at the northwest corner. Maximum dimensions cannot be determined except to say that one structure was over 21 m in length, while the other was at least 16 m.

8.19.2 Wall Posts

Because of the special nature of this house, post density and size data were not used. No patterned post placement is visible in the walls, nor are any doorways.

8.19.3 Interior Posts and Features

Again, because two structures are essentially overlapping, post mould and feature data were not used.

8.20 House 20 (Figure 50)

House 20 is cross-cut by a single E-W running 2 m wide trench.

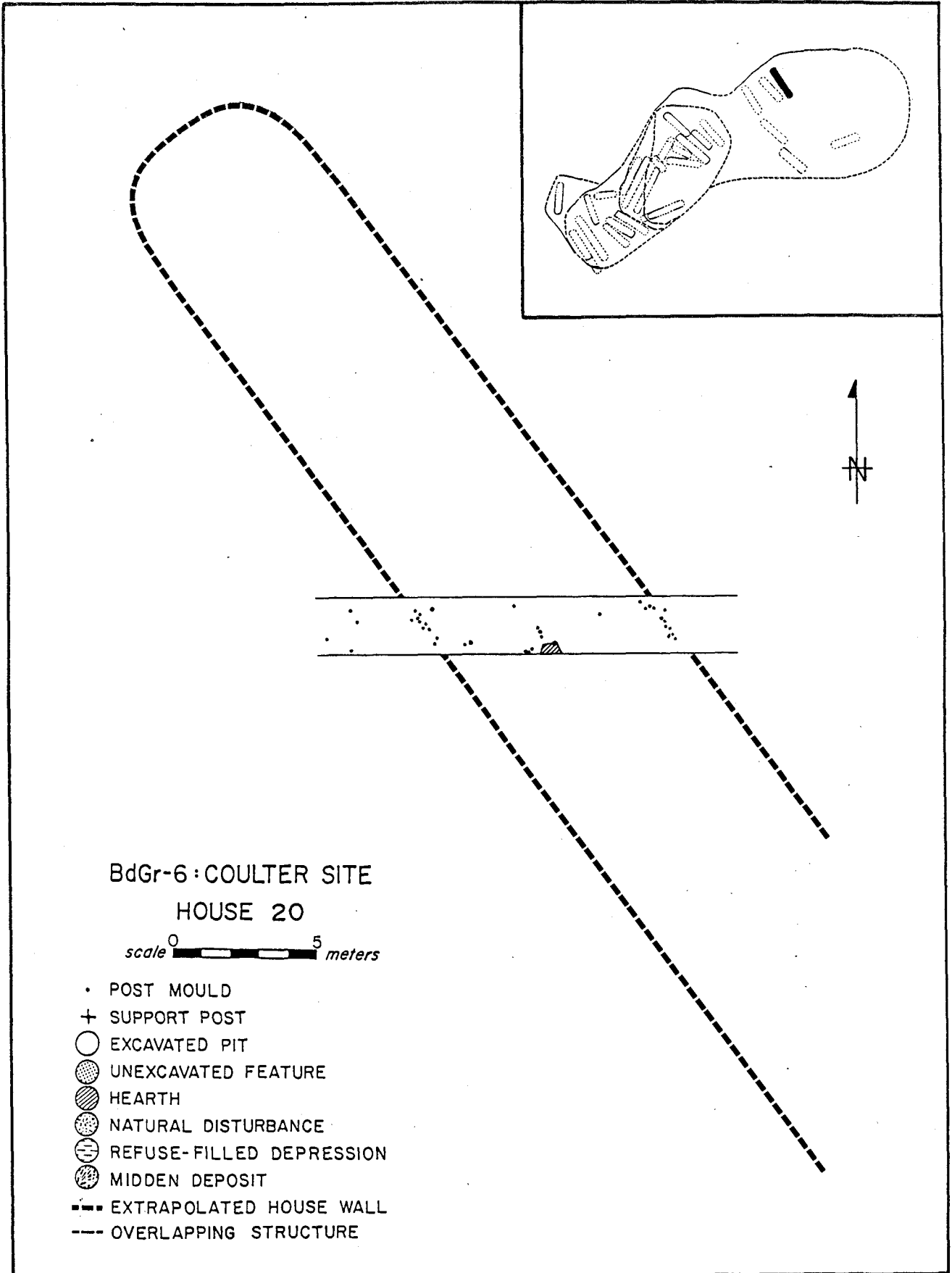


Figure 50

8.20.1 General Morphology

The limited excavation only permits orientation (NW-SE) and approximate width (7.5 m) to be determined.

8.20.2 Wall Posts

The 4.5 m of excavated house wall contain an average of 5.3 posts/m with a mean diameter of 5.9 cm.

8.20.3 Interior Posts

A dozen posts are found within the 17.5 sq.m of exposed house interior (0.8 posts/m), with an average diameter of 8.3 cm. Most of the posts occur in the centre of the house.

