D-1306

historic structure report
historical data
november 1978

PICTURED ROCKS
AU SABLE LIGHT STATION



NATIONAL LAKESHORE / MICHIGAN

Color Scans
10/9/2002

PLEASE RETURN TO:
TECHNICAL INFORMATION CENTER
DENVER SERVICE CENTER
NATIONAL PARK SERVICE

ON MICROFILM

HISTORIC STRUCTURE REPORT

HISTORICAL DATA

AU SABLE LIGHT STATION

PICTURED ROCKS NATIONAL LAKESHORE

MICHIGAN

Prepared by
Louis Torres

DENVER SERVICE CENTER
HISTORIC PRESERVATION DIVISION
NATIONAL PARK SERVICE
UNITED STATES DEPARTMENT OF THE INTERIOR
DENVER, COLORADO

November 1978

PREFACE

The purpose of this study is to provide the basic historical data necessary for an adaptive restoration of the Au Sable Light Station at Pictured Rocks National Lakeshore. It has been prepared under Account 2335-399 to fulfill the requirements of the development/study package proposal (10-238) of August 27, 1976 and the task directive of March 1977.

As both the footnotes and bibliography indicate, the bulk of all basic historical data for this study has come largely from the National Archives and Records Service and Pictured Rocks National Lakeshore. The writer was fortunate to have found a very complete file of historical records at the park.

The writer wishes to take this opportunity to express his appreciation to several individuals for their contributions to this report. At the park, Superintendent Robert L. Burns, Bruce A. Peterson, and Bernie Gestel were very helpful. As in the past with projects in which this writer was involved, Bruce Peterson has demonstrated a high regard for the historical properties of the park. William Sherman of the National Archives and Records Service was helpful in tracing historic documents associated with the lighthouse. The author also owes a debt of gratitude to Dennis L. Noble of the United States Coast Guard, both for his preliminary work in this area and for making copies of materials and other information quickly available.

A special word of gratitude must go to Francis Ross Holland, Jr., Chief, Cultural Resources Management Division, the historian of American lighthouses, for his critical review of the draft and for his many helpful suggestions.

Finally, this writer must acknowledge the contributions of Helen Athearn and Lou Layman of the Denver Service Center, the first for typing and assembling the manuscript, the second for her usual display of great skill in editing the final manuscript.

CONTENTS

PREFACE iii

LIST OF ILLUSTRATIONS vi

I. INTRODUCTION 1

A. Need for a Lighthouse 1
B. Construction of Lighthouse and Related Facilities 3
C. A Change of Name 8
D. The Station in Recent Years 8
E. Statement of Historical Significance 9

II. THE LIGHTHOUSE AND ITS SUPPORTING ELEMENTS 11

A. Lighthouse 11
B. Fog Signal House 15
C. Boathouse and Wharf 25
D. Oil Houses 32
E. Walks, Boatways, Tramway, Turntable, Cistern 36
F. Retaining Wall 38

III. KEEPER'S AND ASSISTANT KEEPERS' FACILITIES 46

A. Attached Dwelling 46
B. New Keeper's Dwelling 55
C. Privies 59
D. Garage 67

BIBLIOGRAPHY 69

APPENDIXES

APPENDIX A: MAPS

1. "Big Sable Light Station, Mich., Reservation Surveyed Aug. 11-13, 1884 by Geo. Y. Wisner" 73

2. "Sketch of Light-House Site at Big Sable, Mich. February 10, 1902" 74

3. "Big Sable Lt. Sta., Michigan. Surveyed June 9, 1909, By Ralph R. Tinkham" 75

APPENDIX B:

"Description of Buildings, Premises, Equipment, Etc. at Au Sable Light Station, Michigan, June 7, 1909" 77

APPENDIX C: DRAWINGS

1. "Au Sable Lt. Station, Mich., Modified Cellar Plan," ca. 1909 97

2. "Au Sable Lt. Station, Mich., Modified Dwelling, Plan of Ist Story," ca. 1909 98

3. "Au Sable Lt. Station, Mich., Modified Dwelling, Plan of 2d Story," ca. 1909 99

4. "Big Sable Lt. Sta., Mich.," No. 9949-M, ca. 1909 100

5. "Big Sable Lt. Sta., Mich.," No. 9952-H, ca. 1909 101

6. "Au Sable, Michigan, Modification of Assistant Keepers Dwelling (Two Baths Added)," February 14, 1939 102

7. "Au Sable Light Station, Alterations to Dwelling, Sanitary Facilities--Double Dwelling," May 17, 1949, (Sheet 2 of 3) 103

8. "Au Sable Light Station, Alterations to Dwelling, Sanitary Facilities--Plot Plan & Details," May 17, 1949, (Sheet 3 of 3) 104

9. "Keeper's Dwelling," ca. 1908 105

10. "Au Sable Light Station, Alterations to Dwelling, Sanitary Facilities, Single Dwelling," May 17, 1949 (Sheet 1 of 3) 106

ILLUSTRATIONS

1. Big Sable (Au Sable) Light Station, 1884 5

2. Big Sable (Au Sable) Light Station, 1891 6

3. Third Order Lens on Exhibit at Headquarters of Pictured Rocks National Lakeshore 16

4. Lighthouse Tower, Looking East, 1977 17

5. Lighthouse Tower, Looking Northwest, 1977 17

6. Door to Balcony on Lighthouse Tower, 1977 18

7. Ventilator Hood off Balcony, 1977 18

8. Lantern Section and 1972 Automatic Light on Lighthouse Tower, 1977 19

9. Section of Balcony on Lighthouse Tower, 1977 19

10. Window on Third Landing of Lighthouse Tower, 1977 20

11. Fog Signal House, 1904 23

12. Fog Signal House with Brick Chimney, June 1920 24

13. Fog Signal House--Change in Roof, 1950s 26

14. Fog Signal House, Looking Southwest, 1977 27

15. Fog Signal House, Looking East, 1977 27

16. Fog Signal House, Looking Northeast, 1977 28

17. Boathouse--Side Toward Lake and Ruins of Boatway, 1977 30

18. Boathouse--Land Side, 1977 30

19. Boathouse, Shown at a Distance from Lake, June 1938 31

20. Brick Oil House--Front, 1977 34

21. Brick Oil house--Rear, 1977 34

22. Metal Oil House, 1977 35

23. Metal Oil House at Sand Point, 1975 35

24. Section of Concrete Walk Leading from Fog Signal House to Dwellings and Tower, 1977 37

25. Brick Cistern near Fog Signal House, 1977 39

26. Retaining Wall--Area of Erosion, August 1942 41

27. Extended Sections of Retaining Wall, 1950s 42

28. Extended Sections of Retaining Wall, 1950s 42

29. Old Section of Retaining Wall on the East, 1977 43

30. Fallen Section of Retaining Wall, 1977 43

31. Crumbling Section of Retaining Wall, Exposing Rock, 1977 44

32. Bottom of Retaining Wall, Anchored in Bedrock, 1977 44

33. Fallen Section of Retaining Wall, 1977 45

34. Double-Tiered Wooden Retaining Wall Under Fog Signal House, 1977 45

35. Attached Dwelling, Viewed from the North, 1904 48

36. Attached Dwelling, Viewed from the Northeast, 1884 49

37. Remodeled Attached Dwelling, June 1912 53

38. Remodeled Attached Dwelling, June 1914 53

39. Remodeled Attached Dwelling, June 1920 54

40. Attached Dwelling, Viewed from Northwest, 1977 56

41. Attached Dwelling, Viewed from Southeast, 1977 56

42. Attached Dwelling, Viewed from East, 1977 57

43. Attached Dwelling, Viewed from Lighthouse Balcony, 1977 57

44. Interior View of Passageway of Attached Dwelling, 1977 58

45. Keeper's Dwelling, Looking East, 1912 60

46. Keeper's Dwelling, West and South Sides, 1977 61

47. Keeper's Dwelling, East and North Sides, 1977 61

48. Keeper's Dwelling, North Side, 1977 62

49. Keeper's Dwelling, Viewed from Lighthouse Balcony, 1977 62

50. 1874 Privy--Front, 1977 64

51. 1874 Privy--Rear, 1977 64

52. Present Location of 1874 Privy, 1977 65

53. 1909 Privy, Looking Southwest, 1977 66

54. 1909 Privy, Looking Southeast, 1977 66

55. Front of Garage, 1977 68

56. Rear of Garage, 1977 68

I. INTRODUCTION

A. Need For A Lighthouse

With the growth of industry in the Upper Peninsula of Michigan, commerce increased on Lake Superior. The growing number of vessels of large and small tonnage plowing these waters found it extremely dangerous and difficult to maneuver safely without adequate navigational aids. The irregular shoreline of the Upper Peninsula was lined with numerous islands, straits, and reefs, as are most parts of the Great Lakes. Frequently the compass could not be relied upon as in the open sea because the proximity of masses of iron ore, particularly on Lake Superior, varied considerably according to the quantity of ore deposits in the vicinity. Frequent storms and heavy fogs common to these waters also added to the risks of a ship's captain. The remains of shipwrecks along the shores of Lake Superior, no less than those along the present shoreline of Pictured Rocks National Lakeshore, are startling reminders of the dangers lurking in these waters. Navigational aids were a vital necessity if ships were to be warned of an impending disaster.

By the end of 1865, Lake Superior had a total of 14 lighthouses in operation.[1] Lighthouses existed at both Whitefish Point and Grand Island Harbor on Lake Superior. Between these two points--a distance of 80 miles--there were no other lighthouses. The absence of a lighthouse within such a wide area was looked upon with some alarm by the Eleventh Lighthouse District, in whose jurisdiction this area fell. In its annual report of 1867 to the United States Lighthouse Board, the district noted that vessels usually followed the

---

1. T. Michael O'Brien, U.S.C.G., Guardians of the Eighth Sea: A History of the U.S. Coast Guard on the Great Lakes (Washington, D.C.: U.S. Government Printing Office, 1976), p. 18, citing List of Lighthouses and Lighted Beacons of the Coasts of the Northern and Northwestern Lakes of the United States, compiled by the Secretaries of the Lighthouse Board, January 1, 1966.

south shore of Lake Superior, hugging the coastline, and that navigation was seriously hampered without the aid of a lighthouse. The district strongly recommended that a lighthouse be established; exact location would have to await further study, however.[2]

The recommendation made by the Eleventh Lighthouse District seemed to fall on deaf ears even though the district was convinced that the lighthouse was "more needed than any other Light in the district not already provided for."[3] Although the district continued to make an annual appeal for the construction of a lighthouse, it was not until 1872 that Congress finally felt obligated to appropriate $40,000 for that purpose. Ironically, while Congress had finally consented to appropriate the money, the lighthouse board had yet to select a site.[4]

The reservation that was finally selected--325.93 acres--turned out to be land that had once been patented by the United States to the state of Michigan in 1856. It was then called "swamp land." On September 6, 1872, this land was returned to the United States for the sum of $407.41.[5] The

---

2. Eleventh Lighthouse District, "Annual Report, 1867," clipping file, Record Group 26, National Archives and Records Service (hereafter referred to as RG 26, NA).

3. Eleventh Lighthouse District, "Annual Report, 1871," clipping file, RG 26, NA.

4. Eleventh Lighthouse District, "Annual Report, 1872," clipping file, RG 26, NA.

5. Map, "Big Sable Light Station, Mich., Reservation Surveyed Aug. 11-13, 1884, by Geo. Y. Wisner," site file, RG 26, NA (Appendix I). Old site records formerly in the possession of the U.S. Coast Guard give the date of conveyance as September 11, 1872. See title paper, "Michigan #2," RG 26, NA, copy provided by Dennis L. Noble, USCG; George Boutwell, Sec. of Treas., to Prof. Joseph Henry, Chairman of Lighthouse Board, October 1872; Chas. A. Edmonds, Commissioner of State Land Office, Mich. to Dept. of Treas., October 4, 1872; deed of conveyance recorded in Book 41, p. 563, September 6, 1872, site file, RG 26, NA.

reservation was described as encompassing Lots 1 and 2 in Section 1, Lots 1, 2, 3, and 4 in Section 2, and Lots 1 and 2 in Section 3, Township 49 North, Range 15 West.[6] It was located on the south shore of Lake Superior, about halfway between the City of Marquette on the west and Whitefish Point on the east. Grand Marais, a small community and the nearest town, was about 12 miles from where the lighthouse was actually constructed. The geographic point where the lighthouse was built was known as Point Au Sable, and the name Big Sable was assigned to the new lighthouse station. The reservation itself was a densely wooded area consisting of cedar, fir, and birch trees, and much of the land consisted of wasteland of sand dunes and marshes.

B. Construction of Lighthouse and Related Facilities

In July 1873, construction on the lighthouse and related facilities began.[7] The superstructure of the tower was completed about one year later, and by August 1874 the lens was set in place. On August 19, 1874, the lamp was lighted for the first time.[8]

While specific evidence is lacking, it is very likely that other facilities were also built at this time. Certainly the dwelling that would house the keeper of the lighthouse and later his assistant had to have been constructed at this time. A privy was probably constructed, also. A woodshed and boathouse, if not built in 1874, may have been built soon after. A site map drawn in 1884, after a survey of the reservation had been undertaken, depicts the exact position of the lighthouse, an attached dwelling, three very

---

6. Map, "Sketch of Light-House Site of Big Sable Mich.," Engineer, Eleventh Lighthouse District, Detroit, Mich., February 10, 1902, site file, RG 26, NA (Appendix A-2).

7. Eleventh Lighthouse District, "Annual Report, 1873," clipping file, RG 26, NA.

8. Eleventh Lighthouse District, "Annual Report, 1874," clipping file, RG 26, NA.

small structures (not designated), and a boathouse with a dock nearby.[9] An excellent photograph taken in 1884 also depicts the lighthouse with the attached dwelling, a brick privy, a woodshed, and what was probably the boathouse (Illustration 1).[10] Another photograph taken in 1891 from a point on the lake shows almost the same number of structures, but because it was taken at a distance the small privy is hidden among the shrubbery (Illustration 2).[11] These two photographs support one another and, in turn, both offer supporting evidence to the 1884 survey map. The 1884 photograph shows ladders placed against a wooden structure or shed, which may indicate either that this shed was just in the process of being completed at the time or that it was being repaired. The former assumption is more likely to be correct.

In later years, other structures were added and alterations were made to older structures. Chief among the additions were the fog signal house in 1897 and a second dwelling in 1909. A brick oil house was built in 1895; a second brick privy to complement the new dwelling was put up in 1909. A second wooden shed was also constructed after 1909. In 1915 a metal oil house was added to the station. Finally, a garage was constructed in 1954. Although it is known that a hennery existed at least as early as 1909, it is not known when this structure came into existence.

At different intervals the smaller structures were moved to more convenient locations, and new structures may have replaced the old ones. For example, the locations of the old brick privy and shed were changed from their easterly position to a more southerly position. In recent years, during

---

9. Map, "Big Sable Light Station, Mich., surveyed August 11-13, 1884, by Geo. Y. Wisner," site file, RG 26, NA.

10. Photograph No. 26-LG-49-5, 1884, RG 26, NA; a similar photograph is numbered 26-LG-49-7, 1884, RG 26, NA.

11. Photograph No. 26-LG-49-10, 1891, RG 26, NA.



Illustration 1
Big Sable (Au Sable) Light Station, 1884.
(Photograph No. 26-LG-49-5, Record Group 26, National Archives)



Illustration 2
Big Sable (Au Sable) Light Station, 1891.
(Photograph No. 26-LG-49-10, Record Group 26, National Archives)

the United States Coast Guard's custodianship, some of the buildings--the two wooden sheds and the hennery--have disappeared from the lighthouse complex. Nevertheless, all the structures that exist today, except the garage, represent old structures central to the operation of the lighthouse complex at Au Sable. Therefore they are worthy of preservation.

An interesting site map drawn to scale in 1909, at the time the new dwelling was added, depicts all structures at the station in relation to one another. This map shows an enlarged dwelling attached to the lighthouse, as well as a second dwelling (1909) to the west of the tower. Immediately to the south of the enlarged dwelling, reached by a narrow, straight walk, were a shed, a privy, and a brick oil house. The map also shows in this same area a metal oil house that was added in 1915, which, by the way, indicates that this map was revised in later years.[12]

The second dwelling appears on this map, which indicates that it was just then constructed or in the process of being constructed. To the south of this new structure, reached by a narrow walk, appear two squares, one smaller than the other. Although these have no designation, they undoubtedly symbolize a new or second privy and a second shed.[13]

South of the square, or brick, oil house, and halfway between this structure and the new privy, was the hennery, a structure about the same size as the two sheds. This was reached from the brick oil house by a

---

12. Map, "Big Sable Lt. Sta., Michigan. Surveyed June 9, 1909 By Ralph R. Tinkham," site file, RG 26, NA (Appendix A-3). A similar map with revisions made in 1935 and 1944, drawing 12088-S, is in park files.

13. Ibid.

narrow and irregular dirt path.[14] The hennery, like the two sheds, has long since disappeared.

Other changes made over the years, some before 1909 and others after, were the replacement of wooden walks with concrete walks, a considerable number of alterations to the dock, and the construction of a retaining wall designed to hold the loose sandy soil surrounding the fog signal house.

C. A Change of Name

In May 1910 the name of the light station, Big Sable, was changed to Au Sable to conform to changes in names of certain lighthouse stations in the Great Lakes Region. The geographic name of Point Au Sable was changed to Au Sable, and the light station also assumed this name.[15]

D. The Station in Recent Years

The location of the Au Sable light station was isolated. The log books kept by the keepers and assistant keepers testify to this isolation; they are replete with entries that reveal the lonely life of those who carried on their daily duties. The station was about 12 miles from Grand Marais, where the keepers received their mail and bought many of their supplies. The road to Grand Marais was a torturous path over sand dunes and through densely wooded areas frequently rendered impassable by heavy snows and washouts. When either the keeper or his assistant went to Grand Marais for supplies and mail, he was gone for at least two days, leaving only one person to man the lighthouse. In later years, when the need for formal education arose,

---

14: Ibid.

15. Naval Secretary, Lighthouse Board, to Sec. of Commerce and Labor, April 30, 1910; Dept. of Commerce and Labor to Lighthouse Board, May 3, 1910, correspondence file, RG 26, NA.

children of the keeper and his assistants had to be transported long distances to schools at a heavy expense to the family. In the 1950s, long after the United States Coast Guard had assumed jurisdiction over lighthouses, the Coast Guard determined that the type of navigational aid offered at Au Sable was no longer considered essential. It decided to convert the lighthouse to an unmanned operation consisting of an automatic light of lesser intensity. The Coast Guard also decided to discontinue the fog signal altogether. The unmanned operation went into effect in 1958.[16]

Au Sable Light Station, except for the lighthouse itself, was transferred to the National Park Service on January 12, 1968, to become a part of Pictured Rocks National Lakeshore. The United States Coast Guard continued to operate the lighthouse as an unmanned facility.[17]

E. Statement of Historical Significance

Much of the Upper Peninsula of Michigan was a wilderness in the nineteenth century. With the ever-growing lumber and iron industries in the area, commerce and navigation increased rapidly and the peninsula prospered. Shipwrecks along the southern shore of Lake Superior and what is now the coastline of Pictured Rocks National Lakeshore became frequent occurrences. The establishment of Au Sable (formerly Big Sable) Light Station provided a much-needed navigational aid in an area stretching more than 80 miles between Whitefish Point and Grand Island. The light station, like other navigational aids in the area, helped to further the goals of industry and

---

16. Commander, Ninth Coast Guard District, to Commander, Coast Guard Group, Marquette, Michigan, June 25, 1957; Commander, Ninth Coast Guard District to Office in Charge, Au Sable Light Station, January 14, 1958. Copies made available by Dennis L. Noble, MSTC, USCG.

17. Title papers, reference, Michigan #2, RG 26, NA. Copy made available by Dennis L. Noble, MSTC, USCG.

commerce of the Great Lakes Region. The park is fortunate to have among its cultural resources a complex of structures so complete and well preserved as to make it incumbent upon the National Park Service to continue the preservation of the light station in order to tell the story of its role in this significant phase of American history.

II. THE LIGHTHOUSE AND ITS SUPPORTING ELEMENTS

A. Lighthouse

The lighthouse was constructed on sandy soil of varying depths above a sandstone bedrock and about 200 feet from the nearest high-water mark.[1] The tower, including its lantern, rose 107 feet above water level, but the tower itself was 86 feet high measured from its base to the ventilator ball of the lantern. The tower was conical in shape and consisted of brick on a cut stone base that rose 3 feet 4 inches above the grade. The sills and lintels also consisted of cut stone. At the base the walls were 4 feet 3 inches thick; the outer wall was 20 inches thick, the inner wall, 12 inches thick, with an air space of 19 inches between the inner and outer walls. The foundation consisted of rubble masonry 23 feet below the surface, on bedrock.

The walls at the parapet were 3 feet 4 inches thick with a 16-inch thick outer wall, an 8-inch thick inner wall, and an air space of 16 inches between the two walls. The diameter at the base was 16 feet 6 inches, and at the parapet it was 12 feet 8 inches.

The tower was painted white and the lantern, black. There are innumerable references in the keeper's log book to the frequent whitewashing of the tower.[2] The interior of the tower was plastered.[3]

---

1. Unless otherwise noted, the description and dimensions of the lighthouse and its supporting elements appearing in this chapter are derived from "Description of Buildings, Premises, Equipment, Etc. at Au Sable Light Station, Michigan, June 7, 1909," RG 26, NA (Appendix B).

2. Keeper's log book, 1893-1903, here and there, RG 26, NA.

3. Eleventh Lighthouse District, "Annual Report, 1874," clipping file, RG 26, NA.

The tower's stairway was circular, winding, and made of cast iron of a perforated pattern. Although it is not known whether a pipe handrail was originally installed in the tower; nevertheless, one did exist by 1909. There were three iron landings; one was 5/8 inch thick and two were 1/2 inch thick. The stair landing below the lantern floor served as, and sometimes was called, the watchroom. The landing had four semicircular windows around it. Today one of these windows has been blocked off. A reference in the keeper's log book for June 22, 1897, notes that bricklayers were putting brick in the tower, and this writer suspects that it may have been then that one window was blocked off from the inside.[4] The landing was also fitted with a closet of shelves set in the wall for lamp supplies.

In all, there were seven windows in the tower, the four semicircular windows on the top landing and just below the parapet, one each on the other two landings, and one on the ground level.

The tower was connected to a dwelling, or what was then known as the keeper's dwelling, by a covered passageway 12-1/2 feet long by 5 feet wide. It had an outer door facing south and a window on the north side.

The lantern room, which held the lens apparatus, consisted of a copper dome lined with zinc, held together with pinched strips of welded iron. The ventilator ball also consisted of copper. The lightning conductor spindle was made of copper with a platinum tip. The lightning conductor was attached to its spindle by a 3/4-inch gas pipe that led from the gallery deck down the northwest side of the tower into the dry ground. A twisted copper rope also led from the stairs through the wall at the floor level of the tower and into the dry ground.

The lower gallery that circled the tower was made of cast iron, and it was 35-1/2 inches wide. A handrail that encircled the gallery was 40 inches

---

4. Keeper's log book, June 22, 1897, RG 26, NA.

high and consisted of two flat bar rails measuring 3/4 inch by 2 inches. The stanchions that supported the rail were 1-1/2 inches in diameter with ball tops.

The floor of the lantern was made of cast iron and it was cut out for a stairwell. The lantern (or upper) gallery, which was at lens level, was also made of cast iron, and it extended outside to form a circular gallery 20-1/2 inches wide. The handrail encircling this gallery was 1-1/2 inches by 2 inches and flat. It was supported by 1-inch wide stanchions.

