

LOG

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Lighthouses of Chicago Harbor

By Donald J. Terras



It is difficult to imagine a time when the banks of the Chicago River were lined by scores of tall-masted schooners and steamships. Yet, for the last half of the 19th and into the early 20th century, this river, which trisects the City of Chicago, was home to port operations that made this Midwestern metropolis one of the most commercially important cities in North America. In fact, the historic port of Chicago with its weather-shortened, eight-month shipping season frequently had more arrivals and departures than the year-round ports of New York, Boston, and San Francisco. This period saw Chicago's harbor play a significant role in the maritime commerce of the United States as it became the center of trade for lumber and grain merchants, textile industries, newspaper plants, meat processing facilities, and many other businesses that served America.

However, getting into the Chicago River to access port operations was not always an easy task, and over the years three primary lighthouses were constructed to help guide mariners safely into the harbor. Interestingly, these lighthouses represent a variety of structural types. Architecturally, each was distinct from the others and taken together represent a cross section of lighthouse technology and design.

The history of lighting Chicago's harbor begins on March 3, 1831, when Congress approved the expenditure of \$5,000 for building a lighthouse at the mouth to the Chicago River. There is little documentation left regarding this lighthouse, but an interesting account is related by A.T. Andreas in *The History of Chi-*

cago (1884). According to Andreas, a local builder by the name of Samuel Jackson was hired to construct Chicago's first lighthouse. But before the 50-foot-tall structure was completed, the tower fell to the ground. "A few hours before it toppled over, so confident were many that there was no danger of its falling, that several went upon the top of it, some of the visitors being women." Jackson claimed that the lighthouse had been built on quicksand, which caused the structure to settle and fall. Others held that the cause was the defective manner in which it was built.

A second tower constructed by Jackson remained upright and was completed in 1832.

it to be constructed of rubble stone, probably obtained locally. The lantern on the structure was one of the so-called "bird-cage" designs that were used with the early Argand lighting system. It emitted a fixed white light through the use of four 14-inch parabolic reflectors, each of which was fitted with an oil-burning lamp. The 1832 Chicago lighthouse was the first constructed on Lake Michigan, followed closely by a light at St. Joseph, Michigan, built the same year.

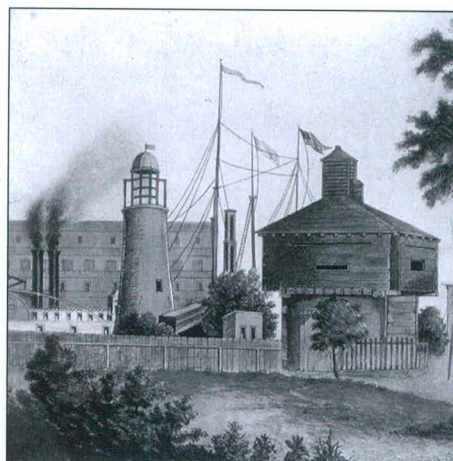
While formally ushering in Chicago's age of shipping, the lighthouse of 1832 was of limited use because its location was too far inland. As a result, ships had difficulty spotting the light and finding the river entrance. Occasionally, vessels would also become stranded on a sand bar that blocked the river's entrance, requiring that passengers and cargo be moved to shore by a smaller boat. In fact, the entrance to the Chicago River had been plagued by sandbars for many years; and, in order to better facilitate port growth and trade activities, soldiers at Fort Dearborn would regularly be occupied with ditch duty, digging a channel through the sand bar. The situation was recognized as hindering growth of Chicago's port. In a letter



This depiction of a very crowded Chicago Harbor shows the first Chicago Harbor light of 1832 to the right of the tall-masted ships shown in the illustration. From National Archives.

The structure was 40 feet tall and stood on the south side of the Chicago River not far from the stockade of Fort Dearborn (1816), a frontier outpost that had helped establish Chicago as the primary center for trade in the lower Great Lakes region. In the Treasury Department's *Light List* for 1838, the tower at Chicago is described simply as a masonry structure. Early depictions of the tower show

dated Aug. 18, 1837, Lieutenant G.J. Pendergast reported on pier construction to help eliminate the problem: "Chicago. . . is a highly important place, containing about six thousand inhabitants. There is a good stationary light here, and a harbor nearly completed. It now forms the only place of shelter along the entire western shore of Lake Michigan, and has already been the means of saving many



This depiction of Chicago's 1832 lighthouse is from Andreas' *History of Chicago* (1894) and clearly shows the so-called "bird-cage" lantern used on some lighthouses. The stockade at Fort Dearborn is in the foreground.

lives and much property. When the piers are finished, the light house ought to be placed on one of them, and the old light should then be discontinued."

