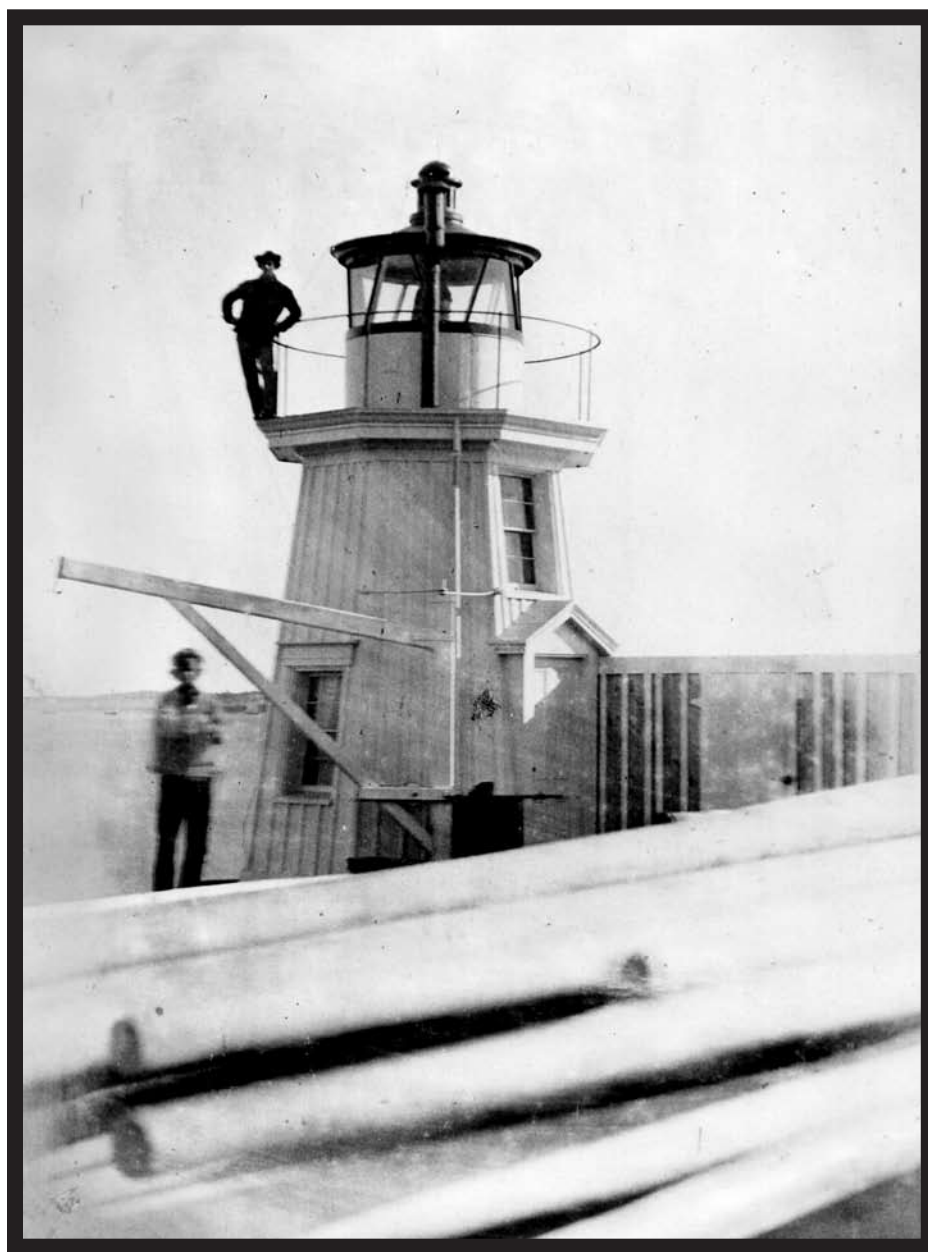


Little Known Lighthouses

The Portland Breakwater Light Station

By Wayne Wheeler



The 1855 Portland Breakwater Lighthouse shortly after construction. Lighthouse Society photo.

