Parks Canada Manuscript Report 459

Archaeological Excavations at the Newboro Lock Station, Rideau Canal Ontario, 1986-87

by Stephen F. Mills

1990

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Abstract

Between July and November 1986 and in February, 1987, Ontario Region Archaeological Research staff conducted excavations at the Newboro lockstation along the Rideau Canal. The research was in response to a request for information from the Engineering and Architecture Section. Adaptive restorations were planned for the 1830s blockhouse and an adjacent modern garage was being relocated. The excavations were carried out in and around the blockhouse to assist in the restoration plans, while the new garage location was tested for the remains of a 19th century carpenter's house or shop, believed to be in the area. This report contains descriptions of the work and includes details of the stratigraphies and the architectural and landscape features as well as the analysis of over 14,000 artifacts discovered at the site. A portion of a structure believed to be the carpenter's shop was also uncovered.

Acknowledgements

The author would like to thank the following people who have contributed to the preparation of this report: Caroline Phillips for editing and general direction, particularly the artifact analysis; Sharon Taillon, Lucie Amirault and Theresa Pollard for typing the various drafts; Brian Morin for the artifact photographs and Claude Tourangeau and Michel Jesmer for line drawings.

Introduction

This report deals with the archaeological excavations carried out at the Newboro lockstation Rideau Canal, during the summer and fall of 1986, and during February of 1987 (Fig. 1). Located at the lockstation is a blockhouse which had been partially restored between 1966 and 1967, and was slated for further restoration work during 1986-87. Archaeological excavations were undertaken inside and outside the blockhouse in an attempt to determine the original floor level and location of the second storey support posts as well as the base of the exterior steps leading to the second storey. A secondary goal was to locate paint samples, needed to assist in determining the original colour of the blockhouse. A trench was also excavated from the road to the blockhouse to accommodate a powerline for the electrical and heating utilities.

To restore the landscape surrounding the blockhouse to its 19th century appearance, an adjacent modern garage was to be relocated. A map of the lockstation (Fig. 2), dated 1860, shows a Carpenter's shop in the same area as the new garage location. The area was tested to determine if anything remained of this 19th century building. Due to the finds made during this initial testing, the excavation was enlarged to include the whole area to be disturbed by the garage foundation.

Rideau Canal and Newboro Historical Background

The War of 1812 had a profound effect on the way Britain viewed its holdings in continental North America. The British garrisons situated along the shores of Lakes

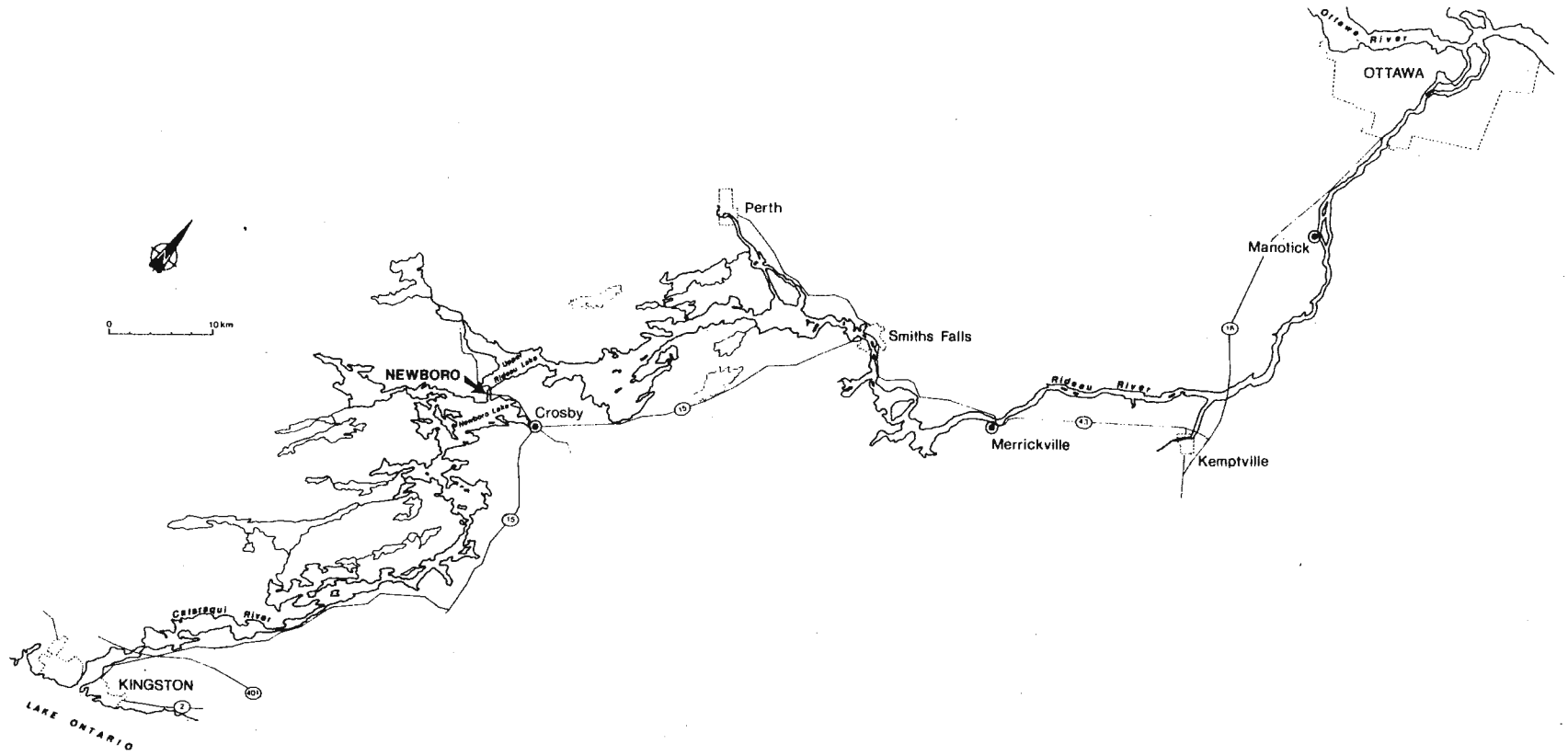

Figure 1. Map of the Rideau Canal. (Drawing by C. Tourangeau)

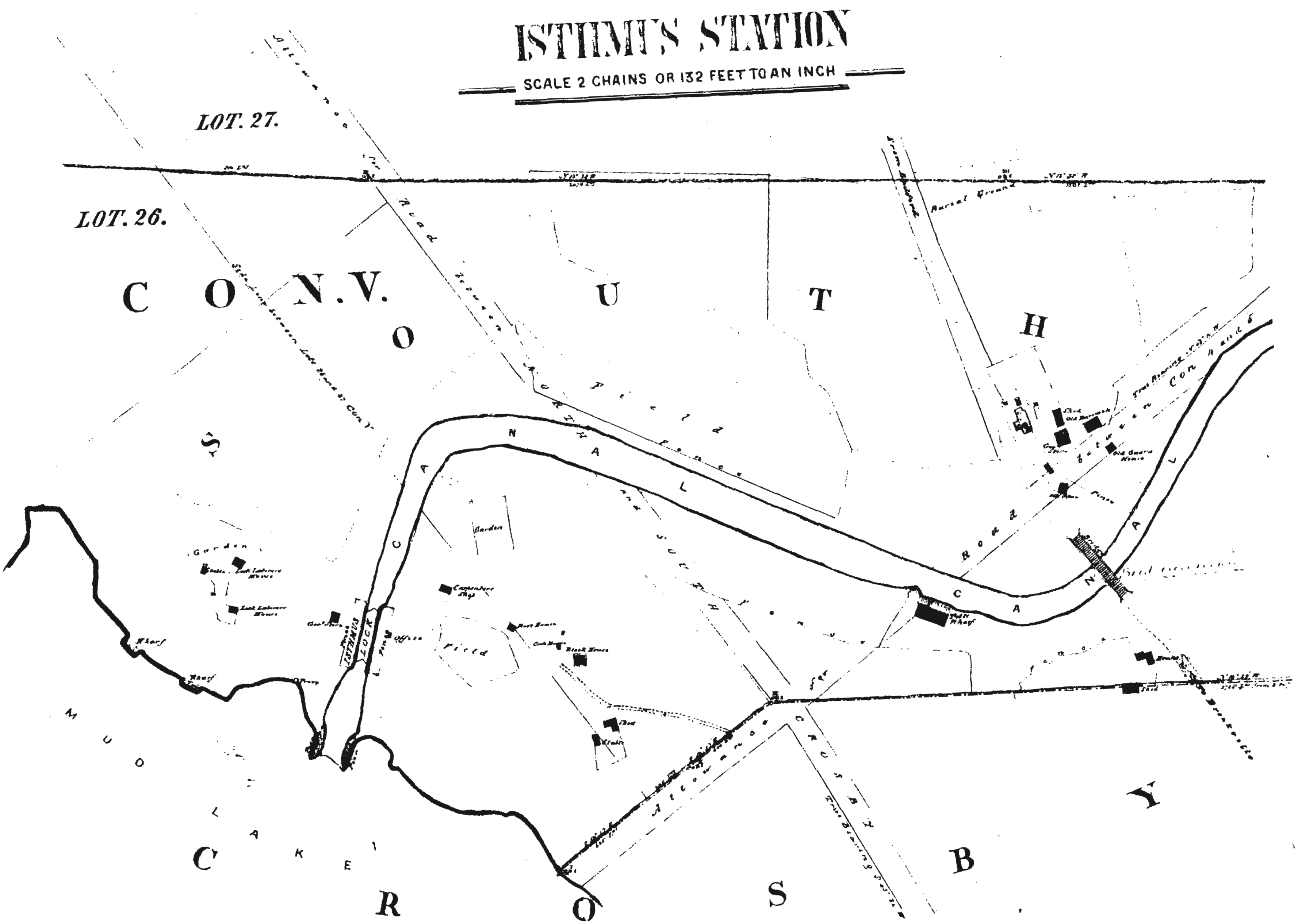

Figure 2. Map of Isthmus Station 1860. (Public Archives of Canada)

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Ontario, Erie and Huron relied on the St. Lawrence River as a lifeline, connecting them to Britain. Critical supplies, ranging from foodstuff to clothing, arms, munitions and reinforcements had be to continually transported from England to the North American outposts. The St. Lawrence would be virtually impossible to defend should the United States decide to attack Canada again, as they had in 1812. A secure, alternative supply route between the ocean port of Montreal and Lake Ontario was necessary if Britain wanted to continue to maintain their forts and towns in Upper Canada. This route had to be large enough to accommodate supply ships or barges and most important, it had to be a safe distance from the American border.

The Rideau Canal would be this secure, alternate supply route. It would connect the Ottawa River, which flowed into the St. Lawrence at Montreal, with the fortified garrison at Kingston, on Lake Ontario. The plan was to construct a series of canals and artificial lakes to join together two major river systems, the Rideau which emptied into the Ottawa River, and the Cataraqui which flowed into Lake Ontario at Kingston. The Rideau Canal was built between 1826 and 1832 and upon completion was the largest and most expensive British defensive undertaking of its' time (Passfield 1982: 11).

In the summer of 1826, Lieutenant Colonel John By's Clerk of Works, John MacTaggart, surveyed the Isthmus between Mud Lake and Rideau Lake in preparation for the construction of the Rideau Canal. The Isthmus had long been used as a portage route between the two lakes and it was decided that a channel would cut between them to allow for

boat traffic to pass.

The contract for the Isthmus canal cut was awarded to William Hartwell and work began on the site during the summer of 1827. All went well until the actual excavating took place. MacTaggart's survey underestimated the depth of the soil in the area and it wasn't until Hartwell's men

began digging that the full extent of the job was realised (McKenna 1981: 4). The excavation proved to be more than Hartwell's men could handle and if the hardships were not enough, the insects breeding in the swampy areas led to outbreaks of swamp fever, also known as malaria.

As a result of the problems encountered at the Isthmus, Hartwell asked for, and was granted a release from his contract in October 1828 (McKenna 1981: 6). By late 1829, after a second contractor had also failed, Lt. Col. By was forced to bring in the 7th Company of Sappers and Miners, along with several hundred labourers, to complete the job. With much difficulty, including many injuries and loss of life, the 2.4 km long canal through the Isthmus was completed by late 1831. "The excavation was 46 feet wide in rock.... and 80 feet wide in earth where the banks had to be sloped. It varied in depth from 13 to 20 feet." (Passfield 1982: 142).

Shortly after the construction of the canal the name Isthmus was changed to Newboro and Mud Lake was renamed Newboro Lake. Throughout the 19th century and into the early 20th century Newboro was a thriving community. Numerous businesses were established, including several mills, a distillery, hotels and artisan and merchant shops (Centennial Committee of Newboro Ontario 1967: 10-16). Newboro's location along the canal, with access to the St. Lawrence River and the world market, provided a solid economic background for the town's inhabitants. With the decline of the Rideau Canal as an economic lifeline and the development of a better system of roads during the 20th century, Newboro has gradually lost its importance as

an industrial centre. Today, Newboro is a quiet village of 300 people many of whom continue to work in the tourist industry catering to the thousands of summertime boaters and travellers who enjoy the many forms of recreation the Rideau Canal has to offer.

Methodology

Adaptive restorations were planned for the 1830s blockhouse and an adjacent modern garage was to be relocated. The excavations were carried out in and around the blockhouse to assist in the restoration plans, while the new garage location was tested for the remains of a 19th century carpenter's house or shop, believed to be in the area.

All of the excavations performed inside and outside the blockhouse were done by hand, using standard archaeological equipment except for three areas. The 20th century fill inside the blockhouse was removed by a contractor, under supervision of the archaeologists and the powerline trench from the lock station entrance gate to the blockhouse was excavated by backhoe also under the archaeologist's supervision. Following testing to determine its depth, the recent topsoil covering the carpenter's shop site was mechanically removed by a backhoe with a plow attachment. The site was then excavated in the same controlled manner as the blockhouse.

The archaeological record was maintained through daily entries in the excavators' note books as well as through the extensive use of photographs and hand drawn stratigraphic profiles and plan views. As each individual stratum or archaeological feature was exposed it was assigned its own provenience number with the artifacts recovered from each provenience bagged accordingly.

Upon completion of the excavation, the numerous lot designations assigned in the field were reviewed and, where possible, combined into stratigraphic layers. Each layer and significant archaeological feature was then assigned an

alpha-numeric event number. These events are numbered 1 through 38 and have the site provenience number (24H) as a prefix. All the event numbers will appear in this format: 24H1, 24H2, 24H3, and so on. Not all event numbers, however, represent a stratum. Several features discovered during the excavations, such as the retaining wall inside

the blockhouse and the pit in Unit 14N, were also assigned individual event numbers. The event system was developed by Edward Harris as a tool for interpreting archaeological deposits as it allows for a more precise examination of the stratigraphic sequence. Harris (1979) The event/ provenience correlation as well as the event sequence charts appear in Appendix A.

The excavation was carried out in three areas: the blockhouse interior, the blockhouse exterior, and the carpenter's shop (Fig. 3). These three areas are described in Chapters II and III. The artifact analysis is included in Chapter IV. The supporting statistical information for the artifact analysis appears in Appendix B.

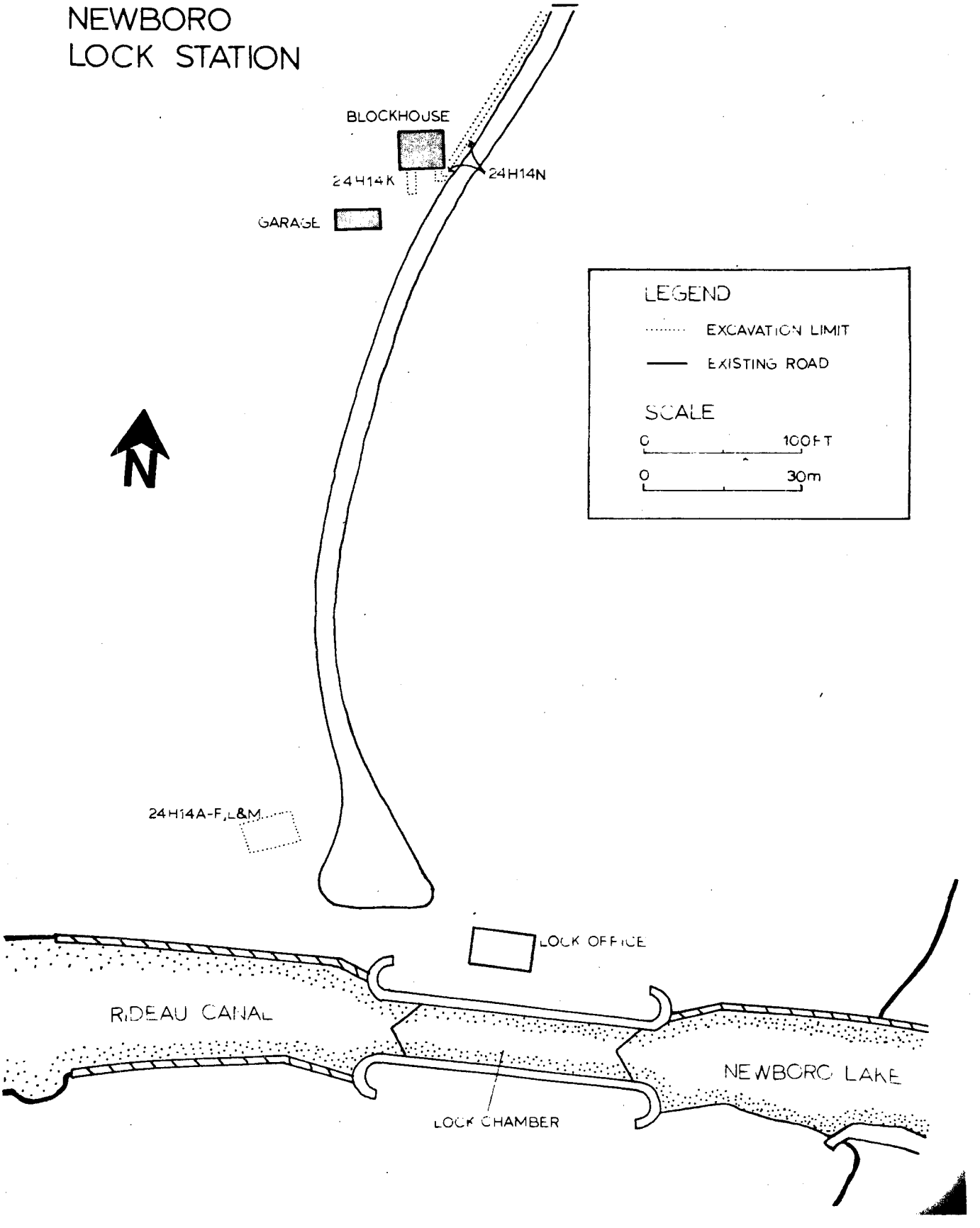


Figure 3. Newboro Lock Station Site Plan. (Drawing by L. Gareau based on original by S. Mills. 87-24H-01)

The Blockhouse

Historical Background

Because of Newboro's strategic location at the headwaters to the Cataraqui River system, it was identified as an important lockstation to be defended in times of hostility. If enemy forces were to capture and destroy the locks at Newboro then the entire southern portion of the Canal would be in danger of flooding (Passfield 1982: 146).

In keeping with Lt. Col. By's plan to use local contractors, on 26 December 1831 a contract was signed with William Tett of Newboro to construct a blockhouse for the price of L104 sterling (Wylie 1980: 38). The blockhouse was built on the height of land 153m northeast of the lock, chosen to allow defenders an unobstructed view of the lock chamber, part of the lake and the whole canal cut.

The lower storey was solid masonry, 24 ft. [7.3m] square, 3 ft. [.9m] thick at the base, tapering to 2.5 ft. [.8m] at the top. The only openings were protected air holes cut into the centre of each wall. The upper storey was 28 ft. [8.5m] square made of squared timbers covered in clapboard and with a hipped roof. Loopholes were centred in each wall. A door was located in the south wall with a stairway leading to the ground. The only access to the ground floor was through a trap door in the floor of the second storey. The second storey rested on the masonry walls of the ground story, however, four internal posts

helped support the weight of the massive pine beams used in the walls and floor. It appears that there was a wooden floor on the ground level with a crawl space beneath it (Wylie 1980: 37-42). The only surviving 19th century floor plan for the blockhouse is dated 1852 (Fig. 4). This

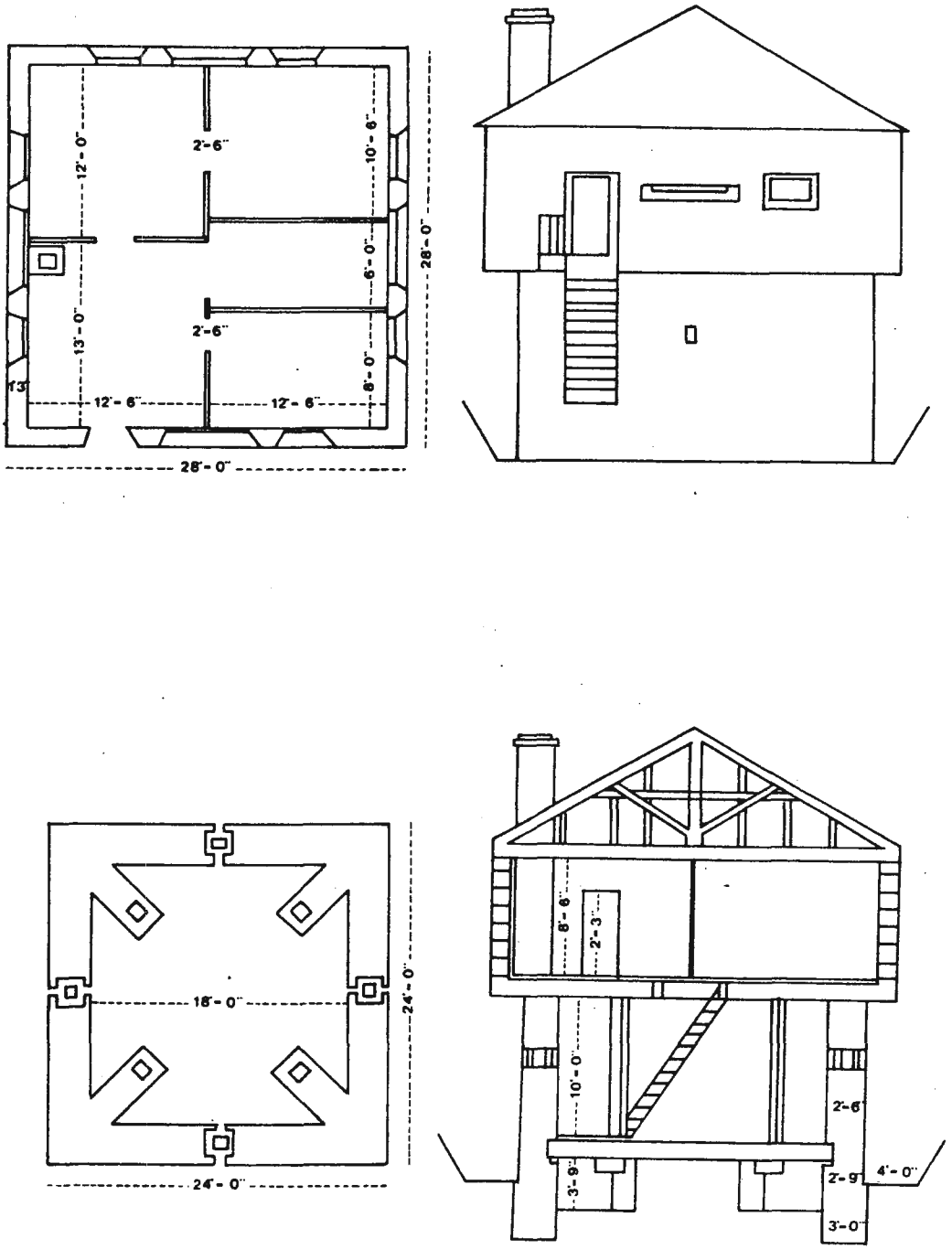


Figure 4. Royal Engineers Plans of the blockhouse, 1852. (Drawing by C. Tourangeau based on the original in the Public Archives of Canada)

document is questionable as it does not include alterations carried out around the building in 1849 (Wylie 1980: 40).

Immediately following construction, the blockhouse was used as a residence for the lockmaster and his family. During the 19th century the blockhouse experienced numerous alterations reflecting its domestic rather than military importance. The most noticeable alteration came in 1888 when a frame addition was built, doubling the size of the building and giving it the appearance of a farmhouse (Fig. 5). Between 1888 and 1962, a number of improvements were made to the blockhouse and its immediate surroundings. These improvements ranged from minor repairs to the interior and exterior to planting trees and erecting a flag pole and decorative fence around the building. In 1962, the building was vacated and declared surplus and four years later it was restored, more or less, back to its original appearance. A structural history of the blockhouse from 1833 to 1967 was written by William Wylie in 1980.

