

Distribution of Molluscs of the Molluscan Clay of Two Localities According to Habitats and Feeding Habits (Wind Brickyard, Eger and Nyárjas Hill. Novaj; Hungary)

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Abstract: Among the Egerian Age exposures of North-east Hungary the Molluscan Clay of Wind Brickyard (Eger) and Nyárjas Hill (Novaj) contain fossils in exceptional richness. Distribution of molluscs of the Molluscan Clay of these two outcrops according to habitats and feeding habits is examined and compared. There are definite differences between the two localities.

Introduction

Among the several Upper-Oligocene outcrops of North-Hungary the Molluscan Clay layers of Wind Brickyard, Eger and Nyárjas Hill, Novaj is compared (Fig.1). These layers contain well-preserved „micro-mollusc” fossils abundantly. The bivalves, gastropods and schaphopods which were living here during the Egerian stage have belonged into the *Hinia* – *Cadulus* fossil community. It refers to similar paleoenvironments in case of both localities. The sea was deeper than 120 metres and the bottom was covered by fine-grained, clayey sediments.

The aim of the investigation was to examine the distribution of the molluscs according to habitats and feeding habits in the collected materials.

Methods

Fifteen kilograms of clay was taken from both localities. After drying the samples were treated with hot water and peroxide of hydrogen. This material was washed out through a 0,5 mm sieve. At the end the molluscan remains were assorted from among the other fossils (e.g. *Foraminifera*, *Decapoda*, *Echinoidea*, *Osteichthyes*).

Most of the molluscan remains were fragmentary, but there were a lot of complete tests and stone-kernels, too. Only the complete tests and determinable fragments were examined. Because in case of stone-kernels the exact determination of species is often doubtful.

Description

Wind Brickyard

The washed out and assorted material consists of mainly fragments and complete tests. The molluscs from this sample consist of 486 individuals representing 41 species. (Table 1/A).

Most of the species are infaunal (87,8 percent). While taking feeding habits into con-

sideration predators represent 41,5 percent of species. Number of individuals in case of predators is 360 specimen. It is almost three-quarters of the molluscs from this sample. Nearly the quarter of species is suspension-feeder. The number of the species and that of the individuals are almost the same in the case of deposit-feeders and parasites. While the only specimen of browsers could get presumably from higher levels into the clayey strata.

Nyárjas Hill

The molluscan remains of this sample consist of 275 individuals representing 32 species (Table 1/B). 75 percent of species are the member of the infauna. According to the number of species the suspension-feeders and predators are represented equally. But the number of individuals is much more bigger – 177 specimen – almost the two-thirds of the molluscan remains. The number of species and individuals are nearly the same in case of deposit-feeders and parasites. There is no browser in the sample. (Table 2. and Table 3.)

Conclusions

Molluscs of the Molluscan Clay of the two localities were the members of the Hinia – Cadulus fossil community. Though it refers to same environment on the basis of the number and distribution of the molluscs according to habitats and feeding habits we can conclude on microenvironmental differences between the two localities.

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TABLE 1/A LIST OF SPECIES, WIND BRICKYARD

1. <i>Nuculana anticeplicata</i>	1*
2. <i>N. psammobiaeformis</i>	1
3. <i>Yoldia raulini</i>	3
4. <i>Glycymeris</i> sp.	1
5. <i>Limopsis anomala</i>	2

