

**THE LIGHTHOUSES OF
NORTH CAROLINA**

**PRESENTED TO THE ATHENAEUM SOCIETY
BY
JAMES G. ADAMS, JR.
JANUARY 7, 1999**

**MR. PRESIDENT, MR. SECRETARY, MR. DRAPER AND MEMBERS OF THE
ATHENAEUM SOCIETY:**

For the past eleven years, Betty and I, and, for most of the time, children have been traveling to the coast of North Carolina in the summer to vacation. There are a number of reasons for this annual trek, not the least of which is the fact that Betty's sister and brother-in-law own a beach house on Topsail Island, one on the barrier islands on the coast.

Now a little shelling, walking and laying on the beach goes a long way with me. I like to roam. And being a disciple of Billy Tom (better known as William T. Turner) I *always* have to find *something* about the history of any area that I visit.

One of the more interesting things that I have discovered visiting the coast of North Carolina is the plethora of lighthouses that dot the North Carolina coast. Therefore, my paper this evening is entitled, "The Lighthouses of North Carolina."

The first lighthouse of which we have record dates to 300 B.C. At that time the Egyptians began building a tower for navigation on Pharos, an island at the mouth of Alexandria's harbor. Pliny says that Sostratus of Cnridus built the light on contract to the Ptolemies of Egypt, Greeks who had by that time taken control of Egypt, Cleopatra being the last of that line. The cost as recorded by Pliny; 800 talents of gold. Now, when one learns that in ancient times a talent of gold was 75 pounds and by consulting a weights and measures table and the current price of gold, this would equate to \$3,035,025. Try to find a contractor today who would build something so large so cheap!

According to ancient sources, the Pharos was about 500 feet tall or roughly comparable to the Washington Monument. In the upper chambers were windows and either fires were lit or perhaps torches which were used by ancient mariners to guide them safely into the Alexandrian harbor. Josephus, the 1st century Jewish historian states that this light was visible 30 miles out to sea. Pharos was recognized as one of the Seven Wonders of the Ancient World, as was the Colossus of Rhodes, which was most certainly also a navigation aid to ancient mariners.

As we move to navigational lights in what would be the United States, the first lighthouse was built in Boston in 1716.

As the coast around the then colony of North Carolina became developed, it became readily apparent that there were numerous shoals, sandbars and other detriments to navigation of the coast of North Carolina. Thus, early in the history of this area we see the establishment of navigational lights.

The first lighthouse built in North Carolina was just south of Wilmington across from Southport on Bald Head Island in 1795. While the original light was destroyed its successor, Bald Head Light Station, or "Old Baldy" as it is affectionately known still

stands, looking very much like it did when first lit in 1817.

Today, ten lighthouses or towers dot the coast of North Carolina. Because of the development of radar, sonar, and global positioning satellites these beacons are no longer truly necessary, but many are still functional lighthouses. However, when they were built, they were crucial to all marine traffic, from freighters to fishing boats. Peruse a map of North Carolina's coast and one can see why. The coast is pierced with narrow inlets, sounds and rivers and the channels are ever-shifting. This makes it difficult to determine where deep water ends and shallows and sandbars begin.

North Carolina's Cape Fear River is the only deep-water access between the Atlantic Ocean and the State's biggest port, Wilmington. The entire route to Wilmington is marked with dangerous shoals and sandbars, beginning with the Frying Pan Shoals, which stretch from the mouth of the Cape Fear River to 20 miles into the Atlantic Ocean. To protect mariners from this danger, Bald Head Island, Oak Island and Price Creek Lighthouses and Frying Pan Shoals Tower were constructed.

