The Draper and White Sites: Preliminary and Theoretical Considerations

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BACKGROUND AND SITUATION OF THE DRAPER SITE

Situation and Natural Features.

The Draper Site, named after its recent owners, is situated on the left bank of West Duffin Creek in Ontario County (Figs. 1, 2). It is in lots 29 and 30 of Concession 7, Pickering Township. Elevation on the site varies from 740–754 feet above sea level, and the distance to the shore of Lake Ontario is about 10 miles in a direct south line. Borden designation for the site is AlGt-2. Cultural remains are in the Huron tradition, and age estimates based on ceramic seriation place occupation in the early 16th century A.D. Radiocarbon dates can be found in Appendix A.

The site lies on glacial till deposits (Gartner 1973) which have been incised by West Duffin Creek, leaving a 30 foot slope of generally high relief at the eastern edge of the site. This slope is very steep in the northern and mid-sections of the site, and slightly more gentle in the southern sector. Given this steepness, a feature not extremely common along the creeks in the locale, and the fact that the slopes at this point form a slight semi-promontory, it appears that this particular location might have been chosen as a village site at least in part for defensive reasons. If occupation of the heights was primarily to avoid long-cycle, intensive, spring floods, it seems unreasonable to choose a site with the most pronounced relief of the locale, since this would render water fetching much more difficult and subject to more frequent miscarriage and breakage. In addition, the presence of scattered human skeletal parts in houses and middens, sometimes bearing evidence of violent death and even scalping (Ramsden 1968:119), the probable presence of an often rebuilt or remodeled palisade (see Fig. 2) and the general proximity to Lake Ontario and the southern battle front with the New York Iroquois all tend to indicate that defense was a primary consideration in positioning and constructing the site, as well as in the daily lives of its inhabitants. One may also reasonably postulate that 500 years ago, when the site was occupied, the steep stream banks may well have been freshly eroded, and presented a sheer sand face, very similar to those left in the Rouge River valley after heavy flooding and lateral cutting in the late 1960's. Certainly, the steeper parts of these slopes cannot be much older than 500 years, for one would expect slope erosion of the poorly consolidated, underlying sands and till to have proceeded much further, and a much more gentle relief to have developed, even within 1,000 years. In spite of recent selective lumbering, these slopes and the stream bed appear to be largely in a climax vegetation state at this locale.

The size of the site has not been exactly determined. However, on the basis of artifact spread into the plowed field area (Fig. 2), the occupation area may be as large as 10 acres, and it appears certain on the basis of excavations thus far completed that the site covers at least 8 acres. Approximately 6 acres of the site lie to the east of the plowed field and have never been disturbed by plowing activity or any other detectable large scale disturbances. In this area we might expect to find from 10–15 longhouses, and since the first 2 structures excavated are considerably longer than usual, we can probably think in terms of a population of about 1,000–2,000 (Heidenreich 1972: 53-4) for the entire site. Assuming that longhouses at the Draper Site are longer than the average for the Ontario Iroquois tradition, this may indicate that corporate residence social structures were particularly strong at this time period and at this site, and should be exceptionally suited to archaeological detection.

In contrast to the plowed field where the poorly developed B and C soil horizons are abruptly and sharply truncated, and overlain by a homogeneous plow zone about 20 cm thick, the undisturbed portion of the site has a natural podzolic soil development, with an A horizon about

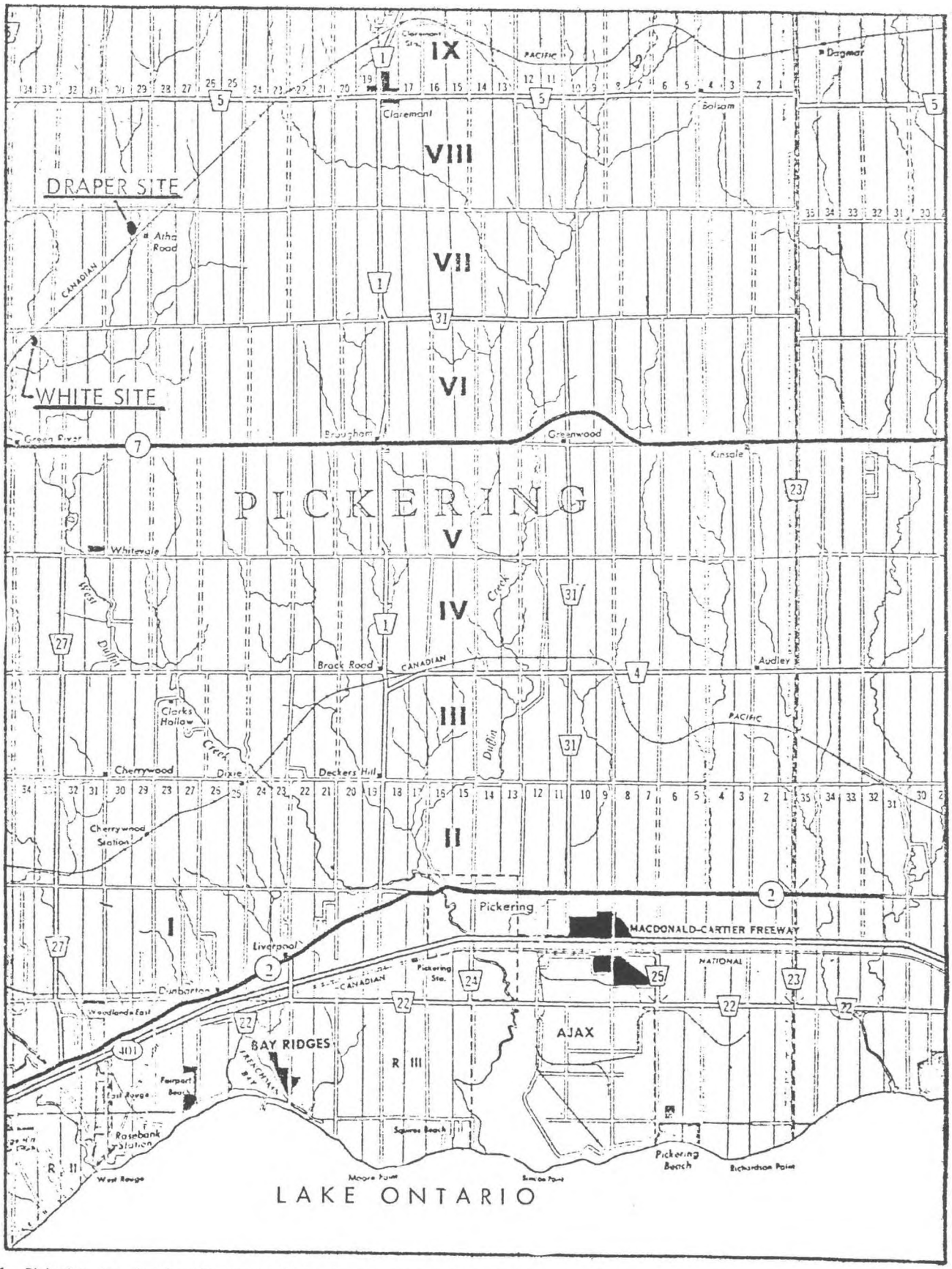


Fig. 1. Pickering area showing Draper and White sites. Toronto is about 5 miles west of the map. Concessions (bold Roman numerals) are about 1¼ miles wide.

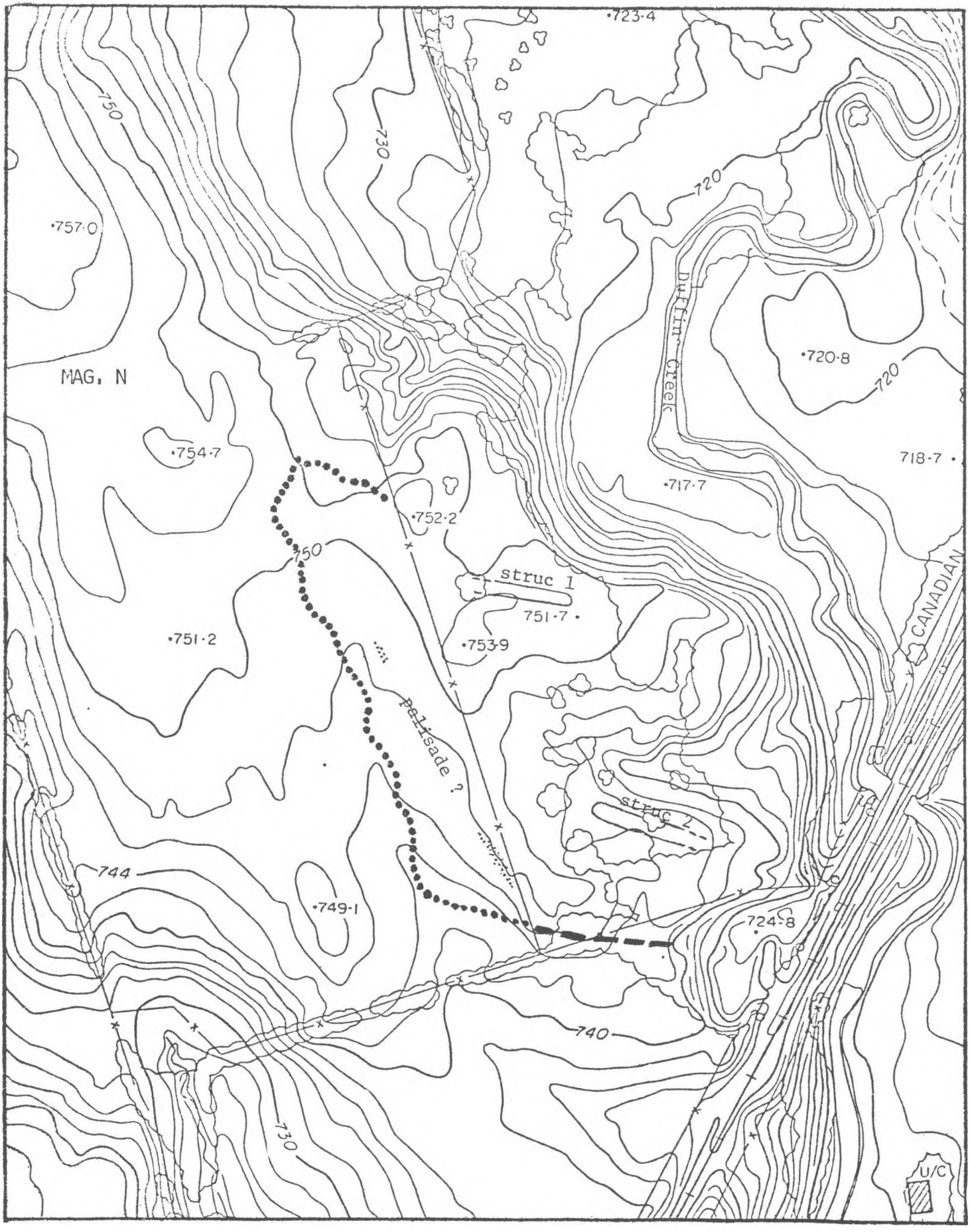


Fig. 2. The Draper site. Dotted line indicates maximum extent of surface artifact occurrence in the plowed field (west of the fence line). The area east of the fence line is undisturbed. Contour interval = 2 feet; scale is 200 feet per inch.

15–20 cm thick. It is almost entirely within this natural A horizon that non-pit artifactual material occurs, usually between 9 and 18 cm below the surface (Plate 1). Pit features, of course, occur in B and C horizon contexts as well. Hearths were found, undisturbed, at depths as shallow as 15 cm below surface. Middens display no indications of smoothing off due to plowing or other disturbance. All these factors leave little doubt that the majority of the site is in undisturbed, primary, archaeological context – a condition relatively rare for Ontario Iroquois sites.

The only other striking morphological feature at the site is an east-west trending ravine which divides off the southern 2–2½ acres of the site from the main area. This ravine affords a gently sloping, ramp-like feature extending down to the stream bed for any who wish to use it. We postulated that the ravine was probably used frequently for fetching water, and thought that human denudation of the surface, or even intentional modification might have resulted in a change of ravine form during or immediately after occupation. A well-travelled path might also be expected to have a higher concentration of broken ceramics, etc. In order to find out if these ideas were accurate, we excavated 2 test pits in the middle section and mouth end of the ravine (Fig. 2). We recovered no artifacts from either, however the test in the mid-section of the ravine appeared to cut through ill-defined cultural deposits for the first 50 cm, and then gradually graded into undisturbed, natural, bedded sands and clays. Charcoal was relatively abundant in the upper portion, and there was at least one good posthole. The excavation cut through a slight mound, apparently of cultural origin and a broad lens of charcoal, which was possibly a root burn. Lateral excavation did not continue far enough to make any more definite statements. At the mouth end of the ravine, the A horizon was underlain locally by a brown undulating clay lens, which appeared to be natural, and the contact between the A horizon and the underlying clay was probably an unconformity, indicating that active erosion had occurred in the past, but whether by natural agencies such as torrential rains, or cultural activities as from repeated trampling and denudation, is

Plate 1. Soil profile at the Draper Site showing undisturbed nature of the deposits. Note particularly the gradual transition from the A to the B horizon on either side of the ash lens of hearth B. Also note the shallow depth of the hearth ash and the minor degree of disturbance.

unknown. All sediments below the A horizon appeared to be undisturbed glacial deposits, being bedded at about 50 cm below surface.

Exactly what was going on in the middle section of the ravine with the posthole and cultural disturbance must await future excavation. The lower part of the ravine yielded no evidence of definite cultural disturbance or use.

