Hennebert, 1980 ; Vieslet, 1980 ; Jacobs *et al.*, 1982 ; Hance, 1982 ; Hance, 1985 ; Swennen, 1986). A subtidal sedimentation which evolved to a more restricted sedimentation during the Early Moliniacian has also been recognized north of the London-Brabant Massif (Muchez, 1988).

An important regression is known near the top of the foraminifer subzone Cf4α, south of the London-Brabant Massif (Conil *et al.*, 1967, Swennen, 1986). At the top of the Salet Formation ("V1b") an emersion phase occurred (Conil & Naum, 1976). Several shallowing upward cycles characterize the Terwagne Formation in the Namur-Dinant Basin (Hance, 1982 ; Maes *et al.*, 1989). Regressive trends also occur in the upper part of the Lower Moliniacian strata of the Campine-Brabant Basin (Muchez, 1988). At the top they are characterized by supratidal dolocretes (Muchez & Viaene, 1987).

In spite of these similarities an important difference in the sedimentation pattern is present. The development of evaporites, in the upper part of the Lower Moliniacian strata south of the London-Brabant Massif (Swennen *et al.*, 1981 ; Jacobs *et al.*, 1982 ; Groessens *et al.*, 1982 ; Poels & Préat, 1983 ; Swennen & Viaene, 1986), has not been recognized in the western part of the Campine-Brabant Basin.

During the Late Moliniacian, grain-supported sediments have been deposited south of the London-Brabant Massif (Monty, 1964 ; Hance, 1985). The Early Moliniacian topography, was mainly determined by the development of the Waulsortian buildups, has been leveled during the Late Moliniacian (Conil *et al.*, 1981). However, lateral changes in the facies still existed (Conil & Naum, 1976). A uniform sedimentation with lateral facies changes also characterized the Campine-Brabant Basin during the Late Moliniacian (Muchez *et al.*, 1987a).

2.2. Livian

The lower part of the Livian contains rhythmic deposited sediments (Michot *et al.*, 1963 ; Conil *et al.*, 1967 . Hoyez, 1971). This rhythmic facies occurs from Aachen to southwest England (Paproth *et al.*, 1983). A cycle starts with open marine sediments and ends with stromatolites (Conil *et al.*, 1967, 1981). Evaporites can also occur at the top of such cycle (Hennebert & Hance, 1980).

In the upper part of the Livian strata thick evaporites have been recognized in the Namur Basin (Groessens *et al.*, 1982 ; Rouchy *et al.*, 1984, 1986). The "Grande Brèche" is another typical feature of the Livian south of the London-Brabant Basin. The genesis of this breccia has been a subject of much debate. de Dorlodot (1908), Brien (1911), Kaisin (1942) and Bourguignon (1951) suggested a marine sedimentary origin. In 1972, Pirlet concluded that the "Grande Brèche" had a dynamic origin, possibly favoured by the presence of evaporites. Recently, Mamet *et al.* (1986) and Rouchy *et al.* (1986) suggested an evaporitic collapse origin. This interpretation is now accepted by many scientists. Uniform, rhythmic sediments, thick evaporites and evaporitic collapse breccia do not occur in the Livian strata of the Campine-Brabant Basin (Muchez, 1988). Breccias have been recognized at the top of the Livian. However, they are thin, have a sedimentary origin and are related to tectonic movements (Muchez *et al.*, 1987a).

2.3. Warnantian

South of the London-Brabant Massif, sedimentation took place on a broad, shallow shelf. Pirlet (1968) suggested the existence of a barriere ± 100 km south of the London-Brabant Massif. According to this author, epeirogenic movements caused the closure of the shelf from the open sea. These movements were cyclic (Pirlet, 1963). One cycle is characterized by an increase in salinity, by a decrease of the oxygen content of the water and by a decrease of the wave activity (Pirlet, 1963, 1968). In the Lower Warnantian strata of the Campine-Brabant Basin, cycles have also been recognized. The lithofacies in the upper unit of such a cycle also has been formed in a restricted environment.

