

## EIFELIAN-GIVETIAN STROMATOPOROID-CORAL REEFS, BELGIUM

LOCALITY. – Late Eifelian ramp-early Givetian platform carbonate succession, Wellin, southern border of Dinant Synclinorium, Belgium.

STRATIGRAPHY. – Hanonet and Trois-Fontaines formations (Figs 39-41), bioherm and reef bank, 45 m thick (core 30 m), 100 m long, associated with flanks of same magnitude. The succession records a regression from open marine near SWB/FWWB and dysphotic/euphotic zone to inter-supratidal lagoon with emersion (beach-rock). The stromatoporoid-coral buildup is stabilized by early marine isopachous cement. Two types of flanks are composed by udoteacean packstones and stromatoporoid-brachiopod floatstones.

FACIES AND MICROFACIES (Figs 37-46). – The stromatoporoid-coral buildup is composed of 10 microfacies from 1 to 10.

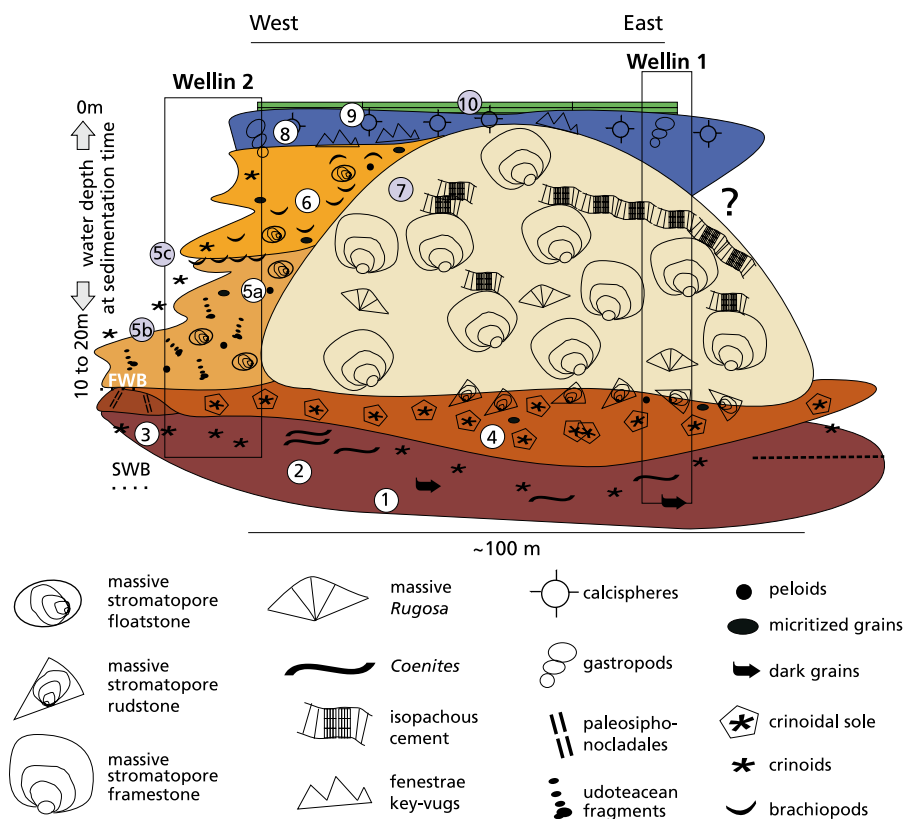


FIG. 37. Sedimentary architecture of the 10 recognized microfacies described in the text.

BIODIVERSITY AND TAPHONOMY. — Distribution of fossil communities and assemblages with emphasis on algae. Fig. 38, 1: Sphinctozoa (filtration); 2, Bryozoa (encrustment, filtration); 3, Trilobita (dwelling, bioturbation); 4, Serpulid worms (encrustment); 5, Crinoidea (filtration, grain production); 6, Brachiopoda (dwelling); 7, Mollusc (dwelling); 8, Ostracoda (dwelling); 9, Foraminifera (dwelling); 10, Rugosa (dwelling, construction, filtration); 11, Stromatoporoida (construction, encrustment, filtration); 12, Cyanobacteria (encrustment, micritization, mats); 13, Pseudoudoteacea (encrustment); 14, Udoteacea (grain formation, encrustment); 15, Dasycladales (grain formation); 16, Calciphaerae (kysts); 17, Solenopora (dwelling); 18, Sphaerocodiaceae (grain formation).

