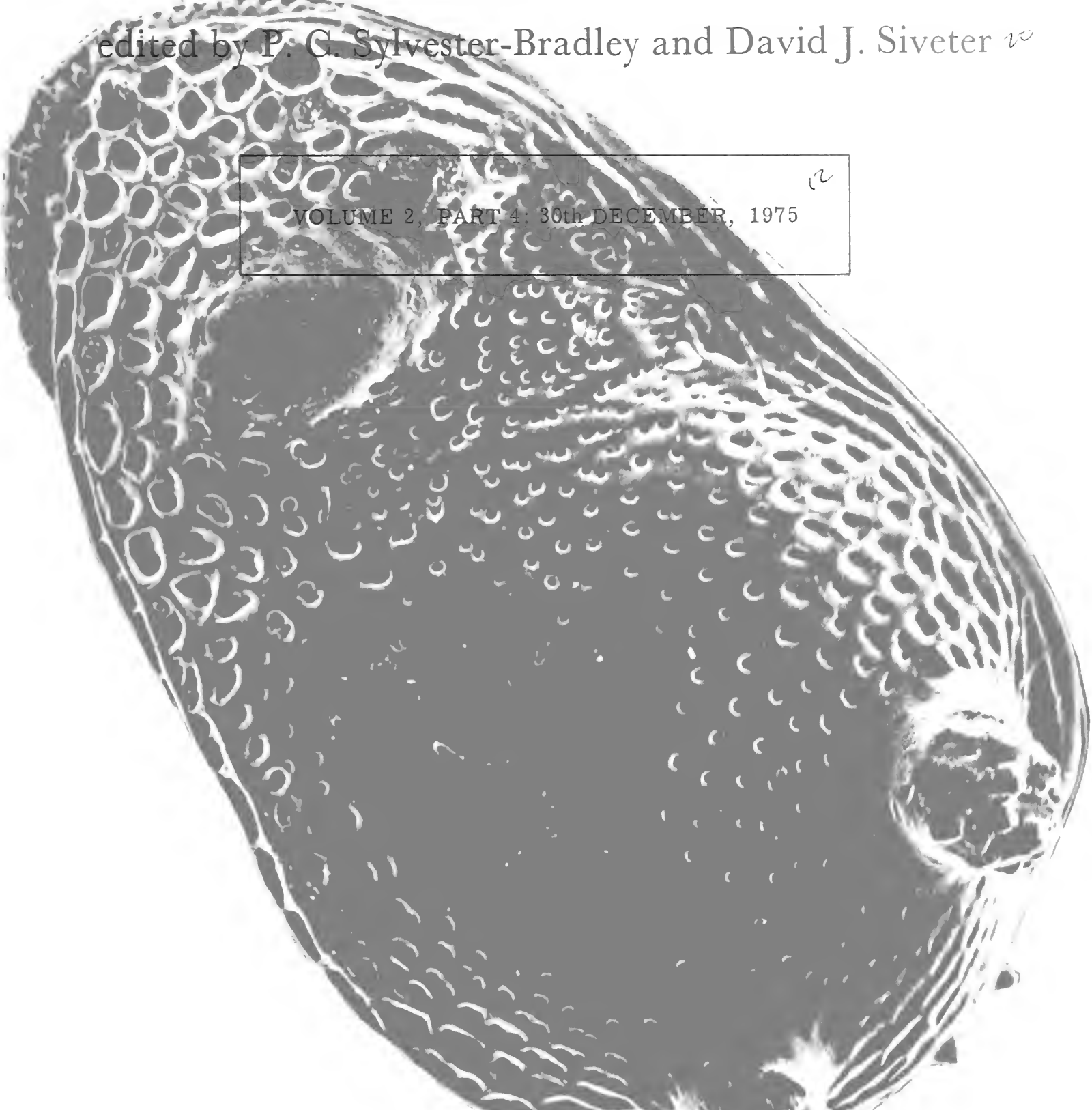


# A Stereo-Atlas of Ostracod Shells <sup>36</sup>

edited by P. C. Sylvester-Bradley and David J. Siveter <sup>20</sup>



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## INSTRUCTIONS TO AUTHORS

Contributions illustrated by scanning electron micrographs of Ostracoda in stereo-pairs are invited. Full instructions may be obtained on request from the Editors. Format should follow the style set by the majority of papers in this issue. The Editors should be consulted for advice before figures for plates are mounted. Descriptive matter apart from illustrations should be cut to a minimum; preferably each plate should be accompanied by one page of text only.

Department of Geology, The University, Leicester.

## ACKNOWLEDGEMENTS

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## VOLUME 3

Financial provision for the publication of Vol. 3 has been promised by a number of organisations. The volume will be published in two parts during the course of 1976. The increased costs of printing and distribution necessitate raising the annual subscription to £12.00. The present editors are pleased to report that Dr. R. H. Bate of the British Museum (Natural History) and Dr. J. W. Neale of the University of Hull have accepted an invitation to join the editorial team.

Subscriptions to Vol. 3 should be addressed to Dr. R. H. Bate, Department of Palaeontology British Museum (Natural History), Cromwell Road, London, SW7 5BD. Cheques should be made payable to Dr. R. H. Bate.

## STEREO-VIEWING FOR USERS OF THE ATLAS

In order to gain maximum information and benefit from the use of the *Stereo-Atlas* it is *essential* that the user view the micrographs stereoscopically. Small pocket-sized stereoviewers are most suitable for this purpose. Two suppliers are:

C. F. Casella & Co. Ltd., Regent House, Britannia Walk, London, N1 7ND, and  
Air Photo Supply Corp., 158, South Station, Yonkers, New York 10705.



ON *UROCYTHEREIS PHANTASTICA* ATHERSUCH AND RUGGIERI sp. nov.  
by J. Athersuch and G. Ruggieri  
(University of Leicester, England and University of Palermo, Italy)

*Urocythereis phantastica* sp. nov.

Holotype: Brit. Mus. (Nat. Hist.) nos. 1974.755a, b (RV & LV); ♀ carapace.

