

FIG. 14. PART OF CHOPTANK QUADRANGLE, MD. SCALE, 1:125,000; CONTOUR INTERVAL, 10 FEET

Few parts of the world give better illustration of the effects of partial submergence of a hill-and-valley country than the shores of Chesapeake bay, of which Fig. 14 is a sample. All the valleys are "drowned" in bays up to a certain level, above which the land stretches out in ragged rambling "necks." The bays are often called "rivers," although that term should properly be limited to streams of fresh water, the volume of which is determined by the rain that falls on their drainage basin, and not to broad stretches of salt water, the volume of which is determined by the depth to which former valleys are there submerged. The roads mostly follow the axes of the necks, and branch to the points; boats follow the axes of the sea-arms, and turn into the side coves. Railroads, impatient of indirect courses, make short cuts across shallow creeks. It was formerly believed that bays were excavated by the waves and currents of the sea; but it is now ascertained that waves and currents tend as a rule to simplify a shore line, as in Figs. 15 and 16, and not to indent it, as in Figs. 4 and 14; and that embayments such as those here shown are due to the submergence of branching valleys. With the passage of time, the streams will fill the bay heads with deltas, and the waves will cut off the land ends in low bluffs; the small measure of these changes here accomplished indicates that the submergence which has embayed the valleys is,

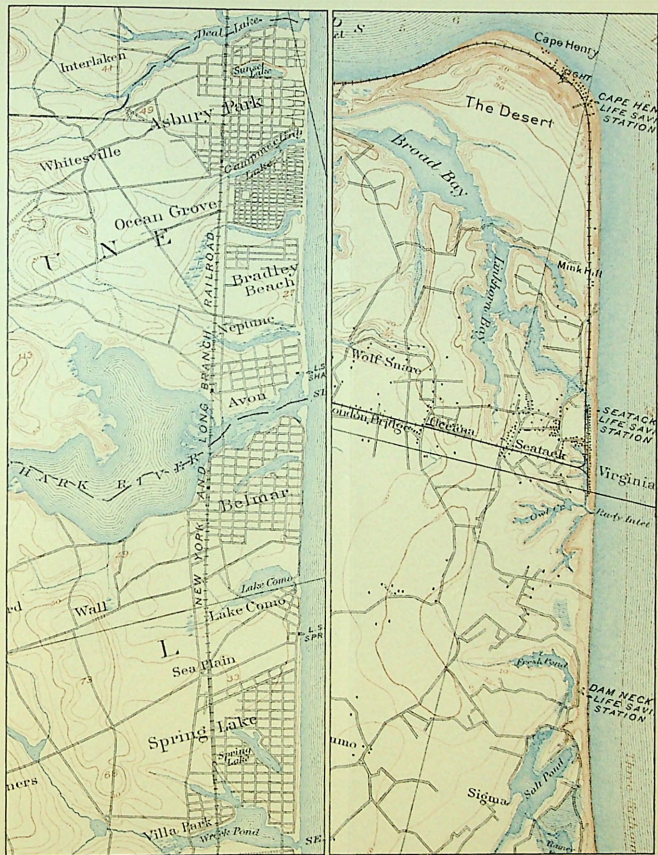


FIG. 15. PART OF ASBURY PARK QUADRANGLE, N. J. SCALE, 1:62,500; CONTOUR INTERVAL, 10 FEET
 FIG. 16. PART OF NORFOLK QUADRANGLE, VA. SCALE, 1:125,000; CONTOUR INTERVAL, 5 FEET

geologically speaking, of recent date. How different is this intricate shore line of the protected Chesapeake waters from the almost rectilinear shore lines of the outer coast, where the heavy ocean surf has truncated the former headlands and built beaches across the embayments that originally diversified these parts of the New Jersey and Virginia shores. Little intercourse is here possible between land and sea, for it is difficult for any craft but a well-manned life-boat to land on the surf-beaten beaches; and the shallow inlets can be entered only by small vessels.