The open stairwell led to the upper part of the lantern. A trap door of iron plate was in the floor of the lower part of the lantern. The inside diameter of the lower part of the lantern was 7 feet 11-1/2 inches.[5]

In the lower part of the lantern there were five ventilators with brass ring valve registers inside and cast-iron hoods outside.

The illuminating apparatus installed in the lantern in 1874 was a coast fixed lens of the third order. There were seven orders of lenses placed in lighthouses running from one to six. (One was a three-and-a-half-order lens.) The lower the number, the greater the size of the lens. Thus, the third order represented a fairly large lens. The lens was the Fresnel apparatus, a French-type lens frequently found in lighthouses after 1852. This fixed apparatus consisted of a central powerful lamp emitting luminous beams in every direction. Around this was placed an arrangement of glass so formed as to refract these beams into parallel rays in the required direction.

---

5. For further technical information on specifications and details of the lantern, see "Description of Buildings, Premises, Equipment, Etc. at Au Sable Light Station, Michigan, June 7, 1909," pp. 5-6, RG 26, NA, (Appendix B).

A third order light was 3 feet 3-3/8 inches in diameter.[6] The lens at Big Sable was manufactured by L. Sauter and Company of Paris. As parts of a fixed lens, each of the four panels had a 72-degree arc. There was one dark panel in the lens, the central belt of which was closed by a curved brass door to protect the lamp.

The pedestal of the lens consisted of cast iron resting over a newel on the floor of the lower part of the lantern. The base of the lens had a cast-iron floor that served as a service table. Upon it stood a lamp pedestal of a ring and three stanchions.

Originally the lighthouse burned lard oil, but this was later changed to kerosene, (originally referred to as mineral oil), a more effective fuel.[7]

A public hearing was held by the Ninth Coast Guard District in July 1957 to outline United States Coast Guard plans to reduce the candlepower and alter the characteristics of the light and to convert the lighthouse to an unmanned operation. By January 1958 the United States Coast Guard had approved the conversion of the lighthouse to an automatic, unattended light, while also discontinuing the fog signal house. A deadline of June 1958 was established for the change.[8]

---

6. Francis Ross Holland, Jr., America's Lighthouses: Their Illustrated History Service 1716 (Brattleboro, Vermont: The Stephen Greene Press, 1972), p. 18; [J. H. Beers & Co.], History of the Great Lakes (Chicago: J. H. Beers & Co., 1899, Reprinted, Cleveland: Freshwater Press Inc., 1972), I, p. 369.

7. Dennis L. Noble and T. Michael O'Brien, "Sentinels of the Rocks: From 'Graveyard Coast' to National Lakeshore," 1976, manuscript in park files, p. 32.

8. Memorandum, Commander, 9th Coast Guard District to Commander, Coast Guard Group, Marquette, Michigan, subject: "Au Sable Light; public hearing for," June 25, 1957; memorandum, Commander, 9th Coast Guard District to Officer in Charge, Au Sable Light Station, subject: "Au Sable Light; disestablishment of," January 14, 1958; "Aids to Navigation Operation Request (CG 3213), 9th CG District, Project No. 10-58, August 1, 1957, filed in 9th Coast Guard District, Cleveland, Ohio, copies supplied by Dennis L. Noble, USCG.

The third order lens was finally removed from the lantern in 1972 and replaced by a much smaller 300 mm acrylic lens.[9] This lens was fastened to the upper gallery of the tower. Meanwhile, the old lantern was boarded up to preserve it from the weather and the old lens was transferred to the National Park Service, where it is now exhibited in the headquarters of Pictured Rocks National Lakeshore (see Illustration 3).

Illustrations 4 through 10 show the lighthouse as it is today.

B. Fog Signal House

Fog signals were used extensively in the late nineteenth century to support lighthouses, since sound could penetrate a dense fog or blinding snowstorm when a light could not. The principal fog signals were trumpets, steam whistles, automatic whistling buoys, bell buoys, bell boats and sirens, and bells run by machinery impelled by clockwork. The steam whistle was next to the siren in effectiveness and popularity, and was largely used with satisfactory results where a great intensity of sound was not essential.[10]

With navigation on Lake Superior growing constantly, navigational aids also were increased in number and effectiveness. The entire ship traffic of Marquette, Michigan, which was estimated at 1,772,400 tons in 1890, hugged the south shore of Lake Superior.

---

9. Memorandum, Chief, Aids to Navigation Branch, 9th Coast Guard District, to Public Information Officer, 9th Coast Guard District, subject: "Au Sable Light, request for information concerning," May 23, 1972, in park files.

10. History of the Great Lakes, I, pp. 369-370.

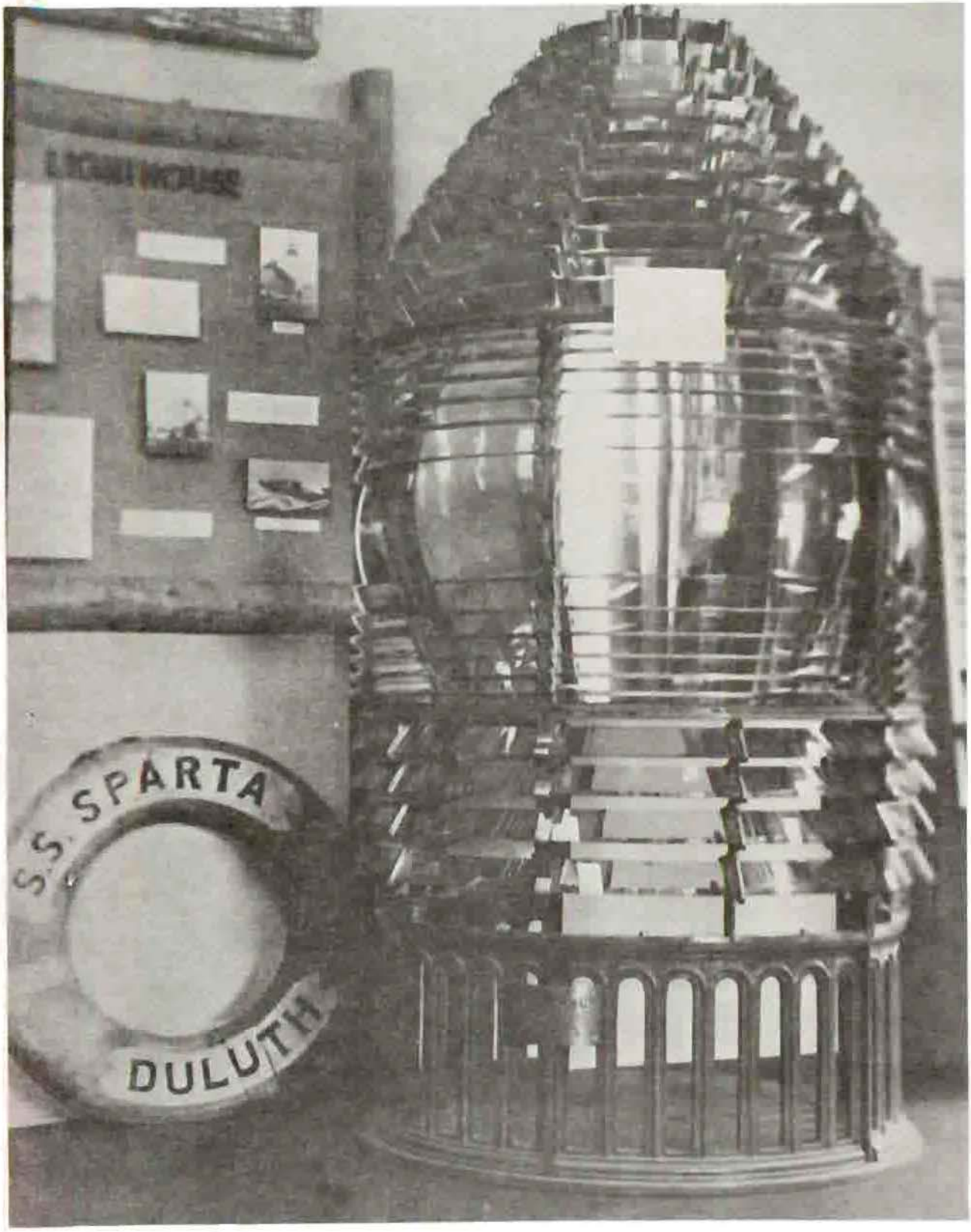


Illustration 3
Third Order Lens on Exhibit at Headquarters of
Pictured Rocks National Lakeshore



Illustration 4
Lighthouse Tower Looking East
1977



Illustration 5
Lighthouse Tower Looking Northwest
1977



Illustration 6
Door to Balcony on Lighthouse Tower
1977



Illustration 7
Ventilator Hood off Balcony
1977



Illustration 8
Lantern Section and 1972 Automatic Light on Lighthouse Tower
1977



Illustration 9
Section of Balcony on Lighthouse Tower
1977

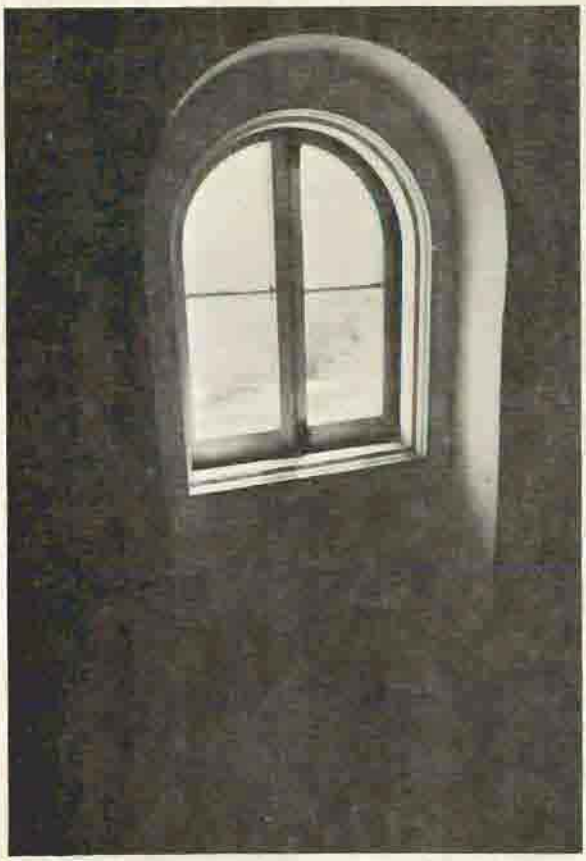


Illustration 10
Window on Third Landing of Lighthouse Tower
1977

Marquette was an important center of the iron industry. The Eleventh Lighthouse District was convinced that a steam fog signal was essential to complete the facilities at Big Sable. It felt that the fog signal could be established at a cost of $5,500, and in 1892 it recommended that such an amount be appropriated. Although Congress approved the construction of a fog signal at Big Sable in 1893, it was not until June 1896 that the appropriation was finally passed.[11]

Plans and specifications called for the establishment of a 10-inch steam signal with duplicate fog signal boilers and machinery. When in operation, the steam whistle would emit blasts of 3 seconds' duration with intervals of 17 seconds' duration.[12]

On September 1, 1897, the fog signal was placed into operation.[13] Soon after, other accessories needed to operate the fog signal were also constructed. A crib filled with ballast was built and sunk into position on the dock, and a well box was placed in it for fog signal water supply.[14] The water, which was supplied from the lake, was transmitted from the well to the fog signal house by a 202-foot-long, 1-inch-wide steam pipe and a 202-foot-long, 1½-inch-wide discharge pipe. In 1898 a hoisting engine was installed on the dock, and a tramway, running from the dock to the fog signal house, was put in place. The track was 55 feet long, and about midway on the track a

---

11. Eleventh Lighthouse District, "Annual Reports" for 1892, 1893, 1894, 1895, and 1896, clipping file, RG 26, NA.

12. Eleventh Lighthouse District, "Annual Report, 1896," clipping file, RG 26, NA; Naval Secretary, Lighthouse Board, to Eleventh Lighthouse District, letters of the Eleventh Lighthouse District, RG 26, NA.

13. Engineer Secretary, Lighthouse Board, to Eleventh Lighthouse District, August 18, 1897, letters of the Eleventh Lighthouse District, RG 26, NA.

14. Eleventh Lighthouse District, "Annual Report, 1897," clipping file, RG 26, NA.

turntable was installed.[15] In 1905 a brick cistern for fog signal water supply was constructed just to the east of the fog signal house.[16]

The building housing the fog signal equipment was a one-story red brick structure with a red metal shingle roof. Its dimensions were 22 feet by 40 feet. Originally the roof had two long metal smokestacks, but in 1904 these were removed and replaced by a 40-foot brick chimney.[17] A photograph taken in 1904, just before the brick chimney was added, provides an excellent description of this building only seven years after it was completed (Illustration 11).[18]

The two main elements in the structure itself were the boiler and steam engine. The dimensions of the boiler were 7 feet 5 inches high, 6 feet 6-3/4 inches long, and 4 feet 9-3/4 inches wide. The fuel it burned was bituminous coal. The steam engine was a vertical type completing 120 revolutions per minute.[19]

In 1928 the fog signal house was converted to new equipment. At that time the steam whistle equipment was replaced by an air diaphone fog signal.

---

15. Keeper's log book, Nov. 30, 1893, RG 26, NA; Eleventh Lighthouse District, "Annual Report, 1899," clipping file, RG 26, NA; Engineer Secretary, Lighthouse Board, to Eleventh Lighthouse District, October 1, 1897, letters of the Eleventh Lighthouse District, RG 26, NA.

16. Eleventh Lighthouse District, "Annual Report, 1905," clipping file, RG 26, NA.

17. Eleventh Lighthouse District, "Annual Report, 1904," clipping file, RG 26, NA.

18. Photograph 26-LG-49-6A, 1904, RG 26, NA. See also Illustration 12, photograph taken in 1920, showing the brick chimney.

19. Map, "Big Sable Lt. Sta., Michigan, Surveyed June 9, 1909, By Ralph R. Tinkham," RG 26, NA.



Illustration 11
Fog Signal House
Big Sable (Au Sable) Light Station, 1904
(Photograph No. 26-LG-49-6A, Record Group 26, National Archives)



Illustration 12
Fog Signal House with Brick Chimney
June 1920

This equipment consisted of a water pump, air compressor, and air hoist.[20] The changes made at this time altered the roof to some extent in order to fit in the new equipment (Illustration 13).[21] In later years the size of the chimney was reduced to its present dimensions (Illustrations 14, 15, and 16).

With the conversion of the lighthouse to an automatic light in 1958, the fog signal operation was discontinued. Nearly all equipment and machinery were removed from the fog signal house, and today the interior of the structure has been gutted of everything except the air receiver tank and the fuel tank.[22]

During National Park Service custodianship the metal roof was removed and replaced by asbestos shingles. The metal shingles have been stored for future use.

C. Boathouse and Wharf

The earliest evidence of the existence of a boathouse at Au Sable Light Station is a detailed blueprint of 1884, which alludes to a "Boat-House." The distance of the boathouse to the lighthouse portrayed in this drawing is probably the same as it is today.[23] An 1891 photograph viewing the light-

---

20. Questionnaire, "Au Sable Light Station," June 22, 1935, copy made available by Dennis L. Noble, USCG; drawing "Au Sable Light Station, Mich. Air Diaphone Fog Signal Installation, 8-25-28," Office of Superintendent of Lighthouses, Eleventh Lighthouse District, Detroit, Mich., Drawing No. 1111-2S, in park files.

21. Photograph taken in the 1950s, in park files.

22. Commander, Ninth Coast Guard District, to Officer in Charge, Au Sable Light Station, Michigan, subject: "Au Sable Light; disestablishment of," January 14, 1958, copy supplied by Dennis L. Noble, USCG.

23. Map, "Big Sable Light Station, Mich., reservation surveyed August 11-13, 1884, by Geo. Y. Wisner," RG 26, NA.

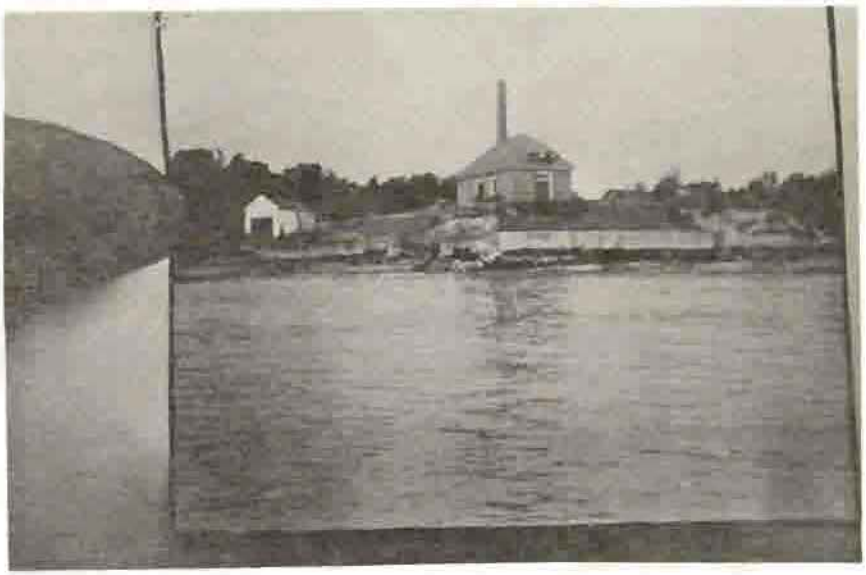


Illustration 13
Fog Signal House
Photograph shows change in roof
after new equipment was installed.
Park Files--1950s



Illustration 14
Fog Signal House Looking Southwest
1977



Illustration 15
Fog Signal House Looking East
1977



Illustration 16
Fog Signal House Looking Northeast
1977

house station from the lake shows a white structure that is probably the boathouse shown in the blueprint (Illustration 2).[24] An entry in the keeper's log book in 1903 notes that the boathouse was being whitewashed; hence, the color of the boathouse in the early years was white.[25]

Some evidence indicates that the boathouse may not have always been where it is now. For example, an entry in the keeper's log book for July 18, 1901, reveals that a crew of men were busy "moving Boat house" while doing extensive work on the dock.[26] There is no evidence, however, to show where the boathouse actually was before it was relocated.

In 1909 the boathouse was described as consisting of a wood frame with battened vertical sideboards. Rather than being white, as it is today, it was painted an olive green. It also had a red shingle roof, but it was probably not of metal, as were some of the roofs of other structures. The existing boathouse is also constructed of batten board, and it is a one-story, one-room structure. The walls are painted white. The floor is of sand, half covered with boards. It has two doorways--the one facing the lake is a double doorway and the one on the land side is a single doorway. The building contains two small square windows, one on the north side, the other on the west side (Illustrations 17 and 18). A photograph made in 1938 shows that the structure existing then is undoubtedly the same as the present one (Illustration 19).[27]

Because of the heavy seas and the frequent hurricanes that occurred, the dock was repaired and altered on several occasions during its lifetime.

---

24. Photograph No. 26-LG-49-10, 1884, RG 26, NA.

25. Keeper's log book, June 18, 1903, RG 26, NA.

26. Keeper's log book, July 18, 1901, RG 26, NA.

27. Photograph, June 21, 1938, in park files.



Illustration 17
Boathouse
Photograph shows side toward lake and ruins of boatway.
1977



Illustration 18
Boathouse
Photograph shows land side.
1977

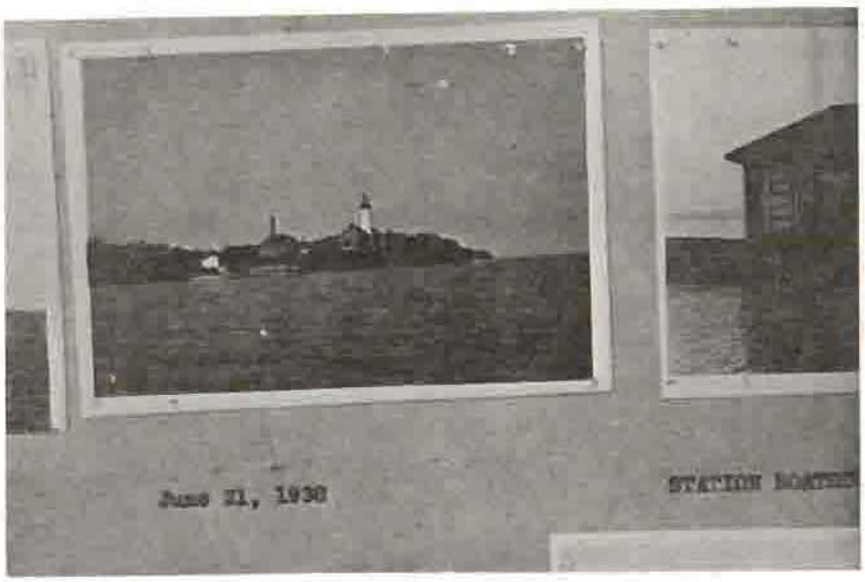


Illustration 19
Boathouse at extreme left is shown
at a distance from lake.
Park Files--June 21, 1938

In 1909 the pier was described as measuring 99 feet by 19 feet. It had an ell shape at the end that measured 14 feet by 38-1/2 feet. It consisted of log cribs filled with stone. Much of what existed in 1909 was probably due to alterations made in 1906. The annual report of the Eleventh Lighthouse District for 1906 described the changes as follows:

> The boat landing and fog-signal water-supply pier was extended 16 feet, and an additional crib, 14 by 32 feet in plan, provided with a wave break, was placed at the outer end, projecting to the eastward and forming an ell with the present pier and a protection to the boatway.[28]

A crib breakwater was built on the west side of the landing at the outer end. A log bulkhead continued along the remainder of the west side to the shore. The dock was made of planks that measured 3 by 10 inches and were 4 feet above water.

D. Oil Houses

Before 1895 oil and other inflammable materials were stored in the keeper's dwelling. An early plan, probably done at the time the dwelling was constructed (1874), places this area in the southwest room of the first story.[29] In 1894, after having rescinded an earlier order, the lighthouse board directed that an oil house be erected at Big Sable, the cost of which

---

28. Eleventh Lighthouse District, "Annual Report, 1906," clipping file, RG 26, NA.

29. "Plan of Dwelling," ca. 1874, in park files.

was not to exceed $500.[30] The following year "a brick oil house with metal roof, door, and shelving" was built.[31]

In 1909 the location of the brick oil house was said to be about 50 feet south of the keeper's dwelling. This is approximately where the oil house stands today. The interior was fitted with wood shelving. The inside dimensions were described as being 5 feet 4 inches by 7 feet 2 inches. It had a concrete floor and a hip roof. It also had a steel plate door and a globe ventilator. The structure was designed to hold a capacity of 72 five-gallon cans (Illustrations 20 and 21).

References to whitewashing the oil house in the keepers' log book may have applied to the interior of the structure, most likely to the wooden shelving.[32]

A second oil house was built in 1915 just opposite a wooden shed that is no longer in existence. This oil house, which is still in existence today, was cylindrical in shape and made entirely of iron. Like the old brick oil house, this structure was used to store combustible liquids and paints. Steel plates were riveted, the roof was conical in shape, and the structure rested on a concrete slab. In later years, when is not exactly known, this oil house was moved to where it now stands, opposite the privy (Illustration 22).[33] In many respects this oil house resembles the one that stands at Sand Point, headquarters of Pictured Rocks National Lakeshore (Illustration 23).