Type locality: SE coast of Cyprus, long. 34°04'00"E, lat. 35°00'26"N. Recent, marine, coarse shell sand; depth 13 m, salinity 39‰, water temperature 23°C.

Derivation of name: Latin, 'fantasy', suggesting a creature of the imagination.

Diagnosis: Muri high, often discontinuous, normally bearing a well developed tegmen which forms short angular, occasionally anastomosing branches.

Figured specimens: Brit. Mus. (Nat. Hist.) nos. 1974.755a (♀ RV: Pl. 2:36:224, fig. 1; Pl. 2:36:230, figs. 1, 3), 1974.755b (♀ LV: Pl. 2:36:226, fig. 2; Pl. 2:36:228, figs. 3-5), IO 6266 (? ♀ LV: Pl. 2:36:224, fig. 2; Pl. 2:36:230, figs. 2, 4, 5), 1974.756 (♂ car.: Pl. 2:36:226, fig. 1), 1974.757 (RV: Pl. 2:36:228, fig. 1), 1974.758 (RV: Pl. 2:36:228, fig. 2), 1974.759 (LV: Pl. 2:36:228, fig. 6), 1974.837 (♀ appendages: text-fig. 1a, b; text-fig. 2a-d), 1974.838 (♂ rt. hemipene: text-fig. 1c).

Explanation of Plate 2:36:224

Fig. 1, ♀ RV, ext. lat. (1974.755a, 963 µm long); fig. 2, ?? ♀ LV, ext. lat. (IO 6266, 976 µm long).

Scale A (250 µm ; ×101), fig. 1; scale B (250 µm ; ×97), fig. 2.

Figured specimens: 1974.755-1974.759, 1974.837, 1974.838 all Recent; collected by (contd.) J. Athersuch during autumn 1973 from the coast of Cyprus. 1974.755 (holotype) had remnants of soft parts within the carapace when collected. 1974.756-1974.759 from long. 34°04'E, lat. 34°58'N; marine, coarse sand, depth 17 m, salinity 39‰, water temperature 20.5°C. 1974.837 from long. 34°02'00"E, lat. 35°04'30"N; marine, amongst weeds, depth 8 m, salinity 39‰, water temperature 23°C. 1974.838 from long. 34°04'00"E, lat. 35°00'26"N; marine, amongst fine weed on rock surface, depth 11 m, salinity 39‰, water temperature 22°C. IO 6266 from the Sicilian (lower Pleistocene); collected by G. Ruggieri from excavations in white, soft calcarenite, Viale del Fante, Palermo, Sicily; long. 13°23'E, lat. 38°08'N.

