

NATIONAL HISTORIC SITES SERVICE

MANUSCRIPT REPORT NUMBER 84

ARCHAEOLOGICAL INVESTIGATIONS AT

LOWER FORT GARRY, 1971

by

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MARCH 1972

NATIONAL AND HISTORIC PARKS BRANCH

DEPARTMENT OF INDIAN AFFAIRS AND NORTHERN DEVELOPMENT

Archaeological Investigations at
Lower Fort Garry, 1971.

W. J. Folan and Peter J. Priess
March, 1972.

ABSTRACT

Archaeological excavations continued at Lower Fort Garry in 1971. Efforts were made to locate the 1873 fence line associated with the engineer's cottage, but the results were inconclusive. A nearby privy was located and partially excavated. Part of a palisade and all entrances to the penitentiary were examined. The interior of the penitentiary was excavated, providing data on its construction and the subterranean cells in it. The hardware and wood recovered from the cells in 1968 and 1971 were studied in detail. The brewery-distillery-storehouse was also re-excavated and construction details noted. Minor work was done on the malt barn-grist mill-sawmill.

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PREFACE

In the summer of 1971, the National Historic Sites Service continued archaeological investigations at Lower Fort Garry. The excavations, directed by W. J. Folan, began in the first week of June and ended in the last week of August. During this time, fence lines and a privy associated with the engineer's cottage were located and recorded. The upper portion of the wooden palisade remains on the southern side of the penitentiary was uncovered and all entrances to the penitentiary were checked for buried features. The interior of the penitentiary was excavated to joist level except in its northwestern corner where a subterranean cell complex was excavated and recorded and south of the central foundation wall where sections of a masonry feature were excavated. Fairly extensive excavations were carried out at the brewery-distillery-storehouse. Its remaining joist and sleeper components and what may be an interior partition wall or its rear (western) masonry foundation wall were exposed. Only a little work was done on the malt barn-grist mill-sawmill complex due to a change in priorities toward the end of the season and a lack of time.

Excavation of the four cells and the area of the ground floor joists to the east of the cells resulted in the recovery of major portions of all door frames, a few fragments of

planking from two doors, and the majority of door hardware. A detailed study of this material and similar material from the same location recovered in 1968 was made by Peter J. Priess to supplement the discussion of the excavations. Since reconstruction of the cells is being considered at present, additional comments were made on the possible re-use of the hardware.

In that most of the excavating was carried out with only two diggers, Rick Dewar and Marion Chorney merit recognition not only for their considerable physical efforts, but also for their intelligent approach to the task. To be commended for their recording and subsequent architectural drawings are the Lower Fort Garry team of Alex Siepman, Lorne Campbell and Gordon Cymbaluk. In Ottawa, Steve Epps and Albert Wilson also contributed to the drawings. Without the photographs by Siepman, Campbell and Chris Grant at Lower Fort Garry and by Georges Lupien and staff in Ottawa, the following text would lose much of its meaning.

Frank Downs helped in many ways as did Walter Keen whose shoring ability made possible the completion of the excavation of the subterranean cells. Jack Fyfe, Project Engineer, was also very helpful, often offering his services at a moment's notice. Henry Sprong, Head Grounds Keeper, provided invaluable aid and information about the later years of the Motor Country Club activities at the fort. Gordon Frazer, Chief Commissioner, also helped to make the project a more pleasant experience.

Finally, the patience and assistance of Norman MacQueen, Lower Fort Garry Superintendent, must be recognized. A park superintendant usually finds tiresome the disorganization an archaeologist imposes on his operations and neither of us were exceptions to our roles.

THE ENGINEER'S COTTAGE

The Fence

Pursuant to plans to reconstruct the engineer's cottage and its immediate, associated features at Lower Fort Garry, excavations were carried out to locate remains of fence posts used to support the fence bordering the cottage as recorded in an 1879 photograph (Fig. 1). The fence is thought to have been constructed in 1873 (Ingram 1968: 9).

In 1970 James Chism located a row of posts in front of the cottage, a row on the northern side of the cottage and another, possibly associated row parallel to the eastern side and apparently abutting the northwestern corner of the main part of the cottage (Chism and Karklins 1970). These posts were not thought to be the remains of the 1873 fence, but of an earlier or later one. Therefore, the 1971 excavation plan called for additional excavations in front of the cottage and along its northern and southern sides. Excavations were carried out in areas where Chism had not dug because Chism had used a bulldozer to locate posts and it made little sense to labouriously shovel areas previously scraped mechanically, and because it was assumed that Chism would have observed and recorded any post remains or holes found in those areas.

The 1971 excavation began by manually removing the sod from the areas (each more than 15 ft. wide) to be excavated. Where soil conditions permitted, the earth was scraped using sharpened shovels to locate all features. Two definite rows of 2 in. by 2 in. to 4 in. by 4 in. post butts set in round post holes were located and recorded (Fig. 60). The dimensions were taken at the bottom of the posts. No stones or other wedging devices were found in the post holes. One of the rows fronted the engineer's cottage and the other was north of the building where a miniature golf course existed during the Motor Country Club period. What was possibly a gate opening was located at the junction of the two rows, diagonally across from the northeastern corner of the cottage.

Two men from the Lower Fort Garry area thought the posts were formed of tamarack, commonly used for fence posts in southern Manitoba. Although historical records indicate that the 1873 fence was formed of poplar, the posts would not necessarily have been formed of the same material as the slats. All the local residents questioned thought that no one would use poplar for posts although it was and is commonly used to face fences.

At this point, several people arrived from Ottawa bringing varying opinions about not only the fences, but also a privy in front of the engineer's cottage and adjacent to the 1873 fence. This information was also based on the 1879 photograph.

Folan had previously been advised to avoid the privy, but they pointed out that if it were located, the fence line immediately west of it would be the 1873 one. Although questioning why anyone would build a privy in front of their home, excavation was begun in the area thought to be the location of the privy, approximately diagonally opposite to the southeastern corner of the engineer's cottage. However, extensive excavation revealed no privy which strongly indicated that the structure in the 1879 photograph was actually a shed as several local residents had suggested.

Another group of visitors from Ottawa felt that neither of the two fence lines Chism and Folan located on the northern side of the engineer's cottage was the 1873 one. They suggested that further work be done in the areas immediately north of the cottage (previously scraped by a bulldozer) and immediately south of the cottage. Because a crew of two would not be able to complete this amount of work in the remaining time allotted Folan, a road grader was utilized. Manual work would have been extremely labourious, time consuming and boring, especially considering that the result might only have been the finding of another fence line that could not be proven to be the 1873 one.

The road grader began work on the northern side of the cottage between the line of posts excavated earlier in the 1971 season and the northern wall of the cottage. This was the area Chism had explored using a bulldozer. In spite of reasonably deep trenching, no post remains were found.

Similar efforts on the southern side of the cottage revealed two post holes, both very like descriptions of the post holes associated with the fence around the Big House (Priess 1969: 22-3). These post holes were fairly square (15 in. by 15 in.) and appeared to have been dug by shovel rather than by auger or bar. Part of the fill in the hole was pieces of mortar which strongly resembled spent mortar chipped from stone faces after a stone wall has been laid. A worker dug out the post holes the grader had revealed to find a well preserved 3 in. in diameter post butt in the hole directly across from the southwestern corner of the cottage. No post remains were found in the other post hole. From these data it may be inferred that at one time a fence stood on the southern side of the engineer's cottage, but when it was erected, was taken down or collapsed is not known. The post holes on the southern side of the cottage did not resemble those uncovered on the eastern and northern sides in 1971. The fence post and holes to the south of the cottage cannot be definitely associated with the line of fence post butts Chism excavated in front of the cottage because the post holes he excavated do not appear to be similar to those excavated along the southern side of the cottage in 1971 (Chism and Karklins 1970: 11).

At the request of the reconstruction architect, excavation continued in front of the cottage entrance to determine porch and entrance features. However, after porch foundations and a stone-lined, gravel walkway were uncovered, we were informed that the features had been excavated and recorded several years earlier (see Steinhauser n.d; Moussette 1969).

The Privy

The privy located behind the engineer's cottage (see Fig. 2) was excavated to make possible its reconstruction on the same location. Modern plumbing will be installed in the reconstructed privy for the use of park personnel stationed at the Fraser House, blacksmith's shop and engineer's cottage.

The grader defined the location of this structure within minutes and without damage to the privy remains (Fig. 60). The fairly well preserved wood was excavated with pick and trowel, and the pit and the structure itself outlined. The privy was formed of four $3\frac{1}{4}$ in. by $1\frac{1}{2}$ in. uprights set into the ground and faced with at least 5 in. wide planking. The entrance was oriented toward the south. The butts of two small stakes were located behind (to the north of) the privy, but their use cannot be stated categorically.

The rectangular privy pit was 3 ft. 5 in. to 3 ft. 7 in. long and 1 ft. 10 in. wide. It was lined with planking on all four sides, the size of the planking varying considerably as indicated on the plan (Fig. 61). Because lack of time prevented excavation below ground level, the depth and contents of the pit are not known.

Conclusions

The search for the 1873 fence was an exercise in futility from the beginning. No matter how many fence lines were found, the problem of deciding which was the 1873 one persisted, assuming that one of the lines was in fact the remains of that fence. Whether or not the remains of the fence line on the southern side of the cottage were associated with the 1873 fence is still a moot point. It may be associated with the one Chism excavated in front of the cottage; however, this statement cannot be proven with the data at hand.

Excavation behind the engineer's cottage uncovered the remains of the privy shown in the photograph of the cottage taken in the late 1890s or early 1900s. It was probably large enough to accommodate two seats.

THE PENITENTIARY

During the summer of 1968, Peter J. Priess directed a series of exploratory excavations at Lower Fort Garry including work in and about the penitentiary (see Priess 1969). The work done there in 1971 was intended to follow up Priess's work, concentrating on the most important features he had discovered and described. (See Goldring 1970 for the history of the structure).

The Palisade

Historic plans clearly indicated that a palisade surrounded the penitentiary and according to Henry Sprong, the line of the palisade outside the northern wall of the fort is visible in the spring. Sections of it had been excavated by Chism in 1965 (see Chism 1966) and later by Priess (1969: 27-8, Fig. 9).

Due to a lack of time, only the uppermost remains of the palisade were uncovered along the southern wall of the penitentiary (Figs. 3-4). This was done primarily to ascertain whether or not entryways corresponding with the entrances in the southern wall of the penitentiary could be located in the palisade. No indications of such entryways were found.

The shallowness of the excavation and the poor condition of the wooden uprights limited recovery of data on the

construction of the palisade. The uprights were apparently formed of 6 in. to 11 in. wide planks. Some of the planks were round on one side, probably made of split logs, suggesting that the builders made little effort to utilize only squared lumber in the palisade. Although several palisade components looked like posts, further and deeper excavations should be made before classifying them as such.

The Entrance Approaches

Shallow excavations were made in front of all entrances to the penitentiary to ascertain whether or not such features as walkways, steps and roofed porches were associated with them (Fig. 62). Although Priess had excavated the areas in front of the western and northern entrances in 1968, finding a walkway approaching the western entrance (1969: 26, 35, Fig. 9), both the areas were re-excavated. Like Priess, we found nothing associated with the northern entrance and located a stone-lined, gravel walkway leading to the western entrance and a stone door step at the entrance. A shallow, stone-rimmed opening near the southeastern corner of the door step may have been a support for some type of narrow pole. The pole may have stood alone or been associated with an as yet unidentified feature. No similar feature appeared on the other side of the door step or walkway.

Although excavation in front of the blocked entrance on the western side of the southern wall produced nothing, the area in front of the entrance on the eastern side of the southern

wall was more promising. Before excavating the latter area, a set of concrete steps and a number of limestone slabs leading to the entrance, both Motor Country Club period additions (Henry Sprong, personal communication), were removed. Shallow excavations revealed a flagstone footing of undetermined age.

The Interior: The Ground Floor Flooring,
Joists, Associated Features and Artifacts

On the ground floor of the penitentiary, all preserved flooring and floor joists and an east-west oriented masonry feature immediately south of the central foundation wall were excavated. Other than the masonry feature and the subterranean prison cell complex in the northwestern corner of the structure (the latter is described separately), no excavation was made below joist level.

Prior to the summer of 1971, most of the fairly recent concrete floor in the penitentiary was removed to expose the earth-covered remains of an early historic floor and joists. The excavation of these features was possible in 1971 only because the original, two-man crew was increased considerably and a dump truck and an electricity-powered conveyor belt used to facilitate removing backfill.

Enough remained of the floor to permit reasonably accurate reconstruction. It was formed by planks of varying widths (7 in. to 10 in.) and thicknesses (1-1/8 in. to 1-1/4 in.). Some planks were nailed so the joints were aligned and others nailed so the joints were staggered (Figs. 6-8, 12, 63). The nails, both cut and hand-wrought, were approximately 3-1/4 in. long.

The joists were probably shaped by broad axe and varied greatly in size: from 4 in. to 8 in. thick. Some appeared massive, especially considering that their only task was to support the flooring and whatever the floor supported. Bark was still attached to the bottom of some joists (Figs. 5-7, 10, 12, 63).

Although very few joist fragments were noted inside the joist sockets on the northern and southern sides of the building, it is inferred that the sockets originally did support joist ends. Some of the sockets along the northern wall were plugged with concrete (Figs. 11-12, 63).

Although none of the excavated joists crossed the central foundation, some joists very probably did overlap it at one time. The lack of confirming data may be due to work done during the Motor Country Club period when the rotted bases of the uprights supporting the second floor of the building were reinforced with poured concrete pads and a concrete floor was poured (Figs. 5, 63). At the same time, the workers may have excavated along the top of the central foundation to check it for weaknesses and removed any joist remains on its surface. The mortar cap may have been added to the top of the central foundation then, but this cannot be proven with the available data.

In a few cases, joist fragments on opposite sides of the central foundation were aligned which suggests that originally a joist very probably ran from a socket on the southern side

of the building to just past the northern side of the central foundation and joists on either side of it would have run from just south of the central foundation to sockets in the northern wall. At times the joists were so closely spaced and so badly deteriorated that ascertaining where one side began and the other ended was almost impossible. This was particularly so over the subterranean cells in the northwestern corner of the penitentiary. (See pp. 41-5 for a description of the joists over the cells.) Rotting also considerably affected determining the original thicknesses, widths, lengths and elevations of the joists. However, they were originally high enough above the lightly powdered black soil to permit an air space beneath the floor. Ventilation slots connected the air space with the exterior.

Excavation in the northeastern corner of the penitentiary interior did not reveal flooring or joists. The area was characterized by fine gravel fill, joist fragments and recent garbage. According to park staff, this area was the site of a relatively recent cellar which had been filled and covered by a cement floor, probably during the Motor Country Club period (Henry Sprong, personal communication).

Various specialized items which Chism suggested (personal communication) were roofing components were also uncovered (Figs. 9-11, 63a, b). They appeared to be more recent than the joists if their relatively good state of preservation can be considered indicative of comparative age. One

component was located under a joist, but this might have occurred after the joist had become so rotten that a better preserved piece of wood could easily have been forced under it. Several other components, a morticed block and several tenoned beams, were found on both sides of the central foundation. How they came to be there is not known, but they may have been placed where excavated after the floor and joists began to rot, possibly in an attempt to shore the deteriorating floor. Chism suggested that some of the components closely resembled items he had excavated at the blacksmith's shop and conjectured that they might have been brought from there (Chism, personal communication). A fragment of a roof shingle was also excavated and recorded in the same area and this strengthens Chism's suggested identification of the original use of the block and beams.

A rectangular item formed of planks is an enigmatic feature. It was found abutting the southern side of the central foundation wall (Figs. 63f, 64f). Sheet metal, 1/32 in. thick and covered with four coats of paint, was attached to its underside and three edges by 1-1/8 in. "modern" nails. Three boards formed an H on its upper surface, secured by 3 in. "common (modern)" nails. Nothing definitely suggests its use. Its smallness (3 ft. 9 in. long by 1.0 ft. 6½ in. wide by 1½ in. to 1-5/8 in. thick) and lack of knob or hinges would indicate that it was not formed or used as a door. It may have been used fairly recently as a platform for an icebox or a stove.

During the afternoon of the last day of the season, a double-faced, east-west oriented masonry wall resembling a foundation was encountered on the western side of the penitentiary interior, 2 ft. 3 in. south of the central foundation wall and 1.0 ft. 6 in. lower than the foundation wall. It was 2 ft. 5 in. wide. Large stones mixed with mortar were located south of it, but nothing indicated what their specific use may have been. Efforts to locate another part of the same feature near the eastern wall revealed only its north face, 1.0 ft. 9 in. south of and 2 ft. 8 in. lower than the central foundation wall. Insufficient time was available to define it further. A shallow excavation was made near the centre of the penitentiary interior, but no corresponding part of the feature was encountered there although this was probably only due to a lack of excavation.

Several artifacts were uncovered during the excavation of the floor and joists (Figs. 11-12, 63). Among the most interesting were numerous bottles including the rye whisky bottles located on the western side of the northeastern section of the building. A bucket, lying on its side, contained two of these bottles and a third lay immediately in front of it. Another bucket, in an upright position, was empty. Most of the bottles dated from the 1940s. People who had worked at the fort during the Motor Country Club period informed me that there had been a kitchen in this section of the building during the early 1940s. It would

appear that a dipsomaniac, possibly employed in the kitchen, hid his or her bottles under the floor and between the joists. The bottles were probably lost to their owner when the concrete floor was poured over the hiding place.

The number and type of artifacts recovered from between the joists were generally disappointing. It was anticipated that many prohibited or treasured objects might have been hidden and left under the floor during the time the structure served as a penitentiary and a mental hospital, a technique used in modern institutions of this type. If inmates or patients had hidden anything under the floor, the items were presumably recovered with the possible exception of the late containers for alcoholic beverages. However, more objects may be located beneath the joists.

The Interior: The Subterranean Cells

The major single undertaking of the 1971 field season was the excavation and recording of the four, subterranean, vaulted cells and an associated passageway in the northwestern corner of the penitentiary. The complex had been built in 1873 (Goldring 1970: 9), possibly at the same time as the stairs between the ground and first floors were moved from the centre of the penitentiary to against its western wall.

The complex was formed in an opening dug into the soil below ground level. Whether the soil was removed before or after the decision to build the cells was made is a moot point. However, the northern foundation wall of the penitentiary (which formed the northern wall of the complex) was a bearing wall constructed before the cells, not an apron wall constructed at the same time, and had begun to buckle toward the south before the cells were formed. It had evidently begun to heave in the area where the eastern wall of the complex was later built. A low, brick support, one or two bricks long, was laid abutting the eastern wall of the complex and under the place where the northern foundation wall bulged. In this way the hollow the buckling foundation wall formed near floor level was filled in, giving the wall a modicum of support and at least the appearance of structural stability (Fig. 13). This suggests that before the formation

of the complex nothing may have been south of the foundation wall to impede its movement in that direction.

In 1971 the complex was in very poor structural condition. The lower sections of the northern and western stone foundation walls associated with the cells were generally in worse condition and therefore less stable than the upper sections; the lime had almost leached out of what little remained of the mortar in them and most of the spalls had fallen from place. This prohibited excavating to determine their depths. The base of the northern foundation wall protruded not only near the eastern wall of the complex, but also in front of cells 1 and 2 (Figs. 20-21). (The cells are numbered 1 to 4 from west to east.) The double-brick floor abutting it helped keep other sections of its base in place. Its general bearing capacity is still fair although it may not withstand further probing. The western foundation wall also bulged considerably. The resulting pressure had damaged cell 1: part of its western wall, almost all of its rear wall and the forward section of its vault had collapsed (Figs. 15, 19-24, 66). Sections of the brickwork appeared to be stable, but the mortar had lost all binding power and the entire complex was bent out of shape. The brick eastern wall of the complex was only a few courses high at the front wall of cell 4 due to pre-excavation collapse. Almost three feet of water lay in the cells, but repeated pumping for several days removed it and continuous pumping was not necessary to keep the floor relatively free of water thereafter. The field situation was potentially dangerous and

the complete excavation of the cells was made possible only by the excavators' determination and considerable amounts of shoring.

Except for the northern wall of the complex which was the stone masonry northern foundation wall of the penitentiary, all cell and passageway walls were brick. The westernmost limit of the complex, formed by the western wall of the passageway and the western wall of cell 1, abutted the stone masonry, western foundation wall; the rear wall of the cells abutted the shallow, stone masonry, central foundation wall and the clay below it; and the easternmost limit of the complex, formed by the eastern wall of cell 4 and the eastern wall of the passageway, abutted the earthen, eastern face of the original excavation.

The double-brick floor of the cells and passageway was laid before the walls were raised. Although only a small opening was made through the floor of cell 3 (to form a sump), both of the two layers of the handmade bricks forming the floor were observed to run east to west (Figs. 35, 65, 67).

After the floor was laid, the cell walls, including the rear wall of the complex and the end walls of the passageway, were raised. Each cell was raised at approximately the same rate as the others. The different patterns of brick laying suggest that possibly more than one mason was employed.

The cells were approximately 7 ft. long by 7 ft. high. Three were approximately 3 ft. wide, but cell 1 was 7 in. to

8 in. narrower (Figs. 65-6). Why it was so is difficult to determine: a mason may have set his lines incorrectly; the builders may not have wanted to extend the excavation further east because of the buckling northern foundation wall and were therefore forced to reduce the planned width of one or all cells; or the site of the narrow cell may have originally been intended to be the location of a stairs providing access to the passageway in front of cells 2, 3 and 4, but was developed into a cell with an inhumanly narrow width.

The cell walls were keyed into the rear wall of the complex. The bricks forming the easternmost and westernmost walls of the cell complex were more deeply keyed into the rear wall than the bricks in the other walls parallel to and between them. Of the bricks abutting the rear wall, the stretchers were more deeply keyed than the headers, some of which were not keyed. With few exceptions, the two-brick deep rear wall of the cells was, like the cell floor, formed of east-west oriented bricks. Courses in the 1.0 ft. wide cell walls were often formed by a row of headers backed by a row of stretchers or vice versa (Fig. 65*i*, *j*). Courses of headers backed by stretchers were not alternated with courses of stretchers backed by headers. Sometimes the former pattern occurred in three or four consecutive courses. Some courses were formed by unbonded stretchers laid three deep with aligned cross-joints (Fig. 65*h*).

The front (northern) walls of cells 2, 3 and 4 were 8 in. to 9 in. wide and keyed into the northern end of each cell's eastern wall. All cells' western door jambs abutted their western walls. Cell 1 was so narrow that its eastern door jamb abutted its eastern wall (Figs. 29, 31-2, 66-7).

Where a vault rested on both sides of a cell wall (for example, the western wall of cell 2), the outer wythes of the top course of the wall were bricks specially shaped to serve as the vault spring (Fig. 65f). The centre wythe in that course was formed of non-specialized bricks laid either flat or on edge. The walls forming the eastern and western limits of the cell complex had vault springs only on the sides of the walls that faced the complex interior. The bricks forming the outside and centre wythes of these walls were like those generally used in wall construction because they were not required to support a vault (Fig. 65a).

Once the mason(s) reached the tops of the cell walls and mortared the vault springs into place, they continued the rear wall of the cells upward to just below the top of the central foundation wall. The front walls of the cells may have been built to the same height as the rear wall. At the same time, the builders completed the end walls of the passageway. Data recovered in 1971 supports an inference that the original height of the western wall of the passageway was higher than the western wall of cell 1, reaching approximately the same height as the rear wall of the cells. The eastern

wall of the passageway was also originally higher than the eastern wall of cell 4 and it too reached approximately the same height as the rear wall of the cells. As stated above, a low, brick support under the buckled northern foundation wall abutted the eastern wall.

When the walls of the complex were completed, the builders set curved forms inside the cells as the first step in forming the vaults. The vaults were not keyed into the rear wall of the cells (Figs. 14, 15-19, 65, 67). If the front walls of the cells were as high as the rear wall, the vaults probably would not have been keyed into them either. The vaults of cells 2, 3 and 4 were 19 bricks (laid on edge) across; that of cell 1 was 18 bricks across. The bricks used to form the vaults proper were not specialized.

Several wedge-shaped bricks (Fig. 65e) were found during excavation, but not in situ. The dimensions of the wedge-shaped bricks would have permitted the construction of simple, single-centred arches with 36 in. spans and 9 in. rises (Deryk Jones: personal communication). Such arches would correspond with the forms of the vaults of cells 2, 3 and 4. The same type of arch could have been adjusted to fit the narrower cell 1 by using fewer bricks and more mortar. The arches would have been made of at least two rows of bricks, set on their narrow ends, to correspond to the minimum thickness of the front walls of the cells (one stretcher thick, indicated by imprints of bricks on the

lintel of cell 3). The arches could have been constructed above the lintels to distribute the weight of the front walls above the lintels (and possibly of the joists in the floor over the cell complex) to the front walls on either side of the doorway.

After the arches were formed, the spaces between the lintels and the arches were filled using non-specialized bricks. The imprints on the mortar on top of the lintel of cell 3 indicated that the first course of bricks on it were headers, (Fig. 53) but how the bricks above it were laid is not known. Above the arches, the front walls were possibly built up to the same height as the rear wall of the cells, again using non-specialized bricks. Mortar and partial bricks could have been used to fill the interstices between the regular brickwork of the front wall and the bricks in the arches. After the cells were constructed, the interior walls and the front walls (at least up to the lintels) were plastered.

Because the components of the door frame from cell 3 were preserved best, they are discussed here as the basis of a general description of the entrances to the cells (Figs. 53, 70).

(For a detailed description of the entrance to the cells see pp. 95-110.) A door frame consisted of two jambs, a sill and a lintel. The lintel ends were keyed into the brick on both sides of the doorway. Additional pieces of wood (planted and blind stops and fillers) were attached to the jamb and lintel edges. When the cell door was closed, its eastern edge would probably have rested against the front edge of the planted stop nailed to the inner surface of the eastern jamb and its western edge would probably have rested against the front of the planted stop nailed to the western jamb.

The doors of cells 1 and 2 opened east to west; those to cells 3 and 4 opened west to east. The hinges were positioned accordingly and were attached to the doors by bolts with the nuts on the outside, possibly to prevent the occupants of the cells from removing them. The pintles and eye bolts associated with the large hasps which secured the doors went through the jambs. The nuts which anchored them on the inside were set into the jambs, possibly to make removal difficult for the occupants of the cells.

The data indicates that each cell door had a peephole and peephole door. The rectangular iron bars located during the excavation were probably used in the peepholes, a maximum of two to each peephole, and set into the cell doors. This would indicate that the peepholes were intended to permit observation and communication rather than passage of such items as food, water and possibly chamber pots.

Two small hinges were recovered from the cell complex and another, identical hinge was found in the fill in the northeastern corner of the penitentiary. They were probably associated with the peephole doors. If a fourth hinge were located under the buckled section of the northern foundation wall, the number of these hinges would match the number of cells, cell doors and peephole doors, unless any of the hinges were associated with an overhead entrance to the cells.

The location and size of the peephole on the drawing of the reconstructed cell door (Fig. 68) was inferred from an intact door with a peephole from the Big House and is believed to be a fairly accurate reconstruction. The data for the drawing of the remainder of the door were obtained from the excavation of cells 1 and 4.

Cell 1

The excavation of cell 1 (Figs. 14-15, 19-24, 65-7), was difficult for several reasons. The rear wall of the cell had collapsed into the interior of the cell fairly recently. Its eastern wall was weak, bowed in due to the pressure from the buckling western foundation wall (which protruded approximately 16-3/4 in.) and the buckling northern foundation wall. Only a small section of the vault still stood.

The lintel was not found in situ, but fortunately the jambs, sill and associated hardware were in fairly good condition and permitted as-found recording and photography.

Cell 1 is the only one without a narrow front wall to which the eastern door jamb was nailed. Nor did the part of the brick wall abutting the western jamb have a specialized area to receive the jamb; the area was indistinguishable from the rest of the western wall. (All but the last few courses of most of the western wall had to be removed after being recorded due to the constant threat of collapse.)

The lower part of the door, which opened from east to west, was found relatively intact. It was formed of four planks bolted to the lower hinge. At least one of the planks seemed to have been tongued and grooved (Alex Siepman, personal communication). A cross piece was apparently attached to the bottom of the inside of the door; however, exact recording

of all the details was difficult because of the cramped conditions caused by the bulging northern foundation wall that completely blocked the passageway in front of cell 1.

After excavating, recording and photographing cell 1 was completed, its interior was immediately sandbagged to prevent further collapse.

Cell 2

Cell 2 (Figs. 15-17, 19, 25-9, 40, 65-7) was fairly intact before excavation. Its jambs, sill and hardware were fairly well preserved, permitting in situ recording and photography. However, the front wall of the cell was very misshapen due to the bulging northern foundation wall which had also slightly warped the position of the wooden jambs associated with the cell.

The plan of cell 2 was almost identical to that of cells 3 and 4, but its floor was 2.125 in. to 3.125 in. lower than the floor of cell 3. Like cell 1, its door opened from east to west, but none of the door was found preserved.

A large, roughly squared and faced stone 3 ft. long by 1.0 ft. 2 in. wide by 1.0 ft. high was located in front of the entrance to cell 2 at the approximate level of the large hasp. The stone rested on the top of the bulging portion of the northern foundation wall. It may have once covered a trap door through the flooring above and to the north of the eastern wall of cell 2, having been placed there after

the cells became too dangerous to use, or it may have been part of the fill placed in the passageway after the cells were abandoned.

After cell 2 was excavated, recorded and photographed, its interior was filled with sandbags to prevent further collapse.

Cell 3

Cell 3 (Figs. 15-18, 28, 30-32, 65-7) was little more than a hollow shell in 1971; Priess had removed its door jambs and lintel in 1968. During excavation of the cells, the almost complete vault of cell 3 collapsed soon after what remained of the vaults of cells 1 and 2 collapsed. The drying process all cell masonry underwent steadily weakened the vaults; the mushy mortar shrank and rapidly lost what little holding power it had had when wet. For this reason, the vault of cell 4 was removed after photographing and recording it so excavation could proceed in cells 3 and 4 with less danger.

The eastern wall of cell 4 was under increasing pressure from the drying earth behind it and the shoring in that cell was transferring the pressure to the eastern wall of cell 3. Sandbags were filled and placed in cell 3 to support its eastern wall, but the pressure continued and the eastern wall of cells 3 and 4 collapsed shortly after they were recorded. The black earth and clay face then forming the eastern limit of the complex was quickly shored and the mud, clay and bricks cleared. Excavation continued under less hazardous conditions.

The most important feature found there was a sill, 6 in. to 7 $\frac{1}{4}$ in. wide by 1.0 in. thick.

Cell 4

Although the masonry of cell 4 was the most complete of any of the cells, little remained of its woodwork (Figs. 15, 18, 33-6, 65-7). The remains of a jamb were found on the eastern side of the entrance. The western jamb was not located in 1971, but Priess had located and photographed a fragment of it in 1968 (Fig. 37). Most of the sill was recovered.

The door opened from west to east. The lower part was still intact against the lower hinge. Marks on the inner surface of the lower part of the door indicated that it had been worked with a broad axe or a similar cutting tool. At least the bottom of the door may have been planed in this manner before the door was hung.

