THE KIRCHE SITE

THE KIRCHE SITE: A LATE PREHISTORIC HURON VILLAGE IN THE UPPER TRENT VALLEY

By

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ABSTRACT

The Kirche site is an early 16th century Huron village that was excavated as an integral component of an archaeological project investigating late Iroquoian occupations in the upper Trent valley between approximately A.D. 1450 and 1615, by which time the area had been abandonded. This thesis describes the archaeological material recovered during three seasons of testing and excavation at the Kirche site and outlines a number of interpretations concerning the occupation of this village. As a component of a regionally focused project, analysis and interpretation are directed towards elucidating the nature of the occupation at the Kirche village within the context of its local cultural environment and only secondarily within the broader context of late prehistoric and protohistoric occupations in south-central and eastern Ontario.

The Kirche village appears to have had a complex history of formation, characterized by the fission and fusion of household groups. It is suggested that many of the villagers immigrated to the upper Trent valley in the late 15th or early 16th century, and that a small number of an indigenous population settled in the village as well. Population movements during the late prehistoric period in south-central and eastern Ontario appear to have been accompanied by increased warfare, the growth of villages through the accretion of additional population segments and internal village complexity. The archaeological record at the Kirche village provides additional evidence for these occurrences.

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Penny Jane Murray catalogued the material recovered from the Kirche site and helped in processing the flotation samples. Mr. and Mrs. Murray kindly allowed us to use their lake front for washing

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CHAPTER 1

INTRODUCTION

The Kirche site (BcGr-1) is a 3.3 acre prehistoric Huron village, located in the upper Trent valley, that was occupied early in the 16th century. The research directed towards the analysis and interpretation of this occupation form an integral part of a regional study of late Iroquoian occupations in the upper Trent valley dating between approximately A.D. 1450 and 1615, by which time the area had been abandonded.

The Huron were an Iroquoian-speaking agricultural people living in northern Simcoe County in the early 17th century, and their culture is well known through the interpretation of historic documents (Tooker 1967; Trigger 1969; 1976; Heidenreich 1971). Ramsden(1977b:1-27) has explicated the difficulties that arise from a failure to distinguish between the Huron as an ethnohistoric construct and the "Huron" archaeological culture. The Kirche site is defined as Huron on the basis of its production of what is commonly referred to as a Huron archaeological assemblage in the literature, and not on any inferred or imputed relationship to the 17th century inhabitants of Huronia, who nonetheless had a similar material culture. The Kirche site and other so called Huron sites lie outside the area known to have been occupied during the historic period and thus the applicability of the 17th century historic documents to the interpretation of Kirche and other Huron sites is open to question.

The archaeological research in the upper Trent valley was conceived and directed by P. Ramsden of McMaster University, and was designed to test a number of hypotheses concerning the late Iroquoian occupations in the area. These hypotheses were formulated on the basis of a refined ceramic analysis of twenty-eight prehistoric and historic assemblages (Ramsden 1977b). The method of ceramic analysis developed by Ramsden has been adopted in this thesis, and is being used for the analysis of all the sites tested or excavated in the upper Trent valley. The use of a standard format greatly facilitates comparative analyses and is integral to the testing of the hypotheses that initiated the research in the Trent valley. The reliance in this thesis on Ramsden's (1977b) view of late prehistoric Huron culture and history, also reflects the fact that it represents the most recent synthesis of Huron archaeology and offers many intriguing theoretical avenues of reconstruction and interpretation.

The "Upper Trent Valley Archaeological Project" was initiated in the summer of 1976. Field investigations were undertaken during three consecutive seasons, and analysis and report production are currently underway. Several preliminary reports on the project as a whole have been submitted to the Social Science and Humanities Research Council, and to the Ontario Heritage Foundation. In addition, a number of brief summary articles have been published, in Arch Notes (Ramsden 1977a:19-31), the newsletter of the Ontario Archaeological Society, and in American Antiquity (Goldstein 1980:371). Reference to the project made here concerning objectives, methods and other observations, derive largely from my participation in the project since its inception.

Theoretical and Methodological Perspective

Prior to approximately 1970, much of the Ontario Iroquoian research that pertains to Huron culture was directed towards providing general syntheses of long periods in Iroquoian cultural history (MacNeish 1952; Emerson 1954; Wright 1966; Noble 1968). Questions of a general and historical nature have emphasized the reconstruction of broad chronological relationships between sites, often distantly located, on the basis primarily of a seriation of pottery types (MacNeish 1952) or on a combination of pottery types and attributes (Wright 1966; Noble 1968). In addition to reconstructing historical relationships between sites, these investigations documented changes in Iroquoian material culture, and where possible, in other aspects of culture such as settlement location and subsistence economy (Wright 1966). Concern with major developments was reflected in a tendency to present a picture of typical assemblages and features for each period or stage defined, rather than concentrating on details of local variation. The models of cultural history that resulted from these broad perspectives were often of an oversimplified nature, presenting a view of culture change in terms of "progressively diverging branches of Iroquois culture, or parallel but independent sequences diverging from common ancestral stocks" (Ramsden 1977b:197).

Attempts were made in some syntheses to elucidate aspects of Iroquoian social organization (Noble 1968) and Noble did attempt to examine local variations among seven protohistoric components, most of which had been excavated by Emerson. However, a lack of suitable, comparable data hampered comprehensive comparisons.

In addition to major syntheses, Ontario archaeologists have concentrated on investigating occupations at single sites. Wintemberg's (1928; 1939; 1948) comprehensive site reports focused on describing artifactual assemblages in terms of function categories such as "the securing of food", "tools used by men", "tools used by women" and "weapons". Non-quantitative descriptions of floral and faunal assemblages were used as evidence for reconstructing subsistence activities. Conclusions pertaining to the identity of the inhabitants of sites were made in terms of broadly defined cultural units such as "Iroquoian" or "Algonkian", and in terms of historically defined groups such as the Neutral and Huron.

Emerson (1954; 1966) excavated a number of Iroquoian components with the primary objective of reconstructing the history and culture of the occupants at particular sites and interpreting how various components related to Ontario Iroquoian history and cultural development in general. The emphasis in his excavations was on recovering samples of material culture, and his historical reconstructions were based largely on detailed comparative analyses of ceramic artifacts. Data on settlement features were recovered from the excavation of one longhouse at both the Hardrock and McKenzie sites, and seventeen longhouses at Cahiague (Noble 1968:266). Unfortunately the data from Cahiague has not been published.

Following Wright's (1966) synthesis of Ontario Iroquoian archaeology, his historical model of Huron cultural development was frequently used as a theoretical framework for evaluating the temporal position and cultural relationships of newly excavated components. For

example, Pendergast's (1972) analysis of the Lite site concentrated on assessing the temporal and cultural position of this component with respect to Wright's northern and southern divisions of Huron culture. Excavation was oriented towards recovering artifacts rather than settlement and subsistence data, and relationships were assessed largely in terms of pottery types and attributes.

There have been two notable trends in the approach to Iroquoian archaeology within the last twenty years. The first involves the systematic recovery of settlement and subsistence data which are integrated with other classes of data to interpret the cultural phenomena which have produced the archaeological record at single sites (Wright 1974; Stewart 1974; M. Wright 1978; Lennox 1979; Noble 1968; 1975; Noble and Kenyon 1972; Finlayson and Byrne 1975). This reflects the development of holistic approaches to the reconstruction of single occupations, rather than approaches which emphasize the reconstruction of cultural and temporal relationships between components, based on a limited comparison of material culture traits.

Secondly, there has been a recognition by Ontario archaeologists of the potential of Iroquoian archaeological data for elucidating complex events and processes, rather than restricting research to describing widespread cultural developments. General historical questions concerning the in situ development of Iroquoian culture in Ontario have now largely been resolved (MacNeish 1952; Wright 1966; Noble 1968; Kenyon 1968) and broad outlines of cultural development have been established. Attention is now being focused on investigating regional variability in cultural and historical phenomena, and reconstructing

the functioning of social, economic, settlement and political systems on a local level (Finlayson 1975; 1978; Ramsden 1977b). Ramsden's (1977b) thesis concerning late prehistoric and historic Huron society, demonstrated that many events and processes occurred on a restricted, local level, rather than among all of the groups occupying south-central Ontario. Economic, political and social interactions appear to have been complex, and specific to clusters of sites or villages, rather than embracing all groups as a single, cohesive unit. Moreover, networks of communication and interaction changed over time in response to such variables as the introduction of European trade into Huron economy. Ramsden's analysis suggested that such complex processes as the splintering and merging of village segments in response to political and economic expedience, was characteristic of Huron society during the late 15th and 16th centuries. Therefore, rather than conceiving of prehistoric Huron culture and society as a cohesive unit, current evidence suggests that it is more useful to conceive of cultural and historical processes occurring at the level of clusters of settlements.

Questions directed towards elucidating such complex cultural processes, and evaluating the effect of certain variables on the cultural system of the late prehistoric/historic Huron, cannot be addressed with the kinds of data traditionally collected and reported. In light of the conclusions reached in his thesis, concerning the importance of local events in Huron cultural history, Ramsden (1977b:295-298) suggests that research be directed towards studying the cultural development and movement of people within local areas. Further, programmes of excavation should attempt to recover data, ideally, by whole site excavation, from

all sites within a local area. Individual components could then be analyzed within their immediate cultural and historical environments. Such a programme would maximize the potential of archaeological data for answering questions concerning the complex nature of Huron society and culture change.

Data collection and reporting within the context of regional studies, should be directed towards recovering information on all aspects of Huron society that are amenable to interpretation with the use of archaeological data. The kinds of questions being asked about 16th century Iroquoian culture and culture change, such as the timing of the introduction and the effects of the early European trade on the indigenous cultural system (Ramsden 1978; Hayden 1978; Trigger 1979; Noble 1980), can only be successfully investigated when intensive, regional archaeological programmes are able to provide information on as many relevant aspects of Iroquoian culture as possible. A knowledge of the regional functioning of the economic, political, social and settlement systems, how these are interrelated and how they changed through time is fundamental to acquiring a critical understanding of the processes that underlay the Huron cultural system as a whole. The implications of this position are that it is no longer adequate to reconstruct only one aspect of the cultral system, which inevitably introduces a bias into interpretations. Reliance on one class of artifacts, such as pottery vessels, necessarily limits the potential of the archaeological record for investigating complex processes. In the case of pottery vessels, for example, only the female portion of society is represented (Ramsden 1977b:294). In order to obtain a

holistic understanding of prehistoric Huron society, an attempt should be made to incorporate a wide range of data as a basis for interpretation. This will only be possible when comprehensive reports on a number of settlements within well defined regions, and within relatively restricted time periods, become available.

The Upper Trent Valley Archaeological Project

One area that appeared promising in terms of initiating a regional programme of research focused on investigating local events and processes, was the upper Trent valley, in Victoria County, south-central Ontario (Fig. 1). Research in the area prior to 1976 has had a long but sporadic history beginning in the early 1900's with Colonel George Laidlaw's "horse and buggy" surveys. Laidlaw located and collected material from a large number of sites, and his brief reports provided an initial source of information for the archaeological surveys conducted between 1976 and 1978 (Laidlaw 1891; 1897; 1900; 1902; 1917).

In the early 1950's J. N. Emerson (1954) sampled a number of midden deposits at the Benson and Hardrock sites, and excavated a longhouse at Hardrock. Trent University carried out a brief survey of the area in the late 1960's, locating and testing various Iroquoian components. Unfortunately, results fo these surveys have not been published. P. Pratt excavated the Trent site, a late Iroquoian component south of Balsam Lake, in the early 1970's, but the results of this work have not been published either. Thus, despite the fact that previous investigations have resulted in the location of a number of sites per-

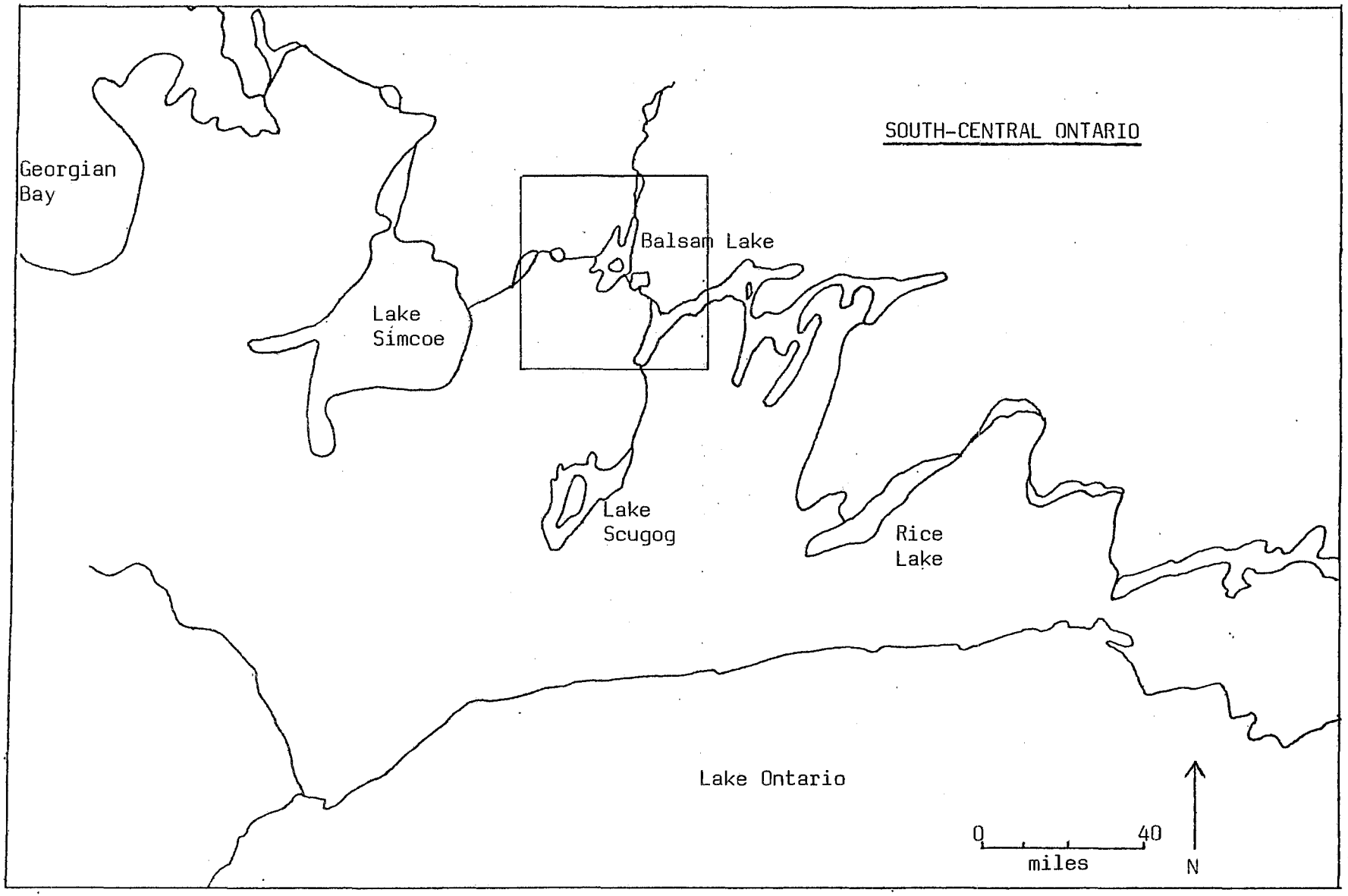


Fig. 1. Location of the Upper Trent Valley Archaeological Project.

taining to Huron society in the late 15th and early 16th centuries, only two, the Benson and Hardrock sites, have been reported in any detail. Archaeological data from these latter two sites have been integrated into major syntheses of Iroquoian prehistory in Ontario, and have formed the basis for a number of hypotheses concerning the Iroquoian occupations in the upper Trent valley.

On the basis of his investigations, Emerson (1954:254) proposed that there were two reasonably distinct complexes represented in the upper Trent valley, one typified by the Hardrock site, the other by the Benson site. He further suggested that the occupation at Benson represented a continuity from Hardrock, and that the differences noted in the Benson artifact assemblage merely reflected changes that had occurred due to influence from the Roebuck site, a St. Lawrence Iroquoian village excavated and reported initially by Wintemberg (1936).

Wright (1966) included the Hardrock site in his southern division Huron sites and suggested that it was occupied shortly after A.D. 1550. The Benson site he considered to represent a fusion site of his proposed southern and northern Huron divisions, and he suggested that it was occupied during the latter half of the 16th century.

Noble (1968), in his treatment, focused only on the Benson site, and grouped it in a protohistoric cluster.

The recognition of the cultural differences between the Hardrock and Benson complexes was further elaborated in Ramsden's (1977b) thesis. As a result of his analysis, he defined several clusters of sites in south-central Ontario that pertained to late prehistoric/historic Huron society. Chronological, historical and social relationships within and

between these clusters were discussed with respect to various historical, economic, and political factors which may have influenced these relationships. One group defined included the Benson site; another group included the Hardrock site. On the basis primarily of ceramics, but also considering other cultural attributes, it was proposed first, that a Hardrock group, represented by the Hardrock and Quakenbush sites, occupied the Trent valley shorly after A.D. 1400 (Ramsden 1977b:207, 255). Secondly, Ramsden (1977b:266; 19771;ii) proposed that the Benson site represented a later occupation of the area by people who were not descendants of the Hardrock group. Rather, they were, at least in part, a group who had migrated to the upper Trent valley from the Toronto-Oshawa area. He suggested that the occupants of the Benson village had political, economic, and social relationships with groups in the St. Lawrence valley, the lower Trent valley, the Humber valley and Simcoe County. These relationships were based, in part, on concerns revolving around a trade in European material, a trade that may have initially motivated the Benson villagers to immigrate to the upper Trent valley.

In order to investigate the above proposals in more detail, Ramsden initiated the archaeological project in the upper Trent valley. This research is focused on the occupation of the area between approximately A.D. 1450 and 1615, and centres around two basic problems: 1) the nature of the relationship between the proposed indigenous and immigrant Iroquoian groups; and 2) the effects of the early European trade on the culture of the Iroquoian group or groups occupying the valley at the time this trade was in progress.

In order to clarify the relationships between the two apparent

Iroquoian groups in the valley, there is a particular concern to define the differences between them with respect to material culture, demography, settlement pattern, economy and socio-political structure. The identification of origins of the immigrant group and the effects of their incursion on the indigenous population, pose additional central problems.

With respect to the effects of the early European trade, we are particularly interested in determining its nature and ramifications. Was it a trade in beaver pelts which brought European material into the upper Trent valley in the latter part of the 16th century and what were the effects on various aspects of Iroquoian culture of a new kind and source of material wealth?

Figure 2 illustrates the location of the Kirche site and eleven others excavated or tested in the course of the upper Trent valley archaeological investigations.

Objectives of the Excavations at the Kirche Site

In 1976 the Kirche site was located and briefly tested. Analysis of the material recovered at that time suggested that it was occupied somewhat later than the Hardrock site, but earlier than Benson. No European material was recovered, and general similarities between the Kirche and Hardrock assemblages led to the initial conclusion that Kirche represented a settlement of the indigenous Iroquoian population. Further testing in the fall of 1977 increased the artifact sample and provided data on the settlement features at Kirche. The analysis of the artifact

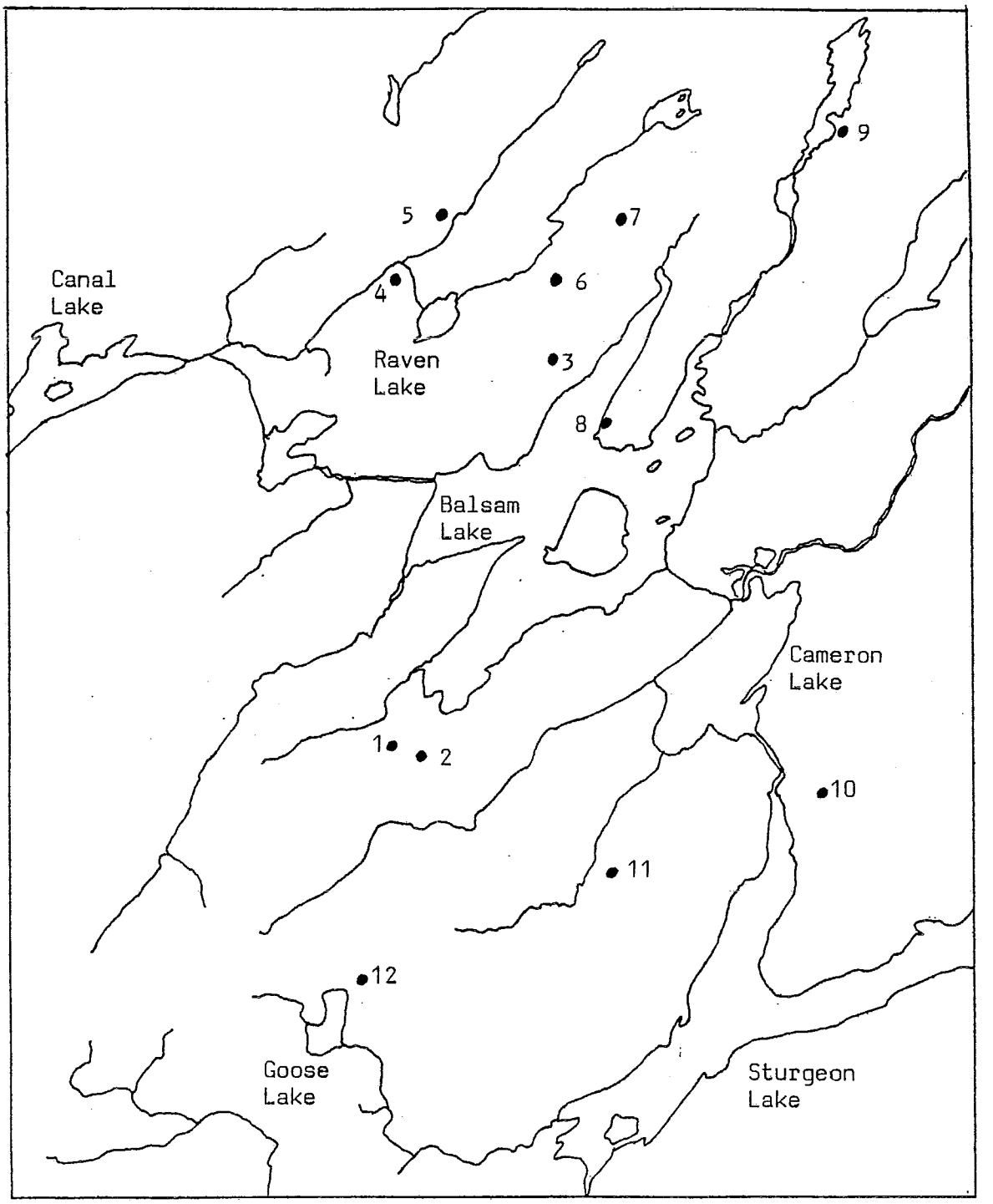


Fig. 2. Late Iroquoian sites in the Upper Trent Valley.

Fig. 2. Key to site numbers.

1. Kirche BcGr-1
2. Jamieson BcGr-1
3. Coulter BdGr-6
4. Benson BdGr-1
5. Bexley School BdGr-4
6. Corsons BdGr-4
7. Wet Back BeGr-1
8. Hardrock BdGr-2
9. Rumney Bay BcGq-1
10. Dawn BdGq-1
11. Lean BcGq-1
12. Trent BcGr-2

assemblage indicated that while similarities with Hardrock were evident, there were traits present more reminiscent of Benson, thereby suggesting the possibility that Kirche was occupied at a time when new people were moving into the valley. Evidence from the settlement data indicated that the village had been expanded on the eastern side, by rebuilding the palisade and adding at least two more houses. This lent credence to the idea that new groups had joined the village. The possibility that this village represented a phase in the immigration process suggested that a more complete excavation might shed some light on the nature of the immigration and the effects it had on the indigenous population, as well as clarifying the motivations underlying the immigration.

The objectives of the 1978 excavations at Kirche included acquiring information on: 1) the settlement features, with particular emphasis on defining the overall village morphology; 2) the subsistence economy; 3) the material culture; 4) external relationships; and 5) the date of the occupation.

Excavation Strategy

Ideally, complete excavation of the Kirche site was desirable. However, time and financial constraints required the adoption of a somewhat less ambitious strategy. Compromises were reached that were thought to maximize the potential of the archaeological record, given both the objectives and the constraints under which we operated. In general, efforts were not directed towards the excavation of house interiors, although portions of longhouses were excavated when encountered

in test trenches or squares. Two factors contributed to this decision. First, over half of the site had been disturbed by ploughing and no living floors in this area remained intact. Secondly, the complexity of the occupation, which was recognized almost immediately in the field, involving the superimposition of house remains, made the association of features and artifacts with partiular houses extremely difficult. It also meant that isolating activity areas within houses was in many cases precluded.

An extensive approach was adopted in order to obtain information on as much of the site as time allowed. In particular, excavations were designed to recover as complete a picture as possible of the overall village morphology, and to recover artifact samples from areas throughout the site.

Given the above considerations, a strategy involving the excavation of test trenches was adopted. Where the remains of house or palisade walls were encountered, they were followed by excavating with shovels, 1m wide trenches; in most instances this trenching was pursued for a distance long enough to establish the existence of walls, the lengths, widths, orientation, and other features of house or palisade construction. When difficulties occurred in interpreting the post mould patterns or features uncovered, the immediate areas of excavation were enlarged, often to 5 X 5m squares or larger, until the pattern was clarified. Pits and other subsoil features were excavated by trowel.

Because the western part of the site was disturbed by ploughing, middens in this area were disturbed, and consequently, not excavated in detail. They were, however, still clearly visible due to their high

organic content, and due to the much denser concentration of artifact and faunal refuse in these deposits. When disturbed middens were encountered they were shovelled through 1/4" mesh hanging screens in order to improve the recovery of the associated remains.

The eastern part of the site had not been extensively ploughed, and here several middens remained undisturbed. They were excavated in 1m squares and 10cm arbitrary levels, or in natural levels where such occurred. These middens were also screened through 1/4" mesh hanging screens.

Pits and other subsoil features encountered in the trenches were sectioned in order to obtain a profile of their shapes; photographs were taken in some cases; flotation samples were taken, and the remaining section was then excavated. Artifacts recovered from features were bagged separately. Post moulds were on the whole not sectioned, except where some doubt existed as to whether they were in fact post moulds, or merely root stains, rodent holes, or small pits. Artifacts recovered from post moulds were also bagged separately.

All post moulds and pits were recorded by triangulation and written description on pre-printed forms. A grid based on 5m square units was laid out by transit and all record forms were designated and filed according to this system. In addition, sketch maps were drawn of each unit excavated so that a field map could coordinate the results and record the progress of the overall excavation.

Objectives of the Thesis

This thesis addresses itself to two basic objectives. The first entails providing a comprehensive, descriptive report of the results of the analyses of the settlement, artifactual and faunal data derived from the excavation of the late prehistoric Huron Kirche village. Hopefully, this will provide the type of detailed analysis needed for investigating the Iroquoian occupations in the upper Trent valley. In terms of the general study of the prehistory of the Huron people, comprehensive reports on single villages are indispensible for investigating the complex events and processes that preceded the establishment of the historic Huron confederacy in northern Simcoe county (Trigger 1980:210).

> ...the best hope of unravelling their [the Huron] prehistoric development seems to lie in the detailed study and comparison of individual villages and local clusters of villages as they formed in prehistoric times and then to trace the complex movements and regroupings by which they came together to form the historic Huron confederacy.

The second objective is to outline a number of interpretations pertaining to the occupation at the Kirche village. Historical and cultural relationships between the Kirche villagers and the inhabitants of other villages in the upper Trent valley are assessed on the basis of comparative analyses of settlement and artifactual data. In particular, the relationship between the Kirche village and the proposed indigenous and immigrant populations in the upper Trent valley is examined. Because complete reports on several of the upper Trent valley Iroquoian components are not yet available, interpretations cannot be comprehensive

and are, therefore, of a preliminary nature.

Relationships to other late prehistoric Iroquoian occupations in south-central and eastern Ontario are also assessed, but limitations imposed by a lack of adequate comparative data preclude the presentation of definitive statements.

Finally, an attempt is made to reconstruct various historical and cultural phenomena that produced the archaeological record at the Kirche village. Attention is focused on: 1) reconstructing the nature of the village's formation; 2) detecting the presence of discrete social groupings within the village and relating these to other Iroquoian occupations in the upper Trent valley; and 3) reconstructing the subsistence economy of the Kirche village.

CHAPTER 2

SETTLEMENT DATA

LOCATION AND TOPOGRAPHY: SITE SELECTION

The Kirche site (BcGr-1) is located in Fenelon Township, Victoria County, Ontario (Fig. 2). It covers approximately 3.3 acres (1.4 hectares) on a sandy stretch of land that slopes slightly to the west and south. Several hundred yards to the east and to the south-east are a series of gravel knolls, while to the south and west, low lying ground gives way to swamp.

To the south of the site is a spring, which no doubt provided a useful source of water for the village inhabitants. Approxmately 1.5 miles to the north is Balsam Lake, a moderate sized body of water located between Lake Simcoe to the west and Cameron Lake to the east. Balsam Lake forms part of the Trent River canal system, which today provides a major waterway from the Bay of Quinte, Lake Ontario to the Georgian Bay region. Undoubtedly, the Trent River provided an important route of travel in the past.

Balsam Lake is well known today to fishing enthusiasts throughout southern Ontario, and it was probably a prime fishing locale for the Kirche site villagers and other people settled close by.

The site lies within the Peterborough Drumlin Field physiographic region which is characterized by a rolling till plain. For the most part

the bedrock underlying this region is Trenton limestone. The depth of overburden varies considerably, producing a rolling topography and areas of limestone outcrop (Chapman and Putnam 1966:283). The soil on which the village was constructed is extremely sandy, and would have provided the village inhabitants with excellent drainage conditions. The suitability of the soil in the immediate area would also no doubt have been a factor in the choice of a site, given the agricultural component of the economy of this group of people. Very little is known about late prehistoric Huron agriculture, but it is assumed that a simple technology was employed, involving the use of digging sticks to prepare corn hills, and a reliance on rainfall for irrigation. Today, the land adjacent to Kirche is in use for various crops and for kitchen gardens.

At the height of early European settlement in the area around 1881, major logging operations effectively removed the majority of pine stands which once covered the area. The building of dams in association with these operations, and later with the building of the Trent canal, has altered the water levels in many of the lakes and large areas of swamp have been created. Assessing the relative importance of factors that were involved in the selection of the site for the Kirche village is complicated by the difficulties involved in reconstructing the paleo-ecology of the upper Trent valley in the late 15th and early 16th centuries. We have little appreciation of the nature and degree of the human impact on the natural ecosystem, in part due to our inability to reconstruct details of human demography at any one time during the period under consideration. For example, identifying the number and location of contemporaneous villages and estimating the population

density of the area is beyond solution given the nature of the archaeological data available at present.

Determinants of settlement locations are numerous and involve not only subsistence considerations but a range of other factors as well (Trigger 1968). With respect to the location of the Kirche village, the availability of subsistence and other resources was certainly important, but no doubt was considered in conjunction with other factors, such as the nature of economic, social and political relationships with other contemporaneous villages. Factors related to the prior existence of settlements in the area must also have had a bearing on the selection of a site.

VILLAGE MORPHOLOGY

During 1977 and 1978 approximately 2006 sq. m were excavated (Fig. 3). The results of these excavations in terms of the spatial distribution of house, palisade and midden features are illustrated in Figure 4.

The Kirche village comprised a group of at least 29 longhouses, not all occupied contemporaneously, and not all enclosed within a palisade (Fig. 4). On the eastern side of the village, an extension was made to the palisade which incorporated at least an additional 2 houses. The area covered by the palisaded village, which contained at least 20 houses, was approximately 2.2 acres (0.9 hectares). Outside the palisade at least 7 more houses were located to the west and southwest, covering an area of approximately 1.2 acres (1.5 hectares).

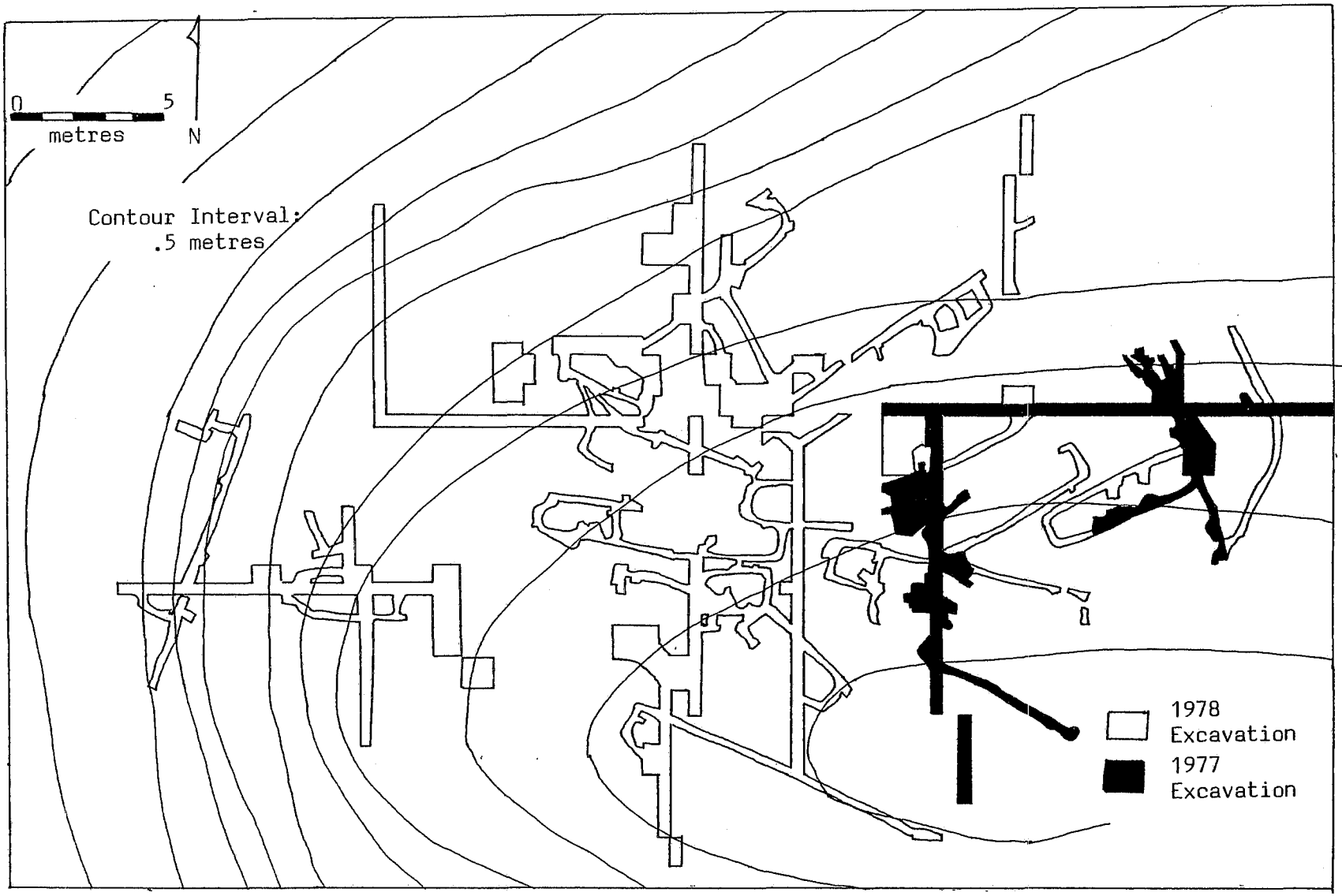
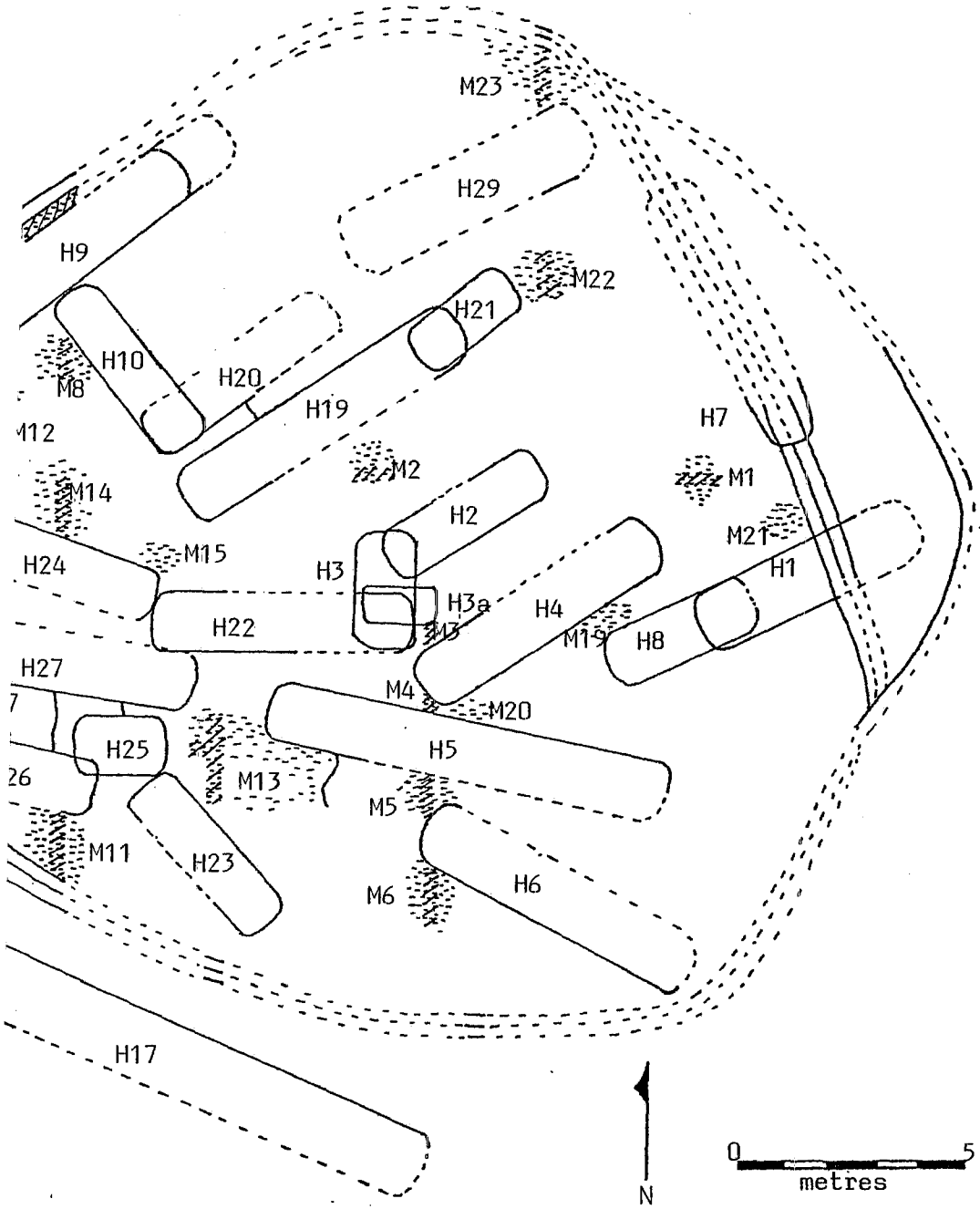


Fig. 3. Map of Excavation.



idden and Palisade Features at Kirche.

Palisade

Approximately 404 sq. m of palisade were excavated in 8 sections (Fig. 4). Appendix A illustrates the results of this excavation.

On the east side of the village the palisade was extended to accomodate at least 2 more houses. Appendix A, Fig. 1 has been drawn at a larger scale than the other figures in order to illustrate the superimposition of houses 1 and 7 over the original 3 rows of palisade. It was determined that house 1 post-dated these rows since the hearth associated with house 1 overlay several large palisade posts. A double row of palisading encircled the new eastern extension to the village (Appendix A, Fig. 2). Prior to the construction of this extension it appears that the palisade consisted for the most part of 3 rows of posts spaced approximately 1m apart. Table 1 summarizes the sizes of posts used in the construction of the Kirche palisade in the 8 sections excavated.

Table 1. Kirche palisade post diameters.

Section	N	$\bar{X}$ (cm)	Range (cm)
Southwest	238	9.8	3-18
Southern I	24	9.3	6-19
Southern II	19	9.6	4-18
Western	122	12.5	5-32
Northwestern	128	11.2	3-18
Northern	22	14.0	6-23

(continued)

Table 1. (Continued)

Section	N	$\bar{X}$ (cm)	Range (cm)
Eastern Extension	107	12.5	7-22
Original Eastern	291	11.7	5-20

As Table 1 indicates, there were differences in the size of posts used both within sections and between sections. It is difficult, without information on the entire palisade, to make statements about what these differences reflect. Certain areas of the palisade may have been more strongly fortified as part of the villager's defensive strategy. However, it is not at all certain that palisades were always constructed for defensive purposes and variability in the strength of sections may simply reflect the availability of raw materials or the preference for certain post sizes by individual builders or groups of builders.

It is interesting to note however, that the 3 palisade sections bounding the southern perimeter of the village all share smaller mean post diameters than the other sections. Presently the area south of the site is marshy due to the issuance of a spring in that area. It does not seem improbable that the Kirche villagers perceived the southern approach to the site as less vulnerable to attack because of the marshy ground, and for this reason, constructed a weaker fortification in this area.

In contrast to house walls, palisade rows were constructed of

a single line of posts with some posts slightly offset. This is particularly apparent in Appendix A. Fig. 2, which illustrates a long section of 1 row of the 2 rows of extension on the east side of the village. There is some variability in this general pattern however, evident in Appendix A, Fig. 3, which illustrates the northwestern section of palisade. Here, the inner row consisted of large posts with many smaller posts located inbetween. This section also differs from others in that there are only 2 continuous rows. On the outer side of these 2 rows are what appear to be 2 discontinuous walls, although it is difficult to determine whether or not all of these posts existed contemporaneously. This area may have served as an activity area or it may represent the existence of some additional structure related to the palisade.

The southwestern section of palisade (Appendix A, Fig. 4), has what appears to be an entrance way. The outer row of posts angles outward slightly and there is a gap approximately 1m wide before the row continues. A gap in the inside rows is slightly offset from that in the outer row. Thus passage through the palisade was not direct but necessitated sideways movement. The location of this entrance is particularly interesting in light of the fact that there was a house (no. 17) located just outside the palisade at this point. The inhabitants of this house were therefore provided with a ready access to the enclosed village, perhaps for visiting purposes or in the event of an enemy raid.

Another feature to note with respect to the palisade is the association of midden deposits with this structure (Fig. 4). Middens occur in association with the following sections: southwestern, north-

western, northern and the initial 3 rows on the eastern side of the village.

Houses

Twenty-nine houses were located, and the walls of 22 were outlined at least on 1 side and at both ends; also, parts of 18 house interiors were excavated. Appendix B illustrates the results of this excavation. The following discussion presents a summary of the analysis of houses which was directed towards acquiring information on the following variables: length; width; shape; orientation; size and distribution of both wall and interior posts; overlapping of houses and house extensions.

House lengths and widths

Table 2 summarizes the data on the lengths and widths of the 29 houses located. In cases where the entire length is not observable, minimum lengths are given. Similarily, dashes are used to indicate cases where observations on a particular variable are not possible. Lengths were determined by measuring parallel to the long axis of the house to the mid-points in the end walls. Widths were measured from the mid-points of the side walls perpendicular to the long axis as close to the middle of the house as was possible.

There is a considerable range in the length of houses at the Kirche village. The smallest house (no. 25, Appendix B, Fig. 17), is only 10.5m in length while the largest house (no. 17, Appendix B, Fig. 13), is greater than 60.0m in length.

Table 2. Kirche longhouse lengths and widths.

House No.	Length (m)	Width (m)
1	18.0	7.0
2	18.0	7.0
3	11.5	6.2
4	29.0	7.0
5	43.5	7.0
6	34.5	-
8	17.2	6.8
9 (phase 1)	35.8	8.0
9 (phase 2)	36.0	8.0
10	18.0	6.0
11	19.0	6.5
12 (phase 1)	32.0	7.0
12 (phase 2)	44.0	7.0
13	-	7.0
14	-	-
15	-	6.5
16	-	-
17	60.0	7.0
18	15.5	6.5
19	35.5	7.0
20	-	-

(continued)

Table 2. (Continued)

House No.	Length (m)	Width (m)
21	11.0	6.0
22	27.5	7.0
23	18.5	6.5
24	29.5	7.0
25	10.5	7.0
26	17.5	6.5
27 (phase 1)	16.0	6.5
27 (phase 2)	27.5	6.5
28	13.0	7.0
29	-	7.5

Figure 5 indicates that the houses can be grouped into 3 length categories classed as short, medium and long. Most of the Kirche houses, 12 in number, fall within the short class having lengths between 10m and 20m, while the second most numerous (9), are medium-sized houses measuring from 26m to 40m long. Only 1 house (no. 17) is long, and it has a length greater than 60m.

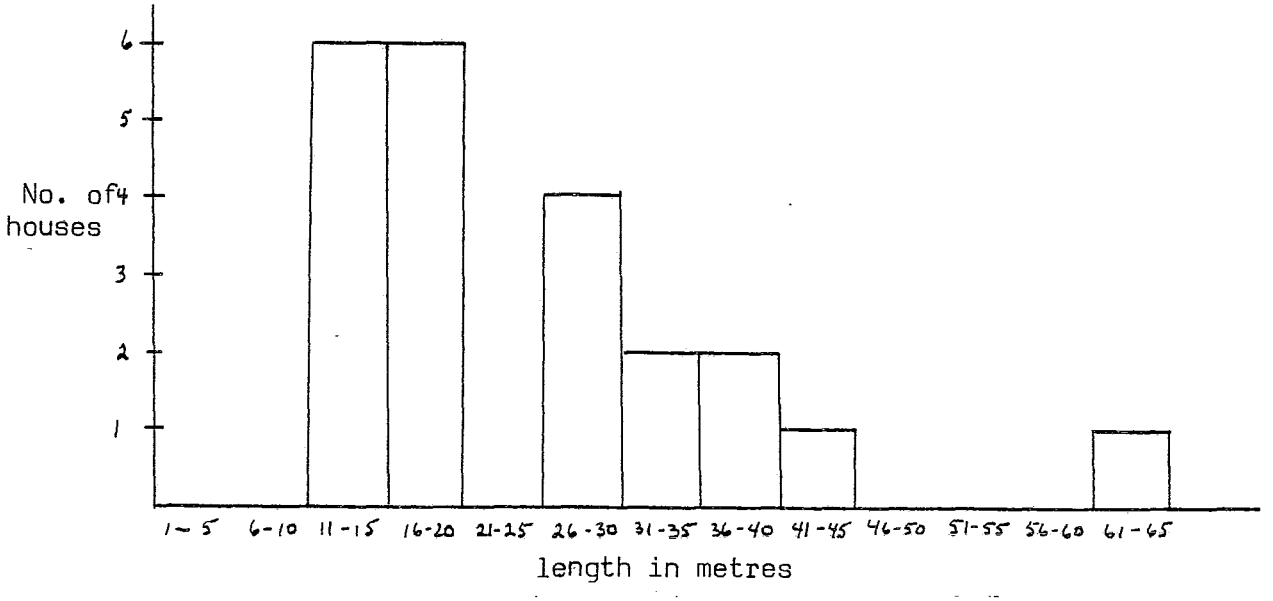


Fig. 5. Kirche longhouse lengths.

It is interesting to note with respect to the above discussion that the largest house recorded (no. 17) is located outside of the palisaded village, and house 12, also located outside of the palisaded village, attained a length greater than any recorded inside the fortified village (Fig. 4). With the extension to the south end of this house its length was greater than 44m. There is some evidence to suggest that an addition was made to the north end of this house as well (Appendix B,

Fig. 10), although this was not determined conclusively. The largest house inside the palisaded area was house 5, and it measured 43.5m. The short houses were located throughout the palisaded village and 1 occurred outside the palisade. All of the medium sized houses occurred within the palisade. However, only 3 complete lengths were recorded in the outside area.

House orientations

Figure 6 illustrates the variation in the Kirche longhouse orientations. They are grouped in classes of 10 degree intervals each.

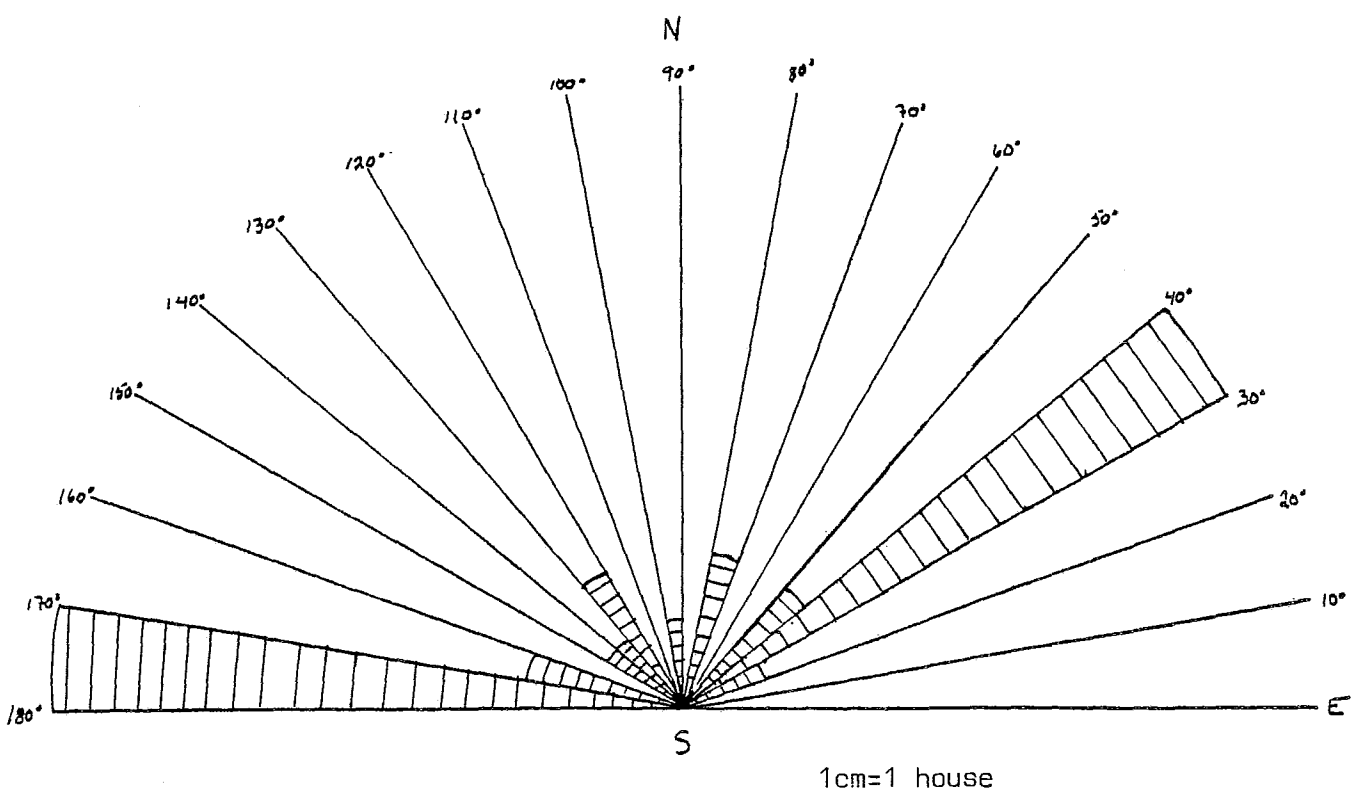


Fig. 6. Orientation of Kirche longhouses.

Although there is a substantial amount of variation, there are 2 classes that account for 55.2% of the houses. Further, it can be seen in Fig. 7 that within the palisaded village there is a correlation between those houses oriented between 1-10 degrees north of west with the south-west half of the village. Also, those houses oriented between 30-39 degrees north of east lie within the north-east half of the village. When the other houses are included this pattern is not substantially altered. The houses oriented west of 90 degrees are located towards the south-west half of the village with the exception of house 7. House 7, however, was accomodated by extending the palisade and it may simply have been more practical to align this house with the palisade. House 3 was oriented north-south and is located nearly at the centre of the village.

