Initial notes to a revision of Late Triassic gastropods from Budapest (Hungary): Hungariella KUTASSY, 1933 (Neritopsidae)

by

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Abstract — During the early years of the twentieth century, the Transdanubian Central Range in Hungary became a classical area for the exploration of the Triassic faunas. Several papers on gastropods were also published. As initial part of a series, planned on results about a revision of the gastropod faunas, this paper updates knowledge on Hungariella KUTASSY, 1933 (Neritopsidae) with some corrections. New name is given instead of “Neritopsis/Hungariella spinosa KUTASSY, 1927” that is a primary junior homonym of a Middle Jurassic gastropod. Lectotypes and a neotype have been selected to the species, respectively.

Keywords — Hungariella, Neritopsidae, Gastropoda, Late Triassic.

Introduction

Rather few localities are known with well preserved megafossils from the Late Triassic. Their significance has been recently raising with the increasing interest of the earth science researchers in the end-Triassic mass extinction. The youngest fossiliferous sediments, deposited before the extinction, have become important sources in collecting information about the last, undamaged state of the biota, therefore the value of the previously published faunas is also increasing.

In Hungary, there are several prospective localities and faunas corresponding to the above criteria, however, from the point of view of gastropods, the importance of the northwestern edge of Budapest and the adjacent western area has already been demonstrated. Gastropods were collected from two localities (Figure 1) of Late Triassic Dachstein Limestone, exposed in quarries of Remete-hegy (Norian) and Fazekas-hegy (Carnian), respectively. Larger part of Remete-hegy with fossiliferous outcrops extends westwards beyond the boundary of Budapest to the area of Remeteszőlős, a neighbouring village. Megafaunas of these localities, nearby each other, were published by KUTASSY (1927, 1933, 1936), BARTKO (1939) and BÉRCZINENYI MÁKK (1969). These papers added lots of new information to the knowledge of the Late Triassic “Alpine” type (= Tethyan) faunas.

These faunas are principal sources also to find the roots of the post-Triassic (Early Jurassic) recovery, that is a not less interesting and important field of research. The author is especially interested in the latter aspect of studies within Class Gastropoda; that is why he has started working on Triassic gastropods. One part of his project aims to revise the originals that have become basic documents for the Triassic palaeontology with their publication from Hungary before 1940. Some ten years after their publications, usually even a simple systematic revision itself can result in new data, however, experience shows that the original collections usually contain lots of information that have still remained hidden.

The typical Dachstein Limestone developed in shallow water of high energy platform environment that was disadvantageous for fossilisation. Normally megafossils are rare and hardly removable from the massive matrix. In the area of Remete-hegy and Fazekas-hegy, a local Dachstein Limestone variety lost the usual hardness and the fossils became relatively easily cleanable from the chalky matrix. Another speciality of this facies is the rich, shelly, relatively well-
preserved fauna, suggesting also a sedimentary environment, atypical for the Dachstein Limestone. Large colonies of ramified corals indicate that this special component was most probably a platform margin position of the depositional area with deeper, calmer water bottom parts. However, the high abundance of the nertoideas shows shallow water platform origin at least for a part of the gastropod fauna that must have been allochthonously embedded here.

KUTASSY (1927, 1933, 1936) introduced abundant and diverse gastropod assemblages with numerous new taxa. Most of the new elements provide the fauna with endemic characters but the major part of the supra-specific taxa clearly shows Alpine/Tethyan relation. BARTKÓ (1939) added the description of a single specimen of a peculiar new species, having siphonostomatous shell ("Fusus" noricus). The number of the published species level gastropod taxa arose up to around sixty. The faunal list below is given in alphabetic order to demonstrate the most advanced taxonomical state [KUTASSY's (1940); Glossiphona Triadica II], however, there is obvious need of a revision both on the genus level (e.g. "Fusus", "Tectus") and on the species level (e.g. to clear up what the "varieties" actually mean).

