produce erosive wave action on this beach. It is also sheltered from north and north-easterly storms by the arc of islands Rangitoto, Motutapu, Motuihe, Waiheke which limit the length of fetch for waves to a maximum of 12.8km (see Fig. 1).

The eastern extremity of the beach is marked by a cliffed headland (Fig. 2, A), though at low water of spring tides the sand flats extend along the coast for several miles past this point. The western boundary is a low reef of Waitemata sandstone (B) which breaks surface at about mid-tide. The rock basement (C) is free of sand except at its northern end where a small sandy area (D) occurs. This small beach is sheltered by reefs B and E which form a narrow entrance to the area at low tide. Directly on the landward side of the main reef (B), where its sheltering effect is greatest, a small patch of *Zostera nana* (F) had become established, some 300m long and varying from 5–50m wide.

The main beach is backed by a 1.8m-high retaining wall protecting a grassy terrace. Early in January, 1961, a topographical survey was carried out. From the retaining wall the beach sloped relatively steeply for 25m, then less steeply for a further 100m, and beyond this was almost flat to extreme low water of spring tides (Fig. 3). From a culvert in the retaining wall, fresh-water flowed across the middle of the beach area. Usually this water formed a small confined stream (Fig. 2, K) but sometimes split into several streamlets before finally becoming dispersed in the standing water between the ripple marks of the extensive flat area of the beach. A second small stream (L) followed a path across the main reef to the sea, and never approached the sandy area of the beach. During spells of dry weather in the summer these outflows of water dried up.

FAUNAL SAMPLING METHODS

(a) *Transect and stations; tidal levels*

A transect line was set out from the foot of the stone steps in the sea wall on a bearing of 67 degrees true North (Fig. 2). The line was located in that part of the beach least likely to be affected by the fresh-water flow from the culvert. Stations were measured out with a tape every 45m along this transect. At every station two samples, each 0.1m² in area and 20–25cm in depth, were taken, one from each side of the transect line.

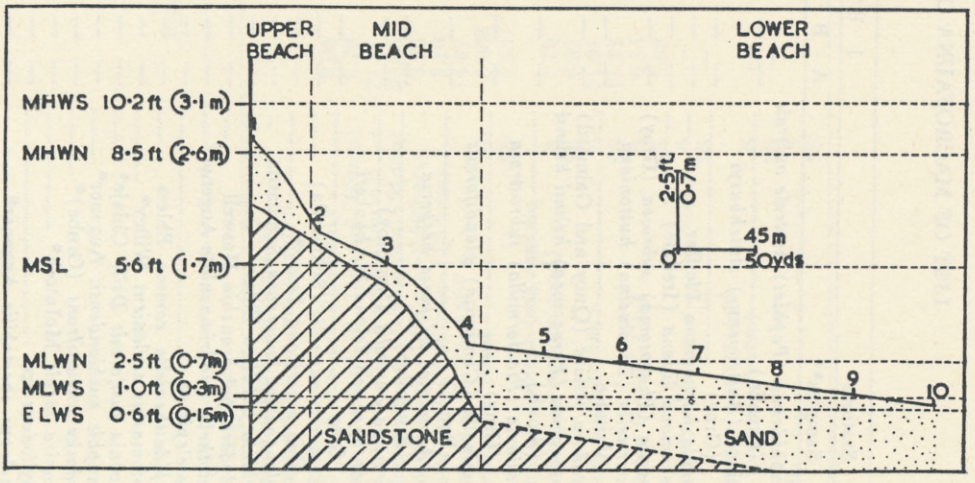

FIG. 3.—Diagrammatic profile of main beach transect.