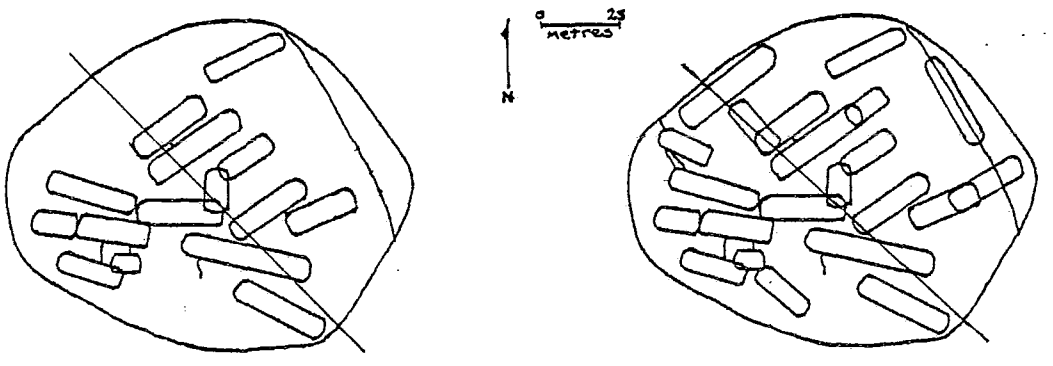


Fig. 7. Orientation of longhouses within the palisaded village.

There are a number of possible explanations for this patterning. Norcliffe and Heidenreich (1974) have suggested that historic Huron longhouses were oriented into the prevailing winds to maximize thermal efficiency, but this does not appear to be the factor involved at Kirche. Defensive factors may have played a role in determining orientations of houses, but this is difficult to assess. Social factors of proximity, visiting and kinship ties may also have contributed to the nature of village organization.

House wall posts and interior house posts

Table 3 presents the mean diameters and the range in diameters of both interior house post moulds and house wall post moulds at Kirche. In calculating mean diameters, interior support posts, defined as those that have diameters greater than 15cm, were omitted in order to obtain a more realistic measure of other interior posts. Twenty-eight support posts range in diameter from 16cm to 30cm with a mean diameter of 19.8cm.

Mean diameters of house wall posts range from 6.8cm to 12.3cm. All of the houses outside of the palisade have mean post diameters of less than 8.6cm while 14 of 21 or 66.7% of the houses inside the palisade have mean post diameters of 9.0cm or greater. There are several alternative explanations to account for this situation. For example, it is possible that the people who lived outside the palisade were late arrivals at the site and consequently they may have found fewer large trees available. It is also possible that these people simply preferred smaller posts for constructing their houses. With respect to the former

Table 3. Post mould diamters of house walls and interior house posts.

House No.	Walls		Interiors	
	$\bar{X}$ (cm)	Range (cm)	$\bar{X}$ (cm)	Range (cm)
1	9.2	5-18	6.6	2-15
2	10.4	5-20	5.9	4-10
3	12.3	6-15	8.8	4-13
4	9.8	4-27	-	-
5	9.3	5-16	7.1	4-15
6	-	-	-	-
7	8.7	5-14	-	-
8	9.5	5-19	-	-
9	9.4	4-22	7.9	2-15
10	10.8	5-24	-	-
11	7.1	4-15	7.1	2-15
12	7.5	3-20	6.1	4-8
13	6.8	4-11	6.6	3-15
14	8.6	5-12	7.8	5-14
15	8.5	4-11	6.2	3-15
16	7.7	5-15	-	-
17	8.0	4-15	7.0	4-10
18	9.0	5-15	-	-
19	8.8	3-18	-	-
20	9.4	5-15	-	-
21	9.3	5-21	-	-

(contintued)

Table 3. (Continued)

House No.	Walls		Interiors	
	$\bar{X}$ (cm)	Range (cm)	$\bar{X}$ (cm)	Range
22	7.6	3-13	7.0	4-15
23	8.2	4-18	5.9	1-15
24	7.8	5-12	-	-
25	9.0	3-16	7.5	4-14
26	9.0	3-16	7.5	4-14
27	8.2	3-16	-	-
28	9.5	4-20	8.0	2-14
29	8.7	5-11	7.6	4-15

suggestion it is noted that of the 7 houses within the palisade that have wall post diameters of less than 9.0cm there is evidence that at least 2 (houses 7 and 22) were constructed after other houses within the Kirche palisade. In addition, the examination of 1 other house in this group, house 27, lends support to the suggestion that relatively later house construction is characterised by slightly smaller posts. The wall post moulds of the original house 27 have a mean diameter of 9.1cm, while the post moulds of the extension have a mean diameter of only 7.4cm. From this it would appear that the availability of construction materials may have dictated building practices to some extent.

House walls do not appear to be characterized by any consistent patterning with respect to single, double or alternating post positioning. It is impossible in most instances to determine contemporaneity of posts, but there were probably cases where walls or sections of walls were rebuilt or strengthened. Some sections of the walls of houses 11, 20, and 24 (Appendix B, Figs. 9, 8, 18), for example, are characterized by many closely spaced post moulds that may reflect rebuilding.

Interior post moulds are in general of smaller size than wall post moulds, although there is a great deal of overlap in sizes. Support posts are located both within the central corridor of houses and close to the side walls. Given the limited amount of interior house excavation it is impossible to determine whether or not there were bunk lines in the houses or whether support posts were consistently located in specific places within houses.

In most of the excavated house interiors, the majority of interior posts are located within the central house corridor. In

particular, where hearths are present, posts are clustered around these features (Appendix B, Figs. 1 and 4). The number of posts varies considerably from very few (Appendix B, Fig. 13), to a great many (Appendix B, Fig. 4). Variability in numbers is sometimes interpreted as reflecting intensity of occupation or length of occupation, but it may also simply reflect behavioral differences among householders.

As is the case with house walls it is difficult to establish contemporaneity of interior house posts. There are many instances, however, where posts pre-date or post-date pits and other posts. At any one point in time, house interiors were undoubtedly less cluttered with posts than what appears to have been the case on the basis of the house plans.

House shapes

House shapes vary considerably. Three general shapes occur on the ends of houses: rounded; squared; and squared with rounded corners (Fig. 8).

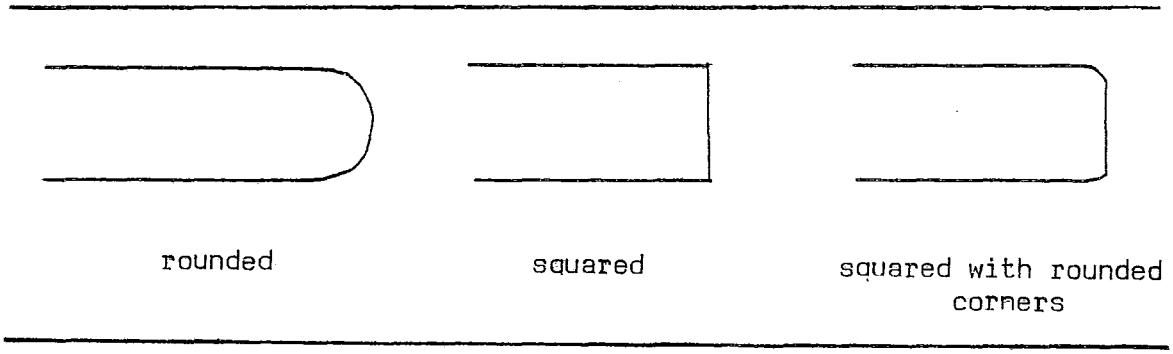


Fig. 8. House end shapes at Kirche.

Both ends of 15 houses were defined. Table 4 indicates the variability in shapes that occurred at Kirche.

Table 4. Variability in Kirche house end shapes.

Type	N	% of total
Both ends squared	6	40.0
Both ends squared with rounded corners	4	26.7
1 end squared, 1 rounded	2	13.3
Both ends rounded	1	6.7
1 end squared, 1 squared with rounded corners	1	6.7
1 end squared with rounded corners, 1 end rounded	1	6.7

The most common shapes are houses having both ends squared and houses with both ends squared with rounded corners. No association can be made between house shapes and location within or outside of the palisaded village; nor is there any correlation between house size and shape.

Extensions and overlapping houses

Evidence exists that 3 houses underwent extension or contraction at some point in time. It was determined that houses 12 and 27 (Appendix B, Figs. 10 and 19) were both extended. In both cases, pits associated with the expanded house superimposed post moulds which formed part of

the original end walls. In the case of house 9 (Appendix B, Fig. 7) there is no evidence available to determine whether the house had been extended or contracted.

Five instances of overlapping houses were recorded. It was determined that house 1 was built after house 8, as a pit associated with house 1 post-dated a wall post associated with house 8 (Appendix B, Fig. 1). House 25 overlapped house 26 and it is suggested that house 25 was built after house 26. This is based on the fact that there was a fence linking house 26 with the original house 27 and a fence that linked house 25 with the extension on house 27 (Appendix B, Fig. 19). House 3 is overlapped by houses 22 and 2, and by 3a, a small structure of undetermined function (Appendix B, Fig. 2). In this case there is no evidence to suggest the sequence in which these structures were built. Similarily, there is no evidence for sequence in the case of the overlapping of houses 10 and 20 (Appendix B, Fig. 8). House 21 was built after house 19, since a pit associated with house 19 was intersected by a post mould which formed part of the end wall of house 21 (Appendix B, Fig. 15).

Other Features

Two general categories of features are used in this analysis: sub-soil pits and the remains of structures other than houses, such as fences and sweat baths.

While often assumed to represent purposeful construction on the part of the village inhabitants, many pits probably result from natural depressions that were subsequently filled in. This distinction often

proves difficult to determine. At Kirche there are a great many pits that do not have regular plan or profile shapes, suggesting that at least in some instances, these pits are in fact filled in natural depressions.

Four types of sub-soil pits are designed for this analysis based largely on fill characteristics. "Hearths" are those features which possess a layer of fire-reddened soil usually located beneath a layer of ash. "Ash pits" are defined as pits filled predominantly with ash and may also include bits of fire-reddened soil or charcoal. "Layered pits" include all those that possess more than one recognizable layer of deposition except in the case where all layers are ash. These latter examples are included with the ash pit type. Finally "other pits" are defined as all those that possess an homogenous fill other than ash. They include examples that consist of mottling of various soils without distinctive layers.

Five variables are used in the sub-soil pit analysis: length; width; plan shape; profile shape; and contents. Only those pits that were completely excavated have been used in the analysis so that observations could be made for all the variables listed above. Pits that occurred partially in an excavation unit and partially in an unexcavated area were recorded as to location but were not excavated.

Sub-soil pits within house features

Parts of eighteen house interiors were excavated revealling 65 ash pits, 29 layered pits, 113 other pits and 3 hearths.

The 3 hearths range in length from 125cm to 183cm, in width

from 76cm to 88cm and in depth from 14cm to 18cm. In shape, 2 hearths are irregular both in plan and profile while the third is ovate in plan and basin shaped in profile. Only 1 hearth had any refuse associated with it and this consisted of a small quantity of calcined bone and shell.

Figures 9 through 10 present a comparison of the dimensions of ash pits, layered pits and other pits. There is a great deal of variability within each of these types and there are no direct correlations between pit types and particular dimensions. Some differences can be noted however. Ash pits tend to be smaller than layered pits and other pits with respect to all 3 dimensions recorded. In addition, layered pits tend to be larger than other pits. Table 5 summarizes these differences.

Table 5. Dimension differences between house pits.

Pit Type	N	Lengths <50cm (%)	Widths <50cm (%)	Depths <20cm (%)
Ash pit	65	80.0	95.0	70.8
Other pits	111	64.9	82.9	70.3
Layered pits	29	51.7	68.0	41.3

Data on pit shapes and presence of refuse is presented in Table 6, where four plan shapes are defined: irregular; circular; ovate; and rectanguloid. Profile shapes include irregular, basin, rectanguloid and flowerpot.

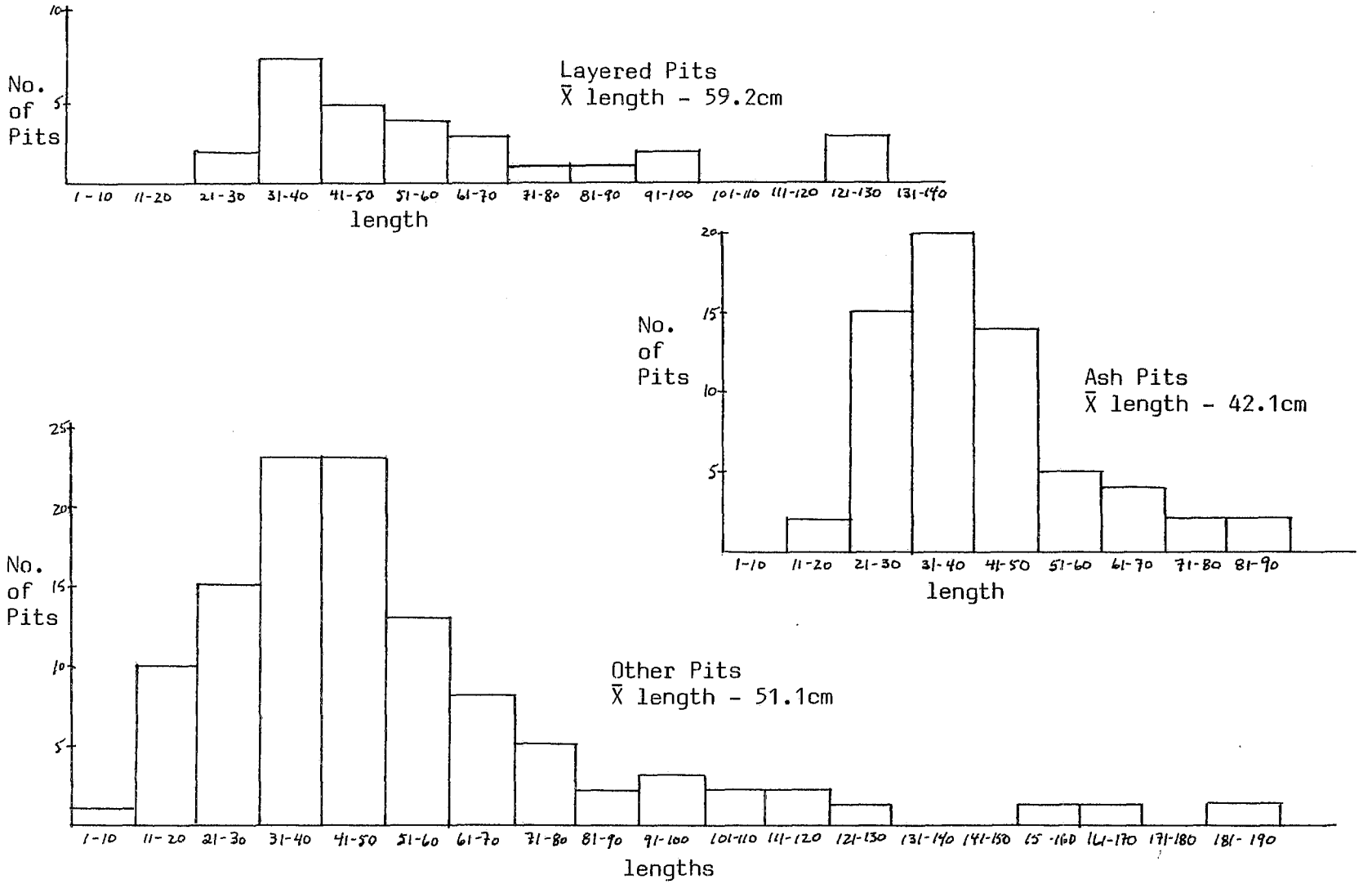
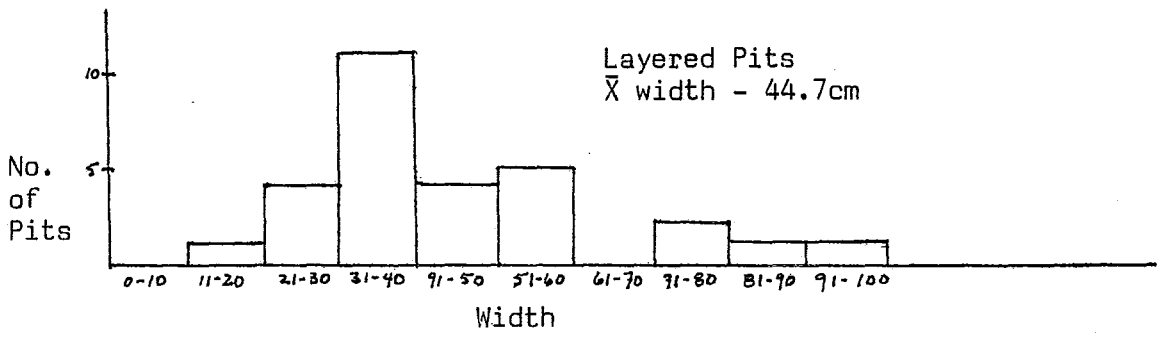
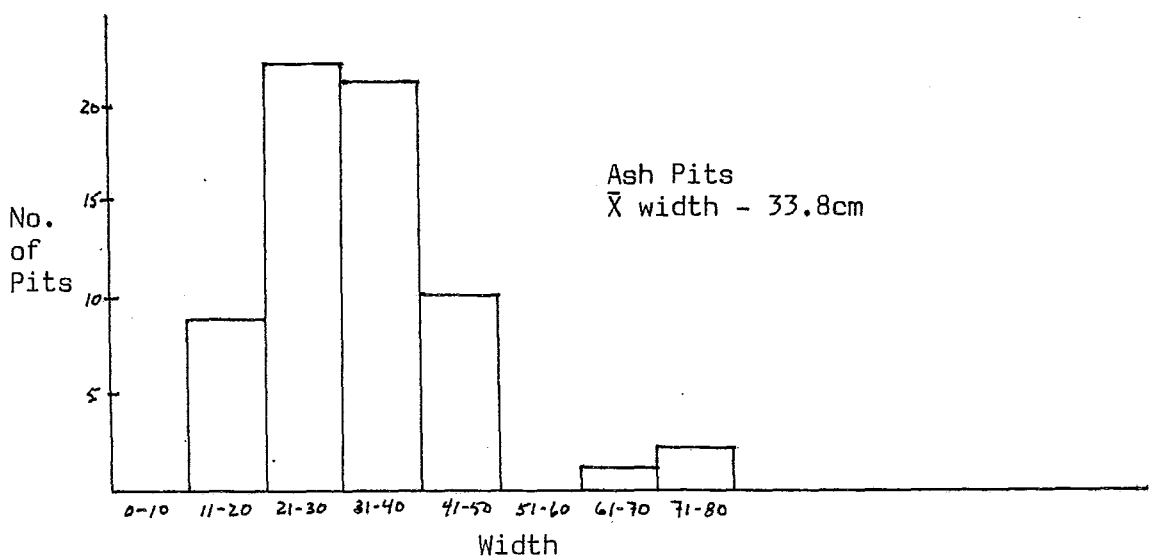


Fig. 9. Comparison of pit lengths.





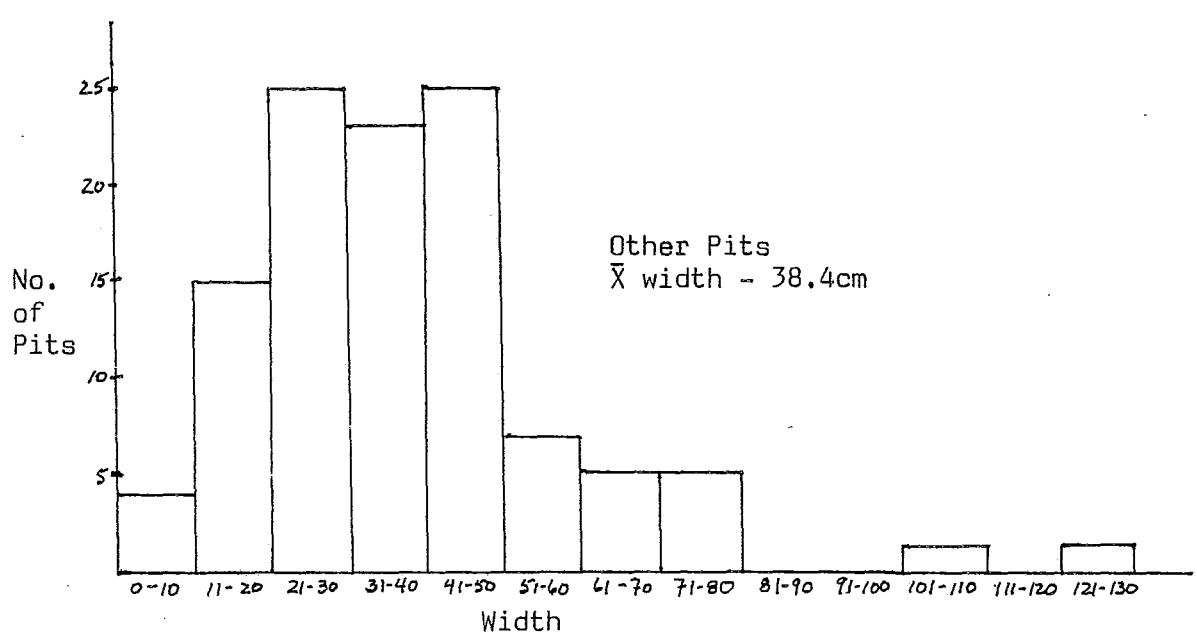


Fig. 10. Comparison of pit widths.

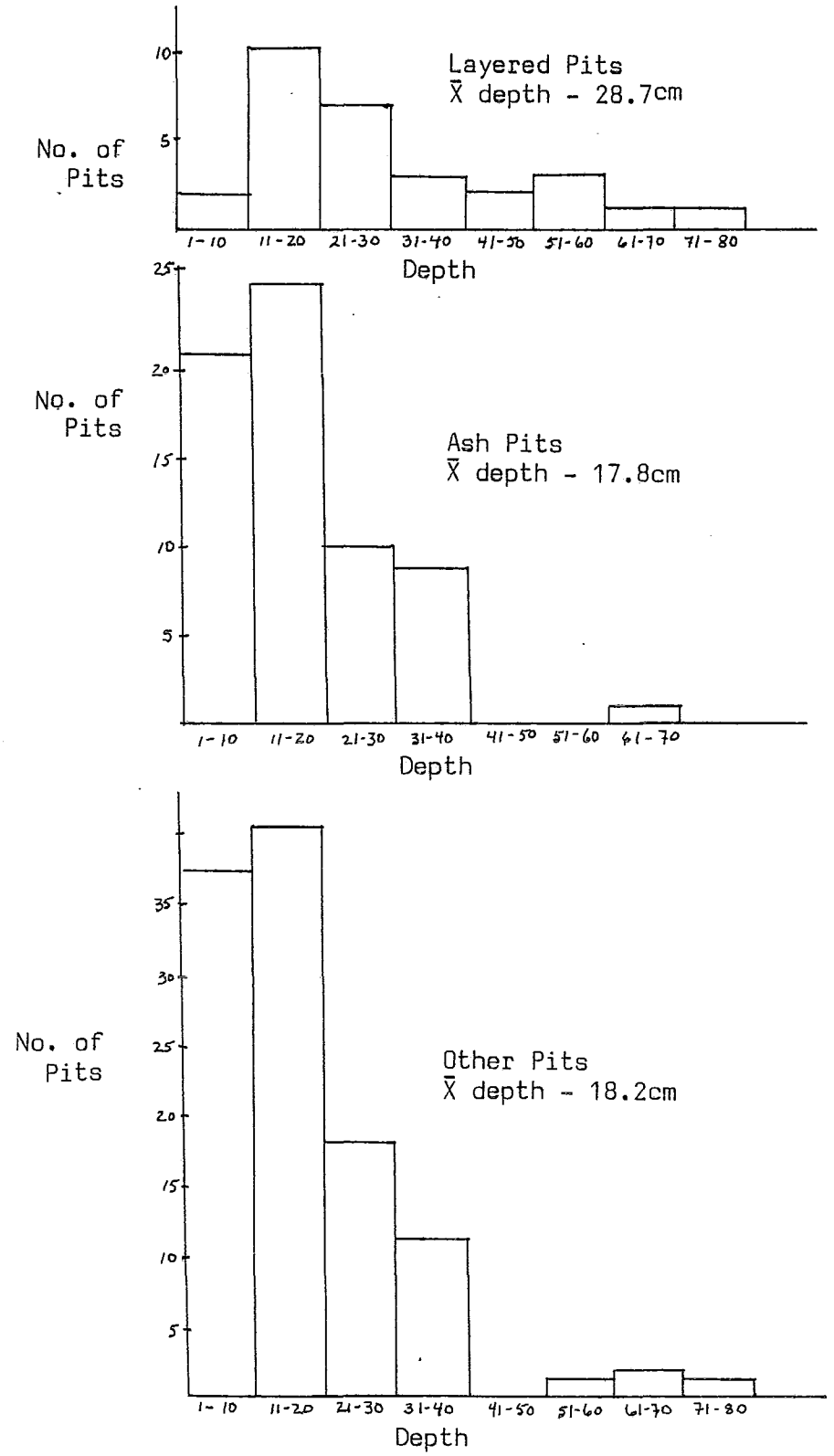


Fig. 11. Comparison of pit depths.

Table 6. House pit shapes and contents.

Shapes	Ash Pits (%)	Layered Pits (%)	Other Pits (%)
Plan			
Irregular	41.5	48.3	38.7
Circular	30.8	27.6	28.8
Ovate	26.2	20.7	28.8
Rectanguloid	1.5	3.4	3.6
Profile			
Irregular	40.0	41.4	34.2
Basin	53.8	41.4	62.2
Rectanguloid	4.6	13.8	2.7
Flowerpot	1.5	3.4	0.9
% with refuse	64.6	86.2	55.0

All pits are predominantly of irregular, circular and ovate shapes, with only a few rectanguloid examples. Ash pits and other pits have predominately basin shaped profiles, while layered pits have irregular and basin shaped profiles in equal numbers. The majority of pits of all types have some refuse associated with them, but the amount of refuse is generally small, consisting of a few pottery fragments, a small amount of fragmented bone and shell and a few pebbles or rocks. It is im-

possible to determine whether these items found their way into the pits accidentally or were intentionally discarded there. The primary function of pits does not seem to have been for refuse disposal. The numerous middens located adjacent to houses were the chief refuse dumps.

Exceptions to the above generalization include 1 large pit in house 24. A large number of pottery fragments, a gaming disc, 2 chert flakes, worked bone, an awl, 2 modified beaver incisors, 1 needle fragment and 50 faunal fragments were found in this pit. In addition, a pit in house 2 contained the disarticulated remains of most of a dog, which may represent the remains of a feast.

Pits in the interiors of houses tend to cluster in the central corridor, in particular around hearths (Appendix B, Fig. 1 and 4). Pits also occur closer to the side walls. No direct correlations exist between types of pits and particular locations in house interiors.

Other features within house features

In the central corridor of house 12 was a small, roughly circular pattern of post moulds approximately 1m in diameter. The post moulds have a mean diameter of 6.3cm and range from 3cm to 10cm (Fig. 12 and Appendix B, Fig. 10). An ash pit is located within this feature on the west side, although it is not possible to establish the contemporaneity of this pit with the post mould pattern. This feature may be the remains of a sweat bath. The use of sweat baths was observed among historic Huron. Tooker (1967:83) noted that these people constructed sweat baths by placing "sticks in the ground", often

in the middle of the house. Another possibility is that this feature is the remains of a cage used for keeping a bear while fattening it for a feast. Tooker (1967:66) has described this structure as follows: "the bear was shut up in the middle of the house in a little round enclosure made of stakes driven into the ground".

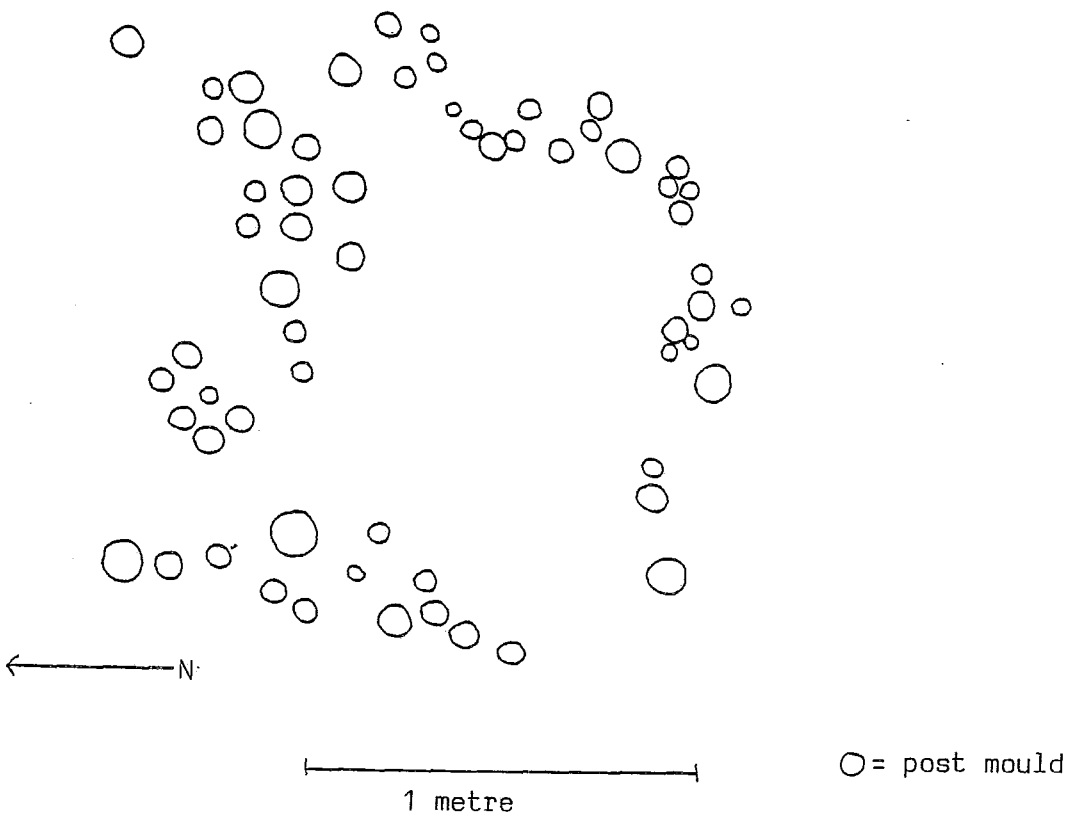


Fig. 12. Possible sweat bath feature in house 12.

Sub-soil pits outside house features

Two types of pits were located outside of the houses: ash pits and other pits. No layered pits were encountered. The shapes and dimensions of these pits are similar to those from house interiors. Fewer of these pits had refuse associated with them and what refuse did occur was limited to a few pottery fragments.

Fences

Seven small fences were located throughout the village, 4 of them joining houses, 2 joining houses to palisade and 1 for which a linkage was not determined. The location of these fences can be seen on the site map in Fig. 4, and on the house plans noted in Table 7.

Table 7 presents the mean and range in diameters for the fence posts. The mean diameter of these is smaller than that for house wall, palisade, and many house interior posts.

Table 7. Fence post diameters.

Location of fence	$\bar{X}$ (cm)	Range (cm)
between H19 and H20	5.8	4-9
between H26 and H27	5.9	3-10
between H27 and H15	5.3	4-8
between H18 and H24	5.2	3-8
west end of H5	6.0	3-12

(continued)

Table 7. (Continued)

Location of fence	$\bar{X}$ (cm)	Range (cm)
between H18 and palisade	7.0	5-14
between H9 and palisade	6.5	4-12

Fences similar to these have been found on other Iroquoian sites. Wright (1974:11-12, 20) suggested that the fences found at the Nodwell site, a 14th century Iroquoian village, served both as defensive structures and as snow fences. Noble (1975:9-10) found such fences at the even earlier Van Besian Glen Meyer village and suggested that they served as defensive interstices. Another possible function is suggested by the location of the fence at the end of house 5 (Appendix B, Fig. 4; Fig. 4) at the Kirche village. Here the fence occurs adjacent to the largest midden located in the village and it may have served simply to cordon off that refuse area. Refuse was found at the west end of house 5, along the southwest wall as far as the fence and along the fence to the south. In addition, refuse appeared to be concentrated along the western edge of the fence rather than the eastern edge.

Sub-soil pits associated with palisade

Three layered pits and 11 other pits were located within palisade sections. No ash pits occurred here, and the pits encountered did not differ significantly in dimensions or shape from pits located elsewhere

on the site.

All of the layered pits contained some refuse while 63.3% of the other pits had a limited amount of refuse associated with them. One pit in particular, located in the northwestern section of palisade, was found to contain a large number of faunal remains including an almost complete disarticulated dog skeleton. The contents of this pit may represent the remains of a single feast. Fig. 13 illustrates the dog bones that were present and the places where butchering or skinning cuts occur. The missing dog skeletal elements may have at one time been present since ploughing has disturbed the upper part of this pit. Table 8 lists the other species and the number of elements that were recovered from this pit.

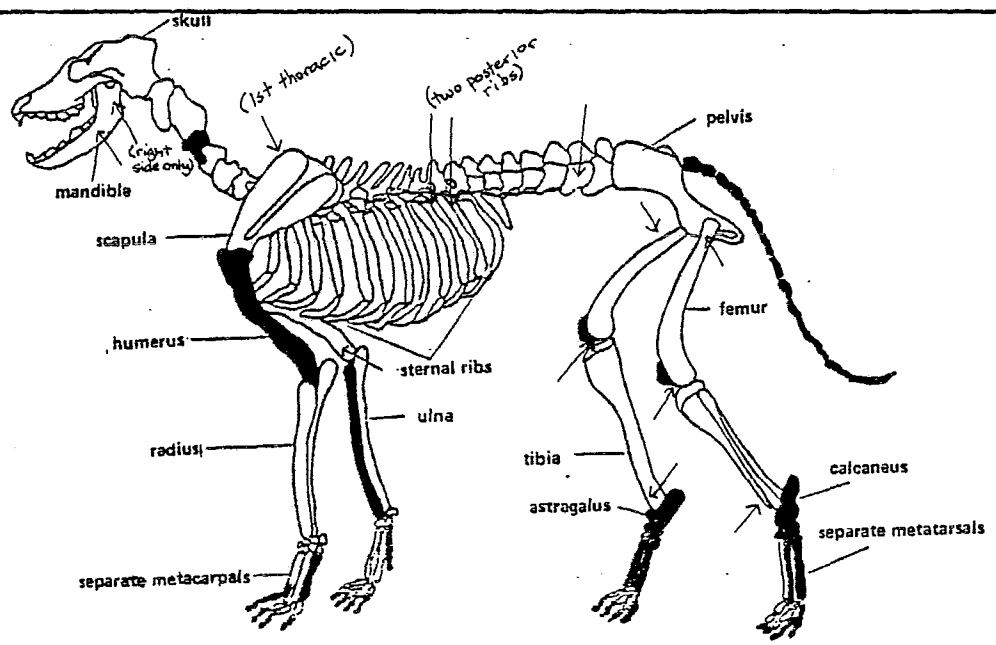


Fig. 13. Dog skeletal elements found in the northwestern section of palisade in feature 2.

Table 8. Faunal species associated with feature 2 in the northwestern section of palisade.

Species (Common Name)	No. of elements
Mammal	
dog	almost complete
snowshoe hare	1
woodchuck	5
eastern chipmunk	2
red squirrel	1
black bear	19
deer	5
vole	1
rodent (small)	3
unidentified mammal	92
unidentified large mammal	10
Bird	
turkey	1
ruffed grouse	2
grouse family	4
robin	1
unidentified bird	7

(continued)

Table 8. (Continued)

Species (Common Name)	No. of elements
Fish	
sucker family	5
sucker	2
white sucker	2
brown bullhead	5
burbot	1
unidentified fish	18

Some of the species found in this pit are not represented by many elements in the site faunal assemblage (Appendix C) and may, therefore, not be common subsistence items. Snowshoe hare is represented by only 8 elements in the site faunal assemblage, red squirrel by only 4 and the robin recovered in feature 2 is the only individual present in the assemblage. In addition, the burbot recovered is 1 of only 4 elements present. This fish may have been valued as an important resource since it has a large liver which yields a good quality oil comparable to cod liver oil (Scott 1967:80). Other species such as woodchuck, deer, sucker and brown bullhead are more common in the site faunal assemblage.

The most numerous remains in feature 2 are from dog and black bear. These two animals had special symbolic value for historic Huron in many facets of their life. Both were eaten at feasts held for various important occasions such as wedding ceremonies, curing feasts and war feasts. They also figured prominently in dreams, in myths and in use as charms (Tooker 1967:66, 73, 101, 110, 111, 126). It is possible that the occurrence of these animals in this pit reflects the presence of such values among the Kirche village inhabitants.

The remains from this palisade pit may be refuse from a special seasonal feast to celebrate the beginning of spring and related activities. The presence of the robin possibly indicates an early spring association, as do the fish species.

Middens

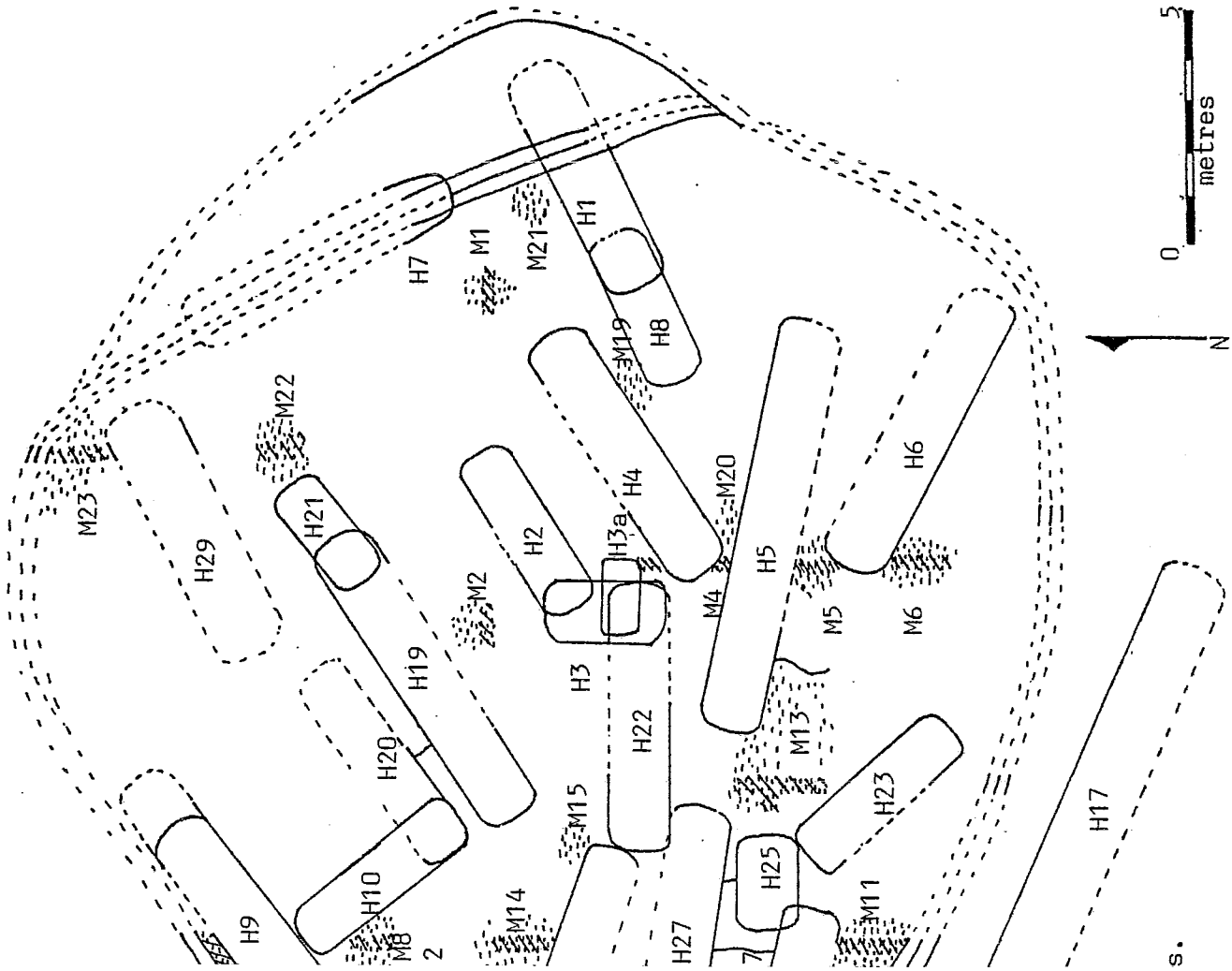
Twenty-two middens were located throughout the site, adjacent to houses and associated with some palisade sections (Fig. 14). Many middens encountered were small, both in horizontal extent and in depth, and they may represent single house middens (ie. numbers 3-6, 17, 19, 20). At least two larger middens (numbers 9 and 13) probably resulted from the accumulation of refuse from several houses. Numbers 8, 12, and 14, may be parts of one large deposit located in the open area between houses 9, 10, 18, 19, 20 and 24.

Sixteen middens (1-14, 22 and 23) were tested while 5 others were recorded as to location. These latter 5 were located while excavating house wall trenches, and very little can be said about them other than to note their location.

The western part of the site has been ploughed and only 2 large middens (13 and 14), accumulating initially in natural depressions, retained undisturbed sections below the plough zone. One small midden (number 10) also accumulated in a natural depression, and had a small section preserved below the plough line. The eastern side of the site has not been extensively ploughed and consequently middens in this area are relatively undisturbed.

Midden sizes

Table 9 summarizes the data on the estimated sizes of the relatively undisturbed middens that were tested. Since middens were on the whole tested using one 2m trench to intersect them, only 1 horizontal


H7
M1
M21
H1
M19
H8
M22
M23
H29
H21
H2
H3a
H4
M20
H6
M2
H19
H3
H5
M4
M5
M6
H20
H22
M13
H10
M15
H23
H25
M14
H27
M11
H17
H9
M8
2
7
s.
0
5
metres
N

dimension is recorded.

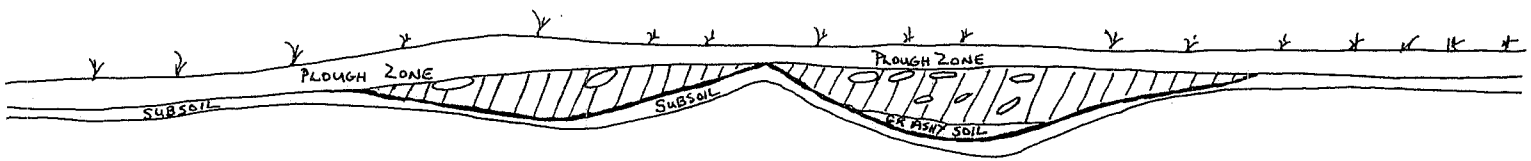
Table 9. Sizes of undisturbed middens at Kirche.

Midden No.	Length (m)	Depth (cm)
1	4	10
2	5	20
3	3	15
4	3	10
5	4	30
6	6	20
22	5	20
23	6	30

Midden stratigraphy

None of the undisturbed middens in the eastern area of the site had any distinct stratigraphy, with the exception of midden 6, which had a well defined deposit of ash 80cm in width and 8cm in depth. The other middens consisted of black soil mottled with ash and flecks of charcoal.

Midden 13 retained an undisturbed section, largely due to the ititial accumulation of refuse in two natural depressions. Figure 15 illustrates the eastern profile of this deposit. The predominant fill of this midden was black ashy soil, with several distinct ash lenses and a layer of grey ashy soil at the bottom of one of the depressions. A



//// Black ashy soil
Ash lens
Old sod line
GR Grey
Sod

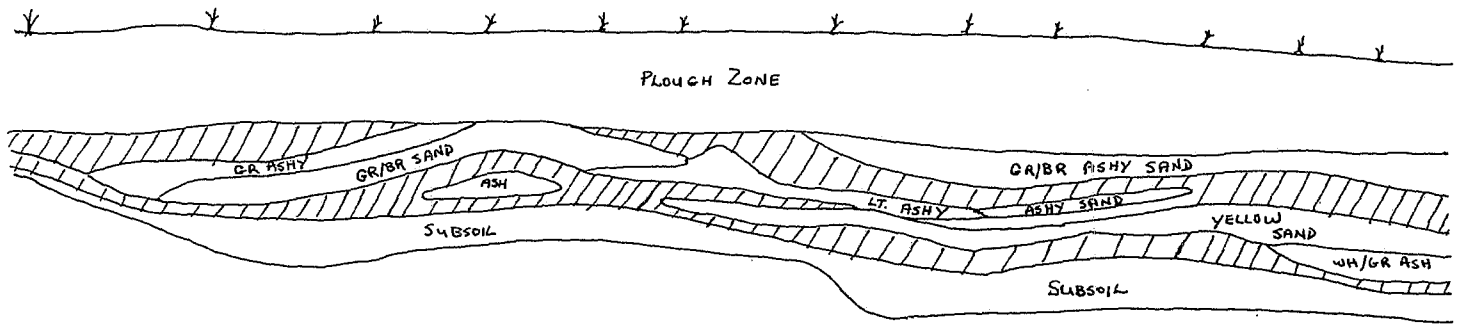
0 2
metres

N

Fig. 15. Eastern profile of midden 13.

Black thin line of soil marked the original sod line.

The western profile of midden 14, which also retained an undisturbed section, is illustrated in Fig. 16. In contrast to midden 13 and the undisturbed middens, this deposit consisted of a number of distinct layers.



GR - grey

GR/GR - grey/brown

Lt. - light

WH/GR - white/grey

sod

////// black ashy soil

N

0 40

cm

Fig. 16. Western profile of midden 14.

CHAPTER 3

ARTIFACT ANALYSIS

Table 10 lists the classes used in the artifact analysis, the number of items present in each class, and the relative frequency of each class in the Kirche assemblage.

Table 10. Classes of artifacts used in the analysis of the Kirche assemblage.

Class	N	%
Pottery:		
Rims (Huron)	1048	6.08
Rims and frag. rims (St. Lawrence)	67	0.39
Rim castellations	60	0.35
Neck/shoulder sherds	523	3.04
Shoulder castellations	2	0.01
Body sherds	14417	83.70
Vessel handles	5	0.03
Vessel foot	1	0.00
Pipes and portions	196	1.14
Ceramic gaming discs	60	0.35
Ceramic beads	6	0.03
Lumps of clay	14	0.08

(continued)

Table 10. (Continued)

Class	N	%
Bone artifacts	350	2.03
Shell artifacts	20	0.12
Lithics	453	2.63
Native (?) copper	2	0.01
Totals	17225	99.9

POTTERY VESSELS

Method of Analysis

Fragments of pottery vessels were the most numerous remains recovered from the Kirche site. For purposes of analysis several categories of sherds are defined. Analyzable rim sherds are defined as fragments of the rim portion of the vessel that have intact the interior surface from the base of the collar to the lip, the lip, the collar and enough of the neck below the collar to be able to record the neck decoration or lack thereof. Analyzable rim sherds were sorted using collar decoration and an effort was made to identify single vessels by mending or identifying pieces from the same pot. Vessels are used as the unit of analysis rather than individual rim sherds. Fragmentary rim sherds that did not meet the above definition are not included in

the analysis. In many cases, such fragments were too small to make conclusive statements about many of the attributes used in this study. In addition, it proved extremely difficult to mend many of these tiny fragments or to make decisions about how many vessels were represented. Neck sherds were analyzed only where they occur attached to the vessel collar and thus are subsumed within the definition of an analyzable rim. This was done to provide a control for the location on the pot of the fragment being analyzed. Fragments of neck sherds not attached to the collar are difficult to identify as to location. Since design, when it does occur, does not necessarily occur on the entire neck surface, it is considered essential to control for position in order to ensure that the sample of observations are comparable.

Two gross categories of vessel rims are identified in the Kirche pottery assemblage. The majority are identified as belonging to the Huron archaeological tradition while a minority of the vessels recovered belong to the St. Lawrence archaeological tradition. These two categories of vessel rims are analyzed separately for two reasons. First, it is considered desirable to determine the location and frequency of all vessels identified as belonging to the St. Lawrence Iroquoian tradition, so that interpretations concerning the occurrence of these vessels on the site can be made. Second, certain attributes characteristic of St. Lawrence Iroquoian vessels are very different in nature from those characteristic of Huron vessels. To analyze these two traditions as one obscures the accurate description of both assemblages.

The identification of St. Lawrence Iroquoian vessels was made using verbal and pictoral descriptions from reports published by

Wintemberg (1936), Pendergast (1966; 1973), and Pendergast and Trigger (1972). Although many of the St. Lawrence Iroquoian vessels possess distinctive attributes which facilitate their identification, the estimate of the frequency of these vessels may be conservative since there are also vessels which possess somewhat less distinctive attribute complexes. In addition, while this separation of Huron and St. Lawrence Iroquoian archaeological traditions is possible based on vessel rim fragments, it is not possible to make this distinction when analyzing the shoulders of vessels or the body and basal sherds.

The method used to analyze the Kirche vessel rims is that designed by Ramsden (1977b). This method entails the description of selected stylistic and formal attributes that have social or chronological significance, rather than the enumeration of types such as those designed by MacNeish (1952). This method was chosen for three reasons. First, given the objectives of the thesis, which entail identifying detailed intra-site and regional variations, the description of attributes clearly provides the fine-grained approach that is needed. Second, the use of this method allows comparison of the Kirche assemblage with the twenty-seven Iroquoian assemblages described by Ramsden (1977b), and third, it allows comparison with the other sites recently excavated or tested in the upper Trent valley, that have been analyzed using this method. The presentation of the vessel rim data is in a format comparable to Ramsden's to facilitate comparative analyses.

Rim castellations are analyzable if they possess the characteristics of analyzable rim sherds defined above.

Analyzable neck/shoulder sherds are defined as those which

retain enough of the neck above the shoulder and enough of the body below the shoulder, to enable observations to be recorded on the attributes of profile shape and motif of this vessel area.

Analyzable body sherds are defined simply as any fragment of a vessel body that is large enough to determine the exterior curvature, surface treatment, and decorative motif.

Basal sherds are defined as those body sherds which possess a distinct angle and two convex surfaces on either side of this angle.

Figure 17 illustrates the location on the vessel of the analyzable sherds described above.

Because of the large number of pottery fragments that were analyzable, and because of the large number of attributes for which observations were recorded for each sherd, a system of coding attributes and computer processing was used. Attributes were coded on prepared forms and key punched onto standard 80 column cards. The computer analysis was based on programs described in the Statistical Package for the Social Sciences (Nie et al: 1975).

Huron Pottery Vessel Rims

Table 11 presents the Kirche Huron rim data. The major ware type manufactured at the village was the collared, decorated vessel which accounts for 90.0% of the assemblage. Collared plain ware, and collarless wares were clearly of minor popularity.

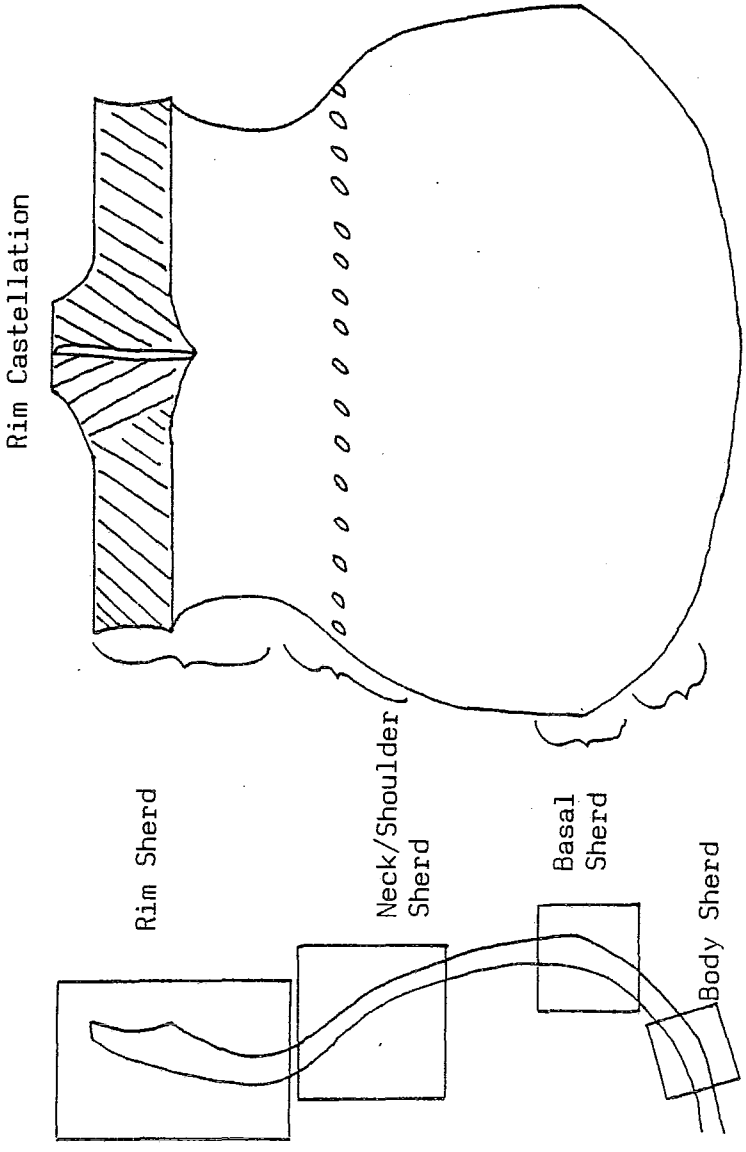


Fig. 17. Analyzable pottery vessel sherds.

