

# BOULONNAIS

## FERQUES Section

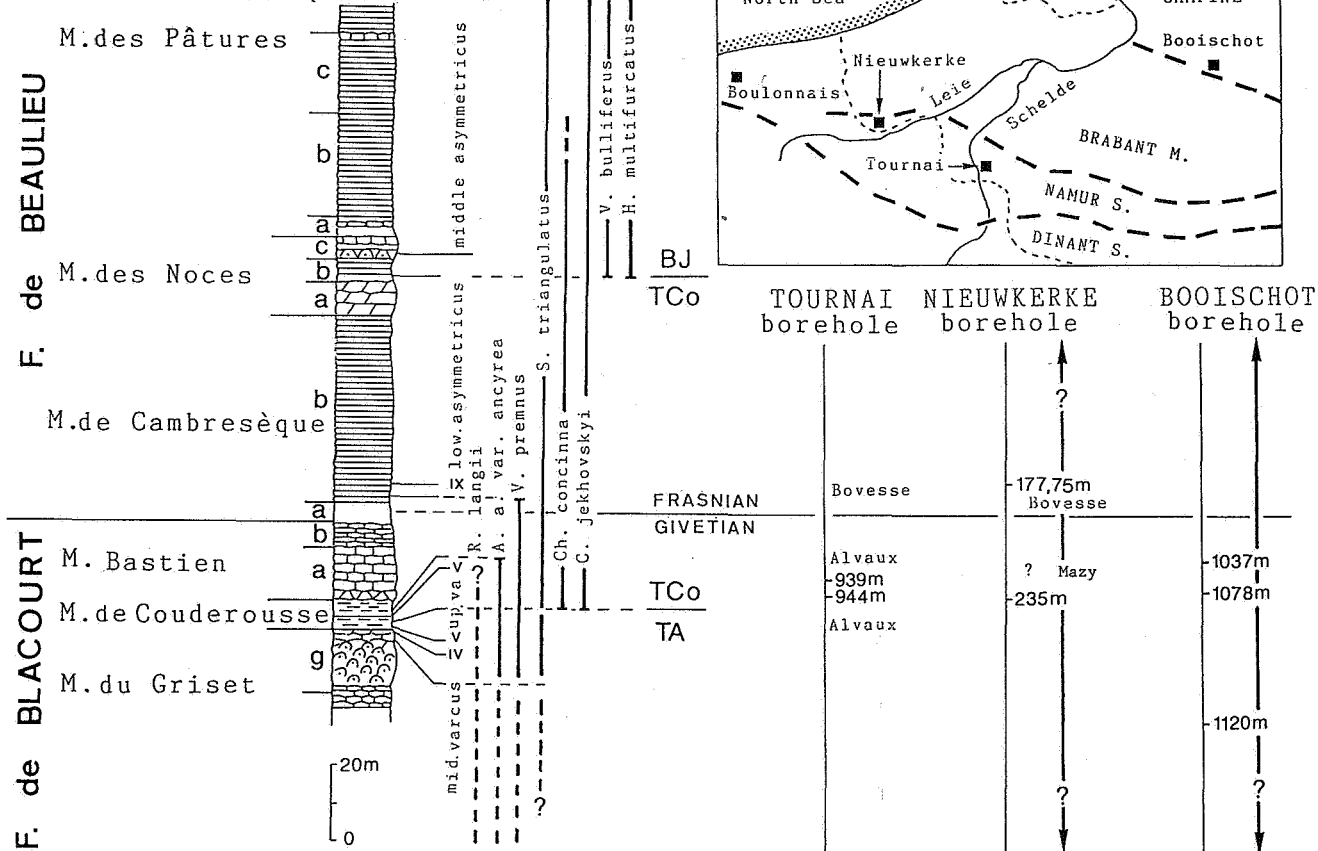


Figure 1.

1981).

In the Nieuwkerke borehole (DUSAR & LOY, 1986), the Formation(s) de Bovesse (? and Mazy) contain(s), between 177,75 m and 235 m, a rather poor assemblages of spores which belong to the TA-TCO Zones (LOBOZIAK & STREBEK, unedited).

We refer to MC GREGOR (1981) for a discussion of the applications of these criteria around the world, i.e. correlations with continental beds in Spitsbergen and Canadian Arctic Archipelago and marine beds of the Russian platform.

