



## Some New Species of the Subfamily Trachyleberidinae (Ostracoda) from the Maastrichtian – late Eocene of the Middle East

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### Abstract

Five new ostracod species belonging to the subfamily Trachyleberidinae have been described. They are *Paragrenocythere monilis* and *Peloriops levisulcata* from the Maastrichtian of Iraq; *Oertliella petraensis* from the early Palaeocene (middle – late Danian) of Jordan; *Reticulina syriaensis* from the Palaeocene of Syria and *Reticulina ninurta* from the middle – late Eocene of Iraq.

**Keywords:** Ostracoda, Trachyleberidinae, Maastrichtian, Palaeocene, Eocene, Middle East.

## بعض الأنواع الجديدة لتحت العائلة Trachyleberidinae (أوستراكودا) من العصر الماسترختي - الأيوسين المتأخر في الشرق الأوسط

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### الخلاصة

تم وصف خمسة أنواع جديدة من الأوستراكودا تعود لتحت العائلة Trachyleberidinae وهي النوعين *Paragrenocythere monilis* و *Peloriops levisulcata* من العصر الماسترختي في العراق، والنوع *Oertliella petraensis* من الباليوسين المبكر (الدانيان المتوسط - المتأخر) في الأردن، والنوع *Reticulina syriaensis* من الباليوسين في سوريا، والنوع *Reticulina ninurta* من الأيوسين المتوسط - المتأخر في العراق.

### Introduction

The area of Jordan, Syria and Iraq occupied a crucial position during the Maastrichtian and Palaeogene if the relationships between North Africa and Asian ostracod faunas are to be understood. This area on the southern shelf of Tethys lay across the prevailing west to east migratory route of most of the marine benthos.

The Iraqi material investigated are include Makhul well- 2 section which was obtained from the Iraqi Petroleum Exploration Company, and Jabel Sinjar outcrop section which was collected by the author. The British Museum (Natural History) gratefully introduced the Tell-Burma section from Jordan and the Syrian material (8 selected samples collected by the former Iraq Petroleum Company (I.P.C.) from the Dolaa Camp of Bir Qdeim section (Upper Cretaceous – lower Eocene) and from Maaloula section (Palaeocene – middle Eocene) [1]. For their locations see Figure -1.

The state of preservation of the Iraqi and Syrian material is not very good and the carapaces greatly out number single valves, so the internal features are not always clear. This type of preservation could be attributed mainly to the type of sediment and the very high rate of sedimentation within the Middle

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East basins, as seen in the thick Maastrichtian – Palaeogene deposits. In Egypt and Jordan the ostracods are much better preserved and the ratio of the single valves to carapaces is higher, probably because of the type of sediments, i.e. chalks and shales.

Specimens are photographed by Scanning Electron Microscope (SEM) at the Geology Department, University of Glasgow. And all specimens with prefix (OS) are deposited in the Department of Palaeontology, British Museum (Natural History), London.