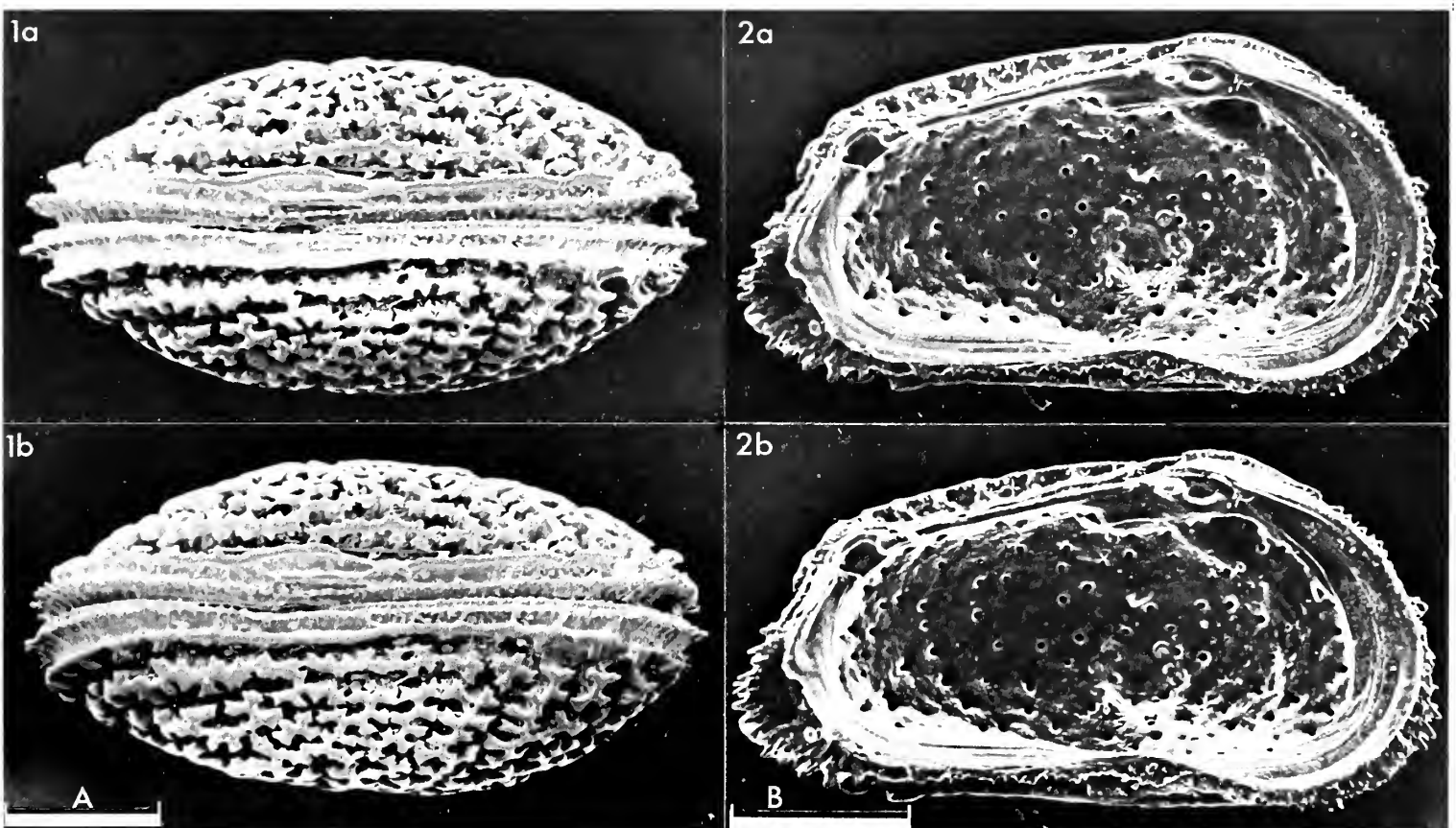
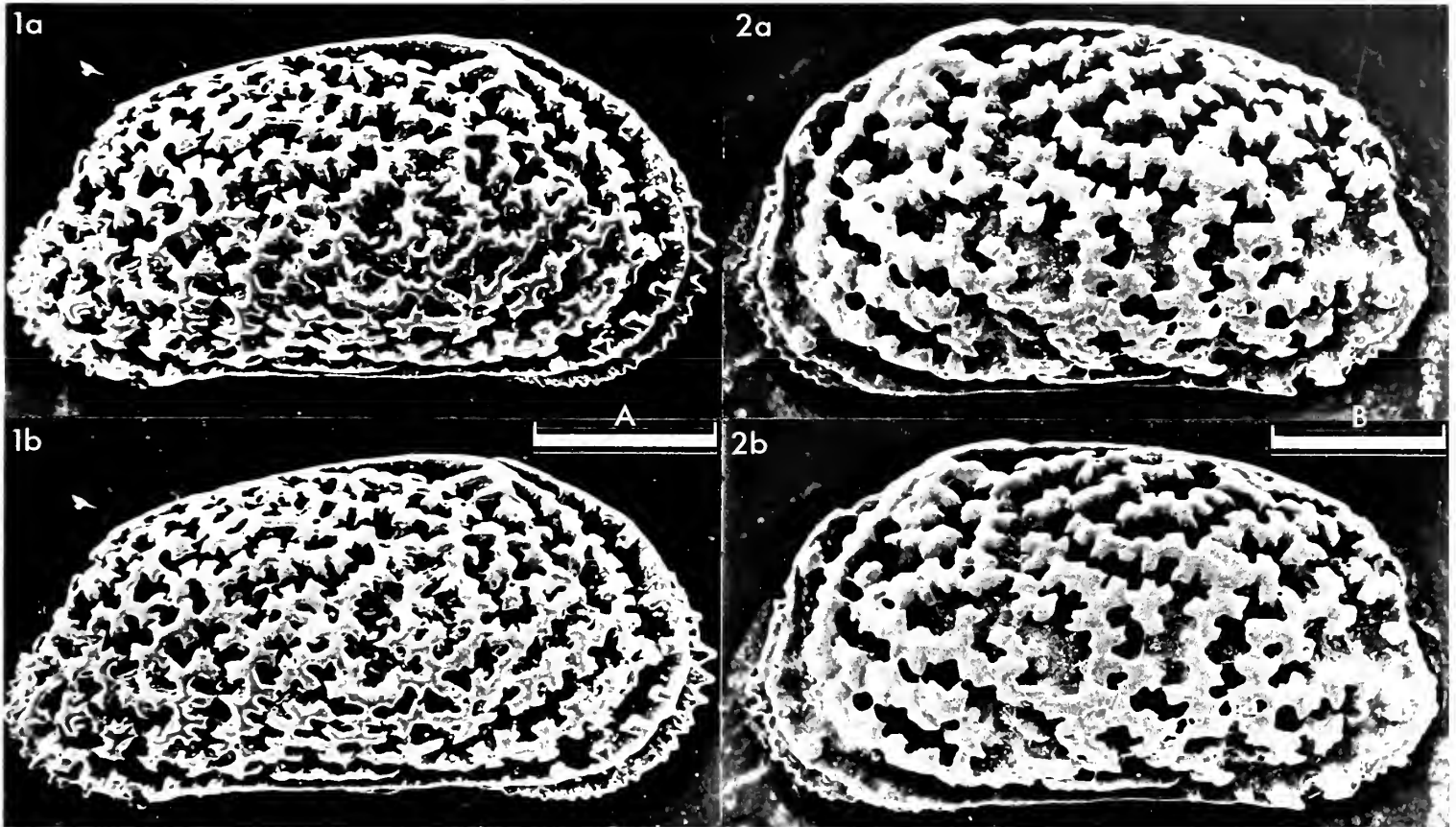
Remarks: Specimens show considerable variation in the development of the tegmen (Pl. 2:36:230, figs. 1, 2, 4, 5). In some specimens a very thin calcareous membrane, for which the new name *suprattegmina* is proposed (Latin: plural *suprattegmina*), may be observed overlying (Pl. 2:36:230, fig. 4) and occasionally linking (Pl. 2:36:230, fig. 5) the branches of the tegmen. The fossil specimen has a *suprattegmina* with reticulate borders (Pl. 2:36:230, figs. 4, 5). Males more elongate.

Distribution: Known so far from the Lower Calabrian and Sicilian (lower Pleistocene) in Sicily and the Recent of Cyprus. Possibly also occurs Recent in Tunisia.