The blockhouse was inspected in 1967 following the removal of the additions. Both a crawl space and a root cellar were discovered beneath the ground floor. Gravel fill was then dumped inside the building, raising the level of the floor to enable it to be used as a store house for Canal equipment (Wylie 1980: 58).

Blockhouse Interior Excavations

Introduction

The archaeological excavations were undertaken inside the

blockhouse to provide subterranean structural details not recorded during the 1967 inspection. The main architectural concerns were focused on the elevation of the original wooden floor, and whether the corner posts actually rested on buttresses as was shown in the 19th century plans. No buttresses had been found in the 1967 inspection. At the

Figure 5. Newboro Blockhouse-turned-farmhouse 1930. (Canadian Parks Service, ORO, Archaeological Research Section; RDO-5B)

time the excavations were carried out, the first storey of the building had a earthen floor which was divided by a stone wall.

The below ground elevations were taken from the 1986 floor surface which had been recorded as 130.832m above sea level. This elevation was determined from the nearest Canadian Geodetic Survey benchmark found on one of the wing walls at the lock station (C.G.S.#753828).

Two units, 24H14G and 24H14J, were initially excavated inside the blockhouse. Following the excavation of these test units, a contractor was hired to excavate the entire east side as well as the top 0.70m of the west side. A third unit, 24H14P, was later excavated in the west half of the building (Fig. 6). The first of these units, 24H14G, was a 2.00m square unit located in the southwest corner of the floor and was excavated to a maximum depth of 1.57m. The second unit, 24H14J, was 1.50m long by 1.00m wide and was excavated down to 1.17m below the floor surface. Unit 24H14P, also on the west side, was an irregular shaped unit measuring 3.20m long by 1.40m wide and was excavated to a depth of 1.16m.

At the time of the excavation the surface of the floor (Event 24H9) was littered with debris from the 1967 restoration and canal storage. The debris included empty cement and vermiculite bags as well as the front section of The Ottawa Journal dated to the summer of 1967.

The floor surface in each unit was assigned its own provenience, and an arbitrary change was made at 0.05m below the surface to separate the 1986 level from the subsequent strata. In addition to the floor surface, three

stratigraphic levels and several architectural features were recorded. Each stratigraphic layer and architectural feature will be described individually. The event/provenience correlation is presented in Appendix A, Table 6.

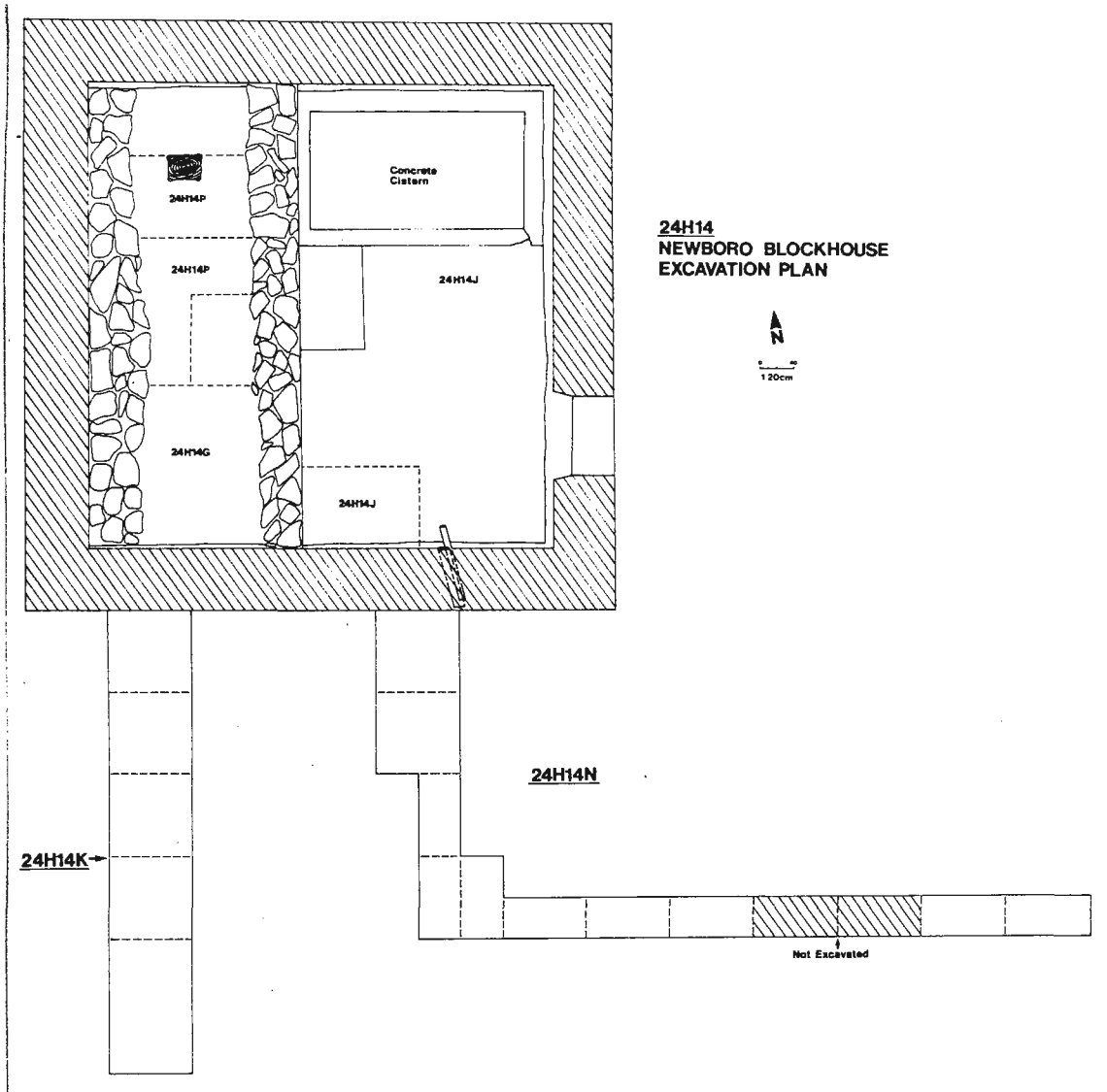


Figure 6. Blockhouse suboperation plan. (Drawing by L. Gareau from original by S. Mills; 24H-88-09)

A total of 797 artifacts were recovered from the blockhouse interior excavations. These artifacts are listed by class and event in Appendix B, Tables 7 and 8.

Layer 1 Event 24H10

This layer began arbitrarily at 0.05m below the surface and was recorded in all three suboperations excavated inside the blockhouse. It was loose sand and gravel fill which was 0.70m thick in the west half. In the east half of the building it was the only layer recorded, extending to the concrete floor.

The removal of this layer revealed a stone ledge measuring 0.08m wide along the south foundation wall at a depth of 0.14m below the surface in unit 14G (Fig. 7) and 0.23m below the surface in unit 14J. In the south-west quadrant of the foundation, wood grain impressions remained in the mortar adhering to the stones of this sill (Fig. 8). These impressions suggests that large beams were placed on the ledge while the mortar was still wet. In unit 14J the ledge was covered with plaster and whitewash.

A squared wooden beam (Fig. 9) and a portion of an upright post (Fig. 10) were also discovered in layer 1. The 0.65m high post was centred approximately 1.00m south and east of the northwest corner, while the beam was found in the recent fill, along the west wall. The post was badly deteriorated however there was enough remaining to determine that it sat on several small, flat stones instead of a buttress, as was suggested from the 19th century floorplan.

The bottom of this post was 1.16m below the 1986 floor surface.

A limited number of 19th and 20th century artifacts were recovered from this layer including a piece of an electrical conduit found at the bottom of the layer (Fig. 7).

Figure 7. Stone sill, (beneath metre stick) and cut stone debris. (Photo by author; 24H-697T)

Figure 8. Detail of beam mold in mortar on stone sill in unit 24H14G. (Photo by author; 24H-934M)

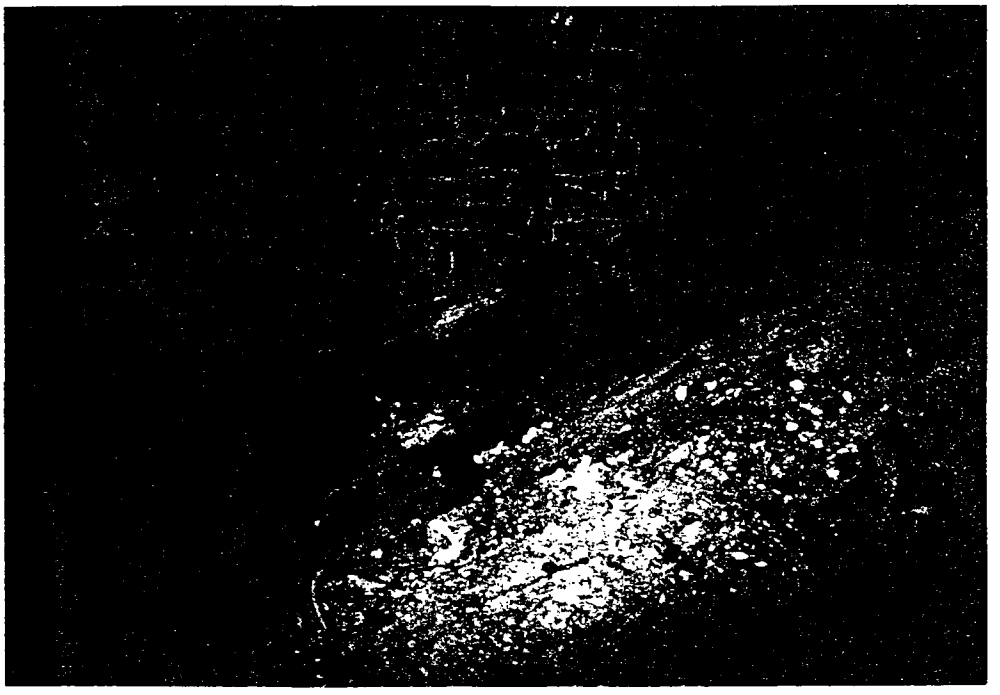


Figure 9. Square wooden beam in unit 24H14P. (Photo by author; 24H-924M).

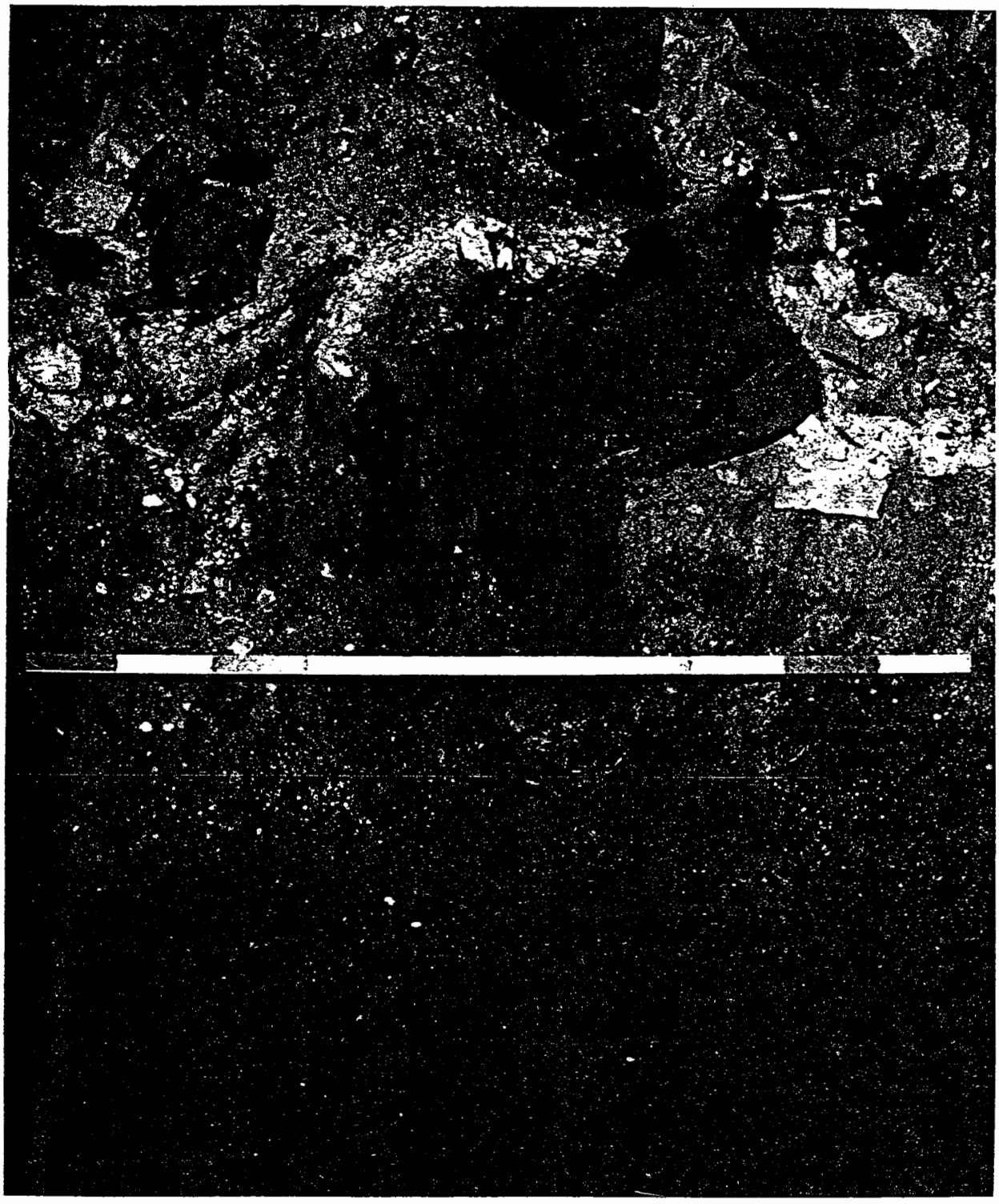


Figure 10. Corner post *in situ* in unit 24H14P. (Photo by author; 24H-902M)

Retaining Wall Event 24H14

A drylaid cut stone wall was discovered in Layer 1. This wall consisted of two to three courses of dressed stones, approximately 0.75m high and extended along the full length of the west wall of the blockhouse (Figs. 11, 12). When the wall was completely exposed it became evident that several of the stones were actually incorporated directly into the base of the west blockhouse wall. The top of this wall is approximately the same elevation as the ledge discovered in the south wall. The bottom of this wall had a maximum depth of 0.98m below surface. A small mixture of 19th and 20th century artifacts were found at the top of this feature.

Layer 2 Event 24H11

This stratum followed Layer 1 in units 14G and 14P. It was not present in 14J (the east half of the building). It began as a mixture of fine sand, mortar dust and small amounts of gravel, but 0.15m into this layer the gravel intrusions ended, as did the 20th century artifacts. At the same depth, a jumble of large dressed stones first appeared (Fig. 7). In unit 14G, the mixture of stones and fine sands made the excavation so unstable that by 1.05m below the surface the unit was reduced to one half its original width. Excluding the top 0.15m, the cultural material recovered from this layer dates to the 19th century. In unit 14P this layer closed at 1.16m below the surface while in unit 14G it continued to a depth of 1.34m.

Layer 3 Event 24H12

Layer 3 began as a very thin mat of decaying wood fibres mixed with decomposed mortar. Ten centimetres into this layer, the wood fibre and mortar became mixed with coarse

Figure 11. Top of retaining wall. (Photo by author; 24H-928M)

Figure 12. Detail of retaining wall. (Photo by author; 24H-971M)

sand, clay and rock spall. At 1.53m below the surface (0.19m into this layer) the excavation ended due to an abundance of rocks and the unstable soil condition (Fig. 13). At this depth, unit 14G measured 1.25m east to west and 0.45m north to south. A number of 19th century artifacts were found in the top half of this layer.

Centre Wall Event 24H15

This wall divides the basement of the blockhouse in two, along a north-south axis (Fig. 6). The east side of the wall was fully exposed by the contractor's excavation while the west side was partially exposed in Units 14G and 14P (Fig. 14). It ranged from 0.45 to 0.60m thick and was constructed from dressed stones mortared together. Only the east side of this wall was plastered and whitewashed. The builders trench (Event 24H13) discovered in Unit 14G may be associated with this wall feature.

Center Wall Builders Trench Event 24H13

A 0.50m wide builders trench was discovered along the centre wall in unit 14G at 1.05m below the floor level. The soil matrix of this feature was a mixture of sand, stones and mortar similar to Layer 2 (Event 24H11). Some of the stones had mortar adhering to them. It tapers to 0.20m at 1.37m below the surface. This trench interrupts Layer 2 and continued into Layer 3 (Event 24H12). The excavation ended

before the bottom of this feature could be determined, however, it was still visible at 1.53m below surface. A small number of 19th century artifacts were recovered from this feature.

Figure 13. Limit of excavation unit 24H14G. (Photo by author; 24H-925M)

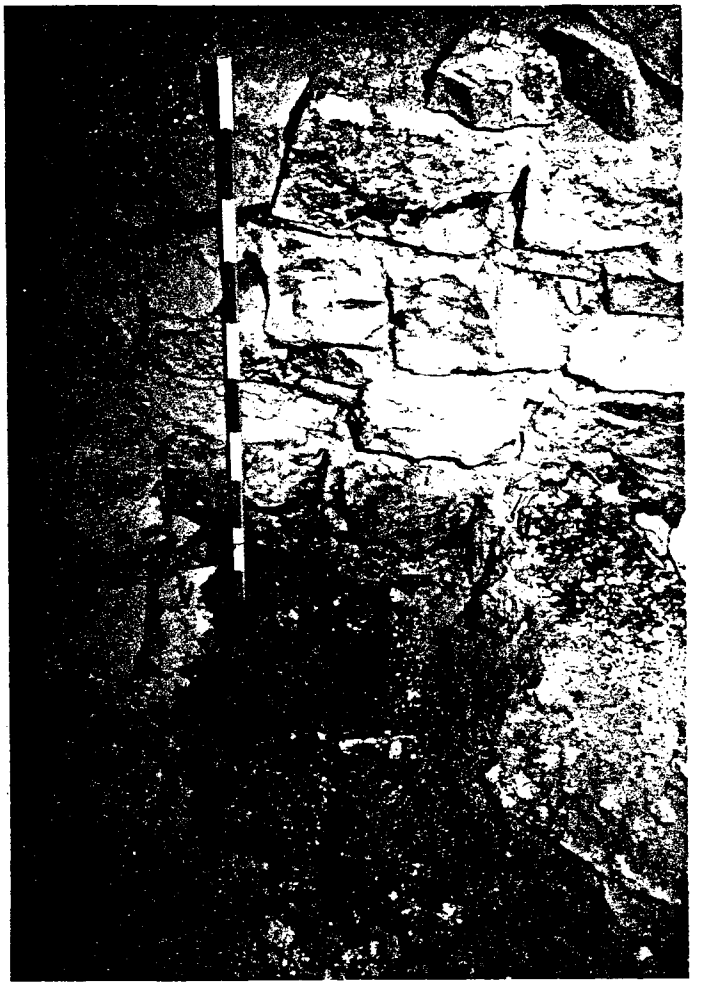


Figure 14. Detail of west side of center wall. (Photo by author; 24H-973M)

Miscellaneous Architectural Features

Two holes were discovered in the wall along the east side of the blockhouse, just below the 1986 floor surface (Figs. 15, 16).

Two iron utility pipes were found protruding from the south wall of the blockhouse at a depth of 0.20m below the surface near the south east corner (Fig. 17). These pipes are the same as those uncovered during the exterior excavation (Fig. 18).

An electrical conduit was found protruding from the south wall in the east half of the basement at a depth of 0.57m below the surface.

A second stone ledge was discovered along the south wall of the basement at a depth of 0.95m below the surface. In the south half of the basement this ledge was covered with mortar and plaster so it is uncertain if it supported anything.

The whole east half of the basement interior uncovered in this excavation had been plastered over and white-washed. The plastering had occurred some time before the wiring was installed as the plaster had been drilled through to accommodate the electrical conduit.

The excavation of the east side of the basement also uncovered the base and three sides of a concrete cistern and a raised concrete platform (Fig. 6). The south wall of the cistern had been removed at some point in time, however, traces of it could still be seen in both the east and centre walls of the blockhouse.

Blockhouse Interior Discussion

The blockhouse interior contained fill which had been deposited at various times during the occupation of the building. The artifacts discovered in these fill layers,

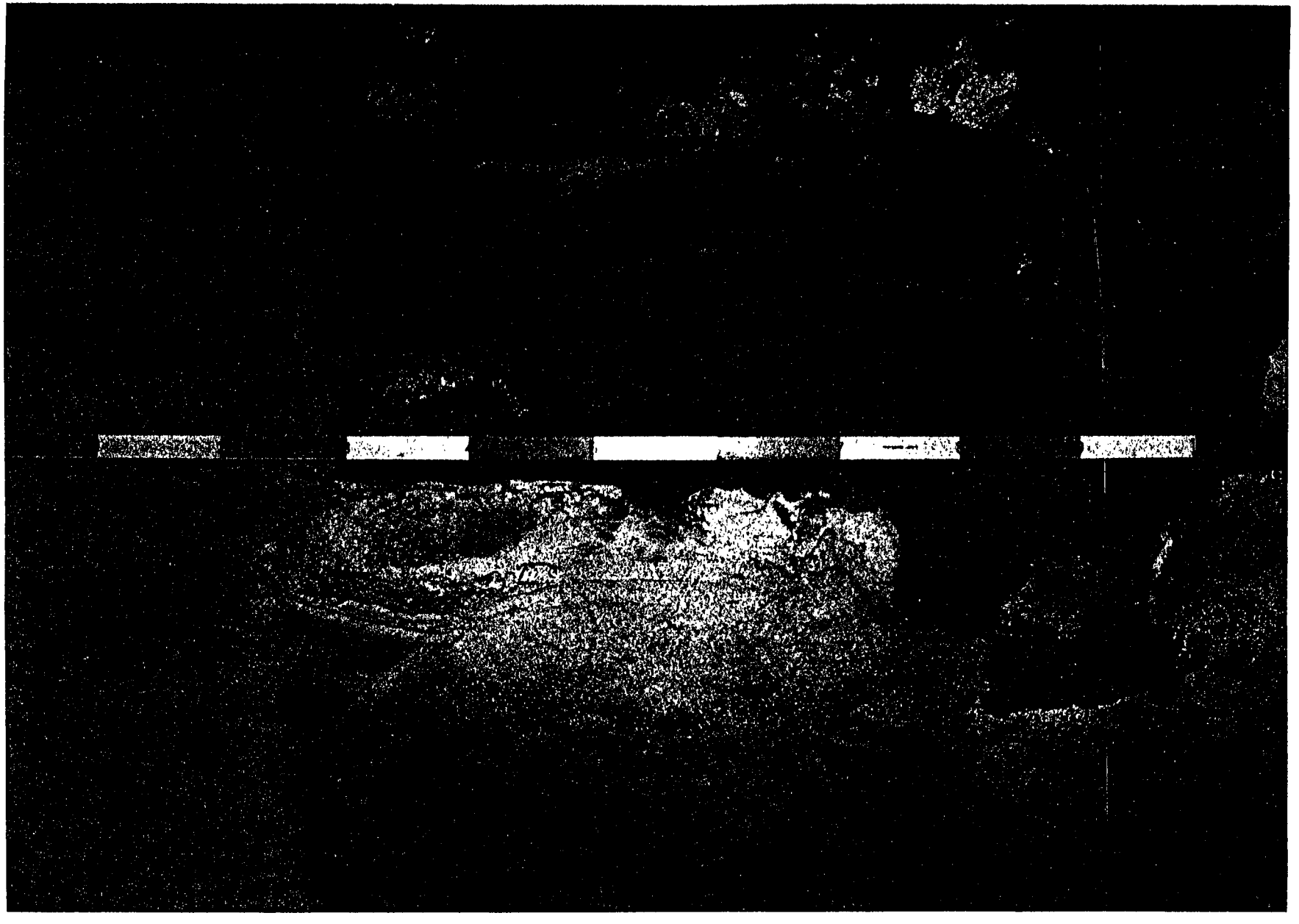


Figure 15. Possible ventilation hole in east side of blockhouse. (Photo by author; 24H-905M)