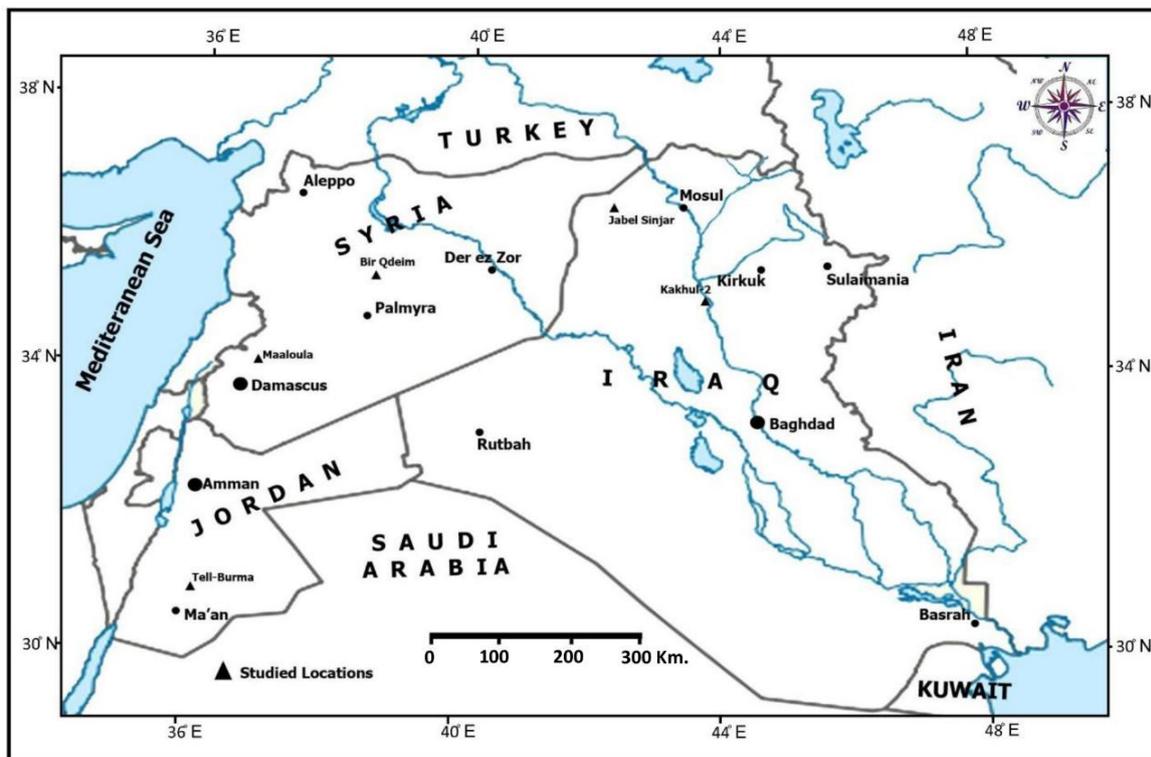


Figure 1 - Location map of study area.

### Systematic Descriptions

Subclass OSTRACODA Latreille, 1806  
 Order PODOCOPIDA Muller, 1896  
 Suborder PODOCOPINA Sars, 1866  
 Superfamily CYTHERACEA Baird, 1850  
 Family TRACHYLEBERIDIDAE Sylvester-Bradley, 1948  
 Subfamily TRACHYLEBERIDINAE Sylvester-Bradley, 1948  
 Genus *Oertliella* Pokorny, 1964[2]  
 Type Species: *Cythere reticulata* Kafka, 1886  
*Oertliella petraensis* sp. nov.

Pl. I, Figs. 1- 4

**Name:** With reference to the capital city of “Petra”, 150 B.C.-100 A.D.

**Diagnosis:** A small species of *Oertliella* with a well-developed spine on the sub-central tubercle; this spine bifurcates at the top.

**Holotype:** Male carapace, OS 11285, Pl. I, figs. 1 and 4.

**Paratype:** OS 11286- OS 11289, and OS 11422- OS 11425.

**Material:** 36 specimens from the Taqiye Formation of the Tell-Burma section, Jordan, samples no. BMJ 845, BMJ 848, BMJ 850 and BMJ 853 [1].

**Type Locality:** Tell-Burma section, Jordan.

**Type Horizon:** Calcareous mudstone bed of lower Palaeocene (upper Danian), sample no. BMJ 850.

**Description:** Carapace small; anterior margin broadly rounded, posterior margin obliquely rounded or bluntly pointed below the middle, dorsal and ventral margins straight and converging to the posterior. The well-developed eye tubercle protrudes and over-reaches the dorsal margin; some spines lie on this dorsal side. Sub-central tubercle marked, bearing a well-developed bifurcating spine.

Lateral surface reticulate with some superimposed spines or pore cones and sieve-type pores lying within the fossae; the reticulation ranges from quadratic-shaped reticules along the margins, to 3-5 sided towards the center of the carapace. Dorsal ridge distinct and bearing 5 spines or pore cones; the posteriormost pore conulus is the strongest and furcated at the top.

The ventral ridge is distinct and broken into 7 spines, the posteriormost spine being the strongest. A narrow marginal rim extends along the anterior, ventral and posterior, being weaker along the ventral margin. There are two rows of small spines around the anterior, ventral and posterior margins; the outer row has smaller spines or nodes and also extends around the dorsal margin.

In dorsal view, the carapace has a thorny appearance, with two parallel sides and laterally compressed ends; maximum width lies at the sub-central tubercle or the posteriormost spine of the ventral ridge; the dorsal row of the marginal spines or nodes can be seen clearly.

Internally, marginal areas narrow; very narrow vestibule is present at the anterior and posterior; selvage submarginal and prominent; radial pore canals numerous, straight and simple, 33-35 radial pore canals at the anterior, and 10-12 at the posterior.