---

30. Engineer Secretary, Lighthouse Board, to Eleventh Lighthouse District, December 14, 1894, Letters of the Eleventh Lighthouse District, RG 26, NA.

31. Eleventh Lighthouse District, "Annual Report, 1895," clipping file, RG 26, NA. Two men completed the structure between May 14 and May 22, 1895. See keeper's log book, May 14 and May 22, 1895, RG 26, NA.

32. Keeper's log book, June 10, 1897, RG 26, NA.

33. Map, "Big Sable Lt. Sta., Michigan," June 9, 1909, RG 26, NA; drawing, "Plot Plan," n.d. but drawn around 1954, in park files.



Illustration 20
Brick Oil House--Front
1977



Illustration 21
Brick Oil House--Rear
1977



Illustration 23
Metal Oil House at Sand Point
1977



Illustration 22
Metal Oil House
1977

E. Walks, Boatways, Tramway, Turntable, Cistern

Between 1897 and 1910 considerable minor construction work of one type or another was accomplished at the station. The few buildings that existed before that time required few walks, but as more structures began to rise, more walks were needed to communicate between facilities. In 1898 the keeper and his assistant built a walk from the dwelling house to the dock.[34] A 27-foot walk was built in 1901 around the outside of the "kitchen," presumably to facilitate communication between the dwelling, outbuildings, and light-house.[35] A 1909 description of facilities at the station revealed that all walks may have consisted solely of wooden planks. These walks connected the dwelling to the outbuildings, boathouse, fog signal house, and dock.

It was probably soon after this description was given that practically all walks were converted to concrete. A drawing of the entire station, showing all facilities either as they existed or as they were being planned, revealed that most of the walks were intended to be of concrete. Some were to be 2-1/2 feet wide while others were to be 18 inches wide. The only exception was a wooden walk connecting the fog signal house to the boathouse.[36] The concrete walks were apparently constructed about the same time that the new keeper's dwelling and other structures were built. In later years even the one wooden walk was converted to concrete[37] (Illustration 24).

---

34. Keeper's log book, May 16, 1898, RG 26, NA.

35. Keeper's log book, September 23, 1901, RG 26, NA.

36. Map, "Big Sable Lt. Sta., Michigan," June 9, 1909, RG 26, NA.

37. Drawing No. 12088-S, n.d., in park files, a revision of drawing, "Big Sable Lt. Sta., Michigan," June 9, 1909, RG 26, NA.



Illustration 24
Section of Concrete Walk Leading from
Fog Signal House to Dwellings and Tower
1977

In 1901 two roller boatways with an iron winch were constructed from the boathouse to the edge of the lake, parallel to the dock.[38] A tramway was also built in 1898-99 and improved upon in 1901. A car was to run on the tramway that would carry supplies landed on the dock to the fog signal house. The track was about 55 feet long. Midway on the tramway a turn-table was constructed that turned the car about 45 degrees in the direction of the fog signal house.[39]

A brick cistern was built in 1904-1905. It held water for the fog signal house. It was spherical in shape and measured 10 feet in diameter, and was located just a few feet east of the fog signal house, where it still stands today, partially exposed above ground because of soil erosion[40] (Illustration 25).

F. Retaining Wall

The fog signal house was built on high ground that consisted largely of sand. To prevent this sand bank from loosening and falling into the lake, causing irreparable damage to the fog signal house, a sea wall about 68 feet long and 4-1/2 feet high was built in 1906 along the bank line below the fog signal house. The wall, which was made of rubblestone laid in cement mortar, rested on sandstone rock.[41] The site map of 1909 shows the exact

---

38. Keeper's log book, July 26, 1901, RG 26, NA; drawing, "Big Sable Lt. Sta., Michigan," June 9, 1909, RG 26, NA.

39. Keeper's log book, July 15, 20, 23, and 25, 1901, RG 26, NA; map, "Big Sable Lt. Sta., Michigan," June 9, 1909, RG 26, NA; annual reports of the Eleventh Lighthouse District, 1899 and 1901, clipping file, RG 26, NA.

40. Annual reports of the Eleventh Lighthouse District, 1904 and 1905, RG 26, NA; map, "Big Sable Lt. Sta., Michigan," June 9, 1909, RG 26, NA.

41. Eleventh Lighthouse District, "Annual Report, 1906," clipping file, RG 26, NA.

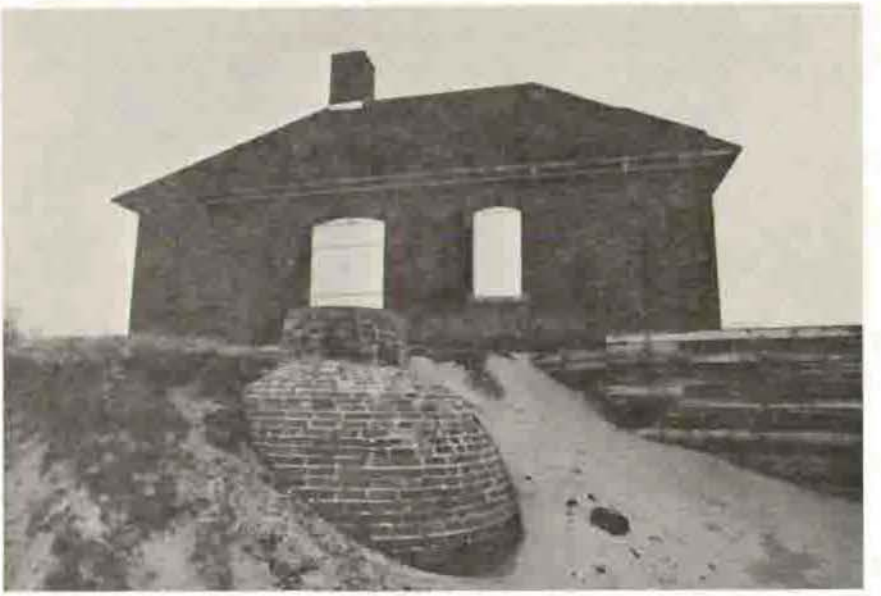


Illustration 25
Brick Cistern near Fog Signal House
1977

position of the retaining wall. It began at the southwest corner of the boat landing and extended westward to a point just below the cistern.[42]

Whether its collapse was due to faulty construction or to severe climatic and sea conditions that no amount of expertise could overcome, by 1942 part of the wall had crumbled into the lake.[43] Repairs were made at this time. In addition, the wall was extended westward about another 63 feet, bringing its length to approximately 130 feet. The new extension turned off at a slight angle, following the course of the bank line.[44]

The retaining wall did not last much longer after this, for today about 85 percent of the wall has collapsed and fallen into the lake. The collapse of the wall has led to erosion that is undermining and threatening to destroy the fog signal house. As an emergency precaution and until more permanent measures can be taken, the park has built a double-tiered retaining wall of wooden planks to support the soil holding the fog signal house (Illustrations 29 through 34).

---

42. Map, "Big Sable Lt. Sta., Michigan," June 9, 1909, RG 26, NA.

43. Photograph, captioned: "Break Wall & Recent Erosion In Front of Fog Signal Bldg., Aug. 1942," in park files (Illustration 26).

44. Drawing, "Plot Plan," n.d. but ca. 1954, in park files. See photographs, ca. 1950s, in park files, showing where the new extension began and where it ended (Illustrations 27 through 28).

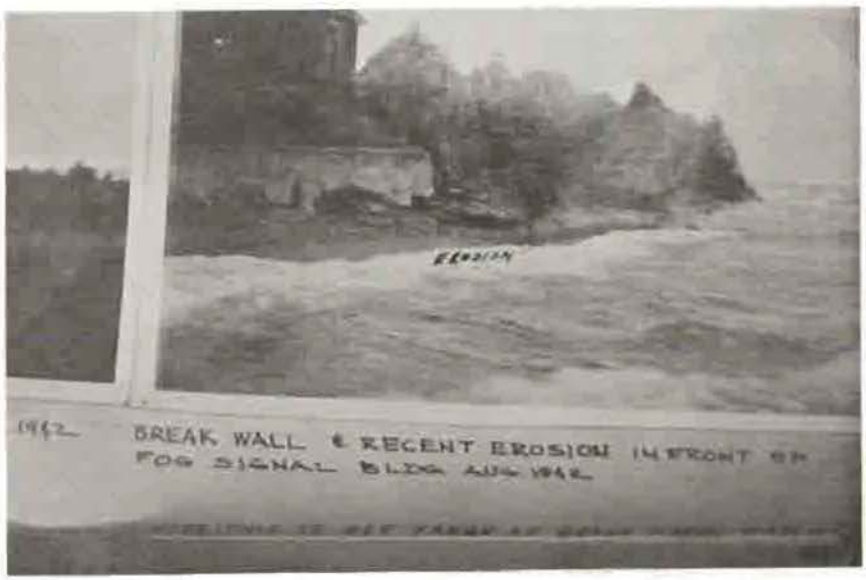


Illustration 26
Retaining Wall Photograph shows area of erosion.
Park Files--August 1942





Illustration 27 and 28
Extended Sections of Retaining Wall
Park Files--ca. 1950s

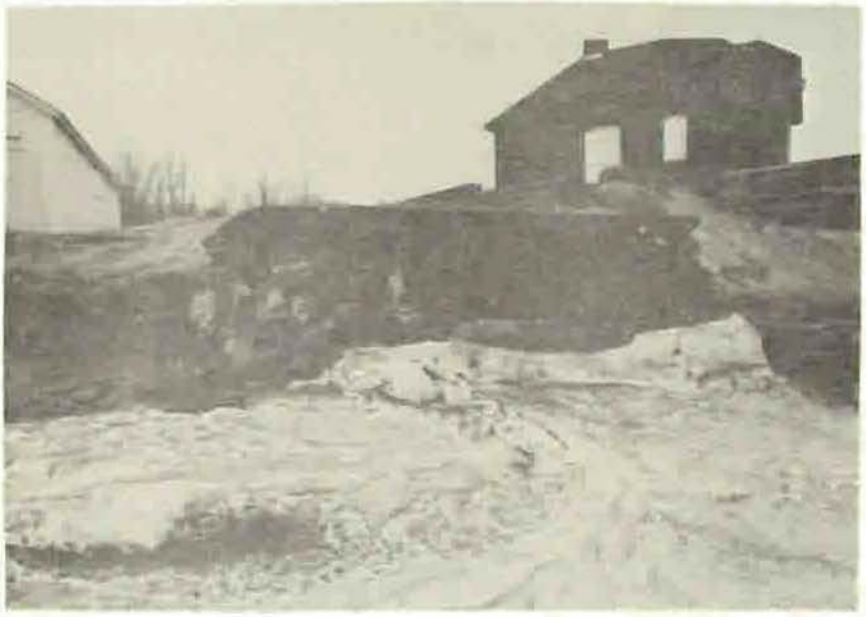


Illustration 29
Old Section of Retaining Wall on the East
1977

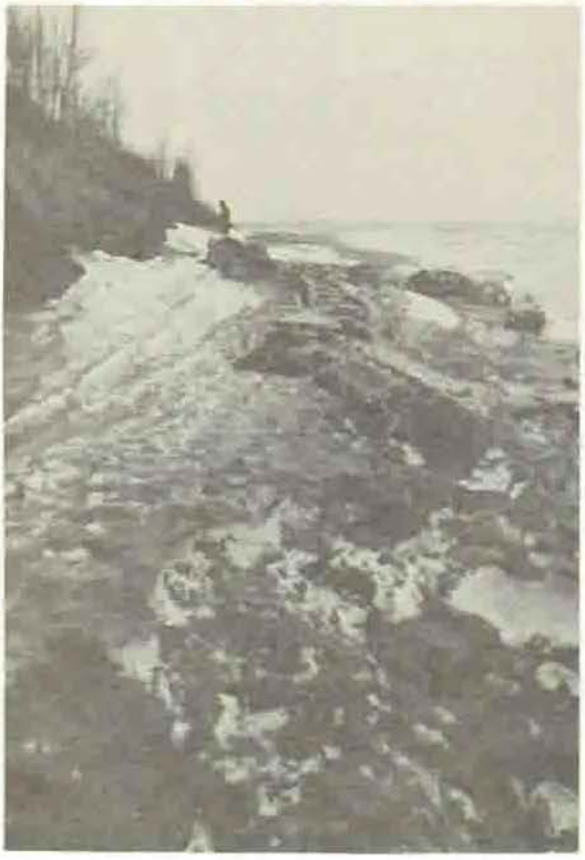


Illustration 30
Fallen Section of Retaining Wall
1977



Illustration 31
Crumbling Section of Retaining Wall, Exposing Rock
1977



Illustration 32
Bottom of Retaining Wall, Anchored in Bedrock
1977



Illustration 33
Fallen Section of Retaining Wall
1977

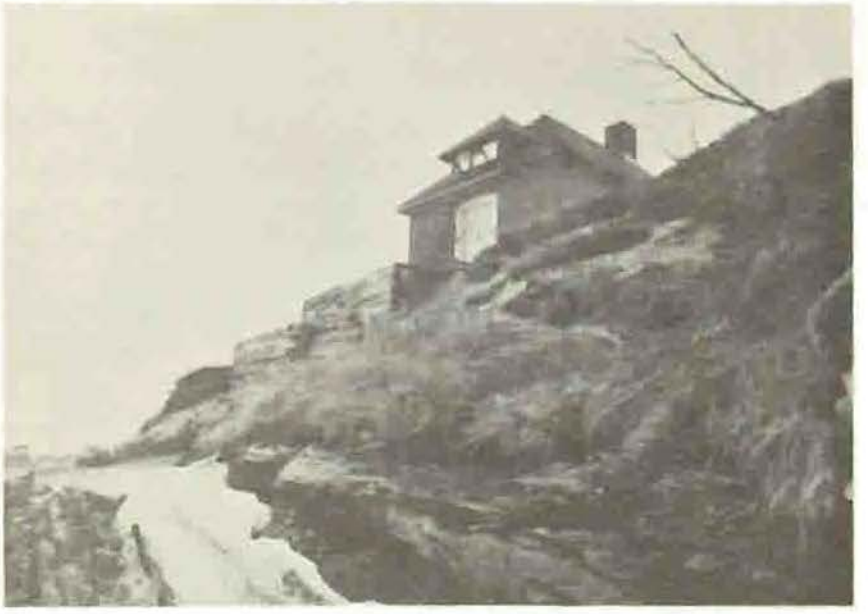


Illustration 34
Double-Tiered Wooden Retaining
Wall Under Fog Signal House
1977

III. KEEPER'S AND ASSISTANT KEEPERS' FACILITIES

A. Attached Dwelling

When the lighthouse was completed in 1874, the attached dwelling, or what was then referred to as the keeper's dwelling, was also built. This structure was originally a single dwelling for the keeper, but with the passage of time and the appointment of an assistant keeper, both individuals and their families lived in the house in somewhat cramped quarters.

The dwelling was connected to the lighthouse tower by the passageway described in the previous chapter. The passageway could be entered through a doorway at the end of a hall on the first story of the dwelling and by way of a doorway on the south side of the passageway itself.

The attached dwelling was a two-story structure with a basement and an attic. The superstructure was made of red brick and the foundation consisted of stone. According to architectural evidence recently uncovered, the roof was originally made of cedar shingles, although in later years, probably in 1909, the cedar shingles were replaced by red metal shingles. The outside dimensions of the dwelling were 43 feet 9 inches by about 27 feet.

A blueprint drawing of the structure, obviously made at the time it was being built, provides a thorough description of rooms, dimensions, and other pertinent architectural details.[1]

---

1. Blueprint, "Keepers Dwelling for Big Sable Lt. Sta.," ca. 1874, in park files. This drawing is in six sections: side elevation, west side elevation, east side elevation, plan of foundation (cellar), plan of first story, and plan of second story.

The first story consisted of a kitchen, a living room, a bedroom, an oil room, and a large woodshed through which one entered the building. Oil, which was used for the lighthouse, was originally stored in the dwelling, as close to the tower as possible. When the small brick oil house was constructed in 1895, this oil room was converted to other uses. The second story consisted of four bedrooms. There was no second story area over the large woodshed.

The lintels over windows and doors were made of curved stone. All windows on the first story were six over six panes, and all had shutters. On the second story, the two side windows were three over six panes, while the rest were six over six panes. A chimney of brick protruded at the east end of the building. In later years there were problems with the shutters, and in all probability the severe winters made them unfit from time to time. A 1904 photograph of the north side of the house shows several shutters missing (Illustration 35).[2] In November 1903, the keeper noted in his log book that a "storm window" (shutter?) was installed on the "North Bed Room."[3]

While the storage of oil supplies originally may have been planned for the so-called oil room when the dwelling was first constructed, by 1888 it was decided to store these supplies in the cellar, an area that was divided into two large sections. A door frame and door, with necessary fittings, were provided for dividing the cellar into compartments so that supplies of oil and

---

2. Photograph, No. 26-LG-49-6B, RG 26, NA.

3. Keeper's log book, November 7, 1903, RG 26, NA. In addition to the blueprint, "Keeper's Dwelling For Big Sable Lt. Sta.," ca. 1874, in park files, photographs No. 26-LG-49-8, 1884, No. 26-LG-49-5, 1884, and No. 26-LG-49-7, all in RG 26, NA, provide excellent descriptions of the dwelling only ten years after it was constructed (Illustration 36).

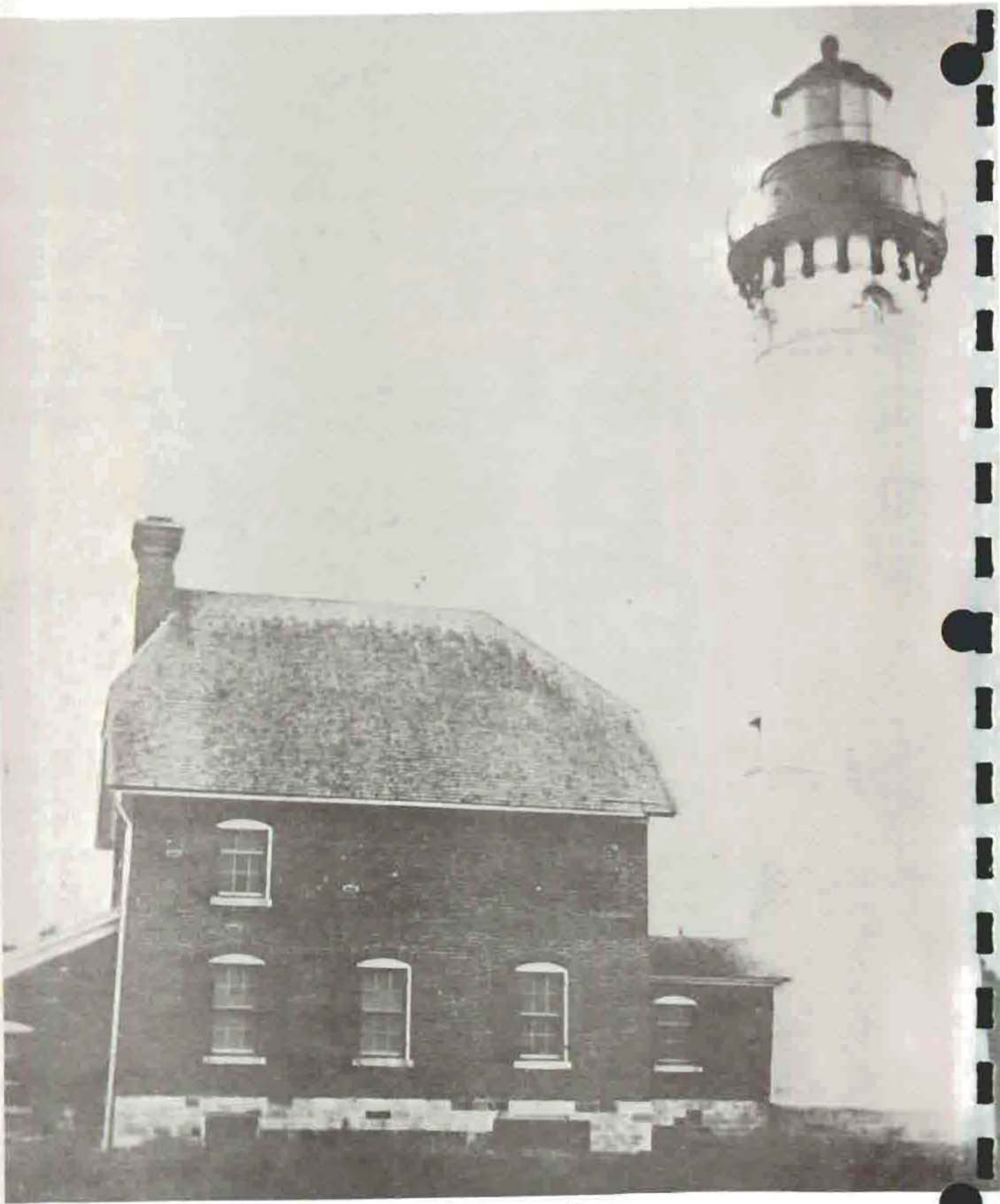


Illustration 35
Attached Dwelling
Viewed from the North, 1904
(Photograph No. 26-LG-49-6B Record Group 26, National Archives)



Illustration 36
Attached Dwelling
Viewed from the Northeast, 1884
(Photograph No. 26-LG-49-8, Record Group 26, National Archives)

provisions could be kept separate.[4] It is not known to what use the old oil room was converted after this change was made, but the cellar seemed to be a more practical and safe place to store inflammable supplies.

The interior of the dwelling must have been painted rather simply; in all probability most of it was painted white. There are numerous references in the keeper's log book to the whitewashing of the kitchen.[5]

At the basement level there were four small windows just above the ground, two on the north side and two on the south. On the first floor there were all double-hung windows. Four of these were on the north side, one smaller than the rest being in the woodshed. There were three windows on the south side, as well as a doorway leading to the woodshed that also led to the main part of the house.

On the second story there were two windows on the east, overlooking the sloping roof of the woodshed. There was one window on the northeast corner and one on the southeast corner. Three windows faced west, overlooking the passageway.

The attic story contained only one window, smaller than the rest, and it was located on the west side.

Extensive alterations and additions were made to the lighthouse complex in 1909. Among these changes was the construction of a new and separate dwelling (to be discussed in a later section) for the keeper of the lighthouse. The old attached dwelling, which was originally designed as a single dwelling, was converted to a double dwelling for the use of two assistant keepers.

---

4. Eleventh Lighthouse District to Lighthouse Board, June 30, 1888, letters of the Eleventh Lighthouse District, RG 26, NA.

5. Keeper's log book, October 14, 1899, and August 6, 1901, RG 26, NA.

Other outbuildings were also constructed at this time, and still other facilities were relocated.

The major changes made to the old dwelling consisted of the removal of the woodshed. In its place was constructed a two-story extension on the house that added four rooms, two to each level. To the east of this wing an open porch was added that extended the full width of the house, on what was then considered the rear.

The major change occurring in the cellar was the addition of a cistern in the northeast corner with a capacity to hold 700 gallons of water. This was made of brick covered with plaster. Under the section where the old woodshed once stood, a stairway leading to the cellar was built.[6]

Changes were made on the first story to provide one complete apartment for an assistant keeper. Where there originally had been four rooms and a woodshed, there were now six rooms. There were two doorways and two windows off the new porch, four windows overlooking the north side, and four overlooking the south.[7]

The second story was also converted to six rooms. Two windows were added at this level, one at the northwest corner and another at the southwest corner. Finally, at the attic level, a smaller window was added at the east end, or rear, of the house.[8]

---

6. Drawing, "Au Sable Lt. Station, Mich., Modified Cellar Plan," No. 9948-M, ca. 1909, in park files (Appendix C-1).

7. Drawing, "Au Sable Lt. Station, Mich., Modified Dwelling, Plan of 1st Story," No. 9954-H, ca. 1909, in park files (Appendix C-2).