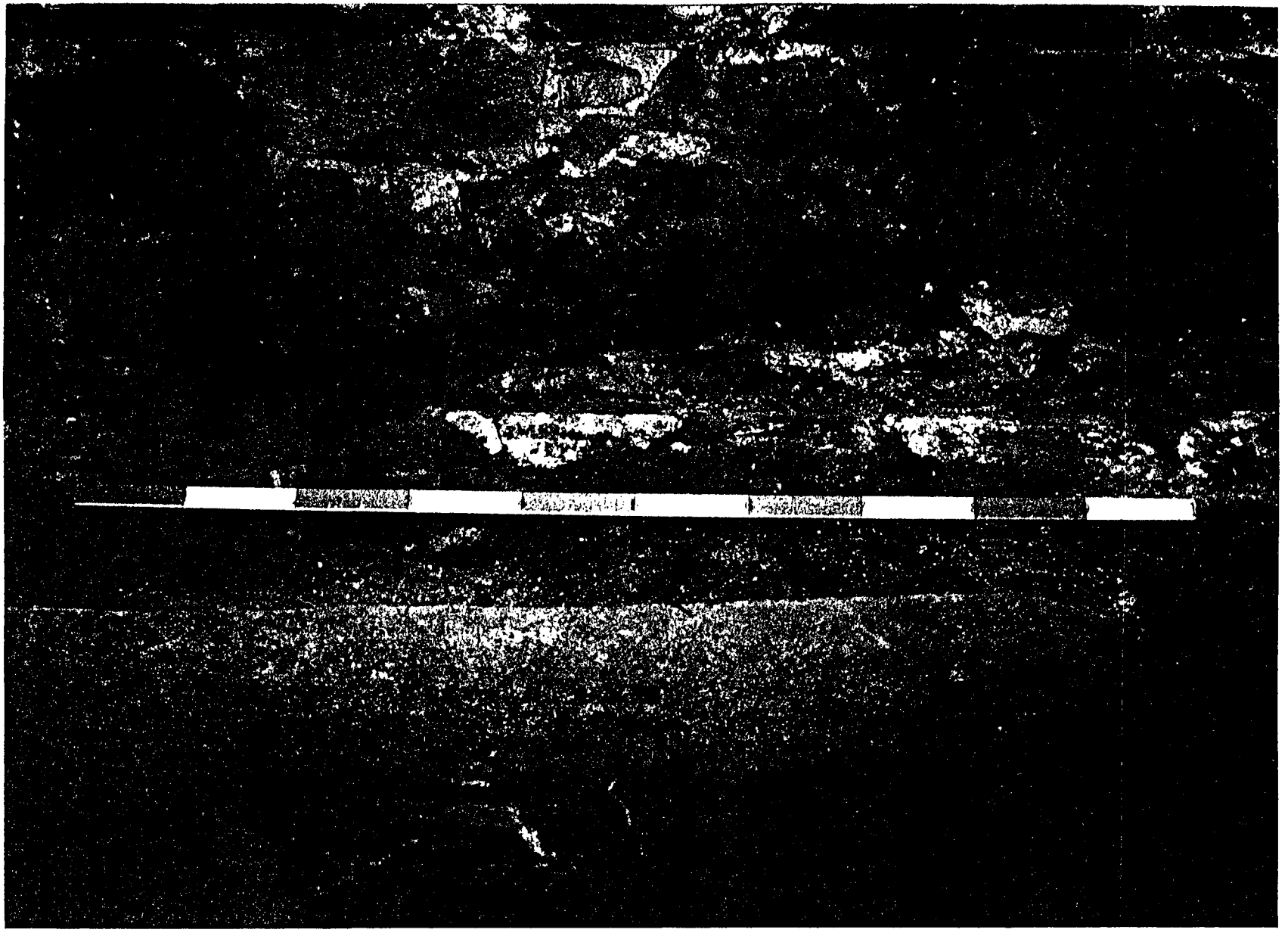


Figure 16. Possible ventilation hole in east side of blockhouse. (Photo by author; 24H-906M)

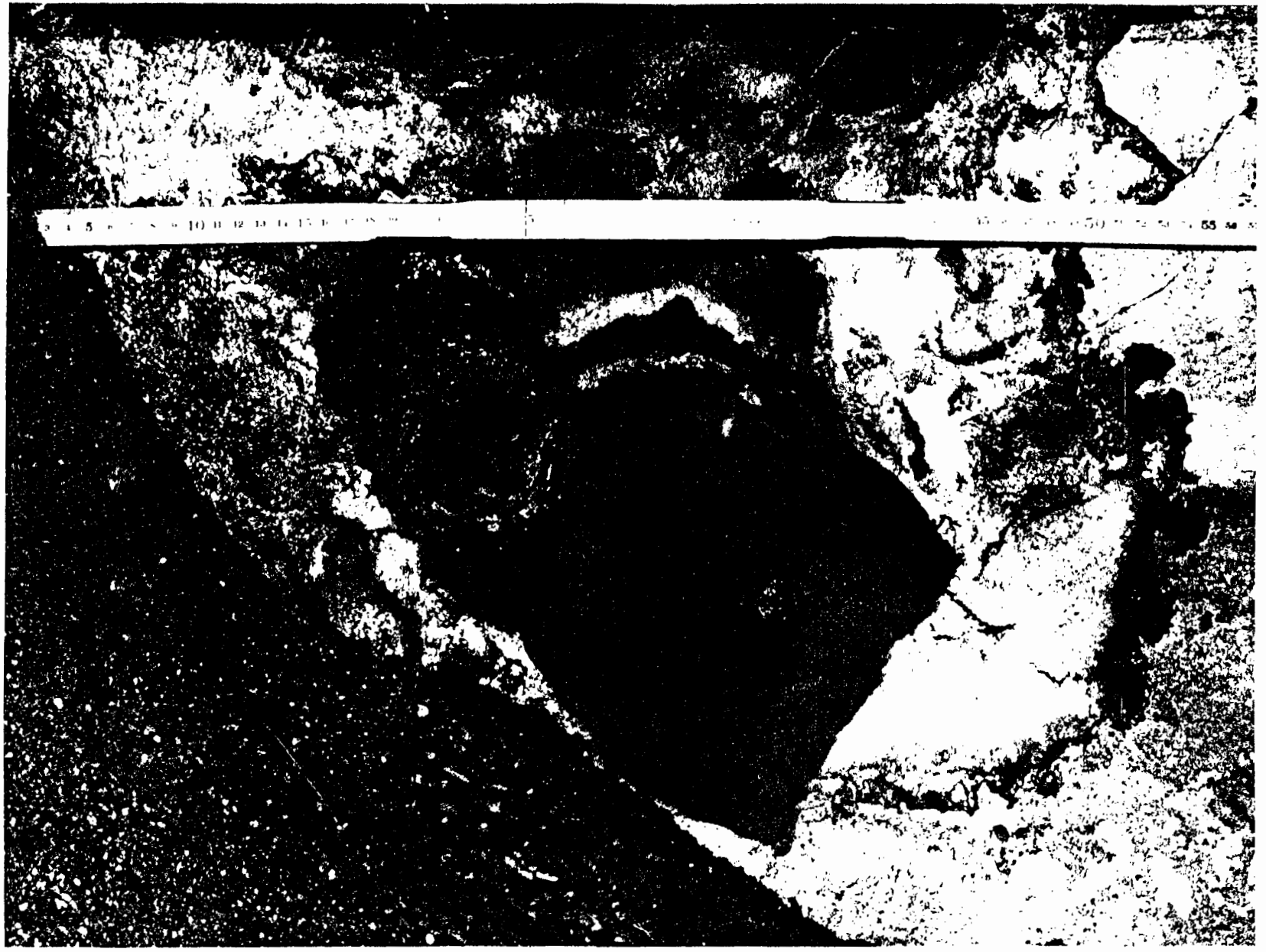


Figure 17. Utility pipes in south wall of blockhouse.
(Photo by author; 24H-732M)

Figure 18. Utility pipes (arrows) in east wall profile of unit 24H14N. (Photo by author; 24H-892M)

along with the historical documents and the 1967 restoration records, have been used to date these layers.

Layer 1 (Event 24H10) in the west side of the blockhouse, appears to be the fill placed inside the blockhouse in 1967. The squared wooden beam discovered in this layer may have been part of the corner post, or possibly one of the ceiling beams, some of which were replaced during the 1967 restoration. The retaining wall (Event 24H14) and the centre wall may have been constructed in 1888 from stones removed from the west wall when a doorway was cut to allow access to the frame addition (Wylie 1980: 46). Neither of these walls are visible in the 1852 plans of the blockhouse (Fig. 4). The first sill found along the south wall together with the retaining wall and the centre wall probably supported the floor joists. The sill is visible on the 1852 plans for the blockhouse. The top of the south wall sill and the top of the retaining were at the same elevation (130.690m a.s.l.).

The east half of the basement contained the root cellar and cistern. These two features were mentioned in the 1967 as-found report, however, at that time the cistern was reported as being beneath the west addition. The plaster found on the cellar walls was probably applied to keep the moisture out of the root cellar. The holes found along the east wall may be the ventilation holes described by Wylie in the structural history of the blockhouse. The pipes protruding from the south wall may have once been attached to the sewage system recorded in 1967 on the east side of the second floor (Wylie 1980: 40-51).

What lay beneath the 20th century fill (Event 24H10) on

the west side of the basement can be described as a domestic deposit mixed with construction-related debris. The artifacts found in Layer 2 (Event 24H11) suggests a deposit dating from the first occupation of the building during the 1830's to the second half of this century. Ceramic crossmends were found between this layer and two layers

excavated outside the blockhouse dating before 1849 (Events 24H25 & 24H26).

The stone ledge discovered at 0.95m below the surface was probably due to the tapering of the masonry walls. The 1852 plans for the blockhouse show the base of the building as being three feet wide and the main portion of the wall as two feet, six inches wide. The discarded building stones found in Layer 2 may be construction debris.

The heavy concentration of spalled rock found at the bottom of Layer 3 (Event 24H12) may be a result of final dressing of the wall stones, while the wood fibres may be the decayed carpentry waste from the construction of the wooden upper story. The artifacts from Layer 3 indicate the layer dates to the first half of the 19th century.

Blockhouse Exterior Excavation

Introduction

Archaeological excavations were carried out on the south side of the blockhouse exterior to look for the original base for the stairs, to collect paint samples and clear a path for the new electrical line. The first excavation unit, 24H14K, was located immediately beneath the second storey stairway and consisted of a single trench 1.00m wide by 5.60m long. The second excavation unit, 24H14N, was a 0.50m wide, "L" shaped trench, leading from the road, to the south wall of the structure, expanding to 1.00m wide for the final 4.00m up to the blockhouse wall (Fig. 6). The power line had to be brought in from the nearest utility pole located outside the gate to the lock station, north of the blockhouse (Fig. 19). The portion of this trench closest to the blockhouse (24H14N) was excavated by the archaeological staff while the remainder of the trench was dug by a backhoe, under the archaeologists' supervision.

A total of 3223 artifacts dating from the 19th and 20th centuries were recovered from these two trenches. These artifacts have been divided by class and event and are presented in the Appendix B, Tables 7 and 8.

The stratigraphies in each unit were similar, however, not all strata or features were common to both units. A total of twenty-three (23) events were identified consisting of ten (10) individual strata and thirteen (13) recognisable features and soil lenses. A number of disturbances were

recorded, particularly in Unit 14N. Stratigraphic profiles for the two trenches appear in Figures 20 to 22. The overall stratigraphy will be described as one continuous sequence, with the units containing the stratum or feature listed in the heading. The event/provenience correlations are shown in Appendix A, Table 6.

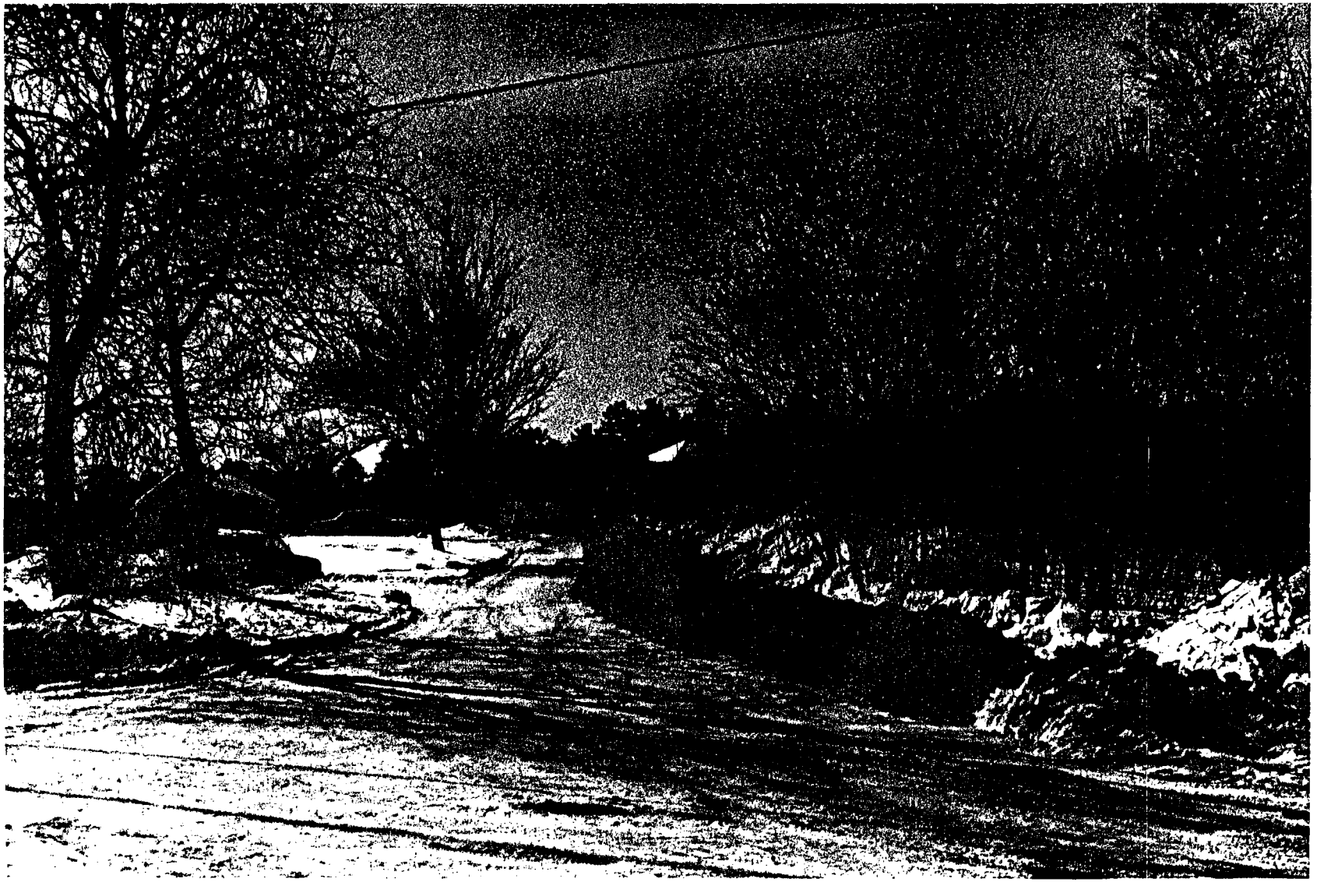


Figure 19. Powerline trench, unit 24H14N, looking south.
(Photo by author; 24H-976M)

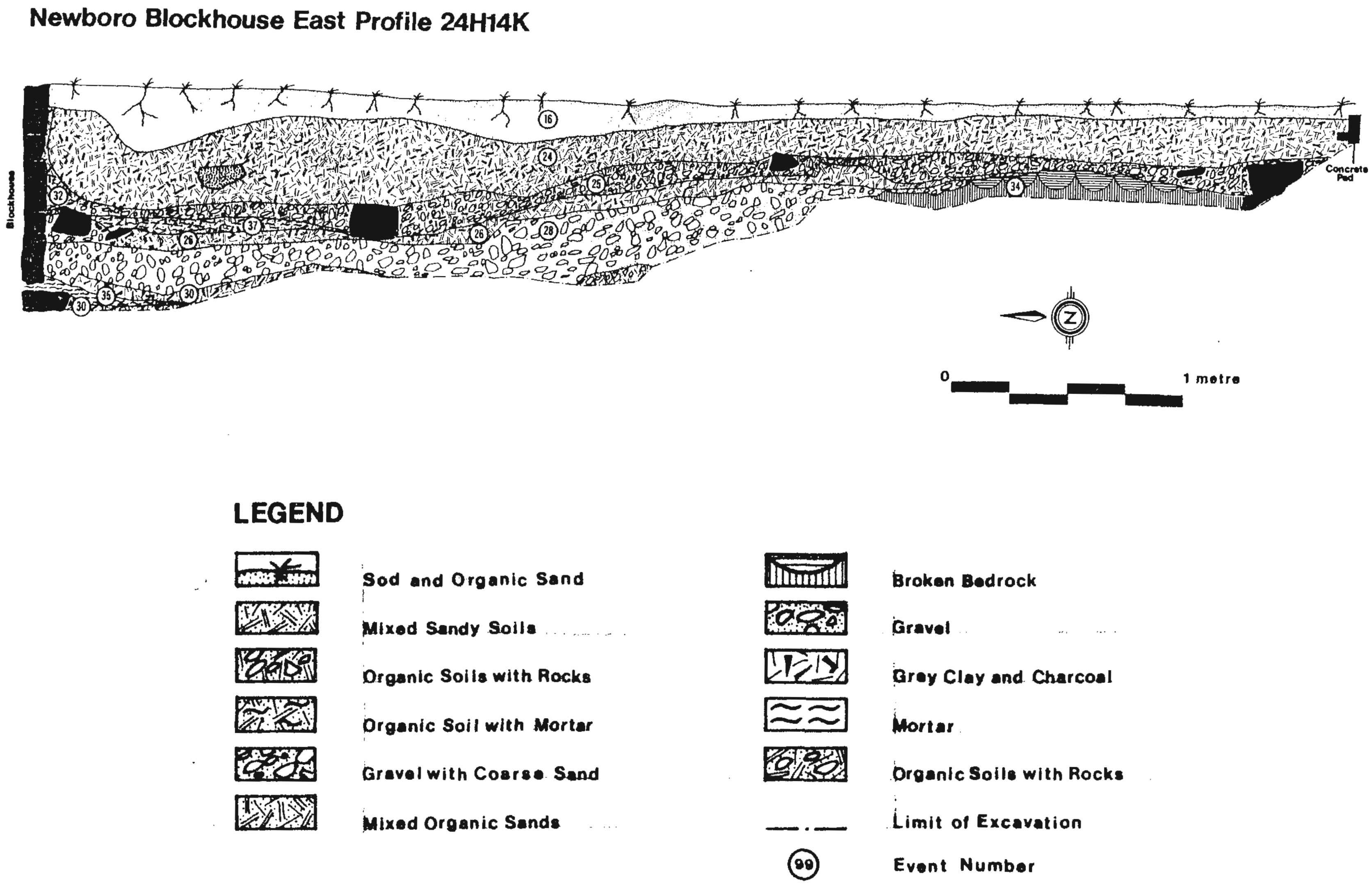


Figure 20. East profile unit 24H14K. (Drawing by L. Gareau from original by J. Maltby; cat # 24H-87-03)

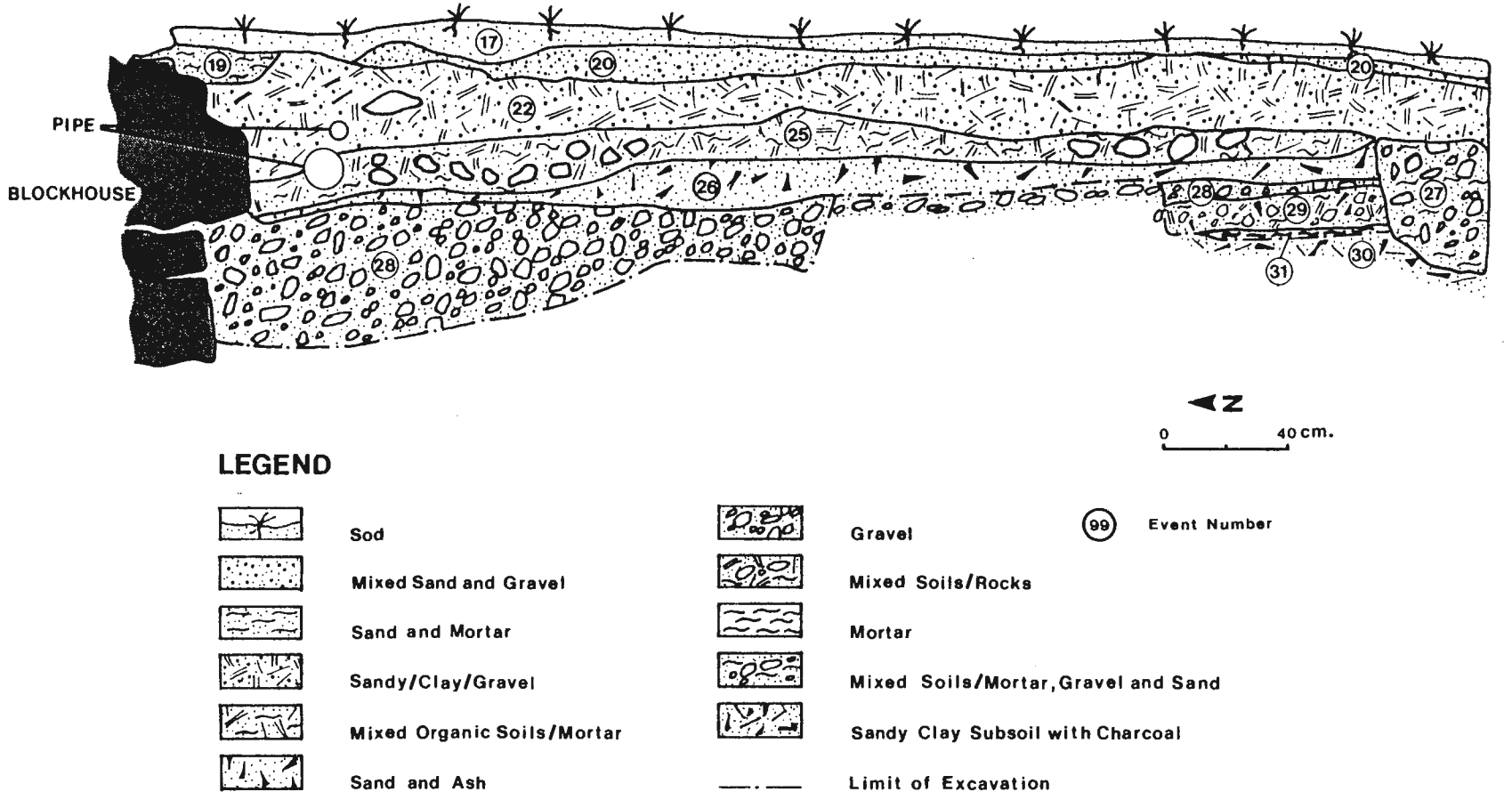


Figure 21. East profile unit 24H14N. (Drawing by L. Gareau from original by R. Cruickshank; cat # 24H-87-04)

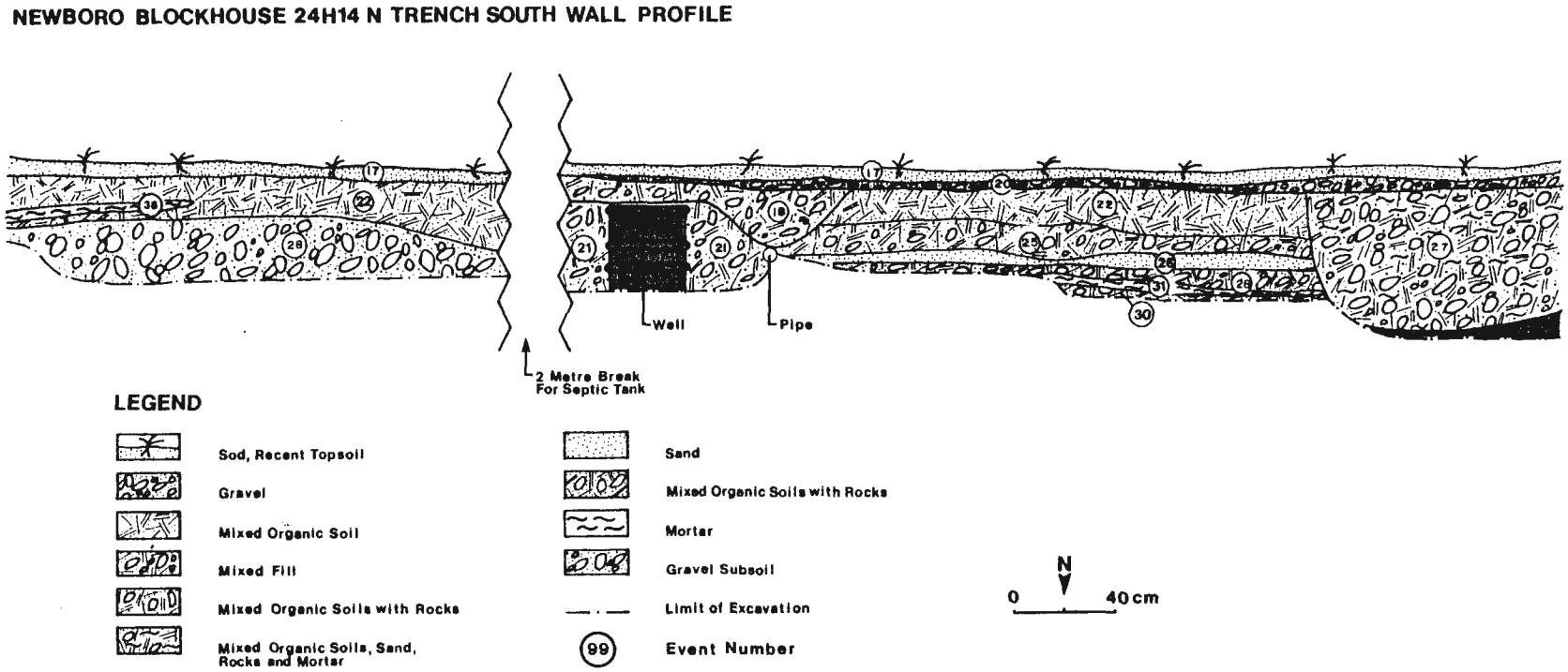


Figure 22. South profile unit 24H14N. (Drawing by L. Gareau from original by S. Mills; cat # 24H-87-05)

Sod and Topsoil Unit 14K Event 24H16

This stratum of organic sandy soil covered the whole unit. It averaged 0.10m deep but was as much as 0.40m deep in some places and contained a selection of 19th and 20th century cultural material.