Hinge is Amphidont/ Heterodont; the right valve hinge elements consisting of a conical anterior tooth, postjacent deep socket, smooth median groove, and bilobate posterior tooth; in the left valve the accommodative hinge elements are present. Muscle scars lie in a deep depression, consisting of 4 elongated adductors and a V-shaped frontal scar. The internal surface of the valve is perforated by numerous sieve- type pore openings. Sexual dimorphism pronounced.

| <b>Dimensions:</b> (In mm) |                 | <b>L.</b> | <b>H.</b> | <b>W.</b> | <b>L. /H</b> |
|----------------------------|-----------------|-----------|-----------|-----------|--------------|
| OS 11285                   | Male (Holotype) | 0.680     | 0.392     | 0.360     | 1.735        |
| OS 11286                   | Male            | 0.655     | 0.390     | 0.337     | 1.679        |
| OS 11287                   | Female          | 0.603     | 0.360     | 0.335     | 1.675        |
| OS 11289                   | Female          | 0.562     | 0.357     | -         | 1.574        |
| OS 11422                   | Female          | 0.570     | 0.345     | -         | 1.652        |
| OS 11425                   | Male            | 0.730     | 0.380     | 0.305     | 1.921        |

**Discussion:** *Oertliella petraensis* sp. nov. can be easily distinguished from other species of the genus by its small size and the presence of prominent bifurcating spine on the sub-central tubercle. *Oertliella delicata* Bassiouni and Luger [3] from the M. Palaeocene of Egypt shows close affinity to this new species, but differs in its slightly larger size and some details of ornamentation. *Oertliella khargensis* Bassiouni and Luger [3], described by Shahin and El-Nady [4], and El-Nady *et. al.*, [5] from the M. Maastrichtian of Egypt is similar to this species in having row of spines aligned ventrally, but differs in its larger size and the presence of a prominent posteroventral spine. *Oertliella vesiculosa* (Apostolescu) described by Bassiouni and Luger [3] from Egypt has smaller size and differs in details of ornamentation. *Oertliella aculeata* (Bosquet, 1852) [in: 1] differs in its larger size, better developed ventral ridge, well developed posteromarginal spines, and lacking the well-developed spine on the sub-central tubercle. *Oertliella ducassae* Benson [6] has larger size and different details of ornamentation. *Oertliella horridula* (Bosquet, 1854) [in: 1] described as "*Trachyleberis*" *horridula* by Deroo [7] from the Upper Maastrichtian of Limbourg is similar to *O. petraensis* but differs in its slightly larger size, and in some details of ornamentation, notably the better development of the posteromarginal spines.

However, the species *Oertliella?* sp.1 described by Bassiouni and Luger [3] from the middle Palaeocene of Egypt and *Oertliella donzi* Weaver, 1982 described by Shahin [8] from the Late Turonian of Egypt are more probably belonging to the subgenus *Acanthocythereis* (*Canthylocythereis*) Al-Sheikhly [9].

**Occurrence:** Known so far from the middle-upper Danian of the Tell- Burma section, Jordan.

Genus *Paragenocythere* Al-Furaih, 1975[10]

Type Species: *Paragenocythere biclavata* Al-Furaih, 1975

*Paragenocythere monilis* sp. nov.

Pl. II, Figs. 5-10

**Name:** (L.) *monilis* = string of beads, with reference to the shape of the ventrolateral ridge.

**Diagnosis:** A species of *Paragenocythere* in which the ventrolateral ridge bears a series of nodes formed by its intersection with the surface reticulation; the posterodorsal clavae is less developed and tubular.

**Holotype:** Female carapace, OS 11426, pl. II, figs. 5 and 8.

**Paratype:** OS 11427- OS 11429.

**Material:** 6 specimens from the Shiranish Formation of the Jabel Sinjar Section, samples no. S17, S25 and S28 [1].

**Type Locality:** Jabel Sinjar section, northwestern Iraq.

**Type Horizon:** Bituminous marly bed from the Shiranish Formation of the Jabel Sinjar section, of Maastrichtian age; S28.

**Description:** Carapace with straight margin and curved ventral margin; anterior margin rounded; eye tubercle and sub-central tubercle distinct. Lateral surface reticulate, the reticulation varying from quadratic - shaped reticules along the anterior margin to 3-5 sided or rounded reticules elsewhere. Dorsal ridge distinct and sometimes broken into spines, ending by a posterodorsal clavae. The latter is less developed than in the type species of the genus, and if preserved it is tubular in shape. Ventro-lateral ridge well developed, bearing a series of 7 nodes, which increase in size towards the posterior; the nodes are formed by the intersection of the ridge with the surface reticulation. Marginal rim extends along the anterior, ventral, and posterior; there're traces of marginal spines at the anterior margin and the ventral part of the posterior marginal rim. Some pore cones are present on the lateral surface.

