

another kind presents itself. We have seen that, during the glacial period, the cold in Europe extended much farther south than it does at present, and in this chapter we have demonstrated that in North America the cold also extended no less than  $10^{\circ}$  of latitude still farther southwards than in Europe; so that if a great body of heated water, instead of flowing north-eastward, were made to pass through what is now the centre of the American continent towards the Arctic circle, it could not fail to mitigate the severity of the winter's cold in precisely those latitudes where the cold was greatest, and where it has left monuments of ice-action surpassing in extent any exhibited on the European side of the ocean.

In the actual state of the globe, the isochimenal lines, or lines of equal winter temperature, when traced eastward from Europe to North America, bend  $10^{\circ}$  south, there being a marked excess of winter cold in corresponding latitudes west of the Atlantic. During the glacial period, viewing it as a whole, we behold signs of a precisely similar deflection of these same isochimenal lines when followed from east to west; so that if, in the hope of accounting for the former severity of glacial action in Europe, we suppose the absence of the Gulf Stream and imagine a current of equivalent magnitude to have flowed due north from the Gulf of Mexico, we introduce, as we have just hinted, a source of heat into precisely that part of the continent where the extreme conditions of refrigeration are most manifest. Viewed in this light, the hypothesis in question would render the glacial phenomena described in the present chapter more perplexing and anomalous than ever. But here another question arises, whether the eras at which the maximum of cold was attained on the opposite sides of the Atlantic were really contemporaneous? We have now discovered not only that the glacial period was of vast duration, but that it passed through various phases and oscillations of temperature; so that,