Soon after the first publication of this theory of climate, an objection was made by an anonymous German critic in 1833 that there are no geological proofs of the prevalence at any former period of a temperature *lower* than that now enjoyed; whereas, if the causes above assigned were the true ones, it might reasonably have been expected that fossil remains would sometimes indicate colder as well as hotter climates than those now established.* In answer to this objection, I may suggest, that our present climates are probably far more distant from the extreme of possible heat than from its opposite extreme of cold. A glance at the map (Pl. 2. fig. 1.) will show that all the existing lands might be placed between the 30th parallels of latitude on each side of the equator, and that even then they would by no means fill that space. In no other position would they give rise to so high a temperature. But the present geographical condition of the earth is so far removed from such a state of things, that the land lying between the poles and the parallels of 30, is in great excess; so much so that, instead of being to the sea in the proportion of 1 to 3, which is as near as possible the average general ratio throughout the globe, it is as 9 to 23.† Hence it ought not to surprise us if, in our geological retrospect, embracing perhaps, a small part only of a complete cycle of change in the terrestrial climates, we should happen to discover every where the signs of a higher temperature. The strata hitherto examined may have originated when the quantity of equatorial land was always decreasing and the land in regions nearer the poles augmenting in height and area, until at length it attained its present excess in high latitudes. There is nothing improbable in supposing that the geographical revolutions of which we have hitherto obtained proofs had this general tendency; and in that case the refrigeration must have been constant, although, for reasons before explained, the rate of cooling may not have been uniform.

It may, however, be as well to recall the reader's attention to what was before said of the indication brought to light of late years, of a considerable oscillation of temperature, in the period immediately preceding the human era. We have seen that on examining some of the most modern deposits, those commonly called the northern drift in Scotland, Ireland, and Canada, in which nearly all, in some cases, perhaps all, the fossil shells are of recent species, we discover the signs of a climate colder than that now prevailing in corresponding

* Allgemeine Literatur Zeitung, No. cxxxix. July, 1833.

† In this estimate, the space within the antarctic circle is not taken into account: if included, it would probably add to the excess of dry land: for the late discoveries of Capt. Sir James Ross, who penetrated to lat. 78° 10′ S., confirm the conjecture of Captain Cook that the accumulation of antarctic ice implies the presence of a certain quantity of terra firma. The number of square miles on the surface of the globe are 148,522,000, the part occupied by the sea being 110,849,000, and that by land, 37,673,000; so that the land is very nearly to the sea as 1 part in 4. I am informed by Mr. Gardner that, according to a rough approximation, the land between the 30° N. lat. and the pole occupies a space *about equal to that of the sea*, and the land between the 30° S. lat. and the antarctic circle about $\frac{1}{13}$ of that zone.