The Passageway

The narrow, brick-floored passageway in front of the cells was originally no less than 2 ft., 5 in. wide, the distance between the front walls of the cells and the northern limit of the brick floor. It may have been wide enough to permit the cell doors to open fully; however, the bulging northern foundation wall increasingly restricted the space in the passageway (Figs. 14, 21, 38, 65, 67).

The brick, western wall of the passageway abutted the western foundation wall of the penitentiary; its eastern wall was apparently a solid brick wall abutting the earthen, eastern face of the original excavation; its northern wall was the northern foundation wall of the penitentiary; and its southern wall was the front walls and doorways of the cells. Whether or not the passageway was roofed is a moot point (see pp. 42-3).

The only possible means of access to the cell complex was from above, probably by way of an opening, possibly covered by a trap door, in whatever formed the ceiling of the passageway and a ladder as Priess inferred (1969: 39). The opening would have been located at a central point above and to the north of the eastern wall of cell 2. The two doors west of that area opened east to west and the two to the east opened west to east to facilitate entry to the cells from the central point.

The Interior: The Floor, Joists, Features and
Artifacts Associated with the Subterranean Cells

Whether the broad-axed joists with sawn butts excavated in this area were from the original construction or whether they were new is not known (Figs. 10, 39-44, 63, 69). If their relatively good state of preservation in comparison to joists uncovered elsewhere in the penitentiary is indicative of age, they may post-date the construction of the building, possibly being coeval with the cells.

An outstanding feature of the joists over the cells was their quantity; they almost formed a floor in themselves. Some joists seemed to have once crossed the central foundation wall in a pattern like that of the other joists associated with the penitentiary.

A feature associated with the joists over the cells was fragments of an east-west oriented sleeper located above the front wall of the cells (Fig. 69a). How far the sleeper extended to the east or west is not known, but its ends possibly rested on something solid enough to support the north-south oriented joists resting on it.

A similar beam had been encountered during the 1968 excavations. However, since it appeared to have been considerably shifted out of position by the collapse of the cell walls, it was removed and not considered for the report of the excavations. A beam probably did rest on the top of the front wall of the cells and supported the floor joists.

None of the north-south oriented joists extended north beyond the front walls of the cells. Although this may have been part of the original floor plan, the joists may have been cut or destroyed at this point some time after the complex was built. Priess reported no joists in this area during the 1968 excavations. When the cells were uncovered then, the area of the passageway had collapsed to the level of the lintels or below and consequently any joists in this area were lost.

If the joist sockets on the western side of the northern foundation wall of the penitentiary were filled before or coeval with the construction of the cells, the joists could have extended to the east-west sleeper above the front wall of the cells and the sleeper could have supported the butts of the joists. In this case, the entire passageway in front of the cells would have had no ceiling nor flooring above it and the large stone found in front of cell 2 would have been rolled into the opening in front of the cells as fill for safety, if not for architectural stability, when the cells began to collapse.

The gravel found on the joists and as fill in much of the cells had probably been spread to provide a base on which to pour the concrete floor. Since the gravel did not fill the cells entirely, and in some instances very slightly, the area over the passageway must have been closed at least in part when the concrete was poured. Later, the floors deteriorated and collapsed, allowing the gravel to run into the cells and passageway leaving a large gap between the top of the gravel and the concrete floor. When the cells were uncovered in 1968, the concrete floor still rested on the gravel in the area of cells 3 and 4, but otherwise it was unsupported between the northern and central foundation walls.

Several joists appeared to have been cut short in the area east of the centre of the cell complex, but nothing suggests why (Fig. 41). A window hasp and several other

metal artifacts not directly associated with the cells were located there.

Although several nails were found in the joists over the cells, no floor material was preserved in situ. The bark Priess thought might have been intended as insulation, sticks of firewood, quantities of coal and some rotten newspapers were located between and over the joists, attesting to the late historic use of this area, as elsewhere in the penitentiary, to store combustible material.

When the vault over cell 1 partially collapsed, much material from the floor above fell into it. Rolls of used electrical wiring and other electrical equipment found within the cell indicate that the collapse occurred relatively recently. Tin cans, barrel parts, a pie plate and various other articles were also found. The great quantities of pane glass uncovered throughout the excavation may be evidence of the use of this area to cut glass for the many windows in the fort. What appeared to be scraps left by shoemakers were also found; another example of activities that took place in this section of the building (Goldring 1970: 29, 31).

In 1946 a concrete floor was poured in all but the northwestern corner of the penitentiary as part of a remodelling project undertaken by the Motor Country Club. At this time the room in the northwestern corner was used to store coal and the existing wooden floor was retained.

Continued rotting of the joists and flooring over the complex and the partial collapse of the floor and the vaults over cells 1 and 2 prompted the club to cover the wooden floor and level the area with gravel and to pour a concrete floor some time in the late 1940s. This was done after an east-west oriented, cast iron drain was laid over the joists above the cells and through the western wall of the structure (Henry Sprong: Personal communication; Fig. 14). Only in the northwestern corner of the building was the concrete floor reinforced with construction steel.

Deterioration of the floor and joists may have exposed the joist sockets in the northern foundation wall above the complex. If this were so, the sockets could have been filled with concrete when the floor was poured.

Conclusions

The penitentiary floor was formed of extremely large joists which were covered with planks in such a manner that its builders seemed to have intended it to last for a considerable time. Nothing indicating the presence of room dividers remained nor were any recognizable, personal restraining devices such as leg irons found; however, these might be found in the privy associated with the structure.

The data suggest that the joists above the cells extended over the passageway in front of the cells. If the joist sockets above the passageway in the northern foundation wall were blocked prior to or coeval with the construction of the cells, the joists above the cells would have only reached to the east-west oriented sleeper above the front walls of the cells. However, the sockets were probably blocked after the cells were abandoned and the joists probably extended past the sleeper and into the sockets in the penitentiary wall. If the latter were so, the joists over the passageway would have supported a floor in which a centrally located opening and trap door provided access to the passageway in the cell complex.

The subterranean cells associated with the penitentiary-asylum are testimony of man's inhumanity to the less fortunate members of his society who are burdened by the overlapping problems of criminal behaviour and mental disorder. The

most common remark by people visiting the excavation was "If someone wasn't crazy when he was put in one of those cells, he certainly would be before he was let out." The importance of the cells as confining devices is far surpassed by the opportunity they provide to draw the public's attention to both historic and current conditions in penitentiaries and mental asylums and to attitudes toward occupants of such institutions.

If the cells are to be reconstructed and used for interpretation purposes, the northern, western and central foundation walls of the penitentiary must be taken down and reconstructed where associated with the cells. This has to be done not only because they are structurally inadequate, but also because the northern and western foundation walls intrude on the areas originally designated for the cell complex.

THE HARDWARE, DOORS AND DOOR FRAMES

FROM THE SUBTERRANEAN CELLS

The artifacts provided the basis for an extensive and detailed interpretation of the construction of the doors and door frames of the cells, including the probable presence in each door of a peephole and peephole door. In general, each cell door had two strap hinges hung on bolted pintles, a hasp and two bolted eyes for securing it, a hasp and two staples for securing the peephole door, and two vertical bars across the peephole. The hasp for each cell door was probably supported by a bracket. There is no direct evidence for any form of lock having been used with either type of hasp although some form of padlock would be the most likely lock, nor is there any evidence for a grasp or handle for either type of door if, in fact, such features ever existed.

Hardware: Function and Form

In the following presentation, the hardware has been divided into groups based on differences in function which have been further divided, when such division is possible, into consecutively numbered variations on the basis of differences in form and manufacture.

Hinges

The cell door hinges are relatively simple, single straps hung on bolted pintles. Due to a slight difference in form, two variations have been defined, one used for the doors to cells 1 and 2 and the other for the doors to cells 3 and 4. A third variation of hinge was used for the peephole door. It was of cast iron with butting sides, commonly referred to as a "butt" hinge.

Variation 1 (for examples see Figs. 49a, i; 50a, i)

Material: iron, probably wrought iron

Manufacture: hand-forged

Stock: rectangular bar; cross-section approximately 1 13/16 in. by 1/2 in. One hinge has an unidentified mark on its back (Fig. 54) which may be a manufacturer's stock mark.

Form: single strap; offset (used with a pintle); basically unaltered stock for the main portion. It is generally not tapered nor thinned although it has slight variations in thickness and width, partly due to the manufacture of the fastening holes. The end has been thinned slightly and the edges of the upper surface have been bevelled slightly.

End Finish: corners cut off to form a point

Loop: above midline; stock rolled back, lapped, and forge welded

Fastening Holes: three per hinge; punched.

The metal has been deformed in the process; the metal fibres appear to flow around the holes .

Variation 2

Characteristics of this variation are identical to those of variation 1 except for the end finish (for examples see Figs. 45a, n; 46a, n).

End Finish: The stock appears to have been scored with a chisel and then broken, resulting in a rough end. It has been left in rough condition except for a slight bevelling of the ends on the narrow sides, possibly to reduce the sharpness of the corners.

Variation 3 (Fig. 47e)

Material: iron

Manufacture: cast

Form: butting sides; rectangular; five part

Fastening Holes: four per side; staggered arrangement; countersunk on front

Pintles

The pintles for the cell door hinges are all of the same form. For examples see Figs. 45b, o; 46b, o.

Material: iron, probably wrought iron

Manufacture: hand-forged

Stock: 9/16 in. square shank; pin possibly worked from the same stock

Form: pin and shank; two-piece construction. The end of the shank has been wrapped around the lower end of the pin, lapped, and forge welded. It was presumably also forge welded to the pin in the same process.

Shank: bevelled edges; end worked into an irregular, circular cross-section and threaded

Pin: irregular, circular cross-section; suggesting that it was worked down from non-circular stock, possibly the same stock as the shank.

Bolts

The strap hinges were fastened with bolts.

Variation 1

Material: iron, probably wrought iron

Manufacture: hand-forged or possibly some form of machine manufacture

Stock: circular bar

Form

Head: flat; circular; bevelled edge

(approximating the appearance of a truncated cone)

Shank: circular; square shoulder under the head

Variation 2

The characteristics of this variation are identical with those of variation 1 except for the form of the head.

Head: round; circular

Screws

The butt hinges were fastened with screws.

Material: iron, probably wrought iron

Manufacture: presumably some form of machine manufacture

Form

Head: flat; circular; countersunk; slotted

Shank: circular; untapered; threaded

Point: sharp; threaded

Size

Length: 2 in.

Head Diameter: 1/2 in.

Shank Diameter: 9/32 in.

Hasps

Two variations of hasps are present, one for the cell door and the other for the peephole door. Although they are greatly similar in form, the two variations have been defined on the basis of a great difference in size and a known difference in application.

Variation 1

This variation is also referred to as the large hasp in subsequent discussions. For examples see Figs. 45h, 46h.

Material: iron, probably wrought iron

Manufacture: hand-forged

Stock: rectangular bar; cross-section $1 \frac{25}{32}$ in. by $\frac{1}{2}$ in.

Form

Shank: unaltered stock except for a slight bevelling of the edges on the upper surface

Catch: longitudinal slot; manufactured by punching out both ends and then cutting out the intervening metal, resulting in a slot with irregular sides and ends. Manufacture has resulted in slight spreading of the stock in the area of the catch. The end of the stock, at the catch, has been rounded irregularly or finished in a slight point. In one instance, the end at the catch has been split and shaped into the slot with the ends of the split subsequently lapped and forge welded.

Pivot: circular eye; probably punched (metal has been slightly spread and fibres deformed in the area); end of stock rounded. In one instance the end of the stock has been split and the ends subsequently lapped and forge welded.

Variation 2

This variation is also referred to as the small hasp in subsequent discussions. For examples see Figs. 45d, 46d.

Material: iron, probably wrought iron

Manufacture: hand-forged

Stock: rectangular bar, cross-section 1 1/4 in. by 1/4 in.

Form

Shank: cross-section is that of unaltered stock; bowed area or hump near the pivot end
 Catch: longitudinal slot; manufactured by punching out the ends of the slot and cutting out the intervening metal, resulting in a slight spreading of the stock in the area of the catch and a slot with irregular ends and sides. The end of the stock has been rounded.
 Pivot: circular eye; punched (metal has been spread and fibres deformed in the area). The end of the stock has been rounded.

Eyes

Each cell door hasp pivoted and was caught on a bolted eye.

For examples see Figs. 45i, j; 46i, j.

Material: iron, probably wrought iron

Manufacture: hand-forged

Stock: 9/16 in. square

Form: end bent bar; bolted (used with a nut)

Shank: bevelled edges; one end worked into an irregular, circular cross-section and threaded

Eye: end of shank bent into eye, then lapped and forge welded; teardrop-shaped eye

Staples

Each peephole door hasp pivoted and was caught on a staple.

For examples see Figs. 45e, f; 46e.

Material: iron, probably wrought iron

Manufacture: hand-forged

Stock: possibly circular bar, cross-section 3/8 in.

Form: round; arms worked into a square cross-section, tapered primarily on two sides with a chisel point

Brackets

The cell door hasp apparently had a supporting bracket which maintained it in a horizontal position (see Figs. 45m, 51i).

Material: iron, probably wrought iron

Manufacture: hand-forged

Stock: probably rectangular bar, cross-section 9/16 in. by 5/16 in.

Form: L-shaped, one arm for support and the other for attachment; driven

Support Arm: bevelled inside edge at upper end

Attachment Arm: shoulder on two narrow sides, near bend; tapered primarily on two sides; chisel point

Bars

The bars for the peepholes are all of the same form, being no more than sections cut from a length of stock. For example see Fig. 45g.

Material: iron, probably wrought iron

Manufacture: hand-forged, being no more than a piece of stock which has been scored at approximately regular intervals by a chisel or other, similar tool and broken with the ends left in a rough unfinished state.

Nuts

The nuts used with the bolts, eyes and pintles are all of the same form.

Material: iron, probably wrought iron

Manufacture: possibly some form of machine manufacture

Form: flat; square; corners have been bevelled or rounded on one surface. The hole appears to have been drilled because the metal fibres have not been deformed around the hole.

Washers

The nuts on the eyes and pintles were often used with washers.

Material: iron, presumably wrought iron

Manufacture: possibly some form of machine manufacture

Form: flat; circular

Nails

The doors and door frames were assembled with nails, either cut or wrought. The majority were cut and appear to have been used in all construction except for attaching the cleats to the doors.

Cut

Material: iron, presumably wrought iron

Form

Head: flat; irregular rectangular. Some of the larger examples have a flat, circular panel on top to provide a thicker and, consequently, stronger head.

Shank: rectangular/square to rhomboid; tapered only on two sides

Point: blunt

Length: The majority of examples were left in the wood and, consequently, could not be measured.

Lengths of the loose examples and the few which were taken from the wood were 3 1/8 in., 4 1/16 in., and 5 1/8 in. Those 3 1/8 in. long appear to have

been used for attaching the planted stops and fillers; the others, for attaching the lintels and sills to the jambs and the blind stops to the lintels and jambs.

Wrought

Material: iron, presumably wrought iron

Form

Head: clasp

Shank: rectangular/square; tapered uniformly on all sides

Point: sharp or blunt

Length: Only a few examples were considered, one was 2 7/8 in. long and several were 3 3/8 in. long. In the case of the former, which also had a blunt point, it possibly was longer originally and had a sharp point, but has now lost its clenched end.

The hardware may have been manufactured locally to meet the needs of a specific project. The site had its own blacksmith shop and there were others in the vicinity; however, the quality of the workmanship suggests that the items were not produced by someone familiar with blacksmithing. The hinges of variation 2 are finished very roughly at the ends; some of the strap hinge sockets are irregularly circular; the catch slots in the large hasps are irregular; and the size of the large pieces often varies as much as several inches. Prison labour was possibly, but unverifiably, used to some extent in manufacturing the hardware.

Wood

Seven samples of wood, representing all the different parts of a door and door frame except the lintel, were submitted for identification to Mr. E. Perem, Research Scientist in Wood Anatomy at the Eastern Forest Products Laboratory, Canadian Forestry Service, Ottawa. Of the samples, four were identified as spruce (Picea sp.), one as Eastern white pine (Pinus strobus), one as tamarack (Larix laricina), and one as oak (Quercus sp.) of the white oak group (subgenus Leucobalanus); the last item would probably be bur oak (Quercus macrocarpa) since it is the only oak native to Manitoba (E. Perem, personal communication to B. V. Arthur).

Sizes of the various pieces of wood used in assembling the frames vary from one cell to the next as well as within the same frame. Some pieces were evidently circular-sawn whereas others were straight-sawn (possibly pit-sawn because of the diagonal saw marks). This information in combination with the identification of wood samples suggests that the doors and frames were constructed of a variety of pieces, differing in type and size, available at the time. Differences in width and thickness within the same piece suggests the use of unskilled labour, possibly such as the prisoners themselves could provide.

Description of the Hardware and Wood
from the Doors and Door Frames

The majority of characteristics and dimensions in the following descriptions should be self-explanatory; qualifying statements have been added when these were considered necessary. However, an introductory comment at this point may help to explain how specific dimensions were derived and prevent confusion or questions later. All measurements are in inches although the designation "in." has sometimes been omitted as a matter of economy.

The spacing of the fastening holes on the strap hinges is given as a series of three measurements, the first being the distance from the outside of the loop to the centre of the first hole and the remainder being the distance of one hole from the previous hole, always measured to the centres of the holes. The door thickness listed under the bolts is the distance from the back of the hinge to the lower surface of the bolt head. The estimated maximum width of jamb given for the pintles is the distance from the back of the hinge to the nut, with the pintle inserted into the hinge socket. The maximum possible door thickness given for the pivot staple of the small hasp is the distance from the back of the hasp to the outside of the clenched ends of the staple. Bracket clearance is the distance from the inside of the

support arm to the beginning of the shoulder and should be considered as only a minimum distance since the object need not be driven up to its shoulder. The bracket length through the wood is the distance from the shoulder to the outside of the clenched ends and should be considered as only a maximum since the object need not be driven up to its shoulder. The sequence of dimensions given for a nut are its length, width, and thickness. The width and thickness of the blind stop are measured in the same direction as the corresponding measurements on the jamb and, consequently, the thickness may at times exceed the width.

Cell 1

Hardware

Hinge (Figs. 45a, 46a) (1K41A5-1)

Variation: 2

Location: upper

Swing: outward, east to west

Overall Length: 24 1/2 in.

Comment: The grain of the wood fibres on its back
is perpendicular to the longitudinal axis.

Fastening Holes

Diameter: 15/32 in. - 17/32 in. (irregular)

Spacing: 3 7/8 in. - 8 in. - 11 in.

Bolt

Variation: 1

Quantity: three

	1	2	3
Length:	2 3/4 in.	2 3/4 in.	2 3/4 in.

Diameter:	5/16 in.	5/16 in.	5/16 in.
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Nut:	11/16 sq. x 9/32		
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		5/8 sq. x 1/4	
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			5/8 x 21/32 x 1/4
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Door Thickness:

	1 11/16 in.	1 3/4 in.	1 11/16 in.
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Pintle (Figs. 45b, 46b) (1K41A5-2)

Overall Length: 10 5/16 in.

Pin

Diameter: 5/8 in. (irregular)

Length: 2 5/16 in.

Nut: 1 5/16 in. sq. by 5/8 in.

Washer: 1 5/16 in. diameter.

Estimated Maximum Width of Jamb: 7 15/16 in.

Comment: The pintle was reinforced with a staple, straddling its shank, which was driven horizontally in a vertical plane into the filler or the blind stop 23/32 in. from the hinge.

Staple (Figs. 45c, 46c) (1K41A5-14)

Length: 3 1/8 in.

Inside Width: 11/16 in.

Outside Width: 1 3/8 in.

Hinge (Figs. 45n; 46n) (1K41A5-3)

Variation: 2

Location: lower

Swing: outward, east to west

Overall Length: 23 11/16 in.

Comment: The grain of the wood fibres on its back is perpendicular to the longitudinal axis.

Fastening Holes

Diameter: 7/16 in. - 1/2 in. (irregular)

Spacing: 4 1/16 in. - 7 1/4 in. - 10 3/16 in.

Bolt

Variation: 1

Quantity: two

	1	2
Length:	2 13/16 in.	2 3/4 in.
Diameter:	5/16 in.	5/16 in.
Nut:	21/32 sq. x 9/32	5/8 sq. x 9/32
Door Thickness:	1 25/32 in.	1 25/32 in.

Pintle (Figs. 45o, 46o) (1K41A5-4)

Overall Length: 10 3/8 in.

Pin

Diameter: 5/8 in. (irregular)

Length: 2 3/16 in.

Nut: 1 3/32 in. square by 9/16 in.

Washer: 1 5/16 in. diameter

Estimated Maximum Width of Jamb: 8 in.

Comment: The pintle was reinforced with a staple, straddling its shank, which was driven horizontally in a vertical plane into the filler or blind stop 11/16 in. from the hinge (Figs. 55-6)

Staple (Figs. 45p, 46p) (1K41A5-15)

Length: 3 1/4 in. (approximately)

Inside Width: 13/16 in. (approximately)

Outside Width: 1 1/15 in. (approximately)

Hasp (Figs. 45h, 46h) (1K41A5-5)

Variation: 1

Overall Length: 29 7/16 in.

Maximum Width at Catch End: 2 1/16 in.

Catch Slot

Length: 3 1/8 in.

Width: 3/4 in. (maximum)

Distance from End: 1 in.

Pivot Eye

Diameter: 25/32 in. - 27/32 in. (irregular)

Eye for Pivot (Figs. 45i, 46i)

Overall Length: 10 in.

Inside Diameter: 13/16 in.

Nut: 1 1/8 in. square by 9/16 in.

Washer: 1 1/4 in. diameter

Eye for Catch

Quantity: two

1 (Figs. 45j, 46j) (1K41A5-6)

2 (Figs. 45k, 46k) (1K41A5-7)

Overall Length: 10 1/2 in. 14 7/16 in.

Inside Diameter: 1 in. 1 3/8 in.

Nut: 1 1/16 sq. x 9/16

1 1/16 sq. x 9/16

Comment: Only one of these could have been used for the hasp catch. The first was removed, in the laboratory, from a section of the eastern jamb although the second is also recorded as

having been removed from the eastern jamb during excavation. The wood associated with the first had a shallow depression, approximately $1/4$ in. deep, for the nut.

Bracket (Fig. 45m) (1K41A5-8)

Support Arm

Length: $3 \frac{3}{16}$ in. (measured on the outside)

Clearance: $9/16$ in. (measured to the shoulder)

Attachment Arm

Length: $4 \frac{1}{8}$ in. (measured on the outside)

Length Through Wood: 3 in. (approximately)

Hasp (Figs. 45d, 46d) (1K41A5-9)

Variation: 2

Overall Length: $12 \frac{3}{16}$ in.

Length, Hump to Slot: $6 \frac{9}{16}$ in.

Maximum Width at Catch End: $1 \frac{1}{2}$ in.

Catch Slot

Length: $1 \frac{3}{4}$ in.

Width: $17/32$ in. (maximum)

Distance from End: $9/16$ in.

Pivot Eye

Diameter: $9/16$ in.

Hump

Length: $1 \frac{5}{8}$ in. (measured on the outside)

Height: $13/16$ in. (inside)

Distance from Pivot End: $3 \frac{5}{16}$ in. (to centre)

Staple for Pivot (Figs. 45e, 46e) (1K41A5-10)

Inside Width: $13/16$ in.

Outside Width: $1 \ 7/16$ in.

Maximum Possible Door Thickness: 2 in.

Door Thickness as Measured on Remaining

Wood Fragments: $1 \ 11/16$ in. - $1 \ 13/16$ in.

Comment: The item is still rusted into position on the hasp, indicating that the staple was driven in a horizontal plane on the right side of the peephole door. Its ends are clenched in opposite directions.

Staple (Figs. 45f, 46f) (1K41A5-11)

Overall Length: $3 \ 1/8$ in.

Inside Width: $3/4$ in.

Outside Width: $1 \ 3/8$ in.

Comment: It was possibly used for the catch of hasp variation 2.

Bar (Fig. 45g)

Quantity: two

1 (1K41A5-12) 2 (1K41A5-13)

Overall Length: $10 \ 1/16$ in. $10 \ 1/8$ in.

Wood

Lintel

Overall Length: 32 in.

Width: 6 in.

Thickness: 2 1/2 in.

Comment: A dado was cut near either end of the lintel to fit the upper ends of the jambs.

Distance between Dadoes: 24 in.

Depth of Dadoes: 1/2 in. and 9/16 in.

Comment: The western end of the lintel has an impression of the edge of the planted stop of the western jamb.

Thickness of Planted Stop: 1 1/16 in.

Comment: The lintel was evidently attached to the western jamb with three nails and to the eastern jamb with two nails. The evidence indicates that only two nails attached the blind stop to it.

Sill: Fragments of the sill were recovered, but these are too deteriorated for any significant measurements to be made.

Western Jamb: consists of the jamb with fragments of planted and blind stops

Jamb

Overall Length: 71 3/4 in. (maximum estimate based on reassembly of broken halves)

Width: 5 1/2 in. - 5 5/8 in.

Thickness: 1 15/16 in.

Upper Pintle: 8 3/4 in. from upper end

Lower Pintle: 6 1/4 in. from lower end

Pivot Eye for Hasp: 36 1/2 in. from upper end

Planted Stop

Thickness: 1 1/16 in. (measured on the nails)

Nailing Pattern: a series of pairs of nails, in contrast to most other jambs where the pairs are alternated, in part, with single nails.

Blind Stop

Width: 1 13/16 in. - 1 7/8 in.

Thickness: 2 in. (measurable only at one point)

Comment: It was attached with a total of seven nails, including two set close together near the centre of the jamb, and was set back from the inside surface of the jamb and consequently also projected beyond the outside surface of the jamb. One nail was present for the attachment of the filler.

Thickness of Filler: 7/8 in. (measured on nail)

Eastern Jamb: consists of the lower half of the jamb with fragments of a blind stop and a small fragment of the upper half of the jamb

Jamb

Width: 5 5/8 in. - 5 3/4 in.

Thickness: 2 3/16 in. - 2 3/8 in.

Catch Eye for Hasp: 36 in. from lower end

Comment: No definite evidence is available for the nails which attached it to the sill.

Blind Stop

Width: 1 13/16 in.

Thickness: 2 3/16 in.

Comment: It was set back from the inside surface of the jamb and projected beyond the outside surface. Its lower half is attached with at least four nails and one nail fragment was present for attachment of the filler.

Planted Stop

Nailing Pattern: a series of pairs of nails, similar to the western jamb but in contrast to many other jambs where the pairs alternate with single nails.

Door

Planking: consists of one fragment of the lower end of a door plank with one nail to which a cleat presumably had been attached

Width: 5 inches (remaining; the complete width is not present)

Thickness: 1 11/16 in. (measured on the wood); 1 13/16 in. (measured on nail)

Thickness of Cleat: $7/8$ in. (minimum,
measured on nail)

Comment: The nail for the cleat was
located $8\ 7/8$ in. from the probable
bottom of the door.

Nail: wrought; clasp head; square
shank; blunt point

Cleat: consists of three fragments.

Measurements are generally not possible
because of its deteriorated condition.

Location: recorded as having been 6 in.
from the bottom of the door.

Thickness: 1 in. (approximately)

Thickness of Door: $1\ 3/4$ in. (measured
on nails)

Nail: wrought; clasp head; square
shank; sharp or blunt point

Length: $3\ 3/8$ in. (approximately)

Comment: The nail was driven through
the cleat, then through the door and
clenched.

Cell 2

Hardware

Hinge (Figs. 47a, 48a) (1K41A4-1)

Variation: 2

Location: upper

Swing: outward, east to west

Overall Length: 23 7/8 in.

Comment: The grain of the wood fibres on its
back is perpendicular to the longitudinal axis.

Fastening Holes

Diameter: 7/16 in. - 1/2 in. (irregular)

Spacing: 4 7/16 in. - 7 1/2 in. - 9 13/16 in.

Bolt

Variation: 1

Quantity: two

1 2

Length: 2 3/4 in. 2 3/4 in.

Diameter: 11/32 in. 11/32 in.

Nut: 21/32 sq. x 9/32

11/16 x 21/32 x 9/32

Door Thickness: 1 3/4 in. 1 11/16 in.

Pintle (Figs. 47b, 48b) (1K41A4-2)

Overall Length: 11 1/8 in.

Pin

Diameter: $5/8$ in. (irregular)

Length: $2 \frac{5}{16}$ in.

Nut: $1 \frac{1}{8}$ in. square by $19/32$ in.

Washer: $1 \frac{5}{16}$ in. diameter (approximately)

Estimated Maximum Width of Jamb: $8 \frac{7}{8}$ in.

Hinge (Figs. 47j, 48j) (1K41A4-3)

Variation: 2

Location: lower

Swing: outward, east to west

Overall Length: 24 in.

Comment: The grain of the wood fibres on its back is perpendicular to the longitudinal axis.

Fastening Holes

Diameter: $15/32$ in. - $1/2$ in. (irregular)

Spacing: $4 \frac{9}{16}$ in. - $8 \frac{1}{8}$ in. - $9 \frac{3}{4}$ in.

Bolt

Variation: 1

Quantity: three

	1	2	3
Length:	$2 \frac{23}{32}$ in.	$2 \frac{11}{16}$ in.	$2 \frac{21}{32}$ in.

Diameter:	$5/16$ in.	$5/16$ in.	$5/16$ in.
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Nut:	$5/8$ x $21/32$ x $5/16$		
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		$11/16$ x $21/32$ x $5/16$	
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			$11/16$ sq. x $9/32$
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Door Thickness:

1 11/16 in. 1 9/16 in. 1 21/32 in.

Pintle (Figs. 47k, 48k) (1K41A4-4)

Overall Length: 11 in.

Pin

Diameter: 19/32 in. - 5/8 in. (irregular)

Length: 2 1/8 in.

Nut: 1 1/8 in. square by 19/32 in.

Estimated Maximum Width of Jamb: 8 13/16 in.

Hinge (Fig. 47e)

Variation: 3

Quantity: two

1 (1K41A4-11) 2 (1K41A4-5)

Length: 3 31/32 in. 3 31/32 in.

Width: 2 3/4 (estimated) 2 7/8 in.

Comment: The first hinge has the impressed letters BB on its back. On each hinge are wood fibres on its back and both long edges. All the grain is parallel to the longitudinal axis of the joint.

Hasp (Figs. 47g, 48g) (1K41A4-6)

Variation: 1 (end at catch has been finished with a point)

Overall length: 30 in.

Maximum Width at Catch End: 2 1/16 in.

Catch Slot

Length: $2 \frac{7}{8}$ in.

Width: $\frac{13}{16}$ in. (maximum)

Distance from End: $1 \frac{1}{8}$ in.

Pivot Eye

Diameter: $\frac{27}{32}$ in. (irregular)

Eye for Pivot (Figs. 47h, 48h)

Overall Length: 11 in.

Length Through Jamb: $8 \frac{3}{4}$ in. (wood fibres extend onto curvature of eye)

Inside Diameter: $\frac{7}{8}$ in.

Nut: $1 \frac{3}{32}$ in. square by $\frac{9}{16}$ in.

