

Summarised description

Unit name

Marteau Member

Code

MAR

Status

Formal Member

Parent unit

Fooz Formation

Child units

Rheinhardstein Facies

Characteristic description

Olive-green and variegated fine-grained sandstone, argillaceous or not, and siltstone. The reddish colour progressively appears upwards. The numerous horizons with dissolved carbonate nodules (centimetric to decimetric in size) give a cellular aspect to the Formation.

Age

Lowermost Lochkhovian

Thickness

150 to 170 metres

Area of occurrence

Margins of the Stavelot and Condroz Inliers

Type locality

The type section of the Marteau Member is situated along the Helle River south of Eupen (Dejonghe et al., 1994e) because the historical section in Spa (Marteau locality) is too discontinuous and strongly tectonised.

Alternative names

Formation de Marteau

Authors

Gosselet (1888)

Modified after

Denayer, J. & Mottequin, B., 2024. Lower Devonian lithostratigraphy of Belgium. *Geologica Belgica*, 27/3-4, 115–154.

Date

23/09/2025

Cite as

Denayer, J. & Mottequin, B., 2025. The Marteau Member, 23/09/2025. National Commission for Stratigraphy Belgium. <https://ncs.naturalsciences.be/lithostratigraphy/Marteau-Member>

Full description

Unit name

Marteau Member

Code

MAR

Status

Formal Member

Parent unit

Fooz Formation

Child units

Rheinhardstein Facies

Origin of the name

Historical section located in the Hoegne River valley at Marteau near Spa.

Alternative names

Formation de Marteau

Authors

Gosselet (1888, p. 258) : *Schistes bigarrés et psammites du Marteau*

Modified after

Denayer, J. & Mottequin, B., 2024. Lower Devonian lithostratigraphy of Belgium. *Geologica Belgica*, 27/3-4, 115–154.

Date

23/09/2025

Cite as

Denayer, J. & Mottequin, B., 2025. The Marteau Member, 23/09/2025. National Commission for Stratigraphy Belgium. <https://ncs.naturalsciences.be/lithostratigraphy/Marteau-Member>

Characteristic description

In the northern parts of the Dinant Synclinorium as well as in the Vesdre and Theux areas, Hance et al. (1992) and Dejonghe et al. (1994e, 1994f) distinguished two formations at the base of the Devonian sequence: the Fooz Formation to the west and the Marteau Formation to the east. Both units display the same dominant siliciclastic facies but differ by their dominant colour. The Fooz Formation is supposed to be greenish whereas the Marteau Formation is supposed to be reddish. Geological mapping of these formations demonstrated that on the one hand red beds exist in the Fooz Formation and on the other hand green or variegated beds are developed within the Marteau Formation. The distinction between the two is therefore only geographical, with the inconvenient that both units were recognised in the Vesdre area (Goé Tectonic Unit, Goemaere et al., 1997). It is here proposed that only one unit should be preserved. *Psammites et schistes compactes de Fooz* is the older designation (Gosselet, 1873). The *Schistes bigarrés et psammites du Marteau* introduced later by Gosselet (1888, p. 258) is therefore a subsequent synonym. However, the *Psammites de Fooz* stricto sensu (i.e. the beds overlying the conglomerate and so-called arkose) form a unit rather well individualised and

deserve a formal definition. The Marteau Member is here introduced to cover the fine-grained variegated sandstone unit forming the upper part of the Fooz Formation.

The upper part of the Fooz Formation is largely dominated by variegated fine-grained siliciclastics grouped in the Marteau Member corresponding to the *Psammites de Fooz* in the literature. Olive-green and variegated fine-grained sandstone, argillaceous or not, and siltstone alternate in the lower part of the Member. They are arranged in fining-upward sequences that begin with poorly sorted sandstone with shale clasts and small quartz pebbles, oblique stratifications and lenses, and that end with shale displaying desiccation cracks. The reddish colour progressively appears upwards. The upper part of the Member is richer in well-sorted sandstone beds that commonly display coarsening-upward trend and mega-ripples. The numerous horizons with dissolved carbonate nodules (centimetric to decimetric in size) give a cellular aspect to the Formation. These nodules are interpreted as concretions within calcrete and are therefore of paedogenetic origin (Stroink & Simons, 1995; Goemaere et al., 1997). Silcretes and ferricretes are also developed (Goemaere et al., 2012). The Member reflects the depositional environment of an alluvial plain with braided rivers evolving towards a coastal plain with wandering meanders (Goemaere et al., 1997).

Along the south-eastern edge of the Stavelot–Venn Inlier, the Marteau Member displays blueish to purple colour, due to slight metamorphism here named as the **Reinhardtstein Facies**.