8.20.4 Interior Features

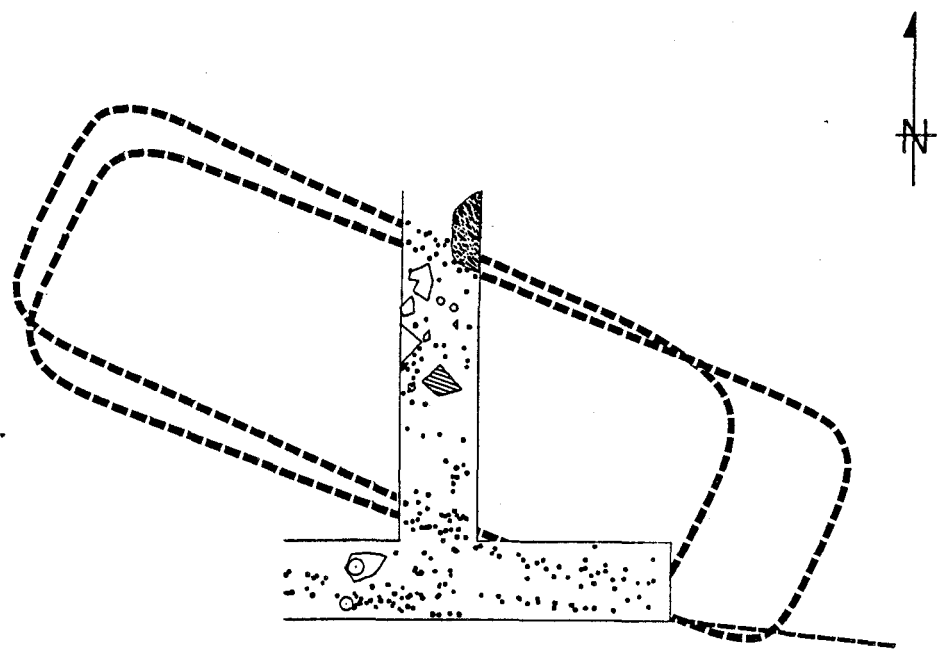
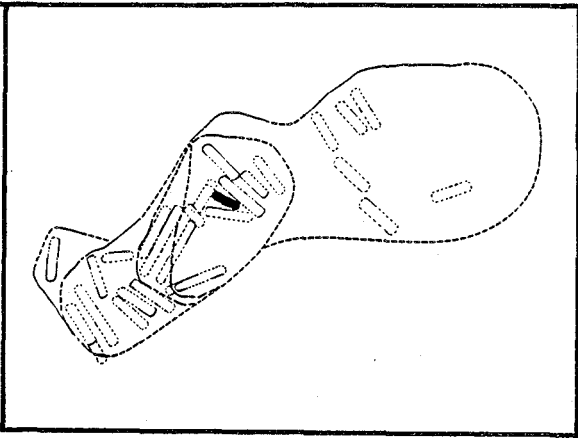
The only feature found in House 20 is a partially exposed central hearth.

8.21 House 21 (Figure 51)

House 21 is bisected by a N-S, 2 m wide trench while an E-W trench intersects part of the northwest side.

8.21.1 General Morphology

Like House 19, this structure appears to have been destroyed by fire and then rebuilt in approximately its former location. The house is oriented on a WNW-ESE axis and is about 6.75 m in width. While length cannot be determined,



BdGr-6 : COULTER SITE
HOUSE 21

scale 0 5 meters

- POST MOULD
- + SUPPORT POST
- EXCAVATED PIT
- UNEXCAVATED FEATURE
- ▨ HEARTH
- ⊖ NATURAL DISTURBANCE
- ▨ REFUSE-FILLED DEPRESSION
- MIDDEN DEPOSIT
- - - EXTRAPOLATED HOUSE WALL
- - - OVERLAPPING STRUCTURE

Figure 51

it is likely not over 22 m unless adjacent structures are overlapped. It appears that the rebuilt version of the house was situated approximately 0.5 m south of its former location. This is suggested by the presence of midden deposits partially covering the northern-most wall.

8.21.2 Wall Posts

Patterned post placement is only evident in the northern side of the rebuilt structure where posts appear to be paired. Because of the difficulty in separating posts that belong to each of the walls, post mould densities and diameters are not calculated.

8.21.3 Interior Posts

Posts occur throughout the 15 sq.m of excavated house interior, but show a slightly heavier concentration in the central area. Again, densities and diameters were not calculated.

8.21.4 Interior Features

A single central hearth and eight pits were found in House 21. While it cannot be determined which features belong to which construction phase, it is of note that the features are concentrated on the north side.

8.22 House 22 (Figure 52)

The southwest end of House 22 was first revealed by a N-S 2 m wide trench. Subsequently, a number of E-W units exposed most of the north side.

8.22.1 General Morphology

House 22 appears to be quite short -- roughly 21 m. There are insufficient data to estimate width. At least one corner (NE) is beveled, the other three being unexposed.

8.22.2 Wall Posts

Part of the north side is obscured by a refuse-filled depression and the west end appears to be poorly preserved. Post densities and diameters in other parts of the wall average 4.5 posts/m and 7.0 cm, respectively.

8.22.3 Interior Posts

Eleven sq.m of interior excavation, all of it close to the walls, revealed no interior post moulds.

8.22.4 Interior Features

Similarly, no features, apart from the refuse filled depression, were revealed in House 22. These refuse-filled areas are shallow (ca 5-10 cm) and very hard packed. They are unusual inside houses and may indicate that the house was abandoned before the rest of the village, especially since they partially overlap the wall.