Explanation of Plate 2:36:226

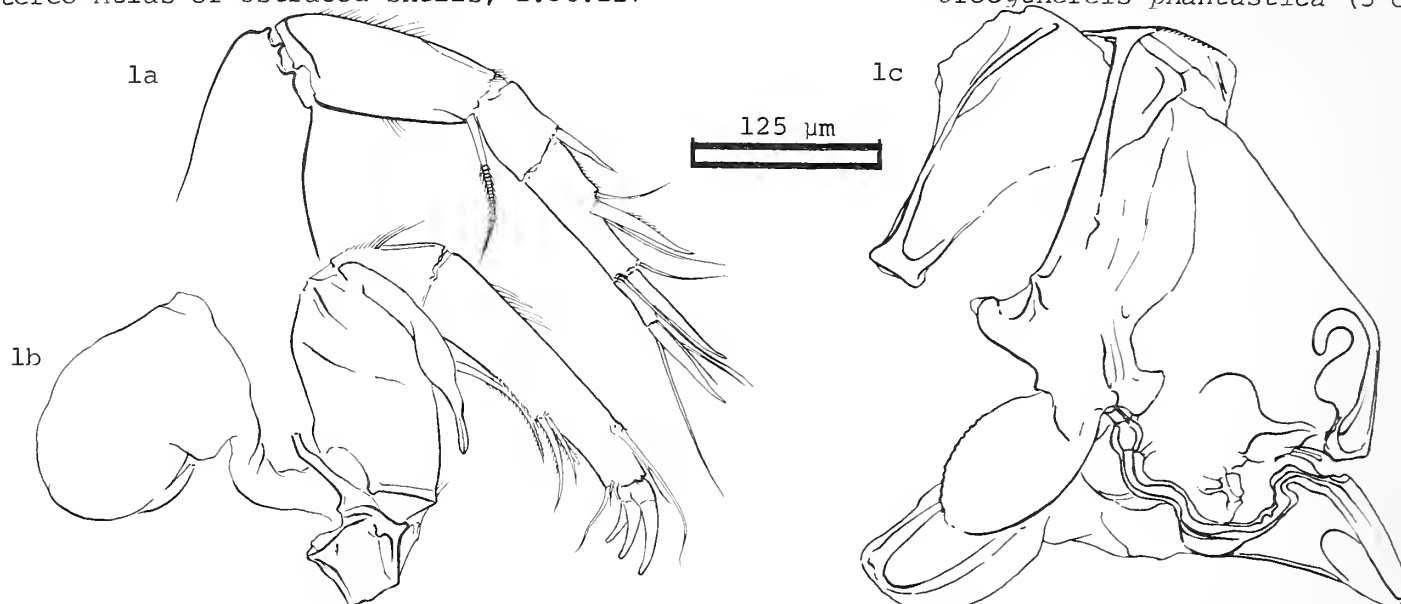
Fig. 1, ♂ car., ext. vent. (1974.756, 1073 µm long); fig. 2, ♀ LV, int. lat. (1974.755b, 951 µm long).

Scale A (250 µm ; ×88), fig. 1; scale B (250 µm ; ×102), fig. 2.







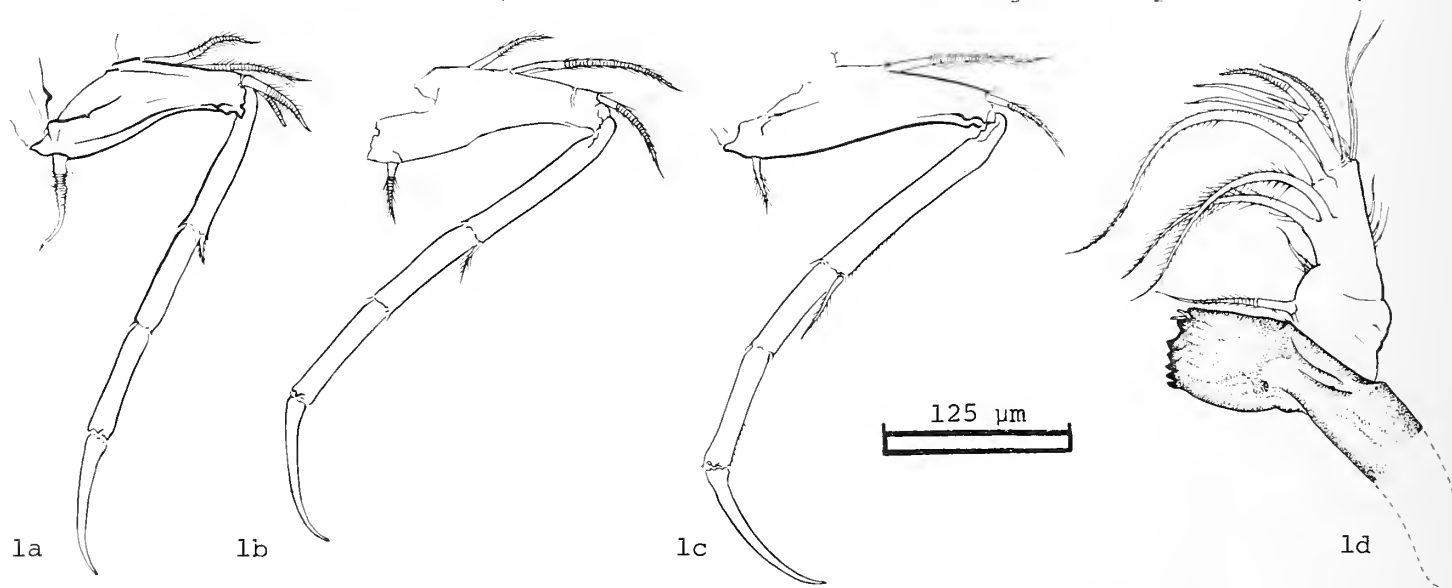


Text-fig. 1. Appendages of *U. phantastica*. 1a, b: right first & second antennae (1974.837); 1c: right hemipene (1974.838).

Explanation of Plate 2:36:228

Fig. 1, RV int. lat., terminal hinge elements (1974.757); fig. 2, RV int. lat., terminal hinge elements (1974.758); figs. 3, 4, ♀ LV, int. lat., terminal hinge elements (1974.755b); fig. 5, ♀ LV, int. musc. sc. (1974.755b); fig. 6, LV, int. musc. sc. (1974.759).

Scale A (100 μm ; ×268), figs. 1-4; scale B (100 μm ; ×252), fig. 5; scale C (100 μm ; ×190), fig. 6.



