

posed. In Yorkshire, however, on the sea-cliffs near Staithes, the stratigraphical relations of the strata are perfectly clear, and it is evident that there is no line of demarcation between them, and through about 15 feet of strata, including some of the well-known beds of ironstone, fossils common to both occur, one of the most conspicuous of which is *Pecten æquivalvis*.

THE UPPER LIAS CLAY plays a comparatively unimportant part in the physical geology of England. In Gloucestershire it first begins to appear near Bath, but so thin, that it is impossible to represent it on maps of the 1-inch to a mile scale. About Wotton-under-Edge it begins to get more definite, and from thence, in a narrow strip between the Marlstone rock, and the sands beneath the Inferior Oolite, it runs northward by Dursley, Stroud, Painswick, and Chipping Camden, and following all the contours of the Oolitic escarpment, looks out upon the great plain of Lias, in the broad valley of the Severn, or winds about among the intricate system of minor valleys that lie between Minchin-Hampton and Chipping Camden, and between Burford and Banbury. In this progress, gradually increasing in thickness, it forms great tracts of the clay lands in Northamptonshire, between Great Brington and Arthington, and in the neighbourhood of Uppingham and Oakham in Rutland, while further north, the clay runs in a long narrow strip, still overlying the Marlstone, into Yorkshire, where it is finely exposed in the sea-cliffs near Whitby, and where in old times great excavations were made for the extraction of shale, and the manufacture of alum.

Taken as a whole, the Upper Lias is a stiff dark blue clay, with occasional layers of limestone often nodular, containing many *Belemnites*, *Ammonites*, and