

New Palynological Results from the Oville Formation at SW Vozmediano, León (NW Spain)

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The Oville Formation crops out in the Cantabrian Mountain Range, NW Spain, and is generally found in gradual or net contact with the Láncara Formation., its detritic lithology is composed of shales, limolites and sandstones in alternation. Interstratified diabase sills are also common in the north of León. Three tectonic units are defined by Julivert *et al.* (1968) for the Lower Palaeozoic outcrops: the Ponga nappe, the Sobia-Bodón, and Somiedo-Correcilla Units, which are characterized by lateral facies changes and are observed in the Láncara and Oville Formations, "the Beleño Facies" in the Ponga nappe, including shales and very glauconitic sandstones and "the Barrios Facies" in the Sobia-Bodón and Somiedo-Correcilla Units, with limestone nodules in the shales of the base.

The thickness is between 100 and 400 m, increasing in the E-W direction from the "Picos de Europa" to the Narcea antiformal.

Sdzuy (1968) identified a *simula* sandstone horizon including the *Solenopleuropsis simula* trilobite biozone in shales of the base. The diachronism of the Láncara and the Oville Formations indicated by Zamarreño and Julivert (1967), was subsequently corroborated by palynological results (Fombella *et al.* 1993).

The sampling was carried out in the section situated in the south west of Vozmediano, Esla nappe. The thickness of the Oville Formation in this area is 200 m. 22 samples distributed in only 135 m of sediment were studied, given that the other 65 in the upper

part near the Quarzite Barrios Formation were covered by vegetation. Three assemblages are differentiated in this section:

- a) Organic structures probably formed by algal remains (filaments and clusters) in those samples situated nearer to Quarzite Barrios Formation.
- b) In the samples close to the underlying Lancara Formation *Cristallinium*, *Timofeevia*, *Eliasum*, *Zonosphaeridium*, *Ooidium*, *Dasydiacrodium*, *Actinodissus*, and *Saharidia* are present and suggest an Upper Cambrian-Tremadocian age.
- c) The sample situated at a distance of 53 m from shales at the base of the Oville Formation provided a rich and varied assemblage of acritarchs and chitinozoans, *Goniosphaeridium*, *Diexallophasis*, *Baltisphaeridium*, *Buedinguisphaeridium*, *Lophosphaeridium*, *Athabascaella*, *Veryhachium*, *Aremoricarium*, *Peteinosphaeridium*, *Neoverhachium*, *Antruejadina*, *Multiplicisphaeridium*, *Crassiangulina*, *Florisphaeridium*, and *Conochitina*, *Cyathochitina*, *Tanuchitina*, *Desmochitina*, *Eremochitina*, and probably *Rhabdochitina*.

There are two possible ways of interpreting these assemblages:

- 1) The presence of *Crassiangulina*, *Florisphaeridium*, *Neoverhachium*, *Multiplicisphaeridium*, and *Antruejadina* (Cramer 1970), suggests a lower Silurian or a Llandovery age. However this supposition is probably incorrect because according to the quantitative analysis these taxa are rare. Only *M. denticulatum* is common. *Leiofusa*, *Domasia*, *Deunffia*, *Eupoikilofusa*, *Dactylofusa*, *Tylotopalla*, *Tunisphaeridium*, and *Duvernispheera* which are representative taxa from the Upper Ordovician-Lower Silurian, (Martin 1973; Jardíné *et al.* 1974; Hill and Molyneux 1988) are not present. *Spinachitina fragilis*, *Belonechitina postrobusta*, *Conochitina electa*, *Spinachitina maennili*, and *Conochitina alargada*, typical of the Lower Silurian biozones, (Paris *et al.* 1995), are not found in the chitinozoan assemblage either.
- 2) Another possibility is to suggest a Middle-Upper Ordovician probably Llanvirnian-Llandeilian age. *Coryphidium*, *Striatotheca*, *Frankea*, *Marrocanium*, *Arbusculidium*, *Vulcanisphaera*, *Vavrdovella*, *Priscogalea*, *Tetraniveum*, *Cymatiogalea*, and *Pirea*, which are typically Arenigian taxa (Vavrdová 1974; Molyneux and Dorning 1989), are not found in this section, only *Peteinosphaeridium* sp., *Aremoricarium simplex*, *Baltisphaeridium ritvae*, *B. naninum*, *B. hamatum*, *B. folkeslundianum*, *B. anneliae*, *B. brevispinosum*, *Goniosphaeridium* cf. *christianni*, *G. polygonale*, *Lophosphaeridium papillatum*, *Veryhachium trispinosum* which occur in the Middle Ordovician (Kjellström 1976; Gorka 1987) are present. The acritarch and chitinozoan assemblages show a stratigraphic hiatus and a transgressive overlap. Probably the palaeoecological conditions had an influence on the presence of these taxa. A more precise

sampling in this section of the Esla Nappe Oville and the overlying Barrios Quarzite and Formigoso Formations will provide a better interpretation of these results.

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