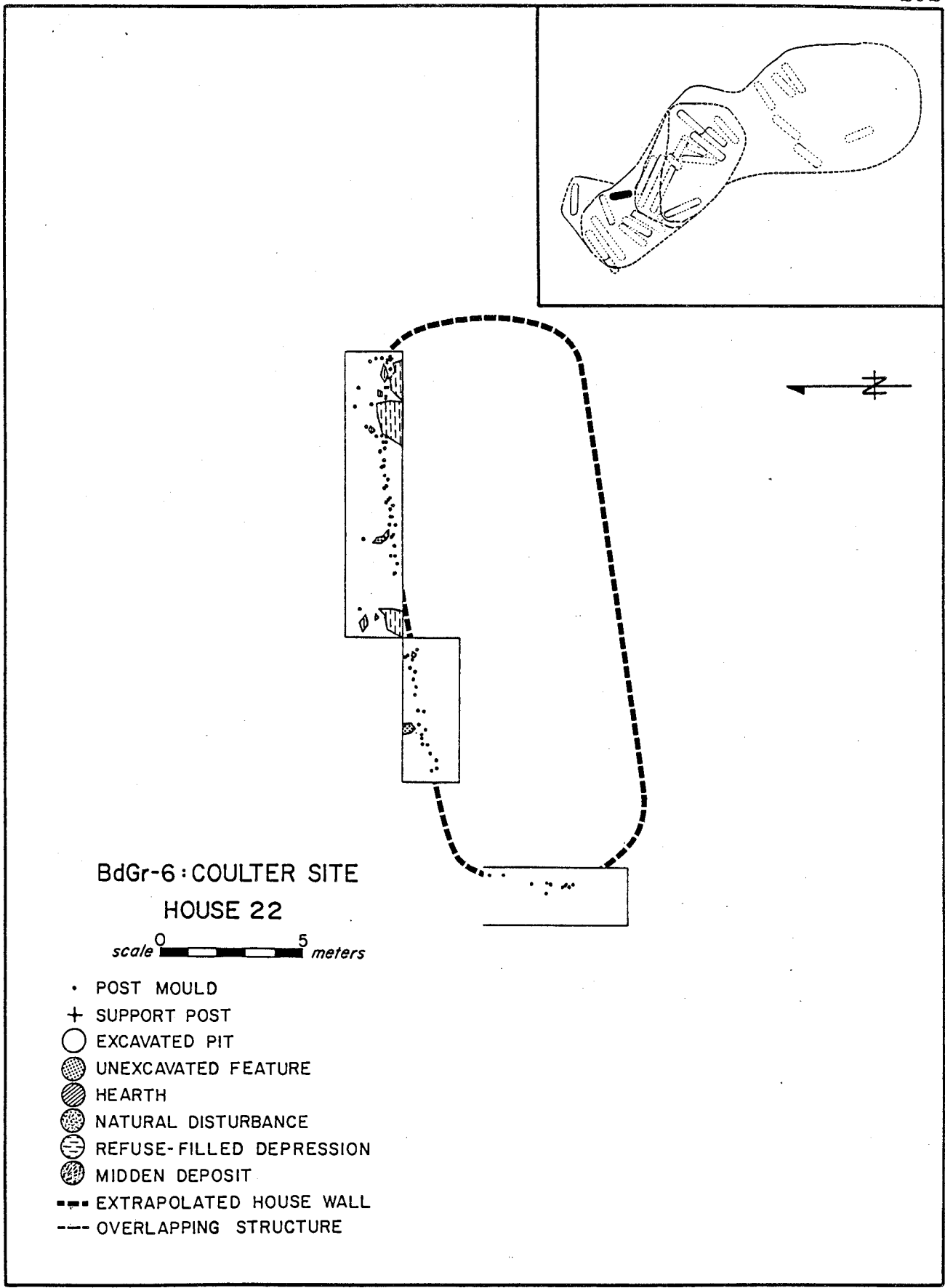


Figure 52

8.23 House 23 (Figure 53)

Both an E-W and a N-S trench intersect House 23.

8.23.1 General Morphology

Only the width (7.5 m) and orientation (NW-SE) can be determined.

8.23.2 Wall Posts

Excavated portions of House 23 are obscured by natural disturbances (primarily tree-roots) so that only 6.75 m of wall are preserved. Post moulds average 7.8 cm in diameter, 4.8 posts/m in density, and appear to be unpatterned in their distribution.

8.23.3 Interior Posts

Thirty sq.m of interior have 2.4 posts/sq.m with a mean diameter of 6.8 cm. The majority of the posts are centrally situated with a few close to the sides. A single interior support post is 17 cm in diameter and is located 2 m from the SW side.

8.23.4 Interior Features

The only confirmed cultural feature in House 23 is a central hearth. A dozen features, most very small, remain unexcavated but probably include some pits. These too are primarily centrally situated, some intersecting the hearth.

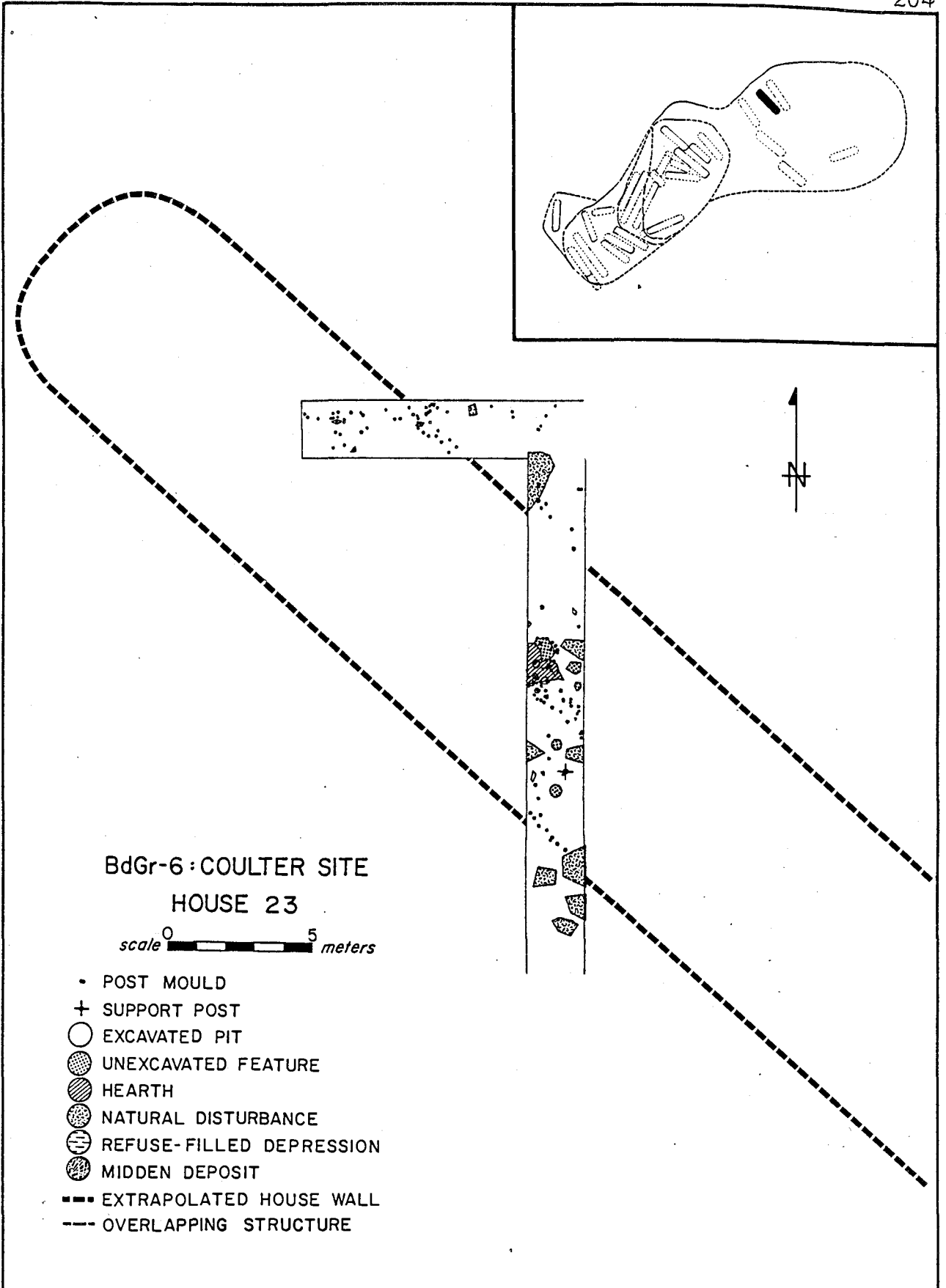


Figure 53

8.24 House 24 (Figure 54)

This house is transected by an irregular excavation which follows the path of an old bulldozer cut.

