

another like a kind of rude cyclopean masonry.⁸ In the quarrying of granite, the workmen recognize that the rock splits into blocks much more easily in one direction, though externally there is no trace of any structure which could give rise to this tendency.

Rocks of finer grain than granite, such as many diorites and dolerites, acquire a prismatic structure from the number and intersection of perpendicular joints. The prisms, however, are unequal in dimensions, as well as in the number and proportions of their sides, a frequent diameter being 2 or 3 feet, though they may sometimes be observed three times thicker, and extending up the face of a cliff for 300 or 400 feet. It is by means of joints that precipitous faces of crystalline, no less than of sedimentary rock are produced and maintained, for they serve as openings into which frost drives every year its wedges of ice. They likewise give rise to the formation of the fantastic pinnacles and fretted buttresses characteristic of massive rocks.

As lava, erupted to the surface, cools and passes into the solid condition, a contraction of its mass takes place. This diminution of bulk is accompanied by the development of divisional planes or joints, more especially diverging from the upper and under surfaces, and intersecting at irregular distances, so as to divide the rock into rude prisms. Occasionally another series of joints, at a right angle to these, traverses the mass, parallel with its upper and under surfaces, and thus the rock acquires a kind of fissile or bedded appearance. The most characteristic structure, however, among volcanic rocks is the prismatic, or, as

⁸ In the granite of the axes of the Rocky Mountains and parallel ranges to the westward, a kind of bedded structure has been described as passing under the crystalline schists.