



SAND FENCE

*Before these wind swept trees near Cape Hatteras the new brush sand fence is built in the hope of rebuilding a shifted sand dune.*

## GEOLOGY

## Man-Made Sand Dunes Saving Carolina Seashore

**WPA Under Direction of Park Service Is Creating  
Great Recreation Area and Halting Erosion of Shore**

**P**LANES are again flying down on the lonely, barren seacoast around Cape Hatteras and not far from famed Kill Devil Hill at Kitty Hawk, North Carolina, where Orville and Wilbur Wright first proved that man could fly.

As these planes take off and land on the narrow strip of sand which keeps the Atlantic Ocean from rolling onto the mainland coast, their pilots look down at little dots that are clusters of human figures; clusters that break up, on closer inspection, into individual workmen.

Aside from the workmen, there is but one evidence of human activity on the stretch of sand and among the few tilted, stunted wind-swept trees. Running along the beach, mile after mile, are low sand dunes that bend back and forth in reverse curves and look like some giant snake buried by sand where he lay.

Man-made are those dunes that slowly are growing higher day by day. Man-

made, that is, in the sense that the guiding hand of engineers in the National Park Service is letting the ever-present winds of Cape Hatteras deposit sand at the proper places.

A closer inspection of the dunes shows the tops of brush sticking out of them and a visit a few weeks later will show how these brush fences gradually become buried as the top of the dune grows higher. Those human dots on the beach, as seen from the airplane, are transient workers erecting the sand fences, creating more dunes and saving what is probably the longest strip of virgin beach now left in the eastern United States.

Maybe not in the next six months, but not too far in the future either, the 175-mile strip of beach that begins just south of the Virginia-North Carolina line, goes around Cape Hatteras, and runs to Ocracoke Inlet will become a seaside recreational region. A bill submitted by Representative Lindsey C.

Warren of North Carolina is now before Congress proposing the establishment of "Cape Hatteras National Seashore," which would formally turn the beach preservation project into a public recreational area. The North Carolina beach project will already have cost some \$775,000 up to the end of June.

### Convenient Area

In his office in the new Interior Department building, H. E. Weatherwax, assistant director of the National Park Service and coordinator of the beach preservation work, told why the Cape Hatteras region of the eastern seacoast was picked as the scene of the activity and described the way man makes the wind and sea undo some of the erosion damage which has been going on for the last century.

Cape Hatteras, indicated Mr. Weatherwax, picking up a map on his desk, is within 300 miles (one day's drive by automobile) of millions of people in the east central part of the United States. When the region is opened up Washington, Baltimore, Richmond and even Philadelphia will be only a few of the large cities whose residents can reach the area conveniently.

As little as sixty years ago the region was heavily timbered with pine, cedar and oak. Then came the lumbering operations and the much-repeated story that often follows in their wake. The land was stripped of its trees and cattle turned in for promiscuous grazing. The grass was thus kept short and in a few years there was no grass; only shifting, drifting sand that responded to every change in wind or wave movement. And so it is today; one of the most desolate and barren areas in the nation.

### Depression-Made

If the depression had not come it is probable that sands of Kitty Hawk would still be untouched, for it was the depression and the need for made-work which first started off the beach preservation project. Originally it began as a work project of the North Carolina Transient Bureau and then went through WPA into the charge of the National Park Service. As many as 1,000 men have been employed at one time and 800 are now at work, declared Mr. Weatherwax.

These men are erecting brush fences which do the same kind of job with sand that the familiar snow fences of the north do for snow. Brush, gathered from nearby areas, is nailed vertically on a wooden framework and a sand



### BUILDING

*Workers for the National Park Service are erecting one of a series of sand fences designed to preserve the coast line from erosion by wind and water.*

fence thus constructed. The fence is placed usually at right angles to the prevailing winds and the favored type of placement is in the reverse-curve, wavy line running down the beach. Soon sand has been deposited in a low mound until it covers the fence. Then the work is repeated by placing two fences, roughly parallel, at the borders of the first sand dune. Higher grows the dune and wider its base. Other sand fences are added as needed. The final step is to plant native grasses in the dune to hold it firmly and eventually native trees will be planted on the top to make it permanent.

Fore-dunes and dune ranges over 70 per cent. of the area, some 152 miles, are being created in what is probably man's largest project to fight the old men of the sea and wind.

Science enters the work through studies of wind speeds, the size of sand carried and records of the beach and off-shore underwater profile. Simple but ingenious sand traps have been erected that catch flying sand at levels up to three feet. Instruments for measuring wind velocity are operated in three shifts 24 hours a day.

Already it has been found that the formation of even a low fore-dune on a beach changes the underwater profile off shore and that the slope of the profile grows flatter and thus less likely to be menaced by water erosion. Already dunes 25 feet high and with a broad base of 180 feet have been achieved. The largest one has been developed directly in front of the Cape Hatteras lighthouse

to increase the protection of this most valuable marine marker.

Two airplanes are used by the Park Service for transportation in the desolate region. To get supplies across one roadless, 80-mile stretch of beach takes 10 hours by boat that hitherto has been the best means of transportation. By airplane the trip takes not more than 45 minutes; perishable supplies are thus transported in one-ton loads. The payroll, which one might also call a perishable cargo, goes the same way.

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### ARCHAEOLOGY

## Spain Gives War Lesson—Saving Nation's Relics

**S**PAIN is giving the world a lesson in one angle of warfare.

Hot as fighting has been in Spanish civil war, the people have not deliberately "made war" on the national treasures of paintings, historic buildings, and museums.

True, the famous Alcazar in Toledo is wrecked. But the Alcazar, after all, was a fortress as well as palace, and even its 2,000 years of history would scarcely exempt it from its intended use.

Spain's officials have been practical enough to remove many art masterpieces and antiquities to safe hiding places. Public sentiment is also proving a safeguard against wanton destruction.

Word of the way Spain is handling this problem was received as rather glad news by the International Office of Mu-

seums, which recently held a conference on ways and means of protecting cultural objects from war damage.

People fighting a civil war are likely to be more reasonable about not tearing up their own country than foreign invaders would be, especially if the war is not sectional. Still, the Spanish attitude is regarded as something of a public example.

The museum officials feel that public sentiment is a real and powerful defense to protect from shell fire the world's museums, cathedrals, art galleries, and libraries. To this end they advocate greater effort to educate people to respect and admire fine things produced by civilization.

Meanwhile, the problem of protecting such structures from war is still studied. Fighting is developing along lines that threaten greater danger to buildings than ever before. One long-discussed project is to mark certain types of buildings with a special flag that would make them zones of peace. The museum experts urge that specialists in military tactics and in international law join them in an attempt to see whether any practical regulations can be worked out, that battling armies would respect.

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### RADIO

## Magnetic Storm Interferes With Trans-Ocean Radio

**R**ADIO communication across the Atlantic was somewhat interrupted Saturday night, June 5, and before daylight Sunday morning, RCA informed Science Service.

The cause apparently was a minor magnetic storm which was observed by scientists of the U. S. Coast and Geodetic Survey observatory at Cheltenham, Md.

This was the first significant magnetic disturbance since the very severe magnetic storm that occurred during the last week in April, which was one of the biggest on record. As a rule, these disturbances come about every 27 days, so that the recent one was nearly a week overdue.

Magnetic storms are correlated with unusual sunspot activity, and during them the aurora borealis often is visible well to the south of its ordinary zone.

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A new alloy that is extremely resistant to acids has been developed by combining nickel, iron, and molybdenum.