

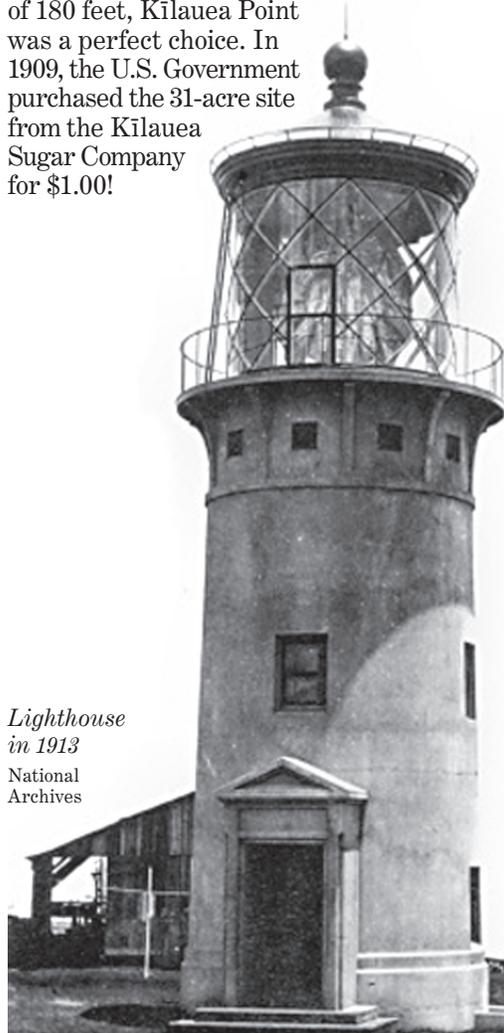


# Daniel K. Inouye Kilauea Point Lighthouse

## Seeing a Need and Selecting a Site

At the start of the twentieth century, shipping between Asia and the west coast of the United States mainland increased. The need for a lighthouse to serve as the first landfall seen by eastbound ships became evident.

As the northernmost point in the main Hawaiian Islands and with an elevation of 180 feet, Kilauea Point was a perfect choice. In 1909, the U.S. Government purchased the 31-acre site from the Kilauea Sugar Company for \$1.00!



Lighthouse in 1913  
National Archives

Construction began in July 1912, and the Kilauea Point Lighthouse was dedicated on May 1, 1913. Local residents joined in the celebration and participated in a lū'au and shark shoot. Nineteenth Lighthouse District Inspector A.W. Arledge, who was in attendance that day, would later recall:

*“There is a cliff about 400 feet high about 300 yards south easterly of the tower across which the beam of light rapidly swept. I believe that this is the most beautiful light station I have witnessed.”*

## Bringing Supplies to the Lighthouse

Since there were no suitable roads or motorized vehicles on Kaua'i at the time of construction, all building materials and supplies were brought by sea. The lighthouse tender *Kukui* serviced the station until roads were used in 1927.

The *Kukui* anchored in the cove west of the Point. From there, smaller boats brought deliveries within reach of a derrick mounted 90 feet above sea level on the cliffside; the foundations of which can still be seen today. From a platform near the derrick, supplies were carried up to the Point on a narrow-gauge inclined railway.

## Lighthouse Decommissioned

After World War II, RADAR (Radio Detecting And Ranging), LORAN (Long Range Navigation), and other technological advances made the use of lighthouses as navigational aids obsolete. In 1976, while still operable but no longer used by large ships and planes, the U.S. Coast Guard decommissioned the lighthouse. The automated rotating beacon you see today was installed for local boaters and aircraft.

## Life for Early Lighthouse Keepers



Samuel Apollo Amalu  
Station Keeper 1915-1925  
Honolulu Star-Bulletin

The routine demands of the 31-acre station left the Kilauea Point staff little time for socializing or visiting Kilauea. The Lighthouse Board provided each keeper and assistant keeper with a 106-page *Instructions to Light-Keepers*

*and Masters of Light Vessels* that detailed their duties and the manner in which they would be carried out.