8.24.1 General Morphology:

Twelve metres of house wall are exposed, including portions of both side walls and what appears to be the north corner of the house, which seems to be bevelled. A possible doorway is found in the northeast side just at the point where the wall begins to bevel. The house is about 7.5 m wide and oriented on a northwest, southeast axis.

8.24.2 Wall Posts:

The 12 metres of exposed wall has 4.3 posts/m with a mean diameter of 9.2 cm. This unusually large mean size may be due to bulldozer activity having destroyed some of the smaller, more shallow posts.

8.24.3 Interior Posts:

Small, shallow posts tend to be characteristic of house interiors and here their apparent destruction by the bulldozer is even more evident. The 34 sq.m of excavated house interior contains 4.0 posts/sq.m averaging 7.9 cm in diameter.

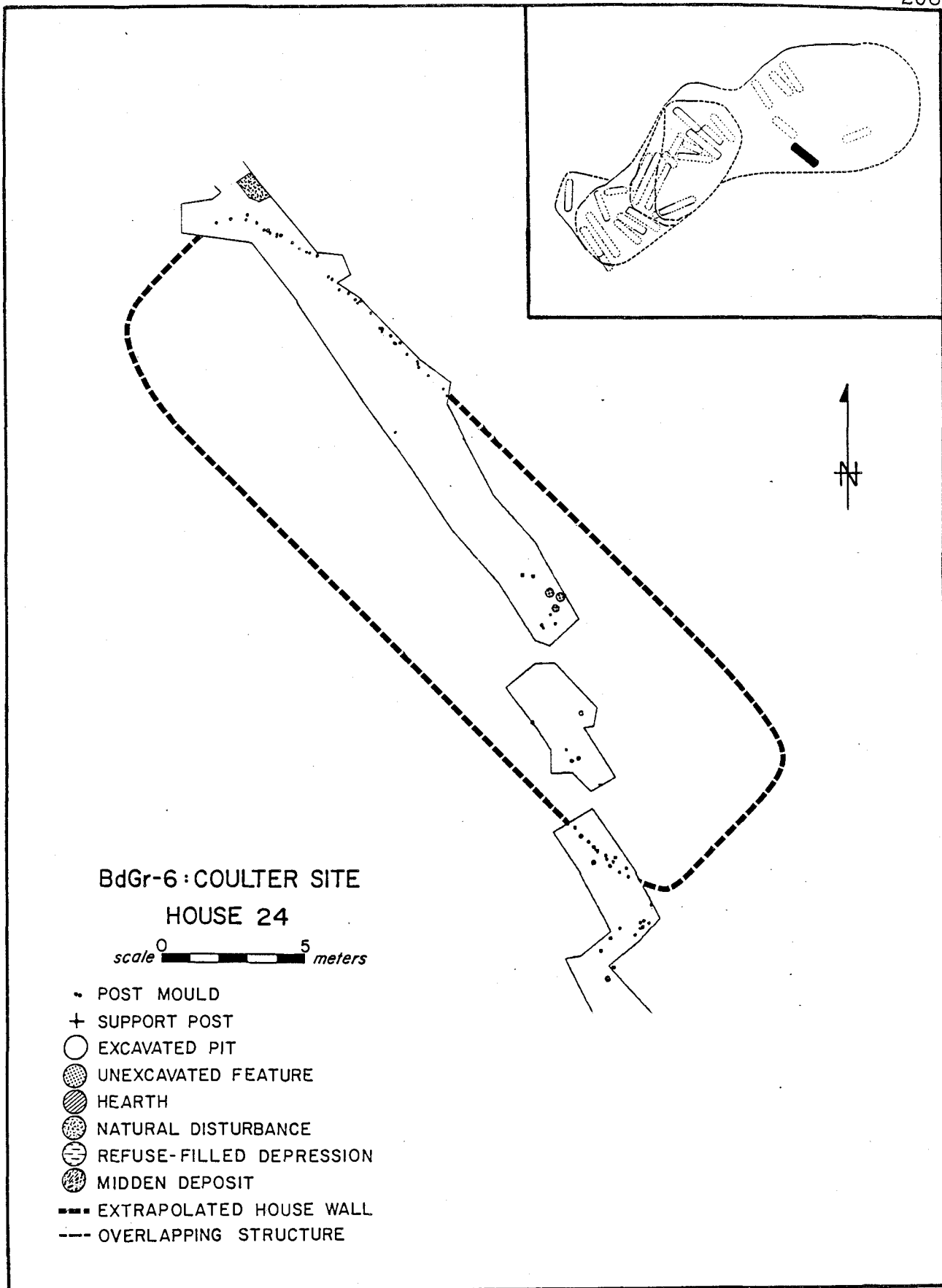


Figure 54

8.24.4 Interior Features:

Only four small, circular features were found, none of which were excavated. Other features may have been destroyed by bulldozer activity.

8.25 House 25 (Figure 55)

A single N-S running 2 m wide trench cuts through House 25.

8.25.1 General Morphology

This 7.5 m wide house is oriented NE-SW.

8.25.2 Wall Posts

Disturbances leave only 3 m of analysable house wall. There is an average of 4.3 posts/m with a mean diameter of 11.3 cm.

8.25.3 Interior Posts

The 17.5 sq.m of excavated house interior has 1.2 posts/sq.m averaging 7.5 cm in diameter, all of which are centrally situated.

8.25.4 Interior Features

Four possible pits, all found in the centre of the house, remain unexcavated.

