

THE ROOT OF THE SCATTER: NINETEENTH CENTURY ARTIFACT AND SETTLEMENT PATTERNS IN RURAL ONTARIO

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In southern Ontario, the most common historic period site type encountered during cultural resource management (CRM) work is the small rural farmstead. The fact that these sites are located most often within the plough-zone, however, can make their analysis challenging as little in the way of structural features has survived. This paper will discuss the documentary evidence, settlement pattern data, and the frequency variations within artifact groups on 15 sites excavated by the consulting firm Archaeological Services Inc. (ASI) between 1986 and 1995. Particular attention will be paid to the site formation processes, in addition to the contextual evidence of nineteenth century land use, in order to explain the variation observed within artifact groups and settlement patterns in this study. In particular, it will be suggested that the presence or absence of a root cellar, or other large subsurface features, would appear to have important implications for the interpretation of site formation processes that occurred after the farmstead was abandoned. Also important are the methods we choose as archaeologists to excavate these sites.

INTRODUCTION

The idea to research site formation processes on nineteenth century sites presented itself following mitigative excavations conducted on the Log Cabin (A1Gu-107) site in Richmond Hill, and the James Brown (BbGw-22) site in Barrie. On both sites, over 90 percent of the total artifact assemblage came from a feature interpreted as a root cellar, even though nine or more features were documented during each excavation (MacDonald and Austin 1995; Welsh and MacDonald 1994). The question to be asked in each case was, "What processes of deposition transformed the root cellar from a functional feature into an archaeological feature (Schiffer 1987), and why did most of the artifacts end up there?" This led

to a review of the types of features identified on sites in general, as well as a search for patterns in the types and frequencies of artifacts deposited in the features. The results of this research are presented below.

ASPECTS OF THE SITE FORMATION PROCESS

Each archaeological site is the product of a complex set of human actions and environmental processes that can result in different settlement patterns and artifact frequencies. Michael Schiffer (1987:3) has analyzed this in terms of the Site Formation Process, whereby artifacts are transformed from a systemic context into an archaeological context. The following processes that contribute to the formation of an archaeological site will be outlined below: the establishment of the farm, the construction of farm buildings and their differing uses, the length of occupation, refuse disposal practices, farm abandonment, and changing land use. It should be noted that other variables concerning the site occupants, such as family size, economic status, and ethnic affiliation, also contribute to aspects of the site formation process, although this data is not presented in this paper.

The Nineteenth Century Farmscape

To characterize the archaeological sites in terms of what could be learned through archival research, the sample represents rural farmsteads with one storey log or frame homes, the majority of which were first occupied during the 1830s and 1840s (Table 1).

While not the earliest pioneer period in Ontario, the 1830s was a time of tremendous growth in population as a significant number of people emigrated from England, Scotland and Ireland to southern Ontario (Glazebrook 1968: 24). Some of the most interesting accounts of pioneer life in Ontario were written by English

Table 1. Selected Statistics for Fifteen Archaeological Sites.

| SITE NAME | HOUSE TYPE | DATE RANGE | NO. OF COMPONENTS | AREA (m ²) STRIPPED | NO. OF FEATURES | NO. OF ARTIFACTS |
|-----------------|----------------|------------|-------------------|---------------------------------|-----------------|------------------|
| Devil's Pulpit | 1 storey log | 1845-1860 | 1-2 | 400 | 69 | 2,265 |
| Fletchers Creek | 1 storey frame | 1830-1880 | 2+ | 875 | 28 | 2,228 |
| James Brown | ? | 1858-1861 | 1 | 750 | 9 | 905 |
| Lampman | 1 storey frame | 1806-1875 | 3+ | 450 | 34 | 2,370 |
| Highbush | 1 storey log | 1845-1865 | 1-2 | 730 | 9 | 1,372 |
| Log Cabin | 1 storey log | 1840-1870 | 2 | 3,000 | 18 | 2,170 |
| Flicka | 1 storey log | 1836-1900 | 3 | 300 | 19 | 9,099 |
| Langstaff | 2 storey frame | 1840-1890 | 2 | 1,100 | 16 | 1,466 |
| Loring | 1 storey log | 1840-1880 | 2+ | 200 | 6 | 1,045 |
| Robert Smith | 1 storey frame | 1835-1848 | 1 | 200 | 2 | 514 |
| Wilkinson | ? | ? | ? | 700 | 9 | 2,387 |
| Flynn | 2 storey log | 1835-1910 | 2+ | 525 | 8 | 3,888 |
| Armstrong | 1 storey log | 1827-1842 | 1 | 900 | 7 | 171 |
| Lisonally Farm | 1 storey frame | 1830-1910 | 3+ | 500 | 18 | 1,398 |
| Pickard | ? | 1822-1839 | 1 | 1,700 | 6 | 940 |

daily life in Upper Canada in the second quarter of the nineteenth century. Of the landscape around Thornhill, she wrote:

You have now a field or two quite cleared and almost level; now seven or eight more or less dotted with stumps from four to five feet high; now a field or strip of land thickly set with high tapering poles. The fences are universally zig zag walls which are generally untidy, and at all times perhaps more picturesque than neat. The cottages are more or less distant from the road. They are mostly plank, with barns at hand [Miller 1968: 21].

The site formation process begins, therefore, with the settler who chooses a location and constructs a house, fences and ancillary buildings necessary to the men and women who emigrated during this time. In 1828, Mary Gapper O'Brien came from England to stay with her two brothers who were homesteading in Thornhill, north of Toronto. Her diaries provided a first-hand account of

progressed at the same rate, nor were all parts of a township settled at the same time, producing a "complex mosaic of farmscapes" in a given area at a given time (Kelly 1975:71). The ancillary buildings came in all shapes and sizes, and these structures were often placed without any regard to order or symmetry, reflecting a pattern characteristic of farmers from the British Isles (Rempel 1967:70).

The construction material used in the farm house in particular is thought to reflect the stage of a farm's development (Wightman 1974). The log house was associated with the earliest settlers in Ontario because it reflected the use of a material which was a by-product of the forest clearing process (Rempel 1967:34). It was distinguished from the log shanty, which could be thrown up in a day if necessary, by the presence of glazed windows and a chimney. The dimensions of the log house were generally 16 feet by 20 feet, which conformed to the by-laws passed in many parts of southern Ontario to regulate settlement duties in the early nineteenth century (Rempel 1967:55). The floor was made from cleft planks smoothed with an adze and pinned to logs laid directly on the ground. The chimney was built of stone or local brick and the fireplace was between four and six feet wide with a brick or stone hearth (Rempel 1967:66). Earlier chimneys also incorporated wattle and daub in the absence of brick or stone. Untempered, fired clay adhering to a stone chimney platform has been documented archaeologically on the Gould (BaGs-25) site, excavated by Archaeological Services Inc. in 1997. As described by John McGregor (in Rempel 1967:59-60), who published his observations of Canada in the 1830s, "a wooden framework placed on a stone foundation is raised a few feet from the ground, and, leading through the roof with its sides closed up with clay and straw kneaded together, forms a chimney."

Sub-floor pits, as opposed to full basements, were associated with early house forms. Samuel Strickland (1971:1:165) advised settlers to excavate a small cellar near the fireplace, "commodious enough to hold twenty or thirty bushels of potatoes, [and] a barrel of pork or two," as the winter in Canada was too severe for root crops to remain unhooused. This practice is borne out in Rempel's study (1967:46), which illustrated floor plans from log houses built in the 1820s and 1830s with a cellar trap

door indicated in the kitchen or living room area. The sub-floor pit could vary in depth and shape and function, however, as evidenced by the variety of sub-surface pits reviewed in the literature by archaeologist Richard Kimmel (1993). Kimmel (1993:110) has called for a taxonomy of pits based on archaeological and historical documentation, as it is currently debated in the United States as to whether or not hearth-front storage pits can be interpreted as evidence of Afro-American slave occupation. Certainly researchers in Ontario could benefit from such a taxonomy, as Robert Mayer (1995:10) has observed that most large semi-subterranean features on historic archaeological sites are labelled root cellars, yet other types of features incorporating pits did exist, as discussed below.

As soon as 15 or 20 acres had been cleared, the settler was advised to erect a frame or log barn (Strickland 1971:1:170). The earliest barns were based on European models and they evolved as they were applied to the North American experience (Ennals 1972). The type of agriculture that was practised determined the form of the barn. In southern Ontario prior to 1850, wheat farming was predominant, and few implements other than a plough and a few hand tools were required. The harvested grain could be stored in a relatively small amount of space and was threshed as it was needed (Ennals 1972:265). Consequently, the first barns were one-storey log or frame structures, set on the ground or on a course of stones, accommodating two storage bays and one central threshing floor (Rempel 1967:191). Special purpose pits were also excavated under barn structures to keep dairy products cool and store root crops grown for animal fodder (Glazebrook 1968:39).

Farmers generally left their cattle exposed to the elements year-round to fend for themselves. Horses and working oxen, however, would be sheltered during the winter in their own stable, perhaps within the two-bay barn (Ennals 1972:265). Two-level barn structures with an earthen ramp and stables did not begin to appear in the farmscape on a regular basis until after 1870, when wheat farming was gradually superseded by a mixed agriculture that integrated livestock with cultivation (Ennals 1972:267).

The three household-related buildings essential to every farmstead in earlier times

were the ice house, woodshed, and privy (Noble 1984:85). Almost any kind of small frame building could serve as a woodshed, used to keep the wood dry for use in the fireplace or stove (Noble 1984:86). The ice house required a pit to be excavated in addition to construction of a building. Mary Gapper O'Brien noted that while her brother had hired a workman to dig the ice house pit and finish the walls in November, the ice house itself was not built until the following January as it was important for the ground beneath the structure to be frozen before it was filled with ice (Miller 1968: 25-26). The pit itself may have been lined with mortar or stone, and the structure probably had double plank walls filled with an insulating material such as wood shavings, straw, leaves or bark (Noble 1984:85).

With regards to the privy, J.H. Hammond wrote:

There is no building which is so generally located in the wrong place, as that diminutive house to which a name is applied that expresses absolute importance of such a retreat. It is strange that a house which everyone is ashamed to be seen to enter, should be in one of the most conspicuous positions so that from all back windows of the dwelling house, it is the most apparent object in view [Hammond 1858:150].

It was an improvement when the privy was placed next to a shed, so that "the unfortunate person who was obligated to retire to it might skulk around the shed, and allow it to be conjectured that he might have gone on some less ignoble errand" (Hammond 1858:150). On rural sites, the privy was usually a frame building that could be easily removed to permit periodic cleaning of the vault excavated underneath it (Noble 1984:87). Alternatively, in lieu of excavating a vault, a portable receptacle such as a bucket could be used in the privy and the waste could be "recycled" on adjacent fields (Geismer 1993:59).