One of the effects of the ravine is to create a natural division in the site, which could be effective in separating the occupants into socially meaningful residential groups such as clans, original vs. incoming groups, ceremonial affiliations, etc. if such special divisions were present at Draper. The area to the south, being smaller, would accommodate a minority social unit of the size of 4–5 longhouses very well. The relative isolation from the rest of the site would probably tend to increase the sense of coherence of the residents as a separate group. Again, if any strong social-residential divisions did exist among the occupants, one could reasonably expect them to be manifested strongly on either side of this ravine. This was a key assumption in deciding to excavate a longhouse in the southernmost part of the site, that is to see if there were any differences between it and the contents of the house excavated in 1972 at the northern end of the site. Some conjecture has been advanced that the southern and northern sections of the site represent 2 sequential occupations with at least some hiatus between their dates of occupation. However, Ramsden (1968), who sampled most of the middens on the site, found no reason to assume that two time periods were represented in the ceramic assemblages; work done in 1973 has only reinforced this interpretation. In addition to the ceramic data, the palisading gives every impression of running along the entire inland perimeter of the site (Fig. 2), indicating that all area within the site bounds was occupied at once.

The stream bed has been selectively timbered, and it is possible to see felled trees and rotten stumps both in the valley and on the unplowed portion of the site. The valley has been left otherwise untouched, while the site area has been maintained as an open grass and secondary growth area for the grazing of cows. Exceptionally large maple and elm trees, which may be several hundred years old, occur on the unplowed portion of the site. Cedar is not plentiful except on the edge of the site, although a number of rotten cedar stumps and roots were encountered during excavation. Given the advanced state of decay of stumps with chain-saw marks on them, we have assumed that virtually all uncarbonized wood was more recent than the aboriginal occupation. Large amounts of charcoal were often found in the A horizon within the house, but some of this may be the result of pioneer tree burning. Whitevale, a village only 3 miles from the Draper site was established in 1820 as a lumbering post, and it is probably safe to assume that the Draper locale has been selectively lumbered intermittently at least from the middle 1800's to the recent, as indicated by Bowman's data (see Bowman, this volume).

Clay Deposits at Draper:

There are two types of clay which occur rather sporadically in the geological deposits at Draper. The first of these is a brownish clay which can be seen in patches near the surface of the drift deposits, and which extends to an unknown depth. The brown color of this clay suggests a fairly high ferric oxide content. It is possible that some of this clay was used for packing occasional posts, and for providing a hard, durable floor for certain areas within the longhouse, which contrasts markedly with the soft yellowish sand that makes up the majority of the flooring. The other variety of clay is light to mid grey in color, and is found imbedded between sands belonging to the Late Wisconsin outwash and till. Duffin Creek is cutting through some thick beds of these grey clays near the settlement area. Experiments were made with some of this grey clay. A small bowl and a pipe were fashioned: the bowl was heavily tempered with fine sand in order to prevent sudden shinkage of the vessel during the firing process, while the pipe was untempered. When dry, these objects were covered with coals and fired in an open hearth, the temperature of which caused commercially produced glass bottles to bend and melt. After firing, the sherds were a uniform dark grey, and poorly fused. Although limited in scope, these experiments indicate that the grey clays at Draper may be completely devoid of iron oxides, therefore making them very different in chemical composition from the brown clays also found at the site. It is apparent that the Huron occupants may have selected only the brown clay for making ceramics since Draper ceramics display various degrees of reddening, which was certainly due to oxidation. These inferences are supported by a pipe stem found in surface collecting the plowed field. The stem was of grey clay from Duffin Creek, but the surface was neatly slipped with brown clay fired to a redder color.

Some of the Huron sherds which were recovered in yellowish sandy contexts (in the B horizon), seemed to take on the color of the surrounding sand; these sherds were much lighter in value than sherds recovered from A horizon contexts. A possible explanation for this phenomenon is that the B horizon may have provided a reducing environment, and converted any red ferric oxides present in the sherds to yellowish ferrous oxides.

As mentioned, both clays occur sporadically in the till plain, and patches of each have even occurred in the same excavation square. Corings with a soil probe as well as distributions in strata sections, and the occurrence of postholes in clay areas, all seem to indicate that these clays

occur naturally in the till, and that settlement factors are minimally influenced by clay deposits. The patches of brown clay may be remnant pieces of a locally developed interglacial soil which were incorporated into the till. Both clays are of exceptionally pure consistencies.

History of Excavation:

Members of the Ontario Archaeological Society have conducted intermittent test excavations since the 1950's at Draper. The aim of most of these has been to obtain adequate ceramic samples from the various middens. The only published data from these excavations was issued by Donaldson (1962) who worked on the site in 1955. The analysis of the material is very short, but places occupation in the Black Creek Lalonde stage, characterized by ground deer phalanges, trumpet and ringed-barrel pipes, triangular points, and a general eastern Iroquois influence.

Wright (1966) mentioned Draper in passing, and situates it at the beginning of the Late Iroquois tradition (1966:101).

By far, the most detailed study which has been made of Draper material formed the body of an M.A. thesis (Ramsden 1968), in which the first site map was formulated with positions of all known middens indicated. These middens were tested and compared for ceramic differences.

In 1972, the Ontario Archaeological Society, under contract from the National Museum of Man conducted excavations at the north end of the site and discovered a longhouse 25 feet in width and over 160 feet in length. Complete definition of the house length was precluded by the presence of an exceptionally large maple tree in the centre of the house at one end. An analysis of the results has been prepared by Ramsden. Eight hearths were situated along the central axis, together with 57 pits scattered about the same axis. There was no definite evidence of bench structures, although large centre posts did occur.

AIMS

In the OAS (Ontario Archaeological Society) grant proposal (1972:2-3) considerable emphasis was placed on the value of the Draper and White sites in terms of the valuable settlement pattern data contained in the respective deposits, and the grant was requested largely to investigate such data. The mere fact that both sites are largely *unplowed, undisturbed settlements* — a very rare occurrence among the sites reported in the literature of Ontario Iroquois archaeology — should be indication enough of the unusual value of these sites for settlement pattern analysis. Thus, the basic approach adopted for the project, was to recover settlement pattern data.

As an indication of the range of goals and types of problems which settlement pattern studies deal with, Trigger (1968.53-4) has given a brief general overview, noting dominant tendencies. These dominant tendencies fall into two classes:

1. The relation of settlement characteristics to the surrounding ecology and the technology available to the occupant groups;
2. The inferring of social, political and religious organizations in the prehistoric cultures from the patterning of material remains.

Trigger (1968:55) goes on to divide the realm of settlement pattern analyses into three levels, at each of which the above approaches can be operative. The 3 levels are:

1. The individual building or structure.
2. The manner in which these structures are arranged within single communities.
3. The manner in which communities are distributed over the landscape.

For the purposes of expediency, it has been assumed in the formulation of our approach, that ecological factors will be most evident in determining factors at the level of community distribution over the landscape (3), whereas social factors will primarily be evident in intra-structure and intra-community patterning.

These are the considerations around which the objectives of the report were built. For those who have followed developments in archaeology over the past decade, it should be evident that recovery of data which can be labelled "settlement pattern data," or any other kind of data, is no longer sufficient rationale or directive for the excavation, or the salvage, of a site. The development of a theoretical framework which deals with settlement pattern problems, or alternate problems, is a prerequisite to any intelligent and coherent attempt to excavate or "salvage" a site. Without well defined theoretical constructs or problems, it is impossible to gauge the worth of the types of data which are being "salvaged," and one runs the considerable risk of collecting data which will be of no practical use to anyone, while ignoring other types of data which can advance archaeological reconstruction and understanding of cultural processes. In digging blindly, one may well destroy a site for minimal results in the name of "saving" it. Because the Draper and White sites are so unique in terms of preservation, and because they have so much potential in terms of adding new dimensions to our understanding of the Iroquoian development, considerable effort has been

devoted to formulating searching theoretical propositions related to the excavations. In more specific detail these propositions were formulated in the following terms:

Location of Both Draper and White Sites:

Although other determinants of settlement location plausibly enter into the positions of these sites (e.g. Draper is situated at the top of a very steep stream embankment with high relief, a situation possibly dictated by defensive considerations), we wanted to find out if the area immediately around the Draper and White sites had any special ecological advantages for the Iroquois occupants. To this end a small investigation of the localized climax vegetation was undertaken; pollen samples were analyzed from midden and pit deposits; we obtained floral evidence from carbonized plant fragments (separated by flotation techniques); early historical accounts and surveys were searched for pertinent data; and we arrived at a limited reconstruction of the environments being exploited by the occupants (see Mulstein; Mulstein and Bowman; and Bowman, this volume).

Special attention is being focused on the position of the White site, which contrasts strongly with that of Draper and most other Ontario Iroquois settlements. Instead of being on top of a stream terrace, it is located in between two stream terraces and is consequently relatively hidden from anyone travelling on the interfluves. The location thus makes one suspect a possible specialized function for White site. In order to test this idea thoroughly, more extensive excavations will be necessary than we had resources for in 1973; however, preliminary results point toward probable validation of this point of view.

Another very important aspect of the location of the White site is its proximity to the Draper site – just over a mile. Heidenreich (1972:68) estimates that major Huron villages eventually exhausted land roughly within a 1½ – 1¾ mile radius of the village. Moreover, ethnographic sources indicate that main villages were virtually deserted in the summer owing to the absence of able-bodied men who were on trading and warring expeditions, while the women and children – and presumably older men with perhaps a handful of warriors – camped in the fields, and tended the gardens (ibid: 60). It was therefore very tempting to see the White site as an ideal summer camping spot or seasonal settlement used for tending fields once land had been cultivated to such a radius. This impression is reinforced by the paucity of other Ontario Iroquois sites in the immediate vicinity. If our hypothesis is correct, the White site is unique in the literature of Ontario Iroquois sites, and might yield valuable information on segmenting and reorganizational principles in Late Ontario Iroquois culture. With male members absent, the residential alignment in structures might be completely rearranged. On the other hand, matrilocal patterns might stand out even more strongly. In any event, the potential for gaining valuable insights into Ontario Iroquois social structure and economic bases is extremely promising. First, it is necessary to demonstrate that the White site is contemporaneous with the Draper site, and it is essential to show that the site was economically specialized, as well as to discover the nature of the ecomic specialization. Longhouse structures may or may not be present. If they are present one should expect significant content differences from Draper structures in terms of tool type frequencies and organic remains. It should also be kept in mind that the site could have served additional functions e.g. as a travel stop-over for trading groups, or other short occupations.

Although unique in Ontario literature as a probable economically specialized site, I am confident that this is merely because of the past theoretical orientation of prehistorians toward problems dealing with major villages. It seems inevitable that more such economically specialized sites will be discovered in the future.

Site Size:

Site size undoubtedly played an important role in determining site locations – especially for Draper (ca. 8–10 acres). Moreover, if we trace the locations of sites in relation to each other over time, a high degree of covariance is observed at certain time periods, indicating that the location of one site is dependent on the location of another, or other site(s). It is noted in at least one place that these covarying sites seem to coalesce at a given time period (Tuck 1971). Thus, when projected into time, our concern with settlement patterns involves us directly in the mechanics of, and reasons for, increases in settlement sizes.

The reasons why settlements increase and decrease in size is probably one of the most important archaeological and anthropological problems that we are capable of dealing with at the present. Upon the size of settlements largely rests a group's ability to make war, to produce material, to engage in large scale trade, to control resources, to support large scale stratified institutions, specialists, etc. Yet it is an incredible fact that the reasons why settlements change size is one of the most neglected problems in the literature. Rarely if ever have any ideas about *why* changes took place been tested; rarely if ever have such changes been dealt with in a systematic and nomothetic fashion. There are many suggestions, cursorily thrown out for acceptance or rejection, about why specific cases of changes in settlement sizes have taken place, but there has been no real investigation of the problem.

Since Draper occupies a temporal position very germaine to this entire question, one of the primary aims of the 1973

excavation season was to *begin* to provide some data on the mechanics of the increase in site sizes characteristic of this time period. As noted, sites the size of Draper only really begin to appear at the beginning of the Late Ontario Iroquois Period (Wright 1966:99). Since Draper is generally assigned to the beginning of the Late Ontario Iroquois Period (Wright 1966.101), one should be able to detect some indication of the mechanics by which settlements increased in size. Obviously, the Draper site forms only one part of this puzzle, although possibly an important part. For, in fact, it appears that settlements were increasing in size in Southern Ontario during the Middle Ontario Iroquois Period (1400–1500 A.D.) while during the same period settlements in the New York area remained small (Noble 1968:310-311).

It should be made clear that the 1973 excavations were *not* meant to settle, in any definitive way, the broad question of why and under what circumstances settlements increase in size as a class of phenomena; nor were the results of the season's excavations supposed to be very definitive in terms of certainty that increase in site size occurred via one mechanism rather than another or for one reason rather than another. Such definitive results require much more work at the Draper site, as well as some good comparative data. Rather, what I hope to have accomplished is an awareness of the problem, the delineation of some of its major features, the formulation of several hypotheses, and the testing of these (on a limited scale) with the data which are available from the Draper settlement.

