

Section V.

OLD RED SANDSTONE.

The Carboniferous limestone is sometimes separated from this rock by a thick shale much resembling that associated with the millstone-grit; this may be distinguished as the *lower limestone shale*.

(a) *Chemical and external characters.* The old red sandstone is a coarse-grained, micaceous sandstone, evidently of mechanical origin, constituted apparently of abraded quartz, felspar and mica, and containing fragments of quartz, clay-slate, flinty-slate, &c.; sometimes passing into the state of a quartzose conglomerate, sometimes possessing a structure coarsely schistose (and thus affording slates for paving), and sometimes, particularly towards its lower regions, becoming finely schistose, and passing into a fine-grained micaceous sandstone slate. It alternates with argillaceous beds, sometimes soft but more usually indurated and often slaty; the colour is usually dirty iron-red or dark brown, but sometimes passing into grey. It approaches in its lowest beds very nearly to the characters of the greywacké upon which it reposes, and indeed graduates insensibly into that rock; so that the line of separation between them is frequently only an imaginary and arbitrary demarcation. This rock contains in several places calcareous concretions, which produce a rock of a pseudo-brecciated appearance, known by the name of *Corn-stone*; and has also some unimportant beds of limestone subordinate to it.

The superior consolidation of many of the beds of this rock will generally serve to distinguish it without much difficulty from the newer red sandstone, when a tract of any extent is examined; for although doubt may often remain from the examination of a single quarry, more extensive observation of the general features of a district will seldom leave any. Rock formations usually bear external marks of their relative antiquity, which the eye of the experienced geologist readily perceives. It is more difficult to distinguish this rock from the sandstones of the millstone-grit series, and these alternating with mountain limestone; and in fact it can only be considered as a lower link in the great chain of beds to which those belong; its prevalent and characteristic colour forms its best distinction.

(b) *Mineral contents.* No important minerals yet appear to have been procured from this series; pyrites, calcareous spar, common and fibrous, and sulphate of strontian sometimes occur.