8. Drawing, "Au Sable Lt. Station, Mich., Modified Dwelling, Plan of 2d Story," No. 9953-H, ca. 1909, in park files (Appendix C-3).

During the alteration of the old dwelling, lintels to doorways and windows were converted from brick to horizontal blocks. Stairways were also added, and the new porch required a considerable amount of architectural detail. The porch had four free-standing circular wooden columns and a railing. The porch was reached by two stairways, each containing three steps.[9]

Photographs taken of the dwelling a few years after the alterations were made provide some idea of what the structure looked like (Illustrations 37, 38, and 39).[10]

Between 1939 and 1950 the double dwelling underwent several changes to the interior.[11] Most important among these changes were the addition of bathrooms on each floor. Other sanitary facilities also were added. The kitchens on both floors were modernized, a hot-air heating system was installed, and the attic floor was insulated.

These were the last major changes made to the old dwelling before it was last lived in, in 1958. Before it was shut down, however, the passageway

---

9. Ibid.; drawing, "Big Sable Lt. Sta., Mich.," No. 9949-M, ca. 1909 (Appendix C-4); drawing, "Big Sable Lt. Sta., Mich.," No. 9952-H, ca. 1909, all in park files (Appendix C-5).

10. Photographs, June 1912, June 9, 1914, and June 14, 1920, all in park files.

11. Drawing, "Au Sable, Michigan, Modification of Assistant Keepers Dwelling (Two Baths added)," Approved February 14, 1939, No. 12589-S, in park files (Appendix C-6); drawing, "Au Sable Light Station, Alterations to Dwelling Sanitary Facilities--Double Dwelling," May 17, 1949, No. 931-S (Sheet 2 of 3), in park files (Appendix C-7); drawing, "Au Sable Light Station, Alterations to Dwelling, Sanitary Facilities--Plot Plan & Details," May 17, 1949, No. 931-S (sheet 3 of 3), in park files (Appendix C-8); "Specifications for Installation of Sanitary Facilities at Au Sable Guard Light Station near Grand Marais, Michigan," June 1950, in park files.



Illustration 37
Remodeled Attached Dwelling
Park Files--June 1912



Illustration 38
Remodeled Attached Dwelling
Park Files--June 9, 1914

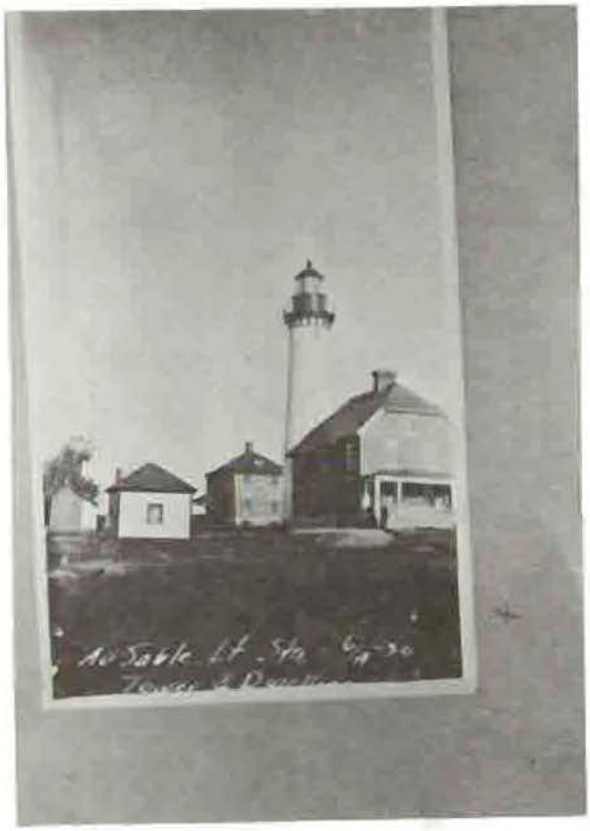


Illustration 39
Remodeled Attached Dwelling
Park Files--June 14, 1920

leading to the lighthouse from the dwelling was blocked off completely with brick and plaster. The opening that was blocked off was an area 5 feet wide by 8 feet 8 inches high.[12] Henceforth, anyone entering the lighthouse would have to pass through the door on the south side of the passageway.

Following this page are several photographs of the attached dwelling as it appears today (Illustrations 40 through 44).

B. New Keeper's Dwelling

The new keeper's dwelling, located just to the west of the lighthouse, was constructed in 1909 at the same time that the old dwelling was remodeled. Originally, the keeper and his one assistant both occupied the old dwelling. With the appointment of a second assistant, the construction of a second dwelling for the keeper, along with an enlargement of the old dwelling for two assistants, became an absolute necessity.

The new dwelling consisted of vitrified red brick with a metal shingle hip roof similar to that of the old dwelling and some of the other structures at Au Sable. The water table, lintels, sills, and porch copings were made of cast concrete. The building contained seven spacious rooms, including a bathroom, and there was a cellar under the whole house. Three bedrooms and the bathroom were on the second floor, and a kitchen, dining room, and parlor were on the first floor. A cistern was built into the cellar. Small porches with attractive overhangs were at the front (facing the lake) and the rear of the house. An excellent plan of the structure, including a front elevation, rear elevation, and side elevation, appears among the architectural drawings at the park.[13]

---

12. Drawing, "Au Sable Light Sta., Lake Superior, Au Sable, Michigan, Closing of Passageway," July 23, 1958, No. 1331-D, in park files.

13. Drawing, "Keeper's Dwelling," drawn by W. E. Beyer, December 30, 1908, in park files.



Illustration 40
Attached Dwelling, Viewed from Northwest
1977



Illustration 41
Attached Dwelling, Viewed from Southeast
1977



Illustration 42
Attached Dwelling
Viewed from East
1977



Illuatration 43
Attached Dwelling
Viewed from Lighthouse Balcony
1977

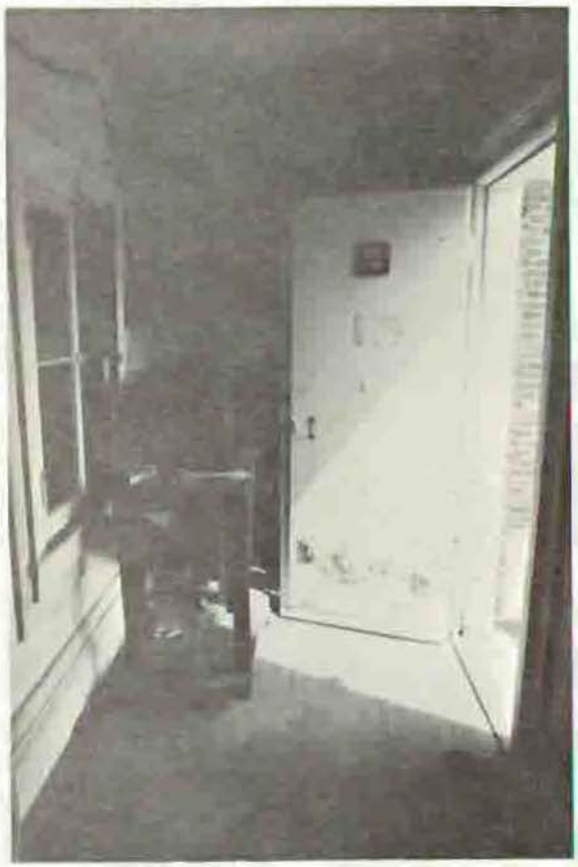


Illustration 44
Interior View of Passageway of Attached Dwelling
1977

The building was 32 feet wide by 25 feet 8 inches deep, excluding the two small porches. The hip roof had two small dormers jutting out from the attic on the east and west sides.

During its existence the exterior of the house did not undergo any extensive changes. Photographs of the structure taken in 1912, 1920, and recently depict the structure essentially as it was when first constructed (Illustrations 45 through 49).[14]

In 1949 the attic story was insulated and a hot-air heating system was added. The kitchen was modernized and other sanitary facilities, similar to those made on the old dwelling at this time, were also included.[15]

C. Privies

There are now two privies at Au Sable Light Station. One was probably constructed when the attached dwelling was built in 1874; however, the earliest evidence we have of the privy is in 1884. The second privy was constructed in 1909, when the new keeper's dwelling was built.

A site plan of 1884, drawn to very small scale, depicts a tiny square structure just to the east, or what was the rear, of the old dwelling.[16] Two

---

14. Photographs, 1912 and June 14, 1920, both in park files. A drawing titled "Keeper's Dwelling," ca. 1908, in park files, including a traverse section and architectural details of the porches, provides additional data on the construction of this building (Appendix C-9).

15. Drawing, "Au Sable Light Station, Alterations to Dwelling, Sanitary Facilities, Single Dwelling," May 17, 1949, No. 931-S (Sheet 1 of 3), in park files (Appendix C-10). For a detailed summary of the work at this time, see "Specifications for Installation of Sanitary Facilities at Au Sable Coast Guard Light Station Near Grand Marais, Michigan," June 1950, in park files.

16. Drawing, "Big Sable Light Station, Mich., Reservation Surveyed Aug. 11-13, 1884 by Geo. Y. Wisner," RG 26, NA.

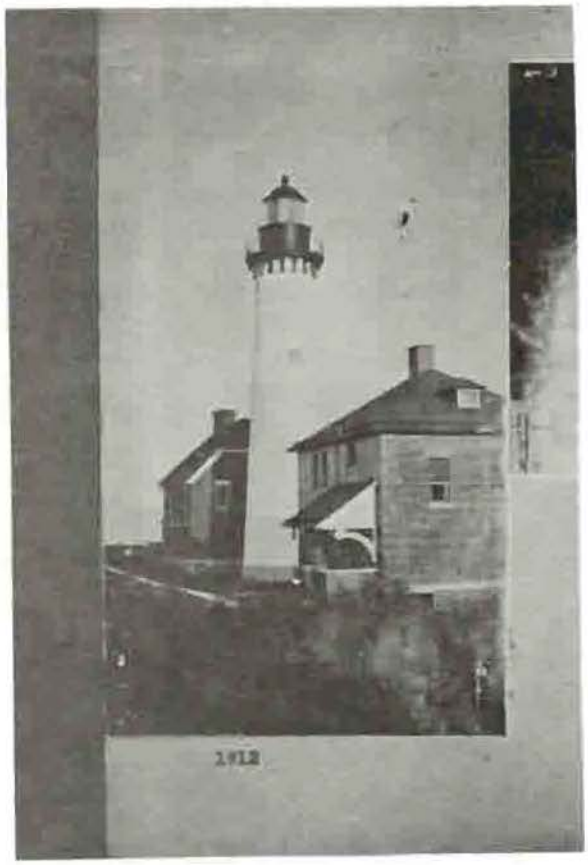


Illustration 45
Keeper's Dwelling
Looking East
Park Files--1912



Illustration 46
Keeper's Dwelling
West and South Sides
1977



Illustration 47
Keeper's Dwelling
East and North Sides
1977



Illustration 48
Keeper's Dwelling
North Side
1977



Illustration 49
Keeper's Dwelling
Viewed from Lighthouse Balcony
1977

excellent photographs taken the same year provide conclusive evidence of this location (Illustrations 1 and 37).[17]

In 1909 this old privy was described as consisting of red brick with a red metal shingle roof, presumably the same materials that made up the old dwelling. A distinguishing feature of this structure was its gabled roof, which is quite evident in the 1884 photographs.[18] In 1909 the privy was moved to where it now stands, that is, to a point just south of the southeast corner of the remodeled attached dwelling. A site plan drawn in 1909, with the notation "W.C." (water closet), reveals the new location of this privy.[19] The privy stands opposite the metal circular oil house, which was also moved in later years to where it now stands, and near the brick oil house (Illustrations 50, 51, and 52). There can be no doubt that the existing structure is the same privy that was first constructed in 1874, with perhaps some modifications made in later years to improve sanitary conditions.

The second privy, built in 1909 when the keeper's dwelling was constructed, is approximately the same size as the first one. It also is made of red brick and has a metal slate roof. Instead of having a gabled roof, however, it has a hip roof. It is at the same location, that is, south of the keeper's dwelling, as when it was first built (Illustrations 53 and 54). It is interesting to note that when this privy was constructed, the new dwelling

---

17. Photographs, No. 26-LG-49-5 and No. 26-LG-49-8, RG 26, NA.

18. "Description of Buildings, Premises, Equipment, Etc., at Big Sable Light-Station, Michigan," June 7, 1909, site file, RG 26, NA.

19. Drawing, "Big Sable Lt. Sta., Michigan, surveyed June 9, 1909, by Ralph R. Tinkham," site file, RG 26, NA.



Illustration 50
1874 Privy--Front
1977



Illustration 51
1874 Privy--Rear
1977



Illustration 52
Present Location of 1874 Privy
Privy is at left, brick oil house is at center, and metal oil house is at right.
1977



Illustration 53
1909 Privy
Looking Southwest
1977



Illustration 54
1909 Privy
Looking Southeast
1977

was also built with a bathroom. Why both facilities were constructed at this time is not clearly understood.

The two privies may have ceased to operate as privies when bathrooms were added in the two dwellings in 1939.

D. Garage

The garage, which was constructed in 1954, was the last facility to be built at the station. Its location has always been about 40 feet west and 10 feet south of the keeper's dwelling. It consists of a wood frame structure with a flat roof made of asphalt sheeting. The foundation is on a concrete footing, and a concrete floor slopes to the doors. With the exception of a hip hood that extends over the front doors on the south side, the structure is 21 feet by 21 feet. The overhang extends 2 feet beyond the doors. The garage, which has two overhead doors, has room for two automobiles. There are a total of four fixed windows, each with two panes. Two windows are located at the rear of the garage and one each at the sides.[20]

The garage is of no unique architectural style, and today its condition is poor (Illustrations 55 and 56).

---

20. Drawing, "Two Car Garage, Au Sable Lt. Sta., Mich.," No. 1129-S, February 12, 1954, in park files.



Illustration 55
Front of Garage
1977

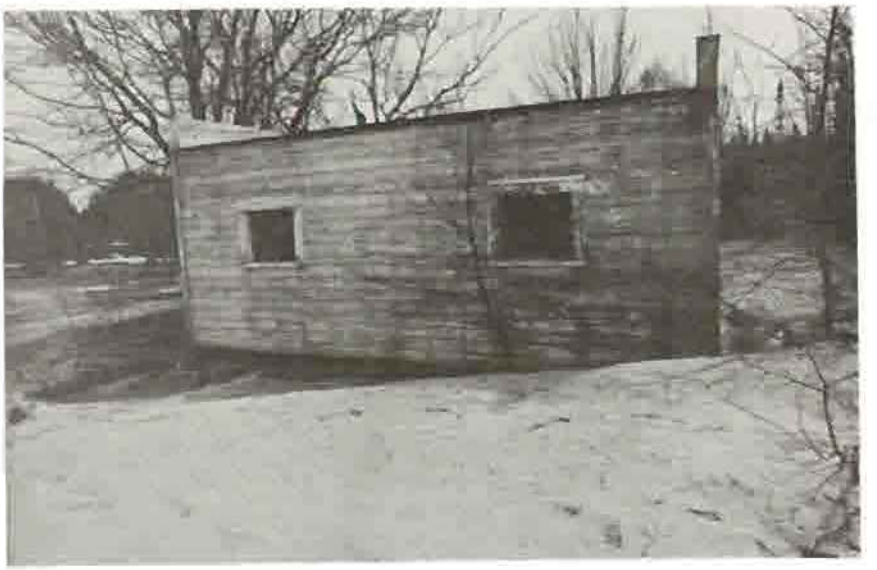


Illustration 56
Rear of Garage
1977

BIBLIOGRAPHY

Primary Sources

Manuscripts, Drawings, and Illustrations

Munising, Michigan. Pictured Rocks National Lakeshore. Files, architectural drawings, and photographs pertaining to the original construction and later remodeling of facilities at Au Sable Light Station. Most of these were turned over to the park by the United States Coast Guard soon after the park was established. They make up an extensive collection of original materials seldom seen in park files.

Washington, D.C. Dennis L. Noble, MSTC, United States Coast Guard. Miscellaneous copies of reports and letters pertaining to the history of Au Sable Light Station, particularly during the period of Coast Guard custodianship.

Washington, D.C. National Archives and Records Service. Record Group 26, Records of the United States Coast Guard. This large collection contains correspondence, deeds, contracts, keeper's log books, annual reports, maps, architectural drawings, and photographs pertaining to the Au Sable light complex. Together with the original data at the park, these make up the bulk of basic historical materials for the preparation of this study.

Secondary Works

Holland, Francis Ross, Jr., America's Lighthouses: Their Illustrated History Since 1716. Brattleboro, Vermont: The Stephen Greene Press, 1972.

[J. H. Beers & Co.]. History of the Great Lakes. Chicago: J. H. Beers & Co., 1899. Reprinted, Cleveland: Freshwater Press Inc., 1972. Vol I.

Noble, Dennis L., and T. Michael O'Brien. "Sentinels of the Rocks: From 'Graveyard Coast' to National Lakeshore." Unpublished manuscript. 1976. In park files.

O'Brien, T. Michael. Guardians of the Eighth Sea: A History of the U.S. Coast Guard on the Great Lakes. Washington, D.C.: U.S. Government Printing Office, 1976.

APPENDIX A

Maps

BIG SABLE

LIGHT STATION,

MICH.

Kind of Light	Conical
Order of Light	5th
Character color of Light	Fixed White
Base of Tower above water level	22 ft
Focal Plane	105 ft

Lat. 44° 46' 35" N.
Long. 86° 08' 20" W.

Site Purchased from State	Sept. 6th 1872.
Deed Recorded in	
First Buildings, when built	1873.
When objects were connected	
Area of Reservation to M.H.W. line	27.8 Acres
Interest held	

Reservation Surveyed Aug 11 & 15 1884, by Geo. Y. Wisner.

Scale. 1/10560

LAKE

SUPERIOR

Wisconsin Point

Indian Reserve

Wisconsin

Mich.

Sec. 2

Sec. 1

TOWNSHIP 49 NORTH RANGE 13 WEST

Third Meridian

Sec. 2 Sec. 1

EXPLANATIONS.

The Magnetic Declinations on this map was estimated on 1884 by comparisons of observations to have been 3° 30' E, the declination at time of survey was determined by observation of Polaris to be 1° 32' E. Courses given on plan are True bearings. Contours 5 ft apart

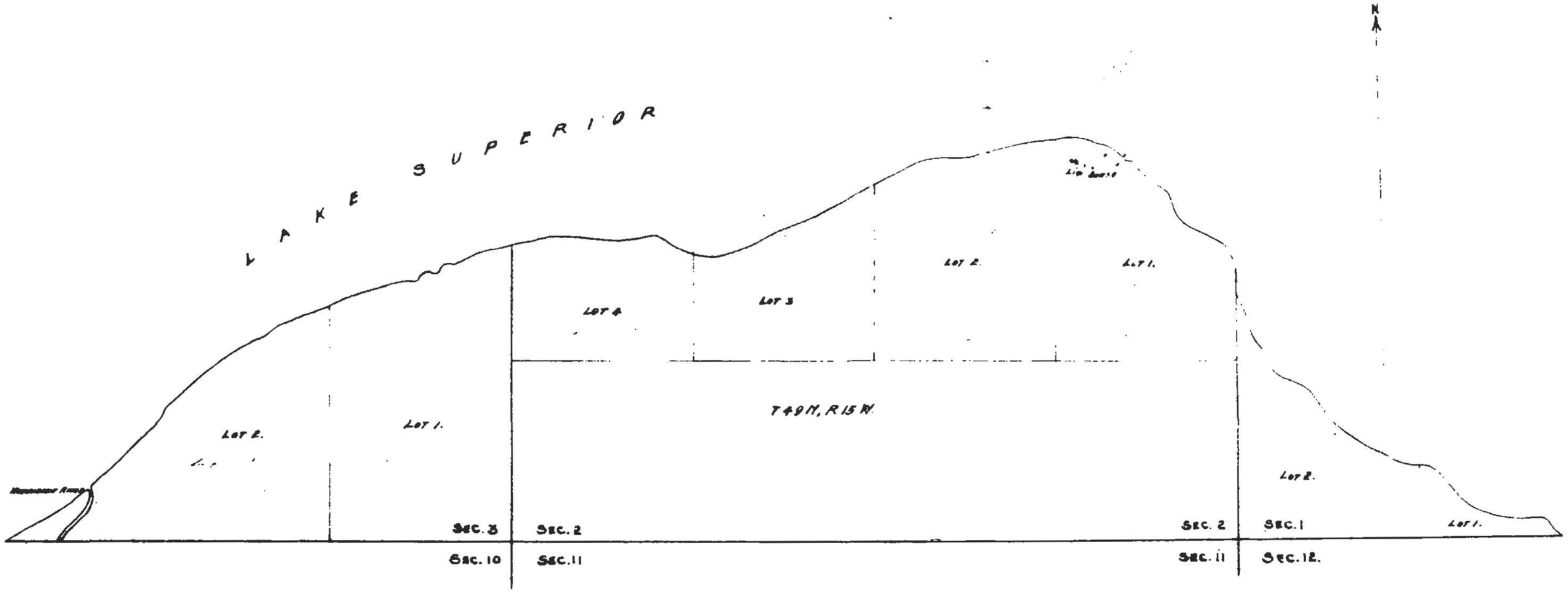
● Light Tower.

– – – – Boundary of Reservation

M.H.W. Line M.L.W. Line ● Stone Bound, 3ft long, 6"x6" top set thus

Geo. Y. Wisner.
Asst. in Charge.

Approved
Engr. 11th L.H. Dist.



The Light-House Site consists of Lots 1 and 2, Sec 1; Lots 1, 2, 3, and 4, Sec. 2; Lots 1 and 2, Sec. 3; Township 49 North, Range 15 West.