## VI. CORRELATIONS OF THE AUXILIARY STRATOTYPE WITH SECTIONS OUTSIDE THE TYPE AREA

by P. BULTYNCK

Presented here is a series of correlations charts (fig. 1-6) demonstrating that the base of the Lower *P. asymmetricus* ZONE ZIEGLER, W., 1971, as represented in the auxiliary stratotype for the Givetian-Frasnian boundary at Nismes, is recognizable on a world-wide scale in both near-shore and offshore facies.

A possible difficulty in applying this boundary is that *Ancyrodella rotundiloba rotundiloba*, the earliest occurrence of which characterizes the base of the Lower *P.*

*asymmetricus* Zone, ranges up into the Middle *P. asymmetricus* Zone. The lower portion of the vertical range of *A. rotundiloba rotundiloba* (= *A. rotundiloba rotundiloba* Fauna of P. BULTYNCK & L. JACOBS (1983, p. 37)) can clearly be demonstrated *A. binodosa* entering slightly below *A. rotundiloba rotundiloba* and disappearing within the lower part of the Fauna's range, and by the entry of *A. rotundiloba alata* at the top of this Fauna's range. The latter subspecies may be accompanied by *Ancyrodella pramosica* PERRI, M.C. & SPALLETTA, C., 1981.

Figures 1 to 6 show the position of the base of the Lower *P. asymmetricus* Zone in different key sections in Europe (from Spain to the Urals), N. Africa, N. America, S. China, and W. Australia. A thick solid line indicates a well-established correlation in the sense that *A. binodosa* and *A. rotundiloba rotundiloba* are present in the same section. A dashed line with question-marks indicates that the correlation is less certain. The various columnar sections are numbered (1) to (29) and the original references to the conodont faunas, to the sample numbers and the lithological symbols are given below. The names of some conodont taxa have been modified according to currently accepted synonymy and to personal identification of figured specimens.

