

"The writer has found by experiment that heterogeneous sands, consisting essentially of quartz, orthoclase, some mica, iron, bits of shell, and many mineral substances, showing little if any decomposition, ripple readily in the wind and are easily arrested * * * ; but so far he has found no means of checking the movement of homogeneous sands that do not ripple, these consisting entirely of well-rounded and wind-sorted quartz grains of the same size throughout a single dune. * * * As already pointed out, the movement of these sands was in every case started by the deforesting of a strip of land next the shore; but in several instances nature has herself grown forests on dune sands. Above Kitty Hawk Bay large dunes are covered with a growth of pine, maple, oak, cedar, sassafras, elm, locust, beech, persimmon, sycamore, hickory, and, in the damp interdune areas, gums and cypresses. Here are many veteran pines, some of them having attained a diameter of three feet. An essentially similar forest is found growing on the high dunes to the southwest of Cape Hatteras, but here we have to add the olive to the list, and there are broad interdune palmetto swamps.

"On Bogue Banks, where deforesting has only just begun at two points, we have 20 miles of woodland, the virgin forest extending down to the water's edge and preventing the formation of dunes.

"From Southport westward into South Carolina the dunes have moved northward and inland, in some places completely filling the lagoons. At one point such a filled lagoon has produced a pine forest in something more than forty years.

"The checking of these moving dunes presents a problem of increasing importance, not only to the inhabitants of these sand keys, but to the navigators of the inland waterways as well."

The reefs reach a very much higher elevation than the adjacent mainland. The great dunes formed on these reefs attain in Dare County, in the Kill Devil Hills near Collington, an elevation of 100 feet or more, the sand being driven from them gradually shallowing Pamlico Sound. At many other points along the reefs the dunes reach 50 to 75 or more feet in elevation. Many such elevations, both large and small, are found on the Currituck banks in Currituck County.

From some points spits are developed by the shore currents, notably from Cape Lookout southward.