SKETCH OF LIGHT-HOUSE SITE
AT
BIG SABLE
MICH

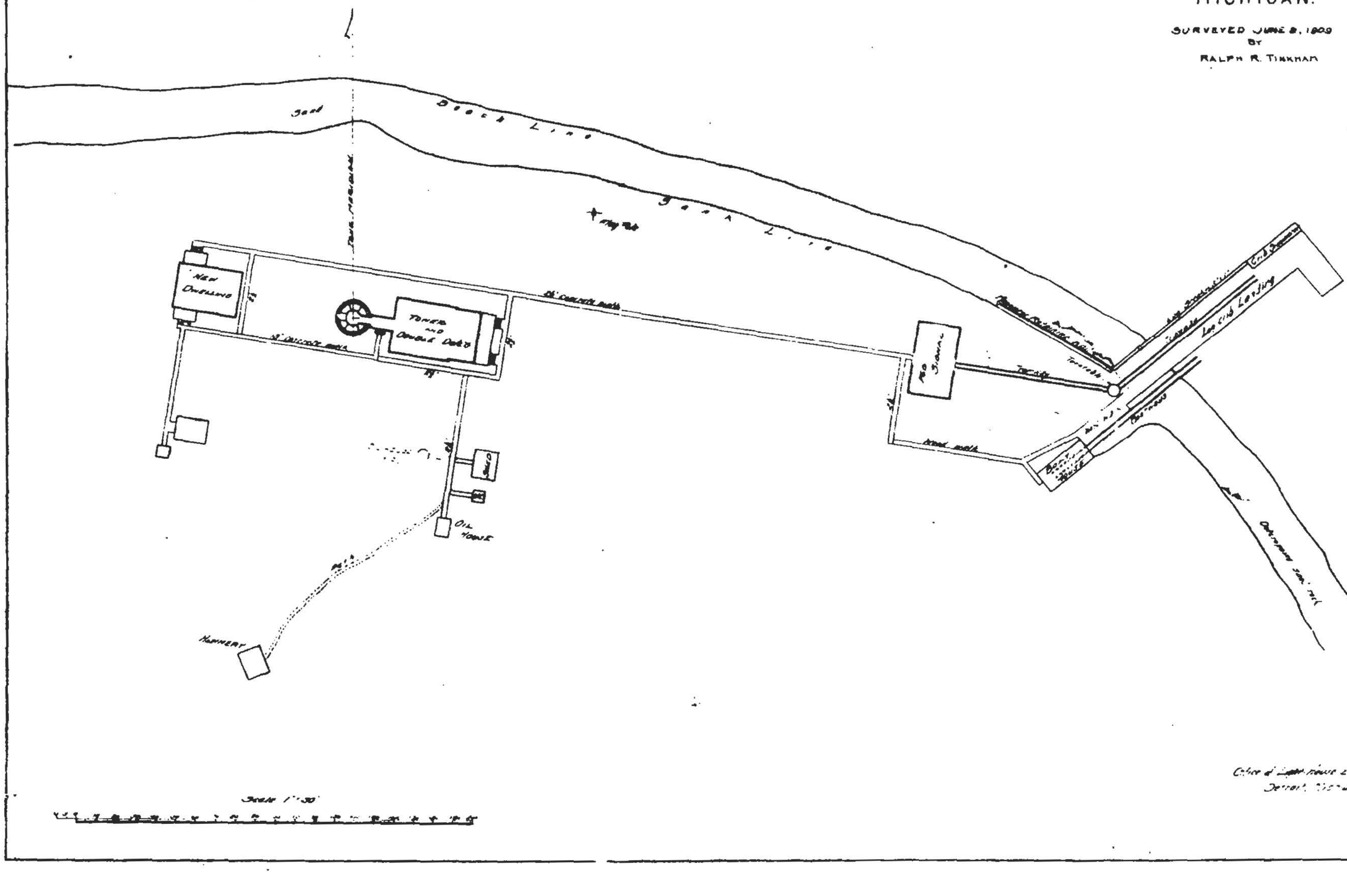
Purchased in 1872.
Surveyed in 1884.

SCALE:

Office of Light-House Engineer, 11th Dist.,
Detroit, Mich., Feby. 10, 1885.

BIG SABLE LT. STA.
MICHIGAN.

SURVEYED JUNE 8, 1909
BY
RALPH R. TINKHAM



Office of Lighthouse Engineer, 11th Dist.
Detroit, Mich., December 11, 1909

APPENDIX B

Description of Buildings, Premises, Equipment, Etc.
at Au Sable Light Station, Michigan,
June 7, 1909

47
Fur 60
2-58

NA RG26

LIGHT HOUSE BOARD
JAN 10 1910
NO. 1063

9-Cleveland

Eleventh DISTRICT

Department of Commerce and Labor

LIGHT-HOUSE ESTABLISHMENT

DESCRIPTION OF

BUILDINGS, PREMISES, EQUIPMENT, ETC.,

AT

Au Sable

Point

LIGHT-STATION,

Michigan

June 7, 1909

F 11—921

Name Changed: Notice to Mariners
No 23, 10 June, 1910.

Ltd 10 Jany, 1910

Clare Davis

Lighthouse Association

Detroit

Buffalo

9-22-43

Given to Miss Ford

Per dict ltr 9-21-43 asking
for their rcht to them for
review

A. Mejerske

NAME AND POSITION OF STATION.

Table Light Station, at Big Sable Point, Lake Michigan, S. shore of the E'ly part of Lake Superior, between Whitefish Point and Grand Island.

1. By whom described, Ralph D. Cornham

2. Date of description, June 7, 1909

3. Distinguishing character of light or lights,

Fixed white

4. Latitude of light, 46° 40' 29".6 | Authority, U. S. Lake Survey
5. Longitude of light, 86° 05' 37".5 | Computed, D. Kinsell, 1909

PREMISES—A DETAILED DESCRIPTION OF, EMBRACING—

6. Site of station—Public land, purchase, Military or Naval reservation, lease: Purchase

Sec. 1, T. 47 N., R. 16 W., Lots 1, 2, 3, 4, S. ½ of L. 1, and Sec. 3, T. 47 N., R. 15 W., Mich. Mer.

7. Date of reservation,

8. Date of deed, Sept. 6, 1874, Patented by State of Michigan

9. Date of permission to occupy,

10. Date of lease,

11. Area of the entire site, 375.93 acres, according to govt survey,

12. Area inclosed, None

13. Character of surface soil, Sand along shore and about buildings

14. Distance of tower from nearest high-water mark, About 200 ft.

15. Inclosures to premises, None

16. Wharf or landing on premises, Boat landing 19 x 99; 3 log cribs filled to with with an L 38' x 14' across the end, the whole filled with stone to

17. Road to landing or wharf, character of, and distance from tower, A board walk (to be replaced with cement 1909) leads to the wharf, and a tram track, laid on the walk

18. Means by which the light-station may be reached, By boat or by wagon road to within miles of station, thence by foot trail; this trail is cleared out so that a team without a load can get to the light station. The distance to Grand Marais, Mich. by this road is 1½ miles. By water 8 miles

11—821

PREMISES—A DETAILED DESCRIPTION OF—CONTINUED.

20. Distance to the nearest public road, railroad station, or steamboat landing, and to which: 3 miles to public road; 8 miles to Grand Marais Ry. Sta. & steamboat landing.

20. Distance to nearest post office, 8 miles to Grand Marais, Mich. See # 18.

21. Distance to nearest village or town, " " " " " " " "

22. Facilities for reaching the light-station by public conveyance, None.

23. Facilities for reaching light-station by private conveyance from nearest village, town, railroad station, or steamboat landing, and the distance: Small boat or team from Grand Marais or by tender.

24. Tower or other means used for supporting the lantern and apparatus, Tower.

25. Number of separate lights, One.

26. When first built or established, 1874.

27. When last thoroughly rebuilt, repaired, or renovated, New dwelling built & old dwelling altered 1909.

28. Condition at this date, Good.

29. Shape of tower in plan, Circular.

30. Form of tower—Cylindrical, conical, or pyramidal, Conical

31. Height of tower from base to ventilator ball of lantern, 86 ft.

32. Height of focal plane of lantern above mean high water (on sea and gulf coasts) or mean lake level on northern lakes and rivers: 107 feet

33. Background of the light-house, upon which it is projected, as seen from the sea or lake: Wooded.

34. Color of tower, White with black lantern.

35. Color of tower, how produced: Whitewash & black paint.

36. Tower—Connected with keeper's dwelling, and how, or detached: Connected to double dwelling by covered way 12½ ft. long, 5 ft. wide, having outer door & window

37. Object—Seacoast, lake coast, bay, harbor, channel, or range; for general or local navigating purposes: Lake coast light

38. Materials of which the tower is built: Cut stone, base 3'4" above grade, sills & lintels of cut stone, tower of brick.

39. General description, embracing—

40. Thickness of walls at base, 4'3"; outer wall 20", air space 19", inner wall 17".

41. Thickness of walls at parapet, 2'4"; " " 16", " " 4", " " 8".

11—2021

PREMISES—A DETAILED DESCRIPTION OF—CONTINUED.

General description, embracing—Continued.

42. Diameter of tower (inscribed, if polygonal) at base, 16'6"

43. Diameter of tower (inscribed, if polygonal) at parapet, 12'8"

44. Kind of stairway and steps, Circular winding, Cast iron perforated Pattern. Wrought iron stair rail.

45. Number of landings of stairway, Three; one 5'8" and two 6'3" of Cast iron.

46. Size of glass for glazing tower windows, 10" x 16"

47. Number of windows in tower, and size of sash, 6 windows, 4 lt; inside storm sash Casement

48. Number of doors, Platt iron door 3 ft. x 7 ft. into passage (Sig 14" x 37¼")

49. Kind of foundation and depth below the surface, Rubble masonry 23-ft. below surface of ledge rock.

50. Character of soil at and surrounding the light-house, Sand & boring depths above sand stone ledge rock. Most of the reservation back of the buildings is cedar Swamp

51. Soil susceptible of being protected by grass, shrubbery, or trees: No: though small second growth has sprung up about the Clearing in which the buildings stand.

52. Miscellaneous remarks upon tower and site: The main point on which the light house stands has been cleared of timber for a quarter mile each way from the station to facilitate the visibility of the light to the E & and W'd. This clearing has grown up to second growth - small stuff.

LANTERN AND LANTERN FIXTURES.

53. Order or class of lantern, Third order.

54. Polygonal or cylindrical, Polygonal

55. Diameter, inscribed (*a*) to glass, 7'1¾" ; (*b*) in the clear, 7'8½"

56. Number of sides in plan, Ten

57. Vertical or helical bars, Vertical

58. Height glazed, 5'9¼"

59. Number of plates in height, One

60. Number of plates in each side, One

61. Thickness of plates, 5/16"

62. Size of different plates, 5'-9⅝" x 31/8". Two extra panes on hand.

63. Number of storm panes of glass, None.

64. Unglazed side of lantern in plates and degrees of arc, None. ; between what bearings (*true* and *from seaward*),

Materials of which the lantern is constructed, Cast iron sustaining segments; cast iron verticals. The lower part of lantern is circular of brick lined with vertical 3" hard bricks.

LANTERN AND LANTERN FIXTURES—CONTINUED.

66. Roof, Copper dome lined with zinc laid with finishing strips of W. I.

67. Ventilator ball, Copper

68. Lightning-conductor spindle, Copper, platinum tip

69. Lightning conductor, of what material; how attached to spindle; how led, and how far below the surface of dry earth, or otherwise, as the case may be: 3/4" gas pipe leads from gallery deck down N.W. side of tower into the dry ground. Also a twisted copper rope leads from the stairs thru the wall at the floor level of the tower Land into the dry ground.

70. Balustrade and outside gallery, Gallery circular of cast iron, 35½" wide, Rail 10" high of two 3/4" x 2" flat bar rails, 1½" ± stanchions, ball top and 3/4" vertical, Rail x gallery to lantern, See 72.

71. Lantern doors, and how fitted: Double wood door to main gallery from lower part of lantern. The inside door is two-fold wood paneled, outside single fold wood paneled 34" x 54"

72. Floor of lantern—Of what materials: Of cast iron cut out for stair well. The lantern gallery at lens level of cast iron, extended outside to form circular gallery 20½" wide with rail of one 1/2" x 2" flat bar ± stanchions

73. Watchroom door leading into lantern, and how fitted: None An open stairwell leads to upper part of lantern. A trap door of iron plate in floor of lower part of lantern

74. Parapet, inside diameter (inscribed, if polygonal), No parapet. Inside diameter of lower part of lantern is 7'6", circular and lined with wood ceiling

VENTILATORS.

75. In parapet, wall, or lower part of lantern: In lower part of lantern, 5 Ventilators with brass spring valve registers inside and cast iron hoods outside

76. Lantern ladders for cleaning plate glass, outside: One ladder 7'0" long, 12" wide, of 7/16" x 2" flat bar strings and double treads of 7/16" ø

77. Curtain hooks inside of lantern—How fitted: Brass hooks screwed to soffit

WATCHROOM.

78. How fitted: The stair landing below the lower lantern floor serves as a watchroom, has 3 windows, and is fitted with a closet of shelves for and for lamps & supplies.

WATCHROOM—CONTINUED.

A service room fitted with bench, table & glass box is situated in the dwelling near passage to tower.

77. Bell wires, or speaking tubes, or telephones for calling relief keepers—Kind: None

78. Where led:

ILLUMINATING APPARATUS, ETC.

81. Name of maker, L. Sautter & Cie, Paris Year made, none given

82. Marks and number on apparatus, None

83. Order of apparatus, 3d Inside diameter (inscribed circle, tangent to *glass*) of central drum, 3 7/16"

84. Characteristic of light shown *by apparatus*, Fixed

85. If movable; time of revolution, —

86. Intervals between flashes, —

87. Duration of flash, —

88. If fixed, or fixed varied by flashes, state arc of each fixed part in degrees: Each panel is 72° of arc
There is one dark panel in lens apparatus, the central belt of which is closed by a curved brass door to protect the lamp. This panel bears S.E.

89. Number of panels in the lens apparatus, 4

90. Number of flash panels, —; arc of each, in degrees,

91. Number of elements in each panel of central drum of lens, (Central belt, 6 elements above, 6 below

92. Number of prisms in each panel *above* central drum of lens, 11

93. Number of prisms in each panel *below* central drum of lens, 4

94. How are the flashes produced—By the whole apparatus revolving —; by revolving belt only ;

if by panels of vertical elements revolving outside of fixed lens, state the number of such panels:

Describe how:

95. If by vertical elements, (*a*) state the number in each panel, ; (*b*) and the number of elements of fixed lens covered by the panel:

ILLUMINATING APPARATUS, ETC.—CONTINUED.

96. If light is occulting, state (*a*) the characteristic, Not occulting

(*b*) Between what time limits may characteristic be varied without structural changes in mechanism,

(*c*) Are eclipses produced by sleeve, revolving screens, or valve (if gas light),

(*d*) Size of sleeve and amplitude of movement,

(*e*) Axis of rotation of screens, horizontal or vertical, ; (*f*) relation of axis to vertical axis of illuminating apparatus,

Screens: (*g*) Do they revolve as parts, or independently, of illuminating apparatus, ——

(*h*) If about vertical axis, how many in circumference, ; (*i*) time required for complete revolution, ; (*j*) form, ; (*k*) how mounted (see Questions 101–109), ; (*l*) if actuated by standard clockwork, state order, ; (*m*) date made,

If occultation is effected by valve (*n*) state name of maker,

(*o*) pattern, ; (*p*) does it operate reliably,

97. Pedestal, Cast iron resting over navel on floor of lower part of lantern. The base of lens apparatus has a C. I. floor which serves

98. Service table, as a service table, upon which stands a lamp pedestal of ring and 3 stanchions.

99. Tube leading through center of upper metal ring of lens into ventilator ball, to carry off gases of combustion and to assist in producing proper draft in lantern—Of what material, diameter, and how fitted and connected with damper tube when in place: In 3 parts. Lower damper tube of Russia iron over top of chimney 7/8" diam. 7" high, above which is a flaring sleeve of Russia iron to top of lens 17" high. From top of lens to spider is a 7½" × 10" brass tube.

100. If revolving, revolving machinery: None.

101. Revolving on chariot, mercury float, or balls:

102. If a chariot, describe it and state the number and size of each pattern of wheels in it:

ILLUMINATING APPARATUS, ETC.—CONTINUED.

103. If on balls, describe the construction of the ball-raceways, whether flat surface, or semicircular or V grooves:

104. State number of balls: ; diameter of balls,

105. Revolving cord or chain—How led:

106. Length of drop tube, 75 ft. The drop tube is not used.

107. Length of time revolving machinery will run after one winding:

108. How is the machinery protected?

109. How regulated? Describe:

IF COLORED LIGHT—

110. How is the color produced? Describe: Light is white.

111. Red sectors—Between what bearings, true (from seaward):

112. State where colored glass is attached, if to illuminating apparatus or to lantern:

113. If colored glass is inside of illuminating apparatus describe its form:

LAMPS, BURNERS, ETC.

114. (*a*) Description of lamp in use and number of wicks, or mantels, to burner Funk-Heap Hydraulic ; 2 wick (*b*) diameter of outside wick, 1 1/8" ; (*c*) diameter of mantel, ; (*d*) if more than one mantel, also diameter of circumscribing circle, ; if gas light, (*e*) state kind, ; (*f*) number of burners, if more than one in group, ; (*g*) kind of burner, ; (*h*) candlepower per burner, ; (*i*) total candlepower of group, ; (*j*) consumption of gas per burner per hour, cubic feet; (*k*) total consumption per hour, cubic feet; (*l*) how is gas obtained? ; if generated at station, (*m*) describe generator, ; (*n*) state name of maker, ; (*o*) date of pattern, ; (*p*) maximum capacity per hour, cubic feet. If compressed gas is used, (*q*) describe container, ; (*r*) capacity, cubic feet of free gas; (*s*) to what pressure charged, lbs.; (*t*) how is supply renewed? ; (*u*) if by substitution of full for empty container, at what intervals,

115. Number of spare lamps at station, Total number of lamps at station - two

116. Number of spare lamp burners at station, Total burners - three.

CLOSETS IN TOWER.

117. How fitted and used, One small closet of shelves on top landing for lamp supplies

OILHOUSE OR ROOM.

118. Describe (*a*) where placed and how fitted, 50 ft. S. of dwelling & tower; fitted with wood & shelving (*b*) inside dimensions, 5'4" x 7'2" ; (*c*) materials of which built, Brick walls, concrete floor; hip roof (*d*) capacity in 5-gallon cans, 72 = 360 gals. of 22 galv. iron on steel L rafters, steel plate door; 10" Globe ventilator.

CLOSETS AND STOREROOMS.

119. Where placed, how fitted and used, See # 178 & # 78.

120. Damp or dry, suited or unsuited to the purposes for which they were designed, All closets in present use are dry and suitable.

FOG SIGNAL—CONTINUED.

138. Location, with reference to light-house, to a particular danger or channel, or to the special object for which established: Same locality with lighthouse.

139. Distance and direction, *true*, from light-house, East 80 ft.

140. Water supply for it, From lake. Drill at outer end of landing; 2" American Gir Reg 70' of 1" steam pipe

141. How is it reached from the light-house? By plank walk. of 1½" discharge pipe.
To be replaced 1909 with concrete walk.

142. Description of fog-signal building or buildings: Of red brick, metal slate roof, red, 22'x40' plan, 12 ft. to plates.

DWELLINGS FOR KEEPERS.

143. Location, with reference to light-house tower: Present dwelling attached to tower on east side by passage. This remodeled to double dwelling; also a

144. Coloring: Natural color of red brick. new and separate dwelling built in 1909 See ¶178.

145. Materials of which built, Red brick walls, red metal slate roof, stone sills and lintels.

146. Number of rooms in each dwelling, Eight rooms, pantry & cellar. See ¶178.

147. Number of keepers and assistants to each dwelling, Keeper & two assistants. Principal and families will occupy the three new dwellings when complete.

148. Outhouses, Oilhouse, woodshed, privy, hennery
Woodshed 12'x14'x9' to plates.

149. Coloring: Oilhouse, red brick w. iron roof; woodshed frame buff with green trim red metal slate roof; red brick privy with red metal slate roof; old boarded & battened hennery whitewash.

150. Paths or walks on the premises. Present walks of plank.

151. Area of premises inclosed, and how: From dwelling to all outbuildings, to fog signal and dock.
None inclosed.

152. Area of garden, None

153. Area in timber or shrubbery, About 300 acres

154. Area susceptible of profitable cultivation, None

DWELLINGS FOR KEEPERS—CONTINUED.

155. Area cultivated or prepared for cultivation, None

156. Character of adjacent surrounding country—Soil, sandy, clay, marsh, swamp, wood, fast ground, or shifting sands: The premises and along the shore line is sand on sandstone bed rocks. Practically all the remainder of the reservation is cedar swamp.

WATER FOR FOG SIGNAL, DRINKING, AND DOMESTIC USES GENERALLY.

157. How procured, Direct from the lake

158. Quality, Excellent

159. Quantity ample or not for the station at all seasons of the year, Ample

160. Liable or not to be injured by the inroads of storm tides and seas, No

161. If rain water in tanks or cisterns, what precautions have been taken to insure its purity? None

162. Capacity of tanks or cisterns, and where placed: 700 gals. in NE corner of cellar

163. Tanks or cisterns—Of what material made: Of brick, plastered

164. Is there a distilling apparatus at the station? No.

Name of maker:

Capacity, ; when installed, ; condition,

efficiency,

165. If from a web, describe and give depth: No well, except a curbed well at the fog signal for emergency.

166. Diameter,

167. Lined or not,

168. Water obtained by pump or bucket, By pump for signal. By bucket for domestic use.

169. Distance from keeper's dwelling,

FOG SIGNAL.

121. Kind and character of apparatus: Ten inch steam whistle.

122. How much time is required to start the signal? 40 to 45 min.; how long may the signal sound its characteristic with the quantity of air stored under pressure? ——

123. Where, or by whom, made:

Year made, Built Aug: 1897

124. Characteristic distinction of: Blasts 3 sec.; Silent intervals 17 sec.

Blast	Silent interval	Blast	Silent interval
sec.	sec.	sec.	sec.
3	17	3	17

125. What parts of the fog-signal machinery are in duplicate? All parts.

126. If a bell, state (*a*) weight, lbs.; (*b*) metal, ; (*c*) diameter, ; (*d*) height, ;

(*e*) if struck by clockwork, state time it will run with one winding:

127. If a steam signal, (*a*) describe boiler:

(*b*) Kind, Open bottom marine, design of 1896.

(*c*) Flue-tube or water-tube, Flue tube

(*d*) Dimensions: Ht. 7'5" length, 6'6¾" diameter, 4'9¾" wide

(*e*) Number and length of tubes, 102, 4'9½" long (Corder 4'10")

(*f*) Diameter of tubes, 2½"

(*g*) Furnace: Kind, Internal ; length, 6'0" ; width, 4'3" ; height, 19"

(*h*) Total heating surface in square feet, 406 Steam space 50.11 cu. ft.

(*i*) Grate surface in square feet, 21½ Water " 66.64 " "

(*j*) Number of grate bars, 18

(*k*) Kind of grate bars, Double, 5 ft. long, spade ends.

(*l*) Kind of coal or other fuel generally used, Bituminous Coal

(*m*) Kind of safety valve, Lever, 2½" single side outlet

(*n*) Maximum pressure the boiler is capable of, 150#

(*o*) Usual working pressure, 75#

(*p*) Diameter of smokestack, 20"

(*q*) Height of smokestack from grate, 40' brick Chimney

(*r*) Height or length of steam drum, 5' long ; diameter, 30"

FOG SIGNAL—CONTINUED.

(*s*) Kind of covering or jacket, Compound; asbestos, felt, paper, canvas.

(*t*) Present condition of boiler, Fair, Must be retubed in 2 years.

(*u*) When built, 1897

(*v*) Where built, Cleveland, Ohio.

(*w*) By whom built, Variety Iron Works

(*x*) Is there a heater? No; what kind? ; what size?

How much does its use reduce the time of starting the fog signal?

128. If a steam engine is used, kind: Vertical Number of revolutions per minute, 120

(*a*) Diameter of cylinder, 11"

(*b*) Stroke of piston, 9"

(*c*) Size of steam pipe, 3½"

(*d*) When built, 1897

(*e*) Where built, Detroit, Mich.

(*f*) By whom built, Russel Wheel & Foundry Co.