In spite of this similarity, several differences exist between the basins south and north of the London-Brabant Massif :

- the shelf south of the London-Brabant Massif is much more extensive ;
- large cryptalgal reef mounds are present in the Campine-Brabant Basin (Muchez & Peeters, 1986 ; Muchez *et al.*, 1987b). However, such reef mounds have not been recognized in the Warnantian of the Namur-Dinant Basin ;
- the differences in the total thickness of the Warnantian in the Namur-Dinant Basin (Pirlet, 1968) are not due to the increase of the thickness of one cycle, but are the result of erosion. In the Campine-Brabant Basin, differences in the thickness of the Warnantian are due to differential subsidence (Muchez *et al.*, 1987a). A different setting has already been recognized by Kimpe *et al.* (1978).

Bouckaert *et al.* (1961), Graulich (1963) and Bouckaert & Higgins (1963) concluded that a biostratigraphical hiatus existed between the Visean and the Namurian. The continental phase, which was associated with this hiatus, led to the karstification of the Visean limestones north and south of the London-Brabant Massif (Calembert & Van Leckwijck, 1941 ; Austin *et al.*, 1974 ; Vandenberghe *et al.*, 1986 ; Schiltz, 1987 ; Dreesen *et al.*, 1987).

Stage, basin and boreholes	Mg (%)	Sr (ppm)	Na (ppm)	Zn (ppm)	Fe (ppm)	Mn (ppm)	C (%)	IR (%)	K (ppm)
Lower Moliniacian of the Campine-Brabant Basin									
Booischot (n=21)	0.76	322	173	18	3658	505	0.15	25.3	593
Kessel (n=24)	0.37	193	167	31	7334	1487	0.11	27.6	1075
Halen (n=11)	0.12	176	52	4	157	184	0.02	0.6	11
Turnhout (n=52)	0.20	204	87	6	75	59	0.03	1.2	17
Moliniacian									
Namur Basin	0.4	323	82	63	662	120	0.08	-	152
Vesder Basin	0.3	364	107	62	847	155	0.10	4.9	158
Dinant Basin	-	305	90	9	-	-	0.09	-	-

Table 1. : Concentrations of geochemical variables in Moliniacian strata in Belgium (means).
- : no data available
IR : insoluble residue
(after Van Orsmael, 1982 and Muchez, 1988).

Stage	South of the London-Brabant Massif	North of the London-Brabant Massif
Moliniacian	- Subtidal →peritidal and restricted sedimentation during the Early Moliniacian - Paleosols at the dop of regressive cycles in the upper part of mthe Lower Molinician - Uniform sedimentation with lateral changes during the Late Molinician - *Important development of evaporites* - *Mainly reflux dolomites* - *Dispersion of siliciclastic sediments over the shelf*	- Subtidal →peritidal and restricted sedimentation during the Early Moliniacian - Paleosols at the top of regressive cycles in the upper part of the Lower Moliniacian - Uniform sedimentation with lateral changes during the Late Moliniacian - *No evaporites* - *Mainly mixing-zone dolomites* - *Concentration of siliciclastic sediments near the continent*
Livian	- *Rhytmic deposited sediments* - *Evaporitic collapse breccia* - *Thick evaporites*	- No cycles - Sedimentary breccia - No evaporites
Warnantian	- Rhytmic deposited sediments - Hiatus at the top of the Visean - *Broad shallow shelf (100 km)* - *Absence of large cryptalgal reef mounds* - *Difference in thickness of strata due to erosion*	- Rhythmic deposited sediments - Hiatus at the top of the Visean - *Narrow shallow shelf (30-40 km)* - *Large cryptalgal reef mounds present* - *Difference in thickness of strata due to differential subsidence*

Table 2. : Summary of features (similarities and differences) of the Visean north and south of the London-Brabant Massif

3. DIAGENESIS

The diagenesis of the Visean strata south of the London-Brabant Massif has not been extensively studied. The only detailed investigations are from Swennen (1986), Swennen & Viaene (1984) and Van der Poel (1987). Swennen & Viaene (1984) and Swennen (1986) recognized five dolomite types in the Vesder Basin. The most important type is a xenotopic to hypidiotopic dolomite, which formed through the circulation of hypersaline fluida in the subsurface (reflux dolomitisation). Dolomitisation of Lower Visean strata in the Campine-Brabant Basin also occurred. However, the dolomites formed in the mixing-zone of seawater and meteoric water (Muchez, 1988).

