

the northern belt of many temperate species of plants, just as now happens with the Arctic flora ; and when these were displaced by colder periods, they marched southward along both sides of the sea on the mountain chains.

The same remark applies to northern forms of marine invertebrates, which are much more widely distributed in longitude than those farther south. The late Mr. Gwyn Jeffreys, in one of his latest communications on this subject, stated that 54 per cent. of the shallow-water mollusks of New England and Canada are also European, and of the deep-sea forms, 30 out of 35 ; these last, of course, enjoying greater facilities for migration than those which have to travel slowly along the shallows of the coast in order to cross the ocean and settle themselves on both sides. Many of these animals, like the common mussel and sand clam, are old settlers which came over in the Pleistocene period, or even earlier. Others, like the common periwinkle, seem to have been slowly extending themselves in modern times, perhaps even by the agency of man. The older immigrants may possibly have taken advantage of lines of coast now submerged, or of warm periods, when they could creep round the Arctic shores. Mr. Herbert Carpenter and other naturalists employed on the *Challenger* collections have made similar statements respecting other marine invertebrates, as, for instance, the Echinoderms, of which the deep-sea crinoids present many common species, and my own collections prove that many of the shallow-water forms are common. Dall and Whiteaves¹ have shown that some mollusks and Echinoderms are common even to the Atlantic and Pacific coasts of North America ; a remarkable fact, testifying at once to the fixity of these species and to the manner in which they have been able to take advantage of geographical changes. Some of the species of whelks common to the Gulf of St. Lawrence and the Pacific are animals which have no special

¹ Dall, *Report on Alaska* ; Whiteaves, *Trans. R. S. C.*