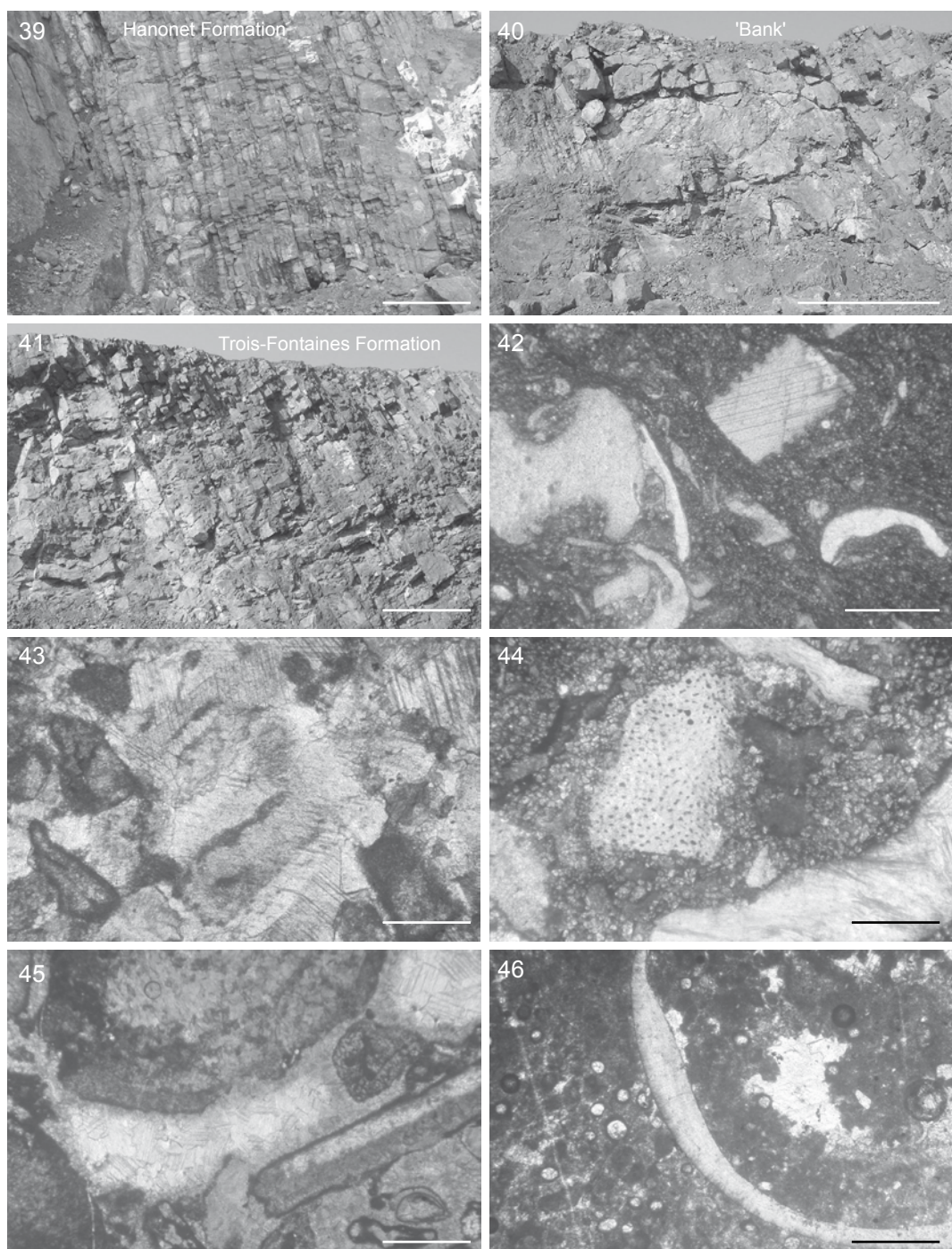
	sole	core	flanks	open-lagoon
1	-----			
2	-----		=====	
3	-----		=====	
4	-----		=====	
5	=====		=====	
6	-----		=====	-----?-----?
7	-----		=====	
8	-----		=====	
9	-----		-----?-----?	
10	-----	=====	=====	
11	-----	=====	=====	
12	-----		=====	
13	-----		=====	
14	-----		=====	
15	-----		-----	
16	-----	-----?-----?	=====	
17	-----		-----	
18	-----		-----	

FIG. 38. Distribution of fossil communities and assemblages according to 18 microfacies (fig. 37) described in the text.

DISCUSSION. — Eustatism *versus* subsidence: correlation between the sections indicates that the morphology (central core and flanks) is quite planar (Figs 39-41). The total thickness of the regressive succession is about 70 m. The dysphotic-euphotic boundary (Mamet & Boulvain 1992) is indicated here by the algal flora and suggests a depth of about 20 meters for the starting of reef growth. Accommodation is mainly related to local subsidence.

## REFERENCES

- MAMET B. & BOULVAIN F. 1992. — Microflores des monticules 'F2j' de Belgique. *Revue de Micropaléontologie* 34: 283-302.
- MAMET B. & PRÉAT A. 1992. — Algues du Dévonien Moyen de Wellin (Synclinalorium de Dinant, Belgique). *Revue de Micropaléontologie* 35: 53-75.
- MAMET B. & PRÉAT A. 2005. — Microfaciès d'une lentille biohermale à la limite Eifélien/Givétien (Wellin, bord sud du Synclinalorium de Dinant). *Geologica Belgica* 8 (5): 85-111.



**FIGS 39-46.** **39-41**, Field aspect of the Hanonet (scale = 2 m), 'Bank' (scale = 6 m) and Trois Fontaines (TF; scale = 2 m) outcrops. **42**, Bioclastic wackestone with echinoderms and spicules in a tempestite. Hanonet Formation, MF1; scale = 390  $\mu$ m. **43**, Echinodermal grainstone with micritized grains and peloids. TF Formation, MF4; scale = 390  $\mu$ m. **44**, Brachiopod floatstone, Trois-Fontaines Fm. MF6; scale = 950  $\mu$ m. **45**, Stromatoporoid framestone with 'micritic box' (pelecypod shell) and bioclasts (stromatoporoids). Micritization is well developed and the thin dark layers are probably of bacterial origin. Marine cementation started with early isopachous non-luminescent calcite and is followed by non-luminescent drusy calcite (white). The isopachous cement corrodes the stromatoporoid. The 'micritic box' is also filled by two cementation phases. Trois-Fontaines Fm., MF7; scale = 950  $\mu$ m. **46**, Lagoonal calciphaerid peloidal wackestone with *Leperdicopida* (ostracode), Trois-Fontaines Fm., MF9; scale = 390  $\mu$ m.