

result is that, let the rock be ever so hard, it is in places polished almost as smooth as a polished agate, and this surface is also finely striated and coarsely grooved by the débris that, imprisoned between the ice and the rocky floor, is pressed along in the direction of the flow of the ice. By degrees deep furrows are sometimes thus cut in the rocks.

But the stones that are imprisoned between the ice and the rocky floor not only groove that floor, but in turn they also get scratched by the harder asperities of the rocks over which they are forced; and thus it happens that many of the stones of moraines are covered with straight *scratches*, often crossing each other irregularly, so that we are able by this means to tell, independently of the forms of the heaps, whether such and such a mass is a moraine or not, and indeed, under any circumstances, whether certain stones have been acted on by glacier ice.

These indications of the rounding, smoothing, scratching, and grooving of rocks, in lines coincident with the direction of the flow of glaciers, together with moraine heaps, erratic blocks, and scratched stones, are so characteristic of glaciers, that we are able to establish the important fact that the Swiss glaciers were once of far larger dimensions than they are now, and have gradually retreated to their present limits. For example, all down the Valley of the Rhone, from the end of the Rhone glacier to the Lake of Geneva, mammillated rocks (*moutonnée*), moraine-mounds, and great erratic blocks, are of frequent occurrence, a notable case occurring on the slopes behind Monthey, some sixty miles below the source of the river, where the 'blocks of Monthey' have long been celebrated. Fifty miles beyond that, the same great glacier that filled the