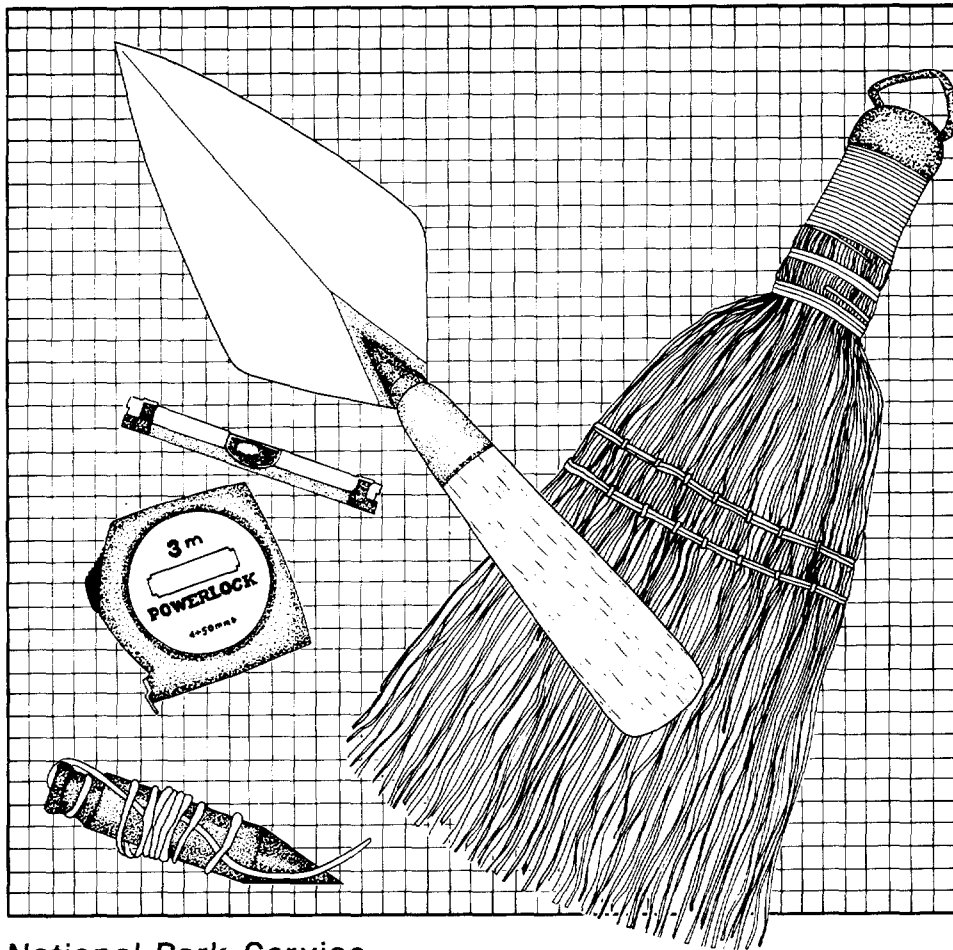


ARCHEOLOGICAL EXCAVATIONS  
AT THE MANITOU FISH CAMP,  
APOSTLE ISLANDS NATIONAL LAKESHORE, 1983



National Park Service  
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Archeological Excavations at the  
Manitou Fish Camp,  
Apostle Islands National Lakeshore,  
1983

by  
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Midwest Archeological Center  
Technical Report No. 4

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## ABSTRACT

This report documents archeological investigations at the Manitou Fish Camp near the southwest tip of Manitou Island, within Apostle Islands National Lakeshore. This historic Euro-American fishing camp was constructed in stages beginning about 1895. Most of the structures date to the early decades of the twentieth century. The camp has had essentially continuous use throughout its history, both as a fishing camp and as a weekend retreat. The historic importance of the camp is underscored by its listing on the National Register of Historic Places. The rapidly deteriorating condition of the camp led to the need for extensive structural renovation beginning in 1983. Since restoration activities would impact soil deposits around and under several of the structures, archeological excavations were initiated to collect data which might otherwise be lost. Although a large number of artifacts was collected through these excavations, archeological research has not added extensively to the previously available historic record for the camp. However, the archeological research has provided some data for evaluating the accuracy of the historic record with regard to the age and function of several of the camp structures. The evaluation of that data forms the core of this report.

## ACKNOWLEDGEMENTS

Successful completion of the archeological project at the Manitou Fish Camp was made possible by several persons. The small field crew of Bill Chada, Melissa Connor, and Linda Haws lived and worked under very difficult conditions during our two week stay on Manitou Island in May, 1983. Despite cold and wet conditions, they maintained a high level of dedication to the project. Thanks to them, the archeological work was completed on schedule and structural restoration proceeded without delays. The restoration team under the direction of Alex Martin was a pleasure to work with. Several other members of former Superintendent Pat Miller's Apostle Islands National Lakeshore staff contributed greatly to the project. Former historian Kate Lidfors contributed valuable historic data and worked with us during the collection and tagging of the huge inventory of surface materials. Former Lakeshore ecologist Merryll Bailey provided moral and logistic support. Finally, ecologist Bob Brander's insights regarding the drainage problems at the site were shared and greatly appreciated.

Bill Chada and Chris Riddle sorted and helped identify the artifact assemblage. Site maps were drafted by Nancy Hartman. Susan Monk analyzed and reported on the small faunal assemblage. Their efforts in the project were critical to its eventual completion.

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## INTRODUCTION

The Manitou Fish Camp is on the southwest coast of Manitou Island, within Apostle Islands National Lakeshore (APIS), Wisconsin (Figure 1). The camp is on a low sandy beach formation at the foot of a flat bluff which parallels the shoreline of Lake Superior (Figure 2). Construction of the camp began in the 1890s and continued over a period of about 40 years. It was used continuously until its recent acquisition and restoration by the National Park Service. The camp is currently an important part of the National Lakeshore's interpretive efforts, and is the focus for visitation on Manitou Island. Interpreters occupy the camp each summer and demonstrate various aspects of twentieth century fishing techniques for park visitors.

"The Manitou Fish Camp is an important historical site because it is the area's only remaining intact, unaltered representative of a lifestyle that was basic to the development of the Old Northwest: that of a European male without family ties, who survived on the resources of the land and whose life was characterized by transiency and seasonal changes" (Lidfors 1981). Two of the structures at the camp are significant as representatives of traditions of vernacular architecture with roots in Europe's Middle Ages. Examples of this tradition, once common, are becoming increasingly rare in the region. The architecturally significant structures are a log cabin (Structure 1) and a log bunkhouse (Structure 3). The cabin is the oldest structure at the site.

Recognition of the historical and architectural significance of the Manitou Fish Camp was formalized on January 19, 1983, when the site was placed on the National Register of Historic Places. It was a year-round camp, although through much of its history, the camp was used as a specialized winter season commercial fishing station where unique open water and through-the-ice fishing technologies were applied. While fishing for herring, lake trout, and whitefish was the main activity conducted from the camp, gardening and other subsistence efforts occurred there as well. The camp also served as the base for logging activities during its early history.

The construction and occupational history of the camp began in the 1890s when four Swedish loggers constructed a 14-x-18-foot cedar log cabin (Structure 1). The cabin is typical of traditional northern European log construction and contains hewn cedar log walls joined at the corners with full dovetail notches which provided closely fit logs and a stable exterior for the structure. At least three types of chinking were used on the structure, with moss being the earliest chinking material. Lime and sand mortar, and finally, concrete, were subsequently used to seal the small spaces between the logs. Window and door openings were cut out of the walls and framed

with wood. The tarpaper covered roof consists of boards nailed to a ridge pole and purlins. Door latches, hinges, and handles are a combination of hand-carved wood, hand-forged iron, and leather. Prior to National Park Service restoration efforts the cabin remained intact, but wooden elements had deteriorated extensively (Figure 3). In addition, the structure had settled appreciably. This settling process was coupled with extensive deterioration of the lowest course of logs.

Several phases of construction occurred at the camp after the cabin was built. By about 1935 the camp had reached its current configuration. Other structures at the camp include two twine sheds, a bunkhouse, a second cabin, and a smokehouse. In addition, deteriorated remnants of two docks, a wooden windlass, and two outhouses are present. One dock was rebuilt and extended in 1983-1984.

Structure 2, a twine shed, was built in the early 1900s by John Hanson, a Swedish logger who remained on Manitou Island to fish after the initial logging efforts were completed (Figure 4). The structure is of simple frame construction with wide vertical plank siding. The structure is 17 x 11 feet in extent and apparently served numerous functions including a stable for Hanson's horse and storage space for nets and fishing equipment. Prior to National Park Service restoration, the structure had suffered deterioration of wooden elements at ground contact, and considerable settling was also apparent.

Structure 3, a bunkhouse, was built in the early 1930s by Theodore Olson, one of two brothers who utilized the Manitou Fish Camp continuously since the 1930s. This 14-x-18-foot, one room, single gable, log building was initially constructed on Ironwood Island, but was dismantled and reassembled at the Manitou Fish Camp. The balsam fir logs were left in-the-round and simple saddle notches were used at the corners. By 1983 the cabin was seriously deteriorated, with the fir logs extensively rotted (Figure 5).

Structure 4 is a second twine shed, built in the mid 1930s by Theodore Olson. This 9.5-x-12.5-foot frame building is faced with wide horizontal plank siding (Figure 6). The structure was used for hanging nets and for storage of a wide variety of fishing equipment. Since the structure is in a well-drained setting and is raised from the ground surface by large log footings, deterioration of the wooden fabric has been minimal.

Structure 5 is a small cabin built by Frank Childs in the late 1920s or early 1930s (Figure 7). The one-room frame structure was moved several feet from its original location by ice action. Prior to National Park Service restoration efforts in 1983, this structure was in a serious state of disrepair.

Additional structures at the Manitou Fish Camp include a small (3 x 3 feet), dilapidated smoke house (Structure 6) built by John Hanson in the early 1930s, and two outhouses of undetermined age. A handmade windlass (Structure 8), two deteriorated docks, and boat skids constitute the remaining structures at the site. In addition, many smaller items including a net reel and salt barrels remain at the site along with a large inventory of fishing equipment, much of which is handmade. The site also encompasses additional features including an early twentieth century clearing used as a garden, with associated drainage ditches. Also, several trash dumps are scattered around the periphery of the camp. The dumps range in age from early twentieth century to recent.

Despite considerable deterioration of wooden fabric at several of the Manitou Fish Camp structures, the original and intact condition of the camp, the associated collection of fishing equipment and tools, and the historic and architectural significance of the camp make the site unique to the Apostle Islands region of Lake Superior. Since deterioration of the structures had reached a critical point by the early 1980s, the National Lakeshore staff determined that restoration of the structures should be of very high priority. This was further emphasized by plans to open the camp to visitation so that the public could experience and appreciate this unique cultural resource.

The archeological work documented in this report was a component of the restoration process initiated at the camp in 1983. Camp restoration was completed in 1984, and the site was opened to the public during that year.

Excavations were initiated at each of the structures to be restored in an attempt to learn more about the condition of the foundations and subsurface structural components, to develop additional information on historic uses, and to mitigate impacts to archeological deposits expected to occur during the restoration process. A total of 40 person-days was spent conducting archeological fieldwork at the Manitou Fish Camp during late May, 1983. Weather conditions for fieldwork were poor over much of this period, but did not hinder field efforts appreciably. Examination of each of the major structures was undertaken through surface collections and archeological excavations. Data on the condition of the foundations of the structures were recovered along with numerous artifacts from deposits adjacent to the buildings. In addition, proposed minor developments including a vault toilet and a well site were surveyed during the course of fieldwork.

Archeological fieldwork at the camp produced useful information on the configuration and condition of subsurface structural components, but relatively little new information

regarding the history of the camp or the function of the various structures was obtained despite recovery of over 1,970 artifacts. Most of the recovered cultural materials are architectural items which add little to previous knowledge of camp structures. The artifact inventory does help to confirm available historic documentation regarding the age and use of camp structures, but provides few details of camp life beyond those previously known.

One important reason for the relatively sparse interpretive value of the recovered artifact assemblage was the sampling strategy employed during excavation at the camp. Work was focused in areas where impacts were anticipated to occur through restoration activities. Areas outside these impact zones which might be expected to contain considerable archeological data were not investigated. Further, the extensive dumps around the perimeter of the camp were not examined archeologically. Subsequent to archeological fieldwork, much of the material from these dumps was collected by APIS staff and accessioned into the site collection. Those materials are not discussed in this report. An extensive collection of historic artifacts is also preserved within several of the structures.

When the archeological and historical collections from the site are combined, a rather extensive artifact inventory is represented. It is likely that a study of all those materials would provide a more complete picture of camp life and the use of individual structures. However, such a study is outside the scope of the current project. Despite the somewhat disappointing yield of historically relevant and functionally specific data from the archeological excavations, the goals of the project were met through the fieldwork and laboratory analyses presented in this report.

This report is divided into four sections in which the background of the project, field and laboratory goals, and methods, results, and summary and conclusions of the project are presented.

