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Short note on a new specimen of Eifelian brachythoracid arthrodire from the Graz region

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Summary: Illustration and discussion of a rare Middle Devonian fish plate from the Graz Palaeozoic (Barrandei Limestone, Eifelian).

Zusammenfassung: Kurznotiz zu einem Placodermen-Neufund (Brachythoraci) aus dem Eifelium des Grazer Devons. – Aus den Barrandeikalken (Mitteldevon, Eifelium) der Tyrnaueralm-Forststraße (Hochlantsch) wird der zweite makroskopische Fund eines Panzerfischfragmentes aus dem Grazer Paläozoikum kurz beschrieben und zur Abbildung gebracht.

Introduction

Knowledge of Lower Palaeozoic vertebrate fossils in the alpine region is rather poor (BLIECK & al. 1995); only 4 records (BLIECK & al. 1997) are mentioned in the literature.

The first record of a fossil vertebrate from the Graz Palaeozoic was by HOERNES (1891). He did not describe the specimen, because Alfons PENECKE – his pupil – was completing a monographic study on the palaeontology of the Graz Devonian. HOERNES hoped that PENECKE would be able to give a detailed report on his placoderm remains on the basis of some future findings (HOERNES 1891: 223) but this remained a pious wish!

No further vertebrate fossils were discovered until 1984 when POLTNIG discovered a microvertebrate assemblage in the insoluble residue of limestones from a succession near Waldsdorf (basin of Thal) NW of Graz including: *Cheiracanthoides comptus* WELLS 1944, *C. ? styriacus* POLTNIG 1984, *Diplacanthus longispinus?* AGASSIZ 1837, Ischnacanthidae gen. et sp. indet., *Ohioaspis tumulosus* WELLS 1944, Placodermi indet., *Onychodus* sp., "Crossopterygii indet." Actinopterygii indet., and Elasmobranchii indet. Similarly, "microremains" were reported (e.g. BUCHROITHNER 1978) from some samples prepared for conodonts.

Although the placoderm mentioned herein is not determinable, its documentation is important. Apart from the 1891 specimen – described as *Grazosteus hoernesi* by GROSS (1958) (= "Placodermorum genus indet." sensu PENECKE 1894; *Jaekelaspis lata* sensu HERITSCH 1934) (DENISON 1978) –, our fragment is the only macroscopic one.

The fish record of the Graz Palaeozoic

The very prominent placoderm *Grazosteus hoernesi* is from the Emsian upper Dolomite-Sandstone Formation of the Rannach Nappe (Hörgasgraben near Gratwein-Rein). Fish remains described by POLTNIG (1984) were from a succession of laminated brownish micritic limestones, also containing a late Emsian conodont fauna, which occupies a transitional position between the Dolomite-Sandstone Formation and the overlying Barrandei Limestone.

