

countries would themselves become colder. The northern ice, drifting down into the Atlantic, would not as now be melted rapidly by the warm water which it meets in the Gulf Stream. Much larger quantities of it would remain undissolved in summer, and thus an accumulation of permanent ice would take place, along the American coast at first, but probably at length even on the European side. This would still further chill the atmosphere, glaciers would be established on all the mountains of temperate Europe and America, the summer would be kept cold by melting ice and snow, and at length all eastern America and Europe might become uninhabitable, except by arctic animals and plants, as far south as perhaps  $40^{\circ}$  of north latitude. This would be simply a return of the glacial age. I have assumed only one geographical change; but other and more complex changes of subsidence and elevation might take place, with effects on climate still more decisive.

We may suppose an opposite case. The high plateau of Greenland might subside or be reduced in height, and the opening of Baffin's Bay might be closed. At the same time the interior plain of America might be depressed, so that, as we know to have been the case in the Cretaceous period, the warm waters of the Mexican gulf might circulate as far north as the basins of the present great American lakes. In these circumstances there would be an immense diminution of the sources of floating ice, and a correspondingly vast increase in the surface of warm water. The effects would be to enable a temperate flora to subsist in Greenland, and to bring all the present temperate regions of Europe and America into a condition of subtropical verdure.

It is only necessary to add that we actually know that changes not dissimilar from those above sketched have actually occurred in comparatively recent geological times, to enable us to perceive that we can dispense with all other causes of change of climate, tho admitting that some of them may have occupied a secondary place. This will give us in dealing with the distribution of life the great advantage of not being tied up to definite astronomical cycles of glaciation which do not well agree with the geological facts, and of correlating elevation and subsidence of the land with changes of climate affecting living beings. It will, however, be necessary, as Wallace well insists, that we shall hold