

distance over the Iberian peninsula. In North America also, Canada and the eastern States of the American Union down to about the 39th parallel of north latitude, lay under the northern ice-sheet.

The effect of the movement of the ice was necessarily to remove the soils and superficial deposits of the land-surface. Hence, in the areas of country so affected, the ground having been scraped and smoothed, the glacial accumulations laid down upon it usually rest abruptly, and without any connection, on older rocks. Considerable local differences may be observed in the nature and succession of the different deposits of the glacial period, as they are traced from district to district. It is hardly possible to determine, in some cases, whether certain portions of the series are coeval, or belong to different epochs. But the following leading facts have been established. First, there was a gradual increase of the cold, until the conditions of modern North Greenland extended as far south as Middlesex, Wales, the southwest of Ireland, and 50° N. lat. in central Europe, and about 39° N. lat. in eastern America. This was the culmination of the Ice Age—the first or chief period of glaciation. Then followed an interval or interglacial period, during which the climate seems to have become much milder. This interlude was succeeded by another cold period, marked by a renewed augmentation of the snow-fields and glaciers—a second period of glaciation.

It has been maintained by some observers that as many as four or five distinct epochs of cold are included within the geological interval represented by the Pleistocene deposits. Other writers contend for the essential unity of the glacial period. The truth will probably be found to lie somewhere between the extreme views. There seems to be demonstra-