4. LITHOGEOCHEMISTRY

Table 1 summarizes some geochemical data of the Lower Visean strata of the Campine-Brabant Basin and of the Namur, Dinant and Vesder Basin. From this table we can conclude that :

¤ the concentration of iron, organic carbon, insoluble residue and potassium in the Namur and Vesder Basin is higher than in the boreholes of Halen and Turnhout and lower than in the boreholes of Booischot and Kessel. The Namur and Vesder Basin were situated near the London-Brabant Massif (Bless *et al.*, 1980) and were subjected to the supply of siliciclastic sediments. The low insoluble residue content of the limestones in the boreholes of Halen and Turnhout in contrast with the high content in the boreholes of Booischot and Kessel is probably related to the block-faulted character of the Campine-Brabant Basin. The margin north of the London-Brabant Massif could be much steeper than in the south providing a higher siliciclastic supply. However, when the blocks of the Campine-Brabant Basin were tilted in the direction of the Massif, the siliciclastic sediments were trapped and were not dispersed over large areas ;

- the strontium concentration in the Vesder Basin is high. This can be due to the precipitation of aragonite in an evaporitic environment (Swennen, 1984) ;
- the zinc content in the Vesder and Namur Basin is much higher than in the Dinant and Campine-Brabant Basin. This is in agreement with the conclusion of Swennen (1986) that the Namur and Vesder Basin are metallogenic provinces.

5. DISCUSSION

The general features of the Visean north and south of the London-Brabant Massif are summarized in table 2. From the comparison important similarities are obvious :

- the regressive trends and the development of paleosols in the upper part of the Early Moliniacian (Conil, 1964 ; Bless *et al.*, 1976 ; Muchez, 1988 ; Maes *et al.*, 1989) ;
- the rhythmic deposited sediments in the Warnantian ;
- the hiatus at the top of the Visean.

These phenomena can be explained by processes which occur over large distances, such as worldwide sea level fluctuations (Conil & Lys, 1977) and large scale tectonics. Worldwide sea level fluctuations have been recognized at the top of the Early Moliniacian and at the end of the Visean (Ross & Ross, 1985).

In spite of the similarities, several differences in the sedimentology, diagenesis and geochemistry are present (table 2). These differences can be explained by a different tectonical setting.

The Visean strata north of the London-Brabant Massif have been deposited in a block-faulted structural framework (Grayson & Oldham, 1987 ; Muchez *et al.*, 1987a). The initial position of the basins was controlled by paleo-plate influences ; chiefly by the location of the Caledonide granitoid plutons (Leeder, 1982). The driving mechanism for their subsidence came from the Hercynian plate margin to the south.

The position and the subsidence of the basins south of the London-Brabant Massif were caused mainly by Hercynian plate margin processes (Leeder, 1976, 1982). Back-arc extension dominated the Dinantian evolution of the Cornwall-Rhenish-East Sudetic basins (Ziegler, 1984). According to Paproth (1987), the Dinant synclinorium belonged to the foreland-plate of the mid-European Variscan tectogen. In her model, the present Ardenne area was characterized by important horizontal movements.