Sod and Topsoil Unit 14N Event 24H17

This thin stratum of sod and topsoil covered all of unit 14N. It was very sparse, ranging from 0.04m to 0.06m thick and did not contain any artifacts.

Gravel Lens Unit 14N Event 24H20

Directly below the topsoil (Event 24H17) in Unit 14N, lay a lens of beach gravel mixed with sand, similar to the fill found in the east half of the blockhouse interior (Event 24H10). It ranged from a maximum of 0.12m thick close to the blockhouse to a minimum of 0.04m approximately 4.00m south of the building and dissipates by the time it reaches the septic tank, 5.00m from the blockhouse.

Sand Fill Unit 14K Event 24H24

This stratum consisted mainly of sand mixed in places with gravel and followed the layer of topsoil (Event 24H16). It ranged in thickness from a maximum of 0.40m up against the blockhouse to 0.15m at southern limit of the trench. A number of 19th and 20th century artifacts were recovered from this stratum.

Topsoil Against Blockhouse Unit 14K Event 24H32

A narrow deposit of organic soil was discovered up against the south wall of the blockhouse. This deposit began in the topsoil layer (Event 24H16) and continued to approximately

0.30m below the surface. It appears in the stratigraphic profile of unit 14K as an interface between the first sandy fill stratum (Event 24H24) and the blockhouse wall. Several recent artifacts were recovered from this feature. This deposit may be the result of frost action along the wall of the building.

Mixed Humus & Sand Unit 14N Event 24H22

This mixed humus and sand stratum was found throughout Unit 14N. It ranged from 0.20m to 0.35m thick, beginning beneath the gravel lens (Event 24H20). The layer was disturbed by several intrusive features, including a septic tank and a concrete well shaft (Event 24H21), with associated pipelines (Event 24H18). The septic tank was located 5.00m south-east of the blockhouse and lay in the middle of the powerline route, however, it was not excavated. The artifacts recovered from the undisturbed portions of this layer have been dated to both the 19th and 20th centuries.

Buried Topsoil Units 14K & 14N Event 24H25

This buried stratum of mixed humus, mortar, gravel and sand was present in both units. This stratum began close to the blockhouse, at a depth of approximately 0.53m below surface in unit 14K and 0.43m below surface in unit 14N. It ranged from 0.05m to 0.15m thick with the average being 0.10m. In unit 14K, at approximately 2.00m south of tne blockhouse the stratum began to rise sharply until it was only 0.30m below

surface at 2.30m south of the building (Fig. 20). The profile of the west wall in the same unit shows a more pronounced change in the elevation of this stratum (Fig. 23). This stratum was capped in unit 14K by a stratum of sand (Event 24H24) and in unit 14N by a stratum of sand mixed with humus (Event 24H22). Almost 30 per cent of the

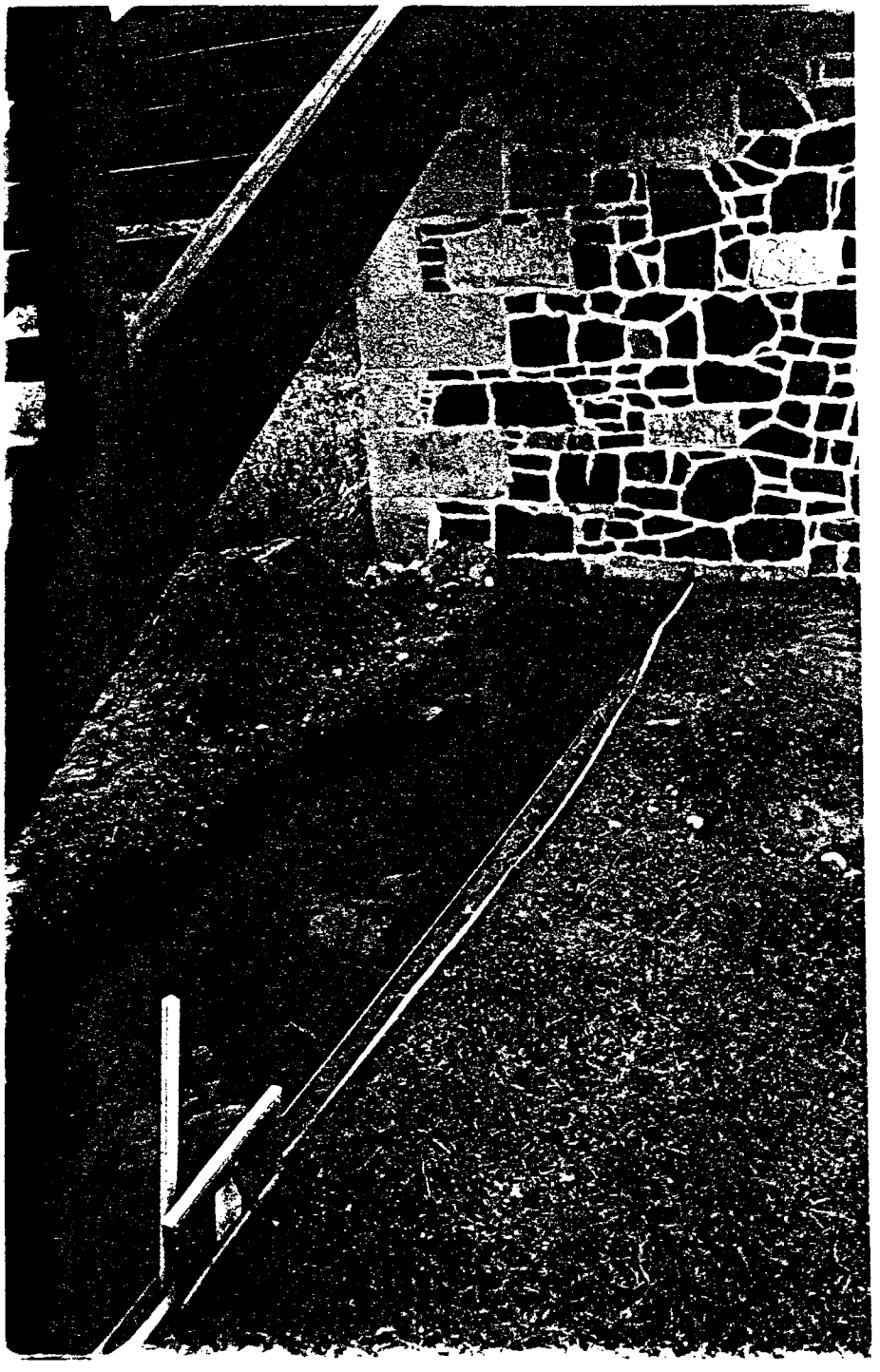


Figure 23. West profile unit 24H14K. (Photo by J. Maltby; 24H-923M)

cultural material found in the blockhouse exterior excavation came from this stratum. The artifacts from the undisturbed parts of this stratum date to the 19th century. Several crossmends were made between the ceramics from this stratum and pieces found in the stratum above it (Event 24H17), the pit feature (Event 24H27 described below), as well as in Event 24H11 in unit 14G, excavated inside the blockhouse.

Buried Sand Units 14K & 14N Event 24H26

This stratum, located directly below Event 24H25, had a matrix of sand mixed with ash and gravel. It ranged in depth from 0.05m to 0.10m and was present in both units 14K and 14N. In unit 14N this layer does not continue past the pipeline disturbance (Event 24H18). Numerous artifacts were found, several of which crossmend with pieces from the stratum above it (Event 24H25). All of the artifacts appear to be from the 19th century.

Concrete Well & Fill Unit 14N Event 24H21

An abandoned well was located less than a metre west of the septic tank. The well had a pre-formed concrete shaft and had been filled with stones and broken pieces of concrete sometime prior to 1986. One of the iron pipes discovered in the blockhouse interior in Event 24H10 was connected to the shaft.

Pipeline Fill Unit 14N Event 24H18

Two pipelines were discovered, one connecting the blockhouse to the well and the second apparently connected to the septic tank. Both pipes entered the blockhouse at the same place. The trench for these pipes caused a great amount of disturbance to the natural stratigraphy, particularly close

to the building and again near the well. The backfill for these pipes contained a mixture of 19th and 20th century material as the trench cuts into the 19th century deposit. No historic references could be found relating to the dates for the pipes, the well or the septic tank.

Pit Feature Unit 14N Event 24H27

A circular pit, measuring at least 1.00m across, was discovered 4.00m south of the blockhouse (Fig. 24). This feature cuts through several layers, beginning in Layer 2 (Event 24H22) and ending on bedrock, between 0.60m and 0.66m below the surface. The pit was filled with a mixture of organic soils, sand, stones and mortar. A number of artifacts, from both the 19th and 20th centuries were found, including a piece of plastic and several wire nails discovered at the bottom of the pit.

Mottled Fill Unit 14N Event 24H29

In the area of the pit feature, a layer of mottled clay and organic soil was uncovered. It was below the gravel fill (Event 24H28) on the north side of the pit and below the second sand fill (Event 24H26) on the east side. This layer was 0.20m thick on the north and less than 0.10m thick in the east and contained just one small, unidentifiable piece of metal. It was also interrupted by the pit and again by the well excavation. The north and east limits for this mottled layer was not determined.

Gravel Fill Units 14K & 14N Event 24H28

This layer was present in both units and began at the blockhouse. Its matrix was one of mixed gravel, stones and sand, all of it stained red with traces of charcoal and mortar throughout. The red hue of this soil matrix does not

Figure 24. Pit feature in unit 24H14N.
(Photo by C. Phillips; 24H-897M)

appear to be the result of burning, instead it is the same colour as the local bedrock. Near the blockhouse, a number of dressed stones were found in this layer (Fig. 18). The few artifacts recovered from this layer were of a 19th century origin.

Concrete Step Disturbance Unit 14K Event 24H36

At the extreme south end of unit 14K, beneath the first sand fill (Event 24H22) there was a mixture of broken bedrock and organic soil. This disturbed portion was adjacent to the present concrete stairs base. Several sherds of 19th century white earthenware and a few cut and wrought nails were found in this area. Its loose matrix together with its proximity suggests that this area was disturbed when the concrete step was laid in 1967.

Bedrock Units 14K & 14N Event 24H34

Bedrock was discovered in the south half of unit 14K and again beneath the pit (Event 24H27) in unit 14N. Approximately 0.30m below the surface in unit 14K, shattered fragments of bedrock were mixed with gravel and humus. This mixture of broken bedrock continued for 0.15m before solid bedrock was reached. In unit 14N the bedrock was at a maximum depth of 0.66m below surface. The bedrock in this area appears to be red sandstone.

Sandy Clay Unit 14K & 14N Event 24H30

Beneath the mortar pad (Event 24H31) in Unit 14N and again beneath the red gravel fill (Event 24H28) in Unit 14K, lay a stratum of sandy clay. This stratum contained flecks of charcoal and tiny sherds of flat glass and plain white earthenware. In Unit 14K a lens of mortar (Event 24H35) was found in the middle of this stratum. Also in Unit 14K, one

of the footing stones for the blockhouse was uncovered. This stratum, along with the red gravel fill (Event 24H28) and the bedrock (Event 24H34) marked the excavation limits for both trenches.

Postmold Unit 14N Event 24H23

A 0.25m wide postmold feature was found in the eastern most 1.00m of event 24H22. This postmold originated in Layer 2 and continued for over 0.60m through the stratum below before curving slightly to the east. The matrix of this feature was basically the same as Event 24H22, and contained just two sherds of refined white earthenware.

Mortar/Plaster Concentrations Units 14K & 14N Events 24H19,31, 35, 37 & 38

Five concentrations of mortar were discovered during the exterior excavations, three in unit 14N and two in unit 14K.

The first concentration (Event 24H19) was a combination of mortar and plaster beginning at the blockhouse in unit 14N and extending south for 0.30m. This feature lies under the topsoil (Event 24H17) and over the mixed sand and humus stratum (Event 24H22).

The second mortar concentration (Event 24H31) was discovered immediately below the mottled layer (Event 24H29), also in unit 14N. It was approximately 0.04m thick and was recorded on both sides of the pit feature (Event 24H27). The horizontal dimension of this mortar pad was not determined as it went into the walls of the trench in all

directions.

Wedged within the clay layer (Event 24H30), in unit 14K, beginning at 0.90 below the surface, a third concentration of mortar (Event 24H35) was discovered. This lens began at the base of the blockhouse wall where it covered part of the foundation footing stones. It was

approximately 0.05m and dissipated 0.60m south of the blockhouse. A wrought nail and a single bone were the only artifacts found in this lens.

The fourth mortar concentration (Event 24H37) was discovered at the bottom of the buried humus layer (Event 24H25) in unit 14K. This lens was between 0.03m and 0.06m thick and contained a number of stones as well as mortar.

The fifth and final mortar concentration (Event 24H38) was located at the east extreme of unit 14N within Event 24H22. It was 0.03m thick and contained wire nails and a piece of plastic tubing.

Bricks in Powerline Trench Unit 14N Event 24H33

A small concentration of broken red clay bricks was discovered 15.0m south of the entrance gate at a depth of 0.25m below the surface. No archaeological features were found with these bricks.

Blockhouse Interior Discussion

The interpretation of the stratigraphic sequence will begin with the lowest stratum and continue to the surface incorporating the historical references wherever possible to explain and/or date the strata and features. The various strata will be interpreted first, followed by the miscellaneous features and lenses.

Ten identifiable strata were recorded during the blockhouse exterior excavations, four of which have been dated. Several disturbances in unit 14N obliterated part of

the stratigraphy of that unit, however, because unit 14K appeared to be relatively undisturbed, the interpretation of these units was not compromised as the stratigraphy in unit 14K could be used to fill in the gaps in unit 14N.

The sandy clay (Event 24H30) found in both trenches appears to be the natural subsoil. The charcoal found in

this layer may be the result of the burning and clearing of the forest prior the digging of the canal and the construction of the blockhouse at Newboro.

The mottled organic soil lens (Event 24H29) found above the mortar pad (Event 24H31) in unit 14N may be part of the fill placed on the site following the blockhouse construction. Nothing was recovered from this layer that could be used for dating, however, because it lies between the mortar pad and the red gravel fill (Event 24H28) it may date to the construction of the blockhouse.

The coarse gravel and stone layer (Event 24H28) overlying the whole site may be more construction-related fill. Many of the stones were semi-dressed and were found close to the building suggesting they may be construction debris from the masonry walls of the blockhouse. The uniform matrix of this stratum as well as the small number of artifacts also suggests that this was fill.

The sandy layer (Event 24H26) above the gravel and stone fill (Event 24H28) was also found in both trenches and may be a second layer of fill, perhaps a landscaping feature used to smooth out the rough surface of the first fill deposit. Several crossmends were found between ceramics from this sand fill stratum and the humus stratum above it, suggesting a continuum between both strata.

The buried humus stratum (Event 24H25) appears to be an occupation zone. The artifacts from this stratum, excluding those found in the areas disturbed by the pipes and concrete step, appear to date to the first half of the 19th century. One of the datable artifacts recovered from the undisturbed portions of this stratum was a carpenters plane blade with

the maker's name S BISHOP stamped on one side (Fig. 45). This name can be traced to the tool manufacturing firm of Sheffield Industries in London, England where an "edge tool maker" named Samuel Bishop was employed between 1837 and 1849 (Hummel 1973:105). A quantity of flow blue transfer printed earthenware sherds were also found in this stratum.

These pieces represent a variety of tableware and serving pieces. Two patterns have been identified from these ceramics (Figs. 59, 60). The first pattern is named "CHUSAN" and was made in England by Joseph Clementson circa 1840 (Williams 1971:20, 1973:61). The second pattern is named "LAHORE" and was made by Thomas Phillips and Son also in England between 1845 and 1846 (Williams 1973:280; 1971:35).

The uniform matrix of the sand stratum (Event 24H24) in unit 14K suggests that it is was deposited at one time, perhaps as a fill layer. The 1849 map of the lockstation shows a defensive ditch surrounding the blockhouse and a contractor's report of the same year refers to the area around the blockhouse, including the ditch, being filled in and sodded (Wylie 1980: 40). The 1852 Royal Engineers' plans and the 1860 map of the lockstation both show the ditch surrounding the blockhouse, however, absence of modern cultural material, together with the pre-1849 date for the artifacts suggests a terminal date of 1849 for this layer. The contractors' report also supports this date. The combination of historical documentation and archaeological evidence suggests the 1852 plan and the 1860 map were not updated to include the 1849 landscape alterations.

The mottled matrix of the sand and humus stratum (Event 24H22) overlying Event 24H25 in unit 14N suggests it may be a mixture of the sandy fill (Event 24H24) and the topsoil (Event 24H17) above it. The numerous disturbances found in this mottled stratum contributed to the mixing of the two strata.

The lens of water-rolled gravel (Event 24H20) found in

unit 14N appears to be the same type as that used to level the ground floor of the blockhouse in 1967. This gravel lens was not found east of the septic tank or in unit 14K. Possibly, the gravel fill was spilled or dumped in front of and slightly south of the ground floor entrance to the building, prior to it being brought inside.

The topsoil (Event 24H17) in unit 14N was probably deposited during the restoration of the blockhouse in 1967 as it covered the gravel lens and it contained few artifacts.

The topsoil stratum (Event 24H16) in unit 14K appears to be undisturbed and may date from the 19th century. Modern bottle glass, wire nails and two types of asphalt shingles were among the 20th century material mixed with 19th century ceramics and nails. The historical records state that the blockhouse roof was reshingled at least twice, in 1923 and 1967. During the 19th century the roof was covered with cedar shakes (Wylie 1980:40, 49-50), therefore the shingles found in this unit were probably deposited during 20th century repairs.

The mortar concentration (Event 24H31) found up against the blockhouse wall in unit 14N appears to be a result of the 1967 restoration of the building. At that time stucco was removed from the first floor exterior and the masonry repointed to restore the blockhouse to it's pre-1888 appearance. The mortar concentration (Event 24H38) discovered in the east end of unit 14N also appears to date to the 20th century as it contained recent nails and plastic tubing.

Two of the mortar concentrations may date to the time of the blockhouse construction. One of these concentrations (Event 24H35) rests directly on the foundation footing stones and the other one (Event 24H31) was discovered beneath the red gravel fill (Event 24H28). The other mortar concentration (Event 24H37) found in unit 14K may have been deposited early in the occupation of the blockhouse as it

was beneath the occupation stratum (Event 24H25). The density of these concentrations suggest that mortar was being prepared or possibly spilled at these spots.

The postmold (Event 24H37) may be the remains of a flag pole or possibly a fence post. A whitewashed picket fence was also erected on the south side of the building some time

in the late 1880's and a flag pole was erected in 1914 by lockmaster William Dargavel. (Wylie 1980:52). The fence and part of the flag pole are both evident in a photograph of the blockhouse-turned-farmhouse, dated 1930 (Fig. 5).

The pit (Event 24H27)(Fig. 24) discovered in unit 14N appears to originate in the mixed sand and humus stratum (Event 24H22). The 19th century artifacts found in this feature probably originated in the layers that the pit cut through and were mixed together when the pit was backfilled. The wire nails and fragments of plastic found in this pit indicates it has a 20th century origin.

Dates for the septic tank, the well (Event 24H21) and associated pipes (Event 24H18) could not be found in the historical documents, however, the well may date to 1926 when the cistern was replaced in the basement of the blockhouse. The proximity of the well and the septic tank to one another suggests that they were not in use at the same time. The historical documents are unclear about the water sources for the building.

Blockhouse Conclusions

The suboperations excavated inside the blockhouse have provided evidence of the original floor level as well as insights into the construction of the building and subsequent structural alterations. The historical documentation of the alterations to both the building and the surrounding landscape have been confirmed and several previously unrecorded architectural features were discovered and documented. The concrete cistern in the east half of

the basement was also recorded.

The exterior excavations uncovered several previously unrecorded utilities including a septic tank and well with associated pipelines. Other features discovered included a postmold and a pit. The discovery of the buried surface (Event 24H25) and sand fill (Event 24H24) confirmed the

presence of a defensive ditch around the blockhouse. Unfortunately nothing remained from the original base for the exterior stairs as the location had been disturbed during the 1967 restoration. The paint samples found in the units outside the building were not in good context, therefore they could not be used in the restoration.

Both the interior and exterior excavations produced a wealth of artifacts illustrating the domestic occupation of the blockhouse, from its first occupants to its last. These artifacts reflect the civilian, rather than military facet of life along the canal. The multitude of artifacts, together with the lack of tools, canal equipment or military-related artifacts suggest that the building was used, even in the early times, as a residence rather than as a fortification or workshop.

The Carpenter's Shop

Introduction

The restoration of the 1833 blockhouse included several changes to the landscape around the building including the relocation of an adjacent modern garage. The new site chosen for the garage was situated in a hollow northwest of the lockchamber, shielded from the boaters' view by an embankment and several large trees (Fig. 25). Historical maps and photographs of the lockstation indicated this new location was in the area of two non-extant structures: a 19th century carpenter's shop and a 20th century privy.

Historical Background

A carpenter's house, measuring 14 feet by 16 feet, was among the buildings forfeited by contractor William Hartwell in November of 1828 (McKenna 1981: 15). While the exact location of this building is not recorded, two maps of the area, one dating 1849 and the second 1860 (Fig. 2), both show a building slightly to the north of the lock chamber. The 1828 account labels the building as a Carpenter's house while the two maps lists it as a Carpenters Shop. A Thomas Burrowes sketch of the site, dated 1841 (Fig. 26), shows a small log building behind a mound of broken stones in approximately the same location as the Carpenter's Shop on the two maps. The historical records state that a carpenter's shop was one of two canal buildings at this site

that were renovated in 1850 and were still standing by 1860 (Wylie 1980: 45). This is the last reference to the carpenter's shop.