6. <i>Flabellipecten burdigalensis</i>	4
7. <i>Chlamys csepreghymerznericsae</i>	2
8. <i>Astarte gracilis degrangei</i>	6
9. <i>Crassatella bosqueti</i>	42
10. <i>Lucinoma borealis</i>	1
11. <i>Cardium</i> sp.	4
12. <i>Venus multilamella</i>	1
13. <i>Angulus posterus</i>	1
14. <i>Corbula gibba</i>	21
15. <i>Cuspidaria neoscalarina</i>	1
16. <i>Teinostoma egerensis</i>	25
17. <i>Theodoxus buekkensis</i>	1
18. <i>Alvania</i> sp.	36
19. <i>Turritella</i> sp.	2
20. <i>Mathilda schreiberi</i>	1
21. <i>Bittium spina agriense</i>	14
22. <i>Celrithiella</i> sp.	5
23. <i>Natica millepunctata tigrina</i>	10
24. <i>Hinia schlotheimi</i>	76
25. <i>Volutilithes permulticostata</i>	2
26. <i>Odostomia</i> sp.	2
27. <i>Niso minor</i>	1
28. <i>Turbonilla</i> sp.	1
29. <i>Melanella spina</i>	3
30. <i>M.naumanni</i>	5
31. <i>M.naumanni depressosuturata</i>	4
32. <i>Syrnola laterariae</i>	4
33. <i>Ringicula auriculata paulucciae</i>	46
34. <i>Cylichna cylindrica raulini</i>	7
35. <i>Rhizorus acuminatus</i>	3
36. <i>Retusa canaliculata</i>	2
37. <i>Dentalium fissura</i>	53
38. <i>D.simplex</i>	33
39. <i>Fustiaria taurogracilis</i>	24
40. <i>Cadulus gracilia</i>	30
41. <i>Entalina tetragona</i>	5
Total:	486
*number of individuals	

TABLE 1/B LIST OF SPECIES, NYÁRJAS HILL

1. <i>Yoldia raulini</i>	1*
2. <i>Glycymeris</i> sp.	1
3. <i>Limpsis anomala</i>	2
4. <i>Flabellipecten burdigalensis</i>	6
5. <i>Chlamys csepreghymerznericsea</i>	8
6. <i>Astarte gracilis degrangei</i>	4
7. <i>Crassatella bosqueti minor</i>	25
8. <i>Cardita</i> cf. <i>ruginosa</i>	3
9. <i>Cavilucina droueti schloenbachi</i>	1

10. <i>Cardium</i> sp.	14
11. <i>Venus multilamella</i>	3
12. <i>Angulus posterus</i>	15
13. <i>Corbula gibba</i>	1
14. <i>Turritella</i> sp.	1
15. <i>Architectonica mariae</i>	1
16. <i>Bittium spina agriense</i>	112
17. <i>Cerithiella</i> sp.	3
18. <i>Natica millepunctata tigrina</i>	1
19. <i>Hinia schlotheimi</i>	12
20. <i>Aquilofusus loczyi</i>	1
21. <i>Olivella clavula vindobonensis</i>	1
22. <i>Turricula leganyii</i>	2
23. <i>Niso minor</i>	4
24. <i>Turbonilla</i> sp.	6
25. <i>Melanella spina</i>	1
26. <i>M. naumanni depressosuturata</i>	4
27. <i>Syrnola laterariae</i>	4
28. <i>Ringicula auriculata paulucciae</i>	7
29. <i>Cylichna cylindrica raulini</i>	5
30. <i>Dentalium simplex</i>	7
31. <i>Fustiaria taurogracilis</i>	10
32. <i>Cadulus gracilina</i>	9
Total:	275

*number of individuals

TABLE 2.

DISTRIBUTION OF SPECIES ACCORDING TO HABITATS AND FEEDING HABITS
(WIND BRICKYARD, EGER AND NYÁRJAS HILL NOVAJ)

	WIND BRICKYARD				NYÁRJAS –HILL			
	Species		Individuals		Species		Individuals	
	number	%	number	%	number	%	number	%
INFAUNAL	36	87,8	476	97,9	24	75,0	252	91,6
EPIFAUNAL	5	12,2	10	2,1	8	25,0	23	8,4
DEPOSITFEEDER	5	12,2	12	2,5	3	9,4	20	7,3
SUSPENSION-FEEDER	11	26,8	94	19,3	12	37,5	177	64,4
PREDATOR AND SCAVENGER	17	41,5	360	74,1	12	37,5	59	21,5
PARASITE	7	17,1	19	3,9	5	15,6	19	6,8
BROWSER	1	2,4	1	0,2	–	–	–	–
TOTAL	41	100,0	4860	100,0	32	100,0	275	100,0

TABLE 3.