Elsewhere (Hayden 1978), I have argued that large settlements are uneconomical, difficult to administer, and promote higher morbidity and mortality rates than smaller settlements. Therefore, the most economical, least stressful, and most healthy settlement size is the smallest feasible – e.g. the homestead or nuclear family. Given this situation, increases in settlement sizes are unexpected outcomes. During the course of excavations, two models capable of explaining such unexpected trends were developed: 1) a simple internal growth model which assumed that mankind was inherently gregarious and increased community size whenever possible, especially when more productive subsistence technology became available; and 2) a model which related settlement size growth to external forces such as warfare and increasing localization of critical resources (e.g. water in arid regions). Neither of these models was found to be completely satisfactory, however, and one of the conclusions stemming from the 1973 investigations at the Draper site was that a third major type of model can be used to explain increases in settlement size. This third model postulates that monopolistic trade will result in wealth concentrations, which act as internally generated forces, drawing population to those centres with concentrated wealth. I feel that it is this model which has most explanatory power regarding settlement size increases as represented at the Draper site (see also Ramsden 1978).

Because we were only examining the first two models at the time of the excavations, great emphasis was placed on the different types of patterning expected within the site given the two models. If simple internal growth was the primary mechanism of settlement size increase as expected with the first model, then stylistic differences throughout the site should have been minimal. If, on the other hand, the second model of settlement size increase was more pertinent, a very different pattern of archaeological remains should have appeared in the analysis. Under defensive pressures, groups coalescing into a single village should combine within that larger settlement several independent stylistic traditions. Thus, with this second model, the inter-house structure stylistic variance within a large community such as Draper should have been developed to a maximal extent, and should certainly have been much greater than the variance found within any one of the previously independent, smaller settlements (all other things being equal). Because not enough data is currently available, it shall be assumed that contemporaneous independent villages differed in stylistic pottery traditions. This assumption needs future substantiation.

It seemed reasonable to expect coalescent groups to maintain some distinctiveness and segregation immediately after, and even relatively long after, coalescence. It was also reasonable to expect social "distance" to be highly correlated with physical distance (Sahlins 1972:197), especially given non-industrial communications. Thus, one could expect social separation to be greatest where physical separation was greatest. At the Draper site, there was an additional natural dividing line which could tend to act as a marker between differing social groups: the ravine dividing the site into northern and southern sectors. This appeared to be an excellent situation in which to test the two models proposed above. The previous season's excavations dealt with a house at the north end of the site. Our objective was to find a house at the southern end of the site, on the other side of the ravine, where according to the postulates of the second model and assumptions of social distance, we should find a noticeably different pottery assemblage or male lithic assemblage – depending on residence prescriptions. It was for these reasons that we excavated where we did. Exact location of our testing was determined by local features such as the position of middens, relatively flat areas, etc.

In orienting our research in the above manner we are in reality testing two propositions: 1) that settlements only increase in size under external influences, such as defense, strong enough to override the inherent disadvantages of larger settlements at the egalitarian subsistence level; and 2) that the Draper community represents the coalescence

of several independent villages.

Again, it should be emphasized that to answer questions of this nature, it is usually necessary to have a relatively good body of comparative data. Data for comparative studies of this type do not appear to exist in published form for this region, and it seemed dubious that after our analyses, we would be able to make assertions with as great a level of confidence as .05, if that – although with a great deal of luck this might be possible. Rather than providing a definitive answer to these questions and problems, we hoped simply to obtain a preliminary indication of how our results fit these alternate models, and provide a solid data basis for future work and analysis at the site.

Site Movement:

It has been traditionally assumed that the regular moving of Iroquois villages at 10, 20, 50, or even 100 year intervals was necessitated by land exhaustion around the site (Trigger 1969:17; Heidenreich 1972:68). However, ethnographic observations from other parts of the world indicate a possible alternate explanation for this movement behavior. It is commonplace to find swiddening groups such as the Tsembaga of New Guinea (Rappoport 1968) which have no difficulty in establishing permanent villages by means of a long term fallowing period during which the fertility of the land is re-established by natural reforestation and Carneiro (1956:233) suggests that soil depletion is generally not a limiting factor in the degree of sedentism among swiddeners. There is no *a priori* reason to assume that the Huron could not have easily maintained a similar system. On the other hand, an argument can be made that among swidden groups which are known to move settlements, there seems to be a general correlation between frequencies of moves and importance of wild game in the subsistence strategy. For instance, Carneiro (1964:16-18; 1968:134-135) notes that Montana swiddening groups in Brazil such as the Amahuaca, give soil depletion as an emic reason for moving their villages, although it is empirically demonstrable that they were far from exhausting their soil resources, and in fact had much more usable land available. Carneiro (personal communication) affirms that in fact these Montana groups rely to a much greater extent on wild game than groups such as the Kuikuru which move villages much less frequently. One possible cause of village moves may therefore be game exhaustion (Carneiro 1964:16). Thus it might be argued that the Huron abandoned their villages when game became depleted within accessible distances from the villages. It should be stressed that given the large amounts of time and energy needed to construct villages (e.g. Callahan 1973) one should not expect moves to occur for trivial reasons.

If Huron villages were moved because of game exhaustion, one might expect to find:

1) substantially fewer faunal remains in the uppermost levels of middens or fewer staple animal remains or,
2) different butchering patterns in the tops of middens reflective of increasing distance of game transport, or
3) possibly greater evidence of malnutrition in human bone, as well as a higher miscarriage rate or infant mortality rate, during the later phases of occupation.

Structural Arrangements Within the Settlements:

Although this was not our main area of concern in 1973, we did add to the available data on positions of former house structures and probable exterior work areas. With the help of the University of Toronto and Scarborough College field schools, limited testing for a possible palisade structure was undertaken. Such data was also usable in relation to the models of settlement size increases based on threat of warfare. As for the White site, it was hoped that the discovery of some sort of structure with undisturbed contents might indicate a specialized economic role of the site occupants. However, we found no structures during the excavations at the White site.

Settlement Patterns Inside Structures:

It would appear that little if anything has been attempted or published on the internal composition of social units of Ontario Iroquois longhouses. Noble's (1968:264-308) unpublished treatment of the lineage nature of longhouse units and the possible archaeological visibility of lineages and clans is the exception. It has generally been a standing assumption for nearly a century that longhouses constituted matrilocal, matrilineal clans. However, Tuck (1971:221) argues that in the 17th century the little information which is available indicates that residence was only occasionally matrilocal. To what extent was this situation characteristic of prehistoric Iroquois groups, and what in fact was the basis for residence in the longhouse structures so characteristic of this era? Did the inhabitants form a corporate lineage, or was a corporate structure entirely lacking in regard to the residents of each longhouse? It is difficult to believe that the small oval structures of the Early Ontario Iroquois Period could have expanded as extensively as they did and incorporated much larger populations inside each structure, without some sort of corporate structure channeling decisions as to who would reside with whom, as well as determining the size of the habitation group and thus the structure's length. However, as the 17th century data indicates, if the corporate structures governing residence were not matrilineages, what were they? There are few reasonable alternatives. One possible source of residence

orientation might be the family head's affiliation with a festival or religious lodge, all the members of which might reside in the same longhouse; another possibility might be the creation of a "following" around dominant traders, if in fact trade or redistribution was of overriding importance in the economy.

In any event, although there are only two partially excavated houses at the Draper site, which is far from a statistically valid sample, both houses (160+ feet and 150+ feet [in neither case were both ends of the houses located]) go well over the average length of structures for the Late Ontario Iroquois Period (Heidenreich 1972:47). If it does turn out that the occupants of Draper resided in exceptionally long longhouses, it would seem reasonable to infer that whatever forces were operative in creating residence-determining corporate structures, and making these groups adaptive for Iroquois society, such forces were at an apogee of social strength and development at this time. Since behavior relating to any given institution should be patterned to the most extreme degree at the apogee of that institution's power or development we might reasonably expect the nature of the institution to be most discernible archaeologically in such a maximally developed context. If this is the situation at the Draper site, patterning of material remains should reflect the nature of these residence dominating forces or institutions better than at other Ontario Iroquois periods.

If these corporate structures were matrilineal-matrilocal clans, the homogeneity of ceramic styles within longhouse structures should be maximal, whereas stylistic differences between longhouses should be more pronounced.[1] On the other hand, if the corporate structures dominating residence behavior were not matrilineal, or at least not matrilocal, then there should be a much more homogeneous spread of pottery styles throughout the village, and more heterogeneous mixture of styles within each longhouse structure. It should be emphasized that these are relative differences, and that only with an adequate comparative base can definitive inferences be made. The operational and theoretical assumptions are very similar to those employed by Longacre (1964: 1968) and others. Examinations of the validity of these assumptions can be more profitably discussed elsewhere.

Although outside the purview of our research, the reasons for the development of longer and longer longhouse structures from small oval structures would make a fascinating study.

In order to begin to answer the above questions, we have attempted analysis of the ceramic styles within longhouses, and hope to find clustering of specific types in the vicinity of hearths within the longhouses.

In the ceramic analyses we used traditional typology and assumed that this was a relatively accurate reflection of Iroquois culturally patterned behavior or cultural "rules" (conscious or unconscious). Whallon (1972) has convincingly argued for the validity of this typology and has cast serious doubts on the worth of other statistical typological definitions. For these reasons we have not become involved in the generation of alternate typologies.

Since the ceramics were made by women, the analysis yields data on residence patterns of women. Again, because no comparative data exists in Ontario for such an analysis, and because the interpretation generally depends on comparative data for its validity, it was assumed that we would only be able to glimpse the answers which we sought; it was not expected that anything definitive would result from our researches at this stage; it is expected that our data, used in conjunction with data obtained in the next years' excavations will provide the basis for much more definitive conclusions.

An additional facet of concern with settlement patterns and social implications of intra-structure settlement data, has to do with the repartition of space within structures, areas which were communally shared for general and/or special activities, separate social-economic units within the structures, etc. This, of course, involves a very traditional goal of archaeologists: the discovery of activity areas. If these can be identified within or without structures, it is a very small additional analytic step to delineate tool kits, and postulate tool functions. It would be wasteful to have engaged in such detailed analysis without taking this additional, relatively minor step. Therefore, two further aims were considered in handling the material from the 1973 excavations: 1) the delineation of activity areas with their social implications for intrastructure activities and occupant relations; and 2) the delineation of tool kits, and an attempt to make inferences about the functions of tools.

[1] It should be realized that we can expect a relatively high level of statistical "noise" due to other sources of ceramic stylistic variation. For instance, Stanislawski (1973) has emphasized that women acquire stylistic habits not only from their immediate family but from several sources including neighbors when learning how to make and decorate pots. Individuals usually alter their stylistic repertoires as they grow older as well. In spite of such potential interfering influences, it is hoped that corporate group traditions will be detectable, even if they account for only a minority of the total ceramic variability. Obviously, any definitive resolution of this issue lies in a much more expanded comparative context, for which adequate data has yet to be collected.

EXCAVATION TECHNIQUES

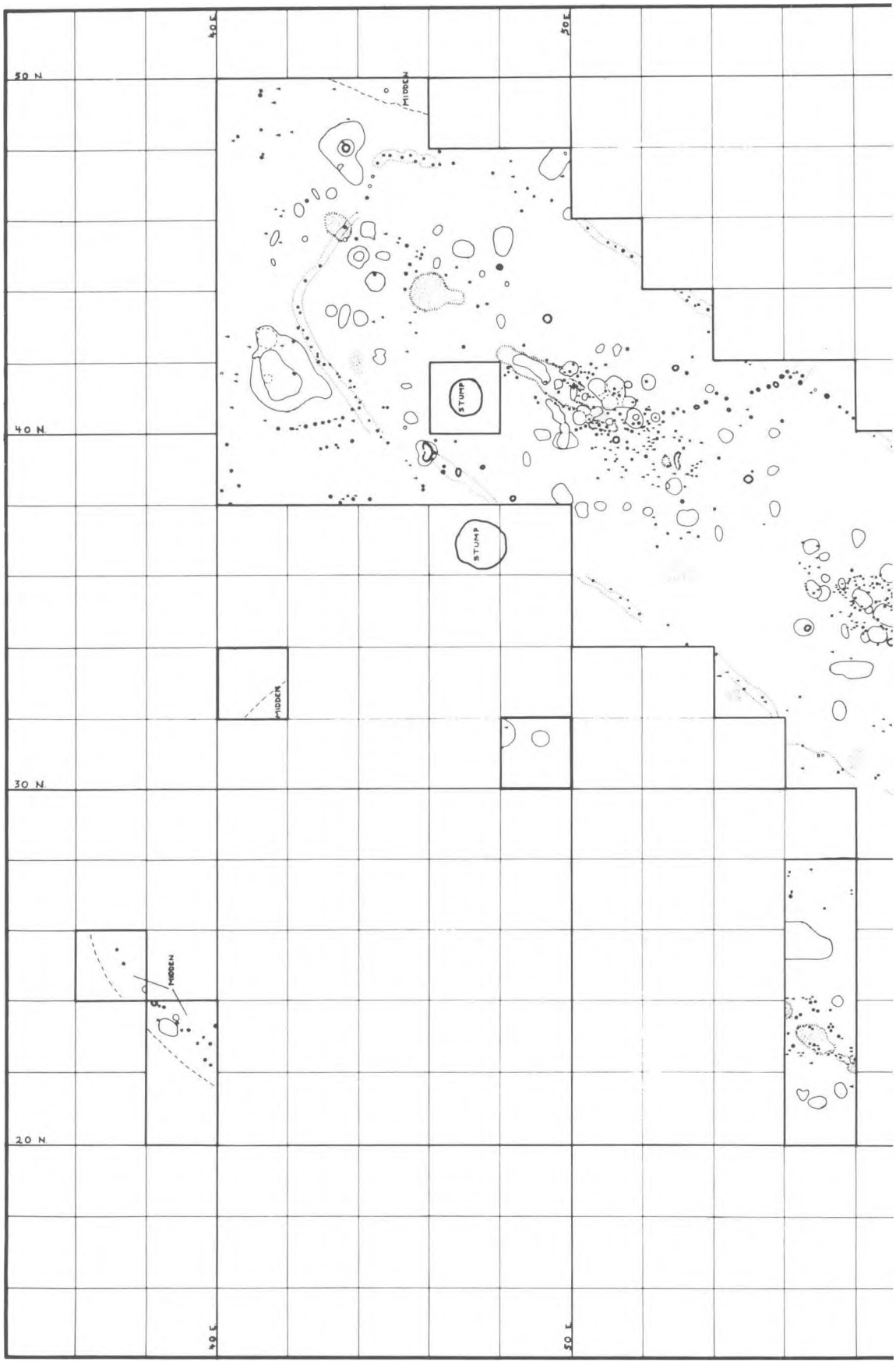
From the foregoing, it should be apparent that the primary emphasis in the project was on a deductive, hypothesis formulation, and hypothesis testing method. However, it should again be emphasized that this was only possible in any meaningful sense because of the wealth of data which was provided from previous research. Besides this major aspect of the project, a minor aspect of the project was purely information gathering in orientation, i.e. much more inductive. This minor aspect consisted of attempts to delineate midden and structure positions by means of remote sensing techniques, namely: via a restricted magnetometer survey in the vicinity of (and partially overlapping with) our excavations; and a low altitude, multi-spectrum aerial survey of the two sites (see Farquhar, this volume).