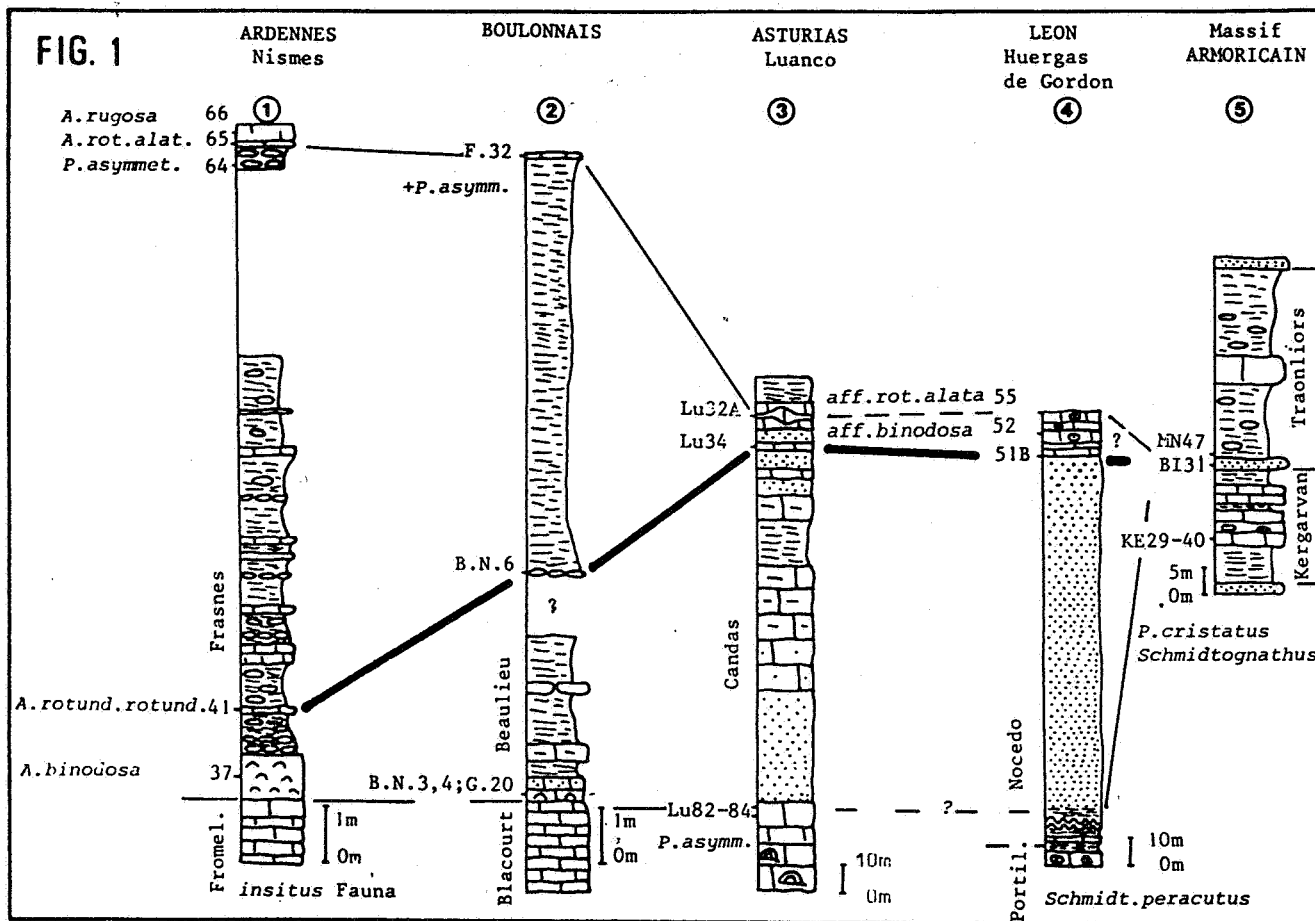


Figure 1. From P. BULTYNCK, 1982, p. 28, fig. 1.

