

Portland Breakwater Lighthouse
Northeast end of Portland Breakwater,
Portland Harbor
South Portland
Cumberland County
Maine

HABS No. ME-112

HABS
ME
3 - PORTS
1-

PHOTOGRAPHS
WRITTEN HISTORICAL AND DESCRIPTIVE DATA

Historic American Buildings Survey
National Park Service
Eastern Office, Design and Construction
143 South Third Street
Philadelphia, Pennsylvania

PORTLAND BREAKWATER LIGHTHOUSE

Location: Northeast end of Portland Breakwater, Portland Harbor, South Portland, Cumberland County, Maine

HABS
ME
3-PORTS
1-

Present Owner: United States Coast Guard

Present Occupant
and Present Use: Abandoned

Brief Statement
of Significance: This Greek Revival structure was first built in 1855 and rebuilt in 1875. It is constructed of cast-iron plate, its bolted joints covered by cast-iron Corinthian columns, cornices, and cresting. The structure was abandoned in 1943.

PART I. HISTORICAL INFORMATION

- A. Date of Erection: Established in 1855; rebuilt in 1875; keeper's quarters added 1889.
- B. Architect: It is possible that Thomas Ustick Walter, who designed and erected the National Capitol's cast-iron dome, might have had something to do with the structure; especially since its details, derived from the fourth-century B. C. Choragic Monument of Lysikrates in Athens, show an archeological bias consistent with Walter's academic tastes.
- C. Alterations and Additions: Some ornamentation lost (see Part I-D, below). Keeper's quarters removed, formerly attached to tower, west side.
- D. Sources of Information:
 1. Evening Express (Portland, Maine), June 15, 1915.
 2. Burr, Lt. Col. Edward A. "Description of Buildings, Premises and Equipment at the Portland Breakwater Light Station." A report for the U. S. Corps of Engineers in the files of the U. S. Coast Guard District Office, Boston, Massachusetts. December 9, 1909. (The Coast Guard files also have an early, undated photograph of the lighthouse, which shows the attached keeper's quarters and the railing at the perimeter of the stone base. A copy of this photograph is included in this write-up.) The following transcription of Lt. Col. Burr's report (which was corrected in May 1928) deletes those sections of the printed form which were not answered.

[Page] 3

HABS
ME
3-PORTS
1-

NAME AND POSITION OF STATION.

Portland Breakwater: On the northeasterly end of Portland Breakwater, Portland Harbor, Me.

1. By whom described, Lt. Col Edw. Burr, Corps of Engineers, USA
Engineer 1st. LH District
2. Date of description, December 9, 1909
3. Distinguishing character of light or lights, Fixed red with a red flash
4. Latitude of light, 43° 39' 20") Authority, U.S. Coast
5. Longitude of light, 70° 14' 07") & Geodetic Survey Chart
No. 325

PREMISES--A DETAILED DESCRIPTION OF, EMBRACING--

6. Site of station--Public land, purchase, Military or Naval reservation, lease: Ceded by State of Maine
8. Date, November 4, 1874
11. Area of the entire site, The soil under the breakwater beyond the line of low water - area undetermined
14. Distance of tower from nearest high-water mark, Seven feet
18. Means by which the light-station may be reached, By boat or walk the breakwater

[Page] 4

PREMISES--A DETAILED DESCRIPTION OF--Continued.

19. Distance to the nearest public road, railroad station, or steamboat landing, and to which: Public road 1/2 mile; RR Station 3 miles; Steamboat landing 1/2 mile.
20. Distance to nearest post office, One mile--So. Portland, Me
21. Distance to nearest village or town, " " -- " " "
22. Facilities for reaching the light-station by public conveyance, Electric car or ferry boat to So. Portland, from thence in private boat or walk along Breakwater
23. Facilities for reaching light-station by private conveyance from nearest village, town, railroad station or steamboat landing, and distance: Boat from Portland
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, 1855.
27. When last thoroughly rebuilt, repaired, or renovated, 1875.
28. Condition at this date, Good
29. Shape of tower in plan, Circular
30. Form of tower--Cylindrical, conical, or pyramidal, Cylindrical
31. Height of tower from base to ventilator ball of lantern, 24 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: 29 3/4 ft.