In dorsal view, the carapace is wedge-shaped with both sides converging towards the anterior and with laterally compressed ends; maximum width lies at the posterior end of the ventro-lateral ridge. No internal features were observed. Sexual dimorphism pronounced.

| <b>Dimensions:</b> (In mm.) |                   | <b>L.</b> | <b>H.</b> | <b>W.</b> | <b>L. /H.</b> |
|-----------------------------|-------------------|-----------|-----------|-----------|---------------|
| OS 11426                    | Female (Holotype) | 0.800     | 0.430     | 0.457     | 1.860         |
| OS 11427                    | Female            | 0.847     | 0.470     | 0.480     | 1.802         |
| OS 11428                    | Male              | 0.885     | 0.455     | 0.525     | 1.945         |

**Discussion:** *Paragrenocythere monilis* sp. nov. can be easily distinguished from *Paragrenocythere biclavata* Al-Furaih [10], *P. gladius* Al-Furaih [11], *P. gravis* Al-Furaih [11] and *P. ponticulata* Al-Furaih [11] from the Uppermost Cretaceous-Palaeocene of Saudi Arabia, by its diagnostic features, size, and the details of reticulation, notably the better development of the muri between the anterior rows of reticulation, which are more or less joined together in the case of the Saudi species.

**Occurrence:** Known so far from the Maastrichtian of the Jabel Sinjar Section, Iraq.

Genus *Peloriops* Al-Abdul-Razzaq, 1979[12]

Type Species: *Peloriops sphaerommata* Al-Abdul-Razzaq, 1979

*Peloriops levisulcata* sp. nov.

Pl. I, Figs. 15-19 and Pl. II, Figs. 1-4

**Name:** (L.) *Levis* = smooth + *sulcatus* = furrow, with reference to the smooth furrows on the surface of the valves.

**Diagnosis:** A species of *Peloriops* with a smooth and tubercular surface; a smooth furrow lies posterior to and below the highly protruding eye tubercle.

**Holotype:** Male carapace, OS 11443, Pl. I, figs. 15, 17 and 18.

**Paratype:** OS 11444 – OS 11448.

**Material:** 7 specimens (including 2 broken valves), from the Shiranish Formation of Maastrichtian age; and the Hartha Formation, Upper Campanian? – Maastrichtian age; Makhul Well- 2; samples no. 41, 42, 56 and 79, at drilling depths of 1620' – 2100' (494 – 640 m.) [1].

**Type Locality:** Makhul Well-2, north Iraq.

**Type Horizon:** Marly limestone beds of the Shiranish Formation, Maastrichtian age; sample no. 41, at drilling depths 1620' - 1625' (494 – 495 m.)

**Description:** Carapace subrectangular, anterior margin rounded, posterior margin bluntly pointed to the posterior, dorsal and ventral margins straight, subparallel or slightly converging to the posterior; eye tubercle extremely well developed and protruding; hinge ear of the left valve prominent; sub-central tubercle absent.

Lateral surface smooth, with some tubercles or pore cones, and several sieve-type pore canals. Dorsal ridge distinctly broken into 9 nodes: 3 of them lie anteriorly just behind the prominent eye tubercle, of which dorsal most node is the largest; whereas the other 6 nodes are joined together in a lump separated from the anterior nodes by a smooth furrow; the latter lies just below and posterior to the eye tubercle, running below the first 3 nodes of the dorsal ridge, then turning upwards and separating these from the dorsal ridge nodes. Median ridge indistinct, ventral ridge divided distinctly

into 4 vertical nodes, protruding ventrolateral and over-reaching the ventral margin in lateral view. Anterior marginal rim is thickly developed, and separated from the rest of the surface by a smooth furrow; the posterior marginal rim is distinct but less developed than the anterior marginal rim, and is decorated by 5 small spines. There are some 15 small spines along the anterior margin.

In dorsal view, the carapace has sub-parallel sides with projecting nodes, and with laterally compressed ends; the prominent eye tubercle and the lumpy posterior end of the dorsal ridge can be seen clearly; maximum width lies at the posterior nodes of the ventral ridge.

Internally, only the anterior parts of the left and right valves were found; the marginal area is moderately wide, inner margin and line of concrescence coincide, selvage prominent; the anterior hinge of the right valve consists of a strong semi-conical tooth pointing towards the anterodorsal corner, a postjacent socket to accommodate a small conical tooth of the left valve; the muscle scars were not observed but lie in a shallow depression. Sexual dimorphism pronounced.

| <b>Dimensions:</b> (In mm.) |                 | <b>L.</b> | <b>H.</b> | <b>W.</b> | <b>L. /H.</b> |
|-----------------------------|-----------------|-----------|-----------|-----------|---------------|
| OS 11443                    | Male (Holotype) | 0.662     | 0.360     | 0.325     | 1.839         |
| OS 11444                    | Female          | 0.600     | 0.350     | 0.305     | 1.714         |
| OS 11445                    | Male            | 0.707     | 0.365     | 0.305     | 1.937         |
| OS 11446                    | Female          | 0.670     | 0.387     | 0.345     | 1.731         |

**Discussion:** The three species described by Al-Abdul-Razzaq [12], *Peloriops sphaerommata* from the Cenomanian of Kuwait, *Peloriops elassodictyota* from the Campanian and Turonian? of Kuwait, and *Peloriops tetranceta* from the Upper Cretaceous of Kuwait and coastal Fars Province of Iran can be distinguished from this Maastrichtian species by their very fine reticulation, shape and the development of the dorsal and ventral ridges.

