CLIMATE.

CHAP. L Exaggerated

reports.

With regard to the nature and real extent of the change which had taken place in the condition of the icy seas, the reports were no doubt greatly exaggerated. To reduce them to their just amount, it would be necessary to estimate the annual effects produced in those regions, and likewise to compare the observations of a similar kind made by experienced navigators at former periods. From a critical examination of the various facts left on record, it will perhaps appear that the Arctic Seas have been more than once, in the course of the last half-century. as open as they are now represented.

ice.

Temperature

To discuss with accuracy the question of the periodical formation of formation and destruction of the Polar ice, it becomes necessary to explain the true principles which regulate the distribution of heat over the globe. This I shall attempt to perform, independently of every hypothesis, by a direct appeal to experiment and observation.

If at any place we dig into the ground, we shall find, of the earth. by the insertion of a thermometer, that as we successively descend we approach constantly to some limiting temperature, which under a certain depth continues unchanged. The point of this equilibrium varies in different soils, but seldom exceeds thirty or fifty feet. If the excavation be made about the commencement of winter, the temperature will appear to increase in the lower strata; but on the contrary, if the pit be formed in the beginning of summer, it will be found to grow colder in proportion as we descend.* Hence it is manifest that the mass of the earth transmits very slowly the impressions of heat or of cold received at its surface. The external temperature of any given day will perhaps take nearly a month

22

^{*} In the dreary climate of Hudson's Bay, it is remarked by the residents, that, even during the summer months, in digging through the ground for a grave, they always come at the depth of a few feet to a stratum of frozen carth.-A singular feature of the remoter Arctic tracts is the frequent appearance of red snow. This deception is occasioned by the interspersed multitudes of minute plants, now termed Protococcus Nivalis, a species of Alga, which penetrate to a great depth through the snow, and vegetate in the severest weather.