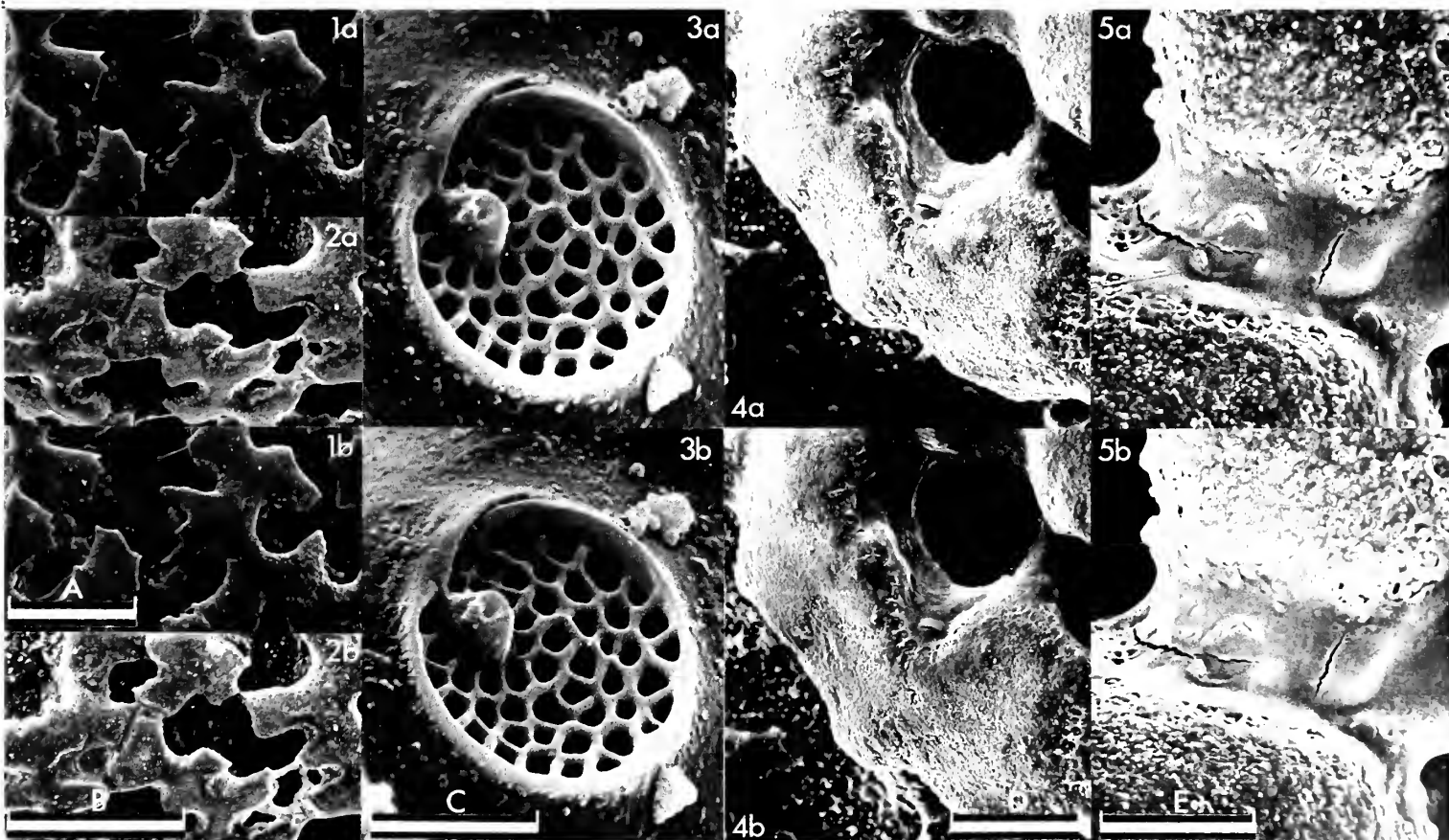
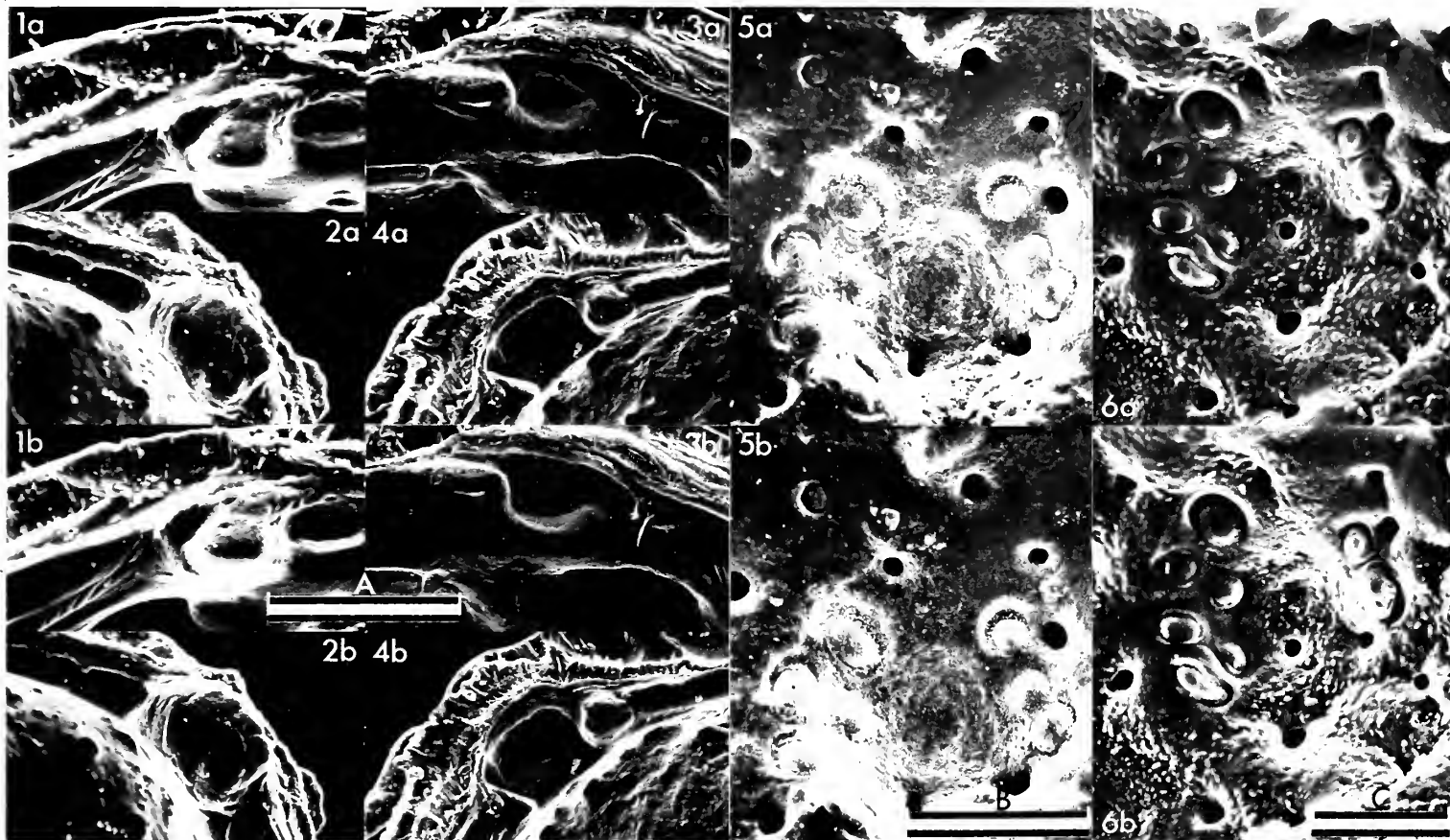
Text-fig. 2. Appendages of *U. phantastica*. 1a-c: first to third left thoracic legs, (1974.837); 1d: left mandible (1974.837).