In most countries lighthouses were first constructed to mark harbor entrances. The great Pharos lighthouse in Egypt marked the port of Alexandria. One of the first Roman lighthouses lead mariners into Rome's port of Ostia and in America the first colonial lighthouse was constructed at the mouth of Boston's harbor. In fact, eleven of our colonial lighthouses marked harbor entrances, only the Cape Ann Light Station on Thacher Island warned of an obstruction.

As our system of aids to navigation evolved, additional aids were constructed to better define harbor entrances. They included small post lights, buoys and lesser light stations. The Portland Breakwater Light Station was one of those minor light stations and one that assisted mariners to navigate the shoal-laced approach to the harbor at Portland, Maine.

In November 1831, a fierce northeaster wreaked havoc on Portland's exposed harbor. The storm, coupled with a high tide, caused widespread damage in the harbor. Vessels' mooring lines were parted, piers were destroyed and several buildings were carried away.

The amount of damage caused local citizens, merchants and mariners to petition for a protective breakwater to protect the port from future storms. Congress authorized the Army Topographical Engineers to survey the harbor and recommend improvements. In 1833, a report was submitted which recommended the construction of a breakwater along the southern side of the of the inner harbor's entrance. The suggested design was a seven-part rubble stone breakwater with a length of 2,500 feet. The structure was to be topped with ashlar stone forming a, more or less, smooth surface. The rubble stone

amounted to 46,000 cubic yards, with another 3,500 yards of ashlar required for the top surface. The Engineer's LCOL John Anderson stated that the stone, ". . . can be obtained in any quantity . . . within a short distance, from the shores of [several local islands]". His cost estimate was \$44,417.08, which in today's money equals about \$1.3 million. His estimate included, ". . . a pier and beacon on the outer end of the breakwater." The beacon, a small lighthouse would mark the end of the breakwater and, also, assist mariners navigate into the inner harbor."

Two years later Congress approved \$10,000 for the breakwater project and construction began on the first, 400-yard section in July 1836. The project was under the direction of local engineer Freeman Bradford. One-third of the rubble breakwater was in place by December of that year. Bradford wrote his district office that the first section would be completed the following summer if his request for \$30,000 to finish it – and begin the next four sections – was appropriated. Like many government projects over the years, the Portland breakwater project had some serious cost overruns. In 1837, Freeman requested and was awarded an additional \$25,000 and then \$26,366 the following year. These funds resulted in the breakwater extending out one-third of a mile along the ledge. In November of 1837 it was evident that the breakwater was doing its job in keeping heavy swells, during high tides, from sweeping over the ledge.

However, the breakwater never reached its original design length. After 1838 most harbor improvement requests along the Atlantic coast were denied. At this point the structure was 1,800 feet long and missing the coping stone on a 680 foot section at the outer end and a 112 foot section next to shore. Furthermore, the lighthouse had not been constructed as the engineers were waiting for funding to complete the breakwater before erecting it on the outer end. The unlighted breakwater raised a hue and cry from local mariners who considered it more of a hazard to navigation than a harbor improvement. In 1854 the newly installed Lighthouse Board realized that the project had already dragged on for 17 years and was apparently not going to be completed. The mariners still needed a light to mark its outer end. The Board submitted a request to Congress, "For a harbor light on or near the breakwater at Portland, three-thousand, five-hundred dollars." It was approved on August 3, 1854.

In January 1855, plans were drawn up for an octagonal wooden tower with sloping wooden sides on top of two courses (layers) of ashlar stone at the breakwater's outer end. The plan called for the focal plane of the 6th order Fresnel lens to be 25 feet above high water. Construction began in March 1855 and the structure was completed in July.

