

been in process of shrinkage. Such masses of *débris* could never have been raised by the existing glaciers. Other attestation of a former higher stage of the glaciers is seen in the smoothed and striated rock-slopes which bound the glacier valleys. These surfaces remind us of the smoothed and striated rocks underneath the till in America. The records of the glaciers may be traced on these smoothed slopes, two or three hundred feet above the present ice-surfaces.

At the foot of each glacier is a terminal moraine, which is continuous with the two lateral moraines. Among the Chamonix glaciers, this moraine is half a mile or more below the termination of the ice, showing to what extent the glaciers have diminished in length. These remote moraines were left in 1817 and 1826. The "chief of guides" at Chamonix remembers the occasion, and narrated to me a number of memorable incidents. The plain between the moraine and the foot of the glacier is strewn with boulders. Many descend on the surface of the ice or imbedded in its mass. One sees them frequently precipitated from the foot of the Glacier des Bois to the plain below. The diminution of the glaciers appears to be a persistent phenomenon, and not dependent on climatic fluctuations of short period. There must be either a continuous diminution of cold or of precipitation.

All parts of the glacier mass move continually downward. In the Glacier des Bossons the amount of the movement has been determined by means of a catastrophe. In 1820, eight persons were buried in the Grande Crevasse at the foot of the dome of Mont Blanc. In 1861, their remains began to appear in the ice near the termination of the glacier. In forty years they had traveled 26,000 to 29,000 feet, or 680 feet a year. As they were buried 200 feet beneath the surface, it appears that 200 feet had been melted from the top of the glacier in the same interval. The Mer de Glace, as shown by Forbes, moves past Montanvert at the rate of 822 feet per annum. Near the foot of the Glacier des Bois the motion is 209 feet a year. The lower Glacier of the Aar, which was the scene of Agassiz's observations, moves downward at an