

plicated nature of these disturbing causes (which involuntarily remind us of those which the near and especially the smallest cosmical bodies, the satellites, comets, and shooting stars, are subjected to in their course) increases the difficulty of giving a full explanation of these involved meteorological phenomena, and likewise limits, or wholly precludes, the possibility of that predetermination of atmospheric changes which would be so important for horticulture, agriculture, and navigation, no less than for the comfort and enjoyment of life. Those who place the value of meteorology in this problematic species of prediction rather than in the knowledge of the phenomena themselves, are firmly convinced that this branch of science, on account of which so many expeditions to distant mountainous regions have been undertaken, has not made any very considerable progress for centuries past. The confidence which they refuse to the physicist they yield to changes of the moon, and to certain days marked in the calendar by the superstition of a by-gone age.

“Great local deviations from the distribution of the mean temperature are of rare occurrence, the variations being in general uniformly distributed over extensive tracts of land. The deviation, after attaining its maximum at a certain point, gradually decreases to its limits; when these are passed, however, decided deviations are observed in the *opposite direction*. Similar relations of weather extend more frequently from south to north than from west to east. At the close of the year 1829 (when I had just completed my Siberian journey), the maximum of cold was at Berlin, while North America enjoyed an unusually high temperature. It is an entirely arbitrary assumption to believe that a hot summer succeeds a severe winter, and that a cool summer is preceded by a mild winter.” Opposite relations of weather in contiguous countries, or in two corn-growing continents, give rise to a beneficent equalization in the prices of the products of the vine, and of agricultural and horticultural cultivation. It has been justly remarked, that it is the barometer alone which indicates to us the changes that occur in the pressure of the air throughout all the aërial strata from the place of observation to the extremest confines of the atmosphere, while* the thermometer and psychrometer only acquaint us with all the variations occurring in the local heat and moisture of the lower strata of

* Kämtz, in Schumacher's *Jahrbuch für* 1838, s. 285. Regarding the opposite distribution of heat in the east and the west of Europe and North America, see Dove, *Repertorium der Physik*, bd. iii., s. 392-395.