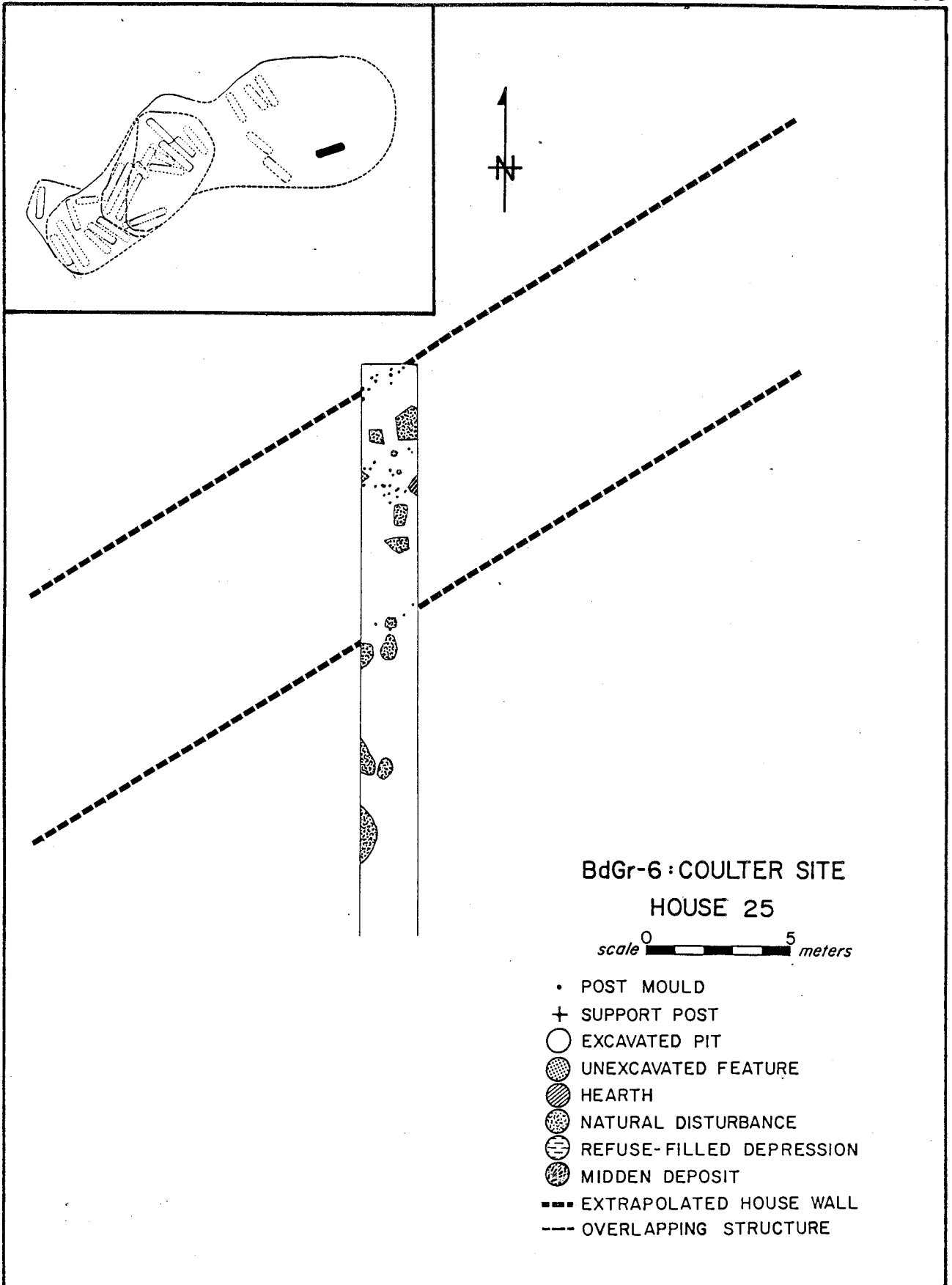


Figure 55

8.26 House 26 (Figure 56)

The areas excavated in House 26 have all been disturbed by bulldozer activity, however, the subsoil appears to have been left relatively intact. Three 2 by 5 m excavation units lie within the house, while a portion of the south side is exposed by an irregular excavation which follows the bulldozer cut. Midden deposits, apparently overlapping part of the house, are likely the result of earlier disturbance to Midden 76.

8.26.1 General Morphology:

Because only a small portion of the wall is exposed, little can be said regarding house morphology. If properly interpreted, the house is beveled at one end at least, and is oriented on a NW-SE axis.

8.26.2 Wall Posts:

The 3.75 m section of house wall appears to be the beveled portion of the southwest side at the southeastern end of the house. The 5.0 posts/m average 7.25 cm in diameter and show no patterned distribution.

8.26.3 Interior Posts:

Forty square metres of house interior contain 2.2 posts/sq.m with a mean diameter of 7.4 cm. A single 18 cm post mould is thought to represent a house support post.

