

glacier retires toward its parent snow-field as the climate ameliorates, leaving its *roches moutonnées*, moraine-mounds, and rock-basins, yet at times discharging its water-drainage in such a way as to sweep down the moraine-mounds, fill up the basins, bury the ice-worn hummocks of rock, and strew the valley with gravel, earth, sand and big blocks of rock. Hence the actual floor of the glacier is apt to be obscured. But in the case of a vast sheet of land-ice covering continuously a wide region, there can be but little superficial *débris*. When such a mass of ice retires, it must leave behind it an ice-worn surface of country, more or less strewn with the detritus which accumulated under the ice and was pushed along by it. This infra-glacial *débris* forms the *Grundmoräne* (*moraine profonde*), or bottom-moraine above referred to (p. 716). We know as yet very little regarding its formation in Greenland. Most of our knowledge regarding it is derived from a study of the till or boulder-clay in more southern latitudes, which is believed to represent the bottom-moraine of an ancient ice-sheet. In countries where true boulder-clay occurs, numerous rock-basins are commonly to be met with among the uncovered portions of the rocks. These and other features of glaciated Europe and America will be more fully described in the account of the Glacial Period (Book VI.).²⁴⁵

But while the proofs of great erosion by land-ice are indisputable, many instances have now been collected where glaciers have overridden moraines, gravel-beds, or other soft material, and have moved across them for perhaps long periods without removing them. It is obvious that

²⁴⁵ See the remarks already made (p. 596) on the possibility of the rotting out of basin-shaped receptacles in solid rock through the operations of superficial weathering—a process which may account for many rock-basins that have subsequently had their decomposed rock swept out of them by ice.