Water-related structures were also important on the farm (Noble 1984:81). Where springs were not present, the family depended upon the well from which to draw water. These were located close to the house for convenience. Often a mechanical pump was employed to

make it easier to lift the water, or if the water table was close to the surface, a "draw-well" could be employed. According to Catharine Parr Traill, the plan was simple:

A long pole, supported by a post, acts as a lever to raise the bucket, and the water can be raised by a child with very trifling exertion. This method is by many persons preferred to either rope or chain, and from its simplicity can be constructed *by any* person at the mere trouble of fixing the poles [Traill 1929:71-72].

One household-related structure not found on every farm was the outdoor bake oven. Many regional and ethnic variations have been documented in North America (Noble 1984:92-97), and Catharine Parr Traill (1929:71) found the beehive shape of the clay-built bake oven to be a familiar sight as she travelled in eastern Ontario during the summer of 1832.

Additional outbuildings that may have been present included crop storage and processing facilities such as root houses and smoke houses. The root house was different from the root cellar in that it was not an internal, household feature. Mary Gapper O'Brien described the root house excavated by her brother in October of 1829:

Southby has finished wheat sowing and is now making a root house, that is, a house to preserve roots from the frost. This is a pit of six or eight feet deep and roofed with logs which are again covered with earth [Miller 1968: 71].

In November of 1828, her brothers were constructing "a smoke house for drying the bacon and hams on three pigs for the coming year" (Miller 1968:26). Thomas Kenyon (1983) documented a number of smoke houses built from a variety of materials in Haldimand and Norfolk counties, all of which were square to rectangular structures erected over a central fire pit. In general, they were located close to the farmhouse. Butchering was done in the late fall and during winter to reduce livestock and conserve precious grain. Smoking the meat preserved it as well as improved the flavour.

While not exhaustive, the above descriptions

illustrate the variety of buildings that were typical of the rural farmscape in nineteenth century Ontario. Finally, in addition to distinguishing the types of structures, it is also important to note the length of site occupation as revealed by the land use history. The sample in this paper ranges from sites occupied briefly by one family, to multi-component sites occupied by more than one family (Table 1). This could help to explain the increased number of features and artifacts on sites occupied by successive generations or different families over a long time period. Overlapping occupations may also result in the obliteration of early features.

Refuse Disposal

Another important factor in the site formation process is the pattern of refuse disposal on the farm. Stanley South's "Brunswick Pattern," for example, defined the different waste streams on eighteenth century Anglo-American sites in order to predict the location of points of entry and exit to dwellings (South 1977:47-82). This was based on the assumption that refuse would be deposited adjacent to the home, primarily at the back, but also at the front doorway, and in nearby depressions (South 1977:47). South also predicted that refuse with a high food bone content would be discarded away from the home where the smell would not be so offensive. As a surface deposit, the midden was subject to displacement through landscaping activities around the house, and through animals such as pigs, rats and dogs scavenging for food (South 1977:48).

Refuse could also be placed in non-functioning features, such as abandoned cellar pits, which would create stratified subsurface deposits while the farm was still occupied. Holes were also dug to bury garbage, as evidenced by the number of nondescript "refuse pits" containing artifacts that are documented on archaeological sites (Table 2). The disposal of refuse in a "back forty" dump, located at a greater distance from the house, was more common during the late nineteenth century. This phenomenon was documented at the Pickard (AhGx-24) site in Ancaster, where the surface scatter originating from a house occupied between 1822 and 1839 was mixed with refuse dumped on the site in the early twentieth century by the occupants of a differ-

ent house located approximately 500 metres away (Welsh and MacDonald 1996:20).

Finally, privy pits were also used for refuse disposal, both after they had been abandoned and while they were still in use. For example, a study of beetle fauna collected from a stratified seventeenth century privy in Boston, Massachusetts, concluded that the beetles originated from yard and kitchen wastes, as well as house sweepings periodically deposited in the vault (Bain 1998:45).

House Abandonment and Changes in Land Use

Eventually the occupation of the farm house ended. In southern Ontario, the broader process of rural house abandonment took place during two periods in the nineteenth and early twentieth centuries (Kenyon 1995). The first period is characterized by the replacement of the original log house with an improved frame, brick or stone structure. While not all log houses disappeared immediately, as they could be used as ancillary buildings when the new structure was built (Kenyon 1995:8), the change in land use signalled an end to an earlier domestic pattern, and could potentially obliterate early features on a multi-component archaeological site.

The final change in land use transformed the farm house and yard into an agricultural field, and several choices could be made at this time. The architectural hardware could be salvaged and taken away from the site, along with the lumber, or the buildings could be razed and burned to remove them quickly. The building foundation, if one existed, chimney and hearth stones may also be removed so as not to impede the plough. The former house location could also be used as a place to dump refuse, a pattern noted above on the Pickard site in Ancaster.

The fact that many farm buildings incorporated an excavated pit is also significant to the site formation process. To protect livestock and farm machinery from falling into the holes, it would be expected that the abandoned wells, cellars, privy pits and root houses would be filled in opportunistically after they were no longer needed, incorporating the surface middens as secondary fill, and possibly incorporating structural material to help fill in the

Table 2. Features Identified on Fifteen Archaeological Sites.

| Site Name | Related to Structure | Root Cellar | Chimney Platform Fireplace | PK & Post | Animal Burial | Well | Midden Remnant | Phvy | Drain | Landscape | Cistern | Bake Oven | Refuse Pit/ Unknown | TOTAL |
|-----------------|----------------------|-------------|-------------------------------|-----------|---------------|------|-------------------|------|-------|-----------|---------|-----------|------------------------|-------|
| Devil's Pulpit | | 1 | | | | | 1 | | | | | | 67 | 69 |
| Fletchers Creek | 2 | | 3 | 3 | | | | | 1 | | | | 19 | 28 |
| James Brown | | 1 | | 1 | | | | | | | | | 7 | 9 |
| Lampman | 3 | | | 1 | 1 | | 1 | | | | | | 28 | 34 |
| Highbush | 2 | | | | | | | | 1 | | | | 5 | 9 |
| Log Cabin | | 1 | | 2 | | | | | | | | | 15 | 18 |
| Flicka | | 1 | | | 1 | | | | | | | | 17 | 19 |
| Langstaff | | | | | | | | 1 | | | 1 | | 12 | 16 |
| Loring | 1 | | | | | | | | | | | | | 6 |
| Robert Smith | | 1 | | | | | | | 1 | | | | | 2 |
| Wilkinson | 1 | | | 1 | | | | | | | | | 7 | 9 |
| Flynn | 1 | | | | | 1 | 1 | | | | | | 3 | 8 |
| Armstrong | | 1 | | | | 1 | | | | | | | 5 | 7 |
| Lisonally Farm | 2 | | | | | | 1 | | | 2 | | | 13 | 18 |
| Pickard | 1 | | | | | 1 | | 2 | | | | | 1 | 6 |
| TOTAL | 13 | 9 | 3 | 6 | 6 | 4 | 4 | 3 | 3 | 2 | 1 | 1 | 203 | 258 |

hole. This razing process has been documented archaeologically, and can be detected based on certain stratigraphic traits related to the activity of filling in an open hole once a building has been pulled down (White and Kardulias 1983:70).

Potentially, the balance of the midden remained in what would become the ploughzone as the land use of the former homelot changed. Hence, when an archaeological site is stripped of its topsoil in order to expose the settlement pattern, it should be noted that the use of a Gradall also contributes in a major way to the site formation process, as part of the site has been removed before the archaeologist begins to record the features.

ANALYSIS OF SETTLEMENT PATTERN AND ARTIFACT FREQUENCY DATA

Eight artifact group categories have been used to organize the data in this study: Kitchen Group, including ceramics, domestic glass and utensils; Faunal Remains; Architectural Group, including nails, window glass and hardware; Tobacco Pipe Group; Clothing Group, including buttons, sewing items, and shoe parts; Personal Group, including slate pencils, grooming items and coins; Activity Group, including livery, farm tools, arms and toys; and finally, Unidentified Artifacts. These groups are loosely based on South (1977:95-96) and are utilized in this paper as a means to communicate information in functional groupings.

Each of the 15 sites was discovered during Stage 2 archaeological assessments conducted in southcentral Ontario (Figure 1). Eleven of the sites were discov-

ered as scatters of material in ploughed fields. The remainder were discovered through test pitting, although these too had been subject to cultivation to some degree prior to their discovery. The topsoil from each site was removed by Gradall during a Stage 4 salvage excavation before the features in the subsoil were recorded and hand-excavated. In general, the topsoil was not sampled in order to concentrate efforts on the collection of settlement pattern data and artifacts with a feature provenience, hence the data are derived from artifacts with a feature provenience.

While it is not standard practice among CRM firms in Ontario to conduct anything beyond a controlled surface collection during Stages 2-3 investigations on historic sites, it should be noted that the Archaeological Assessment Technical Guidelines (Stages 1-3 & Reporting Format) for Ontario stipulate that, "for most sites it will be necessary to determine the nature of ploughzone and subsoil artifact deposits and/or the potential for the presence of cultural features, stratigraphy or buried midden deposits during Stage 3 investigations" (MCTR 1993:6). The Guidelines make no distinction between prehistoric and historic sites. Elsewhere in the Northeast, the ploughzone is sampled routinely to varying degrees, pointing to a philosophical difference in how valuable the data in the ploughzone is perceived. In the state of Maryland, for example, the use of a Gradall is not permitted on an archaeological site until the ploughzone has been adequately sampled and subsurface features have been exposed (Shaffer and Cole 1994:29). Different strategies have been developed and are used by CRM archaeologists in the Northeast to extract useful data from the ploughzone, and it would be worth adopting some of the strategies here in Ontario. These include taking samples for soil chemical signatures that are used to interpret activity areas within a site (cf. Pogue 1988), as well as sampling the ploughzone and analysing the patterns of artifact distribution contained therein.

Settlement Pattern Data

The number of features to be found on a site is variable (Table 1), ranging from as few as two, as on the Robert Smith (AkGw-55) site in Brampton, to 69 at the Devil's Pulpit (AIGx-9) site in Caledon. Assuming that the site occu-

pants probably utilized an area larger than that stripped by the Gradall, the variability in the number of features may be related to the amount of site surface exposed by the Gradall, but there does not appear to be a direct ratio between the number of features and the total area of topsoil stripped. The total number of artifacts per site is also variable, ranging from 171 artifacts to 9,099, excluding the ploughzone (Table 1).

Of the 258 features in the sample, only 21 percent (n=55) could be classified according to a functional type other than "refuse filled depression," "pit," or "unknown" (Table 2). These included 13 "structural" features, nine root cellars, six animal burials, six post pits, four wells, four midden deposits, three drains, three privies, three chimney platforms or fireplaces, two landscape features, one bake oven and one cistern.