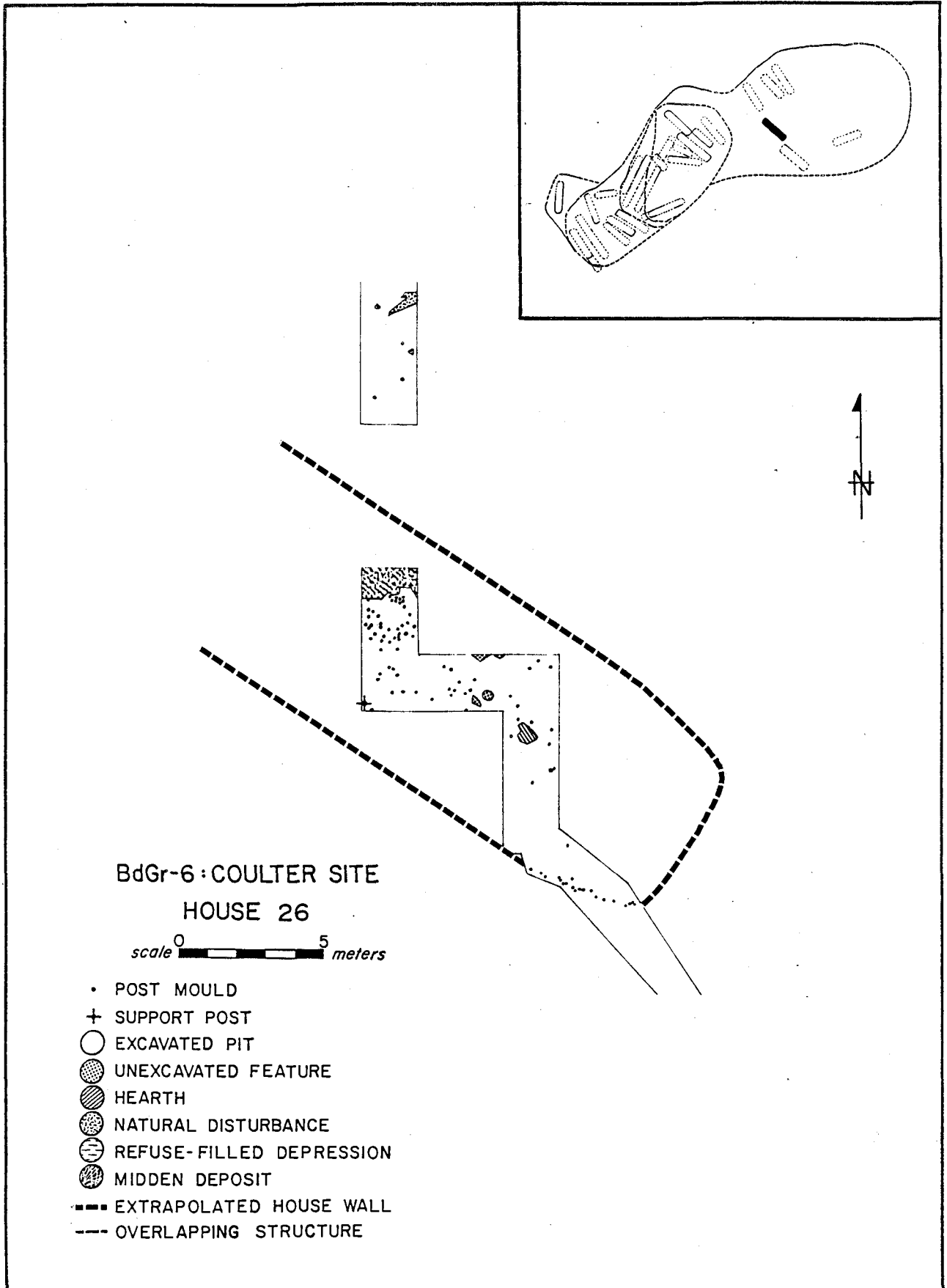


Figure 56

8.26.4 Interior Features:

Only one verified cultural feature was encountered, a hearth, apparently centrally situated. Four other features remain unexcavated.

8.27 House 27 (Figure 57)

A pair of E-W, 2 m wide, trenches reveal small portions of the southeast wall, the interior, and possibly the northeast end.

8.27.1 General Morphology

House 27, oriented NNE-SSE, is adjacent to Houses 19 and 21 and, like them, has a double wall indicating that it too was destroyed by fire and rebuilt in approximately its former position. Additionally, House 27 overlaps part of House 8 indicating the they are not contemporaneous. Neither maximum length nor width can be determined although length must be under 30 m, since it does not overlap House 7, and over 23 m if what appears to be the northeast end wall is correctly interpreted. The fact that it parallels and is in close proximity to all of the Section 2 houses, suggests that it may have been built during the Section 2 construction period.