In regard to excavation methodology, it is hoped that the foregoing sections have adequately explained the unique nature of both Draper and White sites, and the relatively unique types of analysis which have been attempted at these sites in the Ontario context. As noted, neither site has been plowed and the artifactual material was essentially in an undisturbed, primary depositional context. This is an unusual condition for Ontario Iroquois sites, and it is only because of this situation that the types of analyses proposed were at all feasible. In view of this special circumstance, it was deemed that much more precise excavation and recording was required than has been habitually practised on plowed Ontario Iroquois sites. In fact, the types of analyses which were attempted absolutely necessitated a high degree of control over provenience of every artifact which was excavated. This control essentially meant that two dimensions were added to our interpretations. In the first place, some temporal control was possible, even within house structures, for the deposit was generally about 15 cm thick, and field observations detected localized differences in artifact materials from top to bottom, indicating some sort of change over time. In the second place, it was possible to do a horizontal distributional analysis of the various styles and artifacts, thereby making possible inferences about social units, activity areas, tool kits, and variability between social units. If the provenience controls were not precise enough, none of the above would have been systematically possible. Of course, in order to procure usable data for such interpretive analysis, an additional outlay in time and energy was required over and above what has been expended in most Ontario excavations of plowed and disturbed sites.

On the one hand, it would have been unnecessarily meticulous to record the exact provenience of every body sherd and every bone sliver; on the other hand, simply recording material in units of 5 foot squares or 2 metre squares is so gross as to make most correlations meaningless or of exceedingly low value. Therefore, I broke our recording unit – squares 2 metres on a side – down into a number of smaller excavation and analytic units. These smaller units were 50 cm on a side, which meant that there were 16 small units per 2 metre square. We sequentially numbered these within each square in a standardized form. In order to increase the rapidity with which these units could be recorded and excavated, we had a metal frame constructed with 50 cm cross-wires, which could be laid over each square. We then placed 25 cm spikes in the ground at the cross-wire points, and the spikes were pushed completely into the ground, and further embedded as the square was taken down in excavation. Precise subsquare limits were not kept since this would require an inordinate amount of time, and because slight inaccuracies on the order of a few centimetres would not substantially affect the magnitude of correlations which we obtained (by using 50 cm squares instead of precise locations of artifacts, reliability and magnitude of correlations was already affected, and variance of a few centimetres would not greatly increase this, while the magnitude of correlations possible with this recording system are still high and significant).

All material was troweled down and sifted with an 1/8" mesh screen where it appeared there were possibilities of significantly increasing recovery of floral or fish or microfaunal remains. Generally where used, however, it appeared that about 90% recovery of material over 1 cm in diameter was attained by troweling in the deposits.

Where fish bone and/or seed material was present it is obvious that the rate of recovery in troweling was much lower. Given this fact, it was often difficult to tell when the use of the screen was warranted. This may be a significant skewing factor in our final results. I would strongly recommend that if resources and personnel permit at least one house be excavated in the future using fine screens throughout. For the 1973 excavations it is hoped that, even given the lower recovery rate, concentrations of fish bone and seeds will be visible in distributions, etc., simply due to the fact that they would more likely be spotted, even in troweling, in areas where they were most abundant. Again, individual differences in experience and troweling techniques, etc., will probably affect the data and analysis of these artifact categories adversely. The reason sifting was not regularly carried out was that we were primarily attempting to obtain a large enough sample of floor area from the site to try the above mentioned techniques of analysis, and to see if anything meaningful would come of such an approach, especially in regard to the ceramic analysis. Moreover there were problems of screen clogging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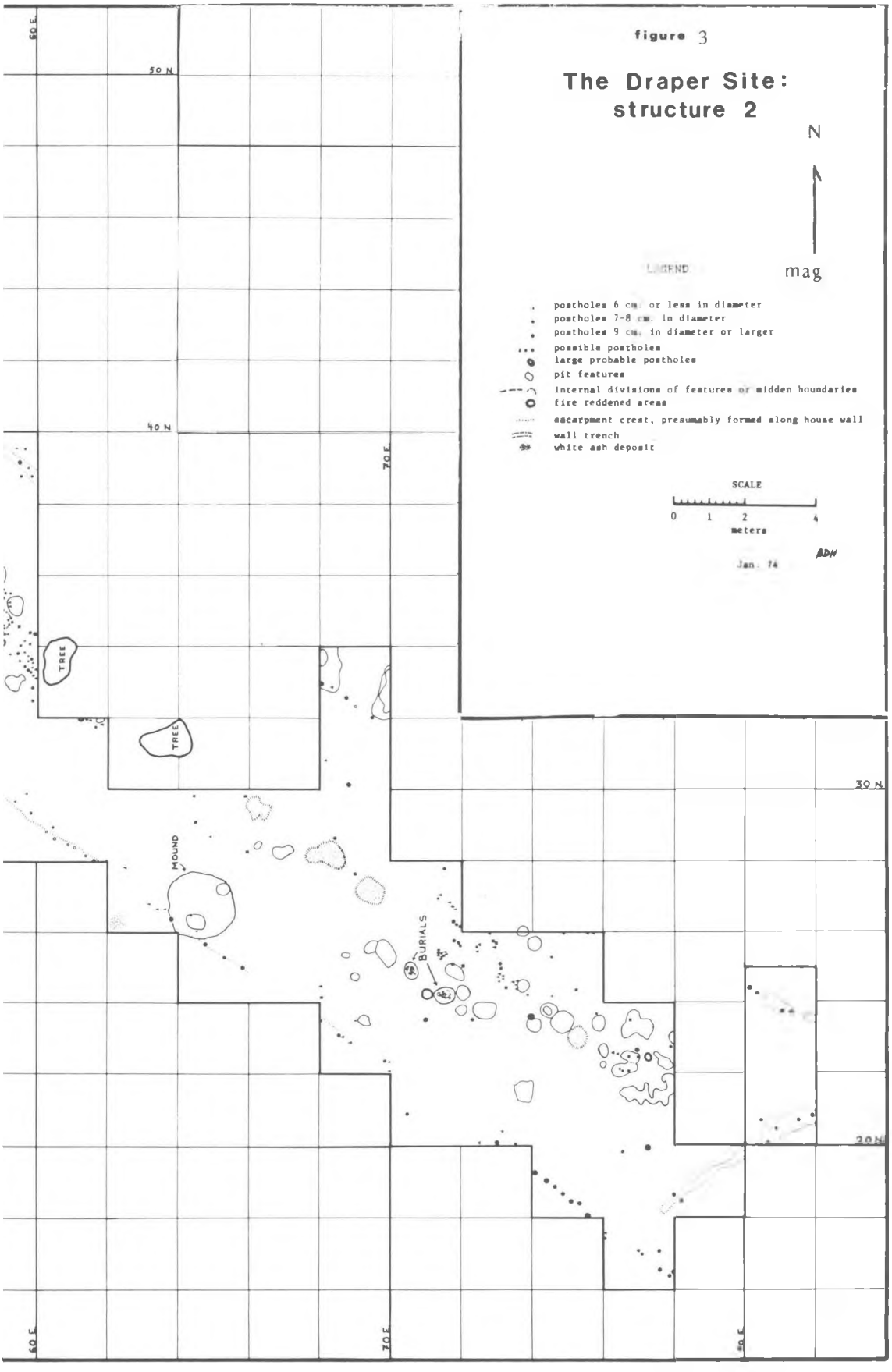


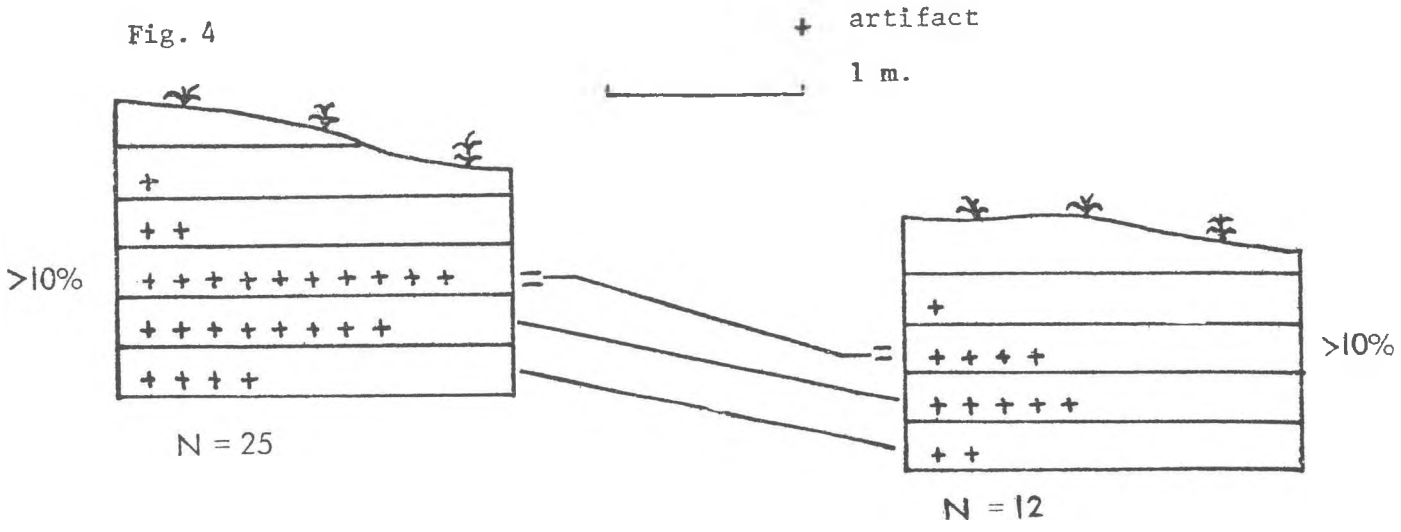
figure 3
The Draper Site:
structure 2
N
mag
LEGEND
postholes 6 cm. or less in diameter
postholes 7-8 cm. in diameter
postholes 9 cm. in diameter or larger
possible postholes
large probable postholes
pit features
internal divisions of features or midden boundaries
fire reddened areas
escarpment crest, presumably formed along house wall
wall trench
white ash deposit
SCALE
0 1 2 4
meters
ADH
Jan. 74
60 E
50 N
40 N
70 E
30 N
20 N
TREE
TREE
MOUND
BURIALS

and lack of water to resolve this.

As for the vertical controls, almost the entirety of the deposits lay in the black "A" horizon of the soils at Draper and White – very close to the surface. Because of the black color of this topsoil, natural stratigraphic units were exceedingly difficult to observe visually. For this reason, and because we could not assume that surface contours necessarily represent the shape of the surface when the sites were occupied (due to tree falls, localized erosion and deposition, etc.), we excavated the 2 metre squares in arbitrary, horizontal, 3 cm units. Because the cultural deposit was so thin, anything larger than this ran the great risk of becoming meaningless in terms of detecting changes in the 10–50 year period during which the site was presumed to have been inhabited. A finer recording unit – 2 cm units, or even 1 cm units – might be preferable, however, this would entail considerably more time, and it was thought best to try an initial analysis with slightly larger units to see if any meaningful changes were apparent. It should be emphasized that this solution to vertical and temporal controls of the deposit was far from satisfactory, it being exceedingly difficult to be sure about the temporal correlation of a level in one square with any other level in any other square. The best that can be attempted is an approximate correlation based on the relative position of levels in relation to the total, vertical artifact spread in the squares concerned.[2] It seemed equally, if not more, futile to attempt to follow the natural contour of the surface, in arbitrary units, especially given depressions indicative of pits, post-occupational mounds, subsurface concentrations of rotted roots, irregularities in desodding, etc. The problem of how to maintain the most meaningful vertical controls under such circumstances remains unsatisfactorily resolved in my mind.