The "structural" features are interpreted as the location of a former structure based on the presence of materials such as flagstones, foundation remnants containing mortar, brick or stone, remnants of wooden boards, or attached drainage features, in addition to their morphology. For example, Feature 2 at the Highbush (AkGs-16) site (Figure 2) in Pickering, and Feature 1 at the Pickard site (Figure 3), were interpreted as the locations of former structures based on the combination of several of the above attributes. In general, this type of feature is relatively shallow, ranging from 16 to 32 cm deep, and the soil fills are often lensed or mottled with ash and charcoal, as for example Feature 1 at the Pickard site (Figure 4). It was postulated that these features were formed by the removal of an existing structure, and that the building footprint subsequently became filled with refuse (MacDonald and Austin 1994:8; Welsh and MacDonald 1996:7).

Indeed, if one compares the Artifact Group frequencies in six features identified as the location of a former structure (Table 3), the Kitchen Group frequency is highest on the Loring (AIGw-43) and Wilkinson (AjGw-140) sites, suggesting the formation of a midden in these features. Upon re-examination of the data, it is also possible, however, that Feature 2 at the Highbush site represents the location of a sub-floor pit due to the relatively higher frequency of artifacts in the Activity, Personal, Clothing and Tobacco Pipe Groups. Heather Henderson (personal communication 1997) has

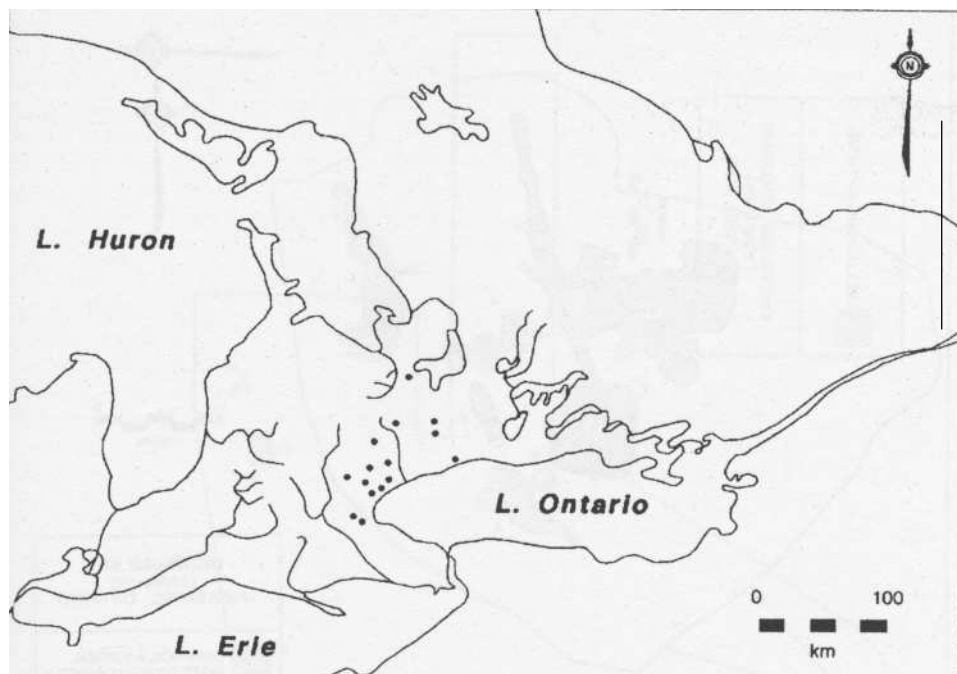


Figure 1. Location of Sites used in the Study

suggested that rectangular, relatively shallow features such as that at Highbush may represent the remains of sub-floor pits, due to the higher frequency of these particular artifact groups. The pattern is consistent with the loss of smaller, personal items indoors. The high frequency of Architectural Group artifacts, principally nails, in Feature 5 of the Fletchers Creek (AjGw-84) site in Brampton, however, is what one would expect of a wooden structure that was left intact after the site was abandoned (Table 3).

Only two intact house foundations were documented among the 13 "structural" features in the study sample. At the Flynn (AjGw-69) site in Mississauga, the mortared field-stone foundation measured six metres by eight metres, with internal walls and floor joists intact in several locations (Figure 5). An exploratory trench was hand-excavated within the structure, in front of the fireplace, but few artifacts were found. The house including the root cellar had been filled solidly with demolition rubble. The bulk of the artifacts came from midden deposits to the north and east of the house, conforming to South's "Brunswick Pattern" of refuse disposal (MacDonald and

Williamson 1992:10). Intact fireplaces such as that at Flynn were not common in this study, however, a rectangular concentration of large stones and ash within a darker soil matrix in Feature 2 at the Pickard site (Figure 6) probably represents a chimney platform shorn of the chimney itself (Welsh and MacDonald 1996:7).

A more common settlement pattern in this study is one where no contiguous foundations existed to guide the interpretation of the home-lot pattern. However, some features may represent portions of a foundation that can be used to interpret the location of the house, such as that documented at the Lampman (AhGx-96) site in Ancaster (Garner and Austin 1996:6). Feature 4 at Lampman (Figure 7), for example, a rectangular basin-shaped feature with brick fill, also contained two coins dated to between 1790 and 1830 that may have been placed in the foundation of the original structure for good luck (Garner and Austin 1996:7). At the Devil's Pulpit site (Figure 8), some of the pit features may represent holes dug to support wooden uprights for simple frame structures, as well as fence posts, or planting holes, as they contained relatively few artifacts (Austin and Williamson 1990:8), however, the pattern is not

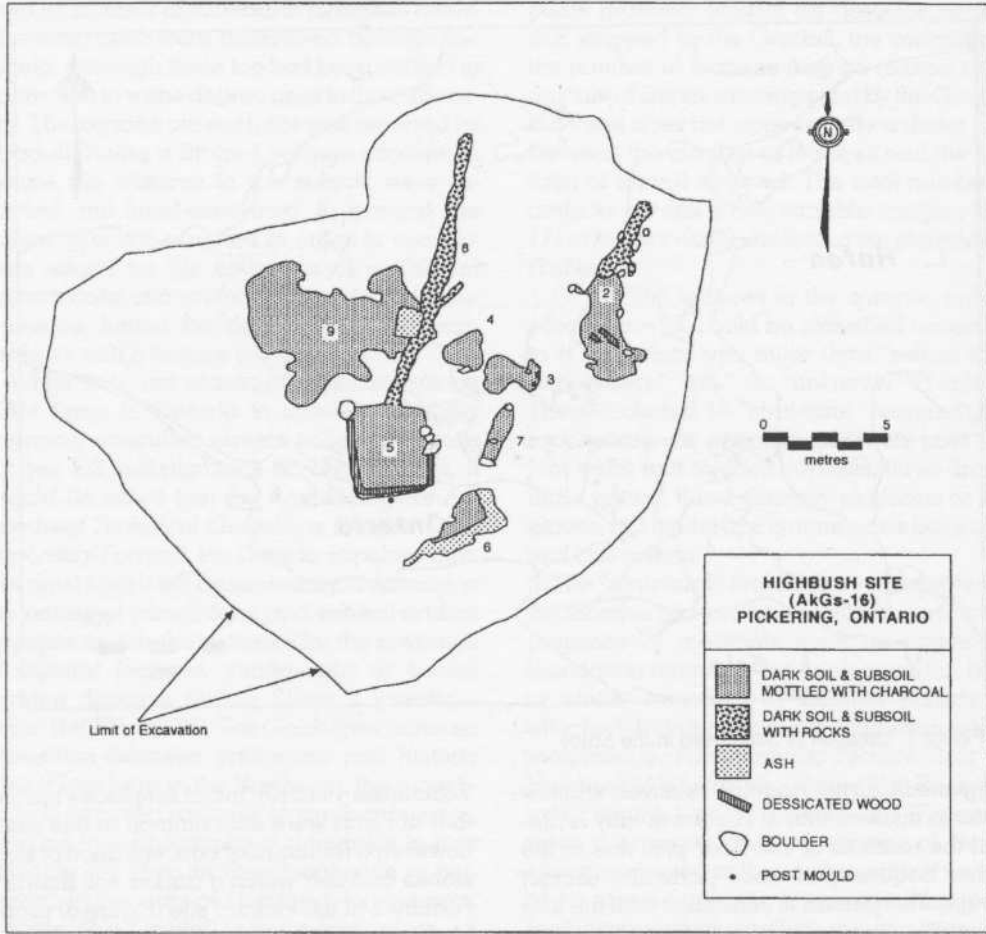


Figure 2. Settlement Pattern of the Highbush Site

straightforward. On other sites such as James Brown (Figure 9), the root cellar feature was interpreted as the former location of the house, based on nineteenth century descriptions cited above (Welsh and MacDonald 1994:6).

Root cellars were identified on nine of the 15 sites in the sample (Table 2). As was noted in a study of Illinois cellar excavations (Phillippe and Walters 1987:41), the interpretation of these features as root cellars is based primarily on their morphology, and physical relationship to other features, as opposed to their artifact content, as they generally do not contain *de facto* refuse. In Ontario, Mayer (1995:10) has also observed that most root cellars contain secondary deposits of artifacts.

In this study sample, the majority of root cellars were square to rectangular pits with flat

basin profiles, plain dirt walls and hard-packed floors. In some instances, a wooden lining was evident, as at the Highbush site (Feature 5, Figure 2). The depth below grade (after the ploughzone had been removed) of the cellar features ranged from between 39 cm at the Highbush site, where the subsoil was predominantly clay, to 115 cm at the Devil's Pulpit site, where the subsoil was sandy. The absence of a ramped entrance indicates that these features are sub-floor pits within the house as described by Samuel Strickland above. Only one 'Keyhole Cellar' (Phillippe and Walters 1987:41) with exterior entrance was documented — at the Flynn site (Figure 5). Little or no stratigraphy was noticeable in many of the root cellar features, and the fill often included large, flat field stones placed at the bottom of

