

also occur in the coal formation, lie in beds which alternate with others containing belemnites of the lias. In the upper part of the Buet, Necker de Saussure has observed the following series of strata: viz., mica schist covered by various sandstones and schists; black slaty beds with talcose impressions of ferns; dark impure limestones; black slaty clay with nodules of Lydian stone, alternating with talcose slaty clay, both containing ammonites; and over all a grey calcareous belemnitic shale, to the top of the Buet.

#### *Relative Antiquity of Pyrogenous Rocks.*

The determination of the relative antiquity of the unstratified rocks is a point of much importance, and of great difficulty. Taken generally, it is an indeterminate problem; for though, in a vague sense, we may easily be satisfied that granitic and other felspathic rocks are more ancient than basaltic and other augitic rocks, yet there can be little doubt that some of these latter, as, for example, the bedded greenstones of Wales and Cumberland, are of higher antiquity than the granitic rock of Weinbohla, which rests on members of the cretaceous formation.

When we consider this question with reference to a small district, as, for example, the Island of Arran, so rich in various rocks of igneous origin, the result to be looked for is like that which may be gained by examining a volcanic mountain, where certain different rocks have at different times been ejected by the same volcanic forces. In Arran, for instance, we have granite, sienite, porphyries of many kinds, claystone, hornstone, pitchstone, greenstone, basalt. These cross and complicate one another; and it is possible, upon certain suppositions or admissions, to determine their relative antiquity. If the conclusion be substantially correct, and the order of production among these rocks be known, the interpretation may be trusted to the small extent of inferring, that below this small tract,