33. Background of the light-house, upon which it is projected, as seen from the sea or lake: City of Portland
34. Color of tower, White
35. Color of tower, how produced: Paint
36. Tower--Connected with keeper's dwelling, and how, or detached: Attached to tower.
37. Object--Seacoast, lake coast, bay, harbor, channel, or range; for general or local navigating purposes: Harbor aid.
38. Materials of which the tower is built: Cast-iron lined with brick
39. General description, embracing--
40. Thickness of walls at base, 7"
41. Thickness of walls at parapet, 7"

HABS
ME
3-PORTS
1-

[Page] 5

PREMISES--A DETAILED DESCRIPTION OF--Continued.

General description, embracing--Continued.

42. Diameter of tower (inscribed, if polygonal) at base, 11'10"
43. Diameter of tower (inscribed, if polygonal) at parapet, 11'10"
44. Kind of stairway and steps, Cast-iron steps and spiral step-ladder
45. Number of landings of stairway, None
46. Size of glass for glazing tower windows, Portholes, Two 12", Two 6 1/2"
47. Number of windows in tower, and size of sash, Portholes
48. Number of doors, Two
49. Kind of foundation and depth below the surface, Granite breakwater.
50. Character of soil at and surrounding the light-house, No soil

LANTERN AND LANTERN FIXTURES.

53. Order or class of lantern, 5th Order
54. Polygonal, or cylindrical, Polygonal-and Circular
55. Diameter, inscribed (a) to glass 7'3" ; (b) in the clear, 6'-11"
56. Number of sides in plan, Ten
57. Vertical or helical bars, Vertical
58. Height glazed, 36"
59. Number of plates in height, One
60. Numer of plates in each side, One
61. Thickness of plates, 1/4"
62. Size of different plates, 36 1/4" x 27"
63. Number of storm panes of glass, None
64. Unglazed side of lantern in plates and degrees of arc, None
65. Materials of which the lantern is constructed, Cast-iron

[Page] 6

LANTERN AND LANTERN FIXTURES--Continued.

HABS
ME
3-PORTS
1-

66. Roof, Made of cast-iron, flanged and bolted on inside, and lined with zinc
67. Ventilator ball, Cast-iron
68. Lightning-conductor spindle, Bronze, with three pronged copper 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: Copper ribbon, attached to base of tower led over breakwater into the water.
70. Balustrade and outside gallery, Ornamental cast-iron coping, 18" high; Gallery--cast-iron 30" wide
71. Lantern doors, and how fitted: Wrought-iron door 32 1/2" x 21 3/4", fitted with two hinges and a latch, wood lined
72. Floor of lantern--Of what materials: Cast-iron
73. Watchroom door leading into lantern, and how fitted: None
74. Parapet, inside diameter (inscribed, if polygonal), 7' 1 1/2"

VENTILATORS.

75. In parapet, wall, or lower part of lantern: In parapet
76. Lantern ladders for cleaning plate glass, outside: None
77. Curtain hooks inside of lantern--How fitted: Hooks, screwed into sash bars

[Page] 7

ILLUMINATING APPARATUS, ETC.

81. Name of maker, Henry Lepante Year made, not known
82. Marks and number on apparatus, Henry Lepante A Paris
83. Order of apparatus, 5th Inside diameter (inscribed circle, tangent to glass) of central drum, 14 3/4"
84. Characteristic of light shown by apparatus, Fixed red, varied by a red flash every 40 seconds
85. If movable; time of revolution, Two minutes
86. Intervals between flashes, 37 seconds
87. Duration of flash, 3 seconds
88. If fixed, or fixed varied by flashes, state arc of each fixed part in degrees: 360° Door 75° on land side removed but on hand at sta.
89. Number of panels in the lens apparatus, Four
90. Number of flash panels, Three ; arch of each, in degrees, 50°
91. Number of elements in each panel of central drum of lens, Five
92. Number of prisms in each panel above central drum of lens, Five
93. Number of prisms in each panel below central drum of lens, Three
94. How are the flashes produced--By whole apparatus revolving ; by revolving belt only Yes ; if by panels of vertical elements revolving outside of fixed lens, state the number of such panels: Three vertical elements revolving around outside, attached to gear, Describe How: on trucks
95. If by vertical elements, (a) state the number in each panel, Three; (b) and the number of elements of fixed lens covered by the panel: Ten

[Page] 8

ILLUMINATING APPARATUS, ETC.--Continued.