## GOALS AND METHODS

### Fieldwork

Goals for fieldwork at the Manitou Fish Camp were twofold, with both related to planned restoration and public use of the camp. The primary goal of fieldwork was to mitigate adverse impacts to archeological deposits during the structural restoration process. Since the lower portions of the structures were extensively rotted, it was known prior to fieldwork that restoration activities would include ground disturbance around the perimeters of the buildings in order to raise them to their former elevations and to provide space for replacement of missing or deteriorated architectural elements. Fieldwork was designed to extensively sample, through excavation, the perimeters of each of the structures so that pertinent subsurface data could be collected in a well-controlled manner. In this way information regarding subsurface structural details (e.g., foundation configuration and condition), important for accurate restoration, would be collected prior to initiation of restoration activities. This data could then be incorporated into the restoration process. In addition, it was anticipated that archeological examination of the perimeters of the structures might yield data useful for confirming or refuting reported functions for specific structures while also adding to the existing historic data base for the site. This goal was achieved less fully than the goal of collecting subsurface architectural data.

The primary goal of mitigating anticipated adverse impacts from restoration was fully met through a combined methodology of surface examinations and limited excavations. All areas of the site later impacted during restoration activities were thoroughly sampled, and little or no information was lost as a result of structural restoration activities.

The related field procedures of surface survey, shovel testing, and excavation were combined in order to meet the goals discussed above. Since the site has been used continuously (at least on a seasonal basis) since the 1890s, and due to its remote insular location, large amounts of historic and recent cultural material have accumulated across the surface of the camp. These materials were found densely piled against the walls of several of the structures as well as accumulated in a number of dumps around the periphery of the camp clearing. The archeological team focused upon those materials adjacent to the structures, since those areas would be heavily impacted by restoration activities. Collections were made of all cultural materials around the structures. The materials range in age from historic (1930s) to very recent. The materials were sorted, and the very recent ones, such as 1970s beer cans, were discarded. Historic materials were tagged according to collection provenience and were left

at the site to be incorporated within the already large inventory of tools, equipment, and other materials housed within the structures. The surface collected materials included numerous nets, sled runners, stove parts, and a variety of domestic refuse. These artifacts are housed at the National Lakeshore and are not described in this report. A few temporally or functionally diagnostic artifacts from surface collections were returned to Lincoln for processing and analysis, and are documented in the results section of this report.

The Midwest Archeological Center team did not collect material from the numerous dumps around the periphery of the camp since these items would not be directly impacted through restoration activities. However, the National Lakeshore staff later determined that the more recent dumps needed to be "cleaned up" prior to opening the site for visitation. The Midwest Archeological Center provided information for proper recording of the dumps and the cultural material within them and the National Lakeshore staff undertook the cleanup process. Recent beer cans and other late twentieth century materials were discarded, while historic materials were tagged and saved similarly to the materials from around the structures. The Lakeshore staff was conservative in determining which materials would be discarded, and only the most recent trash accumulations were removed from the island. It is important to note that the recent trash was not generated through fishing activities, but rather through recent use for parties and weekend outings. The remaining materials were added to the existing, large historic collection from the site.

Initial fieldwork conducted at the Manitou Fish Camp consisted of survey of proposed locations for a water well and a vault toilet. These facilities were developed to serve visitors at the camp and on-site interpretive personnel. The proposed toilet and well sites were selected by Apostle Islands staff members. They were placed to have minimal visual intrusion upon the historic scene, while still providing ready visitor access. A further consideration in siting the well was access for the drilling machine. Both the well and toilet sites were surveyed through the combined methods of surface reconnaissance and interval shovel testing. Both proposed construction areas had been flagged by the Lakeshore staff prior to survey. Surface reconnaissance and interval shovel testing were then conducted at each location. A very close interval ranging from one to two meters was employed during shovel testing. An area larger than the proposed development zone was surveyed at each location. No cultural remains were recorded at either location despite these intensive survey efforts. After the survey of the vault toilet location was completed, construction was initiated. Construction monitoring

was undertaken during and after excavation of the vault, and no cultural remains were recorded.

The remainder of archeological fieldwork at the Manitou Fish Camp included surface reconnaissance of the entire site, excavations around the perimeter of several of the structures, and site mapping. Since ground disturbance would not occur away from the foundations of the structures during site restoration, the areas between the buildings were subject to very minimal investigation. Any subsurface deposits in those areas remain intact. The extent of excavation at each structure varied considerably depending upon yield of cultural material, ground water levels, soil conditions, and structural significance. Structures 1 and 3, the most architecturally significant structures, were the primary focus for excavation. Initial expectations regarding the relative ease of excavations in the sandy soil at the site were not met. Instead, excavations were slowed through the presence of large quantities of rocks (boulders), and more importantly, by the saturated nature of the sandy soil surrounding several of the structures. The extremely wet conditions around Structures 2 and 3 severely limited excavation efforts and posed problems for restoration and continued preservation of camp structures. The original drainage pattern at the site seems to have been considerably altered through site use, much to the detriment of preservation of wooden architectural elements at Structures 2 and 3. Recommendations for partially alleviating the drainage problem were presented to the National Lakeshore staff early in the 1983 restoration phase via a preliminary report. Those recommendations will be briefly summarized later in this report.

#### Labwork

The relatively large artifact assemblage (1,970 items) recovered from the site was analyzed with focus placed upon examining function and age of the items. It was hoped that this would facilitate refinement of the age and function of structures with which the items were associated. The goal of this study was to check the accuracy of oral accounts of the function and age of structures, and, if possible, to add new information about the use of the structures through time. A very large number of the artifacts from site excavation are architectural items. The majority of these are window glass fragments and nails. Window glass thickness was measured for each fragment, but the recent age of the site currently precludes extensive examination of the thickness data. Nails were sorted according to form (cut or wire) and size (penny-weight).

The relatively few remaining functionally or temporally diagnostic items were analyzed individually. Where available, patent information was researched to provide precise identifications and dates for architectural and machinery fragments. While this research provided relatively little new information for interpreting structural function and age, it did serve to confirm the information previously collected through oral histories.

In order to organize and summarize the rather extensive artifact inventory from the 1983 excavations at the Manitou Fish Camp, a series of tables has been constructed (Tables 1-4). These tables provide summary counts for artifacts within functional groups, which include architectural items, tools and equipment, and domestic materials. Within these groupings, the artifacts are tabulated by excavation unit and by the structure with which they are associated. This approach was utilized to reduce the amount of purely descriptive data which would otherwise be necessary if a narrative approach to artifact presentation was followed. Since most of the twentieth century items documented in these tables are so well-known both to archeologists and general readers who may use this report, it was felt that the traditional approach of extensively describing individual items and similar groups of materials could be greatly reduced. Instead, descriptive and analytical commentary is saved primarily for unusual or highly diagnostic items which are important to an improved understanding of structural function and age.



## RESULTS OF EXCAVATIONS

The 1983 excavations at the Manitou Fish Camp are summarized according to the six structures which were sampled archeologically. Twenty-eight excavation units were opened at the site, with excavation focusing on Structures 1-5 (Figure 2). Most of the excavation units were 1 m x 1 m in extent, although a few units (11, 12, 20, 27, and 28) were of varying sizes. In all, about 25 sq m were excavated within these 28 units. Approximately one additional square meter was investigated through four shovel tests placed in the main cluster of buildings. Additional shovel tests were placed off-site within the proposed well and vault toilet construction zones. Within the immediate area of the structures, approximately 7.35 cu m were excavated and screened through 1/4-inch hardware cloth. These excavations yielded 1,970 cultural objects.

### Structure 1

This hewn cedar log cabin is the oldest structure at the site, having been constructed in the 1890s. Despite its age, it remained as one of the better preserved structures at the Manitou Fish Camp prior to initiation of National Park Service restoration efforts. The cabin had settled somewhat, and during archeological testing the lower course of logs was found to be extensively deteriorated. In the profile of Unit 12 there was evidence that an entire course may have completely deteriorated. After fieldwork was completed, a more thorough investigation of the building's wooden fabric by the restoration team revealed that although the logs maintained their original shape, many were internally rotted and could not be reused when the cabin was restored. For this reason, many newly cut logs had to be fitted into the restored cabin.

The cabin is built partially upon a flat earthen "pad" which extends about one meter wider than the cabin on its north, south, and west walls. This pad also serves as a partial embankment around portions of the cabin. Archeological excavations revealed that this flat surface was formed prior to (or during) cabin construction by purposeful addition of approximately 20-30 cm of coarse (beach) sand and gravel over the original boulder-strewn surface. Immediately east of the cabin, the hillslope was cut down to match the level of the soil pad. This cutting and filling process covered the uneven boulder-strewn surface and provided a flat and well-drained surface on which to construct the cabin. On the north side, no pad exists, and the base log of the cabin was placed upon the original ground surface. The presence of extensive amounts of charcoal in the paleosol under the pad indicates that the area was burned over prior to cabin construction.

An identically constructed cabin pad is present at the nearby P-Flat site (47AS47) (Richner 1987). Although there is no cabin currently standing on the prepared pad surface at P-Flat, archeological evidence indicates its former presence. The age of the P-Flat structure seems to match very closely with that of Structure 1 at the Manitou Fish Camp.

Ten excavation units covering about 10 sq m were excavated immediately adjacent to the walls of the cabin (Figure 8). Unit 19 along the west wall and Units 11, 12, and 20 on the south wall yielded few artifacts. However, these units exposed clear stratigraphic profiles which yielded useful information on the configuration of the earthen pad upon which the cabin was built. Unit 12 was excavated nearly 70 cm into the pad, and the profile revealed that extensive amounts of sand and rock fill from the nearby beach had been added to cover the boulder-strewn surface prior to construction of the cabin.

Units 11 and 12 were placed at the southeast and southwest corners of the cabin in order to examine possible foundation elements. No foundation was located. Instead, the cabin was found to have been built with the base course of logs lying within the sandy soil and rock of the prepared pad. The cabin had settled into this loose soil somewhat, but not to a great degree. Other than architectural elements (nails, mortar), few artifacts were found within these units. In Unit 11, the recovered materials include: three wood stove burners (one of which is fragmentary), nails, a red brick fragment, 3 bottle glass fragments, tarpaper fragments, and 11 pieces of mortar/chinking. Diversity was minimal in Unit 12, with a recent D cell battery, a small copper wire fragment, three nails, 10 pieces of tarpaper, and 12 fragments of mortar/chinking constituting all recovered materials. Samples of mortar found in the lower levels of these units showed clear impressions of wood, and are interpreted as chinking which has fallen from its original position between the cedar log walls of the cabin. This mortar is made from lime and coarse sand and is distinctly different from the concrete which was present as chinking in 1983. Samples of the mortar, which along with sphagnum moss appear to be from the early years of use of the structure, were provided to the restoration team so that the mix and color could be duplicated when the cabin was restored.

Unit 20 was placed perpendicular to Unit 11 near the southwest corner of the cabin. Similar to Units 11 and 12, a meager yield of cultural materials was recovered from Unit 20. Artifacts consist of 30 mortar/chinking fragments, two large iron spikes, a fragment from a single-cut file, and a small metal bell. All of these artifacts were associated with a dense accumulation of mortar which was defined as Feature 1. Removal of the mortar revealed no additional artifacts. It is

unclear if the mortar reflects a repair episode, or may have resulted from the initial construction of the cabin. The mortar and associated artifacts were found on the original ground surface, at the base of the coarse sand fill. This suggests that the feature dates to the cabin construction phase.

Unit 19 was excavated under a window mid-way along the northwest wall of the cabin (Figure 8). Smooth beach pebbles and cobbles were present on the ground surface touching the lower course of logs here and elsewhere around the cabin. These smooth rocks appear to have been used to partially protect (or mask) the rotting base course log and insulate the cabin. Artifact yield from Unit 19 was very limited. Mortar (20 fragments), three stoneware fragments, one fragment of recent plastic, two window glass sherds, and three fragments from a colorless glass oil lamp chimney are the only artifacts from Unit 19.

Excavation Unit 13 was placed along the southeast wall of the cabin, in the same relative position as Unit 19. The unit exposed the original builder's trench which was cut into the hillslope along the southeast wall of the structure. In addition, a largely undiagnostic array of artifacts was recovered from Unit 13: 25 fragments of unidentified iron scrap, one nail, 18 pieces of tarpaper, two pieces of quartz which appear to be of prehistoric origin, 33 pieces of mortar/chinking (three of which have traces of yellow paint), one piece of recent plastic, one red brick fragment, a wire fragment, six nails, and 10 window glass sherds. It is somewhat surprising that more window glass fragments were not recovered from Units 19 and 13, given their position immediately below two of the three windows present on the structure. It is apparent that glass breakage at the northwest and southeast wall windows was very limited over the approximate 90-year occupation of the structure.

Test Units 15 and 22 were placed in a 1 m x 2 m block at the northeast corner of Structure 1. Similarly, Units 14 and 17 were placed along the north wall, parallel with the wall and partially contiguous with Units 15 and 22 (Figure 8). The density of artifacts within these units was much higher than in the units previously discussed. It is apparent that primary and secondary trash discard from the cabin occurred in this area. This is not surprising, since the cabin has a single door, and the door is immediately adjacent to Units 17 and 14 and a short distance from Units 15 and 22. In addition to mortar, tarpaper, nails, and metal scrap, several diagnostic items were also recovered from these excavation units.

