Siluro-Devonian of Podolia, Ukraine:

Paleobiological, biostratigraphic, and geochemical aspects

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In the southern part of Podolia (southwestern Ukraine), on the steep escarpments of the Dniester River and its tributaries many prominent exposures of the Siluro-Devonian deposits are located. Because of the very complicated political history of the region investigations of them have been conducted irregularly and with long interruptions. Geologists of different nationalities have been involved but for long periods of time they did not have access to the whole territory. Initially the area was mainly studied by Polish geologists (see Szajnocha 1889; Kozlowski 1929), but only in western part of the region. Later on the investigations were conducted by geologists from the Soviet Union, including researchers from the Ukrainian Republic (see Nikifirova and Predtechenskii 1968; Nikiforova et al. 1972; Tsegelnym et al. 1983; Drygant 1984). Since the independence of the country (1991) the research has been carried out by Ukrainian workers (see Tsegelnym et al. 1983; Gritsenko et al. 1999; Drygant 2000, 2010; Voichyshyn 2011) who in recent years have often been cooperating with geologists from other countries (Uhman et al. 2004; Kaljo et al. 2007, 2012; Skompski et al. 2008; Malkowski et al. 2009; Olempska et al. 2011).

The Siluro-Devonian deposits exposed in Podolia have a total thickness in excess of 900 m, are rich in fossils and represent one of the most complete and continuous sequence of that age in the world. They provide a full record of the transition from the open marine conditions (Silurian) through marshes to alluvial (Old Red facies). The investigations enabled conodont investigations of the uppermost marine Devonian beds preceeding ingression of the Old Red facies. The uppermost marine deposits occur. The authors stated that the taxonomic diversity of acritarchs decrease along the upper part of the section and that the chitinozoans gradually disappear, while the frequency of leiospheres increase. This shows a regressive environmental change, toward more brackish conditions. Also the changes in limestone and the refinement of the Lochkovian biostratigraphy based on the fossils. Especially thoroughly investigated were the lowermost and the uppermost parts of the marine Lochkovian sequence, representing the S–D transitional beds and the uppermost marine Devonian beds preceeding ingression of the Old Red facies. The investigations enabled conodont zonation of the Podolian Lochkovian and its correlation with other regions, as well as the description of two new conodont species of potential importance for stratigraphy.

Pawel Filipiak and co-authors have made palynological and microfacies investigations of the upper part of the two sections in which the uppermost marine deposits occur. The authors stated that the taxonomic diversity of acritarchs decrease along the upper part of the section and that the chitinozoans gradually disappear, while the frequency of leiospheres increase. This shows a regressive environmental change, toward more brackish conditions. Also the changes in limestone microfacies demonstrates progressive transition from the shrinking, marine basin toward the brackish, muddy lagoon.
Victor Voichyshyn and Hubert Szaniawski described, for the first time from Podolia, a dentigerous jaw bones of the earliest jawed fishes—the Acanthodii. One new genus and one new species were established. Besides these, three species are also described in open nomenclature. Certain morphological features are recognized as important for generic and specific designation. Good preservation of the jaw bones is probably caused by secondary mineralization.

Andrzej Balinski presents the first detailed description of brachiopods from the classic and well dated section across the Silurian–Devonian boundary at Dnistrove. The author stated that the latest Silurian brachiopods represent an impoverished and relatively deep-water assemblages whereas the early Lochkovian reveals progressively improved conditions for these sessile shelly faunas. Two species, *Dayia bohemica* and *Dnestrina gutta* can be regarded as characteristic for the uppermost Silurian. Two new species and one new subspecies are established.

Ewa Olempska described the three-dimensionally preserved colonies of boring ctenostome bryozoans and micro-borings of “fungi”. This is the first record of soft-tissue fossilization of boring bryozoans. The exceptional preservation is resulted by secondary phosphatization. New genus and species are established. Besides, described are phosphatized fungi-like endoliths co-occurring with the bryozoans. The material has been obtained by processing of the limestone samples in acetic acid.

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**References**


