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AN OSTRACODE FAUNA FROM THE UPPER DEVONIAN OF THE GILDAR-MONTO REGION (NW SPAIN)

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ABSTRACT

A proliferous ostracode fauna has been recognized, which could be correlated with similar faunas of Thüringen (Germany). The genus *Processobairdia* is suggested to have been able to swim on account of a.o. the morphology of its carapace. A new species: *Processobairdia spinanterocerata* is described.

INTRODUCTION

A very proliferous fauna of silicified ostracodes has been found in a slightly mineralized nodular limestone of the Upper Devonian of the Gildar-Monto area (Cantabrian Mountains, northwestern Spain). The sample was kindly provided to the authors by Mr. H. A. van Adrichem Boogaert (Leiden). (For further details see van Adrichem Boogaert, 1967, p. 141 and fig. 23). The stratigraphy of the Upper Devonian of the region had been studied already by Kullmann (1960, 1964) and Budinger (1965; Budinger & Kullmann, 1964). Fig. 1 shows the approximate levels of the samples taken by Budinger (1965) and the cephalopod zones of Kullmann (1960, 1964) in the section CAL-II of van Adrichem Boogaert.

The sample CAL 10 yielded the following fauna:

Fish-teeth

Conodonts *Polygnathus diversa* Helms

Ostracodes *Acratia postspina* Blumenstengel
Acratia spp.
Amphissites? sp.
Bairdia galinae Egorov
Bairdia spp.
Bohemia cf. paragracilis Blumenstengel
Ceratacratia cerata Blumenstengel
Hollinella sp.
Parabolbina sp.
Paraparchites? sp.
Processobairdia bicerata Blumenstengel
Processobairdia posterocerata Blumenstengel
Processobairdia spinanterocerata nov. spec.
Rectoplacera robusta? Blumenstengel
Tricornina communis Blumenstengel

The ostracodes recognized can immediately be compared with those described by H. Blumenstengel (1965) from Thüringen (Germany), eight species being already mentioned by that author. Blumenstengel recognized eight zones and three subzones based on silicified ostracodes. They can be correlated with the earlier established conodont and cephalopod zones of the Upper Devonian. The presence of *P. bicerata*, *P. posterocerata* and *R. robusta* is in Thüringen characteristic for his zone 5c. From a comparison with the results obtained by van Adrichem Boogaert and by Budinger and Kullmann it follows that the present sample is of the same age (fig. 2). Thus these ostracodes can be considered to be good index fossils for correlations over large distances (ca. 1500 km.). Because these ostracodes in Thüringen were short-living ones in a stable facies, it may be supposed to be the same in this region. The distribution over a so wide area is less likely for a benthonic, creeping organism within such a short time. It is therefore suggested that at least *Processobairdia* was able to swim, which idea is supported by the presence of well developed lateral spines. Their place on the carapace and their slightly backward and upward curve (fig. 3 — 10) can only indicate, that the animals had the ability to swim. This is in accordance with the view of E. Triebel (1941). Supposing this conclusion is right a direct relationship with the genus *Bairdia*, that so far as nowadays is known never had the ability to swim, seems less likely. Thus the genus *Processobairdia* should be considered neither the ancestor of the genus *Bairdia*, nor a descendant of the latter.
Recent studies on ostracode faunas in the Carboniferous of Spain have also suggested the bottom-creeping way of life of *Bairdia* (Bless, 1967).

