

elk, for instance, lives in the Scandinavian peninsula, almost ten degrees further north than in the interior of Siberia, where the line of equal winter temperature is so remarkably concave. Plants migrate in the germ; and, in the case of many species, the seeds are furnished with organs adapting them to be conveyed to a distance through the air. When once they have taken root, they become dependent on the soil and on the strata of air surrounding them. Animals, on the contrary, can at pleasure migrate from the equator toward the poles; and this they can more especially do where the isothermal lines are much inflected, and where hot summers succeed a great degree of winter cold. The royal tiger, which in no respect differs from the Bengal species, penetrates every summer into

ing maintained by a transported flora, for the transmission of which I have shown we can not account by an appeal to unquestionable geological events. In the case of the Alps and Carpathians, and some other mountain ranges, we find the law maintained partly by a representative flora, special in its region, *i. e.*, by specific centers of their own, and partly by an assemblage more or less limited in the several ranges of identical species, these latter in several cases so numerous that ordinary modes of transportation now in action can no more account for their presence than they can for the presence of a Norwegian flora on the British mountains. Now I am prepared to maintain that the same means which introduced a sub-Arctic (now mountain) flora into Britain, acting at the same epoch, originated the identity, as far as it goes, of the Alpine floras of Middle Europe and Central Asia; for, now that we know the vast area swept by the glacial sea, including almost the whole of Central and Northern Europe, and belted by land, since greatly uplifted, which then presented to the water's edge those climatal conditions for which a sub-Arctic flora—destined to become Alpine—was specially organized, the difficulty of deriving such a flora from its parent north, and of diffusing it over the snowy hills bounding this glacial ocean, vanishes, and the presence of identical species at such distant points remain no longer a mystery. Moreover, when we consider that the greater part of the northern hemisphere was under such climatal conditions during the epoch referred to, the undoubted evidences of which have been made known in Europe by numerous British and Continental observers, on the bounds of Asia by Sir Roderick Murchison, in America by Mr. Lyell, Mr. Logan, Captain Bayfield, and others, and that the botanical (and zoological as well) region, essentially northern and Alpine, designated by Professor Schouw that 'of saxifrages and mosses,' and first in his classification, exists now only on the flanks of the great area which suffered such conditions; and that, though similar conditions reappear, the relationship of Alpine and Arctic vegetation in the southern hemisphere, with that in the northern, is entirely maintained by *representative*, and not by identical species (the representative, too, being in great part generic, and not specific), the general truth of my explanation of Alpine floras, including identical species, becomes so strong, that the view proposed acquires fair claims to be ranked as a theory, and not considered merely a convenient or hold hypothesis." ]—*Tr.*