Table 11. Percentage frequency of Huron rim sherd traits.

Site	Kirche
1. Total rims	1048
A. Collarless plain (%1)	1.0
B. Collarless decorated (%1)	0.1
C. Collared plain (%1)	9.0
D. Collared decorated (%1)	90.0
a) incised (%D)	78.9
b) misc. stamp (%D)	11.3
c) ridge stamp (%D)	2.1
d) mixed stamp (%D)	0.5
e) other (%D)	-
E. Collar motifs (%D)	
a) simple	76.3
b) opposed	7.2
c) crossed	4.8
d) hatched	6.9
e) horizontal	2.4
f) complex	0.5
g) plain	0.8
h) interrupted	0.5
i) other	0.5

(continued)

Table 11. (Continued)

Site	Kirche
1. Total rims	1048
F. Neck decoration	
a) total (%D)	33.9
b) horizontal (%a)	5.7
c) horizontal/? (%a)	2.2
d) oblique or vertical (%a)	45.9
e) opposed (%a)	29.6
f) other (%a)	11.5
G. Secondary decoration (%1)	
a) interior decoration	11.2
b) lip decoration	5.0
c) frontal lip	3.7
d) upper punctates	0.9
e) lower punctates	0.5
f) dividing punctates	0.5
g) basal punctates	4.5
h) sub-collar decoration	7.8
H. Interior profile (%1)	
a) convex	58.2
b) concave	3.2
c) straight	36.4

(continued)

Table 11. (Continued)

Site	Kirche
1. Total rims	1048
d) concave-convex	1.5
e) convex-concave	0.5
I. Exterior collar form (% C+D)	
a) convex	5.5
b) concave	79.8
c) straight	14.1
J. High collars (% C+D)	2.7

Collars

Collared decorated vessels have a high percentage (76.3%) of simple oblique or vertical motifs (Simple motif); other motifs occur infrequently. Examples of collar motifs present in the Kirche assemblage are illustrated in Fig. 18.

Techniques used to decorated collars include incising and stamping, with incising clearly the predominant technique (78.9%).

Exterior collar forms are concave in 79.8% of the cases recorded. Straight and convex forms also occur but are infrequent.

High collars, defined as those 30cm or greater in height, account for only 2.7% of the collared vessels.

Necks

Kirche vessel necks were most frequently left undecorated (66.1%). Of the decorated necks, oblique or vertical motifs and opposed motifs were the most popular.

Secondary decoration

Secondary decoration was infrequent in the Kirche pottery assemblage. Interior decoration (11.2%) and sub-collar decoration (7.8%) account for the majority of the occurrences. Examples of the kinds of secondary decoration used by the Kirche potters are illustrated in Fig. 19.

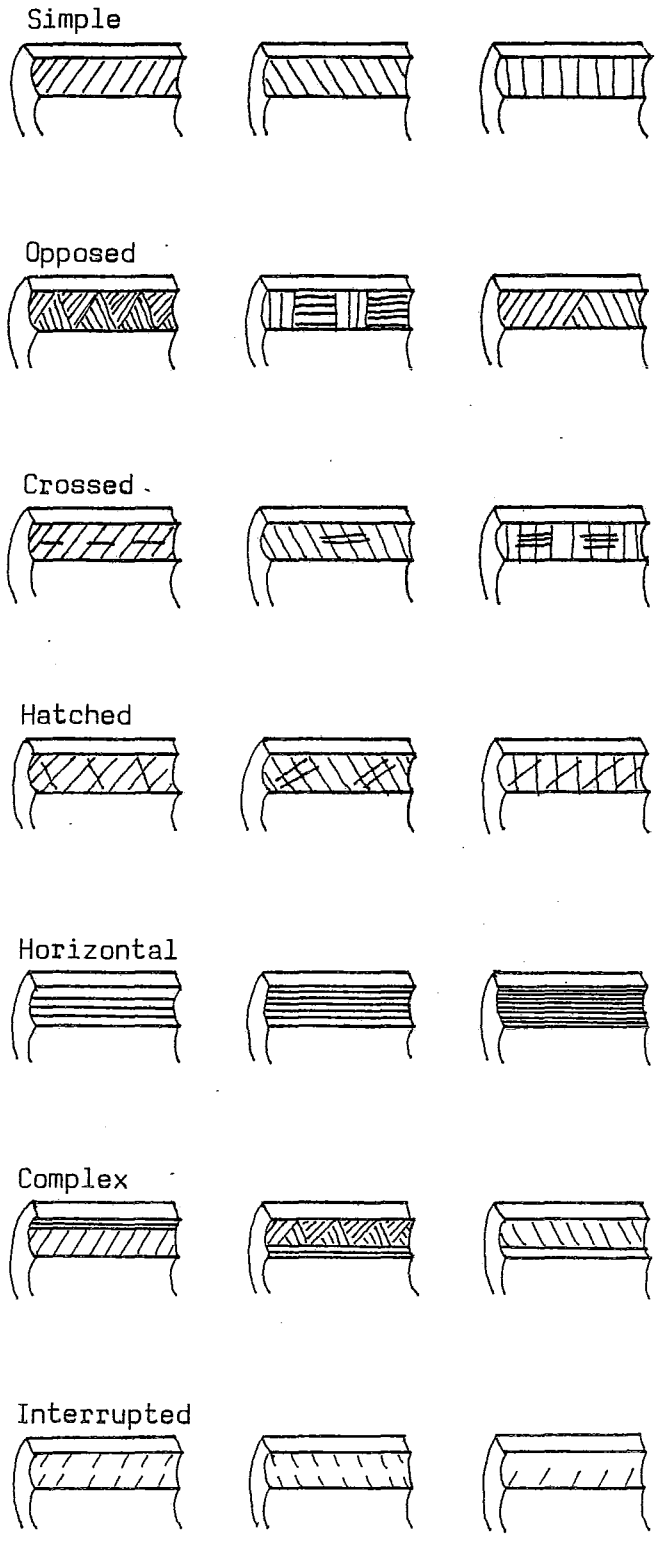


Fig. 18. Examples of Huron Pottery vessel collar motifs from Kirche.

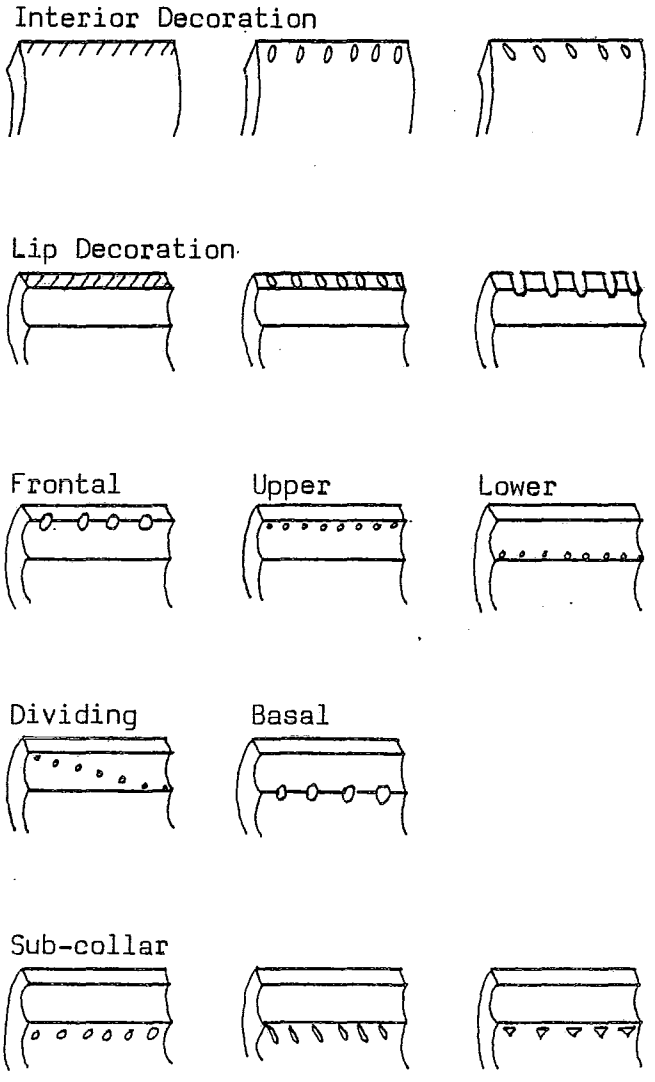


Fig. 19. Examples of secondary collar decoration on pottery vessels from Kirche.

Vessel Rim Castellations

Figures 20 and 21 illustrate the forms and decoration of the castellations from the Kirche site. The most frequent forms used were high pointed and high squared varieties, both with pointed, overhanging bases.

Variation in form occurs both with respect to the upper part of the castellation and the base. The upper projections include low and high pointed, rounded and squared varieties, notched varieties and multiple castellation varieties. Bases are in many cases overhanging including both pointed (eg. Fig. 20, 4-9) and rounded varieties (eg. Fig. 20, 13 and 14). There are also cases, however, where the shape of the base of the castellation did not differ from that which occurs on the rest of the rest of the collar (eg. Fig. 20, 1-2, 10-11).

Decorative motifs include twenty-three variations, but many motifs occur as unique examples (Fig. 21). A degree of conservatism is observed with respect to the emphasis on the use of chevron motifs alone or in combination with vertical elements consisting of thin incised lines or wider grooves. Punctates and notches are also incorporated into some motifs. A relatively large (20.0%) percentage of castellations have decorative motifs that are simply continuations of the motifs found on the rest of the collar.

Fig. 20. Kirche rim castellation forms.

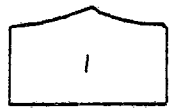
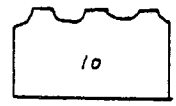
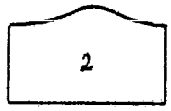
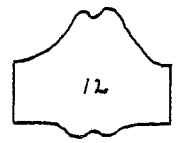
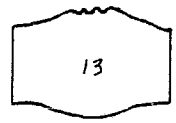
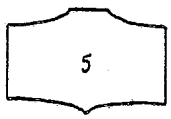
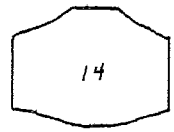
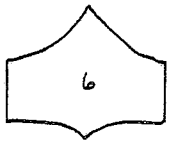
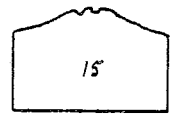
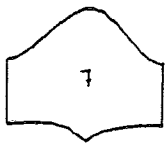
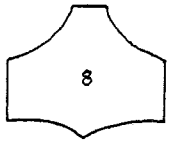
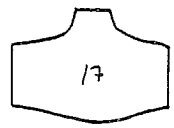
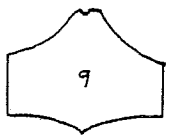
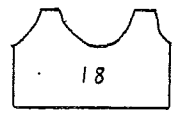
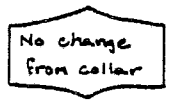
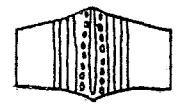
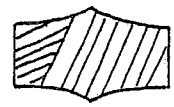
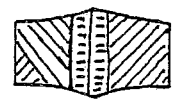
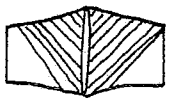
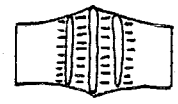
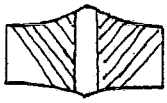
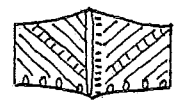
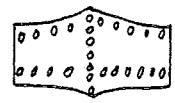
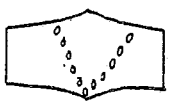
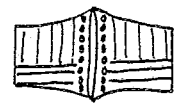
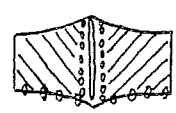
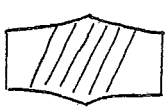
Form	N	%	Form	N	%
	3	5.0		4	6.7
	3	5.0		1	1.7
	1	1.7		2	3.3
	4	6.7		3	5.0
	2	3.3		4	6.7
	6	10.0		1	1.7
	3	5.0		1	1.7
	16	26.7		1	1.7
	4	6.7		1	1.7
			Totals	60	100.3

Fig. 21. Kirche rim castellation decorative motifs.

Motif	N	%	Motif	N	%
	12	20.0		1	1.7
	7	11.7		1	1.7
	12	20.0		3	5.0
	1	1.7		1	1.7
	5	8.3		1	1.7
	1	1.7		1	1.7
	1	1.7		1	1.7
	1	1.7		1	1.7
	1	1.7		1	1.7
	2	3.3		1	1.7
	2	3.3		1	1.7
	2	2.2			

St. Lawrence Iroquoian Vessel Rims

Only 16 analyzable vessel rim sherds could be identified as St. Lawrence Iroquoian. There are however, 51 fragments of rims that were large enough to identify and to match as vessels. For this analysis therefore, all of these vessel rim fragments are used and the number of observations possible for each variable is noted in the description (Table 12).

Similar to the Huron assemblage, the major vessel ware is decorated collar ware. However, several differences between the assemblages can be noted. The most frequent collar motifs are complex and corn ear with opposed motifs of secondary popularity. Neck decoration is not evident on any of these vessels. Secondary collar decoration consisting of interior, frontal lip, upper, dividing and basal collar notches were also commonly used. Interior profiles include 31.6% concave-convex forms and the predominant exterior collar form is convex (47.6%). In addition, high collared rims are more frequent on St. Lawrence Iroquoian vessels (55.0%). Figure 22 and Plate I illustrate examples of the St. Lawrence Iroquoian vessel rims in the Kirche assemblage.

Two varieties of rim castellation forms are present, an incipient pointed variety and a rounded, notched variety. Fig. 23 illustrates the castellation forms and motifs. In 6 cases decorative motifs incorporate hollow circular punctates into the design. The bases of the collars below the castellations are not overhanging as are many Huron rim castellations. Rather, the base of the collar at the castellation resembles the shape of the collar base on the rest of

Table 12. Percentage frequency of St. Lawrence rim sherd traits.

Trait	Total obs.	%
A. Collarless plain	37	8.1
B. Collarless decorated	37	-
C. Collared plain	37	-
D. Collared decorated	37	91.9
a) incised		87.7
b) misc. stamp		12.3
E. Collar motifs	37	
a) corn ear		48.6
b) complex		45.9
c) opposed		5.4
F. Neck decoration	16	-
G. Secondary decoration		
a) interior decoration	53	67.9
b) lip decoration	54	11.1
c) frontal lip	53	37.3
d) upper punctates	53	20.8
e) lower punctates	27	-
f) dividing punctates	23	39.1
g) basal notches	31	77.4
h) sub-collar decoration	20	-

(continued)

Table 12. (Continued)

Trait	Total obs.	%
H. Interior profile	19	
a) convex		36.8
b) concave		21.1
c) straight		5.3
d) concave-convex		31.6
e) convex-concave		5.3
I. Exterior collar form	20	
a) convex		47.6
b) concave		28.6
c) straight		23.8
J. High collars	20	55.0

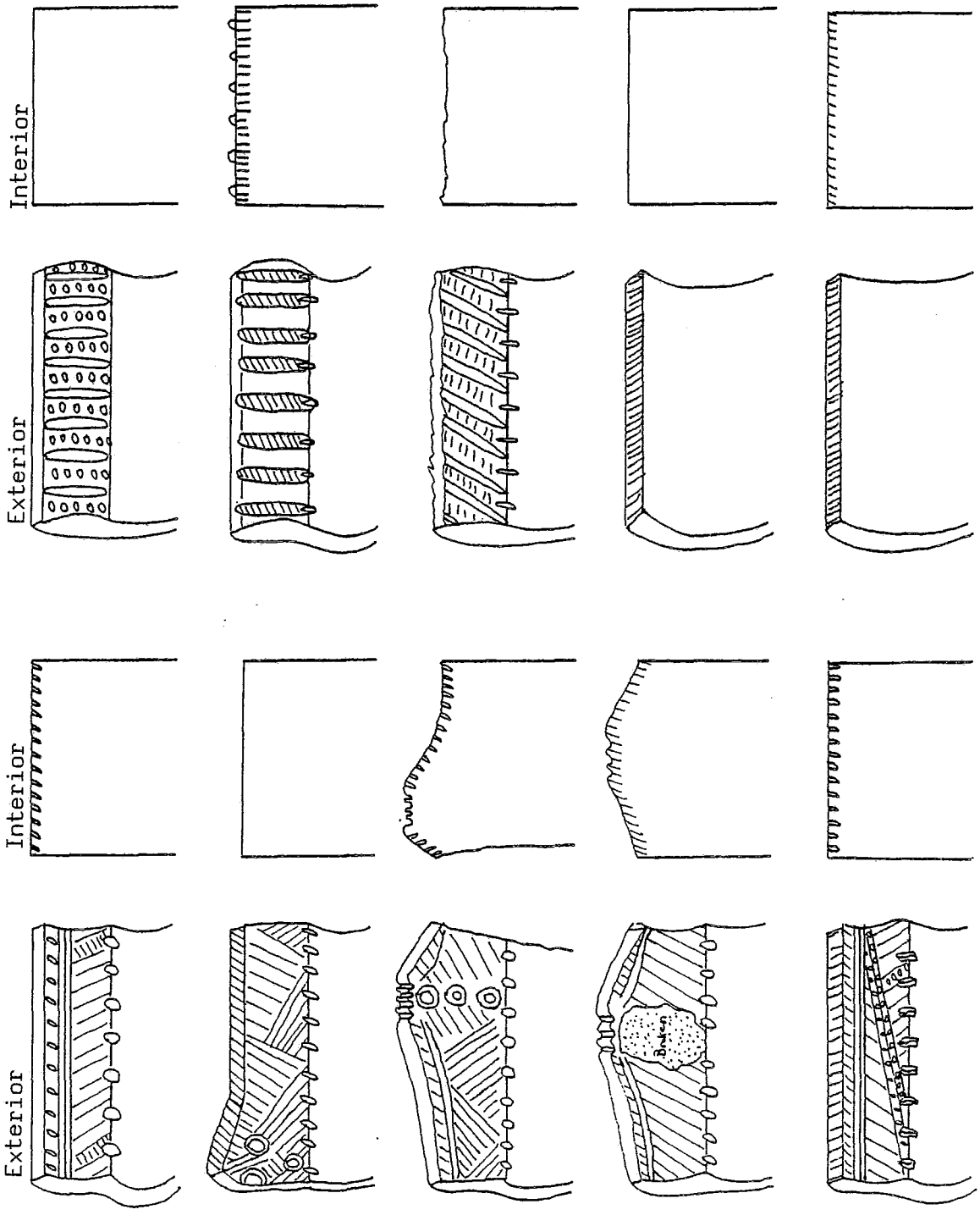


Fig. 22. Examples of St. Lawrence Iroquoian vessel rim sherds from Kirche.

the vessel.

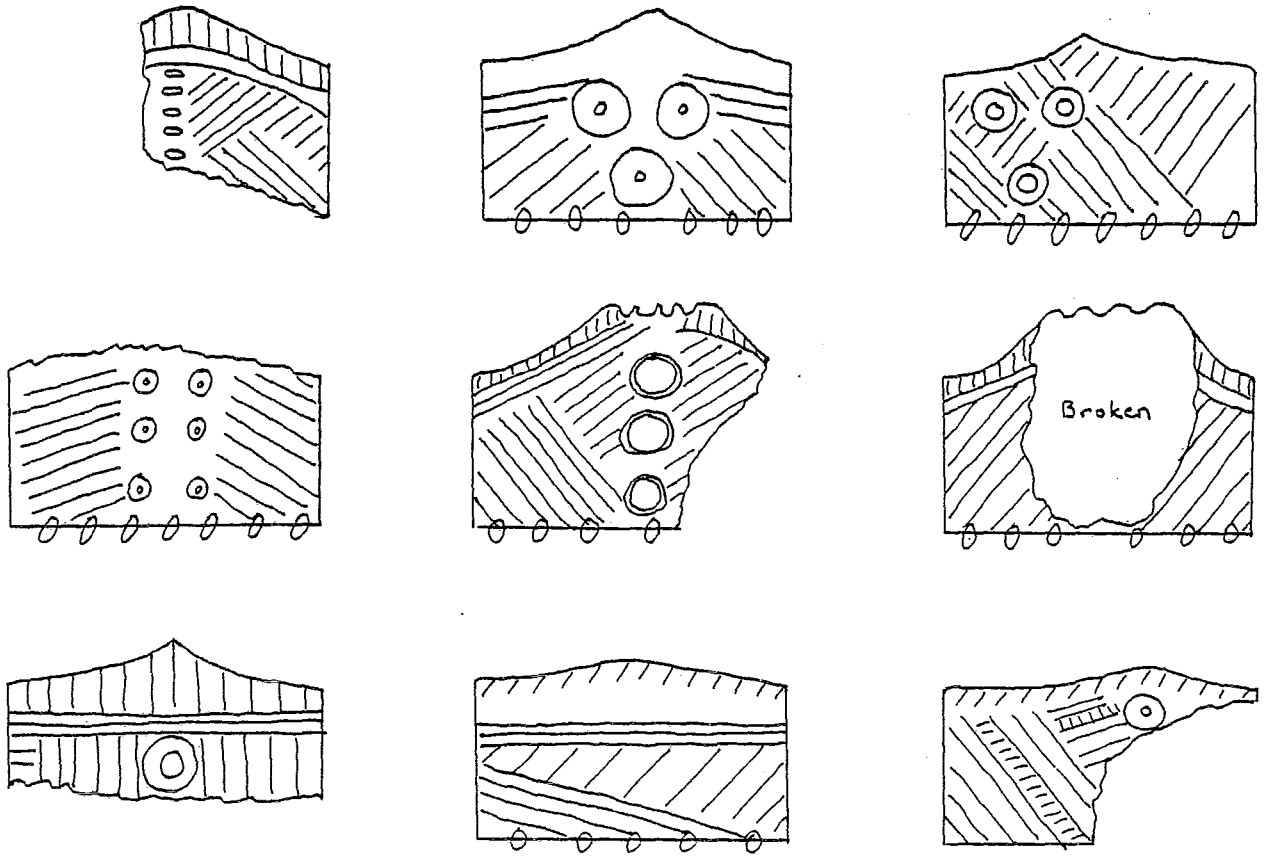


Fig. 23. St. Lawrence Iroquoian castellations from Kirche.

Vessel Neck/Shoulders

Two variables of vessel neck/shoulder were analyzed; decorative motif and shape. Figures 24 and 25 present the data on the occurrence of various motifs and shapes. Shape is determined from both the exterior and interior curvatures of the vessel surfaces. With respect to both variables, certain details could be grouped for some classification purposes (eg. carinate shoulder forms), and this has been done in Fig.

Fig. 24. Kirche pottery vessel shoulder forms.

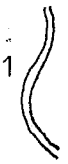
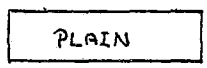
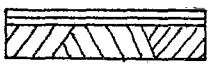
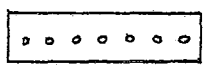
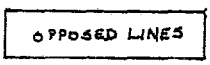
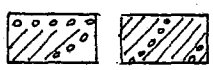
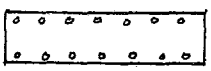
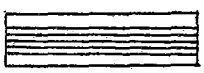
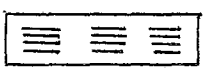
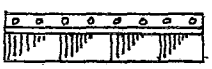
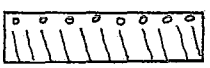
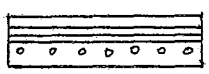
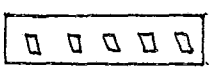
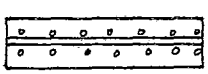
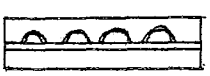
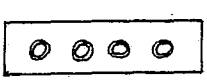
Forms		N	%	Forms		N	%
Rounded				Carinated			
1		203	38.8	8		23	4.4
2		92	17.6	9		26	5.0
3		53	10.1	10		2	0.4
4		1	0.2	11		2	0.4
Incipient Carinated				Pointed			
5		49	9.4	12		1	0.2
6		36	6.9	13		5	0.9
7		29	5.5	Flat-wall			
				14		1	0.2
				Totals		523	100.1

Fig. 25. Kirche pottery vessel shoulder decorative motifs.

Motif	%	Motif	%
 1	28.8	 15	0.2
 2	7.6	 16	1.5
 3	27.8	 17	1.8
 4	6.5	 18	0.2
 5	2.7	 19	0.2
 6	1.9	 20	0.2
 7	5.0	 21	0.8
 8	1.0	 22	1.7
 9	1.9	 23	0.8
 10	0.2	 24	0.2
 11	1.9	 25	0.2
 12	0.6	 26	0.2
 13	6.1	 27	0.2
 14	0.2		

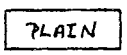
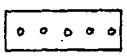
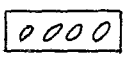
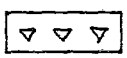
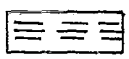
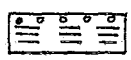
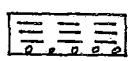
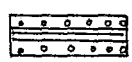
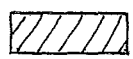
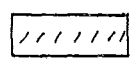
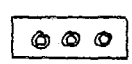
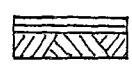
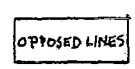
26 which presents the correlation of forms and motifs. The initial description, however, as seen in figures 24 and 25, highlights many pertinent variation details. Some grouping was also considered appropriate in Fig. 25, which presents the twenty-seven motifs that occur in the sample. For example, oblong or triangular impressions as shown in numbers 3 and 4, include a number of other variations with respect to the orientation of the impressions. Similarily, motifs with horizontal lines as elements vary with respect to the exact number of horizontal lines present.

The majority (66.7%) of the vessel shoulders have a rounded exterior. Of this rounded variety the most frequent interior curvature parallels the exterior curvatures as shown in Fig. 24. Incipient carinated exterior curvatures are the next most frequent (21.8%), and the most frequent interior curvature of this variety also parallels the exterior curvatures. Carinated shoulders (10.2%) were the third most popular, while other varieties are represented by only small percentages at Kirche.

A wide range of motifs decorate the shoulder area of pottery vessels although a notable 28.8% are undecorated. The most frequent motifs (Fig. 25) are oblong impressions of various sizes and orientations (Fig. 25, 3). All other motifs occur infrequently.

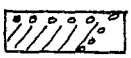
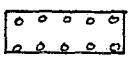
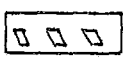
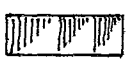
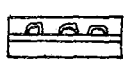
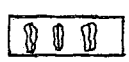
It can be seen in Fig. 26 that there are few motifs that are exclusively associated with a particular shoulder form. Some forms, however, tend to be associated more frequently with particular motifs. For example, rounded shoulders are more frequently undecorated than other forms while incipient carinated shoulders are decorated more

Fig. 26. Kirche pottery vessel shoulder forms correlated with decorative motif.

Motif	Form: Rounded	Incipient carinated	Carinated	Other
	24.9	16.1	18.4	11.1
	8.8	4.5	8.2	-
	26.9	37.5	16.3	22.2
	6.9	5.4	2.0	-
	1.7	5.4	2.0	11.1
	2.0	0.9	4.1	-
	3.2	7.1	12.2	11.1
	0.9	0.9	2.0	-
	0.6	6.3	2.0	-
	-	0.9	-	-
	1.1	2.7	4.1	11.1
	-	0.9	4.1	-
	5.7	5.4	10.2	-
	0.3	-	-	-
	0.3	-	-	-
	1.4	1.8	2.0	-

(continued)

Fig. 26. (Continued)

Motif	Form			
	Rounded	Incipient carinated	Carinated	Other
	1.1	-	2.0	-
	-	-	-	11.1
	-	-	-	11.1
	-	-	2.0	-
	0.9	0.9	-	-
	2.3	0.9	-	-
	0.3	2.7	-	-
	0.3	-	-	-
	0.3	-	-	-
	-	-	2.0	-
	-	-	-	11.1

frequently with oblong impressions than other forms.

Shoulder Castellations

Fig. 27 illustrates two shoulder castellations that were recovered from Kirche. The projections are not well-developed in either case, but provide important examples of this rare Huron trait. The two Kirche cases are derived from separate vessels.

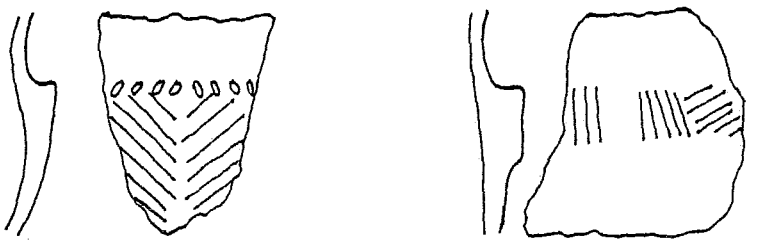


Fig. 27. Kirche pottery vessel shoulder castellations.

Vessel Bodies

Two body sherd varieties are defined for purposes of analysis: sherds with a rounded exterior curvature (normal body sherds), and those having a distinct angle formed from two convex surfaces on either side of the angle (basal sherds). The use of angled bases undoubtedly lent a distinctive appearance to the whole vessel.

In total, 14,417 vessel body fragments were recovered from Kirche, and only 78 are basal sherds. Since the number of vessels represented from mending of rim sherds is 1048, it can be estimated

that approximately 7.4% of the vessels had angled bases.

Plain body sherds account for 99% of the sherds recovered. Motifs on the decorated sherds consist of incised linear designs which are frequently arranged in opposed groups. Ten sherds incorporate punctates or gashes into the linear motifs. Two sherds are decorated with hatched lines.

Of the 78 basal sherds, 32 (41%) are decorated. Twenty-six are decorated on only one side of the angle. Fig. 28 illustrates examples of the motifs used to decorate this part of the vessel. It is not possible to orient these sherds to determine which surface occurs above the other on the pot, so although Fig. 28 illustrates the decoration as occurring above, this is not conclusive.

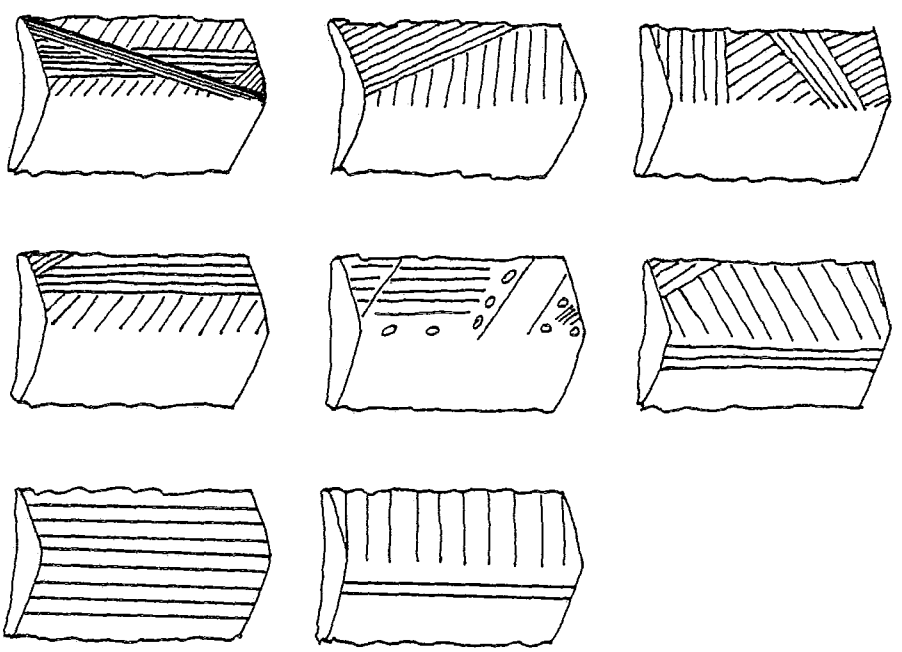


Fig. 28. Kirche pottery vessel basal sherds.

Pottery Vessel Handles

One complete and 4 fragments of applique handles were recovered, only 1 of which is attached to a vessel fragment (Plate V, Fig. 2). One specimen has wide incised lines on the lateral sides only, 3 have incised lines on the lateral sides with horizontally incised lines on the outward face, and 1 has a vertically incised line cutting through the horizontal lines on the outward face.

The method of handle attachment is suggested in part by the small projection on one end of the handle illustrated in Plate V, Fig. 3. This projection, when pushed into the vessel surface, probably served to strengthen the bond. The specimen where the handle is attached to the vessel has its base smoothly joined into the vessel surface with no other visible means of attachment.

Ceramic Vessel Foot

One fragment of a ceramic object is interpreted as a vessel foot, based largely on the flat shape of the bottom surface. Unfortunately, the fragmentary nature of this object makes it difficult to offer a conclusive identification.

Manufacturing Techniques Assocaited with Pottery Vessels

Since no coil breaks were observed in the assemblage, it is concluded that the Kirche vessels were produced using a paddle and anvil process. The clay is entirely grit tempered and although no quantitative

measure of grit size was undertaken, it can be noted that the size and amount of grit used varies considerably.

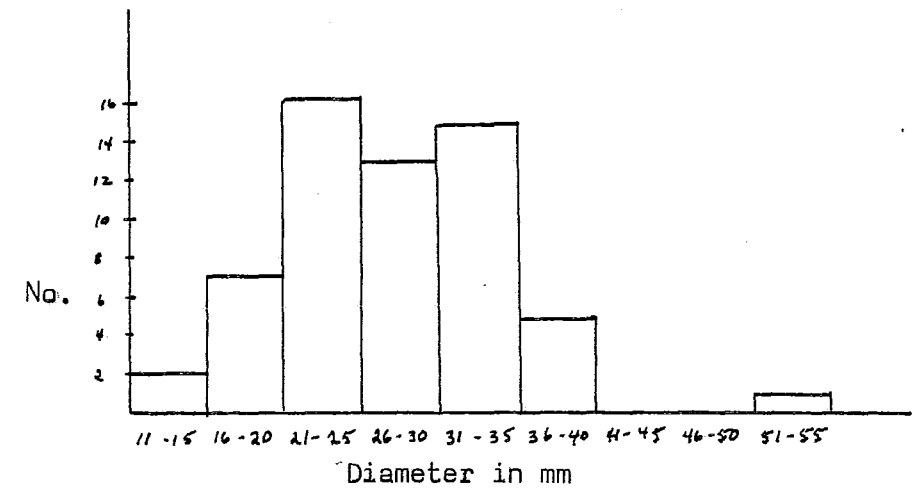
There is also evidence that an applique technique was sometimes used, to build up collars or to add pieces as they were needed. Certainly the addition of handles marks such a technique, and in all probability the rim castellations were applique fashioned too. It has been difficult to assess the frequency with which this technique was used since only those pieces which had come off left any observable evidence on the sherds.

CERAMIC GAMING DISCS

Forty-three complete and 17 fragments of ceramic gaming discs were recovered. All are manufactured by pecking and grinding into shape fragments of broken pottery vessels. Fifty-six (93.3%) of the gaming discs are made from body sherds, 3 from the shoulder area of the vessel, and 1 is made from a neck sherd. Twenty-seven (45%) are round in shape while the remaining discs are rounded, but slightly irregular in shape. Most are made of undecorated sherds; only 4 are made of decorated fragments.

Twenty-one of the discs are well-ground around their entire circumference, and another 15 have their edges smoothed by grinding but retain a rougher appearance than the well-ground specimens. The remaining 24 specimens are ground on only parts of their circumference.

The diameters and thicknesses of the gaming discs are illustrated in Fig. 29. The majority measure between 16mm and 35mm in diameter, but one large disc measures 52mm in diameter. The thickness of discs ranges from 4mm to 16mm, with the majority falling between 6mm and 10mm.



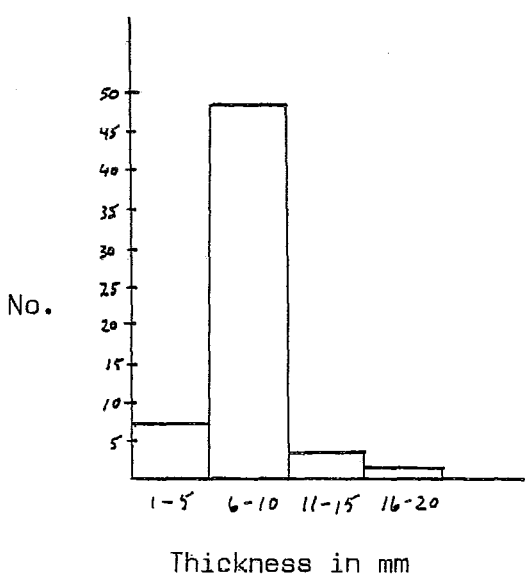


Fig. 29. Kirche gaming disc dimensions.

Observations were recorded as to the colour of the sides of the discs in order to see whether or not one side would be consistently of a different colour. Some games that were played by historic Huron, for example the bowl game, relied on the fact that the sides of the gaming pieces were of different colours (Tooker 1967: 115). At Kirche, gaming discs do not exhibit colour or decoration distinctions by side. Whether these discs were indeed gaming pieces is actually unknown, but this is the usual interpretation given in the current archaeological literature.

CERAMIC BEADS

Two complete and 3 fragments of discoidal ceramic beads at Kirche range in diameter from 16mm to 22mm, and from 6mm to 8.5mm in thickness. The holes are centrally located and range from 1.5mm to 5.0mm in diameter. Only 1 bead has any decoration, which consists of a thin incised line encircling the hole, located on both sides about halfway between the hole and the outer edges (Plate V, Fig. 9).

One bead is nearly spherical in shape, with two faces slightly flattened (Plate V, Fig. 6). It measures 12mm in diameter and 10mm in thickness and the hole is small, approximately 2mm in diameter.

One tubular clay bead measures 12mm in length and 10mm in thickness, is undecorated and has a small hole, approximately 1.5mm in diameter (Plate V, Fig. 8).

All of the ceramic beads described above are hand moulded into shape and consist of clay tempered sparsely with fine grit.

LUMPS OF CLAY

Fourteen fired lumps of clay vary in size from 10mm by 8mm to 50mm by 29mm. Such lumps probably represent accidentally fired pieces or they may have served as a means for testing or experimenting with firing temperatures. They may also represent children's attempts to participate in the activities of their mothers. A few of the pieces have pinched surfaces with finger print impressions on them.

CERAMIC PIPES

Method of Analysis

Most analyses of Ontario Iroquoian ceramic pipe assemblages published to date have relied heavily on Emerson's (1954: 1967) typology and terminology. In order to facilitate communication and comparative studies, therefore, the analysis of the Kirche ceramic pipe assemblage is consistent with Emerson's typology. However, it is considered necessary to refine the analysis to a certain degree, by further concentrating on variation in the use of specific formal and decorative attributes.

While Emerson's objective of presenting a general synthesis of Ontario Iroquoian culture and cultural development was well served by his typological approach to the analysis of pipes, studies directed towards investigating intra-site or regional interactions between groups in space and through time, require a more detailed approach. Accordingly, pipes are grouped into categories based largely on Emerson's types and details of variation within the categories are recorded. The terms

Emerson used to name his types in many cases combined decorative motif and form. In order to conform to this procedure, some of Emerson's types are split into two categories based on differences in decorative motif. For instance, collared ring is split into collared ring, and collared ring and punctate; Iroquois Ring into Iroquois Ring and Iroquois Ring and Punctate; and Apple Bowl Ring into Apply Bowl Ring and Punctate.

Bowl diameters were measured from the outside edges.

Pipe Bowls

Eighty-two pipe bowls and fragments of pipe bowls were recovered. Sixty-five of these are analyzable with respect both to form and decorative motif. Table 13 presents the percentage frequencies of the categories of pipes recovered, and Fig. 30 illustrates these categories with the variations in decorative motif and profile recorded within each category. Plate II and III, Figs. 1 to 6 and Figs. 1-10 illustrate examples of the categories described.

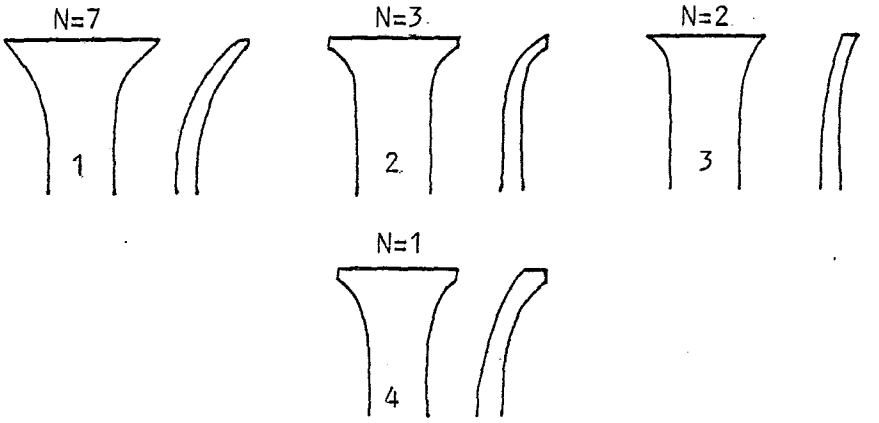
Plain trumpet

Fourteen fragments of plain trumpet pipes comprise 21.5% of the pipe assemblage. The majority of these are of the variety illustrated in Fig. 30 number 1. The other plain trumpet pipes vary with respect to the extent of the flare and the shape of the lip. One case was not complete enough to record the entire profile.

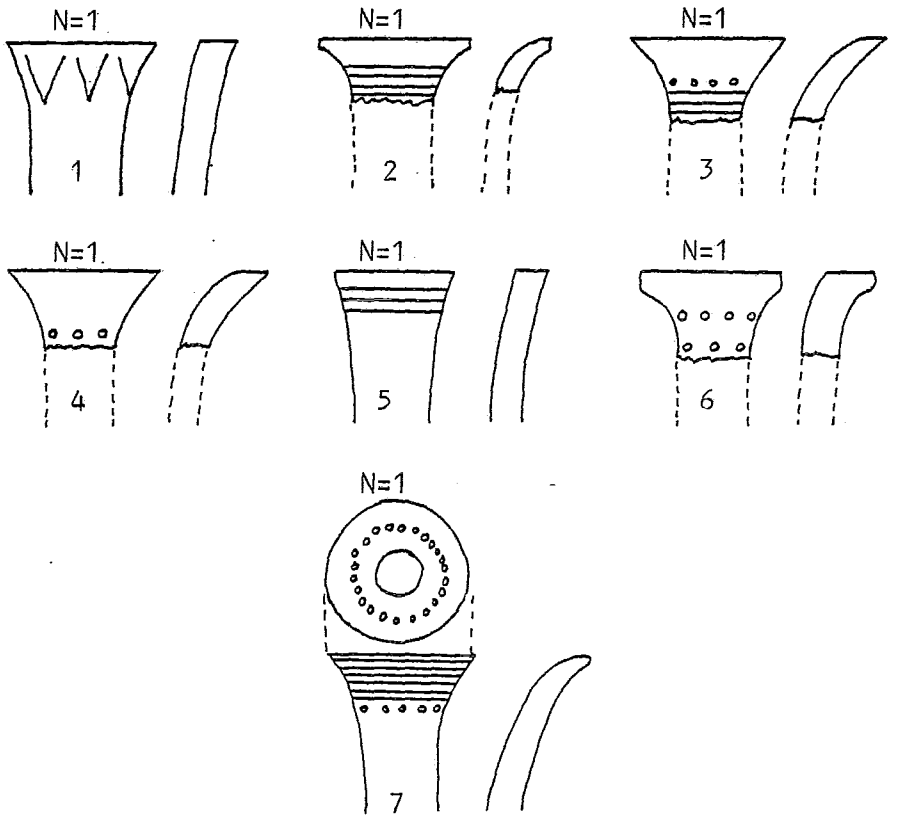
Three specimens are complete enough to determine the bowl diameter. Two pipes of the first variety have diameters of 48mm and

Table 13. Kirche ceramic pipe category frequencies.

Category	N	%
Plain trumpet	14	21.5
Ring trumpet	1	1.5
Decorated trumpet	6	9.2
Decorated miniature trumpet	1	1.5
Collared ring	11	16.9
Collared ring and punctate	8	12.3
Short collared	3	4.6
Elongated ring and punctate	1	1.5
Iroquois ring	1	1.5
Iroquois ring and punctate	1	1.5
Concial decorated	1	1.5
Decorated bulbous	1	1.5
Apple bowl ring	2	3.1
Apple bowl ring and punctate	1	1.5
Mortice	2	3.1
Minature plain conical	1	1.5
Human effigy	2	3.1
Owl effigy	1	1.5
Reptile effigy	2	3.1
Indeterminate effigy	1	1.5
Miscellaneous	4	6.1
Totals	65	99.5

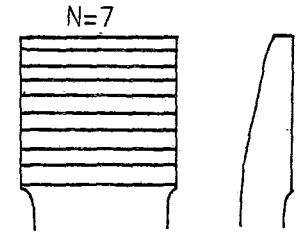


Plain Trumpet

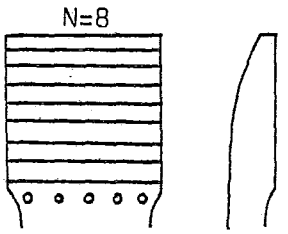


Ring Trumpet and Decorated Trumpet

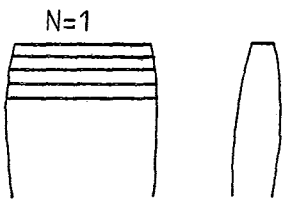
Fig. 30. Kirche ceramic pipe forms and decorative motifs.



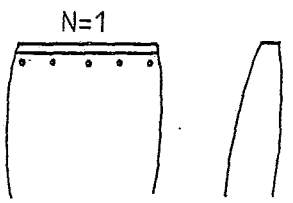
Collared Ring



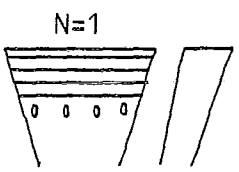
Collared Ring and Punctate



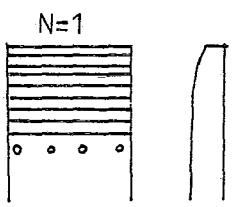
Iroquois Ring



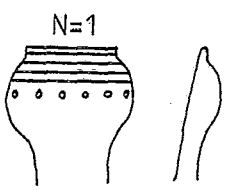
Iroquois Ring and Punctate



Conical Decorated

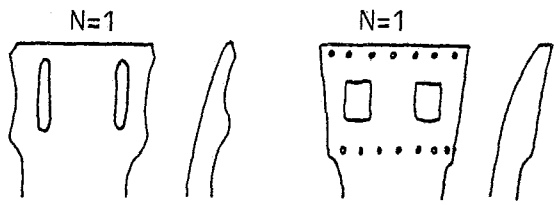


Elongated Ring
and Punctate

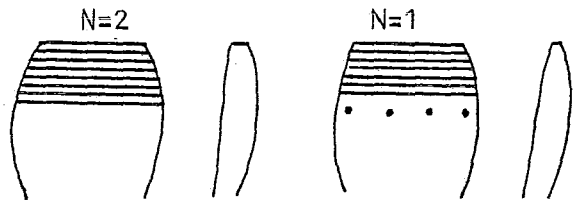


Decorated
Bulbous

Fig. 30. continued.

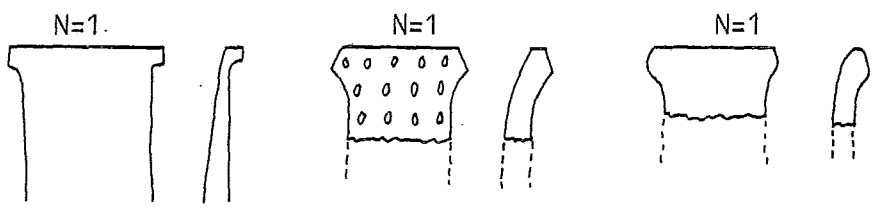


Mortice

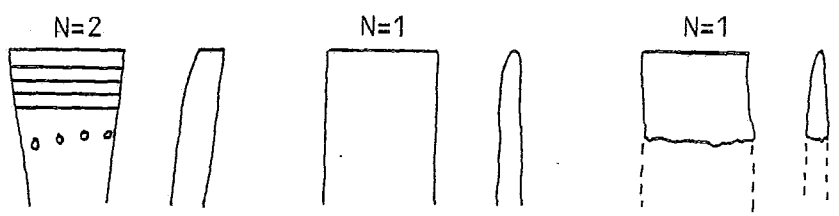


Apple Bowl Ring

Apple Bowl Ring and Punctate



Short Collared



Miscellaneous

Fig. 30. continued.

57mm, while 1 pipe of the second variety has a bowl diameter of 34mm.

Lip widths of the second variety of plain trumpet pipe range from 4mm to 4.5mm, the third variety from 7mm to 8mm and the lip width of the fourth variety is 4mm.

Decorated trumpet

Six decorated trumpet pipes vary considerably with respect to their form, decorative motif and the location of the decoration on the bowl. One pipe, illustrated in Fig. 30 number 7, has a row of punctates encircling the top of the flared rim. A number of the forms are also different from those recorded for the plain trumpet pipes.

Bowl diameters range from 40mm to 54mm with a mean diameter of 48.3mm. Lip widths range from 4mm to 13.5mm with a mean width of 9.3mm.

Ring trumpet

One ring trumpet pipe, illustrated in Fig. 30 number 5, has a bowl diameter of 41mm and a lip width of 10mm.

Decorated miniature trumpet

One decorated miniature trumpet pipe, illustrated in Plate III, Fig. 10, has a bowl diameter of 23mm. The incised decoration is crude and the temper consists of quite large particles of grit, suggesting perhaps that this pipe was manufactured by a child or by an adult as a toy for a child. As well, it does not have a scorched or carbon en-

crusted interior.

Collared ring

Eleven collared ring pipes were recovered and 7 of these are complete enough to record the entire profile. There is no variation in the profile of this kind of pipe.

Collar heights range from 17mm to 41mm with a mean of 30.9mm. Lip widths range from 2mm to 4mm with a mean of 3.1mm. The bowl diameters of the two cases for which measurement was possible are 38.0mm and 30.0mm. The number of encircling incised horizontal lines range from 5 to 10.

Collared ring and punctate

The form and profile of these pipes are similar to the collared ring pipes. The collar heights are somewhat shorter, ranging from 20mm to 35mm with a mean of 27.2mm, and the number of horizontal lines are fewer, ranging from 6 to 8. Lip widths are slightly narrower, ranging from 2mm to 4mm with a mean of 2.8mm.

The bowl diameters of the two cases for which measurement was possible are 44mm and 45mm.

Iroquois ring

One Iroquois Ring pipe has a bowl diameter of 28mm and a lip width of 4mm. It is decorated with 4 encircling, incised horizontal lines.

Iroquois ring and punctate

This pipe has a similar form and profile to the Iroquois Ring pipe, but decoration consists of only 1 encircling horizontal line with a row of punctates below it. The lip width of this pipe is 3.5mm.

Concial decorated

One conical decorated pipe has a lip width of 12mm and is decorated with 4 incised, encircling horizontal lines above a row of punctates.

Elongated ring and punctate

One fragment of an Elongated Ring and Punctate pipe was recovered. It has a lip width of 5mm, and is decorated with 7 incised, horizontal lines above a row of punctates.