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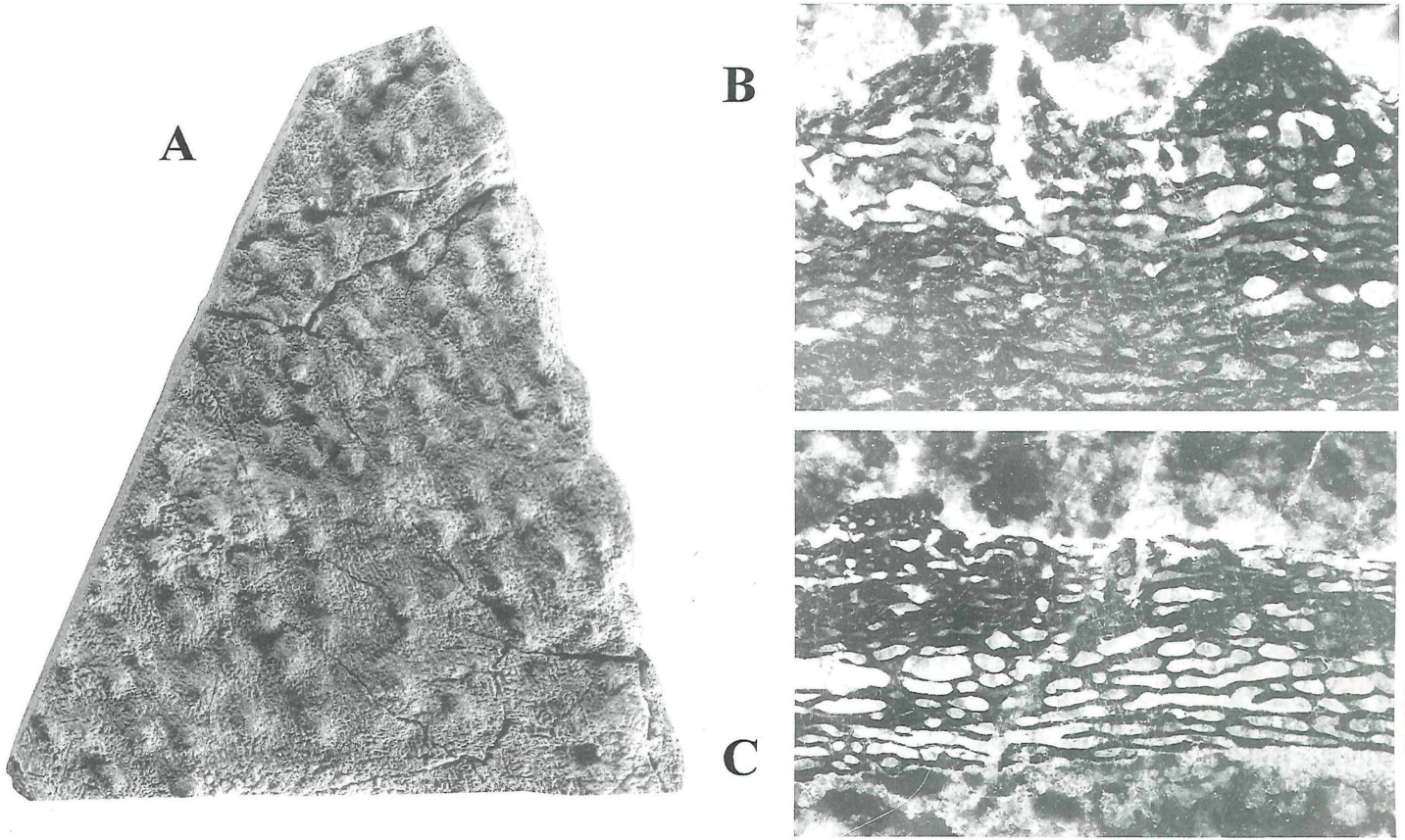

Plate 1: (A) Surface of tuberculated bone plate of the arthrodire placoderm; magnification: 2.55 x
(B, C) Thin section of the bone fragment showing the histology; magnification: 22.5 x

The recently-discovered placoderm fragment is from the Barrandei Limestone of the Hochlantsch Nappe (Tyrnaueralm Forststraße; cf. HUBMANN 1993: 401). Despite the rich fossil content of the formation the age of the boundaries of the Barrandei Limestones are not clear at this stage. Corals point to an Eifelian age. The appearance of several conodonts suggests that the Barrandei Limestone started in the Upper Emsian and may continue into the Lower Givetian (GOLLNER 1983, HAFNER 1983). Microfacial and geochemical investigations of the succession indicate deposition on a differentiated and gently inclined carbonate platform (HUBMANN 1993). The thick tuberculated plate fragment, approximately 45 x 40 x 6 mm in dimension is not reliably determinable (pers. comm. H. Lelièvre, Paris). Comparable thick tuberculated bone plates are known from arthrodire placoderms especially from representatives of Brachythoraci.

The material is stored at the Karl-Franzens-University, Graz, Institute of Geology and Palaeontology, under the code-number UGP 3042.

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