

rous and large seams of quartz, running parallel with the slaty structure of the rock, and increasing in size, as they approach the granite. The quartz has a greasy aspect, and is evidently, of cotemporaneous formation with the mica-slate and granite.

Mica-slate has a near affinity to clay slate; and, as I have arranged the latter with rocks of the second class, it may perhaps be doubted whether mica-slate should not also have been transferred to the same class. No well characterised rocks of mica-slate of any extent occur in England. I noticed a micaceous rock, which may be considered as an imperfect kind of mica-slate, near the granitic rocks of Mount Soar Hill; but it was covered by wood, which concealed its junction with other rocks. On the western side of Anglesea, near Holyhead, there are numerous rocks, of an intermediate kind, between mica-slate and talcous slate. The laminæ are separated by very thin seams of quartz; and I observed some of them bent and contorted in various directions, as is not unfrequently the case with mica-slate in other districts.

The mica-slate on the opposite coast of Ireland, near Bray, I am inclined to consider as of the same formation with that in Anglesea. Probably, this rock stretches under the Irish Channel, of which in that parallel of latitude it may form the bed. The structure of both rocks is the same, presenting the same divisions, by thin laminæ of quartz, but the mica of Anglesea is more combined with talc. Mica-slate abounds in the Highlands of Scotland, and in many alpine districts in Europe, particularly in the Pennine Alps.

Gneiss and mica-slate are nearly allied to each other and to granite. Circumstances, attending the formation of granite, appear to have produced a different arrangement of the component ingredients. This is the more probable, as both gneiss and mica slate, sometimes, graduate into granite, and have, at other times, a porphyritic structure. In some situations, the causes which change granite into gneiss or mica-slate have not operated; and we find neither of these substances separating granite from the rocks of the next class.

An opinion has been advanced by Dr. Macculloch, that gneiss and mica-slate have been deposited by water, though he admits the igneous formation of granite: but granite is known, as before stated, to vary much in the proportion and size of its constituent minerals even in the same rock. Now, wherever the felspar was deficient, and the mica and quartz abundant, or where the felspar was more granular and the mica abundant the same process that formed granite in one part of a rock, would form gneiss or mica slate in another. Every one who has examined the *granit veiné* of the Alps, *in situ*, will admit, that it had the same origin as common granite; and again they could scarcely hesitate to say, that gneiss and *granit veiné* are only mere varieties of the same rock, and must have had one common origin. The mica, in gneiss, is as much an igneous formation as that in granite, or in some volcanic rocks.