129. Whistle, trumpet, or siren, pressure at which blown, Steel, at 75#

130. Diameter of whistle, 10"; height, 18"; distance between orifice and edge of whistle, 2 3/8" to 2 1/16"

single tone, Yes; chime,

131. Disk or cylindrical siren, ; diameter of revolving part, ;

when made, ; by whom made, ;

number, width, and length of ports, ; revolutions per minute, ;

type of governor, ; condition of revolving part,

132. Daboll trumpet, Reed, ; length, ; breadth, ; thickness at base, ;

thickness at tip,

133. Trumpet: Length, ; diameters, ; material,

134. Timing device, Spur & worm gear operating cam

135. Height of whistle or trumpet above mean high water,

136. Direction, *true*, in which trumpet points,

137. If signal is blown by compressed air, describe compressing machinery:

Kind of engine, ; by whom made, ;

when made, ; nominal size, ; horsepower, ;

kind of compressor, ; name of maker,

State if compressor is on same bed and gearred with engine, or separate and belt-driven:

Air and fog signals stand over a 10-ft. well near Bank of Canal & are connecting with 8-foot well on dock for

HEALTHFULNESS OF THE LIGHT-STATION AND VICINITY.

170. General opinion in regard to the healthfulness or unhealthfulness of the light-station and vicinity:

Healthfulness excellent

171. Diseases—What are most prevalent at the station and in the vicinity? None

172. Do they prevail at particular seasons of the year, or not? —

173. Are there any local causes, such as swamps, marshes, etc., in the immediate vicinity of the light-house which are likely to be the cause of these diseases? Large cedar swamp South of premises that seems to have no effect on health.

174. Would draining or other artificial means employed on the light-house premises be likely to improve the sanitary condition of the light-station? None needed.

LANDING, WHARF, BOATHOUSE, AND ROAD TO THE LIGHT-HOUSE.

175. Describe: Boat landing 99' x 12' with an ell at the end 14 x 38½ all of log crib filled with stone. A crib breakwater is built on N side of landing at outer end 2 ft. long, 5 ft wide and 4½ high. A log bulkhead continues along remainder of N side to shore. The deck is of 3" x 10" plank and 4 ft. above water. The boathouse is wood frame, vertical side boards battened, painted olive green, shingle roof red, fitted

176. Distance and direction from light-house: with roller footways to water and an iron winch. Has 2-6-lt windows 1 one entrance door; is about 900 ft. E of light house.

177. Hoisting engine, what kind? Single cylinder, O. C. Bowen & Co. Detroit

Number of revolutions per minute, ; diameter of cylinder, 7" ; stroke, 10"

Kind of boiler: Steam from fog signal boiler; 1¾" steam pipe.

178 MISCELLANEOUS REMARKS UPON THE GENERAL CHARACTER AND CONDITION OF THE PREMISES, TOWERS, BUILDINGS, AND ILLUMINATING APPARATUS AT THIS DATE.

A retaining wall of rubble masonry 5 ft. high x 67½ ft. long extends from the SE corner of the boat landing Westward, resting on sandstone rock and holding the sand bank in front of fog signal.

¶ 143. Season 1909. There was built a new dwelling of natural red brick, metal-slate roof, with 7 rooms, bottom and cellar under whole house. Stone water tables, lintels, and sills and porch coping. In the rear of the new dwelling are a brick privy, metal slate roof, and a 13' x 16' shed, metal slate roof. Since season the old dwelling was changed to a double dwelling by changing partitions, and a porch added across the rear.

Respectfully,

Chas. Keller

, U. S. A.,

MAJOR, CORPS OF ENGINEERS, U.S.A.
Engineer Light-House District.

31—2911

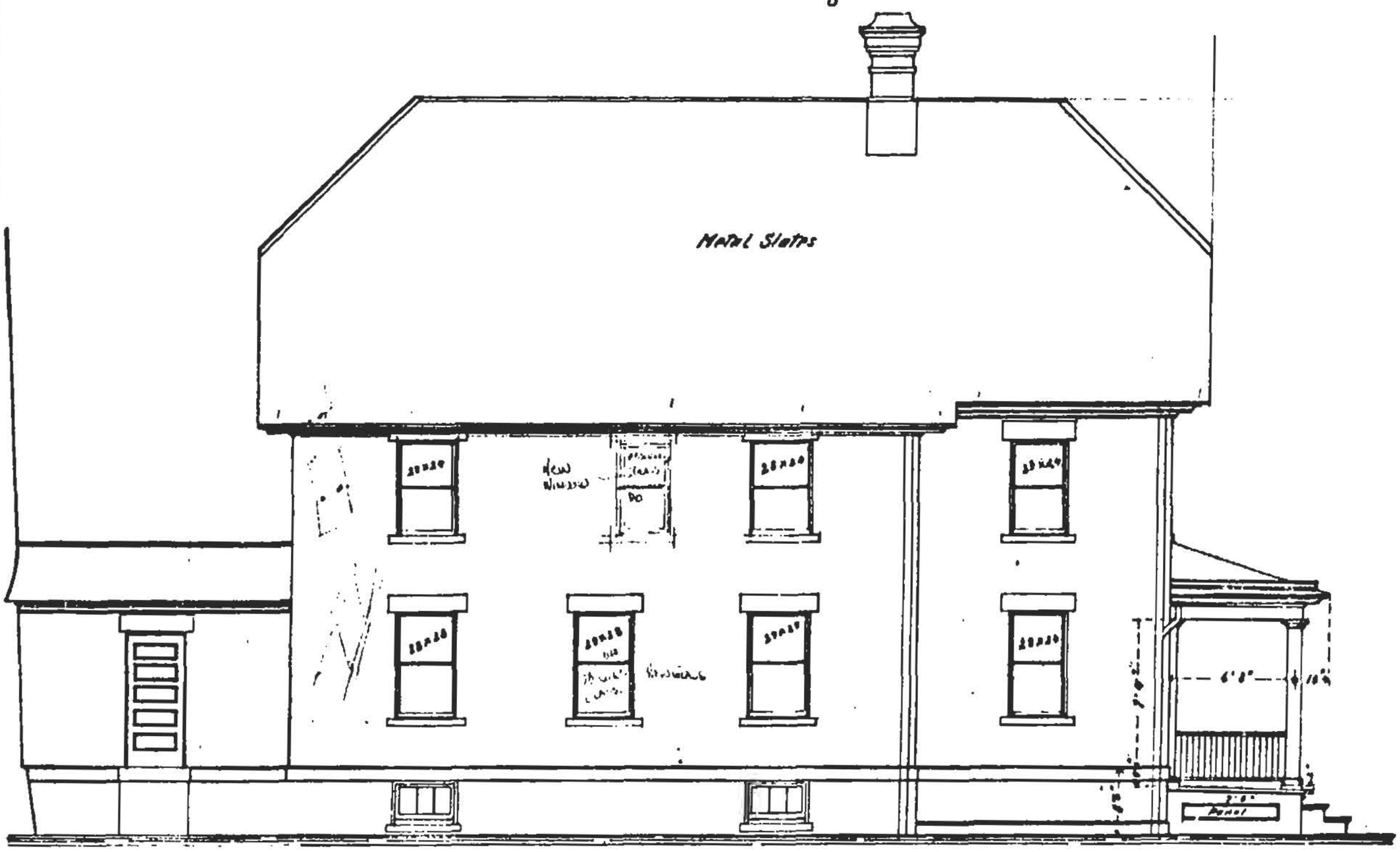
APPENDIX C

Drawings

Au ~~Big~~ Sable Lt. Station Mich.

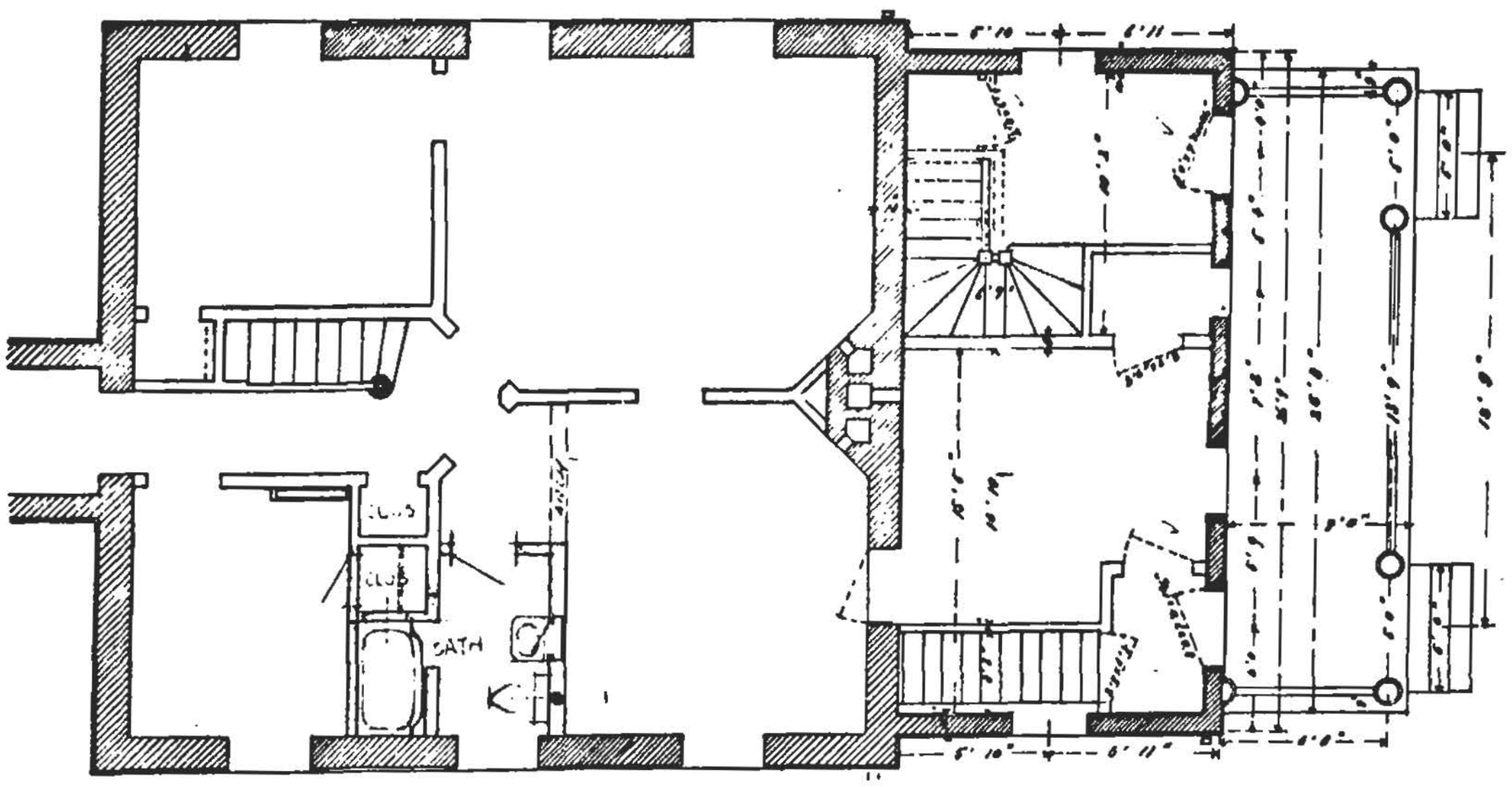
Sheet 1.

Modified Dwelling



South Side Elevation

Plan of 1st Story



A29 Cook Nautical Research Collection NB9954-H

HALF-SIZE REPRODUCTION 625/28,900 Sht. 1 of 5

Au ~~Big~~ Sable Lt. Station Mich.

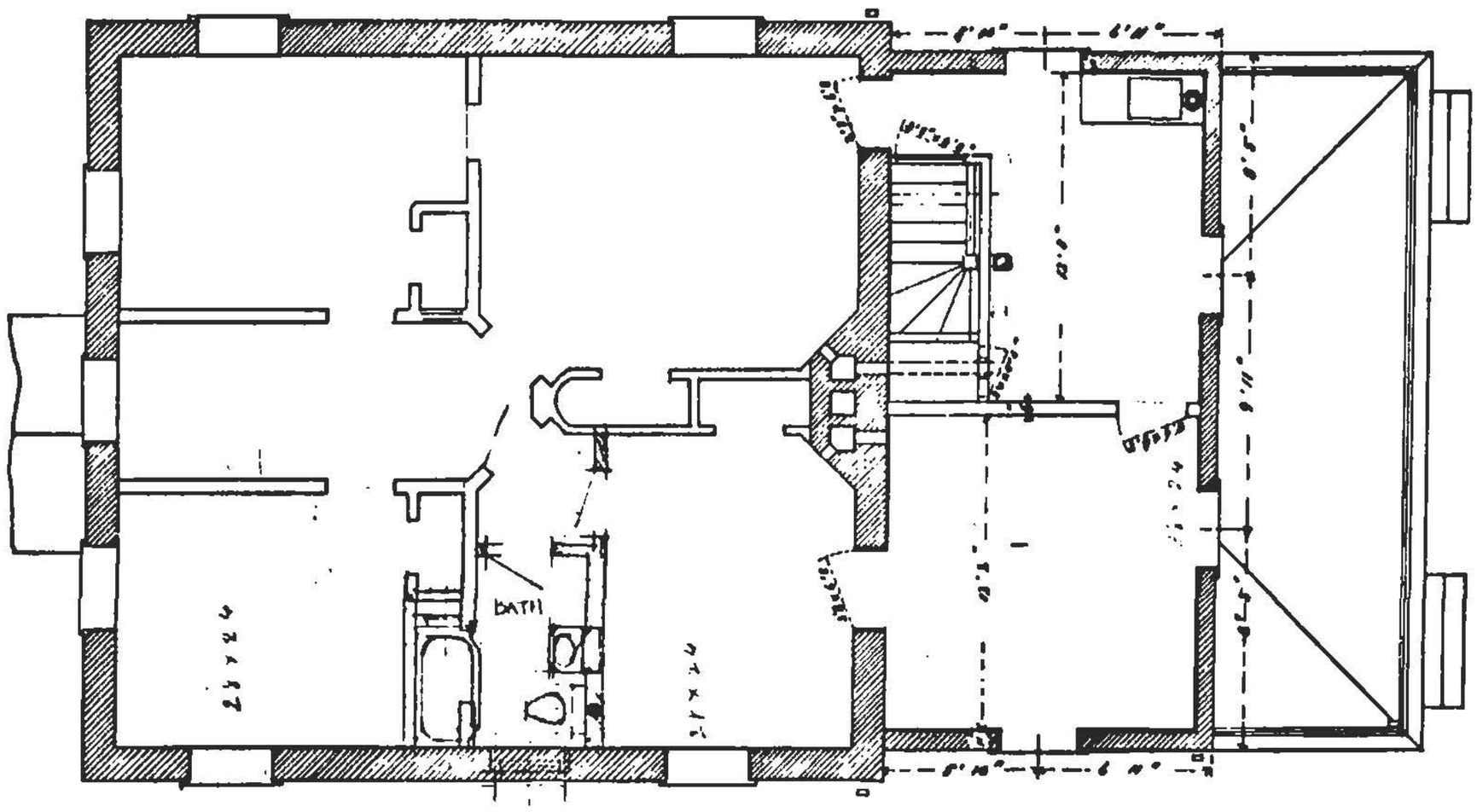
Sheet 2

Modified Dwelling



Rear Elevation

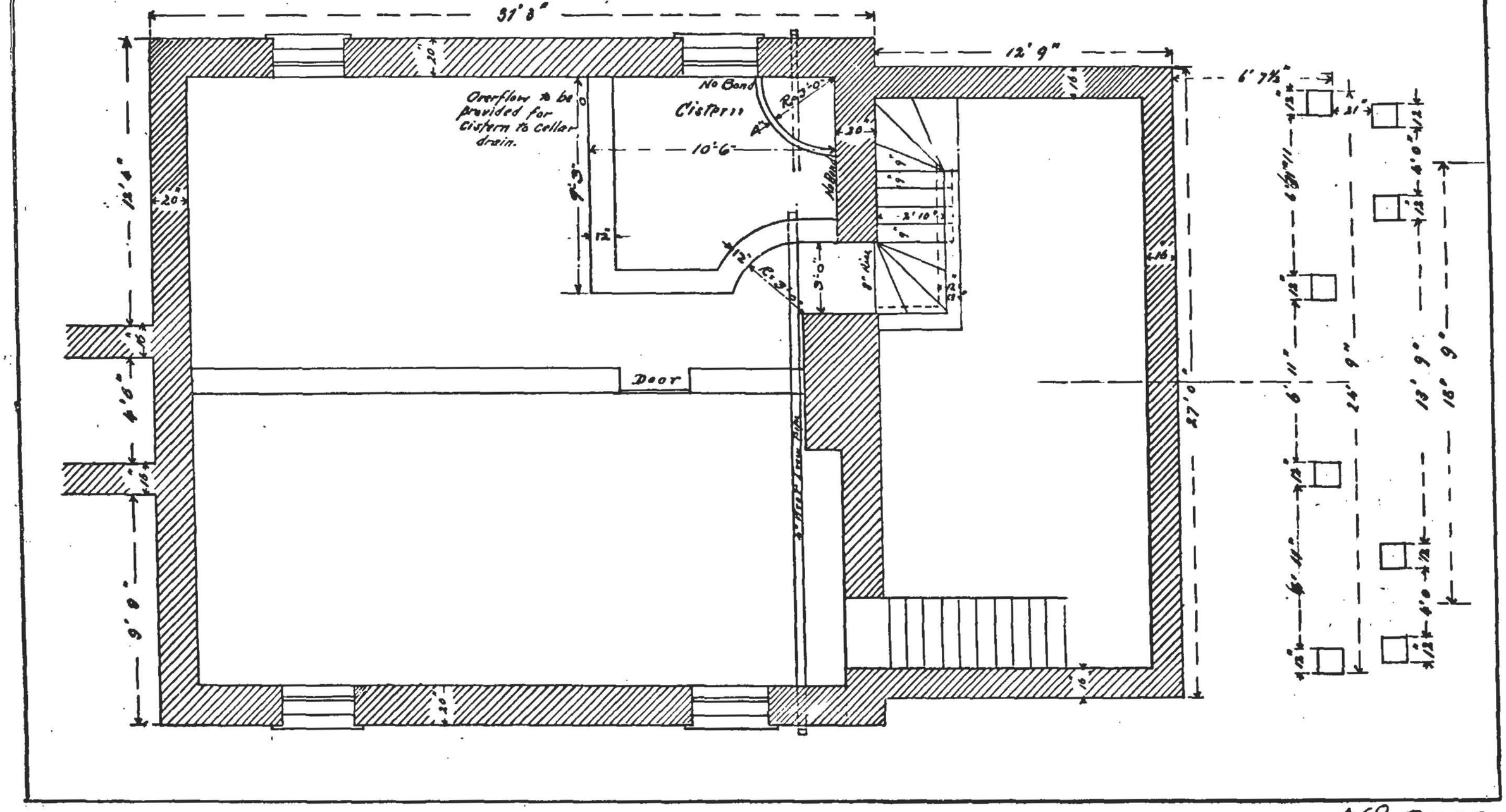
Plan of 2nd Story



No. 9953-H
625/28,908
Sht. 2 of 5

AU ~~Big~~ Sable Lt. Station, Mich.

Modified Cellar Plans

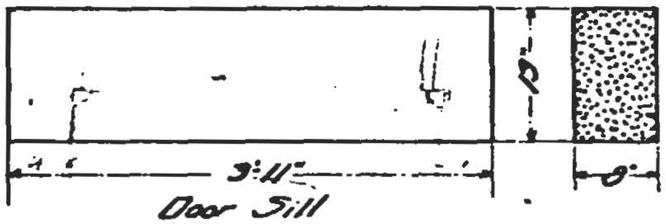


No 9948-M

625/28,900

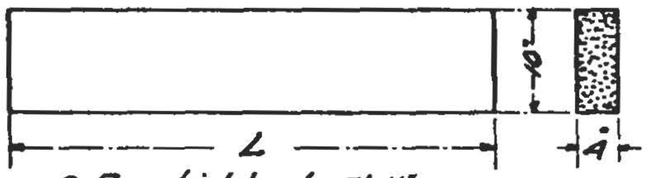
Sht. 3 of 5

BIG SABLE LT STA., MICH.



Door Sill

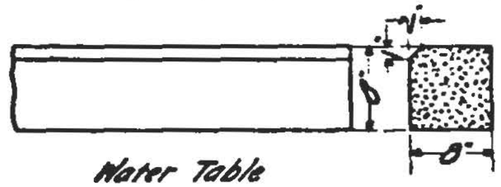
2 @ 3'-1"



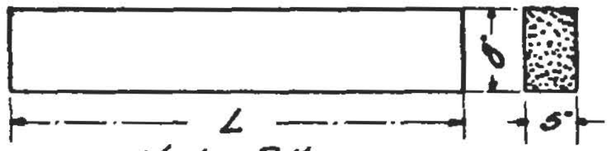
2 Door Lintels, L - 3'-11"

23 Window " L - 3'-0"

1 " " L - 3'-4"



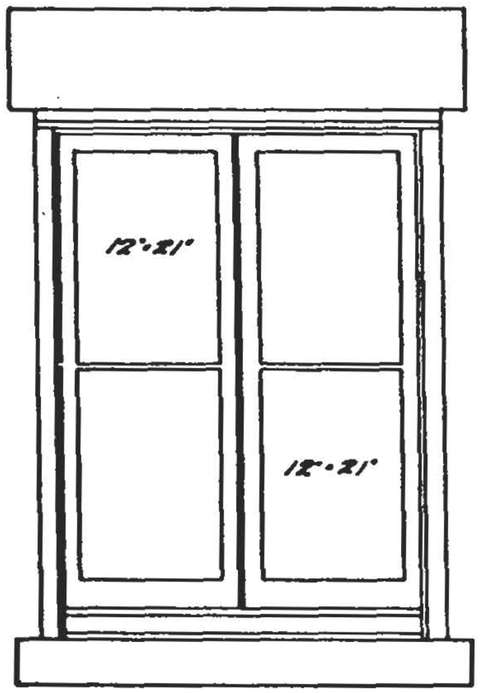
Water Table



Window Sill

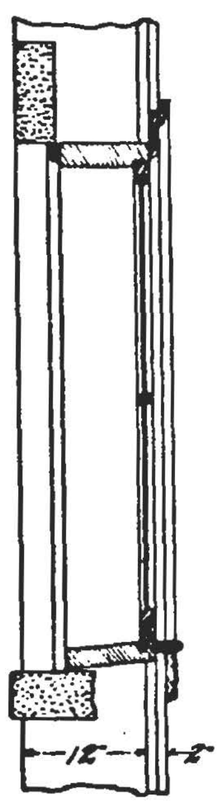
7 Reqd - L - 3'-0"