The first keeper of the breakwater light was W. A. Dyer who was given an annual salary of

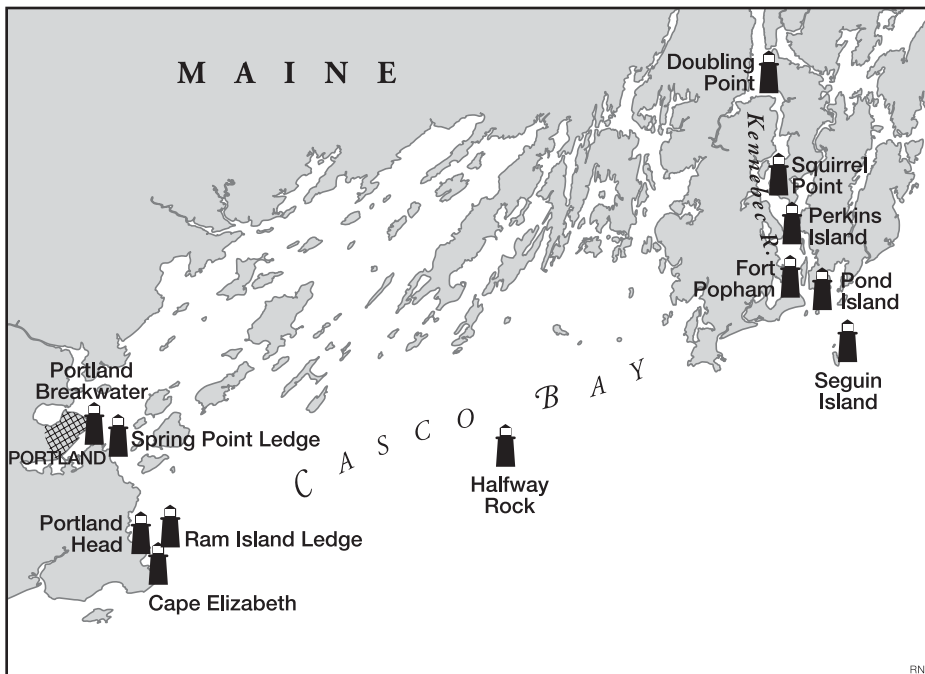
\$400. The fixed, red light was displayed for the first time on August 1, 1855. Dyer lasted two years before resigning. He was being replaced by William Willard, who lasted three years and died on watch. B.F. Willard succeeded him (possibly his wife or son), but that individual proved unsatisfactory and was removed after only four months.

Although close to civilization, duty at the breakwater light station wasn't always pleasant. Because portions of the breakwater were unfinished, and didn't have the ashlar capstone, it was barely above high water. During storms, waves breaking against the sides would send heavy spray over the breakwater. During particularly heavy storms the breakwater was inundated. Getting to and from shore was a soaking experience and sometimes impossible. In the winter, ice formed on the rubble stones – which were difficult to walk even when the weather was nice.

Being close to the water and out at the end of the breakwater, the tower was often soaked and constantly in need of repairs. Wood rotted and iron portions rusted.

Late in 1865, Col. Graham of the Army Corps of Engineers recommended extending the breakwater out another 400 feet. His \$105,000 estimate was approved by Congress in June the next year. However, shortly after this the project was halted because Col. Graham died and his successor, Brig General B.S. Alexander had other plans for the breakwater extension. Alexander conducted a new survey of the harbor and eliminated many of his predecessor's ideas. As a result the new estimate was only \$60,000 – slightly more than half the cost of Graham's proposal. But the Washington bureaucracy held up the project, directing a new study of the harbor before proceeding with the breakwater. LCOL George Thoms relieved Alexander and although the harbor improvements and breakwater extension project were still pending, he was able to receive permission to proceed with capping the unfinished portions of the breakwater. Thoms entered into a contract with three Maine companies and the stonework commenced in the summer of 1867. It was completed in 1868.

