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Paper reviews

Brachiopods of the Polish Miocene

Bittner, M. A. 1990. Middle Miocene (Badenian) brachiopods from the Roztocze Hills, south-eastern Poland. *Acta Geologica Polonica* 40, 3–4, 129–157, 11 text-figs, 8 plates. Popiel-Barczyk, E. & Barczyk, W. 1990. Middle Miocene (Badenian) brachiopods from the southern slopes of the Holy Cross Mountains, Central Poland. *Acta Geologica Pololnica* 40, 3–4, 159–181, 11 text-figs, 7 plates.

In the Middle Miocene a branch of Paratethys entered the Fore-Carpathian Depression in the southern Poland. It was a shallow, warm sea with abundant fauna and occasionally with characteristic algal-vermetid reefs. The two reviewed papers deal with brachiopod faunas derived from extremely fossiliferous Badenian rocks of two areas some 90 km away from each other, namely the Roztocze Hills (southeastern Poland) and the southern slopes of the Holy Cross Mountains. In both areas, the brachiopod faunas are dominated by species belonging to 3 genera: *Megerlia*, *Argyrotheca* and *Megathiris*. These genera constitute 94 to 99 per cent of the assemblages.

The collection of brachiopods from the Roztocze region, comprising more than 14,000 of excellently preserved specimens was carefully studied taxonomically. Eight species of six genera have been described in detail. Good quality photographs, more than half of them made with SEM, and several diagrams well illustrate the intraspecific variability of the most common species. Although all the brachiopods have been collected from similar shallow-water deposits, the assemblages from different localities show considerable variability in species composition. These differences can be, at least partly, explained by different sediment nature (algal-vermetid reef, fore reef deposits, marls). As documented by the author, however, even samples taken from the same type of sediment (i.e. marls cropping out at several localities) may show similarly great variability in species composition. According to the author, the investigated assemblages were controlled not only by bathymetry but also by distribution of submarine flora and by substrate availability. The author notes that the Miocene *Megerlia truncata* inhabited at that time much shallower settings than do Recent representatives of the species. Generally, the brachiopod fauna from the Roztocze region shows resemblance not only to the Miocene faunas of southern Europe but also to the Recent ones of the Mediterranean Sea.

The second paper describes brachiopod fauna from deposits exposed along the southern slopes of the Holy Cross Mountains. It contains almost solely taxonomical descriptions of the studied forms. The lack of details on the occurrence of the investigated brachiopods (character of sediment, exact placement in geological sections) may be considered by some readers as a shortcoming. A collection of nearly 7,000 specimens, belonging to 17 species of 14 genera, have been described in great detail. All the studied species have been illustrated, some of them also with drawings of serial sections showing details of the internal shell structure (some of the sectioned shells have no more than only 2 mm in length!).

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Miocen arenaceous forams

Stalmach, M. 1989. Otwornice piaszczyste iłów korytnickich, piasków heterosteginowych i wapieni litotamniowych dolnego badenianu (Miocen M_4). *Geologia* 15, 119-132, 3 plates.

In this short paper lists of species of agglutinated foraminifers from near-shore Miocene facies deposits, namely the Korytnica Clays, *Heterostegina* Sands and *Lithothamnium* Limestones assigned to the Lower Badenian *Amphistegina lessoni* Zone are presented. Identified species are illustrated in 3 plates. On the basis of semiquantitative analysis, agglutinated foraminiferal assemblages from the studied horizons are compared. Differences between assemblages are proposed to be a result of varying environmental conditions. A shortcoming of the paper is the lack of location of studied sites and ranges of foraminifers in examined sections.

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Triassic sponge bioherms

Bodzioch, A. 1989. Biostratinomy and sedimentary environment of echinoderm-sponge biostromes from the Karchowice Beds Lower Muschelkalk of Upper Silesia, Southern Poland. *Annales Societatis Geologorum Poloniae* 59, 331-350, 9 text-figs, 4 plates.
Bodzioch, A. 1991. Sponge bioherms from epicontinental Triassic formation of Upper Silesia (Southern Poland). In: J. Reitner & H. Keupp (eds) *Fossil and Recent Sponges*, 477-485, Springer-Verlag, Berlin-Heidelberg, 6 text-figs, 3 tables.

