

National Commission for Stratigraphy Belgium

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5.11 Tournai Formation - TOU

Carboniferous

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Authors: De Koninck, 1842-1844; Camerman, 1944; Mortelmans, 1969; Paproth et al., 1983; Hennebert & Doremus, 1997a, 1997b. The Tournai Fm corresponds here to the lower part of the Tournai Limestone (sensu Camerman, 1944), below the Gras Délit (marker bed).

Description: Dark, thin-bedded (25 to 45 cm-thick), argillaceous and siliceous limestones with shaly intercalations. Chert nodules are concentrated at some levels ("carbonniaux"). The Gras Délit is an argillaceous layer that caps the formation. Macrofossils are locally abundant and diversified: crinoids, bryozoans, brachiopods, rugose and tabulate corals, gastropods, bivalves, nautiloids, trilobites and blastoids. Goniatites are scarce.

The Tournai Fm includes 6 members, from the base to top: Crampon, Allain, Providence, Pont-à-Rieu, Vaulx and Vignobles Mbrs.

- **Crampon Mbr – CRA**(Mortelmans, 1963) Dark grey to black, argillo-siliceous, crinoidal limestones, rich in macrofossils, alternating with dark marlstone levels.

- **Allain Mbr – ALL**(de Dorlodot, 1910): Dark grey to black, argillo-siliceous, crinoidal limestones, with calcareous shale layers, fairly rich in macrofossils. Cherty level at the top ("Carbonniaux d'Allain").

- **Providence Mbr – PRO**(Camerman, 1919): Dark grey to black, argillo-siliceous, crinoidal limestones, fairly rich in macrofossils. Chert occurs in the upper third. A very fossiliferous level occurs at the top of the member ("Banc à Moules").

- **Pont-à-Rieu Mbr – PAR**(de Dorlodot, 1909): Dark grey, argillo-siliceous, crinoidal limestones, fairly rich in fossils. Some chert occurs in the middle and upper parts.

- **Vaulx Mbr – VAU**(de Dorlodot, 1910): Dark grey, argillo-siliceous, crinoidal limestones, rich in macrofossils. Abundant chert. Where the Vignobles Mbr is absent, the Vaulx Mbr extends up to the "Gras Délit".

- **Vignobles Mbr – VIG**(Camerman, 1944): A lenticular unit of dark grey, argillo-siliceous, crinoidal limestones, fairly rich in fossils.

Stratotype: The Tournai Fm is well exposed in the quarries east of Tournai. As these quarries are actively worked, no permanent section can be chosen as stratotype. The stratotypes for the members are as follows: Crampon, Allain and Providence Mbrs – "Milieu" quarry situated between Antoing, Vaulx and Gaurain-Ramecroix; Pont-à-Rieu and Vaulx Mbrs – "Antoing", "Milieu" and "Lemay" quarries, all situated between Antoing, Vaulx and Gaurain-Ramecroix; Vignobles Mbr – "Lemay" and "Prince" quarries, at Vaulx.

Area: Western HSA (Tournai area).

Thickness: 134 to 145 m in the type area. Crampon Mbr, 11–12 m; Allain Mbr, 28 to 31 m in the Tournai area, 32 m in the Leuze borehole; Providence Mbr, 40 to 45 m in the Tournai area, 30 m in the Leuze borehole; Pont-à-Rieu Mbr, 21-22 m in the Tournai area, 23 m in the Leuze borehole; Vaulx Mbr, 32 to 35 m in the Tournai area, 32 m in the Leuze borehole; Vignobles Mbr, 0 to 20 m.

Age: Crampon Mbr: Hastarian or Ivorian; overlying members: Ivorian. Microfossils are scarce and do not allow correlation with well-dated sections in the Namur – Dinant Basin.