HABITATS AND FEEDING HABITS OF SPECIES OF THE TWO LOCALITIES

	LIST OF SPECIES	W	NY	HABITAT	FEEDING HABITS
1.	NUCULANA ANCEPLICATA	X		INFAUNAL	DEPOSITFEEDER
2.	NUCULANA PSAMMOBIAE-FORMIS	X		INFAUNAL	DEPOSITFEEDER
3.	YOLDIA RAULINI	X	X	INFAUNAL	DEPOSITFEEDER
4.	GLYCYMERIS SP.	X	X	EPIFAUNAL	SUSPENSIONFEEDER
5.	LIMOPSIS ANOMALA	X	X	INFAUNAL	SUSPENSIONFEEDER
6.	FLABELLIPECTEN BURDIGALENSIS	X	X	EPIFAUNAL	SUSPENSIONFEEDER
7.	CHLAMYS CSEPREGHYMEZNERICSAE	X	X	EPIFAUNAL	SUSPENSIONFEEDER
8.	ASTARTE GRACILIS DEGRANGEI	X		INFAUNAL	DEPOSITFEEDER
9.	CRASSATELLA BOSQUETI	X		INFAUNAL	SUSPENSIONFEEDER
10.	CRASSATELLA BOSQUETI MINOR		X	INFAUNAL	SUSPENSIONFEEDER
11.	CARDITA CF. RUGINOSA		X	EPIFAUNAL	SUSPENSIONFEEDER
12.	LUCINOMA BOREALIS	X		INFAUNAL	SUSPENSIONFEEDER
13.	CAVILUCINA DROUETI SCHLOENBACHI		X	INFAUNAL	SUSPENSIONFEEDER
14.	CARDIUM SP.	X	X	INFAUNAL	SUSPENSIONFEEDER
15.	VENS MULTILAMELLA	X	X	INFAUNAL	SUSPENSIONFEEDER
16.	ANGULUS POSTERUS	X	X	INFAUNAL	DEPOSITFEEDER

	LIST OF SPECIES	W	NY	HABITAT	FEEDING HABITS
17.	CORBULA GIBBA	X	X	INFAUNAL	SUSPENSION FEEDER
18.	CUSPIDARIA NEOSCALARINA	X		INFAUNAL	PREDATOR
19.	TEINOSTOMA EGERENSIS	X		INFAUNAL	SCAVENGER DEPOSIT FEEDER
20.	THEODOXUS BUEKKENSIS	X		EPIFAUNAL	BROWSER
21.	ALVANIA SP.	X		INFAUNAL	SCAVENGER PREDATOR
22.	TURRITELLA SP.	X	X	INFAUNAL	SUSPENSION FEEDER
23.	MATHILDA SCHREIBERI	X		INFAUNAL	SCAVENGER PARASITE
24.	ARCHITECTOKA MARIAE		X	INFAUNAL	PREDATOR
25.	BITTIUM SPINA AGRIENSE	X	X	INFAUNAL	SUSPENSION FEEDER BROWSER
26.	CERITHIELLA SP.	X	X	INFAUNAL	SCAVENGER PREDATOR
27.	NATTICA MILLEPUNCTATA TIGRINA	X	X	INFAUNAL	PREDATOR
28.	HINIA SCHLOTHEIMI	X	X	INFAUNAL	SCAVENGER PREDATOR
29.	AQUILOFUSUS LOCZYI		X	EPIFAUNAL	PREDATOR
30.	OLIVELLA CLAVULA VINDOBONENSIS		X	EPIFAUNAL	PREDATOR
31.	VOLUTHILITES CLAVULA VINDOBONENSIS	X		EPIFAUNAL	SCAVENGER PREDATOR
32.	TURRICULA LEGÁNYII		X	EPIFAUNAL	PREDATOR
33.	ODOSTOMIA SP.	X		INFAUNAL SCAVENGER	PREDATOR
34.	NISO MINOR	X	X	INFAUNAL	SCAVENGER PARASITE

