

the Marne de Jamoigne. The Hettangian stage of Burgundy is thin, and is composed of a lower Luma-chelle de Bourgogne (*Ostrea irregularis*, *Cardinia Listeri*, *Ammonites Burgundiæ*) and an upper marly limestone known as "Foie de Veau" (*Ammonites Burgundiæ*, *A. moreanus*). In the basin of the Rhone, the *Planorbis* zone is about 40 feet thick, and the *Angulatus* zone 20 to 26 feet. In Cotentin, the stage is divisible into a lower sub-group of marls (*Mytilus minutus*, *Corbula Ludovicæ*) and an upper sub-group of limestones (*Cardinia concinna*, *Pecten valoniensis*).

One of the most interesting features of the Lias in the northern or Jura part of Switzerland is the insect-beds at Schambelen in the Canton Aargau. The insects are better preserved and much more varied than in the English Lias, and include representatives of Orthoptera, Neuroptera, Coleoptera (upward of 100 species of beetles), Hymenoptera, and Hemiptera. About half of the beetles are wood-eating kinds, so that there must have been abundant woodlands on the Swiss dry land in Liassic time.⁷⁹

Germany.—In northwestern Germany the subjoined classification of the Jurassic system has been adopted:⁸⁰

Upper or White Jura ⁸⁰ (Malm).	<p>Purbeck group—Serpulit, a limestone 160 feet thick, and Mûnder Mergel, a series of red and green marls, with dolomite and gypsum, at least 1000 feet thick—forming a transition between the Purbeck and Portland groups.</p> <p>Eimbeckhäuser Plattenkalke and zone of <i>Amm. gigas</i>, equivalent to the English Portland group: <i>Corbula</i>, <i>Modiola</i>, <i>Paludina</i>, <i>Cyrena</i>.</p> <p>Kimeridge group, Upper, with <i>Exogyra virgula</i> = Virgulian; Middle or Pterocera beds (Pteroceran); Lower (Astartian, Upper Sequanian), with <i>Nerinea</i> beds and zone of <i>Terebratula humeralis</i>.⁸¹</p> <p>Corallian, with <i>Cidaris florigemma</i>, corals, <i>Pecten varians</i>, <i>Ostrea rastellaris</i>, <i>Nerinea visurgis</i>.</p> <p>Oxfordian, with <i>Gryphæa dilatata</i>, <i>Amm. perarmatus</i>, <i>A. cordatus</i>.</p> <p>Clays with <i>Amm. ornatus</i>, <i>A. Jason</i>, <i>A. Lamberti</i>, <i>A. anceps</i>, <i>A. athleta</i> = "Ornatus clays." This stage is usually included by German geologists in the Middle Jura.</p>
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⁷⁹ Heer, "Urwelt der Schweiz," p. 82.

⁸⁰ Heinr. Credner, Ober. Jura in N. W. Deutschland, 1863. See also the works of Oppel and Quenstedt quoted on p. 1481, and K. von Seebach's Der Hannoversche Jura, 1864. Brauns' Unter. Mittl. und Ober. Jura, 1869, 1871, 1874. O. Fraas, "Geognostische Beschreibung von Württemberg, Baden und Hohenzollern," Stuttgart, 1882; Th. Engel, "Geognostischer Wegweiser durch Württemberg," Stuttgart, 1883.

⁸¹ Struckmann, N. Jahrb. 1881 (ii.) p. 102.