Indeed, construction of piers through the sandbar and harbor dredging activities did create easier access in and out of the river, permitted expansion of port facilities, and brought about the need for a new lighthouse. But it took some time to get to this point. According to the *Annual Report of the Lighthouse Board* on March 3, 1849, Congress appropriated \$15,000 for construction of the foundation and a lighthouse at or near the end of North Pier at Chicago. This was followed by additional appropriations of \$4,498.39 in 1851 and \$6,300 in 1852. The 1853 *Annual Report of the Lighthouse Board* to Congress indicated that the pierhead constructed for the foundation of the lighthouse was sufficient and that "the light should be one of the first class for the lakes which is the equivalent to a third order lens. This lens . . . is very much needed, as the present one is very imperfect and altogether insufficient. I think that eventually it would be a saving to the government to construct an iron beacon on the end of north pier, in place of the frail structure in present use."

But there were delays. Part of the problem with completing this project in a timely manner undoubtedly arose because of political factors. The early years of lighthouse construction and administration had been handled by the Treasury Department, but there was harsh criticism of the way this branch of government handled the responsibility. In the end,

this led to restructuring and the creation of a Lighthouse Board in 1852. In such a heated political climate, business must surely have been difficult until new channels of communication and authority were established.

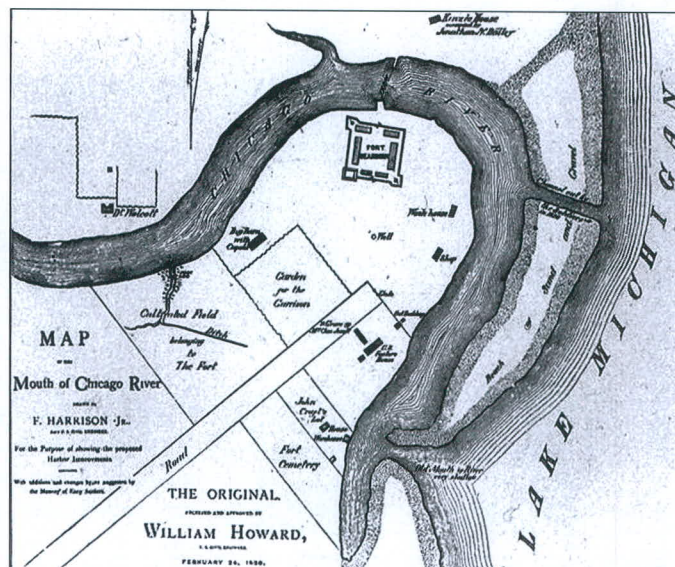
On August 26, 1857, a distress signal went out from District Inspector G.H. Scott in Chicago, who wrote to district headquarters that the 1832 Chicago lighthouse had developed a large crack in its masonry and was in danger of falling down. Quick action was called for and Major J.D. Graham was selected as superintending engineer for construction of the new lighthouse. The *Annual Report of the Lighthouse Board* to Congress in 1857 stated that materials for completion of the work had been acquired and that the structure would be finished and ready for use by the end of August 1858. The project was finally completed on July 9, 1859, when a beacon shone forth from the light's third-order Fresnel lens. This was not done without a bit of intrigue, however. The Lighthouse Board's Correspondence File Index indicates that the lighthouse was turned over to Inspector Scott who had light keeper Mark Beaubien removed from the position on charges of neglect of duty and incapacity to perform the job. Beaubien vacated the post a little too quickly, however, leaving Inspector Scott in the difficult position of becoming a substitute keeper. Unfamiliar with how to operate the Fresnel optical apparatus, Scott requested instructions as to lighting the beacon and added that "the appointment of a new keeper as soon as possible was highly recommended."

