during the Pleistocene Age is most simply regarded as representing an extreme phase of existing climatic conditions.

Charpentier thought at first that the glaciation might have been due to the former greater height of the Alpine system; but he afterwards modified his opinion in so far as he regarded an exceptionally high rainfall in addition to a low temperature as a necessary condition in the accumulation of immense masses of ice. Charpentier argued that the atmosphere must have been loaded with moisture, which became condensed over the high Alpine regions.

Many attempts have been made to explain the Pleistocene climate, sometimes cosmic causes, sometimes telluric causes being selected as the more important. Sir Charles Lyell ascribed the climates of geological epochs solely to telluric influences (*ante*, p. 192). He thought the Ice Age in Europe and North America was explicable upon some such assumption as a close grouping of islands round the North Pole, a heightening of the continental territories between 70° and 80° latitude, a submergence of the temperate zone below the ocean, and a diversion of the warmth-giving Gulf Stream. Escher von der Linth and Desor brought forward (1863) in support of this theory their conclusion that the Sahara had been totally submerged during Pleistocene time, and that the consequent absence of the warm Föhn wind must have lowered the temperature of Central and Southern Europe. It has since been shown by Dove that the Föhn wind does not come from the Sahara, and Zittel and other scientific explorers of the Sahara have disproved the old idea that the Sahara was under water during the Pleistocene age.

The principle involved in Lyell's theory was accepted by Sartorius von Waltershausen and Stanislas Meunier, who assumed a much greater height and breadth of the mountain-systems as the chief modifying cause. Meunier showed that the accumulation of snow and ice on extensive mountain plateaux would of necessity lower the temperature. The Norwegian geologist, K. Pettersen, believed that an Arctic continent existed between Greenland and Spitzbergen during the Ice Age.

The explanations which have received the widest recognition are, however, based upon cosmic causes. The French mathematician, Adhémar, in 1832 contributed a remarkable paper on the "Revolution of the Sea: Periodic Deluges." He