Eye for Catch (Figs. 47i, 48i) (1K41A4-7)

Overall Length: $11 \frac{7}{8}$ in.

Length Through Jamb: $9 \frac{5}{16}$ in.

Inside Diameter: $1 \frac{1}{16}$ in.

Nut: $1 \frac{3}{32}$ in. square by $\frac{19}{32}$ in.

Hasp (Figs. 47c, 48c) (1K41A4-8)

Variation: 2

Overall Length: $12 \frac{1}{8}$ in.

Length, Hump to Slot: $6 \frac{3}{8}$ in.

Maximum Width at Catch: $1 \frac{19}{32}$ in.

Catch Slot

Length: $1 \frac{13}{16}$ in.

Width: $\frac{9}{16}$ in. (maximum)

Distance from End: $\frac{5}{8}$ in.

Pivot Eye

Diameter: $17/32$ in.

Hump

Length: $1\ 1/2$ in. (measured on the outside)

Height: $3/4$ in. (inside)

Distance from Pivot End: $3\ 9/32$ in. (to centre)

Staple for Pivot (Figs. 47d, 48d) (1K41A4-9)

Inside Width: $13/16$ in.

Outside Width: $1\ 5/16$ in.

Maximum Possible Door Thickness: $1\ 7/8$ in.

Door Thickness as Measured on Remaining Wood
Fragments: $1\ 13/16$ in.

Comment: The remaining wood fibres indicate
that it was driven in a horizontal plane.

The ends are clenched in opposite directions.

Bar (Fig. 47f) (1K41A4-10)

Overall Length: $10\ 3/8$ in.

Comment: Wood fibres appear on each end of the
narrow sides. The grain is parallel to the
longitudinal axis.

Maximum Distance between Wood Remains: 7 in.

Wood

Western Jamb: consists of the jamb with attached
fragments of the blind and planted stops and filler.

Jamb

Overall Length: 71 $\frac{3}{4}$ in. (estimate based on reassembled fragments)

Width: 7 in. - 7 $\frac{1}{2}$ in. (from the lower to the upper end)

Thickness: 1 $\frac{11}{16}$ in. - 1 $\frac{13}{16}$ in. (upper end); 1 $\frac{11}{16}$ in. (lower end)

Upper Pintle: 8 $\frac{1}{4}$ in. from upper end

Lower Pintle: 5 $\frac{7}{8}$ in. from lower end

Pivot Eye for Hasp: 36 $\frac{1}{2}$ in. from upper end

Comment: There was evidence for only one nail at its upper end to attach it to the lintel.

Planted Stop

Thickness: 1 $\frac{1}{16}$ in. (measured on the nails)

Nailing Pattern: a series of pairs of nails alternating with single nails except at the lower end where there is no single nail between the first two pairs of nails. A total of 10 sets of nails (either singly or in pairs) were used.

Comment: The planted stop appears to have been the same width as the jamb.

Blind Stop

Width: 1 $\frac{15}{16}$ in. - 2 $\frac{1}{8}$ in.

Thickness: 1 $\frac{7}{8}$ in.

Comment: Only three nails attached the blind stop to the jamb. Its inside surface is set

back approximately 1/2 in. from the inside surface of the jamb.

Filler

Width: 2 in.

Thickness: 7/8 in. (possibly this does not represent the complete thickness)

Comment: It was attached to the lower half of the blind stop with three nails.

Eastern Jamb: consists of the upper half of the jamb with some attached fragments of the planted stop

Jamb

Width: 7 1/4 in.

Thickness: 1 13/16 in.

Catch Eye for Hasp: 36 in. (approximately) from upper end

Planted Stop

Thickness: 1 1/16 in. (measured on nails)

Nailing Pattern: where discernable, a series of pairs of nails alternating with single nails.

Blind Stop

Width: 1 3/4 in. - 2 in. (measured on nails)

Unidentified Fragment: recorded as having been found at the front of the cell.

Width: 7 1/8 in.

Thickness: 1 3/8 in. - 1 7/16 in.

Comment: There is no evidence of any nails.

Cell 3

Hardware

Hinge (Figs. 49a, 50a) (1K41A3-1)

Variation: 1

Location: upper

Swing: outward, west to east

Overall Length: 25 in.

Fastening Holes

Diameter: $7/16$ in. - $1/2$ in. (irregular)Spacing: $3 \frac{15}{16}$ in. - $8 \frac{3}{8}$ in. - $11 \frac{1}{4}$ in.

Bolt

Variation: 1

Quantity: three

	1	2	3
Length:	$2 \frac{23}{32}$ in.	$2 \frac{27}{32}$ in.	$2 \frac{23}{32}$ in.

Diameter:	$11/32$ in.	$11/32$ in.	$11/32$ in.
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Nut: $11/16$ sq. x $9/32$ $11/16$ sq. x $9/32$ $11/16$ sq. x $5/16$

Door Thickness

	$1 \frac{23}{32}$ in.	$1 \frac{25}{32}$ in.	$1 \frac{25}{32}$ in.
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Pintle (Figs. 49b, 50b) (1K41A3-2)Overall Length: $11 \frac{7}{8}$ in.

Pin

Diameter: $5/8$ in. - $21/32$ in. (irregular)Length: $2 \frac{1}{2}$ in.

Nut: 1 1/8 in. square by 9/16 in.

Washer: 1 7/16 in. diameter

Estimated Maximum Width of Jamb: 9 11/16 in.

Hinge (Figs. 49*i*, 50*i*) (1K41A3-3)

Variation: 1

Location: lower

Swing: outward, west to east

Overall Length: 24 7/8 in.

Fastening Holes

Diameter: 7/16 in. (approximately)

Spacing: 4 1/2 in. - 8 1/2 in. - 10 1/16 in.

Bolt

Variation: 1

Quantity: two

1

2

Length: 2 21/32 in.

2 13/16 in.

Diameter: 11/32 in.

11/32 in.

Nut: 11/16 sq. x 5/15

11/16 sq. x 5/16

Door Thickness: 1 5/8 in.

1 11/16 in.

Pintle (Figs. 49*j*, 50*j*) (1K41A3-4)

Overall Length: 12 5/16 in.

Pin

Diameter: 5/8 in. (irregular)

Length: 2 1/8 in.

Nut: 1 $3/32$ in. square by $1/2$ in.

Washer: 1 $5/16$ in. diameter

Estimated Maximum Width of Jamb: $9 \ 7/8$ in.

Hasp (Figs. 49f, 50f) (1K41A3-5)

Variation: 1 (end at catch finished with a point)

Overall Length: $30 \ 3/8$ in.

Maximum Width at Catch: $2 \ 1/16$ in.

Catch Slot

Length: $2 \ 1/2$ in.

Width: $13/16$ in. (maximum)

Distance from End: $1 \ 1/8$ in.

Pivot Eye: end of stock has been split and then
the ends lapped and forge welded

Inside Diameter: $7/8$ in.

Eye for Pivot (Figs. 49g, 50g)

Overall Length: $11 \ 13/16$ in.

Length Through Jamb: $9 \ 1/4$ in.

Inside Diameter: $27/32$ in.

Nut: $1 \ 1/8$ in. square by $9/16$ in.

Eye for Catch (Figs. 49h, 50h) (1K41A3-6)

Overall Length: $12 \ 3/8$ in.

Inside Diameter: $29/32$ in.

Nut: $1 \ 1/8$ in. square by $19/32$ in.

Hasp (Figs. 49c, 50c) (1K41A3-7)

Variation: 2

Overall Length: $12 \ 1/16$ in.

Length, Hump to Slot: $6 \frac{1}{8}$ in.

Maximum Width At Catch: $1 \frac{1}{2}$ in.

Catch Slot

Length: $1 \frac{13}{16}$ in.

Width: $\frac{1}{2}$ in. (maximum)

Distance from End: $\frac{11}{16}$ in.

Pivot Eye

Diameter: $\frac{15}{32}$ in. - $\frac{1}{2}$ in.

Hump

Length: $1 \frac{5}{8}$ in.

Height: $\frac{13}{16}$ in. (inside)

Distance from Pivot End: $3 \frac{1}{2}$ in. (to centre)

Staple for Pivot (Figs. 49d, 50d) (1K41A3-8)

Inside Width: $\frac{11}{16}$ in.

Outside Width: $1 \frac{3}{8}$ in.

Maximum Possible Door Thickness: $1 \frac{15}{16}$ in.

Door Thickness as Measured on Remaining Wood

Fragments: $1 \frac{3}{4}$ in.

Comment: The remaining wood fibres indicate that it was driven in a horizontal plane. Its ends are clenched in opposite directions.

Bar (Fig. 49e) (1K41A3-9)

Overall Length: 10 in.

Comment: Wood fragments are present at either end.

The grain is parallel to the longitudinal axis.

Maximum Distance between Wood Remains: $6 \frac{1}{8}$ in.

Lintel

Overall Length: 32 1/4 in.

Width: 6 in. (possibly not the complete width)

Thickness: 1 1/4 in. - 1 11/16 in. (from one edge to the other)

Comment: Curved saw marks are still evident on the inside surface. It was dado cut near either end to fit the upper ends of the jambs and attached to each jamb with two nails.

Distance Between Dadoes: 23 3/4 in.

Depth of Dadoes: 1/2 in. and 9/16 in.

Width of Dadoes: 2 in. and 2 3/16 in.

Blind Stop

Width: 1 13/16 in. (measured on the nails)

Comment: It was attached to the lintel by three nails.

Sill: One fragment was recovered, but is too deteriorated to be measured.

Western Jamb: consists of the jamb only

Jamb

Overall Length: 72 1/8 in.

Width: 7 9/16 in. - 7 3/4 in. (measured from one side to the other)

Thickness: 1 3/4 in. - 2 in. (lower to upper end on the front edge); 1 5/8 in. - 2 in. (lower to upper end on the back edge)

Catch Eye for Hasp: 36 1/4 in. from upper end

Comment: There was some evidence of curved saw marks and that three nails attached it to the lintel.

Planted Stop: Information was available only on the basis of the nails on the jamb.

Thickness: 1 1/16 in.

Nailing Pattern: series of pairs of nails alternating with single nails except at the bottom where there is no single nail between the first three pairs of nails

Blind Stop: information is available only on the basis of the nails on the jamb.

Width: 1 7/8 in. - 2 in.

Comment: It was attached to the jamb with three nails.

Eastern Jamb: consists only of the jamb

Jamb

Overall Length: 71 3/4 in.

Width: 7 1/8 in. - 7 1/2 in. (lower to upper end)

Thickness: 1 1/2 in. - 1 13/16 in.

(back to front edge at the upper end);

1 1/4 in. (front edge at the lower end)

Upper Pintle: 8 3/4 in. from upper end

Lower Pintle: 5 1/2 in. from lower end

Pivot Eye for Hasp: 37 in. from upper end

Comment: There is no definite evidence for how it was nailed to the sill or the lintel.

Planted Stop: Information is available only on the basis of the nails on the jamb.

Thickness: 1 1/16 in.

Nailing Pattern: series of pairs of nails alternating with single nails, except possibly at the lower end.

Blind Stop: Information is available only on the basis of the nails on the jamb.

Width: 1 3/4 in. - 1 7/8 in.

Comment: It was attached to the jamb with three nails.

Cell 4

Hardware

Hinge (Figs. 51a, 52a) (1K41A2-1)

Variation: 1

Location: upper

Swing: outward; west to east

Overall length: 25 1/16 in.

Comment: The grain of the wood fibres on its
back is perpendicular to the longitudinal axis.

Fastening Holes

Diameter: 7/16 in. - 15/32 in. (irregular)

Spacing: 3 11/16 in. - 8 1/2 in. - 11 1/4 in.

Bolt

Variation: 1

Quantity: three

	1	2	3
Length:	2 29/32 in.	2 21/32 in.	2 23/32 in.

Diameter:	11/32 in.	5/16 in.	11/32 in.
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Nut:	11/16 sq. x 9/32		
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		21/32 sq. x 1/4	
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			11/16 sq. x 11/32
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Door Thickness:	1 3/4 in.	1 11/16 in.	1 11/16 in.
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Pintle (Figs. 51b, 52b) (1K41A2-2)

Overall Length: 10 1/2 in.

Pin

Diameter: 5/8 in. - 21/32 in. (irregular)

Length: 1 7/8 in.

Nut: 1 3/16 in. square by 1/2 in.

Estimated Maximum Width of Jamb: 8 5/16 in.

Hinge (Figs. 51j, 52j) (1K41A2-3)

Variation: 1

Location: lower

Swing: outward; west to east

Overall Length: 24 5/16 in.

Comment: The grain of the wood fibres on its back is perpendicular to the longitudinal axis.

Fastening Holes

Diameter: 1/2 in. (irregular)

Spacing: 4 9/16 in. - 7 5/8 in. - 10 9/16 in.

Bolt

Variation: 1

Quantity: one

Length: 2 3/4 in.

Diameter: 11/32 in.

Nut: 1/16 in. square by 9/32 in.

Door Thickness: 1 5/8 in.

Variation: 2

Quantity: two

	1	2
Length:	2 21/32 in.	2 21/32 in.
Diameter:	5/32 in.	3/8 in.
Nut:	5/8 sq. x 1/4	25/32 sq. x 11/32

Door Thickness: 1 23/32 in. 1 9/16 in.

Pintle (Figs. 51k, 52k) (1K41A2-4)

Overall Length: 10 5/8 in.

Pin

Diameter: 5/8 in. - 21/32 in. (irregular)

Length: 2 in.

Nut: 1 3/32 in. square by 19/32 in.

Estimated Maximum Width of Jamb: 8 3/8 in.

Hasp (Figs. 51f, 52f) (1K41A2-5)

Variation: 1

Overall Length: 28 1/4 in.

Maximum Width at Catch: 2 1/8 in.

Catch Slot

Length: 2 3/8 in.

Width: 23/32 in. (maximum)

Distance from End: 3/4 in.

Pivot Eye

Inside Diameter: 7/8 in.

Eye for Pivot (Figs. 51a, 52g)

Overall Length: 11 5/16 in.

Length Through Jamb: 7 5/8 in.

Inside Diameter: 13/16 in.

Nut: 1 1/8 in. square by 19/32 in.

Eye for Catch (Figs. 51h, 52h) (1K41A2-6)

Overall Length: 12 in.

Inside Diameter: 15/16 in.

Nut: 1 1/8 in. square by 19/32 in.

Bracket (Fig. 51i) (1K41A2-7)

Support Arm

Length: 3 9/16 in. (measured on the outside)

Clearance: 5/8 in. (measured to the shoulder)

Attachment Arm

Length: 4 5/8 in. (measured on the outside)

Length Through Wood: 3 in. (approximately)

Hasp (Figs. 51c, 52c) (1K41A2-8)

Variation: 2

Overall Length: 12 1/16 in.

Length, Hump to Slot: 6 1/8 in.

Maximum Width at Catch: 1 15/32 in.

Catch Slot

Length: 1 13/16 in.

Width: 1/2 in.

Distance from End: 5/8 in.

Pivot Eye

Diameter: $1/2$ in. - $17/32$ in. (irregular)

Hump

Length: $1 \frac{7}{16}$ in.

Height: $13/16$ in. (inside)

Distance from Pivot End: $3 \frac{1}{2}$ in. (to centre)

Staple for Pivot (Figs. 51d, 52d) (1K41A2-9)

Inside Width: $3/4$ in.

Outside Width: $1 \frac{7}{16}$ in.

Maximum Possible Door Thickness: $1 \frac{15}{16}$ in.

Door Thickness as Measured on Remaining Wood

Fragments: $1 \frac{3}{4}$ in.

Comment: The remaining wood fibres indicate that it was driven in a horizontal plane.

The ends are clenched in opposite directions.

Bar (Fig. 51e)

Quantity: two

1 2 (1K41A2-11)
(1K41A2-10)

Overall Length: $10 \frac{1}{4}$ $10 \frac{3}{16}$

Comment: Both have some wood fibres at either end.

The grain on the narrow sides is parallel to the longitudinal axis. A slight trace of grain is perpendicular to the longitudinal axis on one of the wide sides (Fig. 59).

Maximum Distance Between Wood Remains: $6 \frac{3}{8}$ in.

and $6 \frac{3}{16}$ in.

Wood

Lintel

Overall Length: 29 1/2 in. (probably not the complete original dimension)

Width: 4 3/4 in. (not the complete original dimension)

Thickness: 1 1/16 in. (approximately)

Comment: It was attached to each jamb by at least one nail and dado cut near either end to fit the upper ends of the jambs.

Distance Between Dadoes: 23 7/8 in.

Depth of Dadoes: 7/16 in. - 1/2 in.

Blind Stop: Its presence is known only through the nail fragments in the lintel. It was attached to lintel by at least five nails.

Western Jamb: consists of the upper half of the jamb

Jamb

Width: 7 5/16 in.

Thickness: 1 7/16 in. - 1 1/2 in.

Comment: The saw marks are straight and run across the inside surface at an angle to the longitudinal axis. The lintel was possibly attached by three nails.

Planted Stop: Information is available only on the basis of the nails in the jamb.

Thickness: 1 1/8 in.

Nailing Pattern: series of pairs of nails
alternating with single nails

Blind Stop: Measurement is available only on the
basis of the nails in the jamb.

Width: 1 7/8 in.

Eastern Jamb: consists of the lower half of the jamb
with attached fragments of planted and blind stops
and filler.

Jamb

Width: 6 3/4 in.

Thickness: 1 1/2 in.

Lower Pintle: 7 1/8 in. from lower end.

Comment: An unknown number of nails, only one
of which is evident, attached the sill to the
jamb.

Planted Stop

Thickness: 1 1/16 in. - 1 1/8 in. (measured on
the nails)

Width: 6 1/2 in. (possibly not the complete
original width)

Blind Stop

Width: 1 7/8 in.

Thickness: 1 11/16 in.

Comment: It was set back approximately 1/4 in.
from the inside surface of the jamb. An unknown
number of nails, only one of which is evident,
attached the sills to the jamb.

Filler

Width: 1 9/16 in.

Thickness: 1.0 in.

Comment: It was set back approximately
1/4 in. from the inside surface of the
planted stop.

Unidentified Jamb Fragments

Quantity: two

1 2

Thickness: indeterminate 1 1/2 in.

Width of Blind Stop: 1 15/16 in. 2 in.

Unidentified Fragments

Quantity: three

Thickness: 1 3/8 in.; 1 7/16 in.; 1 7/8 in.

Door: consists of the lower ends of door planks

Quantity: three

1 2 3

Width: 5 7/16 (remaining)

6 3/4 (remaining)

6 15/16 (remaining)

Thickness: 1 11/16 in.

indeterminate

1 5/16 (remaining)

Ground Floor East of the Cell Complex

Hinge (1K41A8-1)

Variation: 3

Dimensions

Length: 3 15/16 in.

Width: 2 3/4 in. (estimated)

Thickness: 1/4 in.

Comment: Wood fibres were present on the back of both sides of the hinge and along both its long edges. All grain is parallel to the longitudinal axis of the joint.

Screw

Variation: 1

Quantity: eight

Comment: The screws were in various states of deterioration.

Interpretation of the Doors and Door Frames

The door frame was composite: the various parts were built of several pieces of wood rather than cut from a single piece. The basic frame consisted of a sill, two jambs and a lintel (Fig. 70). A blind stop (also known as a brick mold) had been attached to the front edge of each jamb and lintel, a planted stop had been attached to the inside surface of each jamb and a filler had been added to the inside surface of each blind stop (Fig. 71). The blind stops appear to have been inset approximately 1/4 in. to 1/2 in. from the inside surfaces of the jambs and consequently projected past the outside surfaces of the jambs. A blind stop can provide a projection which fits into a channel on a wall and holds a jamb in place; however, apparently there were no channels in the cell walls which could receive the blind stops (Fig. 37). The blind stops were attached after the jambs had been set into place and after the walls had been built so they were tight against the wall. The planted stops had been attached to the inside surfaces of the jambs so their front edges were approximately flush. Some of the remaining fragments of the frames suggest that the planted stops were as wide as the jambs. The addition of the blind and planted stops resulted in large rabbets on the jambs. The fillers presumably had been added to the inside surfaces of the blind stops to reduce the size of the rabbets.

Each jamb had been set into a dado in a lintel. The lintels projected beyond the outside surfaces of the jambs. The projecting ends would have been built into the brick wall and would have assisted in holding the frame in position.

The nature of the door frame may appear somewhat awkward, since a similar form could have been achieved by cutting larger timbers to the required shape; however, the frame may have been a practical design for the situation in which it was used. Most of the frame (the jambs, sill, and lintel) was possibly assembled in position before the wall was built around it rather than assembled and then set into position. The blind stops could have been added after the brick walls were built since there were no channels or recesses in the walls into which they would fit. The blind stops were apparently not intended as a means of holding the frames in position on the walls. The planted stops would have been added at the same time and would have resulted in an approximately $1 \frac{5}{16}$ in. to $1 \frac{9}{16}$ in. wide rabbet on each jamb (the thickness of the planted stops, $1 \frac{1}{16}$ in., plus the distance that the blind stops were set back from the surfaces of the jambs, $\frac{1}{4}$ in. to $\frac{1}{2}$ in.). The fillers, $\frac{7}{8}$ in. to 1 in. thick, were then added to the insides of the blind stops, reducing the width of the rabbets to $\frac{7}{16}$ in. to $\frac{11}{16}$ in. The assembly of the frames was followed by drilling the holes for the eyes and pintles.

Some estimates of the size of the door openings can be made. The jambs range from 71 $\frac{3}{4}$ in. to 72 $\frac{1}{8}$ in. long. Approximately $\frac{1}{2}$ in. of each jamb was let into the lintel, leaving a range of 71 $\frac{1}{4}$ in. to 71 $\frac{5}{8}$ in. Since whether the jambs were also let into the sills is not known, the latter range must also be taken as approximating the distances from the sills to the lintels and representing the maximum possible heights of the doors. The actual heights of the doors would have been less to prevent either the sills or the lintels from interferring with them during operation.

The distance between the dadoes at each end of the lintels, ranges from 23 $\frac{3}{4}$ in. to 24 in. and approximates the distance between the inside surfaces of the jambs. This figure, however, does not represent the widths of the doors because of the way in which the blind stops were attached and the addition of the fillers. The blind stops were set back from the surface of each jamb approximately $\frac{1}{4}$ in. to $\frac{1}{2}$ in. and a filler approximately 1.0 in. thick had been added to each stop, resulting in the inside surface of the filler projecting beyond the inside surface of the jamb by approximately $\frac{1}{2}$ in. to $\frac{3}{4}$ in. Since this situation occurs on each jamb, a total of 1 in. to 1 $\frac{1}{2}$ in. has to be subtracted from the distance between the dadoes on any lintel to produce a range of 22 $\frac{1}{4}$ in. to 22 $\frac{1}{2}$ in. as the distances between the fillers on the frames. The latter range also approximates the maximum possible widths of the doors,

assuming that each door extended from one filler to the other.

Apparently little effort had been made to attach the frames to the brickwork outside the projecting lintel ends. The nails used in assembling the frame seldom penetrated the wood and would not have provided additional support of any consequence.

Evidence provided by the fragments of wood adhering to many of the bolts on the hinges as well as to the backs of the hinges themselves indicates that the wood grain of all the doors was vertical. These fragments, as well as others on the staples of the small hasps, did not indicate the presence of more than a single layer of wood although several layers of wood in which all grain ran in the same direction would theoretically be possible.

An estimate of the thickness of the doors can be derived from several features of the hardware. The distance between the back of a hinge and the lower surface of its bolt head would approximate the minimum thickness of the wood. Such measurements range from $1 \frac{9}{16}$ in. to $1 \frac{13}{16}$ in. with the majority between $1 \frac{11}{16}$ in. and $1 \frac{13}{16}$ in. A second estimate is available from the pivot staples associated with the small hasps, to all of which some wood fibres were still attached. All these fibres began at the upper end of the staple, near the lower surface of the hasp. Measurements from the first sign of such wood to the clenched end (because

the latter approximates the inside surface of the door) range from $1 \frac{11}{16}$ in. to $1 \frac{13}{16}$ in. A final indication of the thickness of the doors is the thickness of actual fragments of the doors recovered during excavation. These range from $1 \frac{5}{16}$ in. to $1 \frac{13}{16}$ in. with the majority between $1 \frac{11}{16}$ in. and $1 \frac{13}{16}$ in. The most reliable measurements were those from fragments of the door of cell 1 which ranged from $1 \frac{11}{16}$ in. to $1 \frac{13}{16}$ in. thick. The doors appear to have been about $1 \frac{3}{4}$ in. thick with some variation on either side of that figure. Varying thicknesses of wood like those in the door frames should be expected both within each door and between the four doors.

The original widths of the door planks is not indicated on any hinges nor can it be determined from the recovered door fragments. The maximum remaining width of the planks is $6 \frac{15}{16}$ in. The excavation of the lower portion of the door of cell 1 revealed four planks, only one of which could be removed.

Some evidence is also available for horizontal planks, or cleats, holding the vertical planking of the door together. A fragment of such a cleat was found in situ 6 in. from the bottom of the door of cell 1. There was probably a corresponding cleat near the top of the door and these two could have been sufficient to hold the door together. There is further evidence, of an indirect nature, for a third cleat located approximately in the middle of the door. This

evidence is derived from the presence of two brackets. The shoulder on the attachment arm of a bracket can be taken as approximating one surface of the wood into which it was driven. Its clenched end indicates that it was driven through the wood and approximates the other surface of the wood. The distance between the shoulder and the clenched end of both brackets is 3 in. and represents the maximum thickness of the wood through which the attachment arms would have been driven. If the brackets were, in fact, attached to the door and did support the large hasp, the attachment arm would have been driven through a greater thickness of wood than that estimated for the door planking. The difference in thickness, approximately $1 \frac{1}{4}$ in., could be accounted for by a cleat at this point.

Evidence for the size of the cleats is limited. The one fragment, from cell 1, is from 1.0 in. to $1 \frac{1}{16}$ in. thick. The nail in the fragment of door planking from cell 1 indicates a minimum thickness of $\frac{7}{8}$ in. A thickness of $1 \frac{1}{4}$ in. has already been suggested above although this could be reduced if the bracket were not driven completely to the shoulder of its attachment arm. The cleat fragment from cell 1 cannot be measured for width or length; however, the length of a cleat would have been slightly less than the width of a door to avoid interfering with the door frame as the door was opened and closed.

Each cell door was hung with two strap hinges on pintles. The doors of cells 1 and 2 had hinges of variation 2 and those of cells 3 and 4 had hinges of variation 1, all with the same form of pintle. All doors opened outwards, those of cells 1 and 2 opening to the west and those for cells 3 and 4 to the east.

Each hinge was attached with three bolts, the majority of which were variation 1. These were passed through the door from the inside, the nut applied, and the end spread to prevent removal of the nut. No washers were used with any of these bolts. There was no indication that tightening the nuts had drawn the heads of the bolts into the wood of the door.

The pintle shanks had been passed horizontally through the blind stop and jamb, from the front to the back of the jamb, and secured on the back edge of the jamb with nuts. In most cases, the nuts had been used with washers. The end of each shank had been spread to prevent removal of the nut and in some instances the edge of the jamb had a shallow recess for the nut. A chisel appeared to have been used to form the recess. The recess may have been made to provide additional security, although it would not have been necessary because the ends of the shanks were spread; however, the recess was more probably made to accommodate a pintle which was slightly too short for the jamb.

All the strap hinges were recovered with the pintles still in position, held there by rust. In some instances, fragments of wood were still attached to the hinges and pintles and indicated that during use the pintles had been drawn into the blind stop and jamb until the hinges abutted the blind stop (Figs. 55-6). The hinges would have rubbed on the blind stop during operation of the door.

Additional support had been provided for both hinges from cell 1 by a staple straddling the pintle shank and driven horizontally through the filler and into the blind stop. Such a feature is not present on the other door frames and may have been added at some time subsequent to the original construction.

The locations of the pintles can be measured on most of the jambs and consequently the location of the hinges on the doors can be estimated. The lower pintle was $5 \frac{1}{2}$ in. to $7 \frac{1}{8}$ in. from the bottom of the jamb. Since it is not known whether the jambs were let into the sills, these measurements must also be considered estimates of the distance from the pintle to the sill. The upper pintle was $8 \frac{1}{4}$ in. to $8 \frac{3}{4}$ in. from the upper end of the jamb. Since the upper end of the jamb was let approximately $\frac{1}{2}$ in. into the lintel, the above measurements have to be reduced by that amount to produce a measurement of $7 \frac{3}{4}$ in. to $8 \frac{1}{4}$ in. as the distance from the upper pintle to the inside surface of the lintel. The distance from the longitudinal midline

of the pintle to the longitudinal midline of the hinge was $1 \frac{3}{8}$ in. If this is added to the measurements for the lower pintle and subtracted from the adjusted measurements for the upper pintle, the result is that the horizontal midline of the lower hinge was $6 \frac{7}{8}$ in. to $7 \frac{5}{8}$ in. from the sill and the horizontal midline of the upper hinge was $6 \frac{3}{8}$ in. to $6 \frac{7}{8}$ in. from the lintel.

The relationship of the upper and lower edges of the door to the lintel and sill is not known although a small gap must be assumed to have facilitated operating the door. The relationship of the location of the cleats to that of the hinges is also not known beyond the record that the lower cleat of cell 1 was found 6 in. from the lower edge of the door and that a nail for the lower cleat of the same door was located $8 \frac{7}{8}$ in. from the probable lower edge of the recovered fragment of door planking. Since the heads of the bolts were not covered by any wood, the cleat would have been either above or below them. The measurement of the in situ position of the lower cleat of cell 1 suggests the cleat to be below the bolts whereas the location of the nail in the fragment of door planking suggests it to be above them. Since the location of the nail can be confirmed, the cleat was probably attached above the bolt heads of the lower hinge. The upper cleat may have been attached below the bolt heads of the upper hinge.

Each door was secured by a large hasp that pivoted at one end on an eye and passed over another eye at its other end. The shanks of both eyes were passed horizontally through holes in the blind stop and the jamb and secured on the back edge of the jamb with nuts. The ends of the shanks had been spread to prevent removal of the nuts and washers had often been used. Shallow recesses for the nuts approximately 1/4 in. deep, had been cut in some of the jambs.

The manner in which a hasp was secured is not known although some form of padlock is the most probable means of doing so. No evidence of such items was found during the excavations. They were probably removed when the cells were abandoned.

The two brackets have been interpreted as supports for a large hasp. They would have been driven through the door to support the hasp in a horizontal position. Through such an arrangement, the hasp would have been maintained in a position to pass over the eye at the catch end as the door was being closed and could have been used as a form of grasp for operating the door. On the two examples, the distance from the inside of the support arms to the shoulders of the attachment arms is 9/16 in. and 5/8 in. respectively. This is sufficient space for the hasp.

The existence of a peephole and peephole door within each cell door is inferred from the presence of four small hasps, each with a staple still in its pivot eye, three hinges of variation 3, and six bars. The location and nature of such a feature are not known from the excavations although practical considerations would place it in the upper half of a door, somewhere between the large hasp and upper hinge. Each peephole and peephole door would have had a small hasp, a hinge, and probably two bars.