The best description of Chicago's 1859 lighthouse was published on November 9, 1890, in the Sunday issue of the *Chicago Inter-Ocean*. The light was characterized as having a third-order fixed white light in a black, skeleton iron tower, with stair cylinder, connected by covered way with the keeper's dwelling. It was 83 feet above lake

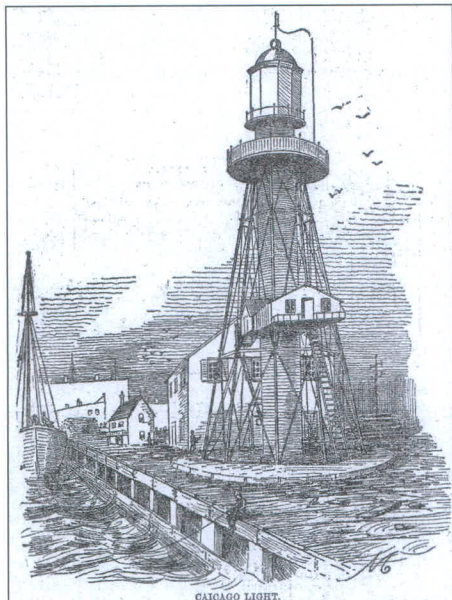
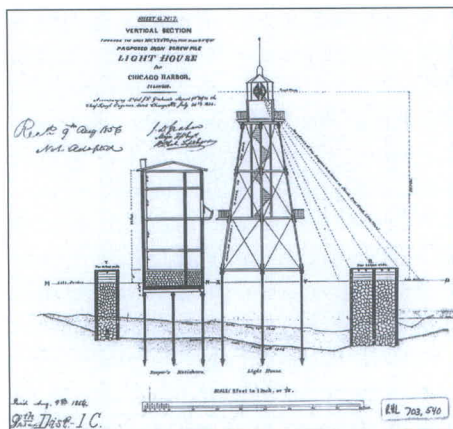
level and was visible for 16 miles. Captain Ole Hansen was the first principal keeper, and he resided with his family in a two-story frame dwelling in close proximity to the lighthouse.

Expansion of Chicago's harbor facilities continued. In 1865 North Pier was extended 450 feet from shore into Lake Michigan, and in 1869 a small beacon light with a sixth-order Fresnel lens was placed on its end to aid navigation in the close quarters of the river harbor. These were the boom years for Chicago's shipping industry; and after only a decade of operation, the government realized that a further expansion of the piers into Lake Michigan was necessary and that "the extension of the piers at this point may require a removal of the light to another position at a not so very distant day."

By 1870 the piers had been extended into Lake Michigan another 1,200 feet from the lighthouse, making it more difficult to see its navigational beacon, even on clear days. The problem was made worse on busy days when smoke from steamships and Chicago's many factories polluted the air. In response, the Lighthouse Board constructed Grosse Point Lighthouse, some 12 miles north in suburban Evanston, to act as the main navigational aid into Chicago's port. The light at Grosse Point and Chicago Harbor worked together effectively, but by 1880 the foundation for the iron-framed



The map of the Chicago River clearly shows the pesky sandbar that was a constant problem to mariners trying to enter port during the 1830s. The channel through the sandbar was dredged by soldiers from nearby Fort Dearborn and gave smaller vessels more immediate access to the river. Eventually, piers would be constructed through this obstacle that would eliminate the problem. Map from the National Archives.



Top: This original architectural plan for the 1859 Chicago Harbor Lighthouse shows the structure to be much different than that of its predecessor. Instead of rubble stone masonry construction, this lighthouse was of a skeletal design, using piles and an iron framework. Plans from National Archives.

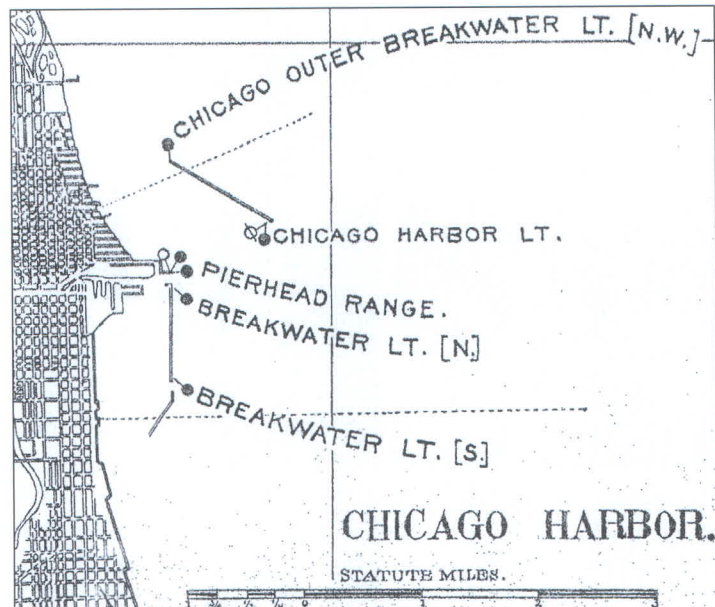
Center: Illustration of Chicago's 1859 lighthouse from the *Chicago Inter-Ocean*, November 9, 1890.

