

otherwise, upon rocks which may not always have been of sedimentary origin.

Among the varieties of mica-schist may be mentioned Sericite-schist (which may be also included among the phyllites), composed of an aggregate of fine folia of the silky variety of mica called sericite, in a compact honestone-like quartz; Paragonite-schist, where the mica is the hydrous soda variety, paragonite; Gneiss-mica-schist, containing dispersed kernels of orthoclase. Some of these rocks contain little or no quartz, the place of which is taken by felspar. Calc-mica-schist, a schistose calcareous rock, which in many, if not in all cases, was originally a limestone with more or less muddy impurity. The carbonate of lime has assumed a granular-crystalline form, while the aluminous silicates have recrystallized as fine scales of white mica. Tremolite, zoisite, and other minerals are not infrequent in this rock.

Normal mica-schist, together with other schistose rocks, forms extensive regions in Norway, Scotland, the Alps, and other parts of Europe, and vast tracts of the "Archæan" regions of North America. Some of its varieties are also found encircling granite masses (Scotland, Ireland, etc.) as a zone or aureole of contact-metamorphism from a few yards to a mile or so broad, which shades away into unaltered graywacke or slate outside. In these cases, mica-schist is unquestionably a metamorphosed condition of ordinary sedimentary strata, the change being connected with the extravasation of granite. (Book IV. Part VIII.)

Though the possession of a fissile structure, showing abundant divisional surfaces covered with glistening mica, is characteristic of mica-schist, we must distinguish between this structure and that of many micaceous sandstones which can be split into thin seams, each splendent with the sheen of its mica-flakes. A little examination will show that in the latter case the mica has not crystallized *in situ*, but exists merely in the form of detached worn scales, which, though lying on the same general plane, are not welded into each other as in a schist; also that the quartz does not exist in folia but in rounded separate grains.

13. QUARTZ- AND FELSPAR-ROCKS.—The replacement of the mica of a mica-schist by felspar, or the disappearance of the mica from a gneiss, gives rise to an aggregate of felspar and quartz. Such a rock may be observed in thin bands or courses, alternating with the surrounding mass. In mineral composition, it may be compared to the quartz-