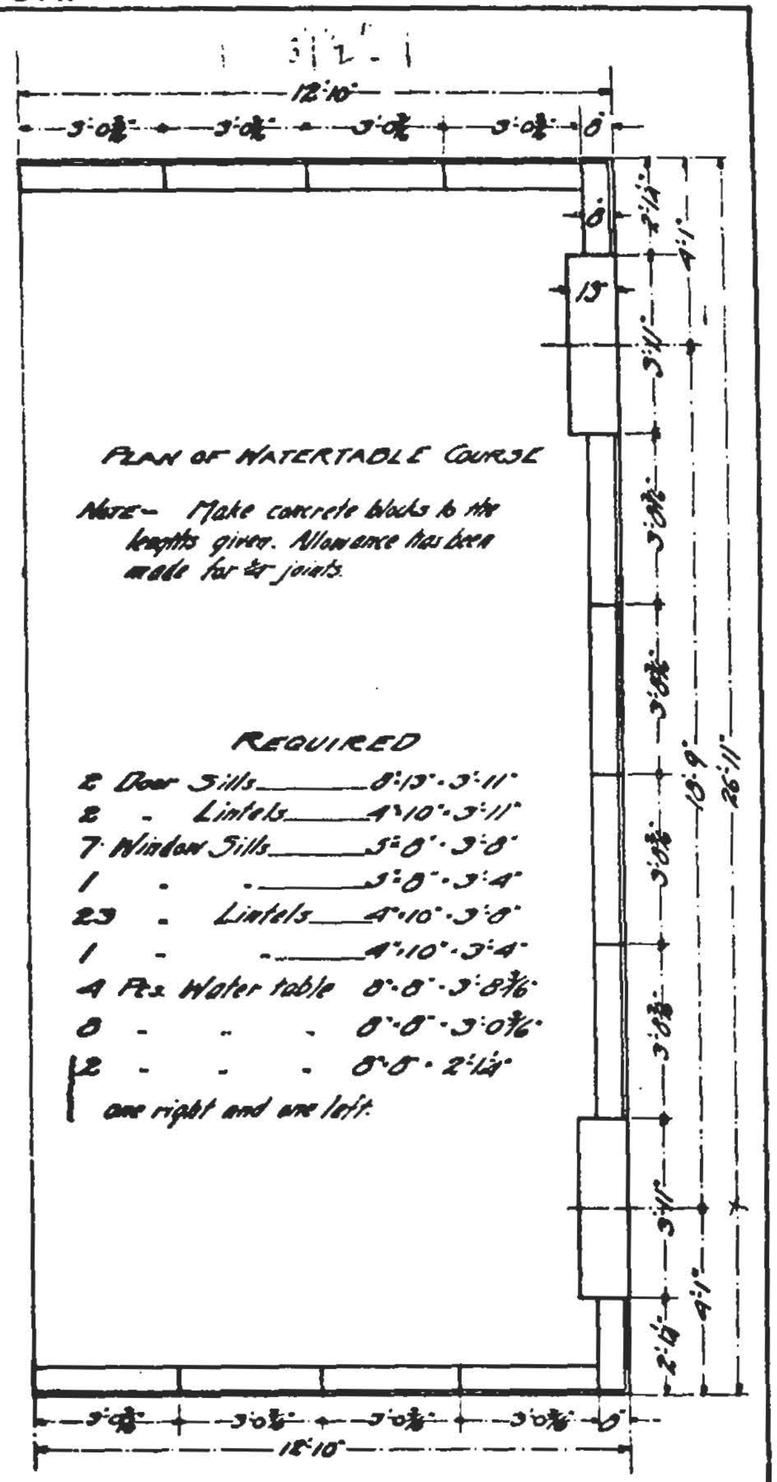
1 " L - 3'-4"



CASEMENT WINDOW

3 REQD





PLAN OF WATERTABLE COURSE

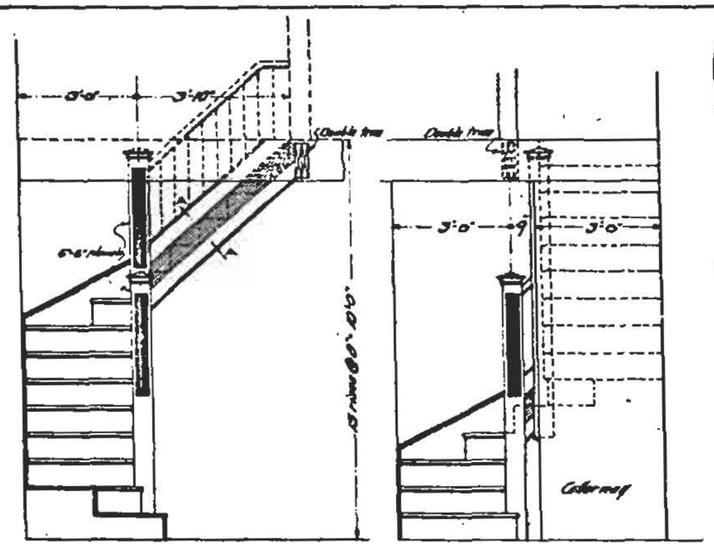
Note— Make concrete blocks to the lengths given. Allowance has been made for 1/2 joints.

REQUIRED

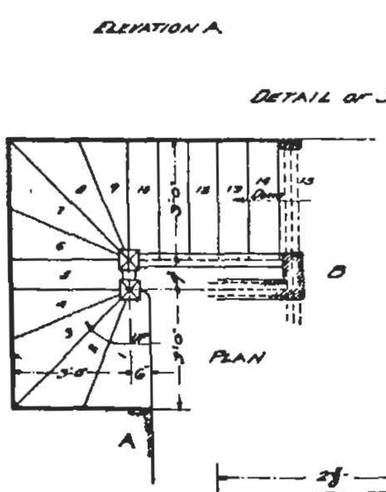
2 Door Sills	8"-13"-	3'-11"
2 " Lintels	4'-10"-	3'-11"
7 Window Sills	3'-0"-	3'-0"
1 " "	3'-0"-	3'-4"
23 " Lintels	4'-10"-	3'-0"
1 " "	4'-10"-	3'-4"
4 Pcs Water table	0'-8"-	3'-8 3/16"
8 " " "	8"-8"-	3'-0 3/16"
2 " " "	8"-8"-	2'-11 1/2"

one right and one left.

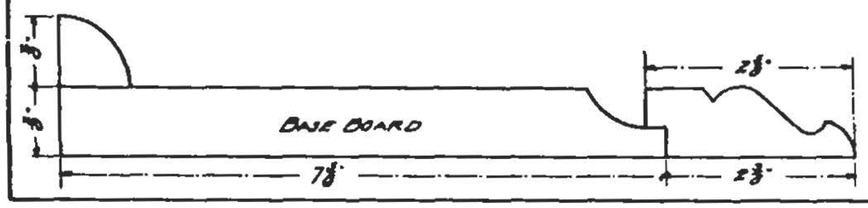
BIG SABLE LT. STA., MICH.

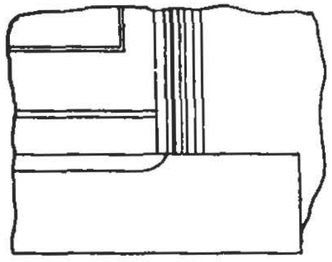


DETAIL OF STAIRS

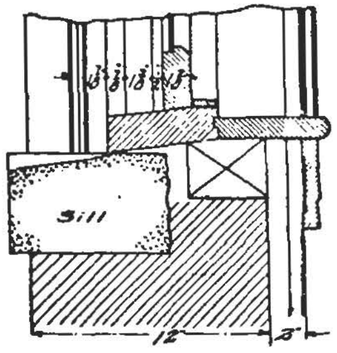


PLAN

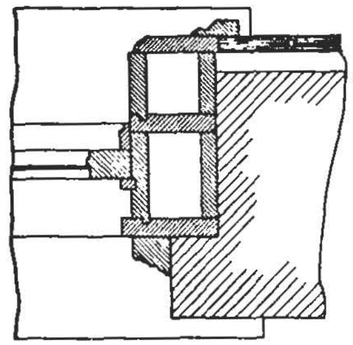




PART FRONT ELEVATION

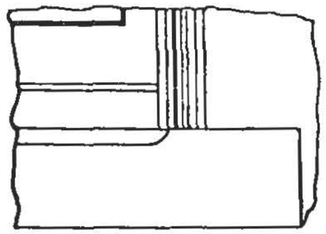


PART SECTION ELEV

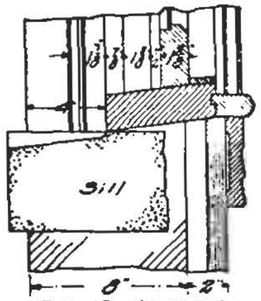


DETAILS OF WINDOW IN 12" WALL

PART SECTION PLAN

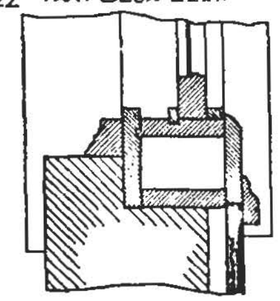


PART FRONT ELEV

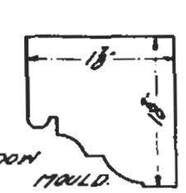


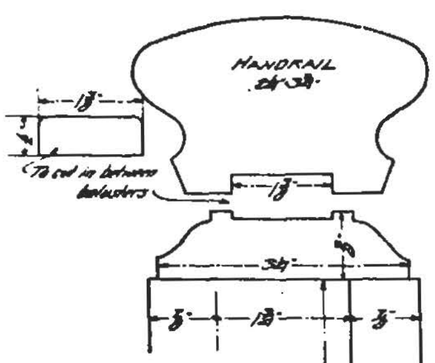
PART SECN ELEV

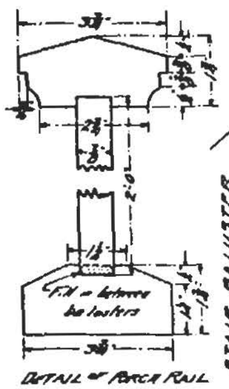
DETAILS OF WINDOW IN 8" WALL



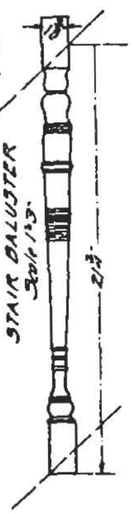
PART SECN PLAN



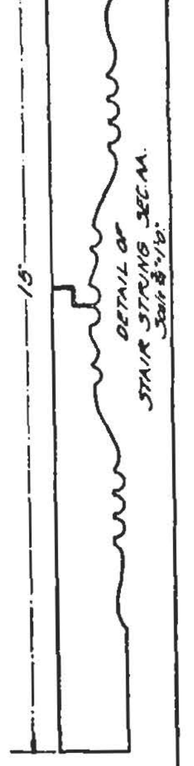




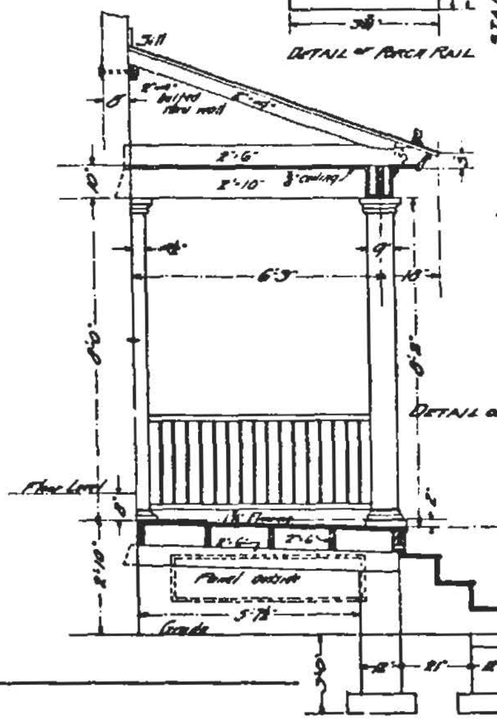
DETAIL OF PORCH RAIL



STAIR BALUSTER
Scale 1½"

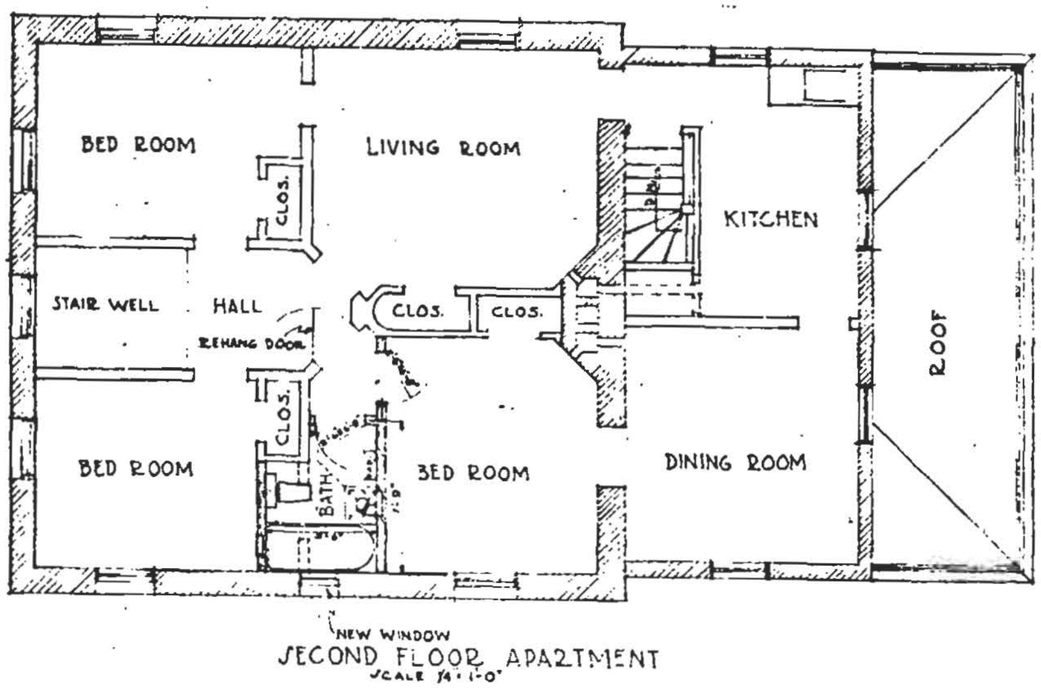


DETAIL OF STAIR STRING SECTION.
Scale 3"=1'-0"

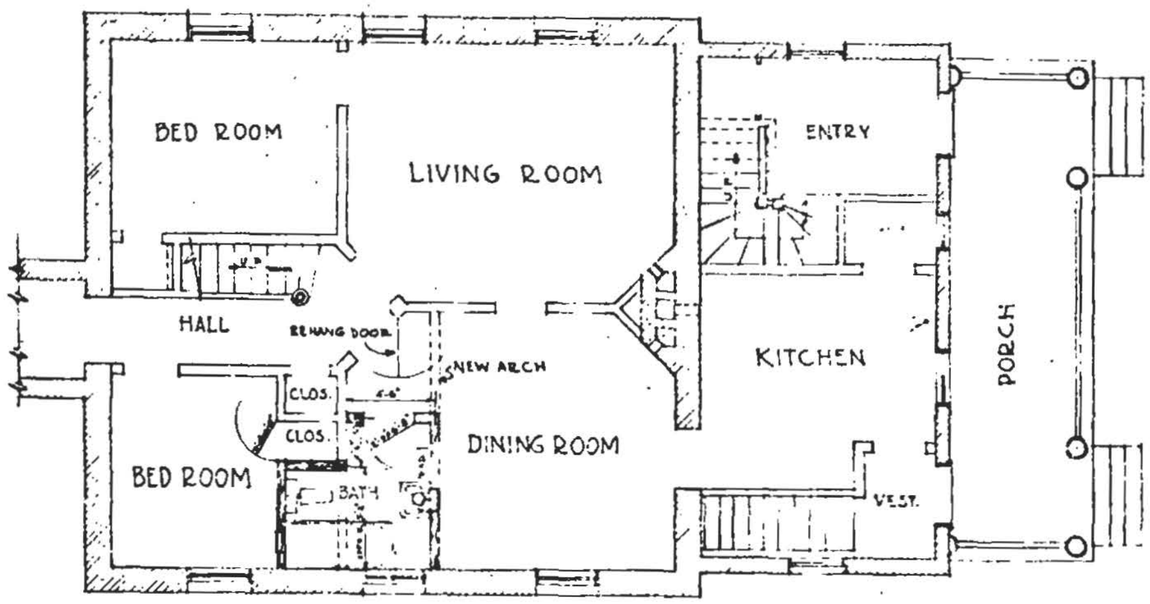


DETAIL OF PORCH.

№ 9952-H
625/28.900
Sht 5 of 5



SECOND FLOOR APARTMENT
SCALE ¼"-1'-0"



FIRST FLOOR APARTMENT
SCALE ¼"-1'-0"

KEY

BRICK

NEW WOOD WORK

OLD PARTITIONS TO BE REMOVED EXCEPT NEW ARCH ON FIRST FLOOR

OLD PARTITIONS

HALF-SIZE REPRODUCTION

OFFICE OF SUPERINTENDENT OF LIGHTHOUSES
ELEVENTH DISTRICT — CLEVELAND, OHIO

AU SABLE, MICHIGAN
MODIFICATION of ASSISTANT KEEPER'S DWELLING
(TWO BATHS ADDED)

SCALE ¼"-1'-0" — APPROVED 5-14-39

J. P. Sullivan
DISTRICT ENGINEER

L. M. Ferguson
ASST. DISTRICT ENGINEER

DRAWN J.A.N. Jr.

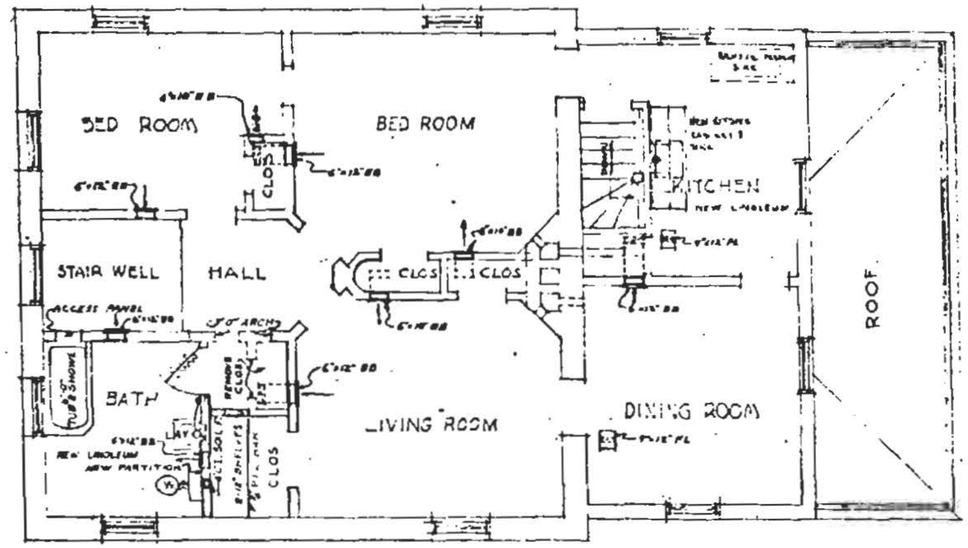
TRACED —

COMPARED —

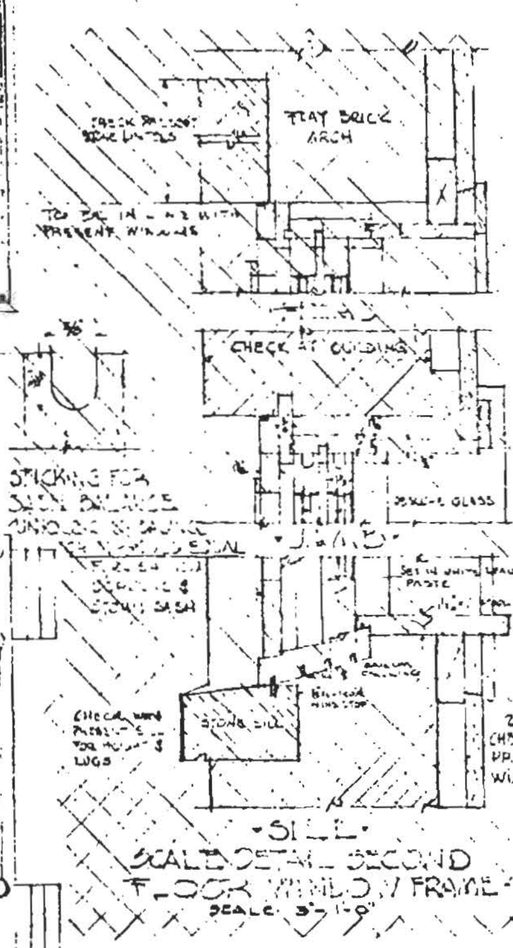
SHEET 1 OF 1

DWG. 12589-3

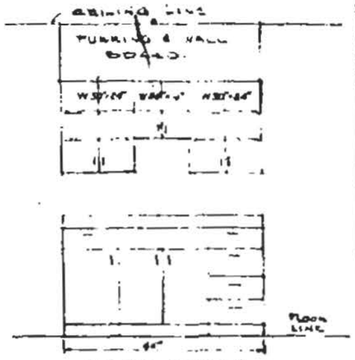
625/28,902



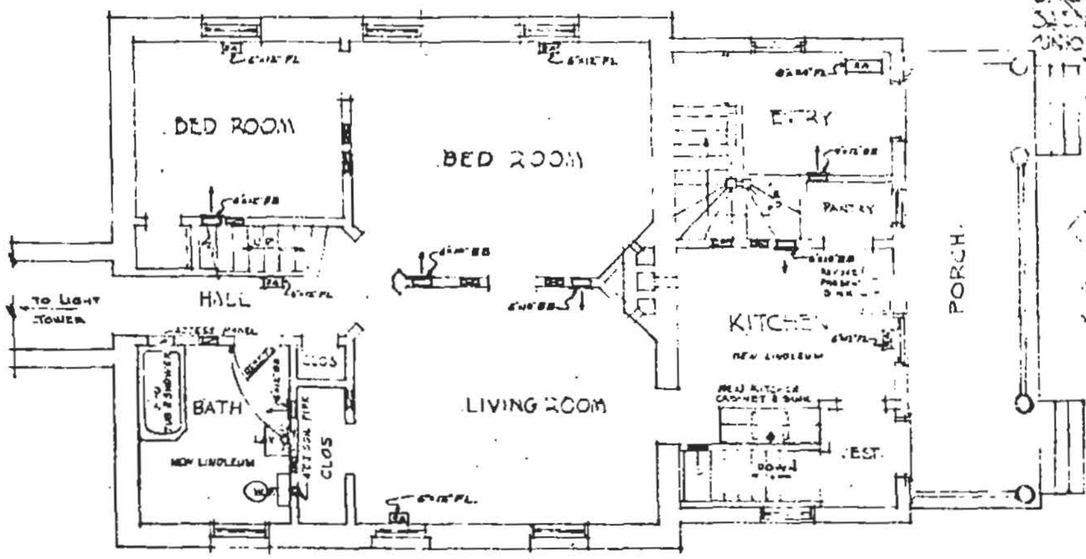
SECOND FLOOR APARTMENT
SCALE 1/4" = 1'-0"



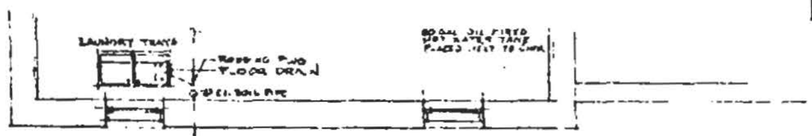
SILL
SCALE DETAIL SECOND FLOOR WINDOW FRAME
SCALE 3" = 1'-0"



ELEVATION OF KITCHEN CABINETS



FIRST FLOOR APARTMENT
SCALE 1/4" = 1'-0"