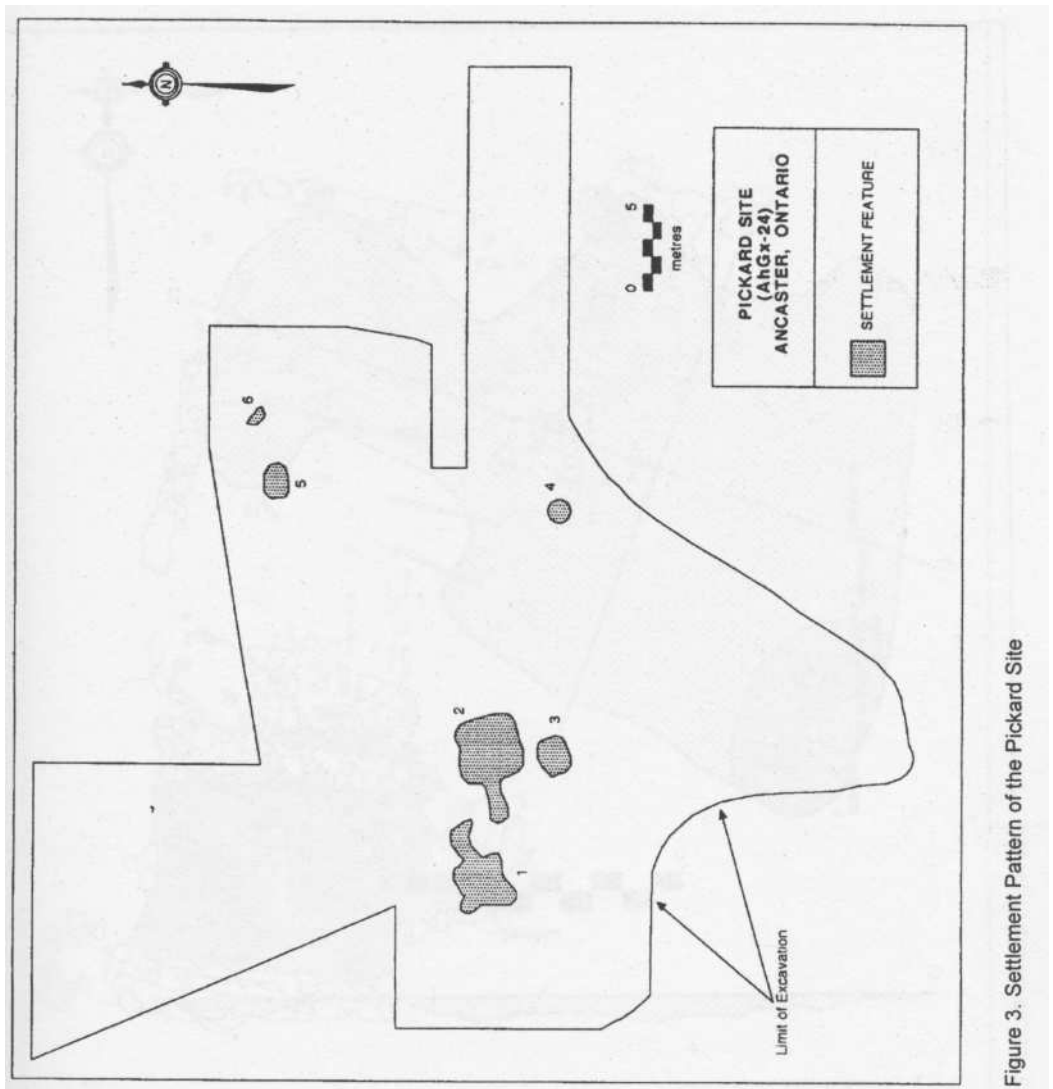


Figure 3. Settlement Pattern of the Pickard Site

the pit that may have originated from the fireplace or house foundation. At the Log Cabin site, the fill had been placed on top of a thin, dark soil layer (Figure 10) interpreted here as organic material that had been worked into the floor when the cellar was in use.

A more complex, stratified deposit was found in the root cellar at the James Brown site (Figure 11), including fire-reddened soil and charred building debris, which suggest that part of a superstructure was burned in the pit after the house was abandoned (Welsh and MacDonald 1994:6). An underlying soil layer contained bone that had been gnawed by

rodents and dog-sized carnivores (Thomas 1994:Table 5), indicating that the bone had been exposed in a surface deposit before it was placed in the cellar hole as a secondary deposit. Gnawed bone was also common in the Log Cabin and Pickard site assemblages (MacDonald and Austin 1995:17; Welsh and MacDonald 1996:18).

On sites where no sub-floor pit or root cellar was identified, as at Lampman, the circular, basin-shaped pits located close to the probable house foundation may have been dug for storage, and then filled with refuse when they were no longer used for their original purpose.

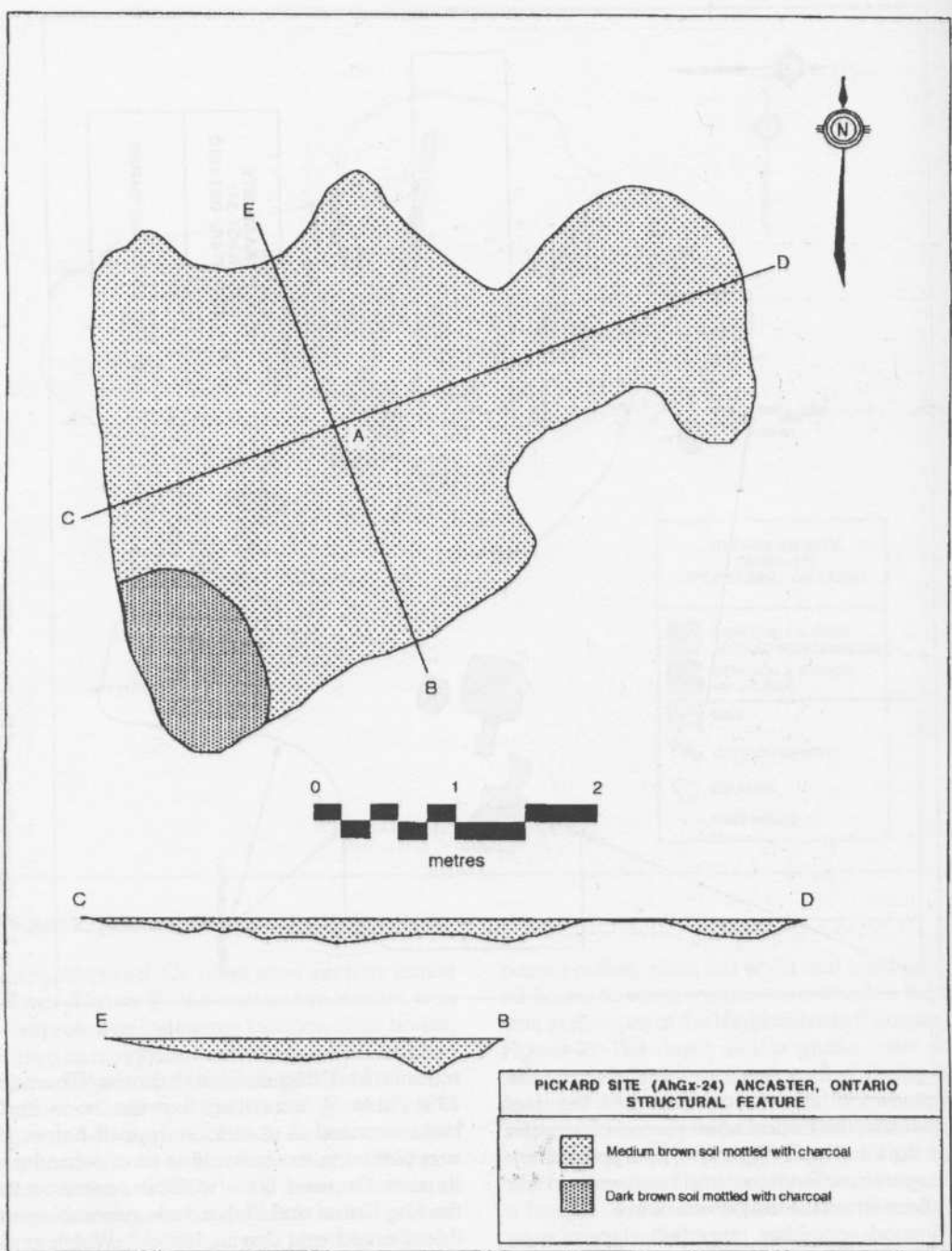


Figure 4. Feature 1, The Pickard Site

The dearth of privy features in the study sample is notable (Table 2). Privy pits with dry laid stone walls are a common feature type on urban archaeological sites. As the dense, organic waste material expected in these

features is not always present, and their size and shape may vary, they are often identified by the presence of floral indicators, such as raspberry and strawberry seeds (Geismar 1993). Urban privies, including the one at

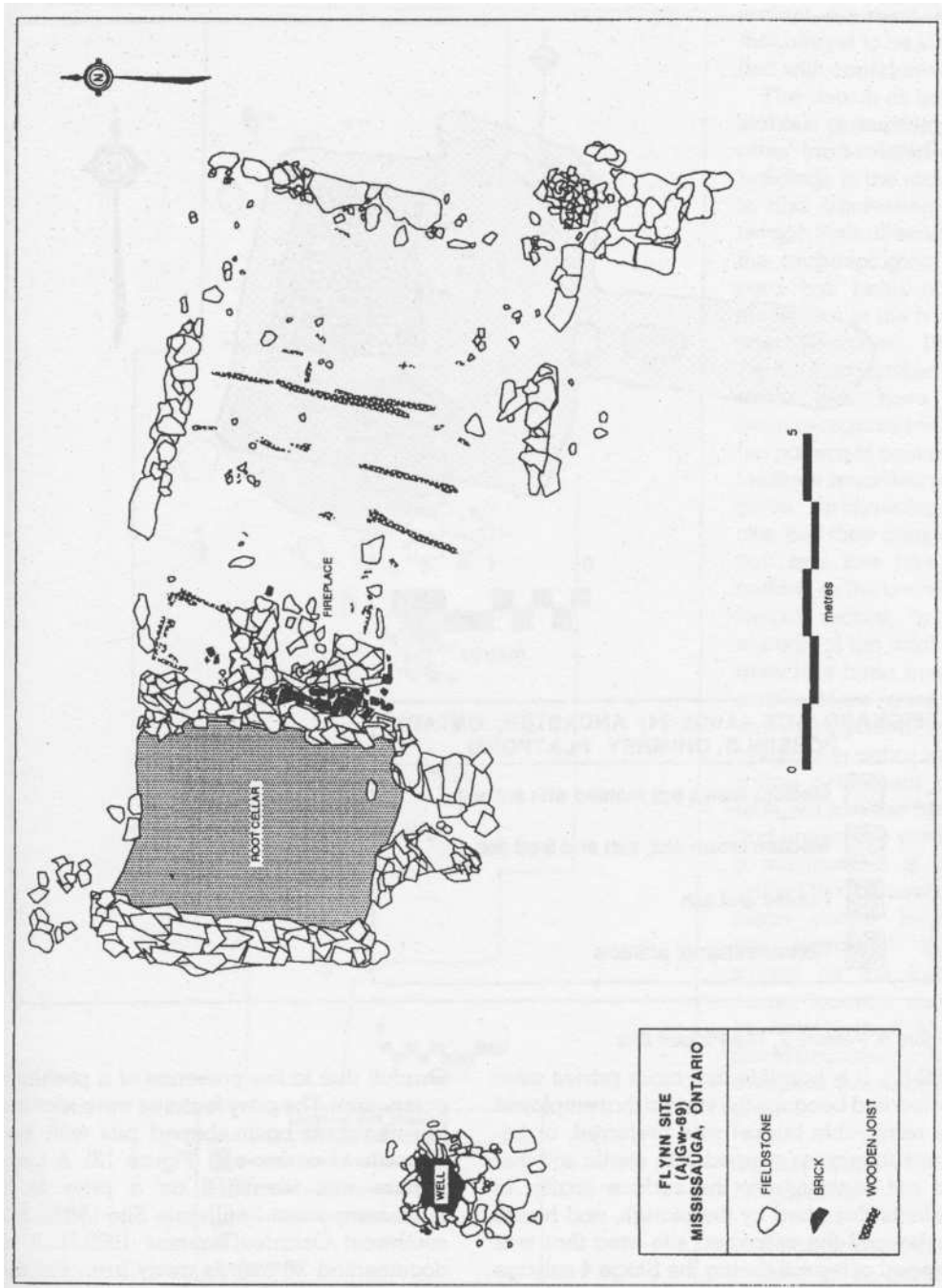


Figure 5. Detail of Structural Feature on The Flynn Site

Inge-Va in Perth, Ontario, which contained over 15,000 artifacts (Doroszenko 1993), are noted for their massive deposits of ceramics and glassware (Beaudry 1994).

