

MOVEMENT OF THE GLACIERS.

We have spoken, in general terms, of the phenomena of the glacier movement, which has been measured with the most scrupulous exactitude by the Swiss and French naturalists.

The movement of translation of a glacier is not uniform throughout all its parts. Its different sections are animated by different rates of swiftness. The medial line, where the density and the incline are greatest, moves with the greatest rapidity. The minimum speed is found at the edges, that is to say, at points where the mass is thinnest, and where the greatest resistance is offered by the friction of the channel in which it moves. Agassiz and Dessors have measured with great preciseness the ratios of the movement of the different parts of the Glacier of the Aar, by planting on its surface a series of poles, whose motion they compared by referring it to objects fixed on the surrounding rocks.

A row of these poles, planted in a straight transversal line of 4400 feet in length, described in the course of a twelvemonth a curve of ever-increasing convexity. Here are the figures which express, in yards, the mean displacement of each of the poles composing the line we speak of:—

5 ... 20 ... 49 ... 55 ... 62 ... 64 ... 67 ... 69 ... 79 ... 68 ... 64 ... 54 ... 47 ... 39 ...
21 ... 11 ... 1.

The reader will observe that the central points advanced annually at the rate of about 70 yards, while the lateral made but a very inconsiderable progress.

By arranging these landmarks on the medial line of the glacier, the Swiss physicists have ascertained that the medial portion descends about 70 to 77 yards yearly, while the terminal *talus*, or base of the glacier, does not accomplish more than 30, and the upper part more than 40 yards.

Professor Forbes * has confirmed these results by his observations on the Mer de Glace and the Glacier des Bois. He ascertained that

* Professor Forbes, "Occasional Papers on the Theory of Glaciers."