Little is known about the site after 1860, except that it was used for picnics and camping. Sometime before the 1930's a privy was built near the carpenter's shop, however,

Figure 25. Pre-excavation photo of carpenter's shop site. (Photo by C. Phillips; 24H-744M)

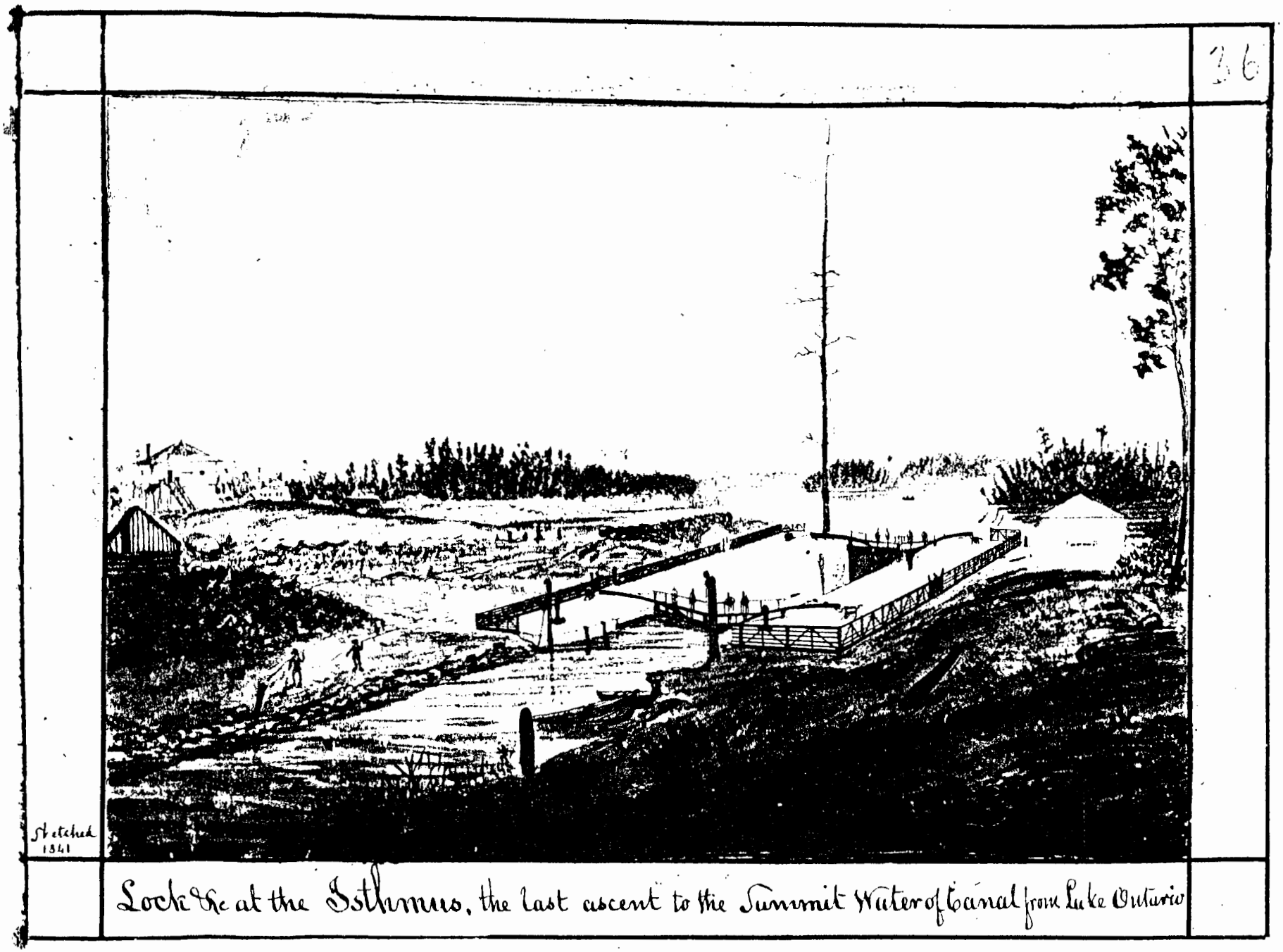


Figure 26. "Lock etc. at the Isthmus..." 1841. Burrows Sketch No. 36. (Ontario Archives cat # 21153-36)

it was removed, probably in 1967, when the new lock office was built. A concessionaire's stand also occupied the site during the 1970's during which time sand was dumped over the site in an attempt to level the ground (Moores 1986: pers. com.). Because of it's bowl-shaped nature and dense clay close to the surface the area does not drain well, therefore, the sand may have helped alleviate the problem of standing water and mud around the food concession. At the time of the excavation, the site was unoccupied and used only as a parking area for staff and visitors.

Methodology

The preliminary testing of this site consisted of four 1.00m square units located in the corners of the 4.40m x 7.60m rectangular area proposed for the new location. Close to 450 artifacts were found during the initial testing, many of them coming from two buried organic layers (Events 24H3/4 and 24H5/6) found only in units 14L1 and 14L2. Most of the artifacts were from the 19th century, including ceramics, nails, window glass, mortar and an American dime dated 1838. With the discovery of a sizeable quantity of material, two undisturbed 19th century strata and the probability that a structure was nearby, the decision was made to excavate the whole area that would be impacted by the garage relocation. A photograph of the site, taken before 1967 (Fig. 27), indicated that the modern privy location would not be disturbed so the focus of the excavation was limited to the carpenter's shop.

The excavation parameters were set by the size of the new garage foundation with an additional one metre on each side, an area measuring 6.4 metre by 9.6 metres or 61.44 square metres. As a means of recording the excavation accurately, the area was divided by a grid of 65 units of varying sizes including the original four test squares

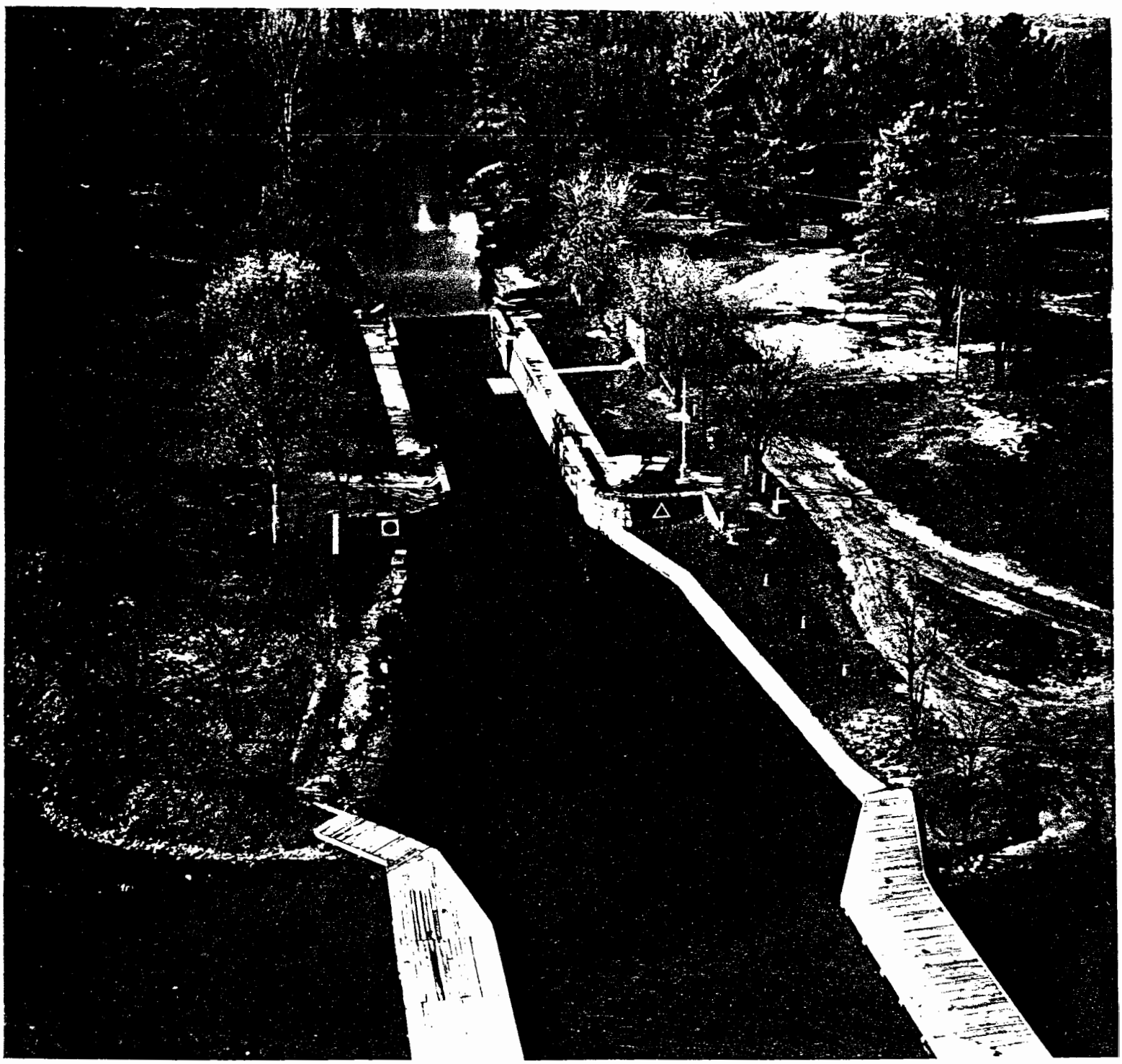


Figure 27. Newboro Lockstation pre-1967. (Canadian Parks Service, Rideau Canal Office, Smiths Falls)

(Fig. 28). The recent topsoil was mechanically removed and the sand fill placed over the site in the 1960's was exposed before the archaeological excavation began. For control, a 0.50m wide baulk was maintained along the east-west axis through the center of the excavation. Before this was removed, during the final stage of the work, its south wall was drawn to record the profile through the interior of the foundation (Fig. 29).

A total of 4 separate strata were uncovered, including the undisturbed foundation of a small structure. Over one half of the 10,364 artifacts recovered during the excavation originated in the 19th century component with the remainder coming from the mixed 19th and 20th century stratum and the recent topsoil and fill layer. The four layers as well as the architectural remains will be described separately. The event/provenience correlations are displayed in Appendix A, Table 6.

Layer 1 Event 24H1

This stratum of recent sod and topsoil was, for the most part mechanically removed. It originally covered the whole site and averaged 0.10m deep. In the south-east corner of the excavation this layer interfaced directly with what was later identified as layer 3. The artifacts recovered from this stratum were modern with the excepion of a small amount of 19th century material recovered from the units located in south-east corner of the site.

Layer 2 Event 24H2

This stratum of yellow granular sand covered most of the site and ranged from 0.05m to 0.25m thick. It's sandy matrix was very consistent with no sign of organic intrusions. The top of the north wall of the foundation was

NEWBORO 24H14 GARAGE SITE

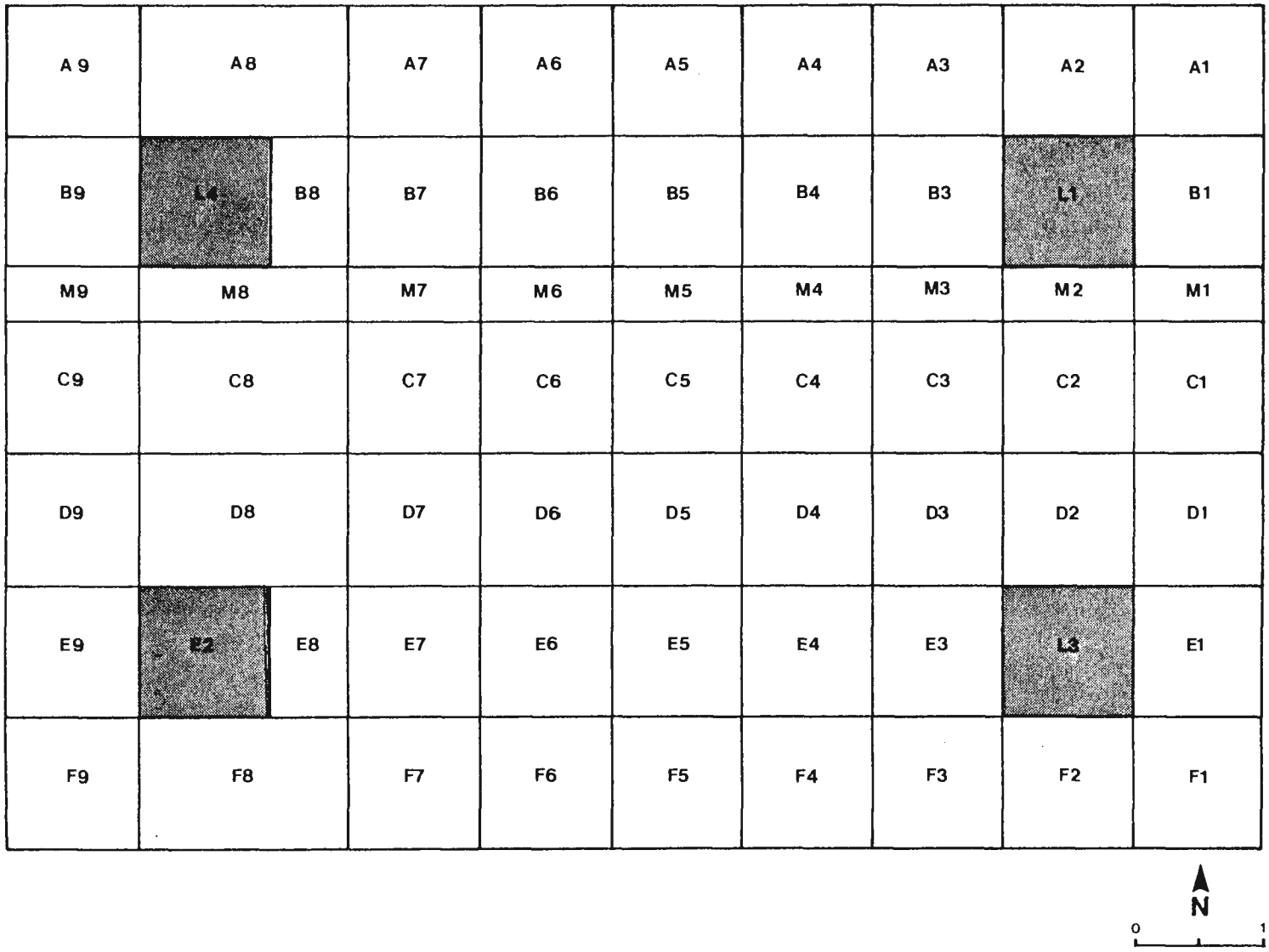


Figure 28. Excavation plan of carpenter's shop site. (Drawing by L. Gareau from original by S. Mills; 24H-87-01)

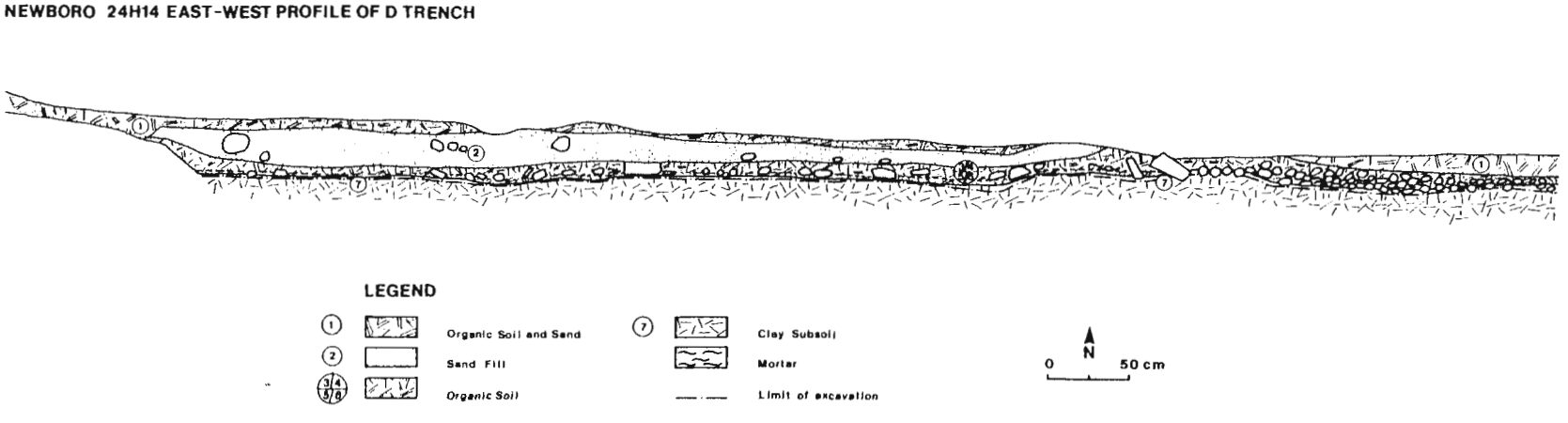


Figure 29. South profile of east-west baulk, carpenter's shop site. (Drawing by L. Gareau from original by S. Mills; 24H-87-06)

first noticed in this stratum. A number of modern artifacts, particularly glass beverage bottle sherds were found in this layer.

Layer 3 Event 24H3/4

This stratum of dark brown organic humus was the first of two such layers discovered beneath the yellow sand layer. It was most prevalent outside the foundation where it was up to 0.30m thick and contained numerous cut and broken stones. Inside the foundation this stratum was considerably thinner, averaging 0.04m thick and was also free from the cut stone debris. While most of the artifacts found date to the 19th century, some 20th century material was found near the top of the stratum. The modern artifacts were mainly beverage bottle glass and bottle caps. The 19th century material varied from unique personal items to mundane domestic ceramics and such structural artifacts as window glass, nails and fasteners. An interesting collection of woodworking and masonry tools was also recovered (Appendix C, Figs. 44-47). The decorative styles on the ceramics suggest a date range from the early to mid-19th century (Sussman 1987: pers. com.). Many of the ceramics mended with those from the stratum below. Some of the ceramic and glass sherds were burned and melted. Among the personal artifacts was a coatee button from the Royal Sappers and Miners regiment.

Layer 4 Event 24H5/6

This second buried organic sand stratum was similar to the one above it, however, the soil matrix was less humic and slightly finer-grained. It was also a lighter shade of brown probably resulting from blending with the sandy clay subsoil directly beneath it. To the north and east of the foundation this layer was also mixed with cut stones and

averaged 0.09m thick (Figs. 30, 31). Inside the foundation it was much thinner, free from cut stones and contained a considerable amount of decayed wood fibre. The wood fibre was most evident in the cellar pit.

The artifacts from this layer date to the 19th century. Among the artifacts from this layer were five coins and one token, dating between 1809 and 1857. Some of the ceramic and glass artifacts from this layer were burned.

Subsoil Event 24H7

Sandy clay subsoil was discovered beneath layer 4 in all the excavation units. Nineteenth century artifacts and small flecks of charcoal were found at the top of this stratum. The excavation ended in this layer.

Stone Foundation

A masonry and rubble feature was first visible following the removal of the sandy fill layer (Event 24H2). It consisted of a row of dressed stones 2.10m long, between 0.50m and 0.60m wide which may have been part of the north wall of the structure, possibly the base of a chimney (Figs. 32-34). The semi-dressed stones had been bonded together with mortar and fine clay puddle with the first course set into the sandy clay subsoil. Parts of the foundation had only the first course remaining, however, up to three courses were intact in some places. Along the western edge of these dressed stones the foundation continued in the form of a mound of rubble the same width as the stone portion. The

rubble extended west for one additional metre, before ending abruptly. Deteriorated mortar was found in and around these stones as were many 19th century artifacts, including an India Pattern ring necked cock lock and several burned

Figure 30. Cut stone debris north of foundation. (Photo by author; 24H-784M)

Figure 31. Section of north wall profile showing cut stone debris. (Photo by author; 24H-761M)

Figure 32. Carpenter's shop north wall foundation, facing south. (Photo by author; 24H-879M)

Figure 33. Carpenter's shop north side foundation, facing west. (Photo by author; 24H-827M)

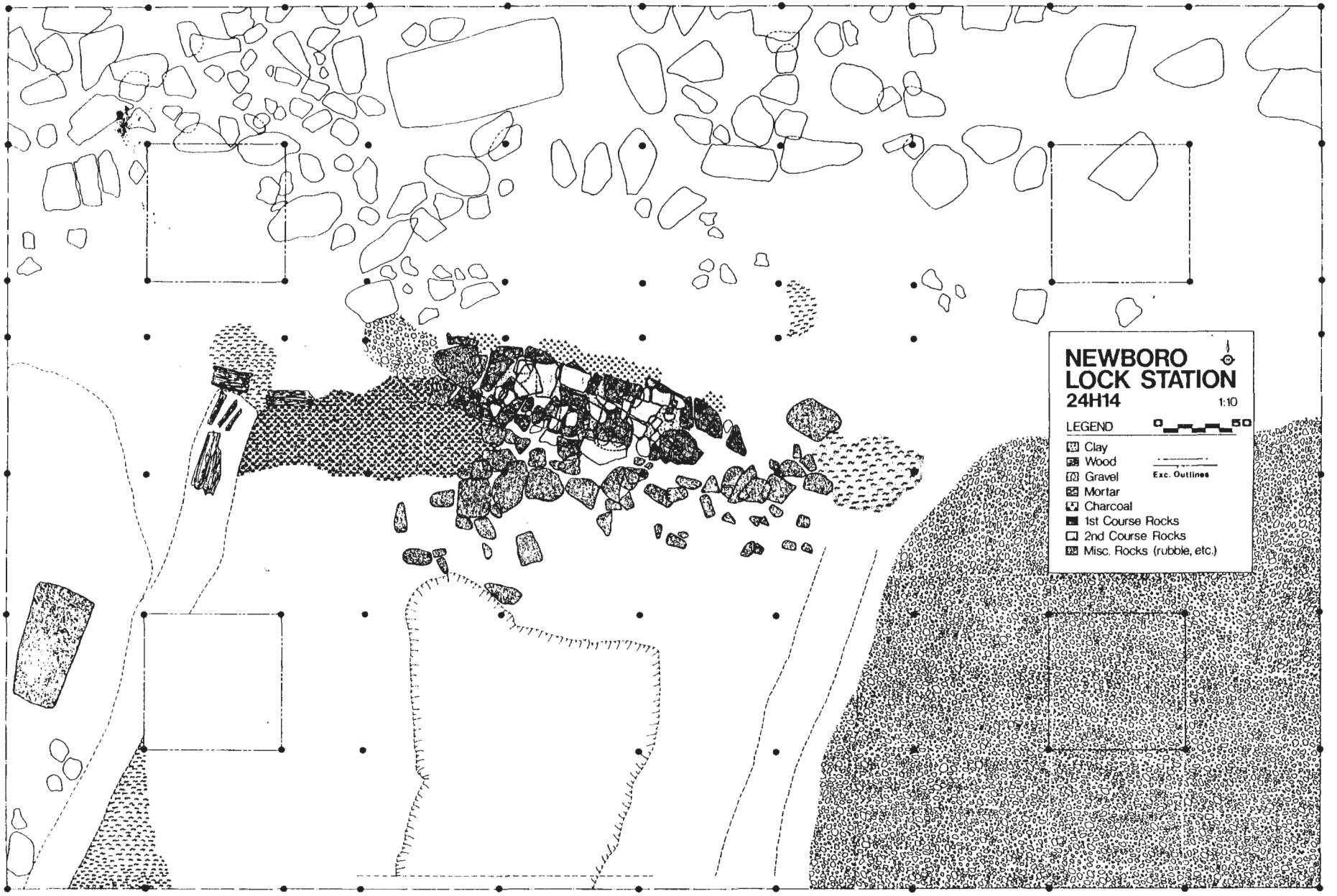


Figure 34. Site map of carpenter's shop foundation. (Drawing by S. Quenville from original by S. Mills; 24H-87-07)

ceramic shards. Concentrations of charcoal were found along the north and west sides of the feature and to a lesser extent on the east side.

East and West Walls

Two parallel troughs were all that remained from the east and west walls of the structure (Fig. 34). These troughs were oriented in a north-east to south-west direction, perpendicular to the stone foundation feature, and ranged in width from 0.25m to 0.40m. They were sunk an average of 0.10m into the clay subsoil. Both troughs were filled with organic soil, wood fibres and scattered pieces of mortar. In several places along the western trough pieces of burned wood and concentrations of mortar were found. The eastern trough abutted the north wall foundation while the western trough stopped 1.50m west of the rubble portion of the wall. Both of these troughs continued into the unexcavated portion of the site, thus the southern limit of the foundation was not determined. These two troughs may have been beds used to set the east and west sills into the ground.