Keepers had to light the lamp at sunset and extinguish it at sunrise. One keeper remained in the watch room throughout the night, or two would split the hours of darkness into two shifts. Those on duty wound the clockwork mechanism periodically, trimmed the lamp wick as needed, and made a detailed record of the night's happenings.

During daylight hours, the keepers continued their log keeping while meticulously shining brass in the lighthouse, polishing the lens, and cleaning lighthouse windows to remove accumulated salt spray. Daytime was also the period for chipping rust and repainting, building and grounds maintenance, and other tasks such as replenishing fuel supplies.

## How far can a lighthouse be seen?

It depends on how high the light stands above sea level. The higher it is, the further the beam can travel before it's blocked by the Earth's curvature. The center of Kilauea Point's light is 217 feet above sea level and could be seen by ships 22 nautical miles at sea.

Kilauea's beacon proved to be visible from much further by air when the *Bird of Paradise*, the historic first flight from the U.S. mainland to Hawai'i, overshot the islands in 1927. With the plane low on fuel, the pilots spotted Kilauea's beacon from 90 miles away and turned back to safety and a heroes' welcome on O'ahu. They credited the lighthouse with saving their lives.



Beacon for the Generations to Come  
*Ka lama kuhikuhi no nā hānauna*

# A view inside the lighthouse

## Fourth Floor: The Lantern Room

In the center of the lantern room is the lighthouse's "crown jewel" - its Fresnel lens. The lens was designed by Augustine Fresnel and fabricated in Paris, France by the firm of Barbier, Benard & Turenne.

It is termed a bivalve or clamshell lens because of its flattened shape containing four bull's-eyes, two on each side. The lens made one complete revolution every 20 seconds resulting in Kilauea's characteristic light signature - a double flash every 10 seconds.

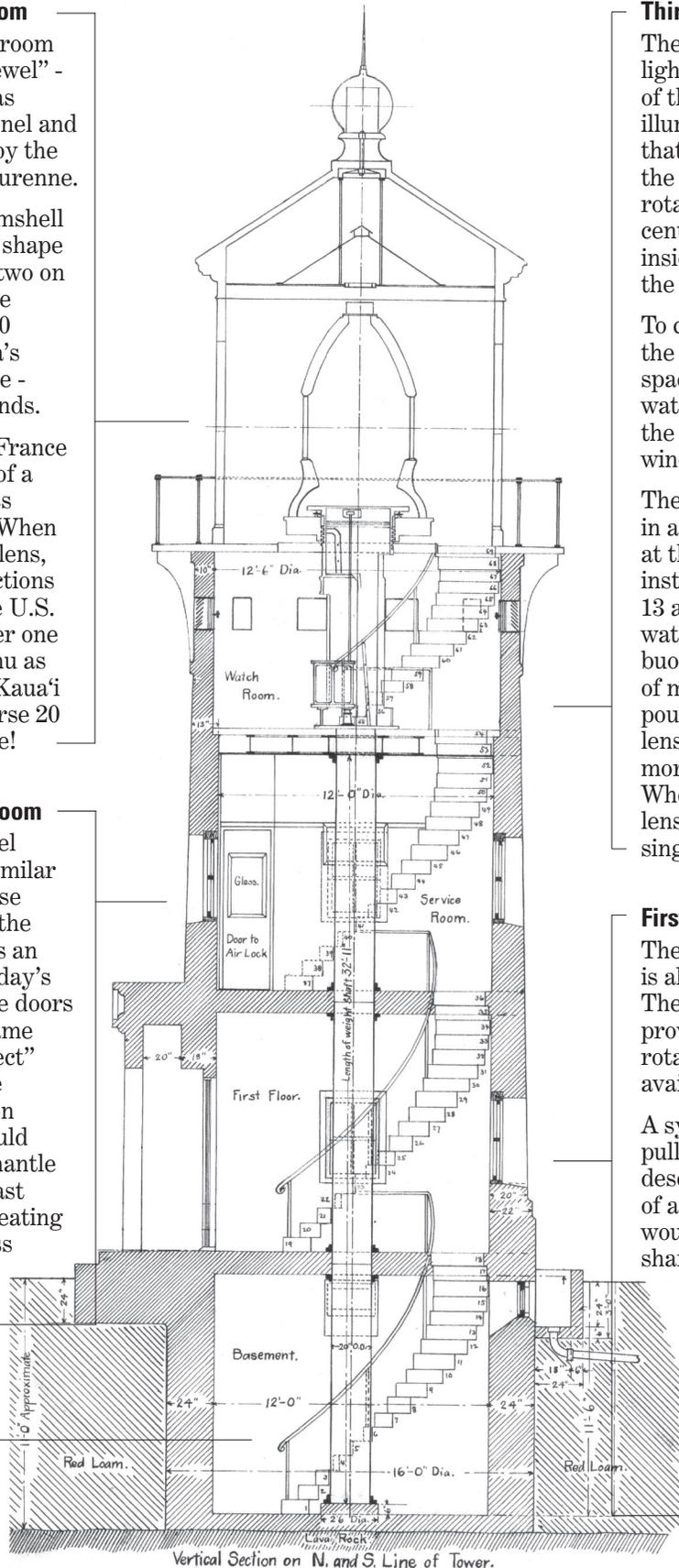
The lens was shipped from France in sections, each consisting of a bronze framework with glass elements already installed. When the time came to install the lens, it was found that the instructions were written in French! The U.S. Lighthouse Service sent over one of their engineers from O'ahu as a translator. He arrived on Kaua'i by ship and had to ride a horse 20 miles to reach the lighthouse!