To facilitate and expedite excavation, the first 6 cm of sod and soil were stripped away without being recorded. Spot checking confirmed that no cultural material occurred in these first two levels. The square was then excavated in

Fig. 4



[2]Operationally, this means that all artifacts from a subsquare should be summed, and the first level to have more than 10 per cent of the total considered to be the "first" cultural level. All such "first" units would then simply be considered contemporaneous. (Fig. 4). Units below this initial designation would simply follow sequentially and would be correlated according to their sequence position (e.g. all "2's" being considered contemporaneous, etc.). Again, there is very evident room for error, however this crude model seems potentially the best for determining approximately contemporaneous artifacts in a simple majority of squares. Significant correlations indicating change over time should be discernible amidst the "noise." The criterion of using 10 per cent to mark the initial level is arbitrary, but seems to be a statistically useful level for excluding artifacts occurring in higher layers due to change and natural disturbances.

One further caveat in regard to interpretations derived from the vertical and horizontal data, is that changes in artifact patterning within the longhouse might also be subject to the vagaries of cleaning habits, type of flooring (the east end had a predominantly clay floor which may have facilitated cleaning and/or made occupation less desirable due to hardness), and other factors. Nevertheless, given the nature of the deposits we were unable to determine how such differences could be detected stratigraphically. This type of "noise" may reduce the certainty with which we can present the sequencing of materials. On the other hand, we may discover that sequencing correlations are relatively accurate and have high confidence levels. In any event, results should be testable with future data from other houses at Draper, and at this point we feel that if any technique is going to yield meaningful results, it is the one discussed above. General trends should also be evident in the associated midden deposits. Middens are particularly intricate puzzles to take apart and put back together again, and no detailed effort was devoted to their decipherment in 1973.

horizontal 3 cm levels until artifact occurrence stopped, at which point, shovels, trowels, and hoes were used to rapidly take down the mottled A3 and B1 soil horizons (which were relatively deep, unfortunately) so that post molds and pit features could be seen, recorded and excavated. Features were recorded as separate units, and except for the very large ones were not dug in terms of subsquares and 3 cm levels. They were excavated and recorded as another class of analytic units. One other exception to the above system was where living floors were detected due to differential compactness of the soil within the topsoil (A horizon). Such occurrences were rare, although we had one or two instances in areas close to hearths. In these circumstances, the deposits were excavated down to the living floor and recorded in terms of those depths. Such living surfaces were followed as far as possible, however only restricted areas were detected.

All points from which measurements were taken in the 2 metre squares were tied in to the datum point being used for the site, so that there was relatively good elevation control in relation to surface contours, in case it was necessary to analyze the data in this fashion.

The entire southern portion of the site was carefully gridded with squares which measure 10 metres on a side, and each of the corner stakes was measured for elevation below datum.

In terms of the techniques used for other aspects of the analysis, most of the pits and hearths have gone through a floatation process which greatly increased the recovery rate of carbonized plant remains and fish bone and other microfauna. In addition, radiocarbon and thermoluminescence samples were taken for analysis in order to obtain some idea of the relative temporal positions of the Draper and White sites -- it would be especially interesting if they were contemporary. Pollen samples were taken, and limited ecological studies undertaken to provide data on the past ecology and how it might have influenced the location of each settlement (see infra).

Standardized forms were made up for the recording of data pertaining to the excavation of each 2 metre square, features found within these squares, and the stratigraphy and soil development of each square. This insured some degree of control on uniformity and comparability of types of data recorded.

All material was kept and recorded (only rocks were discarded, although their frequency in each level and subsquare was recorded). All material was washed and catalogued in the field, providing a preliminary breakdown of artifacts and their distributions in the areas excavated. Squares were backfilled as they were finished in order to save on future backdirt moving as well as time spent on transporting backdirt out of the excavation area.

In sum then, we have added two complete dimensions to the analytic armory at Draper and White sites. This means it will be possible to carry out studies of change through time at these sites, as well as undertaking the detailed settlement pattern analyses outlined in the first part of this report. The price for adding these dimensions to the information which we derive from the archaeological context is a reduced amount of earth moved, and a reduced total area excavated. However, both Draper and White sites are extremely rich in terms of the many varied types of information which can be culled from their deposits. Indeed, in many ways, these sites are ideal as well as important. It would be a tremendous loss and setback for Ontario archaeology as well as a blow to archaeology as a science investigating laws and principles which govern culture, if these sites were simply dug as disturbed Ontario Iroquois sites have been dug in the past. More so than at any other site in Ontario now being excavated, these sites should be excavated so as to derive the maximum amount of useful information from them. At least in the case of Draper, all data may be lost in the next 2–3 years if concerted efforts are not made immediately, on a much larger scale to deal with the site.

It must be added that, within what I consider reasonable bounds, all efforts have been made to increase the efficiency of the detailed recording used at these sites.

GENERAL SETTLEMENT CONSIDERATIONS AND INFERENCES ABOUT STRUCTURES

In this last introductory section, I will discuss the major aspects which we examined while still in the field. Some of these aspects could be dealt with directly, such as post hole size, while others were more of a problematical nature, and could only be formulated in terms of preliminary theorizing. If the discussion of problems is framed in an unresolved hypothetical fashion in this introduction, it is because none of the detailed analyses of the artifactual material was available when the section was written. Much of this section thus represents only the first phase of deductive hypothesis formulation. Evaluation of the various possibilities will be carried out in the summary chapter of this volume.

Site Location.

In terms of general determining factors for site locations, two considerations seem to stand far above all others at both the Draper and White sites: defense, and economic potential. The lines of evidence which point to defense as

an important factor at Draper have already been discussed. Briefly the evidence consists of: a probable, often rebuilt palisade; location on a semi-promontory with high relief which would also be disadvantageous for water and stream bed resource fetching; relatively common, scattered and sometimes mutilated human skeletal parts; and a general geographical situation near the border with known historic enemies, the New York Iroquois. For the White site, the emphasis is less pronounced, and would seem to follow more of a concealment pattern.

As for the economic potentials of the areas around both sites, these will be dealt with in detail in the ecological report (see Bowman; and Mulstein and Bowman, this volume).

DRAPER SITE:

Structure 1:

For the purpose of establishing a consistent reference system at the Draper site, the structure excavated in 1972 (Ramsden, n.d.) will be designated as Structure 1; the principle structure excavated in 1973 will be designated as Structure 2. Although there are indications of other probable structures, no designation will be given these until further testing demonstrates that they are definitely structures.

Structure 2:

This was the principle object of the 1973 excavation season. The following will deal with its general description, as well as inferences which can be drawn from the house-pattern data.

Excavations began in a location which soon became the northwest end of a longhouse structure. At this end of the house, walls were very distinct; we therefore followed wall patterns toward the opposite end of the house, i.e. toward the southeast. By the end of the season, we had followed the house 45.5 metres (ca. 150 feet), and had still not reached the opposing end (see Figure 3), although the paucity of artifacts around the southeast end might be an indication that the end was not too much further – perhaps another 5–10 metres.

This appears to be an extreme length in comparison to most other longhouses in Ontario (Heidenreich 1972:47). The width, 8 metres (26 feet), was more characteristic of Ontario Iroquois houses. Orientation of the house was northwest–southeast, which is again in good accord with many Ontario alignments.

Postholes:

All postholes were excavated to determine width, depth, and angle from the surface. Depths were recorded in centimetres from the surface datum of the 2 metre square in which they were found. This information was collected so that we might gain some idea of the structural properties of the building. Almost all postholes were dug perpendicular to a level horizontal surface. The few which were 80–85 degrees to the horizontal were random, isolated occurrences, and seem to be best explained as slight errors in post emplacement, rather than functionally angled posts of racks or other such features. There is one exception to this: a pit feature which appeared to have several relatively horizontal shafts stuck into its side.

Given a situation where wall posts were placed vertically in the ground, it seems more likely that the roofing was made up of lashed cross pieces, rather than ends of saplings embedded in the ground, bent over, and lashed. Moreover, there is an irregular, staggered line of larger, and very large posts, which runs more or less down the central axis of structure 2.

This certainly seems more consistent with a structure carrying cross roofing pieces, since such pieces would probably need supports over a 26 foot span. Alternatively, a ridgepole device might have been employed to make roofing more economical (in terms of wood pieces shorter than 26 feet). The exceptional diameter of these "probable" postholes indicates some sort of major support. A parallel set of ridgepoles, would be another alternative, which would establish a trapezoidally shaped roof in longitudinal cross-section. Another possibility is the use of convex crosspieces. Observations from Structure 1 generally correspond to those made here, with very large interior posts occurring at staggered, irregular intervals in the area of the centre aisle.

Certainly, the data does not support a parabolic-shaped house cross-section, with wall posts being driven in at an angle and lashed together at the peak. This is a common form of longhouse reconstruction, e.g. at Sainte-Marie Among the Hurons, and Midland; but the structure excavated in 1973 bears no detailed resemblance to such reconstructions. Rather the principles of support post construction employed at Draper appear more in accord with Burmaster's model reconstruction (see Speck 1955:8). Another interesting feature in both houses so far excavated at Draper is the absence of evidence for bench structures along the walls.

On an intuitive basis, postholes were plotted on the floor plan (Fig. 3) for structure 2 in terms of diameters in the following categories: 6 cm and less; 7–8 cm; and 9 cm and larger. Few if any postholes were recorded which were under 4 cm in diameter because it proved exceedingly difficult to distinguish such traces from root, worm, and insect holes. The number of cases where we could be

confident that these were posthole remains, were exceedingly rare. On the other hand, postholes of unexpectedly large diameters occurred more frequently. In the beginning of the excavations, it appeared that posts with diameters of about 12 cm were about the maximum sizes used. It became apparent later that postmolds occasionally reached sizes of 14–20 cm and even larger. However the larger of these posts, as well as even larger "probable" postholes, enter the range of pit feature dimensions. Certainly, some of these larger holes were for posts, based on depth, narrowness, and straightness of profiles; however, for some others – especially the very large ones – we could not be absolutely confident that the excavated holes were for posts. These have therefore been indicated on the floor plan as "probable postholes."

It should be stressed that many of these exceptionally large postholes, if not all of them, do not represent the diameter of the posts placed in them, but are, in reality, pits dug out with some sort of digging implement previous to emplacement of the posts. There were at least 3 definite instances where these "postholes" could be seen to have been dug out, and then filled with packing materials surrounding a more normally sized postmold within the pits. Obviously, in digging such pits to any great depth, the pit may be widened in order to facilitate deeper, or easier excavation thereby approaching dimensions of pits used for other purposes.

In retrospect, it would have been helpful to establish another diameter category on the floor plan for posts between ca. 14–19 cm.

In terms of distributions of sizes, it was hoped that a simple frequency histogram would establish whether or not there were distinct sizes of posts being used in construction for distinct functions. If this were so, one could expect a bimodal distribution. On the assumption that posts in the wall construction may have been different from posts used in interior features of the longhouse, postholes were divided into two populations: those used in the exterior wall (Fig. 5), and those inside the walls (Fig. 6); no posts over 16 cm in diameter were included in the analysis. As can be seen, the resultant curve for wall posts is not really normal; but on the other hand, it is not really bimodal or trimodal. There are hints of bimodality in the peak at 10 cm, and of trimodality in the peak at 12 cm. If this were a unique isolated set of data, it would be very poor criteria for postulating 2–3 functional post types. However, the distribution of interior house posts duplicates this same pattern of minor peaks at 10 and 12 cms. This duplication may of course be the result of chance, but it looks less likely. If this conclusion is borne out by other data, it would mean that posts of ca. 7, 10 and 12 cm diameters had distinct and different functional roles in construction. Uniform sized posts often occur in clusters around hearths or features, and where found in wall construction, can probably be assumed to be more of a secondary structural nature.

It is particularly interesting to note that all the smaller postholes associated with hearths were placed vertically in the ground. This tends to suggest that something was suspended from them, or perhaps that a cross piece was extended between two forked sticks, which thus formed a type of drying or roasting skewer. The drying, smoking or storage of foods and/or wet skin clothing should not be ruled out either.

There is a fairly good correlation between the depth to which a post was embedded and its diameter (see Figure 7), especially considering the occasional occurrence of hard shallow clay beds in the deposits.

In some areas postholes became exceedingly difficult to discern, as was the case with the midsection of the southern wall; this area was particularly sandy, and the difficulty in recognizing postholes may explain why we found no house wall in the test extension further to the south, where we suspect another longhouse to be.

Wall Trenches:

One interesting feature, which helped us to identify parts of the house wall with near certainty, was what appeared to be a shallow trench which had been dug in some spots to outline the shape of the longhouse, and guide the positioning of wall stakes, and/or to remove ground so that secondary posts would not have to be driven in as far and earth could simply be filled in around the posts (Callahan 1973:19). This trenching showed up as a linear zone of dark humic soil about 15 cm wide in the B1 horizon, and almost inevitably there were postholes immediately beneath it. Along the northwest corner of the structure, this "trench" was filled with ash, which indicates that it was not filled immediately after the house was constructed, but was left open long enough for considerable ash from the hearths to accumulate and be thrown away in the corner. This corner may well be a garbage corner given the high density of artifacts found there. The trench may also have served to sink bark walling material below the ground surface, thereby reducing cold air seepage along the ground.

Aboriginal trenching was restricted largely to the western half of the house. Abrupt breaks in the trench outlines at the edges of 2 metre squares are presumably due to recording omissions and perception oversights by different excavators. Along the south wall, it was replaced by another form of distinctive wall marker, which appeared as a terrace with the area inside the wall being scooped out or worn down, while the surface outside the wall remained at its original level. One soil profile in particular yielded clear evidence of this reduction of the surface levels and soil horizons inside the walls.

