

ironstone containing *Ammonites opalinus*, *A. insignis*, *Belemnites abbreviatus*. This ironstone is traceable from the Ardèche to Luxembourg. In the Ardennes, the stage includes a lower series of marls and clays (300 feet) with *Amm. serpentinus*, a middle marl containing *Amm. radians*, *A. bifrons*, and an upper limonite (Longwy) with *Amm. opalinus*, *Ostra ferruginea*, *Trigonia navis*. In Yonne and Côte-d'Or, it consists of the following members in ascending order: 1, marls with *Posidonia* and lumachelle with *Amm. serpentinus* (15-30 feet); 2, marls with *A. complanatus* (26 feet); 3, marls with *Turbo subduplicatus* (12-20 feet); 4, blue marls with *Cancellophycus liassicus* (25-30 feet). Near St. Amand, Cher, the stage consists of nearly 200 feet of marls and clays with seven recognizable zones. In the Haute Marne, it is nearly as thick. In the Rhone basin, it consists of a lower group of limestones with *Pecten æquivalvis*, and an upper group of ferruginous beds, including an important seam of oolitic ironstone, and containing the zones of *Amm. bifrons* and *A. opalinus*. In Provence, it reaches a thickness of 950 feet, and in this region the whole Liassic subdivisions attain the great depth of 2300 feet. In Normandy, the Toarcian stage is only about 20 feet thick, but shows the characteristic ammonite zones.

3. Liassian (=Middle Lias and Lower Lias, in part). In Lorraine, where this stage reaches a thickness of 230 to 260 feet, it consists of the following three assises in ascending order: 1, limestones (*Ammonites Davœi*) and marls; 2, marls (*A. margaritatus*); 3, sandstones (*Gryphæa regularis*). In the French Ardennes, it is 360 feet thick, and comprises: 1, sandy clay with *Amm. planicosta*, *Gryphæa regularis*, *Plicatula spinosa*; 2, marl with *Belemnites clavatus*, *Amm. capricornus*; 3, ferruginous limestone with *Amm. spinatus*, *Bel. paxillosus*. Westward this stage becomes almost wholly marly. In Yonne and Côte-d'Or, it is divisible into three assises, in the following ascending order: 1, Belemnite limestone of Venarey (40 feet), comprising the zones of (a) *Amm. Valdani*, (b) *A. venarensis*, (c) *A. Henleyi*, (d) *A. Davœi*; 2, micaceous and pyritous marls, about 200 feet; 3, nodular limestone with large gryphites, comprising the zones of (a) *Amm. zetes*,