

establishment already described (p. 104). It can be deliberately employed in cases in which a travelling beach can be permitted to advance a distance equal to its own width, and it is the only method available in the case of beaches which are so mobile that they cannot be directly planted. The Northam Pebble Ridge at Westward Ho is probably an example of this last class. Apart from enormous and prohibitive expenditure on engineering constructions, we are disposed to think the only alternative to the loss of this ridge and the ground which it protects is the planting of a tough belt of scrub on the lee side, so that the ridge may there be arrested and permanently fixed, an operation which in the present pioneer phase of this art will require both intelligence and boldness in carrying through.

The planting of the lee side of a beach so that by the time it has sufficiently advanced the crest may be fixed by vegetation is not a policy to be recommended, because it postpones stabilization to an indefinite date, and is liable to beget slackness in the administration. It is best that the crisis should be grappled with by direct methods, even if the conditions are somewhat more exacting. Moreover, one never knows absolutely what is going to happen, and valuable decades may be lost by a Fabian policy.

At the beginning of this section the idea was dismissed that ligneous plants could be employed on the foreshore to serve the purpose of groynes. So far as the sea is concerned, such notions are altogether premature, but on the banks of rapid rivers the "vegetable groyne" has already emerged from the experimental stage. Where the channels of rivers are being improved young trees of the Grey Alder (*Alnus incana*) are planted groyne-wise in rows at right angles to the banks, and the method has proved very successful—e.g. in the case of the River Ticino in the arrest and fixation of shingle. Moreover, as the Alder is another of the plants possessing nitrogen-fixing nodules, a highly beneficent nutritive action on the ground reclaimed is to be expected. (See p. 216.)

A vegetable groyne for the seashore can be hoped for only when a sufficiently massive ligneous plant, tolerant of sea water, can be discovered or bred. The various species of tropical