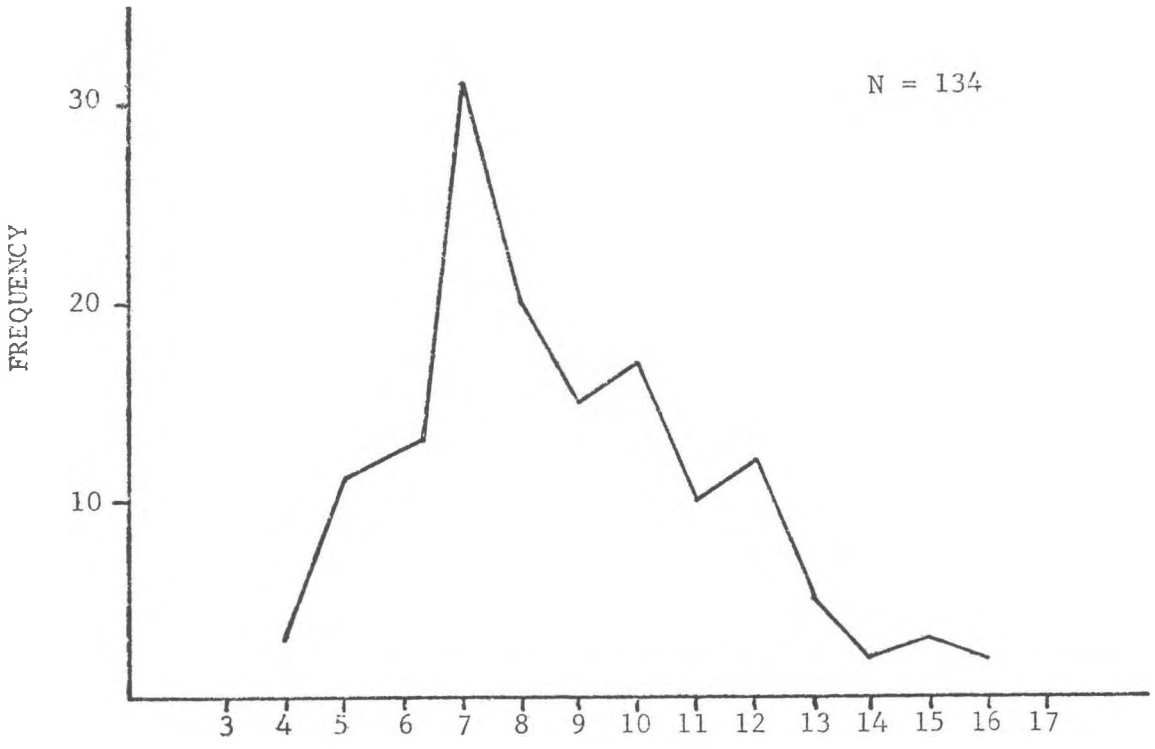


Fig. 5. POSTHOLE, DIAMETER (cm) Size distribution of wall postholes, structure 2.

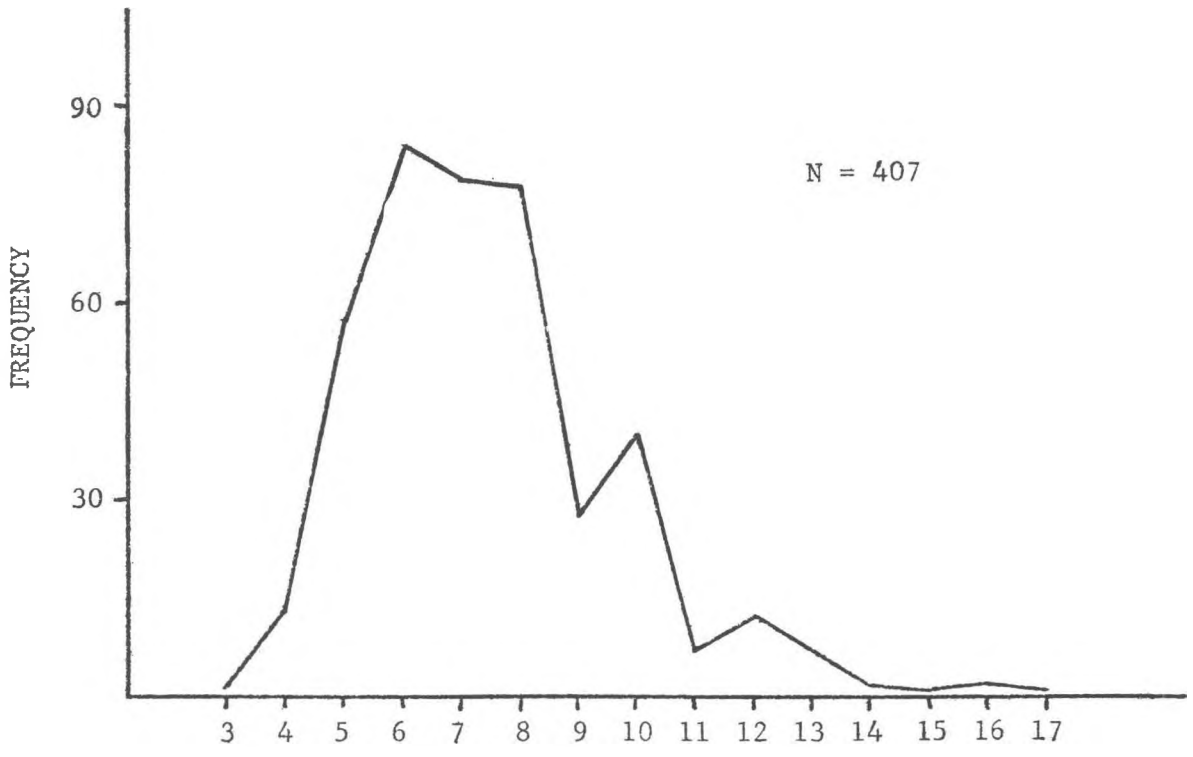


Fig. 6. POSTHOLE, DIAMETER (cm) Size distribution of interior postholes, structure 2; does not include "large probable" or other "possible" postholes.

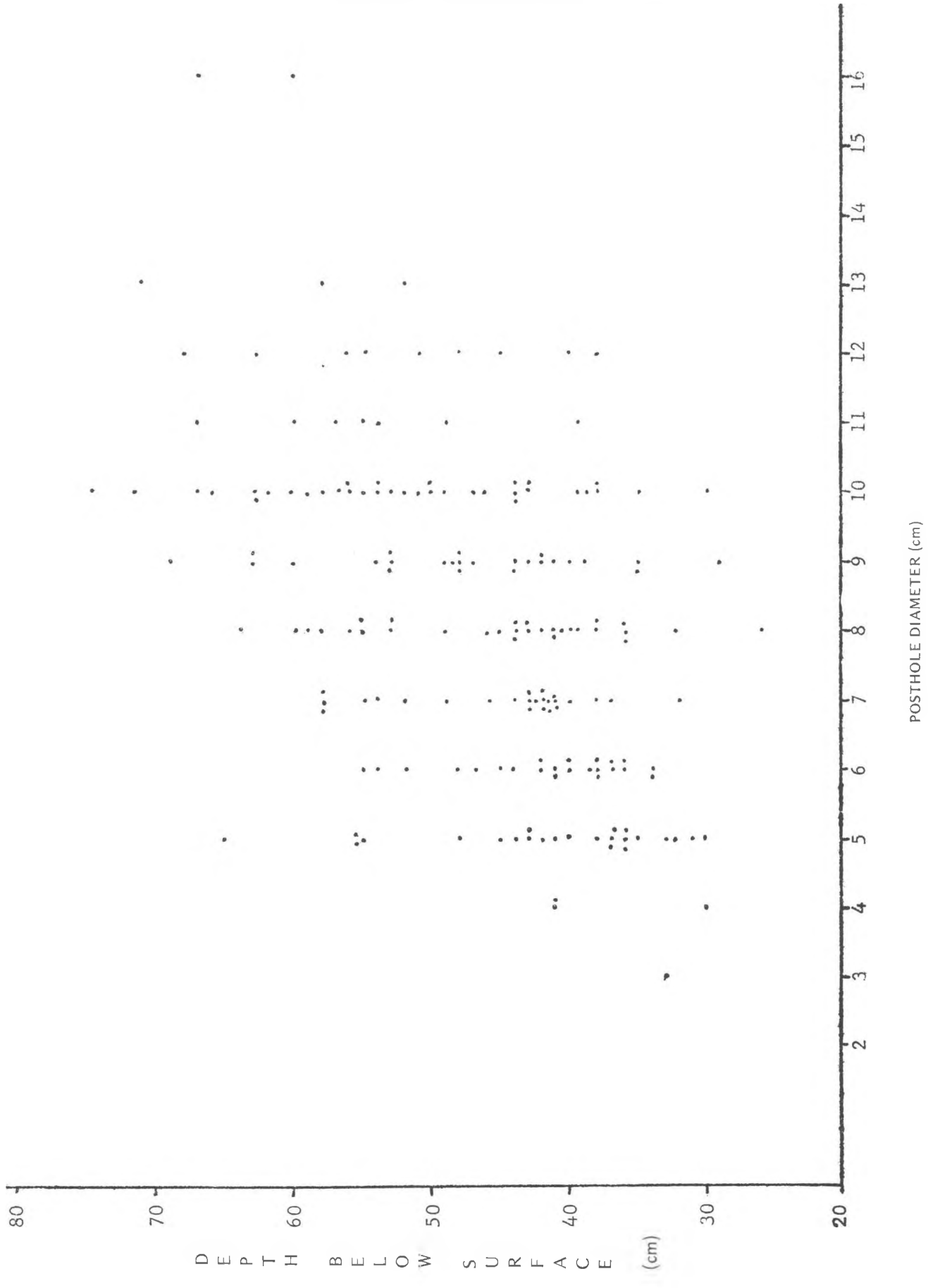


Fig. 7. Scatter diagram: posthole diameter plotted against posthole depth.

Storage Areas:

In the eastern half of the house no wall trenches were apparent. However, an unexpected and very definite trench with postholes did materialize perpendicular to the direction of the walls. This trench has the allure of a partition, however, time was exceedingly short when it was uncovered and we were unable to explore its termination, or the rest of the house. It may be that it represents a partition to a storage area, an idea which would be supported by the unparalleled sterility of the adjacent squares in terms of artifacts. Such storage areas, or porch-vestibules, situated at either end of longhouses (for storing maize and firewood) were observed ethnographically (Heindenreich 1972: 47), rendering the interpretation more plausible.

Doors:

Because postholes were not well preserved in many areas, the exact placement and number of doorways for the structure is somewhat conjectural. However, there is one arrangement of posts which is very probably a doorway. This occurs in the south wall, very near the southwest corner (ca. 38–40 north/44–46 east). Here, the wall leading away from the west end begins heading off at an unexpectedly wide angle, and then stops (i.e. presumably; a large modern stump obstructs its continuation as well), while another line of posts begins a few feet just to the interior and continues the wall lines at a reasonable angle parallel to the north wall – moreover there is a very large "probable" posthole beginning this line in the interior. This arrangement has all the appearance of a wall-overlap type entrance.

One other distinct possible entrance is the centre point of the west end of the house. Several things indicate this: 1) the wide spacing of posts at this point; 2) there is a high density of artifacts in the area surrounding this central point on the outside, whereas a low density of artifacts runs more or less through the supposed doorway from the outside to the inside; 3) there is a very definite hearth which occurs almost exactly in the centre of the wall at this point. This hearth exhibited no evidence of having had its white ash deposits disturbed beyond the presence of the wall trench, which cut through it. The trench and posthole definitely were cut *into* the hearth. The situation is somewhat enigmatic since there is an astonishing lack of indication of any other superimposed occupation, as well as the fact that this hearth is in perfect line with every other major hearth found in the structure, i.e. in line with the central axis. The situation is very difficult to interpret, but one possibility, since the hearth seems to be associated with the other major hearths in the structure, is that this hearth occurred in an open doorway which was later, or possibly seasonally, closed off. Certainly an open doorway in such a position would increase ventilation during excessively hot summer months, being oriented towards the direction from which prevailing winds come. Repeated use is indicated by a number of ash-filled pits surrounding this hearth, both outside and inside the structure. The hearth therefore might have been seasonal, or used for a special occasion, like torturing prisoners. Obviously, the other major option is that the hearth is indeed from a previous occupation.

Multiple vs. Single Occupation:

Besides the position of the hearth mentioned immediately above, there are a few vague indications that other occupations *may* be present in the area excavated. I do not believe these indications are substantial, and feel the case for a single house structure being represented in the excavations is much more convincing. One indication of a second occupation is the hearth situated at 52 north/44 east. This is a poorly developed hearth – little discernible fire-reddening of the sand – in fact there is some question as to whether it was in fact a hearth or merely an ash scatter since other ash scatters occurred further along the southwest wall. It is not aligned with the other hearths, it displays atypical traits, and peripheral ash extended beyond the house wall. Thus, it may represent a small, temporary hearth where low temperature fuels were used (possibly to create smoke for potting or to keep away flies).[3] In this case the occurrence of ash across the wall boundary might be because of loose walling, or spread after desertion of the site by occupants. On the other hand, it could represent a hearth which was made by someone either after or before the main occupation of the site, and used for a short time only, without any kind of shelter construction. In any event, even if this does represent a second occupation, it is not of major importance, and can probably be neglected for most purposes. One other indication of a possible secondary major occupation is the line of postholes which runs east-west between the 40 and 42 m north lines. These may also be partititons, and certainly seem more intelligible as such, given the fact that the line is headed downslope into the ravine which divides the site, and the fact that there is no companion parallel line which should be identifiable, to indicate the opposite wall of a house. Moreover, there are no features which can be construed to align themselves in a parallel line with this axis, whereas *all* major clusters of features, hearths, and occurrences of interior postholes

[3] In our own campfires, we found that some hearths created no fire-reddening of the underlying earth, even though hearths were dug into the B horizon, while others did. Tentatively it seems most reasonable to explain this by fire temperature differences, due to different woods used and sizes of the fires, although this is unconfirmed.

align themselves down the centre of the longhouse which has been defined. Aside from the above, there is nothing to indicate any anomaly in a single structure/single occupation interpretation of the excavated area. Many, if not all, of the above atypical features can be fitted into this context given unforeseen behavior and conditions of preservation, which forever create minor curios for the archaeologist.

