



New indication of the *Hybonoticerias beckeri* ammonite Zone (Kimmeridgian) of the Teteven area (Central Fore-Balkan) and its significance

Нова индикация на амонитната зона *Hybonoticerias beckeri* (Кимериджки етаж) от Тетевенския район (Централен Предбалкан) и нейното значение

Lubomir Metodiev
Любомир Методиев

Geological Institute, Bulgarian Academy of Sciences, Acad. G. Bonchev str., bl. 24; 1113 Sofia; E-mail: lubo@geology.bas.bg

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The Upper Jurassic–Lower Cretaceous outcrops of the Teteven area (Central Fore-Balkan) comprise an exceptional natural model that reveals how the platform, pelagic and turbidity successions may grade laterally between each other. The remarkable sections (namely Zorenitsa and Vedrovete) on the opposite slopes of the Vit River valley, near Glozhene village, signify the transition between the platform and the pelagic carbonates of Slivnitsa and Glozhene Formations, and the hemipelagic Salash Formation at the middle Tithonian–Berriasian interval (see Sapunov, 1977a). Lefeld et al. (1986) proposed a conceptual scheme of the time-lithological correlations between the platform, pelagic and turbidity successions, from the Oxfordian to the Tithonian at the Central Fore-Balkan. However, this scheme needs to be modified and it is expanded herein with new data.

It was expectable the pelagic carbonates of the Glozhene Formation to be very restricted southwards the Glozhene village area. Indeed, the outcrops of the formation rapidly become narrower as near as on the northern slopes of the Lisets Summit, but they prove to extend further south, reaching an occurrence to the Cherni Vit River valley and on the summits to the south of the town of Teteven, grading laterally into the sediments of the Neshkovtsi Formation. Similarly, the sediments of the Salash Formation that overlay the Glozhene limestones at the Vedrovete Summit progressively retire to the SSW, with gradual transition, to the thin-rhythmic carbonate-turbidity successions of the Cherni Osam Formation, which appear from below. The latter seems to lay down with fast transition on the Glozhene Formation and the related coeval strata that are transitional to the Neshkovtsi Formation. Probably, the Salash Formation rejuvenates to the SSW as well, but as being associated with the Lower Cretaceous it would not be regarded in more details herein.

The Glozhene Formation was unexpectedly recorded in two wide exposures to the north and to the south of the ward of Polaten. However, these and the adjacent coeval strata are somewhat digressive in lithology from the exposures to the near north. The typical sequence of regularly-bedded pelagic (micritic and intraclastic) limestones is frequently disordered by intercalated beds, packs and even more expanded intervals consisting of rocks with obvious extrinsic (non-pelagic) components. Sapunov and Tchoumatchenco (1989) documented similar development of the Glozhene Formation at the Koznitsa River valley, straight to the south of the town of Teteven. These authors suggested that those sediments resemble an intermediate lithology between the Glozhene and the Neshkovtsi Formations. Here, the binominal name Glozhene-Neshkovtsi Formation is also used, as being confirmed by newly obtained field data that it certainly is associated with transitional strata. The new data allow these rocks to be expanded in wider occurrence owing to the study of two newly discovered key-sites: 1) Polaten-Krushov Dol, and 2) Bayovitsa.

The Polaten-Krushov Dol is a composite site of the exposures from Polaten to the outfall of the Cherni Vit River. It includes approximately 50 m-thick Glozhene and mainly Glozhene-Neshkovtsi Formations that grade from below from the nodular limestones of the Gintsi Formation, and that are encased in the Cherni Osam Formation. Laterally, the Neshkovtsi Formation at the northern end of the Cherni Vit Village replaces these successions. The base of both Glozhene and Glozhene-Neshkovtsi Formations is usually developed by micritic limestones (mudstones). Near the ward of Polaten, several packs of probably reworked shallow-water carbonates, similar to the Slivnitsa Formation, were found within the lower levels of these sequences. Upwards, the mudstones progressively drawback to fine- to coarse-bioclastic limestones with interbedded