*Peloriops pustulata* (ROSENFELD, 1974) described by Al-Abdul-Razzaq [12] from the Cenomanian of Kuwait, Boukhary *et. al* [13] from the Late Cenomanian of Egypt, and *Peloriops cf. ulosa* described by Szczechura *et. al* [14] from the Albian of Egypt, are showing some resemblance to *Peloriops levisulcata* sp. nov. in having a non-reticulate surface, but differs in the general outline of the carapace where it tapers to the posterior end; the nodes of the dorsal and ventral ridges of the latter species are also more developed.

*Cythereis* gr. *malzi* Bischoff, 1963 described by Grosdidier [15] from the Albian of Iraq shows some similarity to this species, but differs in having a small non-prominent eye tubercle, and has a less developed dorsal ridge.

**Occurrence:** Known so far from the Maastrichtian of Makhul Well-2, Northern Iraq.

Genus *Reticulina* Bassiouni, 1969[16]

Type species: *Carinocythereis (Reticulina) heluanensis* Bassiouni, 1969

*Reticulina syriaensis* sp. nov.

Pl. II, Figs. 15-18

**Name:** After "Syria"

**Diagnosis:** A species of *Reticulina*, with small reticulations covering the mid surface of the carapace, and with some ventro-lateral swelling, causing a downward curving of the ventral ridge.

**Holotype:** Male carapace, OS 11190, pl. II, Figs. 15 and 17

**Paratype:** OS 11191- OS 11193

**Material:** 4 specimens from the Palaeocene, Aaliji Formation of Syria, selected from I.P.C. Sample no. S/15732-15737, stored at the British Museum (Nat. Hist), London [1].

**Description:** Large carapace with ventro-lateral swelling; dorsal ridge straight; ventral ridge curving downwards. The whole surface are reticulate; the reticulation in the middle of the carapace is smaller than at the anterior and posterior. There are a lot of pore cones between the surface reticulations Figure-2. The carapace has a sinus in the area just beyond the sub-central tubercle. Internal details are unknown. Sexual dimorphism pronounced.

| <b>Dimensions:</b> (In mm.) |                 | <b>L.</b> | <b>H.</b> | <b>W.</b> | <b>L. /H.</b> |
|-----------------------------|-----------------|-----------|-----------|-----------|---------------|
| OS 11190                    | Male (Holotype) | 0.920     | 0.487     | 0.425     | 1.889         |
| OS 11191                    | Female          | 0.875     | 0.485     | 0.400     | 1.804         |
| OS 11192                    | Female          | 0.875     | 0.482     | 0.375     | 1.815         |
| OS 11193                    | Female          | 0.900     | 0.462     | 0.420     | 1.943         |

**Discussion:** *Reticulina syriaensis* sp. nov. from the Palaeocene of Syria differs from other species of *Reticulina* described by Bassiouni [17] from Jordan, Bassiouni and Luger [3] from Egypt, Shahin [18 and 19], Morsi *et al.* [20] and Shahin *et al.* [21] from Egypt in having very weakly developed longitudinal ridges, which made the eye rib very distinct.

***Reticulina ninurta* sp. nov.**

Pl. II, Figs. 11-14

**Name:** After Ninurta, the Akkadian god of the thunder-showers and floods of spring.

**Diagnosis:** A species of *Reticulina* with a reticulation arranged in rows surrounding the sub-central tubercle.

**Holotype:** Male carapace, OS 11185, pl. II, figs. 11, 13 and 14.

**Paratype:** OS 11186 - OS 11189.

**Material:** 29 specimens from the middle - upper Eocene, Jaddala and Avanah Formations of the Jabel Sinjar section, Iraq [1].