Although the most important reason of the complete revision is the advance in gastropod systematics since the end of the 1930's years when KUTASSY has prepared his last publications, this work is urged also because KUTASSY's original material became rather declimated while it was (not really carefully) kept in one of the depositories, indicated in the publications. Recently none of the specimens can be found in the collection of University Eötvös Loránd, Budapest (= University Pázmány Péter in the papers) because of rationalization. Major part of the material has been rescued to the Hungarian Geological Museum (part of the Hungarian Geological Institute). Further ruins of the original collection were presented to the Department of Geology and Palaontology of the Hungarian Natural History Museum in another rescue action.

One of the new genera, established by KUTASSY (1933), is Hungariella, represented by three species in the faunas. Because no types were selected to the species, one of the aims of this paper is to find either lectotypes or neotypes. The sparsest one of the species, based on a single, not really well-preserved specimen, badly needs also a nomenclatorial revision. Correction of the name is the other purpose of this paper, planned as the first part of a full revision.

All available Hungariella specimens have been studied, but the types are selected from the collection of the Hungarian Natural History Museum because it contains the only, doubtlessly recognizable originally figured specimen. KUTASSY (1927) established his "Neritopsis spinosa" on a single specimen, having characteristic shell damages, visible also in the original figures (KUTASSY 1927, p. 153, pl. III, Figs 9a–b, and see them in Plate I: 18–20). The possibility for selection of a lectotype has been investigated also in cases of the other species, respectively. If existence of syntypes were not proven or probable, further specimens from the type locality are considered to select as neotype.

The chance to collect new material is low and decreasing, because the quarries in the area of the localities have been long inactive, and the other outcrops have become either a natural conservation area or built up.
Revision of Hungariella KUTASSY, 1933

Systematics

Abbreviations to measurements — H = total height; HL = height of last whorl; HP = height of peristome; D = diameter of last whorl; WP = width of peristome; AA = apical angle; AL = colling angle of last whorl (if different from apical angle). Asterisks indicate reconstructed measurements taken on more (**) or less (*) damaged shell parts.

Class Gastropoda CUVIER, 1797
Subclass Neritaemorphi KOKEN, 1896
Order Neritopsina COX & KNIGHT, 1960
Family Neritopsidae GRAY, 1847
Genus Hungariella KUTASSY, 1933

Type species — Neritopsis Pappi KUTASSY, 1927 = Hungariella pappi (KUTASSY, 1927).

(Re-)Description — Low turbiniform—subglobose shell, consisting of few (4–5), rapidly expanding whorls, separated by impressed, distinct suture. Spire rather protruding and gradate in outline. Whorl cross-section slightly ovate; axially elongated. Subsutural belt forms narrow, feebly concave to feebly convex shoulder with rounded abaxial edge. Aperture half circle-shaped with almost straight inner lip line, and angulation at suture. Peristome continuous, outer lip sharp, inner lip appears as moderately wide parietal callosity, extending wider over central part of base than turning into short columellar lip, having broad outer face with shallow, axial concavity. Callosity has rounded thickening at parietal region but thinner and feebly concave below; apertural edge sharply angular and feebly arched with abaxial concavity. Actually, columellar part of angulation forms narrow, rudimentary plate. Single dent-like process develops deeply behind peristome on wall of penultimate whorl. At suture angle, narrow canal found. KUTASSY (1933) notes one or two smaller denticles that may appear also at foot of columella. Operculum unknown.

Ornament consists of low and wide transversal (but not collateral) costae or undulations, low spiral folds, spiral cords and threads; some of spiral ones corrugated by nodes of different size that may change also into spines. Nodes and spines may be arranged into opisthocoelic rows, resulting in wide, low, undulating costae. Nodes, spines and costae strongest at abaxial edge of shoulder, weaken towards suture and periphery; they may extend also onto base. In different forms but two more or less marked rows of nodes at and above outer edge of ramp appear in all known species.

Growth-lines usually delicate but thread-like in last growth stage.

Remarks — Hungariella resembles to Neritopsis GRATELOUP, 1832, however, there are important differences:
— whorl cross-section and aperture are axially ovate in Hungariella but rather circular in Neritopsis;
— aperture "D"-shaped in Hungariella but subcircular in Neritopsis;
— columellar lip has sharp apertural rim (rudimentary plate) in Hungariella but rounded in Neritopsis.

