

# Kirkbyites Johnson, an ostracod genus indicative of pelagic palaeo-environments

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## ABSTRACT

A third *Kirkbyites* species, *K. hercynicus* sp. nov., is described from the early Upper Devonian (early Famennian) of the Harz Mountains (Central Europe) to join the other two known species of the genus *Kirkbyites upsoni* Johnson, the Upper Carboniferous type species from Nebraska (U.S.A.), and the late Upper Devonian *Kullmannissites? solus* Becker from N Spain (W Europe). Its biotype indicative carapace features, characteristic of marine low-energy palaeo-environments, place *Kirkbyites* Johnson, 1936 (Ostracoda, Palaeocopida, Kirkbyacea, Amphissitidae) into Becker's "Thuringian" ecotype. *J. Micropalaeontol.*, 11 (2): 229-231, December 1992.

## INTRODUCTION

In 1981 Becker described a peculiar amphissitid species, *Kullmannissites solus* from the pelagic Upper Devonian (late Famennian) of northern Spain. Because of its "intermediate" characters, this taxon was believed to be a "chimera", resembling *Kullmannissites* Becker, 1981 (lobation) as well as *Sinissites* Becker, 1981 (anterodorsally located carinal flange) (see Becker 1981, pp. 29-33).

Studying the original material of *Kirkbyites upsoni* Johnson, 1936 from the Upper Pennsylvanian Eudora Shale of Nebraska (U.S.A.), however, it became evident to the present author that *Kullmannissites? solus* belongs to Johnson's (at that time rather unknown) genus *Kirkbyites* which is considered to be a valid member of the Family Amphissitidae Knight, 1928 (Kirkbyacea, Palaeocopina).

Recently, a third species, *Kirkbyites hercynicus* sp. nov., was detected in the early Upper Devonian (early Famennian) of the Harz Mountains showing clearly the diagnostic characters of *Kirkbyites* Johnson: comparatively narrow subcentral lobe + posterodorsal spine + anterodorsally located carinal flange + narrow carapace width (see Becker, 1991, p. 29).

This new record consolidates the genus, which until now has been of a doubtful status.

## SYSTEMATICS

Order Palaeocopida Henningsmoen, 1953  
Suborder Palaeocopiana Henningsmoen, 1953  
Superfamily Kirkbyacea Ulrich & Bassler, 1908  
Family Amphissitidae Knight, 1928  
*Kirkbyites hercynicus* sp. nov.  
(Pl. 1, figs 1-5)

**Derivation of name.** After the Harz Mountains.

**Holotype.** Adult LV, Pl. 1, Fig. 5, SMF Xe 16911.

**Type locality.** Left (southern) valley slope of Bode river at Rübeland village, about 8km SW Blankenburg, central Elbingeröde Reef complex, Harz Mountains, Germany; lat.

51°45'N, long. 10°50'W. Micritic cephalopod limestones, Upper *crepida* conodont-zone, Famennian, Upper Devonian. (For further information, see Weyer 1991, p.25). Fragment of bedrock with rich and well preserved, silicified ostracod fauna of the "Thuringian" ecotype dominated by tricorinid and bythocypridid species.

**Paratypes.** Juvenile LV, Pl. 1, Fig. 1, SMF Xe 16907; juvenile LV, Pl. 1, Fig. 2, SMF Xe 16908; juvenile LV, Pl. 1, Fig. 3, SMF Xe 16909; juvenile LV, Pl. 1, Fig. 4, SMF XE 16910; all specimens are topotype material.

**Diagnosis.** Medium-sized *Kirkbyites* species with small, but distinct subcentral lobe and subdued posterior shoulder, superposed by short lateral ridge terminating in an upwardly directed spine. Two carinae developed; outer carina curving around anterior cardinal angle above dorsum; inner carina subparallel to outer carina, antero- and posterodorsally hardly obscured. Lateral surface delicately reticulate.

**Remarks.** *Kirkbyites hercynicus* sp. nov. resembles *K. solus* (Becker). In the new species, however, the spine is directed straight upwards and seems (especially in the larval forms) less strong than in the Spanish species. The type species, *K. upsoni* Johnson, is characterized by its very prominent posterodorsal node. Moreover, in the new taxon the inner carina is hardly obscured below the cardinal angles and the outer carina anterodorsally slightly bent outward (see Pl. 1, Figs 3b, 4b, 5b, 5f).

## PALAEOECOLOGY

The Upper Devonian (Famennian) species, *K. solus* (Becker, 1981) and *K. hercynicus* sp. nov., are from pelagic facies; the same may be true for the Upper Carboniferous (Upper Pennsylvanian) type species, *K. upsoni* Johnson, 1936. The Spanish species comes from a basinal deposit (*cf.* Becker & Bless 1990, Text figs 7, 12), the new species from a lime mud buildup "accumulated in open-marine quiet water" (Weller 1989, p.335), always low-energy habitats. All *Kirkbyites* species are thin shelled and show dorsally located spines, features

considered to be biotope indicative of marine low-energy palaeo-environments, quiet independent of absolute water depth (see Becker & Bless 1990, p.422). Such forms characterize Becker's "Thuringian" ecotype (eco-assembly). The species under consideration were probably nectobenthic filter feeders (see Becker & Adamczak 1990, p.96).

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#### Explanation of Plate 1

**Figs 1-5.** *Kirkbyites hercynicus* sp. nov.; Rübelerland, Harz Mountains; Upper *crepida* conodont-zone, Famennian, Upper Devonian. Magnification about x75, fig. 5e ca. x175. Phot. Camscan, Frankfurt/Main.

**Fig. 1.** Juvenile LV, paratype, SMF Xe 16907; external view (length -0.81mm).

**Fig. 2.** Juvenile LV, paratype, SMF Xe 16908; external lateral view (length - 0.59mm).

**Fig. 3.** Juvenile LV, paratype, SMF Xe 16909; **a**) external lateral view, **b**) dorsal oblique view (length - 0.78mm).

**Fig. 4.** Juvenile LV, paratype, SMF Xe 16910; **a**) external lateral view, **b**) dorsal oblique view (length = 0.84mm.).

**Fig. 5.** Adult LV, holotype SMF Xe 16911; **a**) external lateral view, **b**) dorsal view of slightly tilted anterior part of valve showing outwardly bend carinal flange (length = 1.09mm).

