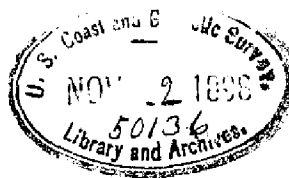
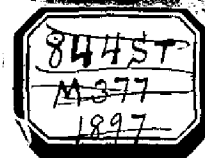


2299



U. S. COAST AND GEODETIC SURVEY.

Henry S. Pritchett, Superintendent.

G. & G. SURVEY
L. & A.

State: *Mass.*

Acc. No.

DESCRIPTIVE REPORT.

Topographic Sheet No. 2299

LOCALITY:

Marthas Vineyard

1897.

CHIEF OF PARTY:

W. Irving Vinal

2299

Spec. Report

Archd
N.



NOV 12 1898

Treasury Department,

All communications should be forwarded
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Coast and Geodetic Survey, Washington, D. C."

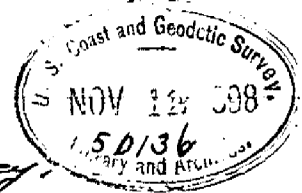
Office of the Coast and Geodetic Survey,

Washington, D. C., November 10th 1898.

Mr. Henry S. Pritchett,

Superintendent U. S. Coast & Survey,

Washington, D. C.



Sir:

I beg leave to submit the following report, relating to the topographical and physical features of the eastern portion of Martha's Vineyard and Chappaquiddick Island, Massachusetts, covered by my survey of 1897.

These have been referred to in a general way in my report of the season's work, dated December 31st. 1897.

"The island of Martha's Vineyard is a part of an extensive fringe of low land, mainly composed of glacial drift; one of a series of drift ridges which extends from New York City to Cape Cod."

The surface contour of the eastern part of the island is broad and simple, forming a gently sloping plain, the greatest altitude of which is a little over seventy feet. The northern shore is much more irregular in shape and contour than the southern. These conditions hold good on Chappaquiddick Island, where the contours of the southern portion are comparatively regular, while at the north there

appears to be no distinct arrangement of the drift hills. "The plain country is intersected by broad, shallow and slightly defined channels, which at present are not occupied by streams. These channels widen and deepen southwardly and terminate in the numerous ponds or lagoons which exist on the southern border of the island, separated from the sea by the continuous barrier beach". The morainal ridges of drift extend in a general northeast and southwest direction. On this part of the island and on Chappaquiddick Island there are no outcropping ledges of rock: a very few small boulders are occasionally found and the few streams that exist are so small and inconstant as scarcely to deserve the name of brook.

"The greater part of Martha's Vineyard is forest clad; only a small strip on the southern shore shows any tendency to become sterilized in respect to forest growth by the action of the sea winds. On the sand plains the woods are of stunted oaks and other dwarf varieties of trees, but the growth is vigorous enough to give a wooded aspect to the surface."

The soil is sandy and porous; it does not retain moisture enough to enable plants to meet the summer droughts and is therefore not generally adapted to cultivation. Reclaimed marshes, and localities where there is an admixture

of clay yield good crops. The prevailing strong winds necessitate the protection of fruit trees by high board fences or other windbreaks.

The shore line along the south coast of Martha's Vineyard and on the east side of Chappaquiddick Island is bold, running at once into relatively deep water. It is composed of silicious sand and is very soft to the tread. On the south shore the waves break without hindrance from outside reefs and the undertow is strong. Storm waves wash as high as the foot of the sand dunes, and even break into the ponds that lie a short distance back. On this beach the dunes are little protected by grass and are changed in form and position by heavy winds. On the east shore the beach grass has attained a strong growth and the outlying shoals moderate the force of the breakers.

The coast escarpment along the south shore does not become a prominent feature until we approach the Nashaquitza Cliffs, near the west end of the island.

The most noticeable changes, since the survey of 1887, are seen in the narrow strip of beach separating Katama Bay from the ocean. Besides a general change in position of the entire beach, the Middle and West Openings, then existing, are now closed. The present inlet is a narrow passageway between an outer shoal (beach) and the fast land of Chappaquiddick.

Skiffs Island, formerly about four acres in area and grass grown, is now covered at high water and the waves break over it at all stages of the tide.

Few changes in the shore line of Katama Bay and Edgartown Harbor are apparent, except near the South Tule.

At the north end of Chappaquiddick Island the hills have been washed down to the former site of Cape Poge Light House, forming a perpendicular escarpment.

The new light tower, built in 1893, although standing some distance south of the former position, is a temporary wooden structure.

The rate of erosion of the south beach varies in places, but seems to be most rapid near the east end. The triangulation station "Herring Pond" now plots more than one hundred metres in the ocean. The ponds along this shore were formerly connected but are now separated from one another by the retreating sand beach.

The late Assistant W. L. Whiting estimated the rate of recession of the south beach, east of the Great Herring Pond, at 18 feet a year.

Respectfully Yours,

W. Irving Vinal,

Assistant Comd'g Survey.

Topographical Sheet No. 2299.