Several years later, the Lighthouse Service replaced the keeper's residence. In 1871 the Lighthouse Board reported, "The old dwelling has been taken down and a new one erected on the same foundation."



The construction of the breakwater extension didn't begin until 1872. It was completed in September 1873 and during this entire period the old lighthouse continued to function as the breakwater light, although some distance from the end of the structure.

In June 1874, Congress appropriated \$6,000 to replace the old tower as it had become, "... decayed and unfit for further service." The new tower would be a cast iron structure, lined with brick. The Lighthouse Board reported, "This structure will be completed this year, during the course of its construction a light has been exhibited from a temporary wooden tower, located at the outer extremity of the pier. As soon as the breakwater has been completed it will be necessary to occupy the pierhead by a permanent tower, and an appropriation was asked for this purpose."

The new tower is unique and different from any lighthouse tower constructed in America. It is modeled after the Choragic Monument of Lysicrates, a 2,400-year-old structure located near Athens, Greece. The cast-iron tower was one of first of this type first manufactured in the United States.

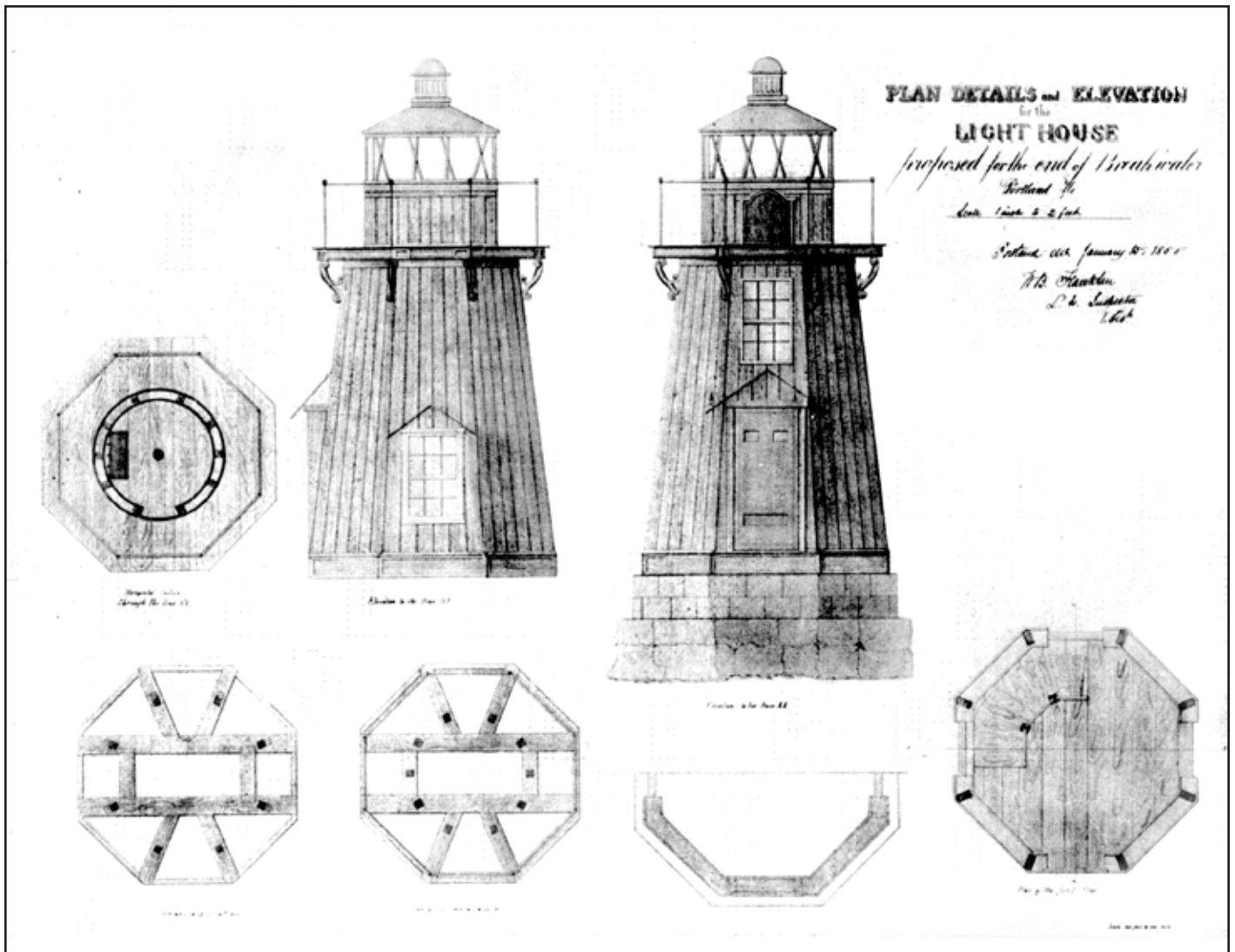
The new tower is slightly shorter than its wooden predecessor, standing 26 feet high. Around the perimeter are six, cast-iron Corinthian columns. Palmettes – a Greek roof edge decoration – were installed around the edge of the lantern room dome and the gallery deck.

