

the genera *Theca* and *Conularia* are found, and 6 species of *Bellerophon*, and of Cephalopoda there are 5 species of *Orthoceras*. Of univalve shells we have only 3 species—*Pleurotomaria Llanvernensis*, *Ophileta*, and *Raphistoma*, and several other fossils needless to enumerate.

In all, 184 species are known at present in the Arenig beds, mostly characteristic of these strata, for only about 8 per cent. pass upward into this horizon from the Tremadoc beds, a proportion of which go down into the Lingula flags, and about 7 per cent. pass upward into the Llandeilo flags.

Though in Wales the *base* of the Arenig beds is clear, it seems as yet impossible to draw any definite physical boundary between the Arenig beds and the overlying Llandeilo slates, for there is nothing like unconformity, and no marked lithological difference in the passage from one to the other. We have already seen that there is a very limited passage of species from the Arenig slates into those of the so-called Llandeilo series.¹

Just about this time an important episode took place in the history of the Llandeilo and Bala beds over large tracts of Wales and Cumberland, for a series of volcanic eruptions occurred on a great scale while the strata were being deposited (fig. 62, p. 322). To this subject I shall by-and-by return.

In North Wales the Llandeilo and Bala or Caradoc beds combined, attain a thickness of from 4,000 to 6,000 feet, consisting chiefly of slaty rocks, sometimes interstratified with grits and occasional bands of limestone, of which the *Bala Limestone* is the most conspicuous. The whole series ranges right round the mountains of

¹ The Llandeilo flags of North Wales are very unlike those of Llandeilo, which are generally called Upper Llandeilo beds.