of too great mobility during the critical period of establishment. As mobility of ground from wave action, tidal flow, or wind is the outstanding feature of all tidal and maritime lands, and is *par excellence* the quality with which the maritime engineer has to contend, the matter evidently demands close attention, especially in its relation to plant establishment.

In most cases mobility of ground takes the form of a displacement of the surface layers under the impact of actively-moving water or air. The phenomenon is essentially a surface phenomenon, and reaches a depth dependent on the violence or duration of the impact. Even an extreme case, such as a storm wave plunging on a beach, merely pares off a surface layer of sand or shingle, and the huge aggregate of material which may be displaced ultimately by a storm is but the cumulative result of these surface parings. Upon this fact depends the principle of stabilizing ground by means of vegetation. It may be this fundamental axiom is sometimes lost sight of when the destructive results alone of a great tempest are contemplated, but it is none the less true.

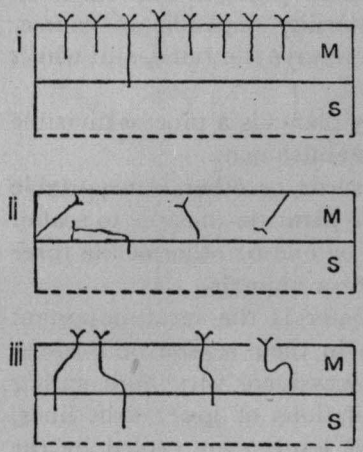

Fig. 11.—Seedlings and Mobile Ground

i, The seedlings before the high tide. ii, After the high tide. iii, Recovery of survivors a week later. M, Mobile zone. S, The top of the stable ground.

The relation of plants in process of establishment to the mobile zone is illustrated by the following example.

On a certain sand-bank not far below high-water mark of the higher spring tides a thin scattering of annual Salicornias (Glasswort) generally establishes. The seeds of these plants germinated in March in the locality under observation, covering the ground with a continuous green mantle (fig. 11, i). In April the spring tides overran the area, turning over the surface layer (about 2 inches), so that nearly all the seedlings were displaced and buried or washed away (fig. 11, ii). During the