

the surface, as is the case with the solid and opaque soil. On the other hand, the continual evaporation of the water cools that liquid considerably.

As a result of these different causes, the water during summer is colder than the land. In the winter, on the contrary, the surface of the sea preserves more heat than the terrestrial surface, because the warmer liquid molecules incessantly ascend from the lower strata whither the summer had penetrated, and thus brings the caloric to the surface. The sea, then, only follows very closely the variations of the atmospheric temperature produced by the solar radiation. The enormous mass of its waters serves to equalize the temperature of our globe; it mitigates the rigour of the winters and the ardour of the summers. Thence arises a marked difference between the marine climate (or that of the islands and coasts) and the continental climate. The former is characterized by the uniformity of the temperatures, which vary but little from summer to winter; the latter presents excessive variations, severe winters followed by burning summers.

Thus, on the Atlantic Ocean, the temperature never descends below  $50^{\circ}$  F. under the latitude of Bordeaux, while at Bordeaux itself the mean winter temperature is only  $42^{\circ} 48'$  F. Under the latitude of Brussels, the mean temperature of ocean remains always above  $48^{\circ} 15'$  F., a temperature much higher than that of Brussels.

Points similarly situated north and south of the Equator do not possess the same mean temperature; at the Falkland Islands, for example, the climate is colder than it is under the same latitude ( $51^{\circ}$ ) in England, on account of the immense expanse of waters surrounding that island-group.

Analogous considerations explain the difference which exists between the climate on the eastern and on the western coast of the same continent. The trade winds, or east winds of the Tropical zone, determine in the atmosphere certain counter-currents, which cause the west or south-west winds to predominate in the Temperate zones. Land-winds prevail on the eastern, and sea-winds on the western coasts.