Significant differences between the two genera are in the characters of the ornament. The rows of nodes and nodulae, especially at rim of ramp, are specific elements in the sculpture of Hungariella. Comparative ornament was found in the Carboniferous and Permian members of the family (Trachydomia MEEK & WORTHEN, 1866 and Trachyspira GEMMELARO, G. G., 1889). These genera, similarly to Hungariella, have also usually more protruding and/or higher spired than the remaining Triassic neritopsids.

For a new Hymenoptera genus, ERDŐS (1946) also applied the name “Hungariella” that has to be obviously substituted.

Distribution — Hungariella species were found in Carnian and Norian strata of the Dachstein Limestone Formation in the Budapest (Buda Hills, the western part of Budapest, and the adjacent hills along the W boundary of the city). Three species have been established on the material from two localities (Remete-hegy, Fazekas-hegy), the two frequent ones (H. pappi and H. stredae) are known from Carnian and Norian beds and they have been identified also from the Dachstein Limestone of the South Karawanke Mountains near Tržič in Slovenia (St. Anna bei Neumarkt); KUTASSY (1934). The third, sparse species (H. “spinosa”) is justifiable only from the Fazekas-hegy Carnian.

Hungariella pappi (KUTASSY, 1927)

(Plate I: 1–9)


Type locality — Remete-hegy, Budapest.
Type strata — Upper Triassic (Norian) Dachstein Limestone Formation.
Material — Thirty-eight specimens (M 97.34. inventory № refers also a H. stredae specimen, being inseparable).
Description — Axially ovate, neritiform shell, consisting of 3–5 whorls, separated by incision-like suture. Protoconch unknown. Whorls convex, disregarding subfinal belt of flat or concave shoulder. Axial edge of ramp bends upward to previous whorl, thus resulting in narrow concave subfinal belt of variable distinctness (Plate I). Outer (abaxial) edge of ramp usually not marked, but frequently indicated by some change in most “prominent” ornamental elements being wide, low, orthocline costae, sometimes wrinkles or just weak undulation. They may run from suture to suture, or to outer edge of ramp from lower suture. In previous case, costae consisted of few indistinct nodulae on ramp. Costae and corresponding ornamental elements cross growth-lines (~30°), being rather prosoclinc. Costae disappear at initial part of last whorl of largest (adult/gerontic) specimens (Plate I: 1–2), only penultimate whorl bears costae. Smaller specimens with ribbed shell (subadult? forms) seem more frequent (Plate I: 3–9).

Peristome and aperture of nearly half-circle shaped, slightly ovate in suture to foot of columella direction. Inner lip rather wide and extends as callosity, forming thick, rounded elevation in parietal region, and thin, feebly concave outer face at basal-columellar parts. Apertural edge of inner lip sharp, feebly concave line; basal-columellar part of inner lip can be regarded as rudimentary aperture plate. Deeply behind inner lip, weak, tooth-like process found on wall of penultimate whorl. Outer lip evenly arched, its outer edge sharp. Distinct, narrow canal visible in suture angle of peristome.

Remarks — Unfortunately, the characteristically damaged original specimen, figured in KUTASSY 1927, Pl. III, figs 10 a–b, can not be found. Neritopsis pappi was established on four specimens; one of them (Pl. III, figs 10 c–d) belongs to H. stredae (KUTASSY 1933, p. 241), the other ones are not identifiable amongst the specimens, available from the two collections. In lack of a verified syntype, selection of a neotype for Hungariella pappi has become necessary. Many of the subsequently found specimens are better preserved than the figured one. The available specimens are surely topotypic and a part of them might be identified by KUTASSY (1933) when Hungariella was outlined as new genus. The selected neotype shows most of the shell morphological characters, the other figured specimens give an impression about the variability of the shell form and the ornament (Plate I: 1–9).

Specimens with weak ornament may be hardly separable from smooth genera of Naticopsinae. Other known species of Hungariella bear marked ornament of different components.

Distribution — Hungariella pappi has been found in both Budapest localities and (questionably) also in the South Karawanke Mountains (Slovenia, KUTASSY 1934); it occurred in Carnian and Norian strata of the Dachstein Limestone.