ACKNOWLEDGEMENTS

I am grateful to Prof. Dr. W. Viaene and Prof. Dr. J. Bouckaert who supervised my study of the Campine-Brabant Basin, for their encouragement and their stimulating discussions. I would like to thank Prof. Dr. R. Conil, Dr. M. Dusar, Prof. Dr. E. Poty, Prof. Dr. R. Swennen and Prof. Dr. N. Vandenberghe for their constructive discussions, which led to a better insight in the paleogeography of the Visean in Belgium. The technical assistance of Mr. D. Coetermans, Mr. C. Moldenaers and Ms. A. Van Espen is appreciated. Financial support of the National Fund for Scientific Research of Belgium is acknowledged.

REFERENCES

AUSTIN, R., CONIL, R., GROESSENS, E. & PIRLET, H., 1974 - Etude biostratigraphique de l'encrenite de Tramaka. *Bull. Soc. belge Géol.*, *83*, 113-129.

BLESS, M.J.M., BOUCKAERT, J., BOUZET, Ph., CONIL, R., CORNET, P., FAIRON-DEMARET, M., GROESSENS, E., LONGERSTAEY, P.J., MEESSEN, J.P.M.Th., PAPROTH, E., PIRLET, H., STREEL, M., VAN AMEROM, H.W.J. & WOLF, M., 1976 - Dinantian rocks in the subsurface north of the Brabant and Ardenno-Rhenish massifs in Belgium, the Netherlands and the Federal Republic of Germany. *Meded. Rijks Geol. Dienst*, *27*, 81-195.

BOUCKAERT, J. & HIGGINS, A.C., 1963 - La base du Namurien dans le Bassin de Dinant. *Bull. Soc. belge Géol.*, *72*, 106-122.

BOUCKAERT, J., DELMER, A. & OVERLAU, P., 1961 - Stratigraphie du Viséen moyen et supérieur et du Namurien inférieur dans la région de Basècles-Blaton (Tranchée du Mont des Groseilliers). *Mém. Inst. Géol. Univ. Louvain*, *22*, 239-255.

BOURGUIGNON, P., 1951 - Etude géologique et sédimentologique des brèches calcaires viséennes de Belgique. *Ann. Soc. géol. Belg.*, *74*, 105-211.

BRIEN, V., 1911 - Quelques considérations sur les brèches du calcaire carbonifère de Belgique. *Ann. Soc. géol. Belg.*, *38*, 279-297.

CALEMBERT, L. & VAN LECKWIJCK, W., 1941 - Sur des phénomènes de dissolution au contact des terrains viséens et namuriens dans la région de Samson. *Ann. Soc. géol. Belg.*, *65*, 41-46.

CONIL, R., 1964 - Interprétation micropaléontologique de quelques sondages de Campine. Note préliminaire. *Bull. Soc. belge Géol., Paléont., Hydr.*, *72*, 123-136.

CONIL, R. & NAUM, C., 1976 - Les foraminifères du Viséen moyen V2a aux environs de Dinant. *Ann. Soc. géol. Belg.*, *99*, 109-142.

CONIL, R. & LYS, M., 1977 - Les transgressions dinantiennes et leur influence sur la dispersion et l'évolution des foraminifères. *Mém. Inst. géol. Univ. Louvain*, *29*, 9-55.

CONIL, R., PIRLET, H. & LYS, M., 1967 - Echelle biostratigraphique du Dinantien de la Belgique. *Serv. Géol. Belg., Prof. Paper*, *13*, 56 pp.

CONIL, R., PIRLET, H., RAMSBOTTOM, W., NAUM, C., GERARD, R., HANCE, L. & VIESLET, J.-L., 1981 - Contribution à l'étude des foraminifères du Dinantien d'Europe occidentale. *Mém. Inst. Géol. Univ. Louvain*, *31*, 255-275.

DE DORLODOT, H., 1908 - Sur l'origine de la Grande Brèche viséenne et sa signification tectonique. *Bull. Soc. belge Géol.*, *22*, 29-38.

DREESEN, R., BOUCKAERT, J., DUSAR, M., SOILLE, J. & VANDENBERGHE, N., 1987 - Subsurface structural analysis of the late-Dinantian carbonate shelf at the northern flank of the Brabant Massif (Campine Basin, N-Belgium). *Toelicht. Verhand. Geol. en Mijnkaarten van België*, *21*, 37 pp.