In late June 1875, keeper Stephen Hubbard lighted the lamp for the first time. He was the seventh keeper of the Portland Breakwater Light Station and the first of the new tower.

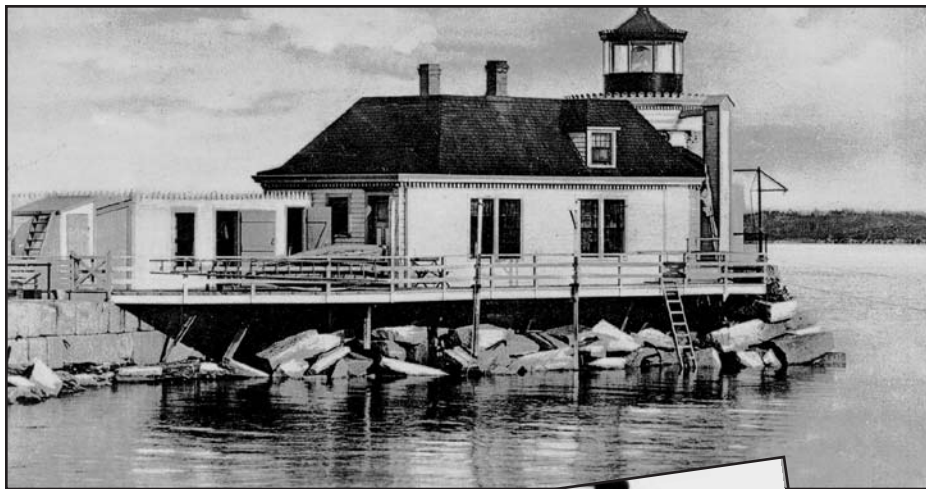
In 1878, the fixed, red light characteristic

was changed to an occulting red light (fixed red varied by a flash every 40 seconds). A year later, a much-anticipated 58-foot-long handrail went up along the breakwater from the station toward shore to assist the keeper during inclement weather. By 1886, the handrail extended the entire 1,990 feet of the breakwater.

Until 1889, the keeper of the lighthouse lived ashore, walking out to tend his light each evening. But in that year the Service contracted for the addition of a dwelling connected to the tower. The *Annual Report of the Lighthouse Board for 1889* states, "This station contained no provision for a dwelling for the keeper, and it was only accessible to him by shore from the breakwater, which is 1,900 feet long, at much discomfort, and even peril in severe storms, when the breakwater was covered with ice. An annex to the tower



Plans for the first Portland Breakwater Lighthouse. Print courtesy of the National Archives.



Left – The Portland Breakwater Lighthouse circa 1906. From left – privy, storage shed, dwelling, tower and weight tube for the bell fog signal. Old Post Card.



