

it was shown by Oppel<sup>1</sup> and Quenstedt<sup>2</sup> that the Jurassic series of Western Europe is not only capable of subdivision into the lithological groups which William Smith found to be distinguished by their peculiar fossils, but that in these groups it was often possible to trace a succession of horizons or zones, each characterised by the presence of one or more species of organic remains, which are either confined to it or are more particularly conspicuous in it; that these zones can be followed over Germany, France and England, and that, though the lithological character of the strata may vary locally, the same sequence of genera and species of fossils is on the whole maintained. These observers found that the Ammonites are especially serviceable in the identification of such zones, on account of their comparatively limited vertical range. Thus in the Lias no fewer than seventeen zones have been distinguished, each of which is known by the name of its characteristic Ammonite, as the zone of *Psiloceras planorbe*, which lies at the bottom, and that of *Lytoceras jurense*, which forms the top of the series. The same principle of arrangement was afterwards found to hold good for the Cretaceous formations, and it has since been extended through the lower Palæozoic rocks down even to the bottom of the Cambrian system. In the Silurian formations the most useful fossils for zonal purposes have been shown by Professor Lapworth to be the Graptolites. The lowest known fossiliferous platform among the rocks of the Old and New Worlds is that of the

<sup>1</sup> *Die Juraformation Englands, Frankreichs und Deutschlands*, 1856-58.

<sup>2</sup> *Der Jura*, 1858.