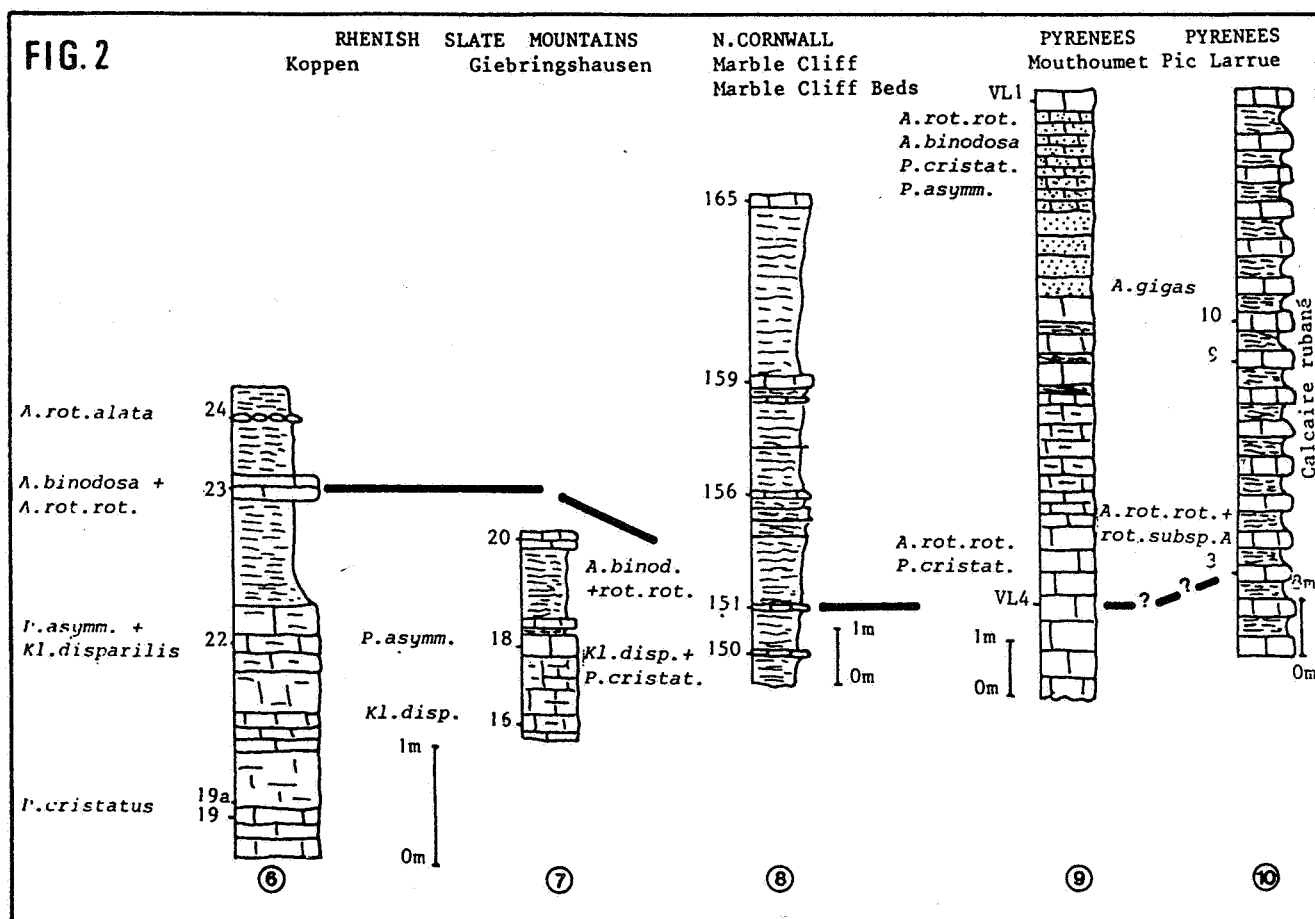


Figure 2. From P. BULTYNCK, 1982, p. 29, fig. 2.

