CHAPTER VII.

ON INTERMEDIATE OR TRANSITION ROCKS.

Characters and Classification of Transition Rocks.—Slate or Clay-Slate.—Peculiarities of Structure.—Varieties of Slate.—Flinty Slate.—Greywacke and Greywacke-Slate; its Passage into Red Sandstone and Gritstone.—Errors of Geologists respecting the old Red Sandstone.—Lower Transition-Limestone: remarkable Position of its Beds.—Upper Transition or Mountain Limestone.—Magnesian Limestone, in Mountain Limestone.—Peculiarities in the Stratification of Clouds Hill.—Errors respecting the Mountain Limestone of Derbyshire.—Remarkable Structure of Crich Cliff.—Quartz Rock.—Jasper Greenstone.—Coal Strata in England separate the Upper Transition Rocks from the Secondary.—Observations on the Transition Rocks of distant Countries.—Errors of Geologists respecting them.

TRANSITION or intermediate rocks cover rocks of the primary class, and are distinguished as the lowest rocks in which the fossil remains of animals or vegetables are found; they may be regarded as the most ancient records of our globe, imprinted with the natural history of its earliest inhabitants.

Transition rocks are the principal repositories of metallic ores, which occur (both in veins and beds) more abundantly in many of the rocks of this class than in primary rocks. Metallic veins very rarely occur in the secondary strata.

Geologists have often been perplexed, in their attempts to draw a well-marked line of distinction between primary and transition rocks: the difficulty has arisen, chiefly, from their arranging slate with the primary class; and hence the disciples of Werner have been obliged to introduce the theoretical terms of newer and older primary slate, and newer and older transition slate, &c. If the occurrence of organic remains in rocks be the characteristic distinction between the primary and transition class, slate must certainly be classed with the latter; for it is among the slate rocks that the fossilized remains of animals and vegetables first appear, in every country that has yet been examined. One of the disciples of Werner, M. D'Aubuisson, admits that there is no where any extensive formation of primary slate. M. Bonnard, another disciple of the same school, in his *Apperçu Géognostique des Terrains*, after enumerating various primary slate rocks, candidly acknowledges, that it is doubtful whether primary slate can any where be found. It is true, that mica-slate passes, by almost imperceptible gradations, into common slate; but here, as in other instances, we only find that Nature is not limited by the artificial arrangements of the geologist: yet, so long as it may be proper to class rocks containing organic remains with transition rocks, we must place slate among them. Nor can this be invalidated by the fact, that in some slate rocks no vestiges of animal or vegetable