

The arithmetical mean, or 50° , corresponds to the middle latitude of 45° ; but the real mean of the temperature over the whole surface of the globe is 67° , which should occur on the parallel of $35^{\circ} 51\frac{1}{2}'$ CHAP. I.

It thus appear, that the system of currents maintained in the atmosphere contributes essentially, by its unceasing agency in transferring and dispersing heat, to prevent the excessive inequality of seasons in the higher latitudes. But the motions produced in such a vast mass of fluid must evidently follow, at long intervals, the accumulated causes which excite them. Hence probably the origin of those violent winds which, succeeding to the sultry warmth of summer and the sharp frosts of winter, prevail in the months of September and March, and are therefore called by seamen the *Equinoctial Gales*. In the Arctic Seas nature has made a further provision for correcting the excessive irregularity of the action of the sun's rays. This luminary, for several months in winter, is totally withdrawn from that dreary waste; but, to compensate for his long absence, he continues during an equal period in summer to shine without interruption. Now, from a beautiful arrangement, the surface of the ocean itself, by its alternate freezing and thawing, presents a vast substratum,

System of currents.

Equinoctial gales.

cent voyagers have registered the coldness in advancing northwards as much more intense. It is evident, however, that their thermometrical observations must have been affected by some latent and material inaccuracy. Were the mean temperature of the Arctic regions really below the point of saline congelation, the annual formation of ice in those seas would exceed the quantity dissolved, and therefore the extension of the frozen fields would, contrary to fact, be constantly progressive. This argument appears to be quite conclusive: though some attempts are made to elude its force, by alleging that thick blocks of ice, transmitting the impressions of cold with extreme slowness, may confine and exasperate the atmospheric rigours. But ice conducts like water near the freezing point, when this fluid conveys the external influence of heat and cold as a solid mass, unassisted by the translocation of its particles, which can occur only in the case of sensible expansions. The formation and dissolution of ice are therefore similar acts, that contribute equally to mitigate the vicissitudes of the Arctic climate.