In Unit 15, a wood stove burner, three partially reconstructed bottles, a silver plated spoon, and 13 pieces of

a colorless glass oil lamp were found in addition to numerous nails, an iron rod, flat iron stock, about 50 mortar fragments, four pieces of linoleum, 10 pieces of tarpaper, one piece of plastic, four sherds of window glass, 43 colorless glass bottle sherds, two cartridges, faunal remains, and unidentified metal fragments. One of the bottles is marked with embossed lettering which reads, "Drewery & Son", "ST. PAUL" "THIS BOTTLE NOT TO BE SOLD". Based upon the span of operation of the bottle manufacturer (W F & S, Milwaukee), and the brewer, this bottle can be dated to the period from 1900-1912 (Fredrich and Bull 1976:149; Toulouse 1971:537). A second unmarked liquor bottle appears to date to pre-1920. The lipping tool finish portion of a third bottle exhibits a purple tint, caused by the presence of magnesium in the batch. This bottle can be dated to about 1880-1915. The silver plated spoon is marked "Regal Pure Silver Plate" and may have been made by the Rogers Co. The spoon appears to have been used to pour melted tar, since much of the object is covered with hardened tar. While it may have been used to tar fishing equipment, it was more likely used to apply small amounts of tar to the tarpaper roof of the cabin. Numerous small repairs were visible on the cabin roof in 1983. The range of materials from this unit clearly reflect the domestic function of the structure.

A relatively large number of artifacts was also recovered from Unit 22, but most are of limited interpretive value. The artifacts from this and all other site proveniences are summarized according to function and number in Tables 1, 2, 3, and 4. A single bone button reflects the relatively early age of the structure compared with other structures at the site.

Excavation Unit 14, located at the northeast corner of the structure, had a relatively small artifact assemblage. The stratigraphic profile demonstrated that the north wall of the structure was built directly upon the original grade on large boulders. A thin fill layer consisting of historic debris accrued over this surface during the 90-year span of structural use. A partially reconstructed Coca Cola bottle, eight fragments from an iron grate, five links from a chain, nails, two fragments of tarpaper, five fragments of bottle glass, three window glass fragments, four fragments of mortar, a threaded battery terminal, 14 cartridge cases, and a single fish tag were recovered. The tag is of interest and contains embossed lettering, "Wis. 1917 Gill Net 823". The numbers on the tag are "punched" and consist of dots. The "2" and "3" are clear, but the "8" is unclear and may be a different number. The 1917 date for this item reflects the early years of site occupation. It is thought that in 1917, Structure 1 was one of only two major buildings standing at the site.

Unit 17 was excavated immediately adjacent to Unit 14 and was placed partially under the front window of the cabin. The unit was immediately adjacent to the front door and alcove of the cabin. Only a thin fill zone was encountered over the rocky original grade. Cultural material from the unit consists of: five brown bottle glass sherds, 18 colorless glass bottle sherds, a brass button, two iron stove burner fragments, another fragment from a stove, nails, 18 cartridge cases, a piece of melted orange plastic, an iron coat hook, three iron wedge-shaped objects, six pieces of metal foil, an unidentified iron bar, two pieces of charcoal, a carbon rod from a battery, a 1978 D penny, a metal shoehorn, and 54 fragments of window glass. The identification and dates of the cartridges from Unit 17 and Unit 14 are listed in Table 5. The nails are tabulated by form and size for all excavation units and are listed in Table 6. The presence of a large number (32) of spent and live cartridges outside the front door of the cabin is somewhat surprising and reflects firing of several weapons from that location.

The final unit (16) excavated at Structure 1 was placed at the north corner of the cabin, immediately adjacent to the alcove (Figure 8). This alcove was added to the cabin in 1942. The artifacts from this unit duplicate those from the other units excavated at Structure 1 (Tables 1, 2, 3, and 4). Only two artifacts from this unit are noteworthy. The first is a "DELCO" brand automotive electrical component. It appears to be a floor mounted starter switch. The presence of automotive parts at the site would not be unexpected since various vehicles were taken over the ice for use during the winter. A second, potentially identifiable item is a metal bottle cap which bears the following embossed information, "ARVEN LUCAS, AMSTERDAM". Unidentifiable lettering is also present on the bottle cap.

In addition to conducting excavations around the perimeter of Structure 1, a surface collection was also made. Several large metal artifacts including wood burning stove parts, portions of a starter, and other motor vehicle parts were collected. Very few of the artifacts collected from the surface or excavation units around Structure 1 relate directly to fishing. The single obvious exception is the gill net tag. The majority of the artifacts are related to construction and repair of the cabin (tarpaper, window glass, nails, and mortar/chinking) and to subsistence activities conducted in and near the cabin (bottles and stove parts). A small number of faunal elements was recovered from Structure 1. These are summarized in Appendix A. While the materials have added relatively little information regarding fishing activities, they have helped confirm that the cabin predates the other structures at the site. The gill net tag dates to 1917, one bottle dates between 1900 and 1912, and it is likely that the

other bottles predate 1920. The range of materials other than architectural items reflects use of the structure as a habitation since at least the beginning of the twentieth century.

### Structure 2

This structure, which is referred to as a twine shed, apparently served numerous functions which included storage of nets and fishing equipment. It has also been suggested that John Hanson, who built the shed, used it as a stable for his horse. The structure has a single door, which faces south, and a single window which faces the Lake (west). A shallow depression is present on the east side of the shed (Figure 9). Historic data indicate that the structure was built in the early twentieth century.

Attempts to excavate around the perimeter of this vertical plank structure were severely limited due to the saturated condition of the soil. Standing water on the east and west sides precluded any excavations in those areas, given the available field equipment. Two units (21 and 23) were excavated on the south side of the structure where sand fill reduced the problem of standing water to some degree. In addition, a large shovel test (No. 4) was excavated along the north wall. Results of this excavation were rather meager with regard to artifact recovery. Test Unit 21 yielded nails, a fragment of twine, 15 pieces of tarpaper, a cartridge case, 31 pieces of window glass, and 14 pieces of bottle glass. Since gray, green, brown, and purple tinted, along with colorless glass fragments are present, it appears that at least five different vessels are represented by the bottle glass. The bottle(s) bearing the purple tint was likely made between about 1880-1915, and suggests a relatively early age for the structure. Cultural material from Unit 23 was more limited than from Unit 21, and consisted only of one nail, two leather fragments, and a double-bitted ax. The ax has a small segment of wood from the handle remaining intact. Since Hanson, the builder of the cabin, initially came to Manitou Island to conduct logging, it is tempting to suggest that the ax belonged to him. However, the extensive use of the structure after Hanson's occupation of the site precludes a firm association of the tool with Hanson.

The stratigraphic profile exposed in the two excavation units consists of a thick humus which overlies a layer of coarse beach sand fill. Below that layer, original grade was exposed in the form of a paleosol developed on very rocky, sandy soil. Thick organic material lying on the original grade suggested the presence of rotted vegetation and animal waste. Although the black organic material was not analyzed, it did not occur at any other location, and may reflect the reported

stabling of a horse in Structure 2 by Hanson. Beneath the organic level (and original grade) was a dense accumulation of smooth cobbles. Excavation was terminated at the level of the cobbles since the units began to fill with water from ground water seepage. Water was encountered at about 35 cm below surface. It appears that the cobbles are beach deposits because Structure 2 is located very close to the modern shoreline. Since numerous glass fragments were recovered from the level of original grade in Unit 21, it is apparent that the organic layer and the thick coarse sand layer were both deposited after the the structure was built. It is not clear whether the sand fill was purposeful, or resulted from deposition during storm episodes.

Since excavations could not be undertaken in the standing water north of the structure, the nature of the depression there could not be investigated. However, excavation Unit 24 was placed east of the large depression along the east wall of the structure. This unit yielded nails, but little else. It is not possible to demonstrate conclusively through archeological evidence that the structure had been moved from its original position, but the terrain suggests that some movement has occurred.

An extensive accumulation of surface trash in the depression east of the structure was collected and sorted, but all of the material related to very recent use of the camp. Excavation of a shovel test (No. 4) at the north wall yielded evidence of a rotted log and a tin can along with a deep (95 cm) mottled soil profile. It appears that there is rather deep fill along the north wall of the shed.

### Structure 3

This log structure, formerly used as a bunkhouse, was in a seriously deteriorated condition when the Midwest Archeological Center team worked at the site in May, 1983. The balsam fir logs were extensively rotted, and it appeared that the structure had settled extensively. Since it was evident that extensive replacement of fabric and major restoration would be required at Structure 3, the field crew attempted to excavate a large portion of the perimeter of the building. This goal was accomplished with considerable difficulty due to high water levels encountered around the building. The water problem was most acute along the north and west walls. Standing water was present over some of the area, including the interior of the building immediately under the floor boards. During and immediately after archeological fieldwork, the drainage problems noted at Structures 2 and 3 were thoroughly discussed with APIS staff, and plans were developed to mitigate the

impacts of the existing drainage pattern. The solutions will be discussed further in a later section of the report.

Despite the wet ground conditions, nine excavation units covering nine square meters were placed at Structure 2. After excavation, ground water filled all of the open units. Figure 10 shows that excavation coverage was very thorough along the east and south walls, but minimal along the north and west walls due to the distribution of saturated soils. Approximately 50 percent of the perimeter of the structure was investigated through these excavation units. The recovered archaeological data are thought to be a representative sample of materials distributed around the perimeter of the building. During restoration of Structure 3, no areas outside the immediate perimeter of the structure were disturbed.

Soil depth was minimal around the cabin, ranging from 8-20 cm. A dark, silty sand constituting the historic cultural zone was present over original grade. This fill was saturated and difficult to excavate. The paleosol humus contained much charcoal, apparently reflecting burning of the area prior to construction. The orange sand and gravel under the old humus was devoid of cultural material.

Excavation Units 1-5 were placed along the east wall of the structure (Figure 10). The artifacts from these units showed little diversity and were limited mainly to nails and window glass (Tables 1, 2, 3, and 4). Window glass is very numerous, and reflects breakage and repair of the large, multipane window located near the midpoint of the east wall.

Excavation Unit 7 was placed under the window on the north side of the structure (Figure 10). Yield of artifacts from this unit was very low, with 91 window glass fragments constituting the great majority of the 97 total artifacts. Soil depth was about 25 cm, with numerous rocks and boulders exposed at that depth. Similar rocks outcrop across the camp, and there are numerous depressions remaining from where similar large rocks have been removed from the area. Excavation Unit 9 was placed at the southwest corner of the building, along the west wall. Artifact diversity there was greater than in the previously described units. In addition to the usual tarpaper fragments, nails, window glass, and mortar fragments, two diagnostic artifacts were recovered from Unit 9. The first is a double-bit ax head. No manufacturing information is printed on the ax, so its age remains unknown. Axes would have been important at the fish camp, both during its very early years when it was occupied by loggers and throughout its fishing history as well. Much of the fishing conducted from the camp was a winter activity and large amounts of wood were undoubtedly needed to fuel the wood stoves at the camp.



The second diagnostic artifact from Excavation Unit 9 can be dated with more precision. It is an iron marine muffler cap which bears extensive manufacturer and patent information. The cap contains the following embossed information: "WILCOX CRITTENDON & CO. INC. MIDDLETOWN CONN USA", "SOLE MANUFACTURER & DISTRIBUTOR", "MAXIM MARINE SILENCER", "PAT'D MAY 6 1913, "OUTLET", and "2". The muffler must postdate May 6, 1913, based upon the patent data. The records for the manufacturer/distributor were not researched in detail, but it was determined that this company was still in business in 1984. An upper time limit for fabrication of the muffler is not known.

Excavation Units 6, 8, and 10 were placed along the south wall of Structure 3. Units 6 and 8 were at the doorway, while Unit 10 was placed at the southwest corner of the building. Several diagnostic items were recovered from these units. In Unit 10, the typical yield of mortar, nails, tarpaper, and miscellaneous bolts and hardware was supplemented by the recovery of fragments of linoleum, ceramic sherds, and a lead weight. The whiteware sherds reflect the former function of the structure as a bunk house. The linoleum fragments suggest that the floor, or at least portions of it, may have been formerly covered with this material. The large lead weight, 8 cm in length and weighing 149 grams, reflects the primary function of the camp.

Unit 6 at the single door opening of Structure 3 yielded a padlock and a knife blade in addition to three cartridge cases, nails, window glass, mortar/chinking fragments, a drill bit, and a large bolt and nut. With the possible exception of the knife blade, none of these materials are directly related to reported use of the structure as a bunk house. The lock may have been used to secure contents of the structure, regardless of its function. In more recent years, the structure was used for storage, as its deteriorating condition essentially precluded other uses. A minimal yield of artifacts was recovered from Unit 8, consisting of nails, a piece of wire, a cartridge case, a broken single-cut file, and a leather strap containing five nails through it. The function of the strap is undetermined.

Few items were recovered from Structure 3 which help refine its age or function. The limited array of personal and domestic items provide relatively little evidence for a bunkhouse function. This contrasts markedly with material remains associated with bunkhouses at the Trout Point Lumber Camp (Richner 1986). The difference may be accounted for by the intense use of the Trout Point bunkhouses (about 50 men per structure) contrasted with the assumed limited use by a small number of men of Structure 3 at Manitou Fish Camp.

No foundation was discovered under the base course of logs at Structure 3. That course was in a state of advanced deterioration and no logs were noted under it. However, the very short height of the structure suggests that other courses of logs were initially present and have completely disintegrated as the structure settled into the wet sand. When the structure was restored, the log walls had to be completely replaced and, despite a lack of direct evidence for the presence of additional courses of logs below the lowest course present in 1983, courses were added to bring front door height to approximately six feet.

