

their chisel-marks even after the lapse of two centuries. Where a soluble or easily removable matrix, however, holds the component grains together, sandstone may be rapidly disintegrated; while, if divided by well-defined laminae, the stone is pretty sure to split up or peel off along these planes of separation, as air, rain, and frost alternately attack it.

The crystalline rocks present many interesting varieties of weathering. The joints by which they are so abundantly traversed serve as channels for the action of percolating water and frost, and hence as lines along which the rocks are split open. In such a rock as granite, for instance, where one set of joints runs in approximately parallel planes, the influence of weathering causes the rock to open into lines that closely resemble those of masonry. Every one who has climbed granite mountains will recall such groups of opened joints as are represented in Fig. 1. In many cases, the action of the weather reveals internal structures that are invisible in freshly-broken portions of the stone. Characteristic examples of this action are supplied by the onion-like crusts that peel off from the spheroidal blocks into which many diabases and basalts weather. These groups of rounded exfoliating balls are a familiar feature among the eruptive rocks of the Midland Valley (Fig. 2).

Remarkable illustrations of the unequal advance of superficial disintegration are afforded by rocks composed of materials that vary greatly in hardness within a short space. Boulder-clay, moraine-stuff, and conglomerate, for example, which are made up of blocks of rock embedded in a matrix, are liable to have their matrix much more rapidly cut away than the blocks enclosed in it, which consequently protrude from the cliffs, and sometimes form the capitals of tall pillars that are gradually cut by the rain out of the solid rock. Some excellent examples of these rain-eroded columns are to be