Summarised description

Unit name

Hanonet Formation

Code

HNT

Status

Formal Formation

Parent unit

none

Child units

none

Characteristic description

Dark argillaceous limestone with calcareous shale and siltstone, usually rich in fauna.

Age

Eifelian-Givetian

Thickness

80 m in the type area

Area of occurrence

Southern limb of the Dinant Synclinorium, up to Ferrières.

Type locality

The historical stratotype in Couvin is poorly exposed nowadays, the Resteigne quarry serves as neostratotype.

Alternative names

none

Authors

Tsien (1976)

Modified after

Denayer, J., Coen-Aubert, M., Marion, J.-M. & Mottequin, B., 2024. Middle Devonian lithostratigraphy of Belgium. Geologica Belgica, 27/3-4, 155–192.

Date

23/09/2025

Cite as

Denayer, J., Coen-Aubert, M., Marion, J.-M. & Mottequin, B., 2025. The Hanonet Formation, 23/09/2025. National Commission for Stratigraphy Belgium. https://ncs.naturalscienes.be/lithostratigraphy/Hanonet-Formation

Full description

Unit name

Hanonet Formation

Code

HNT

Status

Formal Formation

Parent unit

none

Child units

none

Origin of the name

After the Hanonet Hill, north of Couvin.

Alternative names

none

Authors

Tsien (1976, p. 264): *Formation d'Hanonet*

Modified after

Denayer, J., Coen-Aubert, M., Marion, J.-M. & Mottequin, B., 2024. Middle Devonian lithostratigraphy of Belgium. Geologica Belgica, 27/3-4, 155–192.

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Characteristic description

In the historical stratotype (La Couvinoise quarry in Couvin), the base of the Hanonet Formation is not exposed. Bultynck (1970) and Bultynck & Hollevoet (1999) divided the lithological succession into three units. The lower unit ('a' in Bultynck, 1970, c. 15 m thick) consists of an alternation of dark argillaceous and pyritic fine-grained limestone with an abundant, but poorly diverse, macrofauna. The middle unit ('b' in Bultynck, 1970, c. 25 m thick) is dominated by shale whereas the limestone is lighter in colour and rich in ramose tabulate corals (including abundant *Remesia crispa*), *Calceola sandalina*, cystimorph rugose corals and atrypide and pentameride brachiopods. The upper unit ('c, d, e' in Bultynck, 1970, c. 15 m thick) displays two horizons rich in lamellar stromatoporoids and tabulate corals forming biostromes in a very argillaceous matrix. Away from the stratotype, the biostromes are not developed and the dark argillaceous limestone facies is predominant throughout the Formation, passing to carbonate shale and siltstone as observed in the disused Resteigne quarry (Coen-Aubert, 1996; Jamart & Denayer, 2020). The top of the Formation is defined by the first occurrence of thick beds of light grey, coarse-grained and bioclastic limestone of the Trois-Fontaines Formation. However,

in La Couvinoise quarry, the boundary between the typical facies of the Hanonet and Trois-Fontaines formations is transitional (unit f in Bultynck, 1970). This 5 m thick unit, composed of shaly and silty limestone passing to calcareous shale, is known as the 'Gia' in the literature (Maillieux & Demanet, 1929).

The Pondrôme member introduced by Godefroid (1995, p. 80) at the top of the Jemelle Formation in the eponymous section yielded the same fauna than the lower part of the Hanonet Formation in its stratotype (Bultynck & Hollevoet, 1999). Therefore, it is considered as a local facies of the latter unit characterised by the abundance of shaly beds (see also Coen-Aubert, 1988 and Blockmans & Dumoulin, 2025).

Area of occurrence

The Formation is known along the southern and south-eastern limbs of the Dinant Synclinorium from Trélon (France) to Ferrières.

Type locality

La Couvinoise quarry (or Haine, or Collard quarry) in Couvin is the historical stratotype or the Hanonet Formation, but its lower part is not exposed there and the contact with the overlying Trois-Fontaines Formation is not clear and difficult to access, depending on the works of the quarry. Consequently, the disused Resteigne quarry (also known as the Lesse quarry) is proposed as a neostratotype as it exposes all the typical facies of the Formation as well as its lower and upper boundaries. Furthermore, it is more perennial. The boundary between the Lomme and Hanonet formations is also exposed in the nearby section along the Lesse River (Coen-Aubert, 1996).

Age

Latest Eifelian to early Givetian. Bultynck & Hollevoet (1999) reported *Polygnathus ensensis* from the lower part of the Formation in Couvin, pointing to the *ensensis* conodont Zone. The base of the *hemiansatus* conodont Zone (base of the Givetian) marked by the first entry of *P. hemiansatus* is recognised in the upper part of the unit 'a', 42 m below the base of the Trois-Fontaines Formation. Eastwards, where the Lomme Formation is well developed, the base of the Hanonet Formation might be slightly younger (Bultynck et al., 2000). The Hanonet Formation recorded the transgressive system tracts of the third-order sequence MD4 of Denayer (2019).