GRAULICH, J.M., 1963 - La phase sudète de l'orogenèse varisque dans le synclinorium de Namur à l'est du Samson. *Bull. Soc. belge Géol.*, *71*, 181-199.

GRAYSON, R.F. & OLDHAM, L., 1987 - A new structural framework for the northern British Dinantian as a basis for oil, gas and mineral exploration. *In* : Miller, J., Adams, A.E. & Wright, V.P. (eds) : European Dinantian Environments, 33-59.

GROESSENS, E., CONIL, R. & HENNEBERT, M., 1982 - Le sondage de St-Ghislain. *Mém. Expl. Cart. géol. min. Belg., Serv. Géol. Belg.*, *22(1979)*, 137 pp.

HANCE, L., 1982 - Le Moliniacien supérieur de Vinalmont. Sédimentologie, paléontologie, stratigraphie. *Bull. Soc. belge Géol.*,*91*, 135-151.

HANCE, L., 1985 - Le Moliniacien (Viséen inférieur) du synclinorium de Dinant depuis la région dinantaise jusqu'à la vallée de l'Ourthe (Belgique). *Thèse doct., Univ. Cath. Louvain*, 206 pp.

HANCE, L. & HENNEBERT, M., 1980 - On some Lower and Middle Visean carbonate deposits of the Namur Basin, Belgium. *Meded. Rijks Geol. Dienst*, *32*, 66-68.

HANCE, L., HENNEBERT, M. & OVERLAU, P., 1981 - Révision stratigraphique et sédimentologique du Tournaisien supérieur (Ivorien) et du Viséen inférieur (Moliniacien) de la vallée de l'Orneau, Belgique. *Mém. Inst. géol. Univ. Louvain*, *31*, 183-207.

HENNEBERT, M. & HANCE, L., 1980 - Présence de nodules de sulfate de calcium silicifiés dans le Viséen moyen (Cf. V2bβ) à Vedrin (Namur, Belgique). *Ann. Soc. géol. Belg.*, *103*, 25-33.

HOYEZ, B., 1971 - Le Viséen du Boulonnais : analyses et corrélations séquentielles. *Ann. Soc. géol. Nord*, *41*, 113-128.

JACOBS, L., SWENNEN, R., VAN ORSMAEL, J., NOTEBAERT, L. & VIAENE, W., 1982 - Occurrences of pseudomorphs after evaporitic minerals in the Dinantian carbonate rocks of the eastern part of Belgium. *Bull. Soc. belge Géol.*, *91*, 105-123.

KAISIN, F., 1942 - Age géologique et milieu générateur de la Grande Brèche. *Bull. Soc. belge Géol.*, *51*, 84-92.

KIMPE, W.F.M., BLESS, M.J.M., BOUCKAERT, J., CONIL, R., GROESSENS, E., MEESSEN, J.P.M.Th., POTY, E., STREEL, M., THOREZ, J. & VANGUESTAINE, M., 1978 - Paleozoic deposits east of the Brabant Massif in Belgium and the Netherlands. *Meded. Rijks Geol. Dienst*, *30*, 37-103.

LEEDER, M.R., 1976 - Sedimentary facies and the origins of basin subsidence along the northern margin of the supposed Hercynian Ocean. *Tectonophysics*, *36*, 167-179.

LEEDER, M.R., 1982 - Upper Palaeozoic basins of the British Isles - Caledonide inheritance versus Hercynian plate margin processes. *J. geol. Soc. London*, *139*, 479-491.

LEES, A., 1984 - An introduction and guide to the Waulsortian "reefs" of Belgium. *Univ. de Louvain*, 57 pp.

LEES, A., HALLET, V. & HIBO, D., 1985 - Facies variation in Waulsortian buildups, Part 1 ; A model from Belgium. *Geol. J.*, *20*, 133-158.