#### Structure 4

This structure, a twine shed, was found to be in an excellent state of preservation when investigated in 1983. This well-preserved condition may relate to the relatively recent age of the structure (1930s), but its raised position is probably more important. The structure is situated on large logs which are in turn set on exposed bedrock boulders at the edge of the hillslope which flanks the site. Unlike Structures 1, 2, and 3 which were devoid of foundations and sat directly upon sand, this structure does not touch the ground and has not been subjected to continued contact with saturated soils. A flat location for the structure was made by cutting into the adjacent slope. Boulders for the footing appear to have been used where they naturally occurred, and others were purposefully moved to the structural location. The presence of several large depressions nearby indicates the source for those boulders. Since the structure was in such a good state of preservation, and since it is raised above the ground surface, it was apparent in 1983 that minimal, if any, ground disturbance would occur during restoration of the twine shed. For these reasons only two excavation units and a shovel test were placed at the structure.

Unit 25 was placed under the single window of the structure along the west wall (Figure 11). This unit also overlapped a portion of the single, large door opening. Cultural material from this unit was rather limited. A tin can lid, nails, wire fragments, 64 pieces of window glass, 17 pieces of oil lamp chimney glass, an iron stove leg, and an iron butter knife with a wooden handle were recovered from Unit 25. Faint lettering on the stove leg appears to read "BJ ELSOR". Unit 26, placed immediately in front of the door opening yielded a similarly sparse assemblage. There, nails, an iron washer, an aluminum tab, a grooved copper object, 23 pieces of oil lamp chimney glass, and 123 pieces of window glass were recovered. Shovel Test 3, placed at the east corner of the structure yielded no cultural material. None of the archeological materials recovered from Structure 4 appear to relate directly

to the reported function of the building. Architectural items dominate the assemblage, similar to the situation at each of the structures which were investigated. Based upon archeological materials alone, the function of the building can not be inferred. However, historic information is rather complete for Structure 4, and a large amount of functionally specific items were recovered from the surface adjacent to the building.

During investigation of the structure a large surface collection was made from a surface "dump" between the east wall of the building and the bluff edge which is immediately adjacent to the building. A large amount of material was collected, sorted, and tagged. Several well-preserved nets, along with complete bottles and metal objects were collected. Few, if any, of these materials predate about 1940, which would be expected given the documented 1930s age of the structure. The materials were catalogued into the site collection along with the extensive contents of the structure and are not analyzed as part of this report.

#### Structure 5

This small structure was in jeopardy of destruction from the action of ice along the shoreline. APIS staff believed that the structure had been moved by the ice to the location it occupied in 1983. The southwestern corner of the building was wedged against a huge boulder at the edge of the beach (Figure 12). The structure had no foundation and rested on coarse beach sand. A surface examination of the area northeast of the building revealed two low linear mounds and a depression. It appeared very likely that the mounds were sand embankments which formerly served as a platform for the walls of the structure, or alternately, insulating embankments similar to those commonly found at logging camps (Richner 1986).

Excavation of one square meter in Units 27 and 28 revealed little about the structure, since nails were the most common artifact recovered, and other diagnostic materials were not discovered. The immediate area is strewn with boulders covered by coarse beach sand, making excavation difficult. Since the linear "mounds" and depression were the only available evidence for an original structural location, it was recommended that the structure be moved to that nearby location.

#### Structure 6

This structure, reputed to be a smokehouse, is located adjacent to Structure 1, the cedar cabin. One excavation unit (18) was placed at the opening of this small, deteriorated

structure. Prior to excavation, and during removal of the sod zone, a very large amount of recent trash was encountered and removed. This consisted mainly of large amounts of beer cans and other debris which postdate 1970. None of these materials relate to the original use of the structure, but instead reflect very recent dumping within the abandoned building. Stratigraphy in Unit 18 consisted of a thin humus zone under the trash layer, and coarse orange sand containing a dense accumulation of cobbles. Excavation was terminated at 17 cm below surface where the cobbles formed a "pavement." No evidence of charcoal or ash was recovered from the excavation unit.

Recovered cultural material adds little to the interpretation of function of the structure. Nails, three cartridge cases, a bottle cap, seven carbon rods from batteries, 17 pieces of bottle glass, four ceramic sherds, and two iron hinges constitute the cultural materials. The ceramic sherds include two cup fragments; one exhibits a gold and silver decal design. Two porcelain sherds are also present. The hinges may indicate that a door was formerly present on the structure, but, since all the other cultural materials appear to reflect trash discard, the hinges may alternately be from another location. Neither the stratigraphy nor artifacts from Excavation Unit 18 suggest a plausible function for the structure. One might expect that a smoke house would have considerable evidence of charcoal and/or ash, but none was discovered. Based upon archeological evidence, the function of this structure is problematical.

## SUMMARY AND CONCLUSIONS

During ten working days in May, 1983, an archeological field team from the Midwest Archeological Center conducted excavations at six structures at the Manitou Fish Camp prior to large scale restoration of the structures. In addition, survey of proposed minor development areas including well and vault toilet locations was completed. The camp is a significant historical site and was placed on the National Register of Historic Places on January 19, 1983. No cultural remains were found at the proposed well or vault toilet locations despite intensive surface examinations and close-interval shovel testing. Cultural remains were discovered at each of the six structures which were the focus for excavation. Despite recovery of a relatively large assemblage of materials (approximately 1,970 individual items), relatively few of the artifacts relate to fishing or logging activities. Window glass, nails, mortar/chinking, and other architectural materials dominate the assemblage. Despite poor weather and saturated soil conditions, excavations were sufficiently extensive to insure that each structure was adequately sampled. Due to the archeological data recovery program, the structural restoration process had only the most minimal impacts upon archeological remains.

The archeological team worked closely with the restoration team during and after archeological fieldwork. All findings were shared with the restoration team, and stratigraphic profiles, notes regarding the subsurface condition of structures, and other archeological data were made available to the restoration team at the completion of fieldwork. Some of this information was useful to the team as they restored the major structures at the camp.

The archeological excavations at the Manitou Fish Camp and subsequent analyses of the recovered data provided relatively few details regarding the history of the camp and the specific function(s) of the structures. However, archeological fieldwork did contribute to a better understanding of the subsurface condition of the structures to be restored, the nature of drainage patterns which were found to be adversely impacting the structures, and the evidence for Structures 2 and 5 having been moved by natural causes (ice) from their original positions. Archeological study of these aspects of the camp contributed measurably to an accurate and successful restoration of the major structures.

Archeological methods were also useful in collecting, plotting the location, and identifying the approximate age and function of large numbers of artifacts scattered across the camp surface. Without this archeological input, it is probable that many of these items would have been damaged or discarded during the structural restoration program. These materials now

comprise an integral part of the resource base preserved at the camp. The preservation of large numbers of tools, equipment, domestic artifacts, and architectural items at the camp is a primary element of site significance. Many of the items are handmade and unique and thus constitute a resource equally as important as the structures. This aspect of the overall resource base is even more critical when one recognizes that little, if any, historic architectural fabric remained at several of the structures after restoration activities were completed. The surface-collected materials and the very large number of items which occurred within the structures were not analyzed as part of this report but, they are preserved and catalogued and are an integral part of the Manitou Fish Camp.

Although archeological data regarding the correct, original locations of Structures 2 and 5 were not extensive, they helped confirm oral interview data which indicated that both structures had been moved through the action of ice. The identification of nearby depressions and low embankments thought to represent the original location of the structures, coupled with the presence of recent deposits of coarse sand against and under these structures suggested that they had indeed been moved. Based upon archeological and historical data, the structures were relocated to what were believed to be their original positions when they were restored.

It became apparent during excavation at Structures 2 and 3 that a rather severe drainage problem had adversely impacted those structures. It was further anticipated that the continuance of the existing drainage pattern would greatly shorten the life of the structures after restoration. Standing water was present around the structures where the ground surface was low. Ground water was encountered in all excavation units around the structures even where the ground surface was slightly raised. The presence of extensive sphagnum moss vegetation around the structures further demonstrated the wet soil condition. The presence of the water loving moss also suggested that the saturated soils were not merely a seasonal situation caused only by spring run-off, but more likely reflected rather constant moist conditions.

APIS Ecologist Robert Brander suggested that the problem was heightened (or caused ?) by a series of linear drainage ditches which he had discovered in the former garden area on the flat bluff above and immediately east of the camp structures. When the archeological team investigated this area, it was determined that the ditches were in the form of interconnected linear trenches which channeled water from the former garden area toward the bluff edge. It is not known when these trenches were dug, but it was apparent from their pattern that they served to drain the former garden area. These trenches remained water-filled during our two-week stay on the island.

It is likely that they remain at least partially water-filled throughout the year, given the wet conditions found over much of this portion of Manitou Island. The water was not found to flow from the trenches over the edge of the bluff and surface of the slope. Instead the water ran under the soil surface near the bluff edge over the essentially impermeable red clay and rock formation which is encountered beneath a very shallow soil mantle. The water then resurfaced in and around Structures 2 and 3.

An experiment was conducted with the trenches to see if altering the westward trending water flow would reduce the amount of standing water around Structures 2 and 3. The main trenches which channeled most of the water to the west were "plugged" with clay and sod excavated from the garden area. Although this work was undertaken quickly, and on a very limited scale, the results appeared quite promising. The trenches were plugged at the beginning of the second week of fieldwork, and within a few days the water level around the structures began to subside noticeably. Although the results of this minor engineering experiment were not quantified, the apparent success led us to recommend additional alteration of the trenches during the structural restoration process. It was suggested that a new trench be dug to connect with the main collecting trenches and carry the water to the north, beyond the fish camp structures. In addition, it was suggested that some sand fill be added under and around Structures 2 and 3 to help keep them dry. The restoration team carried out these suggestions, and added plastic drainage pipe under Structures 2 and 3. These pipes carry excess water a short distance west to the Lake Superior beach. It appears that the drainage modifications have been successful in reducing the amount of excess water in the area of Structures 2 and 3.

The 1983 excavations at the Manitou Fish Camp served to record the subsurface condition of five major structures which were restored in 1983 and 1984. Although restoration was very extensive at Structures 1, 2, and 3, careful work by the restoration team limited the extent of ground disturbance to a very narrow zone around the structures. Archeological excavations in this impact zone were sufficient to mitigate any adverse impacts to subsurface cultural resources which occurred during structural restoration. Although the yield of functionally and temporally diagnostic cultural remains was less than anticipated, nearly 2,000 items were recovered through excavation. Much of this assemblage consists of architectural items (nails, mortar, tarpaper, and window glass). Within this group, the mortar was particularly important for an accurate restoration of Structures 1 and 3. Samples from the excavations were matched by the restoration team with regard to content and color. The historically

accurate mixtures were then used to chink those two architecturally significant log buildings.

Archeological excavations at Structures 1 and 3 also indicated that the structures had settled into the surrounding soil to some degree, since both structures lacked foundations. This was taken into account during restoration. Since all wall logs had to be replaced at both buildings, extra courses were added to bring the buildings to what appeared to be original, rather than 1983, heights. Excavations at major Structures 1-5 added little data for examining structural function or age. The rather limited archeological remains tended to confirm the available oral history regarding the buildings. The presence of materials at each structure not related to their reported main function reflects the rather informal nature of the camp. All of the structures, with the probable exception of the cabin, were used for storage of fishing gear and other materials. Since they were not used rigorously for a single, limited function, various items could be expected to be lost and or broken around each of the structures.

Archeological excavation did raise questions regarding the reported function of Structure 6. This small building reputedly served as a smoke house, but no charcoal, ash, or other evidences of fire were recorded there in limited excavations. One would assume that some evidence of ash would remain if the structure had been used as a smoke house.

Excavations also tended to confirm the late nineteenth or early twentieth century age of several of the structures, but offered little data for evaluating the sequence of construction indicated from oral history. Only a few items could be dated with accuracy and some of those were likely used for many years prior to their eventual discard. A marine muffler cap, a gas burner, and several chimney dampers all date to the first decade of the twentieth century. Unfortunately, their association with individual structures probably reflects use and discard practices more than the age of the structures. One bottle from Structure 1 could be very accurately dated (1900-1912), but such diagnostic household debris was too scarce to allow additional refinement of the structure's age.

Since architectural items dominate the artifact assemblage, and occur in considerable numbers at each structure, it was hoped that relative construction sequences could be developed from select architectural groups of materials. As discussed in the previous section, window glass, which often has considerable utility for dating associated archeological deposits in relative if not absolute terms (Richner 1986, Schoen 1985), was of little use for examining temporal relationships at the Manitou Fish Camp. The relatively late date of the site structures is the primary factor in diminishing the



utility of pane thickness for dating Structures 1-5 relative to each other.

The very late nineteenth through early twentieth century dates reported for construction of the major structures at the camp also reduces the utility of nails for dating the structures. Cut nails were essentially supplanted by wire nails after about 1895, the date when the first structure (No. 1) at the fish camp is thought to have been built. Of the 513 nails from the site, only 11 complete and nine fragmentary cut nails are represented. All but three of these are from Structure 1. This suggests that Structure 1 may be the oldest building at the site. Such an interpretation is consistent with the available oral history for the camp.