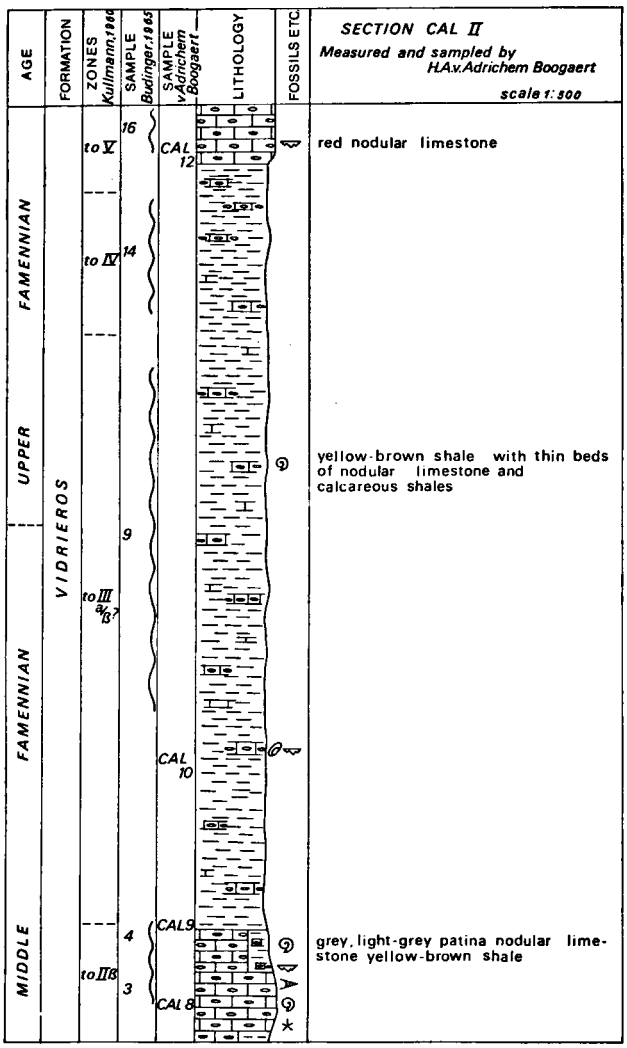


Fig. 1

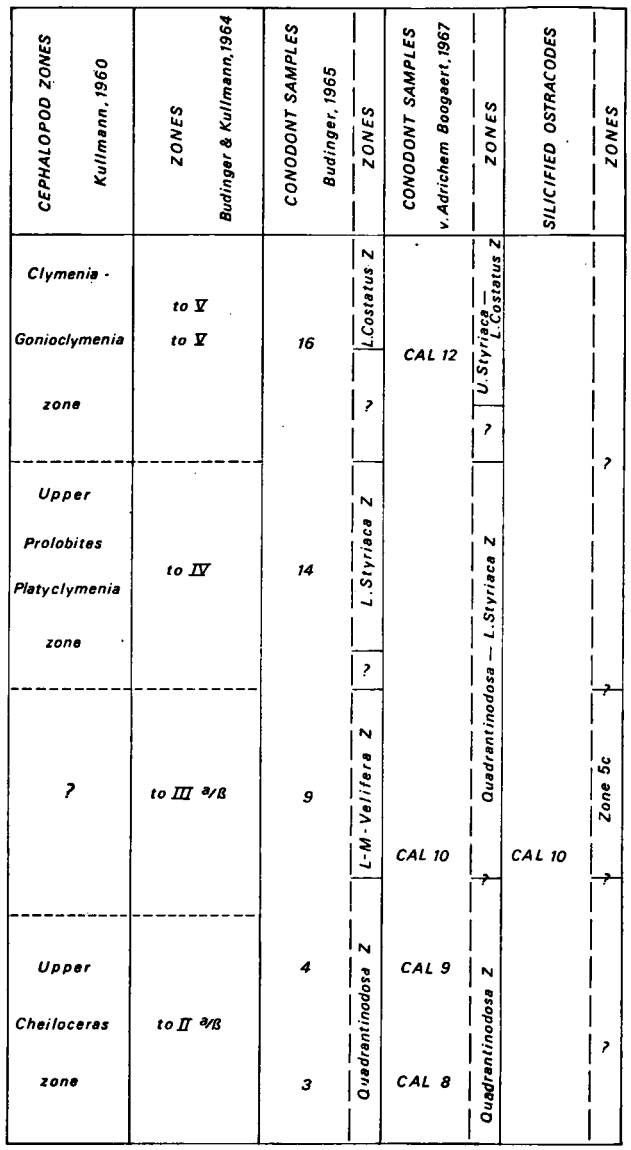


Fig. 2

SYSTEMATIC DESCRIPTION

Superfamily: BAIRDIACEA Sars, 1888

Family: BAIRDIIDAE Sars, 1888

Genus: PROCESSOBAIRDIA Blumenstengel, 1965

Genotype: *Processobairdia anterocerata* Blumenstengel, 1965
Stratigraphic distribution of genus: Upper Devonian.

Processobairdia spinanterocerata nov. spec.

Figs. 4—7.

Holotype: 64CAL 10—1a
Paratypes: 64CAL 10—1b, 64CAL 10—1c
Locus typicus: Sample CAL 10 of section CAL—II near Caldevilla, Gildar-Montó region, Cantabrian Mountains, Spain.
Stratum typicum: Upper Famennian, to III
Description of species: A bairdioid ostracode with slightly elongate carapace. Anterodorsally a long distinctly upwards and slightly backwards curved lateral spine. Posterior end sharply acuminate, terminating in a spine just below midheight. Anterior end rounded, with small denticles along free margin. Dorsum convex, becoming concave at the posterior end. Venter straight to concave, gently upcurved near the ends. Left valve overlaps right valve in the ventral and dorsal part. The inner lamella are well developed. Surface smooth.
Length: 0,60 — 1,30 mm, height: 0,30 — 0,60 mm.
Type-description: Left valve of adult specimen, posterior spinal end broken. Length: 1,26 mm, height: 0,58 mm. Paratype 64CAL 10—1b a left valve with anterodorsal spine broken. Length: 1,08 mm, height: 0,46 mm. Paratype 64CAL 10—1c a complete carapace of a