**Type Locality:** Jabel Sinjar section, Iraq.

**Type Horizon:** 2 meters thick marly bed of the uppermost middle Eocene part of the Jaddala Formation.

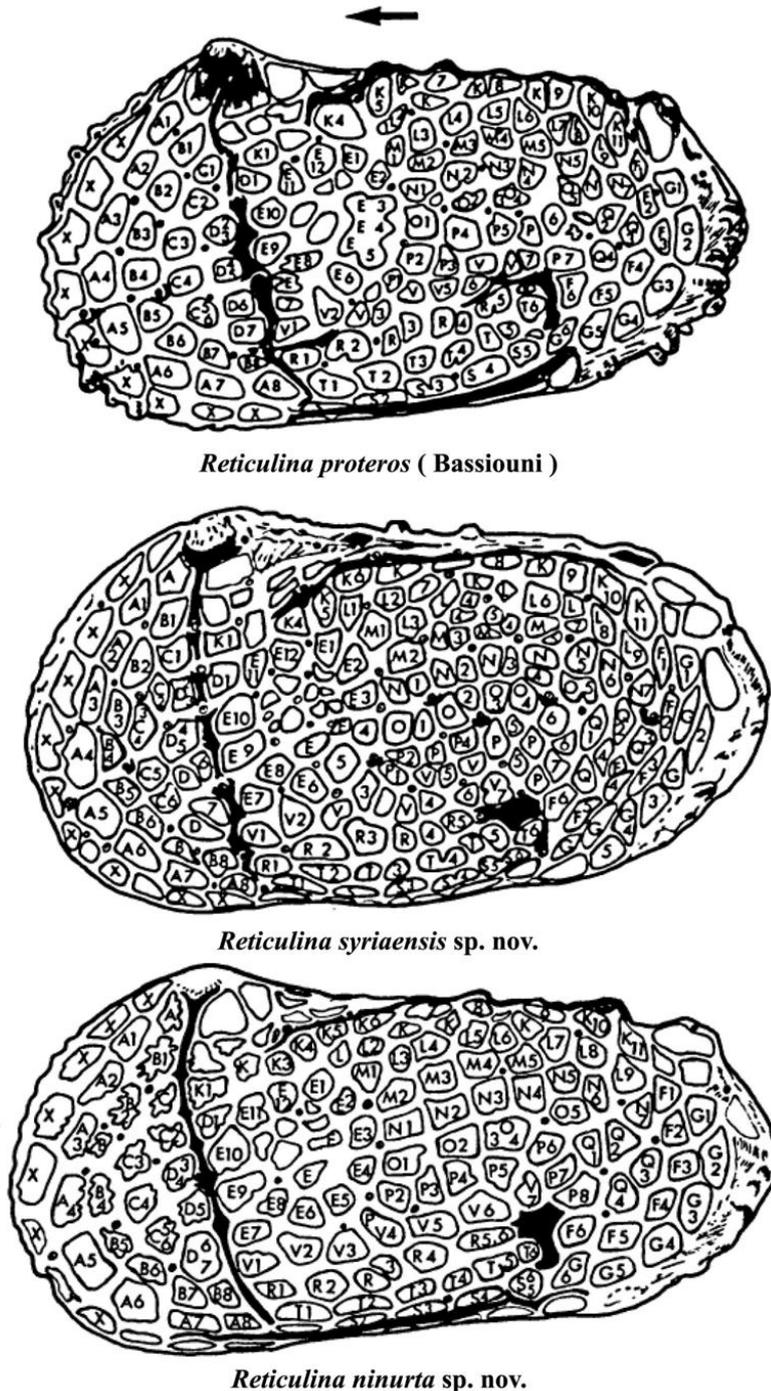
**Description:** The dorsal and ventral ridges are the only longitudinal ridges developed, and are weak; the dorsal ridge is sometimes broken up into a row of spines. The eye rib is well developed and uniform.

An even reticulation arranged or showing a tendency to be arranged in rows surrounding the sub-central tubercle covers the entire surface; small spines may be present between the rows. Generally the reticulation present to the anterior of the eye rib has a secondary ornamentation Figure -2. The anterior margin has 18-20 denticles, while the postero-marginal rim carries 4-5 small spines. In dorsal view, the sides of the carapace converges slightly to the anterior, with a shallow depression over the area of the sub-central tubercle, this depression is bounded anteriorly by the well-marked eye rib; the carapace is laterally compressed at its posterior end. No internal details were observed. Sexual dimorphism pronounced.

| <b>Dimensions:</b> (In mm.) |                 | <b>L.</b> | <b>H.</b> | <b>W.</b> | <b>L. /H.</b> |
|-----------------------------|-----------------|-----------|-----------|-----------|---------------|
| OS 11185                    | Male (Holotype) | 0.820     | 0.410     | 0.345     | 2.000         |
| OS 11186                    | Female          | 0.797     | 0.435     | 0.285     | 1.832         |
| OS 11188                    | Female          | 0.825     | 0.457     | 0.350     | 1.805         |

**Discussion:** *Reticulina ninurta* sp. nov. from the Eocene of Iraq differs from *Reticulina syriaensis* sp. nov. in its smaller size, more distinct eye rib, and reticulation being even; the mid surface reticulation of *R. syriaensis* sp. nov. are smaller than in the anterior and posterior areas; *R. syriaensis* has a better-developed eye tubercle.

