

was much higher than at present. In addition to this, we have in our strata, the fossil bones of enormous amphibious reptiles, and the shells of marine animals like the nautili, that exist at present in equatorial seas: we thus obtain an accumulation of evidence, both from the water as well as the land, in proof of the same position. The present temperature of the earth appears to be dependent on two causes,—the radiation of heat from the sun, and internal fire. That the temperature of different latitudes is in a considerable degree dependent on solar radiation will not be disputed: it increases with the increase of the sun's meridian altitude as we advance towards the equator, and it increases and decreases in the same latitude, with the increase and decrease of the sun's altitude in different seasons. The temperature of different countries in the same parallels of latitude is very much modified by various causes: between the tropics, at the height of about fifteen thousand feet, we meet with eternal snow. In the Swiss and Savoy Alps, the line of perpetual congelation is about seven or eight thousand feet: yet in the canton of the Vallais, the upper valley of the Rhine, surrounded by snow-clad mountains, is subjected to an oppressive heat in the summer months. Thus, difference of elevation has, in all latitudes, a certain effect on temperature.

Large elevated continents in high latitudes, greatly decrease the temperature of the air, by presenting a great surface of snow and ice to the atmosphere. On the contrary, near the equator, large continents raise the temperature greatly, by the constant radiation of heat from the ground. The ocean, in different seasons, preserves a more uniform temperature than the land; hence, islands surrounded by large seas, possess a more equal temperature throughout the year, than continents in the same latitudes. The lines of equal temperature (called isothermal lines) are not parallel to the lines of latitudes, as they would be, were temperature not affected by the causes before stated. Quebec, with its Siberian winter, is nearly in the same parallel of latitude as Rochelle, in France, and is not two degrees north of the latitude of Bourdeaux; a difference not greater than between London and Nottingham, which in this country produces scarcely a perceptible effect on the climate. In some countries, the summer temperature is much greater than that of other countries in the same parallel of latitude, yet the average annual heat, or what is called the mean temperature, as measured by the thermometer, is the same in both; because, though the summers may be hotter, the winters are proportionally colder, which reduces the average temperature to an equality. But though the mean temperature may be the same, the greater periodical increase and decrease of temperature in one country than in the other, occasion a considerable difference in the vegetation. If, on a good map, we examine, in the same parallel of latitude, two situations which possess very different degrees of temperature, we may generally observe a variation in the relative