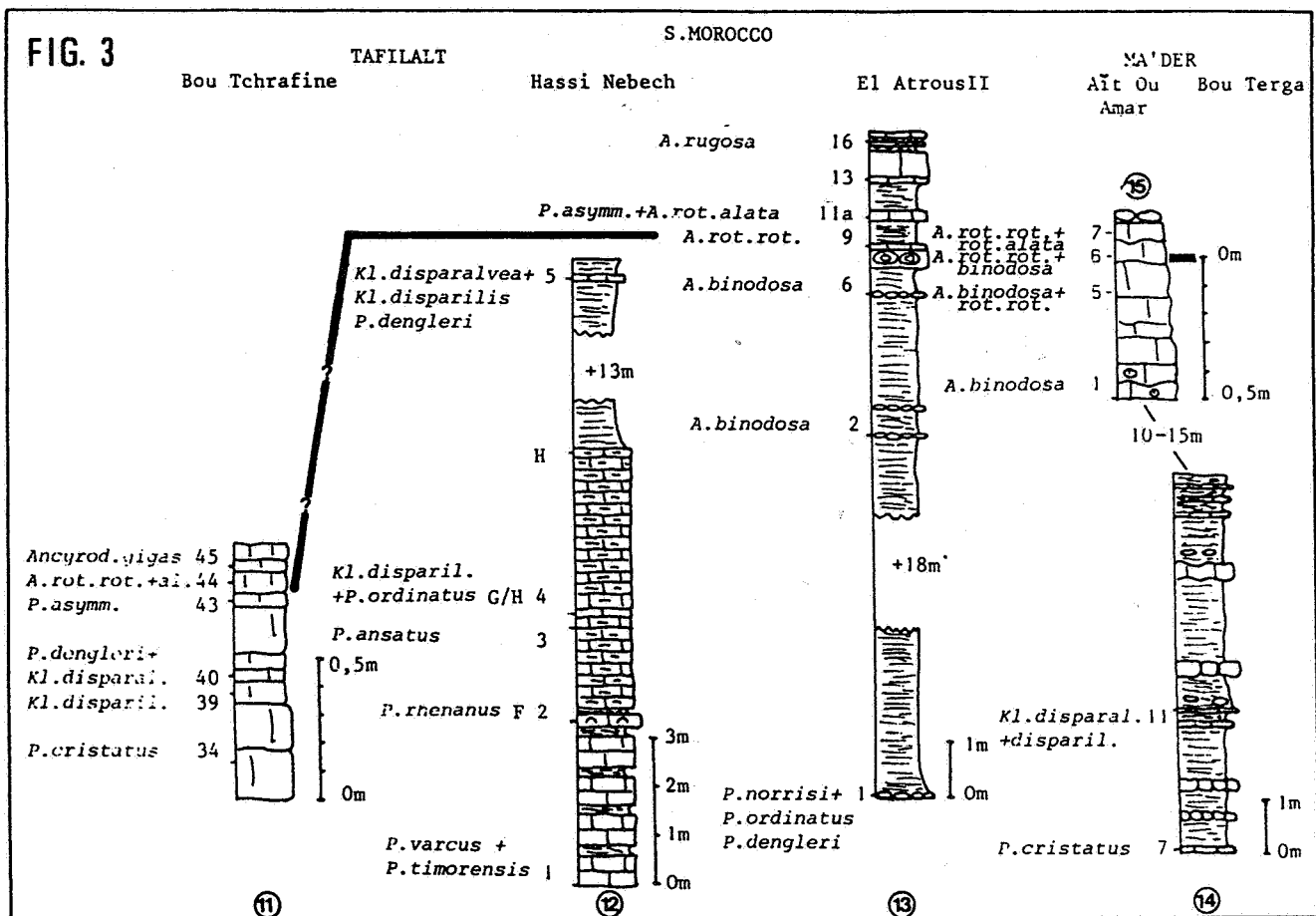


Figure 3: From P. BULTYNCK, 1982, p. 30, fig. 3, modified.

Figure 1.

- 1 P. BULTYNCK with contribution by L. JACOBS (1982, fig. 2-3, table 1)
- 2 D. BRICE, P. BULTYNCK, J. DEUNFF, S. LOBOZIAK & M. STREEL (1979, p. 332, table 3)
- 3 - 4 S. GARCIA LOPEZ (1982, fig. 53 and fig. 54-55).  
A. aff. rotundiloba alata and A. aff. binodosa correspond to two new species described and figured by S. GARCIA LOPEZ (pl. 13, fig. 13-16 ; pl. 14, fig. 10-23).
- 5 P. MORZADEC & M. WEYANT (1982, p. 31, fig. 3).

Figure 2.

- 6 - 7 - W. ZIEGLER (1965, p. 650, fig. 1 ; pp. 653-654, tabl. 1-2).  
- W. ZIEGLER, G. KLAPPER & J.G. JOHNSON (1976, p. 112, fig. 2 ; pp. 126-127, tabl. 13 & 15).  
- W. ZIEGLER & G. KLAPPER with contributions by O.H. WALLISER (1981, fig. 1).
- 8 - W.T. KIRCHGASSER (1970, p. 343, fig. 3 ; p. 349, fig. 4).  
Ancyrodella rotundiloba (pl. 65, fig. 5, 9) = A. binodosa  
- M.R. HOUSE, N. MOURAVIEFF & A.P. BEESE (1978, p. 60, fig. 23 ; pp. 62-63).
- 9 C. CYGAN (1979, p. 69, fig. 36 ; p. 70, tabl. 10).
- 10 M.-F. FERRET, J. JOSEPH, R. MIROUSE & A. MOURAVIEFF (1972, pp. 2440-2441).

Figure 3.

- 11 - 14 P. BULTYNCK & L. JACOBS (1981, figs. 3-5).
- 15
- 12 M. BENSALD (1974, pp. 90-92, fig. 5)  
The conodont data are from samples collected by M. BENSALD, P. BULTYNCK, P. SARTENAER and O.H. WALLISER during a joint field trip to Hassi Nebech in March 1981.
- 13 H. HOLLARD (1974, p. 41, fig. 7)  
The conodont data are from samples collected by P. BULTYNCK, P. SARTENAER and O.H. WALLISER during a joint field trip to El Atrous in March 1981.