**Occurrence:** Known so far from the uppermost middle – upper Eocene the Jabel Sinjar section, northwestern Iraq.



**Figure 2** - A sketch showing lateral reticulations of some species of *Reticulina* Bassiouni, 1969. Arrow indicates anterior, and dark areas illustrate the main ridges.

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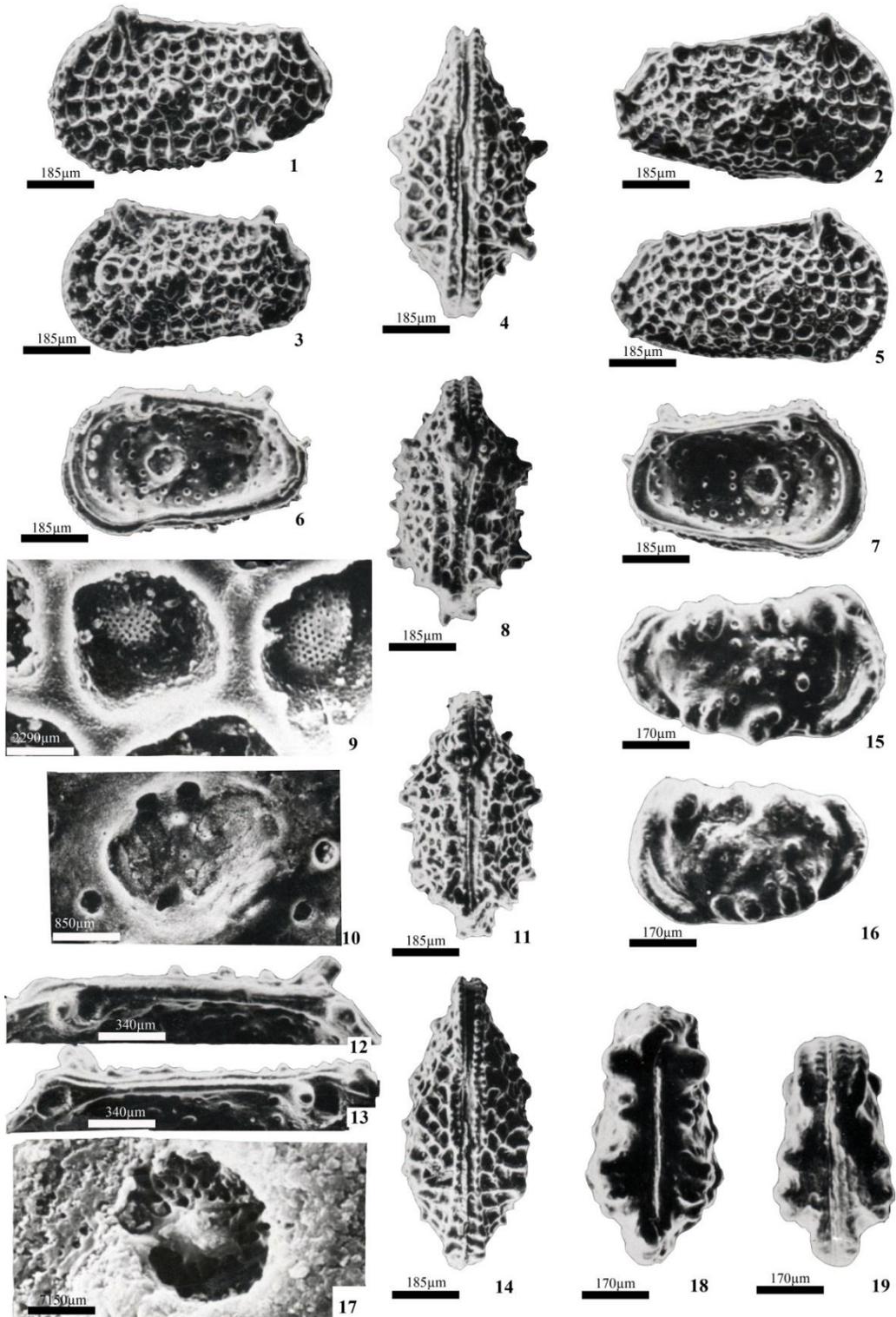
**PLATE – I*****Oertliella petraensis sp. nov.***

