U. S. COAST AND GEODETIC SURVEY

Henry S. Aitchett

State: Mass.

Acc. No.

DESCRIPTIVE REPORT.

Topographic Sheet No. 2299

LOCALITY:

Marthas Vineyard

1897.

CHIEF OF PARTY:

W. Strong, Naval
Office of the Coast and Geodetic Survey,
Washington, D.C., November 10th, 1897.

Mr. Henry S. Pitrelli,
Superintendent U.S. Coast and Geodetic Survey,
Washington, D.C.

Sirs:

They have 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 deep-
en southeasterly and terminate in the numerous ponds
or lagoons which exist on the southern border of the
island, separate from the sea by the continuous bar-
rier beach. The morainic ridges of drift extend in a
general northeast and southwest direction. On this part
of the island and on Chappaquiddick where there are
no overtopping 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 narrow strip on the southern slope shows any tendency
to become forested in respect to forest growth by the
action of the sea winds. On the sand plains the woods
are of stunted oak 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 counter the summer drought and
is therefore not generally adapted to cultivation. Reclai-
ed marshes, and localities where there is an accumula-

of clay yields good crops. The prevailing strong winds con-
centrated the protection of fruit trees by high board fences
or other windbreaks.

The shore line along the south coast of Martha's Vine-
yard and on the east side of Chappaquiddick Island
is bold, running at once into relatively deep water. It is
composed of various sand and is very soft to the touch.

On the south shore the waves break without hindrances
from outside reefs and the undertow is strong. Storm waves
reach as high as the top of the sand dunes, and even break
into the pools that lie a short distance back. On this
beach the dunes are little protected by grass and are chang-
ed in form and position by heavy winds. On the east shore
the beach grass has attained a strong growth, and the out-
lying shoals moderate the force of the breakers.

The coast escarpment along the south shore does not be-
come a prominent feature until we approach the Nobska-
quidich Cliff, near the west end of the island.

The most noticeable changes, since the survey of 1857, 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 beaches, then ex-
isting, are now closed. The present inlet is a narrow pass-
gerway between an outer shoal (beach) and the first
land of Chappaquiddick.
Shiffs Island, formerly about four acres in area and
grownover, 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 Hatama Bay and Edgar-
town Harbor are apparent, except near the South Dike.
At the north end of Chapqqundaquit Island the hills
have been washed down to the former site of Cape Page
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 tri-
angulation station “Herring Pond” now plots more than one
hundred feet in the ocean. The ponds along this
shore were formerly connected but are now separate
from one another by the retreating sand beach.
The late Assistant W. L. Whiton estimated the rate of
recession of the south beach, east of the Great Herring
Pond, at 18 feet a year.

Respectfully yours,

W. Meric Vinal,
Assistant U. S. Survey.

Topographical Sheet No. 4799.