Cellar Pit Event 24H8

A pit was discovered inside the foundation. This feature was straight-sided and roughly square in configuration, measuring at least 1.80m long by a maximum of 1.80m wide in the north end and tapering to 1.40m at the south end (Figs. 34-37). The exact length could not be determined as the pit continued into the unexcavated part of the site. The depth

of the pit ranged from 0.40m in the center to 0.20m along the edges. At some point in time this pit had been filled in with semi-dressed stones. The remains of several decayed planks were discovered on the bottom and along the sides of the pit. The south wall profile of the cellar pit is shown in Figure 38. The direction of the wood fibres were

Figure 35. Planview of excavated carpenter's shop foundation. (Photo by C. Phillips; 24H-873M)

Figure 36. Planview of pit feature, facing north. (Photo by C. Phillips; 24H-876M)

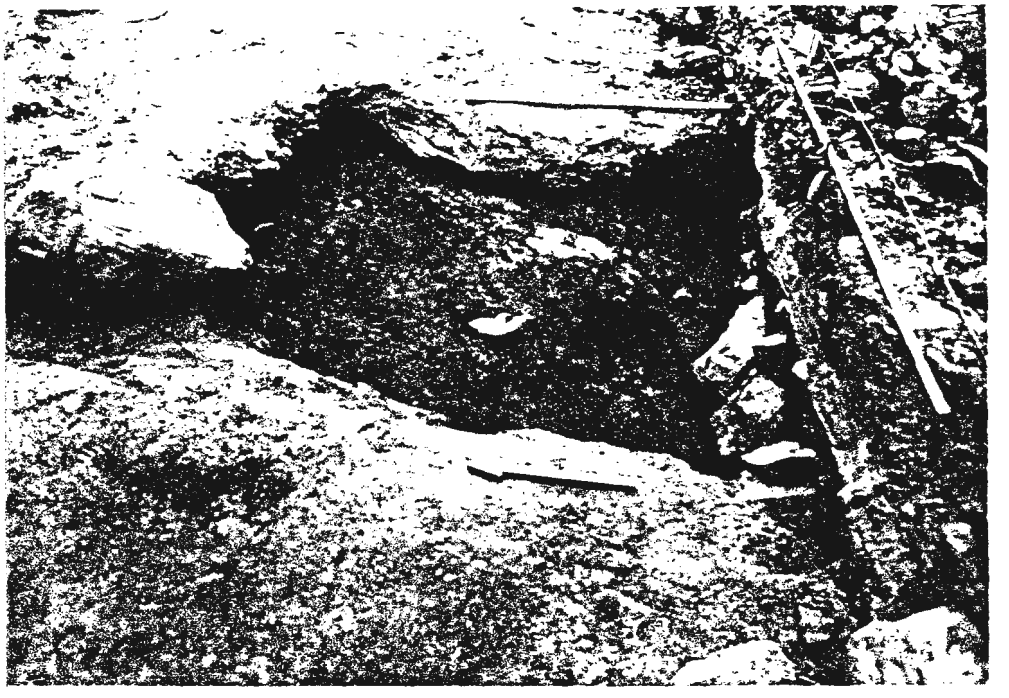
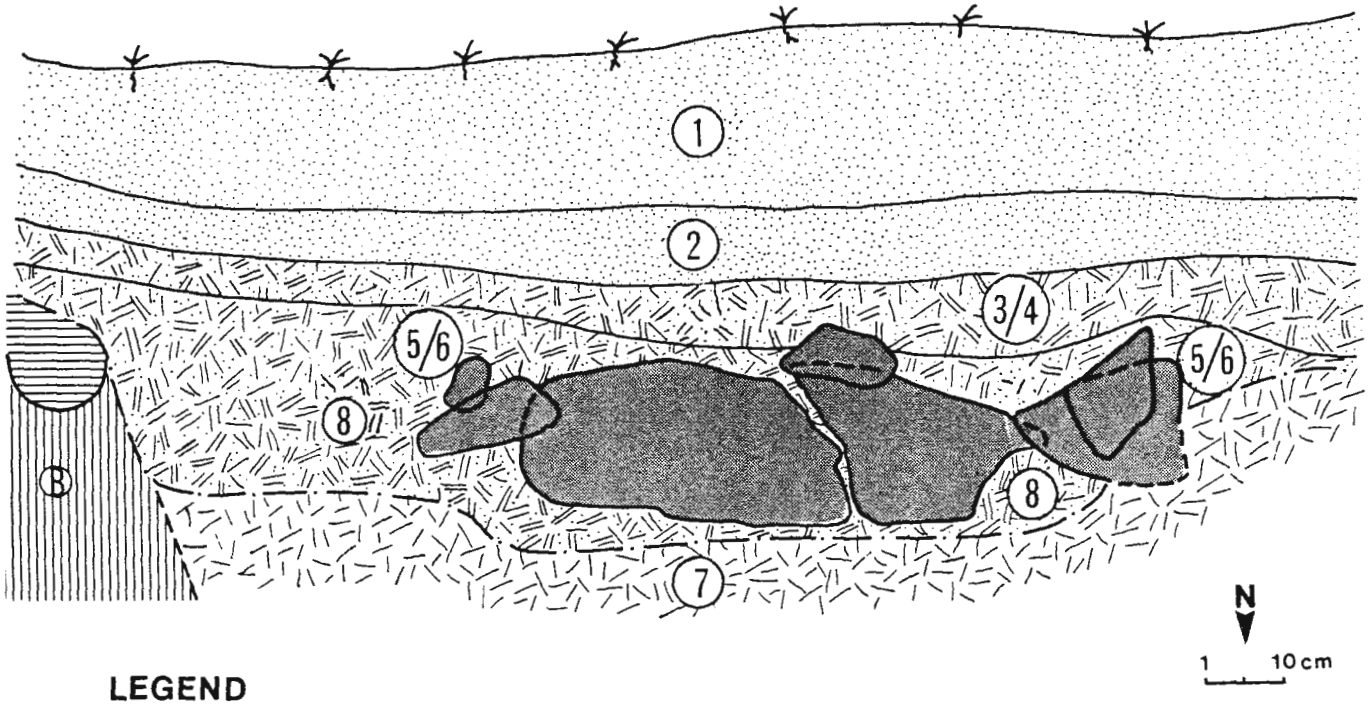


Figure 37. Excavated pit feature, facing east. (Photo by C. Phillips; 24H-889M)

NEWBORO GARAGE SITE 24H14
PIT FEATURE SOUTH WALL PROFILE



LEGEND

1	Recent Topsoil and Sand	8	Organic Soil Mixed with Clay
2	Sand Fill	7	Clay Subsoil
3/4	Organic Soil	B	Bedrock
5/6	Organic Soil Mixed with Clay	— . —	Limit of Excavation

Figure 38. South wall profile of pit feature. (Drawing by L. Gareau from original by S. Mills; 24H-87-08)

oriented east to west. A number of structural and domestic artifacts, including three coins, were recovered from the pit.

Cut Stone Debris

The south-east quadrant of the excavation was covered in fist-sized rock spall (Fig. 39). This mass of broken stones ended at the eastern edge of the wall trough but continued into both the south and east walls of the excavation. The ceramic and glass artifacts recovered from this quadrant of the excavation were very small in size, no doubt crushed by the rock spall.

Directly east of the foundation lay an almost solid layer of broken rock spall, while along the west side the ground rose sharply in a mound of sterile earth and gravel (Fig. 40). The western trough ran along the base of this mound as if the gravel had been dumped in this area following the construction of the building. To the north of the foundation the area was strewn with boulders and broken rock. Many of these rocks had been cut and roughly dressed, however, none exibited signs of having been mortared so it appeared that they were not part of the building. Four of the rocks found in this area had blasting channels drilled through them, possibly during the excavation of the canal cut. One rock had been shaped into a large block measuring over a metre long and over a half metre wide and deep (Fig. 41). These rocks were present in both of the buried organic strata with some resting on the clay subsoil.

Carpenters Shop Discussion

The first stratum (Event 24H1) represents the recent sod and topsoil development over the site since the 1970's. The second stratum (Event 24H2) appears to be the sand fill

Figure 39. Shattered rock spall east of foundation. (Photo by author; 24H-861M)

Figure 40. Gravel mound west of carpenter's shop foundation. (Photo by author; 24H-859M)

Figure 41. Dressed building stone in unit 24H14A7. (Photo by author; 24H-783M)

deposited circa 1970. The modern artifacts recovered from both these layers support this interpretation.

The two buried organic strata (Events 24H3/4 & 24H5/6) contained over eighty-five per cent of the cultural material found during the excavation and represent the occupation of the site from the 1820's through to the 1970's. The second buried organic layer (Event 24H5/6) did not contain any recent material and appears to date back to the construction of the lockstation in the late 1820's. The lack of datable late-19th century material in these layers, together with the small amount of 20th century artifacts recovered the top of the first layer (Event 24H3/4), suggests that the site was not actively used following the demise of the carpenter's shop. The nature of the recent artifacts that were discovered supports the reports that the area was used mainly as a picnic site during this century. Fragments from several of the same ceramic vessels were discovered in both layers. These crossmends suggest either a mixing of the two strata or that the two may actually be one layer.

Among the 19th century finds were numerous structural and domestic artifacts including a selection of ceramics. The ceramics from these layers are typical of those common in the first half of the 19th century (Sussman 1987: pers. com.). A number of personal items were discovered including hair and tooth brushes, straight pins and buttons. One military coatee button from the Royal Sappers and Miners regiment was among the personal artifacts. A collection of woodworking tools and several masonry tools were also discovered at the site. Fortunately, coins and tokens from Ireland, Britain, the United States and Canada were

recovered from three of the events. A Canadian penny, dated 1936 was the only coin found in the topsoil. It was discovered in the south-east corner of the site where the sand strata was not present and the buried organic stratum (Event 24H3/4) was closest to the surface. Five coins and three tokens were recovered from the second organic strata

(Event 24H5/6) and a Wellington token, dated 1815 was found at the bottom of the cellar pit (Event 24H8). The specimens found in Event 24H5/6 date from the late-18th century to 1857. A clue to the terminal date for this stratum may come from the coins and tokens recovered from these strata. With the exception of the coin found in the topsoil, all the currency discovered at this site predates the last historical reference to the building of 1860. The variety of countries represented by coins and tokens was possibly a result of the shortage of Canadian currency in the first half of the 19th century. This problem was remedied by the acceptance, at face value, of coins from several nations (McCullaugh 1984; 89-90, 101-103).

The functional analysis of the Carpenter's shop artifacts is discussed in Chapter 4 and selected artifacts appear in Appendix C.

The structural remains uncovered during the garage site excavation indicate that a small building, measuring at least 3.50m by 4.00m once stood on this site. The building appears to have been constructed from logs and stone and contained a shallow cellar. This foundation may be the remains of the log building sketched by Thomas Burrowes in 1841. The stone feature discovered during the excavation may be the remains of a fireplace or stone wall. The amount of wood fibre found inside the structure and the fine organic soil matrix may be evidence of a wooden floor. The presence of charcoal around the mortared stone feature as well as the burned artifacts discovered on the site indicate the building may have burned. The remains of charred wood in the western trough also suggest that this building may

have been destroyed by fire.

The shallow cellar pit in the centre of the building may have been used for storage. The large stones discovered inside the pit may have been used to fill in the hole during the demolition of the structure.

The sterile mound of earth west of the foundation may be part of the same pile of backdirt depicted in the Burrowes sketch. The earth fill and semi-dressed stones outside the foundation may have been masonry waste or debris dumped in the area during the excavation of the canal. The lack of the stone debris inside the building foundation and the abrupt change in matrixes on either side of the troughs suggest that this structure was standing while the fill and broken stones were being deposited around the site. The semi-dressed stones and density of the rock spall east of the structure may indicate some degree of stone-working around the building. It may have been the presence of so many broken stones that precipitated the later infilling and landscaping of the site in recent times.

The terminal date for the carpenter's shop is, unfortunately, not known. Little mention is made of the carpenter's shop in the historical documentation of the Newboro lockstation, so much of this part of the discussion is based on other sources of information. As was mentioned in the historical background earlier in this chapter, the last two references for this building were that it was repaired in 1850, and it was still standing in 1860. The historical references also state that carpenter gangs were introduced along the Rideau Canal in 1866 to replace the need for contract carpenters and to ensure that well trained craftsmen would get the required work done on time for the opening of the canal each year (Turner 1984:52). The canal superintendent's annual reports clearly illustrates the bureaucratic concern for government expenditures. Every year the report would record the repairs made to the

buildings and equipment at each lockstation. If the carpenter's shop had been repaired, it would probably cost money and that expenditure would likely have been documented as it was in the annual report for 1850. On the other hand, if this small, redundant building was demolished or otherwise destroyed, it would not necessarily cost money,

therefore, it would not be included in the yearly financial statement. This argument is put forth to suggest that it can also be possible that what is not contained in the historical record may be as valuable as what is mentioned. Therefore, the absence of any further references in the annual reports pertaining to the Newboro carpenter's shop, together with the introduction of the gangs of carpenters may suggest that the building did not last long after 1860. The lack of dateable artifacts from the second half of the 19th century also support this theory.

Carpenter's Shop Conclusions

The evidence recovered from the excavation suggests that the structural remains are those from the log building depicted in the 1841 Burrowes sketch of the lockstation. The dates of the building's construction and demolition are uncertain, however, it may be the "Carpenter's house" included in Hartwells 1828 list of buildings. The building may have burned and been dismantled as there is very little surviving from the walls and chimney. The large amount of broken stone discovered outside the foundation may be evidence of stoneworking or possibly just the debris from the canal excavation. The artifacts from the site, together with the building's disappearance from the annual report after 1860 suggest that carpenter's shop at Newboro may not have survived much later than 1860.

Artifact Analysis

Introduction

The artifacts recovered from the Newboro excavations are useful for illustrating aspects of the lives of those who once lived and worked along the expanding Upper Canadian frontier during the 19th century. As well, they provide a test of the frontier model developed by South (1979) and expanded upon by Lewis (1984). This type of artifact analysis focuses on the function of an object and the activity it represents. Functional analysis was applied in this report so that the results could be compared to two other types of frontier sites in North America: the 18th century town of Camden, South Carolina; and 19th century pony express stations in northern Nevada.

Lewis in his study of the American frontier describes a frontier town as "...the focus of economic, social and political activity for a substantial portion of the area of colonization." The role of such towns in a colonial region is "... to maintain certain functions while at the same time adapting to frontier conditions by restructuring its integrating institutions and, consequently, altering its form." (Lewis 1984:181) Camden, South Carolina was such a frontier settlement.

Camden began as a milling center in the mid-18th century but by the 1760's it had transformed itself into an economic and communication center. Archaeological

excavations at Camden during the 1970's produced a wealth of information on colonial South Carolina which Lewis used in his research on frontier settlement patterns (1976). Part of his research focused on ten sites within the town and the activity that occurred at each based on the functional analysis of the cultural material found at the sites. The

time frame for the Camden research was between 1758 and 1820.

Transportation frontiers are composed of specialized activity settlements whose function is to maintain the flow of goods and information from the cosmopolitan centers to the frontier regions. They are not tied directly to the production of frontier commodities, instead they are responsible for the movement of such goods and services (Lewis 1984: 288). Pony express stations along the expanding American western frontier are examples of transportation frontier sites.

One hundred and ninety pony express stations constituted part of the logistical network for the short-lived overland pony express route from the Missouri River to California. These stations served as stopovers for the riders with those who worked there servicing the needs of the riders and their ponies with food and lodging. If necessary, horseshoes would be replaced and repairs were made to the riders tack. Each station housed a minor blacksmith operation, an essential industry for the isolated western frontier. In addition to being employed at the stations, the workers also lived there, therefore each station became a combination of a specialized workplace as well as a domestic residence.

Cold Springs and Sand Springs were two of the larger pony express stations, each one consisting of a single multi-roomed building with an associated corral. Cold Springs and Sand Springs stations were excavated in 1976 by researchers from the University on Nevada under the direction of Dr. Donald Hardesty for the Nevada Bureau of

Land Management (Hardesty 1979).

As one of the lockstations on the Rideau Canal, Newboro also fits the criteria of a transportation frontier as it was tied to the movement of farm and lumber products out of a region and consumer products into a region. The carpenter's shop represents a specialized worksite while the

blockhouse represents a domestic residence at the lockstation.

In this report intrasite comparisons are made among the various events assigned at Newboro. By analyzing the artifacts from periods representing various phases of the site history, information on site use over time was obtained. Following the intrasite comparisons, the identifiable Newboro artifacts are compared to material from Cold Springs, Sand Springs and Camden.

Methodology

Following the normal processing, the 14,212 artifacts found at Newboro were individually analyzed in three stages. In the first stage, the assemblage was divided into eight major classes: Glass, Ceramics, Nails, Fasteners, Other Metals, Arms and Ammunition, Metal Containers and Miscellaneous (Appendix B, Tables 7 and 8). This division allowed for the recording of information on material, manufacturing technique, identifiable portion, decoration and function, both primary (e.g. glass bottle) and secondary (e.g. medicinal bottle). In the second stage, the classes were divided by type (e.g. cut nails and drawn nails). The third and final stage was the assigning of each type to a functional group (e.g. tableware)

Three functional activity categories were selected: Subsistence, Subsistence/Technological and Technological. All those artifacts which were too fragmentary for identification were placed in a fourth, Unidentified

category. The Subsistence category (Appendix B, Table 9) is made up of artifacts dealing with the procurement, preparation and consumption of food. The Subsistence/ Technological category (Appendix B, Table 10) is an indiscriminant category comprised of artifacts that occur at a site regardless of the activity taking place. It is a

much broader field encompassing all those items used in everyday life but which may not exclusively belong to the other two groups. Artifacts in this category include structural, architectural, personal and recreational items. The third category, Technological (Appendix B, Table 11), represents activities which would only occur in a non-domestic, specialized area and includes tools, equipment and non-food storage containers. The Unidentified category (Appendix B, Table 12) was not used for the intrasite comparisons.

The three categories used for this study were identified as activity indicators based on Lewis's (1984) research on frontier settlement. Lewis infers that the relative ratio of artifacts in the subsistence category is an indicator of the activity carried out at the site. The higher the ratio of subsistence-related artifacts, the greater likelihood it was a domestic site. If the site was used for purposes other than residential, the number of subsistence artifacts would decrease. He assumes that the subsistence-technological artifacts would remain constant no matter what activity occurred at the site. The technological category should be considerably lower than the two other categories as it is comprised of items less likely to occur on an archaeological site. Specialized technological tools would be considerably more valuable and likely to be repaired if broken, unlike such mundane items as window glass or tableware. Technological objects would have to be either lost or damaged beyond repair before they would appear in the archaeological record. Therefore, because these artifacts are less likely to occur in large

quantities, it is their presence and not the actual number that is significant (Lewis 1984: 190-191).

The various events from the blockhouse and carpenter's shop were combined and placed into chronological periods (Table 1). The division of the events into separate time periods was necessary to determine if the activities at the

Table 1. Period/Event Correlations.

Period	Description	Events
	Carpenter's Shop	
A1	Pre-construction, Pre-1828	24H7
A2	Occupation & Post-abandonment, 1828-c.1972	24H3\4, 24H5\6 24H8
A3	Modern, Post-1972	24H1
	Blockhouse	
B1	Blockhouse Construction, 1832-33	24H12
B2	Early Occupation, 1833-49	24H25
B3	Later Occupation, 1849-1967	24H16, 24H22
B4	* Entire Occupation, 1833-1967	24H11
B5	+ Combination of B2, B3 & B4	

* This period was asigned to one continuous stratum that appeared to be an uninterupted deposit, dating from 1833 to 1967.

+ This Period was created for the purpose of inter/intra-site interpretation.

sites changed over time. The carpenter's shop site was separated into three periods representing the occupation of the site from the 1820's through to 1986: Period A1, the construction phase, c.1828; Period A2, the 19th century occupation and abandonment phase, c.1828-c.1970; and Period A3, the post-1970 phase. The blockhouse site was divided into four periods representing the occupation of the building from its construction in 1832-33 until it was abandoned in 1962: Period B1, the construction phase, 1832-1833; Period B2, the early phase of occupation, 1833-1849; Period B3, the later phase of occupation 1849-1962; and Period B4, the entire occupation phase, 1833-1962. In Table 1 there is a fifth period, Period 5, which is the combination of the entire occupation periods. This is an artificial period set up to allow for the whole blockhouse collection to be compared to the other sites. For the inter-site comparisons only Periods A2 and B5 were used as they are representative of the occupations of the carpenter's shop and the blockhouse.

The events used in the periodization were selected using the following criteria: (i) each event must fit into a datable time frame; (ii) the event cannot represent a fill deposit, eliminating the possibility of imported cultural material; and (iii) each event must contain an arbitrary minimum of 100 artifacts. The events chosen contained over 86 per cent of the artifacts from both sites. The events representing disturbances such as the pipeline and well backfill (Events 24H18 and 24H21) and the pit feature (Event 24H27) on the blockhouse exterior were not used in the intrasite comparisons as the deposits were not intact.

Intrasite Discussion

The artifacts from Newboro were separated by Event and functional group and are displayed in Tables 2 and 3.

Table 4.2

Artifacts by Activity Category and Event (Counts)

Event	Subsistence	Subsistence/ Technological	Technological	Unidentified	Total
24H1	157	230	0	17	404
24H2	131	48	1	10	190
24H3/4	1253	3363	9	109	4734
24H5/6	1033	2668	11	103	3815
24H7	102	155	0	5	262
24H8	118	745	1	33	897
24H9	0	0	0	0	0
24H10	64	55	0	4	123
24H11	246	194	3	62	505
24H12	103	20	0	4	127
24H13	16	23	0	3	42
24H14	0	0	0	0	0
24H15	0	0	0	0	0
24H16	20	88	1	6	115
24H17	0	0	0	0	0
24H18	4	21	0	1	26
24H19	0	2	0	0	2
24H20	8	23	0	2	33
24H21	50	60	0	5	115
24H22	480	396	1	31	908
24H23	0	0	0	0	0
24H24	28	52	0	2	82
24H25	507	382	4	100	993
24H26	201	208	0	29	438
24H27	120	71	0	4	195
24H28	12	21	0	2	35
24H29	2	5	0	1	8
24H30	9	29	1	1	40
24H31	0	1	0	0	1
24H32	25	14	0	1	40
24H33	0	5	0	0	5
24H34	8	3	0	2	13
24H35	4	2	0	0	6
24H36	27	12	0	4	43
24H37	0	0	0	0	0
24H38	3	8	0	8	14
Total	4731	8903	32	544	14211

Table 3

Artifacts by Activity Category and Event (Percentages).

Event #	Subsistence	Subsistence/ Technological	Technological	Unidentified	Total
24H1	38.9	56.9	0.0	4.2	2.8
24H2	68.9	25.3	0.5	5.3	1.3
24H3/4	26.5	71.0	0.2	2.3	33.3
24H5/6	27.1	69.9	0.3	2.7	26.8
24H7	38.9	59.1	0.0	1.9	1.8
24H8	13.2	83.1	0.1	3.6	6.3
24H9	0.0	0.0	0.0	0.0	0.0
24H10	52.0	44.7	0.0	3.3	0.9
24H11	48.7	38.4	0.6	12.3	3.5
24H12	81.1	15.7	0.0	3.2	0.9
24H13	38.1	54.8	0.0	7.1	0.3
24H14	0.0	0.0	0.0	0.0	0.0
24H15	0.0	0.0	0.0	0.0	0.0
24H16	17.4	76.5	0.9	5.2	0.8
24H17	0.0	0.0	0.0	0.0	0.0
24H18	15.4	80.8	0.0	3.8	0.2
24H19	0.0	100	0.0	0.0	0.0
24H20	26.7	69.7	0.0	3.6	0.2
24H21	43.5	52.2	0.0	4.3	0.8
24H22	52.9	43.6	0.1	3.4	6.4
24H23	0.0	0.0	0.0	0.0	0.0
24H24	34.1	63.4	0.0	2.4	0.6
24H25	51.1	38.4	0.4	10.1	7.0
24H26	45.9	47.5	0.0	6.6	3.1
24H27	61.5	36.4	0.0	2.1	1.4
24H28	34.3	60.0	0.0	5.7	0.2
24H29	25.0	62.5	0.0	12.5	0.1
24H30	22.5	72.5	2.5	2.5	0.3
24H31	0.0	100	0.0	0.0	0.0
24H32	62.5	35.0	0.0	2.5	0.3
24H33	0.0	100	0.0	0.0	0.0
24H34	61.5	23.1	0.0	15.4	0.1
24H35	66.6	33.3	0.0	0.0	0.1
24H36	62.8	27.9	0.0	9.3	0.3
24H37	0.0	0.0	0.0	0.0	0.0
24H38	21.4	57.1	0.0	21.4	0.1
Total	33.3	62.7	0.2	3.8	99.9

Table 4 shows the same functional breakdown compressed into the various time periods assigned for the site.

The artifacts deposited in and around the blockhouse confirm the historical documentation that stated the building was used mainly as a residence throughout the whole period of it's occupation. The subsistence-related artifacts account for over one half of all artifacts found (Table 4). The subsistence-related artifacts from the blockhouse occupation (Periods B2 to B4) range from a high of 56.8 per cent from the pre-1849 Period (B2) to a low of 50.7 per cent for the post 1849 Period (B3). The artifacts also suggest that the activities performed at this part of the site did not change dramatically over time. The ratios between the activity categories from both the Early and Later periods show a moderate difference from one another. The percentage of subsistence/technological-related artifacts increased in the Later Occupation Period (B3) to 49.1 per cent of the total at the expense of the subsistence category which dropped to 50.7 per cent of the total. This slight increase may have been due to the major rebuilding of the blockhouse in 1888. An alteration project of that magnitude should result in the depositing of additional architectural debris into the archaeological record. The artifact figures from the two occupation periods compare closely to those from the period representing the whole occupation (Period B4). Only during the building's construction Period (B1) did the subsistence-related artifacts increase to 83.7 per cent of the total and the subsistence/technological-related artifacts drop to 16.3 per cent. This anomaly is difficult to explain as one would

expect that a building construction site would produce more structural debris than subsistence refuse. Perhaps the answer lies in the small sample of artifacts, 123 specimens from the construction period as compared to an average of 774 specimens for each of the other three Periods.