MAES, K., PEETERS, C., MUCHEZ, Ph., SWENNEN, R. & VIAENE, W., 1989 - The occurrence of paleosols in the Lower Visean of the Walhorn Section (Vesder Basin, E-Belgium). *Ann. Soc. géol. Belg.*, *112*: 69-77.

MAMET, B., CLAEYS, Ph., HERBOSCH, A., PREAT, A. & WOLFOWICZ, Ph., 1986 - La "Grande Brèche" viséenne (V3a) des bassins de Namur et de Dinant (Belgique) est probablement une brèche d'effondrement. *Bull. Soc. belge Géol.*, ***95***, 151-166.

MICHOT, P., GERARDS, J., MONTY, C. & PIRLET, H., 1963 - Sédimentologie des formations viséennes du synclinorium de Namur, dans la vallée de la Meuse. *6ème Congr. Intern. Sédiment. Belgique et Pays-Bas. Excurs. G1*, 23 pp.

MONTY, C., 1964 - Recherches paléoécologiques dans le V2a de la région de "Huy-Moha". *Ann. Soc. géol. Belg.*, ***86***, 407-431.

MUCHEZ, Ph., 1988 - Sedimentologische, diagenetische en geochemische studie van de Dinantiaan strata ten noorden van het Brabant Massief (Bekken van de Kempen). *Unpublished Ph. D. thesis, Katholieke Universiteit Leuven*, Belgium, 311 pp.

MUCHEZ, Ph. & PEETERS, C., 1986 - The occurrence of a cryptalgal reef structure in the Upper Visean of the Visé area (the Richelle Quarries). *Ann. Soc. géol. Belg.*, ***109***, 573-577.

MUCHEZ, Ph. & VIAENE, W., 1987 - Dolocretes from the Lower Carboniferous of the Campine-Brabant Basin, Belgium. *Pedologie*, ***37(2)***, 187-202.

MUCHEZ, Ph., VIAENE, W., WOLF, M. & BOUCKAERT, J., 1987a - Sedimentology, coalification pattern and paleogeography of the Campine-Brabant Basin during the Visean. *Geol. Mijnbouw*, ***66***, 313-326.

MUCHEZ, Ph., CONIL, R., VIAENE, W., BOUCKAERT, J. & POTY, E., 1987b - Sedimentology and biostratigraphy of the Visean carbonates of the Heibaart (DzH1) borehole (northern Belgium). *Ann. Soc. géol. Belg.*, ***110***, 199-208.

PAPROTH, E., 1987 - The Variscan front north of the Ardenne-Rhenish Massifs. *Ann. Soc. géol. Belg.*, ***110***, 279-296.

PAPROTH, E., CONIL, R., *et al.*, 1983 - Bio- and lithostratigraphic subdivision of the Dinantian in Belgium, a review. *Ann. Soc. géol. Belg.*, ***106***, 185-239.

PIRLET, H., 1963 - Sédimentologie des formations du Viséen supérieur, V3b dans la vallée du Samson (Bassin de Namur, Belgique). *Ann. Soc. géol. Belg.*, ***86/1***, 1-46.

PIRLET, H., 1964 - La sédimentation rythmique de la partie inférieure du V3a dans le bassin de Namur ; les relations entre le Dinantien et le Namurien de Namèche à Moha. *Ann. Soc. géol. Belg.*, ***86***, 461-468.

PIRLET, H., 1968 - La sédimentation rythmique et la stratigraphie du Viséen supérieur V3b, V3c inférieur dans les synclinoriums de Namur et de Dinant. *Mém. Acad. roy. Belg.*, ***17(4)***, 98 pp.

PIRLET, H., 1972 - La "Grande brèche" viséenne est un olisthostrome. Son rôle dans la constitution du géosynclinal varisque en Belgique. *Ann. Soc. géol. Belg.*, ***95***, 53-134.