HABS
ME

97. Pedestal, Cast-iron column, flaring at top, and bottom, 45 1/2" high
98. Service table, Yes. clock is mounted thereon
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: None
100. If revolving, revolving machinery: Old style French clock
101. Revolving on chariot, mercury float, or balls: On chariot
102. If a chariot, describe it and state the number and size of each pattern of wheels in it: Six main trucks 3" diameter; Eight centralizing trucks 1 1/2" diameter

3-PORTS
1-

[Page] 9

105. Revolving cord or chain--How led: Cord, led straight from drum. 1/8" Cord
106. Length of drop tube, 13'7"
107. Length of time revolving machinery will run after one winding: 6 hrs. does not drive lens while being wound
108. How is the machinery protected? Brass case, with glass doors
109. How regulated? Describe: Fan governor

IF COLORED LIGHT--

110. How is the color produced? Describe: Red chimney

[Page] 10

114. (a) Description of lamp in use and number of wicks, or mantels, to burner, Regular 5th order lamp ; (n) state name of maker, Haines
115. Number of spare lamps at station, Two spare lamps
116. Number of spare lamp burners at station, Two

CLOSETS IN TOWER.

117. How fitted and used, One closet in base of tower with four shelves used for lamp supplies.

OILHOUSE OR ROOM.

118. Describe (a) where placed and how fitted, Oil stored in base of tower and in fuel House in our 139 gall tank for Bulk Oil

[Page] 11

FOG SIGNAL.

121. Kind and character of apparatus: Bell struck by machinery

FOG SIGNAL--Continued

122. How much time is required to start the signal? Starts immediately HABS
ME
3-PORTS
1-
123. Where, or by whom, made: Boston Mass, by Geo. M. Stevens. Old
Year made, Not known
124. Characteristic distinction of: Single blow every 15 sec.
125. What parts of the fog-signal machinery are in duplicate? None
126. If a bell, state (a) weight, 1000 lbs.; (b) metal, bronze;
(c) diameter, 36"; (d) height, 30"; (e) if struck by clockwork,
state time it will run with one winding: 3 1/2 hrs.

[Page] 13

FOG SIGNAL--Continued

138. Location, with reference to light-house, to a particular danger
or channel, or to the special object for which established: Marks
the end of Portland Breakwater
139. Distance and direction, true, from light-house, Attached to tower
140. Water supply for it, None
141. How is it reached from the light-house? Walk around tower
142. Description of fog-signal building: Wooden building 7'x 5' x 6'
high, with flat roof covered with canvas

DWELLING FOR KEEPERS.

143. Location, with reference to light-house tower: Attached to tower,
on westerly side
144. Coloring: White, with red roof
145. Materials of which built, Wood
146. Number of rooms in dwelling, Six
147. Number of keepers to dwelling, One

[Page] 14

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

157. How procured, Water-boat and rainwater from roofs for cleaning
purposes
158. Quality, Good
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? Tank is covered, and cleaned four
times a year.
162. Capacity of tanks or cisterns, and where placed: 1200 gals, placed
in shed attached to house
163. Tanks or cisterns--Of what material made: Wood
164. Is there a distilling apparatus at the station? No

[Page] 15

HEALTHFULNESS OF THE LIGHT-STATION AND VICINITY.

