

Disco, near which are some of the most celebrated localities of fossil Cretaceous and Tertiary plants. Yet the mouth of the McKenzie River enjoys a much more favourable climate and has a much more abundant flora than Disco. If north Greenland were submerged, and low land reaching to the south terminated at Disco, and if from any cause either the cold currents of Baffin's Bay were arrested, or additional warm water thrown into the North Atlantic by the Gulf Stream, there is nothing to prevent a mean temperature of  $45^{\circ}$  Fahr. from prevailing at Disco; and the estimate ordinarily formed of the requirements of its extinct floras is  $50^{\circ}$ ,\* which is probably above rather than below the actual temperature required.

Since, then, geological facts assure us of mutations of the continents much greater than those apparently required to account for the changes of climate implied in the existence of the ancient arctic floras, it does not seem absolutely necessary to invoke any others.† If, however, there are other true causes which might either aid or counteract those above referred to, it may be well to consider them.

Mr. Croll has, in his valuable work "Climate and Time," and in various memoirs, brought forward an ingenious astronomical theory to account for changes of climate. This theory, as stated by himself in a recent paper,‡ is that when the eccentricity of the earth's orbit is at a high value, and the northern winter solstice is in perihelion, agencies are brought into operation which make the southeast trade-winds stronger than the northeast, and compel them to blow over upon the northern

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\* Heer. See, also, papers by Prof. Haughton and by Gardner in "Nature" for 1878.

† Sir William Thomson, "Transactions of the Geological Society of Glasgow," February 22, 1878.

‡ "Cataclysmic Theories of Geological Climate," "Geological Magazine," May, 1878.