Above and right – Children of Keeper William Tarlton Holbrook and wife Evelyn playing on the porch of the dwelling. Photo circa 1916-17 courtesy of Judy Kelley.



Keepers at the Portland Breakwater Light Station through 1912

Name	Salary	Term	Disposition
W. A. Dyer	\$450/yr	25 Jun 1855 to 25 Jun 1857	Resigned
W. S. Willard		12 Jun 1857 to 11 Feb 1860	Died
B. F. Willard		11 Feb 1860 to 25 Jun 1861	Removed
Levi Strout		3 Oct. 1866 to 12 Mar 1867	Resigned
Paul McKenna	\$500/yr	12 Mar 1867 to 20 May 1875	Removed
Stephen Hubbard		25 Jun 1875 to 21 Aug 1887	Died
Albus Angell		21 Aug 1887 to 1 Aug 1900	
Parker Haley		1 Aug 1900 to 8 Jul 1908	
William Stetson		8 Jul 1908 to at least 1912	

containing two dwelling rooms was therefore built." The structure was 20 feet long and 18 feet wide, the width overhanging the narrow breakwater. It must have been quite damp inside the dwelling. Palmettes were also installed along the dwelling's roof peak to continue the design from the gallery deck and act as a seagull deterrent.

In 1898, a fog bell with an electric striking machine was installed, but replaced the next year with a Stevenson weight-powered bell striker.

An attic and two small storerooms were added to the dwelling in 1903. Additionally, a bell house was constructed and the 400-pound bell was replaced with a more respectable 1,000 lb. bell.

The aids to navigation system of our country has always been in a state of flux. As the needs of the mariner change, so does the aid system change to meet those needs. Aids are established or discontinued to meet the need of the mariner. The invention of new equipment has also changed our system of aids to navigation.

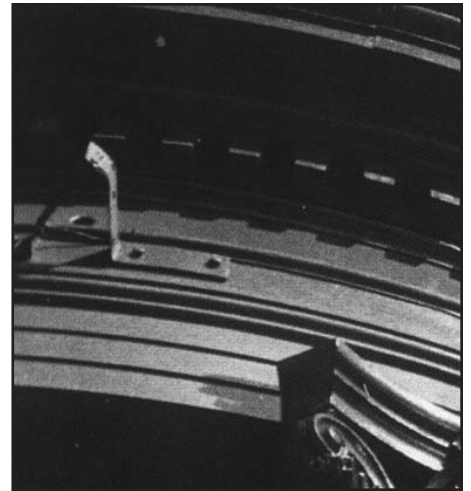
In the case of the Portland Breakwater Light Station, its useful life began to fade in 1934 when both it and the nearby Spring Point Ledge Light Station were electrified. In 1940, the Todd-Bath Iron Shipbuilding Company established a facility along the south shore next to the breakwater and lighthouse. The shipyard was successful and when the need for additional space arose, fill was dumped into the harbor to create more land. Landfill on both sides of the breakwater filled in all but 100 feet of the breakwater. One can imagine dry-docks and large cranes overshadowing the small lighthouse making its light difficult to see and really not of much use to the mariner. It was discontinued in June 1942.

But the Portland Breakwater light remained as a familiar landmark in Portland's Harbor. It was partially saved from destruction by being incorporated as part of the city's seal in 1940 and eventually ceded to the City of South Portland. In 1973, the Maine Historic Preservation Commission placed the lighthouse on the National Register of Historic Places. This resulted in funds being raised for its restoration. In the 1990s, over \$26,000 was spent on restoration. Today only the tower remains. A small park has been created around the lighthouse. known to locals as "Bug Light Park." For more information, visit: www.lighthouse.cc/portlandbreakwater/index.html.

It's comforting to know that one of America's most uniquely designed lighthouse towers remains for future generations to enjoy. Visitors to South Portland can appreciate that the small Greek Revival style tower was an important guide from the days of sail through the era of steam vessels, and a welcome beacon for yachtsmen and fishermen.