The resolution of this question is of obvious importance given the types of analysis that we have proposed, and the necessary underlying assumption that we are dealing with a single living floor. I feel confident that this assumption has been satisffied, and that no significant secondary occupation of the area is represented in the 1973 data.

Interior Aspects of Structure 2:

Storage area; doors; see above.

Pits:

Peter Ramsden has compiled a floor plan of structure 2 showing the relation of ash and midden filled pits to hearths and structural features (Fig. 8).

Burials.

Two infant burials were found in pits close to each other near the east end of the excavations. All bones of one of the infants appeared to be present, whereas only the torso, spinal column, arms and head (all articulated) were found in the second pit (see Kapches: this volume for further detail).

Given the circumstances, it is tempting to see these burials as placed along a very frequented pathway within the house (perhaps leading to a doorway or storage area at the east end), so that the spirit of the infant would rise up and re-enter the womb of a woman passing by. This practice and motivation is recorded ethnographically for infants who died less than a month old (Heidenreich 1972:40). If this area was, in fact, frequently walked over, average sherd sizes near the burials should be low.

Hearths and Associated Features:

Two of the more enigmatic hearths have previously been discussed (see above: doorways; multiple occupations). In addition to these, a series of hearths and former hearths were discovered running down the central axis of the longhouse, and except for the single hearth already discussed, no other evidence of other hearths on one side or the other of the central axis was uncovered. Proceeding from west to east, there was a major hearth only 2 metres from the west end of the structure. This is a very developed hearth with deep fire-reddening of the soil and thick white ash deposits. Two metres further east a hearth with very little white ash, but considerable fire-reddening was found. White ash ceased to occur within 50 cm, although the fire-reddening earth continued to occur intermittently amid pits which cut through it for another 4 metres to the east, and another 2 patches of fire-reddened sand occurred almost 6 metres from the beginning of this hearth area. This entire zone is extremely dense with postholes and pits, many of which were ash-filled, or partly ash-filled. In addition to this, in the eastern portion of the concentration and occurrence of the fire-reddened earth, there was a peculiar layer of ash overlying part of the fire-reddened sand (40–41 north/50–51 east). It was unclear as to whether this represented an ash scatter, or whether it could have been *in situ* material from a fire, for unlike other ash which was of a smooth compact consistency, this ash was granular and hard, very much like friable sandstone.(Moreover, it was broken up ash, due possibly to a special type of wood which burned into pebble-size lumps.)Certainly, it was a particular kind of a high salt residue in its ash. The fact that it was not entirely covariant with the fire-reddening and even covered some pits, is strong indication that it was dumped at the spot rather than accumulated in place as hearth residue.

Another extremely high concentration of postholes and pits (again, many of which were ash-filled) occurs as a distinct cluster several metres further to the east and runs directly under several large trees. Due to the similarities with the last mentioned cluster of pits and postholes, and especially because we were finding numerous ash-filled pits in this second area, we fully expected to find another hearth in this vicinity. We did not. Speculating that such a hearth might be under the two trees occurring along the central axis of the house or in their root systems, we employed a soil probe to extract small columns of soil at 50 cm intervals in the relevant unexcavated squares. The only result was the location of several additional ash-filled pits. On the other hand it was extremely difficult to obtain any samples relatively close to the trees because of large dense roots, and it is still possible that a hearth may lie directly beneath either tree, and, in fact, may have provided nutrients favorable for tree growth, and thus been responsible for the location of the trees. Similarly, a large tree obstructed the 1972 excavations and it too was in the central axis of the longhouse, in addition to which the largest tree on the site is located adjacent to, or in, an unusually ashy outside activity area (see p. 25). It may be significant that all these trees are white maples.

East of these trees, there is another fire-reddened area with very little ash, and then another hearth about 2 metres further east with a similar paucity of white ash. Immediately to the east is yet another area of fire-reddened sand and poor ash. Finally, there is a hearth almost 7 metres further

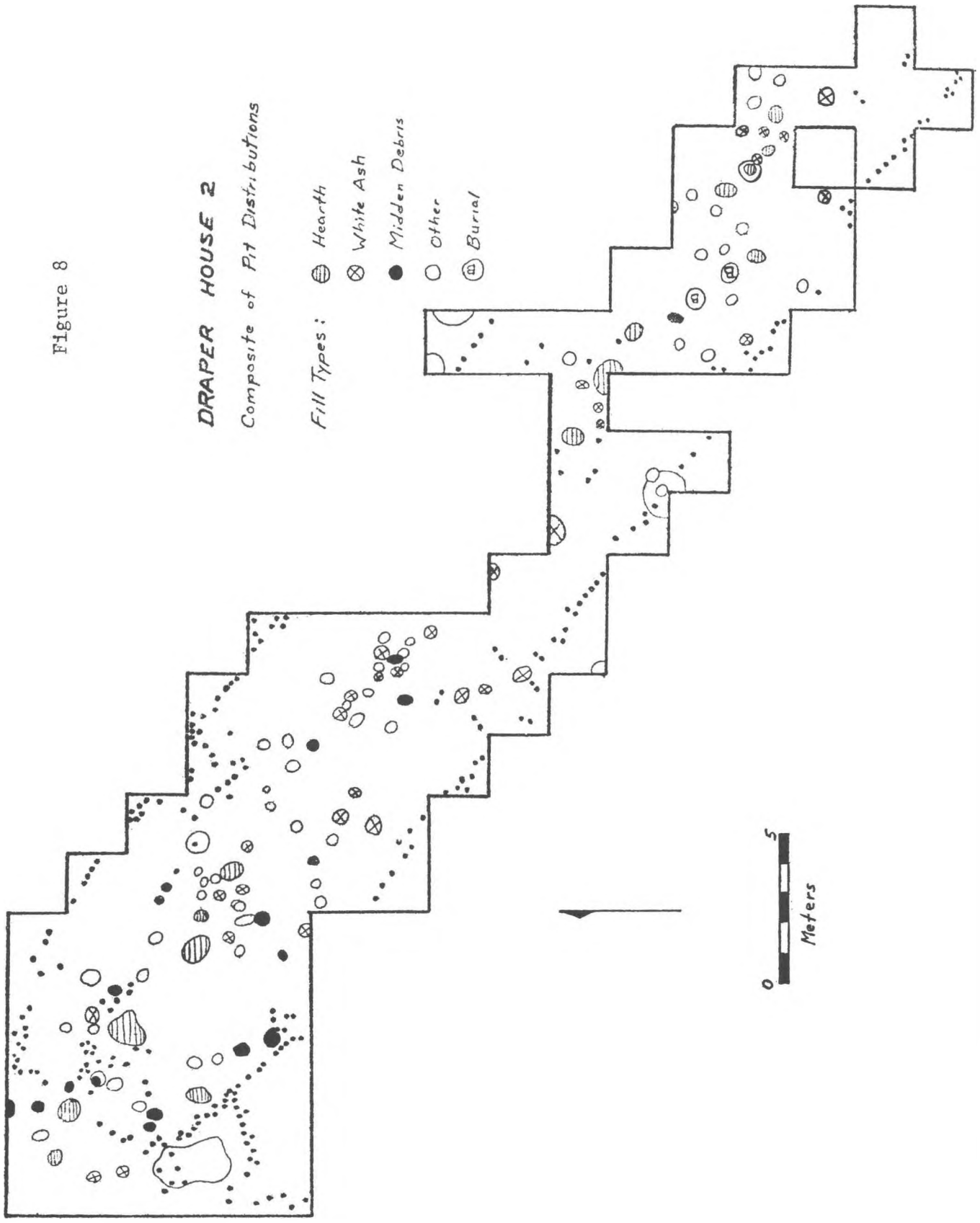

DRAPER HOUSE 2
Composite of Pit Distributions
Fill Types:
Hearth
White Ash
Midden Debris
Other
Burial
0
5
Meters

Figure 8

east, and this is the last found in our excavations.

It is curious that the hearths in the east end appear so poor in white ash content, and that the artifact density at this end of the house is considerably less than in the west end of the house; in the extreme east end, some squares were virtually sterile. This might be explained by a number of factors, including: 1) less use of the east end, (hard clay predominates in the east end; this may have rendered habitation and pit storage undesirably due to the hardness); 2) more fastidious or easier (due to clay floor) cleaning by the occupants of the east end; 3) or possibly gradual desertion of the occupants of the entire house, with those from the east sector leaving first, and those in the west end staying on longer and cleaning the entire house periodically. It is difficult to imagine that occupants of this longhouse would have gone to considerable pains and substantially more work to build a longhouse, much of which would remain largely unused.

These possible explanations of the scarceness of material in the east end engender a rather important theoretical issue. If it can be demonstrated that the east end of the house was relatively unused during the occupation of the house as a whole, one must then ask why. What would cause such mis-planning and waste in construction and labor? There are two readily apparent possible answers.

1) residence behavior was strictly unilocal and intervening circumstances such as death, celibacy, or emigration prevented the corporate "family" from adding married offspring nuclear units according to expectations;

2) residence was much more flexible, and houses were constructed in terms of verbal agreements of residence which were not always met.

Here, I would like to suggest a rather different model of residence than has been traditionally assumed for the Ontario Iroquois. This entails assumptions about the nature of the corporate groups made up by the members of given structures. I would like to suggest that longhouses were organized around one or two titular heads who controlled trade routes, activities, and directed to some degree longhouse economic activities; that members of the longhouse were recruited from as many kinship connections as possible, whether lineal or affinal; that these members worked fields and engaged in economic production as a corporate unit which provided the basic materials of trade and subsistence; that the titular head would attempt to attract as many kinship related persons to his longhouse as possible to enhance his trading ability and status; and that families would join or abandon a given longhouse depending on a number of factors, but especially the ability of the head and membership to provide benefits, whether in the realm of trade, ritual feasts, wealth, leisure, or other commodities. This would be a scaled down variation of the type of system suggested for the Northwest Coast settlements (see Harris 1971: 250, 324; Suttles 1968: 66-67); it is also consistent with observations on the mixed residence patterning at contact (Tuck 1971:221); and since everyone in such a longhouse would be related, even if distantly, it would be consistent with early descriptions of the members of longhouses as "families". This construction is also consistent with the archaeological evidence in structure 2, and may be responsible for the general failure, so far, to isolate local ceramic stylistic traditions, i.e. because of variable residence behavior. One other modification of traditional interpretation is necessary to make this model viable, contrary to most viewpoints, trade must be seen as a significant factor in social organization, and by implication in the economics of the everyday man. If this should be established, it may be necessary to reorganize thinking on the causes of increases in village sizes as well (see footnote 2). As a redistributive system, the Huron would have shared many structural similarities with other redistributive social systems such as the Northwest Coastal groups. Many descriptions of such groups are equally applicable to the Huron, although often not in extreme forms. Particularly relevant should be trade relationships. For the Northwest Coast, Suttles (1968:67) observes that:

> . . . chiefs (lineage heads?) held monopolies over trade in their territories. It seems possible that such monopolies may have had their origins in exchanges between affines in areas of different resources.

Is the similarity with the ethnographic Huron merely coincidental?

Although it is far from definitive, a crude indication of residence patterning might be gleaned from the average sizes of sherds throughout the house, and in particular in the east end. Given the hard nature of the flooring at that end, and the reduced probability of sherds becoming embedded in the earth, one would ordinarily expect sherds at that end to be more easily and consistently crushed, and therefore to be smaller, all other things being equal. If the sherds are in fact the same size or smaller than sherds in the west end, then it can probably be assumed that the east end was occupied by a similar family group consisting of regular residents. On the other hand, if the average sherd size in the east end is larger than in the west end this would constitute good grounds for assuming that the east end was only infrequently used, or used in an atypical fashion, and that it represents a portion of houses built in the hope or expectation that families would occupy it. If this is the pattern, it may well be that the hopes, or expectations were never fully realized, or only realized for a short period of time.

It can be argued that over a 10, or even 20 year period, the number of nuclear families in kin bound corporate

groups should be relatively accurate since the number of children at the date of building would be known and maturation to marriage of any newborn children would take nearly 20 years. One would also expect some spatial flexibility within structures to accommodate nuclear family additions. Under these conditions one anticipates a minimum of unused space in houses, and virtually no extensions of houses. By contrast, the fortunes of economically-based residential units (even if couched in a kinship framework) are much more variable and may well drop below expectations in a 10–20 year period, resulting in major portions of houses being unoccupied; or the fortunes of the group may unexpectedly rise, thereby drawing more nuclear families to the residence corporation than can be accommodated, and necessitating additions, and sometimes even multiple additions. Periods of village moves might be times of particularly high rates of residential changes, and longhouse heads might well construct houses slightly longer than necessary, in the hope of attracting another family or two. It is maintained here that the degree of failure of prehistoric Iroquois groups to accurately predict residential requirements for the duration of site occupations, as particularly evidenced by additions onto longhouses, is more consistent with the posited model of residence based predominantly on economic rather than kinship considerations. Obviously, the applicability of this model and this hypothesis still lie in the unexcavated portions of the Draper site.