FIG. 4

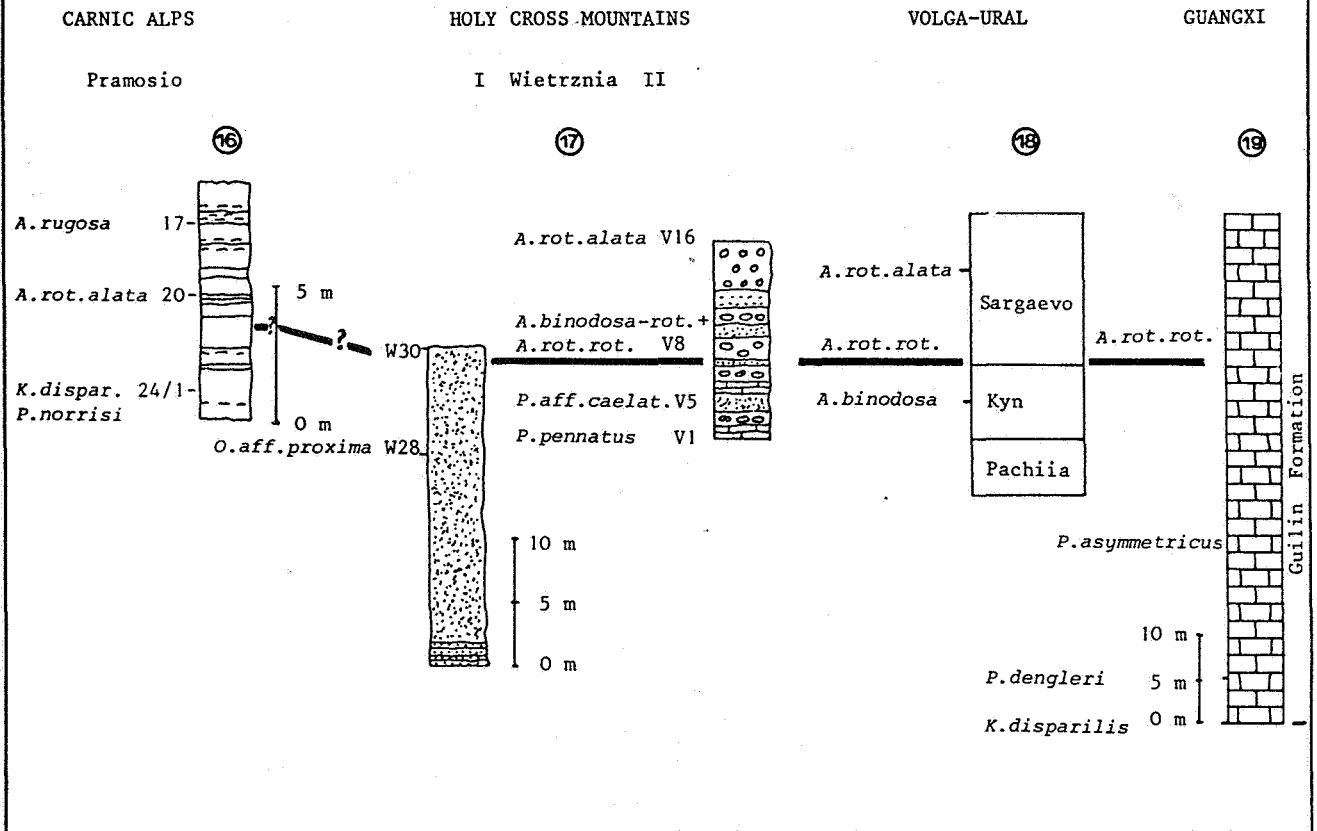


Figure 4. From P. BULTYNCK, 1982, p. 31, fig. 4, modified.