All three hinges recovered had some fragments of wood adhering to their backs and longitudinal edges (edges parallel to the longitudinal axis of the pin and joint). The wood grain was parallel to the longitudinal axis of the pin. Since one side of each hinge was attached to the planking of the cell door, the longitudinal axis of the pin would have been vertical, parallel to the wood grain of the cell door, and consequently the grain of the peephole door would also have been vertical.

The presence of wood fragments on the longitudinal edges indicates that the hinge was let into the wood rather than being attached on a surface. The hinge could have been attached in one of two ways: either let into the surfaces of the cell door and peephole door or let into the edges of the peephole and of the peephole door. Wood fragments on the back extended approximately to the midline of the hinge, when the hinge is opened flat (Figs. 57-8), and could have been

the result of either method of attachment. However, the most likely location would have been on the edges of the peephole and peephole door so only the hinge joint would be exposed when the peephole door was shut. Even with the hinge attached in this manner, a small portion of the joint would have projected beyond the outside surfaces of the doors and consequently necessitated the hump in the small hasp. A major argument against the hinge being attached to the door surfaces is that this would require thicker wood than indicated by estimates of the thickness of the doors. If the hinge were let into the door surface, the required wood thickness would be the thickness of the hinge plus the length of screw protruding from it, a total of $1 \frac{15}{16}$ in. This estimate is also only a minimum since a door that thick would have the points of the screws at the inside surface of the door which is possible in theory, but less likely in practice. Wood fragments on the screws also indicated that they had been entirely imbedded in the wood rather than having protruding points. Wood fragments on the backs of the hinges suggested that they had been attached with a minimum of the hinge protruding beyond the surface of the doors, which would place the pin approximately in the plane of the outside surfaces of the two doors.

Since the extent of wood on the backs of both halves of each hinge was approximately equal, the outside surfaces of the cell and peephole doors would have been flush.

The small hasp was attached at one end with a staple, extended horizontally across the peephole and passed over a loop, possibly another staple, where it was secured. There is no indication of how it was secured although some form of padlock would be the most probable means of doing so. Wood fragments remaining on all the pivot staples indicated that they had been driven in a horizontal plane. The hasp from cell 1 still had the pivot staple firmly rusted into position, indicating that the hasp had been pivoted on the western side of the peephole door. If the hump of the hasp were associated with the location of the peephole door hinge, this hinge would also be located on the western side of the door. In this case the peephole door and its hasp are pivoted or hinged on the same side as the cell door and possibly this was the case for all doors.

Each small hasp had a hump or bowed area near its pivot end. The only practical explanation of such a feature appears to be that it allowed the hasp to pass over the protruding joint of the hinge for the peephole door while lying relatively close to the surface of the peephole door. Consequently, the midline of the hump can be considered as approximating the longitudinal axis of the hinge pin which also approximates the line between the edges of the peephole and the peephole door.

Most of the bars had some wood fragments attached at both ends, representing the areas in which they had been in

contact with the planking of the cell doors on two sides of the peepholes. The wood was best represented on the narrow sides of the bar and in some instances appeared to represent the edge or end of a plank. The grain of the wood fragments on the narrow sides was parallel to the longitudinal axis. The grain on the wide sides was usually parallel, but occurred only on one wide side per bar. In other words, wood grain parallel to the longitudinal axis of the bar occurred only on three sides of any one bar. On one of the wide sides of one bar was a trace of wood grain perpendicular to the longitudinal axis (Fig. 59). Since the parallel grain was derived from the planking of the doors, the bars would have been vertical. The evidence suggests that the bars were let into the back of the planking of the cell doors until they were flush with the inside surface of the doors. An additional piece of wood was then attached across the ends of the bars in each peephole to hold them in place. The presence of perpendicular grain on the bars indicates that the added planks were horizontal. The plank at the upper end of the bars in each peephole could have been the upper cleat of the door. The plank at the lower end would probably have been a short one since its only purpose would have been to hold the bars in place.

There is no direct evidence for any form of grasp for the peephole door and such a feature may not have existed.

Having the occupant of a cell push the door open when necessary would have been a relatively simple matter. An alternative would have been using a nail as a grasp.

The size of the peepholes can be estimated from some of the data on the hardware. The wood fragments at the ends of the bars have been considered as representing the planking of the cell door on two sides of the peepholes. The distance between these fragments on any bar would then approximate the vertical dimensions of the peephole. These measurements range from $6 \frac{1}{8}$ in. to 7 in. Except for the bar from which the measurement of 7 in. was obtained, the wood fragments end in a relatively straight line, possibly corresponding to the ends of the planks to which they were attached. Consequently, the peepholes were apparently from $6 \frac{1}{8}$ in. to $6 \frac{3}{8}$ in. high. The estimates of the horizontal dimensions of the openings are based on the measurements from the midline of the hump on the hasp, approximately one side of an opening, to the beginning of the catch slot, approximating the other side of an opening. These measurements range from $6 \frac{1}{8}$ in. to $6 \frac{1}{2}$ in.

The peephole door was probably as thick as the cell door. If the hinge were let into the edge of a peephole door, the peephole would have to be $1 \frac{7}{16}$ in. thick to cover the back of the hinge and its longitudinal edge.

If the bars of the peepholes were let into the backs of the cell doors and the peephole doors were as thick as the cell doors, some modification of the peephole doors must have permitted their operation without interfering with the bars. This could have been achieved by cutting two vertical grooves in the back of each peephole door to fit around the bars when the door was closed. Also, the leading edges of the peephole doors would have been bevelled to avoid interfering with the edges of the peepholes.

Conclusions

Each door frame consisted of two jambs, a sill and a lintel. A blind stop and a planted stop had been attached to each jamb and a filler attached to each blind stop.

In general, each door was constructed of four, vertical planks approximately 1 3/4 in. thick and of indeterminate width. Each door was held together by two or possibly three cleats, approximately 1.0 in. to 1 1/4 in. thick, hung with two strap hinges on bolted pintles and secured by a hasp extending across the door from one frame to the other. Each cell door had a peephole with two vertical bars and a peephole door. Each peephole door was hung with a single hinge and secured with a hasp extending from one side of the peephole to the other.

All parts of the doors and door frames were assembled with nails.

All doors opened outward. Those of cells 1 and 2 opened to the west and those of cells 3 and 4 opened to the east.

Although the sizes of the wood and hardware used in the construction of the doors and door frames varied, all available parts of the doors and door frames suggested a similar design. Also, the various pieces of hardware within each variation were manufactured of the same size of stock. The overall impression is of construction within a relatively

standard design, but using materials and labour available at the time.

The artifacts do not provide any additional information as to why cell 1 was narrower than the other three cells. The door frame of cell 1 is of the same design as the other door frames although the jambs are narrower than those in the other frames. The strap hinges of cell 1 are similar to those of the other cell doors and their form is very like that of the strap hinges of cell 2. Therefore, all the cells were probably constructed at the same time.

Re-use of Hardware

The as-found condition of the hardware suggested that much of it could be used in the reconstruction of the cells; however, this impression has been modified with the cleaning of the material. The larger pieces, such as the strap hinges and all the hasps, could be used without difficulty since they were of considerable bulk and lost little of it through rusting. However, they would no longer have their original surface appearance; all the surfaces have some pits and differential rusting has accentuated the laminated nature of the iron, leaving a striated surface. If the appearance of these pieces is not objectionable, they could be re-used on the cell doors.

The remaining hardware presents a greater problem. The cast iron hinges have been pitted and chipped by rusting and, furthermore, have not been brought back to a working condition. The pivot staples for the small hasps and the brackets have clenched ends which probably would not stand up to being straightened, driven and clenched again. The peephole bars could probably be used although they also have pitted and striated surfaces.

The pintles, eyes, and bolts present an additional problem in that their ends had been spread to prevent removal of the nuts. However, a method does exist which would allow these

pieces to be used without requiring the removal of the nuts. Removing the central portion of each shank and discarding it would be possible. The remainder of the shank could be threaded at the cut ends and screwed into a threaded sleeve. In other words, the central portion of each shank is removed and replaced with a threaded sleeve. This procedure would also eliminate the part of the shank most weakened by rusting. The modified pieces could then be assembled within their respective holes in the jambs, completely concealing the replacement sleeves, but leaving the original ends of the pieces exposed to view. The procedure may not be suitable for all bolts because of their extensive rusting. None of the surfaces of the pieces would have their original appearance because of rusting.

Some replacement pieces would also be required for those which either are broken or missing. All the screws for the cast iron hinges have lost their thread or are broken and would require total replacement. Some bolts for the strap hinges are broken and others lost. All the nails would have to be replacements, none of the originals can be re-used because of the high degree of rusting.

THE BREWERY-DISTILLERY-STOREHOUSE

What began as minor work in the brewery-distillery-storehouse developed into a major undertaking partially because previous excavation plans were not available to the 1971 excavator. During the removal of the excavation balks Chism left in 1967, pieces of flooring, many joists and some sleepers were found. A series of well preserved joist sockets, possibly associated with an interior partition wall or the rear (western) foundation wall of the structure, were also uncovered. Believing all these features to be unrecorded, we carefully excavated them. After all that remains of the structure was excavated and recorded, we received a 1967 plan showing not only most of the joists, but also the two layers of flooring attached to them (see also Chism 1972).

However, the present joist plan is more complete than the earlier one (Fig. 72). The 1971 plan also clearly shows the location of the central, north-south oriented sleepers. These sleepers may establish the location of the centre of the floor plan which is incomplete because the eastern side of the structure (which was probably originally at least 30 ft. wide) had been destroyed by erosion.

Another feature uncovered in the interior of the structure in 1971 was an asymmetrical stone hearth located west of the hearth found in 1967. There was insufficient time to examine

the fireplace itself, but surface indications strongly suggested that this had been done previously, possibly during Chism's excavations. Probing the perimeter of the hearth produced liberal quantities of ash.

All artifacts recovered during the excavation of the structure were from the surface. The artifacts included many nails, assorted fragments of hardware and numerous fragments of ceramics and other items such as buttons.

THE MALT BARN-GRIST MILL-SAWMILL

In this excavation, there was little time to do more than remove the balks Chism left in the malt barn-grist mill-sawmill in 1967 (see Chism 1972). Only in the area along the northern edge of the structure were any architectural features located. Here a low, single-faced, stone wall apparently faced the interior of the structure. It had collapsed, but it was originally approximately 18 in. high. Many artifacts were recovered during excavation of the structure.

After work terminated on this structure and the brewery-distillery-storehouse, they were covered with polyethelene. The two excavations were then covered with approximately six inches of sand in an attempt to protect them from further deterioration.

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Goldring, Philip

1970

The Manitoba Penitentiary and Asylum, 1871-1886. Manuscript Report Series, No. 28, National Historic Sites Service, Ottawa.

Ingram, George

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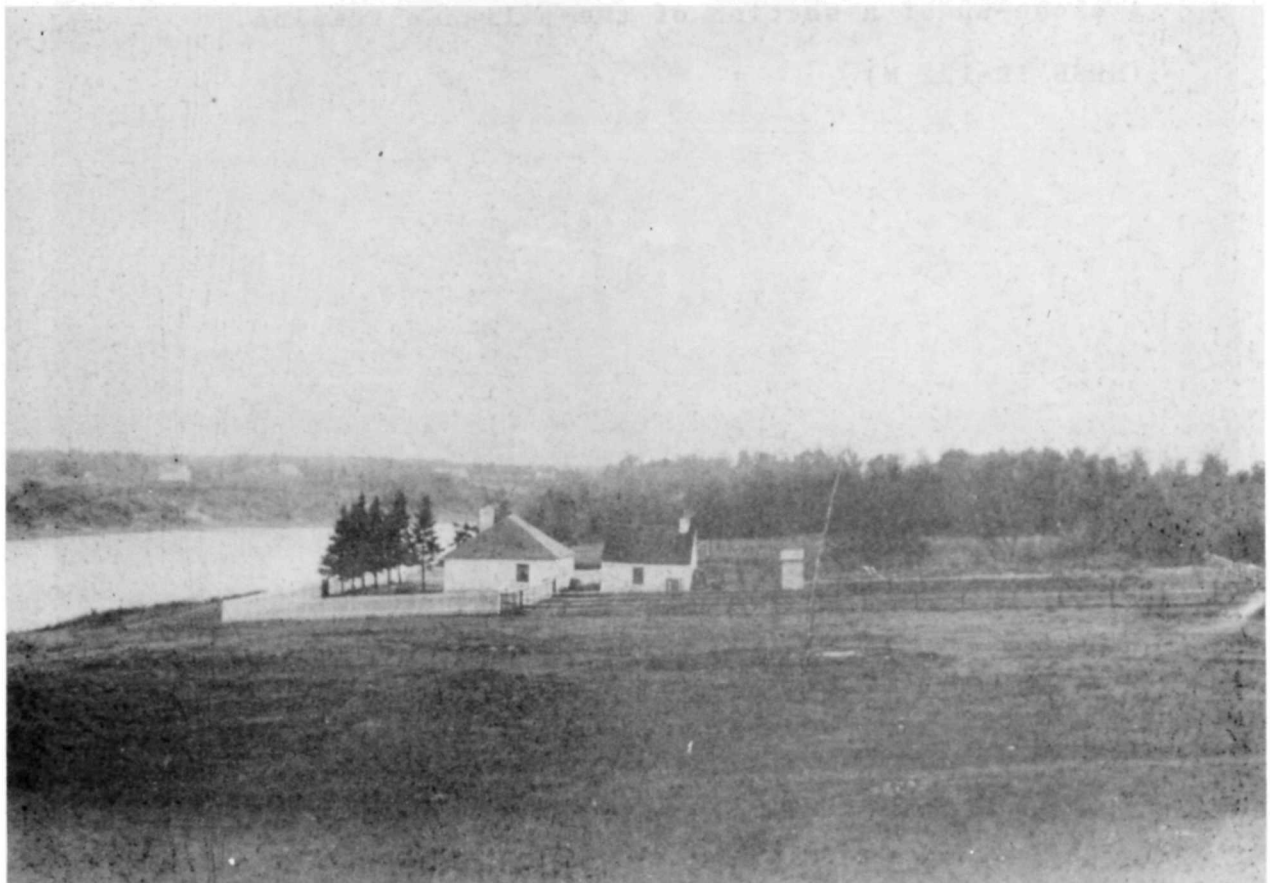
1969

Excavations at Lower Fort Garry (1K) 1968. National Historic
Sites Service, Ottawa.

Steinhauser, Robert

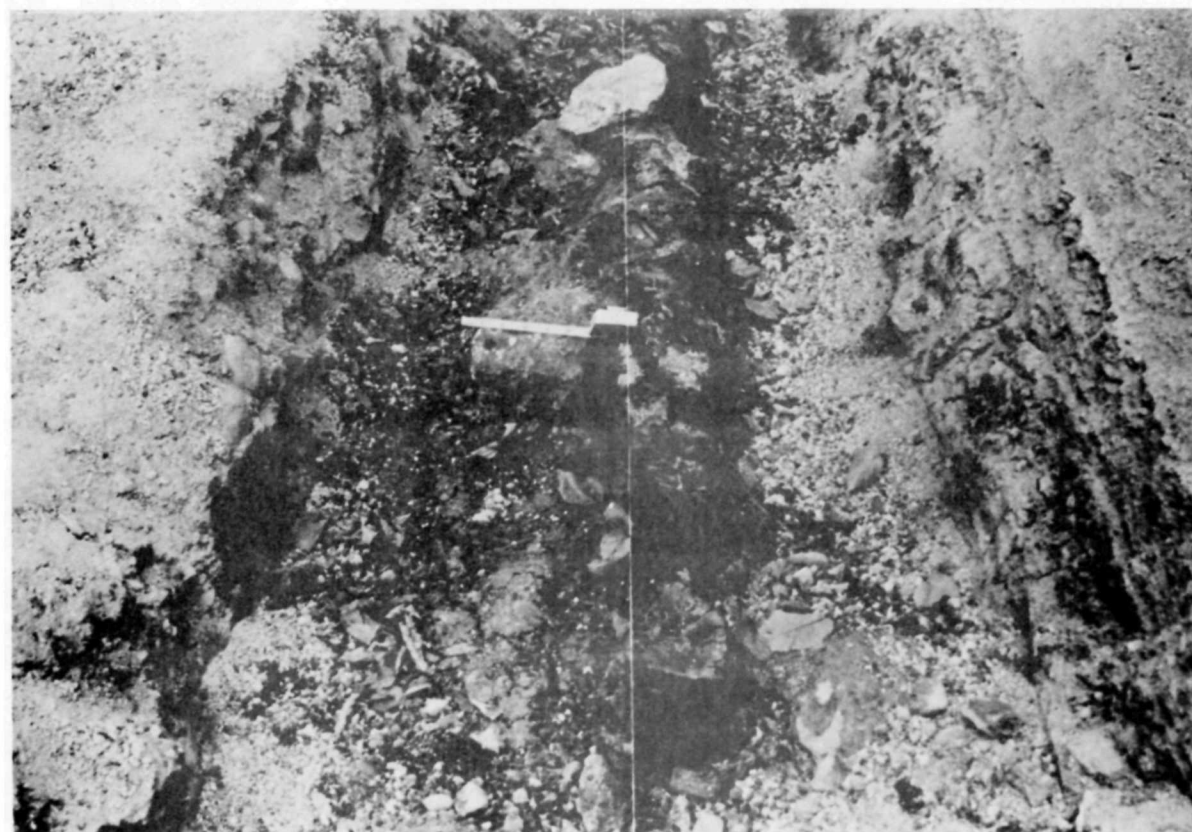
n.d.

Excavation Report: Porch, Engineer's Cottage, Lower Fort
Garry, Manitoba. National Historic Sites Service, Ottawa.



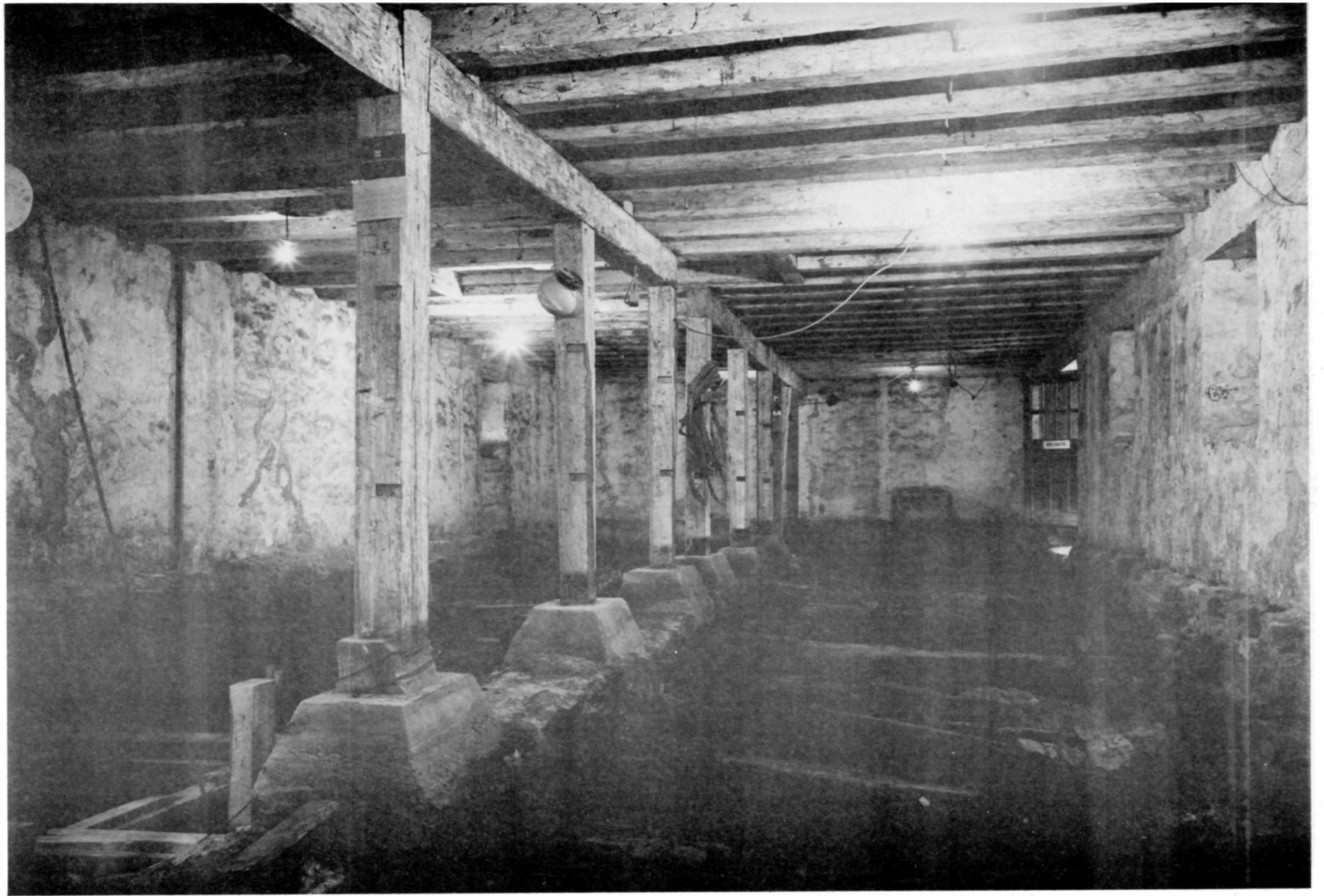
3 The uppermost remains of the base of the palisade on the southern side of the penitentiary as photographed looking east. (NHSS 1K-108 M)

4 A close-up of a section of the palisade remains.
(NHSS 1K-122 M)



5 A section of flooring and associated joists is evident on the lower right of the photograph (looking east) of the penitentiary interior after excavation.

(NHSS 1K-1 L)



6 Some of the joists uncovered on the southern side of the penitentiary and a section of relatively well-preserved flooring (centre right) are shown in this photograph (looking east). A morticed block is visible on the upper right. The uprights supported by the central foundation wall (left) were recently encased in cement.
(NHSS 1K-2 L)



7 Some of the remaining joists on the northern side of the penitentiary were partially covered by preserved sections of flooring. The photograph was taken looking north.

(NHSS 1K-3 L)



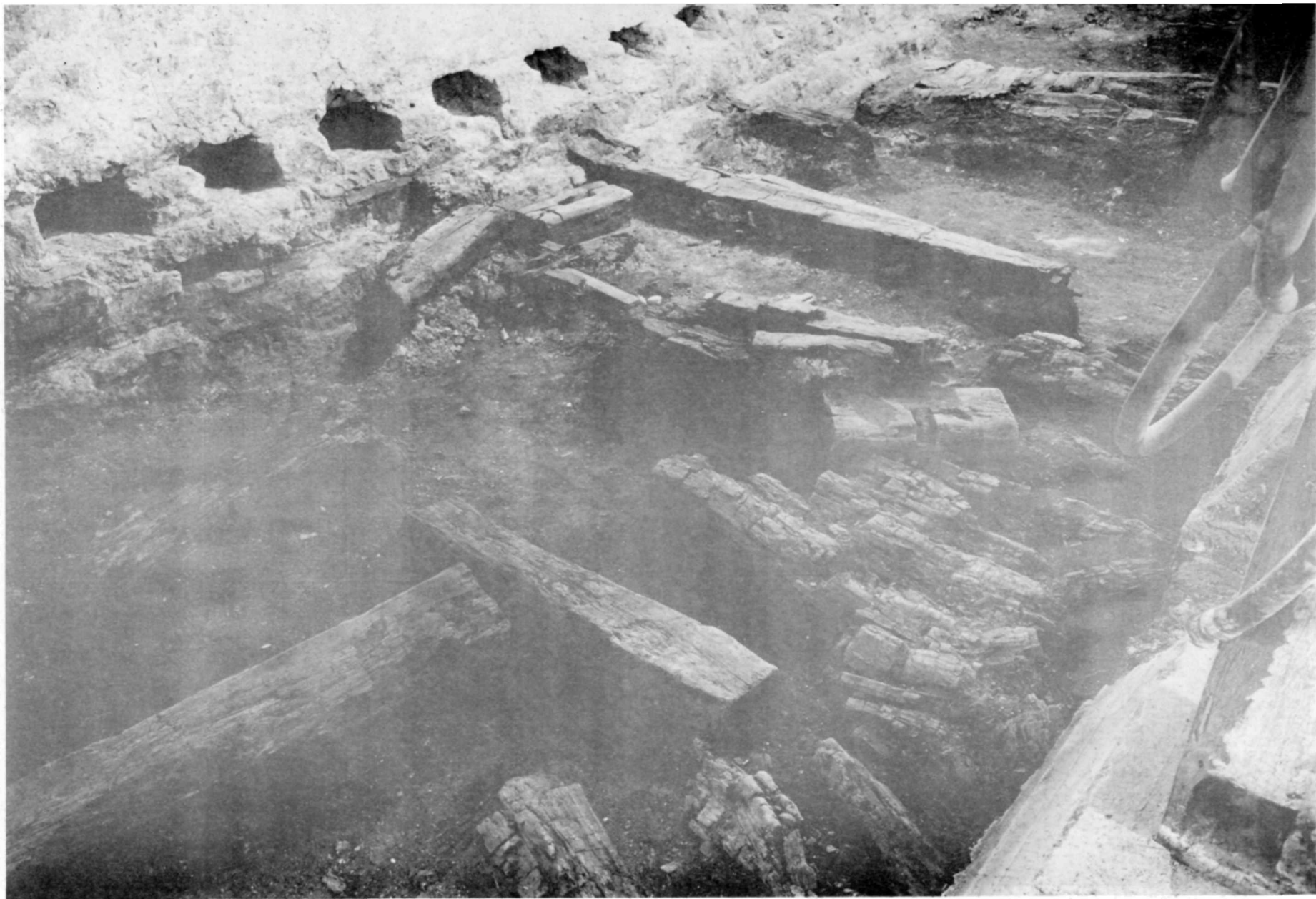
8 A close-up of the preserved flooring on the southern side of the penitentiary shows that most of the plank ends were aligned, not staggered. The openings in the southern foundation wall are joist sockets. (NHSS ~~1K-4~~ L)



9 Four specialized architectural components were found among some of the joists on the southern side of the penitentiary interior. The photograph was taken facing southeast. A morticed block and a tenoned post (upper right) were located near a long shingle fragment. The notched block on the lower left (see Fig. 63b) had apparently been jammed under a rotted joist. (NHSS 1K-5 L)



10 The photograph (looking southwest) of some of the joists in the southern section of the penitentiary also shows the specialized architectural components not normally associated with a floor: the morticed block, tenoned post and shingle fragment (upper centre); the notched block (right centre); the specialized, east-west oriented beam (lower left, see Fig. 63a) and the adjacent, specialized, north-south oriented beam (Figs. 63r, 64r). (NHSS 1K-6 L)



11 Buckets, bottles and a shovel blade were located in the northeastern section of the penitentiary (Fig. 63m, n, l). Specialized architectural components were found immediately northeast of the artifacts. Open joist sockets are visible on the upper centre; adjacent joist sockets to the left have been filled. (NHSS 1K-7 L)



12 The buckets, bottles and shovel blade found in the northeastern section of the penitentiary are shown in this photograph (looking northwest). The remains of flooring (upper centre) and joists are also evident. (NHSS 1K-8 L)



13 The lower part of the bulging section of the northern foundation wall (in front of cell 4) as photographed prior to completion of the excavation. The area is adjacent to the eastern wall of the passageway in the cell complex. (NHSS 1K-160 M)



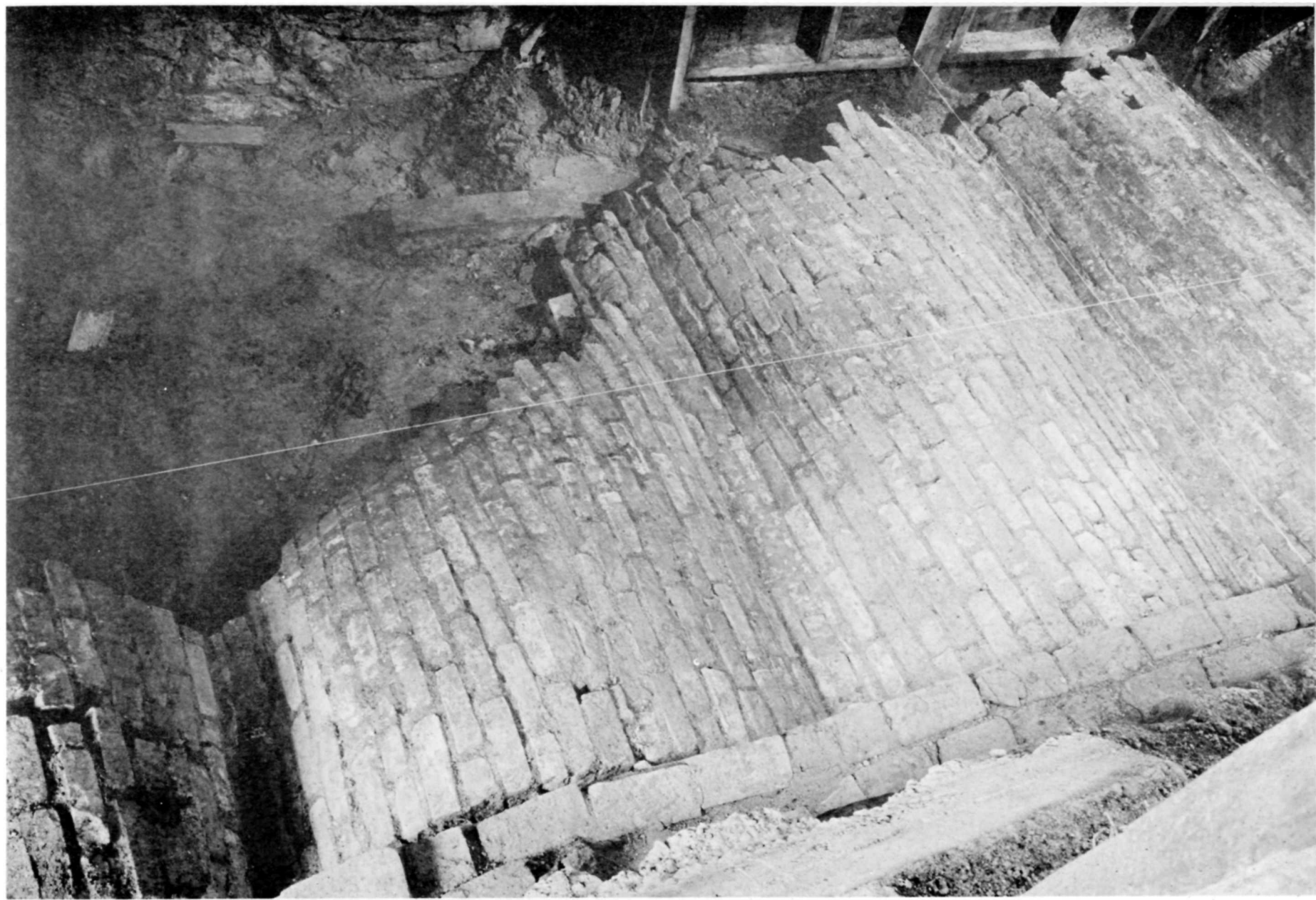
14 The general view of the upper northern end of the western foundation wall also shows the vault of cell 1 (lower left), a later drain (centre) and the highest point of the brick wall (lower right) forming the western end of the passageway in front of the cells. Priess had excavated the brick wall in 1968. (NHSS 1K-127 M)