- Fig. 1: OS 11285 (Holotype); male, left valve; Tell-Burma, Jordan, sample BMJ 850; lower Palaeocene (upper Danian).
- Fig. 2: OS 11286 (Paratype); male, right valve; Tell-Burma, Jordan, sample BMJ 850; lower Palaeocene (upper Danian).
- Fig. 3: OS 11423 (Paratype); female, left valve; Tell-Burma, Jordan, sample BMJ 850; lower Palaeocene (upper Danian).
- Fig. 4: OS 11285 (Holotype); male, ventral view.
- Fig. 5: OS 11425 (Paratype); male, right valve; Tell-Burma, Jordan, sample BMJ 853; lower Palaeocene (upper Danian).
- Fig. 6: OS 11288 (Paratype); female, right valve; internal view; Tell-Burma, Jordan, sample BMJ 848; lower Palaeocene (upper Danian).
- Fig. 7: OS 11289 (Paratype); female, left valve; internal view; Tell- Burma, sample BMJ 848; lower Palaeocene (upper Danian).
- Fig. 8: OS 11287 (Paratype); female, dorsal view; Tell-Burma, Jordan, sample BMJ 848; lower Palaeocene (upper Danian).
- Fig. 9: OS 11423 (Paratype); sieve - type pore canals.
- Fig.10: OS 11288 (Paratype); female, muscle Scars, right valve; Tell- Burma, Jordan, sample BMJ 848; lower Palaeocene (upper Danian).
- Fig.11: OS 11423 (Paratype); female, dorsal view.
- Fig.12: OS 11288 (Paratype); female, hinge, right valve.
- Fig.13: OS 11289 (Paratype); female, hinge, left valve; Tell-Burma, Jordan, sample BMJ 848; lower Palaeocene (upper Danian).
- Fig.14: OS 11425 (Paratype); male, ventral view.

***Peloriops levisulcata sp. nov.***

- Fig.15: OS 11443 (Holotype); male, right valve; Makhul Well-2, Iraq, sample 41, drilling depth 1620' - 1625' (494 – 495 m.), Maastrichtian.
- Fig.16: OS 11444 (Paratype); female, left valve; Makhul Well-2, Iraq, sample 42, drilling depth 1635' - 1640' (498 – 500 m.), Maastrichtian.
- Fig.17: OS 11443 (Holotype); male, sieve-type pore canal.
- Fig.18: OS 11443 (Holotype); male, dorsal view.
- Fig.19: OS 11444 (Paratype); female, ventral view.

PLATE -I



**PLATE – II*****Peloriops levisulcata* sp. nov.**

- Fig. 1: OS 11445 (Paratype); male, left valve; Makhul Well-2, Iraq, sample 79, drilling depth 2095' - 2100' (639 – 640 m.), Maastrichtian.
- Fig. 2: OS 11446 (Paratype); female, right valve; Makhul Well-2, Iraq, sample 79, drilling depth 2095' - 2100' (639 – 640 m.), Maastrichtian.
- Fig. 3: OS 11447 (Paratype); right valve; internal view (broken); Makhul Well-2, Iraq, sample 42, drilling depth 1635' - 1640' (498 – 500 m.), Maastrichtian.
- Fig. 4: OS 11448 (Paratype); left valve; internal view (broken); Makhul Well-2, Iraq, sample 56, drilling depth 1855' - 1860' (565 – 567 m.), Maastrichtian.

***Paragrenocythere monilis* sp. nov.**

- Fig. 5: OS 11426 (Holotype); female, left valve; Jabel Sinjar section, Iraq, sample S28; Maastrichtian.
- Fig. 6: OS 11427 (Paratype); female, right valve; Jabel Sinjar section, Iraq, sample S28; Maastrichtian.
- Fig. 7: OS 11428 (Paratype); male, right valve; Jabel Sinjar section, Iraq, sample S17; Maastrichtian.
- Fig. 8: OS 11426 (Paratype); female, dorsal view.
- Fig. 9: OS 11427 (Paratype); female, ventral view.
- Fig.10: OS 11428 (Paratype); male, dorsal view.

***Reticulina ninurta* sp. nov.**

- Fig.11: OS11185 (Holotype); male, left valve; Jabel Sinjar section, Iraq, sample S77; middle Eocene.
- Fig.12: OS 11187 (Paratype); female, right valve; Jabel Sinjar section, Iraq, sample S96; upper Eocene.
- Fig.13: OS 11185 (Holotype); male, dorsal view.
- Fig.14: OS 11185 (Holotype); male, ventral view.

***Reticulina syriaensis* sp. nov.**

- Fig.15: OS 11190 (Holotype); male, left valve; Syria, I.P.C. sample S / 15732-15737; Palaeocene.
- Fig.16: OS 11191 (Paratype); female, right valve; Syria, I.P.C. sample S / 15732-15737; Palaeocene.
- Fig.17: OS 11190 (Holotype); male, ventral view.
- Fig.18: OS 11191 (Paratype); female, dorsal view.

PLATE – II