Explanation of Plate 2:36:230

Fig. 1, ♀ RV, ext. lat., ornamentation (1974.755); fig. 2, ?♀ LV, ext. lat., ornamentation (IO 6266); fig. 3, ♀ RV, ext. lat., rimmed sieve pore (1974.755); figs. 4, 5, ?♀ LV, ext. lat., tegmen & suprategmen (IO 6266).

Scale A (100 μm ; ×330), fig. 1; scale B (100 μm ; ×252), fig. 2; scale C (5 μm ; ×4500), fig. 3; scale D (25 μm ; ×750), fig. 4; scale E (10 μm ; ×2135), fig. 5.









ON *PARAGRENOCYTHERE BICLAVATA* AL-FURAIH gen. et sp. nov.  
by Ali A. F. Al-Furaih  
(University of Leicester, England)

Genus *PARAGRENOCYTHERE* gen. nov.

Type-species: *Paragrenocythere biclavata* sp. nov.

Derivation of name: Comparable to the genus *Agrenocythere* Benson.

Diagnosis: A genus of Trachyleberididae, normally having two well developed posterodorsal clavae. Eye tubercle distinct. Shape rectangular with straight or curved prominent ventro-lateral ridge and prominent subcentral tubercle. Thick shells with thick muri. Hinge amphidont.

Remarks: Resembles *Agrenocythere* Benson, 1972 (*Smithson. Contr. Paleobiol.*, no. 12, pp. 58-62) in main features of ornament but differs in presence of a distinct eye tubercle and a distinct posterior cardinal process (accommodating posterior hinge socket) in the left valve. The so-called "bullar" series consists of two dorsal projections which are better likened to the clavae of Sylvester-Bradley & Benson (*Lethaia*, vol. 4, no. 3, pp. 249-286, 1971) than to bullae.

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Explanation of Plate 2:37:232

Fig. 1, ♀ RV, ext. lat. (IO 6811, 805 µm long); fig. 2, ♂ LV, ext. lat. (IO 6812, 878 µm long).

Scale A (250 µm ; ×108), fig. 1; scale B (250 µm ; ×101), fig. 2.

Remarks (contd.): Castral structure intermediate between *Agrenocythere* and *Oertliella* Pokorný. Posterior hinge element more strongly developed than in either *Agrenocythere* or *Oertliella*.

There are at least two other congeneric species (to be described) within *Paragrenocythere*.

*Paragrenocythere biclavata* sp. nov.

Holotype: Brit. Mus. (Nat. Hist.) IO 6811 ♀ RV.

Type locality: El-Alat well 1 (2044-49 ft below the surface), eastern part of Saudi Arabia; approx. long. 49°50'E, lat. 26°28'N. Lower Palaeocene; light gray limestone with abundant foraminifera; presumed warm, shallow marine (see Sander, *Revue Micropaléont.*, vol. 5, no. 1, pp. 3-40, 1962).

Derivation of name: From the development of the two posterodorsal clavae.