Decorated bulbous

One nearly complete Decorated Bulbous pipe has a bowl diameter of 22mm and is decorated with 4 incised horizontal lines encircling the bowl above a row of punctates.

Apple bowl ring

Two Apple Bowl Ring pipes were recovered. One of these is decorated with 7 incised horizontal lines encircling the bowl; the other is decorated with 4 lines. Lip widths are both 4mm and 1 bowl has a

diameter of 26mm.

Apple bowl ring and punctate

One fragment of an Apple Bowl Ring and Punctate pipe is decorated with 6 incised horizontal lines encircling the bowl, above a row of punctates.

Short collared

Three Short Collared pipes have collar heights ranging from 5.5mm to 8mm, and lip widths ranging from 5mm to 7mm. Two of these pipes have no decoration on the collar and 1 has a row of punctates on the collar and several rows of punctates below the collar.

Mortice

Two Mortice pipes have collars 19mm and 25mm in height, and lip widths of 4mm. One has a bowl diameter of 34mm. Although both of these pipes are classified as Mortice pipes, it can be seen in Fig. 30 that the forms, profiles and decorative motifs are quite different.

Miniature plain conical

One small pipe illustrated in Plate III, Fig. 9 has a bowl diameter of 11mm, is conical in shape and undecorated. This pipe may have been a child's toy.

Miscellaneous

Three varieties of pipes are grouped in a miscellaneous category because they do not conform to any of the types described by Emerson (1954: 1967). All of these appear to be rather poorly manufactured and decorated so they may have been toys rather than functional pipes.

Two of these are of the variety illustrated in Fig. 30, number 1 and are decorated with 4 incised, encircling horizontal lines above a row of punctates. Lip widths are 4mm and 5mm.

The remaining 2 pipe fragments are undecorated and straight sided.

Additional fragments

Eighteen fragments of bowls are too incomplete to classify. However, it is noted that 16 of these have incised, horizontal lines and straight sides, and 2 have incised horizontal lines, punctates and straight sides. Many of these fragments appear to belong to the Collared Ring or Collared Ring and Punctate pipe categories discussed above.

Decorative motifs of non-effigy pipes

Although there is a great deal of variation in the form and profile of the pipes manufactured by the Kirche inhabitants there is in contrast a remarkable degree of conservatism with respect to motifs. Incised horizontal encircling lines above punctates account for 44.7% of the motifs used, while incised, horizontal encircling lines account

for 39.5%.

Human effigies

Two human effigy pipes were recovered. One is a pierced ear effigy (Plate IV, Fig. 3). Noble (1979) has noted that this pierced ear feature occurs on many Ontario Iroquoian human effigy pipes. This example also has central face features developed to a high degree, combining a prominent nose with an overhanging forehead crossed with wrinkles.

The second human effigy pipe is a torsoed individual, with a vertical line of 7 punctates running down the middle of the chest, flanked on either side by slightly oblique incised lines (Plate IV, Fig. 5). Noble (1979) has suggested that this motif may represent either slat armour or an x-ray portrayal of ribs. Another possibility is that the motif simply represents the decoration on a garment. The individual depicted appears to be wearing a hooded garment, suggestive of winter apparel. The face of this human effigy pipe appears to be painted a red colour. Tooker (1967:21) noted that both historic Huron men and women painted their faces, most frequently with red and black colours. It was also pointed out that face painting may have been used to indicate clan affiliation, each clan having its distinctive method of painting the face. Enough of the pipe remains to determine that it is modelled so that the effigy faces the smoker.

Owl effigy

One owl effigy pipe bowl fragment was recovered (Plate IV, Fig. 1). This effigy emphasizes the design around the eyes, which consists of groups of incised lines radiating out from each eye. The eyes themselves are deep set and may have had coloured stones or some other material inlaid in the holes. Both the ears and the beak are broken. Behind the eye designs on both sides of the head are a number or horizontal bars.

Reptile effigies

Two fragments of pipe bowls encircled with reptile effigies were recovered (Plate IV, Figs. 2, 6). One of these resembles a snake, but there are five digits on what appears to be the end of the tail. The other reptile effigy is not complete but it has a long narrow body with hollow circular punctates impressed along its length.

Unidentified effigy

One fragment of a pipe bowl is decorated with a number of small punctates in vertical rows. A projection on the rim is, unfortunately, broken off, making identification impossible (Plate IV, Fig. 4).

Pipe Stems

Of 113 stem fragments recovered only 27 have the mouthpiece intact. The majority (84%) of these stems are of the tapering variety

(Plate III, Figs. 11, 12). One stem has a slight flare on the end and 3 are parallel sided.

The mouthpieces of 48.1% of the pipe stems have perpendicular, unground ends; 3 have perpendicular ground ends; 5 have rounded, unground ends; 5 have rounded, ground ends; and 1 has an unground end.

Fig. 31 illustrates the cross-sections of the pipe stems. The circular variety accounts for 92.6% of the 54 observable cases, B accounts for only 2 cases, and C and D are represented by 1 case each.

Fig. 31. Kirche ceramic pipe stem cross-sections.

Holes in the stems are smooth in 95.3% of the 105 observable cases, and were probably produced using a small round reed. Only 4 holes are manufactured with twisted fibre and 1 hole is rough, a surface texture that would result from the use of some fibrous material to produce the hole.

BONE ARTIFACTS

Table 14 lists the types of bone artifacts recovered and their relative frequencies.

Table 14. Kirche bone artifacts.

Artifact Type	N	%
Beads	139	38.4
Modified beaver incisors	52	14.4
Modified deer phalanges	52	14.4
Miscellaneous modified	28	8.0
Awls	21	5.8
Bone shafts	16	4.4
Modified turtle bone	13	3.6
Modified antler	12	3.3
Spatulas and punches	7	1.9
Modified woodchuck incisors	6	1.7
Bone needles	6	1.7
Modified bear teeth	4	1.1
Arm bands or wristlets	2	0.6
Projectile point	1	0.3
Deer scapula pipe	1	0.3
Modified deer tooth	1	0.3
Bone pin	1	0.3
Totals	362	100.2

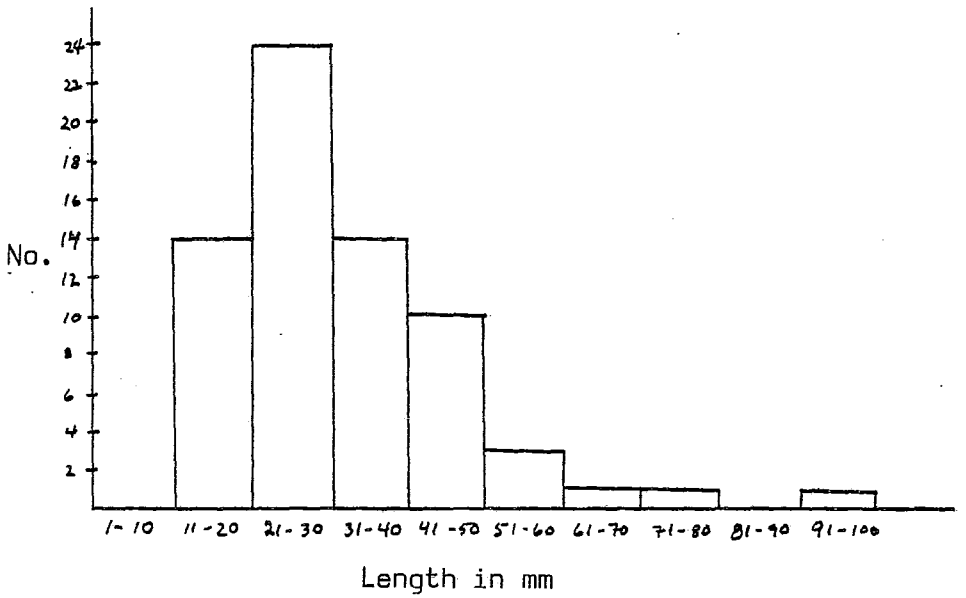
Bone Beads

Thirty-one complete and 108 fragments of bone beads were recovered. The majority (69.7%) are manufactured from bird long bone, while 19.7% are manufactured from mammal bone. Most of the mammal bone beads are made from sections of long bone, but 1 bead is made from a mandible fragment (Plate VII, Fig. 3). The remaining fragments are made from bone unidentified to class.

Sixty-eight beads retain at least part of both ends. Of these, 29 (42.6%) of the cases retain the jagged appearance that results from the snapping process; 33 (48.5%) are polished at both ends and 6 (8.8%) have only 1 end polished. Of the pieces with only 1 end intact, 50% are rough.

Figure 32 illustrates the lengths and widths of the bone beads. The majority range in length from 11mm to 50mm. The one example which measures 110mm in length may actually be a tube rather than a bead, but its function is uncertain. Widths cluster between 6mm and 15mm.

Only 2 beads are decorated; one (Plate VII, Fig. 4) has small incised lines running perpendicular to the long axis while the other (Plate VII, Fig. 3) has small triangular notches along one edge. Twenty-three beads are burned, either to a consistent black colour (Plate IV, Fig. 6), or only on some areas of the bone (Plate IV, Fig. 5). Whether this is a decorative technique or a way of hardening the bone is unknown.



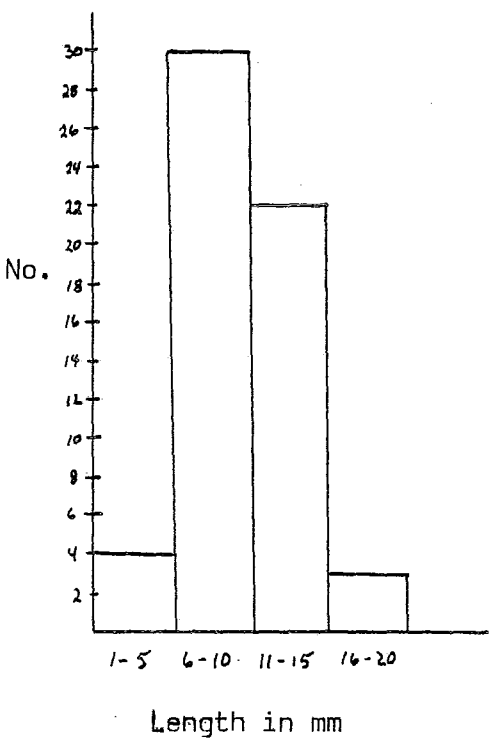


Fig. 32. Kirche bone bead lengths and widths.

Modified Beaver Incisors

There are 52 modified fragments of beaver incisors. All are broken posteriorly, probably as a result of removal from the jaw. There is a great deal of variation in the nature and degree of modification. In fact, no two incisors appear to modified in exactly the same way. One reason for this may be that alot of the modification results from use rather than from a shaping process. The teeth may have served as functional tools with little or no prior modification.

Some of the most common aspects of modification include: longitudinal splitting along the central line of the tooth, sometimes terminating prior to the end, with the bit intact and sometimes continuing through the bit end; separation of the enamel surface from the lingual surface; polishing and grinding of the bit end on the lingual surface; and smoothing of broken edges. One specimen (Plate VIII, Fig. 7) has two notches cut on either side at the posterior end, perhaps to facilitate hafting.

Historic Huron used beaver incisors as knives to cut such material as wood, in particular to make bowls out of tree knots (Tooker 1967:25, 67). Wintemberg (1936) suggested that modified beaver incisors were all set in handles and were used in carving and in other fine woodwork. The number and variety of specimens that occur at Kirche might suggest that a variety of cutting functions were associated with the modification of a beaver incisor.

Modified Deer Phalanges

In order to describe modified deer phalanges, Ontario archaeologists have commonly grouped these items into two categories: ground specimens referred to as toggle varieties, and perforated specimens referred to as cup and pin varieties. Recently, however, McCullough (1978) has devised a more detailed classification based on the analysis of a number of selected attributes of phalanx modification. Her study was undertaken in order to facilitate greater precision in the comparison of this aspect of material culture among Iroquoian sites. In addition, a more detailed consideration of modification techniques serves to highlight the nature of intra-site variability. For this latter reason in particular, the modified deer phalanges recovered from Kirche are described according to McCullough's classification. Table 15 presents the classification of the Kirche modified phalanges and Fig. 33 illustrates examples of some of the classes described. All of the specimens, with the exception of 5 cases in the miscellaneous class, are proximal phalanges. Four middle phalanges and 1 distal phalanx are modified, and are in the miscellaneous class.

Table 15. Classification of Kirche modified phalanges.

Class	Complete	Distal frag.	Prox. frag.	Lateral frag.	N
1	1	-	-	-	1
5	-	-	-	3	3

(continued)

Table 15. (Continued)

Class	Complete	Distal frag.	Prox. frag.	Lateral frag.	N
8	1	-	-	-	1
9	-	1	-	-	1
22	2	11	5	5	23
23	-	1	-	-	1
24	-	4	-	1	5
Misc.	6	1	-	-	7
Unclassifiable	-	3	1	6	10
Totals	10	21	6	15	52

Class 1

This class is represented by 1 complete specimen in the Kirche assemblage. The diagnostic mode of this class is the perforation of the articular ends of the phalanx. The hole in the distal end measures 6mm and that in the proximal end, 9mm (Plate VIII, Fig. 5; Fig. 33).

Class 5

Three lateral fragments of phalanges have perforations in their proximal ends, ventral flattening and exposure of the marrow cavity on both the dorsal and ventral surfaces.

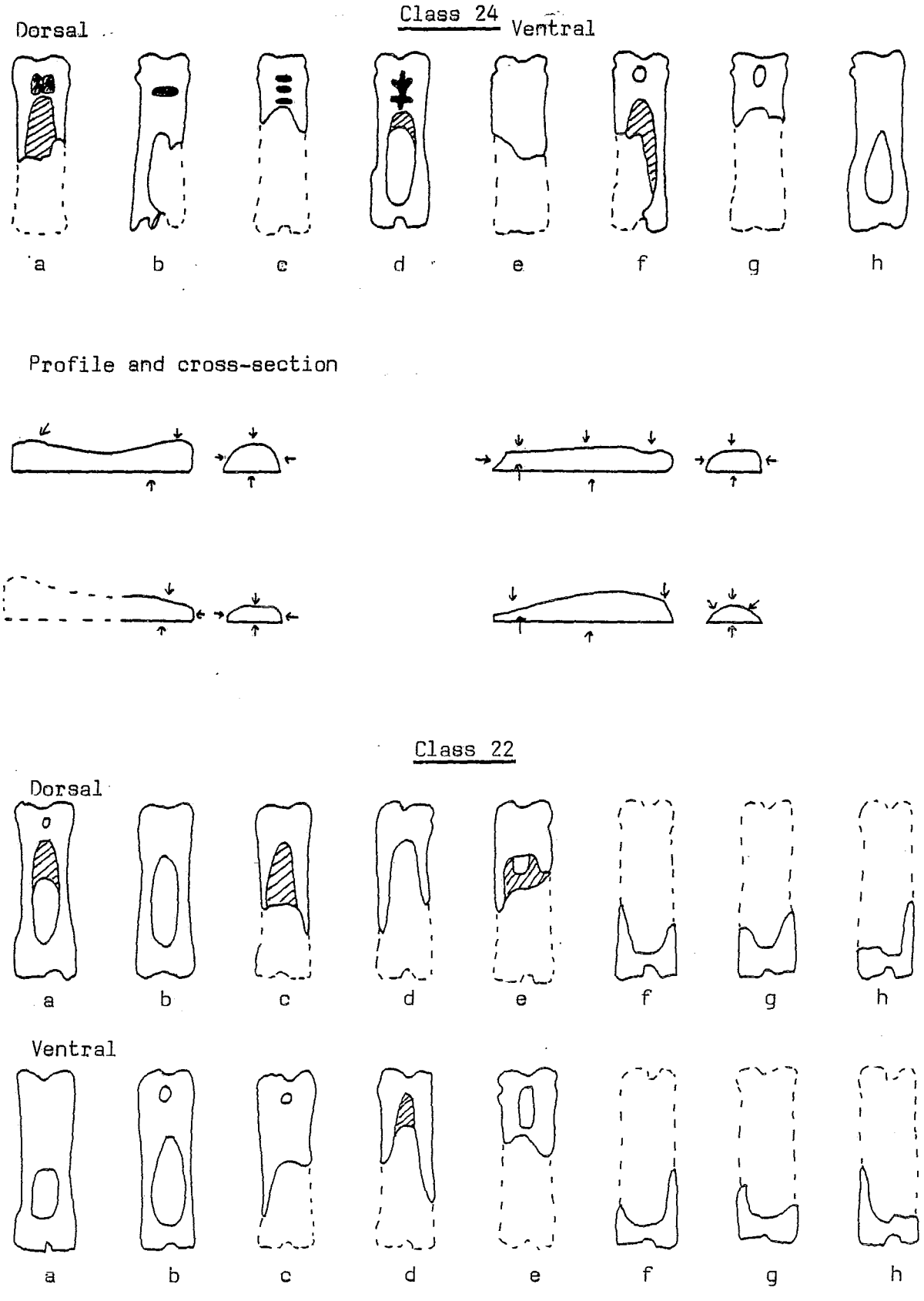
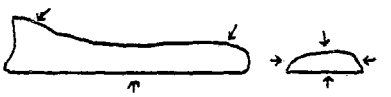


Fig. 33. Kirche modified deer phalanges (arrows indicate extensive grinding).

Profile and cross-section

a



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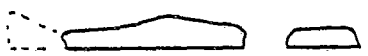

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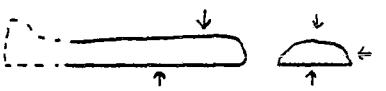

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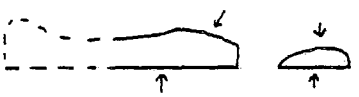

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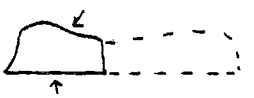

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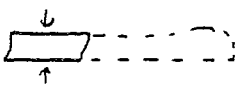

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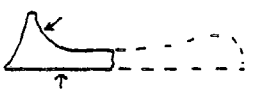

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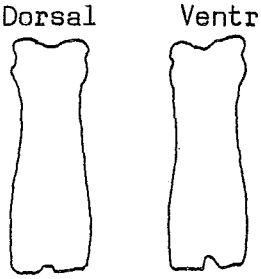
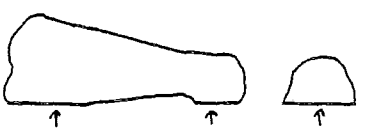
Class 8

Dorsal Ventral

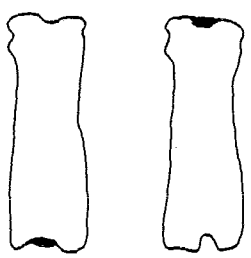


Profile and cross-section



Class 1

Dorsal Ventral



Profile and cross-section

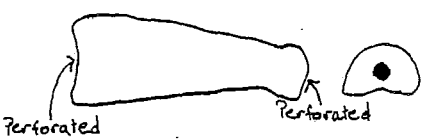


Fig. 33. continued.

Class 8

One complete phalanx has the ventral surface flattened. The flattening occurs at the proximal and distal ends in particular and grinding was not extensive enough to expose the marrow cavity (Plate VIII, Fig. 4; Fig. 39).

Class 9

One distal fragment has ventral flattening and exposure of the marrow cavity on the ventral surface. Chew marks cover the entire surface of this specimen.

Class 22

This class, characterised by ventral flattening, exposure of the marrow cavity on the dorsal and ventral surfaces and dorsal grinding, is represented by 23 specimens. Within the class there is variation in the number of holes in the dorsal and ventral surfaces, the size and shape of the holes, the location of the holes, the location and extent of grinding on the dorsal surface and consequently the shapes, profiles and cross-sections of the phalanges. Some of this variation is illustrated in Fig. 33 and in Plate VIII, Figs. 1-3, and 6.

One distal fragment is burned a black colour and is highly polished.

Class 23

The 1 specimen in class 23 shares the attributes diagnostic of class 22, including ventral flattening, exposure of the marrow cavity on the dorsal and ventral surfaces and dorsal grinding. The additional feature which distinguishes this specimen is a broad notch, 14mm in length and 4mm in width, which is located on the ventral surface between a small hole at the distal end and a larger hole at the midpoint. The notch is oriented obliquely to the long axis of the phalanx.

Class 24

The 5 specimens in class 24 share the diagnostic features of class 22 but are further characterized by dorsal burn marking. All of the burn marks occur at the distal end on the dorsal surface. The marks include the following: 3 oval impressions situated one above the other parallel to the long axis (Fig. 33c); 1 oval impression oriented perpendicular to the long axis (Fig. 33b); 1 butterfly shaped impression where the scorching also continues down the left side of the exposed marrow cavity (Fig. 33a); 1 irregular shaped impression (Fig. 33d); and 1 irregular shaped impression on the right side of the exposed marrow cavity.

Differential exposure of the marrow cavity on both surfaces of these specimens include an example with 2 holes in the ventral surface and an example with only 1 large hole (Fig. 33).

Miscellaneous

Five complete and 1 fragmentary specimen could not be assigned to any of the classes defined by McCullough (1978). Four of these are middle phalanges: 1 has a hole gouged in the centre of both the dorsal and ventral surfaces; 1 has the distal end removed entirely; 1 has a hole gouged in the right side near the proximal end; and 1 has a hole perforated in the distal articular end. One distal phalanx has a hole gouged centrally in the right side. One proximal phalanx has a hole perforated in its distal articular surface and another proximal phalanx has a hole perforated in its distal articular end and a hole cut in the proximal end which extends up the ventral surface.

Unclassifiable

Ten fragments are too small to assign to specific classes. Three are burned a grey and brown colour.

Awls

Two types of awls are defined on the basis of the Kirche assemblage. The first type (Plate VI, Figs. 1-3) consists of a section of long bone, partly or completely ground smooth with a well ground and polished point on the distal end. The second type (Plate VI, Figs. 4-6) consists of a small, largely unground splinter of bone with a working end only slightly ground and polished. The first type appears the stronger, and may have been used for piercing heavier materials.

Four complete awls of the first type range in length from 127mm to 139mm. Three of these retain traces of the articular end of the bone which is ground smooth. The fourth has its articular end removed and the remaining surface smoothed. Eight distal fragments of this type were also recovered. With the addition of 5 midsections, where only the very tips are missing, the total number of this type of bone awl is 17.

The second type of bone awl is represented by only 4 specimens, all of them complete. These range in length from 44mm to 59mm.

Bone Shafts: Midsections and Bases

Four bases and 12 midsections of smoothed long bone sections resemble the shafts and bases of the first type of awl described above, and may be broken awls.

Modified Turtle Bone

A total of 13 fragments of painted turtle carapace and 1 fragment of a painted turtle plastron are modified. Ten carapace fragments are polished only on the interior surface and 1 fragment is polished both on the interior and exterior surfaces. Two fragments are cut and polished along 1 edge; 1 is polished on the interior surface and has the beginning of 7 small holes on the exterior surface and the other has 1 hole begun on its exterior surface. Two fragments have holes which penetrate completely through the bone. One of these is cut and polished along 1 edge and on the exterior surface.

The smoothing on the interior of the shells suggest their use as rattles. Historic Huron used turtle shell rattles in many ceremonies and during dances (Tooker 1967:106). Turtles also had symbolic significance in historic Huron origin myths (Tooker 1967:79, 146, 151-153).

Modified Antler

Twelve antler tines are modified. Two tip sections are burned grey-black and their distal ends are rounded and worn. Another tip is ground flat and has a spatula shaped end. Two other tips are ground and slightly polished at the distal end. The surface of 1 tine is carved parallel to the long axis resulting in linear, shallow grooves.

Four midsections are ground and 2 of these are burned a grey-black colour. The basal fragment of an object cut and ground of antler has a square projection, perhaps to facilitate hafting (Plate VIII, Fig. 10).

Spatulas and Punches

There are 7 specimens of modified bone that have flattened, spatula shaped ends (Plate VI, Figs. 10, 11). The shape of the working ends on these tools is convex, and the ends range in width from 2.5mm to 13.5mm. Two complete specimens have shafts and bases which resemble those of the first type of awl described above. The lengths of these 2 tools are 65mm and 63.5mm. The function of the specimen with the widest end may have been as a scraping implement, although few small flakes or scratches were observed on its surface.

Three sections of smoothed long bone have rounded ends and may have been used as punches (Plate VI, Figs. 12-14).

Modified Woodchuck Incisors

Six woodchuck incisors are modified and may have been used in functions similar to those of modified beaver incisors. One is ground flat along one side and the bit end has a number of nicks in it that may be use wear. The remaining specimens are ground smooth and polished on the bit end, both along the labial side at the edges, and at the tip. One in particular is well worn, rounded and blunt. All of the posterior ends are broken and the edges jagged.

Bone Needles

Fragments of 6 bone needles were recovered; all are broken near the hole. The lengths of the fragments, from the hole to the end, range from 40mm to 60mm, the widths range from 6.2mm to 7mm, and thicknesses range from 0.5mm to 1mm at the ends. Holes are gouged rather than drilled and 2 fragments are burnt a grey colour. All the fragments are highly polished (Plate VI, Fig. 9).

Modified Bear Teeth

Four bear teeth are modified by grinding. One canine in particular (Plate VII, Fig. 8) resembles what Wintemberg (1936:51) described as "knives made of bear teeth". This canine is ground down to about half its original thickness, exposing the neural cavity. The front part of

the enamelled end of the tooth is ground off at a slant.

Another bear canine appears to represent an unfinished knife of the type described above. One side of this canine is partially ground, but not to the point of exposing the neural cavity.

A third specimen consists of the root portion of a tooth which is split in half. The enamel is snapped off. One side of the exposed inner surface is smoothed and the adjacent edge shows some wear, perhaps as a result of its use as a knife (Plate VII, Fig. 9).

The fourth specimen (Plate VII, Fig. 10) has no modification to the root, but the enamel is well worn and extremely polished. No sharp edge is evident so the function of this tool may not have been as a knife but as a punch.

Arm Bands or Wristlets

Two flat fragments of modified bone are interpreted as arm bands or wristlets. One has a round hole 4mm in diameter at one end that may have provided an attachment for a leather thong (Plate VIII, Fig. 9). This undecorated fragment is 10mm wide and 1.5mm thick.

Another fragment is 30mm wide and 1.8mm thick. Along one side of the exterior surface of this band are 2 rows of small punctates and on the opposite side is 1 row of similar punctates (Plate VIII, Fig. 8).

Projectile Point

One conical bone projectile point measures 79mm in length and 14mm in width at the base (Plate VI, Fig. 8).

Deer Scapula Pipe

While one pipe of this type has been mentioned as having come from Brant County, Ontario (Wintemberg 1936:84), most of the pipes described have come from two St. Lawrence Iroquoian sites. Twenty-nine were recovered from the Roebuck site in Grenville County (Wintemberg 1936), and 5 were recovered from the Salem site in Glengary County (Pendergast 1966).

Wintemberg (1936) described the pipes from Roebuck as having the glenoid fossa hollowed out, the spine and plates removed, and the stem formed of the thick enamel border. The broken edges were "more or less smoothed by rubbing" (Wintemberg 1936:84). A perforation which allowed for the passage of smoke occurred in only 6 specimens, the porous nature of the bone providing a natural passage in most cases. Most of the holes where the tobacco was burned showed some traces of charring. However, 2 complete pipes showed no signs of burning (Wintemberg 1936:84).

The 1 specimen recovered from the Kirche site (Plate VII, Fig. 11), conforms to the description cited above. The stem appears to be broken, but it may actually never have had a long stem. The pipe illustrated from the Salem site did not have a long stem (Pendergast 1966:197). No perforation occurs in the Kirche pipe other than the hollow in the glenoid fossa, and there is no charring in this hollow.

Modified Deer Tooth

One deer tooth, the roots of which are broken, is painted red on one side.

Bone Pin

One small splinter of shaped bone is interpreted as a pin. Although the tip resembles that of an awl it is not polished and the specimen is so fragile that it probably could not have been used as a piercing implement. It measures 61mm in length and has a pointed base (Plate VI, Fig. 7).

Miscellaneous Modified Bone

Twenty-eight bone items are modified to varying degrees but could not be classified within any of the above categories.

One specimen is manufactured from a section of an unidentified large mammal long bone and may be the shaft portion of some object. It is 24mm in width, 16mm thick and has a trapezoidal cross-section.

The remaining 27 items are sections of bone that have areas of polishing or grinding that may have resulted either from a shaping process or from use.

Manufacturing Techniques Associated with the Production of Bone Artifacts

Several methods of working bone into tools or ornaments were used by the inhabitants at the Kirche site. A large number of fractured

bone fragments were recovered and may reflect a process of marrow extraction, but it is also likely that fragments such as these would be used for tool or ornament production.

A number of long bone fragments are grooved longitudinally and split along this groove, perhaps with the use of wedges. Bone sections produced in this manner were sometimes used for making awls.

The removal of articular ends of bones, and the production of sections was frequently accomplished by scoring around the bone perpendicular to the long axis and snapping off the desired portion. This process was used in the production of bone beads in particular (Plate VII, Fig.1).

Once a section of bone was obtained, grinding and polishing served to further shape the piece into the desired form. In addition. a number of bone artifacts show evidence of burning which may have served to harden the material or it may rather have been a decorative technique. The burn marks that occur on the modified deer phalanges appear more decorative than functional. Holes were produced both be gouging and by grinding until the marrow cavity was exposed.

SHELL ARTIFACTS

Shell Beads

Three discoidal beads are cut from clam shell and range in diameter from 11.5mm to 13.5mm. One has a hole drilled centrally, while the other 2 have holes offset from the centre. The edges are ground smooth in all cases (Plate VIII, Fig. 13).

Eight snail shells have holes perforated through them and may have been used as decorative ornaments, suspended around the neck, hung from the ears, or sewn onto clothing (Plate VIII, Fig. 12).

Five tubular shell beads range in length from 10.5mm to 17.5mm and in width from 5mm to 6.5mm. Both ends of these beads are ground smooth (Plate VIII, Fig. 11).

One relatively complete clam shell has a round hole cut through it (Plate VIII, Fig. 14), and another fragment has an oblong hole (Plate VIII, Fig. 15). A third fragment has a hole started in one side that does not penetrate the shell. These items may be decorative ornaments.

Shell Knife

One fragment of a clam shell is cut along two sides, producing a sharp point which may have been used as a knife.

LITHICS

Ground Stone

Table 16 presents the breakdown of the artifacts in the ground stone category.

Table 16. Kirche ground stone artifacts.

Artifact Type	N	%
Adze or celt fragments	21	15.7
Adze or celt preforms	11	8.2
Celt fragments	9	6.7
Chisels	5	3.7
Celts	3	2.2
Beads	3	2.2
Discs	2	1.5
Pipes	1	0.7
Miscellaneous tools	4	3.0
Detritus	75	56.0
Totals	134	99.9

Celts

Three complete and 9 fragments of celts range in length from 97.0mm to 150mm with a mean length of 120.5mm. Maximum widths range from 38.0mm to 52.0mm with a mean width of 44.3mm and maximum thicknesses range from 9.0mm to 41.2mm with a mean of 21.0mm.

Plan shapes vary considerably (Fig. 34). One unusual celt (Plate X, Fig. 4; Fig. 34, no. 5) possesses a bit at both ends.

On the basis of a combination of two attributes, profile shape and maximum thickness, there appears to be two basic types of celts

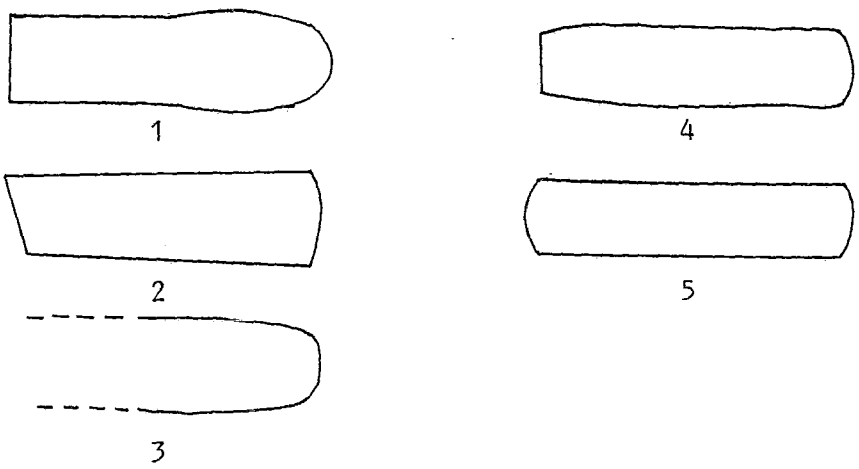


Fig. 34. Plan shapes of Kirche celts.

represented in the Kirche assemblage. The first type, represented by 6 specimens (Plate X, Fig. 3; Fig. 35, no. 1), are of a thicker and heavier variety than the second type, represented by 4 specimens (Plate X, Figs. 1,2; Fig. 35, no. 2), which may have been used for somewhat lighter tasks.

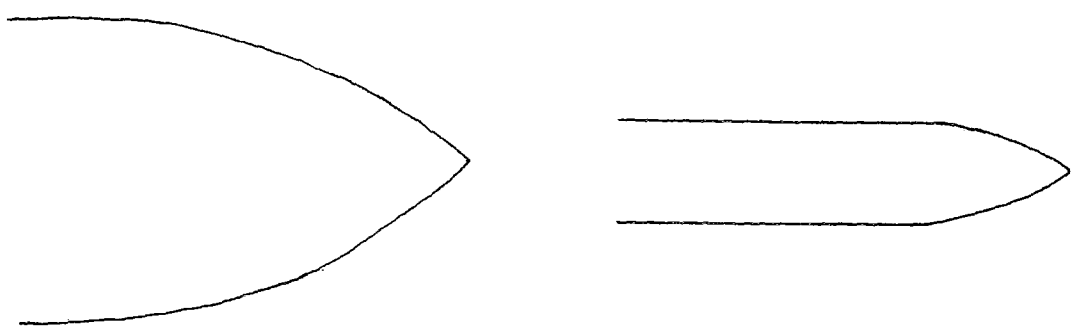


Fig. 35. Kirche celt types.

As with plan shapes, cross-sections of celts vary considerably (Fig. 36). In the cases where this attribute is observable, no two have exactly the same cross-section. In Fig. 36 numbers 1 to 4 represent the cross-sections of the second, lighter variety of celt, while numbers 5 to 8 represent the first variety.

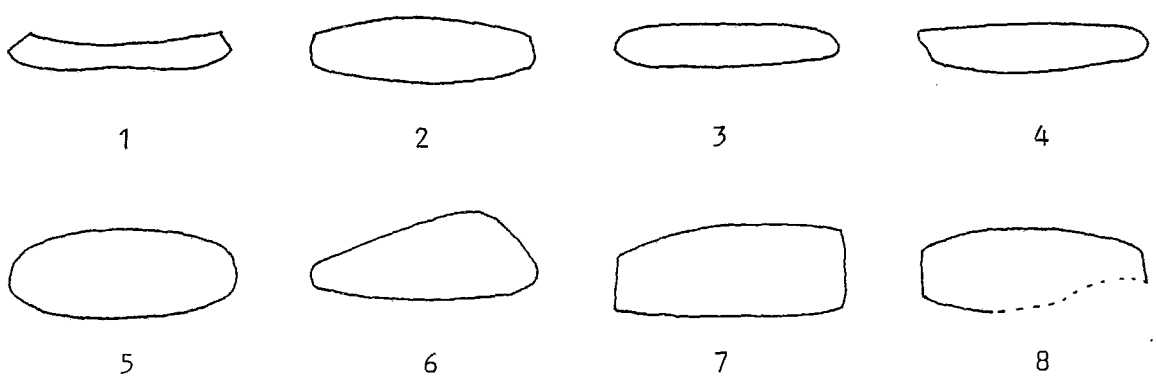


Fig. 36. Kirche celt cross-sections.

Grinding and polishing occurrs to some extent over the entire surface of the celts but extensive grinding and polishing is restricted to the bit end.

Adze or celt fragments

Twenty-one adze or celt fragments are broken in a manner which precludes their identification as specific tool types. All of these have ground surfaces and are interpreted as broken tools rather than waste pieces derived from the manufacturing process. The 21 fragments

consist of 3 bits, 13 midsections and 5 polls.

Chisels

Chisels are differentiated from celts on the basis of the smaller overall size, and in particular on the basis of their bit widths, which are less than 30mm in all cases (Fig. 37).

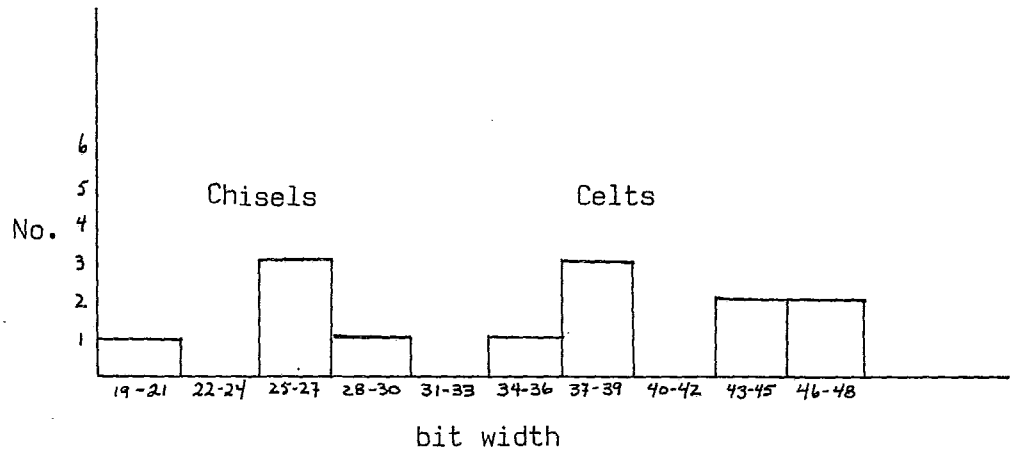


Fig. 37. Comparison of bit widths of chisels and celts.

Four complete chisels and one with the distal end broken were recovered. These tools range in length from 81.5mm to 104.0mm with a mean length of 93.1mm. Maximum widths range from 23.0mm to 35.0mm with a mean width of 28.5mm, and maximum thicknesses range from 11.0mm to 23.0mm with a mean thickness of 14.8mm.

All 5 chisels are essentially rectangular in plan shape; 2 have straight lateral edges (Fig. 38, no. 1) and 3 have slightly convex lateral edges (Fig. 38, no. 2). In profile all bit ends are biconvex and the body sections rectangular (Fig. 38).

Fig. 38. Plan and profile shapes of ground stone chisels.

The bit ends of the chisels are all convex in shape. One in particular (Plate XI, Fig. 1) has a very rounded end, while the others are only slightly convex (Plate XI, Figs. 2-4). Cross-sections are variable and the orientation of the sharpened ends is also variable (Fig. 39).

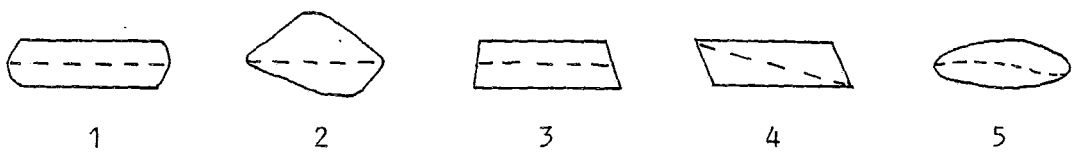


Fig. 39. Cross-sections and bit end orientations of ground stone chisels.

Miscellaneous tools

One ground stone tool resembles an awl in shape. It measures 72mm in length, has a maximum width of 13.5mm and a maximum thickness of 9.5mm. The distal end of this tool has a ground point and may have been used as a punch or graver (Plate XI, Fig. 8). The shaft is unground.

Another tool (Plate XI, Fig. 9) has a small, flat, convex bit end which is ground into shape at the end of an other wise unground shaft. The ground end is 7mm in width, 3mm in thickness and the grinding extends for only 9mm. The total length of the tool is 104mm, the maximum width, 24.5mm and the maximum thickness, 15mm.

Two other tools have ground bit ends that do not possess sharpened edges but rather are round and battered in appearance (Plate XI, Fig. 10). Although this rounding may have resulted from the use of these tools as hammers, obliterating the once sharpened ends, they may also have been intentionally produced with a blunt end to serve a hammering function. One measures 89mm in length, 30mm in width and 21.5mm in thickness and the grinding is restricted to the bit end. The other measures 117mm in length, 30mm in width and 26mm in thickness. Grinding is also restricted to the bit end of this tool.

Pipe bowl

One pipe bowl is manufactured from limestone in the shape of a pottery vessel (Plate XI, Fig. 7). It measures 45mm in height and has a globular shaped body 44mm wide with a flattened base. The dia-

meter of the bowl rim, measured from the outside edge, is 32.5mm and the interior diameter is 17mm. A drilled hole 10.5mm in diameter is centrally located on one side of the globular body and provides a means for the insertion of a stem into the bowl cavity.

No evidence for burning in the bowl cavity is apparent.

Beads

Three ground stone beads measure 20mm, 15mm and 10mm in diameter. Thicknesses measure 7mm, 6.5mm and 6mm (Plate XI, Fig. 6).

Discs

Two ground stone discs measure 24mm and 13mm in diameter with thicknesses of 6.5mm and 3mm (Plate XI, Fig. 5).

Preforms

Eleven items are interpreted as preforms or blanks for celts, adzes or chisels. They are roughed into shape by flaking, pecking and some grinding but they do not possess sharpened bit ends. They range in length from 80mm to 160mm with a mean length of 108.7mm. Widths range from 25.5mm to 57.5mm with a mean width of 44.6mm and thicknesses range from 12.5mm to 38.5mm with a mean thickness of 26.0mm.

Detritus

Seventy-five pieces of detritus associated with the production

of ground stone tools were recovered. Lengths range from 14mm to 82mm with a mean length of 30.5mm. Widths range from 6mm to 40mm with a means width of 16.3mm and thicknesses range from 2mm to 25mm with a mean thickness of 4.7mm.

Only a small number of the waste pieces are of a relatively large size. These were probably removed from the core during the initial reduction process. The greater number of smaller and thinner pieces no doubt derive from the final shaping of the tool prior to the grinding and polishing process.

Chipped Stone

The chipped stone inventory includes quartz, quartzite and chert materials. Chert detritus accounts for the majority (65.8%) of the assemblage; few shaped tools were recovered. Table 17 presents a list of the artifact types within the chipped stone category at the Kirche site.

Table 17. Kirche chipped stone artifacts.

Material	Artifact	N	%
Quartz	nodules	6	1.9
	flakes	4	1.3
	shatter	7	2.2
Quartzite	nodules	4	1.3

(continued)

Table 17. (Continued)

Material	Artifact	N	%
	flakes	7	2.2
Chert	projectile point	1	0.3
	graver fragment	1	0.3
	unifacial knife	1	0.3
	scraper	1	0.3
	retouched flakes	11	3.4
	used flakes	9	2.8
	flakes	92	28.0
	shatter	118	37.0
	cores	54	16.9
	nodules	3	0.9
Totals		319	99.9

Quartz

Quartz remains consist of nodules and detritus; no artifacts were recovered. Table 18 presents the dimensions of the quartz detritus. Three quartz flakes retain one cortex surface.

Table 18. Kirche quartz detritus dimensions.

Artifact type	N	Range in length (mm)	Range in width (mm)	Range in thickness (mm)
Nodules	6	18-26	12-24	7-18
Flakes	4	27-47	17-18	5-11
Shatter	7	12-18	7-15	3-10

Quartzite

Four quartzite nodules may be cores but the material makes it difficult to identify flake scars. No preparation of these cores was noted. Table 19 presents the dimensions of the quartzite cores and flakes at Kirche.

Table 19. Kirche quartzite detritus dimensions.

Artifact type	N	Range in length (mm)	Range in width (mm)	Range in thickness (mm)
Nodules	4	22-52	13-35	7-23
Flakes	7	12-42	11-33	3-10

Chert detritus

Fifty-five pieces of chert shatter and 31 chert flakes retain cortex on one or more surfaces. Table 20 presents the dimensions of all of the chert flakes and shatter in the assemblage.

Table 20. Kirche chert detritus dimensions.

Artifact type	N	Range in length (mm)	Range in width (mm)	Range in thickness (mm)
Shatter (with cortex)	55	9-32	7-19	3-11
Shatter (no cortex)	63	8-32	5.5-19	1-9
Flakes (with cortex)	31	8-45	8-28	2-15
Flakes (no cortex)	61	9-28	8-31	1-12

Chert cores

Most of the cores (70.4%) are of the irregular variety, having flakes detached from numerous angles. Only 16 cores are bipolar, having flakes driven from 2 opposite ends. Of the irregular cores, 30 (78.9%) retain some cortex on their surfaces. Seven (43.8%) of the bipolar cores retain some cortex. Table 21 presents core dimensions.

Table 21. Kirche chert core dimensions.

Artifact type	N	Range in length (mm)	Range in width (mm)	Range in thickness (mm)
Irregular cores (with cortex)	30	16-79	12-57	7-23
Irregular cores (no cortex)	8	15-33	11-29	5-16
Bipolar cores (with cortex)	7	19-28	11-23	5-13
Bipolar cores (no cortex)	9	15-23	11-29	5-16

Chert projectile point (Plate IX, Fig. 4)

One broken side-notched projectile point was recovered and mended. It is probable that the break occurred during the production of one of the side notches. A deep flake scar, through which the break passes, occurs on the notch. The point is 45mm in length with a maximum width of 13mm and a maximum thickness of 5mm. The base of the point on one side measures 13mm in length; the side ntoch is 9mm in height and the blade portion is 23mm.

Chert graver fragment (Plate IX, Fig. 1)

One fragment of a graver is retouched on the dorsal surface only. The maximum length is 46mm, and the maximum thickness is 9mm. The minimum width is 10mm.

Chert scraper (Plate IX, Fig. 2)

One scraper is bifacially retouched, with secondary retouch concentrated on the dorsal surface. The maximum length of this artifact is 20mm, the maximum width 22mm and the maximum thickness 7mm. The height of the secondary retouch is 4mm.

Unifacial knife (Plate IX, Fig. 3)

One unifacially retouched flake measures 55mm in length, 20mm in width and 7mm in thickness. Surface flaking occurs on the dorsal face only, and secondary edge retouch also occurs only on the dorsal face. Edge retouch occurs around the entire periphery with the exception of the proximal end near the bulb of percussion. The height of the edge retouch is 4mm.

Retouched flakes (Plate IX, Figs. 5-9)

Eleven flakes have been retouched along one or more edges. Eight of these are retouched on the dorsal surface only; 3 are retouched on both surfaces. The shapes of the working edges are predominantly (63.6%) convex; two are straight and two are slightly concave. Retouched flakes range from 18mm to 45mm in length, with a mean length of 25.9mm. Widths range from 9mm to 37mm with a mean width of 17.6mm and thicknesses range from 3mm to 11mm with a mean thickness of 6.2mm.

Used Flakes

Nine flakes have small, irregularly spaced flakes removed from one or more edges. These flakes range in length from 13mm to 36mm, with a mean length of 21.2mm. Widths range from 8mm to 22mm with a mean width of 14.7mm and thicknesses range from 2mm to 14mm with a mean thickness of 6.1mm.

COPPER ARTIFACTS

One rolled copper bead measures 17mm in length and 6mm in width. Another fragment of rolled copper measures 17mm in length and 10mm in width. Although the source of the copper has not been identified, preliminary analysis by the Department of Geology, McMaster University, indicates that there is no reason to believe that the copper is not native. The complete bead was manufactured with a cold hammer technique, while there is some indication that the rolled copper fragment was heat treated although not to a very high temperature. These artifacts are illustrated in Plate V, Fig. 4.

CHAPTER 4

INTERPRETATIONS

EXTERNAL RELATIONSHIPS

Inter-site comparisons are made with several problems in mind. Of primary importance is the interpretation of the historical and cultural context of the Kirche village within the upper Trent valley. Once these relationships have been examined, the wider cultural context of south-central and eastern Ontario can be integrated into the analysis.

One of the primary goals of this research is to determine the relationship of the Kirche occupation to the proposed immigrant and indigenous groups in the upper Trent valley. Were the Kirche inhabitants related to the immigrant group, represented by the Benson site, or were they descendants of the indigenous population, represented by the Hardrock site? Also examined within the context of external relationships is the evidence for warfare involving the Kirche villagers. Possible sources of hostility are then considered.

Methods and Limitations

To a substantial degree, it is necessary to rely on a comparison of pottery assemblages in order to reconstruct chronological and social relationships between Kirche and other late prehistoric/historic Huron occupations. Data on other aspects of Huron culture from many of the

sites in the sample are either not available or have not been generated and presented in a standardized format, making detailed and quantified comparisons difficult. Non-ceramic evidence is used where possible, in order to avoid biasing the interpretations by relying exclusively on artifacts produced by the female members of the society. Comparison of non-ceramic evidence is, however, necessarily general.

Similarities between assemblages result from various historical, social and spatial factors. A method for measuring similarities between pottery assemblages that takes these variables into account has been designed by Ramsden (1977b:57-58), and is used in this analysis. The coefficient of similarity he designed to reflect social rather than chronological significance is referred to as the "measure of difference" between sites. Calculating measures of difference consists of the following procedure:

> ...the simplest way of calculating such a coefficient between a pair of sites is to find the sum of the differences between the frequencies on each site of those attributes that reflect spatial or other non-chronological significance (Ramsden 1977: 58)

The lower the resulting number, the more similar are the two ceramic samples. The attributes used in the calculation include: major ware frequencies; total stamping technique; opposed and hatched collar motifs; interior decoration; lip decoration; concave-convex interior rim profile; and high collars. These ceramic attributes are used to obtain measures of difference between Kirche and thirty-one Iroquoian sites in south-central Ontario (Table 28).

Attributes of chronological significance are then used to

evaluate the temporal relationships between Kirche and those sites most similar to it socially, and between Kirche and all the sites in the sample from the upper Trent valley. Chronologically sensitive attributes used in the evaluation include: simple, opposed and horizontal collar motifs; neck decoration; interior decoration; sub-collar decoration; convex rim interior; concave rim interior; concave collar exterior; and straight collar exterior.

It has been pointed out (Dunnell 1970; Ramsden 1977) that seriation is a method of chronologically ordering sites that is useful only when lineal relationships between sites have been determined. It is beyond the scope of this thesis to reanalyze in detail the clustering of sites given the additional data now available from the upper Trent valley. Chronologically sensitive attributes are therefore used with caution to interpret general temporal relationships between sites that may well have belonged to different lineal developments.

The method of analysis designed by Ramsden and used here has several limitations which have a bearing on the nature of the interpretations that are subsequently presented. Comparative ceramic data was obtained primarily from Ramsden's (1977b) analysis. Other sources of data include a preliminary report on the Coulter ceramic (Damkjar 1979) and a preliminary report on the ceramics recovered from the 1975 excavation of the Draper site (Pearce 1978). All of these sources combine both Huron and St. Lawrence rims in the sample. While the number of St. Lawrence rims in these samples is generally small or absent, their inclusion should be taken into account.

Of more importance are limitations inherent in the nature of

the sites being compared. It is apparent from several recent studies (Ramsden 1977b; 1978; Finlayson 1978) that late Ontario Iroquoian sites are characteristically complex. They reflect internal heterogeneity, growth over time, and movement in and out of settlements by small groups of people. The method of assessing relationships between sites outlined above is based on the assumption that comparisons can be made at the site level. It is now clear, however, that making interpretations on the basis of a comparison between sites such as Draper, Coulter, Kirche and Benson, as though they represented homogenous populations, warrants a great deal of caution. For the majority of the sites in the sample, excavations were not directed towards recovering detailed information on village morphology and intra-site cultural heterogeneity, and consequently little information is available which would allow an assessment of their internal complexity. It cannot be assumed that they represent homogenous populations.

Comparisons

Figure 40 illustrates the location of sites used in this analysis. Table 22 presents the measures of difference obtained using attributes selected for their significance in clustering sites into social groups, and Appendix D presents detailed ceramic data for the sites compared to Kirche.

