

III. GEOGRAPHIC LOCATION OF THE PROPOSED BOUNDARY STRATOTYPE

by P. SARTENAER

The auxiliary boundary stratotype is situated in the town of Nismes. The town lies in the central part of the southern flank of the Dinant Basin, and specifically in the Fagne natural region. Nismes is at 4.5 km north-east of the town of Couvin, 2.85 km east of the village of Frasnies, and 22 km south-west of the town of Givet.

The exact location of the outcrop is indicated on the following aerial photograph, and also on figure 1 of the first paper (conodonts) in chapter V.

An aerial photograph of another excellent outcrop, the Sourd d'Ave section, is also included herein.

IV. RECOGNITION OF THE AUXILIARY BOUNDARY STRATOTYPE ON THE SOUTHERN FLANK OF THE DINANT BASIN IN BELGIUM AND FRANCE

The auxiliary boundary stratotype of Nismes is not the only outcrop in the area where the Givetian-Frasnian boundary beds can be studied.

The following is a list of the principal localities, from West to East :

1. Central part of the southern flank of the Dinant Basin :
 - Boussu-en-Fagne ("chemin de l'ermitage"), Belgium (see P. SARTENAER in chapter V)
 - Nismes, Belgium (see P. BULTYNCK, J. GODEFROID and L. JACOBS, P. SARTENAER, M. COEN-AUBERT and M. COEN in chapter V ; see L. JACOBS in chapter VI)
 - Fort de Charlemont, France (see M. COEN-AUBERT in chapter V)
 - Moulin Boreux, France
 - Fromelennes, France (see P. BULTYNCK and M. COEN-AUBERT in chapter V)
 - Martouzin, Belgium (see J. GODEFROID and L. JACOBS in chapter V)
 - Genimont
 - Sourd d'Ave (see P. BULTYNCK, J. GODEFROID and L. JACOBS, M. COEN-AUBERT and J.G. CASIER in chapter V)
2. Eastern part of the southern flank of the Dinant Basin :
 - Ny (see P. BULTYNCK and M. COEN in chapter V)
 - Sy (see P. BULTYNCK, J. GODEFROID and L. JACOBS, and P. SARTENAER in chapter V)

V. FAUNAS

CONODONTS by P. BULTYNCK

Conodont faunas of late Givetian and early Frasnian age in the type area have been described in a series of papers by M. COEN (1973), A. MOURAVIEFF (1974 and 1982), P. BULTYNCK (1974), P. BUL-

TYNCK and M. COEN (1982) and P. BULTYNCK and L. JACOBS (1982).

In the last -mentioned paper, conodont distributions within the auxiliary boundary stratotype at Nismes and in two other sections (Sourd d'Ave and Sy) are detailed.

By definition, the entry of *Ancyrodella rotundiloba rotundiloba* (BRYANT, W.L., 1921) corresponds to the base of the Lower *P. asymmetricus* Zone ZIEGLER, W., 1971. The subspecies derives from *Ancyrodella binodosa* UYENO, T.T., 1967 by the development of the platform and its ornamentation and by reduction and change of outline of the pit. Many transitional forms, demonstrating the phylogenetic relationship between the two taxa occur through a succession of samples from the auxiliary boundary stratotype. The inception of *A. binodosa* at the very base of the Frasnies Group (the Pont d'Avignon Member of the Nismes Formation) is documented as follows : in bed n° 37, Nismes section ; in bed n° 8, Fromelennes section, according to N. MOURAVIEFF (1974, p. 1) ; in bed 19a, Sourd d'Ave section ; and in bed n° 2, Ny section. These initial appearances are sharp and possibly facies controlled, in view of the distinct lithological change at this level. *A. rotundiloba rotundiloba* enters within a more homogeneous lithological succession 1.50 m higher in bed n° 41, Nismes section ; 0.50 m higher in bed n° 20, Sourd d'Ave section and 1.75 m higher in bed n° 26, Ny section.

The detailed conodont distribution within the sections at Nismes, Sourd d'Ave, and Sy is given in tables 1-3 ; fig. 8 summarizes the stratigraphic ranges of thirty three taxa represented. The ranges of these taxa in reference to the standard conodont zones is briefly discussed below.

G. KLAPPER and W. ZIEGLER (1979, p. 212) and G. KLAPPER and J.G. JOHNSON (1980, p. 403) recognized in ascending order the *S. hermanni* - *P. cristatus* Zone, the *P. dengleri* Zone, and the Lowermost and Lower *P. asymmetricus* Zones, collectively embracing the upper Givetian and lower Frasnian.

Recently, W. ZIEGLER and G. KLAPPER (1982) proposed the *K. disparilis* Zone as equivalent to the uppermost *S. hermanni* - *P. cristatus* Zone and the *P. dengleri* Zone. P. BULTYNCK and L. JACOBS (1983, p. 37) recognized four *Ancyrodella* Faunas : the *A. binodosa* Fauna corresponding to the top of the Lowermost *P. asymmetricus* Zone ; and the *A. rotundiloba rotundiloba* Fauna, the *A. rotundiloba alata* Fauna, and the *A. rugosa* Fauna as subdivisions of the Lower *P. asymmetricus* Zone. The subdivisions have been recognized on an intercontinental scale as demonstrated by the correlation charts discussed later in the present paper, they cannot always be clearly detected in condensed sequences.

The Upper *P. dengleri* Subzone

This term is preferred here to the *disparilis* Zone as none of the guide forms of the *K. disparilis* Zone is present, whereas