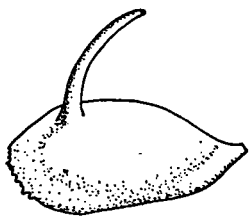


Fig. 3

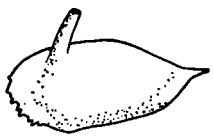


Fig. 4

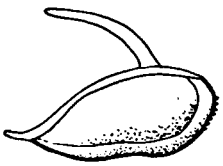


Fig. 5

Fig. 6

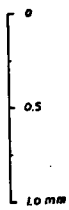


Fig. 7

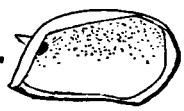


Fig. 8

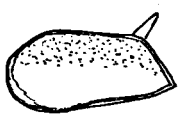


Fig. 9

Fig. 10

juvenile specimen. Length: 0,66 mm, height: 0,32 mm. *Remarks:* The sample has been treated with monochloro-acetic acid. Whereas the position of the lateral spines in this genus varies greatly from one species to another, it seems more plausible that these structures had a functional purpose — e.g. increasing floating ability rather than reflecting some internal organ(s). *Discussion:* This specimen is very similar to *P. anterocerata* Blumenstengel, but can easily be distinguished from the latter by the anterior denticles along the free margin. It is not impossible that our species has evolved from *P. anterocerata.* This would be analogue to the evolution of *P. spinomarginata* Blumenstengel from *P. posterocerata* Blumenstengel (Blumenstengel, 1965, p. 32). *Deposition of type-material:* The type-material is stored up in the collection of the Paleontological Department of the University of Leiden (Netherlands).

Fig. 3: *Processobairdia spinanterocerata* nov. spec. Holotype, 64CAL 10—1a. LV.

Fig. 4: *Processobairdia spinanterocerata* nov. spec. Paratype, 64CAL 10—1b. LV.

Fig. 5: *Processobairdia spinanterocerata* nov. spec. 64CAL 10-1d. LV, inner side.

Fig. 6: *Processobairdia spinanterocerata* nov. spec. Paratype, 64CAL 10—1c. Juvenile specimen.

Fig. 7: *P. posterocerata* Blumenstengel, 1965. LV. 64CAL 10—17

Fig. 8: *P. posterocerata* Blumenstengel, 1965. LV, inner side. 64CAL 10—17.

Fig. 9: *P. bicerata* Blumenstengel, 1965. LV, inner side. 64CAL 10—18.

Fig. 10: *P. bicerata* Blumenstengel, 1965. LV. 64CAL 10—18.

REFERENCES

van Adrichem, Boogaert, H. A. 1967. Devonian and Lower Carboniferous conodonts of the Cantabrian Mountains (Spain) and their stratigraphic application. Leidse Geol. Med., Deel 39, pp. 129—200.

Bless, M. J. M., 1967. Sobre las facies de ostracodos del Carbonifero superior y su uso para correlaciones en las cuencas hulleras. Acta Geol. Hispanica, 2, pp. 22—23.

Blumenstengel, H., 1965. Zur Taxionomie und Biostratigraphie verkieselter Ostracoden aus dem Thüringer Oberdevon. Freiberger Forschungshefte, C183, pp.1—127.

Budinger, P., 1965. Conodonten aus dem Oberdevon und Karbon des Kantabrischen Gebirges (Nordspanien). Inaugural Dissert., Tübingen, pp. 1—103.

— & Kullman, J., 1964. Zur Frage von Sedimentationsunterbrechungen im Goniatiten- und Conodontenführenden Oberdevon und Karbon des Kantabrischen Gebirges (Nordspanien). N. Jb. Geol. Pal., Mh., pp. 414—429.

Kullmann, J., 1960. Die Ammonoidea des Devon im Kantabrischen Gebirge (Nordspanien). Abh. math. naturwiss. Kl. Akad. Wiss. Liter. Mainz, 7, pp. 1—105.

— 1964. Las series devonicas y del Carbonífero inferior con ammonoideos de la Cordillera Cantabrica. Estud. Geol., 19, pp. 161—191.

Triebel, E., 1941. Zur Morphologie und Ökologie der fossilen Ostracoden. Senckenbergiana, 23, pp. 294—400.

Ziegler, W., 1962. Taxionomie und Phylogenie oberdevonischer Conodonten und ihre stratigraphische Bedeutung. Abh. hess. L.—Amt Bodenforsch., 38, pp. 1—116.