In this sample of rural farmsteads, however, privy features were identified on only two of the

15 sites, Langstaff (AIGu-95) in Richmond Hill, and Pickard (Table 2). Interestingly, at the Langstaff site, over half of the site assemblage was concentrated in this feature, including a great amount of architectural hardware, and a fine collection of smoking pipes (Austin et al.

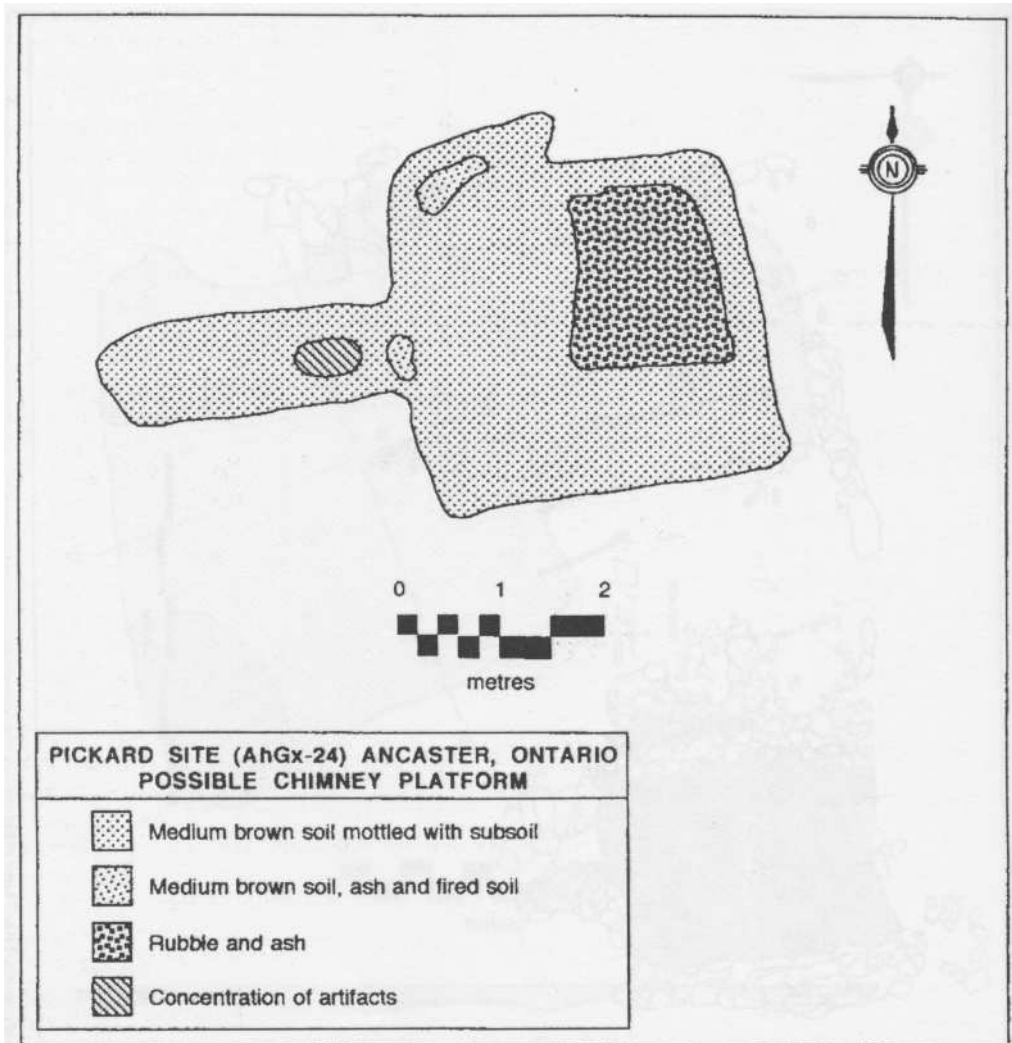
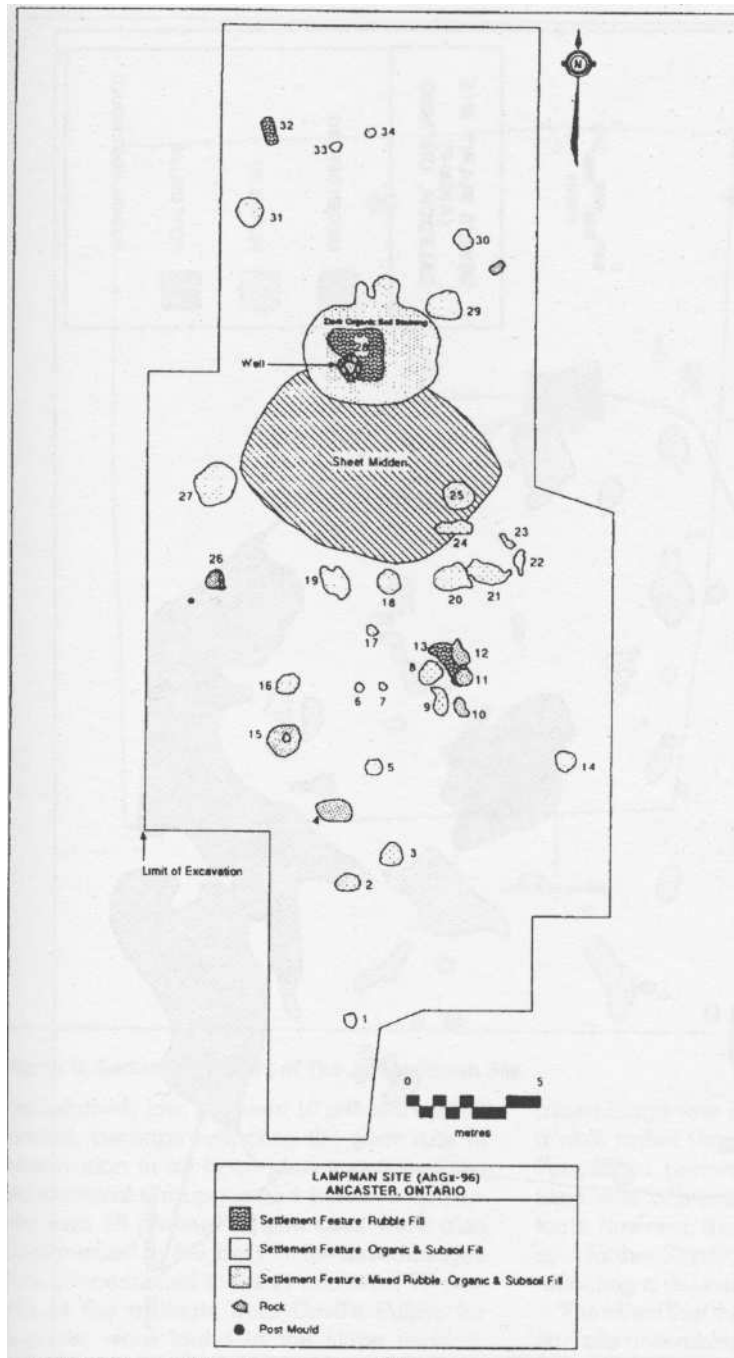


Figure 6. Feature 2, The Pickard Site

1992:11). It is possible that more privies were not located because the variant that employed the removable bucket was preferred, or because they were capped with sterile soil that did not contribute to the surface scatter of artifacts disturbed by the plough, and hence lay beyond the estimated site area that was stripped of topsoil during the Stage 4 salvage excavation.

The two privies (Features 5 and 6) at the Pickard site, for example, were located approximately 20 metres to the north of the main cluster of features (Figure 3), and may have only been uncovered because an area greater than the surface scatter was stripped by the

Gradall due to the presence of a prehistoric component. The privy features were rectangular, stratified, basin-shaped pits with basal deposits of darker soil (Figure 12). A similar feature was identified as a privy at the multi-component Southdale Site (AffHh-35) in southwest Ontario (Timmins 1990:7). It was documented 20 metres *away* from the main cluster of historic features and had cut into the wall of a prehistoric Iroquoian longhouse. The privy appeared to lie beyond the historical artifact surface scatter and may only have been uncovered because of the longhouse investigation (Timmins 1990:Figures 2, 3). Alternatively, privies have not been identified



variant on rural sites that has yet to be identified with confidence.

The dearth of barns, stables, granaries and other farm-related out-buildings in the sample is also interesting, although their absence in the archaeological record has been noted elsewhere in the Northeast (Garrison 1996). Again, it is possible that either they have not been recognized within the pattern of posts and features recorded for a given archaeological site, that their construction and use has left nothing to the archaeological record, or not enough of the total site area has been investigated. More attention should be paid to interpreting the entire farmscape settlement pattern, not just the house and immediate yard. At a minimum, it is suggested that at least a 20 metre radius beyond the feature(s) interpreted as the former house location should be investigated, in order to document a more complete homelot pattern.

