

2.5. Luxembourg Formation-LUX

Authors: Steininger (1828); Guerin-Franiatte *et al.* (1991); Boulvain *et al.* (2001); Boulvain & Belanger (2018).

Description: Alternation of sandy limestone and sand with cross-bedded stratifications; locally, homogeneous sand, sandstone and coquinas ("lumachelles").

Stratotype: Large quarry along the N4 road, at Côte rouge (cf. Boulvain *et al.*, 2017).

Area and thickness: Belgian Lorraine and Luxemburg. The formation, a hundred meters thick, comprises five members: at the base, the Metzert Member, a grey to yellow sandy unit (locally sandstone: "Clairefontaine facies "); then, above a slight angular unconformity, the Florenville, Orval and Virton Members, consisting of alternating yellow to orange sand and sandy limestone. These members are differentiated from one another only when separated by marl horizons (respectively, the Strassen and Posterie Members). West of the meridian of Prouvy, these marl horizons become thin layers very difficult to correlate. Near Virton, a third marl horizon (Trite Member) occurs near the base of the formation, separating Florenville and Chevratte Members. On the other hand, at the east of the meridian of Arlon, the same marl horizons thicken quickly and grade into the Arlon Formation. The Stockem Member which consists of clear sand is probably a weathering facies of the Virton Member or the Hondelange Formation.

Age: The Luxembourg Formation is clearly diachronic (Maubeuge, 1965; Guérin-Franiatte & Muller, 1986; Guérin-Franiatte *et al.*, 1991). In eastern Belgian Lorraine, it encompasses the Upper Hettangian and the base of the Sinemurian, from *Schlotheimia angulata* to *Arietites bucklandi* ammonite Zones; in the western part of the area, this formation extends from the Lower to the Uppermost Sinemurian, from *Arietites bucklandi* to *Echioceras raricostatum* ammonite Zones.

Note: This formation was introduced in Belgium by Dumont (1842). Because of its diachronic character, it was later subdivided in various "Assises" on a biostratigraphic basis. The unitary character of the formation was redefined by Guerin-Franiatte *et al.* (1991). Some units, corresponding partially to old "assises", were redefined as members with new lithostratigraphic limits (Members of Metzert, Florenville, Orval, Virton, Stockem). The other "assises" are abandoned.

2.6. Arlon Formation-ARL

Authors: Dewalque (1902); Monteyne (1958); Boulvain *et al.* (2001); Boulvain & Belanger (2018).

Description: Grey marl, silty marl, bioturbated argillaceous-silty to sandy limestone. Abundant fauna.

Stratotype: Toernich borehole (Boulvain *et al.*, 1995).

Area and thickness: Belgian Lorraine. The formation has a thickness of about 40 m close to Arlon. More to the west, its thickness decreases very quickly, the formation being represented only by marl beds in the Luxembourg Formation (corresponding successively to Trite,

Strassen and Posterie Members). In the Toernich borehole, the thickness of the Arlon Formation reaches 60 m.

Age: Sinemurian. In eastern Belgian Lorraine, in the Arlon area, the Arlon Formation extends from the *Arnioceras semicostatum* ammonite Zone to the *Asteroceras obtusum* Zone. In the western part of the area, the Trite Member is in the *Arietites bucklandi* Zone, the Strassen Member in the *Arnioceras semicostatum* Zone and the Posterie Member in the *Asteroceras obtusum* Zone.

Note: All authors have highlighted the difficulty to establish, east of Arlon, in this sandy-argillaceous-limestone unit (Lorraine facies), other subdivisions than biostratigraphic ones. We thus use the name of Arlon Formation here as a global unit and subdivide it into members whenever possible to do so on a lithostratigraphic basis (see intercalations in the Luxembourg Formation)

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