

The Dogger or Brown Jura represents the Lower Oolite of England and the Etages Bajocien and Bathonien of France. Its lower division consists mainly of dark clays and slates, passing up in Swabia into brown and yellow sandstones with oolitic ironstone.⁸⁶ The central group in northern Germany differs from the corresponding beds in England, France, and southern Germany by the great preponderance of dark clays and ironstone nodules. The upper group consists essentially of clays and shales with bands of oolitic ironstone, thus presenting a great difference to the massive calcareous formation on the same platform in England and France.

The Malm, or Upper or White Jura corresponds to the Middle and Upper Oolites of England, from the base of the Oxford clay upward, with the equivalent formations in France. It is upward of 1000 feet thick, and derives its name from the white or light color of its rocks contrasted with the dark tints of the Jurassic strata below. It consists mainly of white limestones in many varieties; other materials are dolomite and calcareous marl. Its lower (Oxfordian) group is essentially calcareous, but with some of the fossils which occur in the Oxford clay, *e.g.* *Ammonites ornatus* and *Gryphæa dilatata*. The massive limestones with *Cidaris florigemma* are the equivalents of the Corallian. The Kimeridge group presents at its base beds equivalent to part of the Sequanian or Astartian sub-stage of France (*Astarte supracorallina*, *Natica globosa*, etc.), with such an abundance and variety of the gasteropod genus *Nerinea* that the beds have been named the "Nerineen-Schichten." Above these come strata with *Pterocera Oceani* (Pterocarian), marking the central zone of the Kimeridgian stage. Higher still lie compact and oolitic limestones with *Exogyra virgula* (Virgulian). At the top some limestones and marly clays yield *Ammonites giganteus* (Portlandian). The most important member of the German Kimeridgian stage is undoubtedly the limestone long quarried for lithographic stone at Solenhofen, near Munich. Its excessive fineness of grain has enabled it to preserve in the most marvellous perfection the remains of a remarkably varied and abundant fauna both of the sea and land. Besides skeletons of fishes (*Aspidorhynchus*, *Lepidotus*, *Megalurus*), cephalopods show-

⁸⁶ For a detailed stratigraphical and palæontological account of the Lower Dogger of German Lorraine see W. Branco, *Abhand. Geol. Specialkart. Elsass-Lothr.* II. Heft ii. 1879.