Hungariella stredae KUTASSY, 1933

(Plate I: 10–17)

1934: Hungariella stredae KUTASSY — KUTASSY, p. 73, Pl. II, Figs 8–10.

Type locality — Remete-hegy, Budapest.
Type strata — Upper Triassic (Norian) Dachstein Limestone Formation.
Material — Thirty specimens (M 97.34. inventory No refers also a H. pappi specimen, being inseparable).

Measurements

<table>
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<tr>
<th>Measurements</th>
<th>H</th>
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<td>Plate I: 16–17</td>
<td>–</td>
<td>–</td>
<td>34.2</td>
<td>22.5</td>
<td>20.5</td>
<td>98°</td>
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<tr>
<td>M 2007.4.1.</td>
<td>Plate I: 12–13</td>
<td>31</td>
<td>28.7</td>
<td>27</td>
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<td>98°</td>
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<td>M 2007.7.1.</td>
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<td>–</td>
<td>–</td>
<td>31.3</td>
<td>19</td>
<td>100°</td>
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<td>M 2007.6.1.</td>
<td>Plate I: 14–15</td>
<td>22.2</td>
<td>18.7</td>
<td>16.8</td>
<td>19</td>
<td>95°</td>
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Differently from H. pappi, H. stredae has marked, characteristic ornament of considerable variability. Whole shell surface ornamented by spiral cords, and, in their interspaces, threads. All cords and threads bear spirally elongated nodes and nodulac or, at least, thickenings (Plate I: 10–17). Actually nodes and nodulac correspond morphologically to short, spirally arranged ribs and riblets. Nodes strongest at and somewhat below outer edge of subsu-
tural ramp. On penultimate whorl and at beginning of body-whorl (same shell part as in *Hungariella pappi*) nodes arranged into transverse costae that may persist to peristome in some specimens (Plate I: 16–17).

**Remarks** — The shape and the characteristic ornament distinguishes *Hungariella stredae* from the other species, discussed here (see also below).

The specimens, figured in KUTASSY (1933) can not be found in the remnants of the original collection. Therefore another gastropod must be selected as type. A part of the material stored in the collection of the Hungarian Natural History Museum (received from the Geological Department of the Eötvös Loránd University) must belong to the syntypes. Based on the accompanied label, the specimens are topotypic (Remete-hegy, Norian), year of the collecting is 1919, and the collector is VADÁSZ, E. who has been employed also at the Geological Department of the Pézmánya Péter University = Eötvös Loránd University. The specimens must have been available for KUTASSY in 1933 when *Hungariella stredae* was published.

**Distribution** — *Hungariella stredae* is found in both Budapest locality and also in the South Karawanke Mountains (Slovenia); this species occurred in Carnian and Norian strata of the Dachstein Limestone Formation.

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**Hungariella kutassyi** nom. nov.

(Plate I: 18–20)

**Lectotype** — M 2007.2.1, Plate I: 18–20 [originally figured by KUTASSY (1927) as *Neritopsis spinosa*].

**Type locality** — Fazekas-hegy, Budapest.

**Type strata** — Upper Triassic (Norian) Dachstein Limestone Formation.

**Material** — Single damaged specimen.

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<th>Measurements</th>
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<td>23</td>
<td>31</td>
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**Description** — Damaged last whorl of neritiform shell with remnants of spire. Shallowly impressed suture separates whorls. Imprint on inner mold indicate same peristome and aperture morphology type, seen in other two species of *Hungariella*, half-circle ("D-shaped") outline with inner lip having almost straight apertural rim. Traces of inner lip on steinkern indicate rather wide, plate-like apertural edge.

Ornament consists of spiral threads, cords, and nodes that may become short, thick spines. Latter elements arranged into three rows on subsutural ramp; strongest row of spines visible along abaxial edge of ramp, weaker and weakest rows can be found adaxially from the first one in order of decreasing strength. Spines connected by carinae of different strength, correlating with size of spines. Irregularly some spines appeared also on adaxial shell edge bending up penultimate whorl. In KUTASSY's figure (1927, Pl. III, Figs 9a–b) spine present on strongest keel, running along ramp edge, but subsequently all spines broken away, now only scars visible at their place (Plate I: 19–20). Between ramp and base, regularly repeating, sparse spiral cords and threads alternate. Two cords mark edge of base, upper one with stronger nodes, lower one with smaller nodulae. Subregularly granulae may appear on all cords of preserved shell part of last whorl. Growth-lines prosocline, rather strong, thread-like.