Bottom: Chicago's 1859 lighthouse being disassembled in 1884. U.S. Coast Guard photo.

pile light at Chicago needed to be reconstructed at a cost of \$10,000. Nine years later the Lighthouse Board proposed that a new light station should be constructed at the end of a breakwater away from the ship traffic in and around the present North Pier location.

The *Annual Report of the Lighthouse Board* in 1889 stated that "the harbor of Chicago is the most important on the lakes, with a greater average number of arrivals and departures during the season of navigation than any other in the United States." This statement underscores how commercial interests in the Midwest were tied to Chicago's inland port facility and recognition of the need to better mark the port entrance. In response, an appropriation of \$36,000 was made for construction of a new light station. This total amount was found to be insufficient, however, and an additional \$15,000 was requested from Congress in 1889 with the following justification: "The [initial] amount of appropriation is quite inadequate for the purpose, admitting of building only a perishable and unsightly wooden crib with plain iron tower upon it. The woodwork should be replaced by stone, and the tower, occupying so prominent a place in port, should have some pretensions to architectural effect."

Continuing to push the envelope, the Lighthouse Board still was not satisfied with the \$51,000 appropriation, commenting that it was a "small enough sum considering that the light will be the leading one in the most important harbor on the lakes." Major William Ludlow, Ninth Lighthouse District engineer at the time, summed up the situation: "It is submitted that in a case of a harbor so im-



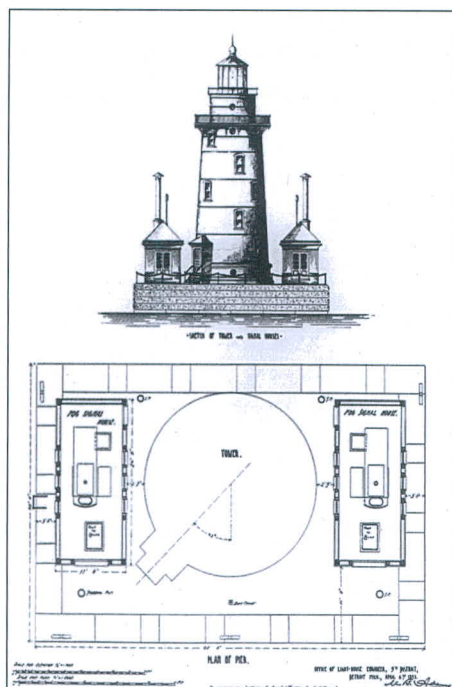
Location of Chicago's harbor lights from *Annual Report of the Lighthouse Board*, 1893. Map from the National Archives.

portant and thronged as that of Chicago and of a station to be built in so conspicuous a position, it would be of both false economy and a disparagement of the government work to construct it otherwise than in the best manner and of the best and most enduring materials."

The crib foundation for the lighthouse was completed in December of 1889 and was 40 by 60 feet in plan, 23 feet high, was loaded with 287 cords of stone, and rested on a base of rip rap 10 feet in thickness. However, owing to delays in obtaining the steel casing connecting the crib foundation with the stone superstructure, and filling the structure with concrete, this part of the project was not fully completed until May of 1892.

An additional appropriation of \$15,500 was made by Congress to acquire the Fresnel lens optic and associated equipment and to construct two duplicate fog signal houses that were 11 feet by 24 feet in plan and 12 feet high. These structures were made of heavy framing lumber covered with a two-inch planking, and their exterior was sheathed with corrugated iron on both the sides and roof.