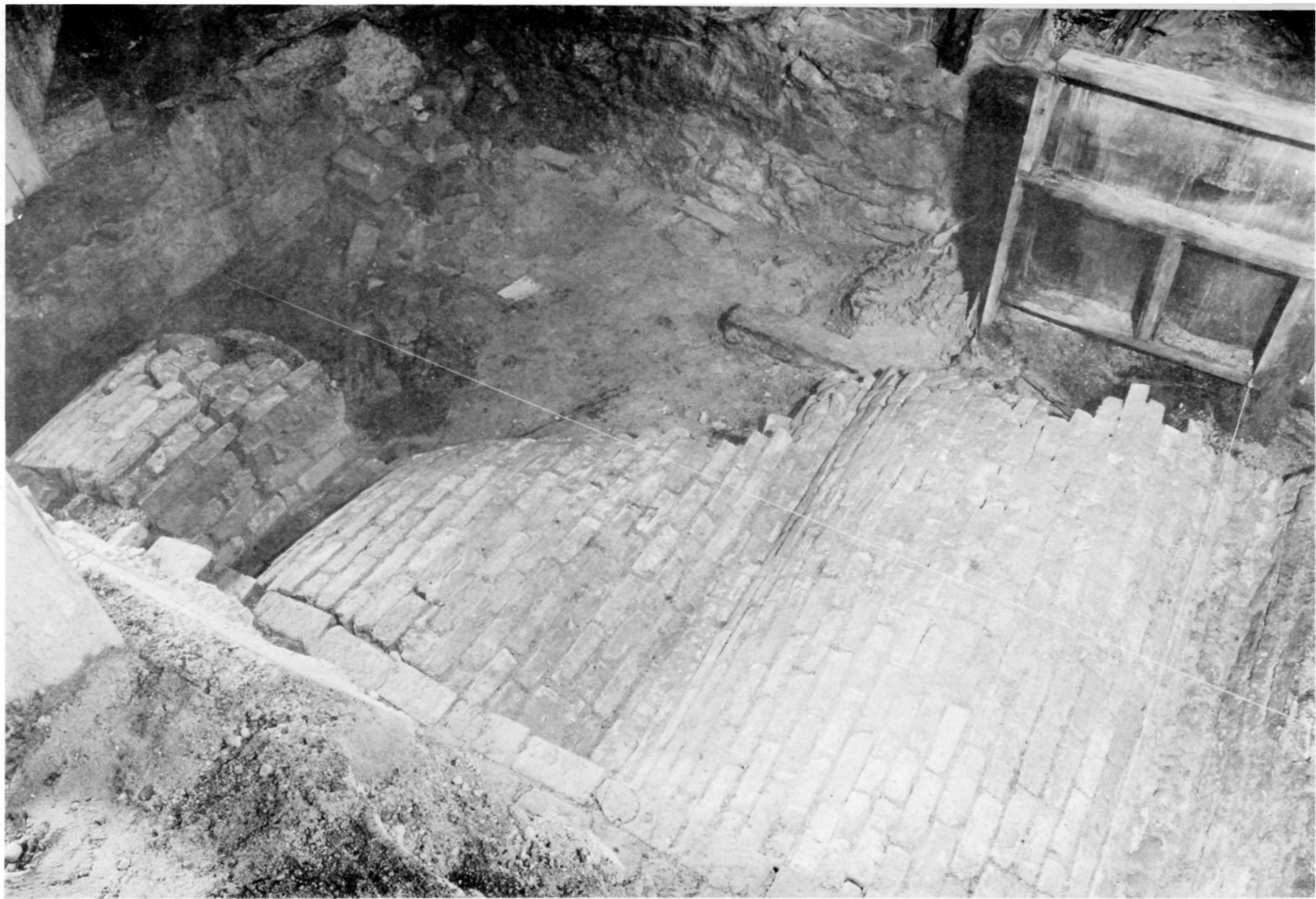
- 15 The vaults of the subterranean cells were photographed (looking west) in 1971. The wooden forms and braces abutting the front walls of cells 3 and 4 were placed there after the 1968 excavation before the area was backfilled with sand. (NHSS 1K-9 L)



16 The top of the rear wall of the cell complex is in the foreground of the photograph of the cell vaults (looking northeast) in 1971. From left to right the cells are 1, 2, 3 and 4. (NHSS 1K-10 L)



17 The cell vaults and the top of the rear wall of the cell complex looking northwest. From left to right the cells are 1, 2, 3 and 4. (NHSS 1K-11 L)



- 18 The top of the eastern wall and the vault of cell 4
(centre) and the vault of cell 3 were relatively intact.
(NHSS 1K-12 L)



19 The unstable condition of the vault of cell 1 (on the right) is evident in the photograph of the vaults of cells 1 and 2 (looking south). The rear wall of cell 1 collapsed before excavation. (NHSS 1K-13 L)



20 The photograph (taken from above) of the jambs at the entrance to cell 1 as uncovered shows how much the heaving foundation walls had altered the original structure. The inner surfaces of the jambs almost touched at the bottom of the doorway. The eyebolt to which the hasp was secured protruded from the eastern jamb. (NHSS 1K-138 M)

21 The photograph of cell 1 (looking north) shows the broken western jamb leaning against the eastern jamb, the remains of the western and eastern walls and the bulging northern and western foundation walls. The lower hinge and remains of the door are barely discernible north of the jambs. (NHSS 1K-135 M)



- 22 The photograph of cell 1 (looking south) after excavation shows its bowed eastern wall (left), the remains of its collapsed rear wall (centre) and the bulging section of the western foundation wall (right). (NHSS 1K-151 M)
- 23 The photograph (looking south) of cell 1 after excavation shows what remained of its collapsed rear wall and western wall which was pushed out by the bulging western foundation wall, partially visible on the right. The bottom of the stone central foundation wall is visible in the upper background between the remaining bricks of the rear wall. (NHSS 1K-134 M)



24 The remains of the collapsed rear wall and dismantled western wall of cell 1 and the bulging section of the western foundation wall are evident in this photograph (looking southwest). (NHSS 1K-114 M)

25 The photograph (looking north) of the entrance to cell 2 shows the inside of the jambs, associated hardware and the sill. A plank (upper centre) had no obvious association with the cell. Part of a large stone (see p. 38) is visible between the jambs immediately below the plank. (NHSS 1K-133 M)



1952-1953
1952-1953

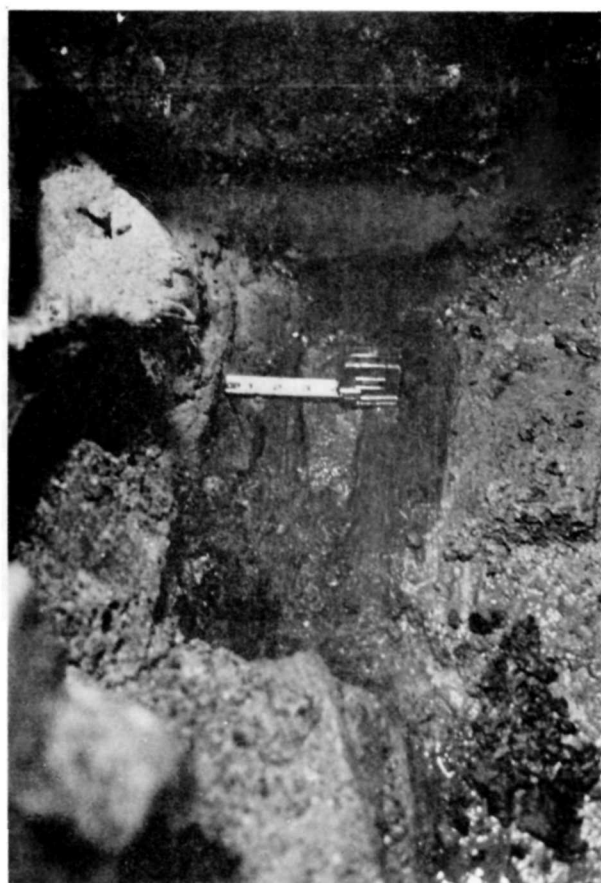


1952-1953
1952-1953

1952-1953
1952-1953

26 A fragment of the door sill remained in cell 2.
(NHSS 1K-154 M)

27 After excavation, sand bags were placed against the rear and side walls of cell 2 in an attempt to preserve as much of the masonry as possible. The photograph was taken looking south. (NHSS 1K-152 M)



28 The photograph (looking north) of the interior of cells 2 (left) and 3 (right) was taken during excavation of cell 2 and after the vault of cell 3 collapsed. The bowed western wall and jambs of cell 2 are shown clearly. (NHSS 1K-149 M)

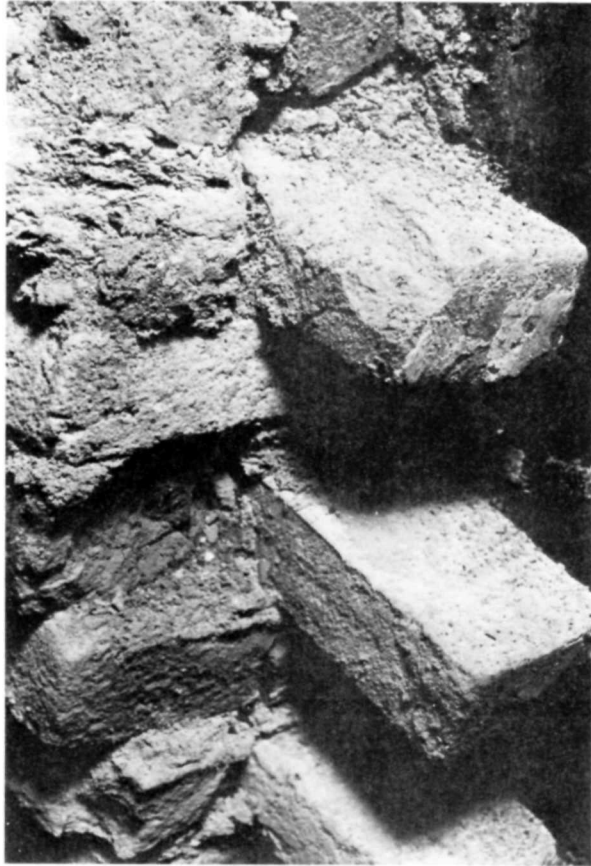
29 The upper hinge of cell 2 was photographed in situ (looking southwest). The pattern of the bricks in the western wall of cell 3 is also shown. (NHSS 1K-136 M)



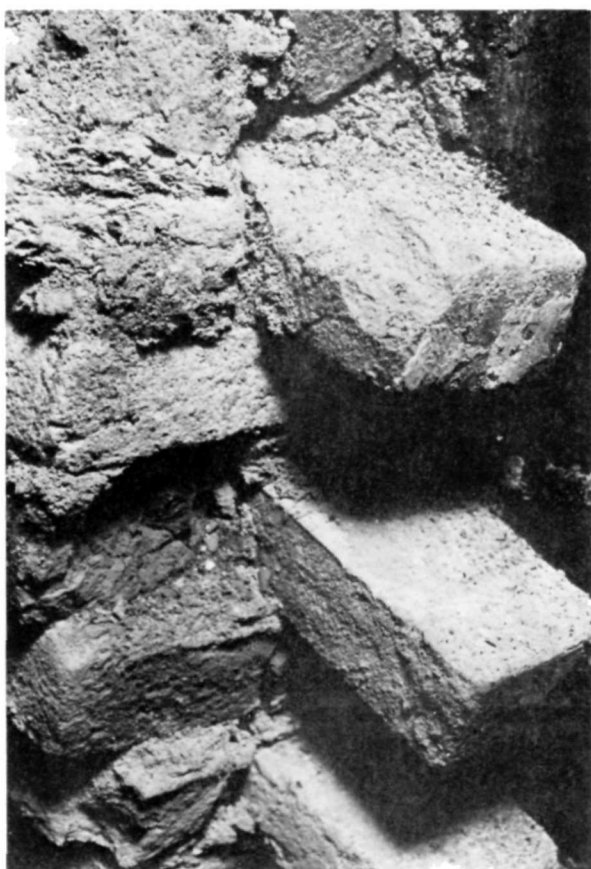
- 30 The western (right) and rear walls of cell 3
photographed after excavation. (NHSS 1K-141 M)
- 31 Little remained of the area where the western wall of
cell 3 joined the front wall of the cell. (NHSS
1K-144 M)



32 A detail photograph of the area where the front wall of cell 3 joined the western wall of the cell shows the brick pattern and traces of plaster on the projecting ends of the two bricks on the right. (NHSS 1K-147 M)



33 Cell 4 as photographed in 1968. Traces of plaster remained on the walls. Both the eastern and rear walls of the cell were then bulging under pressure.
(NHSS 1K-14 L)

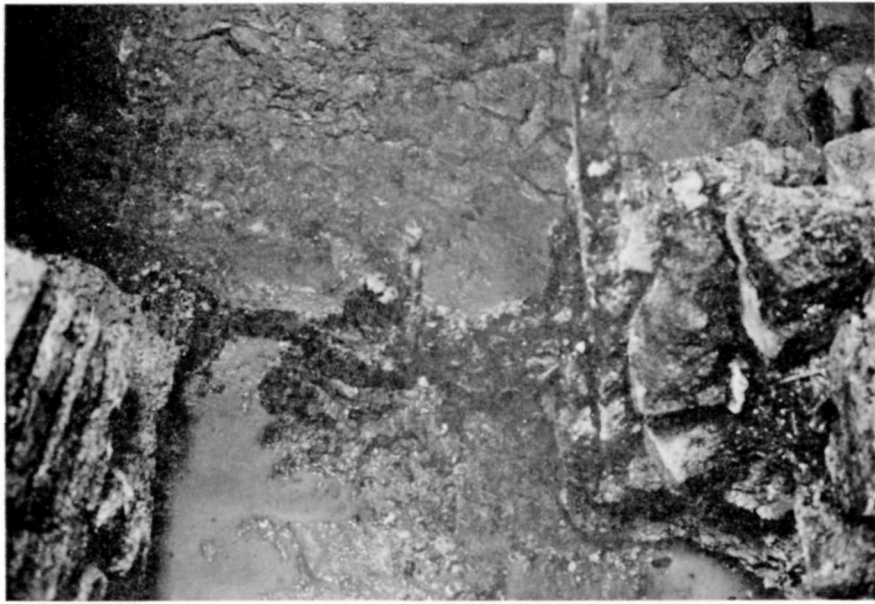


33 Cell 4 as photographed in 1968. Traces of plaster remained on the walls. Both the eastern and rear walls of the cell were then bulging under pressure.
(NHSS 1K-14 L)



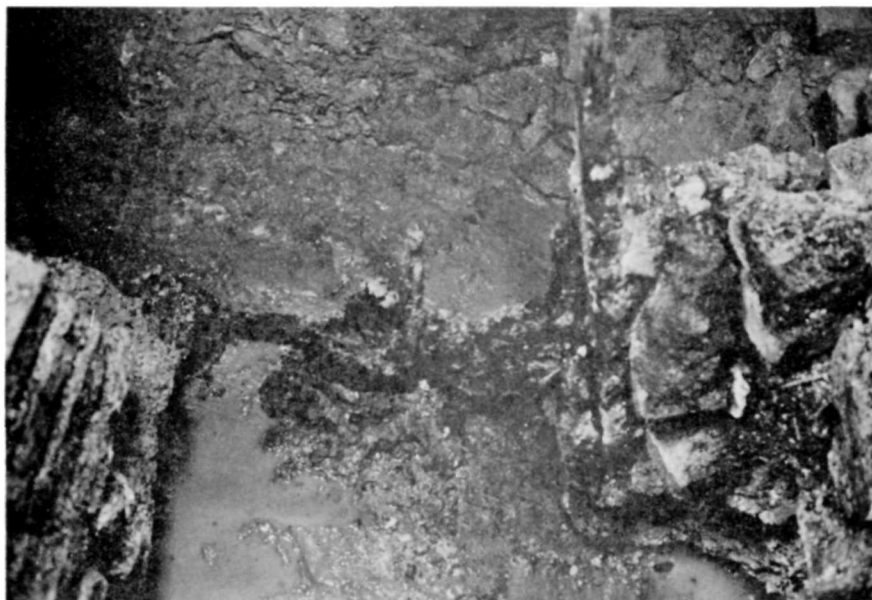
34 The photograph of cell 4, taken after its eastern wall collapsed, shows its eastern wall, fragments of its rear wall and the floor. (NHSS 1K-148 M)

35 The bricks in the floor of cell 4 were east-west oriented stretchers. (NHSS 1K-153 M)



36 The remains of a door, still attached to its lower hinge, and a double, eastern jamb were located in cell 4. (NHSS 1K-112 M)

37 In 1968 only a small fragment remained of the western jamb of cell 4. (NHSS 1K-86 X)

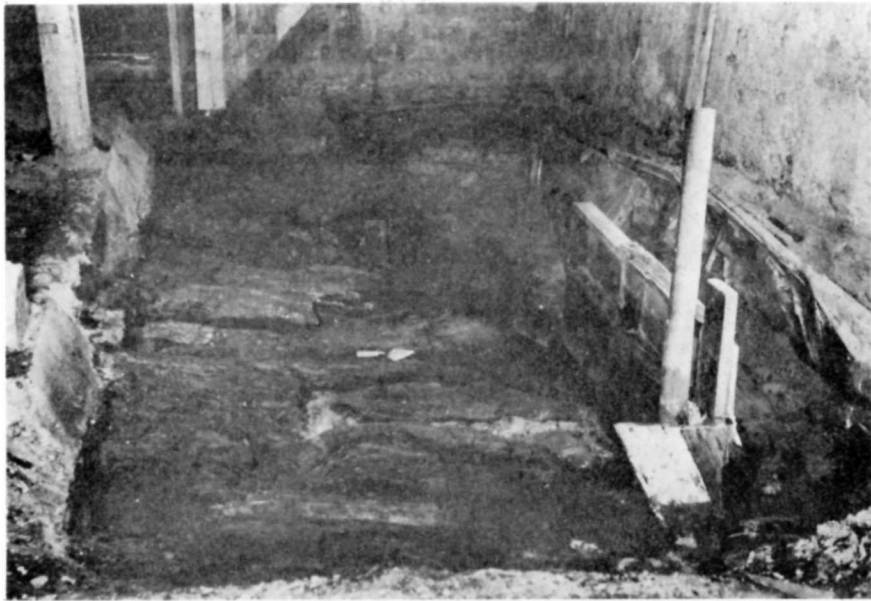


38 The western end of the passageway in front of the cells as photographed after Priess excavated it in 1968. It was then more complete than when re-excavated in 1971 (see Fig. 14). (NHSS 1K-1 B)

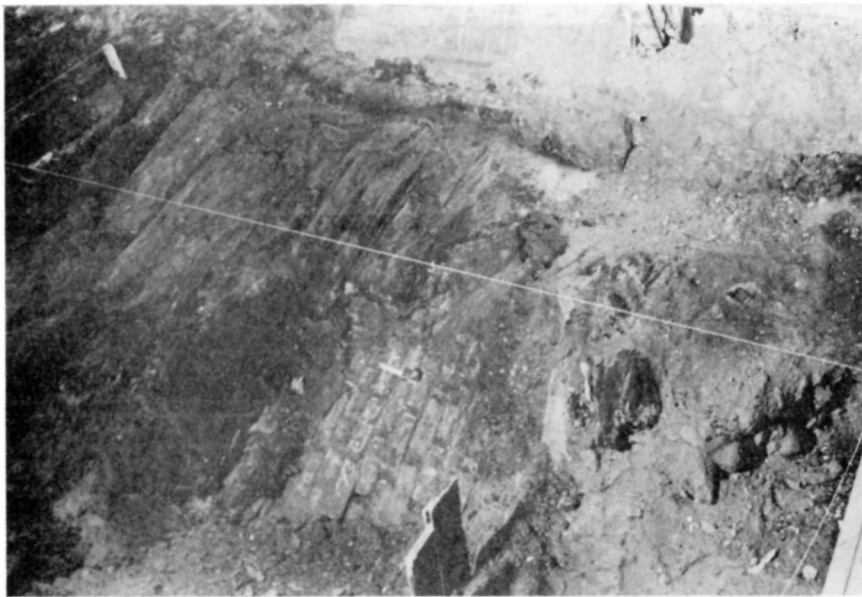


39 A general view of the joists over the cells looking west. (NHSS 1K-102 M)

40 Some of the joists over the cells looking south. Part of the vault of cell 2 is visible (lower centre). (NHSS 1K-121 M)



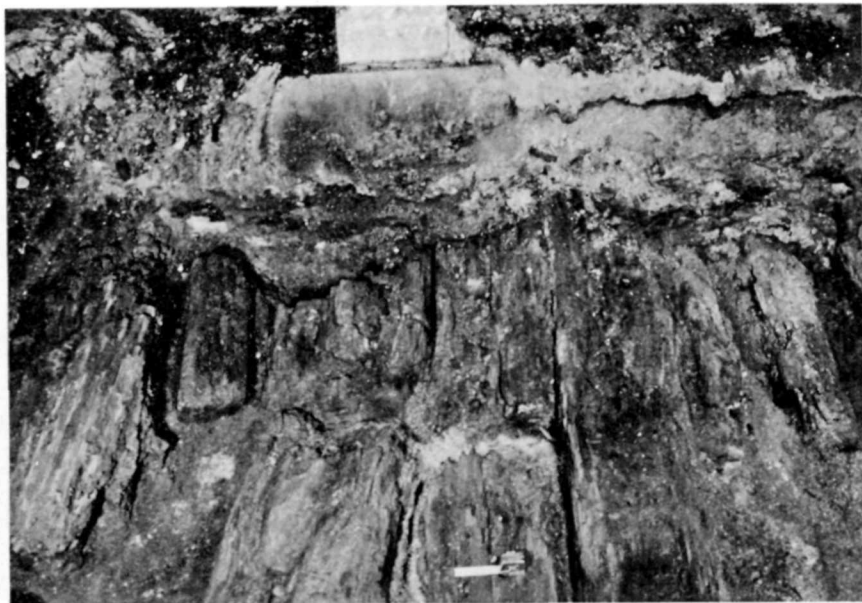
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of
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of

41 In a general view of the joists over the cells
(looking north), an opening is evident between
the joists over cell 3. (NHSS 1K-106 M)

42 The joists over cells 3 and 4 looking south.
(NHSS 1K-110 M)



43 Like all joists over the cells, the joists over cell 4 were unusually closely spaced. The photograph was taken looking northeast. (NHSS 1K-103 M)

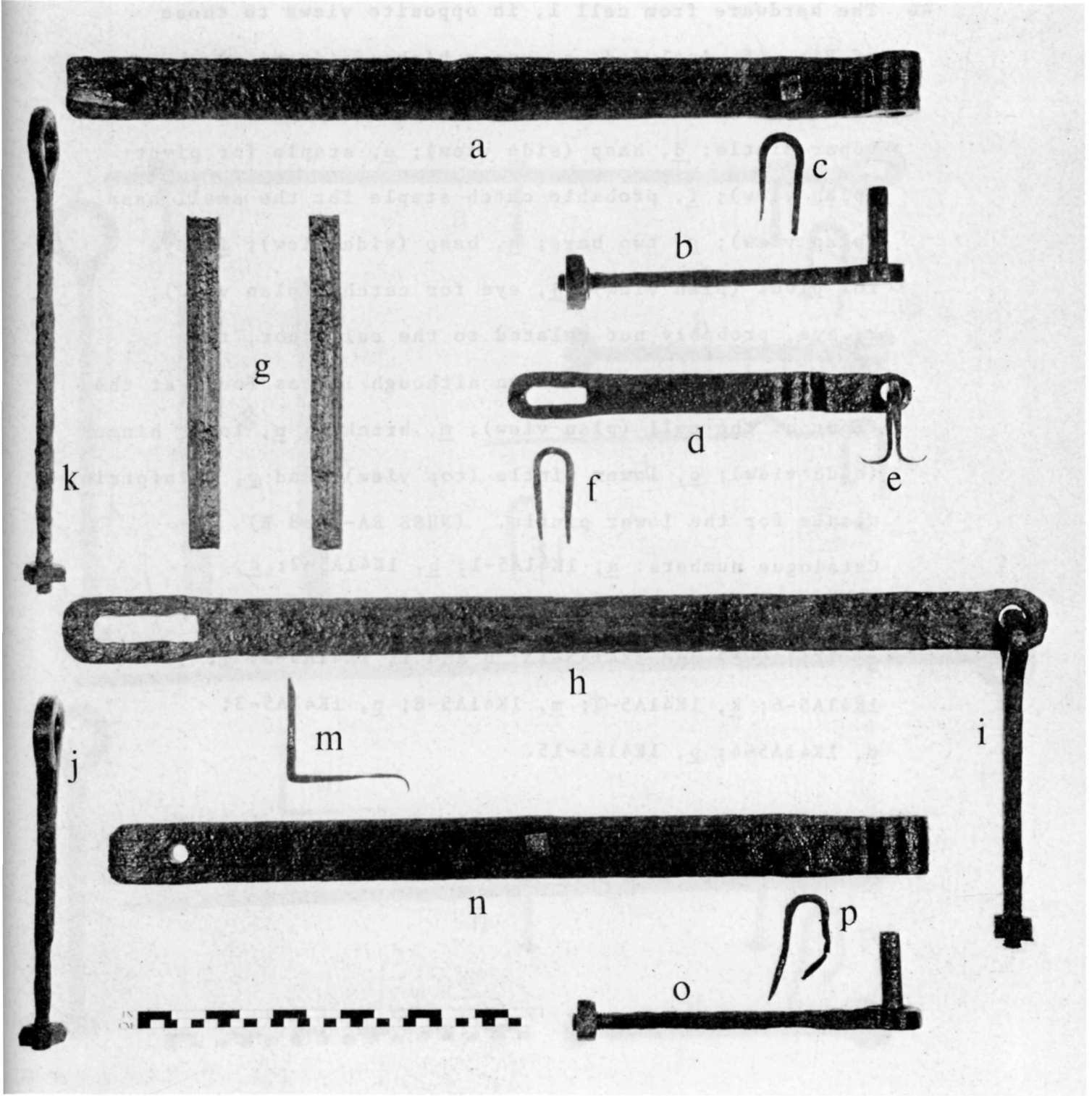
44 The fragment on the right was part of an east-west oriented sleeper. (NHSS 1K-98 M)



45 The hardware from cell 1 included: a, upper hinge (plan view); b, upper pintle (side view); c, reinforcing staple for the upper pintle (plan view); d, hasp (plan view); e, staple for pivot (side view); f, probably catch staple for the small hasp (plan view); g, two bars; h, hasp (plan view); i, eye for pivot (side view); j, eye for catch (side view); k, eye, its function is unknown and it is probably not related to the cell door although it was found at the front of the cell (side view); m, bracket; n, lower hinge (plan view); o, lower pintle (side view); and p, reinforcing staple for the lower pintle (plan view).

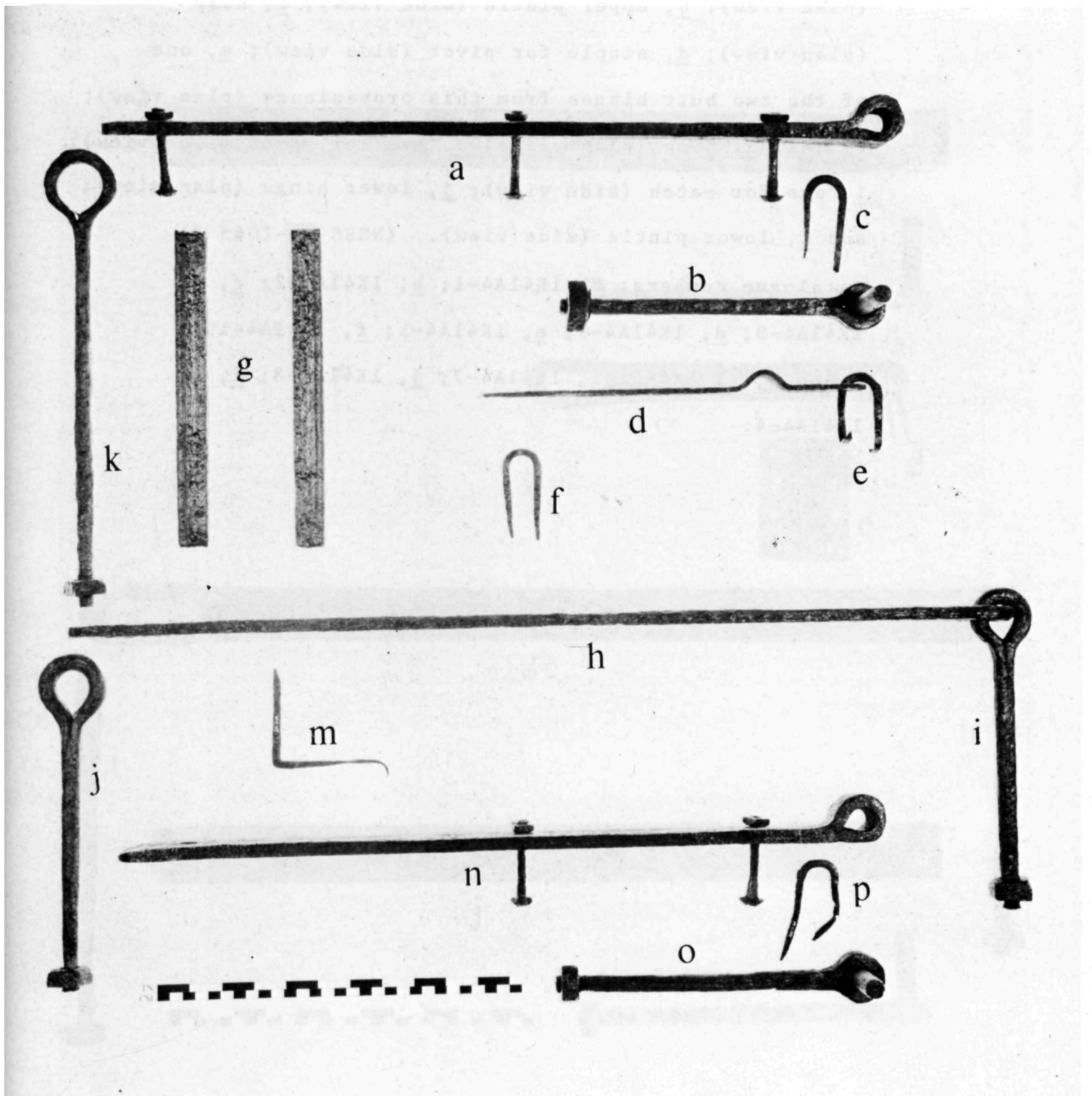
This and subsequent grouped illustrations of the hardware show the items arranged as they would have appeared on a cell door. (NHSS RA-1067 B)

Catalogue numbers: a, 1K41A5-1; b, 1K41A5-2; c, 1K41A5-14; d, 1K41A5-9; e, 1K41A5-10; f, 1K41A5-11; g, 1K41A5-12 and 1K41A5-13; h and i, 1K41A5-5; j, 1K41A5-6; k, 1K41A5-7; m, 1K41A5-8; n, 1K41A5-3; o, 1K41A5-4; p, 1K41A5-15.