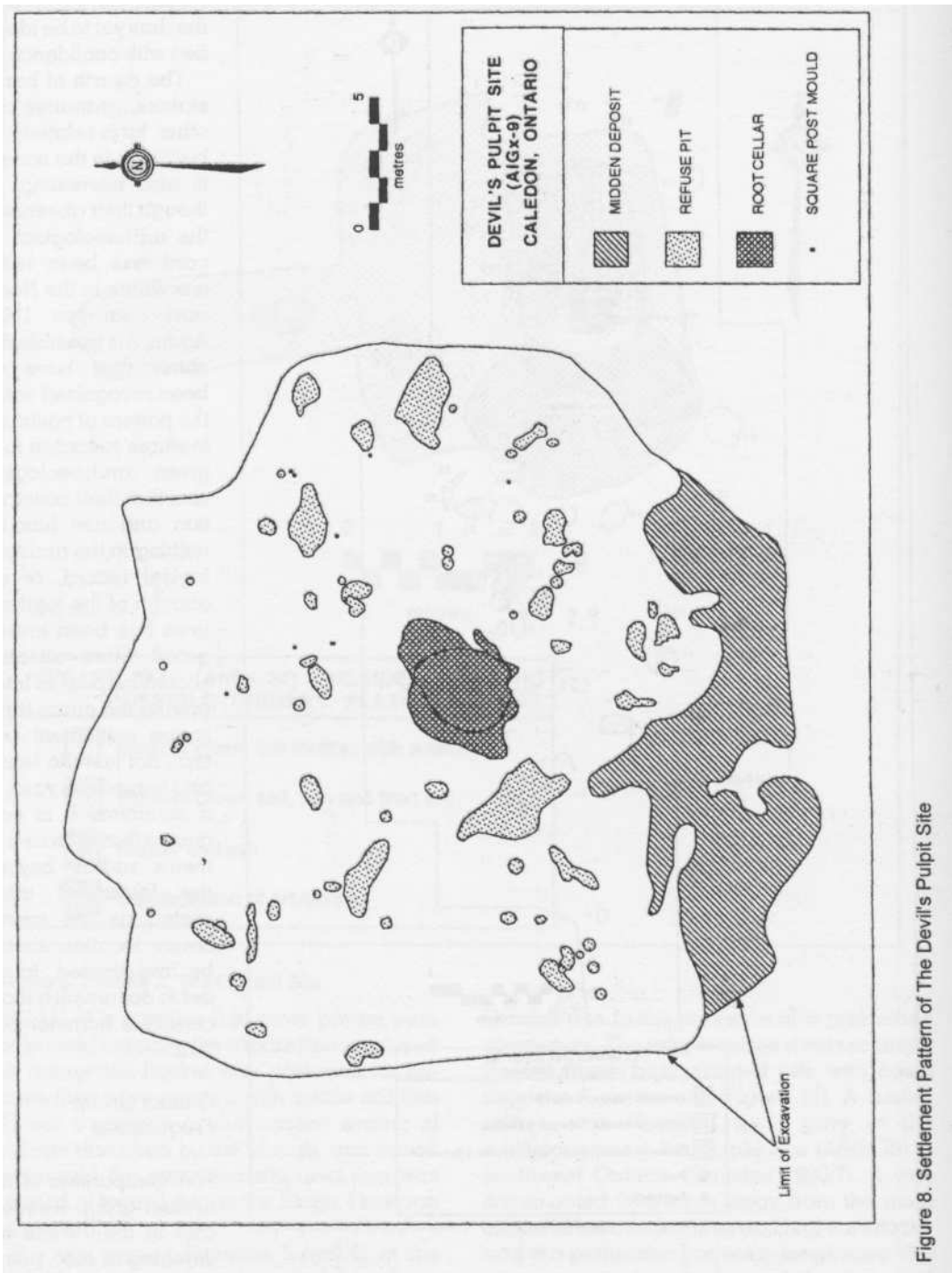
Artifact Group Frequencies

A comparison of the artifact group frequencies in the 15 site assemblages also points to the potential differences in the site formation processes, as the frequencies are wide-ranging in the Kitchen, Faunal and Architectural Groups (Table 4). If one searches for

Figure 7. Settlement Pattern of the Lampman Site

on the majority of sites because the features lacked the classic indicators such as seeds or dark "night soil." Perhaps there is a privy

Architectural Groups (Table 4). If one searches for



patterns in the site formation processes, however, similarities between sites become apparent. Two of the three sites where remnant midden deposits were hand-excavated in one

metre squares, Flynn and Devil's Pulpit, also contained a large percentage (72 percent and 65 percent respectively) of Kitchen Group artifacts. The frequency of Faunal Remains

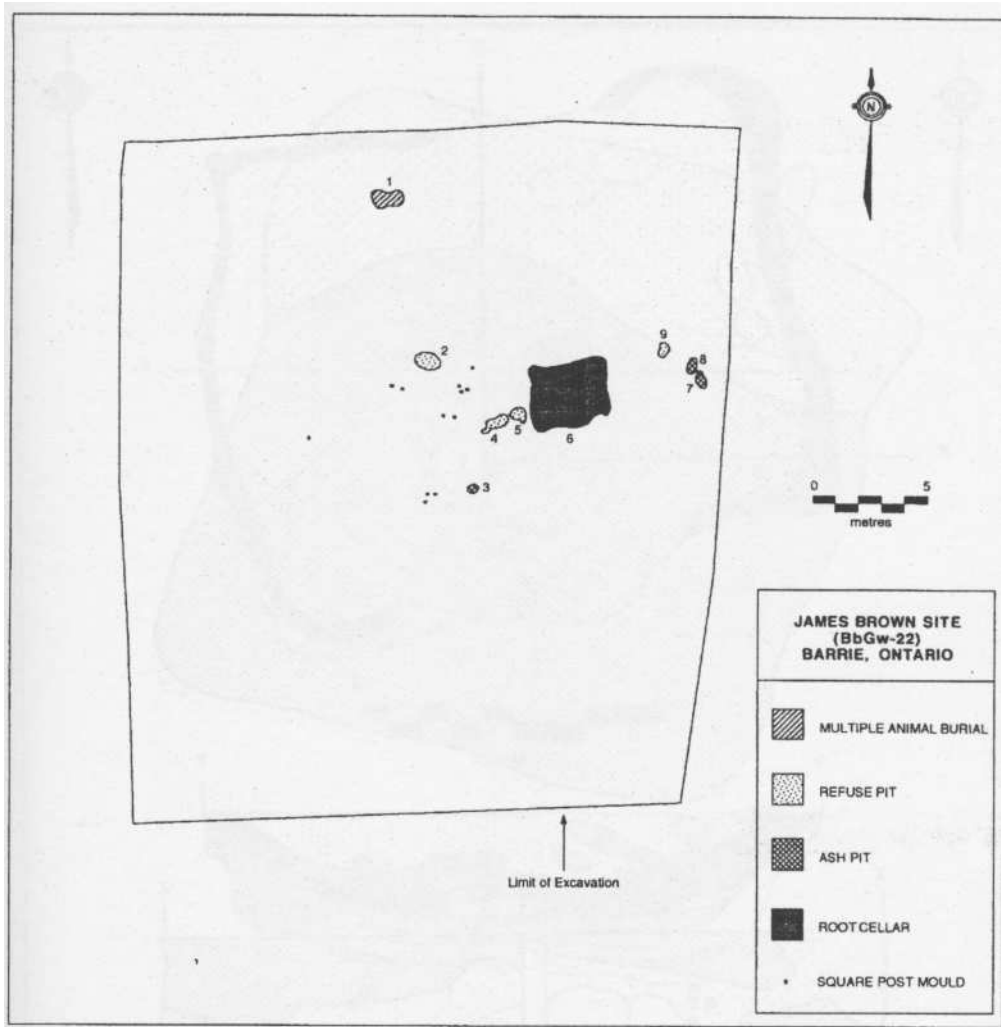


Figure 9. Settlement Pattern of The James Brown Site

was relatively low, between 10 percent and 12 percent, perhaps reflecting the poor rate of preservation in an open-air context, and the Architectural Group ranged between 13 percent and 18 percent. These sites were also distinguished by the fact that the assemblages were concentrated in these middens; 77 percent of the artifacts from Devil's Pulpit, for example, were found in the slope midden, while the root cellar contained only 20 percent of the assemblage.

In contrast, although a sheet midden was identified at the Lampman site, Kitchen Group artifacts made up only 44 percent of the assemblage (Table 4). This may be due to the fact that 50 percent of the excavated artifact

assemblage was concentrated in Feature 28, a well, rather than in the midden (Figure 13). Forty-eight percent of the well assemblage itself was comprised of Kitchen Group artifacts, however, the Architectural Group made up a further 32 percent of the well assemblage, reflecting a deposit of structural debris.

The effect that the site formation process has on a site assemblage can also be illustrated by examining the James Brown and Devil's Pulpit site assemblages by comparing the frequency of the artifact groups within each feature context. Where the midden was found to be relatively intact, and hand-excavated during Stage 4, as at the Devil's Pulpit site, the frequency of artifacts in the Kitchen Group is high

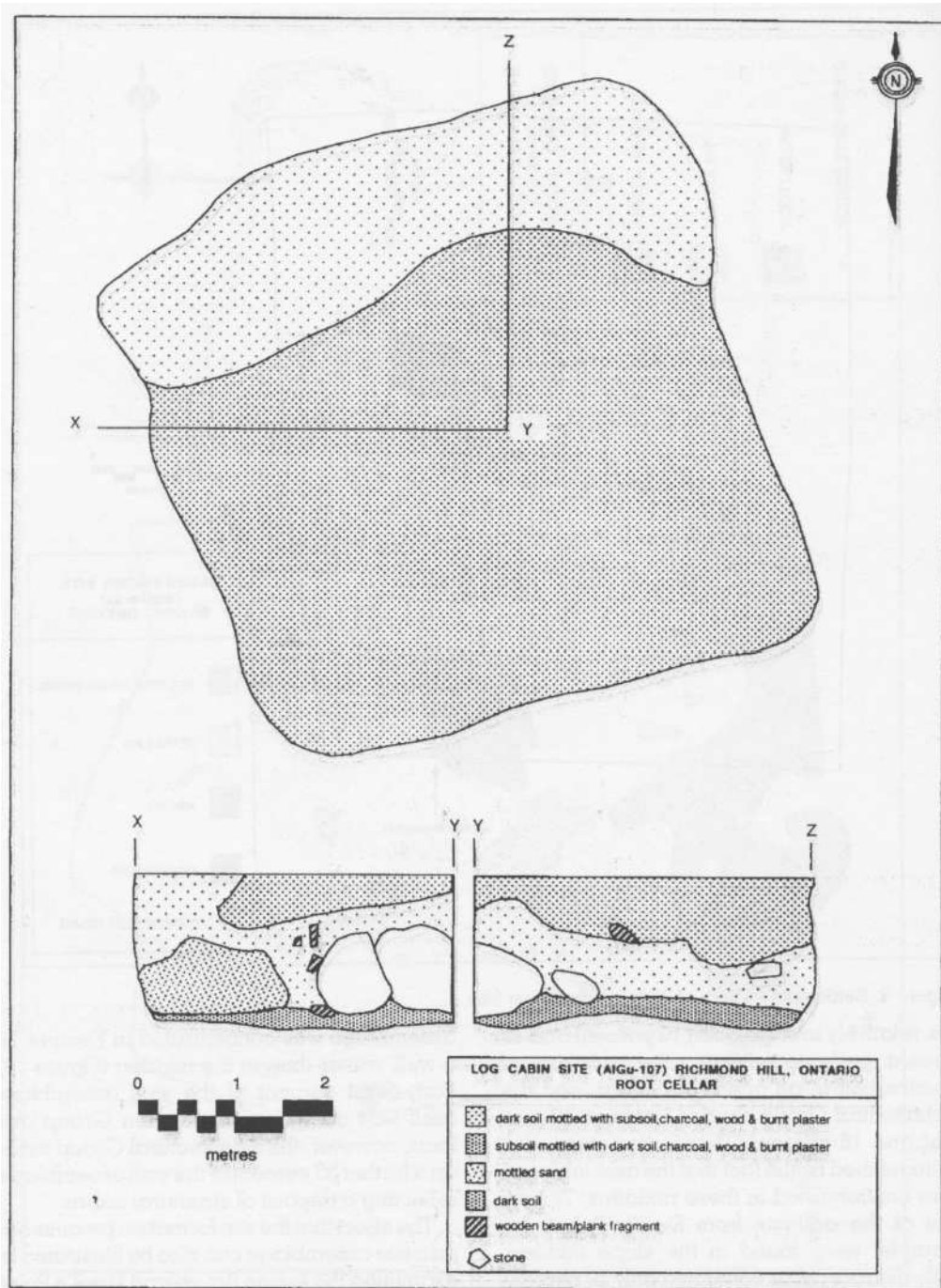


Figure 10. Plan and Profile of Typical Root Cellar Feature, The Log Cabin Site

(Figure 14). Where no midden is identified, and over 90 percent of the assemblage originated in the root cellar, as at the James Brown site,

the frequency of Kitchen Group artifacts is greatly reduced, relative to other classes that dominate the assemblage (Figure 15). For

