

III.—TEXTURE OF ORIGINAL ROCKS.

In adverting to the origin of rocks, those which have been called original were described as analogous in nature to furnace scoriæ. This may seem a forced comparison, and it may be supposed that crystalline rocks are not likely to be influenced by heat; but the truth is that nearly every one of them have been shewn, experimentally, by Hall, Bischof, Delesse, and Sorby, to be fusible, and to be reduced by a high temperature to the same condition as furnace scoriæ. But while the latter generally exhibit, on cooling, a homogeneous mass, original or compound crystalline rocks are most frequently seen to be composed of various and different minerals. While the furnace slags, in rapid cooling, had no time during which their chemical constituents could arrange themselves into different compounds, the greater number of original rocks, having solidified in enormous masses, and, doubtless, during long periods of time, their constituents had opportunity for arranging themselves in such a manner as their chemical affinities suggested. The minerals, which were the result of this re-arrangement of the chemical elements, are not, however, always readily recognized in rocks. The latter have in some rare cases solidified so hurriedly that they present merely the appearance of natural glass. Others have had time to lay aside the vitreous character and assume a stony appearance, but they appear so homogeneous and fine-grained that their compound nature would scarcely be suspected. This is, for instance, the case with basalt, which, on this account, was, at one time, regarded as a simple mineral. On grinding it to powder and washing it, however, Cordier found it to consist of several minerals with distinct physical characters. A good many other rocks are seen, on examination, to be distinctly compound, but their constituent minerals are developed in such minute grains that their determination becomes a matter of very great difficulty. It is only in the coarser and large grained rocks that the constituent minerals can be readily recognized by the student, and their physical and chemical properties easily tested.

These variations in the size of the constituent minerals are accompanied by differences in their form and position, and, both together, give rise to what is called the texture of crystalline rocks,—differences in which may easily and at once be detected by the student. Coarse and fine grained, schistose and slaty,