In Scotland, where, on the mainland, the same seeming connexion as in England may be traced between the trap rocks and the coal districts, Dr. Mac Culloch has shewn, that in the Western Islands, the very same varieties of trap occupy a position superior to the lias; and if we pass thence to the opposite coast of Ireland, between which countries a perfect geological analogy subsists, we find the trap overlying chalk.*

Whether in all these instances, the trap rocks be the production of a single epoch, overlying indifferently all the anterior formations, or whether they should be considered as instances of the repeated and recurrent production of analagous rocks in successive periods, contemporaneously with the formations near which they occur, is a question which it is foreign to the purpose of the present work to discuss.

Before we enter into a particular detail of the local phœnomena presented by our trap rocks, we shall premise some general remarks: 1st. On their mineralogical character and varieties. 2dly. On the modes of their arrangement and connexion with the rocks among which they occur. And 3rdly, On the changes occasionally produced in these rocks, near the points of contact.

(*a*) *Mineralogical character.* The rocks of this family appear to consist essentially of felspar, combined either with hornblende or augite, or both. Where the hornblende predominates, they are referable to the class of greenstones. Where the augite prevails, they fall into the new class of dolerite, formed by the French geologists for the purpose of receiving these compounds, which were formerly, from neglecting to distinguish the characteristic mineral, confounded with the greenstones. The term augite rock, is similarly employed by Dr. Mac Culloch; and as being already naturalized in our language, will be retained in these outlines.

The structure of these compounds varies from the granitoidal, in which the constituents are distinctly crystallized, to the granular, and lastly the compact, in which every trace of distinct grains vanishes, and the whole assumes the aspect of an homogeneous paste. In the granitoidal varieties, it is easy to recognise the distinct characters of the greenstone and augite rock. But in the more finely grained varieties, this is often nearly impossible; for the form of the crystals being obliterated, and chemical analysis affording no sufficient means of discriminating between hornblende and augite, more especially, as parts of a compound

* Trap rocks also occur in Ireland, associated with the limestone, underlying the coal-formation in all the modes described as prevailing in England. Mr. Weaver has given a most able and interesting description of these.