The other North Carolina Lighthouses are on the Outer Banks, a succession of skinny barrier islands stretching about 175 miles from Virginia Beach, Virginia southwestward to Cape Lookout. On the Outer Banks, the warm northbound Gulf Stream collides with the cold southbound Labrador Current, which at times produces dense fog and creates ever-changing shoals and sandbars. These waters have been nicknamed "The Graveyard of the Atlantic" as over 600 ships have been sunk in this area. (As an aside, while we were there this summer, pieces of *The Monitor* were retrieved from the depths off of Hatteras)

In the 1850's, Congress decided that a system of lighthouses needed to be constructed all along the Atlantic Seaboard. In 1852, the US Lighthouse Board was created, consisting mainly of engineers, Naval officers and topographers. In 1910 the Board became The United States Bureau of Lighthouses. In the 1930's as part of the New Deal, Franklin D. Roosevelt transferred all jurisdiction of lighthouses as well as all navigational lights and buoys, both inland and coastal, to the United States Coast Guard.

In 1819, a French engineer and scientist, Augustine Fresnel, developed a lens that would forever improve coastal navigational lights. Prior to Fresnel, lights were, at worst, simply towers above the visible horizon with fires or, at best, torches or lanterns with parabolic reflectors, much like a flashlight reflector behind them. Fresnel had a better idea. He devised a system utilizing a system of prisms in rows above and below the lighting apparatus, which at that time was either whale oil or kerosene lamps. Since the prisms were not effective beyond a 45 degree angle, Fresnel put mirrors at the top of the lens. This, in conjunction with the prisms, concentrated the light into a narrow beam, which when focused through a center focusing lens created an intense beam of white light that could be seen for miles at sea. The entire system rotated on a pedestal.

Fresnel designed different sizes of his lens, known as orders to better accommodate his customers. The extant Fresnel lenses in North Carolina lighthouses are of the first three orders. They range in height as follows: 1st=7'10"; 2nd=6'11"; 3rd=4'8".

Having given you a brief history and overview, we turn now to the lighthouses that we have visited in North Carolina.

We began our quest to visit lighthouses 3 ½ years ago. On that trip, we drove from Topsail Island southward to Federal Point on the Cape Fear River and boarded a ferry to Southport. North Carolina has an excellent system of ferries that operate among the barrier islands, most free some at a nominal charge.

Southport, we discovered is a very old town, full of beautiful old antebellum homes with gingerbread, reminiscent of Key West and live oaks loaded with Spanish moss. It is near the mouth of the Cape Fear River. Bald Head Island is about five miles across the inlet and the lighthouse is faintly visible. We learned that one can take a private ferry from the Indigo Plantation to Bald Head. Upon arrival at the point of departure, we discovered the Bald Head is now owned by a private for profit corporation and found that if we wanted to see the light up close and personal it would cost us \$30.00 round trip per each! We decided, having some Scotch blood in our veins that we would view "Old Baldy" from afar.

As previously stated, Bald Head was the first of North Carolina's lighthouses, the present structure having been built in 1817. It is an octagonal tower, 109 feet in height, made of brick and coated with cement. At its base Old Baldy is 36 feet wide and its walls are five feet thick. At the top it is 14 1 ½ feet wide and two feet thick. It was originally equipped with a ~~2nd~~ order Fresnel lens, later upgraded to a ~~3rd~~ order in 1855. It remained in service until 1935. The corporation that bought Bald Head Island donated the light to The Old Baldy Foundation, which is dedicated to preserving the light and is financed with private donations, state and federal grants.

We then went a little further south from Southport to Oak Island on which is the newest lighthouse in North Carolina. Oak Island is on the west bank of the Cape Fear River and is "kissin kin" to Bald Head Island on the east. While there were several early navigational 'range' lights on Oak Island, the current light commissioned in 1958 is certainly the largest and most powerful of the Oak Island lights. This lighthouse is the last of the lighthouses built in North Carolina and one of the last built in the United States. It is a reinforced concrete structure standing 169 feet tall. It is black on the top third, white in the middle third and concrete grey the bottom third. The pigment was mixed in the concrete to avoid ever having to paint the light. The base of the light is 70 feet below ground. Two marine corps helicopters were required to put the lamp in place. Unlike the other lights, Oak Island houses for 4,000 watt electric aerobeam lights, producing 2,500,000 candle power and visible from 24 miles at sea.

