must be used with extreme caution, it may be asserted with some confidence that from the vast areas over which Palæozoic mollusks have been traced, alike in the eastern and the western hemispheres, the climates of the globe in Palæozoic time were probably more uniform than they now are. There appears to have been a gradual lowering of the general temperature during past geological time, accompanied by a tendency toward greater extremes of climate. But there are proofs also that at longer or shorter intervals cold cycles have intervened. The Glacial Period, for example, preceded our own time, and in successive geological formations indications, of more or less value, have been found that suggest if they do not prove a former prevalence of ice in what are now temperate regions.[37]

Various theories have been proposed in explanation of such alternations of climate. Some of these have appealed to a change in the position of the earth's axis relatively to the mass of the planet (*ante*, § 5). Others have been based on the notion that the earth may have passed through hot and cold regions of space. Others, again, have called in the effects of terrestrial changes, such as the distribution of land and sea, on the assumption that elevation of land about the poles must cool the temperature of the globe, while elevation round the equator would raise it.[38] But the changes of temperature appear to have affected the whole of the earth's surface, while there is not only no proof of any such enormous vicissitudes in physical geography as would be required, but good grounds for believing that the present ter-

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[37] Consult a suggestive paper by the late Dr. M. Neumayr, Nature, xlii. (1890) p. 148.

[38] In Lyell's "Principles of Geology," this doctrine of the influence of geographical changes is maintained.