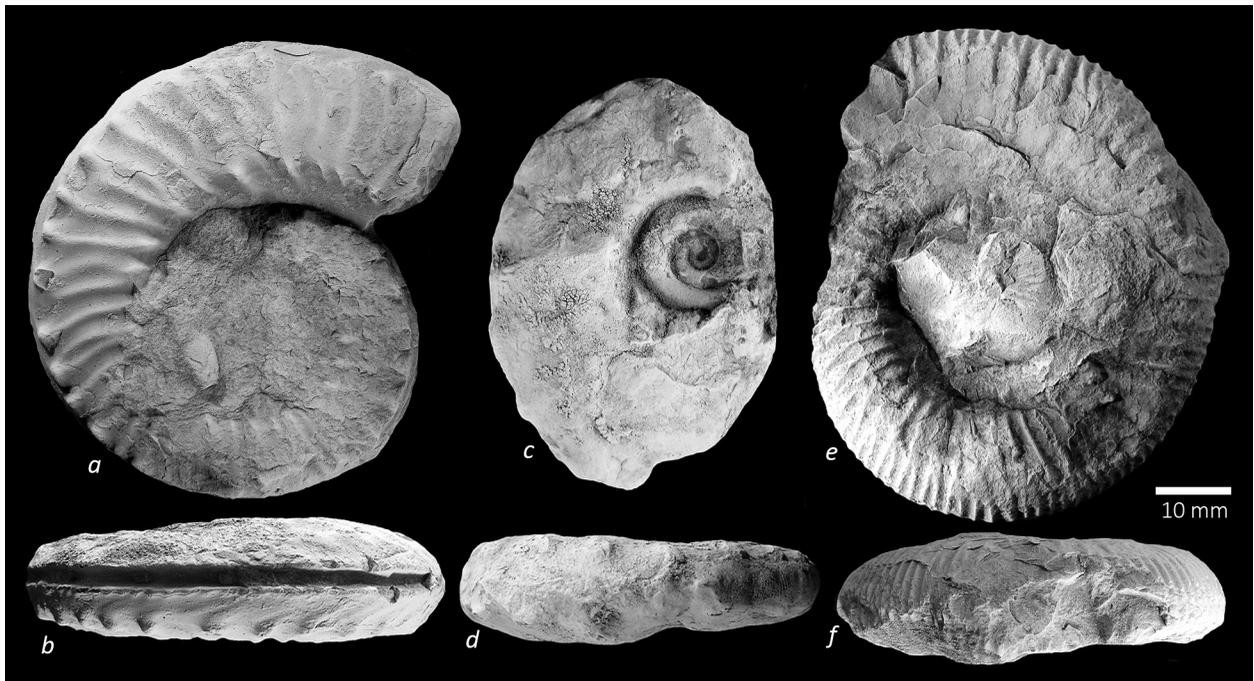


Fig. 1. Upper Kimmeridgian ammonites of the *Hybonoticeras beckeri* Zone from the Bayovitsa site (Teteven area): lateral (a) and ventral (b) views of *Hybonoticeras harpephorum* (Neumayr); lateral (c) and ventral (d) views of *Hemihaploceras nobile* (Neumayr); lateral (e) and ventral (f) views of *Orthosphinctes* cf. *subdolosus* (Fontannes)

micritic limestones with sparse lithoclasts, and lithoclastic limestones to matrix-supported limestone breccia. Even not yet studied in detail, the rocks at this site exhibit pronounced interference in the unruffled pelagic deposition by strengthened influx from closely placed carbonate platform. It seems that this influx stopped abruptly and was followed by turbidity deposition, which most likely took place at latest Jurassic times.

The Bayovitsa site corresponds to the exposures of a small antiformal, located near to the south of the previous site. It includes the very base of the Glozhene-Neshkovtsi Formation that yielded several useful ammonites: *Hybonoticeras harpephorum* (Neumayr) (Fig. 1a, b), *Hemihaploceras nobile* (Neumayr) (Fig. 1c, d), *Sowerbyceras loryi* (Munier-Chalmas in Hébert), and *Orthosphinctes* cf. *subdolosus* (Fontannes) (Fig. 1e, f). These taxa indicate the uppermost Kimmeridgian *Hybonoticeras beckeri* Zone (*sensu* Sapunov, 1977b). This is the first direct fossil evidence for the earliest age of the Glozhene-Neshkovtsi Formation that considerably expands the chronostratigraphic extent of these strata, since Sapunov and Tchoumatchenco (1989) assumed an age no older than latest early Tithonian.

The above listed examples are still not studied in detail. The origin and the occurrence of these succes-

sions, their presumable interrelations, together with the original configuration of facies and rocks within the basin remain unclear. Unambiguously, they suggest a close relation between the platform, the pelagic and the slope depositional environments that are exposed at the Teteven area. It is believable that careful study of this area should be carried out in the near future.

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