On the basis of pottery vessel attributes, the Kirche site is most similar to Coulter. Ordering the two sites chronologically, however, does not produce a satisfactory result. The most obvious

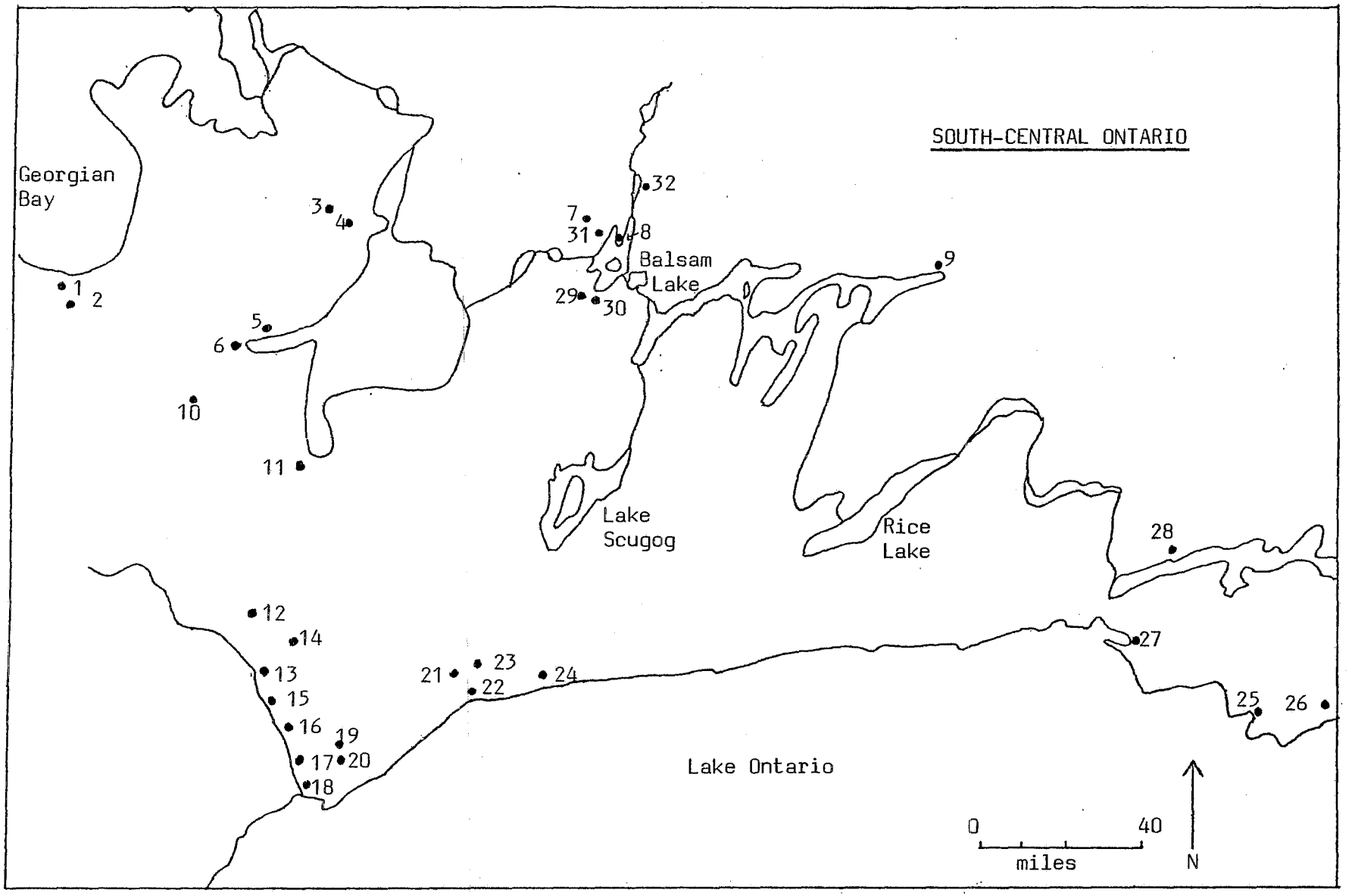


Fig. 40. Location of Iroquoian sites used in the inter-site analysis.

Fig. 40. Key to site numbers.

1. MacMurchy
2. Sidey-Mackay
3. Warminster
4. Sopher
5. Ellesmere-Morrison
6. Beswetherick
7. Benson
8. Hardrock
9. Quackenbush
10. Graham-Rogers
11. Bosomworth
12. Beeton
13. Seed-Barker
14. Aurora
15. Boyd
16. McKenzie
17. Downsview
18. Black Creek
19. Parsons
20. Riseborough
21. Millroy
22. Reesor
23. Draper
24. McLeod
25. Hillier
26. Waupoos
27. Payne
28. Lite
29. Kirche
30. Jamieson
31. Coulter
32. Rumney Bay

Table 22. Measures of difference for sites with Kirche.

Site	Measures of Difference
*Coulter	37.3
*Benson	61.4
Parsons	64.1
Draper	74.4
Lite	71.4
Black Creek	79.5
Riseborough	80.9
Beeton	85.3
Bosomworth	92.7
Aurora	98.4
Downsview	99.8
Millroy	107.3
Payne	109.8
Warminster	118.1
Beswetherick	119.6
Ellesmere-Morrison	120.6
MacMurchy	121.6
McKenzie	125.4
Sidey-Mackay	132.7
Waupoos	133.0

(continued)

Table 22. (Continued)

Site	Measure of Difference
Reesor	134.2
Graham-Rogers	137.6
Sopher	141.1
Hillier	147.0
*Hardrock	168.6
*Jamieson	176.4
Seed Barker	176.5
*Rumney Bay	189.0
Boyd	189.3
McLeod	191.3
Quackenbush	193.8

*sites in the upper Trent valley

factor to consider here is the much larger size (ca. 8 acres) of the Coulter site. The two villages cannot possibly be the result of a lineal relationship via a relocation of the same people from one village to the other. Rather, the ceramic similarity may be a reflection of at least a partial contemporaneity, or the presence of some of the same groups at both sites at different times. This suggestion is supported by a number of other similarities between these two villages.

While a final report on Coulter is not yet available, a number of observations can be made. Pipe styles shared include the plain trumpet, collared ring, collared ring and punctate, decorated trumpet, Iroquois ring and punctate and a small number of the mortice type. Lacking from both sites is the coronet type, which becomes popular at the Benson site. Lithic tools at both sites are rare and St. Lawrence pottery occurs in relatively small quantities in both assemblages. In addition, rolled copper beads were recovered from both sites. The Coulter rolled copper is currently being examined to determine whether or not it is of European origin; that from Kirche has been tentatively identified as native copper. The morphology and appearance of the beads are similar. Similar settlement features, including village growth through time, occur at both sites. Isolated human bone at both sites reflects the existence of hostilities.

The site next most similar to Kirche is Benson. Here again, chronological ordering using pottery vessel attributes does not suggest a lineal relationship between these sites. An examination of additional data, however, leads to the conclusion that the Benson village was occupied at a later time, and while some of the Kirche villagers or

their descendants may have gone to live at Benson, people from another village or villages probably lived there as well. The differences may also have resulted from changing social and political relationships between the people of the upper Trent valley and other groups in south-central Ontario.

Some pipe styles, such as ringed and plain trumpet varieties, are common to both Kirche and Benson. However, other styles such as the mortice and coronet types, are popular at Benson, but rare to absent in the Kirche assemblage. Emerson (1954:45-64) considered mortice and coronet types to be later varieties. Stem pipe holes at Benson were frequently produced using twisted fibre rather than the predominant smooth reed method of pipe stem manufacture used at Kirche (95.3%). Emerson (1966:183) believed that the twisted fibre technique was most commonly used at later sites. In addition, several flared stems occur in the Benson assemblage and only one slightly flared stem occurs in the Kirche assemblage. This trait was also considered to be a later development by Emerson (1966:183-185).

Two iron awls from Benson clearly indicate that European material was reaching the upper Trent valley when that village was occupied. Rolled copper beads are also present in the Benson assemblage, but these have not yet been analyzed to determine their origin. The presence of iron is consistent with the interpretation that the Benson village was occupied somewhat later than Kirche, where no ironware or other European material was recovered.

That the Benson village was occupied at a different time than Kirche and Coulter also seems indicated by a number of other factors.

The settlement features at Benson do not reflect the same degree of internal complexity with respect to village growth and the superimposition of houses. The orientation of houses is also a great deal more regular at Benson, and while defence seems to have been a major concern, considering the palisade structure which had 7 rows in places, isolated human remains are rare in comparison with Kirche and Coulter. St. Lawrence Iroquoian pottery is also more frequent in the Benson assemblage. From this evidence it appears that the events occurring in the upper Trent valley at the time Kirche and Coulter were occupied, such as migrations, extensive warfare and village growth, were no longer extant at the time of Benson. Ramsden (1977b) has suggested that in light of the difficulties encountered in ceramically seriating clusters of sites, a more reliable method of cross-dating is to identify synchronic events in both clusters. This method may well be useful for cross-dating single occupations as well.

The Hardrock, Jamieson and Rumney Bay sites, which are relatively similar to each other ceramically, are among those site which share the least ceramic similarity with Kirche. Quackenbush, a site that clustered with Hardrock in Ramsden's (1977b) analysis and is a component of his proposed indigenous population in the Trent valley, has the highest measure of difference with Kirche of all the sites in the sample (Table 22).

The locations of the Hardrock and Rumney Bay sites, on the Balsam Lake shore and above the Gull River, respectively, are very different from the location of the Kirche village. Also, both sites are considerably smaller (ca. 1 acre) than Kirche (3.3 acres). The location

of the Jamieson site, situated only a half a mile east of Kirche, is similar with respect to its relationship to physiographic features, but has a distinctive earthwork built around its perimeter.

Pipes in the Hardrock assemblage are predominantly the plain trumpet variety (Emerson 1954:186), and while plain trumpet pipes also occur in the Kirche assemblage, ringed varieties dominate. Generally, the Kirche pipe assemblage includes a much more varied inventory of styles than does the Hardrock assemblage.

The Hardrock worked bone includes a number of distinctive traits not present at Kirche. These consist of a bone awl decorated with an elaborate etched design, canine tooth pendants and a medicine man's curing tube (Emerson 1954:186).

An examination of chronologically sensitive pottery vessel attributes suggests the possibility that Kirche was occupied at a later time than the indigenous Hardrock, Rumney Bay and Jamieson sites. The problem of relating these sites chronologically is, however, complicated by the fact that Kirche was probably not part of the same lineal development. No European material was recovered from the indigenous sites. In addition, rolled copper is lacking from their assemblages and St. Lawrence Iroquoian pottery is rare or absent. Rolled copper artifacts occur with increasing frequency around A.D. 1500, and St. Lawrence Iroquoian pottery increases in frequency on sites at around the same time (Ramsden 1978). From the foregoing, it is inferred that Hardrock, Jamieson and Rumney Bay were occupied earlier than Kirche, or that Kirche may have commenced during the latter years of one or more of these settlements.

The method of cross-dating sites by identifying synchronic events helps to clarify the relationship between Kirche and the Draper site. These sites,while ceramically similar, do not form a lineal sequence. Again, this is an obvious conclusion considering the much larger size of Draper (ca. 15 acres), which can be defined as a town rather than a village (Noble 1975:38). In addition to similarities in some pottery attributes, a number of pipe styles are shared. Unfortunately, the most recent data on the Draper pipes is not widely available, but an earlier study by Ramsden (1968) indicates the popularity of the collared ring and trumpet types. Miniature trumpet pipes also occur (Ramsden 1977b:290). Of importance also, are indications that certain events may have been synchronous with the occupation of both the Kirche and Draper settlements. The following are characteristic of both sites: the presence of rolled native copper artifacts; a small percentage of St. Lawrence Iroquoian pottery vessel fragments; a few St. Lawrence Iroquoian pipe types; fairly numerous human remains; defensive structures; and evidence for internal heterogeneity and growth of the settlements through time (Finlayson 1978; 1979).

The Parsons site is also ceramically similar to Kirche, but a lineal relationship between the two does not emerge from an attempt to chronologically order them. Rather, non-ceramic evidence supports the proposition that they were contemporaneous settlements. It is also possible that both sites were derived in part from a site or sites similar to Black Creek, thereby accounting for their ceramic similarity.

Parsons was a much larger settlement than Kirche, covering 7 acres of a flat plateau bordering a tributary of the Humber river

(Ramsden 1977b:72). The most obvious artifactual difference between the assemblages is the profusion of chipped stone tools in the Parsons assemblage, and the lack of such in the Kirche assemblage. Similarities in pipe styles include: decorated trumpet pipes; stone pipes; decorated conical pipes; ringed pipes; plain trumpet pipes; and human effigy pipes. Rolled copper beads and a small percentage of St. Lawrence Iroquoian vessel fragments were also recovered from both sites (Ramsden 1977B: 72-73, 279-281; 1978:102, 104).

It has been postulated (Ramsden 1977b:2290230) that the Black Creek site represents an ancestral population to the Benson cluster of sites. Chronological ordering of Black Creek and Kirche, based on pottery attributes, is consistent with the proposition that Black Creek was occupied earlier than Kirche. Other evidence also reflects similarities. The most common pipe styles at Black Creek are plain trumpet and ringed varieties, including Iroquois ring, elongated ring, conical ring and collared ring, all found in the Kirche assemblage. Miniature pipes were also recovered from Black Creek. A sparse lithic inventory is a shared trait, although projectile points are more numerous in the Black Creek assemblage. Similarities in bone artifacts include conical bone projectile points, fragments of flat etched bone that may be parts of armlets, worked bear canines, and both toggle and cup and pin style modified deer phalanges. The location of the Black Creek site, on the river flats adjacent to a creek, is not similar to Kirche. Nor is the use of the slope for refuse disposal. No European material or rolled copper was recovered from Black Creek (Emerson 1954: 123-142).

The Kirche pottery assemblage also bears similarities to that of the Lite site in Prince Edward County. An evaluation of the chronological relationship of these sites based on pottery attributes, indicates an earlier position for the Lite site. Similarities other than pottery vessels include: the popularity of plain trumpet and ringed varieties of pipes; the use of a smooth reed to produce holes in pipe stems; a small number of effigy pipes; perforated turtle shell; discoidal shell beads; a sparsity of chipped stone material; and the location of the settlements close to springs and distant from navigable waterways. The bone industry at Lite is more profuse and includes modified deer mandibles, fish gorges, and incised bone tubes. Some St. Lawrence Iroquoian pottery was recovered from the Lite site, but no European material or rolled copper was found (Pendergast 1972; Ramsden 1978).

A distinctive ceramic trait found at the Lite site, that is not present in the Kirche assemblage, is the use of a cord-wrapped stick to decorate pot collars. This technique was recorded on a total of 8% of the Lite rim sample (Pendergast 1972:26).

Relationship to the St. Lawrence Iroquoians

St. Lawrence Iroquoian pottery vessel rim sherds account for a low 1.5% of the Kirche ceramic assemblage. One deer scapula pipe was also recovered, a type of pipe more characteristic in some St. Lawrence Iroquoian assemblages than in prehistoric Huron assemblages. They are most numerous in the St. Lawrence Iroquoian Roebuck assemblage, which includes 29 of these pipes. In addition, an owl effigy pipe

recovered from the Kirche site is remarkably similar to one recovered by Wintemberg from the Roebuck site (Wintemberg 1936:163, Plate XVI, Fig. 12). Also recovered from the Roebuck site was a ceramic, discoidal bead, decorated with a line encircling the central hole (Wintemberg 1936:161, Plate XV, Fig. 30), a decorative trait identical to one found on a discoidal ceramic bead at Kirche.

While the frequency of these St. Lawrence traits is minor in proportion to the prehistoric Huron traits, some relationship between the Kirche villagers and St. Lawrence Iroquoian people is indicated. The presence of both male and female related artifacts could be indicative of a peaceful relationship; an alliance based on an exchange of products, ideas and perhaps some people.

Warfare

Two questions can be addressed about warfare: 1) is there evidence that the Kirche villagers were involved in any warfare or raiding activities; and 2) if such evidence exists, what other group or groups were involved in these hostilities?

Consideration of several factors leads to the suggestion that the isolated human bone recovered from Kirche (Appendix F) reflects cultural behavior associated not with the burial of the villagers' own dead, but rather with the disposal of human remains resulting from the treatment of prisoners acquired through raids or other activities.

Thirteen (41.9%) of the bones were recovered from refuse deposits, 15 (48.4%) were found scattered within houses or palisade areas, and 3 (9.7%) were found in pits associated with palisade and with one

house. The pits may simply represent the disposal of refuse. It is also possible, however, that the items found were ritually interred in association with activities focused on the human individuals represented. The presence of isolated human bone in midden contexts and others reflecting neglect, and the presence of carnivore tooth marks on two of the bones, are patterns that would not be associated with burial of the villagers' own dead.

A number of settlement features can also be interpreted as defensive measures. A 3-row palisade surrounded the majority of houses in the village; in times of attack, those living outside could seek shelter in the protected village segment. Internal fences were constructed to link houses together, and to link houses to palisade. Such structures may have served to divert or block the passage of attackers who had penetrated the palisade.

The spatial distribution of houses can also be interpreted as a defensive measure, especially with respect to the arrangement of houses on the western side of the village. The placing of houses close together could serve to inhibit movement through the village by those unfamiliar with its layout. Finlayson (1978) has postulated that this defensive strategy was used by the inhabitants at the late Iroquoian Draper town. Complete excavation of the Kirche village, directed towards recording all of the house locations, might further substantiate the use of this strategy.

In light of the above evidence, it is postulated that the Kirche village was occupied at a time when the threat of attack was a concern. Given the existence of hostilities, is there any evidence to suggest

what groups were involved? Other Iroquoian groups offer possible sources for the hostilities: 1) the St. Lawrence Iroquoian groups to the east; 2) the groups to the south living near the north shore of Lake Ontario; 3) the Iroquoian population in the lower Trent valley; 4) the indigenous population in the upper Trent valley; or, 5) New York Iroquois.

The presence of St. Lawrence Iroquoian pottery in the Kirche assemblage may be indicative of the capture of women from the St. Lawrence Valley, as the result of hostilities with groups in that area. At least one late St. Lawrence Iroquoian site, Roebuck, exhibits clear evidence of hostilities. A great number of human remains were found at this site, in burials located throughout the settlement and also as isolated bones. Some bones were cut, scorched or burned and skull gorgets were also present. The presence of earthworks and palisade structures attest to a concern for defence (Wintemberg 1936:59, 120).

A second possibility is that the immigration to the upper Trent valley was stimulated by hostilities among groups located along the north shore of Lake Ontario. Hostilities could easily have persisted in the form of blood feuds and raids. There is evidence from a few late prehistoric Iroquoian sites along the north shore of Lake Ontario to support the suggestion that at least some of these groups were involved in hostilities. In particular, the Draper town, with its large population, elaborate defence mechanisms, scattered human bone and human skull gorgets, could be cited as an indication of unsettled times. A relatively large number of isolated, cut and otherwise modified human bone was also recovered from the Parsons site (Ramsden 1978:104). It was suggested earlier that the Kirche, Parsons and Draper sites may all

have been occupied contemporaneously.

A third possible source for hostilities lies with groups in the lower Trent valley. Numerous fragments of isolated human bone were recovered from the refuse deposits at the Lite site and fragments of 3 human skull gorgets were also found. Little information on habitation or defence structures was recovered at that site, but the possibility of a palisade has been noted. The site was located on high ground adjacent to a spring and distant from navigable waterways, perhaps as a defence strategy (Pendergast 1972:25, 31, 35, 39). It is possible that the similarities noted between Lite and Kirche result from an assimilation of lower Trent valley residents following a period of hostility and destruction of the latter group.

A fourth possible source of hostilities is within the upper Trent valley. Hostilities may have flared over the incursion of immigrant populations into an area already occupied. Current evidence suggests that the culture typical of the indigenous people did not persist as a distinct entity past the time of the arrival of new groups. The disappearance of this culture could reflect any of the following situations: 1) the people left the area before the arrival of the new groups; 2) existing alliances between the groups to the south and the indigenous population permitted peaceful amalgamation or assimilation; or, 3) the arrival of the new groups was accompanied by hostilities resulting in the dispersal or destruction of the indigenous people, with perhaps the capture and adoption of some of the women into the newly established villages.

Available evidence cannot be used to exclude any of these

possibilities, but two observations can be made which indicate that the indigenous people may have been involved in hostilities. The people at the Jamieson village constructed earthworks around their settlement, a strategy which can be interpreted as a defence mechanism. In addition, two fragments of human temporal bone were recovered in refuse deposits at the Hardrock site (Emerson 1954:187). Unfortunately, neither of these occurrences can be definately related to the incursion of immigrants.

By the time Europeans encountered Huron groups in the St. Lawrence valley around A.D. 1610, Hurons and their Algonkin allies were at war with the New York Iroquois. Whether or not this enmity existed early in the 16th century is difficult to demonstrate. There does not, however, appear to be any artifactual or other evidence from Kirche to support such a contention. Warfare may have developed between these groups only later, when the upper St. Lawrence region became an important, central focus of European-Indian interaction.

Hostilities noted at the Kirche village could, of course, have resulted from a combination of the above possibilities, perhaps related to different times during the existence of the village. More information is required before a definitive conclusion can be reached regarding this problem.

Summary

From the foregoing considerations, and primarily on the basis of the analysis of pottery vessel attributes, it would appear that the occupation at the Kirche site was related to the immigrant incursion into

The upper Trent valley, rather than an occupation of the indigenous population. This conclusion derives from the observation that the Kirche assemblage bears much closer similarities with the Benson site, the site identified with the immigrant population, than with the Hardrock site, identified with the indigenous upper Trent valley groups.

The two sites most similar to Kirche with respect to pottery vessel attributes are Coulter and Benson, both located in the upper Trent valley. It is suggested that Kirche and Coulter were contemporaneous occupations, while Benson was occupied at a somewhat later time. The similarities between Kirche and Benson cannot easily be accounted for by a lineal relationship involving the relocation of the Kirche population to the Benson site. The Benson village may have been established by the descendants of earlier, contemporaneous groups, such as those at Kirche and Coulter, since similarities between these three occupations are apparent. Differences that appear at Benson, particularly with respect to pipe styles, can perhaps be related to the establishment of new economic, social and political relationships at the time this village was occupied, resulting in the exchange of products or ideas with new groups. In addition, in situ developments within the upper Trent valley could account for some of the differences noted at Benson.

In contrast to the similarities between Kirche, Coulter and Benson, a comparison of Kirche with the indigenous occupations indicates substantial differences in pottery attributes and other traits. Some of these differences can perhaps be accounted for by a temporal separation between Kirche and the indigenous sites; it was suggested that Hardrock,

Rumney Bay and Jamieson were all occupied earlier than Kirche or during the initial years of the occupation at Kirche. However, taking into consideration both the substantial differences between Kirche and the indigenous sites, and the far greater similarities evident with sites along the north shore of Lake Ontario and the Lite site in Prince Edward County, it seems more likely that the origins of at least the majority of the Kirche villagers lay outside of the upper Trent valley.

Comparisons between Kirche and the other Iroquoian sites in the sample indicate similarities with sites in the Humber valley (Black Creek and Parsons) and with the Drper site in the Rouge valley and the Lite site in Prince Edward County. It is suggested that Parsons and Draper were contemporaneous with Kirche, while Lite and Black Creek were occupied earlier. Relationships with sites such as Parsons and Draper may have involved peaceful alliances, but evidence for widespread hostilities exists, and may indicate periods of warfare between these groups.

It is possible that people from both the Humber valley and Prince Edward County migrated to the upper Trent valley and settled together. Ramsden's (1977b) analysis indicated that relationships existed between sites located in the Humber valley and in Prince Edward County, and long-standing alliances between these people could account for their settling together.

DATING THE KIRCHE OCCUPATION

While radiocarbon dating and cultural seriation are useful for some archaeological problems, the problems dealt with here require a degree of precision that is perhaps impossible to obtain with the dating methods currently available.

Charcoal was recovered from a feature in house 1 and submitted to the Archaeological Survey of Canada for radiocarbon dating. The date obtained for this sample was (S-1538) 400±75; A.D. 1550. Recent discussion among archaeologists has centred on the reliability and accuracy of radiocarbon dates acquired from various materials and also on the correlation of radiocarbon dates and "true" or calendric dates (Ralph et al 1974). While charcoal is generally accepted as more reliable for dating purposesthan some other organic substances, such as charred bone or shell (Dragoo 1974; Rippeteau 1974), there still exist problems in correlating radiocarbon dates with calendric dates.

Ralph et al (1974) have provided a method for correcting radiocarbon dates to true dates, using a comparison of radiocarbon and dendrochronological dates. Using the correction tables provided by them, the Kirche village could have been occupied any time between A.D. 1415 and 1595. Obviously this range in dates means that most of the temporal realtionships between occupations that we are interested in will not be clarified by using radiocarbon dates; the plus or minus factor is simply too great, as Dragoo (1974:26) points out:

> The statistical error of carbon-14 dates for this period [A.D. 1400-1800] in eastern north America still make these dates of little value for fine chronological placement and they should be used in a very general way.

In order to narrow the time range somewhat it is necessary to consider other evidence. Evidence discussed above, concerning the relative dates for Kirche and Benson, based on pottery vessel attributes, ceramic pipe types and the presence of European material at the Benson site, supports the proposition that Kirche was occupied earlier than Benson. While changes had occurred in several aspects of the culture by the time Benson was occupied, it is impossible to determine exactly how much time had elapsed between the occupations.

Historical evidence indicates that the upper Trent valley had been abandonded by 1615 when Champlain travelled through the area (Macklem 1970:45), so we have at least an indication of the terminal date for the occupation of the area. The nature of the European material at Benson, 2 iron awls, suggests the possibility that Benson was occupied prior to 1581 when a larger and more varied inventory of European artifacts became available for trade as the result of the intensification of the trade centred at Tadoussac (Trigger 1979:214). If Benson was occupied earlier than A.D. 1581, between approximately A.D. 1550 and 1580, Kirche was probably occupied sometime earlier than A.D. 1550. Ramsden (1977b:255) has estimated a date for the Benson occupation of approximately A.D. 1560.

Determining the temporal relationships between Kirche and other sites in south-central Ontario is hampered by the fact that seriating sites of different regional sequences has proven unreliable (Ramsden 1977b).

In addition, as discussed previously, the complexity of movement and village formation during the 16th century contributes to the breakdown of seriation as a useful method of dating. Cross-dating sites on the basis of the identification of synchronous events in addition to the recognition of similarities in assemblages led to the conclusion that Kirche was at least partially contemporaneous with two previously analyzed occupations, the Draper and Parsons sites. Estimated dates for these sites are approximately A.D. 1495 and 1520 respectively (Ramsden 1977b: 255).

It is concluded on the basis of the radiocarbon date and on inter-site comparisons, that the Kirche village was occupied between approximately A.D. 1495 and 1550.

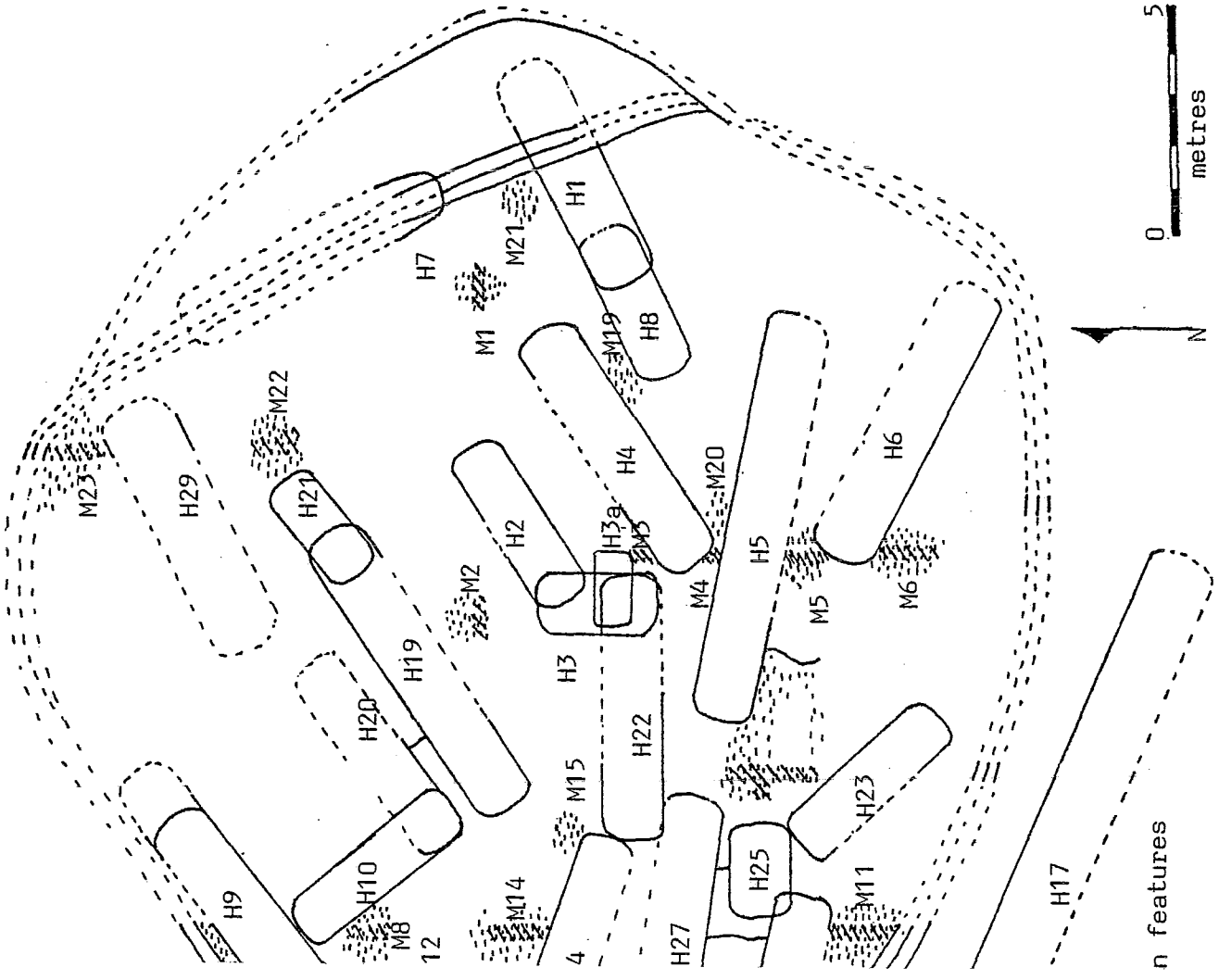
THE KIRCHE VILLAGE

Village Formation

The late prehistoric Huron have been characterized as shifting agriculturalists; that is they were primarily a sedentary people, but periodically relocated their villages. The relocation of villages has been related to the exhaustion of soils and other natural resources in the immediate vicinity of a settlement. Other social factors are also known, including the pressure of hostilities which forced the relocation of villages, sometimes over considerable distances (Tooker 1967:42). Another problem directly focuses on the nature of the segmenting processes involved in the movement and relocation of villages, or the

amalgamation of small groups of people. Did entire village groups move successively from one site to another, as proposed by Tuck (1971) for the Onondaga? Recently, Ramsden (1977b) has suggested, on the basis primarily of ceramic analyses, that the process of village formation among the late prehistoric Huron was a complex process, perhaps involving the fission and fusion of segments of villages rather than entire village populations. Emerson (1967) noted a pattern for the historic Huron Cahiague town involving the fragmentation of the town into two separate villages which were both named Contarea. Finlayson (1978) has documented the growth of the late prehistoric Draper site from a small, palisaded village to a large town through a process involving the amalgamation of several new population segments through time. A similar process is seen at the Coulter site in the upper Trent valley (Damkjar 1978). Evidence from Kirche based on settlement data also reveals a complex pattern of village formation.

As the distribution of house features (Fig. 41) indicates, several changes occurred during the village's history. An extension to the palisade was built on the eastern side of the village to accomodate at least two additional houses (numbers 1 and 7). While it is possible that these new houses reflect internal growth, another possibility is that they were built to accomodate the arrival of new people from another village. In order to test these alternatives it would be necessary to look at the artifacts associated with these houses in relation to other houses in the village. However, both houses were built in the area where the original palisade existed. As seen in other parts of the village, refuse was commonly thrown against the palisade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and pits were often located in these areas. This makes it difficult to discriminate between features and refuse associated with the houses and with the palisade. In addition, one of the houses (house 1) was built partly in a location where another house had existed previously.

Within the palisaded village, at least 5 houses were removed before the entire village was abandonded. Subsequently other houses were built in the same general areas. These were frequently oriented differently and were of different shapes and sizes. It seems consistent with this evidence to suggest that individual household groups, or a number of households together, left the village at some point in time prior to its complete abandonment. Later, new household groups arrived and built their houses in the spaces left available by those who had departed. Unfortunately, it is impossible to reconstruct an orderly sequence for these events; only in a few cases can the succession of superimposed houses be determined, and it is impossible to relate individual incidences to others in the village.

The location of houses outside the palisaded area may also reflect the arrival of household groups some time after the establishment of the palisaded village. The relative chronological occurrence of these houses, however, is difficult to demonstrate. An analysis of the distribution of artifacts and selected traits between the palisaded area and the area outside the palisade reveals a number of differences that can be interpreted as reflecting somewhat distinctive traditions and perhaps, therefore, origins for these groups (see "Village Composition", next section). Because of this possibility, conventional methods of seriation for chronologically ordering these segments presently

proves impossible. Within the palisaded village, not all household groups were contemporaneous, or necessarily representative of the same local, cultural traditions. Chronological comparison, therefore, between the internally located houses and those outside the palisade is fraught with uncertainty.

One possible source of evidence for a late arrival of people living outside the palisade is the small size of the posts used to construct their houses. As noted previously (Chapter 2), the smaller post sizes within the palisade tend to be associated with houses, or extentions to houses, that were built somewhat later than the houses with larger posts.

At least two houses (12 and 27) were extended, presumably to accomodate new families. While it is possible this reflects internal growth, it is also possible that families from other villages joined existing households.

Evidence from the Kirche settlement data thus suggests a pattern of village formation characterized by growth through time, perhaps involving internal population growth as well as additions to the population from other villages. Village growth was accomodated in three ways: by extending the palisade to create a larger fortified area; by settling household groups outside of the palisaded village; and by building extensions on existing longhouses. The village constituency thus changed over time, with some household groups departing prior to the abandonment of the village, and others settling in the village after it had existed for some time.

Given this complex pattern of village formation it can be

postulated that there would have been a relatively high degree of intra-village variability with respect to aspects of the inhabitiant's cultural traditions. The diversity of house end shapes, for example, has previously been noted (Chapter 2). The existence of intra-site heterogeneity is further supported by an analysis of the intra-site distribution of selected artifacts and traits presented in the following section.

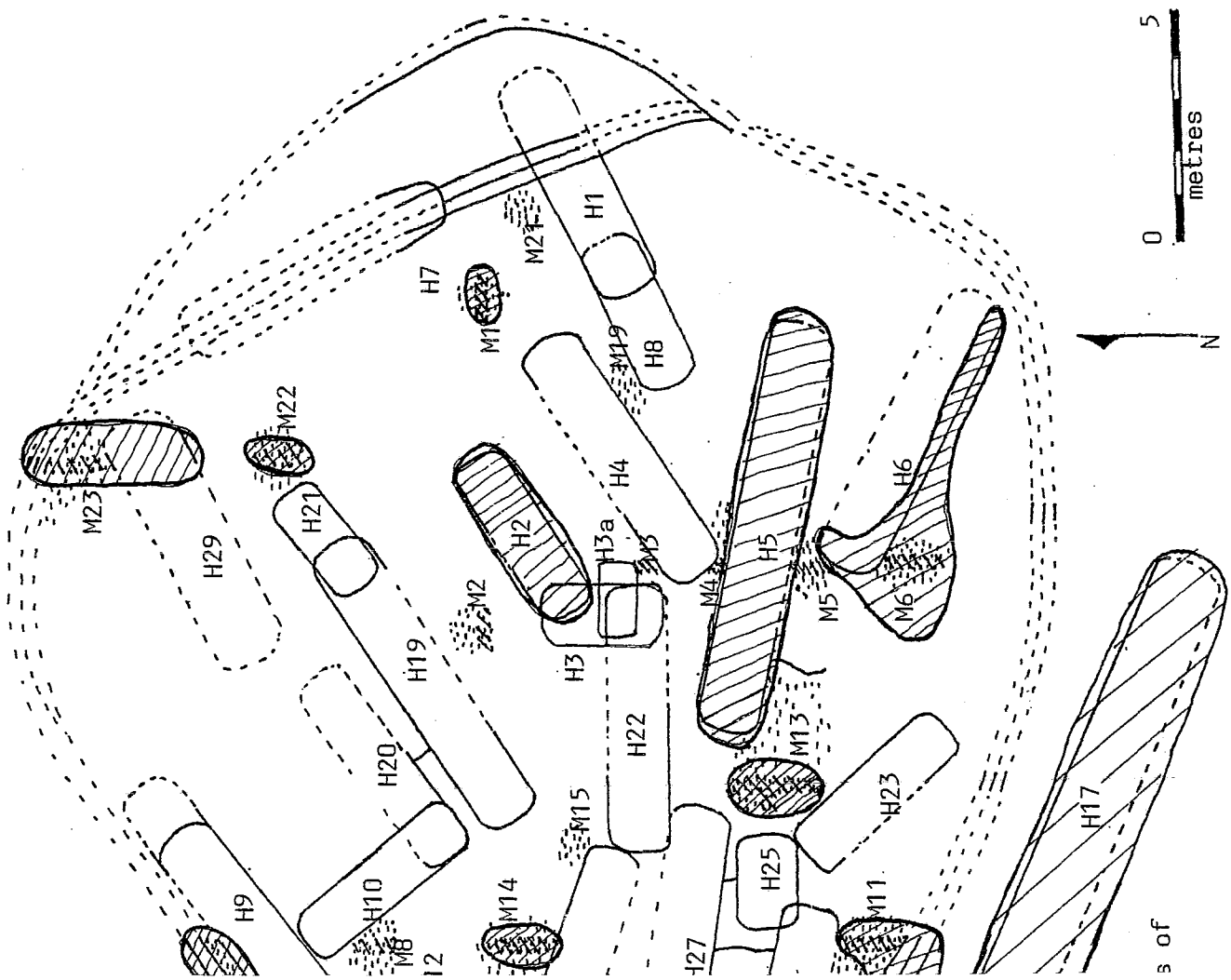
Village Composition

Intra-site analysis of selected artifacts and traits was undertaken with two objectives in mind. First, on the basis of the Kirche settlement data a process of village formation involving the fission and fusion of population segments has been postulated. The possibility that this process would be reflected in a variable distribution of formal or stylistic traits suggested the use of artifact data as a means for further investigating the problem. Secondly, it was hoped that if distinct social groups could be isolated within the village, their relationships to the two Iroquoian groups in the upper Trent valley might be elucidated. This would help to shed some light on the nature of the effects of the immigrant group on the indigenous population. Did the two groups eventually settle together in the same villages? Is there any evidence that would clarify the nature of the relationships between the two groups; was the incursion accompanied by hostilities or was there a peaceful amalgamation?

The distribution of all classes of artifacts and a number of

selected traits within these classes were analyzed. The most useful class of artifacts in the analysis was pottery, since vessel fragments are abundant and were recovered from all parts of the village. Other classes were less informative for two reasons: first, and perhaps most important, the sample sizes for other classes are a great deal smaller than for pottery vessels; second, artifacts such as bone beads are less variable in terms of their stylistic or formal attributes. Other than pottery vessels, ceramic pipes were chosen for analysis for two reasons: they display a range of variability in formal and stylistic attributes; and, even though the ceramic pipe sample is not large, it was desirable not to restrict the analysis to a class of artifacts produced by only one segment of the population, the female segment. Although the data is not definitive, it is generally believed that females in Huron society manufactured the pottery vessels, and males the ceramic pipes.

Twelve provenience units were designed for the analysis of pottery vessel attribute distribution (Fig. 42). Units were selected both for their widespread distribution and if they were represented by an arbitrary lower limit of twenty vessel rims. In some cases, the units used in the analysis appear to pertain to specific households: M23/H29 pertains to house 29; M6/H6 to house 6; H2 and H5 to houses 2 and 5; M22 to house 21; M7/P5 to house 9. Other units pertain more generally to areas of the village and could relate to more than one house: M13 could pertain to houses 5, 23, 25, and 37; M11/P7 to houses 23 and 26; M1 to house 4 or house 7; M14 probably relates to house 24, but may also have been shared by other houses in that area; and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M22
M23

finally, P6 may relate to house 18 and perhaps to house 24. The area outside the palisade (OP) is included as a single unit, although it should be noted that the major portion of the sample comes from midden 9.

Pottery vessel attributes chosen for analysis were those used to assess inter-site relationships. This method was used in order to facilitate the comparison of segments of the Kirche village with sites in the upper Trent valley. At Kirche, there is considerable intra-site variability in the distribution of pottery vessel attributes: plain collars vary from being absent in M1 to 24.1% in H5; neck decoration varies from 13.0% in M22 to 47.1% in M6/H6; interior decoration varies from 4.9% in OP to 24% in M14; lip decoration varies from being absent in several units, to 19.0% in M1; and sub-collar decoration varies from being absent in M11/P7 to 17.4% in M22. Other pottery distribution details may be found in Appendix E. A X^2 test was not run on these distributions as the expected value for many of the units was too small.

The distribution of St. Lawrence Iroquoian vessel rim fragments also shows considerable variation (Table 23). In particular, there is a greater frequency (7.5%) of these sherds in association with the area outside of the palisaded village and with the two palisade sections located adjacent to the outside houses (M11/P7, 5.1% and P6, 8.6%). Taken as a whole, the palisaded area of the village had a low (0.8%) frequency of St. Lawrence Iroquoian vessel rim fragments compared to the area outside of the palisade (7.5%). A X^2 test run on the distribution of St. Lawrence Iroquoian and Huron vessel rim fragments indicates that the difference noted between the inside area and the outside area

with respect to the frequency of St. Lawrence vessel rim fragments is statistically significant (X^2=77.51; significant at the 0.01 level).

Table 23. Distribution of St. Lawrence Iroquoian vessel rim fragments at Kirche.

Unit	Sample size	% of St. L. rims	Unit	Sample size	% of St. L. rims
H2	38	-	M14	50	-
H5	27	-	M22	23	-
M1	38	-	M11/P7	39	5.1
M6/H6	41	2.4	M23/H29	54	-
M7/P5	52	1.5	P6	35	8.6
M13	184	-	OP	169	7.5

Table 24 illustrates the distribution of shoulder forms throughout the Kirche site. The occurrence of rounded shoulders varies from 47.8% in the area outside of the palisaded village, to 87.5% in H5; incipient carinated shoulders vary in frequency from 5.9% in H5 to 40.9% in M7/P5; the occurrence of carinated shoulders varies from none in H2 to 17.5% in the area outside of the palisade; the rare pointed and flat-wall varieties (Fig. 24) were recovered from outside of the palisaded village.

Table 24. Distribution of shoulder forms at Kirche.

Unit	N	Rounded	Incipient carinated	Carinated	Other
H2	18	66.7	33.3	-	-
H5	17	87.5	5.9	11.8	-
M1	16	75.0	18.8	6.3	-
M6/H6	19	73.7	15.8	10.5	-
M7/P5	22	54.5	40.9	4.5	-
M13	99	66.7	23.2	10.1	-
M14	13	76.9	23.1	-	-
M11/P7	19	63.2	21.2	10.5	-
M23/H29	15	73.3	13.3	6.7	-
OP	113	47.8	29.2	17.7	5.3

A number of interpretations could be offered to account for the variation in the frequency of pottery attributes between units. Wright (1974:308) suggested that the variation noted at the Middleport period Nodwell site reflected the presence of "conservative" and "progressive" potters. He based his interpretations of progressive and conservative on the currently known temporal trends for the Middleport time period. General temporal trends for late prehistoric Huron ceramic attributes include: an increase in the frequency of simple collar decoration; a decrease in the frequency of opposed collar decoration; a decrease in

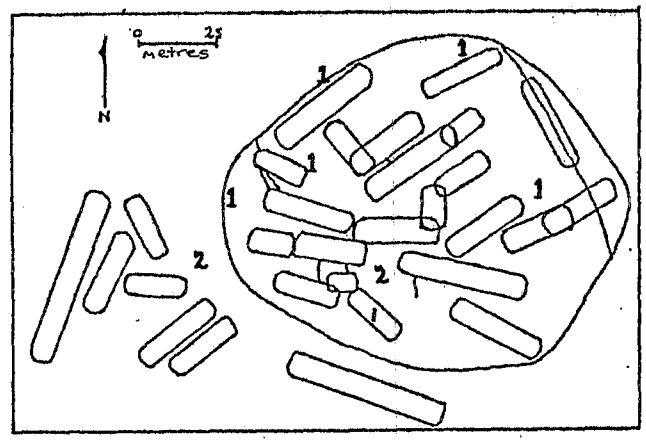
horizontal collar decoration; a decrease in neck decoration, interior decoration and sub-collar decoration; and an increase in lip decoration and basal collar notching (Ramsden 1977b:183-184). At Kirche, there appears to be no consistency in the complex of attribute frequencies characteristic of village segments that would suggest the existence of "progressive" or "conservative" potters (Appendix E).

The settlement data from Kirche provides an indication of complexity in the process of village formation, involving movement of people in and out of the village through time; such a pattern could well account for the existence of variability in ceramic traditions.

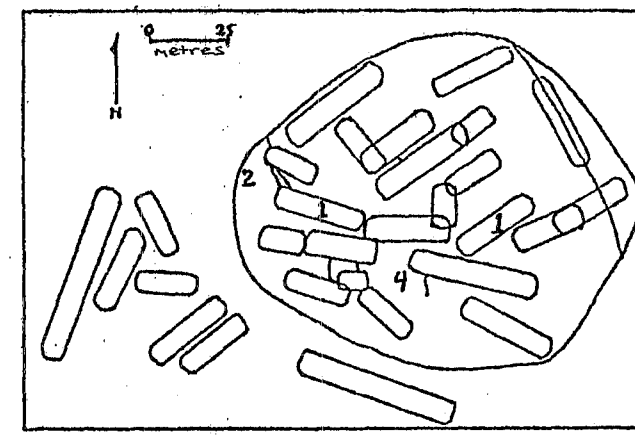
It is more difficult to examine pipes within the context of intra-site variability since several types are represented by only one or two examples. Of note, however, is the great variety of pipe types present in the assemblage, including both effigy and non-effigy types (Fig. 30).

Figure 43 illustrates the distribution of the types of pipes represented by more than a few examples. Collared ring types were recovered from areas widely distributed throughout the site. Collared ring and punctate, plain trumpet, decorated trumpet and ring trumpet types were recovered from several areas within the palisaded village, but were absent from the area outside of the palisade. No pipe type appears to be specifically related to the households living outside the Kirche palisade, but the lack of some types, in particular the plain trumpet which is a popular type inside, is suggestive of a degree of cultural difference.

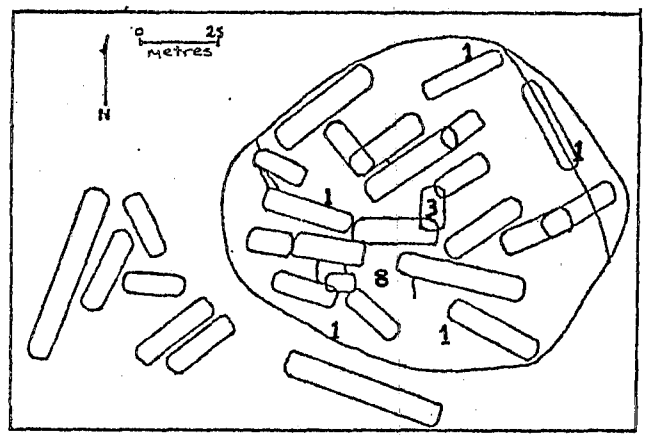
The amount of variation with respect to the details of form



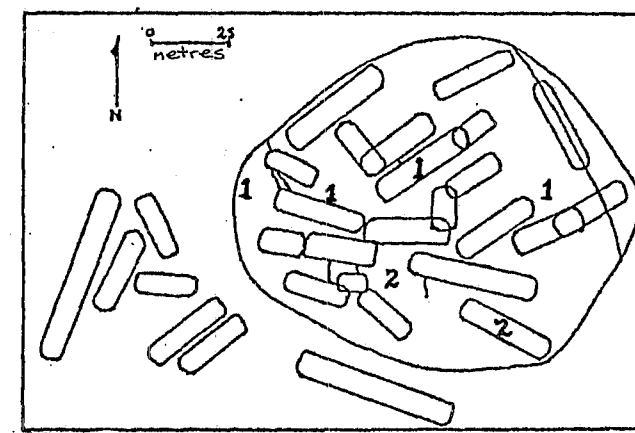
collared ring



collared ring and punctate



plain trumpet



decorated trumpet and ringed trumpet

Fig. 43. Distribution of pipe types at Kirche.

(Fig. 30) may, in addition to cultural differences, reflect individual craftmanship.

Conclusions

Within the Kirche village there is substantial variation in the frequency of certain pottery attributes between segments of the village. The comparative analysis of the total Kirche pottery assemblage with other sites in the Trent valley, south-central and eastern Ontario, indicated that the closest affinities were with: 1) the Coulter site; 2) the Benson site, which has been attributed to an immigrant population; 3) sites in the Humber and Rouge valleys: and 4) the Lite site in the lower Trent valley. On the basis of this evidence it has been suggested that the Kirche village represents a group of people who immigrated to the valley early in the 16th century. But is there any evidence to suggest that a small segment of the Kirche village may have derived from the indigenous population?

Particularly distinctive ceramic traits of the indigenous ceramic tradition include high frequencies of neck decoration, interior decoration and sub-collar decoration (Appendix E). Relatively high frequencies of these attributes occur in M14 at Kirche. In other units, high frequencies of one or more of these attributes also occur: a high frequency of neck decoration in M1 (41.7%); a high frequency of interior decoration (28.6%) and sub-collar decoration (17.1%) in P7; a high frequency of neck decoration (47.1%) and sub-collar decoration (14.3%) in M6/H6; and a high frequency of sub-collar decoration (17.4%) in M22.

Thus it is possible that at least some of the attribute variability at Kirche may be related to the presence of a few indigenous women . The attributes noted do not appear to cluster in association with any one area of the village, suggesting the possibility that the indigenous potters may have been assimilated into immigrant households distributed throughout the village. Such a pattern could be interpreted as reflecting the adoption of indigenous captive women following hostilities between the immigrants and the indigenous population.

If this is indeed what happened, one might expect an absence of artifacts that could be related to the male segment of the indigenous population. Unfortunately, this is difficult to evaluate. The ceramic pipes in the Hardrock assemblage are predominantly the plain trumpet type (Emerson 1954:186). This type of pipe was a popular variety in prehistoric Huron society and occurs at sites distributed throughout south-central Ontario (Emerson 1954:52-53), as well as at Kirche. No clustering of plain trumpet pipes was noted at Kirche, but this limited evidence cannot be used to discount the presence of indigenous males. The analysis of other artifact classes is hampered by a lack of adequate comparative data, and thus sheds no light on the problem.

Despite the problems in interpretation, it is tentatively hypothesized that a small segment of the Kirche village population were indigenous females that had been adopted into immigrant households following a period of hostility in the upper Trent valley. This hypothesis can only be tested when additional comparative data becomes available, and by additional excavation at the Kirche site.

Some relationship with St. Lawrence Iroquoian people is also suggested by the presence of pottery vessel fragments and a few other artifacts characteristic of their material culture. The variation in the frequency of St. Lawrence Iroquoian vessel fragments between segments of the village suggests the possibility that relationsips with these people may have been restricted to a particular group or groups living at Kirche. The nature of the relationships is difficult to evaluate, and may have involved trade, marriage or warfare, for example. If a trade relationship existed, the differential distribution of St. Lawrence pottery vessels is interesting in light of the fact that historic Huron trade routes, or the rights to trade with other individuals and groups, were owned by families: "Several families had private rights to trade. The first to discover a line of trade was considered the master of such" (Tooker 1967:25). Such a system may have been in operation at the Kirche village, with respect to trade with a group of St. Lawrence Iroquoians.