The Russel Wheel & Foundry Company completed construction of the light tower on September 1, 1893. The iron-sided structure rises 48 feet and is 27 1/2 feet in diameter at the base, tapering to 18 1/2 feet at the top. The heart and soul of the lighthouse was its third-order Fresnel lens, which had previously won engineering awards in France in 1889. Originally destined for Point Loma, California, it was rerouted to



Architectural detail of the 1893 Chicago Harbor Lighthouse. Plans from the National Archives.

Chicago for use at the World's Columbian Exposition and afterwards was installed in the 1893 Chicago Harbor Light.

The Lighthouse Service made a detailed report on this optic in its Description of Chicago Harbor Light. The eight-sided, polygonal-shaped lens was designed with glass bull eyes that produced a light flashing characteristic of alternating red and white for 20 seconds before repeating, as follows: 0.8 second red flash, 9.2 second eclipse, 0.8 second white flash, and 9.2 second eclipse. This light was exhibited for the first time on the night of November 9, 1893.

Completion of the 1893 light station made keeping track of all Chicago's lights a bit more complicated. The latest addition was referred to as the Chicago Harbor Light, which went along with the Chicago River Light and Chicago pierhead range lights. In addition, another lighthouse had been constructed on a water intake crib by the City of Chicago, and there were lights mark-



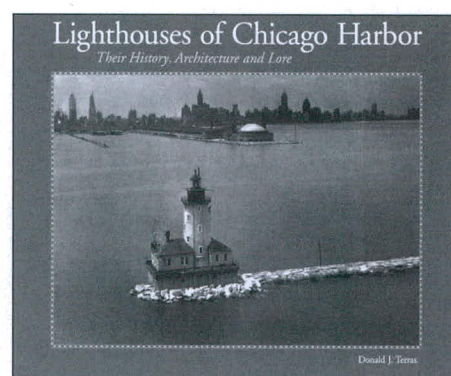
Chicago Harbor Lighthouse, ca. 1914. Photo from the National Archives.

ing the ends of two outer breakwaters in and around what came to be named the Chicago Harbor of Refuge. However, the Location Committee of the Lighthouse Establishment stated that "it has been decided to take down the [iron pile] tower at the discontinued Chicago River, Illinois, light station, and to have it re-erected at the Twin River, Wisconsin, light station." Known as Rawley Point today, this Wisconsin lighthouse eventually received only the primary watchroom and lantern from Chicago. Even with the removal of this light, Chicago Harbor continued to add many other navigational aids, and the 1910 *Light List* indicates there were 22 lights used for navigational purposes in the vicinity of Chicago Harbor.

The Bureau of Lighthouses succeeded the

Lighthouse Board on June 17, 1910, and several years later, in 1917, had Chicago's lighthouse moved from its original location to a newly constructed crib at the end of a breakwater 2,300 feet from the new Municipal Pier (Navy Pier) where it remains today.

Although the Chicago Harbor Light still serves the maritime community, it was declared excess property by the Coast Guard in 2005 and offered to eligible organizations through the National Historic Lighthouse Preservation Act of 2000. On February 24, 2009, transfer of the lighthouse was made to the City of Chicago, which is now responsible for preservation of this significant landmark to Chicago and Great Lakes maritime history.



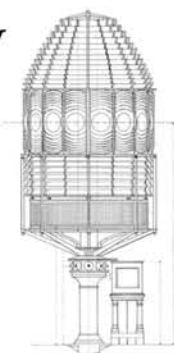
This article is based on Mr. Terras' soft cover, color book, Lighthouses of Chicago Harbor: Their History, Architecture and Lore (Windy City Press, 1996). It is available for \$21 (includes shipping via Priority Mail and handling). You can order the book by contacting the author at DJTerras@neiu.edu.



Aerial view of Chicago Harbor Lighthouse, ca. 1965. U.S. Coast Guard photo.



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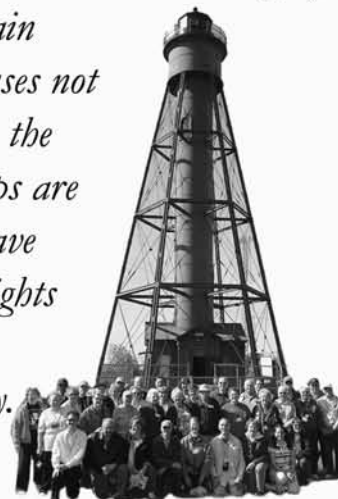
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