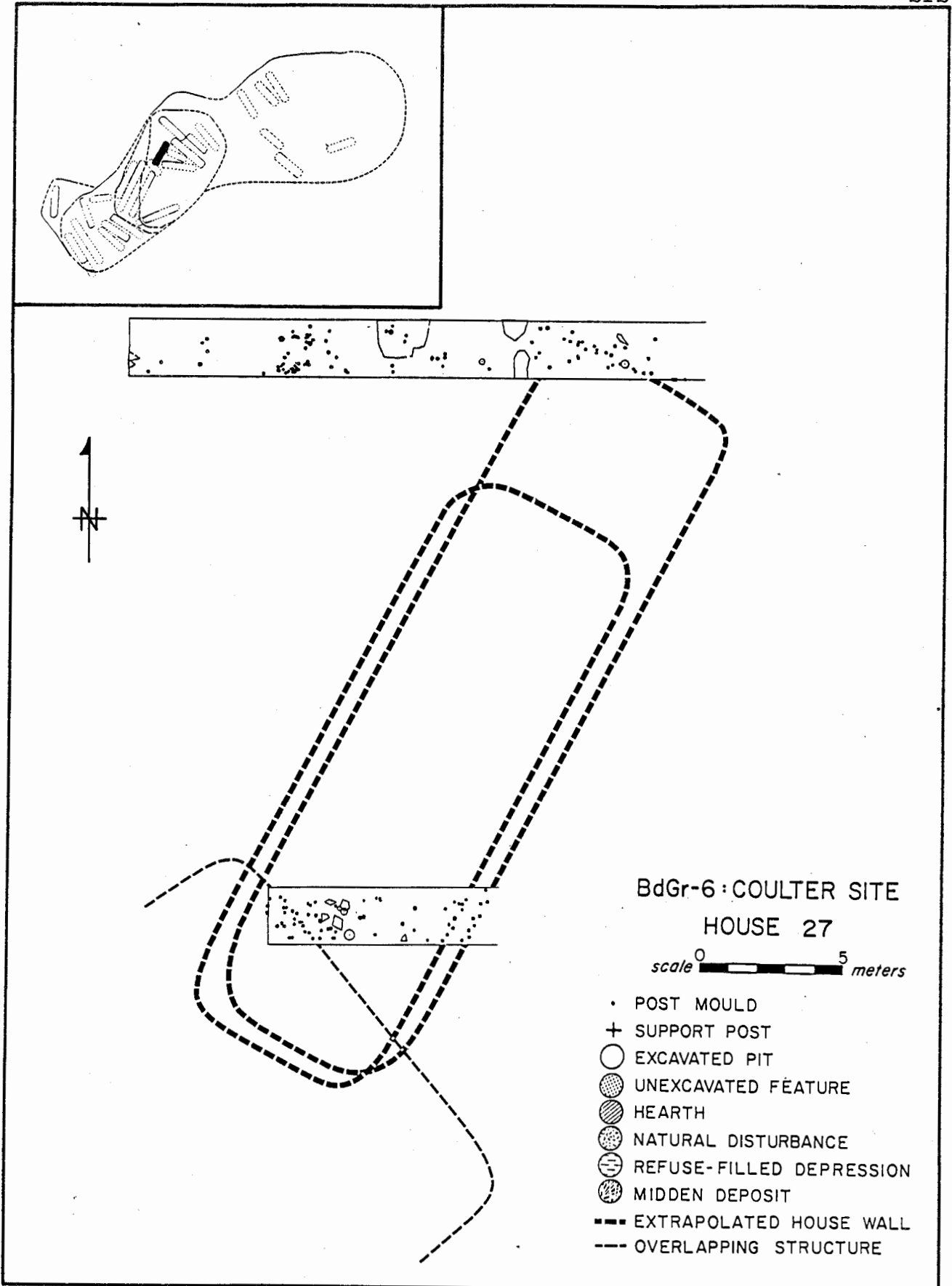


Figure 57

8.27.2 Wall Posts

As with Houses 19 and 21, the presence of double walls makes comparison with other houses questionable and so the usual data are not presented. In terms of post patterning, the outer-most sidewall is made up of a series of paired posts while other wall sections are unpatterned.

8.27.3 Interior Posts

No analysis is attempted.

8.27.4 Interior Features

Eight pits were excavated of which seven are centrally situated.

9. APPENDIX II

9.1 Middens

9.1.1 Midden 51

During initial evaluation of the site, this midden was tested with a 1x2 m unit excavated in 10 cm levels. It was largely on the basis of the sample recovered from this midden that the decision to undertake large scale excavations was based. Maximum depth was 38 cm and some layering of deposits was noted, however, due to the exploratory nature of this excavation, no profile drawings were made.

9.1.2 Midden 52

Also part of the initial testing program, a 1x2 m unit revealed a relatively shallow (23 cm), unlayered, black humus midden which yielded relatively few artifacts. Subsequent excavations suggest that the midden was built up against the northeast side of House 4.

9.1.3 Midden 53 and 54

These two middens were encountered at the same time by a 2 m wide E-W trench (divided into 1x1 m subsquares) which also cut through Houses 1 and 2. Both are shallow (Midden 53 up to 40 cm and Midden 54 up to 32 cm) and contain a single

layer of ash about 5 cm thick. An intermittent black, greasy, charcoal-laden layer separating the midden deposits from the subsoil can likely be attributed to the original humic layer developed prior to occupation, the charcoal being due either to earlier forest fires or to clearing of the site at the time of village construction, or both. Apparently built up against the sides of Houses 1 and 2, the two middens are separated by a roughly 1 m wide strip of relatively sterile deposits. This strip appears likely to have been maintained only because the alley between Houses 1 and 2 leads to one of the entrance-ways of House 3.

9.1.4 Midden 55

One of the largest middens on the site, Midden 55 appears as a very low mound and, based on the 2 m wide intersecting trench, attains a maximum depth of 70 cm and a horizontal extent of 10 m. It appears to have built up over an irregular piece of ground which was perhaps unsuitable for other uses. The matrix is predominately a dark grey mixture of ash and humus interspersed with small lenses of light-grey ash, likely representing individual dumping episodes. Apart from these lenses, little vertical layering is evident except for a roughly 20 cm thick plough zone layer capping the midden and a thin black layer, probably the original humic layer, separating it from the subsoil.

The probability that its horizontal extent grew over time is suggested by the fact that the eastern edge of the

midden overlies what is interpreted to have been the original end of House 27 which probably burnt down and was rebuilt.

9.1.5 Midden 56

This probably small midden was encountered while 'chasing' the House 3 wall, with no other excavations being conducted within it. It appears to have been built up against the northeast side of House 3 and was observed to include at least one ash layer and to be about 35 cm in depth.

9.1.6 Midden 57

Situated over what is probably an old treefall, Midden 57 is up to 70 cm deep, extending horizontally at least 5 m. Surface contours reveal no mound-like shape although this may be due, in part, to ploughing. There is a predominant dark grey-brown to light-medium brown matrix of ash, humus and subsoil interspersed with small ash lenses, overlain by a 25 cm thick plough zone and underlain by a thin black layer, the latter likely representing the old surface level.

9.1.7 Midden 60

Situated near the southwest extremity of the site, Midden 60 was built up against the Section 3 palisade. An irregular pattern of 1x1 m subsquares reveals that it extends, intermittently, along about 15 m of the palisade

and, by extrapolation, borders the side of House 13. Depth ranges between 20 and 50 cm, the deepest part being situated in a heavily root-disturbed depression. Ash lenses are few and are restricted mainly to the deeper part of the midden. Again, a 20 cm thick plough zone and an underlying thin layer of black humus are present.

9.1.8 Midden 61

Also bordering the palisade, Midden 61 is situated along the northwest side of the village close to House 3. It was discovered while searching for the palisade with a narrow trench extending from the northwest end of House 3. While no formal midden excavation was conducted, midden deposits were screened and a profile drawn. The midden extends to a depth of 50 cm and occupies, at least in part, a basin shaped depression. While not well defined horizontally, it appears to extend inwardly from the palisade only slightly, continuing more along the palisade. The deposits overlie the inner rows of the palisade, suggesting that these were removed before the midden was fully formed. Two thin, light grey ash layers occur within a matrix of grey ash and humus.

9.1.9 Midden 62

Midden 62 is located just 5 m east of Midden 57 but is clearly separated from it. Occupying a subsoil depression, it reaches a depth of 49 cm. The five 1x1 m units are not

sufficient to reveal horizontal extent. Again, the primary, unlayered matrix includes ash, humus and subsoil and is brownish-grey in colour. Small, distinct ash lenses are notably rare. Rather, the matrix is more mottled, perhaps suggestive of post-deposition disturbance. Ploughzone and original humic layers are present.

9.1.10 Midden 63

Midden 63 is unique in being located outside the confines of the village as defined by the palisade. Situated just north of the Section 5 palisade, it is shallow (up to 25 cm deep) occupying smooth but gently sloping ground. Distinct ash layers or lenses are absent, although the predominant matrix includes ash, humus and subsoil and is dark grey in colour. While a topsoil layer covers the midden, its shallowness and variable depth (3 to 20 cm) suggest that the area has not been ploughed. This seems especially likely in view of the extremely gravelly nature of the subsoil making it unsuitable for agriculture. Again, the midden is underlain by an old humic layer.

