

THE EOCENE/OLIGOCENE BOUNDARY IN THE POINT OF VIEW OF
LARGER FORAMINIFERA STUDIES

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Summary

In the point of view of the Eocene/Oligocene boundary, most important larger foraminifers are the nummulites. The convention of the Eocene Colloquium of Paris /1968/ suggested also to lay out the Eocene/Oligocene boundary with the nummulites, regarding the start of the Oligocene with the appearance of Nummulites intermedius.

On the other hand, the revision of the Nummulites-faunas of the Hungarian transitional Eocene - Oligocene formations /Nummulites-, Discocyclina- and Lithothamnium-bearing Limestone, Bryozoa-bearing Limestone, Buda Marl, Hárshegy Sandstone/ revealed, that N. intermedius is missing in these faunas. This fact emphasises the importance of studies on other Nummulites and larger foraminifer species. These studies have been carried out on transitional sequences and their larger foraminifer faunas from the Buda Mts, Bakony Mts, the Ságvár-Balatonbozsok-Tabajd-Csákvár belt, the Nagyegyháza and Dorog basins, Kósd, the Mátra and the Bükk Mts. /The stratigraphic evaluation of the Nummulites fauna is based on the data on the temporal distribution of the taxa; see Fig. 1/.

The most complete transitional sequences appear in the Buda Mts. The studies on the larger foraminifer fauna of these sections resulted in a discovery of a Nummulites species, which gives important data concerning the Eocene/Oligocene boundary. The calcareous intercalations of the Hárshegy Sandstone in Várerdőhegy, Solymár, yielded frequent N. vascus specimens. N. vascus,

being a characteristic Lower and Middle Oligocene species, assigns the age of the calcareous sandstone of Solymár as Oligocene. /N. B. The calcareous sandstone here yielded redeposited N. fabianii and Discocyclina specimens in great quantity, thus the previous studies inclined for Eocene in the age-determination of these beds. / The underlying Nummulites-, Discocyclina- and Lithothamnium-bearing Limestone, on the basis of N. fabianii, N. chavennesi, N. pulchellus and N. incrassatus, belongs into the Upper Eocene, thus the Eocene/Oligocene boundary can be drawn between these two formations. The Oligocene age of the calcareous sandstone is confirmed by the associated Eulepidina dilatata, E. raulina and Lepidocyclina /Nephrolepidina/ tournoveri.

The present article reviews, beside the stratigraphically most important nummulitids and lepidocyclinds, other larger foraminifers from the above-mentioned transitional formations, in areal distribution /Fig. 2/. Some of these forms /Operculina alpina, O. gomezi, Heterostegina reticulata, Spiroclypeus granulosa, Grzybowskaia multifida, G. reticulata, Pellatispira madaraszi/confine to the Upper Eocene, thus suggesting the age of the beds of their occurrences. 3 to 4 species from these form a characteristic association, with constant appearance of Operculina alpina.

The final part of the article makes a comparison between the most important boundary-faunas in Hungary and abroad. The Hungarian larger foraminifer faunas show a conspicuous agreement with the Mediterranean faunas. From these latter, those of the Priabonian stratotype and the sections near Kolozsvár /Cluj/ are reviewed here in detail.

FIGURE CAPTIONS

- Fig. 1: Distribution of the Nummulites species by evolutionary lineages and stratigraphy.
- Fig. 2: Distribution of the other larger foraminifers in the important areas of the Hungarian Upper Eocene formations.
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	felső-eocén	alsó-oligocén
N. variolarius - incrassatus sor		
N. variolarius (LAMK.)	—	
N. incrassatus DE LA HARPE	—	—
N. chavannesi DE LA HARPE	—	
N. pulchellus DE LA HARPE	—	
N. cunialensis HERB & HEKEL	—	
N. budensis HANTKEN	—	—
N. bouiller DE LA HARPE	—	—
N. rectus CURRY	—	
N. paravariolarius JARCEVA	—	
N. prestwichianus JONES	—	
N. litoralis ZERNECKIJ	—	
N. orbigny (GALEOTTI)	—	
N. vascus JOLY & LEYM.		—
N. lorioli - fabianii sor		
N. praefabianii MENNER & VAR.	—	
N. aff. fabianii	—	
N. fabianii (PREVER)	—	
N. retiatus ROVEDA	—	
N. intermedius D'ARCHIAC		—
N. striatus sor		
N. garnieri DE LA HARPE	—	
N. garnieri inaequalis HERB & HEKEL	—	
N. anomalus - stellatus sor		
N. stellatus ROVEDA	—	
N. concinnus JARCEVA	—	

1.ábra A Nummulitesek fejlődési soronkénti és rétegtani eloszlása

	Bakony-hegység	Dorogi-medence, Gerecs e É	Budai-hegység	Duna-balparti rögök (Kösd)	Mátra ÉK	Bükk D, DNY
<i>Operculina alpina</i>	•	•	•	•	•	•
<i>O. canalifera gomezi</i> (<i>O. gomezi</i>)		•	•			
<i>O. ammonia</i>		•	•		•	
<i>O. granulosa</i>		•	•		•	
<i>O. subgranulosa</i>		•	•	•		•
<i>Operculinella vaughani</i> (<i>Operculina gomezi</i>)	•	•	•		•	
<i>O. transita</i> (<i>O. gomezi</i>)		•	•			
<i>O. laxata</i> (<i>O. gomezi</i>)		•	•			
<i>O. anasteginoides</i> (<i>O. gomezi</i>)		•	•			
<i>Anastegina strigoniensis</i> (<i>O. gomezi</i>)		•	•			
<i>Heterostegina reticulata</i>			•		•	•
<i>Spiroclypeus carpathicus</i>			•		•	•
<i>S. granulosus</i>				•		•
<i>Grzybowskia multifida</i>				•		•
<i>G. reticulata</i>				•		•
<i>Pellatispira madaraszi</i>			•	•	•	
<i>Discocyclina papyracea</i>			•	•		
<i>D. applanata</i>	•		•			
<i>D. cfr. dispansa</i>			•			
<i>D. varians</i>	•	•	•	•		
<i>D. aspera</i>	•	•	•	•		
<i>D. nummulitica</i>	•	•	•	•		
<i>D. bartholomei</i>	•	•	•	•		
<i>D. augustae</i>	•	•				
<i>D. priabonensis</i>			•			
<i>D. douvillei</i>				•		
<i>Discocyclina</i> sp.	•	•	•	•	•	•
<i>Actinocyclina radians</i>	•	•	•	•		
<i>Act. varicosata</i>	•	•	•			
<i>Act. patellaris</i>	•					
<i>Asterocyclina stella</i>	•					
<i>Ast. stellata</i>	•	•	•			
<i>Ast. stellaris</i>	•	•		•		
<i>Ast. pentagonalis</i>	•			•		
<i>Chapmanina gassinensis</i>						•
<i>Borelis vonderschmitti</i>					•	
<i>Alveolina</i> sp.					•	

2. ábra Az egyéb Nagyforaminiferák eloszlása a felső-eocén képződmények fontosabb hazai elterjedési területein