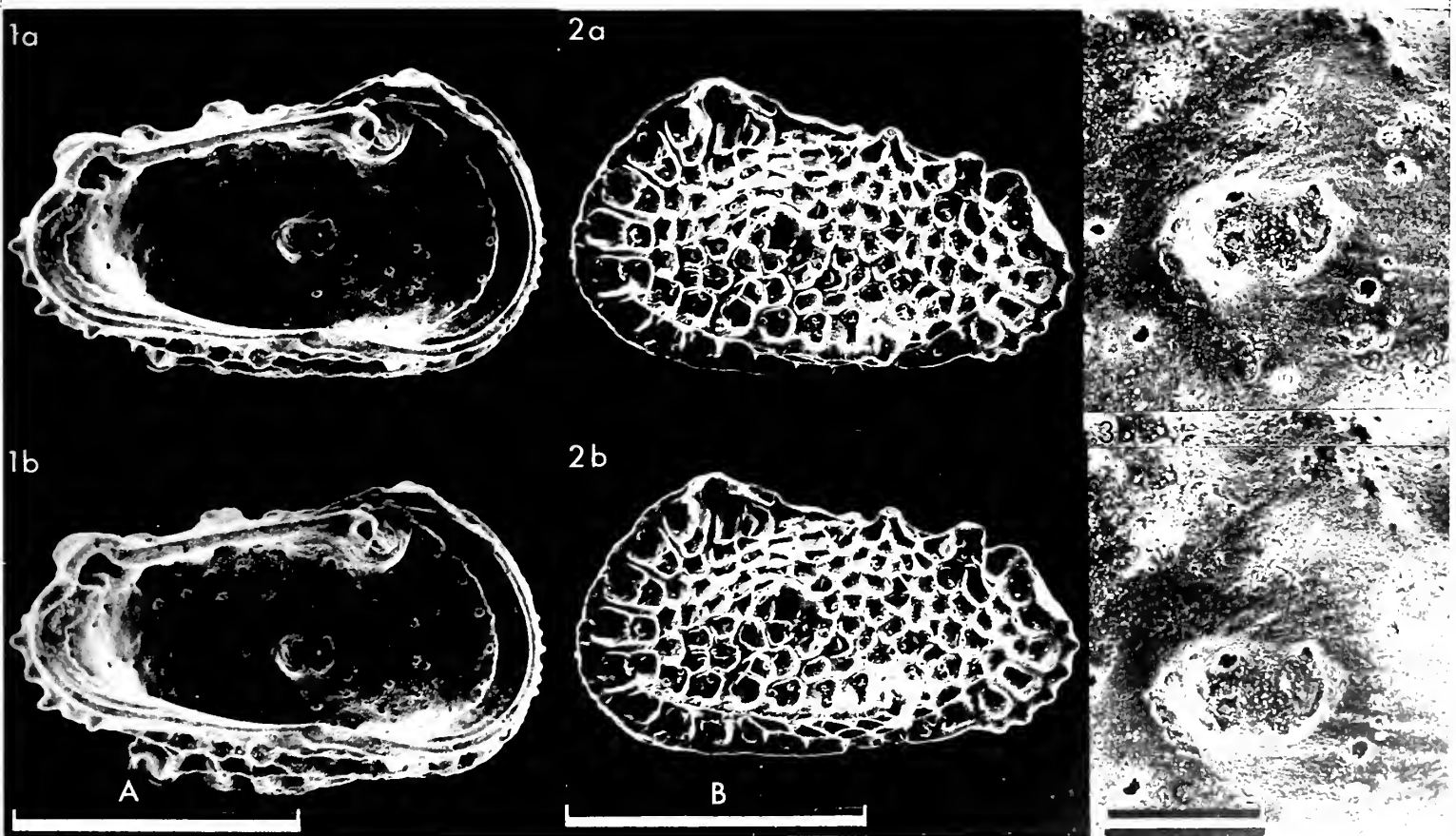
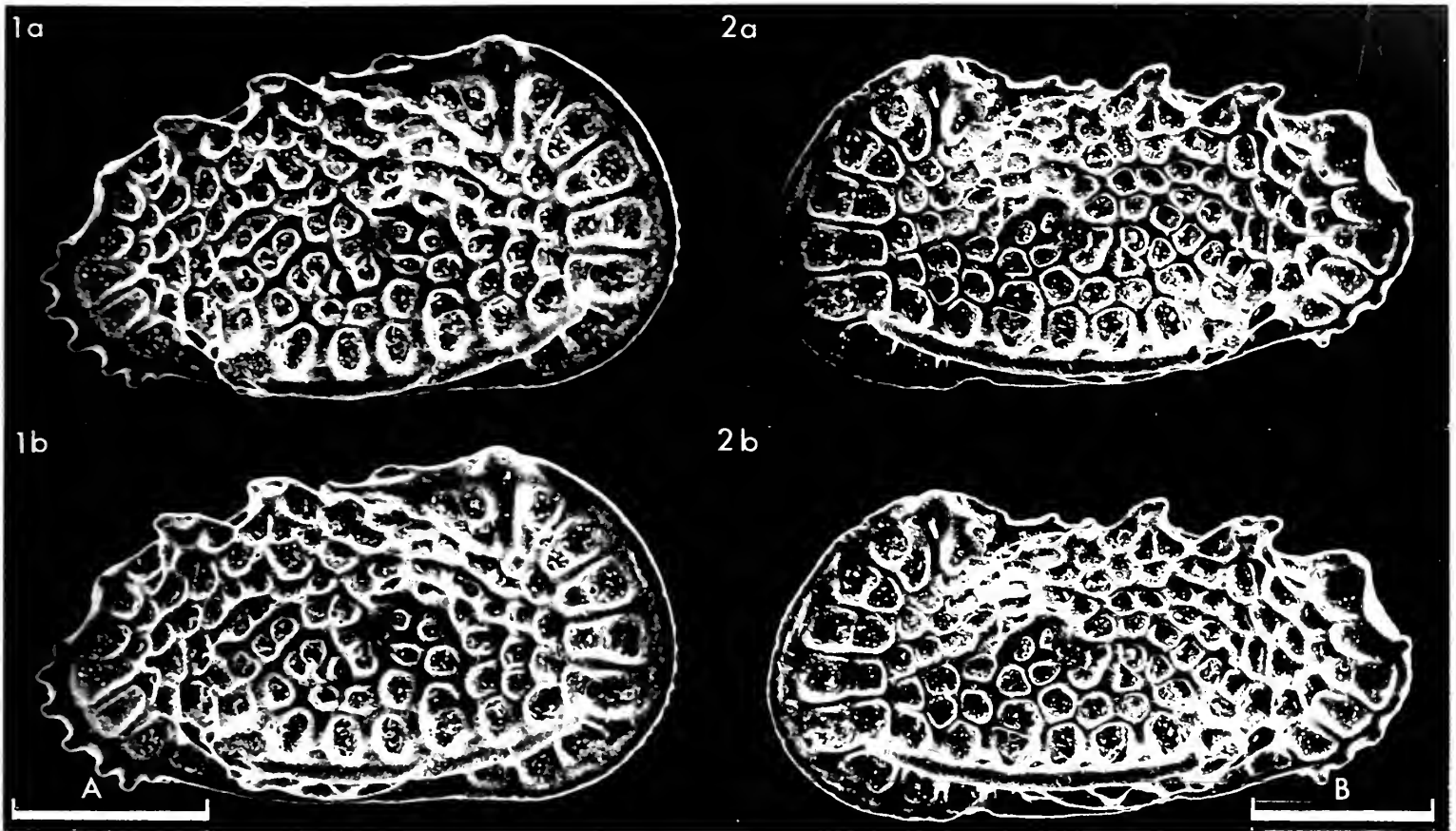
Figured specimens: Brit. Mus. (Nat. Hist.) IO 6811 (♀ RV: Pl. 2:37:232, fig. 1; Pl. 2:37:236, fig. 3; Pl. 2:37:238, fig. 1), IO 6812 (♂ LV: Pl. 2:37:232, fig. 2), IO 6813 (♀ LV: Pl. 2:37:234, figs. 1, 3), IO 6814 (♀ LV: Pl. 2:37:234, fig. 2), IO 6815 (♀ car.: Pl. 2:37:236, fig. 1), IO 6816 (♀ car.: Pl. 2:37:236, fig. 2), IO 6817 (♂ RV: Pl. 2:37:238, figs. 2, 3), IO 6818 (♀ LV: Pl. 2:37:238, fig. 4).

