

in Hanover of earthy limestones and marls (Pläner), which traced southward are replaced in Saxony and Bohemia by glauconitic sandstones (Unter-Quader) and limestone (Unter-Plänerkalk). The lowest parts of the formation in the Saxon, Bohemian, and Moravian areas are marked by the occurrence in them of clays, shales, and even thin seams of coal (Pflanzen-Quader), containing abundant remains of a terrestrial vegetation which possesses great interest, as it contains the oldest known forms of hard-wood trees (willow, ash, elm, laurel, etc.). The Turonian beds, traced eastward, from their chalky and marly condition in the Anglo-Parisian Cretaceous basin, change in character, until in Saxony and Bohemia they consist of massive sandstones (Mittel-Quader) with limestones and marls (Mittel-Pläner). In these strata, the occurrence of such fossils as *Inoceramus labiatus*, *I. Brongniarti*, *Ammonites peramplus*, *Scaphites Geinitzii*, *Spondylus (Lima) spinosus*, *Terebratula semiglobosa*, etc., shows their relation to the Turonian stage of the west. The Senonian¹⁶⁹ stage presents a yet more extraordinary variation in its eastern prolongation. The soft upper Chalk of England, France, and Belgium, traced into Westphalia, passes into sands, sandstones, and calcareous marls, the sandy strata increasing southward till they assume the gigantic dimensions which they present in the gorge of the Elbe and throughout the picturesque region known as Saxon Switzerland (Ober-Quader). The horizon of these strata is well shown by such fossils as *Belemnitella quadrata*, *B. mucronata*, *Nautilus danicus*, *Marsupites ornatus*, *Bourgueticrinus ellipticus*, *Crania ignabergensis*, etc.

At Aix-la-Chapelle an exceedingly interesting development of Upper Cretaceous rocks is exposed. These strata, referable to the Senonian stage, consist of a lower group of sands with *Belemnitella quadrata* and abundant remains of terrestrial vegetation (p. 1522),¹⁷⁰ and an upper group of marl and marly chalk with *Belemnitella mucronata*, *Gryphæa vesicularis*, *Crania ignabergensis*, *Mosasaurus*, etc.

Switzerland and the Chain of the Alps.¹⁷¹—This area is in-

¹⁶⁹ German geologists commence the Senonian with the zone of *Belemnitella quadrata*, the upper Senonian of Hebert.

¹⁷⁰ For a list of these plants see H. von Dechen, "Geol. Paläont. Uebersicht der Rheinprovinz," etc., 1884, p. 427.

¹⁷¹ Studer's "Geologie der Schweiz"; Gümbel, "Geognostische Beschreib. Bayer. Alpen," vol. i. p. 517 *et seq.*; "Geognostische Beschreib. des Ostbayer. Grenzgebirg," 1868, p. 697; Jules Marcou, Mem. Soc. Geol. France (2), iii.; P. de Loriol, "Invertebres de l'Étage Neocomien moyen du Mt. Saleve,"