170. General opinion in regard to the healthfulness or unhealthfulness of the light-station and vicinity: Very healthful
171. Diseases--What are most prevalent at the station and in the vicinity?
No prevalent diseases.
172. Do they prevail at particular seasons of the year, or not? No.
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? No
174. Would draining or other artificial means employed on the light-house premises be likely to improve the sanitary condition of of the light-station? No

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

177. Hoisting engine, what kind? None

[Page] 16

178. MISCELLANEOUS REMARKS UPON THE GENERAL CHARACTER AND CONDITION OF THE PREMISES, TOWERS, BUILDINGS, AND ILLUMINATING APPARATUS AT THIS DATE. Repairs were made to the buildings in the summer of 1909 and the tower, buildings, and illuminating apparatus are in good condition

Respectfully,

[Rubber Stamped] Edw. Burr
Lt. Col. Corps of Engineers, U.S.A.,
Engineer, First Light-House District.

Prepared by Samuel M. Green
Wesleyan University
July 1962

PART II. ARCHITECTURAL INFORMATION

A. General Statement

1. Architectural character: This structure is unique because of its construction and decoration. It is abandoned and subject to severe weathering and damage by vandals.
2. Condition of fabric: Fair. Some damage by weathering and vandalism. The lighthouse was abandoned in 1943.

B. Technical Description of Exterior

1. Circular tower: 11'-8" in diameter of cast-iron plates bolted at the flanges. Cast-iron plates fashioned as fluted columns with Corinthian capitals covering joints. The lighthouse is situated on a stone base at the end of a breakwater.
2. Foundation: Granite base, octagonal in plan, rusticated ashlar, keyed stones. Iron mooring rings set into corners of base. Lighthouse tower on round base of cast concrete. Cast-iron plinth of tower extends outwards as base for cast-iron columns.
3. Walls: Exterior wall 6" thick composed of 1" cast-iron plates bolted at flanges, 4" brick filler, plastered inside, air space between iron plate and brick. Cast-iron columns cover bolted flanges of plates. Lantern house cylindrical, cast-iron plate. Ten fixed sheets of glass.
4. Doorways:
 - a. Base level: Door 1/4" iron plate, iron frame, out-swinging. Additional pintles suggest that there was also an inswinging door.
 - b. Deck level: 21-1/2" wide x 32-1/2" tall door of 3/8" iron plate following curve of lantern house wall, swings out. Curved wood board door swings in.
5. Windows:
 - a. Portholes in 12" round openings in tower wall. Brass fittings. Some fixed, some operating, inswinging.
 - b. Plate glass 1/4" x 27" x 34-1/4" fixed openings in lantern housing. Boarded shut on inside. Cast-iron mullions. Iron curtain hooks at head of openings.

- c. Ventilators in wall of lantern house, horizontal slits with deflectors inside.
- d. Roof ventilator: Cast iron, perforated at base. Zinc deflector in ceiling of lantern house.

6. Roof:

- a. Wide entablature between capitals of columns and deck at lantern house floor level; dentil course in cornice immediately above deck level, cornice extends to form parapet with cresting; bolted to deck.
- b. Lantern house roof slopes upwards to center spherical cast-iron roof vent, bronze lightning rod finial of three copper prongs. Cast-iron cresting at edge of lantern house roof.

C. Technical Description of Interior

1. Plan:

- a. Base level: Access from breakwater and base, wood chute for revolving machinery weight (removed), floor in two levels (11" difference), ladder to second level.
- b. Second level: Platform, stair partition. Ladder to lantern house deck.
- c. Lantern house level: Access to deck or gallery.

2. Stairways: Steel and cast-iron ladders.

3. Walls: Plaster, iron plate partition.

4. Floors: Iron plate. Glass inserts in second level to allow light transmission from lighted area above.

5. Ceiling: Wood ceiling second level, boards with beaded edges radiating out from center. Zinc ceiling in lantern house.

6. Doors and doorways: Four-paneled wooden door, wooden frame.

7. Trim: Molded wooden trim at portholes.

8. Hardware: Brass strap hinges on lantern house door.

9. Lighting: None.

HABS
ME
3-PORTS
1-

10. Heating: None.

- D. Site: This building is located at the end of a granite breakwater on Portland Point in the United States Naval Training Reserve and opposite Forts Gorges and Scammell; access is along the granite and concrete breakwater. The lighthouse is visible from the Eastern Promenade in Portland.

Prepared by F. Blair Reeves, Architect
National Park Service
July 1962