Table 4. Activity Categories by Periods for Newboro.

Newboro Periods	Subsistence	Subsistence/ Technological	Technological	Number
A1	39.7	60.3	0.2	257
A2	26.1	73.6	0.2	9201
A3	41.0	59.0	0	387
B1	83.7	16.3	0	123
B2	56.8	42.7	0.5	893
B3	50.7	49.1	0.2	986
B4	55.5	43.8	0.7	443
B5	54.0	45.6	0.4	2322

Although the blockhouse was originally constructed to serve as a military stronghold it immediately became a residence for the lockmaster and his family. The artifacts found in and around the building confirmed this as over one half of all the artifacts were of a domestic or subsistence nature. Because the blockhouse was a domestic residence at a public lockstation, the probability of structural debris accumulating around the building was probably not great. This, together with the permanent nature of the structure may explain why the occupation period artifacts from the blockhouse have a lower frequency of subsistence/ technological-related artifacts than the carpenter's shop.

The artifact statistics from the carpenter's shop tell a different story from those from the blockhouse (Table 4). The ratios between the activity categories from the two occupation events, 24H3/4 and 24H5/6, were very close, suggesting a continuum of the activities during the habitation of the site. When these two events are combined into Period A2 the subsistence-related artifacts make up 26.1 per cent of the total, the subsistence/technological artifacts 73.6 per cent and the technological artifacts 0.2 per cent. The high percentage of non-domestic artifacts should not be surprising at a carpenter's shop, particularly one that was leveled. One should expect to find a considerable collection of architectural debris in and around the building either resulting from the carpentry activity or the demolition of the structure. The discovery of food-related artifacts such as tableware and food remains indicate that food was, no doubt consumed at the site, however, the degree of domestic activity was certainly less

than that carried out at the blockhouse. This would suggest that the carpenter's shop was primarily a workplace with a limited domestic activity. Both the construction period (A1) and the modern period (A3) had a comparatively high percentage of subsistence-related artifacts, 39.7 and 41 per cent respectively. This higher percentage probably reflects

the shift in activity at the site from the pre-construction period to the carpenters' occupation and finally to being the location for a campground and food vender. The functional activity ratio indicates that more domestic activity occured at the site when there wasn't a carpenter's shop there. It also highlights the drop in the subsistence activity during the carpenter's occupation period (A2).

Intersite Discussion

The object of the inter-site comparisons is to determine if sites of a similar functional purpose will produce a recognizable pattern of functionaly diagnostic artifacts. As was mentioned in the methodology section of this chapter, the categories of artifacts to be used in the inter-site analysis are based on those set up by Lewis for his Camden research. The artifacts from Cold Springs and Sand Springs were originally divided into functional and stylistic classes. To allow for intersite comparisons with the Newboro material, the pony express artifacts were separated into the three major categories assigned for Newboro. A breakdown of the pony express artifacts to fit the Newboro categories appears in Appendix B, Table 13. In Table 5 the artifact statistics for the two Newboro sites are compared to those from Camden Sand Springs and Cold Springs.

The carpenter's shop at Newboro was a specialized activity site while the blockhouse was for the most part a domestic residence. The pony express stations at Sand Springs and Cold Springs were combination residence/ specialized activity sites. At Camden, Areas 5 and 9 were

specialized activity sites, Areas 2, 3 and 6 were domestic sites and Areas 1, 4, 7, 9 and 10 were a combination of the two. The carpenter's shop statistics did not resemble any of the figures from the other sites. The two specialized areas from Camden (Areas 5 and 8) had over twice the percentage of subsistence-related artifacts as the Newboro

Table 5. Activity Categories for Newboro, Camden, Cold Springs and Sand Springs.

		Subsistence	Subsistence/ Technological	Technological	Number
Newboro					
Period	A1	39.7	60.3	0.2	257
	A2	26.1	73.6	0.2	9201
	A3	41.0	59.0	0	387
	B1	83.7	16.3	0	123
	B2	56.8	42.7	0.5	893
	B3	50.7	49.1	0.2	986
	B4	55.5	43.8	0.7	443
	B5	54.0	45.6	0.4	2322
Camden					
Area	1	71.0	28.0	2.0	1150
	2	79.0	20.0	1.0	5327
	3	81.0	19.0	1.0	4681
	4	73.0	26.0	1.0	1792
	5	67.0	33.0	0.0	2519
	6	81.0	18.0	1.0	2626
	7	72.0	26.0	2.0	2319
	8	60.0	38.0	1.0	2186
	9	72.0	25.0	2.0	1549
	10	74.0	26.0	0.0	878
Cold Springs		56.1	40.2	3.8	665
Sand Springs		69.4	24.9	6.1	751

carpenter's shop. The Newboro blockhouse artifact ratios were noticably different from the domestic areas from Camden with the latter displaying high percentages of subsistence-related artifacts (averaging 80 per cent) while the Newboro blockhouse averaged just 54 per cent of the assemblage. Cold Springs was the only site to have a ratio similar to the blockhouse assemblage. Cold Springs however, was a combination domestic/specialized activity site while the blockhouse was essentially a domestic site.

Camden Areas 1, 4, 7, 9 and 10 were believed to be combination business/residences based on the relatively lower percentage of subsistence artifacts. The Sand Springs station has a similar ratio of artifacts, and that station was also a combination business/residence.

The dissimilarities between the artifact statistics from Newboro and the other sites may be attributed to several factors. The differences between the Newboro sites and the pony express stations may be explained by the diverse activities performed at each location. Other suggestions for the variances may lie with the differences in the socio-economic status of the occupants of the sites and their geographic location, particularly in the cases of the remote pony express stations. The Camden activity areas were in a small town whereas the Newboro sites were on the outskirts of a small village and the pony and the pony express stations were in isolated, sometimes hostile territory. The dates of the site's occupation may also have influenced the inhabitants' disposal patterns. Camden's estimated occupation period for this study is 1758 to 1820, while the carpenter's shop is 1828 to 1860, the blockhouse

is 1833 to 1962 and the pony express stations are from the 1860's to the 1870's. Refuse disposal patterns were not the same in Victorian times as they were in 18th century Georgian time. The public nature of the Rideau Canal may have resulted in a particular pattern of refuse disposal.

Whatever the reason or reasons, it is clear that Newboro is not similar to either the Camden sites or the pony express sites.

In concluding, the concept of artifact pattern recognition proposed by South and Lewis was useful in identifying a difference between the Newboro carpenter's shop and the blockhouse. The functional analysis of the artifacts from each site demonstrated a clear distinction between the highly specialized carpenter's shop and the blockhouse-turned-residence. The historical documentation for the lockstation confirmed the different roles for each site. The artifact study also indicates that there is a recognizable difference between the artifacts from Newboro and those from both Camden and the pony express stations in Nevada. Future research on 19th century sites along water transportation routes may determine if the archaeological record will provide an identifiable pattern that can be used to increase our knowledge and understanding of the past. If the artifact assemblages from other Rideau Canal sites are examined in the same way as the Newboro artifacts it may be possible to recognise an artifact pattern particular to the canal.

Summary

The excavations at the Newboro lockstation were successful in confirming several structural characteristics of the 1833 blockhouse as well as exposing several previously unknown architectural and landscape features. The discovery of the floor sill supports, center wall and retaining wall in the basement assisted in the historical accuracy of the ground floor restoration. The 1849 landscaping was confirmed by the discovery of the defensive ditch in unit 14K. The restoration of the exterior steps during the 1960's had destroyed any evidence of the original base of the staircase. As the only paint samples discovered were in the 20th century levels, 19th century watercolours of the blockhouse had to be used to determine the colour scheme for the upper story. The blockhouse restoration was completed during the winter and spring of 1987. Using the evidence of the original floor level the wooden floor was replaced inside the blockhouse. The exterior of the second floor was repainted and the steps replaced (Fig. 42).

The surprising discovery and subsequent excavation of the carpenter's shop ensured the preservation of the structural remains. The exposed portion of the carpenter's shop foundation was covered with a sheet of geotextile filter cloth and a thick layer of sand to protect it from any damage during the relocation work. As a result of the discovery, the garage location was moved several metres to

the north. The garage relocation was also completed by the spring of 1987 (Fig. 43).

The functional analysis of the artifacts successfully demonstrated that a difference could be observed in the assemblages that would identify the activities carried out at the blockhouse and carpenter's shop. The blockhouse

Figure 42. Restored blockhouse 1988.
(Photo by author; 24H-988M)

Figure 43. New location of garage 1988.
(Photo by author; 24H-984M)

appears to have functioned solely as a residence while the other appears to have been an artisan's shop. The Newboro, Camden and pony express comparisons were accomplished with some interesting results. Hopefully, the Newboro statistics can be used to develop a model of pattern recognitions for sites along transportation frontiers.

The cultural material from the various strata have helped to illustrate both the working and domestic lives of the canal artisans and lockmasters, from Daniel McDonald of the 7th Company of Royal Sappers and Miners who began in 1832 to Harold King, the last lockmaster to occupy the blockhouse-turned-residence.

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Table 6.2 Event/Provenience Correlations.

Event #	Description	Proveniences	Date
24H1	Topsoil & Recent Sod	A60,A70,B10,B30,B50,B60, B70,B80,C10,C20,C40,C50, C60,C70,D10,D20,D30,D60, D70,E30,E40,E60,E70,E90, F20,F30,F60,F70,F90,L20, M10,M20,M60,M70.	c.1972-86
24H2	Sand Fill	A11,A51,A61,A71,B31,C51, C61,C71,C71,D11,D21,D61, D71,E71,F21,F51,L11,L21, L31.	c.1972
24H3/4	1st Buried Organic Stratum	A12,A22,A32,A42,A52,A62, A72,A82,A92,B12,B22,B62, B72,B82,B92,C12,C22,C32, C42,C52,C62,C72,C82,C92, D12,D22,D32,D42,D52,D62, D72,D82,D92,E12,E32,E42, E52,E62,E72,E82,E92,F12, F22,F32,F42,F52,F62,F72, F82,F92,L12,L22,L42,M12, M22,M32,M42,M52,M62,M72, M82.	c.1828-1972
24H5/6	2nd Buried Organic Stratum	A13,A33,A43,A53,A63,A73, A83,A93,A94,B13,B33,B73, B83,B94,C13,C14,C23,C33, C43,C53,C63,C83,C93,D13, D23,D33,D43,D53,D63,D73, D83,D93,E13,E33,E43,E53, E73,E83,E93,F13,F23,F33, F43,F53,F83,F93,L13,L23, L43,M23,M33,M43,M53,M63, M73,M83,M93.	c.1828-c.1860
24H7	Sandy Clay Topsoil	A23,B14,B44,B55,B74,C15, C64,C73,D54,D64,D75,E54, M14,M84.	Pre-1828
24H8	Cellar Pit	D74,E63,E65,E67,E76,E77 F54,F63,F64,F67,F73,F77.	c.1828-c.1860
24H9	Basement Floor Surface Blockhouse Interior	G1.	1986

Table 3. Continued.

24H10	Modern Gravel Fill Blockhouse Interior	G2,J1,J2,J3,J4,P5.	1967
24H11	Midden Blockhouse Interior	G3,G4,G7,P1,P2,P3,P4.	1833- 1967
24H12	Construction Debris Blockhouse Interior	G8,G9,G10.	1832-33
24H13	Centre Wall Builder's Trench Blockhouse Interior	G6.	?
24H14	Retaining Wall Blockhouse Interior	G5.	Possibly 1888
24H15	Centre Wall Blockhouse Interior	No Proveniences Assigned	?
24H16	Topsoil & 1st Humus Unit 14K	K2,K5,K12,K18,K24.	1849-1986
24H17	Recent Topsoil & Sod Unit 14N	N1,N30,N50,N60,N70,N80, N90,N100,N111,120.	1967-1986
24H18	Pipeline Fill Unit 14N	N96,N102.	?
24H19	Mortar Against Blockhouse Unit 14N	N3	1967
24H20	Gravel Fill Unit 14N	N5,N6,N32,N51,N61,N71, N81,N91,N101.	1967
24H21	Concrete Well Fill Unit 14N	N4,N103,N104,N109.	?
24H22	Buried Humus & Sand Stratum Unit 14N	N33,N34,N35,N52,N53,N62, N72,N74,N82,N92,N112,N121, N124.	1849-1967
24H23	Postmold Unit 14N	N126.	1914- Pre-1967
24H24	Sand Fill Unit 14N	K3,K6,K13,K19,K25.	1849

Table 3, continued.

24H25	1st Buried Humus Stratum Units 14K & 14N	K7,K9,K10,K14,K16,K20, K26,N7,N36,N54,N64,N83, N93.	1833-1849
24H26	2nd Sand Fill Stratum Units 14K & 14N	K15,K21,K22,K27,K28,K34, N8,N37,N55,N65,N94.	1833
24H27	Pit Feature Unit 14N	N63,N73.	?
24H28	Red Gravel Fill Units 14K & 14N	K29,K30,K35,K38,N9,N38, N66,N113,N125.	1832-1833
24H29	Mixed Fill Below Red Gravel Fill Unit 14N	N67,N76,N85,N95.	1832-1833
24H30	Sandy Clay Subsoil Units 14K & 14N	K31,N69,N87,N97.	Pre-1832
24H31	Mortar Pad Unit 14N	N68,N86.	1832-1833
24H32	Topsoil Against Blockhouse Unit 14K	K8	1849-1986
24H33	Bricks in Powerline Trench Unit 14N	N130	?
24H34	Broken Bedrock Unit 14K	K39	1832-1833
24H35	Mortar Lens Unit 14K	K32	1832-1833
24H36	Concrete Step Disturbance Unit 14K	K36	?
24H37	Mortar Lens in Event 24H25	No Provenience Assigned	1833
24H38	Mortar Lens East End Of Unit 14N	N122	?

Table 7. Artifacts By Class and Event (Counts).

Event #	Glass	Cer	Nails	Fast	Coins	Oth M	A & A	Met C	Misc	Total
24H1	183	107	63	0	1	8	1	1	40	404
24H2	119	23	20	2	0	8	0	3	15	190
24H3/4	2466	317	942	11	0	112	0	16	370	4734
24H5/6	1649	756	895	21	6	88	3	3	404	3815
24H7	127	56	29	1	0	0	0	0	49	262
24H8	225	128	147	2	3	40	1	0	81	897
24H9	0	0	0	0	0	0	0	0	0	0
24H10	35	12	24	1	0	6	0	0	45	123
24H11	42	64	104	3	3	65	0	0	224	505
24H12	23	5	9	0	0	0	0	0	90	127
24H13	13	1	9	0	0	3	0	0	16	42
24H14	0	0	0	0	0	0	0	0	0	0
24H15	0	0	0	0	0	0	0	0	0	0
24H16	6	15	58	2	0	7	0	0	27	115
24H17	0	0	0	0	0	0	0	0	0	0
24H18	3	5	15	0	0	0	0	0	3	26
24H19	0	0	0	0	0	0	0	0	2	2
24H20	9	9	10	0	0	0	0	0	5	33
24H21	18	32	35	2	0	2	0	0	26	115
24H22	136	310	218	6	1	26	1	3	207	908
24H23	0	0	0	0	0	0	0	0	0	0
24H24	9	18	29	0	0	1	0	0	25	82
24H25	163	363	204	2	0	40	1	61	159	993
24H26	96	147	58	2	0	13	1	2	119	438
24H27	34	59	38	1	0	3	0	0	60	195
24H28	8	3	12	0	0	0	0	0	12	35
24H29	0	1	5	0	0	1	0	0	1	8
24H30	22	8	6	0	0	1	0	0	3	40
24H31	0	0	0	0	0	0	0	0	1	1
24H32	5	20	6	0	0	1	0	0	8	40
24H33	0	5	0	0	0	0	0	0	0	5
24H34	1	5	1	0	0	0	0	0	6	13
24H35	0	0	1	0	0	0	0	0	5	6
24H36	0	16	3	0	0	2	0	3	19	43
24H37	0	0	0	0	0	0	0	0	0	0
24H38	1	3	6	1	0	1	0	0	2	14
Total	5393	2988	3217	57	14	418	8	92	2024	14211

Key

Cer: Ceramics
Fast: Fasteners
Oth M: Other Metal
A & A: Arms and Ammunition
Met C: Metal Containers
Misc: Miscellaneous

Table 8.

Artifacts by Class and Event (Percentages)

Event #	Glass	Cer	Nails	Fast	Coins	Oth M	A & A	Met C	Misc	Total
24H1	43.2	26.5	15.6	0.0	0.2	2.0	0.2	0.2	9.9	2.8
24H2	62.2	12.1	10.5	1.1	0.0	4.2	0.0	1.6	7.9	1.3
24H3/4	52.1	17.3	19.9	0.2	0.0	2.4	0.0	0.3	7.8	33.3
24H5/6	43.2	19.8	23.5	0.6	0.2	2.0	0.1	0.1	10.6	26.8
24H7	48.5	21.4	11.1	0.4	0.0	0.0	0.0	0.0	18.7	1.8
24H8	25.1	14.3	46.5	0.2	0.3	4.5	0.1	0.0	9.0	6.3
24H9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
24H10	28.5	9.8	19.5	0.8	0.0	4.9	0.0	0.0	36.6	0.8
24H11	8.3	12.7	20.6	0.6	0.6	12.9	0.0	0.0	44.4	3.6
24H12	18.1	3.9	7.1	0.0	0.0	0.0	0.0	0.0	70.9	0.9
24H13	30.9	2.4	21.4	0.0	0.0	7.1	0.0	0.0	38.1	0.3
24H14	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
24H15	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
24H16	5.2	13.0	50.4	1.7	0.0	6.1	0.0	0.0	23.5	0.8
24H17	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
24H18	11.5	19.2	57.7	0.0	0.0	0.0	0.0	0.0	11.5	0.2
24H19	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	100	.01
24H20	27.3	27.3	30.3	0.0	0.0	0.0	0.0	0.0	15.1	0.2
24H21	15.7	27.8	30.4	1.7	0.0	1.7	0.0	0.0	22.6	0.8
24H22	15.0	34.1	24.0	0.7	0.1	2.9	0.1	0.3	22.8	6.4
24H23	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
24H24	11.0	22.0	35.4	0.0	0.0	1.2	0.0	0.0	30.4	0.6
24H25	16.4	36.6	20.5	0.2	0.0	4.0	0.1	6.1	16.0	7.0
24H26	21.9	33.6	13.2	0.5	0.0	3.0	0.2	0.5	27.2	3.1
24H27	17.4	30.3	19.5	0.5	0.0	1.5	0.0	0.0	30.8	1.4
24H28	22.9	8.6	34.3	0.0	0.0	0.0	0.0	0.0	34.3	0.2
24H29	0.0	12.5	62.5	0.0	0.0	12.5	0.0	0.0	12.5	0.1
24H30	55.0	20.0	15.0	0.0	0.0	2.5	0.0	0.0	7.5	0.3
24H31	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	100	.01
24H32	12.5	50.0	15.0	0.0	0.0	2.5	0.0	0.0	20.0	0.3
24H33	0.0	100.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	.04
24H34	7.7	38.5	7.7	0.0	0.0	0.0	0.0	0.0	46.2	0.1
24H35	0.0	0.0	16.7	0.0	0.0	0.0	0.0	0.0	83.3	.04
24H36	0.0	37.2	7.0	0.0	0.0	4.7	0.0	7.0	44.2	0.3
24H37	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
24H38	7.1	21.4	42.9	7.1	0.0	7.1	0.0	0.0	14.3	0.1
Total	38.0	21.0	22.6	0.4	0.1	2.9	0.1	0.6	14.2	99.9

Key

Cer: Ceramics
Fast: Fasteners
Oth M: Other Metal
A & A: Arms and Ammunition
Met C: Metal Containers
Misc: Miscellaneous

Table 9. Subsistence Category Artifact Types.

Bottles

Jars

Tableware

Glass Vials

Miscellaneous Containers (Including Tin Cans)

Crocks

Unidentified Ceramics

Comercial Containers

Food Processing Artifacts

Food Remains (Including Packaging)

Cookingware

Fishing Equipment

Arms and Ammunition

Electrical Artifacts

Toiletries

Table 10 Subsistence\Technological Category Types

Window Glass

Lighting Devices

Mirror Glass

Unidentified Glass

Ornamental Ceramics

Flower Pots

Nails

Nuts & Bolts

Rivets & Roves

Pins (Fasteners) & Staples

Washers

Finished Wood (Including Furniture)

Building & Furniture Hardware

Stove & Chimney Parts

Coal

Currency

Recreational Artifacts

Communication Artifacts

House Tools & Equipment

Tailoring Equipment

Personal Artifacts

Table 11 Technological Category Artifact Types

Wood Working Tools

Masonary Tools

Agricultural Tools

Canal Tools & Equipment

Miscellaneous Tools & Equipment

Harness Equipment

Nonfood Containers

Table 12 Unidentified Category Artifact Types

Unidentified Metal Containers

Unrecognisable Fragments

Soil, Charcoal & Mortar Samples

Table 1. Pony Express Artifacts

Subsistence	Subsistence/Technological	Technolgical
Dishes	Clothing	Livery Tools
Utensils	Adornment Items	Livery Equip.
Condiment Bottles	Tobacco Pipes	Wagon Parts
Food Tins	Alcoholic Beverage Bottles	Telegraph Equip.
Misc. Household Items	Currency	
Grooming Items	Writing Items	
Medicine Bottles	Weapons	
	Architectural and Construction Items	

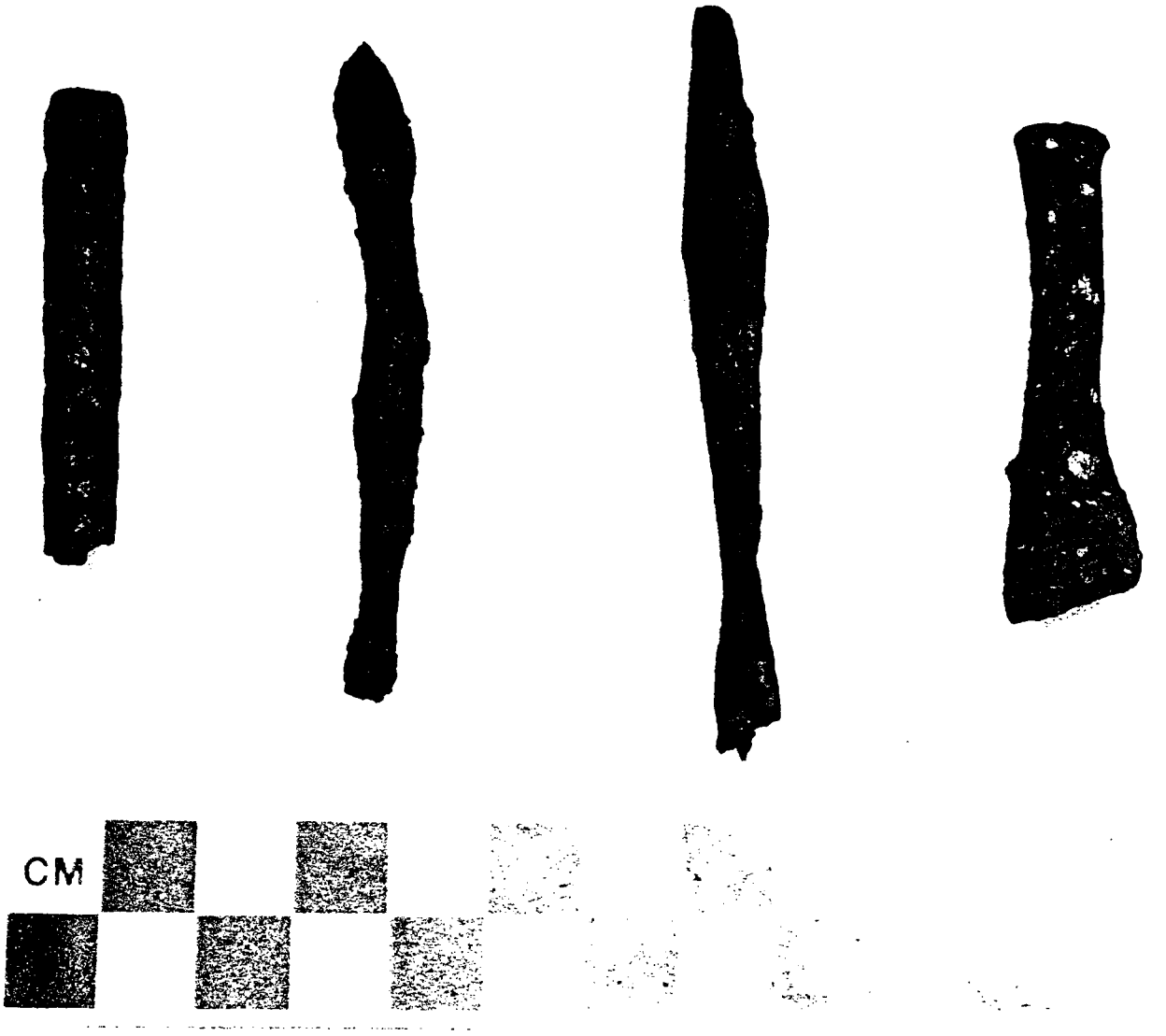


Figure 44. Woodworking tools: drills; l-r, 24H14G4-01, 24H14A43-01, 24H14F83-05; fine chisel; 24H14E12-01. (Photo by B. Morin; RAO-911M)

