

open sea by an almost continuous series of low-lying islands that accompany the entire coast from the Virginia to the South Carolina line as fringing reefs. These reefs are built up on the floor of the submarine division of the Coastal Plain, where the currents have deposited materials brought down by the streams and where its breakers and undertow, by their mutual reaction, have caused a great reef to be heaped up parallel to the general trend of the shore line. Cobb,* in describing the reefs, says:

"The strong winds of midwinter come from the north, and the gentler steady winds of midsummer and of the greater part of the year blow usually from a little west of south. * * * The strong north winds pile the sands up into great barchanes or medanoes, crescentic sand dunes known locally as whaleheads, which are moving steadily southward. These are best developed along the Currituck Banks, from Virginia as far south as the Kill Devil Hills, and numbers of them may be seen to the north and to the south from the top of Currituck Light. These whaleheads are composed of singularly homogeneous blown sands, the horns or cusps of the barchanes pointing to leeward, which is almost due south.

"The prevailing winds from a little west of south have rippled the heterogeneous sands on Hatteras just south of the cape, on Shackleford at its southwest extremity, and on the southwest side of Smith's Island. These wind ripples, started in sands exposed by the removal of a strip of forest next to the shore, have grown in size to great sand waves, which are advancing on forests, fields, and homes. As the sand wave has advanced it has taken up several feet of the loose soil over which it has passed, undermining houses, laying bare the roots of trees, and exposing the bones of the dead in the cemeteries.

"Diurnal winds from the sea have piled the sands into small wandering dunes and hillocks, and even sometimes into sand waves, which are marching steadily inward and shoaling the waters of the sounds. At Nag's Head a large hotel, constituting a solid obstruction, soon had a sand wave built up a short distance in its rear until the level of its roof was reached, when the wave moved forward and engulfed the hotel. In the immediate neighborhood two cottages suffered a similar fate. Here the land gained on the sound 350 feet in ten years.

"On the northern end of Hatteras Island a fishing village has been similarly buried, while the sand has entirely crossed the island at several places north of the cape. This movement of the sand was started just after the Civil War by the cutting of trees next the shore for ship timbers, and the section is still known as The Great Woods, though not a stick of timber stands upon it to-day. Pamlico Sound for two miles from the Hatteras shore is growing steadily shallower from the deposit of blown sand.

"On Smith's Island a pilot's village has been buried beneath the sand wave for a number of years, but this has been quite recently resurrected and its houses are again occupied. On Currituck, below Caffey's Inlet life-saving station, the sand has advanced entirely across the land, and one man, moving before the advancing sand, has at last built his house on piles in the sound.

*Natl. Geog. Mag., vol. XVII, No. 6, June, 1906, pp. 310-317.