9.1.11 Midden 64

Found while chasing the west wall of House 9 but not excavated, Midden 64 lies about 5 m south of Midden 51 and may, in fact, be part of the same feature. Depending on the northward extent of House 9, which is uncertain, the midden may have been built up against the house wall.

9.1.12 Midden 65

Midden 65 was found while 'chasing' Section C of the Section 1 palisade but not excavated. It appears to have been built up against either the east side of House 9 or the Section 1 palisade.

9.1.13 Midden 66

Midden 66 occupies an area between the southern ends of Houses 7 and 9, partially overlying Area D of the Section 1 palisade. It is thin and widely scattered covering an estimated 50 sq.m. It differs from other middens in being heavily disturbed, primarily, it appears, through aboriginal activities. The deposits are mottled with no visible stratigraphy and in places are significantly compacted.

It is suggested that the midden was originally built up against the palisade but, with the removal of the latter, the building of House 7 and the extension of House 18, it was necessary to move at least portions of the deposit. Additionally, the area between Houses 7 and 18 appears to have been utilized as an outdoor activity area, as suggested by the relatively large number of exterior posts and pits and by the compacted nature of the midden remnants.

9.1.14 Midden 67

This midden lies about 5 m south of House 18 against part of the Section 1 palisade which runs along the edge of the drumlin. No formal midden excavations were carried out

so little can be said except that the deposits do not appear to extend significantly down the slope.

9.1.15 Midden 68

Situated between Houses 13 and 14, Midden 68 is bisected by a 2 m wide trench which was excavated in subsquares. The midden is shallow (25 cm) with no layering, apart from the usual ploughzone and basal humic layers, and extends about 4 m horizontally. It abutts, and was probably built up against, the wall of House 14.

9.1.16 Midden 69

Excavations caught the edge of Midden 69 just north of the tentatively identified Area A of the Section 1 palisade. However, it was insufficiently exposed to be characterized.

9.1.17 Midden 70

Midden 70 is a large midden extending for at least 13 m along the north side of Section B of the Section 1 palisade. This positioning puts it outside of the Section 1 area and inside what is tentatively defined as part of Section 5. Whether it was built up by Section 1 inhabitants depositing refuse over the palisade or by Section 5 inhabitants (which would suggest that the palisade was left standing after the construction of Section 5) is not clear although, artifact data suggest the former.

The deposits are characteristically 35-40 cm deep, reaching 50 cm only at one point where they extend into a subsoil depression. There is a single predominant layer of gray-brown ash, humus and subsoil averaging 20 cm in thickness. Lenses, mainly of ash, occur infrequently throughout with a slight concentration in the area of the depression. The irregular topsoil layer (4-20 cm) suggests that no ploughing has taken place and the basal humic layer is, in places, exceptionally thick (up to 15 cm)

9.1.18 Midden 71

Midden 71 appears to have been built up against the Section 2 palisade in the southern portion of Section B although, during later phases of construction, the palisade may have been removed. Fourteen subsquares were excavated revealing deposits reaching a maximum of 40 cm with a horizontal extent of at least 7 m. There are four main layers including the ploughzone, a 10 cm layer of black humus with some ash, a similar but slightly lighter ash and humus layer and a thin black basal layer. While the midden was apparently built up on smooth ground, virtually no surface mound is apparent.

9.1.19 Midden 72

Midden 72 is located in the north-central portion of Section 5 about 5 m east of House 20. Sixteen subsquares reveal a midden at least 8 m in horizontal extent and up to

35 cm in depth. Although relatively shallow, The midden is well preserved since no ploughing appears to have been done in this area. The deposits include four main layers: the topsoil, ranging between 3 and 15 cm in depth; an intermittent light grey ashy layer up to 15 cm thick; a darker layer of ash and humus between 5 and 18 cm in thickness; and a thin (5 cm), intermittent basal humic layer. Most of the subsoil is even in contour but an approximately 30 cm deep depression is found in the southwest corner of the midden, covering an estimated 5 sq. m. Unlike other middens with similar depressions, the hole is not completely filled with refuse, resulting in a 10 cm deep depression in the midden surface.

9.1.20 Midden 73

Midden 73, lying several meters east of House 7, was tested with only a pair of 1x1 m subsquares. Its depth (70 cm) suggests that it is of considerable size. While no detailed profile drawings were made, some layering and lensing of an ashy matrix was noted.

9.1.21 Midden 74

Midden 74 is a small midden occupying the narrow gap between Houses 1 and 21. While not formally excavated, the western edge was intersected by a 2 m wide settlement excavation. It is thin (30 cm) but includes at least one ash layer. As noted earlier, House 21 appears to have burnt down

and later been rebuilt in approximately its former location producing double house walls. Of the two walls along the northern side of the house, the northern-most one is partially covered by Midden 74, suggesting that this was the original wall of House 21.

9.1.22 Midden 75

Midden 75 lies between Houses 7 and 9 overlying part of the Section 1 palisade indicating that it post-dates Section 1. It occupies a slight subsoil depression and reaches a maximum depth of 42 cm. Although several ash lenses are present, there is only one cultural layer consisting of a dark grey mixture of humus and ash. In addition, there is a 20 cm thick ploughzone and a thin basal humic layer. Excavations indicate a horizontal extent of about 4 m.

9.1.23 Midden 76

Situated along the southwest side of House 26, Midden 76 has been partially destroyed by bulldozer activity. Five subsquares were excavated in what remains of the midden. The topsoil is thin (5-15 cm) and overlies up to 30 cm of mainly ashy deposits with several lenses. The basal humic layer is especially thin and intermittent.

9.1.24 Midden 77

Midden 77 has also been disturbed by bulldozer activity. It lies in the southern part of Section 5 and is tentatively suggested to have been built up against the palisade or, if there was no palisade, to have been situated on the southern border of Section 5. While no formal midden excavations were carried out, a portion of the disturbed deposit was screened.

9.1.25 Midden 78

This is the eastern-most excavated midden and is found in the Section 5 area northeast of House 25. It extends horizontally at least 5 m and reaches a depth of 35 cm. Some layering and lensing is evident in the deepest part including dark grey ash and humus layers and three lighter ash lenses. The topsoil, 5-18 cm thick, is not disturbed by ploughing. A thin humic layer is present and is, in this case, underlain by a podsolic layer.

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