Thickness

The Hanonet Formation is 75–80 m thick in Couvin, Pondrôme and Resteigne (Marion & Barchy, 1999; Dumoulin & Blockmans, 2013). Eastwards, it decreases to reach only 12 m in Hampteau and a few tens of metres in Ferrières (Marion & Barchy, in press).

Lower boundary

Base of first dark limestone overlying the siltstone or sandstone of the Jemelle or Lomme Formation.

Upper boundary

First massive bed of light-coloured crinoidal grainstone or rudstone forming the basal part of the overlying Trois-Fontaines Formation.

Regional correlations

Near Ferrières, the marine limestone is replaced by the red siliciclastics of the Pepinster Formation between Izier and Ferrières (Marion & Barchy, in press). Very locally, the Hanonet Formation is replaced by the light-coloured massive limestone of the Wellin Formation (Denayer & Jamart, 2020).

References

Blockmans, S. & Dumoulin, V., 2025. Carte géologique de Wallonie : Houyet – Han-sur-Lesse 59/1-2. 1/25 000. Service public de Wallonie, Agriculture, Ressources naturelles et Environnement, Namur, and its explanatory booklet.

Bultynck, P., 1970. Révision stratigraphique et paléontologique (brachiopodes et conodontes) de la coupe type du Couvinien. Mémoires de l'Institut géologique de l'Université de Louvain, 26, 1–150.

Bultynck, P. & Hollevoet, C., 1999. The Eifelian-Givetian boundary and Struve's Middle Devonian Great Gap in the Couvin area (Ardennes, southern Belgium). Senckenbergiana lethaea, 79/1, 3–11.

Bultynck, P., Coen-Aubert, M. & Godefroid, J., 2000. Summary of the state of correlation in the Devonian of the Ardennes (Belgium-NE France) resulting from the decisions of the SDS. In Bultynck, P. (ed.), Recognition of Devonian series and stage boundaries in geological areas. Subcommission on Devonian Stratigraphy. Courier Forschungsinstitut Senckenberg, 225, 91–114.

Coen-Aubert, M., 1988. Représentants des genres Sociophyllum Birenheide, 1962 et Beugniesastraea n. gen. à la base du Calcaire de Givet de Pondrôme et de Resteigne (bord sud du Bassin de Dinant, Belgique). Bulletin de l'Institut royal des Sciences naturelles de Belgique, Sciences de la Terre, 58, 5–31.

Coen-Aubert, M., 1996. Siphonophrentides et Cyathophyllides près de la limite Eifelien-Givetien à Resteigne (Ardenne, Belgique). Bulletin de l'Institut royal des Sciences naturelles de Belgique, Sciences de la Terre, 66, 19–36.

Denayer, J., 2019. Revised stratigraphy of the Eifelian (Middle Devonian) of southern Belgium: sequence stratigraphy, global events, reef development and basin structuration. Geologica Belgica, 22/3-4, 149–173.

Dumoulin, V. & Blockmans, S., 2013. Carte géologique de Wallonie : Pondrôme – Wellin 59/5-6. 1/25 000. Service public de Wallonie, Agriculture, Ressources naturelles et Environnement, Namur, and its explanatory booklet, 84 p.

Godefroid, J., 1995. Les brachiopodes (Pentamerida, Atrypida et Spiriferida) de la fin de l'Eifelien et du début du Givetien à Pondrôme (Belgique, bord sud du Synclinorium de Dinant). Bulletin de l'Institut royal des Sciences naturelles de Belgique, Sciences de la Terre, 65, 69–116.

Jamart, V. & Denayer, J., 2020. The Kačák event (late Eifelian, Middle Devonian) on the Belgian shelf and its effects on rugose coral palaeobiodiversity. Bulletin of Geosciences, 95/3, 279–311.

Maillieux, E. & Demanet, F., 1929. L'échelle stratigraphique des terrains primaires de la Belgique. Bulletin de la Société belge de Géologie, de Paléontologie et d'Hydrologie, 38/2 (pro 1928), Procès-verbaux, 124–131.

Marion, J.-M. & Barchy, L., 1999. Carte géologique de Wallonie : Chimay – Couvin 57/7-8. 1/25 000. Ministère de la Région wallonne, Direction générale de l'Agriculture, des Ressources naturelles et de l'Environnement, Namur, and its explanatory booklet, 90 p.

Marion, J.-M. & Barchy, L., in press. Carte géologique de Wallonie : Hamoir – Ferrières 49/1-2. 1/25 000. Service public de Wallonie, Agriculture, Ressources naturelles et Environnement, Namur, and its explanatory booklet.

Tsien, H.H., 1976. Espèces du genre *Tabulophyllum* (Rugosa) dans le Dévonien moyen et le Frasnien de la Belgique. Annales de la Société géologique de Belgique, 99/2, 263–282.