We are thus obliged to fall back upon the old Lyellian theory of geographical changes, with such modifications as recent discoveries have rendered necessary. Taking this as our guide, we reach at once the important conclusion that the movements and distribution of animals and plants, however dependent on climate, altitude and depth, have, when regarded in connection with geological time, been primarily determined by those great movements of the crust of the earth which have established our islands, continents and ocean depths. These geographical changes have also in connection with animal and vegetable growth, deposition of sediments and volcanic ejections, fixed even the stations, soils and exposures of plants and animals. Thus, subject to those great astronomical laws which regulate the temperature of our planet as a whole, our attention may be restricted to the factors of physical geography itself. We must, however, carry with us the idea that though the great continents and the ocean depths may have been fixed throughout geological time, their relative elevations, and consequently their limits, have varied to a great extent, and are constantly changing.

We must also remember that something more than mere cold is necessary to produce a glacial period. It has sometimes been assumed that the tendency of an exceptionally cold winter would necessarily be to accumulate so great a quantity of snow and ice, that these could not be removed in the short though warm summer, and so would go on accumulating from year to year. Actual experience and observation do not confirm this supposition. In those parts of North America which have a long and severe winter, the amount of snow deposited is not in proportion to the lowness of the temperature, but, on the contrary, the greatest precipitation of snow takes place near the southern margin of a cold area, and the snow disappears with great rapidity when the spring warmth sets in. Nor is there, as has been imagined, any tendency to the production of fogs and