PART BASEMENT PLAN

NOTE:
ATTIC FLOOR INSULATED.
SEE WORK ORDER NO 437 DATED 9 JANUARY 49

A	4/4/49	B.E.A.	HOT AIR HEATING SYSTEM ADDED
REVISIONS			

U.S. COAST GUARD — 9TH DIS TRICT — CLEVELAND 13 OHIO

CIVIL ENGINEERING

DESIGNED - C.A.R.
DRAWN - C.A.R.
TRACED -
CHECKED -

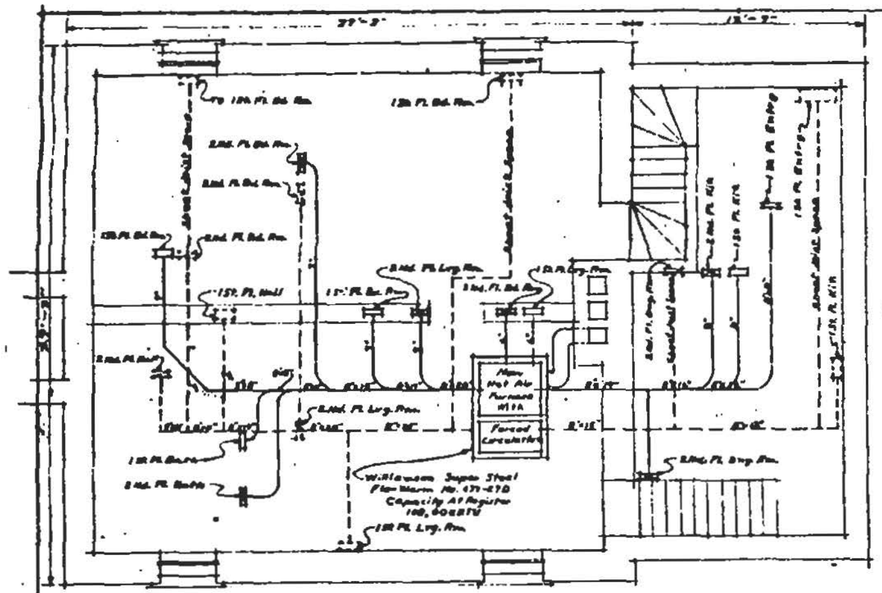
AU SABLE LIGHT STATION
GRAND MARAIS MICHIGAN

ALTERATIONS TO DWELLING SANITARY FACILITIES

DRAWING NO
931-5

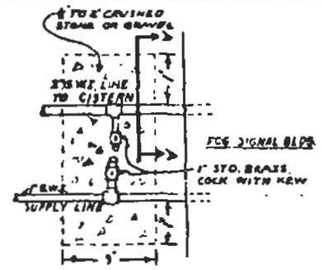
DOUBLE DWELLING

6/25/28/01

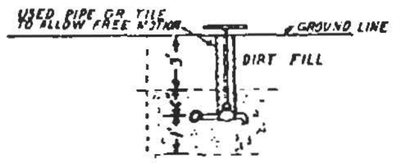


BASEMENT – DOUBLE DWELLING
SCALE: 1/8" = 1'-0"
NEW HOT AIR HEATING SYSTEM

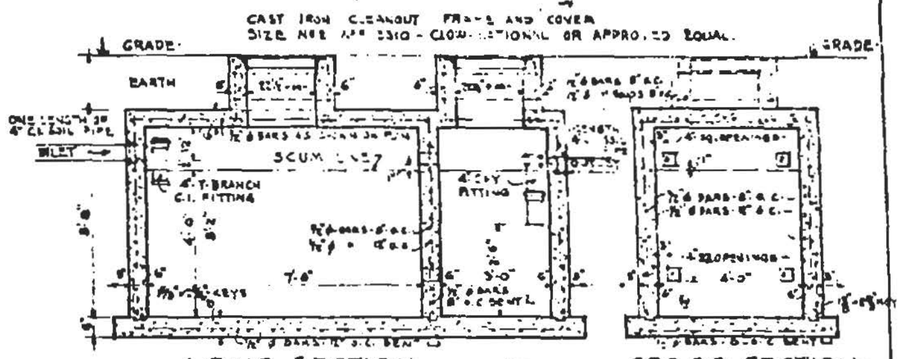
LEGEND
Hot Air
Return Air
Hot Air Duct Sections
Return Air Duct Sections



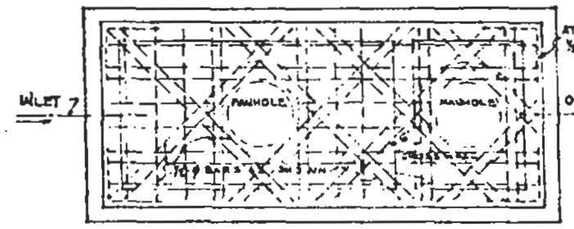
DETAILS OF LINE DRAINAGE



SECTION



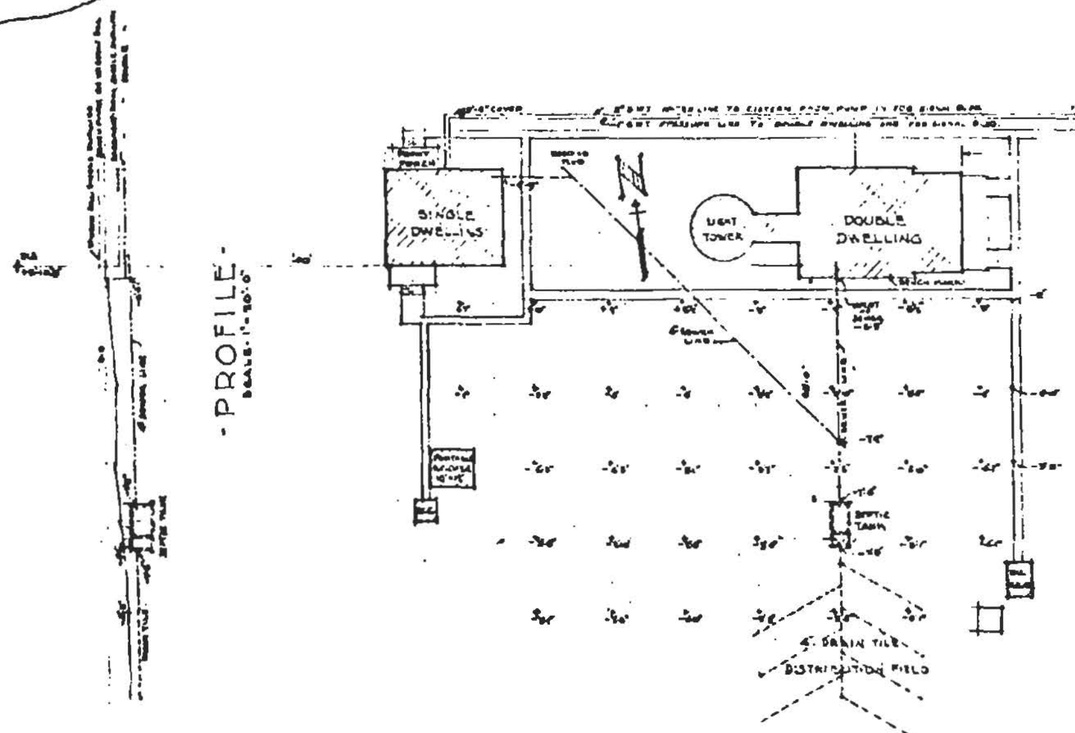
LONG SECTION SCALE: 1/4" = 1'-0"
CROSS SECTION



PLAN

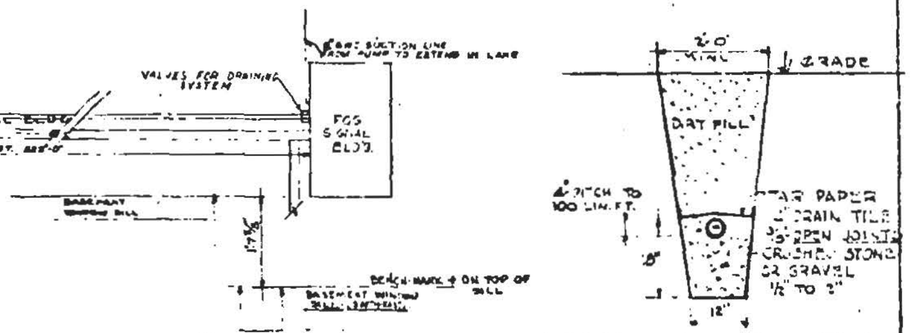
DETAILS OF SEPTIC TANK SCALE: 1/4" = 1'-0"

NOTE:
FLOOR & INTERIOR WALLS TO BE PAINTED TWO COATS OF ASPHALTUM PAINT.



PROFILE
SCALE: 1" = 20'-0"

PART OF PLOT PLAN
SCALE: 1" = 20'-0"



ELEVATIONS
SCALE: 1/8" = 1'-0"

DETAIL DISTRIBUTION DITCH
SCALE: 3/4" = 1'-0"

A	REVISED	B.C.A.	ADDED HOT AIR HEATING SYSTEM

U.S. COAST GUARD — 9TH DISTRICT — CLEVELAND, OHIO

CIVIL ENGINEERING

AU SABLE LIGHT STATION
GRAYLING, MICHIGAN

ALTERATIONS TO DWELLING
SANITARY FACILITIES

DESIGNED
DRAWN
TRACED
CHECKED

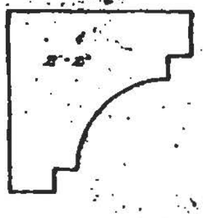
931-S

PLOT PLAN & DETAILS

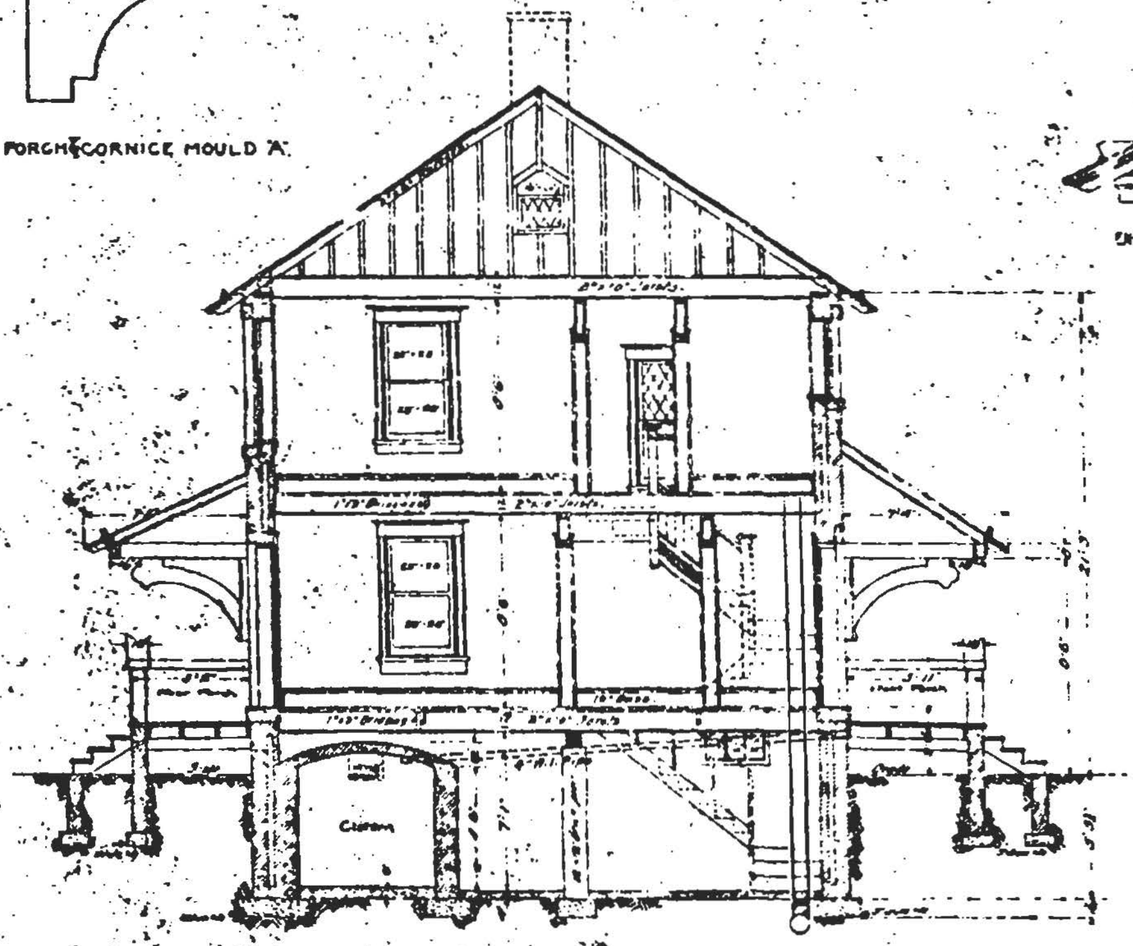
KEEPER'S DWELLING



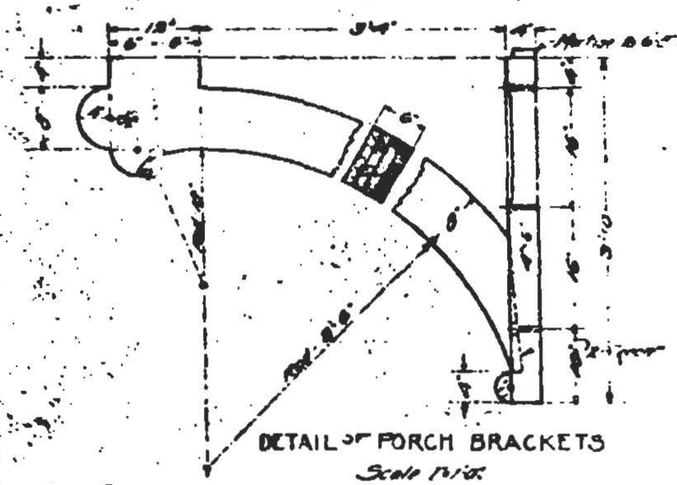
BED MOULD 'D'.



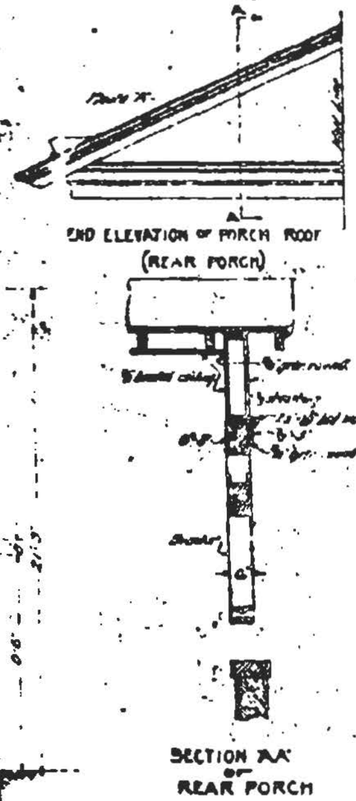
PORCH CORNICE MOULD 'A'.



TRANSVERSE SECTION

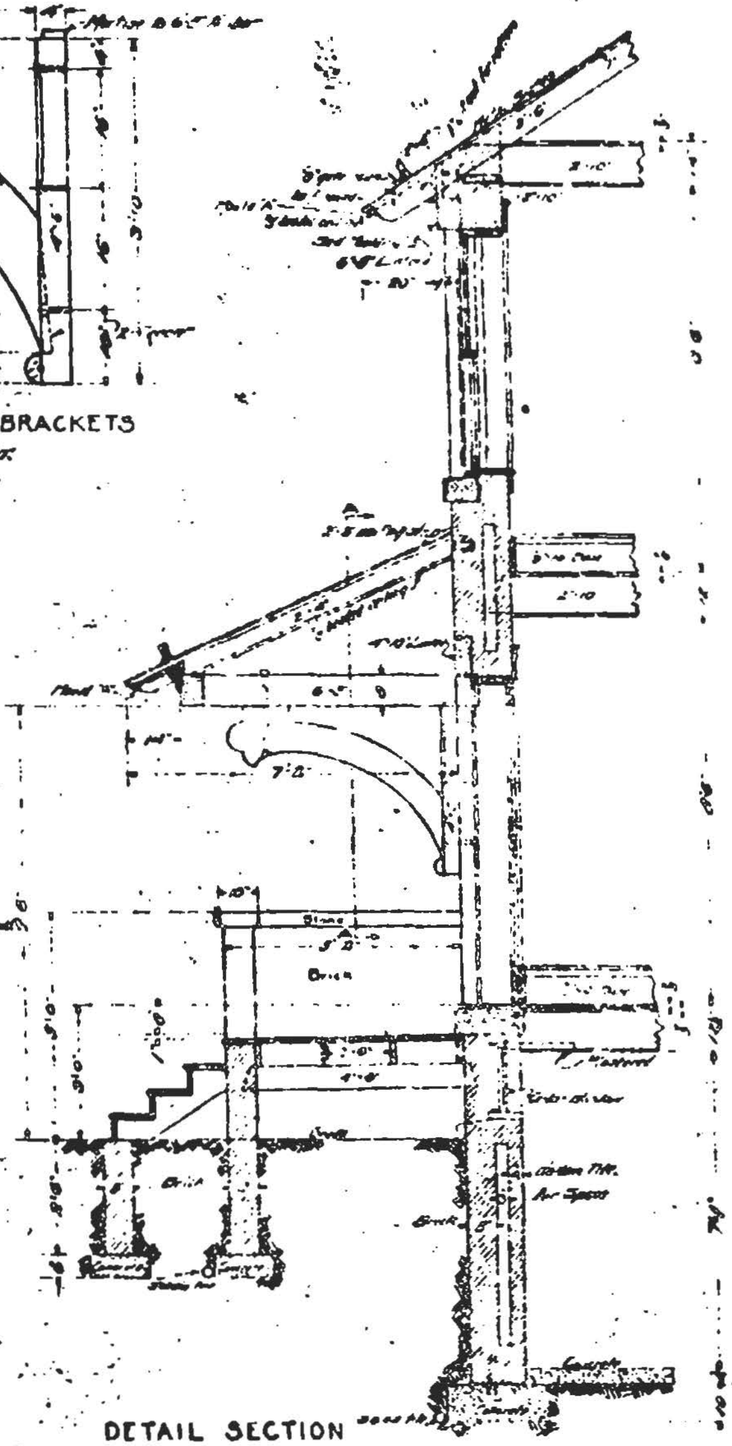


DETAIL OF PORCH BRACKETS
Scale 1"=1'-0"



END ELEVATION OF PORCH ROOF (REAR PORCH)

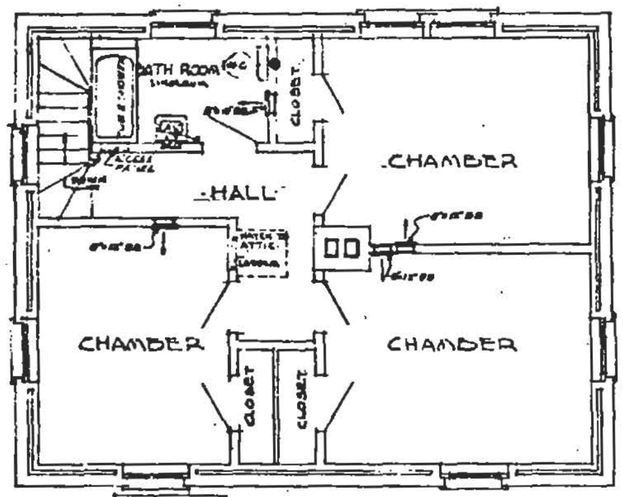
SECTION 'AA' OF REAR PORCH



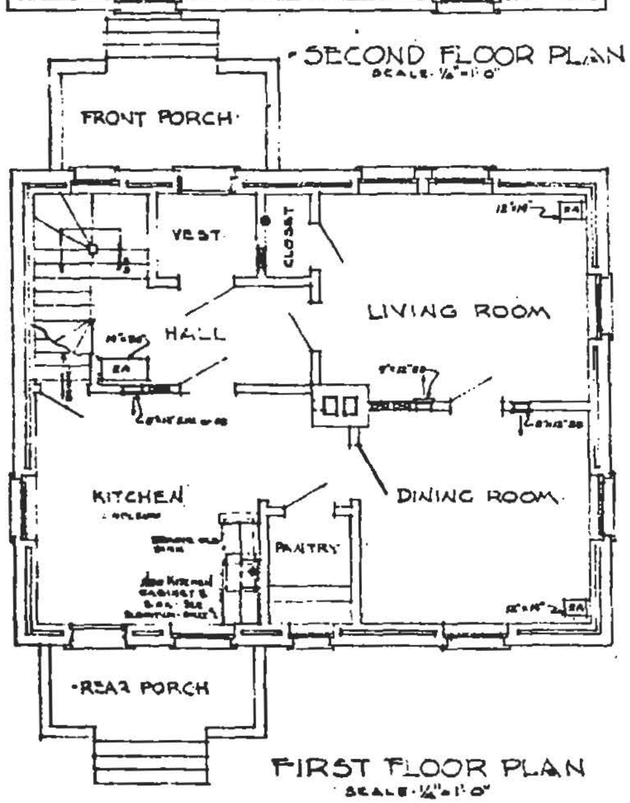
DETAIL SECTION

HALF-SIZE REPRODUCTION

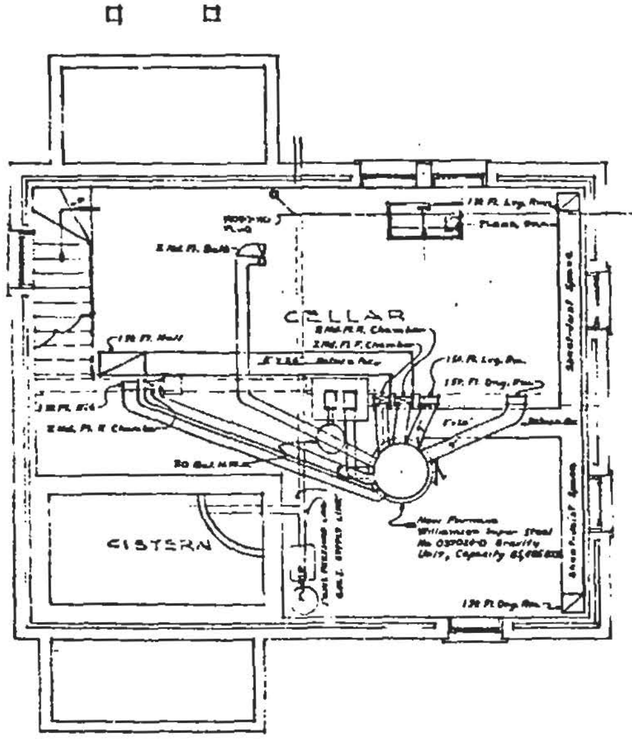
625/28 903



SECOND FLOOR PLAN
SCALE: ½"=1'-0"



FIRST FLOOR PLAN
SCALE: ½"=1'-0"



BASEMENT PLAN
SCALE: ½"=1'-0"

NOTE:—
ATTIC FLOOR INSULATED.
SEE WORK ORDER No 437 dated 9 Jan 1964

HALF-SIZE REPRODUCTION

REVS	DATE		
A	10/25/50	B.F.A.	HOT AIR SYSTEM ADDED

U.S. COAST GUARD — 9TH DISTRICT — CLEVELAND 13 OHIO

CIVIL ENGINEERING

DESIGNED - CAR
DRAWN - CAR
TRACED
CHECKED

AU SABLE LIGHT STATION
GRAND MARAIS MICHIGAN

ALTERATIONS TO DWELLING
SANITARY FACILITIES

C.E. DRAWING NO.
931-5

SINGLE DWELLING - 623/28901

As the nation's principal conservation agency, the Department of the Interior has basic responsibilities to protect and conserve our land and water, energy and minerals, fish and wildlife, and parks and recreation areas, and to ensure the wise use of all these resources. The department also has major responsibility for American Indian reservation communities and for people who live in island territories under U.S. administration.

Publication services were provided by the graphics and editorial staffs of the Denver Service Center. NPS 1306

☆ GPO: 1978--777-120