

plains adjoining them, those appearances which have been so often alluded to, as distinguishing or accompanying the drift, between the 50th and 70th parallels of north latitude, suddenly reappear and assume, in a southern region, a truly arctic development. Where the Alps are highest, the largest erratic blocks have been sent forth; as, for example, from the regions of Mont Blanc and Monte Rosa, into the adjoining parts of Switzerland and Italy; while in districts where the great chain sinks in altitude, as in Carinthia, Carniola, and elsewhere, no such rocky fragments, or a few only and of smaller bulk, have been detached and transported to a distance.

In the year 1821, M. Venetz first announced his opinion that the Alpine glaciers must formerly have extended far beyond their present limits, and the proofs appealed to by him in confirmation of this doctrine were afterwards acknowledged by M. Charpentier, who strengthened them by new observations and arguments, and declared, in 1836, his conviction that the glaciers of the Alps must once have reached as far as the Jura, and have carried thither their moraines across the great valley of Switzerland. M. Agassiz, after several excursions in the Alps with M. Charpentier, and after devoting himself some years to the study of glaciers, published, in 1840, an admirable description of them and of the marks which attest the former action of great masses of ice over the entire surface of the Alps and the surrounding country.* He pointed out that the surface of every large glacier is strewn over with gravel and stones detached from the surrounding precipices by frost, rain, lightning, or avalanches. And he described more carefully than preceding writers the long lines of these stones, which settle on the sides of the glacier, and are called the lateral moraines; those

* Agassiz, *Études sur les Glaciers et Système Glaciaire*.