Figure 45. Woodworking tools: plane irons; l-r, 24H14F43-01, 24H14F43-01, 24H14K26-01. (Photo by B. Morin; RAO-871M)

Figure 46. Miscellaneous tools: files and ivory tool handle; 1-r, 24H14L43-01, 24H14D63-01, 24H14F83-06, 24H14C32-01, 24H14D12-01, 24H14C83-02. (Photo by B. Morin; RAO-917M)

Figure 47. Miscellaneous tools: l-r; pick, 24H14A22-01, masonry point, 24H14F32-01, hafting wedge, 24H14D53-02, splitting wedge, 24H14N7-01. (Photo by B. Morin; RAO-877M)

Figure 48. Canal equipment: top: cast iron washer plate, 24H14A43-02, bottom: sleeve, 24H14E83-02, lock gate part, 24H14K26-05. (Photo by B. Morin; RAO-1000M)

Figure 49. Miscellaneous equipment: top: perforated iron bar, 24H14N121-01, middle and bottom: plate washers, 24H14D73-01, 24H14D53-04. (Photo by B. Morin; RAO-999M)

Figure 50. Ring neck cock, Brown Bess pattern, 24H14D53-08.
(Photo by C. Lefebvre; RAO-302~)

Figure 51. Barbed spikes; top: 24H14E93-01, bottom: 24H14E93-02. (Photo by B. Morin; RAO-983M)

Figure 52. Lock hardware; top left: spindle, 24H14N82-01; bottom left: lock plate, 24H14G2-03; right: keys, top 24H14B32-02, bottom 24H14P3-03. (Photo by B. Morin; RAO-960M)

Figure 53. Communication artifacts; top: slate writing board 1-r, 24H14K10-02, 24H14K10-02, 24H14K15-03; bottom 1-r, inkwell, 24H14B44-01, slate pencils, 24H14G4-03, 24H14F67-09, 24H14K15-03, 24H14E63-07, 24H14N74-02. (Photo by B. Morin; RAO-950M)

Figure 54. Stoneware storage container, 24H14L13-05. (Photo by B. Morin; RAO-1006M)

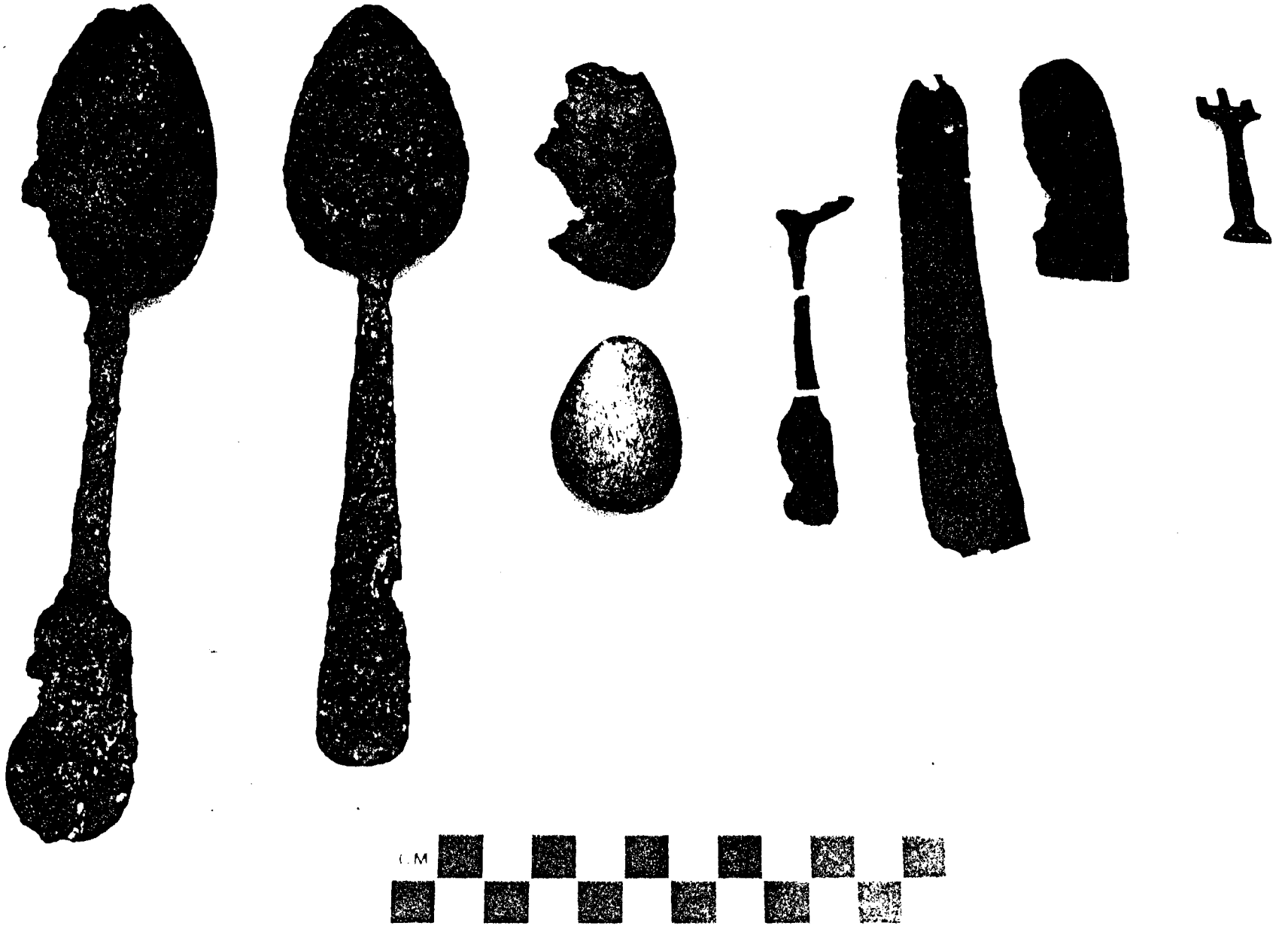


Figure 55. Domestic artifacts, flatware: l-r, spoons, 24H14F52-01, 24H14P3-02, top 24H14P1-08, bottom 24H14F62-05, 24H14F62-04; knife blades, 24H14K14-01, 24H14E63-01; fork, 24H14C72-01. (Photo by B. Morin;

Figure 56. Ceramic tableware; left, cup, 24H14L13-05; middle, plates, top, 24H14F67-08, bottom 24H14K10-01; top left, bowl, 24H14A62-01, bottom left, cup, 24H14K16-03. (Photo by B. Morin; RAO-1008M)

Figure 57. Miscellaneous kitchen ceramics; top, l-r plates, 24H14P3-06, 24H14N73-03, 24H14G3-02; bottom l-r, hollow ware, 24H14P3-07, 24H14N5-01, 24H14K20-02, 24H14P3-08. (Photo by B. Morin; RAO-905M)

Figure 58. Glassware; top l-r, stopper 24H14C72-02, lamp part?, 24H14K20-01, bottom l-r, tumbler base, 24H14K16-04, tumbler rim, 24H14K16-05. (Photo by B. Morin; RAO-1013M)

Figure 59. Chusan pattern maker's marks; l-r 24H14K16-02, 24H14K10-03. (Photo by B. Morin; RAO-897M)

Figure 60. Tableware; left, Chusan pattern, 24H14K9-01; right, Lahore pattern, 24H14K9-01. (Photo by B. Morin; RAO-906M)

Figure 61. Top and middle; pocket knives, top, 24H14F43-02, middle, 24H14P1-10, bottom; blade, 24H14E53-02. (Photo by B. Morin; RAO-941M)

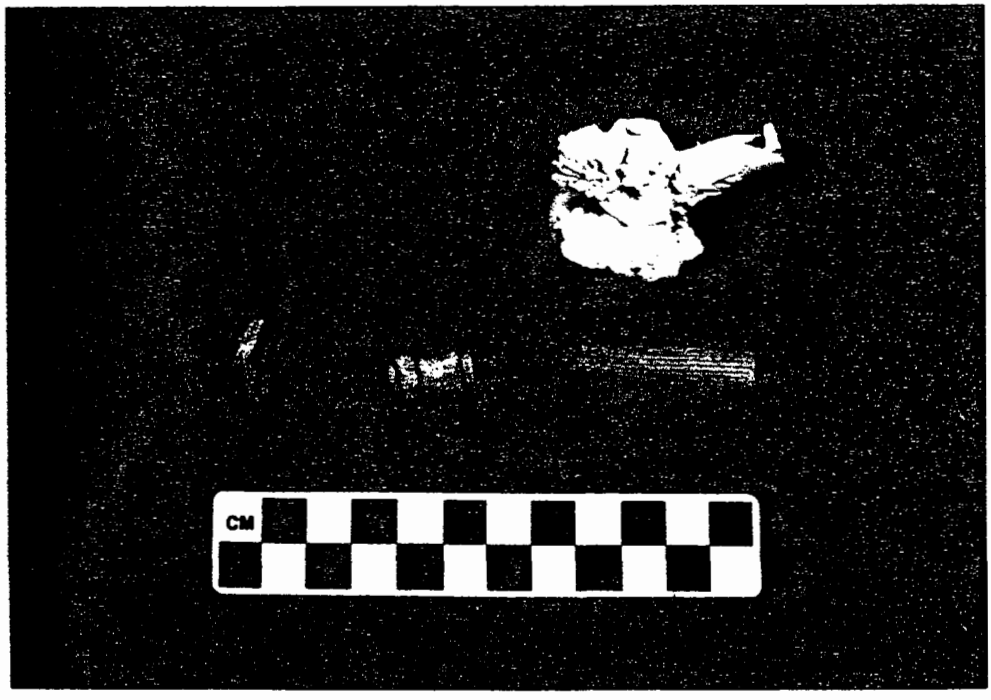


Figure 62. Miscellaneous artifacts; top left, finger ring, 24H14F33-01, top right, ceramic whistle, 24H14D83-06; bottom l-r, gaming piece, 24H14A73-02, threaded hollow bone ?, 24H14P1-16, pick wick holder, 24H14P1-17. (Photo by B. Morin; RAO-1017M)

Figure 63. Miscellaneous personal artifacts; top l-r, parts 24H14M20-01, comb, 24H14N74-01, comb, 24H14P1-14; bottom bone brush, 24H14D83-03. (Photo by B. Morin; RAO-939M)

Figure 64. Miscellaneous artifacts; top l-r, umbrella parts: rib, 24H14P1-11, tip, 24H14P3-01, rib, 24H14E63-04, lamp burner, 24H14P3-04; bottom r-l: drawer handle, 24H14N112-01, Pewter lid, 24H14E72-01. (Photo by B. Morin; RAO-963M)

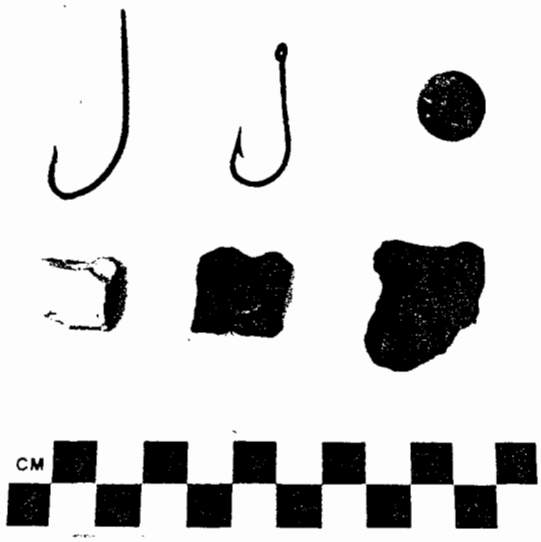


Figure 65. Fishing and hunting equipment; top, l-r hooks, 24H14L13-04, 24H14N72-01, lead ball, 24H14K15-02; bottom, gun flints, l-r, 24H14L13-05, 24H14D93-02, 24H14E67-10. (Photo by B. Morin; RAO-954M)

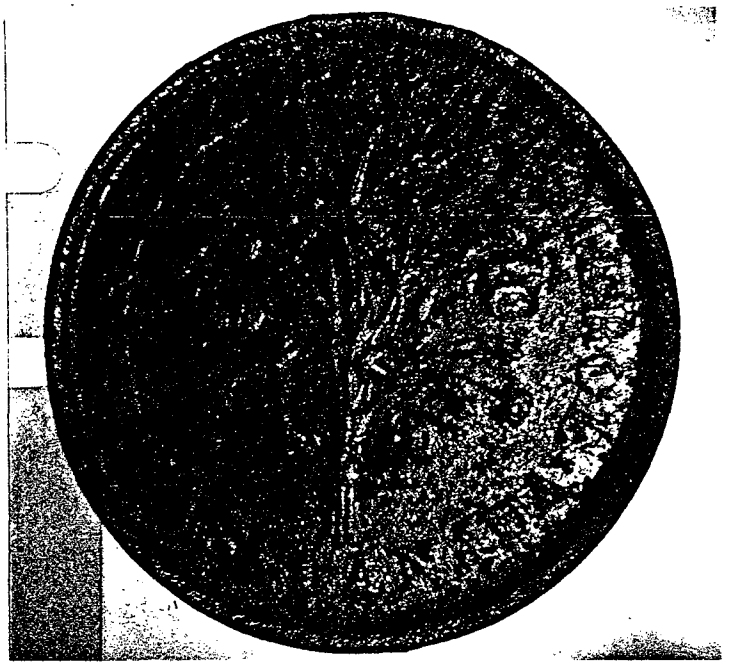
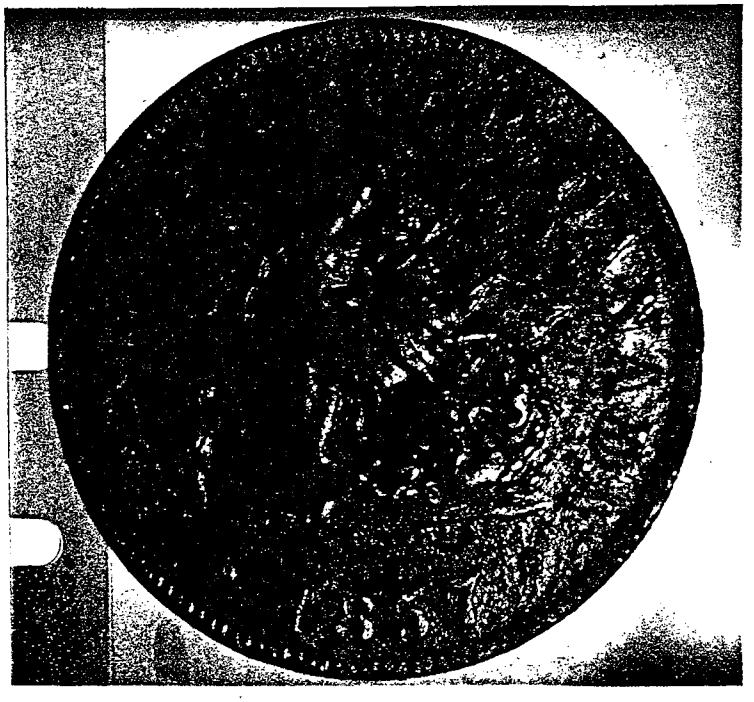
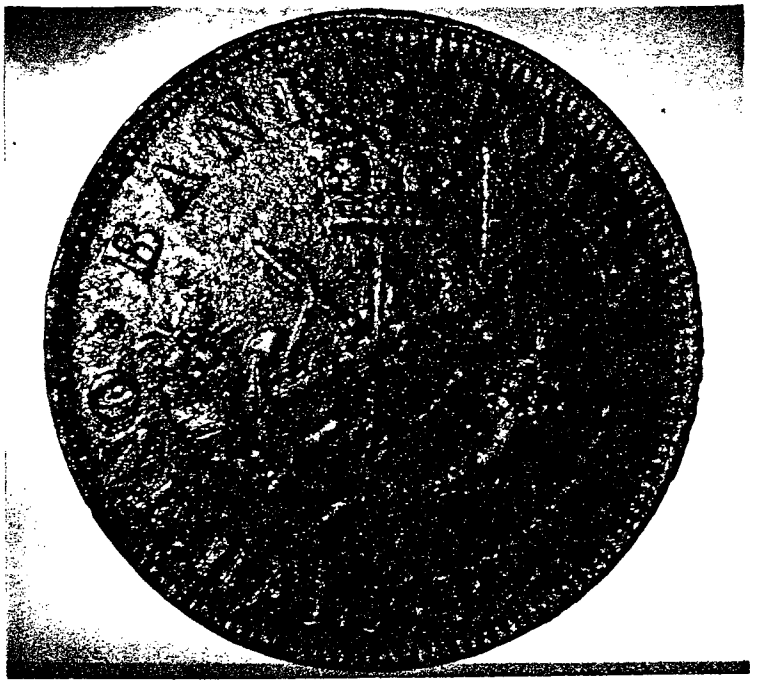


Figure 66. "Bouquet Sou" obverse, 24H14C83-01. (Photo by R. Chan, RAO-291B)

Figure 67. "Bouquet Sou" reverse, 24H14E63-01. (Photo by R. Chan, RAO-290B)

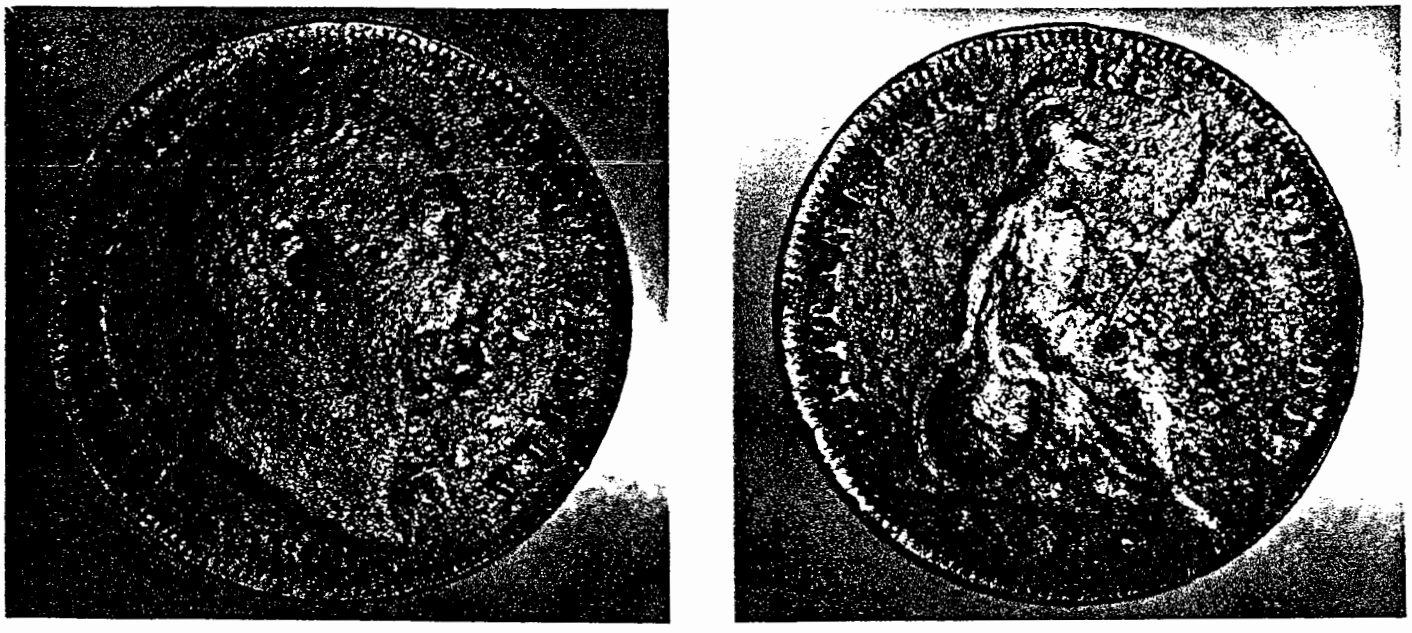




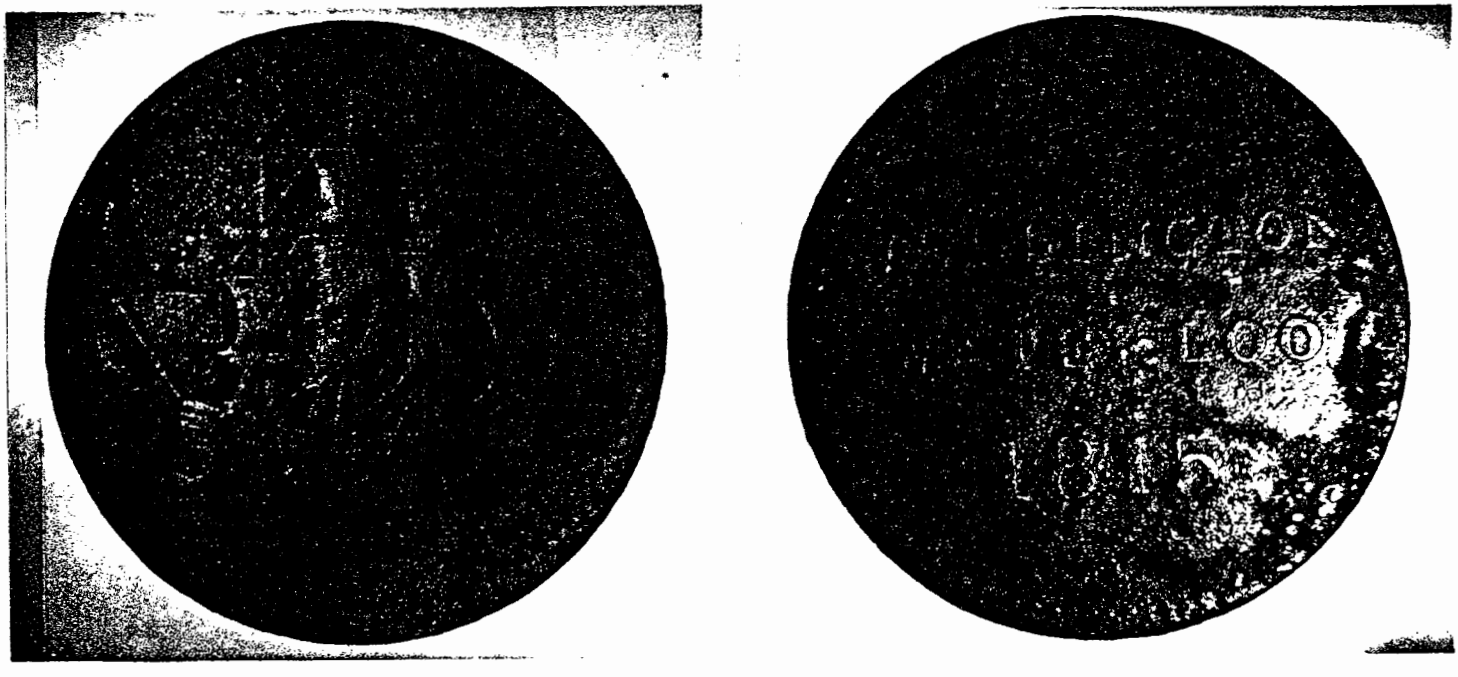
Figures 68, 69. Bank of Upper Canada one half penny token, 24H14D53-06. Right: obverse; left: reverse. (Photos by R. Chan, RAO-299B, RAO-300B)

Figures 70, 71. United States 1830, 24H14D53-01. Left: obverse; right: reverse. (Photos by R. Chan, RAO-295B, RAO-296B)

Figures 72, 73. United Sttes 1838, 24H14L23-01. Left: obverse, right: reverse. (Photos by R. Chan, RAO-293B, RAO-294B)



Figures 74, 75. British Gulielmus (William) III 1831, 24H14E53-01. Left: obverse; right: reverse. (Photos by R. Chan, RAO-297B, RAO-298B)



Figures 76, 77. Wellington Waterloo token, British 1815 24H14E65-01. Left: obverse; right: reverse. (Photos by R. Chan, RAO-302B, RAO-301B)