THE SUBSISTENCE ECONOMY OF THE KIRCHE VILLAGE

The subsistence economy of the Kirche village is difficult to reconstruct in detail, but some general interpretations can be offered. The faunal analysis (Appendix C) indicates that a number of resources were exploited: wild mammals; fish; bird; amphibians and reptiles; and domestic dogs. An agricultural component in the economy is indicated by the recovery of carbonized corn from throughout the site, and wild plant resources were no doubt exploited as well, but information on

his component is lacking since the analysis of the plant remains from Kirche is incomplete.

Appendix C presents the analysis of the Kirche faunal assemblage. The following discussion summarizes the results of the analysis and presents a number of interpretations.

Mammal Resources

Mammal remains account for 58.7% of the faunal assemblage. It seems reasonable to assume that mammal resources represented a major portion of the meat diet. Evaluating the relative importance of the various mammal species identified in the faunal assemblage, with respect to their use as subsistence items, is a difficult problem. Consideration must be given to the relative meat poundage available from particular species, and complicating factors such as the use of mammal resources for purposes other than subsistence, must be taken into account.

It appears from the total bone count that large mammals, in particular deer, were the major mammal species exploited. While this may be an accurate observation in general, the proportion of medium and small mammals in the diet may not be accurately reflected because of a number of factors. The presence of dogs at the Kirche village is indicated both by the remains of dogs in the faunal assemblage and by the presence of tooth marks on bones. Carnivore tooth marks occur most frequently on large mammal bones (Table 25). This might reflect the operation of selective factors in the kinds of bones given to dogs but it may also indicate that smaller bones were totally consumed. Of the bones thrown in the fires larger ones would tend to survivie longer.

Table 25. Percentage occurrence of modifications on faunal remains.

Species	Modification						
	Burning		*Cut marks			Tooth marks	
	Charred	Calcined	Sk.	Butch.	M.R.	Carnivore	Rodent
Deer	4.0	0.2	0.4	1.3	1.1	14.9	1.3
Black Bear	-	-	-	-	6.7	4.4	-
Dog	0.4	2.2	1.3	5.7	0.9	1.7	0.9
Muskrat	-	-	-	-	-	-	5.0
Woodchuck	-	4.4	2.2	-	-	-	-
Beaver	1.3	-	-	-	-	1.3	-
Moose	-	-	-	7.7	-	23.1	-
River Otter	-	12.5	-	-	-	-	-
Red Fox	-	-	-	25.0	-	50.0	-
Fox	-	-	-	-	-	25.0	-
Mink or Weasel	-	-	-	-	-	100.0	-

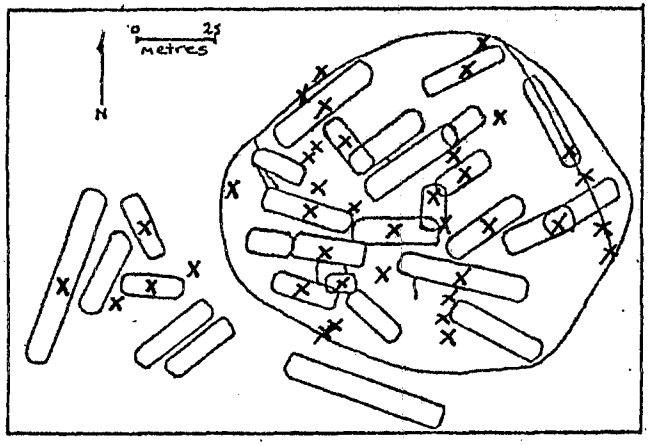
*Sk.=skinning
Butch.=butchering
M.R.=meat removal

In addition, while middens were screened using 1/4" mesh screen, and pits were excavated with trowels, other areas in the village were excavated with shovels, and bones were picked up when seen. The latter method would undoubtedly select for the recovery of larger bones.

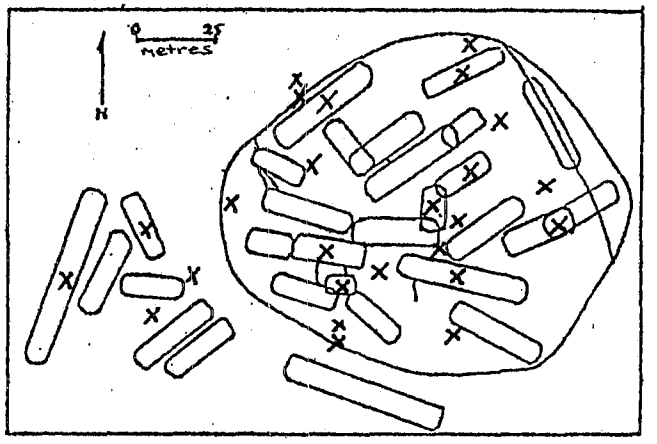
As indicated in Fig. 44 most of the species which are represented by more than ten bones in the faunal assemblage are distributed widely throughout the site. While it cannot be determined that these patterns reflect subsistence procurement on a household level rather than the redistribution of resources obtained through a cooperative system at the village level, the patterning does give some indication of the use of species throughout the village.

The distribution of muskrat indicates a more limited use of this species than for the others. Of 20 bones recovered, 16 came from midden 13, 3 from house 5 and 1 from midden 11. Also of interest is the distribution of black bear remains. None of these remains were recovered from outside of the palisaded village. This may reflect the operation of taboos or differences in food preference. All of the 8 river otter bones were recovered from midden 13, and could be from one animal, suggesting that river otter was not an item in the diet of most villagers.

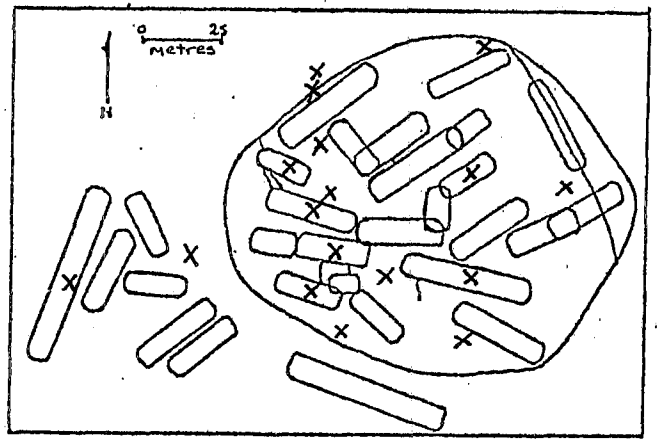
The distribution of element frequencies, noted for species represented by more than ten elements (Table 26) suggests that in most cases the whole animal was brought back to the village, rather than being butchered at the kill site. The one obvious exception to this observation is the beaver. Most of the bones recovered from this animal (90.9%) were teeth, and 92.4% of these were incisors. This raises the question of whether beaver was a food item, or whether it was being taken



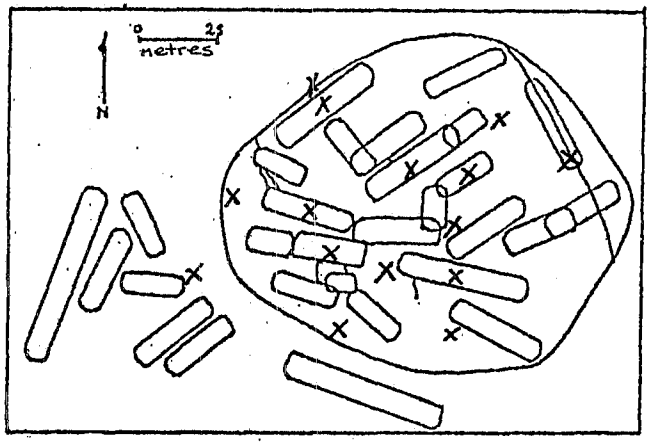
deer



dog

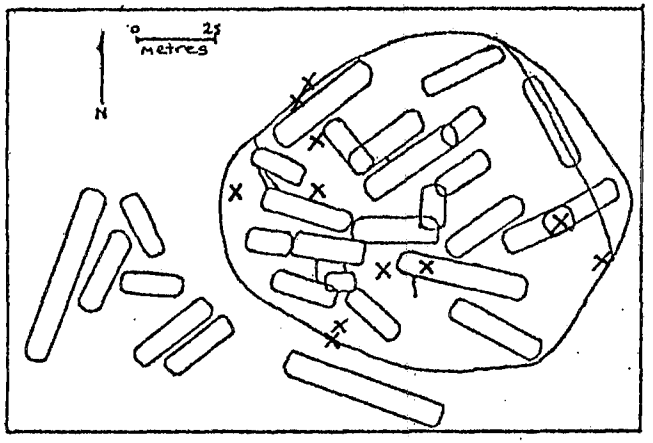


beaver

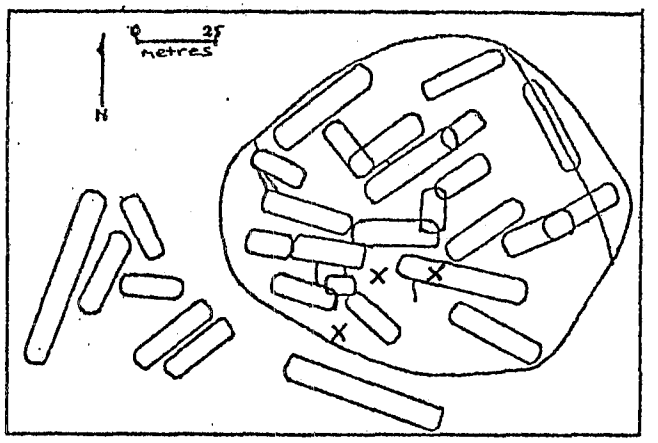


woodchuck

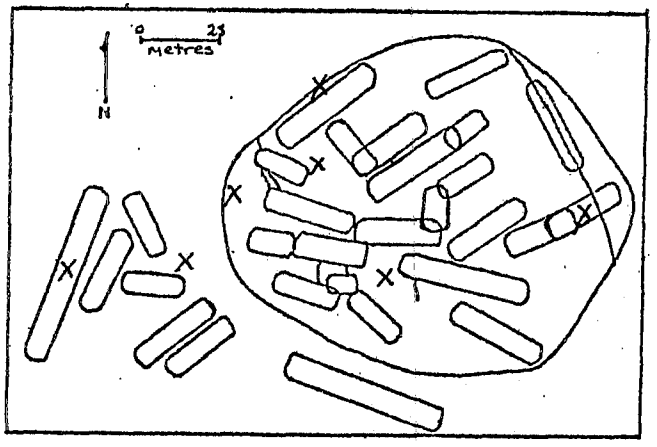
Fig. 44. Distribution of mammal species at the Kirche village.



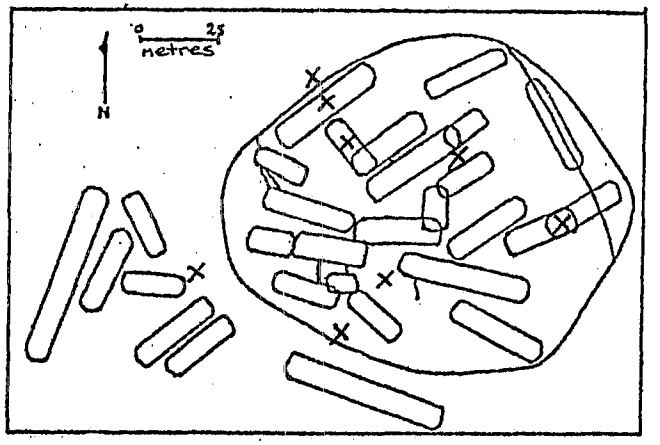
black bear



muskrat



moose



snowshoe hare (and rabitt)

Fig. 44. continued.

Table 26. Distribution of elements of faunal remains.

Species	Anatomical location of element						
	Dentition (%)	Skull (%)	Trunk (%)	Pelvic girdle (%)	Pectoral girdle (%)	Limb (%)	Extremity (%)
Deer	20.8	10.7	4.6	2.6	1.3	8.2	51.9
Dog	29.8	9.6	11.5	1.0	-	26.0	22.1
Beaver	90.9	9.6	11.5	1.0	-	3.9	1.3
Woodchuck	15.6	17.8	26.7	4.4	-	22.2	13.3
Black Bear	24.4	4.4	37.8	6.7	-	13.3	13.3
Muskrat	-	35.0	20.0	15.0	15.0	15.0	-
Moose	7.7	-	38.5	7.7	-	7.7	38.5
Snowshoe Hare or rabbit	-	14.3	21.4	-	7.1	50.0	7.1

for some other purpose. Ramsden (1978) has suggested that this same pattern at Benson may reflect the trapping and skinning of beaver away from the village; the incisors being removed at the time because they were useful as chisels. It is difficult to imagine that the meat would be left behind, even if it was skins that were of primary importance. An alternative possibility is that beaver bones were not disposed of in the village, but for some reason were treated differently than most food refuse.

Fish Resources

Fish bones were abundant and widely distributed throughout the site. The number of bones recovered does not adequately reflect the importance of this resource in the Kirche economy since the recovery techniques used (1/4" mesh screen for middens and shovels in disturbed areas) would not maximize the recoverey of small bones, as amply demonstrated at the Coulter site where smaller screen sizes were used (Damkjar personal communication 1980). The proximity of the Kirche village to Balsam Lake, a good source of most of the species recovered, may in part explain the heavy reliance on this resource.

Bird Resources

The type of avifaunal remains recovered suggests that birds were not a major food source. Some of the smaller species such as the robin, the yellow-bellied sapsucker and the blue jay, may have been more useful for their feathers as decorative items or their bones which could be

used in the production of beads and other items. Waterfowl are rare in the assemblage and it appears that land birds, such as grouse, passenger pigeon and turkey, contributed the most to the diet.

Amphibian and Reptile Resources

Amphibians and reptiles were not major food sources. They may have served to add variety to the diet seasonally, and turtle shells were modified, perhaps to be used as rattles.

Mollusc and Land Snail Resources

The remains of land snails were infrequent and may only have been used in making beads. Molluscs, however, were abundant and widespread throughout the village. They may, therefore, have been an important food item.

Subsistence Technology

There is very little artifactual or other data indicative of the technology employed in various subsistence pursuits. Heidenreich (1971) has studied historic Huron agricultural technology and he suggests that the main activities would require only field clearing implements, such as celts, and wooden hoes and digging sticks for preparing corn hills and maintaining fields. There are numerous celts in the Kirche artifact assemblage; other tools associated with agriculture would not be preserved.

One aspect of the subsistence economy of the Kirche villagers that may have been quite different than that of historic Huron is fishing. Heidenreich (1971:209) described the principal fish resources for the historic Huron as including whitefish, trout, sturgeon and pike. The emphasis of the Kirche exploitation seems rather to have focused on locally available species such as sucker, brown bullhead and perch. Nets appear to have been extensively used by historic Huron and some fishing was carried on with a line and a hook (Heidenreich 1971:211). No evidecne for net sinkers or hooks was recovered from Kirche; such implements, however, may have been kept at fishing localities and not brought back to the village.

Dogs were used in hunting activities by the historic Huron and they may well have been used by the Kirche people as well. The most important game animal of the historic Huron was deer, and it appears that this animal was an important resource to the Kirche villagers as well. Deer were hunted historically with the use of snares, traps, by individuals with bows and most commonly in large, organized communal drives (Heidenreich 1971:205). Very little in the way of projectile points was recovered from Kirche; only one chipped stone and one conical bone point were found. One can thus only speculate about the hunting strategies used; perhaps wood was used to fashion sharp points to dispatch animals during communal drives. The presence of a range in the ages of deer remains (Appendix C) has sometimes been used to infer the use of drives, but other factors may have contributed to such an age distribution.

Evidence for the strategies or implements used in the pursuit

of other game animal and bird species is also lacking.

CHAPTER 5

CONCLUSIONS

The Kirche site is a prehistoric Huron village located south of Balsam Lake in the upper Trent valley. On the basis of a single radiocarbon date (400 $\pm$ 75), and estimates for other sites contemporary with Kirche, in particular Parsons and Draper, it is concluded that the village was occupied some time between A.D. 1495 and 1550. There is no reliable method for determining the length of time that the village was occupied. Ethnohistoric sources suggest that villages moved after varying lengths of time, from 10 to 30 years, and for a variety of reasons (Tooker 1967:42).

An analysis of the relationships between the Kirche site and other sites in the upper Trent valley, and between Kirche and other sites throughout south-central Ontario, led to the conclusion that most of the inhabitants of the Kirche village were related to an immigrant population, which is defined on the basis of the Benson site, rather than to the indigenous upper Trent valley culture as initially hypothesized. It is suggested that the Kirche village was at least partly contemporaneous with the larger Coulter village, and that the Benson village was occupied after Kirche had been abandonded. Continuity between Kirche and Benson is evident most clearly in the similarities in their pottery assemblages. On the other hand, differences noted between the pipe assemblages at the two sites can probably be related to changes resulting in part from the establishment of ties

to groups living between Lake Simcoe and Georgian Bay during the time the Benson village was occupied. Changes probably also resulted from in situ development within the upper Trent valley. Further, similarities between Kirche and Benson do not appear to result from a lineal relationship between the occupations, involving the relocation of the Kirche population to the Benson village, but from the interaction through time of the people inhabiting the upper Trent valley.

On the basis, primarily, of an analysis of the Kirche pottery assemblage, it is inferred that some of the Kirche women may have been related to the indigenous upper Trent valley population. It is suggested that a period of hostility occurred when immigrant peoples moved into the valley during the late prehistoric period. In the process, it is hypothesized, the indigenous people were, at least in part, assimilated into the immigrant communities and the indigenous cultures as a distinct entity eventually disappeared.

Identifying the origin or origins of the immigrant people who occupied the Kirche village is a difficult problem. Similarities to sites in the Humber valley, the Rouge valley and the lower Trent valley may be indicative of the location of ancestral groups. The similarities between Kirche, Draper and Parsons are attributed to contemporary relationships. The nature of these relationships may have been friendly, involving economic, social and political ties, but there is also evidence for widespread hostilities at the time these sites were occupied. Possible ancestral groups to Kirche are represented by the Black Creek and Lite sites.

The Kirche village was formed not simply by a relocation of

people from a single village previously occupied, but by a process involving the movement of people in and out of the village through time. This movement was accompanied by a growth in the size of the village, accomplished by extending the palisade to accomodate new longhouses, by building additions on existing longhouses, and by locating groups outside of the palisaded village. The people occupying the Kirche village appear to have had somewhat diverse histories and consequently their cultural traditions vary to some extent. It is possible that groups migrated to the sites from regions as distant as the Humber valley and the lower Trent valley.

The preserved material culture of the Kirche villagers consists of a wide range of utilitarian and ornamental items. as well as items that may have served in ceremonial contexts. Within each class of artifact there is a great deal of variability in stylistic and formal attributes, reflecting both individual craftmanship and the heterogenous backgrounds of the Kirche villagers.

The subsistence economy was based on a combination of seasonally exploited resources including agricultural, wild plant and animal, fish, domestic dog and bird products. Other aspects of the economy included the manufacture of a variety of ground stone, bone, and ceramic products. Chipped stone tools and weapons are rare and may have been traded for rather than manufactured at the site. Woodworking can be inferred from the numerous ground stone celts, chisels, and other ground stone tools, as well as from the presence of beaver and woodchuck incisor chisels. Evidence for the technology associated with subsistence procurement is not abundant. Perishable materials such

as wood and other plant fibres may have been used extensively for this purpose.

Information on socio-political organization is not abundant. Relationships to other villages within the upper Trent valley no doubt involved social and perhaps political ties, reflected in the close similarities between the contemporary Kirche and Coulter villages. Social and political relationships may also have embraced groups residing in settlements such as Parsons and Draper, located along the north shore of Lake Ontario.

There is no direct evidence from the excavations at Kirche that the village inhabitants were participating in a trade in European goods, or that they had a direct knowledge of Europeans. On the basis of documentary sources, and considering evidence for the existence of trade networks among Iroquoian groups in the St. Lawrence valley and further inland, Ramsden (1978) hypothesized that European material could have been reaching inland sites by A.D. 1500. His hypothesis was also partly based on archaeological evidence for the presence of European brass or copper artifacts on sites such as Draper, dated to approximately A.D. 1500. However, current analyses suggest that many artifacts previously believed to be European, may be native copper (Finlayson 1979).

The appearance of copper artifacts around A.D. 1500 on many Iroquoian sites including Kirche, is coincident with the presence of Europeans in the Gulf of St. Lawrence. Prior to A.D. 1500, copper artifacts are rare on Iroquoian sites and it has been suggested that their proliferation around A.D. 1500 is a result of native attempts to

copy European items (Finlayson 1980; Noble 1980:personal communication). At Kirche, the presence of two rolled copper beads and evidence for relationships with St. Lawrence Iroquoians suggests the possibility that the Kirche villagers had at least indirect knowledge of Europeans.

In addition, there is a coincidence of European activity in the Gulf of St. Lawrence with changes in Huron culture, including: an increase in village size and internal complexity; an increase in warfare; the movement of people over long distances to join expanding villages; and the establishment or intensification of an east-west trade network (Ramsden 1978:104). The occurrence of this constellation of features, around A.D. 1500, appears to be reflected in the occupation of the Kirche village, and while it is therefore possible that the Kirche villagers were affected indirectly by European activities, the lack of European material has determined the designation of the site as late prehistoric rather than protohistoric.

It has become clear in trying to address the problems outlined in this thesis, that if we are to fully realize the potential of archaeological data for investigating complex processes in late prehistoric Huron society, a great deal of systematic and detailed work remains to be done. While conclusions have been reached in this thesis regarding the nature of the occupation at the Kirche village, they are nonetheless tentative for several reasons. Comparative data necessary for evaluating the occupation are, in many instances, insufficient. There is a need for many more comprehsensive analyses of single components, that can be evaluated within a regional context, and then compared with other components within south-central Ontario. Detailed comparative studies of

material culture, settlement pattern and other aspects of culture are needed in order to assess the cultural significance of variation within each of these aspects, both on an inter-site, as well as on an intra-site, basis.

But what is the potential of archaeological data for studying complex processes in Iroquoian prehistory? Many conclusions reached here are tentative for another reason that has to do with the nature of the sites being analyzed and compared. The results of this study contribute to a growing awareness that the complexity of the settlement pattern recognized at the Draper site (Finlayson 1978) was not a localized phenomenon, but was widespread throughout south-central Ontario during the 16th century. This complexity is mirrored in the archaeological record, and has important implications for our ability to successfully address certain questions currently being asked. It has been suggested (Ramsden 1977; Trigger 1979; Noble 1980) that it will be possible to trace the movement of small groups of people through time, in order to reconstruct their cultural history, by analyzing and comparing single occupations in detail. Questions being posed concerning the formation of Huron tribes and confederacies are based on the assumption that we will be able to unravel the complex movements and alliances between regional groupings as these occurred prior to the historic period. Is this indeed possible?

The first problem to be considered is dating. Carbon 14 analyses will simply not allow us to arrive at precise enough dates to sequentially order sites, widespread throughout south-central Ontario, that were occupied within a one hundred year period. Seriation as a method for

relatively dating sites is useful but must be done in the context of regional developments and must take into account the complex movements that occurred within south-central Ontario in the 16th century.

A second problem concerns isolating discrete groups within villages. Solving this problem involves large-scale excavation and the ability to recognize and control numerous variables related to the nature of the archaeological record and to the complexity of cultural behavior that occurs within a village occupied anywhere from ten to thirty years or more. Controlling for all these variables may simply not be possible.

Identifying origins of small groups is dependent on their recognition as discrete groups within single occupations and on the demonstration of their cultural and temporal relationships to other small groups, perhaps widespread throughout south-central Ontario; these problems may well be insurmountable.

In light of the information that Kirche and its Huron contemporaries provide it is clear that future research pertaining to late prehistoric and protohistoric Huron society should be designed to take into account the complexities of village formation, composition, and the movement of population segments between villages. It appears that despite the problems in interpretation that arise, the best approach to elucidating these complex processes is to focus on the study of regional clusters of settlements. Within this context, intensive investigation of individual settlements is extremely important and should be directed towards: recovering information on the overall morphology of the settlement features; detecting intra-site variability in cultural

traditions; and, interpreting occupations within their local cultural and historical environments. Detailed reports on single occupations are needed before more general questions concerning the functioning of late prehistoric and protohistoric Iroquoian society can be successfully addressed.

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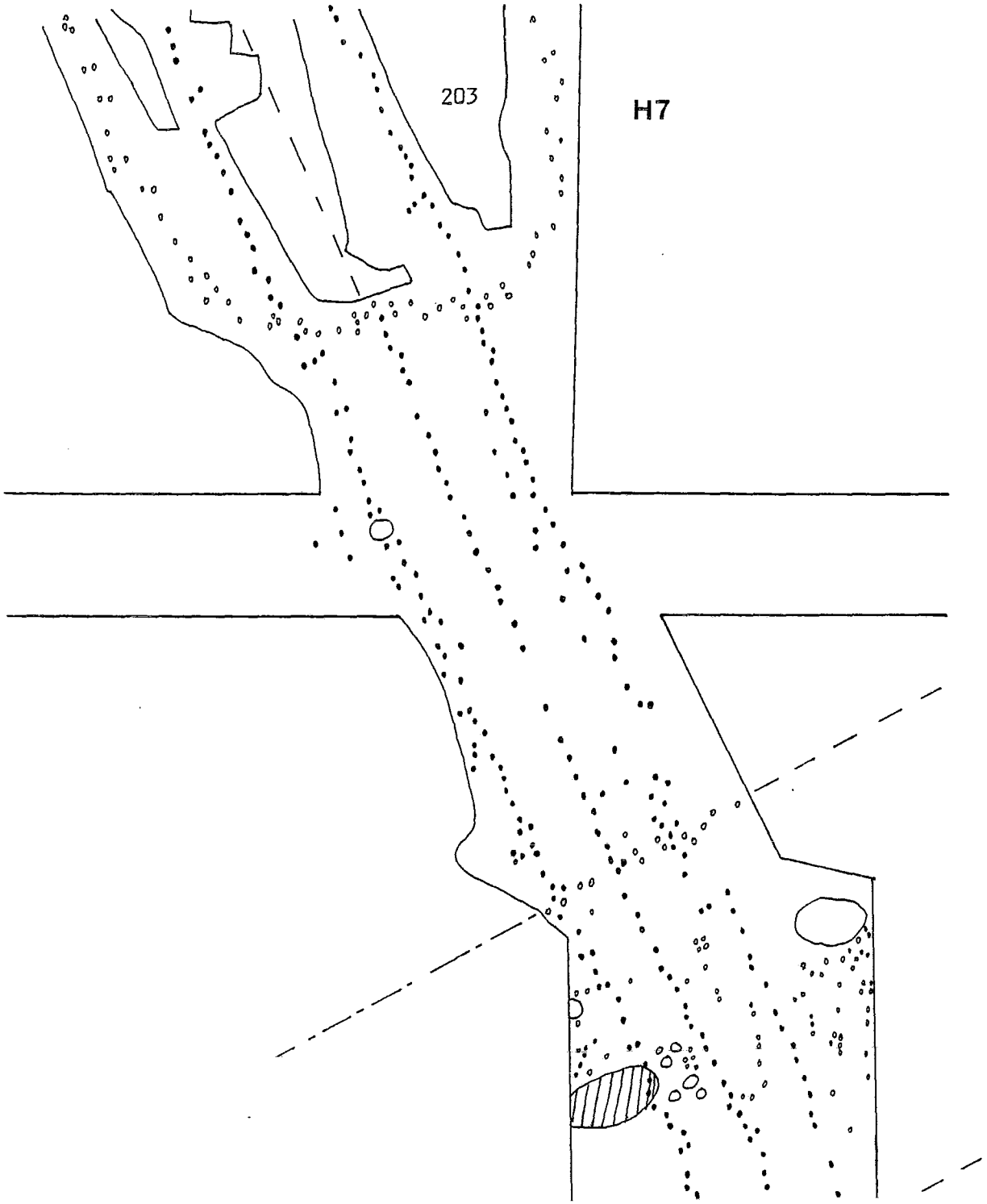
APPENDIX A

PALISADE SECTION ILLUSTRATIONS

Figures 1 to 4 illustrate the results of the excavation of 8 palisade sections at Kirche. The small scale of the illustrations has precluded an accurate scale drawing of the post moulds; locations are accurate but sizes are not. Table 1 presents a key to the symbols used in the illustrations.

Table 1. Key to symbols.

Feature	Symbol
Post mould	●
Hearth	
Pit	
Edge of excavation	———
Extrapolated house or palisade wall	— — — —
House or palisade wall	—·—·—·
For Fig. 1:	
Palisade post mould	●
House wall post mould	o


203
H7

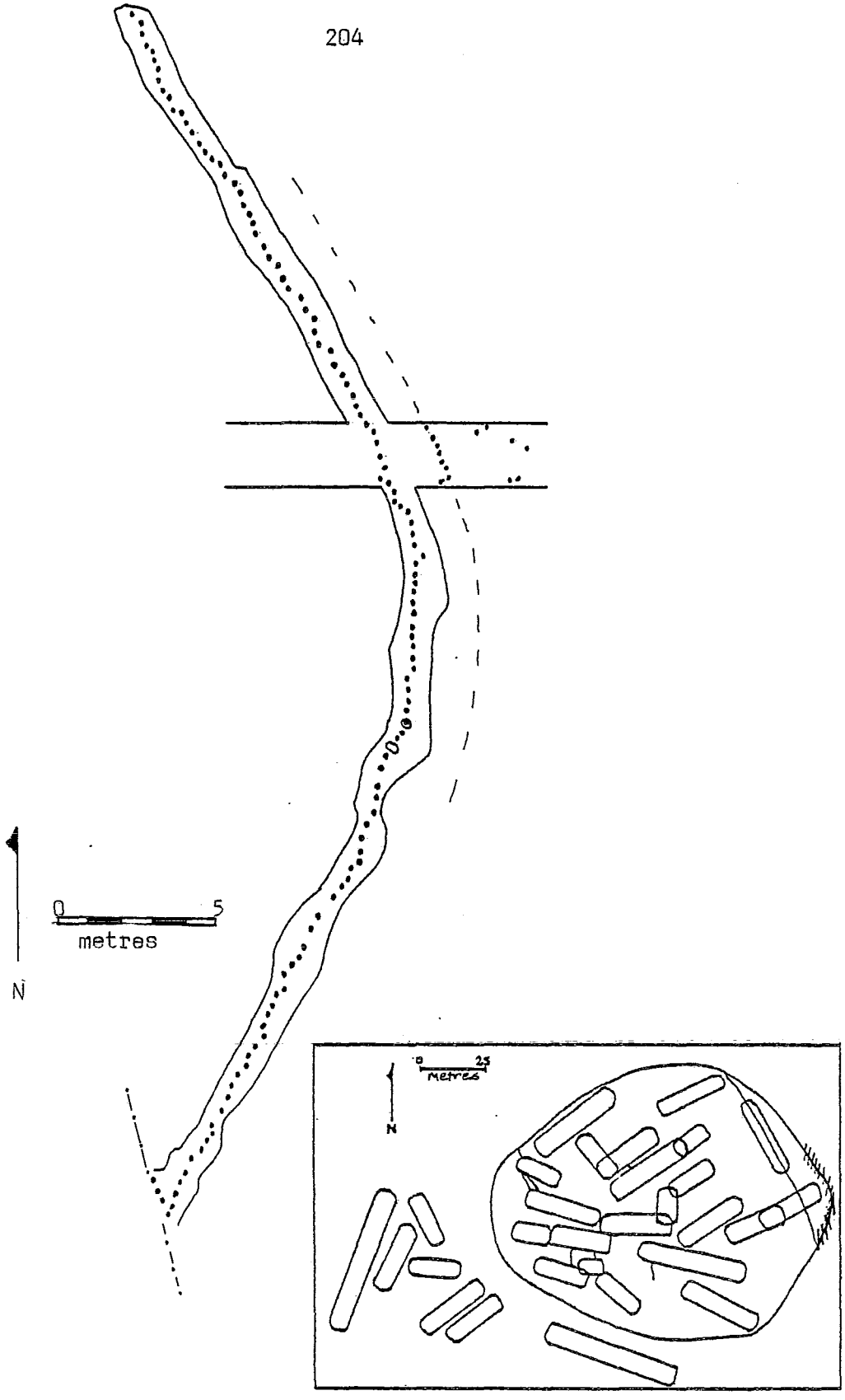


Fig. 2. Palisade extension on the east side of the village.

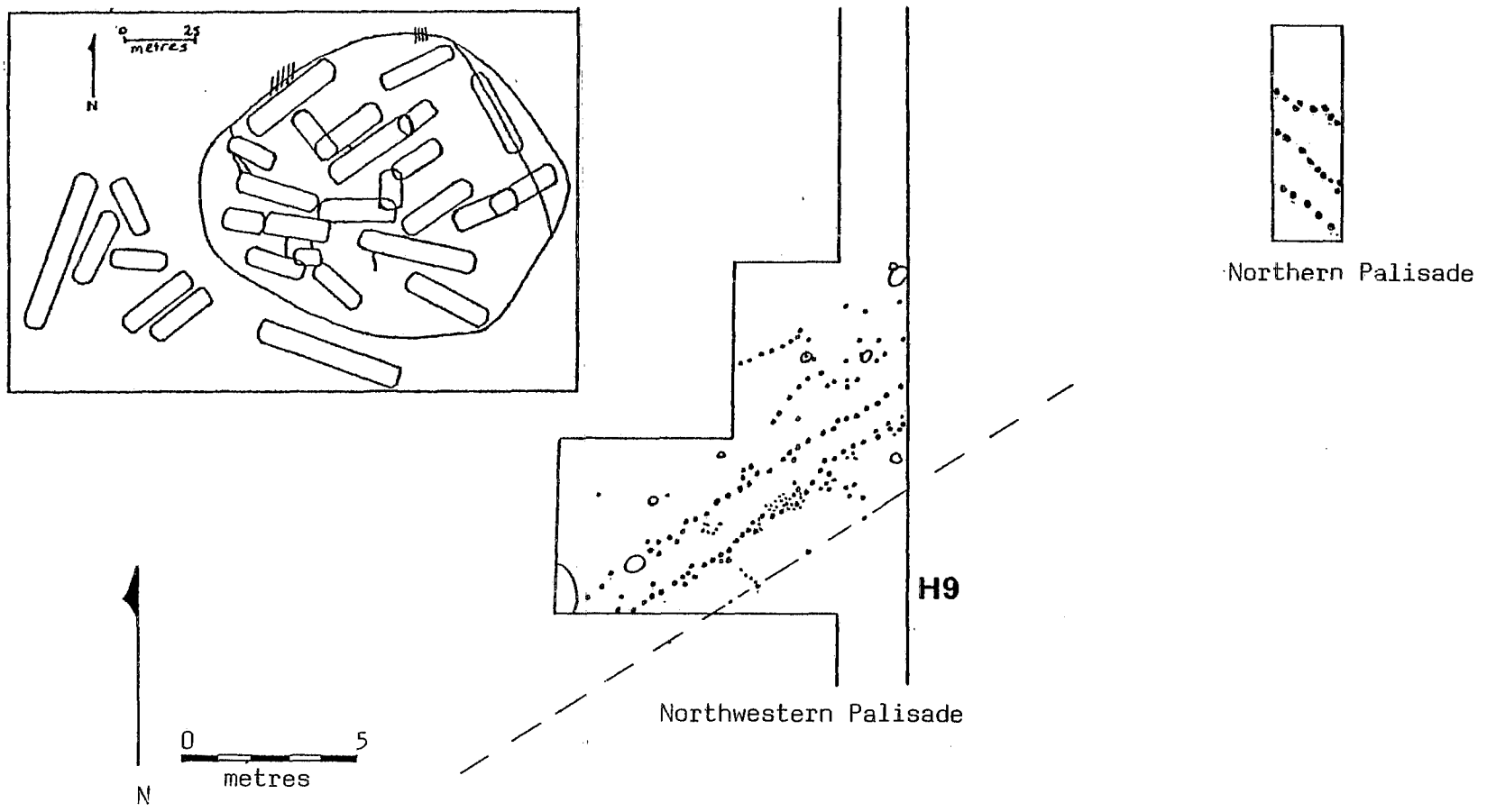


Fig. 3. Northwestern and northern sections of palisade.

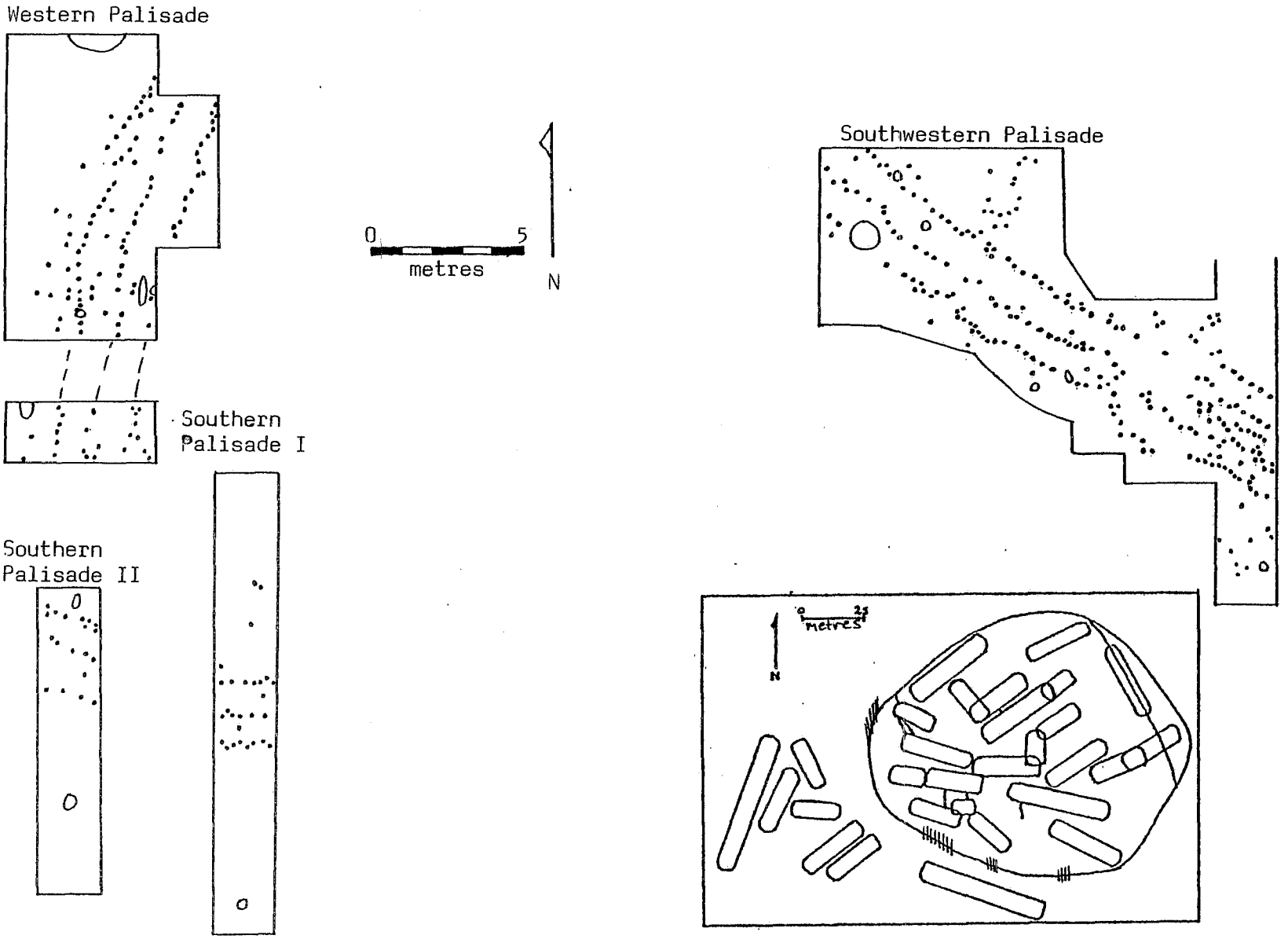


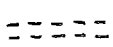
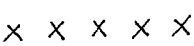
Fig. 4. Western, southwestern, southern I and II, sections of palisade.

APPENDIX B

KIRCHE LONGHOUSES

The following figures illustrate the results of the longhouse excavation at the Kirche village. Table 1 provides the key to the symbols used in the house illustrations. Due to the small scale of the illustrations, post moulds are not drawn to scale; support posts are drawn at a larger size and fence posts and small posts around interior features are drawn at a smaller size.

Table 1. Key to symbols.

Feature	Symbol
Interior support post	
Post	
Pit	
Ash pit	
Hearth	
Cluster of small post moulds	
Edge of excavation	
Extrapolated house or palisade wall	
House or palisade wall	
Modern fence	

(continued)

Table 1. (Continued).

Feature	Symbol
Disturbance	
Midden	
Unexcavated area	

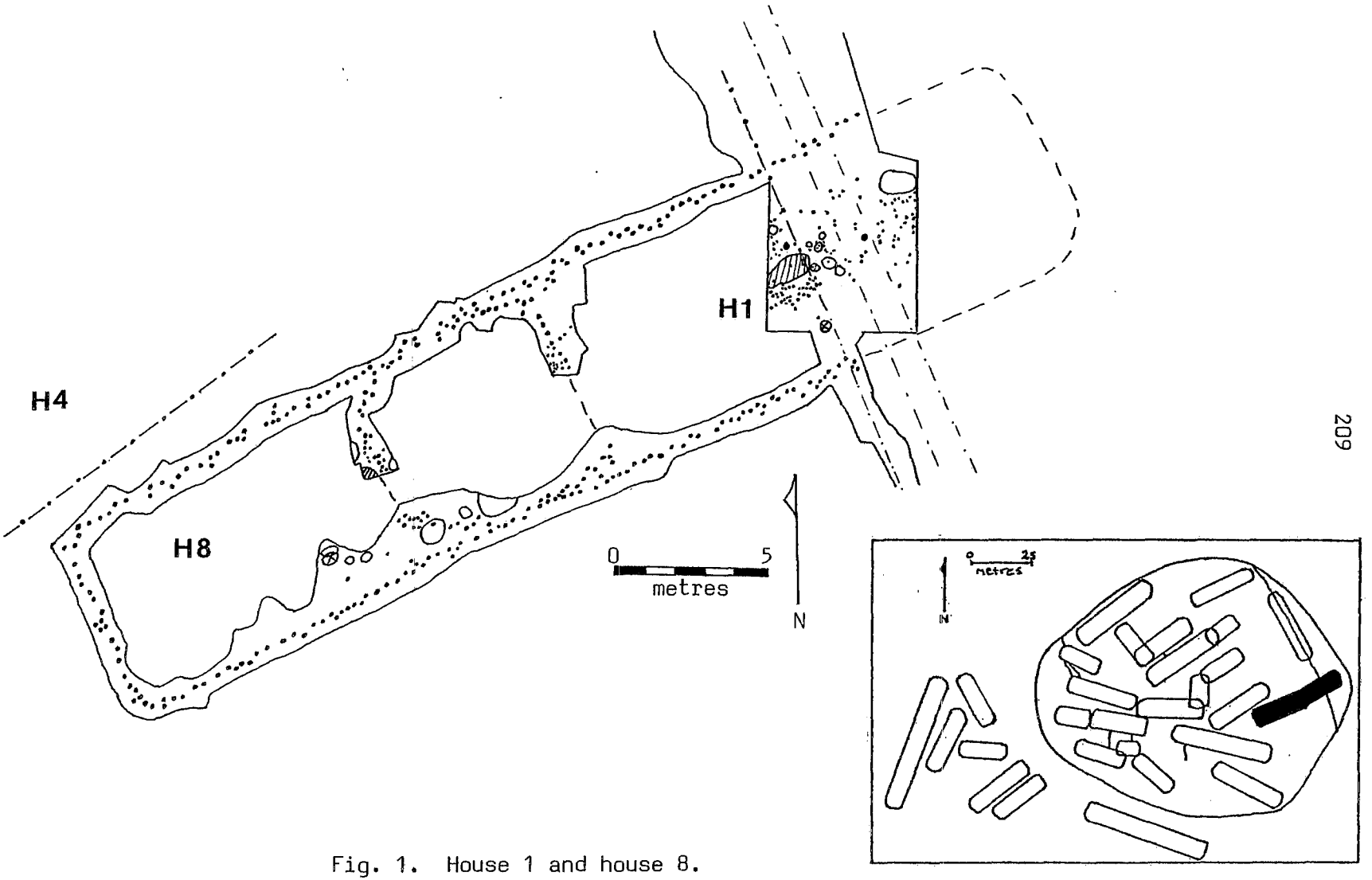


Fig. 1. House 1 and house 8.

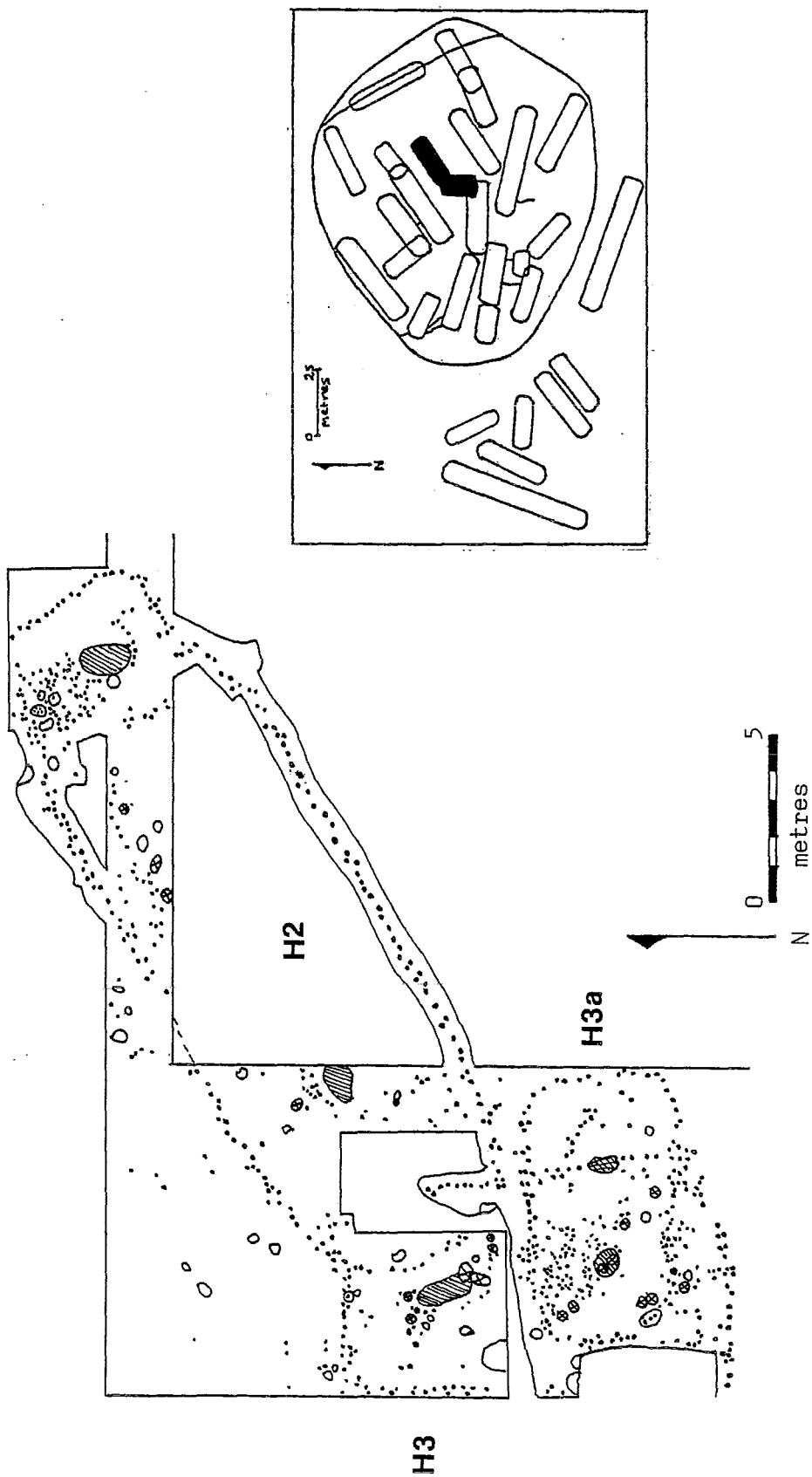


Fig. 2. Houses 2, 3, and 3a.

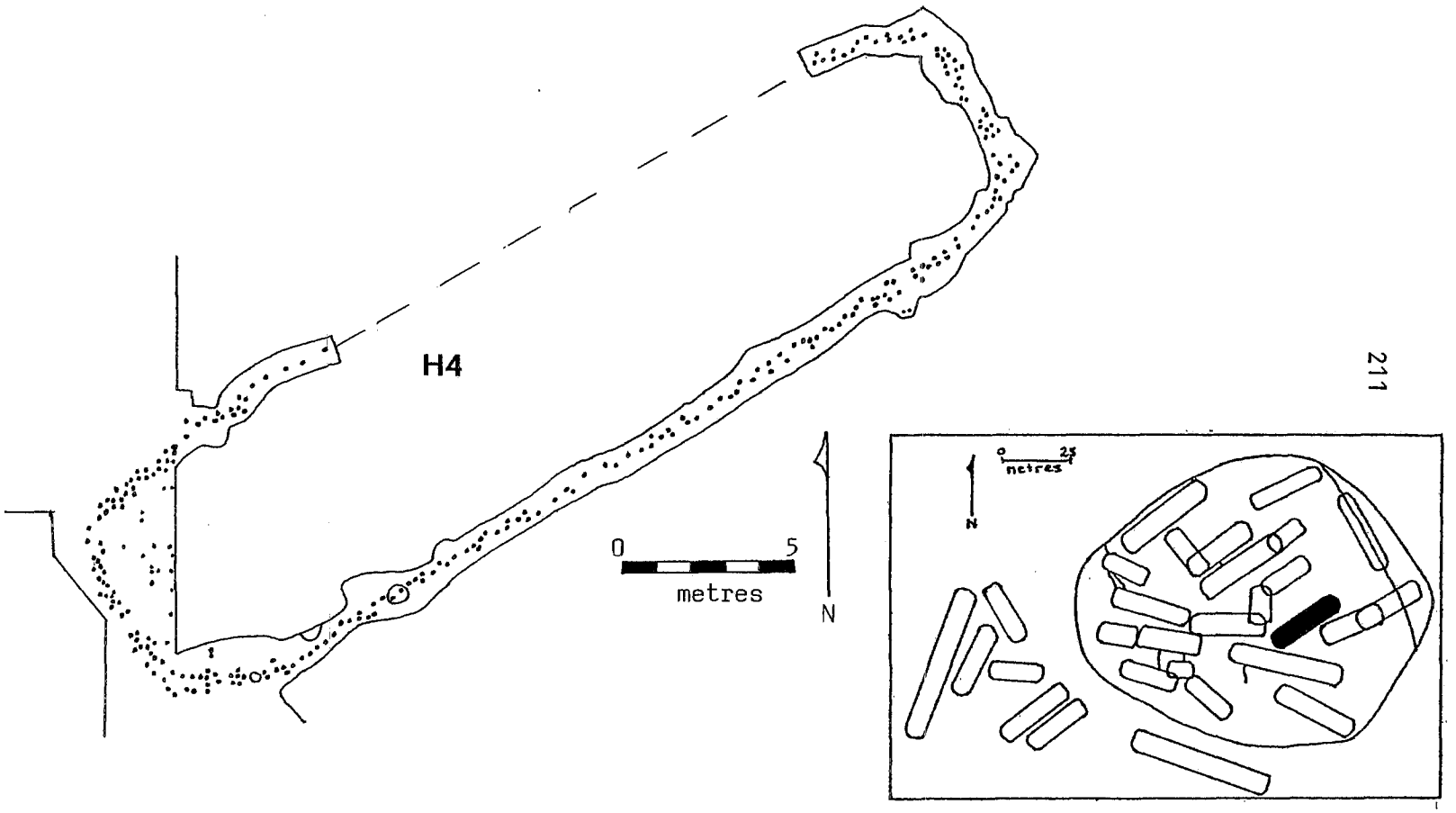


Fig. 3. House 4.

