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THE EARLY CARBONIFEROUS TRANSGRESSION ON THE BRABANT MASSIF
(W.FLANDERS, BELGIUM).

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& J. Thorez

The Brabant Massif represents the major subcrop area of Lower Paleozoic strata in Belgium; it is surrounded by the Upper Paleozoic Campine and Namur tectono-sedimentary basins. Cretaceous abrasion has determined the actual boundaries of the Brabant Massif, destroying most traces of overlapping Devonian-Carboniferous strata. A series of groundwater wells and exploration coreholes, drilled for the Flemish Water Distribution Company (VMW) and available for further research to the Belgian Geological Survey, provide a unique opportunity for studying the contact between Brabant Massif and Namur Synclinorium, and hence the onlap of Carboniferous strata at the relatively undeformed northwestern margin of the Namur Synclinorium in the West of Belgium. The Bossuit and Wervik (Hazebeek) coreholes have traversed the previously poorly understood Hastarian sequence, underlying the well-developed and much better known Tournai Limestones of Ivorian age. The importance of these wells is especially based on the rich and well-preserved Hastarian microfauna and flora.

The Hastarian can be subdivided into three transgressive sequences:

- a lower unit composed of mostly clastic sediments with variable facies ranging from coastal barrier to lagoonal swamp, attaining a regular thickness of nearly 20 m despite the absence of local correlation possibilities, known as 'Complexe arenacé de Base (of the Hastière Formation)'; miospore zones VI and HD* are present
- a middle unit composed of thin-bedded carbonates representing shallow to very shallow and intertidal shoreface sediments, attaining a thickness of 10 to 22 m, corresponding to the Frésignies and Mévergnies Limestones; this unit is assigned to the *S. sandbergi* conodont zone whereby *Patrognathus* or *Polygnathus* and *Siphonodella* biofacies alternate; an exceptional Tournayellidae-dominated foraminiferal assemblage dates this unit as Cf1a; coral zone RC1 and miospore zone HD are present
- an upper unit composed of highly fossiliferous open-marine wackestones/packstones and calcareous mudstones deposited below fair weather base and divided into 2 sequences, attaining a more regular thickness of 23 to 28 m, corresponding to the 'Calcschiste de l'Orient'; this unit is assigned to the *S. crenulata* conodont zone with *Siphonodella* to *Polygnathus* biofacies; coral zone RC2 and miospore zones HD to PC are present.

The middle and upper units were previously assigned to the Belgian bio-lithostratigraphic units 'Tn1b' and 'Tn2a' respectively, which should be corrected into 'Tn2ab' and 'Tn2c'.

The basal complex displays different climate-controlled facies types (fresh-water molluscs and rootlet beds or calcrete soils), corroborated by their clay-mineralogical content. The Devonian/Carboniferous transition is presumably contained within this unit because of the sudden disappearance of mesoperthite, a typical component of the Famennian sediments. The Brabant Massif appears from this reconstruction as a low-relief near-sea level landscape, bordered by lagoons and/or swamps and contributing locally in a very limited way to the sediment supply. Coastline morphology may be responsible for the variable and diachronous nature of the covering sediments.