Area of occurrence

The member is present in the Vesdre area, around the Stavelot–Venn Inlier and the Theux Window. It also occurs along the northern limb of the Dinant Synclinorium between Wihéries and Engis, and along its north-eastern limb between Tancremont and Dochamps, and in the Bolland borehole (Graulich, 1975).

Type locality

The type section of the Marteau Member is situated along the Helle River south of Eupen (Dejonghe et al., 1994e) because the historical section in Spa (Marteau locality) is too discontinuous and strongly tectonised. The Reinhardtstein Facies is exposed in the Warche River valley near the medieval Reinhardtstein castle.

Age

In the Theux Window and Vesdre area, the miospores present in the lower fossiliferous horizon indicate the Lochkovian R to M α zones. In Dave, the oldest beds indicate the Lochkovian Si α Zone, hence a slightly younger age. The age of the upper part varies also from the Lochkovian Si β Zone in the west, to the G Zone in the east (Steemans, 1989a, b).

Thickness

The Marteau Member is c. 150 m thick in Eupen and Spa (Dejonghe et al., 1994e) and increases westwards to 170 m in Dave (Delcambre & Pingot, 2017).

Lower boundary

First bed of reddish siltstone overlying the conglomerate or coarse-grained arkosic sandstone of the Waismes Member.

Upper boundary

First bed of light-coloured sandstone of the overlying Bois d'Ausse Formation.

Regional correlations

The lower part of the Fooz Formation passes, southwards, to the Fépin Formation. The Bois de Chaumont Formation is a lateral equivalent resting locally on the Condroz Inlier north of the Midi–Eifel Thrust Fault. In Germany, the Marteau Member is named *Kalltall-Formation*.

References

- Dejonghe, L., Hance, L. & Steemans, P., 1994e. FOO - Formation de Fooz. In Godefroid, J. et al., Les formations du Dévonien inférieur du Massif de la Vesdre, de la Fenêtre de Theux et du Synclinorium de Dinant (Belgique, France). Mémoires pour servir à l'Explication des Cartes géologiques et minières de la Belgique, 38, 101–105.
- Dejonghe, L., Hance, L. & Steemans, P., 1994f. MAR - Formation de Marteau. In Godefroid, J. et al., Les formations du Dévonien inférieur du Massif de la Vesdre, de la Fenêtre de Theux et du Synclinorium de Dinant (Belgique, France). Mémoires pour servir à l'Explication des Cartes géologiques et minières de la Belgique, 38, 97–100.
- Delcambre, B. & Pingot, J.-L., 2017. Carte géologique de Wallonie : Malonne – Naninne 47/7-8. 1/25 000. Service public de Wallonie, Direction générale de l'Agriculture, des Ressources naturelles et de l'Environnement, Namur, and its explanatory booklet, 130 p.
- Goemaere, E., Catot, E., Dejonghe, L., Hance, L. & Steemans, P., 1997. Sédimentologie des formations de Marteau, du Bois d'Ausse et de la partie inférieure de la Formation d'Acoz (Dévonien inférieur) dans l'Est de la Belgique, au bord nord du Massif de Stavelot. Memoirs of the Geological Survey of Belgium, 42, 1–168.
- Goemaere, E., Geeninckx, S., Thirion, F. & Blicq, A., 2012. Les Formations de Marteau et du Bois d'Ausse (Lochkhoven-Praguien, Dévonien inférieur) au bord nord du Synclinorium de Dinant : les coupes de Huy, de Tihange et de Fond d'Oxhe. Memoirs of the Geological Survey of Belgium, 59, 1–117.
- Gosselet, J., 1873. Le système du Poudingue de Burnot. Annales des Sciences géologiques, 4/7, 1–32.
- Gosselet J., 1888. L'Ardenne. Ministère des travaux publics, Mémoires pour Servir à l'Explication de la Carte géologique détaillée de la France. Baudry & Cie, Paris, 881 p.
- Graulich, J.-M., 1975. Le sondage de Boland. Service géologique de Belgique, Professional Papers, 1975/9, 1–38.
- Hance, L., Dejonghe, L. & Steemans, P., 1992. Stratigraphie du Dévonien inférieur dans le Massif de la Vesdre (Belgique). Annales de la Société géologique de Belgique, 115/1, 119–134.
- Steemans, P., 1989a. Étude palynostratigraphique du Dévonien inférieur dans l'Ouest de l'Europe. Mémoires pour servir à l'Explication des Cartes géologiques et minières de Belgique, 27, 1–453.
- Steemans, P., 1989b. Paléogéographie de l'Eodévonien ardennais et des régions limitrophes. Annales de la Société géologique de Belgique, 112/1, 103–119.
- Stroink, L. & Simons, C., 1995. First evidence of pedogenic calcretes in the Lower Devonian Old Red facies of the northern Stavelot-Venn Massif between Aachen and Liège. Neues Jahrbuch für Geologie und Paläontologie, Monatshefte, 10, 622–635.