Although relatively little interpretive information was obtained from the archeological excavation, several positive results were realized. Structural data on building foundations (or lack of foundations) useful for restoration was recovered through excavation around the buildings. Mortar (chinking) samples collected from excavations around Structures 1 and 3 were used as a basis for mixing new mortar which was used in the restored structures. All areas to be impacted through restoration activities were sampled archeologically and, as a result, the restoration had a minimal impact upon subsurface deposits. Archeological field methods were applied to the investigation of very large amounts of surface "trash" and historic artifacts which included fishing nets, numerous complete bottles, sled runners, automotive and marine motor parts, and numerous other materials. Many of those materials are now an integral part of the site collection. Perhaps most importantly, a cause and potential solution for site drainage problems were identified.

The Manitou Fish Camp is now restored and is an important part of the historic scene and interpretive program at Apostle Islands National Lakeshore. For the foreseeable future, this unique site, with its structures and array of early twentieth century artifacts, will be preserved for public appreciation and potential scholarly research. The archeological excavations conducted at the site in 1983 were a small component of the restoration program, but did contribute to the overall success of the project.



Table 1. Work and transportation group.

Provenience Unit	Level	Struc	Tools										
			TM	DB	Fi	AX	We	Cl	Gr	Ch	Da	WC	
1	1	3	1	-	-	-	-	-	-	-	-	-	-
6	1	3	-	1	-	-	-	-	-	-	-	-	-
8	1	3	-	-	1	-	-	-	-	-	-	-	-
9	1	3	-	-	-	1	-	-	-	-	-	-	-
14	1	1	-	-	-	-	-	-	1	1	-	-	-
16	1	1	-	-	-	-	-	1	-	2	-	-	-
17	2	1	-	-	-	-	1	-	-	-	-	-	-
20	1	1	-	-	1	-	-	-	-	-	-	-	-
22	1	2	-	-	-	-	-	-	-	-	-	-	1
23	1	2	-	-	-	1	-	-	-	-	-	-	-
26	1	4	-	-	-	-	-	-	-	-	1	-	-
Total			1	1	2	2	1	1	1	3	1	1	

Explanation

Struc = Structure

TM = Tool Mount

DB = Drill Bit

Fi = File

We = Wedge

Cl = Clamp

Ch = Chain link

Da = Dasher

WC = Wood Chisel

Provenience Unit	Level	Struc	Work Related					Transport.					
			Tw	We	Fl	MM	GN	TB	BH	Wr	DS	BL	
1	1	3	-	-	-	-	-	-	-	-	-	-	1
5	1	3	-	-	1	-	-	-	-	-	-	-	-
9	1	3	-	-	1	1	-	-	-	-	-	-	-
10	1	3	-	1	-	-	-	-	-	-	-	-	-
14	1	1	-	-	-	-	1	-	-	-	-	-	-
16	1	1	1	-	-	-	-	1	-	-	1	-	-
21	1	2	1	-	-	-	-	-	-	-	-	-	-
26	1	4	-	-	-	-	-	-	1	-	-	-	-
surface		2	-	-	-	-	-	-	-	1	-	-	-
Total			2	1	2	1	1	1	1	1	1	1	

Explanation

Tw = Twine

We = Weight

Fl = Float

MM = Marine Muffler

GN = Gill Net Tag

TB = Threaded Brass

BH = Brass Hexnut

Wr = Wrench

DS = Dimmer Switch

BL = Bak-a-Lite Fragment

Table 2. Architectual Group.

Provenience Unit	Struc Level	Struc	Nails and Fasteners						Door/Window Hardware			
			Cu	Wi	Ro	FB	PN	Sc	Un	Hi	WG	Pd
1	1	3	1	78	4	1	2	1	-	-	2	-
2	1	3	-	6	-	-	-	-	-	-	3	-
3	1	3	-	27	2	-	-	-	-	-	204	-
5	1	3	-	2	-	-	-	-	-	-	-	-
6	1	3	-	6	-	-	-	-	-	-	4	1
7	1	3	-	1	-	-	-	-	-	-	88	-
8	1	3	-	13	-	-	-	-	-	-	-	-
9	1	3	-	2	-	-	-	-	-	-	12	-
10	1	3	-	8	-	-	-	-	-	-	-	-
11	1	1	2	13	-	-	-	-	-	-	-	-
12	1	1	-	2	1	-	-	-	-	-	-	-
13	1	1	-	6	-	-	-	-	-	-	12	-
14	1	1	7	34	-	-	-	-	-	-	3	-
15	1	1	6	63	-	-	-	-	-	-	4	-
16	1	1	1	19	-	-	-	-	-	-	-	-
17	1	1	-	28	-	-	-	-	-	-	45	-
17	2	1	-	4	-	-	-	-	-	-	1	-
18	1	1	-	42	-	-	-	-	1	2	-	-
19	1	1	1	12	-	-	-	-	-	-	2	-
21	1	2	-	4	-	-	-	-	-	-	31	-
22	1	2	-	27	-	-	-	-	-	-	1	-
23	1	2	1	-	-	-	-	-	-	-	-	-
24	1	2	-	-	-	-	-	-	-	-	64	-
25	1	4	-	20	-	-	-	-	-	-	-	-
26	1	4	-	29	-	-	-	-	-	-	123	-
27	1	5	-	22	-	-	-	-	-	-	-	-
28	1	5	1	13	-	-	-	-	-	-	1	-
Total			20	481	7	1	2	1	1	2	600	1

Explanation  
 Struc = Structure  
 Cu = Cut nail  
 Wi = Wire nail  
 Ro = Roofing nail  
 FB = Floor Brad  
 PN = Plaster nail  
 Sc = Screws  
 Un = Unknown  
 Hi = Hinge  
 WG = Window Glass Sherd  
 Pd = Pad Lock

Table 2. Concluded.

Provenience Unit	Struc Level	Misc.	Hardware					Construction Material						
			Wi	NB	Ro	Sp	MM	Mo	TP	Wo	Ch	Br	Fi	Un
1	1	3	-	-	-	-	-	6	8	-	1	-	-	-
2	1	3	2	-	-	-	-	10	20	4	-	-	-	2
3	1	3	1	-	-	-	-	8	7	-	-	-	-	-
5	1	3	1	-	1	-	-	8	1	5	-	-	-	-
6	1	3	-	1	-	-	-	7	-	-	-	-	-	-
7	1	3	-	-	-	-	-	3	1	-	-	-	-	-
8	1	3	1	-	-	-	-	-	-	-	-	-	-	-
9	1	3	-	-	-	-	-	-	4	-	-	-	-	-
10	1	3	-	1	-	1	-	1	2	1	-	-	-	-
11	1	1	-	-	-	-	-	11	30	-	-	1	-	-
12	1	1	1	-	-	-	-	12	10	-	1	-	-	-
13	1	1	1	-	-	-	25	33	18	-	-	1	-	-
14	1	1	-	-	-	-	1	4	2	-	-	-	-	-
15	1	1	-	-	1	-	-	2	10	-	-	-	-	-
16	1	1	1	2	-	1	1	2	8	-	-	-	1	-
17	1	1	-	-	-	-	-	10	-	-	2	-	-	-
17	2	1	-	-	-	-	-	1	-	-	-	-	-	-
19	1	1	1	-	-	7	-	20	7	-	-	-	-	-
20	1	1	-	-	-	2	-	30	-	-	10	-	-	-
21	1	2	-	-	-	-	-	-	15	-	-	-	-	-
22	1	2	-	1	-	-	-	-	8	-	-	-	-	-
24	1	2	-	3	-	-	-	-	-	-	-	-	-	-
25	1	4	1	-	-	-	-	-	-	-	-	-	-	-
27	1	5	-	-	-	-	-	-	3	-	-	-	-	-
28	1	5	-	1	-	-	-	-	-	-	-	-	-	-
Totals			10	9	2	11	27	168	154	10	14	2	1	2

Explanation

Struc = Structure

Misc. Hardware = Miscellaneous Hardware

Wi = Wire

NB = Nuts/Bolts

Ro = Rod

Sp = Spike

MM = Miscellaneous metal

Mo = Mortar Fragments

TP = Tar paper

Wo = Wood

Ch = Charcoal

Br = Brick Fragments

Fi = Fiberglass

Un = Unknown Material

Table 3. Personal artifact group.

Provenience Unit	Struc Level	Struc	Clothing				Tobacco Related, Arms				
			BB	MB	Le	UP	Ca	PW	CF	SH	Pe
1	1	3	-	-	-	1	-	-	-	-	-
6	surface	3	-	-	-	-	3	-	-	-	-
8	surface	3	-	-	-	-	1	-	-	-	-
10	1	3	-	-	-	-	1	-	-	-	-
13	1	1	-	-	-	1	-	-	-	-	-
14	1	1	-	-	-	1	16	-	-	-	-
15	1	1	-	-	-	1	2	?	-	-	-
16	1	1	-	-	-	2	2	-	-	-	-
17	1	1	-	1	-	1	18	-	1	1	1
18	1	1	-	-	-	-	3	-	-	-	-
19	1	1	-	-	-	1	3	-	-	-	-
21	1	2	-	-	-	-	1	-	-	-	-
22	1	2	1	-	-	-	3	-	-	-	-
23	1	2	-	-	2	-	-	-	-	-	-
Total			1	1	2	8	53	?	1	1	1

Explanation

Struc = Structure

BB = Bone Button

MB = Metal Button

Le = Leather

UP = Unidentified Plastic

Ca = Cartridge

PW = Part of Watch

CF = Cigarette Filter

SH = Shoe Horn

Pe = 1978D Penny

Table 4. Domestic artifact group.

Provenience Unit	Struc Level	Struc	Utensils			Serving and Storage						
			Kn	SP	TC	Ce	LB	MB	CB	UB	BC	PT
1	1	2	-	-	-	-	10	-	8	31	-	-
2	1	3	-	-	2	-	-	-	-	-	2	-
3	1	3	-	-	1	-	-	-	-	-	-	-
5	1	3	-	-	2	-	-	-	-	-	-	-
6	1	3	1	-	-	-	-	-	-	-	1	-
10	1	3	-	-	-	10	-	-	-	-	-	-
13	1	1	-	-	-	-	2	-	-	-	-	-
14	1	1	-	-	-	-	-	-	-	6	-	-
15	1	1	-	1	-	-	34	-	-	12	-	-
16	1	1	-	-	-	-	-	-	-	1	1	-
17	1	1	-	-	-	-	-	-	-	23	1	1
18	1	1	-	-	-	4	-	-	-	17	3	-
19	1	1	-	-	-	3	-	-	-	1	1	-
21	1	2	-	-	-	-	-	-	-	14	-	-
22	1	2	-	-	-	9	1	4	-	23	-	-
25	1	4	1	-	-	1	-	-	-	-	-	-
28	1	5	-	-	-	-	-	-	-	-	1	-
Totals			2	1	5	27	47	4	8	128	10	2

Explanation

Struc = Structure

Kn = Knife

Sp = Spoon

TC = Tin Can

Ce = Ceramic sherd

LB = Liquor bottle sherd

MB = Medicine bottle sherd

CB = Condiment bottle sherd

UB = Unidentified bottle sherd

BC = Bottle Cap

PT = Pull Tab

Table 4. Concluded.

Provenience Unit	Struc Level	Struc	Furnishings										
			GB	SP	SD	Da	Li	Mi	LC	Be	LB	CH	
3	1	3	-	-	-	-	-	-	-	-	-	1	-
7	1	3	-	1	-	-	-	-	-	-	-	-	-
10	1	3	-	-	-	-	15	5	-	-	-	-	-
11	1	3	-	3	-	-	-	-	-	-	-	-	-
15	1	1	-	-	1	-	4	-	13	-	-	-	-
16	1	1	1	-	-	-	-	-	-	-	-	-	-
17	1	1	-	1	2	-	-	-	-	-	-	-	1
19	1	1	-	-	-	-	-	-	3	-	-	-	-
20	1	1	-	-	-	-	-	-	-	1	-	-	-
25	1	4	-	1	-	-	-	-	17	-	-	-	-
26	1	4	-	-	-	-	-	-	23	-	-	-	-
Surface		6	-	-	1	3	-	-	-	-	-	-	-
Totals			1	6	4	3	19	5	56	1	1	1	

Explanation

Struc = Structure

GB = Gas Burner

SP = Stove Part

SD = Stove Door

Da = Damper

Li = Linoleum fragment

Mi = Mica fragment

LC = Lamp chimney sherd

Be = Bell

LB = Light Bulb fragment

CH = Coat Hook

Provenience Unit	Struc Level	Struc	Miscellaneous						
			Ba	Cr	BP	Fo	Gr	Le	Go
8	1	3	-	-	-	-	-	1	-
9	1	3	-	-	-	-	-	-	2
12	1	1	1	-	-	-	-	-	-
14	1	1	-	-	2	-	-	-	-
16	1	1	-	-	-	-	-	1	-
17	1	1	-	1	-	6	-	-	-
17	2	1	-	-	-	-	1	-	-
18	1	1	-	7	-	-	-	-	-
19	1	1	1	-	-	-	-	-	-
Totals			2	8	2	6	1	2	2

Explanation

Struc = Structure

Ba = Battery

Cr = Carbon Rod

BP = Battery parts

Fo = Foil

Gr = Graphite

Le = Leather

Go = Grommet



Table 5. Cartridges.