POELS, J.-P. & PREAT, A., 1983 - Mise en évidence d'une série évaporitique dans le Viséen inférieur de Vedrin (Province de Namur). *Bull. Soc. belge Géol.*, ***92***, 337-350.

ROSS, C.A. & ROSS, J.R.P., 1985 - Late Paleozoic depositional sequences are synchronous and worldwide. *Geology*, ***13***, 194-197.

ROUCHY, J.M., GROESSENS, E. & LAUMONDAIS, A., 1984 - Sédimentologie de la formation anhydritique viséenne du sondage de Saint-Ghislain (Hainaut, Belgique). Implications paléogéographiques et structurales. *Bull. Soc. belge Géol.*, ***93***, 105-145.

ROUCHY, J.M., PIERRE, C., GROESSENS, E., MONTY, C., LAUMONDAIS, A. & MOINE, B., 1986 - Les évaporites pré-permiennes du segment varisque franco-belge : aspects paléogéographiques et structuraux. *Bull. Soc. belge Géol.*, ***95*** : 139-149.

SCHILTZ, M., 1987 - Transcar quarry - Vallée du Samson. *Bull. Soc. belge Géol.*, ***96*** : 231-241.

SWENNEN, R., 1984 - Stratigrafie, sedimentologie en relaties tussen lithogeochemie en Pb-Zn mineralisaties van het Dinantiaan in het synklinorium van Verviers. *Unpublished Ph. D. thesis, K.U.Leuven.*, 272 p.

SWENNEN, R., 1986 - Lithogeochemistry of Dinantian carbonates in the Vesdre Basin (Verviers synclinorium : E-Belgium) and its relations to paleogeography, lithology, diagenesis and Pb-Zn mineralizations. *Med. Kon. Acad. Wet., Lett. & Sch. Kunst. Belg., Kl. Wet.*, ***48(2)*** : 66-108.

SWENNEN, R. & VIAENE, W., 1984 - Sedimentpetrographic and geochemical features of different types of Dinantian dolostones along the SE-border of the Brabant Massif (E-Belgium). *Eur. Dinant. Envir., 1st Mtg. 1984. Abstr., Dept. Earth Sciences, Open University* : 26-28.

SWENNEN, R. & VIAENE, W., 1986 - Occurrence of pseudomorphosed anhydrite nodules in the Lower Visean (Lower

Moliniacian of the Verviers synclinorium, E. Belgium). *Bull. Soc. belge Géol., 95* : 89-99.

SWENNEN, R., VIAENE, W., JACOBS, L. & VAN ORSMAEL, J., 1981 - Occurrence of calcite pseudomorphs after gypsum in the Lower Carboniferous of the Vesder Region (Belgium). *Bull. Soc. belge Géol., 90* : 231-247.

VANDENBERGHE, N., 1984 - The subsurface geology of the Meer area in North Belgium, and its significance for the occurrence of hydrocarbons. *J. Petrol. Geol., 7* : 55-66.

VANDENBERGHE, N., POGGIAGLIOLMI, E. & WATTS, G., 1986 - Offset-dependent seismic amplitudes from karst limestone in northern Belgium. *First break, 4(5)* : 9-27.

VAN DER POEL, A., 1987 - Diagenesis, history of porosity creation and destruction within karstified Viesan limestones of the Namur synclinorium, Belgium. *Ann. Soc. géol. Belg., 110* : 261-269.

VAN ORSMAEL, J., 1982 - Lithogeochemie van de Dinantiaan karbonaatgesteenten in het synclinorium van Dinant. *Unpublished Ph. D. thesis, K.U.Leuven*, 128 p.

VIESLET, J.L., 1980 - Révision stratigraphique du Tournaisien et du Viséen inférieur de Malonne. *Ann. Soc. géol. Belg., 103* : 63-71.

ZIEGLER, P.A., 1984 - Caledonian and Hercynian crustal consolidation of Western and Central Europe - a working hypothesis. *Geol. Mijnbouw, 63* : 93-108.