

degrees of heat arise, and that at the surface it does not give a greater quantity of heat than that which comes from the sun.

If it be asked, how we can then assert that the heat in summer is 66 times greater than that in winter in our climate? I cannot give a better answer than by referring to the memoirs given by the late M. de Mairan in 1719, 1722, and 1765, and inserted in those of the Academy, where he examines, with a scrupulous attention, the vicissitudes of summers in different climates; the various causes for which may be reduced to four principal ones: 1. The inclination under which the light of the sun falls according to the different height of the sun on the horizon; 2dly. The greater or less intensity of light in proportion as its passage in the atmosphere is more or less oblique; 3dly. The different distance of the earth to the sun in summer and winter; and 4thly. The inequalities of the length of days in different climates. By the principle that heat is proportional to the action of light it will be easily demonstrated, that these four united causes, combined and compared, diminish with respect to our climate, this action of the sun's heat in a ratio of about 66 to 1 between the summer and the winter solstice;