Oak Island is the last manually operated lighthouse in the world. It is switched on

each evening 30 minutes before sunset and off 30 minutes after sunrise. An automatic back up system takes burned out bulbs out of rotation and replaces them with new bulbs.

The lighthouse is not open to the public but is easily visible from the road going past it as it is only about 50 feet from the road.

After an absence of two years, thanks to Hurricanes Bertha and Fran which caused much destruction to the Beach House at Topsail Island, we returned this summer. Upon leaving Topsail, we set out on our long desired journey to see as many of the Outer Banks lights as we could on our way to Virginia Beach, Va. We traveled north to Morehead City and then to Cedar Island where we had reservations to board the ferry to Ocracoke Island. On the way to Cedar Island we passed the road to Cape Lookout and one of the more famous lights of North Carolina. A visit to that light is well within a days drive and back to Topsail so that is a trip to be made in the future.

Ocracoke lighthouse is located on Ocracoke Island and is a 2 ½ hour ferry ride from the mainland across Pamlico Sound. Ocracoke Island was the haunt of Edward Teach better known as Blackbeard The Pirate who roamed the area in the early 1700's. Legends abound in the area about the whereabouts of Blackbeard's treasure.

The Ocracoke lighthouse was lit in 1823. It is 65 feet tall and rises 75 feet above sea level. It is made of brick covered with plaster. It is five feet thick at the base. It's original 3rd order Fresnel lens has been replaced with a fixed white 8,000 candle power light and is visible 14 miles out to sea. The grounds are maintained by the National Park Service, but the light itself is not open to the public.

From Ocracoke, we took another 30 minute Ferry to Cape Hatteras. Cape Hatteras we discovered is a very long barrier island.

Upon reaching the lighthouse, it was after 4:00 PM-we had left Topsail before 8:00 AM- James and Will-The two older boys were upset that we had arrived too late to ascend the 178 steps to the top of the 198 foot lighthouse as it is one of the few that is non-operational and thus open to the public.

The Cape Hatteras light is one of the most famous landmarks in America. It was constructed in 1871 and is somewhat of a clone of The Cape Lookout Light built in 1859. Since the Outer Banks are almost entirely sand, the chief engineer chose as a base, pine timbers, hoping that they would not rot. On top of the pine, granite slabs were placed like steps until above ground. The tower was then constructed on this base. An inspection in the 1960's showed that the foundation was still as solid as the day it was built.

One thing that surprised all of us was the brick base. Most of the photographs that one sees of this famous landmark only shows the unique candy stripe of the light. The base however in which the entrance door is housed is red brick and granite which is usually absent from most pictures of the light.

The Cape Hatteras light is in real danger today. When constructed in 18⁷¹ it was a quarter mile from the Atlantic Ocean. An unusual phenomenon on the Outer Banks called island migration has left the light only 120 feet from the shore. As the sea claims the Eastern shore, the Western side grows toward the mainland. When we were there, there was a move afoot to move the light inland as it has been estimated that a category 4 Hurricane would topple the light. Many signs both pro and con were observed by us as we traveled to the light.

As I speak, it has been decided finally to move the light and steps are underway to

insure its preservation.

The last light that we visited was that of Bodie Island. This light built in 1870 is an almost exact replica of Cape Hatteras minus the red brick foundation. It is 150 feet tall and is alternating white and black stripes. It still contains a 1st order Fresnel lens and is operational, through powered by electric lights instead of kerosene or whale oil. It is visible 19 miles out to sea.

While we have not yet visited all of the North Carolina Lighthouses, we hope we have given you a little of the history and charm of these magnificent structures. While their use may now be limited, they are still a part of our great American Heritage, and a part worth seeing and saving.

Thank You.