

# **REDISCOVERY OF THE CLASSIC LOCALITY OF CALLOVIAN AT BABIARZOWA KLIPPE (PIENINY KLIPPEN BELT, POLAND)**

## **PRELIMINARY REPORT.**

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The Babiarzowa (ve/ Babierzowa, Babierzówka, Babieczówka, Babierszówka) Klippe at the Maruszyna village near Nowy Targ constitutes one of the most famous Jurassic localities in the Pieniny Klippen Belt in Poland. It was studied already by Zaręczny (1876) who erroneously interpreted fossils occurring in brick-red coloured limestones as Early Tithonian in age. The detailed study of the same macrofauna was undertaken by Uhlig (1878, 1881, 1890) who gave valuable description of the fossils: ammonites, gastropods, bivalves, brachiopods, solitary corals, echinoids, crinoids and fish teeth. He referred the fossils to the Callovian, but he was unable to indicate neither the detailed succession of the deposits, nor the geological situation of their occurrence. The fauna was interpreted for a long time as the oldest one found in the Czorsztyn Limestone Formation, and treated as indicative of its lowermost (Callovian) part (Birkenmajer 1963, 1977). Unfortunately the precise location of the section, and thus its detailed stratigraphy became unknown.

The value of the fauna from the Babiarzowa Klippe lies in its several features: (a) the Callovian faunas are generally poorly known and/or mostly absent in the Pieniny Klippen Belt, (b) the fauna from the Babiarzowa Klippe is dominated by perfectly preserved gastropods, which is an unique feature for the Jurassic in the Pieniny Klippen Belt, (c) the fauna includes new taxa having at the Babiarzowa Klippe their type-locality, (d). the fauna since Uhlig's times was frequently cited in geological literature, but it was never revised. Thus, the rediscovery of the section with fauna in question at the Babiarzowa Klippe by our team in the last year, is of significance in palaeontological and regional palaeogeographical studies in the Pieniny Klippen Belt.

Our field research resulted in discovery of three thin red limestone beds (about 0.3 m in thickness) with numerous invertebrate macrofauna. These are underlain by white crinoidal limestones of the Smolegowa Limestone Formation, Bajocian in age). The top of the red limestones becomes so far unknown, and some additional field studies are necessary. The red limestone beds are finely laminated with numerous traces of bioturbation. From the microfacies point of view the limestones are filamentous wackestones to packstones. Apart from thin *Bositra* shells, there are numerous crinoidal and bivalve fragments, smooth-shell ostracods and benthic foraminifers. Juvenile gastropods and ammonites, aptychi fragments, echinoid spines, bryozoans and silicisponges are less common. Some laminae are graded and rich in crinoid ossicles. It is important to note a presence of cavity-dwelling ostracods *Pokornyopsis* which are known to occur in different types of submarine cavities infillings such as neptunian dykes, but missing, or extremely rare, in normal sea-bottom sediments (Aubrecht & Kozur, 1995). The general character of the macrofauna discovered in the red limestones at Babiarzowa Klippe is also remarkable: it consists of small-sized specimens – mostly ammonites, gastropods, bivalves and brachiopods. The preservation of fauna is generally excellent, the shells are only partly filled with sediment with still empty parts but partly infilled by drusy calcite. Such type of fauna is often reported from the neptunian dykes, such as the Jurassic neptunian dykes at Vršatec in western Slovakia, as well as well-known neptunian dykes and sills in NW Sicily which show similar macrofauna content and where ammonites and gastropods markedly prevail over other groups of fossils. Moreover, the Sicilian fissure-fillings and the red coloured laminated limestones from the Babiarzowa Klippe share the same type of extensive bioturbation (Wendt, 1971, pl. 18, fig. 7, 8). It seems thus, that the laminated red coloured limestones from the Babiarzowa Klippe represent in fact the fissures infillings which penetrate the massive crinoidal limestones of the Smolegowa Limestone Formation of Early Bajocian age. The fissures were opened during late Middle Jurassic (Callovian) and played the role of natural sedimentary traps for the fauna acting as a sieve, but some parts of fissures which could be also settled by specific small-sized faunistic groups.

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