	LIST OF SPECIES	W	NY	HABITAT	FEEDINGHABITS
35.	TURBONILLA SP.	X	X	INFAUNAL	SCAVENGER PARASITE
36.	MELANELLA SPINA	X	X	INFAUNAL	PARASITE
37.	MELANELLA NAUMANNI	X		INFAUNAL	PARASITE
38.	MELANELLA NAUMINNI DEPRESSOSUTU- RATA	X	X	INFAUNAL	PARASITE
39.	SYRNOLA LATERARIAE	X	X	INFAUNAL	PARASITE
40.	RINGICULA AURICULATA PAULUCCIAE	X	X	INFAUNAL	SCAVENGER PREDATOR
41.	CYLICHNA CYLINDRICA RAULINI	X	X	INFAUNAL	PREDATOR
42.	RHIZORUS ACUMINATUS	X		INFAUNAL	PREDATOR
43.	RETUSA CANALICULATA	X		INFAUNAL	PREDATOR
44.	DENTALIUM FISSURA	X		INFAUNAL	PREDATOR
45.	DENTALIUM SIMPLEX	X	X	INFAUNAL	PREDATOR
46.	FUSTIARIA TAUROGRACILIS	X	X	INFAUNAL	PREDATOR
47.	CADULUS GRACILINA	X	X	INFAUNAL	PREDATOR
48.	ENTALINA TETRAGONA	X		INFAUNAL	PREDATOR
	W - WIND BRICKYARD NY-NYÁRJAS- HILL.				

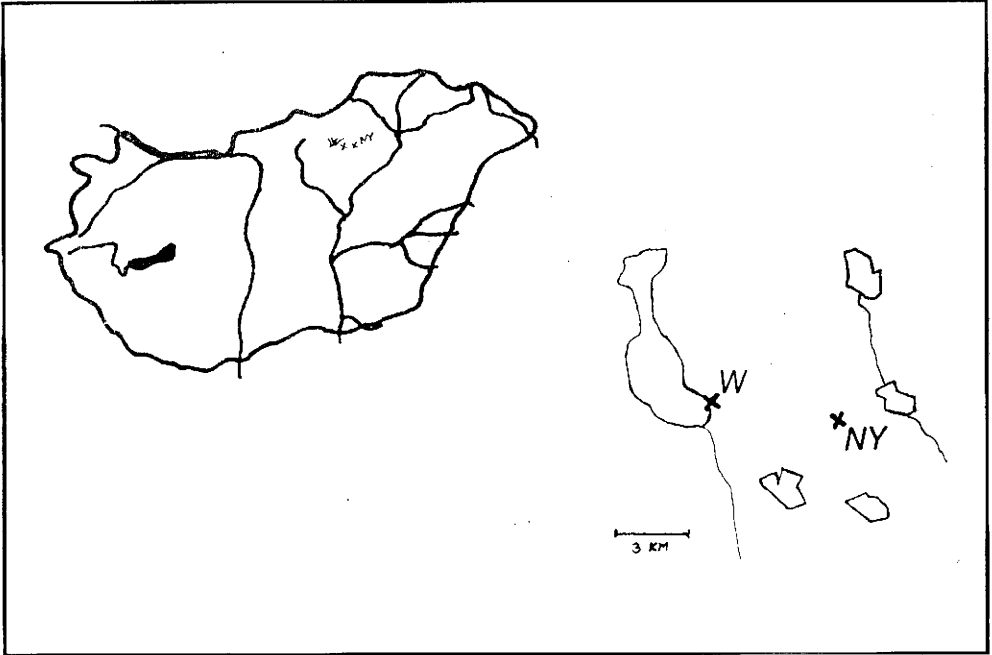


Fig. 1.: Map sketch of the two localities (W-Wind Brickyard, Ny-Nyárjas Hill)