piles screwed into the sea bed.

Fourteen Foot Bank Lighthouse, lying just a little above Brandywine Shoal about in the middle of Delaware Bay, is one of the greatest victories of lighthouse engineers. There are just 14 feet of water covering these dangerous shoals. At this point in 1887 was built the first lighthouse in the U. S. on a submarine foundation. A timber working chamber built on shore was encased in an iron cylinder and sunk twenty feet into the bed of the river. Through the center of the cylinder rose an air shaft through which the workmen entered the working chamber where they dug out the sand, which was blown out by air pressure. Eight men working in four-hour shifts sunk the caisson 35 feet into the bed of the shoal at the rate of about one and a half feet a day. As the caisson sank into the river bed the walls of the cylinder were built higher to keep them above the level of the water. The completed cylinder was then filled with concrete and upon it was built the keeper's dwelling topped by the light tower.

About opposite Cohansey River in the middle of Delaware Bay, east of the main ship channel, is Ship John Lighthouse, one of the oldest lighthouses on the Delaware, built in 1877.

The lighthouse is named for the Ship John, which grounded on the shoal in the early winter of 1797, was cut through by the ice and sank. Drift accumulating around the sunken hulk has increased the area of the shoal, which is marked by a 65-foot tower surmounted by a light visible for 13 miles. The tower is surrounded by 3700 tons of stone for protection from ice and the sea.

One of the souvenirs at the lighthouse is the wooden figure head of the Ship John which, along with much of the assorted cargo, was salvaged from the wreck. In the Museum of the Cape May Historical and Genealogical Society at Cape May Court House is the bronze frame of the ship's rudder, which became caught in an oyster dredge and was brought to the surface by Captain Zadok Sharp, who presented the relic to the museum in 1930.

An important factor in the development of lighthouse efficiency has been the improvement in lighting devices. It was not until 1822 that a French engineer, Augustin Fresnel, developed a lens consisting of a series of prisms which collect and concentrate and, therefore, intensify the light. Coal oil or kerosene was a great improvement over whale oil,which was used in the early lamps. From kerosene there was developed incandescent oil vapor. The oil vapor lamp placed inside a huge lens was in common use in lighthouse work until early in this century, when electricity was introduced. Although electricity is most generally used there are still lighthouses operating with vapor oil lamps. In many cases the flashing of light is produced by revolving the lens by an electric motor. In the past the lens was revolved by means of a clock-work device controlled by weights which the lighthouse keeper wound every few hours.

The most powerful light in the country is at Navesink Lighthouse on Beacon Hill, Highlands. It has a 9,000,000 candlepower beam. Two lights were established here in 1828 and here was installed the first Fresnel lens used in