

schists), and which are no doubt pre-Cambrian. They are overlain by vast masses of conglomerates, quartzites, slates, and igneous rocks (Etage B), which have been more or less metamorphosed, and are singularly barren of organic remains, though some of them have yielded traces of annelids (*Arenicolites*). They pass up into certain gray and green fissile shales, in which the earliest well-marked fossils occur. The organic contents of this Etage C or Primordial zone (300 to 400 metres thick) form what Barrande termed his Primordial fauna, which yielded him 40 or more species, of which 27 were trilobites, belonging to the characteristic Cambrian genera: *Paradoxides* (12), *Agnostus* (5), *Conocoryphe* (4), *Ellipsocephalus* (2), *Hydrocephalus* (2), *Arionellus* (1), *Sao* (1). Not one of these genera, save *Agnostus* (of which four species appear in the second fauna), were found by Barrande higher than his Primordial Zone. Among other organisms in this Primordial fauna, the brachiopods are represented by species of *Orthis* and *Orbicula*, the pteropods by *Theca*, and the echinoderms by cystideans. It is worthy of note that the fossil contents of the zone on the opposite sides of the little Bohemian basin were found by the same great pioneer to be not quite the same, only eight species of trilobites being common to both belts, while no fewer than 27 species were detected by him only on one or other side. The Olenidian trilobites which characterize the upper Cambrian group were not observed by him in Bohemia.<sup>39</sup> More recent researches have modified some of the stratigraphical details of his work, the geological structure of the country having been found to be much less simple than he supposed. But the fundamental grouping which he established remains much as he left it. A portion of his Stage B, the whole of his Primordial zone (Stage C), and a part of the base of his Stage D (Lower Silurian), have been grouped together by Dr. Katzer in four members as the Cambrian development in Central Bohemia thus: (a) Basement conglomerates, (b) *Paradoxides* shales, (c) Quartz-graywacke group, (d) Diabase and red-iron-ore group.<sup>40</sup> The *Olenellus*-zone has not been noticed.

In Sardinia a characteristic assemblage of Cambrian fos-

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<sup>39</sup> See his colossal work, "Système Silurien de la Bohême," published in successive parts and volumes from 1852 up to his death in 1883; also Marr, Quart. Journ. Geol. Soc. xxxvi. 1880.

<sup>40</sup> F. Katzer, "Das ältere Palæozoicum in Mittelböhmen," Prague, 1888; "Geologie von Böhmen," Prague, 1892, p. 804.