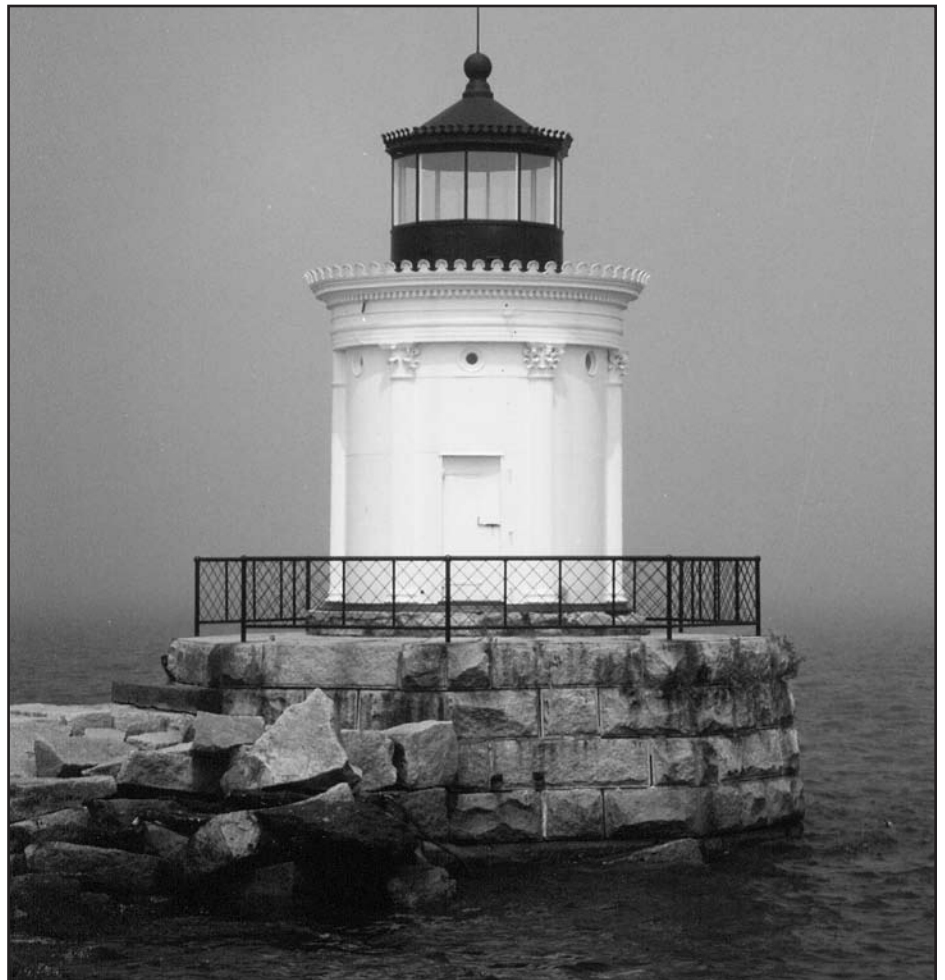
In 2002, the lighthouse was completely painted inside and out, the ball vent was replaced and an optic was added to the lantern as a Private Aid to Navigation. The South Portland Rotary Club paid for the renovation of the lighthouse. The Spring Point Ledge Light Trust did the paperwork to have the Private Aid to Navigation established, and the U. S. Coast Guard was always there to lend a hand.