Provenience Unit	No. of Level	Cal. Cart	FPI	Manufacturer
6	1	2	.22	Rf Unknown
		1	.45	Cf Unknown
8	1	1	.22	Rf Union Metallic Cartridge Co. Remington Arms - Union Metallic Cartridge Company Remington Arms Company
10	1	1	.35	Cf Peters Cartridge Company
14	1	2	.22	Rf Peters Cartridge Company Peters Division of Remington Arms Company Inc.
		1	.22	Rf Western Cartridge Company
		1	.22	Rf Winchester Repeating Arms Corp
		4	.22	Rf Union Metallic Cartridge Co. Remington Arms - Union Metallic Cartridge Company Remington Arms Company Inc.
		3	.22	Rf Federal Cartridge Company
		1	.22	Rf Remington Arms Company Inc.
		1	.22	Rf Winchester Repeating Arms Corp
		1	.300	Cf Remington Arms - Union Metallic Cartridge Company
		1	.303	Cf Remington Arms Corp.
		1	.35	Cf Remington Arms - Union Metallic Cartridge Company
		1	.35	Cf Winchester Repeating Arms Co.
15	1	2	.22	Rf Federal Cartridge Company
16	1	2	.22	Rf Winchester Repeating Arms Corp.
17	1	2	.22	Rf Western Cartridge Company
		6	.22	Rf Winchester Repeating Arms Corp.
		2	.22	Rf Peters Cartridge Company Peters Division of Remington Arms Company Inc.
		3	.22	Rf Federal Cartridge Company

Table 5. Concluded.

Provenience Unit	No. of Level	No. of Cart	Cal.	FPI	Manufacturer
		2	.22	Rf	Union Metallic Cartridge Co. Remington Arms - Union Metallic Cartridge Company Remington Arms Company Inc.
17	1	1	.306	Cf	Remington Arms - Union Metallic Cartridge Company
		2	.300	Cf	Remington Arms - Union Metallic Cartridge Company
18	1	1	.22	Rf	Unknown
		1	.22	Rf	Union Metallic Cartridge Co. Remington Arms - Union Metallic Cartridge Company Remington Arms Company Inc.
		1	.300	Cf	Winchester Cartridge Company Winchester Western Division of the Olin Company
19	1	3	.22	Rf	Winchester Repeating Arms Corp.
21	1	1	.3030	Cf	Remington Arms Company Inc.
22	1	1	.22	Rf	Winchester Repeating Arms Company
		1	.22	Rf	Western Cartridge Group
22	1	1	12G	Cf	Western Cartridge Company Winchester Western Division of Olin Corporation
Total		54			

Explanation  
 No. of  
 Cart = Number of Cartridges  
 Cal = Caliber  
 FPI = Firing Pin Impression  
 Rf = Rim Fire  
 Cf = Center Fire  
 12G = 12 Gauge Shell Base

Table 6. Nails.

Common Wire Nails

Prov	Size Listed By Penny Weight																Fra	Tot	
	Un	St	60	50	40	30	20	16	12	10	9	8	7	6	5	4			3
1	3	2	-	1	-	3	1	-	1	1	7	17	13	-	3	2	4	23	78
2	3	-	-	-	-	-	-	-	-	-	2	3	-	-	-	-	-	1	6
3	3	-	-	-	-	1	-	-	10	-	-	5	3	1	2	-	-	5	27
5	3	-	-	1	-	1	-	-	-	-	-	-	-	-	-	-	-	-	2
6	3	-	-	-	-	1	1	-	-	-	1	-	-	-	-	-	-	3	6
7	3	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1
8	3	-	-	-	-	1	1	1	-	-	3	1	-	-	-	-	-	6	13
9	3	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	1	2
10	3	-	-	-	-	1	-	-	-	-	2	1	-	-	-	-	-	4	8
11	1	1	-	-	-	-	-	-	1	1	3	2	-	2	-	-	-	3	13
12	1	-	-	-	-	-	-	-	-	-	-	2	-	-	-	-	-	-	2
13	1	-	-	-	-	-	-	-	2	-	-	2	-	-	-	1	-	1	6
14	1	-	-	-	-	-	-	3	-	2	8	7	4	-	-	2	-	8	34
15	1	-	-	-	-	-	-	-	6	4	19	9	2	1	2	6	-	14	63
16	1	-	-	1	-	-	-	-	1	-	4	1	2	-	1	1	1	7	19
17	1	-	-	1	-	-	-	-	2	1	5	3	2	1	-	-	-	13	28
17*	1	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	3	4
18	1	-	-	-	-	2	2	1	-	-	3	4	8	2	1	-	-	19	42
19	1	-	1	-	-	1	-	-	2	-	6	1	-	-	1	-	-	-	12
21	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	4	4
22	2	-	-	-	-	2	-	-	2	1	8	9	2	-	1	-	-	2	27
25	4	-	-	-	-	-	1	1	2	-	5	-	4	-	-	-	-	7	20
26	4	-	-	-	-	4	2	-	-	-	4	-	1	-	-	-	-	18	29
27	5	-	-	-	1	-	-	-	2	-	6	2	1	3	1	-	-	6	22
28	5	-	-	-	-	2	-	-	-	-	4	2	-	-	-	1	-	4	13
Totals	3	1	5	1	19	8	6	31	10	90	73	42	10	12	13	5	152	481	

Common Cut Nails

Prov	Size Listed By Penny Weight																Fra	Tot	
	Un	St	60	50	40	30	20	16	12	10	9	8	7	6	5	4			3
1	3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	1
11	1	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	1	-	2
14	1	-	-	-	-	-	-	-	-	1	4	-	-	-	-	-	-	2	7
15	1	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	5	6
16	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	1
19	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	1
23	2	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	1
28	5	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	1
Totals	-	-	-	-	-	-	-	-	-	1	8	-	-	-	-	1	1	9	20

Table 6. Concluded.

	Common Wire Nails	Common Cut Nails	Roofing Nails	Floor Brads	Plaster Nails	Screws	Unk
All Prov	481	20	7	1	2	1	1

Total No.  
Nails 513

Explanation  
 Prov = Provenience  
 Un = Unit  
 St = Structure  
 Unk = Unknown  
 Frag = Fragment  
 \* = Level 2 of Unit 17  
 Tot = Total

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## APPENDIX A

### A Summary of Faunal Remains Recovered from the Manitou Fish Camp, Apostle Islands National Lakeshore

Susan Monk

A total of 495 grams of faunal debris was recovered from excavation at the Manitou Fish Camp (Table 7). Eight excavation units contributed 38 identified specimens representing three classes including Amphibian, Bird, and Mammal. Table 8 summarizes the identified vertebrate remains representing four taxonomic divisions. Less than three percent of identified remains exhibit carnivore gnawing, and no identified remains are charred.

Domestic cattle specimens are predominately (96.5 percent, n=28) represented by rib and cervical vertebrae elements. Of these, 89.2 percent (n=25) show evidence of being butchered. These remains give an indication of the types/cuts of meat being consumed at the camp. The cervical vertebrae represent neck bones probably used in soups. All of the rib specimens, except one, show butchering marks. The recovered cow remains point toward consumption of ribs and soups rather than steaks and better cuts.

One amphibian element was recovered from Unit 3, Structure 3. Chicken/turkey elements (7) were recovered from Unit 15 and Unit 14, Structure 1. The unidentified bird specimen was found in Unit 15.

Vertical provenience of remains is not significant in discussing distribution of faunal remains due to the shallow depth of most units, and the nonstratified nature of most of the deposits. Horizontal provenience is more important, and reveals some obvious patterns. Units 1 and 3 contribute nine percent by weight of the total assemblage. These units are associated with Structure 3, the bunkhouse. The remaining specimens were recovered from Units 14, 15, 16, 17, 19, and 22 and are associated with Structure 1, the cabin. Excavations around Structure 2 and Structure 4 yielded no faunal remains. The discard of faunal remains reflects the reported functions of the structures more fully than other classes of recovered cultural material. Food remains were recovered only from the two structures with reported domestic functions. This association strongly supports historic data regarding the use of those structures.

In summary, a total of 38 vertebrate elements were identified to the lowest possible taxonomic unit. These include

frog/toad, chicken/turkey, unidentifiable bird, and domestic cow. The distribution of the recovered assemblage shows an expected pattern of refuse disposal. Structures with reported domestic functions (Structures 1 and 3) yielded all of the recovered faunal elements. The remaining nonhabitation structures did not contribute to the faunal assemblage. Although a small number of vertebrate remains were recovered, the sample does support available oral history regarding the use of the Manitou Fish Camp structures.



Table 7. Summary of unmodified vertebrate remains.

Provenience	Structure	Class	Total	
			Wt. gm	No.
Unit 1	3	Mammal	46	1
Unit 3	3	Amphibian	1	1
Unit 14	1	Bird	2	2
Unit 14	1	Mammal	90	16
Unit 15	1	Bird	23	9
Unit 16	1	Mammal	63	11
Unit 17	1	Mammal	224	20
Unit 19	1	Mammal	1	1
Unit 22	1	Mammal	31	4
Total			481	65

Table 8. Summary of identified vertebrate remains and minimum number of individual animals.

Taxonomic Identification	No.	Percent of Total	Minimum No. of Individuals
Amphibian			
Frog/toad	1	2.6	1
Bird			
Chicken/turkey	7	18.4	2
Bird	1	2.6	1
Mammal			
<u>Bos Taurus</u> (cow)	29	76.4	1
Total	38	100.0	5



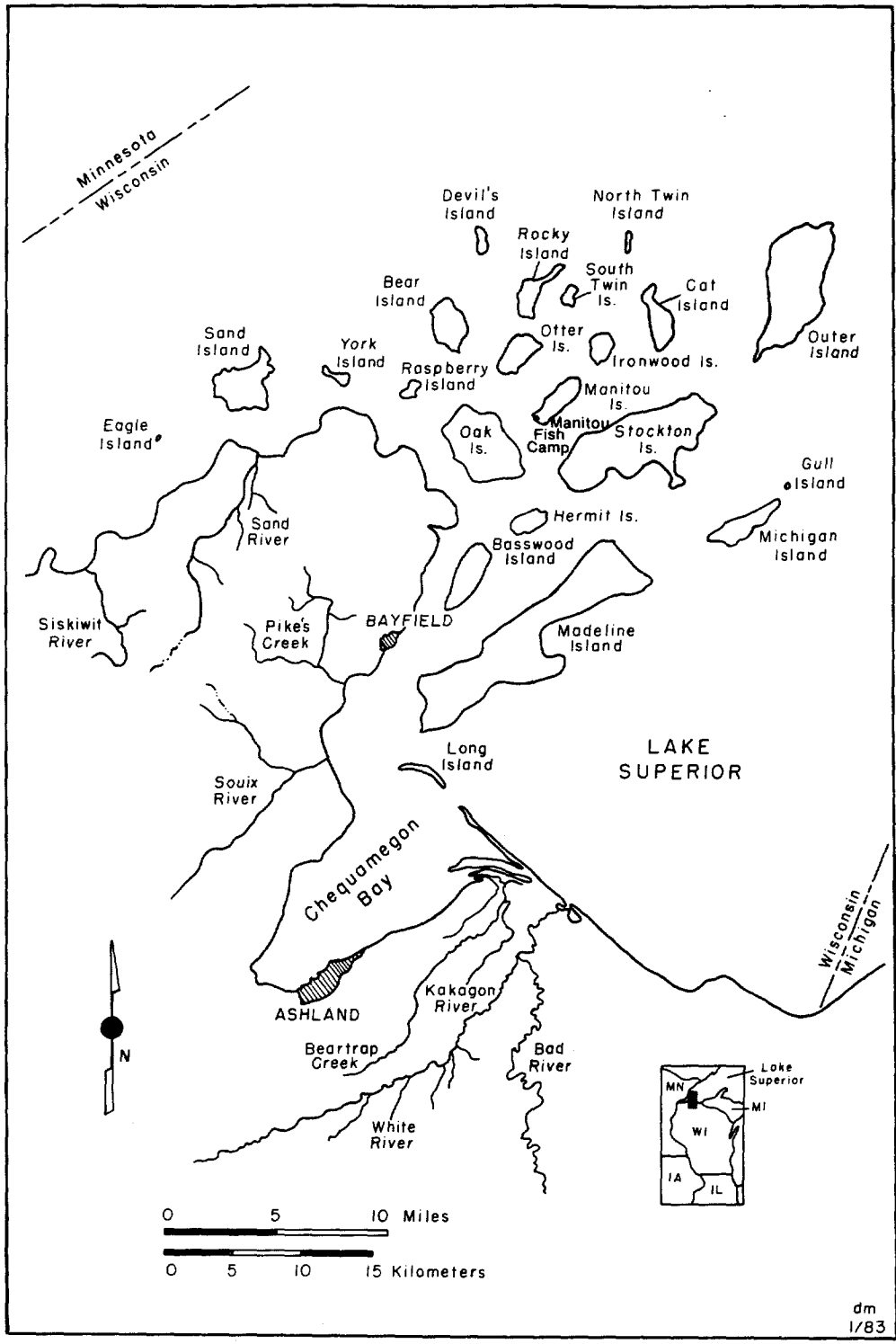


Figure 1. Project location.

