is about one foot below the surface. The grass spreads quickly, so that in a short time the plants meet to form a patch, the numerous stems of which serve to fix the mud and prevent it from being washed away by the sea. Even should the mud cover up the plants after they have been planted they are able to make their way through it in time."

"When the grass is firmly established Mr. Junor's plan is to plant the seedlings of the mangrove in amongst it. There follows a great development of roots both from the trunk and the branches of the mangrove, which, after the manner of flying buttresses, firmly support the tree in the soft mud and enable it to withstand the strongest breezes and the heaviest seas. These aerial roots being more or less curved allow a certain amount of 'give' or play, which is often of advantage in enabling a structure to withstand pressure without collapsing. So the mangrove tree is in many ways particularly adapted for growing along muddy sea coasts which are exposed to winds and waves. The young plants grow rapidly, and in a few years will themselves produce a crop of seedlings. The club-shaped seedlings are obtainable in abundance along the coast, and should be gathered for planting when they are nearly ready to fall.[1] All the planting that is required is merely to insert the lower pointed end of the seedling in the mud. When the mangrove trees have grown to a fair size they form a close shade, and so far as my observation goes they kill out the 'wild rice' (Spartina), which appears to require full exposure of the sun's rays for at least a part of the daytime for its successful growth. But by the time that the mangrove trees have reached a sufficiently large size to do this, they will themselves have taken over the functions of the 'wild rice' in preventing coast erosion, and hence the latter is no longer required."

Other Perennial Halophytes.—This short review of the plants of the salt marsh may conclude with some mention of a number of common perennials, most or all of which are to be met with on nearly every marsh. They include the following species:—

Sea Pink or Thrift (*Armeria maritima*) (fig. 45), Sea Lavender (*Statice Limonium*), Sea Plantain (*Plantago maritima*), Sea Arrow Grass (*Triglochin maritimum*), Sea Aster (*Aster Tripolium*), Sea Spurrey (*Spergularia media*). In their typical occurrence all these plants first appear as seedlings relatively early in salt-marsh development, some even when the marsh is still in the Salicornia phase. As the level of the surface rises by accretion, the individuals already established persist, whilst new ones continue to establish, at any rate for a time. In this way the pioneer phase, in which annual Salicornias and perhaps

[1] One of the peculiarities of Rhizophora is its vivipary, i.e. its seeds germinate whilst still attached to the parent plant.