

## Sea star ossicles from the Callovian black clays of the Łuków area, eastern Poland

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With 4 figures and 1 table

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**Abstract:** Two hundred seventeen starfish skeletal remains have been sorted from sieve residuals of ca. 150 kilograms of clays collected in the Łuków brick-pit. The skeletal plates are poorly preserved due to intense bioerosion and mechanical abrasion that occurred between death and definitive burial into sediment. Only 90 marginal and abactinal plates can be assigned to taxon. Height taxa are recognised: ? *Pentasteria* sp., ? *Advenaster* sp. Benthopectinidae indet., *Pulcinellaster lukowensis* nov. sp., Goniasteridae indet., ? *Comptoniaster* sp., *Poncetaster crateri*, and Stauranderasteridae indet. Similar taxa are known from other Jurassic clay deposits, especially in the Paris Basin, but the high-level of diversity and the relative abundance of taxa are uncommon at Łuków. Heterogeneity of preservation among the starfish skeletal plates suggests that the species found at Łuków did not all live at the depositional site. Most plates were probably transported from shallower environments and mixed.

**Key words:** Poland, Jurassic, Callovian, diversity, taphonomy, Asteroidea.

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### 1. Introduction

The current knowledge of Jurassic sea star diversity relies mostly on the few collection sites in Western Europe (France, Switzerland, England, Portugal) and the central USA (South Dakota, Utah, Wyoming). A few well-preserved specimens have been described from other places in the world: Antarctica (SMITH & TRANTER 1996), New Zealand (FELL 1954), India (RAO 1957), and HESS (1955) reported fragmentary material from Greenland. Our understanding of the Jurassic fossil record of the Asteroidea is therefore extremely incomplete and uneven. Any regional study can substantially improve our knowledge of the systematics, diversity, palaeogeographical and evolutionary

history of starfishes (BRETON 1992; VILLIER et al. 2004a).

Most Jurassic forms are described from well-preserved body fossils. Numerous taxa were described from isolated skeletal plates during the 19<sup>th</sup> and first half of the 20<sup>th</sup> century by GOLDFUSS (1826-1833), QUENSTEDT (1858, 1876) VALETTE (1928, 1929a, 1929b, 1932) and MERCIER (1935), but many of these taxa are invalid (HESS 1955; BLAKE 1984a; BRETON 1992) or *nomina dubia*, whereas many skeletal plates used for definition of taxa cannot support assignment to species, genus, or even higher taxa. A reasoned approach to fragmentary material has been developed recently and some marginal and abactinal plates allow reliable identifications of Jurassic taxa (HESS 1975a,