FIG. 5

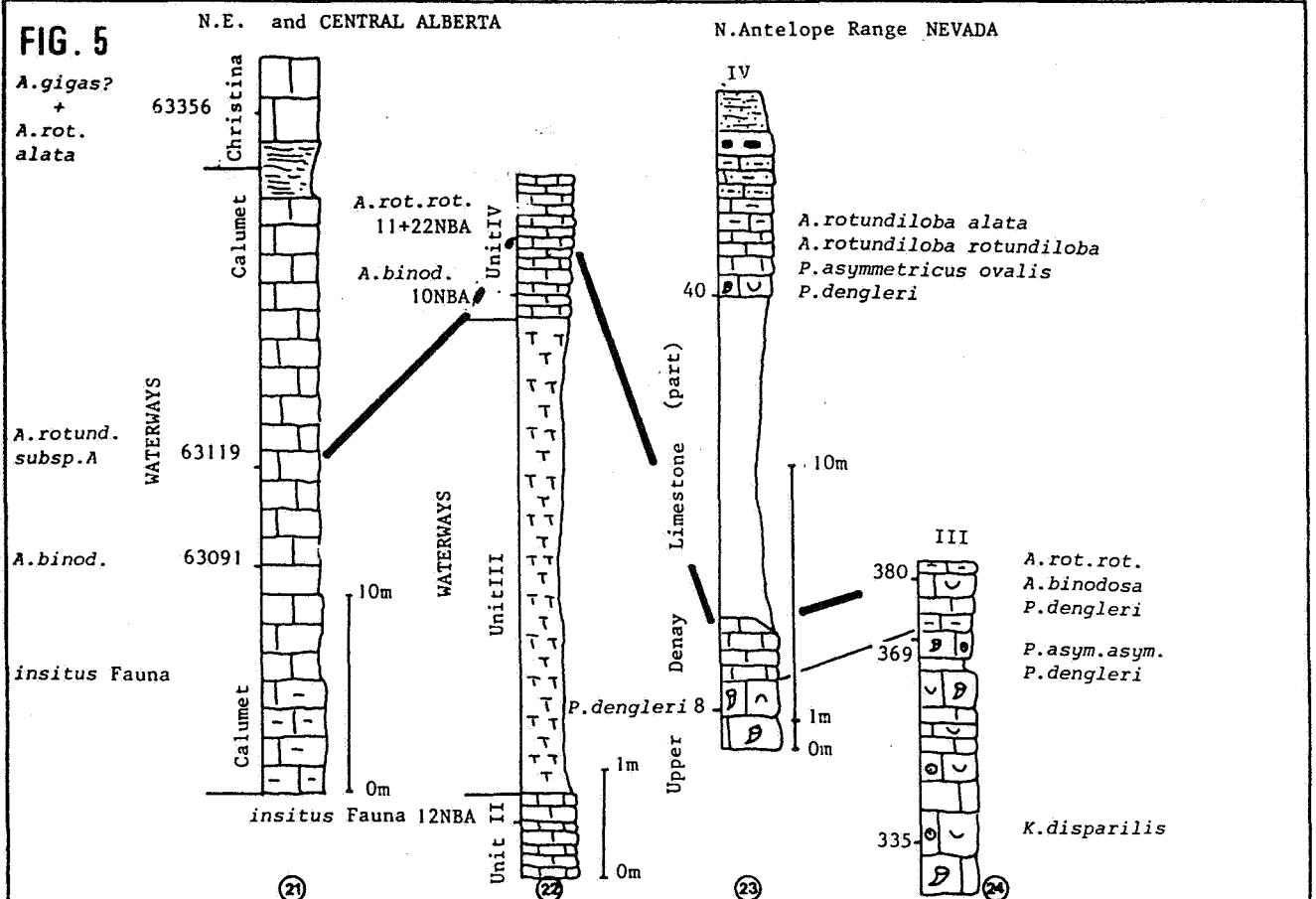


Figure 5. From P. BULTYNCK, 1982, p. 32, fig. 5.