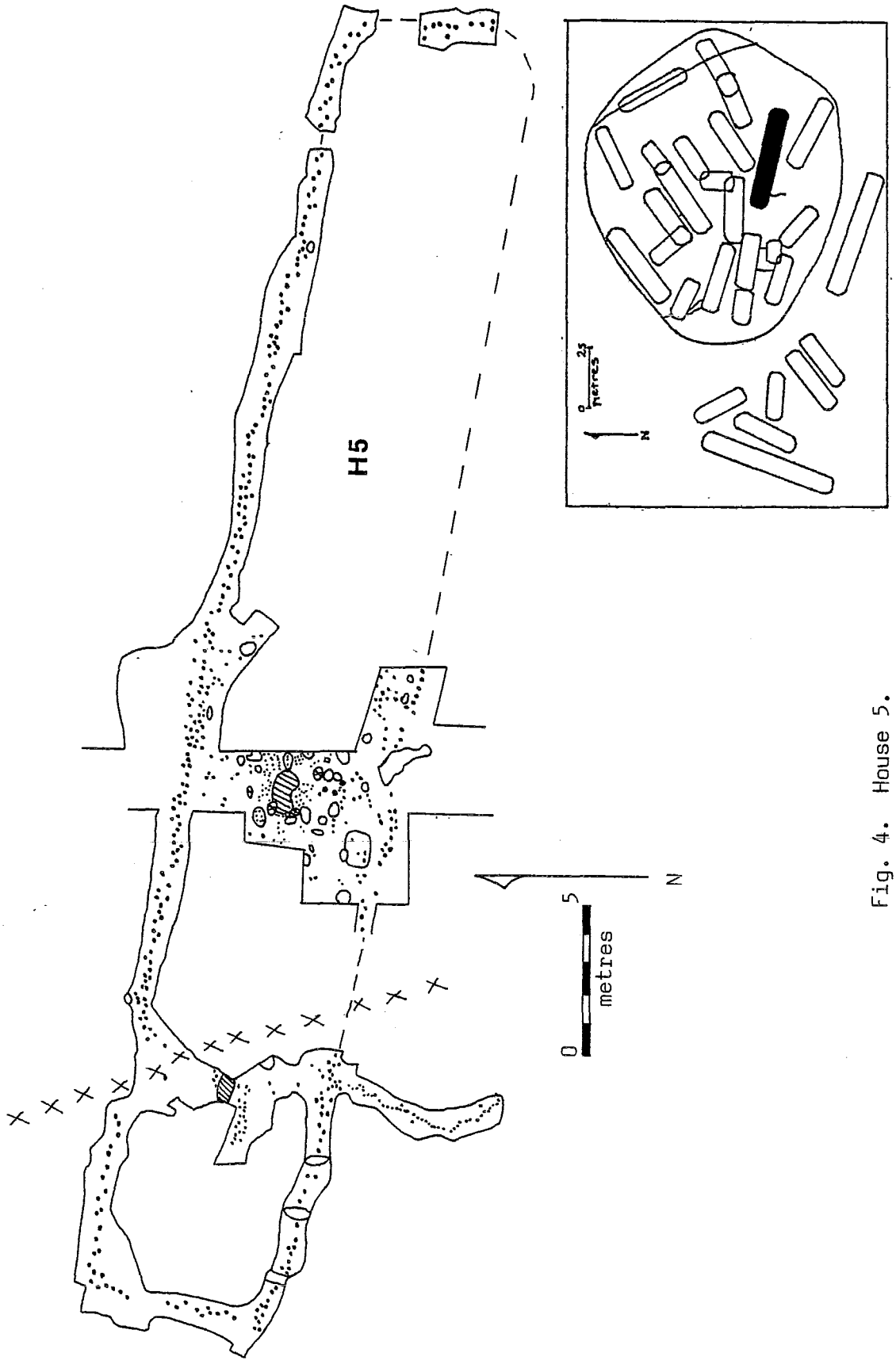


Fig. 4. House 5.

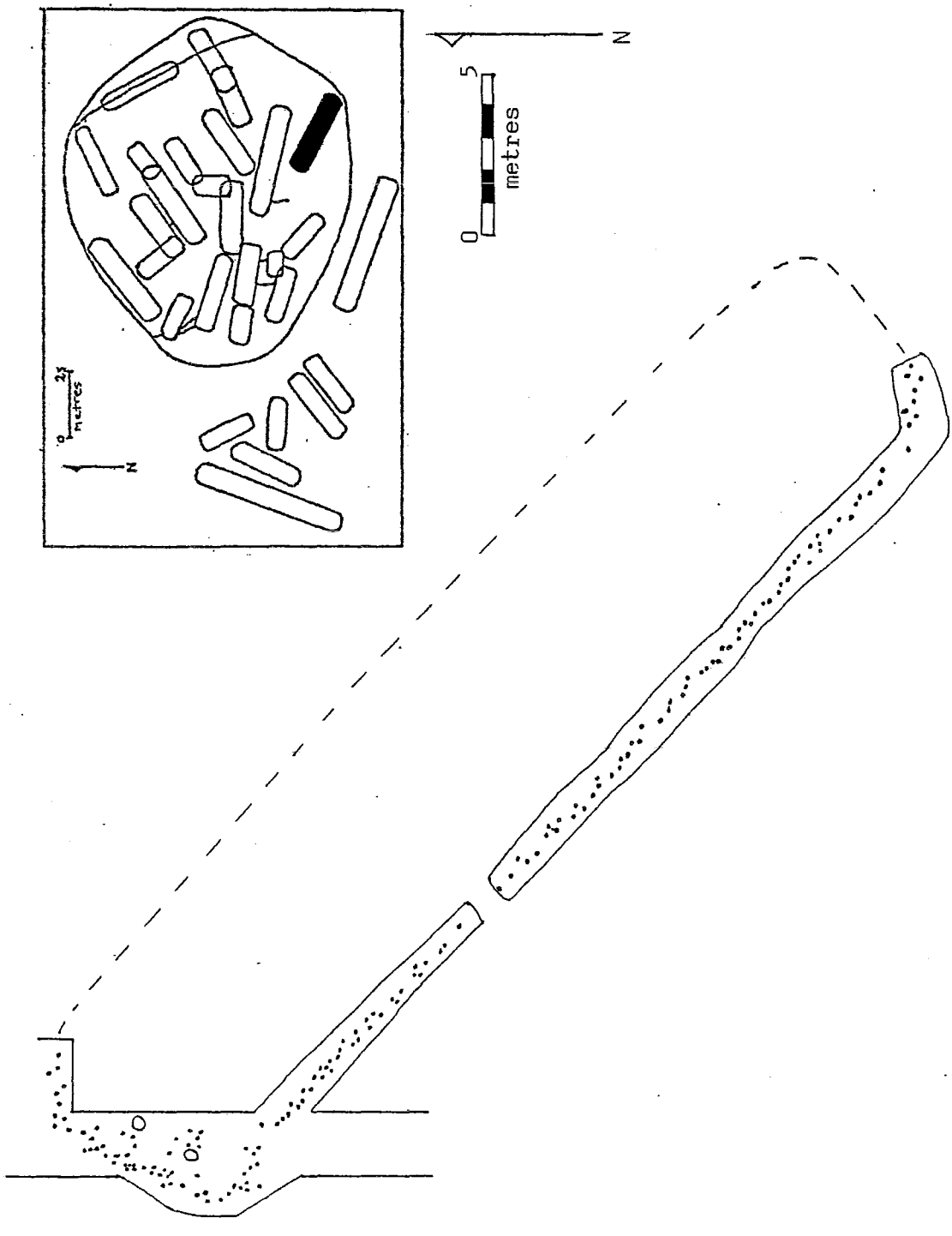
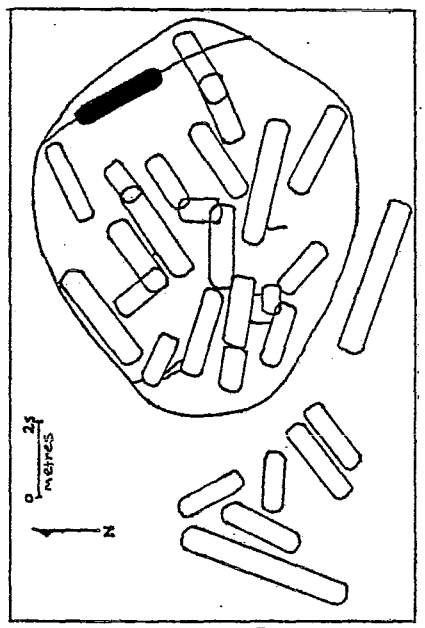


Fig. 5. House 6.



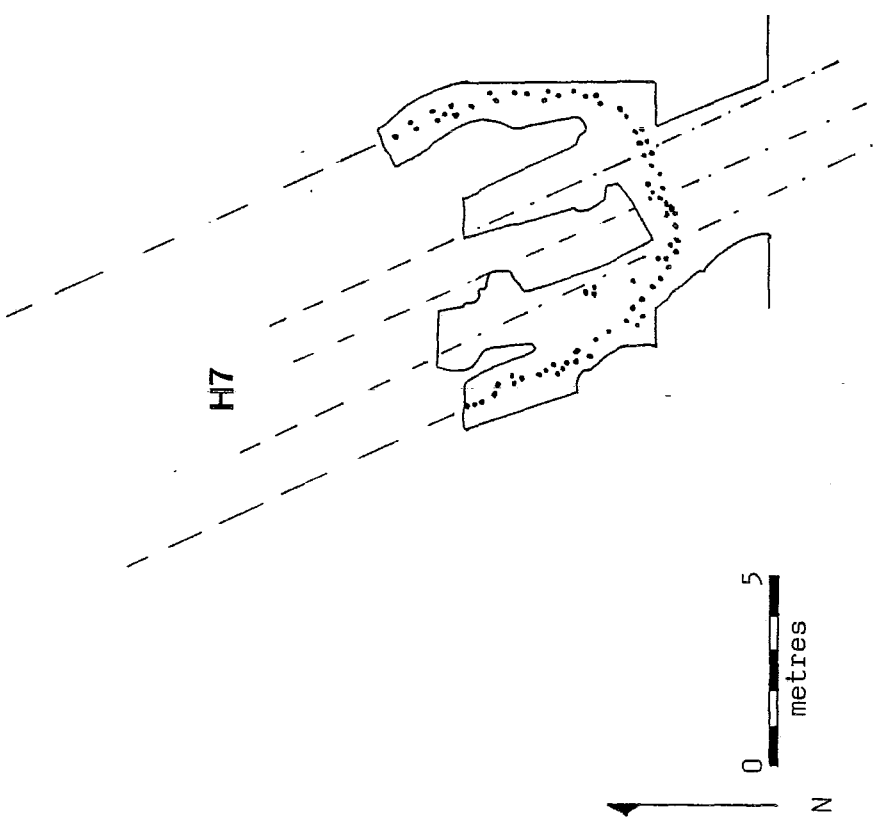


Fig. 6. House 7.

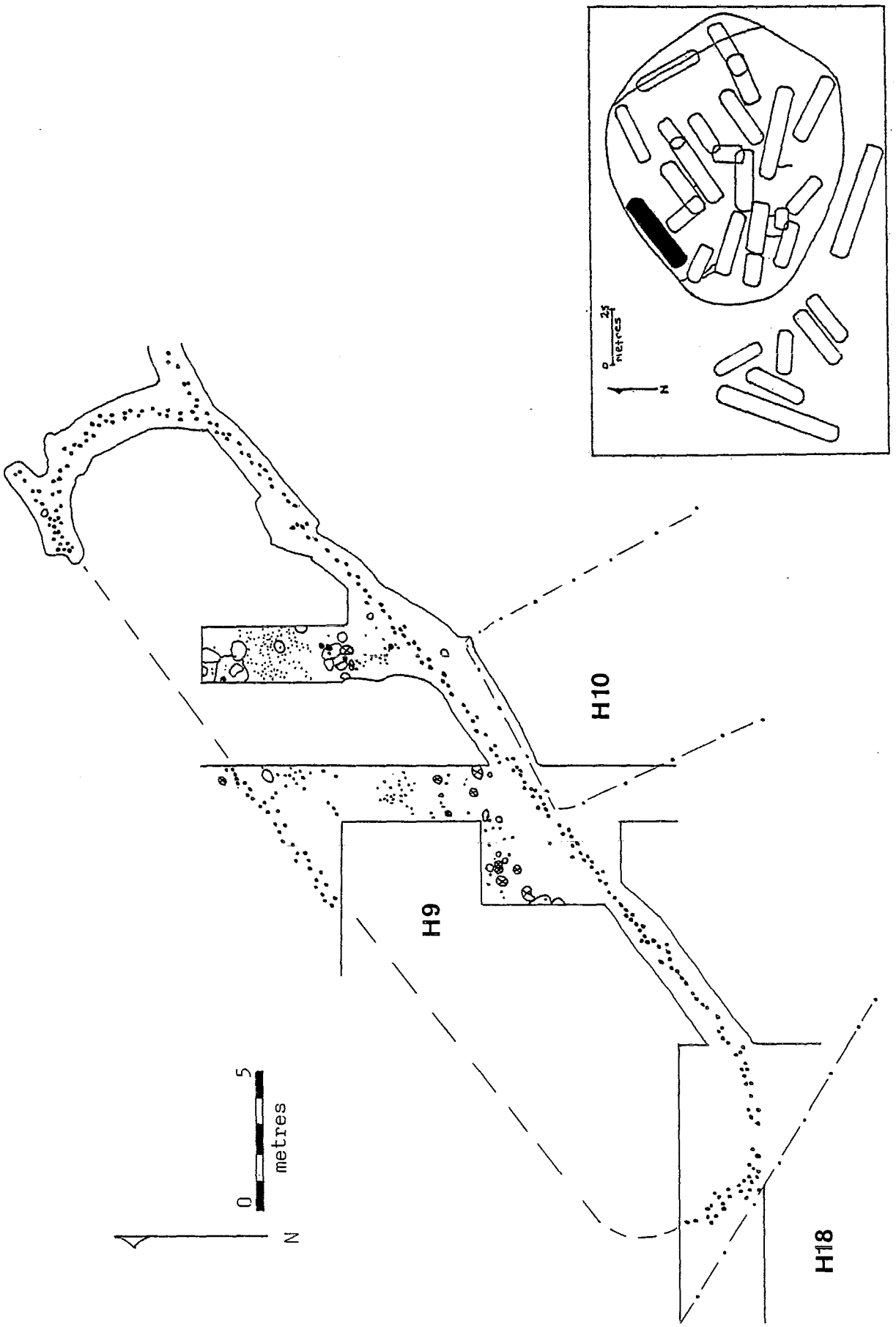
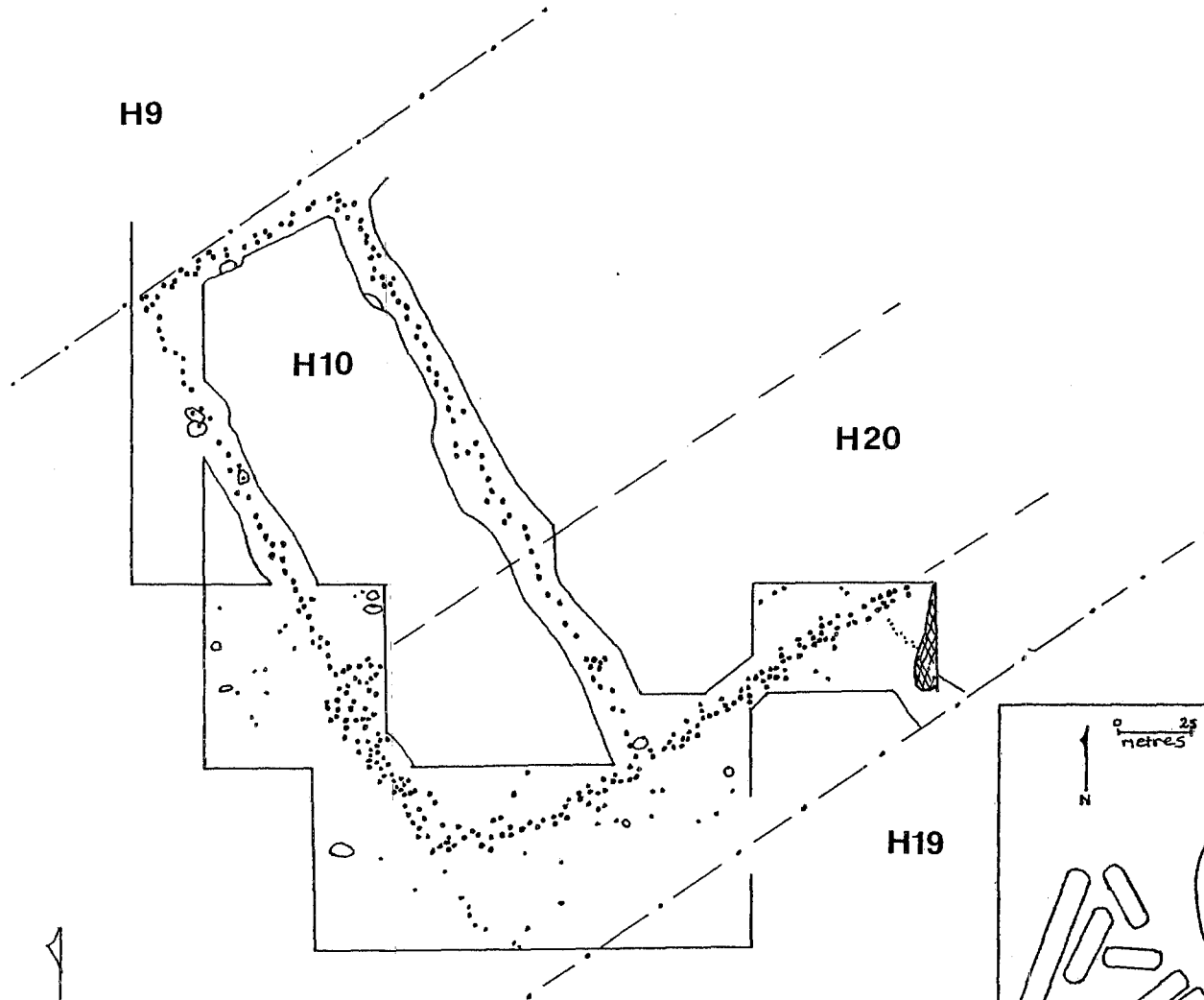


Fig. 7. House 9.



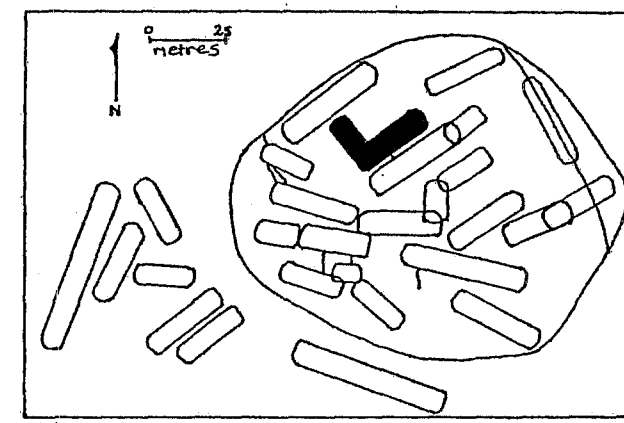
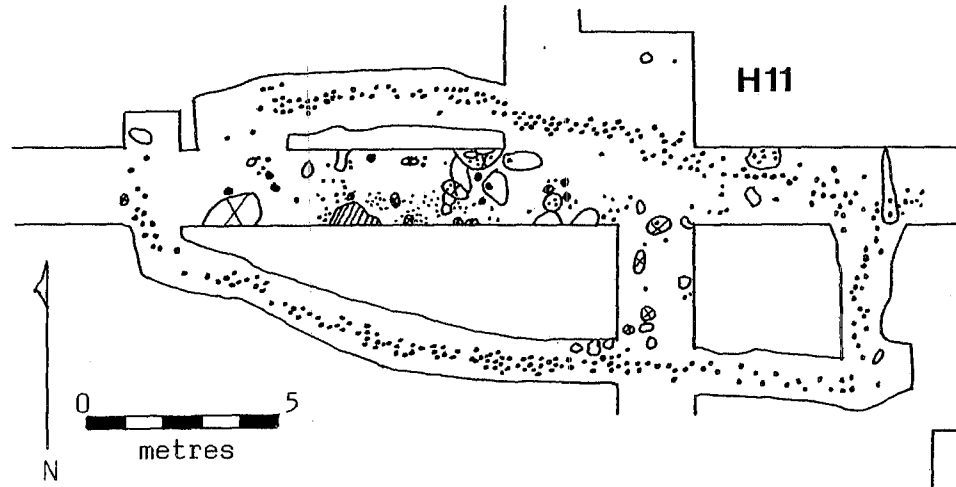


Fig. 8. Houses 10 and 20.



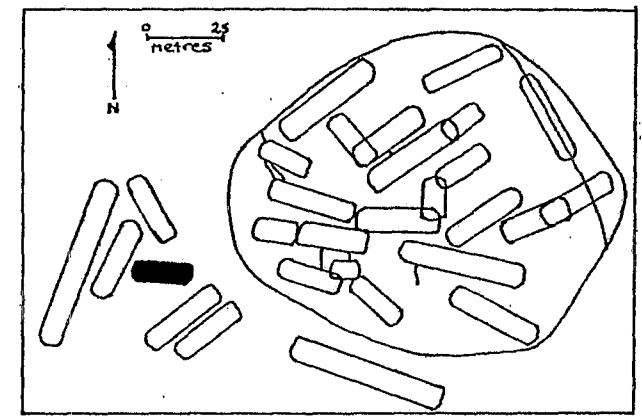


Fig. 9. House 11.

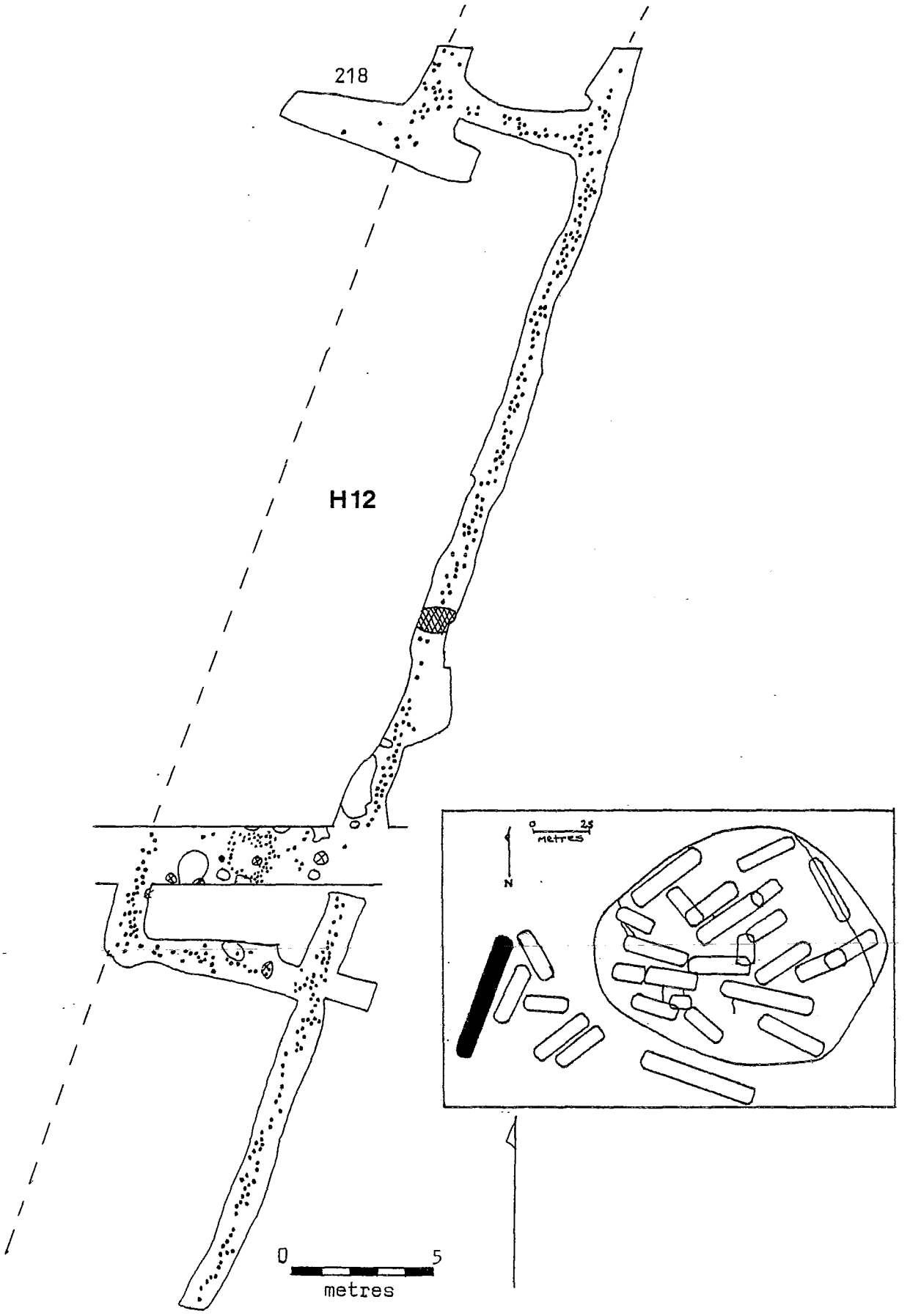


Fig. 10. House 12.

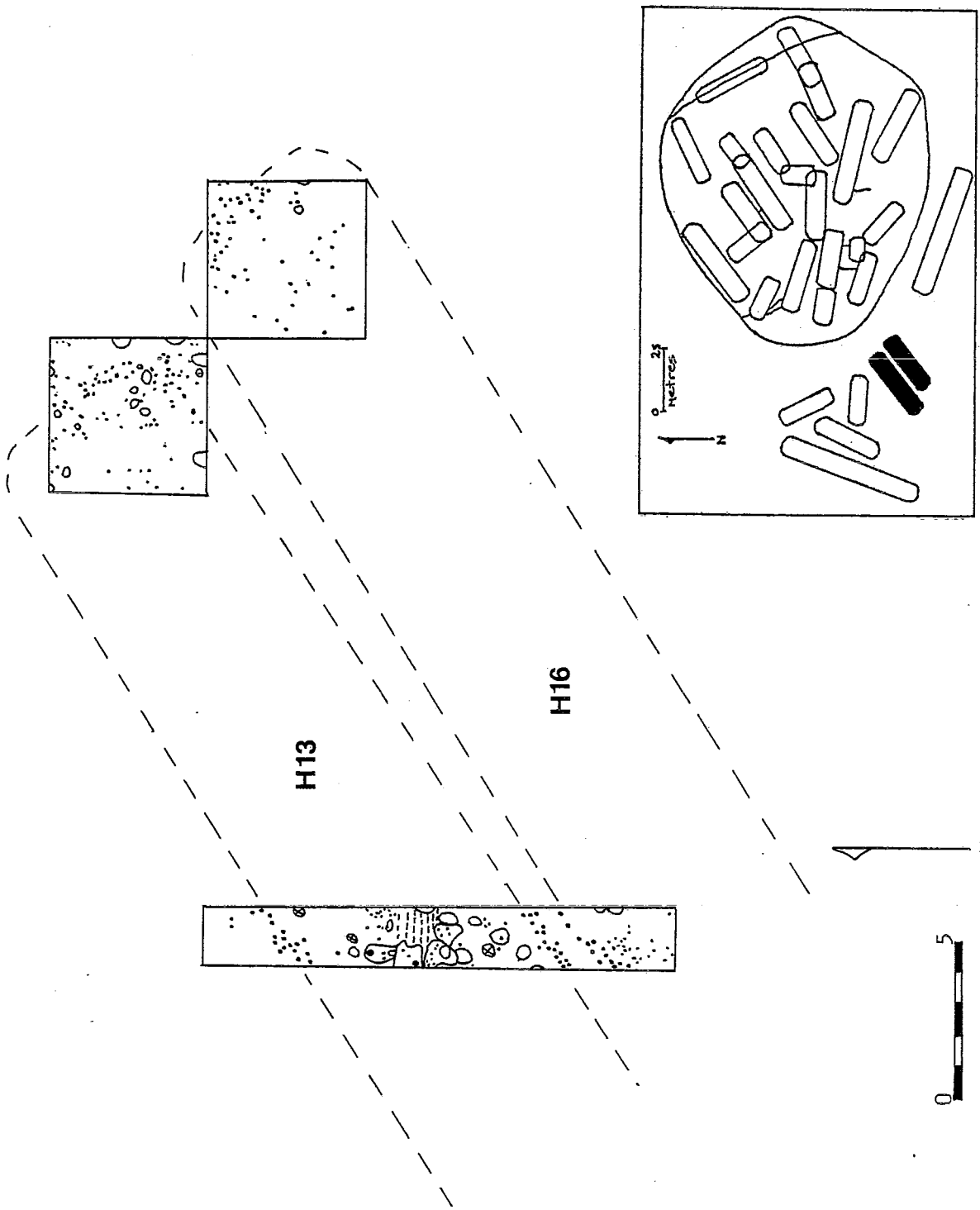


Fig. 11. Houses 13 and 16.

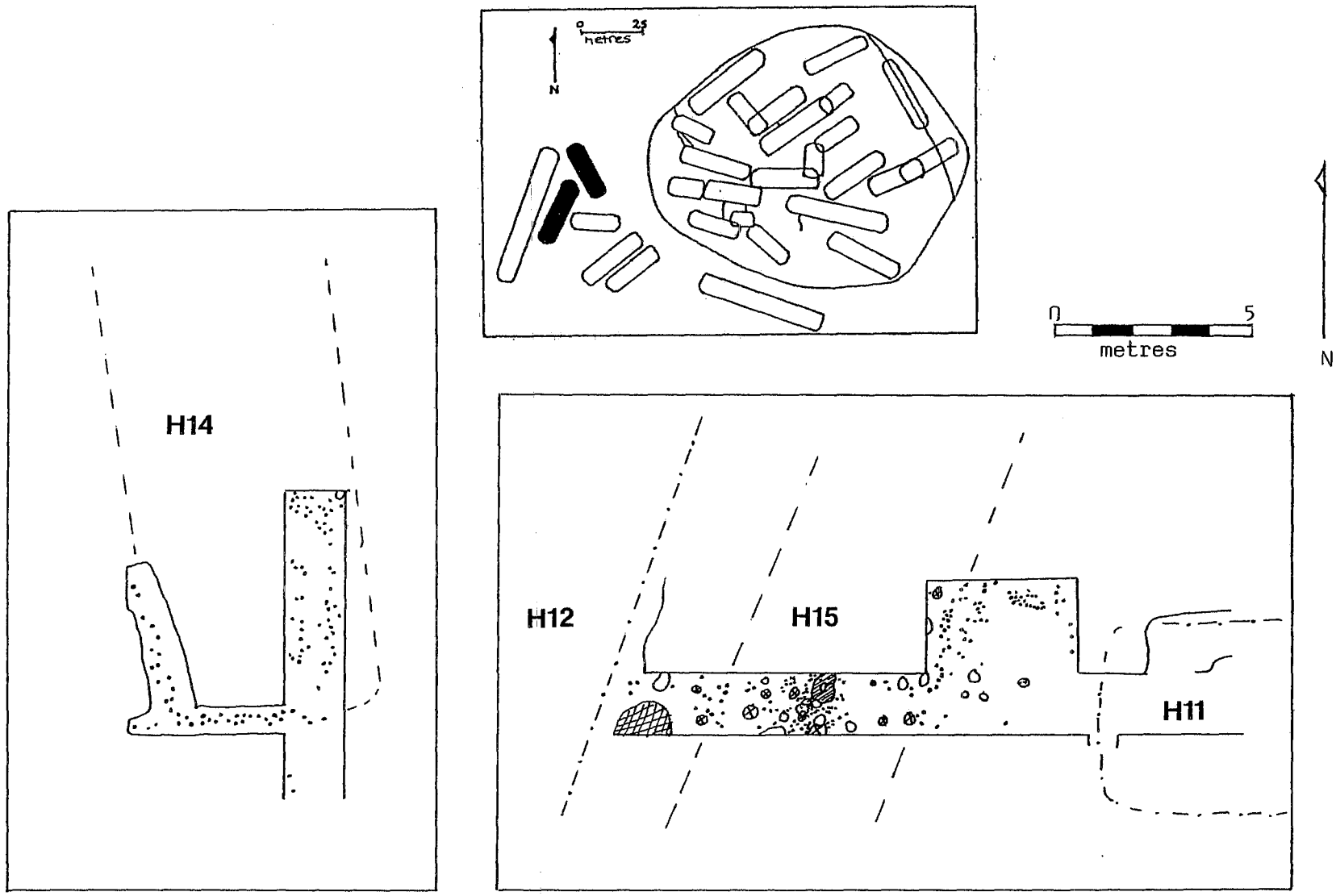


Fig. 12. Houses 14 and 15.

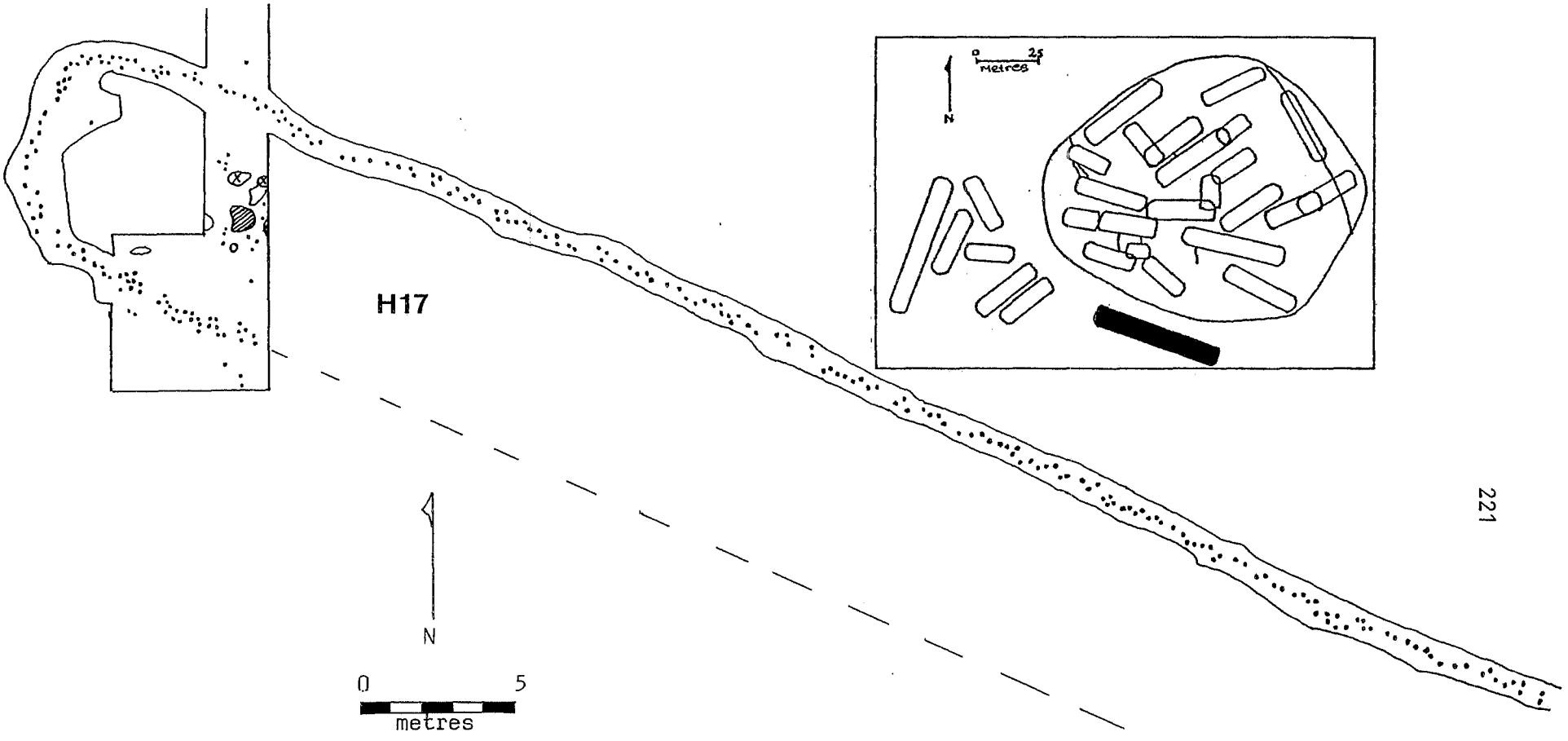


Fig. 13. House 17.

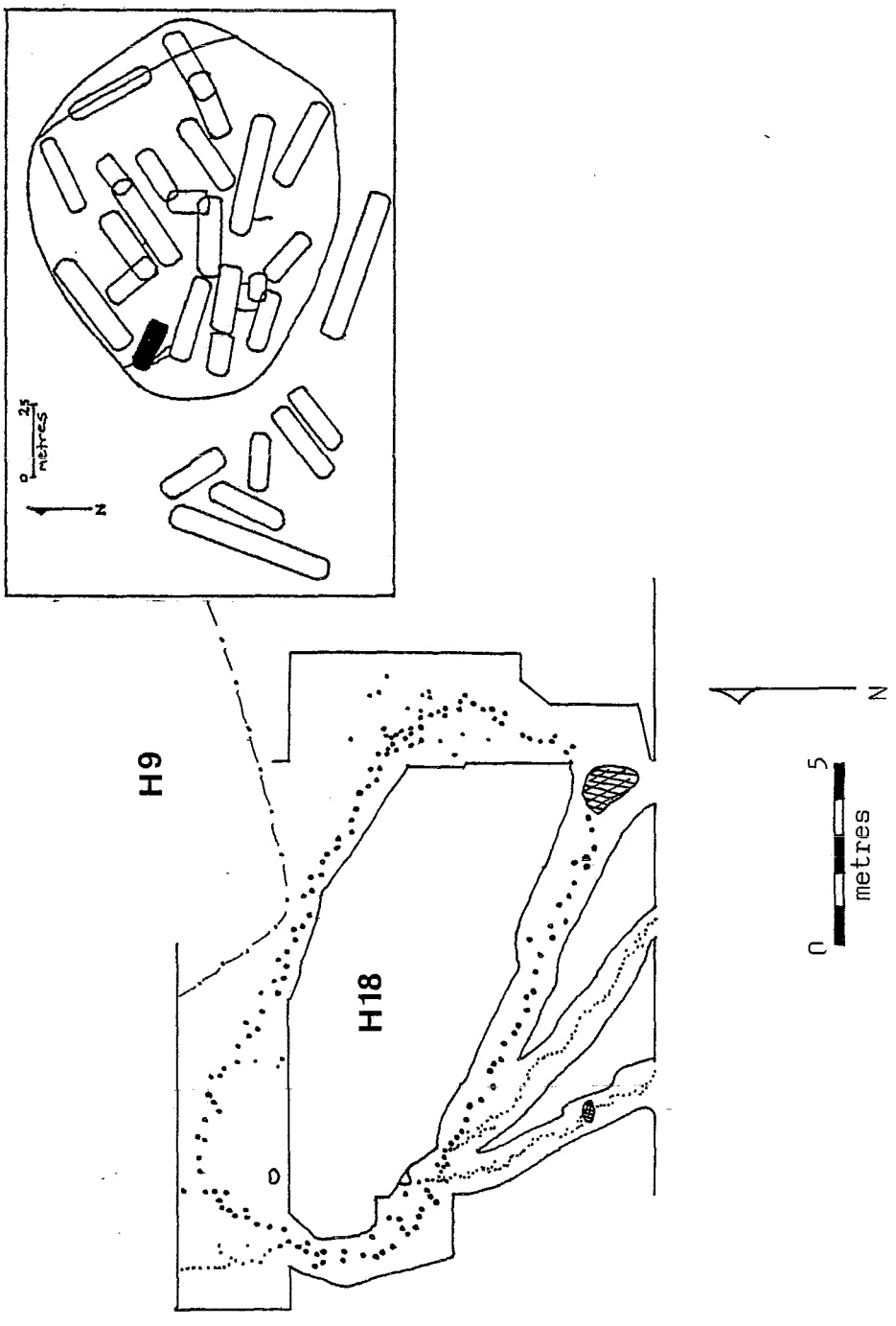


Fig. 14. House 18.

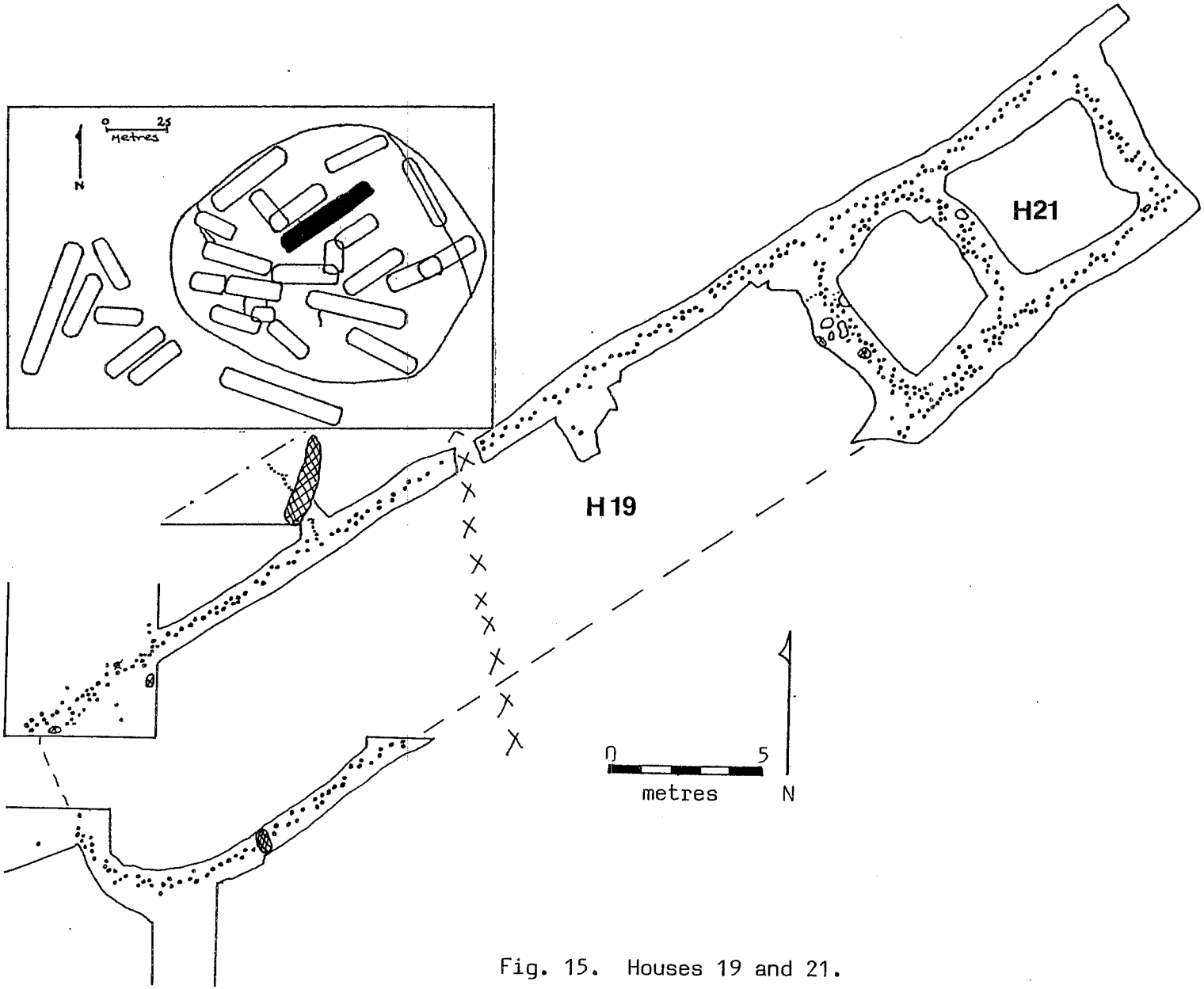
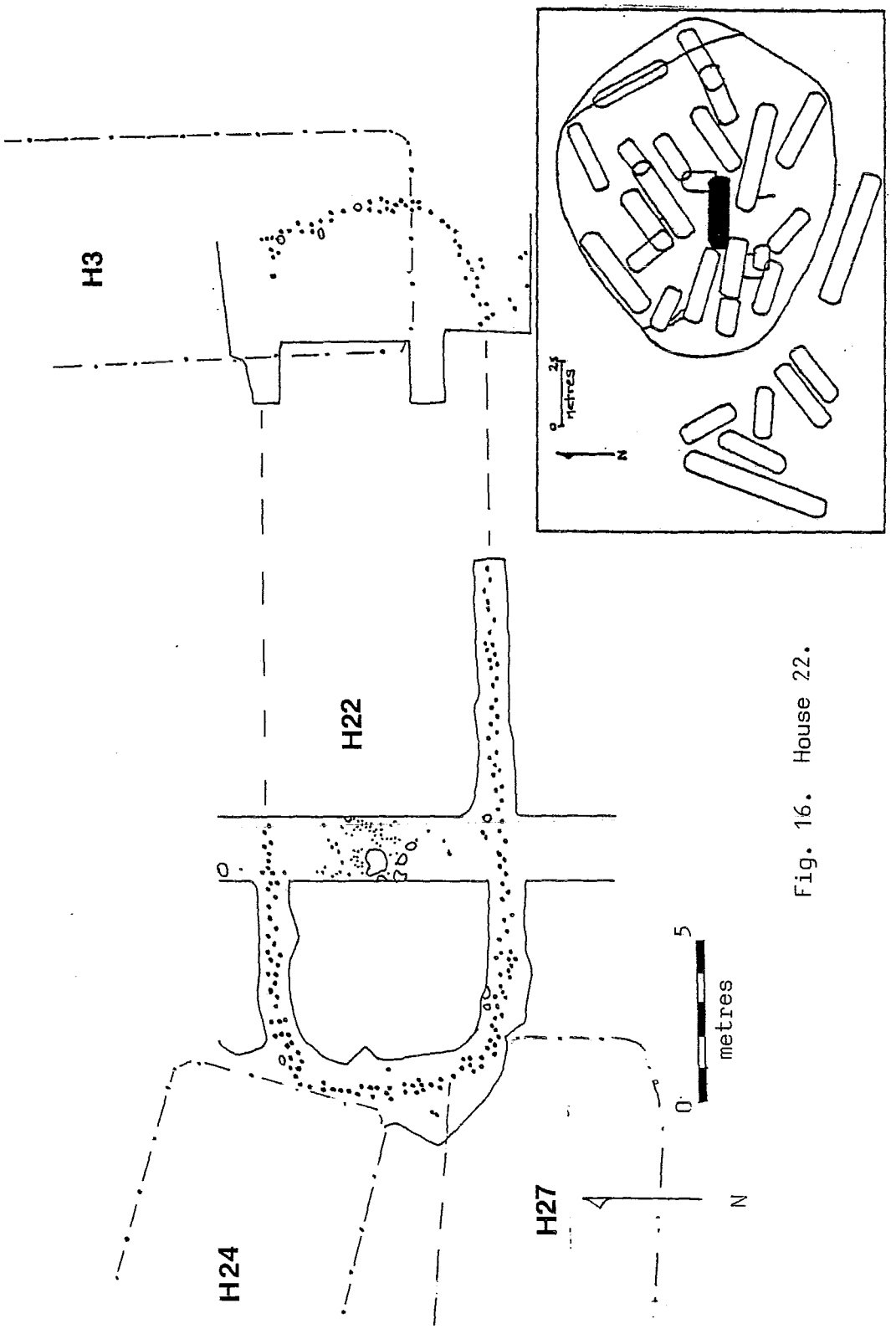


Fig. 15. Houses 19 and 21.



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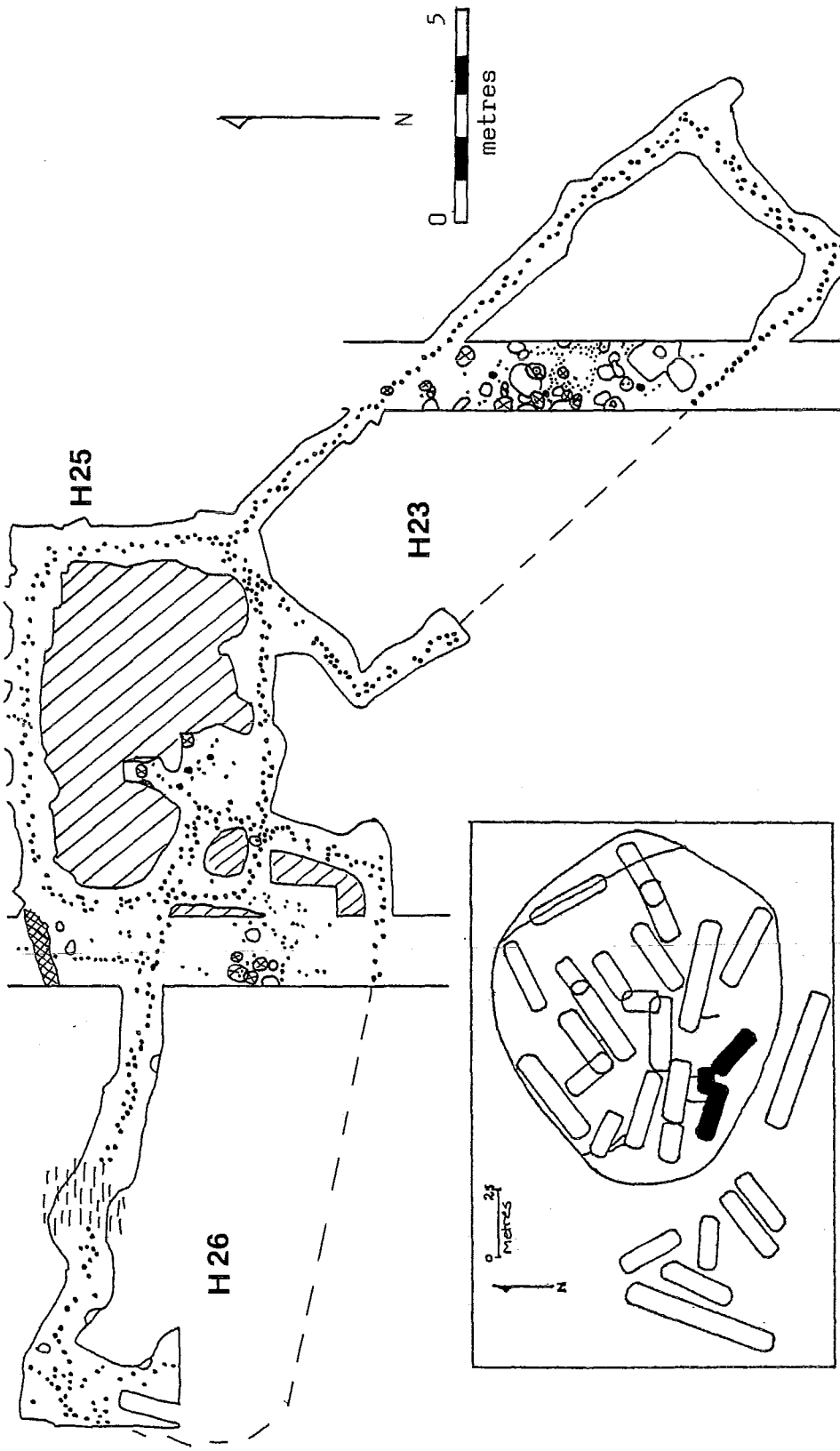


Fig. 17. Houses 23, 25 and 26.

