

Light and Sound

Signals from lighthouses have gone from basic to high tech over the centuries.



The earliest warnings for ships were just open fires to mark dangerous spots. Over time, people invented a sort of iron basket known as a brazier to contain the fire, and raised it up onto a high stone or rockpile to make it easier to see.

A **beacon** is any kind of signal that's fixed in one place, but it usually refers to a light. A lighthouse is a structure with a light inside it.

Glass panes around the flame created what's still known as a **lantern room** that shut out the rain, snow and wind. Several candles were easier to control than one big fire. But even with those improvements, the lights still couldn't be seen from far away, especially when smoke blackened the glass. Better lighthouses would have to be both LIGHT and BRIGHT.



Iqaluit Range light,
Nunavut

Google Maps, Danesh Mohuddin

Light

Keeping the light shining in lighthouses was a smelly, messy job well into the 1800s. Sometimes the beam came from a shallow container full of things like whale oil, kerosene or coal oil, with several rope wicks sticking out of it. Imagine how smoky and smelly that glass-enclosed room must have been! Keepers had to make sure the fuel was always full and the wicks were trimmed. They also spent hours and hours cleaning soot off the glass panes and polishing reflectors so the light wouldn't be dimmed. Lamps that made better use of fuel came along by the late 1800s. Electricity changed everything.

Starting around 1900, it was soon sending clean, clear rays to help ships steer clear of danger and guide them through the dark and fog. The source of light in a lighthouse is still known as the **lamp**.



Bright

By adding a **reflector**, builders could focus the light so the beam could travel farther. The first reflectors were pieces of copper, often with silver added, or polished steel. They were hammered thin and usually curved. Placed around the light, they reflected it and made it visible from farther away. But reflecting the light could only do so much. French inventor Augustin-Jean Fresnel came up with a better solution. In 1823, he created giant prism-like lenses that reflected and concentrated the light so it became a focused beam that could be seen for 30 kilometres or more. Today, powerful modern lamps no longer need complicated lenses to reach far out to sea.



Fresnel lens



What a
sad-sounding
lighthouse!

Lighthouses each have a distinct pattern of lights that flash in all directions. For instance, a light might flash for one second and then go dark for one second.

This helps ships' crews to identify each lighthouse in an area by its unique pattern of dark and light.

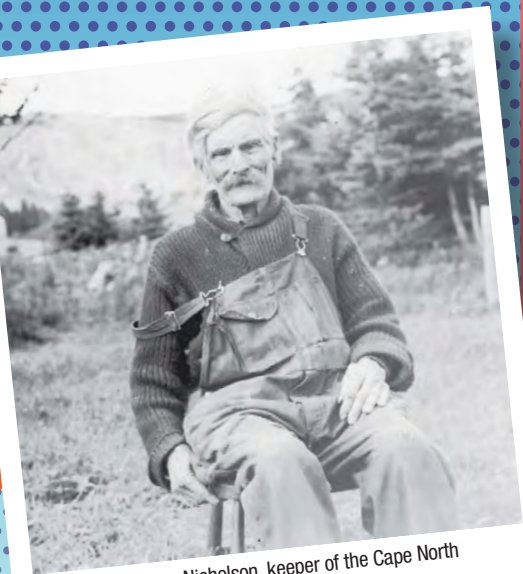


HEAR THAT?

Sometimes, lights were not enough to warn of dangers. In foggy or snowy weather, sailors depended on sound to tell them where they were. The first sound signals, bells and cannons, were a lot of work and weren't all that helpful. Robert Foulis, who moved from Scotland to Nova Scotia and finally to New Brunswick in 1822, invented a steam-powered foghorn. He's said to have been out for a walk on a foggy day when he heard his daughter playing the piano, and noticed how the low notes carried much better than the high ones.

Going Automatic

Between 1970 and 1996, the Canadian government automated 264 lighthouses. That meant the lights operated on their own, without keepers. The move saved millions of dollars a year, but many people in Atlantic Canada and B.C. were furious. They said that getting rid of lightkeepers meant less help for ships and people in danger on the water.



Matthew Nicholson, keeper of the Cape North lighthouse in Nova Scotia, 1937

Light station on Entrance Island, Nanaimo, B.C.



Merry Island light station, Merry Island, B.C.

Many lighthouses are now powered by the sun. These are known as solarized lights.