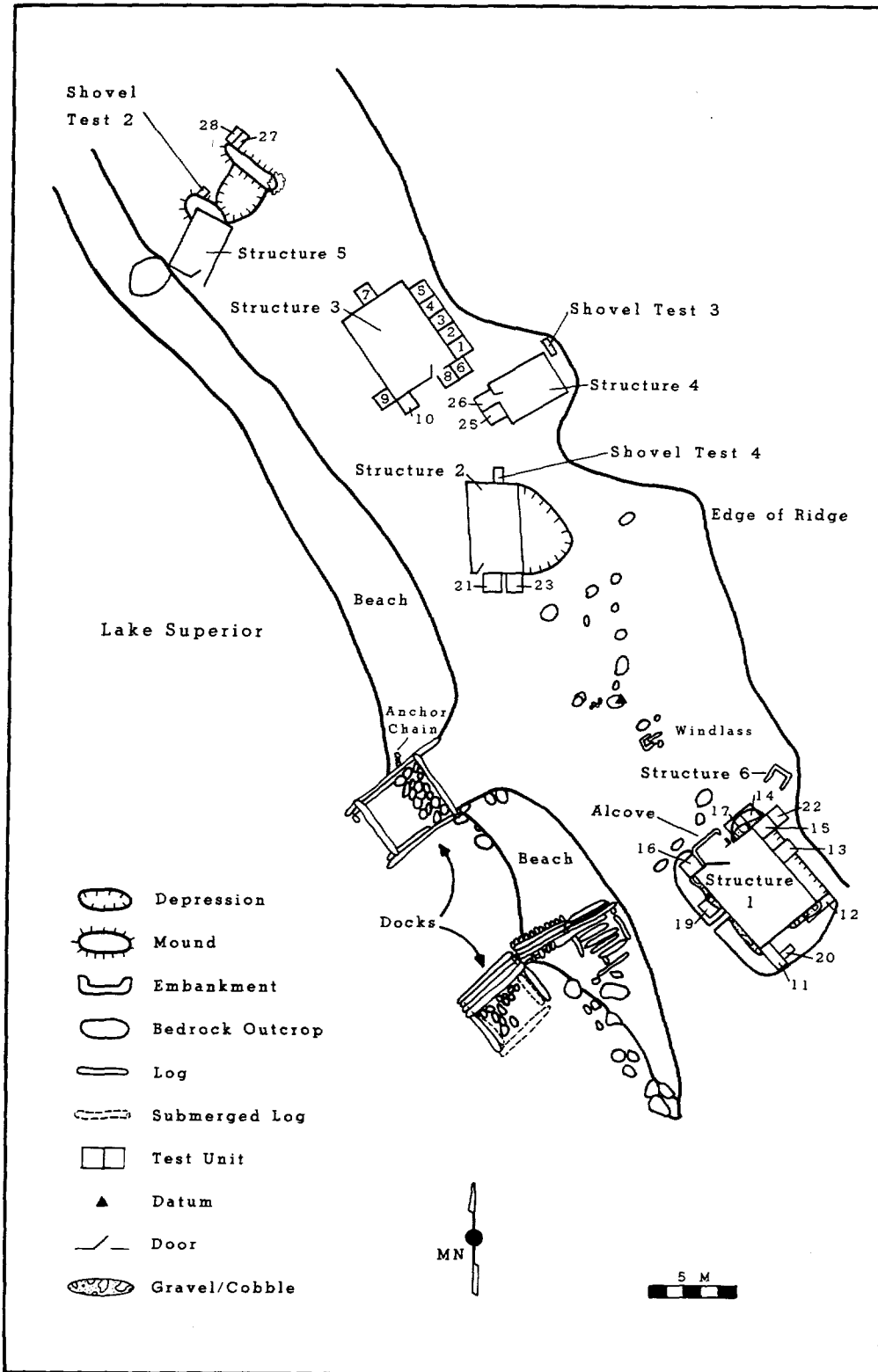


Figure 2. Map of the Manitou Fish Camp.



Figure 3. Historic Structure 1.



Figure 4. Historic Structure 2.



Figure 5. Historic Structure 3.

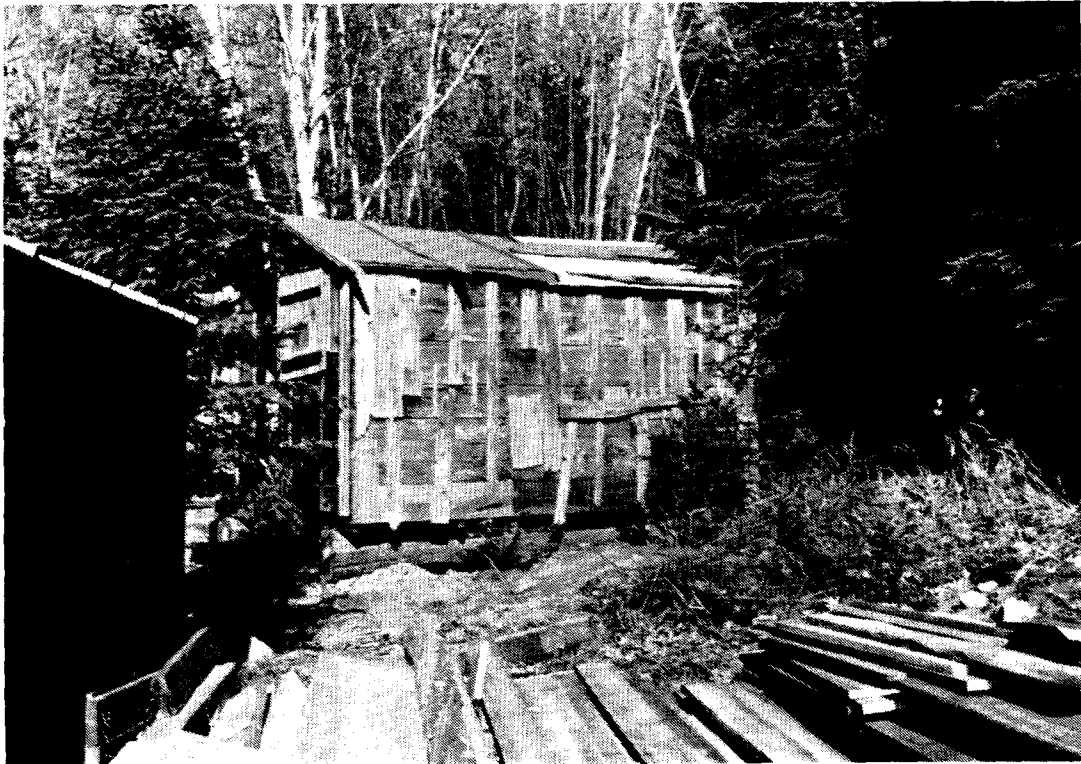


Figure 6. Historic Structure 4.



Figure 7. Historic Structure 5.

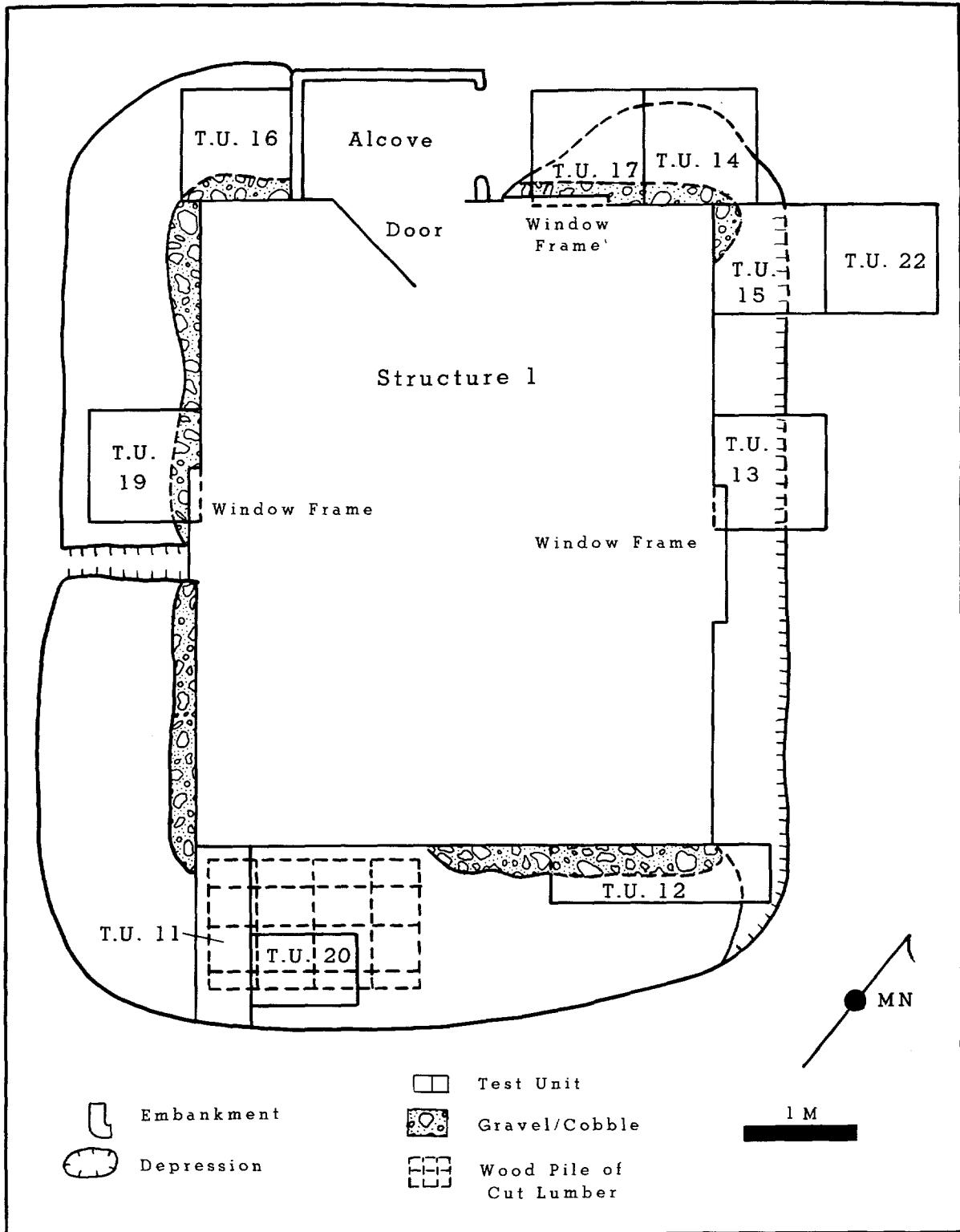


Figure 8. Excavation plan, Structure 1.



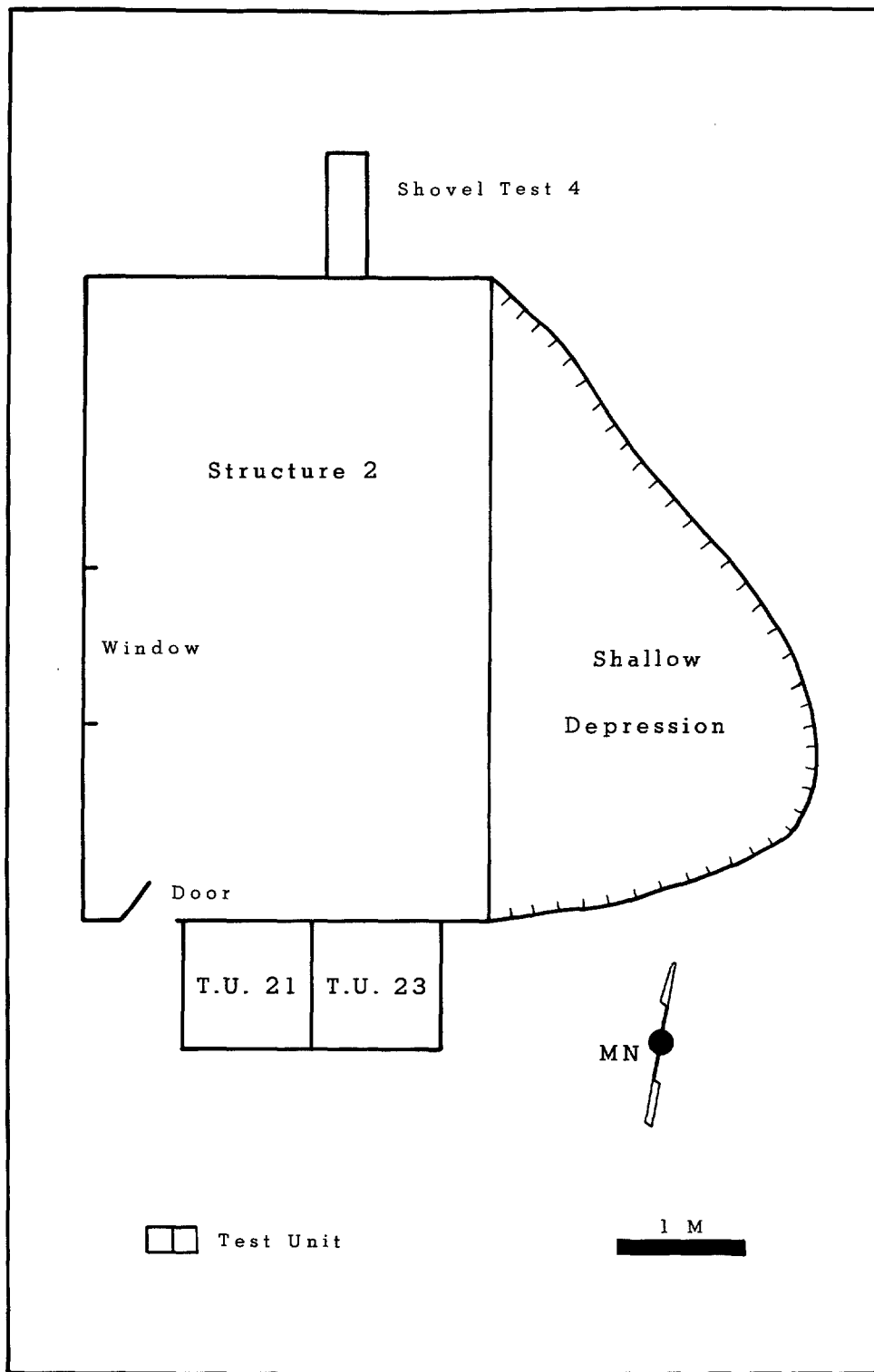


Figure 9. Excavation plan, Structure 2.