46 The hardware from cell 1, in opposite views to those of Fig. 45, included: a, upper hinge (side view); b, upper pintle (top view); c, reinforcing staple for the upper pintle; d, hasp (side view); e, staple for pivot (plan view); f, probable catch staple for the small hasp (plan view); g, two bars; h, hasp (side view); i, eye for pivot (plan view); j, eye for catch, (plan view); k, eye, probably not related to the cell door, the function of which is unknown although it was found at the front of the cell (plan view); m, bracket; n, lower hinge (side view); o, lower pintle (top view); and p, reinforcing staple for the lower pintle. (NHSS RA-1068 B)

Catalogue numbers: a, 1K41A5-1; b, 1K41A5-2; c, 1K41A5-14; d, 1K41A5-9; e, 1K41A5-10; f, 1K41A5-11; g, 1K41A5-12 and 1K41A5-13; h and i, 1K41A5-5; j, 1K41A5-6; k, 1K41A5-7; m, 1K41A5-8; n, 1K41A5-3; o, 1K41A5-4; p, 1K41A5-15.

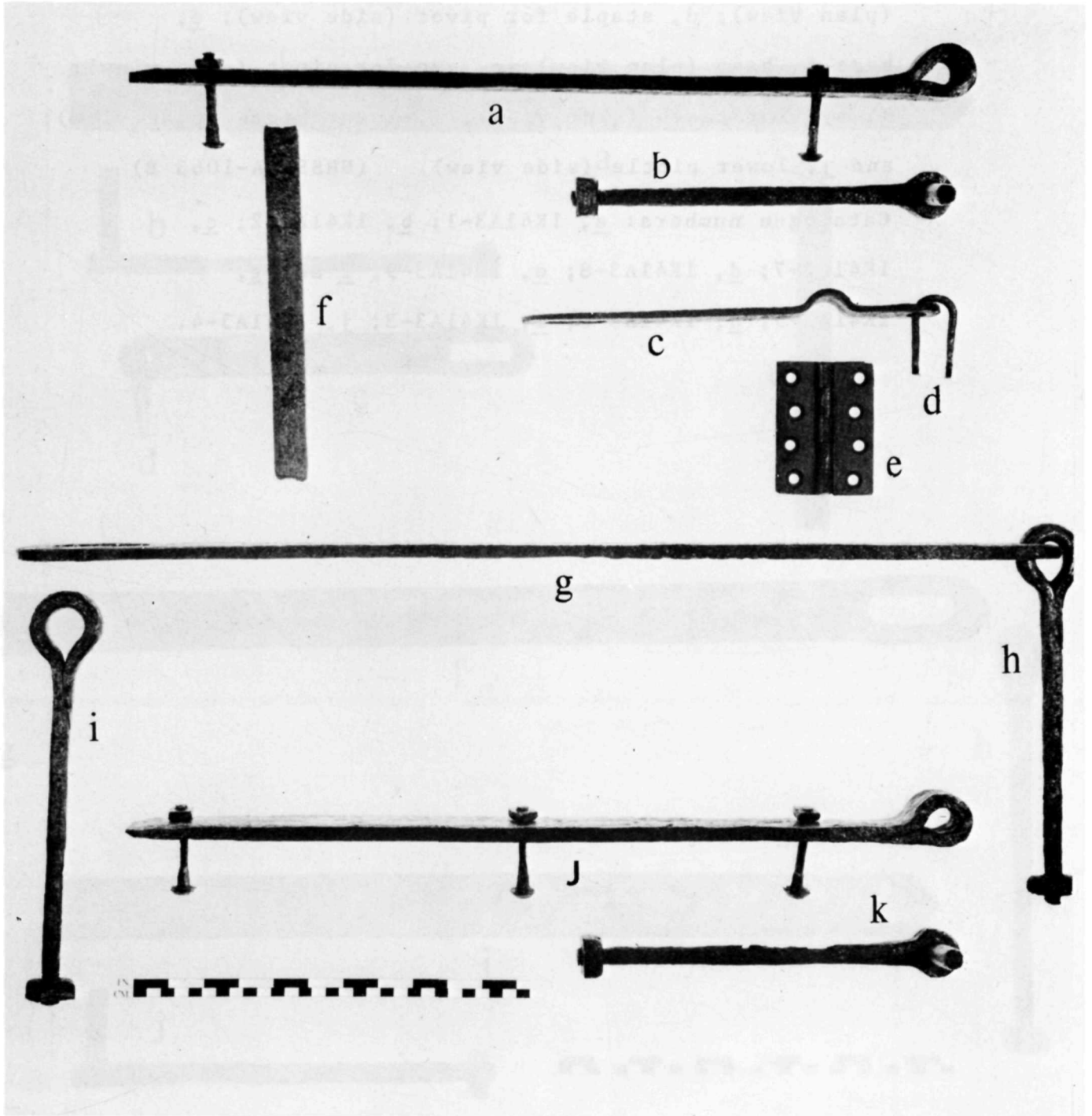


47 The hardware from cell 2 included: a, upper hinge (plan view); b, upper pintle (side view); c, hasp (plan view); d, staple for pivot (side view); e, one of the two butt hinges from this provenience (plan view); f, bar; g, hasp (plan view); h, eye for pivot (side view); i, eye for catch (side view); j, lower hinge (plan view); and k, lower pintle (side view). (NHSS RA-1065 B)

Catalogue numbers: a, 1K41A4-1; b, 1K41A4-2; c, 1K41A4-8; d, 1K41A4-9; e, 1K41A4-5; f, 1K41A4-10; g and h, 1K41A4-6; i, 1K41A4-7; j, 1K41A4-3; k, 1K41A4-4.

48 The hardware from cell 2, in opposite views to those of Fig. 47, included: a, upper hinge (side view); b, upper pintle (top view); c, hasp (side view); d, staple for pivot (plan view); e, hinge (plan view); f, bar; g, hasp (side view); h, eye for pivot (plan view); i, eye for catch (plan view); j, lower hinge (side view); and k, lower pintle (top view). (NHSS RA-1066 B)

Catalogue numbers: a, 1K41A4-1; b, 1K41A4-2; c, 1K41A4-8; d, 1K41A4-9; e, 1K41A4-5; f, 1K41A4-10; g and h, 1K41A4-6; i, 1K41A4-7; j, 1K41A4-3; k, 1K41A4-4.



49 The hardware from cell 3 included: a, upper hinge (plan view); b, upper pintle (side view); c, hasp (plan view); d, staple for pivot (side view); e, bar; f, hasp (plan view); g, eye for pivot (side view); h, eye for catch (side view); i, lower hinge (plan view); and j, lower pintle (side view). (NHSS RA-1063 B)

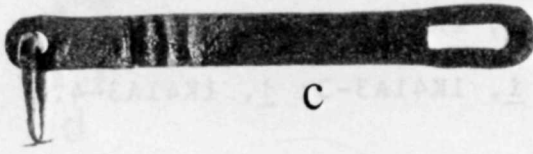
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a



b



c

d



e



f



g



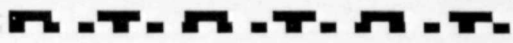
h



i

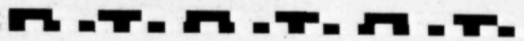
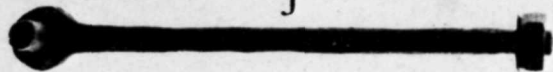
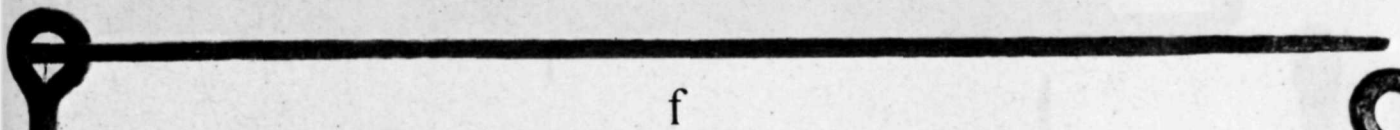
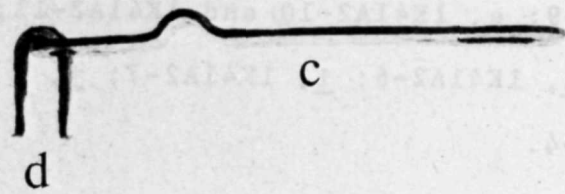
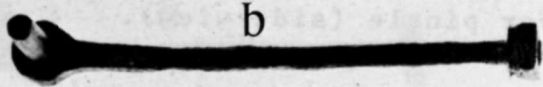


j



50 The hardware from cell 3, in opposite views to those of Fig. 49, included: a, upper hinge (side view); b, upper pintle (top view); c, hasp (side view); d, staple for pivot (plan view); e, bar; f, hasp (side view); g, eye for pivot (plan view); h, eye for catch (plan view); i, lower hinge (side view); and j, lower pintle (top view). (NHSS RA-1064 B)

Catalogue numbers: a, 1K41A3-1; b, 1K41A3-2; c, 1K41A3-7; d, 1K41A3-8; e, 1K41A3-9; f and g, 1K41A3-5; h, 1K41A3-6; i, 1K41A3-3; j, 1K41A3-4.



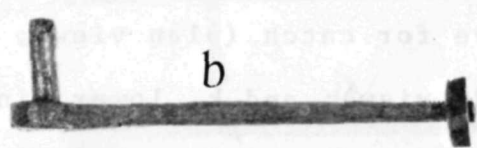
51 The hardware from cell 4 included: a, upper hinge (plan view); b, upper pintle (side view); c, hasp (plan view); d, staple for pivot (side view); e, bars; f, hasp (plan view); g, eye for pivot (side view); h, eye for catch (side view); i, bracket; j, lower hinge (plan view); and k, lower pintle (side view).

(NHSS RA-1061 B)

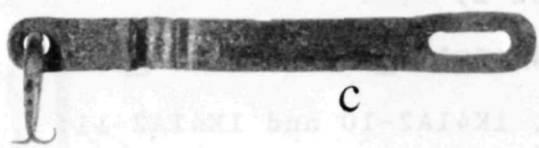
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a

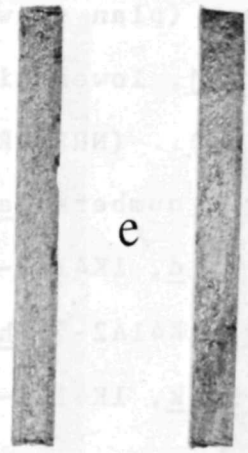


b



c

d

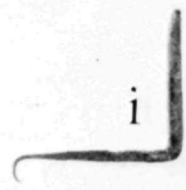


e



f

g

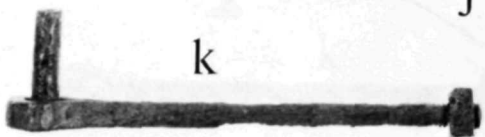


i

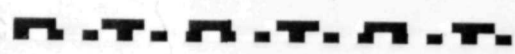
h



j

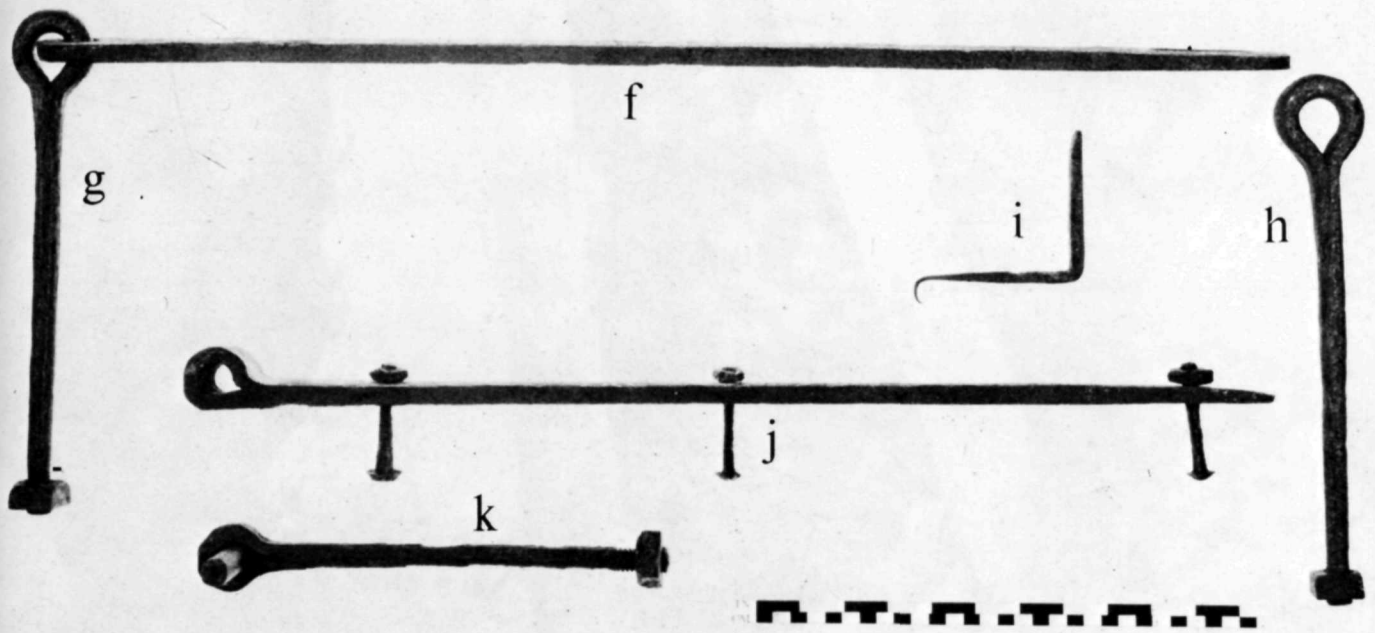
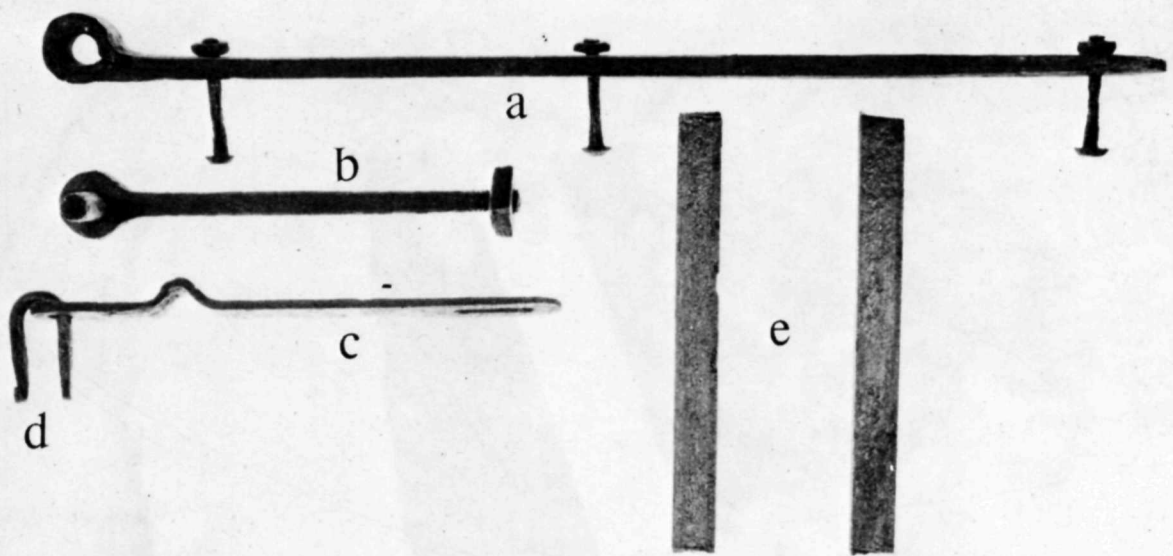


k



52 The hardware from cell 4, in opposite views to those of Fig. 51, included: a, upper hinge (side view); b, upper pintle (top view); c, hasp (side view); d, staple for pivot (plan view); e, bars; f, hasp (side view); g, eye for pivot (plan view); h, eye for catch (plan view); i, bracket; j, lower hinge (side view); and k, lower pintle (top view). (NHSS RA-1062 B)

Catalogue numbers: a, 1K41A2-1; b, 1K41A2-2; c, 1K41A2-8; d, 1K41A2-9; e, 1K41A2-10 and 1K41A2-11; f and g, 1K41A2-5; h, 1K41A2-6; i, 1K41A2-7; j, 1K41A2-3; k, 1K41A2-4.



53 The door jamb, lintel and upper, strap hinge of cell 3 was photographed (looking southwest) before Priess removed them in 1968. (NHSS 1K-87 X)

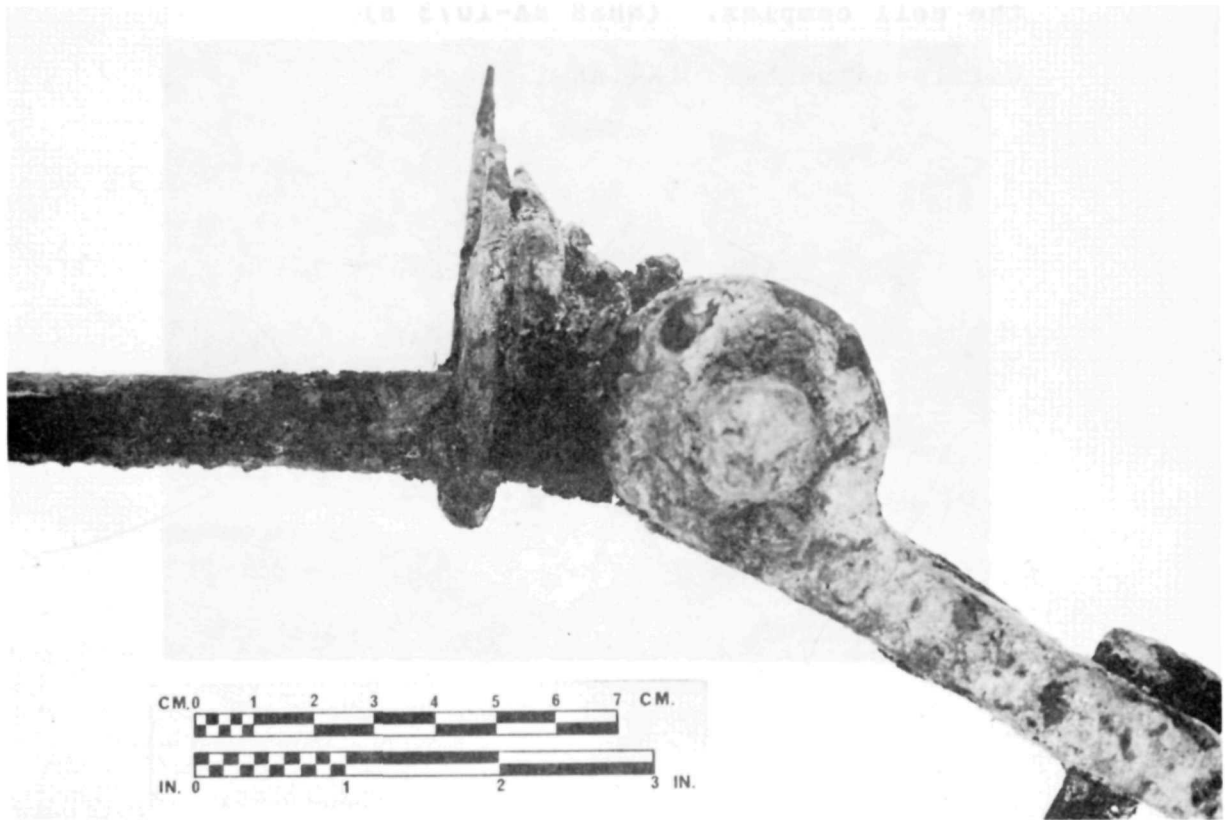
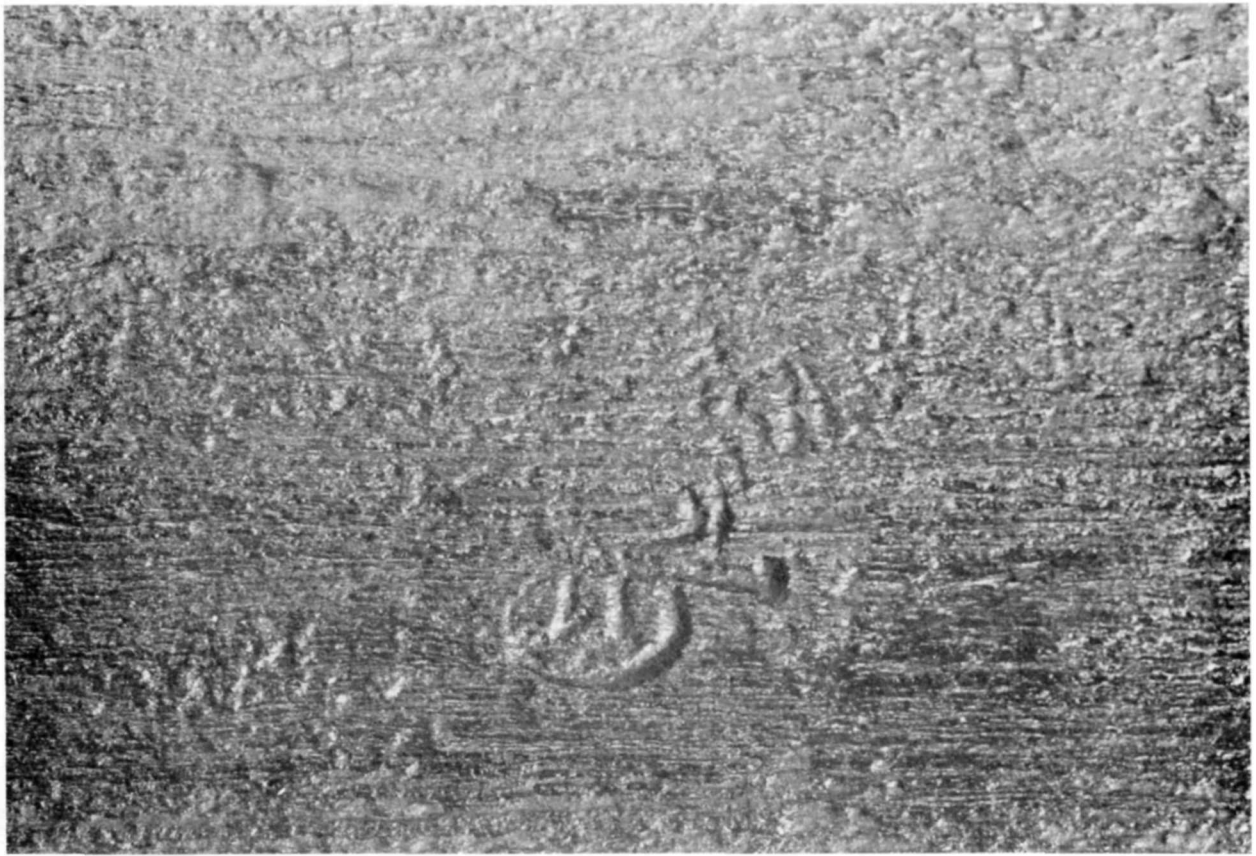


54 An unidentified mark was found on the back of the upper hinge of the door to cell 4.

(NHSS RA-1069 B) Catalogue number: 1K41A2-1

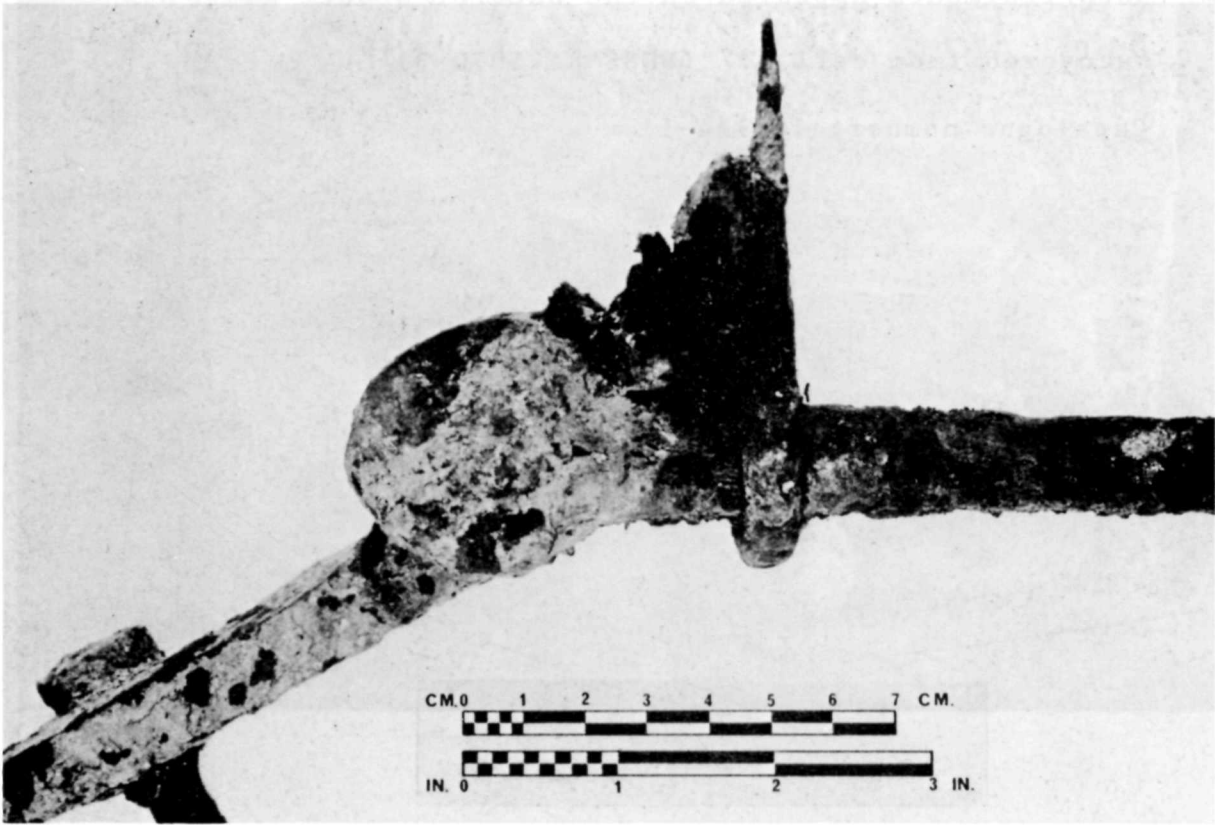
55 A detail photograph (from above) of the lower hinge-pintle connection (1K41A5-3; 1K41A5-4) of the door of cell 1 shows the position of the reinforcing staple (1K41A5-15).