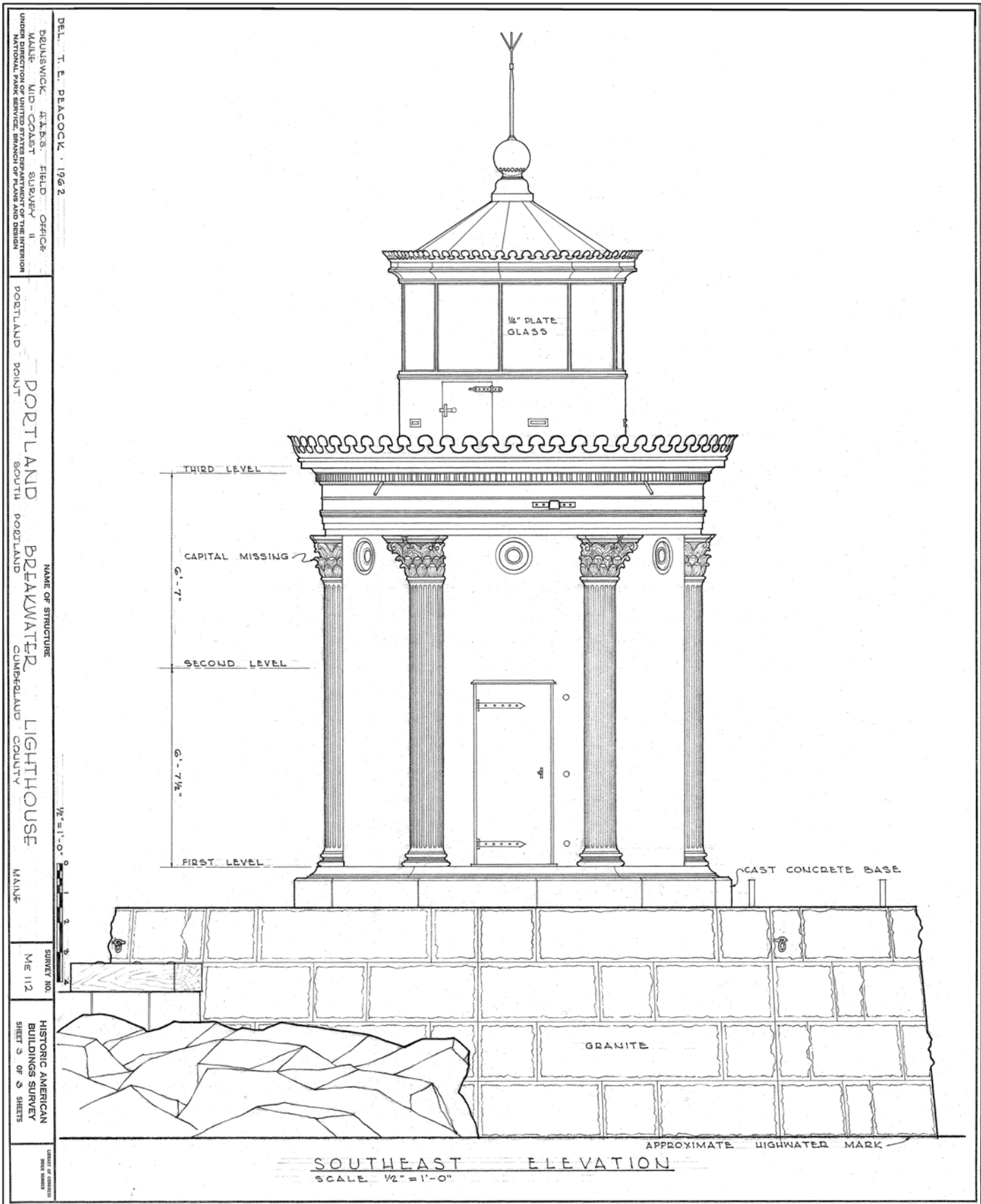
Bug Light is a colloquial term applied to numerous small lighthouses, particularly screw-pile structures and some caisson-style lighthouses, which are also commonly called "sparkplugs."



Above – Detail of the top of the Corinthian pillar.

Below – The Portland Breakwater Lighthouse as it appears today except a lens has been installed in the lantern as a Private Aid to Navigation. Photo courtesy of Joseph Kiebish.





Portland Breakwater Lighthouse. Historic American Building Survey, 1962, from the Library of Congress.