

mission. The few inhabitants who survived this cruel epidemic, removed to the village of Carichana. It was at Pararuma, that, according to the testimony of Father Roman, hail was seen to fall during a great storm, about the middle of the last century. This is almost the only instance of it I know in a plain that is nearly on a level with the sea; for hail falls generally, between the tropics, only at three hundred toises of elevation. If it form at an equal height over plains and table-lands, we must suppose that it melts as it falls, in passing through the lowest strata of the atmosphere, the mean temperature of which is from 27.5° to 24° of the centigrade thermometer. I acknowledge it is very difficult to explain, in the present state of meteorology, why it hails at Philadelphia, at Rome, and at Montpelier, during the hottest months, the mean temperature of which attains 25° or 26° ; while the same phenomenon is not observed at Cumana, at La Guayra, and in general, in the equatorial plains. In the United States, and in the south of Europe, the heat of the plains (from 40° to 43° latitude) is nearly the same as within the tropics; and according to my researches the decrement of caloric equally varies but little. If then the absence of hail within the torrid zone, at the level of the sea, be produced by the melting of the hailstones in crossing the lower strata of the air, we must suppose that these hailstones, at the moment of their formation, are larger in the temperate than in the torrid zone. We yet know so little of the conditions under which water congeals in a stormy cloud in our climates, that we cannot judge whether the same conditions be fulfilled on the equator above the plains. The clouds in which we hear the rattling of the hailstones against one another before they fall, and which move horizontally, have always appeared to me of little elevation; and at these small heights we may conceive that extraordinary refrigerations are caused by the dilatation of the ascending air, of which the capacity for caloric augments; by currents of cold air coming from a higher latitude, and above all, according to M. Gay Lussac, by the radiation from the upper surface of the clouds. I shall have occasion to return to this subject when speaking of the different forms under which hail and hoar-frost appear on the Andes, at two thousand and two thousand six hun-