

and those of similar age in England and France; at the same time Buch expressly stated that in consideration of the many contrasts presented by the South German facies, both palæontologically and lithologically, it is very undesirable to attempt to apply the English nomenclature. It was shown that the three leading groups might be again sub-divided into a number of palæontological zones characterised by certain definite leading fossil types ("Leitmuscheln"). Buch concluded this interesting work by an enumeration of one hundred and two carefully described species of the "leading molluscan types" characteristic of the successive rock-horizons.

The foundation was thus laid for the geology of the Swabian and Franconian Jura by Buch, but the main structure was built up by F. A. Quenstedt in after-years in his memorable treatise *Das Flötzgebirge Württembergs* (1843 and 1851). The three chief divisions of Buch are sub-divided into sub-groups and zones according to their petrographical development and palæontological features, and the zones are distinguished by letters of the Greek alphabet. In this way the Lias and the brown and white Jura are each of them resolved into six zones, the oldest of which is designated as α , the youngest as ζ . Quenstedt's eighteen zones of the Württemberg development of the Jurassic system have since shown themselves to be well founded, although they are not all of equal palæontological value. Clearly Quenstedt, for the sake of symmetry in the number of zones, defined some of them within rather narrower limits than others.

It was a great deficiency in Quenstedt's work that he had made no attempt to describe the tectonic structure of the area, or even to show by maps or sections the stratigraphical mode of occurrence of the strata. In 1853, Quenstedt remedied this by publishing a typical geological section of the Swabian Jura carried out by his pupil W. Pfizenmayer (*Zeitsch. d. d. geol. Ges.*, Taf. xvi.).

The work, however, which gave Quenstedt a pre-eminent place in the roll of fame was that which appeared in 1858 under the simple title of *Der Jura*. In it Quenstedt gave a marvellously attractive exposition of the results of his nineteen years' researches on this formation; the description and illustrations of the fossils in *Der Jura* are excellent, and the keen and accurate observation even of the most concealed features calls forth the highest admiration. The work found