Fig. 1 a & b: *Processobairdia spinanterocerata* nov. spec. a: left view, b: right view. 64CAL 10—1e.

Fig. 2: *Processobairdia spinanterocerata* nov. spec. Holotype, inner view of left valve. 64CAL 10—1a.

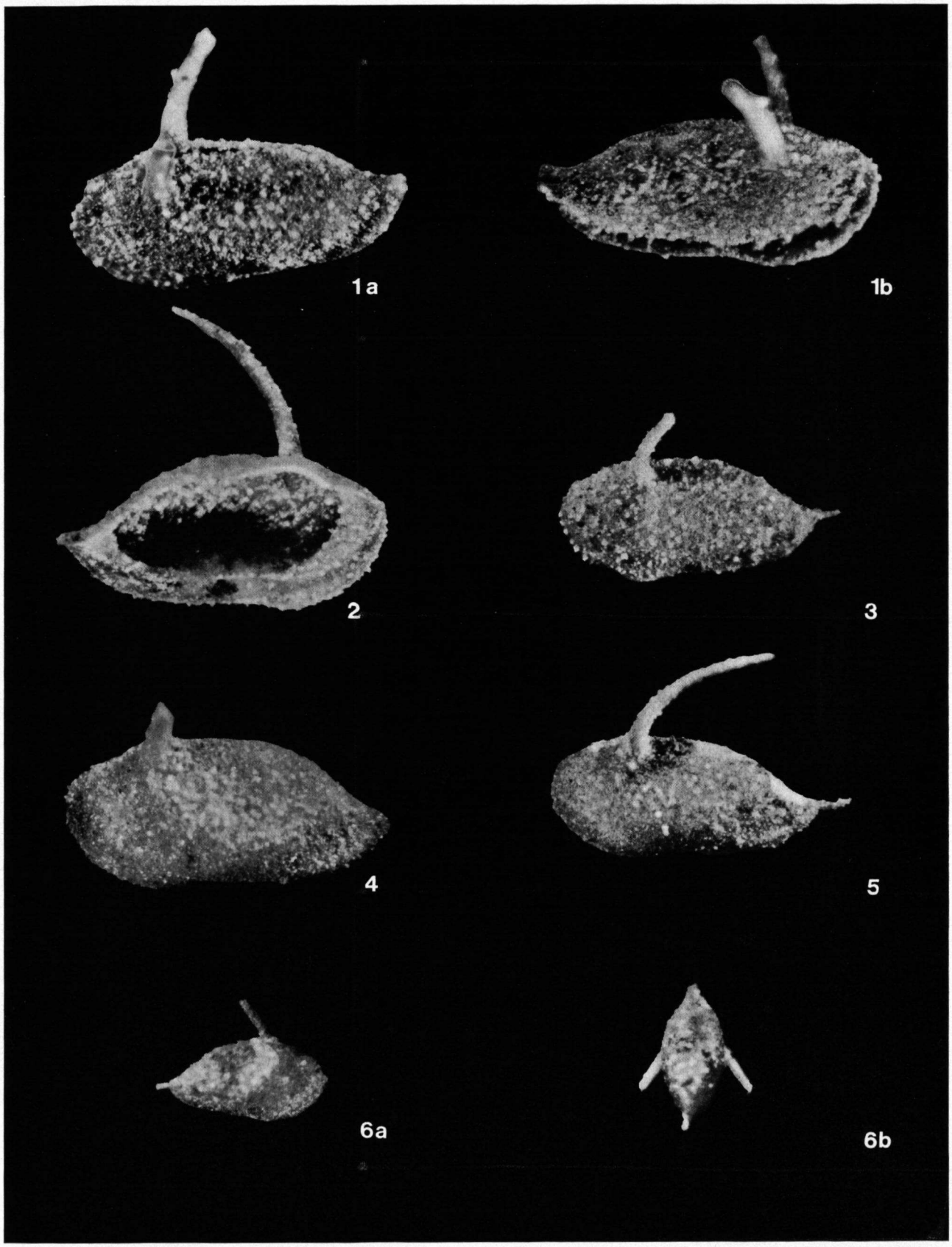
Fig. 3: *Processobairdia spinanterocerata* nov. spec. Paratype, left valve. 64CAL 10—1b.

Fig. 4: *Processobairdia spinanterocerata* nov. spec. Left valve. 64CAL 10—1f.

Fig. 5: *Processobairdia spinanterocerata* nov. spec. Left valve. 64CAL 10—1d.

Fig. 6 a & b: *Processobairdia spinanterocerata* nov. spec. Juvenile specimen, paratype, a: right view, b: ventral view. 64CAL 10—1c.

(Photos: W. Laurijssen)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