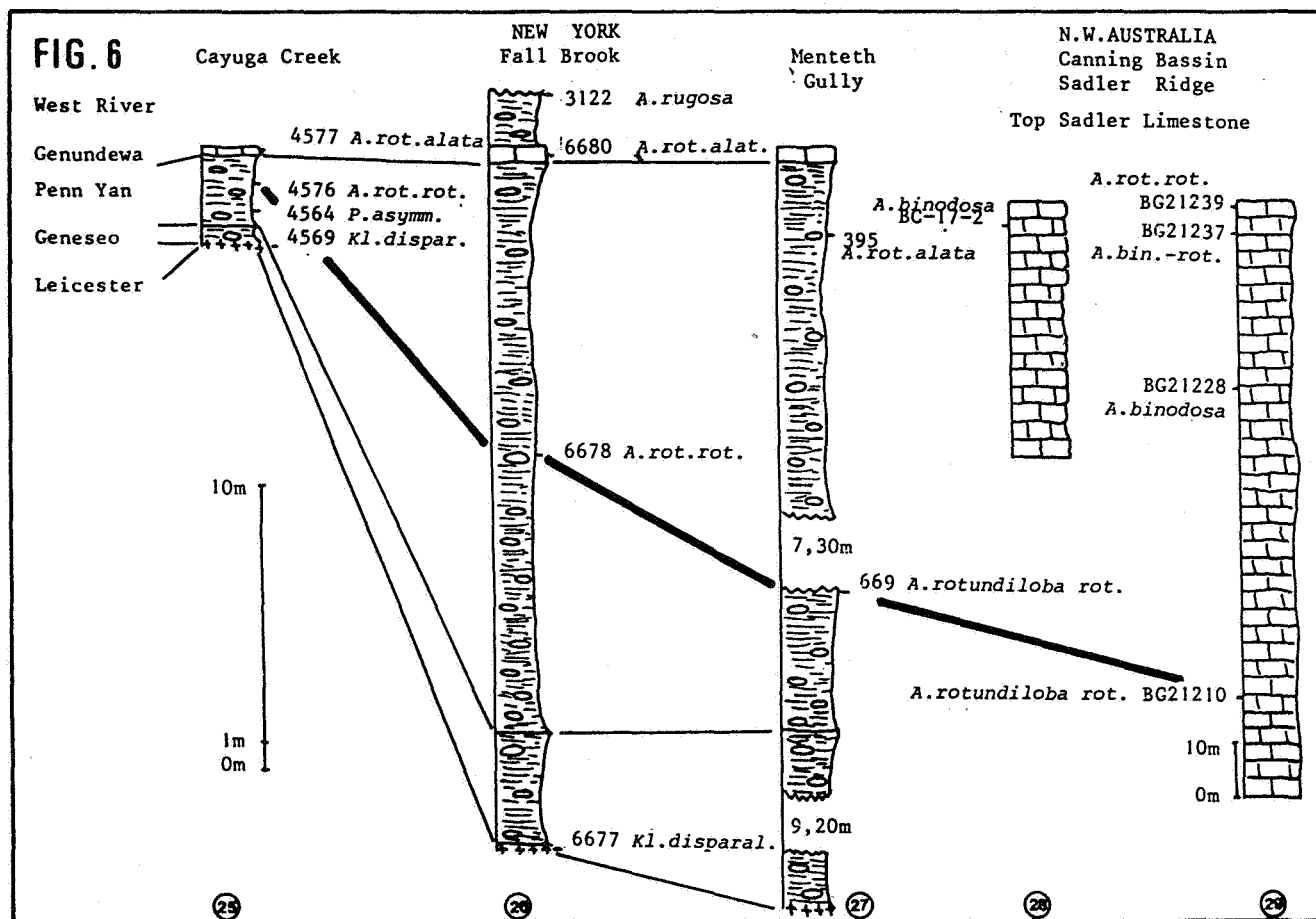


Figure 6. From P. BULTYNCK, 1982, p. 33, fig. 6.

Figure 4.

- 16 M. C. PERRI & C. SPALLETTA (1981, table 3, fig. 2).
- 17 M. SZULCZEWSKI (1971, fig. 7 ; p. 70, tabl. 6 ; p. 72, tabl. 7).  
*Spathoganthodus sannemanni sannemanni* BISCHOFF & ZIEGLER (pl. 7, fig. 11 a-b) = *Ozarkodina* aff. *proxima* (POLLOCK, C.A., 1968).  
*Ancyrodella rotundiloba rotundiloba* (BRYANT) (pl. 1, fig. 4 a-b) = specimen transitional between *A. binodosa* and *A. rotundiloba rotundiloba*.
- 18 - V.G. KHALYMBADZHA & N.G. TCHERNYCHEVA (1970, fig. 1).  
- N.G. TCHERNYCHEVA & V.G. KHALYMBADZHA (1978, p. 174, tabl. 1).  
- E.A. YOLKIN (1982).
- 19 HOU HONG-FEI (1982).

Figure 5

- 21 T.T. UYENO (1974, p. 5, tabl. 1 ; tabl. 4b).  
The columnar section is from table 1 ; the conodont distribution is based on table 4b.
- 22 A.W. NORRIS & T.T. UYENO (1981, fig. 2 and fig. 4).
- 23 - 24 J.G. JOHNSON, G. KLAPPER & W.R. TROYAN (1980, p. 82, fig. 4 ; pp. 95-97, tabl. 18 and 22).

Figure 6

- 25 - 27 J.W. HUDDLE, assisted by J.E. REPETSKI (1981, tabl. 1, sheets 1-5).
- 28 G. SEDDON (1970, p. 742).  
*Ancyrodella rotundiloba* (BRYANT, 1921) (pl. 16, fig. 1) = *A. binodosa*.
- 29 E.C. DRUCE (1976, p. 15 ; pp. 271-275).  
*Ancyrodella rotundiloba rotundiloba* (BRYANT, 1921) (pl. 9, fig. 1-2) = *A. binodosa* ; (pl. 9, fig. 5) = specimen transitional between *A. binodosa* and *A. rotundiloba rotundiloba*.

## VII. CONSERVATION OF THE AUXILIARY BOUNDARY STRATOTYPE

The proposed auxiliary boundary stratotype is located on the slope of a wooded hill above the resurgence of the River Eau-Noire. This land is the property of the town of Nismes (5 600 inhabitants in 1983). The local authorities, as well as the National Parks "Ardenne et Gaume", established in 1941, have agreed to protect and render accessible the geological site, with the assistance of the Royal Institute of Natural Sciences of Belgium.

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