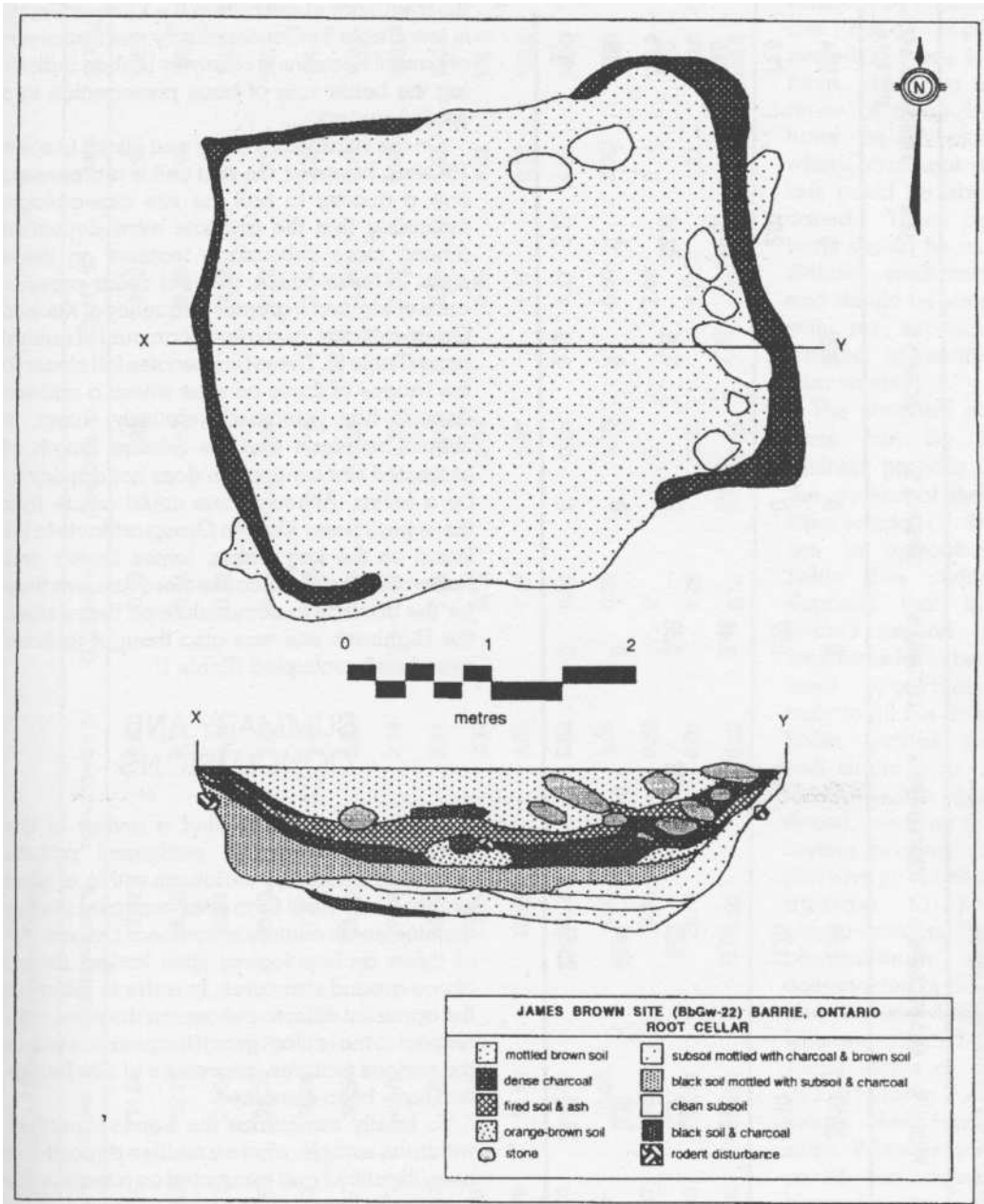


Figure 11. Plan and Profile of Root Cellar Feature, The James Brown Site

example, close to 50 percent of the James Brown assemblage consisted of architectural hardware, confirming the deposition of structural debris within the root cellar feature after the site had been abandoned and the house dismantled.

Trends can also be seen in a comparison of

the artifact group frequencies in seven root cellar assemblages with more than 100 artifacts. Where more than 80 percent of the total site assemblage originated as secondary deposit in a root cellar, and the cellar is the only major feature identified, as at the Log Cabin, James Brown and Robert Smith sites,

Table 3. Artifact Group Frequencies in Six Structural Features.

| SITE NAME | KITCHEN % | FAUNAL % | ARCHITECTURAL % | TOBACCO-PIPE % | CLOTHING % | PERSONAL % | ACTIVITY % | UI % | FEATURE AS % OF SITE TOTAL |
|-----------------|-----------|----------|-----------------|----------------|------------|------------|------------|-------|----------------------------|
| Pickard | 70.80 | 22.10 | 6.90 | 0 | 0 | 0 | 0.20 | 0 | 52.4 |
| Loring | 72.90 | 11.10 | 11.76 | 1.87 | 0.27 | 0 | 0 | 2.01 | 71.6 |
| Highbush | 21.98 | 45.68 | 17.04 | 2.72 | 3.46 | 0.49 | 1.98 | 6.67 | 29.5 |
| Wilkinson | 67.86 | 7.37 | 9.83 | 1.32 | 0.38 | 0 | 0.95 | 12.30 | 22.2 |
| Fletchers Creek | 0.30 | 0.30 | 99.40 | 0 | 0 | 0 | 0 | 0 | 5.5 |
| Langstaff | 46.81 | 23.40 | 25.53 | 0 | 0 | 0 | 2.13 | 2.13 | 3.2 |

the frequency of artifacts in the Kitchen Group is low (Table 5). Concomitantly, the frequency of Faunal Remains is relatively higher, indicating the better rate of bone preservation in a sealed context.

On the Highbush, Loring and Flicka (AkGw-18) sites, however, the root cellar represented only a quarter to half the site assemblage, indicating that the artifacts were deposited among more subsurface features on these sites. In these cases, the root cellar provenience contained a greater frequency of Kitchen Group artifacts, and a lesser amount of animal bone (Table 5). These frequencies fall closer to the ranges of those on sites where a midden deposit has remained relatively intact. It should be noted that the relative length of estimated site occupation does not appear to be a factor. Although one could argue that there were fewer Kitchen Group artifacts to be found on the Log Cabin, James Brown and Robert Smith sites because there was less time for the artifacts to accumulate on these sites, the Highbush site was also thought to have been briefly occupied (Table 1).

SUMMARY AND CONCLUSIONS

This paper has provided a review of the documentary evidence, settlement pattern data, and frequency variations within artifact groups on 15 rural farm sites occupied during the nineteenth century in southern Ontario. All of these archaeological sites lacked intact, above-ground structures. In order to interpret the apparent differences among the sites, with respect to the artifact group frequencies within the various features, processes of site formation have been examined.

To briefly summarize the trends identified within the sample, where a midden deposit has been identified and excavated as a feature, 65 percent or more of the total assemblage is comprised of Kitchen Group artifacts. This group is reduced to under 30 percent of the total site assemblage on sites where artifacts are concentrated as a secondary fill within one large feature, such as a root cellar. This trend in the relative reduction of Kitchen Group artifacts was also noticed on sites with deep features such as wells and privies, where at least half of the site assemblage was concentrated in those features. Architectural Group

Table 4. Artifact Group Frequencies in Fifteen Site Assemblages.

| SITE NAME | KITCHEN % | FAUNAL % | ARCHITECTURAL % | TOBACCO-PIPE % | CLOTHING % | PERSONAL % | ACTIVITY % | UI % | TOTAL |
|-----------------|-----------|----------|-----------------|----------------|------------|------------|------------|-------|-------|
| Devil's Pulpit | 64.54 | 11.96 | 17.62 | 2.83 | 0.53 | 0.22 | 0.62 | 1.68 | 100.0 |
| Fletchers Creek | 66.83 | 12.21 | 18.36 | 0.36 | 0.54 | 0.13 | 0.63 | 0.94 | 100.0 |
| James Brown | 18.12 | 20.44 | 48.51 | 5.41 | 3.09 | 0.67 | 2.98 | 0.78 | 100.0 |
| Lampman | 43.59 | 26.24 | 25.06 | 2.41 | 0.68 | 0.59 | 0.42 | 1.01 | 100.0 |
| Highbush | 53.43 | 30.98 | 7.65 | 1.31 | 1.09 | 0.15 | 2.04 | 3.35 | 100.0 |
| Log Cabin | 23.97 | 36.54 | 23.69 | 5.02 | 4.24 | 0.55 | 2.35 | 3.64 | 100.0 |
| Flicka | 31.73 | 49.46 | 7.64 | 2.14 | 0.97 | 0.26 | 1.34 | 6.46 | 100.0 |
| Langstaff | 33.83 | 5.93 | 49.32 | 3.41 | 2.66 | 0.07 | 2.86 | 1.92 | 100.0 |
| Loring | 68.71 | 13.78 | 13.21 | 2.30 | 0.19 | 0.09 | 0.09 | 1.63 | 100.0 |
| Robert Smith | 28.79 | 43.58 | 19.65 | 3.89 | 1.17 | 0.97 | 1.17 | 0.78 | 100.0 |
| Wilkinson | 62.16 | 7.71 | 12.78 | 0.88 | 0.34 | 0.04 | 1.47 | 14.62 | 100.0 |
| Flynn | 72.0 | 10.00 | 13.00 | 1.50 | 0.25 | 0.75 | 0.50 | 2.00 | 100.0 |
| Armstrong | 47.37 | 39.77 | 9.36 | 0.58 | 0 | 0 | 2.92 | 0 | 100.0 |
| Lisonally Farm | 54.80 | 14.14 | 21.73 | 3.05 | 1.75 | 0.39 | 2.73 | 1.23 | 100.0 |
| Pickard | 65.53 | 19.90 | 11.92 | 0.32 | 0.74 | 0.53 | 0.32 | 0.74 | 100.0 |

artifacts, by contrast, are better represented in these features, indicating the reuse of these features as a place where structural debris could be abandoned. These patterns should be considered preliminary and should be tested with an expanded sample to confirm their validity.