These publications are interesting for both sponge students and investigators of bioherms at least for three reasons. Firstly, we find out that in the European Triassic there are not only sponge bioherms consisting of pharetronids but also those built up by hxactinellids. Secondly, it turns out that these Triassic hyalosponges inhabited the shallow-water environment over depths ranging from several to tens of meters. And thirdly, we observe here the same sedimentary sequence as in the famous Upper Jurassic sponge facies of Germany, Switzerland, France, Poland, Argentina and so on: sponge bioherms appear first, followed by coral buildups.

Both the publications comprise illustrations of beautiful sponge specimens with skeletons preserved in their original, siliceous form. But the affiliation of the presented sponges with particular genera and even with the order Dictyida rises both my doubt and doubt of the author himself. Thus, this valuable and known since over a century sponge fauna needs a revision.

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Jurassic sponge bioherms

Trammer, J. 1991. Ecologic history of the Oxfordian sponge assemblage in the Polish Jura Chain. In: J. Reitner & H. Keupp (eds) *Fossil and Recent Sponges*. Springer Verlag. 507-515, 7 text-figs, 1 table.

This is a paper summarizing results of two detailed paleontological and ecological studies on the Late Jurassic sponges (mostly siliceous) of the Polish Jura Chain published elsewhere. Location of the investigated section, lithology and lithostratigraphy as well as sponge assemblage are briefly characterized and illustrated. Frequency data on the investigated Upper Oxfordian sponges are given in a table. The core of the article is a description and disscusion of the trend in changes in the composition of the sponge assemblage.It was initially

dominated by lithistid sponges which are gradually replaced by the hexactinosan and lychniscosan sponges ('Hyalospongea') toward the top of the Oxfordian. More surprisingly, all these changes concern only the relative contributions of particular species but not any evolutionary introduction of new species. Very slow and gradual climatic change or water shallowing are pointed as the possible explanations. An importance of such long-persisting assemblage, with unchanged species composition, for ecological studies is also stressed.

To accept the proposed explanation, such trends should be recurrent in other areas of the Upper Jurassic sponge megafacies with comparable sedimentary sequences: this is not the case, however. Thus, some other factors must have been responsible for the observed pattern.

There are some minor faults in the paper, for example data on Lower Oxfordian sponges are lacking in the table of sponge distribution (although entire Oxfordian assemblage is disscused in the text), and rather outdated taxonomic names ('Hyalospongea', 'Dictyida') are used.

However, the paper is very clearly written and well illustrated being thus very readable, the feature not so common these days.

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Late Cretaceous sea shallowings

Olszewska, D. 1990. Zmiany zespołów otwornicowych w kredzie piszącej (kampan/mastrycht) Mielnika nad Bugiem jako przejaw wahań głębokości zbiornika. *Przegląd Geologiczny* 38, 57-61, 4 text-figs.

At Mielnik-on-Bug (central East Poland), a 20-meter-thick section of Campanian and Maastrichtian chalk crops out. It contains rich assemblages of perfectly preserved foraminifers, both benthonic and planktonic. They were the subject of interest as early as the thirties. Since that time several authors have investigated the foraminifers from that site and interpreted them stratigraphically. Olszewska was the first to use the group for paleoenvironmental interpretation. She plotted percentages of planktonic foraminifera specimens, contribution of particular depth groups of planktonic foraminifers, and relative changes of abundance of selected genera, to the assemblages against the rock thickness of the succession. She also grouped more common benthonic genera into depth groups. *Stensioeina, Bolivinoides, Gavelinella, Eouvigerina, Bulimina,* and *Bolivina* were indicated as representatives of shallower (middle shelf), while *Gyroidinoides, Osangularia* and *Globorotalites* - as indicators of deeper sea (outer shelf).

On the basis of changes of P/B ratio along the succession and the relative changes of abundance of several genera within the assemblages, she distinguished two episodes of the shallowing of Campanian sea: the first episode corresponds to the omission surface with which flints are associated, the second one - with the hardground at the Campanian-Maastrichtian boundary. In the case of the first episode the author suggests a shallowing from outer to middle shelf depths, in the second one - the shallowing is proposed to be much stronger - from outer to inner shelf depths. Whereas conclusions about two episodes of shallowing of the Campanian sea in the studied part of the succession are well substantiated the range of the Campanian-Maastrichtian shallowing is not well founded enough.

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