(NHSS RA-3229 M)



56 A detail photograph (from below) of the lower hinge-pintle connection (1K41A5-3; 1K41A5-4) of the door of cell 1 shows the position of the reinforcing staple (1K41A5-15). (NHSS RA-3230 M)

57 Wood fragments appear on the back of the butt hinge recovered at ground level to the east of the cell complex. (NHSS RA-1073 B)
Catalogue number: 1K41A8-1

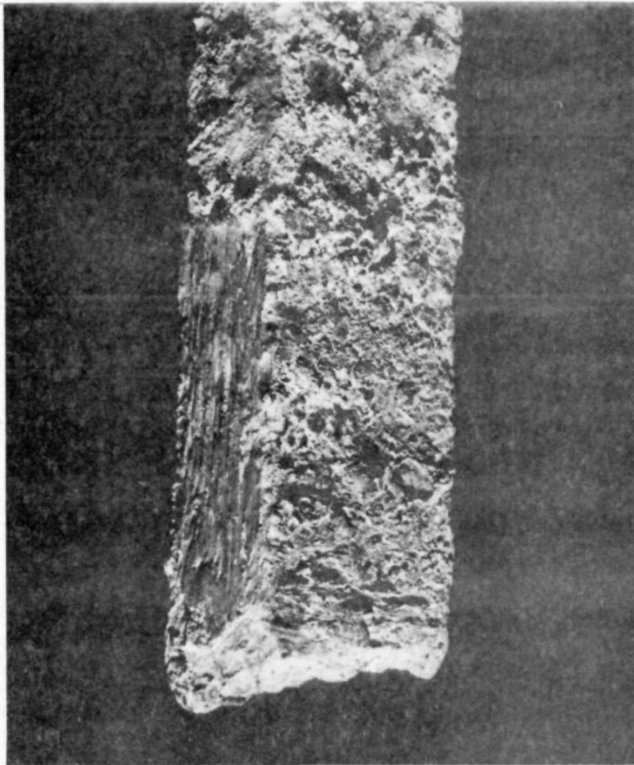
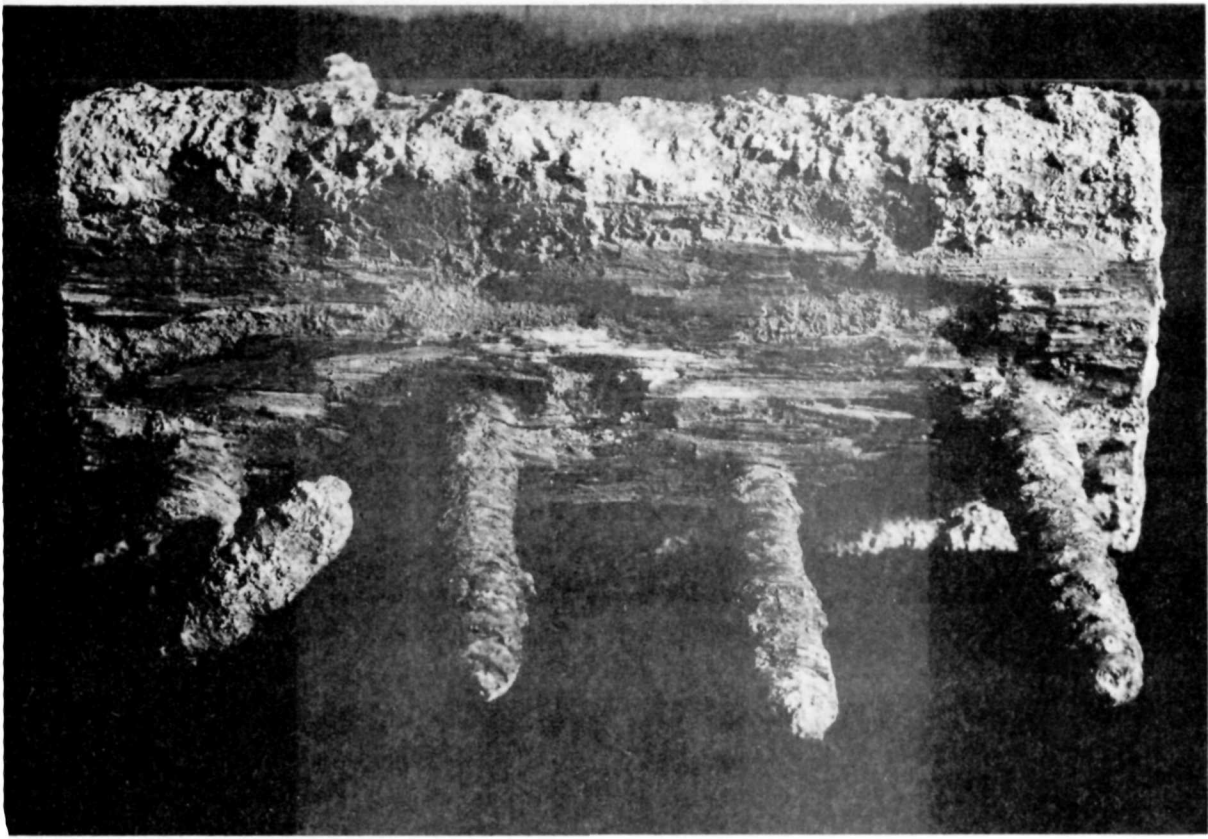


58 Wood fragments appeared on the back of a butt hinge recovered from cell 2. (NHSS RA-1070 B)

Catalogue number: 1K41A4-11

59 Wood fragments are evident at one end of the peephole bar associated with cell 4. The grain on its narrow side is parallel to its longitudinal axis. Its wide side has a trace of grain perpendicular to its longitudinal axis. (NHSS RA-1072 B)

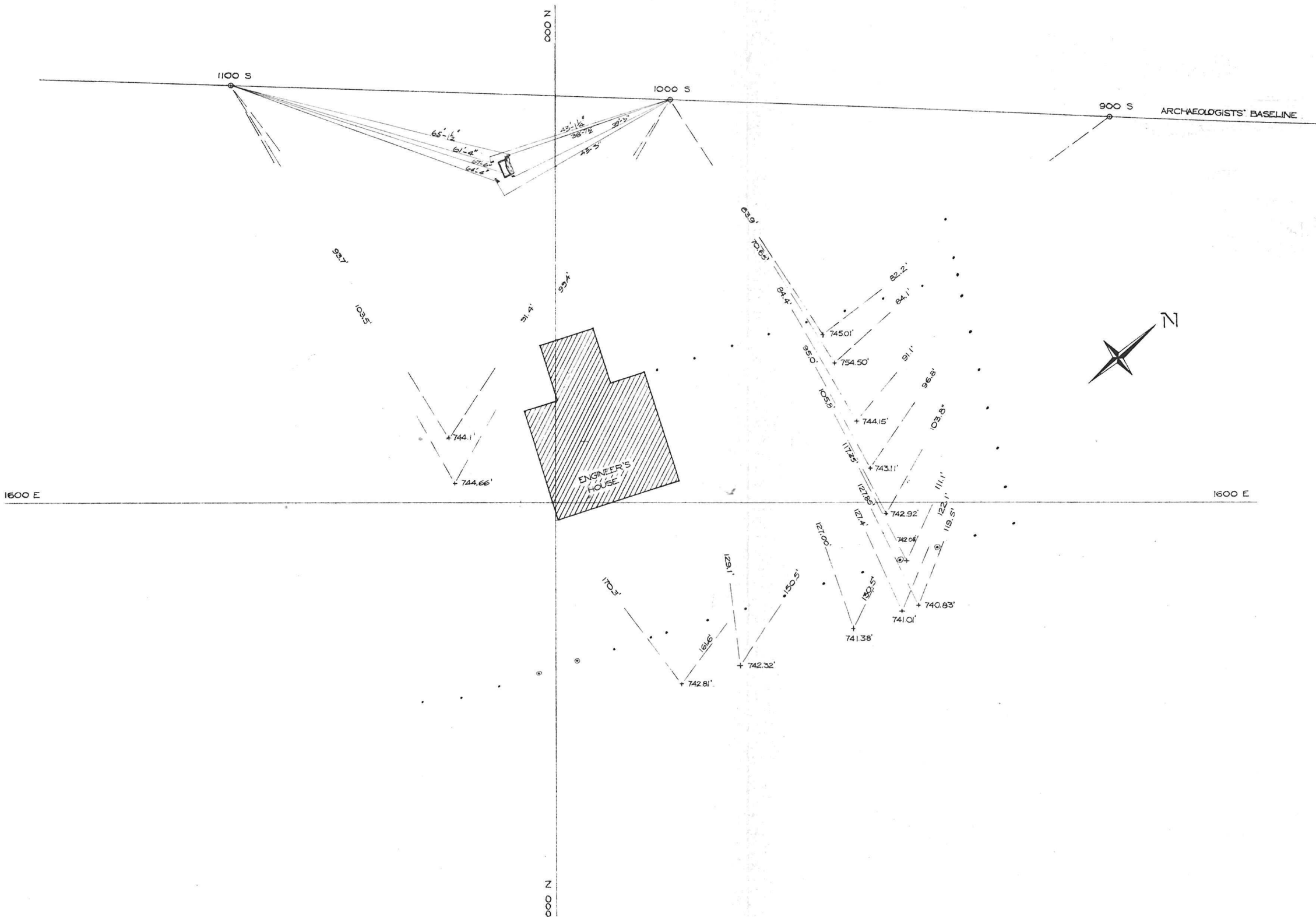
Catalogue number: 1K41A2-10



60 Some of the fence posts and a privy associated with the engineer's cottage were located in 1971. The crosses indicate the centres of the posts found in 1971 and are located with respect to the baseline. The elevation was taken at the bottom of each post. Also included are the results of Chism's 1970 excavation: the dots indicate posts and the circled dots indicate post holes.
(1K-71-102-2)

FIGURE 60

Drawing No. 1K-71-102-2



A	detail no.	détail no.
B	location diag. no. / sur desale no.	sur desale no.
C	drawing no.	dessins no.

drawn by / tracé par
 L.F.G. TEAM
 scale / échelle
 1" = 10'-0"

designed by / établi par
 checked by / vérifié par

job captain / chef du projet
 JULY, 1971
 responsible officer / officier responsable
 date

project title
 titre du projet
**ARCHAEOLOGICAL DWG.
 ENGINEER'S HOUSE
 LOWER FORT GARRY
 NATIONAL HISTORIC PARK**

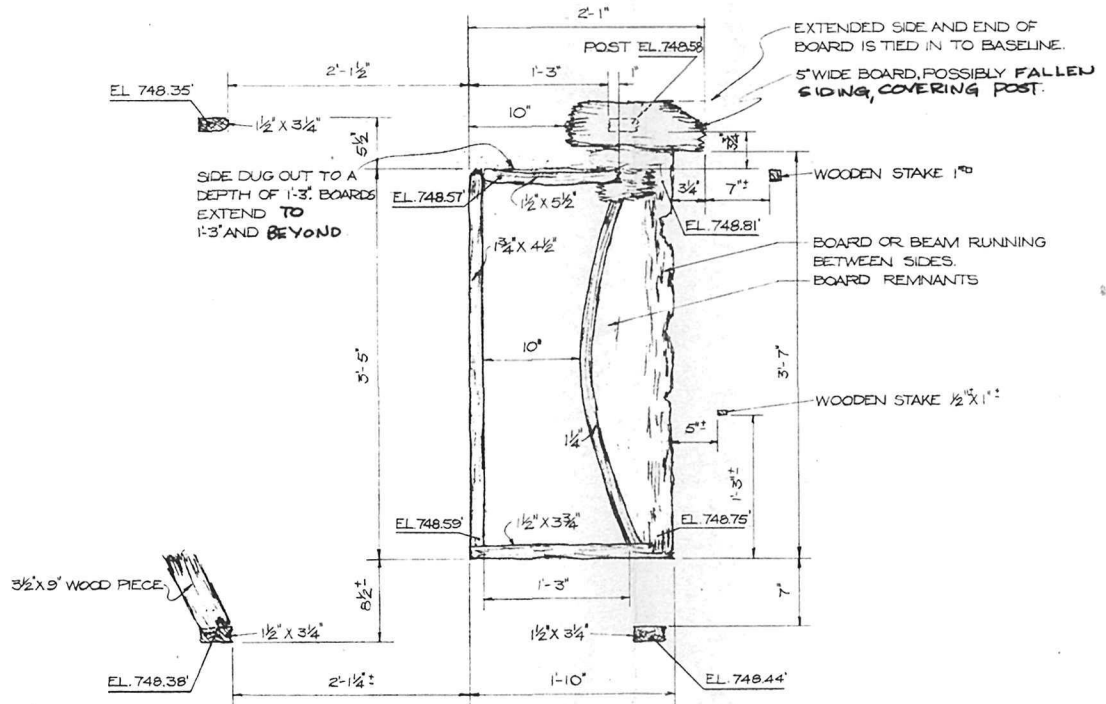
drawing title
 titre du dessin
**FENCE POST & PRIVY
 LOCATION PLAN**

reference no.
 no. de référence
1K-71-102-2
 drawing no.
 dessins no.

61 The plan of the privy associated with the engineer's
cottage. (1K-71-102-1)

FIGURE 61

Drawing No. 1K-71-102-1



revision date

A detail no. détail no.
B location des. no. / sur dessin no.
C drawing no. dessin no.

drawn by / tracé par scale / échelle
L.F.G. TEAM 1/2" = 1'-0"

designed by / établi par

checked by / vérifié par

job captain / chef du projet date
AUG. 17/71

responsible officer / officier responsable date

project title titre du projet

ARCHAEOLOGICAL DWG.
ENGINEER'S HOUSE
LOWER FORT GARRY
NATIONAL HISTORIC PARK

drawing title titre du dessin

PRIVY PLAN

reference no. drawing no.
no de référence dessin no.

1K-71-102-1

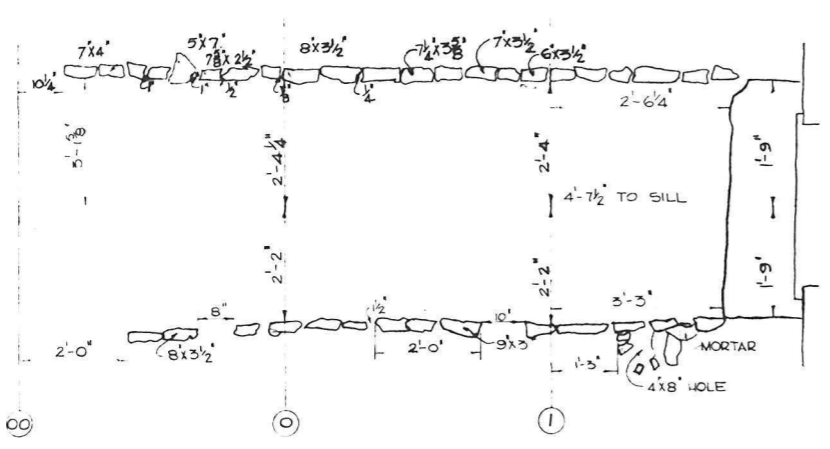
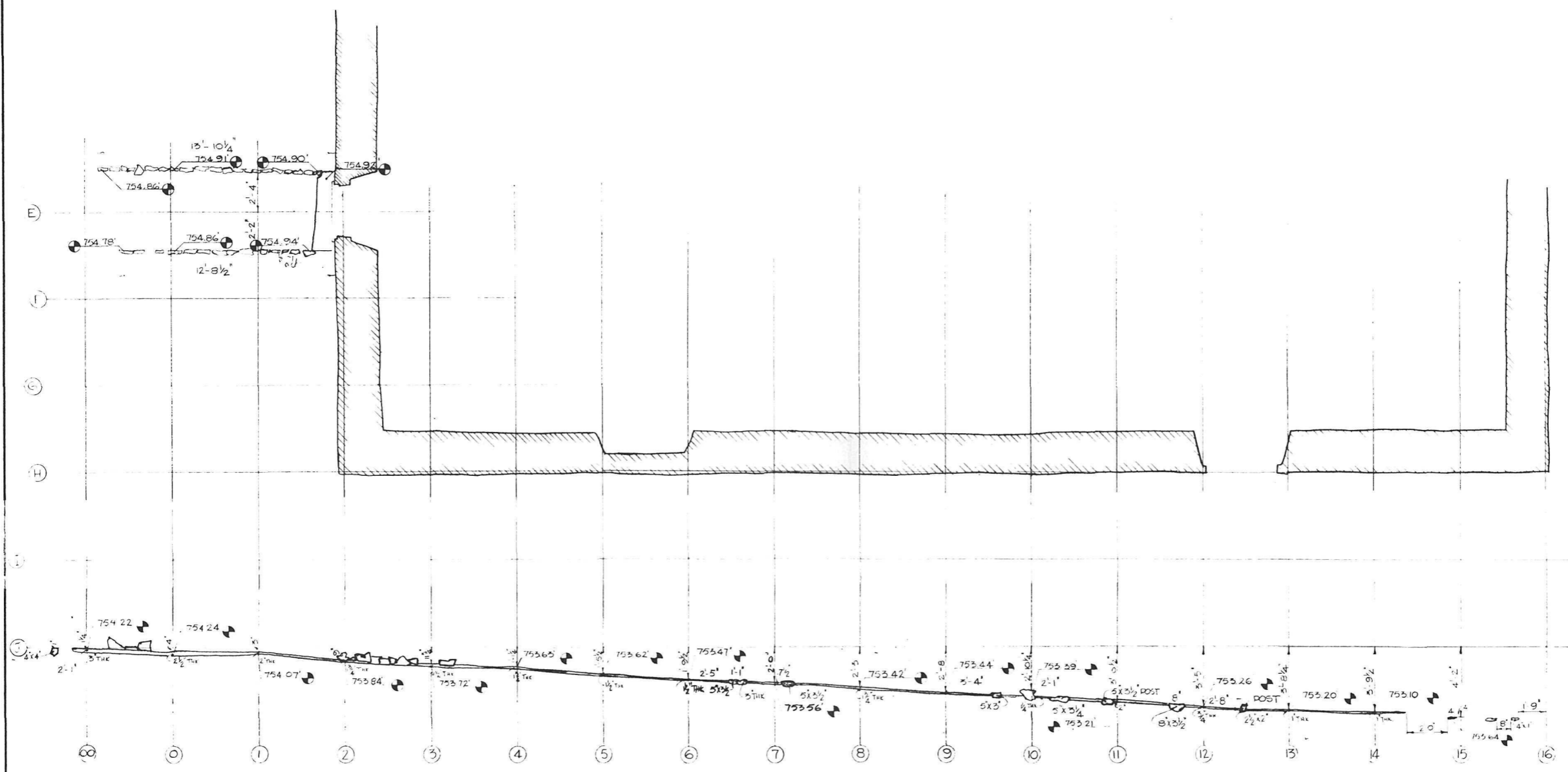
62 The wooden remains of the palisade in front of the southern penitentiary wall sloped north between grids 00 and 3. The walkway leading to the structure's western entrance is drawn in detail on the lower left.

(1K-71-102-5)

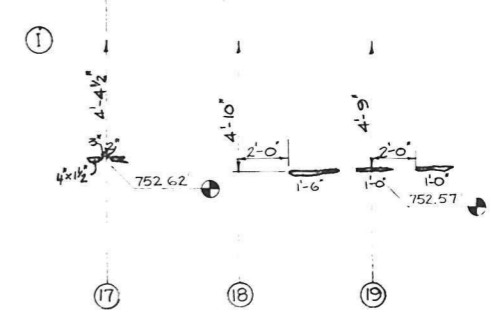
FIGURE 62

Drawing No. 1K-71-102-5

revisions _____ date _____



WALKWAY
SCALE 3/4\"/>



A detail no. _____ détail no. _____
B location dwg. no. / sur dessin no. _____
C drawing no. _____ dessin no. _____

drawn by / tracé par _____ scale / échelle _____
L.F.G. TEAM 3/8\"/>

designed by / établi par _____
checked by / vérifié par _____

job captain / chef de projet _____ date _____
SEPT 71

responsible officer / officier responsable _____ date _____

project title _____ titre du projet _____

ARCHAEOLOGICAL DWG.
PENITENTIARY BLDG.
LOWER FORT GARRY
NATIONAL HISTORIC PARK

drawing title _____ titre du dessin _____

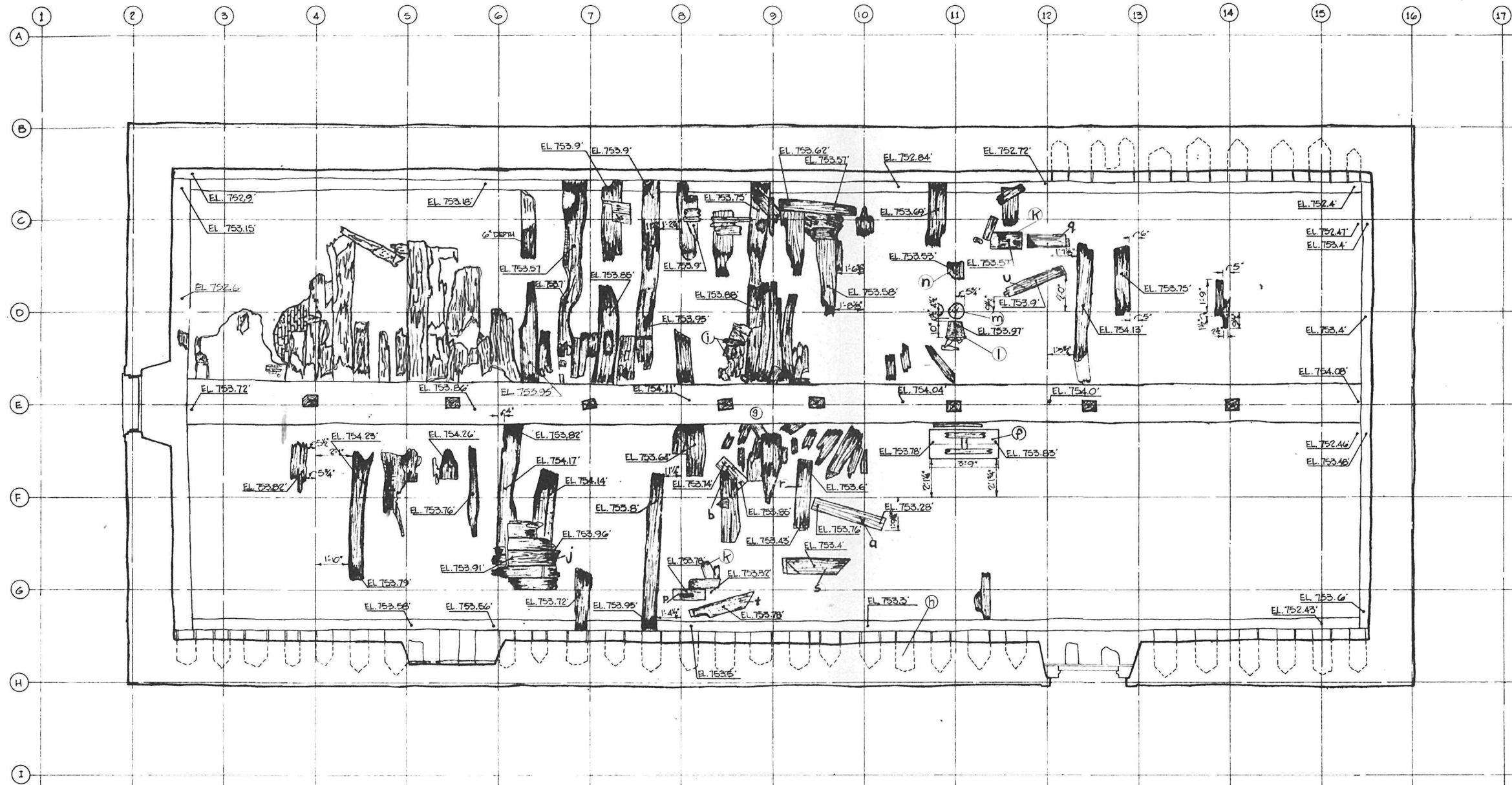
PALISADE AND WALKWAY

reference no. _____ dwg. no. _____
no de référence _____ dessin no. _____
1K-71-102-5 3a

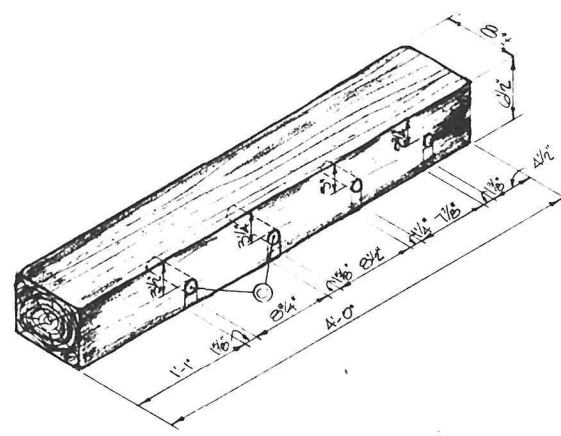
63 The plan of the penitentiary interior includes: a and b, possible roofing components; c, holes varying from 3.75 in. to 5 in. deep; d, wooden dowels in 1.25 in. diameter holes; e, 3 in. deep notch; f, unidentified wooden and sheet metal feature; g, central foundation wall; h, joist socket; i, possible joists; j, remains of flooring; k, p, q, r, s, t, and u, specialized architectural features, many of which were tenoned (see also Fig. 64); l, a bucket associated with three bottles; m, an empty bucket and n, a shovel blade. (1K-71-102-4)

FIGURE 63

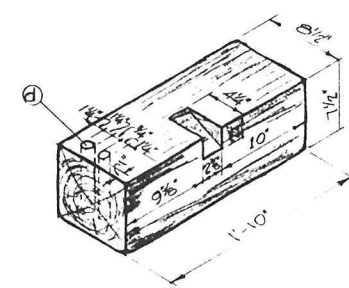
Drawing No. 1K-71-102-4



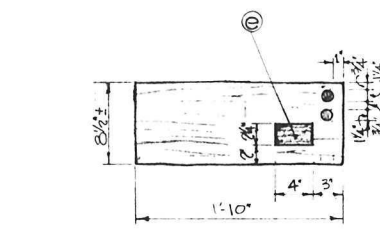
JOIST PLAN
SCALE: 3/8" = 1'-0"



SCALE: 1/4" = 1'-0"



SCALE: 1/4" = 1'-0"



b BOTTOM VIEW

A	A detail no.	détail no.
B	B location dwg. no. / sur dessin no.	
C	C drawing no.	dessin no.
drawn by / tracé par L.F. & TEAM		scale / échelle AS NOTED
designed by / établi par		
checked by / vérifié par		
job captain / chef de projet		date SEPT., 1971
responsible officer / officier responsable		date
project title		titre du projet
ARCHAEOLOGICAL DWG. PENITENTIARY BLDG. LOWER FORT GARRY NATIONAL HISTORIC PARK		
drawing title		titre du dessin
		JOIST PLAN
reference no. no. de référence	dwg. no. dessin no.	
1K-71-102-4	2a	

64 Many of the specialized architectural features found with the joists in the penitentiary were drawn in detail.

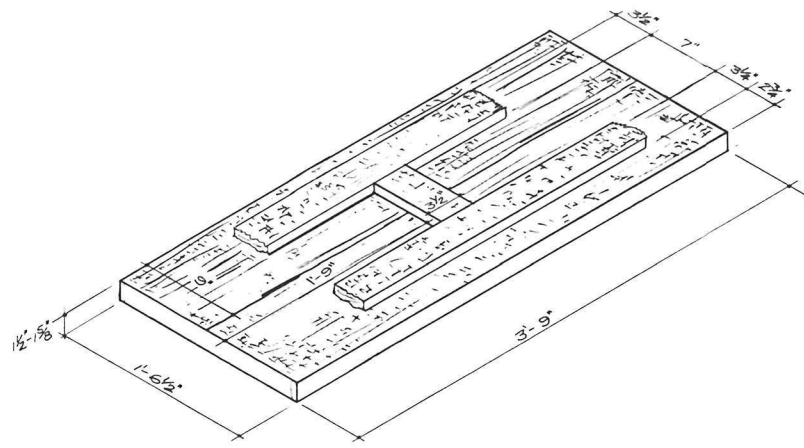
f is an unidentified wooden and sheet metal feature.

(See Fig. 63 for the location of these features.)

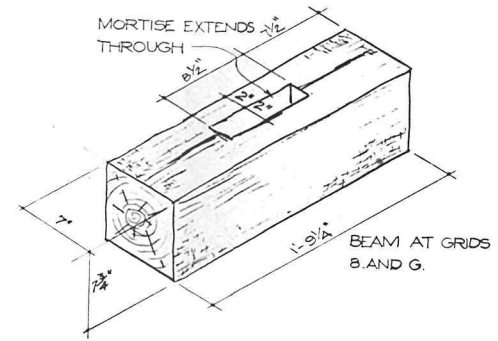
(1K-71-104-5)

FIGURE 64

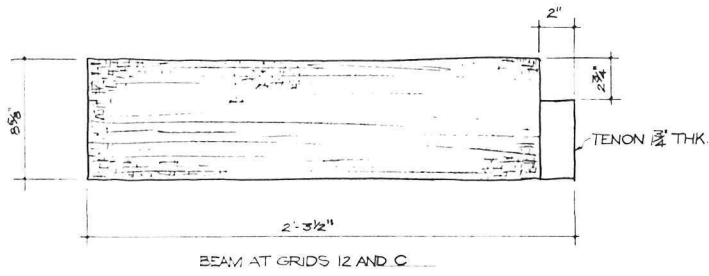
Drawing No. 1K-71-104-5



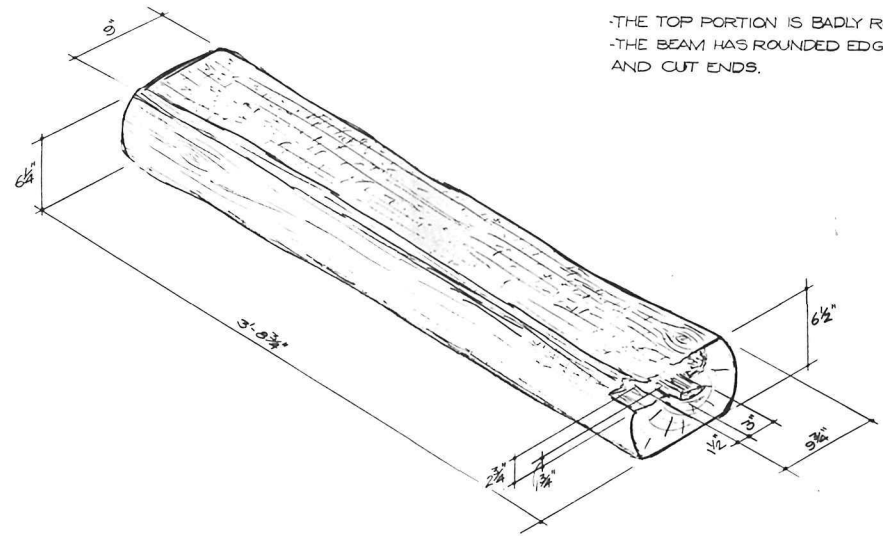
f



p

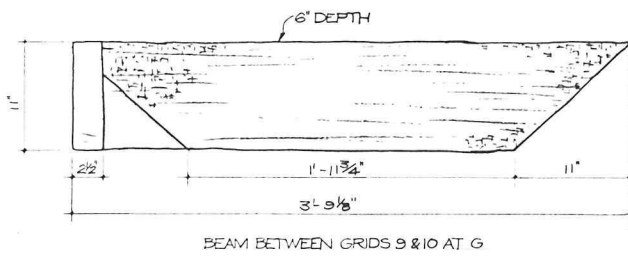


q

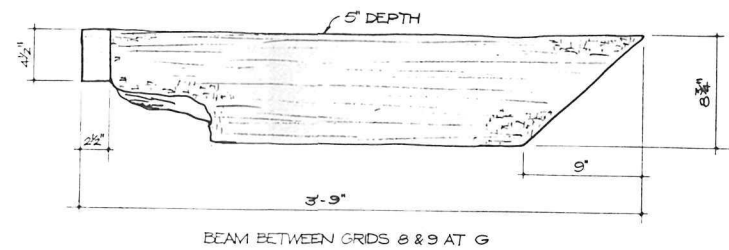


r

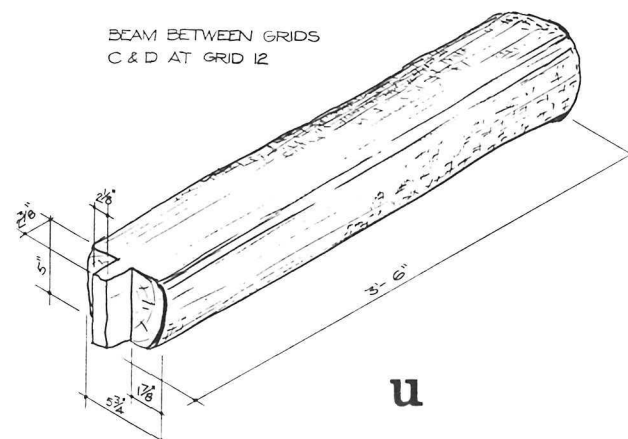
-THE TOP PORTION IS BADLY ROTTED.
-THE BEAM HAS ROUNDED EDGES
AND CUT ENDS.



s



t



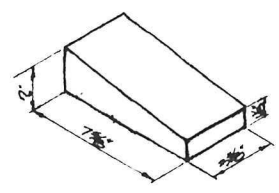
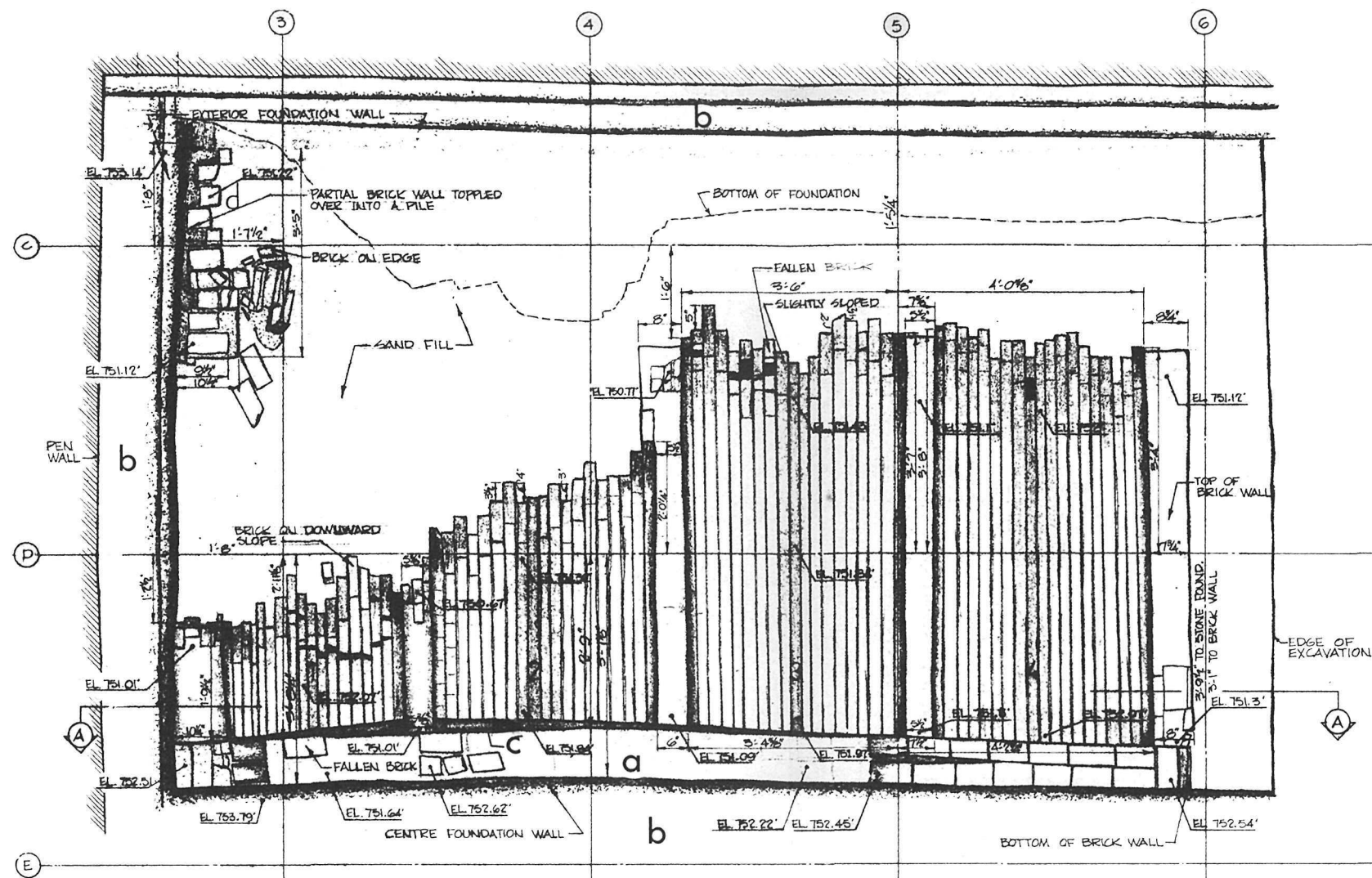
u