Ethnographic literature is somewhat ambiguous on the spacing and meaning of hearths located within longhouses. There seems little doubt that 2–4 families could use a single hearth with one to two families along each wall. On the other hand "typical" houses are recorded as having 4–5 hearths, which were only 2–3 paces (2–3 metres) apart (Tooker 1967:40, Heidenreich 1972:47). This yields a very minimal sized longhouse. Heidenreich maintains that these main hearths were usually 7–10 feet long. This would increase the length of the longhouses, but certainly seems an unrealistic size fire to maintain, and does not correspond with the size of the majority of hearths which were excavated in structure 2. The only hearth which could compare in length to this would be the rather confused complex of postholes, pits, and areas of fire-reddened sand between the 48 and 52 east lines. As has been seen, there are a number of hearths in this central axis which are situated about 2 metres from each other, which accords well with ethnographic observations; however, there are also larger hearth-less spans which seem to occur predominantly in the middle of the longhouses. This thus accounts for the short distances ethnographically observed between hearths, and the smaller number of total hearths actually found vs. the number that would be suspected by consistent spacing of 2 metres in average length longhouses. It may be that a pattern is suggesting itself here, in which nuclear families tend to group close together near the ends of the houses at about 2–3 metre spacings, possibly because doorways were located near the ends; whereas large hearth areas occur more towards the centre of the house, are associated with many more pits and postholes, and tend to be further apart. In the case of structure 2, there is at least 10 metres between large central hearths, assuming that there is in fact a hearth under the trees in the middle of the structure.

There is one other ethnographic reference to hearths which may be relevant to archaeological interpretation. This has to do with the kindling of up to 11 fires in a single house, about 5 feet from each other, on a ceremonial occasion of prisoner torturing (Tooker 1967:36). This and other types of festival activity may well explain some of the fire-reddened areas in structure 2 which have little to no ash associated with them, such ash being displaced by walking or being swept away in cleaning activities after the festival or feast was over. It is also one possible explanation for the extensive but irregular occurrence of fire-reddened sand and ash scatters over a 4 metre area in the west end of the house. When festivals or feasts were held, the normal sized "family" hearth might be extended into a larger "feast' hearth up to the 10 foot size mentioned by Heidenreich; or a number of temporary hearths might be kindled alongside the main cooking hearth. Again, because of the very temporary nature of these extended fires, white ash would be removed after the festival either by cleaning the floors or because of activity in the area, leaving only the fire-reddened sand. This seems more probable when it is realized that numerous pits and postholes actually cut through fire-reddened sands in this area. The other major explanation of this particular complex of fire-reddened sand, pits, etc., is that the position of the hearth gradually shifted over time, or migrated. There is no real reason for assuming this to have taken place, especially given the lack of evidence of such migration of other hearths, and the special association in this case with exceptionally numerous pits and postholes.

Assuming that other hearths were also used by two nuclear families, the question presents itself as to why two areas in structure 2 have exceptionally dense concentrations of pits, postholes, and presumably more than usual indications of fire (either bigger, and/or longer – again assuming that a hearth is associated with the unexcavated areas under the trees), while other hearths are associated only with scatterings of pits and postholes?

There seem to be two explanative possibilities:

1) such clusters represent the habitation site of persons with dominant, or high, status among the residents of the longhouse, and therefore they occupy central positions within the house (possibly because house centres were

warmest in winter and therefore imparted privileged status to persons occupying those locations). It makes most sense at this point to see such status situated within the corporate residential framework, although the possibility cannot be ruled out that this status may have been of a non-residential corporate group nature, e.g. religious, age grading, kinship (if this is not related to residence), etc. Given such higher status, festival activity would naturally tend to centre around these family locations, not only in terms of people congregating around them spatially, but also in terms of frequencies of minor feasts, etc. Such feast activities and obligations would naturally entail more food preparation, more food storage, and greater fires, which is probably reflected in the greater density of postholes, pits, and extension of hearth areas.

2) such clusters represent sexual areas of congregation and socialization among the inhabitants of the longhouse: areas where gambling, craft-making, gossiping, and household chores might be carried on. This concentration of activity might include taking meals and making large group fires at such centres which would logically account for the greater concentration of postholes, pits, and hearth area. If this construction is correct, there should be a pronounced division of tool types associated with the two clusters within the house; whereas if the first postulate is correct, there should be no such pronounced division, although a greater concentration of ritual related objects (e.g. pipes) should be associated with the large hearths, as opposed to the smaller hearths. I believe that analysis will show the first construction to be the more probable. As a thought for future consideration, if trade should appear to have been important economically to the Draper population, these large hearth complexes may well represent the households of dominant traders – or persons with access to trade activities.

In the course of excavation, it was suggested that the central concentrations of postholes, pits, and hearth indications were probably areas where sweat baths were erected. However, there is no convincing patterning for these features. Moreover, one would expect a large concentration of fire-cracked rocks to be associated with any such feature; what we found was the exact opposite. If anything, fire-cracked and normal rocks seemed to be even scarcer in these areas than in most other parts of the house. It is also hard to explain the concentration of pits in terms of sweat baths, whereas they quite logically occur in association with hearth areas used for cooking: as storage pits for food in areas which would not freeze up during the winter, and located in places which would be convenient for cooking activity; as postholes for cooking and/or drying food or clothes; as pits in which to place hot, round-bottomed vessels, etc.

Mounds:

There are a number of small mounds on the Draper site. One mound of low relief, about 2 metres in diameter was situated inside the walls of structure 2 along the south wall, east of centre (26–28 north/64–66 east). This mound was composed of light brown to dark brown soil, and little A horizon development had taken place on its surface. Artifacts occurred scattered in its deposits together with some rotted cedar parts; there was no paleosol under the mound, which indicates that deposition was not recent. The provenience of the mound, right along the inside wall of structure 2, indicates that it is probably associated with the occupation, however what its function may have been is problematical.

Outside Activity Areas:

West End:

Considerable outside activity seems to have taken place immediately outside structure 2 at its west end. On the south side of the building there was a wall extending out from the side of the building at a 60^{o} angle, and within this angle, between the out-wall and the house wall is situated a large broad pit with staining around it which extended deeply into the C horizon almost a metre below surface; artifacts were scattered variously throughout this pit but were mostly concentrated in the upper levels. It is also of interest to note that this "enclosure" is relatively close to the doorway. Due to the staining, situation, and size, one might wonder if this was not perhaps a latrine used by residents. Certainly, it makes sense to conceive of such "conveniences" as being relatively close to residences (no one is going to walk to the edge of a village at night in the winter just to be proper) which is in fact where they are located among some other unsophisticated groups in the world. Notably in Guatemala, peasant latrines are often simple, scooped out shallow pits along the outside wall of the house, usually shielded from sight by a low wall of posts. To reduce the unpleasantness of this proximity, it can reasonably be assumed that the ubiquitous Huron dogs made off with and consumed the worst of the waste. Such features naturally are targets for occasionally unwanted garbage as well. Staining corresponds well with this posited function. Unfortunately, we did not have the foresight to collect soil samples and test them for phosphorous and other chemicals.

Continuing around to the extreme west end of the house, there is a concentration of pits (some ash-filled), and artifacts are relatively dense in a semi-circular pattern around the end of the house. This strongly suggests an open air working and activity area, where crafts were worked on, food possibly processed, and outside socializing might have

taken place. This interpretation is supported by the presence of a shallow midden immediately to the north of this "activity area." The midden is just on the edge of the ravine and is separated from the northwest corner of the house by a narrow open strip of ground, about a metre in width, which we presume to have been a pathway (this "path" appeared slightly more compact than surrounding soils). Such a position of a midden makes sense not only in terms of the discard of waste materials from an outside processing-craft area, but also in relation to refuse being carried out from an end doorway, which was postulated earlier. One receives the impression that the major social focus was towards the west of structure 2, and not in the opposite direction, partly because of the lack of outside activity areas in the east (although sampling is not very satisfactory), and partly because the greatest clusters of artifacts, pits, postholes, and etc. tend to occur toward the west end inside the structure (assuming that we are relatively close to the east end of the house in excavations).

More evidence of outside activity areas was found further west of structure 2 near an extremely large maple tree. A north-south test trench, 1 x 10 metres, was excavated about 12 metres west of the end of structure 2, (50–60N/29–30E) in the hope that other structures might be found. The central area of this test trench was a mass of roots and what appeared to be decayed cedar roots or wood. In the entire trench only one post hole was found, and one ash-filled pit (these were at opposite ends of the trench). However, an ash lens of variable thickness, which undulated and was intermittent, extended from the south end of the trench, almost 8 metres to the north. Artifacts were not particularly abundant, although carbonized plant remains were evident in some areas, as well as non-carbonized plant remains, the status of which is problematical. The strong impression gained from this limited test, was that the general area was probably some sort of open air activity area where abundant use of fire and/or smoke took place. It is difficult to explain the undulating nature of these ash deposits without further, even more detailed excavation. Analysis of material coming from this test area has been delayed until a more meaningful sample of artifacts can be acquired, and a better idea of the probable nature of the area has been established.

Other Test Areas.

Several test excavations were made to the south of structure 2 in an attempt to locate other structures.

32–34 North/40–42 East:

This was a test pit which contained no features, except for the side of a midden which we unexpectedly cut into, thinking that it was a natural rise. The midden is important because the first layer deposited in it was clean yellow sand, which nicely marks the old surface, and conveniently preserved a paleosol immediately beneath the midden. The midden is at the edge of a broad flatish terrace of slight relief which runs more or less south-east from the test pit, and which appears to be a good location for a house; such a house would explain the position of the midden deposits on the north-west slope of this slight terrace.

20–24 North/38–40 East;
+24–26 North/36–38 East. Fig. 3)

These test pits were excavated because they occurred in the side of a very elongated depression which trended northwest – southeast, and was roughly parallel to structure 2. We surmised that an additional structure might have been built in this long depression. In fact, a definite line of postholes did appear on the north side of the depression, and these postholes were oriented in the manner we anticipated. However, they were also overlain by several decimetres of midden refuse from the edge of the previously mentioned terrace. This refuse rapidly diminished toward the centre of the elongated depression. The most likely interpretation of this situation seemed to be to postulate a longhouse structure situated in the depression, which was abandoned during the occupation of the site, and subsequently partially covered over by refuse being thrown out from adjacent structures, notably to the north. Again, this indicates that there was very probably an additional structure between structure 2 and the long depression to the south.

Analysis of material from these test excavations has been delayed until more comprehensive excavations are undertaken; however, unconfirmed field impressions pointed to a ceramic composition of the midden material different from that being retrieved from structure 2. In addition to this, a unique copper bead was found in this midden fill. The bead was hammered and rolled, and represents the only piece of copper to be discovered at the Draper site thus far.

20–28 North/56–58 East: (Fig. 3)

Because of the flatness of the area immediately to the south of structure 2, because of the position of midden deposits on the western edge of this flat area, and because other Ontario Iroquois sites often have parallel, closely spaced longhouse structures, the area immediately south of structure 2 seemed an extremely likely location for another longhouse. For this reason, we extended the main excavation area in a test trench running south. No definite evidence of a wall was found in this test extension area. This, however, is probably not reliable negative data, since the walls

of structure 2 in the adjacent squares were exceptionally poorly defined over a considerable length. Poor soil conditions, or the pulling of posts from the soft sand in this area for use elsewhere when the site was abandoned probably account for the absence of post traces. On the other hand, a very definite pattern of fire-reddened sand and hearths with undisturbed thick white ash accumulations was found. These areas were aligned on an axis almost exactly parallel to the long axis of structure 2, were surrounded by ash-filled pits and postholes, and appeared undisturbed. Given all these factors, as well as the distance of this central axis from the walls of structure 2 (ca. 7 metres), it appears extremely likely that these hearths represent the central axis of another longhouse.

Again, analysis of the artifacts from this test extension has been delayed until future decision are made to excavate more extensive areas of the probable structure.

Appendix A

Radiocarbon Dates from the Draper and White Sites

White:

880 A.D.	(S-858;	NMC-618)	1070 ± 105 B.P.
1305	(S-857;	NMC-619)	645 ± 105
1515	(S-792;	NMC-617)	534 ± 85
1630	(S-791;	NMC-616)	320 ± 70
1725	(S-859;	NMC-620)	225 ± 90

Note: these dates are from various locations at the site and may represent more than one component. Certainly, the 300+ year interval between the earliest and next earliest dates appears anomalous, and may represent a very early Iroquoian occupation of the site. The mean of all dates is 1411 A.D. If the earliest date is excluded, the mean is 1544 A.D. If one further wishes to exclude the most recent date as definitely not due to aboriginal occupation, the mean becomes 1483 A.D. With the exception of the 880 A.D. date, any of these averaged results appears very compatible with the view that White was occupied contemporaneously with Draper.

Draper:

1360 A.D.	(S-818;	NMC-621)	590 ± 75 B.P.
1380	(S-861;	NMC-624)	570 ± 95
1455	(S-863;	NMC-626)	495 ± 65
1520	(S-862;	NMC-625)	430 ± 85
1545	(S-860;	NMC-623)	405 ± 65
1740	(S-819;	NMC-622)	210 ± 80

Note: all samples are from the interior of structure 2; the average of all samples is 1500 A.D., which accords very reasonably with age estimates based on ceramic analysis alone (i.e. 1450-1500±; Wright 1966:101). If the very recent date of 1740 A.D. is due to intrusive carbonized material, and is excluded from the series, the average date is 1452 A.D., which is also in close agreement with prior age estimates based on ceramics.

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