**Remarks** — The spiny keels are distinctive characters in a comparison either to *H. pappi* or *H. stredae*.

The original name of this species ("Neritopsis spinosa"), given by KUTASSY (1927), is a junior primary homonym of the Middle Jurassic *Neritopsis spinosa* HEBERT & DESLONGCHAMPS, 1860, therefore invalid. Doubtlessly, KUTASSY's single specimen (monotype) represents a well separable species therefore "kutassyi" is proposed here to substitute the species name. The shape of the damaged shell parts, visible also in KUTASSY's figures, made the identification of the type specimen doubtless.

**Distribution** — The lectotype was found in the Faze­kas-hegy Carnian Dachstein Limestone.

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**Hungariella aff. kutassyi**

(Plate I: 21–22)

**Material** — Single damaged specimen.

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<td>25.8</td>
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<td>23.5</td>
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</table>

**Description** — Shape and measurements close to those of *H. kutassyi*, but shell has also remnants of penultimate whorl indicating spire height like in *H. pappi*, being lower than in *H. stredae*. On ramp, this specimen has one more (four, all together) spiny spiral cords and six to eight cords with coarse nodes between abaxial edge of ramp and centre of base. Number of nodosed cords increasing with growth of shell. These latter nodes also become spines.
near last peristome. Between pairs of stronger spiral elements (cords), two threads visible, but only one in *H. kutassyi*.

**Remarks** — The morphology of the shell and the ornament shows close relation to *Hungariella kutassyi*, however, there are also important differences (more carinae with spines on the ramp; strongly nodosed cords on the last whorl and the base). These differences might be enough to establish a new species. However, decision must be postponed because the specific variability of *Hungariella kutassyi*, being unknown owing to the low specimen number, may cover also the morphology of *Hungariella aff. kutassyi*.

**Distribution** — The specimen was in the rescued material without label. The infilling of the shell and the preservation show that its locality is somewhere in the narrow distribution area of the chalky Dachstein limestone facies in NW Budapest and the adjacent hills, most probably Remete-hegy or Fazekas-hegy; the age of the only *Hungariella aff. kutassyi* specimen must be regarded as Carnian–Norian.

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**References**


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**Explanations to Plate I**

1-2 *Hungariella pappi* (KUTASSY, 1927) — ×1; spire (1) and back (2) view of largest specimen (M 97.34) to show weakly developed costae.

3 *Hungariella pappi* (KUTASSY, 1927) — ×1; spire view of specimen M 97.31 with sparse and strong costae.

4-5 *Hungariella pappi* (KUTASSY, 1927) — ×1; spire (4) and back (5) view of specimen 2007.5.1. with denser costae.

6-9 *Hungariella pappi* (KUTASSY, 1927) — ×1; neotype (M 2007.8.1.) in spire (6), back (7) and apertural (8) view; oblique apertural view (9) shows place of inner denticle.

10–11 *Hungariella stredae* KUTASSY, 1933 — ×1; back (10) and spire (11) view of 2007.7.1. specimen; nodes are arranged into costae only on juvenile shell.

12–13 *Hungariella stredae* KUTASSY, 1933 — ×1; lectotype (2007.4.1.) in back (12) and apertural (13) view; nodes elongated on last whorl and not arranged into costae.

14–15 *Hungariella stredae* KUTASSY, 1933 — ×1; back (14) and spire (15) view of 2007.6.1. young specimen; nodes more globular and arranged into costae.

16–17 *Hungariella stredae* KUTASSY, 1933 — ×1; spire (16) and back (17) view of 97.34. specimen to demonstrate nodes are sometimes arranged into costae also in adults.

18–20 *Hungariella kutassyi* nom. nov. — ×1; lectotype (2007.2.1.) in aperture (18), back (19) and spire (20) view.

21–22 *Hungariella aff. kutassyi* — ×1; the 2007.3.1. specimen in back (21) and spire view (22).

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