BEAM BETWEEN GRIDS
C & D AT GRID 12

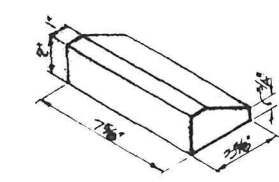
65 As-found plan and section views of the cell vaults and walls were drawn. a is the rear wall of the cell complex; b, stone foundation walls; c, a gap varying from $\frac{1}{2}$ in. to $2\frac{1}{2}$ in. wide between the rear wall of the complex and the rear of the vaults; d, remains of the western wall of the passageway; e, a wedge-shaped brick; f, a spring brick; g, a schematic drawing of patterns of brick laying; h, courses of unbonded stretchers laid three deep with aligned cross-joints; i, a row of stretchers backed by a row of headers and j, a row of headers backed by a row of stretchers. (1K-71-102-7)

FIGURE 65

Drawing No. 1K-71-102-7

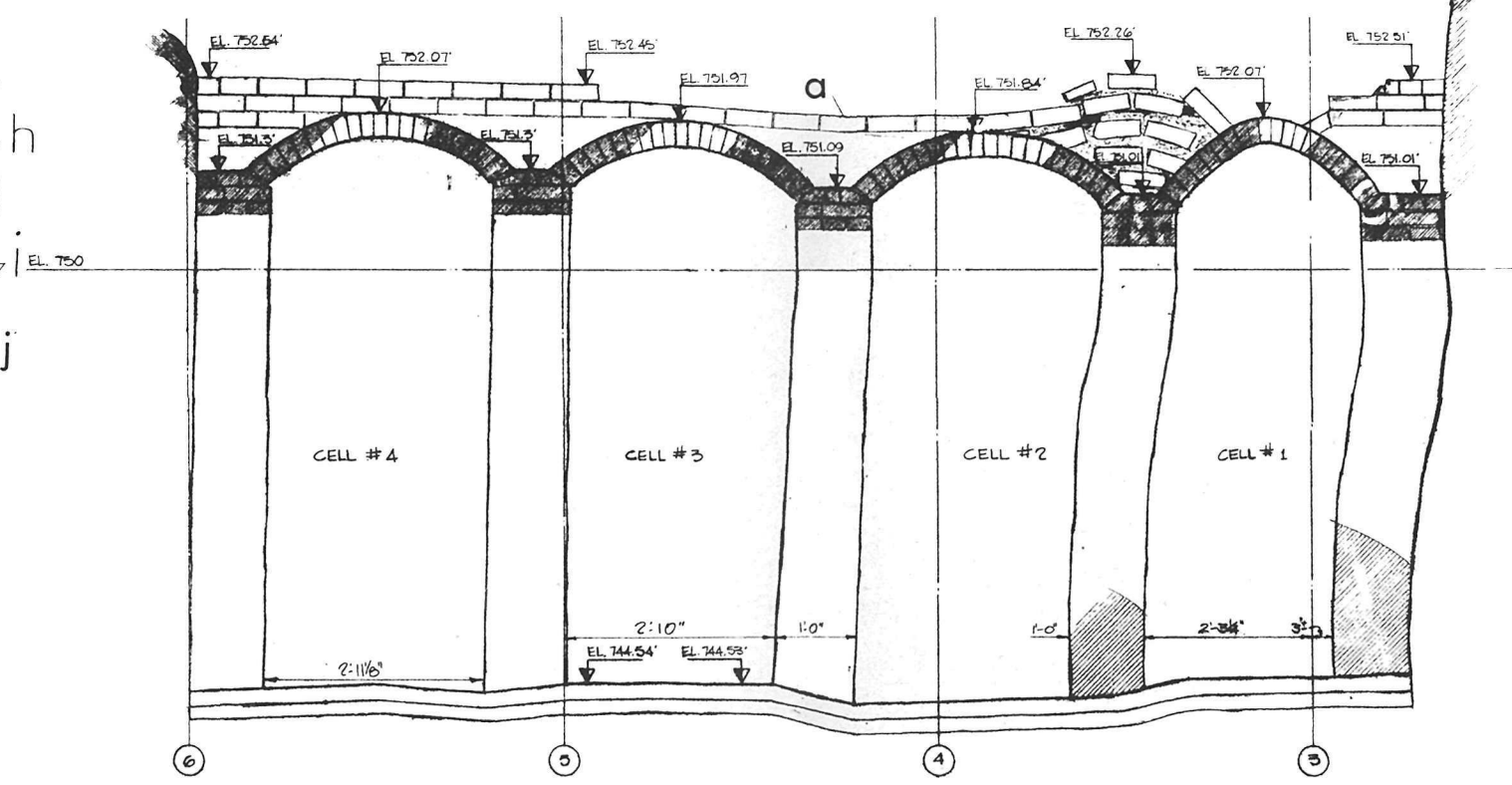


SCALE: 3"=1'0"

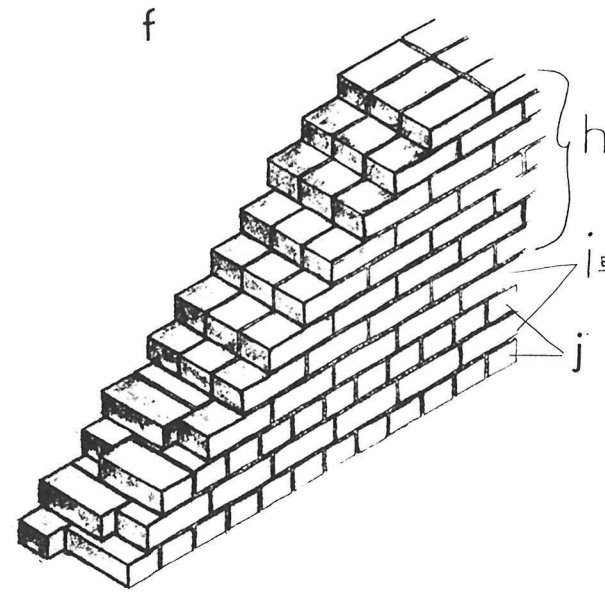


SCALE: 3"=1'0"

CELL PLAN (TOP VIEW)



SECTION A-A



SCALE = 1/4"=1'0"

g

A detail no.	détail no.
B location dwg. no. / sur dessin no.	dessin no.
C drawing no.	dessin no.
drawn by / tracé par	scale / échelle
L.F.G. TEAM	1"=1'0"
designed by / établi par	
checked by / vérifié par	
job captain / chef de projet	date
	JULY, 1971
responsible officer / officier responsable	date
project title	titre du projet
ARCHAEOLOGICAL DWG. PENITENTIARY BLDG. LOWER FORT GARRY NATIONAL HISTORIC PARK	
drawing title	titre du dessin
PLAN AND SECTION VIEWS OF THE VAULTS	
reference no. / no de référence	dwg. no. / dessin no.
1K-71-102-7	38b

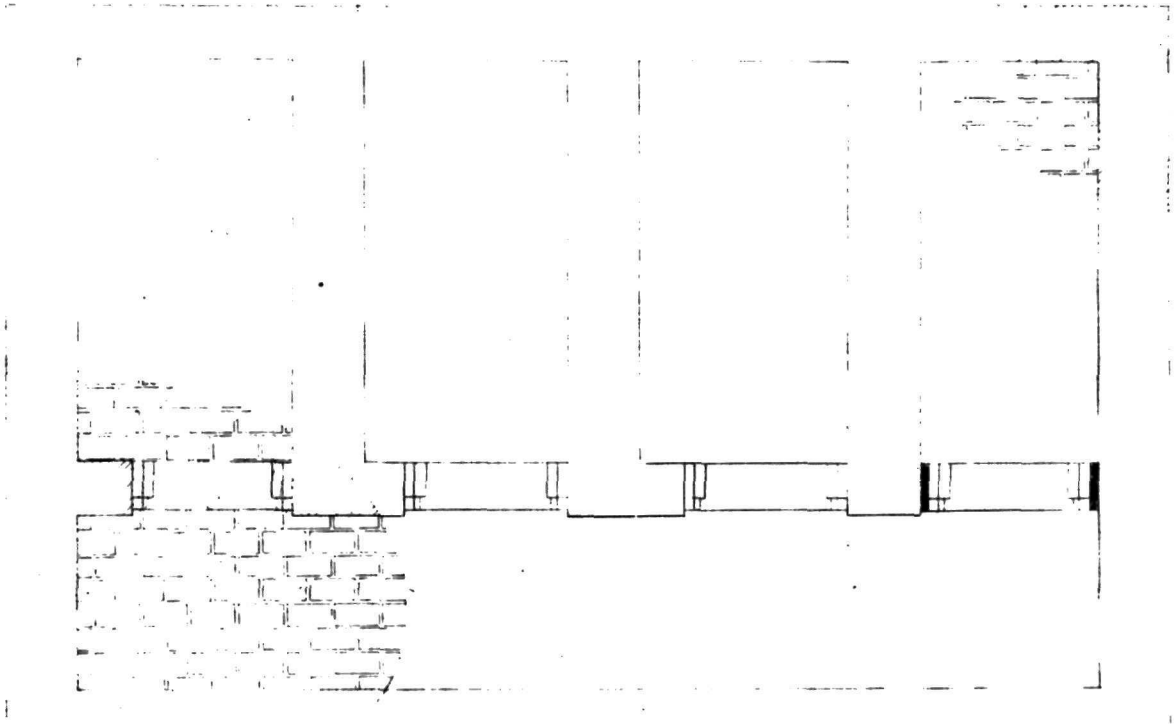
66 A plan view of the cells as found also includes drawings of a, a section view of the entrance to cell 2 (looking north); b, a section view of the western foundation wall and the western wall of cell 1 (looking north); c, the lintel from cell 1 and d the western jamb and associated hardware of cell 2. The irregular area below the upper pintle on d marks where a now rotted plate was once nailed to the jamb. (1K-71-102-8)

FIGURE 66

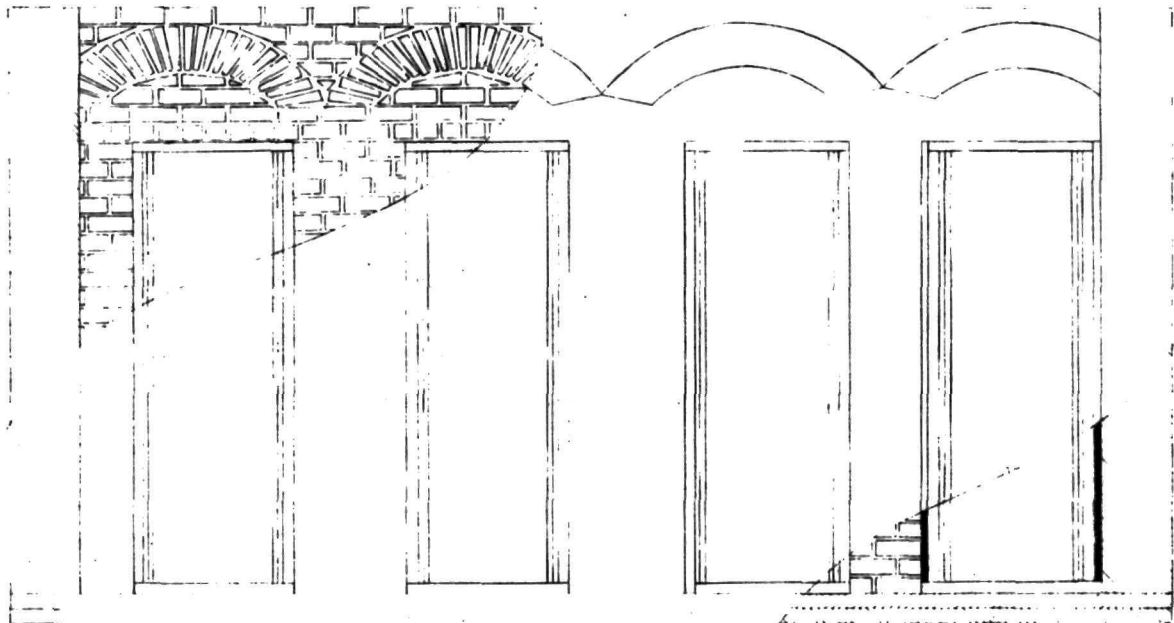
Drawing No. 1K-71-102-8

67 The reconstructed plan and elevation views of the cells, based on on-site measurements and observations, are reasonably accurate representations of the cells' shapes and forms immediately after construction. The cells are, from right to left, 1, 2, 3 and 4.

(1K-71-104-6)



PLAN



ELEVATION

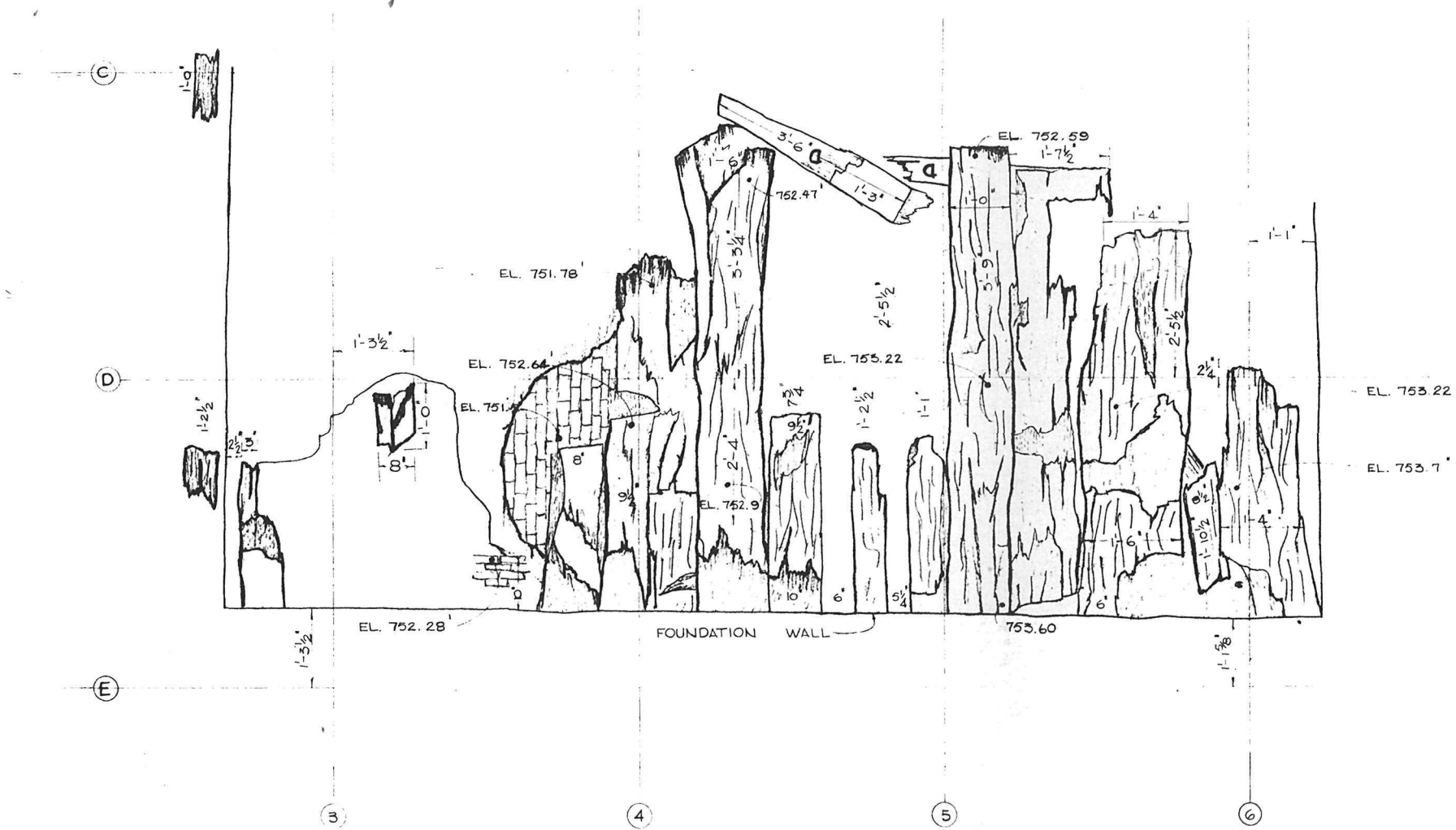


68 A reconstruction drawing of a cell door was based on data recovered during the excavation and on details of a peephole in a door found in the Big House. (IK-71-104-2)

69 Part of the vault of cell 2 and parts of the east-west oriented sleeper (a) are shown on a plan of the joists above the cell complex. (1K-71-102-6)

FIGURE 69

Drawing No. 1K-71-102-6



revisions date

A detail no. détail no.
B location drawing no. / sur dessin no.
C drawing no. dessin no.

drawn by / tracé par L.F.G. TEAM scale / échelle 1" = 1'-0"
designed by / établi par

checked by / vérifié par

job captain / chef de projet date
JULY, 1971

responsible officer / officier responsable date

project title titre de projet

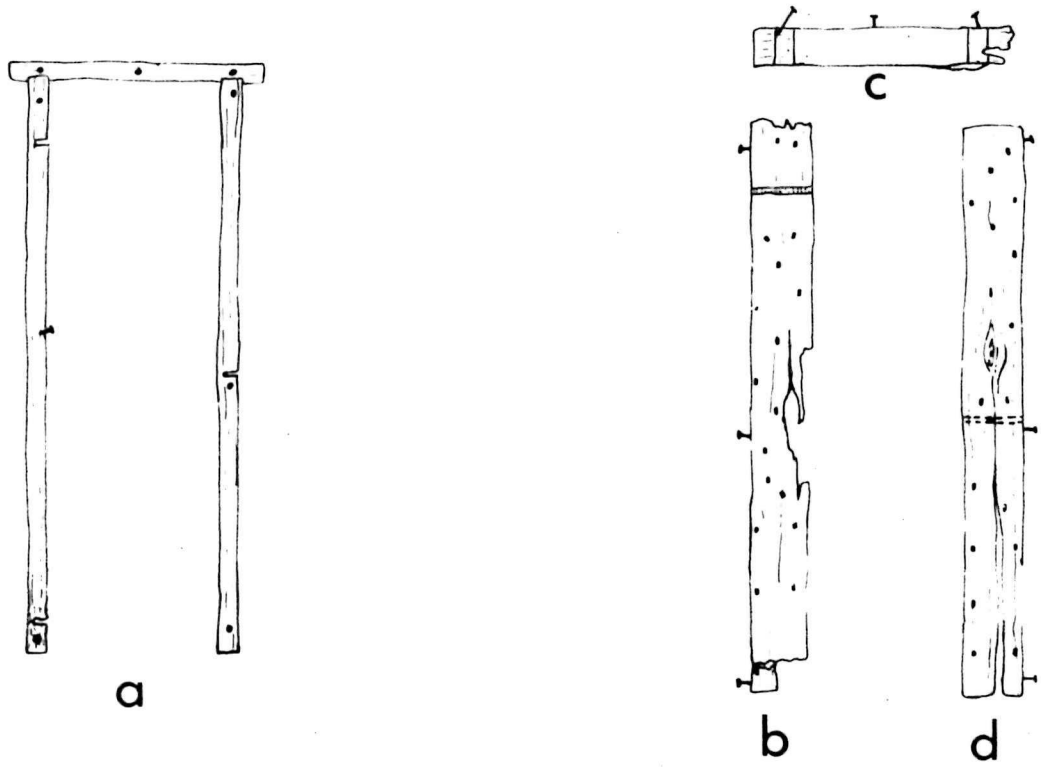
ARCHAEOLOGICAL DWG.
PENITENTIARY BLDG.
LOWER FORT GARRY
NATIONAL HISTORIC PARK

drawing title titre de dessin

JOISTS
ABOVE CELLS

reference no. / no de référence 1K-71-102-6
drawing no. / dessin no. 38a

70 The main components of the door frame of cell 3 were sketched after the large items of hardware were removed. a is the door frame (facing the cell); b, the inner surface of the eastern jamb; c, the lintel; and d, the inner surface of the western jamb. (1K-71-104-3)



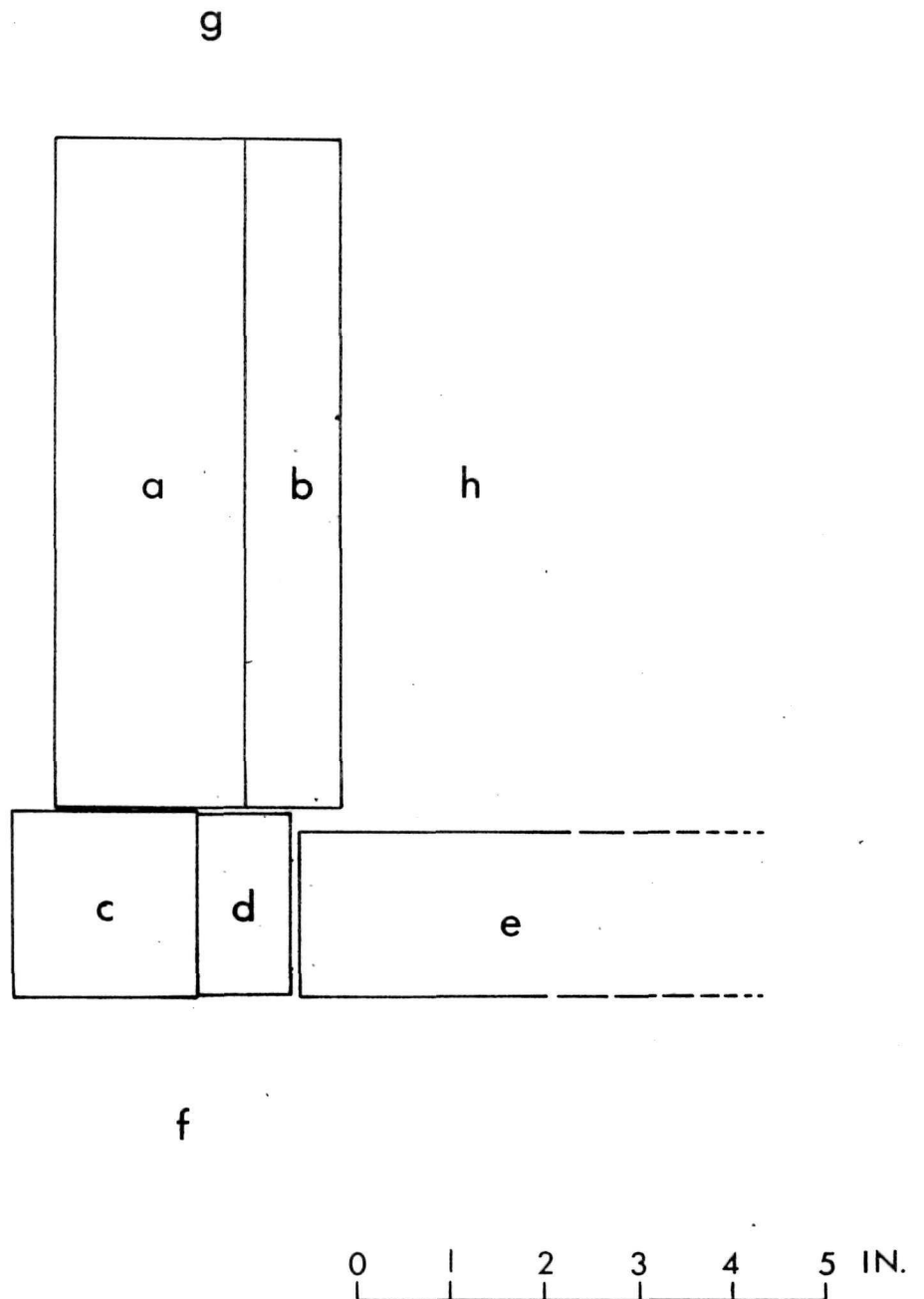
0 1 2 FT.

SKETCH:
DOOR FRAME, CELL 3

71 The drawing illustrates the general relationship of the various components of an eastern jamb. It does not represent a specific door frame. a is the jamb; b, the planted stop; c, the blind stop; d, the filler; e, the door; f, the front of the jamb; g, the back of the jamb; h, the inside of the jamb; and i, the outside of the jamb.

(1K-71-104-4)

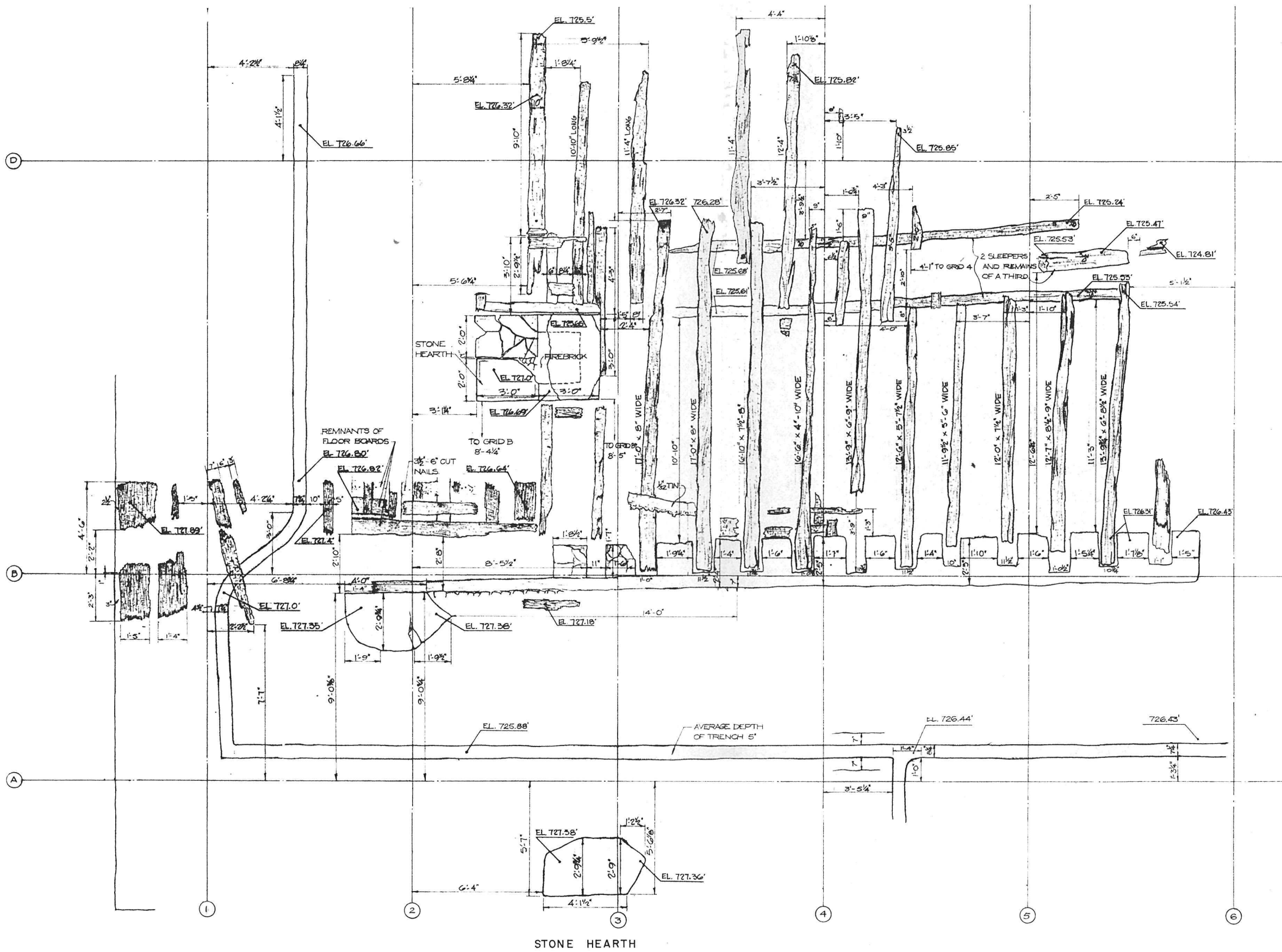
TYPICAL CONSTRUCTION OF AN EASTERN JAMB, CELL DOORWAY



72 Sleepers, joists, flooring, a foundation, three
fireplaces and what may be a drainage ditch were located
in the brewery-distillery-storehouse. (1K-71-102-3)

FIGURE 72

Drawing No. 1K-71-102-3



STONE HEARTH

revisions

A detail no. detail no.
 B location disp. no. / cur details no.
 C drawing no. details no.

drawn by / tracé par scale / échelle
 L.E.G. TEAM 1/2" = 1'-0"
 designed by / établi par
 checked by / vérifié par

job captain / chef du projet date
 JULY, 1971
 responsible officer / officier responsable date

project title titre du projet
 BREWERY-
 DISTILLERY-STOREHOUSE
 LOWER FORT GARRY
 NATIONAL HISTORIC PARK

drawing title titre de dessin
 SLEEPER AND TRENCH
 LOCATION PLAN

reference no. / no. de référence drawing no. / dessin no.
 1K-71-102-3

Table 1: Frequency and Distribution of Hardware

	Cell 1	Cell 2	Cell 3	Cell 4	1K41A8
Hinge					
Variation 1			2	2	
Variation 2	2	2			
Variation 3		2			1
Pintle	2	2	2	2	
Bolt					
Variation 1	5	5	5	4	
Variation 2				2	
Screw		16			8
Hasp					
Variation 1	1	1	1	1	
Variation 2	1	1	1	1	
Eye	3	2	2	2	
Staple	4	1	1	1	
Bracket	1			1	
Bar	2	1	1	2	
Nut	10	9	9	10	
Washer	3	1	2		

