

more than remove from tide-mark the debris which has been loosened from the cliffs by springs and frosts. Thus sea-cliffs, like the walls of river-gorges, receive no permanent protection from an accumulation of their own ruins in front of them. In looking at the results of the wear and tear of a coast-line, we are apt to assign, perhaps, too much importance to the action of the breakers, and too little to the less obtrusive but more constant influences of rains, springs, and frosts. It may be impossible to give to each agency its due share in the wasting of the shore, but it should not be forgotten that in what is usually called marine denudation the atmospheric influences play a great part.

Some indication of the relative potency of the sea and sub-aërial agents is afforded by the forms of sea-cliffs. The sea only wears away the base of a precipice, but air, rain, springs, and frost attack every accessible part of it. Hence, other things being equal, where a cliff is so eaten away below as to overhang, it not improbably points to greater rapidity of breaker-action. Where, on the other hand, the cliff recedes towards the top, it proves that its upper portion has been more worn away by sub-aërial disintegration than its lower part has been by the sea; and as overhanging cliffs are quite exceptional, it follows that in the demolition of a cliff, and the constant advance of the sea landwards across a plain of erosion, sub-aërial disintegration takes a larger share than the waves and currents of the sea. It occasionally happens that a rock breaks away along lines of clean-cut joints which, when vertical, leave smooth perpendicular walls of rock. These joints are opened from above by the atmospheric agents, and slice after slice is cut away from the precipices, which are thus enabled to retain their wall-like character. Nowhere in Britain can these features be so impressively seen as along the great ranges of