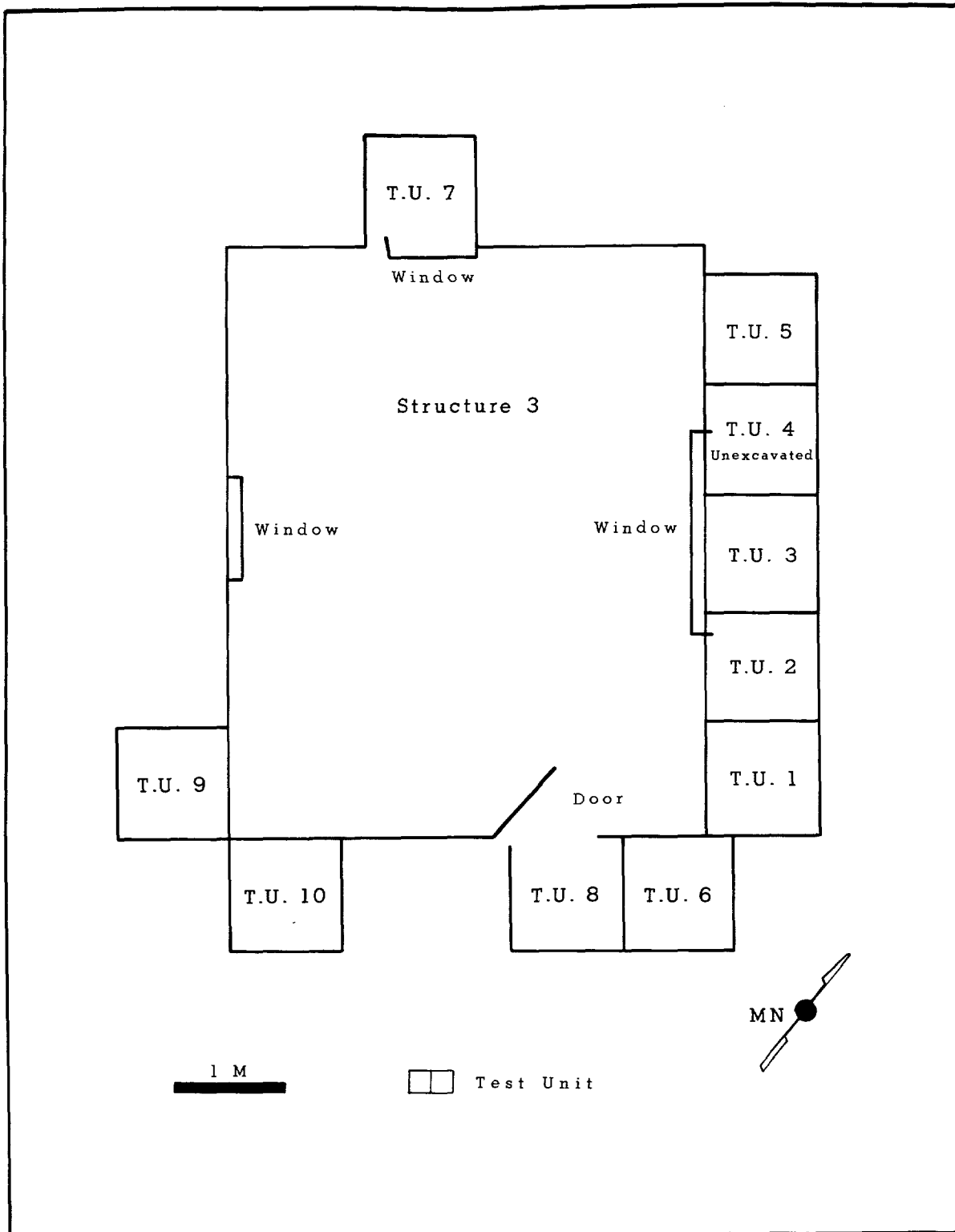


Figure 10. Excavation plan, Structure 3.

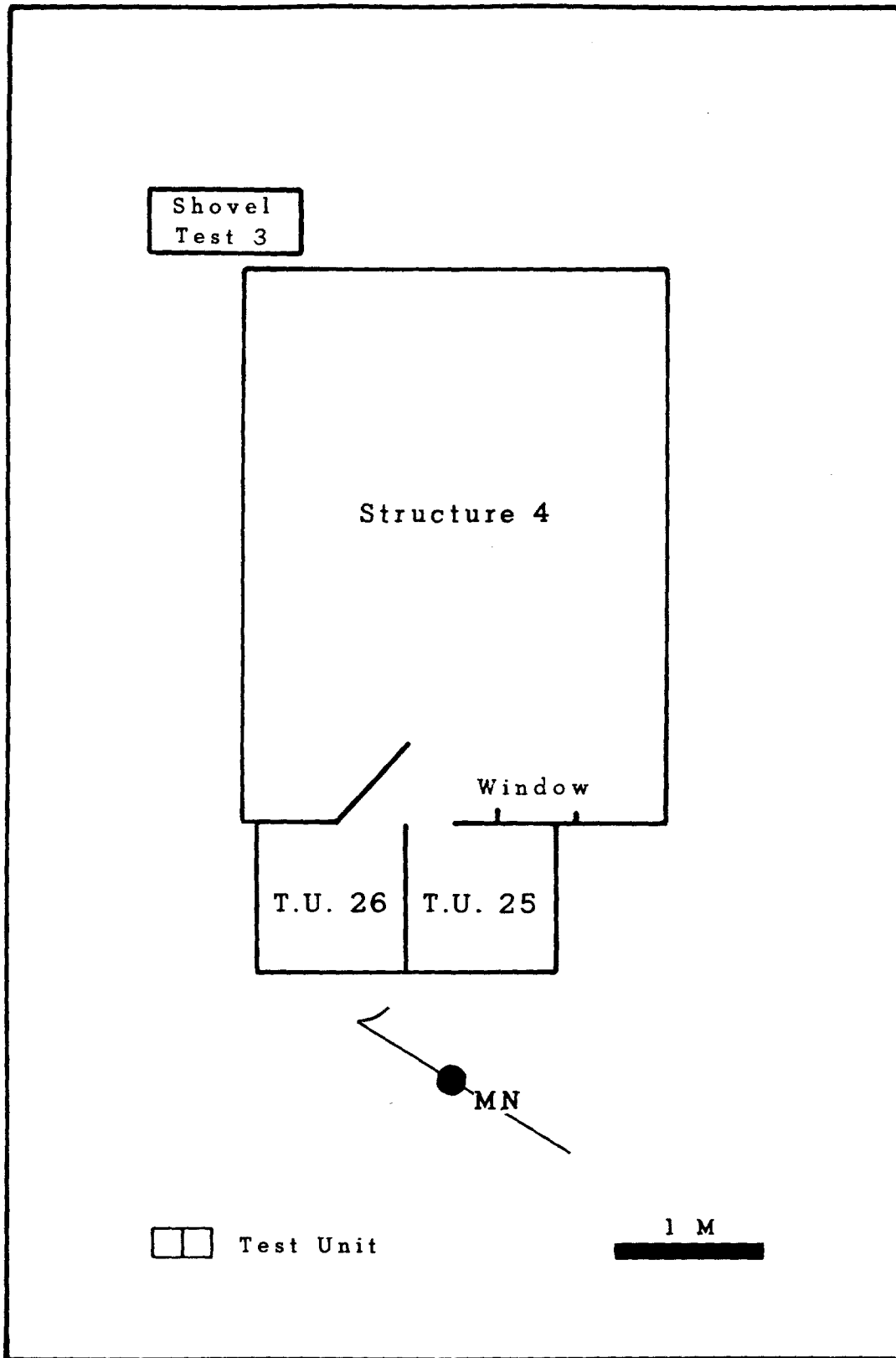


Figure 11. Excavation plan, Structure 4.

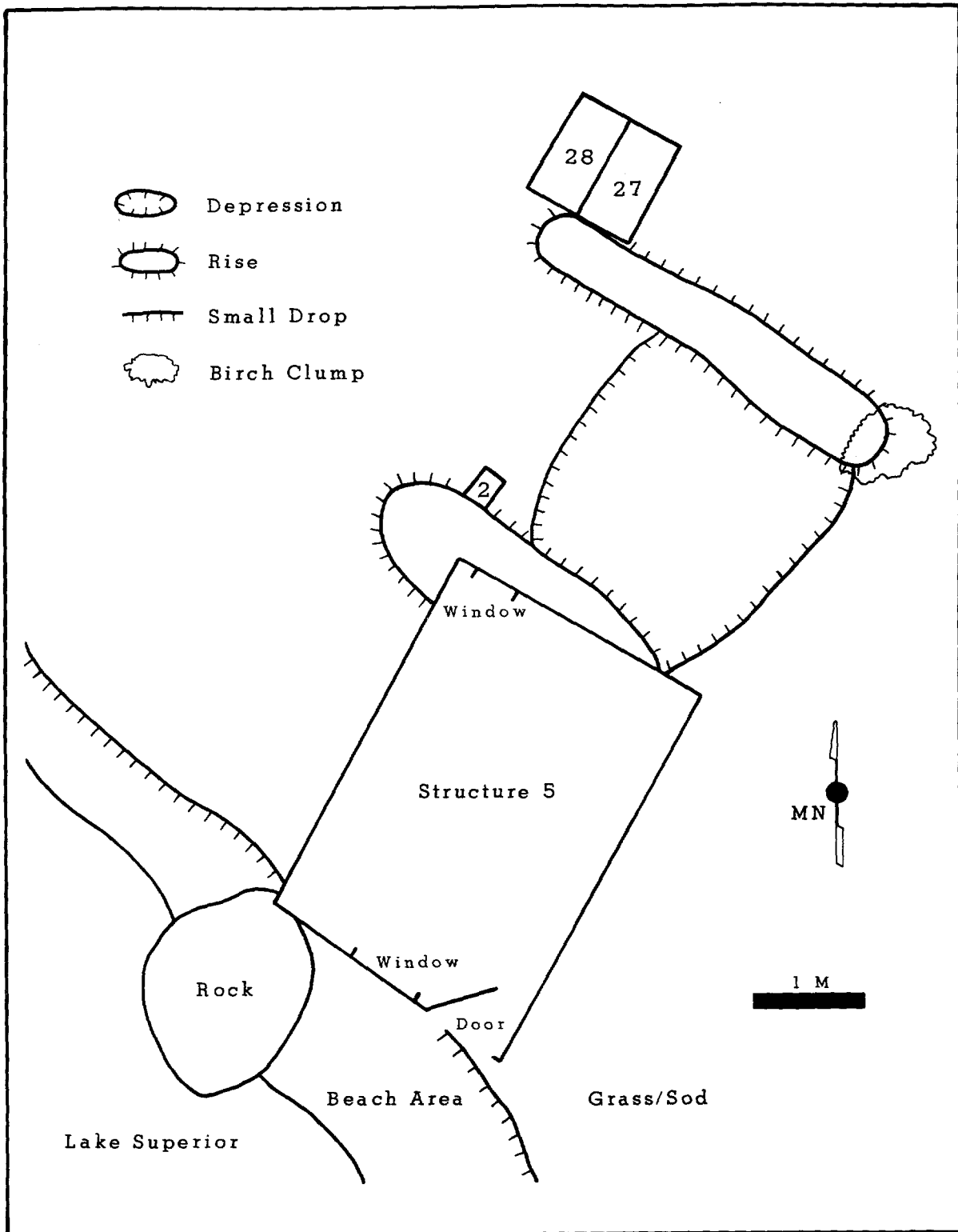


Figure 12. Excavation plan, Structure 5.

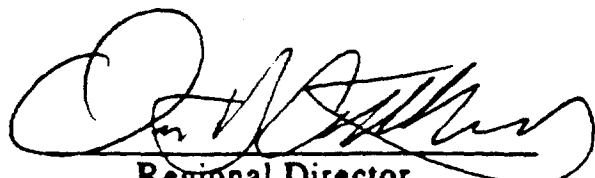
## REPORT CERTIFICATION

I certify that "Archeological Excavations at the Manitou Fish Camp,  
Apostle Islands National Lakeshore, 1983" by Jeffrey J. Richner

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has been reviewed against the criteria contained in 43 CFR Part 7(a)(1) and upon  
recommendation of the Regional Archeologist has been classified as  
available.

  
Regional Director

4 / 15 / 91  
Date

---

### Classification Key Words:

**"Available"**--Making the report available to the public meets the criteria of 43 CFR 7.18(a)(1).

**"Available (deletions)"**--Making the report available with selected information on site locations and/or site characteristics deleted meets the criteria of 43 CFR 7.18 (a)(1). A list of pages, maps, paragraphs, etc. that must be deleted for each report in this category is attached.

**"Not Available"**--Making the report available does not meet the criteria of 43 CFR (a)(1).



