

among the up-piled debris of the mixed floras, marine and lacustrine. The lake possesses no such intermediate vegetation. As the water freshens in its middle reaches, the algæ become dwarfish and ill-developed; one species after another ceases to appear, as the habitat becomes wholly unfavorable to it; until at length we find, instead of the brown, rootless, flowerless fucoids and confervæ of the ocean, the green, rooted, flower-bearing flags, rushes, and aquatic grasses of the fresh water. Many thousands of years have failed to originate a single intermediate plant. And such, tested by a singularly extensive experience, is the general evidence.

There is scarce a chain-length of the shores of Britain and Ireland that has not been a hundred and a hundred times explored by the botanist,—keen to collect and prompt to register every rarity of the vegetable kingdom; but has he ever yet succeeded in transferring to his herbarium a single plant caught in the transition state? Nay, are there any of the laws under which the vegetable kingdom exists better known than those laws which fix certain species of the algæ to certain zones of coast, in which each, according to the overlying depth of water and the nature of the bottom, finds the only habitat in which it can exist? The rough-stemmed tangle (*Laminaria digitata*) can exist no higher on the shore than the low line of ebb during stream-tides; the smooth-stemmed tangle (*Laminaria saccharina*) flourishes along an inner belt, partially uncovered during the ebbs of the larger neaps; the forked and cracker kelp-weeds (*Fucus serratus* and *Fucus nodosus*) thrive in a zone still less deeply covered by water, and which even the lower neaps expose. And at least one other species of kelp-weed, the *Fucus vesiculosus*, occurs in a zone higher still, though, as it creeps upwards on the rocky