The observed patterns can be explained partially by the context of these sites, located as they are in agricultural fields. The midden deposits that had formed around the structures have been used opportunistically to fill the cellar holes, privies and well shafts once the structures are abandoned, resulting in a sorting process apparently biased against Kitchen Group artifacts. This phenomenon was documented by Kathleen Wheeler (1995), who re-evaluated the social status of the widow Rider in Portsmouth, New Hampshire. Wheeler compared the assemblages from an open-air kitchen midden and a privy in the widow's yard, and concluded that the artifacts in the privy feature in no way reflected the status of the widow as determined by archival

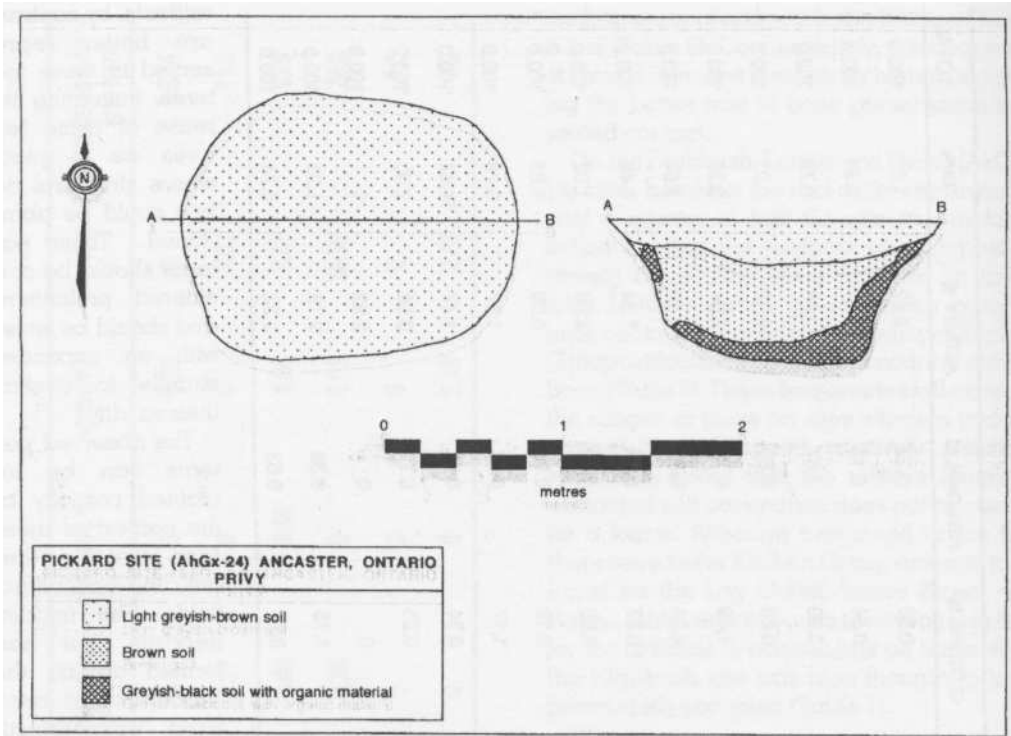


Figure 12. Plan and Profile of Privy Feature, The Pickard Site

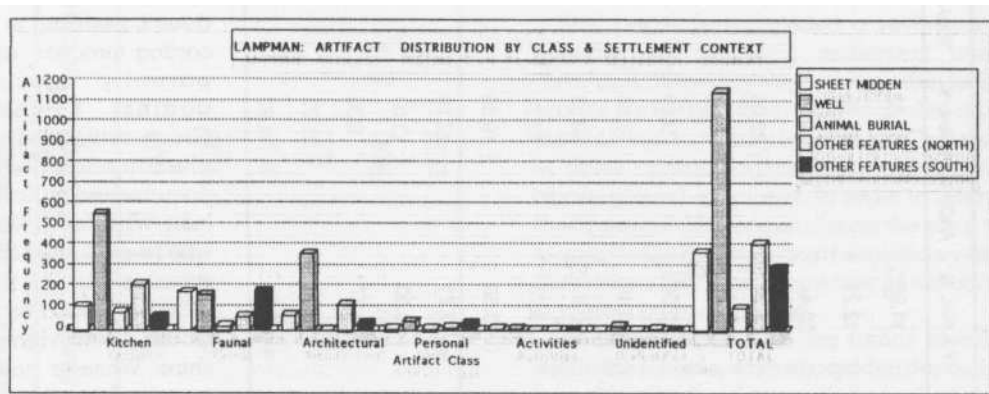


Figure 13. Bar Chart Showing Artifact Distribution by Class and Feature Context for The Lampman Site

sources. Instead, the midden was more indicative of the day to day activities in the Rider household, as the privy had been filled selectively, as well as cleaned periodically of some of its artifacts.

More importantly, the observed patterns in the data have implications for what the excavation techniques and analysis of the features

on these sites can tell us about the former occupants. For example, how is the Mean Ceramic Date of the site or an economic scaling analysis of the ceramic assemblage affected when it would appear that on some sites, part of the ceramic assemblage is missing? ASI is currently collecting ploughzone data during Stage 3 assessments on historic

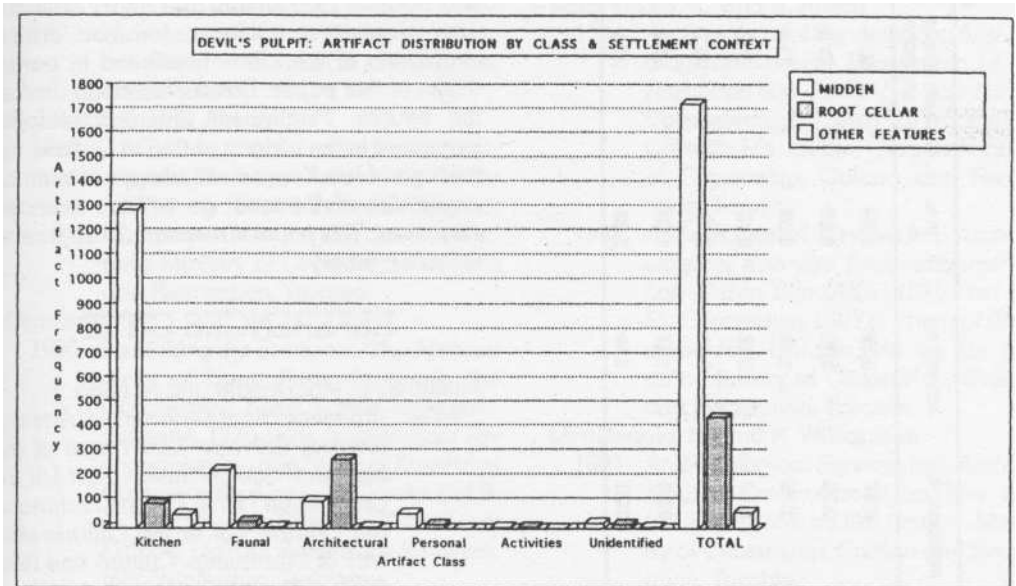


Figure 14. Bar Chart Showing Artifact Distribution by Class and Feature Context for a Site with a Relatively Intact Midden (Devil's Pulpit)

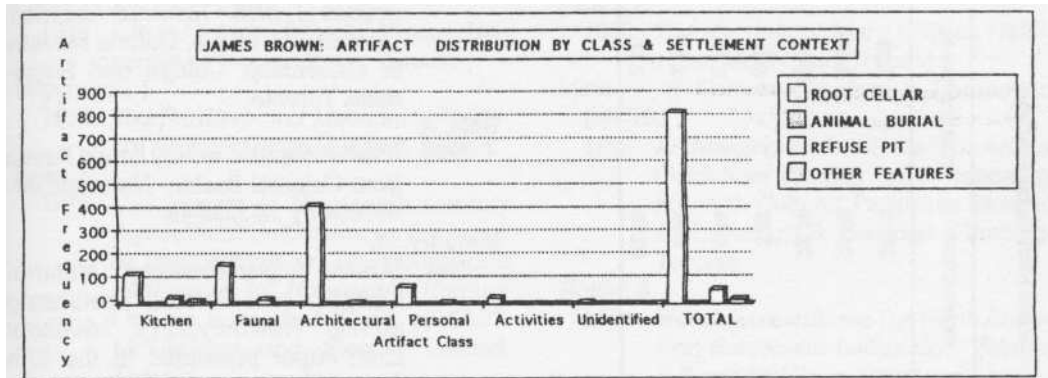


Figure 15. Bar Chart Showing Artifact Distribution by Class and Feature Context for a Site with a Dominant Root Cellar Feature (James Brown)

sites, and it is hoped that further research will determine what percentage of the site area in the ploughzone should be retained before the topsoil has been removed to record the settlement pattern. Also, as demonstrated above on the Pickard and Southdale sites, it can be expected that additional features would be discovered if an area of the ploughzone greater than that of the original scatter of artifacts was removed by the Gradall during Stage 4 investigations. The questions raised in this paper can only be answered if more attention

is paid to the site formation processes, including how we choose to excavate historic sites.

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Table 5. Artifact Group Frequencies in Seven Root Cellar Features.

| SITE NAME | KITCHEN % | FAUNAL % | ARCHITECTURAL % | TOBACCO-PIPE % | CLOTHING % | PERSONAL % | ACTIVITY % | UI % | FEATURE AS % OF SITE TOTAL |
|----------------|-----------|----------|-----------------|----------------|------------|------------|------------|------|----------------------------|
| Log Cabin | 24.49 | 35.89 | 24.11 | 5.20 | 4.39 | 0.57 | 2.39 | 2.96 | 96.5 |
| James Brown | 15.13 | 19.85 | 51.82 | 5.57 | 3.27 | 0.36 | 3.15 | 0.85 | 91.3 |
| Robert Smith | 27.84 | 42.23 | 22.74 | 3.25 | 1.39 | 1.16 | 1.16 | 0.23 | 83.8 |
| Highbush | 81.17 | 9.67 | 3.69 | 0.51 | 0.13 | 0 | 2.42 | 2.42 | 57.3 |
| Loring | 56.20 | 21.49 | 18.18 | 2.48 | 0 | 0.41 | 0.41 | 0.83 | 23.2 |
| Flicka | 73.71 | 8.31 | 9.90 | 3.27 | 0.67 | 0.24 | 1.97 | 1.92 | 22.9 |
| Devil's Pulpit | 22.74 | 5.95 | 62.56 | 2.42 | 1.54 | 0.22 | 1.54 | 3.30 | 20.0 |

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