## Second Floor: The Service Room

This level contained two steel doors, forming an air lock similar to a revolving door in a hi-rise building. Before electricity, the source of Kilauea's light was an oil-vapor lamp, similar to today's camping lantern. Both of the doors were never opened at the same time to prevent a "stack effect" where air would rush up the building like wind up an open chimney. This rush of air could easily blow out the fragile mantle on the lamp, requiring at least 15 minutes to relight and creating soot on the hundreds of glass elements that would take the lighthouse keepers all the next day to clean!

## The Basement

Stairs lead down to an 11 foot deep basement. The basement was needed in order to reach a stable ground for the lighthouse foundation.



## Third Floor: The Watch Room

The watch room is where the lighthouse keepers spent most of their time when the lamp was illuminated. It is in this room that they operated the winch for the clockwork mechanism, which rotated the lens. A ladder in the center also provided access to the inside of the lens for maintaining the light source.

To control the combustion air for the oil-vapor lamp, intake vents spaced around the perimeter of the watch room were adjusted to match the intensity and direction of the wind.

The entire lens assembly floated in a tub of liquid mercury located at this level. Mercury was used instead of water or oil because it's 13 and a half times as heavy as water, providing that much more buoyancy. (A one gallon container of mercury weighs over 110 pounds!) This enabled the entire lens assembly to float using little more than 2 gallons of mercury. When properly adjusted, the 3 ton lens could be rotated easily with a single finger!

## First Floor: The Work Room

The first floor of the lighthouse is also known as the work room. The shaft in the center of the room provides a clue to how the lens rotated before electric motors were available.

A system of cables, weights, and pulleys rotated the lens, much like descending weights turn the hands of a grandfather clock. The weights would slowly gravitate down the shaft in the center of the lighthouse.

The clockwork mechanism had to be manually wound every 3-1/2 hours. An electric motor was installed in 1939, eliminating this lighthouse keeper's task, but the reliable clockwork mechanism was maintained for many years as an emergency backup.

For more information visit: [www.fws.gov/kilaueapoint](http://www.fws.gov/kilaueapoint)

May 2013