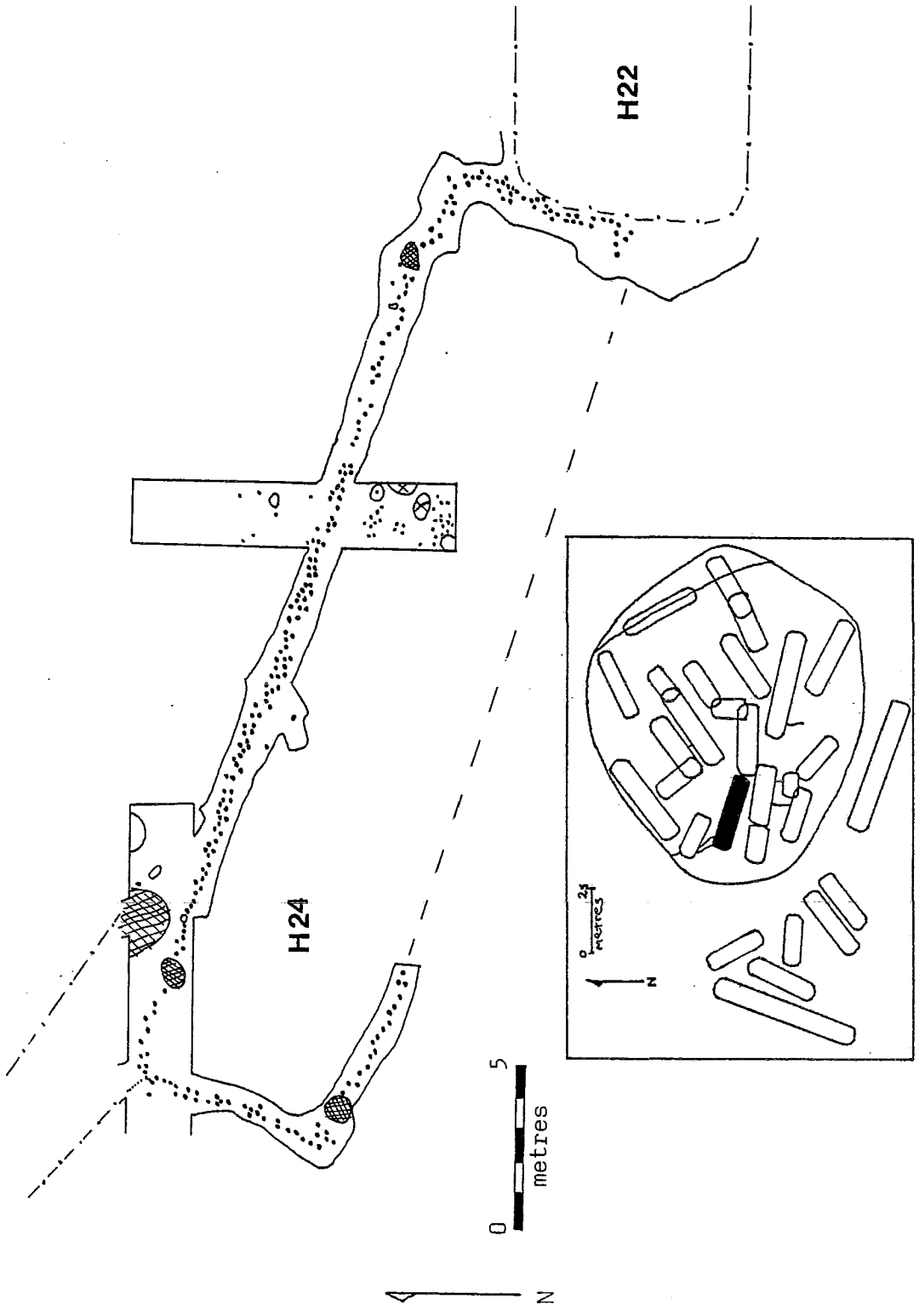


Fig. 18. House 24.

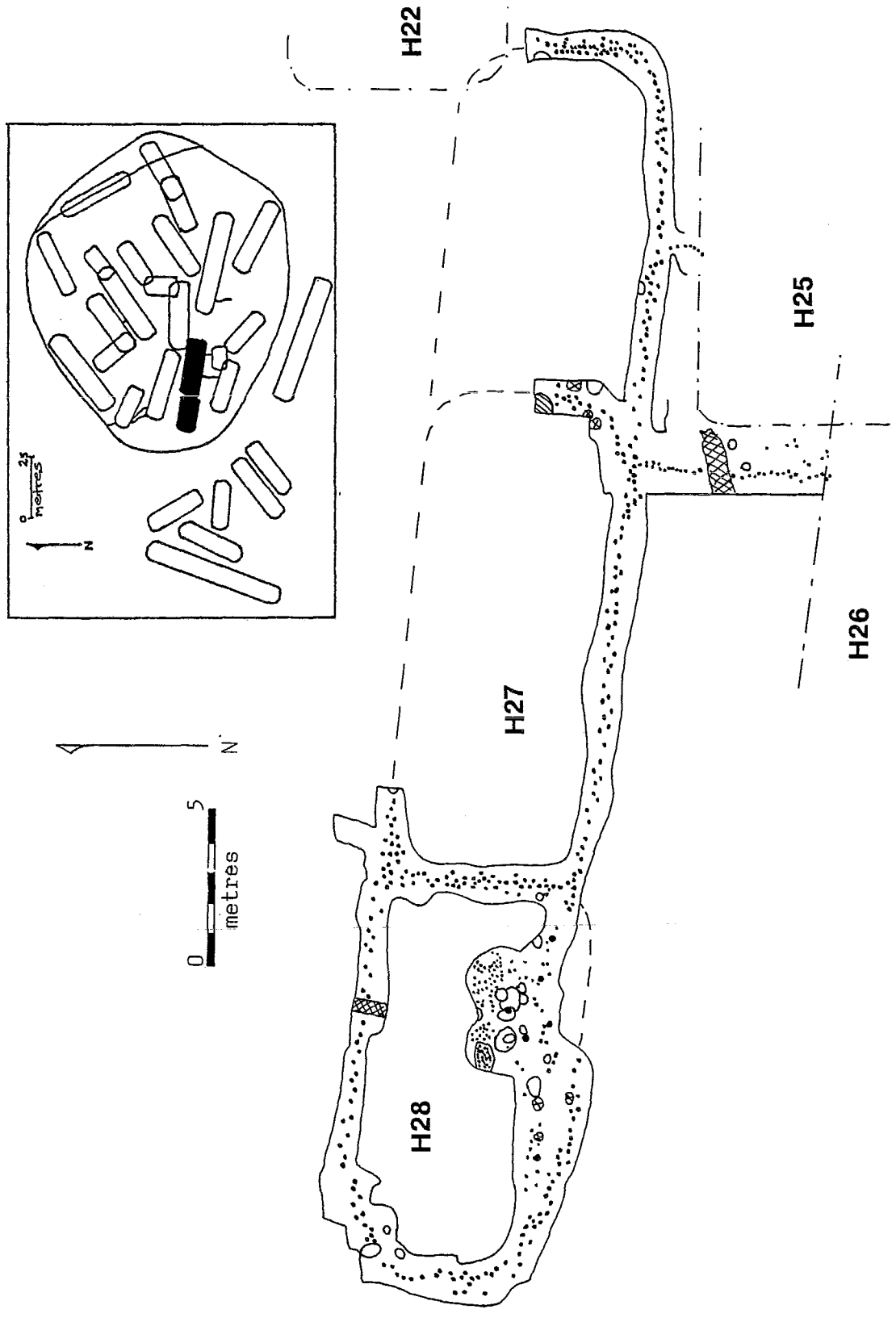


Fig. 19. Houses 27 and 28.

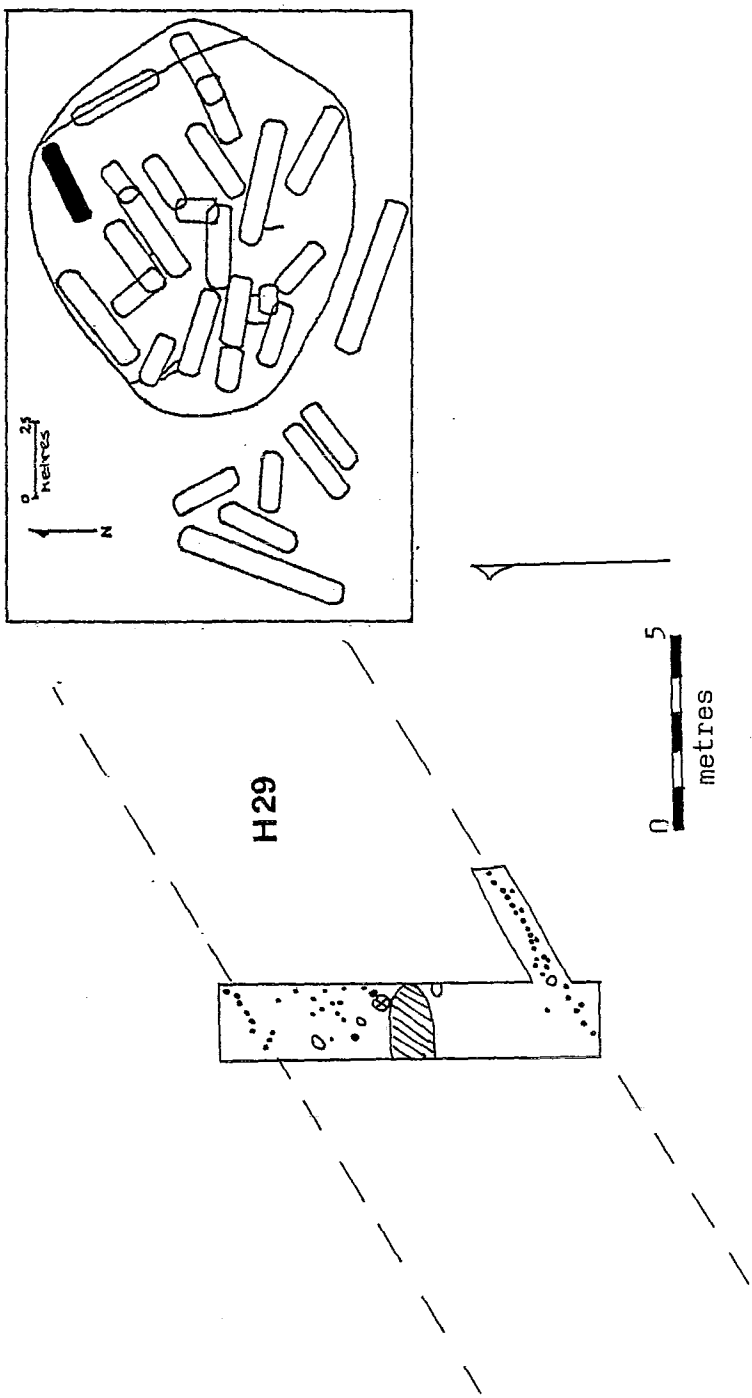


Fig. 20. House 29.

APPENDIX C

FAUNAL ANALYSIS

Faunal remains recovered during the Kirche excavations were submitted to the Zooarchaeological Identification Centre, National Museum of Natural Sciences, Ottawa, for identification. Practical considerations precluded intensive analysis by the Identification Centre that would result in estimates of minimum number of individual species and the meat poundage represented by various species in the Kirche assemblage. Their analysis concentrated on the identification of specimens to the lowest possible taxonomic level. Observations were also systematically made on the following variables: provenience of the specimens; element; side; part; age and basis for age estimation; and modifications such as cuts, burning and presence of carnivore or rodent tooth marks. This data was compiled on cards and returned for further analysis in this form.

Eight-thousand two hundred and seventy-one faunal remains were identified to class (Table 1). Molluscs were also recovered in some numbers but have not been analyzed to date. Appendix C lists the species represented in each class analyzed and the age distributions for each species.

Table 1. Kirche faunal classes.

Class	Faunal elements N	%
Mammalia	4856	58.76
Pisces	3195	38.66
Aves	153	1.85
Reptilia	54	0.65
Amphibia	6	0.07
Totals	8264	99.99

Mammals

Mammalian remains account for the majority (58.76%) of specimens in the assemblage.

Of the 4,856 specimens identifed as mammalian, 22.4% were identifiable to a lower taxonomic level. Thirty-eight mammal identification categories are listed in Table 2. A minimum of 23 valid species are present in the Kirche assemblage.

The specimens identified as belonging to the rabbit family (Leporidae) are probably snowshoe hare (Lepus americanus) for although cottontails range in the area today, there is no indication of their presence in the site materials. Most of the canid material is probably domestic dog, although two definite wolf bones were identified. The material listed as dog or coyote was done so on the basis of size,

but the presence of coyote in the area during the 16th century is doubtful. No caribou remains were identified, and therefore it has been concluded that almost all of the deer-sized cervids are probably deer. The size categories for the unidentified mammals are as follows: small refers to the size of a woodchuck or smaller; medium, about dog size; and large, deer size. Ages of bones were estimated whenever possible, with the exception of some deer teeth, since the reliability of ages taken from less than several teeth in one jaw is less than reliable (Cumbaa: personal communication 1979).

One element from a cow, bison or horse is believed to be an intrusive modern piece.

Fish

Fish remains also account for a large percentage (38.62%) of the specimens recovered. A total of 3195 specimens were identified to class and 24 identification categories are listed in Table 3. Identification to a lower taxonomic level was possible for 57.6% of the sample. A minimum of 13 valid species are present in the Kirche faunal assemblage.

The trout bones identified are probably from lake trout, but could possibly have come from exceptionally large brook trout. The white-fish/cisco and pike/muskellunge elements were undiagnostic in separating species. Elements listed in Table 3 as sucker (Catostomus sp.) and sucker family (Catosomidae) are probably white sucker (Catosomus commersoni) since this was the only sucker species identified in the

Kirche assemblage. The yellow bullhead (Ictalurus natalis) elements were identified on the basis of range maps, literature descriptions and comparisons with other species of the family since no comparative skeletons were available. All bass identified in the faunal material are probably smallmouth bass, as no elements of largemouth bass were identified (Cumbaa: personal communication 1979).

Birds

Bird remains are relatively rare in the faunal assemblage, accounting for only 1.93% of the material. Seventeen categories are listed in Table 4, and a minimum of 11 valid species are present. Of the bird remains recovered, 36.6% were identifiable at a level lower than class.

Unidentifiable bird sizes are classified as follows: small, songbird-size; medium, duck or grouse-size; large, hawk, owl, goose or larger (Cumbaa: personal communication 1979).

Reptiles and Amphibians

Together, reptile and amphibian remains account for only 0.72% of the faunal assemblage. Eight identification categories are listed in Table 5. Three species of turtle, and 1 frog species were identifed.

Table 2. Kirche mammal remains.

Common name	Scientific name	Number of specimens	Ages
Deer	*Odocoileus virginianus*	525	56 A 12 A/YA 7 YA 54 I 420 Indet.
Deer or caribou		5	(included with deer)
Deer family	Cervidae	19	(included with deer)
Domestic dog	*Canis familiaris*	190	153 A 1 A/Ya 1 YA/I 13 I 61 Indet.
Dog or coyote	*C. familiaris/ latraus*	2	(included with domestic dog)
Dog family	*Canis* sp.	28	(included with domestic dog)
Dog family	Canidae	9	(included with domestic dog)
Beaver	*Castor canadensis*	77	2 YA 3 I 72 Indet.
Woodchuck	*Marmota monax*	45	9 A 2 YA 8 I 20 Indet.
Black bear	*Ursus americanus*	45	7 A 21 I 17 Indet.

(continued)

Table 2. (Continued).

Common name	Scientific name	Number of specimens	Ages
Muskrat	Ondatra zibethicus	20	1 A 7 I 12 Indet.
Moose	Alces alces	13	1 A 1 I 11 Indet.
Eastern chipmunk	Tamius striatus	10	1 A 1 YA/I 1 I 7 Indet.
Snowshoe hare	Lepus americanus	8	2 A 1 I 5 Indet.
River otter	Lutra canadensis	8	1 YA/I 7 Indet.
Racoon	Procyon lotor	7	3 A 1 YA 3 Indet.
Rabbit family	Leporidae	6	1 A 5 Indet.
Marten	Martes americana	5	2 A 3 Indet.
Mouse	Peromyscus sp.	5	5 Indet.
Red fox	Vulpes vulpes	4	4 Indet.
Fox		4	4 Indet.
Red squirrel	Tamiasciurus hudsonieus	4	4 Indet.
Small rodent	cf. Cricetidae	3	3 Indet.

(continued)

Table 2. (Continued).

Common name	Scientific name	Number of specimens	Ages
Carnivore		3	3 Indet.
Striped skunk	*Mephitis mephitis*	2	1 A 1 Indet.
Vole	Microtinae	2	1 I 1 Indet.
Wolf	*Canis lupus*	2	1 A 1 Indet.
Mink or weasel	*Mustela* sp.	1	1 Indet.
Gray fox	*Urocyon cinereoargenteus*	1	1 A
Porcupine	*Erethizon dorsatum*	1	1 Indet.
Cow, horse or bison		1	1 Indet.
Artiodactyl		1	1 Indet.
large artiodactyl		1	1 Indet.
unidentified small mammal		25	
unidentified large mammal		764	
unidentified medium mammal		122	
Total mammal		4825	

Table 3. Kirche fish remains.

Common Name	Scientific name	Number of specimens
White sucker	*Catostomus commersoni*	168
Sucker	*Catostomus* sp.	133
Sucker family	Catostomidae	557
Brown bullhead	*Ictalurus nebulosus*	373
cf. Yellow bullhead	*Ictalurus natalis*	4
Bullhead	*Ictalurus* sp.	2
Freshwater catfish family	Ictaluridae	64
Yellow perch	*Perca flavesceus*	228
Perch family	Percidae	4
Smallmouth bass	*Micropterus dolomieui*	20
Bass	*Micropterus* sp.	155
Whitefish or cisco	*Coregonus* sp.	29
Trout	*Salvelinus* sp.	24
Pike or muskellunge	*Esov* sp.	22
Pumpkinseed	*Lepomis gibbosus*	6
Sunfish	*Lepomis* sp.	19

(continued)

Table 3. (Continued).

Common name	Scientific name	Number of specimens
Sunfish	*Lepomis* or *Ambloplites*	1
Sunfish family	Centrarchidae	1
American eel	*Anguilla rostrata*	16
Walleye	*Stizostedion vitrem*	6
Walleye or sauger	*Stizostedion* sp.	3
Burbot	*Lota lota*	4
Freshwater drum	*Aplodinotus grunnieus*	1
unidentified fish		1356
Total		3195

Table 4. Kirche bird remains.

Common name	Scientific name	Number of specimens
Ruffed grouse	Bonasa unbellus	7
Grouse family	Tetraonidae	12
Passenger pigeon	Ectopistes migratorius	10
Turkey	Meleagris gallopavo	8
Canada goose	Branta canadensis	5
Goose	Anserinae	1
Yellow-bellied sapsucker	Sphyrapicus varius	4
Scaup	Aytha affinis or A. marila	1
Hawk	Accipitridae	1
Eagle	Aquila or Haliaeetus	1
Sandhill crane	Grus canadensis	3
Sandhill or whooping crane	Grus sp.	1
cf. Blue jay	Cyanocitta cristata	1
Robin	Turdus migratorius	1
unidentified medium bird		2
unidentified large bird		33

(continued)

Table 4. (Continued).

Common name	Scientific name	Number of specimens
unidentified bird		61
unidentified small bird		1
Total		153

Table 5. Kirche reptiles and amphibians.

Common name	Scientific name	Number of specimens
Painted turtle	*Chrysemys picta*	34
Pond turtle family, cf. map or Blanding's turtle		1
Pond turtle family	Emydidae	9
Snapping turtle	*Chelydra serpentina*	2
unidentified turtle		8
Bullfrog	*Rana catesbeiana*	3
unidentified frog	cf. *Rana* sp.	1
Frog or toad		2
Total		60

APPENDIX D

SELECTED CERAMIC ATTRIBUTES USED FOR THE INTER-SITE COMPARATIVE ANALYSIS

The following Table lists the ceramic attribute frequencies used for the inter-site comparative analysis of sites that had the greatest ceramic similarity to Kirche.

Key to Site Designations

K=Kirche

C=Coulter

B=Benson

H=Hardrock

J=Jamieson

RB=Rumney Bay

P=Parsons

D=Draper

L=Lite

BC=Black Creek

Trait \ Site	K	C	B
A. Collarless plain (% of total)	1.0	1.8	3.2
B. Collarless decorated (% of total)	0.1	0.9	0.3
C. Collared Plain (% of total)	9.0	5.9	5.7
D. Collared decorated (% of total)	90.0	91.4	90.8
a. total stamp (%D)	13.9	11.8	12.1
E. Collar motifs (%D)			
a. Simple	76.3	65.1	58.3
b. Opposed	7.2	11.2	15.9
c. Crossed	4.8	7.8	5.3
d. Hatched	6.9	6.2	9.8
e. Horizontal	2.4	3.6	3.4
f. Complex	0.5	3.3	-
g. Plain	0.8	5.9	0.1
h. Interrupted	0.5	0.4	-
i. Other	0.5	1.1	1.0
F. Neck Decoration (total %D)	33.9	42.5	20.3
G. Secondary decoration (% of total)			
a. Interior	11.2	10.0	8.1
b. Lip	5.0	8.9	7.0
c. Frontal Lip	3.7	5.1	2.9
d. Upper punctates	0.6	3.5	4.5
e. Lower punctates	0.9	1.5	2.0
f. Dividing punctates	0.5	2.2	2.1
g. Basal punctates	4.5	9.8	16.5
h. Sub-collar decoration	7.8	2.3	0.9
H. Interior profile (% of total)			
a. Convex	58.2	57.3	52.0
b. Concave	3.4	16.9	9.5
c. Straight	36.4	18.8	25.8
d. Concave-convex	1.5	2.0	8.5
e. Convex-concave	0.5	5.0	2.9
I. Exterior collar form (%C+D)			
a. Convex	5.5	15.3	12.7
b. Concave	79.8	76.1	71.7
c. Straight	14.1	8.6	15.7
J. High collars (%C+D)	2.7	7.4	11.5

Trait	Site H	J	RB	P	D	L
A.	-	-	1.8	0.5	2.3	1.1
B.	-	-	-	0.5	1.1	0.4
C.	1.0	-	3.5	1.4	5.7	2.1
D.	98.9	100.0	94.7	97.6	90.6	96.1
a.	12.8	23.1	6.5	22.2	11.4	18.8
E.						
a.	32.7	35.4	17.9	55.8	56.8	59.8
b.	28.4	10.4	44.6	20.2	5.0	13.1
c.	7.3	8.3	1.8	5.4	9.5	9.1
d.	12.5	20.8	3.6	6.6	15.9	2.9
e.	9.0	16.7	25.0	2.7	3.4	6.2
f.	9.4	2.1	3.6	7.6	3.0	1.9
g.	1.0	-	3.6	-	5.4	0.4
h.	-	6.3	-	-	0.6	-
i.	-	-	-	1.5	0.2	1.2
F.	59.9	81.8	70.7	26.6	52.8	33.2
G.						
a.	61.5	52.2	63.0	13.6	4.8	10.1
b.	0.8	10.4	-	10.8	25.5	4.2
c.	0.4	-	-	2.2	3.1	1.4
d.	0.4	-	4.5	1.7	1.8	1.1
e.	0.8	1.9	1.6	0.5	0.6	0.7
f.	4.9	3.8	3.6	3.0	0.9	0.2
g.	2.6	-	1.6	9.8	4.8	0.9
h.	26.7	42.0	23.8	9.3	5.8	20.2
H.						
a.	39.6	55.2	34.2	50.2	51.9	48.6
b.	16.8	26.3	52.6	26.4	21.8	15.9
c.	11.2	13.2	5.2	10.5	22.9	21.0
d.	25.4	7.9	7.9	8.8	2.4	11.9
e.	6.8	-	-	3.6	1.0	2.6
I.						
a.	17.6	64.6	56.5	14.4	17.6	16.0
b.	46.1	2.1	-	55.2	59.4	28.8
c.	36.2	33.3	43.5	29.8	23.0	35.0
J.	14.2	4.1	17.5	9.9	5.5	6.5

Trait	Site BC
A.	-
B.	0.2
C.	0.7
D.	98.9
a.	12.8
E.	
a.	36.0
b.	26.8
c.	3.4
d.	3.4
e.	12.0
f.	11.2
g.	-
h.	-
i.	6.1
F.	43.5
G.	
a.	10.1
b.	1.6
c.	0.2
d.	5.6
e.	3.4
f.	5.6
g.	2.4
h.	5.6
H.	
a.	28.1
b.	30.3
c.	17.4
d.	19.8
e.	3.8
I.	
a.	20.8
b.	36.8
c.	42.4
J.	10.9

APPENDIX E

SELECTED CERAMIC ATTRIBUTES USED FOR THE INTRA-SITE COMPARATIVE ANALYSIS

The following Table lists the frequencies of cermic attributes for the twelve provenience units designed for the intra-site ceramic, comparative analysis.

Key to Unit Designations

H=house

M=midden

P=palisade

OP=outside the palisaded village

Trait	Unit H2	H5
A. Collarless plain (% of total)	2.6	3.7
B. Collared Plain (% of total)	5.6	22.2
C. Total stamp (% of Collared decorated)	20.5	21.1
D. Collar motifs (% of Collared decorated)		
a. Simple	72.2	68.0
b. Opposed	5.6	-
c. Crossed	-	-
d. Hatched	13.9	-
e. Horizontal	2.8	8.0
f. Complex	-	-
g. Plain	5.6	24.0
h. Interrupted	-	-
i. Other	-	-
E. Neck Decoration (% of Collared decorated)	25.0	33.3
F. Secondary decoration (% of total)		
a. Interior	10.5	11.1
b. Lip	-	-
c. Frontal Lip	5.7	4.0
d. Upper punctates	-	-
e. Lower punctates	-	-
f. Dividing punctates	-	4.0
g. Basal punctates	5.7	-
h. Sub-collar decoration	5.6	4.0
G. Interior Profile (% of total)		
a. Convex	45.9	37.0
b. Concave	-	3.7
c. Straight	54.1	59.3
d. Concave-convex	-	-
e. Convex-concave	-	-
H. Exterior collar form (%B+Collared decorated)		
a. Convex	-	7.4
b. Concave	86.5	70.4
c. Straight	13.5	22.2
I. High Collars (%B+Collared decorated)	-	12.0

Trait	Unit M6/H6	M7/P5	M13	M14	M22	M11/P7
A.	2.4	3.8	2.2	-	-	-
B.	2.4	15.4	11.9	4.0	8.7	10.3
C.	17.6	10.8	16.4	12.5	4.8	2.9
D.						
a.	64.8	65.9	70.4	65.1	55.0	61.1
b.	11.8	6.8	7.2	4.7	10.0	2.8
c.	8.8	2.3	2.4	7.0	-	11.1
d.	8.8	4.5	2.4	11.6	25.0	8.3
e.	-	-	3.6	7.0	-	5.6
f.	-	-	0.6	-	-	-
g.	2.9	18.2	13.3	4.7	10.0	11.1
h.	-	2.3	-	-	-	-
i.	2.9	-	-	-	-	-
E.	47.1	34.7	27.6	38.0	13.0	23.1
F.						
a.	12.5	9.6	8.7	24.0	9.1	15.4
b.	12.5	9.6	3.8	2.0	-	7.7
c.	2.9	-	2.3	-	-	5.2
d.	-	-	0.6	4.0	-	2.6
e.	2.9	-	-	2.0	-	2.6
f.	2.9	-	-	-	-	2.6
g.	-	6.4	-	6.0	-	2.6
h.	14.3	2.0	7.7	14.0	17.4	-
G.						
a.	68.4	59.6	58.3	63.8	47.8	67.6
b.	7.9	-	4.6	2.1	-	-
c.	23.7	34.0	33.7	29.8	52.3	29.7
d.	-	2.1	2.9	4.3	-	2.7
e.	-	4.3	0.6	-	-	-
H.						
a.	7.9	-	5.7	8.5	-	-
b.	78.9	87.3	81.1	76.6	78.3	87.2
c.	13.2	12.8	12.6	14.9	21.7	12.8
I.	2.9	4.3	0.6	-	-	-

Trait	Unit M1	M23/H29	OP	P6
A.	2.6	-	0.7	-
B.	-	1.9	18.6	8.8
C.	27.8	6.0	15.6	3.3
D.				
a.	82.9	68.8	64.3	61.8
b.	2.9	14.6	4.0	20.6
c.	5.7	6.3	3.2	2.9
d.	-	4.2	4.8	5.9
e.	5.7	4.2	-	-
f.	-	-	1.6	-
g.	-	2.1	21.4	8.8
h.	-	-	0.8	-
i.	2.9	-	-	-
E.	41.7	33.3	20.4	25.7
F.				
a.	7.9	14.8	4.9	28.6
b.	19.0	1.9	2.8	-
c.	-	3.9	2.2	-
d.	-	-	0.7	-
e.	-	3.9	0.7	11.8
f.	-	2.0	-	-
g.	2.7	2.0	1.4	-
h.	7.9	11.1	5.6	17.1
G.				
a.	68.6	62.7	62.0	33.3
b.	8.6	3.9	5.1	3.0
c.	22.9	33.3	30.7	63.6
d.	-	-	2.2	-
e.	-	-	-	-
H.				
a.	8.3	3.8	8.9	6.1
b.	52.8	88.7	76.3	72.1
c.	38.9	7.5	14.8	21.2
I.	2.8	5.8	1.4	21.2

APPENDIX F

ISOLATED HUMAN BONE

Thirty-one isolated human bones were recovered during the excavation of the Kirche village. Figure 1 illustrates the distribution of the bones through the village, and is keyed to the textual description. A tabulation of the bones by provenience follows, as well as a brief description of the elements and a note of their context.

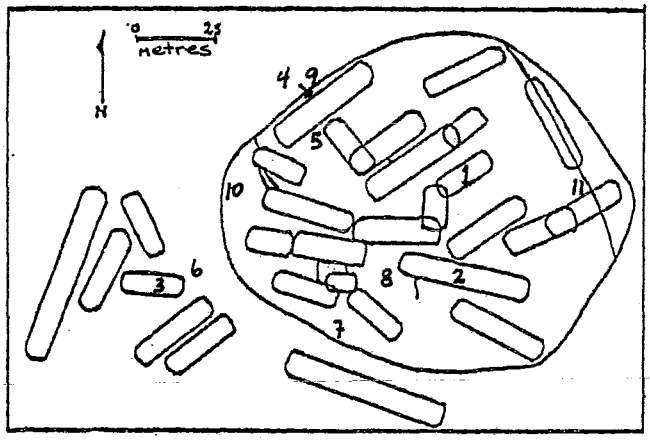


Fig. 1. Distribution of isolated human bone.

1) Two incisors, 3 premolars and 4 molars were associated with house 2. Two skull fragments were also recovered. While it is possible that the teeth were lost through natural processes, the large number of teeth found close together and the location of the skull fragments not far from these, suggests otherwise.

2) A fragment of a left mandible was recovered from a subsoil feature interpreted in the field as a support post, 30cm in diameter by 33cm deep. It was located in house 5, approximately 1m south of the hearth. Also found in this post mould (or pit) was the tip of a beaver incisor that was modified, 6 unidentified fragments of mammal bone, 4 freshwater clam shell fragments, and three body fragments from a pottery vessel.

3) One fragment of a right clavicle recovered from house 11, outside the palisaded village, is identified as immature on the basis of size and rugosity (Cumbaa: personal communication 1979). Three cuts are present on the antero-superior surface above pectoralis major, and both ends have been chewed by a carnivore. A fragment of a temporal bone was also recovered from house 11.

4) Two isolated premolars were recovered from midden 7. No cause for the loss of these teeth could be discerned.

5) One left, lower first premolar was recovered from midden 8. Again, no cause for the loss of this tooth could be discerned.

6) Four fragments of human bone were recovered from midden 9, the large midden located outside the palisade. These consisted of: a lower molar judged to be from an adult individual on the basis of wear, size and close roots (Cumbaa: personal communication 1979); the left crown portion of a 2nd "milk" premolar; the distal to mid portion of a right tibia that has carnivore tooth marks on it; and the left maxilla of an

adult individual (Cumbaa: personal communication 1979).

7) The centrum of an axis vertebra and 2 skull fragments were recovered from midden 11.

8) Two molar fragments and a fragment of a radius were found in the large midden in the south-central area of the village, midden 13.

9) A fragment of a femur was recovered from a subsoil pit located between palisade post moulds on the northwestern periphery of the village. On the basis of size, Cumbaa (personal communication 1979) estimates that the femur belonged to an immature individual. Also in the pit was a broken pottery vessel: portions of the rim (2); the neck (3); the shoulder (7); and the body (55). The pit was irregular in shape, measuring 43cm in length, 30cm in width and 36cm in depth, and consisted of a homogenous black fill. Three unidentified fish bones were also recovered from this feature.

In addition, an adult cervical vertebra was recovered from this area of the village. Age was estimated on the basis of size and fusion (Cumbaa: personal communication 1979).

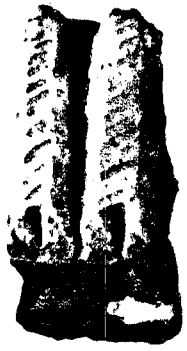
10) A left mandible fragment with the lower third molar in place was recovered from the palisade area on the western periphery of the village. On the basis of tooth eruption and wear, this mandible is identified as adult (Cumbaa: personal communication 1979).

11) The proximal end of a radius was recovered from sub-soil feature located in the inner row of original palisade on the east side of the village. In addition, 6 unidentified mammal fragments, 3 fragments of a deer skeleton, a fragment of a pottery vessel and several rocks were found in this pit. The fill was a black, homogenous soil. The pit was circular, 43cm in diameter and 25cm in depth.

PLATE I

St. Lawrence Iroquoian Vessel Fragments

1. Corn Ear motif
2. Corn Ear motif
3. Complex motif
4. Complex motif
5. Castellation fragment
6. Complex motif
7. Castellation fragment



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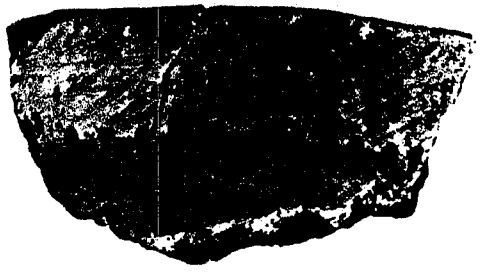

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4

5

6

7

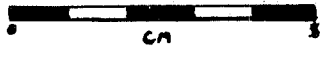
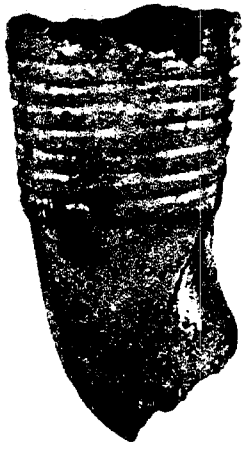


Plate II

Ceramic Pipes

1. Collared Ring and Punctate
2. Collared Ring
3. Iroquois Ring
4. Decorated Trumpet
5. Decorated Trumpet
6. Plain Trumpet

1



2

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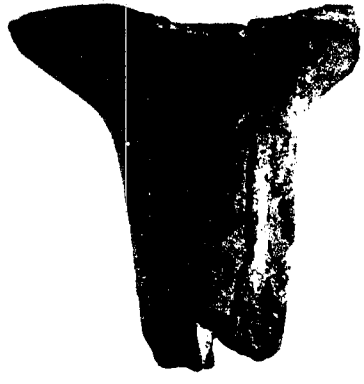
4

5



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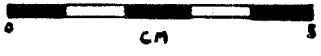


PLATE III

Ceramic Pipes

1. Elongated Ring and Punctate
2. Mortice
3. Mortice
4. Conical Decorated
5. Apple Bowl Ring
6. Apple Bowl Ring
7. Short Collared
8. Decorated Bulbous
9. Miniature Plain Conical
10. Decorated Miniature Trumpet
11. tapering pipe stem fragment with perpendicular mouthpiece
12. tapering pipe stem fragment with rounded, ground mouthpiece


1
2
3
4
5
6
7
8
9
10
11
12
0
cm
5

PLATE IV

Ceramic Effigy Pipes

1. Owl
2. Reptile
3. Human (Pierced Ear)
4. Unidentified
5. Human
6. Reptile

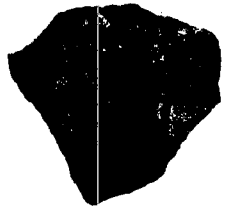
1

2

3

4

5



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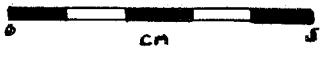
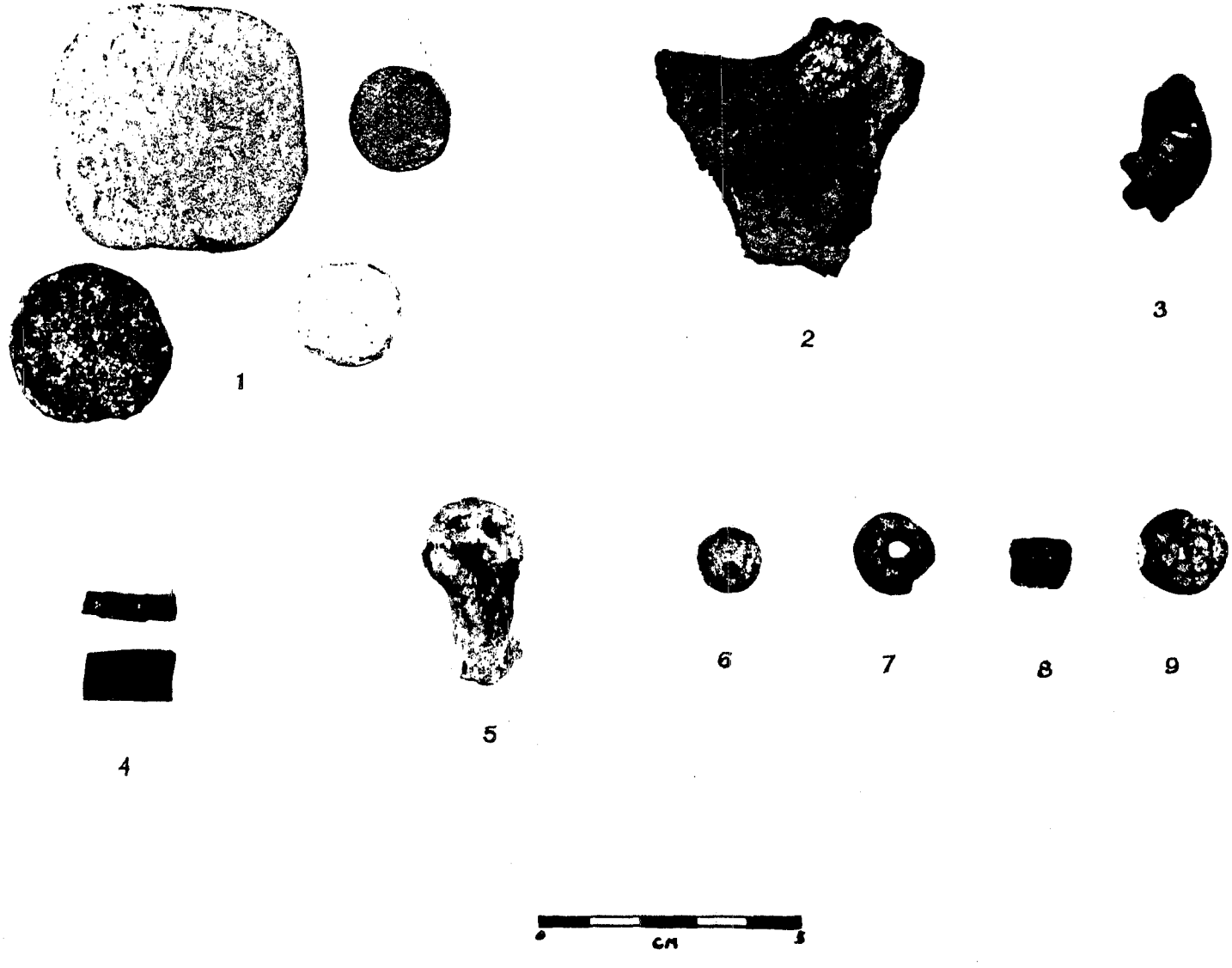


PLATE V

Miscellaneous Ceramics and Copper Artifacts

1. gaming discs
2. castellation and handle
3. handle
4. rolled copper beads
5. ceramic figurine
6. spherical bead
7. discoidal bead
8. tubular bead
9. decorated discoidal bead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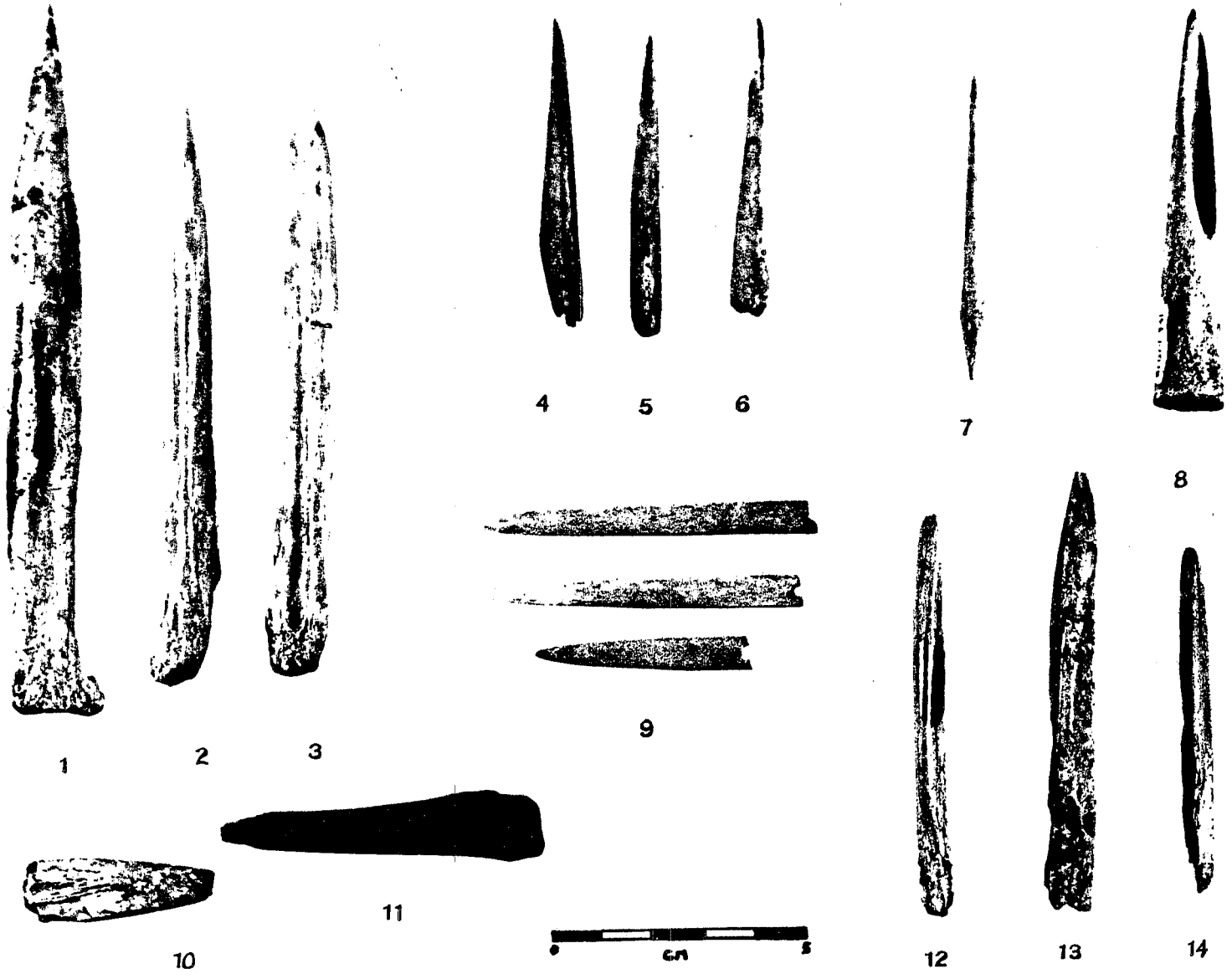
3
4
5
6
7
8
9
0
CM
5

PLATE VI

Bone Artifacts

1. awl (Type 1)
2. awl (Type 1)
3. awl (Type 1)
4. awl (Type 2)
5. awl (Type 2)
6. awl (Type 2)
7. pin (?)
8. conical projectile point
9. needle fragments
10. spatulate object
11. spatulate object
12. punch (?)
13. punch (?)
14. punch (?)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3
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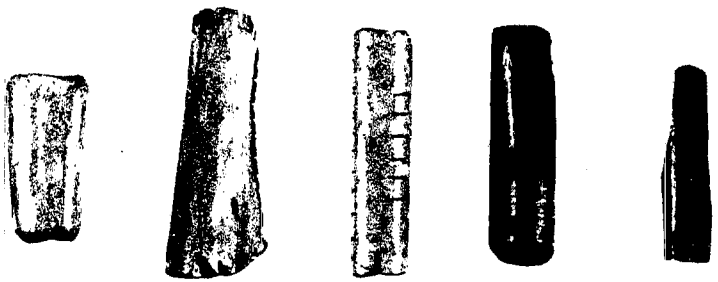
5
6
7
8
9
10
11
12
13
14
0
cm
5

PLATE VII

Bone Artifacts

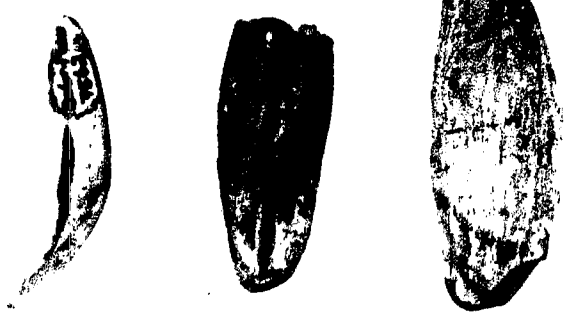
1. bead stock
2. bead
3. decorated bead (mandible fragment)
4. decorated bead fragment
5. bead (burned)
6. bead (burned)
7. bead
8. modified bear canine
9. modified bear canine
10. modified bear canine
11. deer scapula pipe

1



2 3 4 5 6

7



8 9 10

11

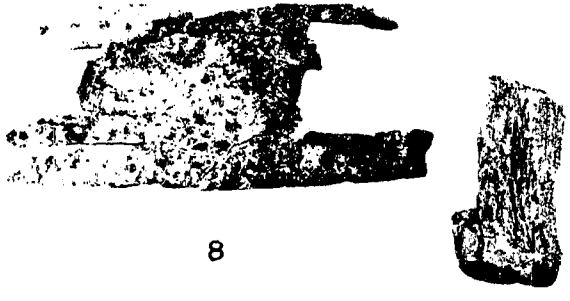
PLATE VIII

Bone and Shell Artifacts

1. modified deer phalanx (Class 22; dorsal surface)
2. modified deer phalanx (Class 22; dorsal surface)
3. modified deer phalanx (Class 22; ventral surface)
4. modified deer phalanx (Class 8; lateral profile)
5. modified deer phalanx (Class 1; lateral profile)
6. modified deer phalanx (Class 22; dorsal surface; burned)
7. notched beaver incisor
8. decorated arm band fragment
9. arm band fragment
10. modified antler
11. tubular shell beads
12. perforated snail shells
13. discoidal shell beads
14. perforated clam shell
15. perforated clam shell

1 2 3 4 5 6

7



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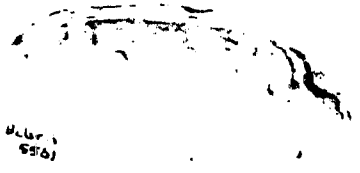

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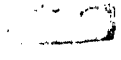

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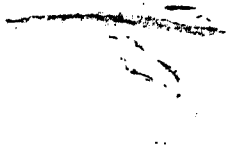

9 15

PLATE IX

Chipped Stone Artifacts

1. drill fragment
2. scraper
3. unifacial knife
4. projectile point
5. retouched flake
6. retouched flake
7. retouched flake
8. retouched flake
9. retouched flake

1

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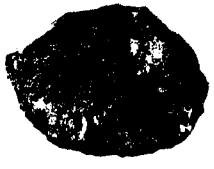

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PLATE X

Ground Stone Artifacts

1. celt (Type 2)
2. celt (Type 2)
3. celt (Type 1)
4. celt (double bit)

1

2

3

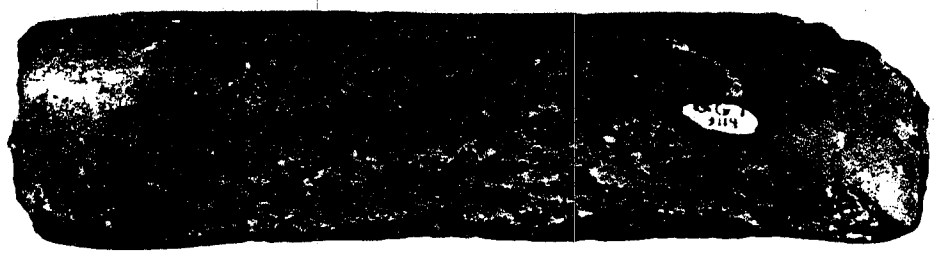

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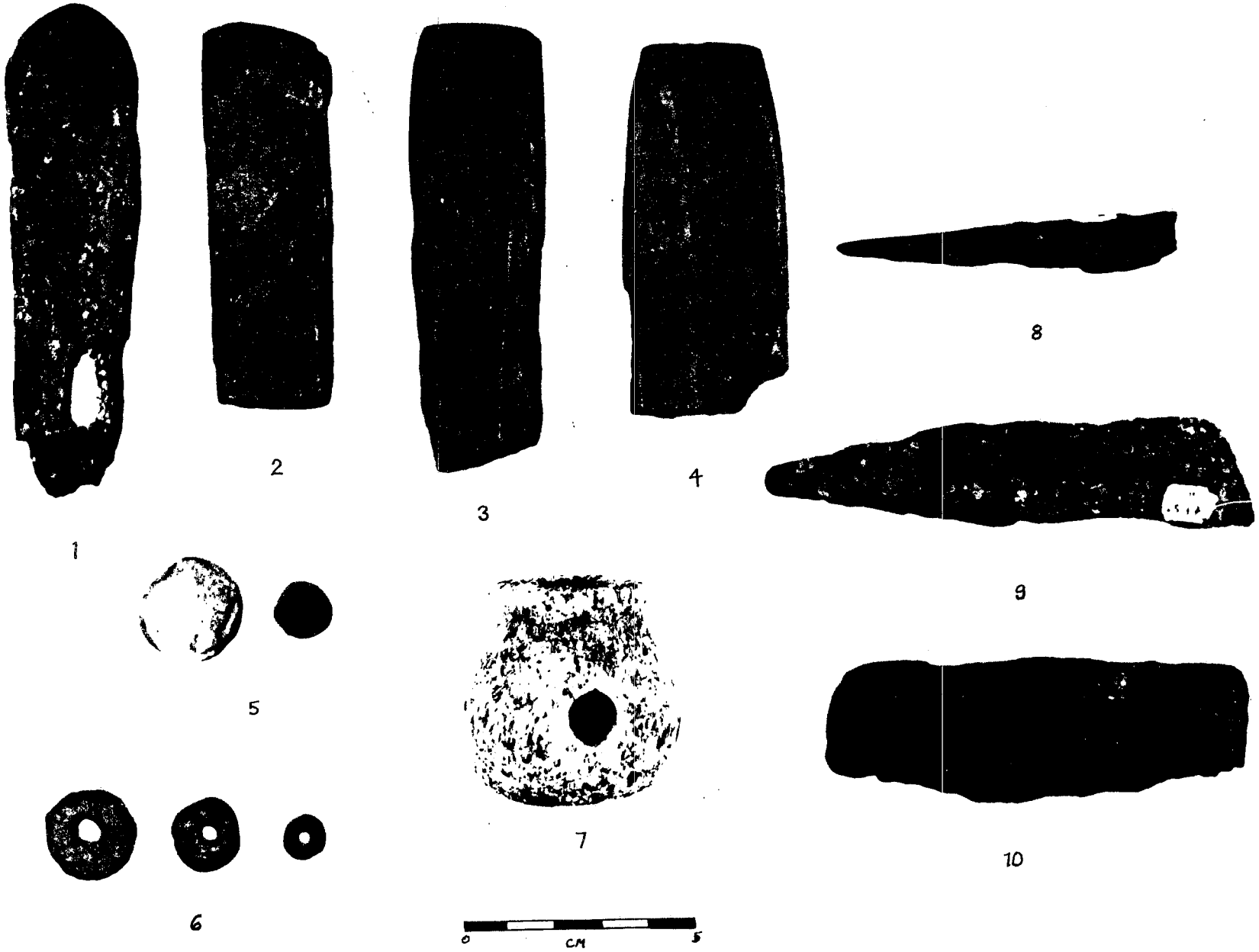
PLATE XI

Ground Stone Artifacts

1. chisel
2. chisel
3. chisel
4. chisel
5. discs
6. beads
7. limestone pipe bowl
8. tool of unknown function
9. tool of unknown function
10. tool of unknown function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