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Explanation of Plate 2:37:234

Fig. 1, ♀ LV, int. lat. (IO 6813, 878 µm long); fig. 2, ♀ LV, ext. lat. (IO 6814, 829 µm long); fig. 3, ♀ LV, int. musc. sc. (IO 6813).

Scale A (500 µm ; ×80), fig. 1; scale B (500 µm ; ×83), fig. 2; scale C (100 µm ; ×216), fig. 3.







Figured specimens: All the figured specimens come from the type locality; IO 6811, IO 6812 (contd.) and IO 6817 are from a sample at 2044-49 ft, IO 6813 and IO 6814 from 2026-34 ft, IO 6815 and IO 6818 from 2063-72 ft and IO 6816 from 2057-63 ft.

Diagnosis: Subcentral tubercle and cardinal process of the left valve more prominent than in other species. Posterodorsal clavae well developed. Ventro-lateral ridge strong and curved (concave upwards). Fossae polygonal.

Remarks: Shape of posterodorsal clavae variable, directed posteriorly to varying degree. V-shaped frontal muscle scars, four adductor scars on steep posterior slope of muscle scar pit (see Pl. 2:37:234, fig. 3 and text-fig. 2). Sexual dimorphism: females slightly shorter and higher than males.

Distribution: Known so far from the uppermost Cretaceous and Lower Palaeocene (extending through Aruma and Umm er Radhuma Formations; see Powers, R. W. et al., *Prof. Pap. U. S. geol. Surv.*, 560-d, 1966). This species has been found in El-Alat well 1 (depth 2105-1865 ft) and Abqaiq well 69 (depth 2340-1790 ft), Saudi Arabia (see text-fig. 1).

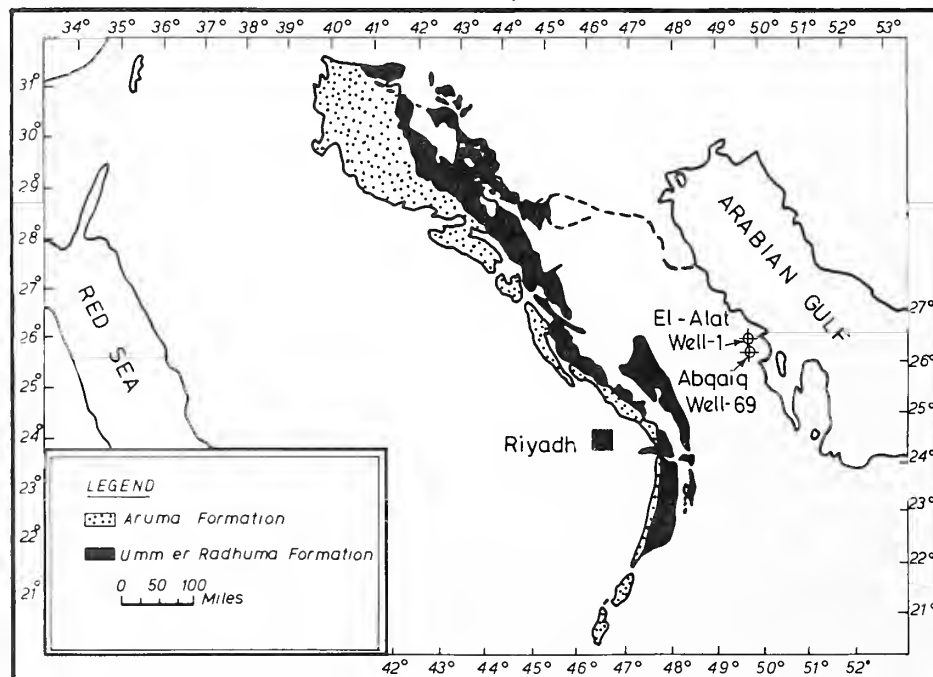
#### Explanation of Plate 2:37:236

Fig. 1, ♀ car., ext. dors. (IO 6815, 878 µm long); fig. 2, ♀ car., ext. vent. (IO 6816, 854 µm long); fig. 3, ♀ RV, ext. ant. (IO 6811).

Scale A (500 µm ; ×72), fig. 1; scale B (500 µm ; ×74), fig. 2; scale C (100 µm ; ×119), fig. 3.

#### Stere-Atlas of Ostracod Shells, 2:37:237

#### *Paragrenocythere biclavata* (7 of 8)



Text-fig. 1. Outcrop map of Aruma and Umm er Radhuma Formations (from El-Khayal, *Bull. Fac. Sci. Riyadh Univ.*, 1974)

Text-fig. 2. Muscle scar pattern in *P. biclavata* (♀ LV, IO 5243).

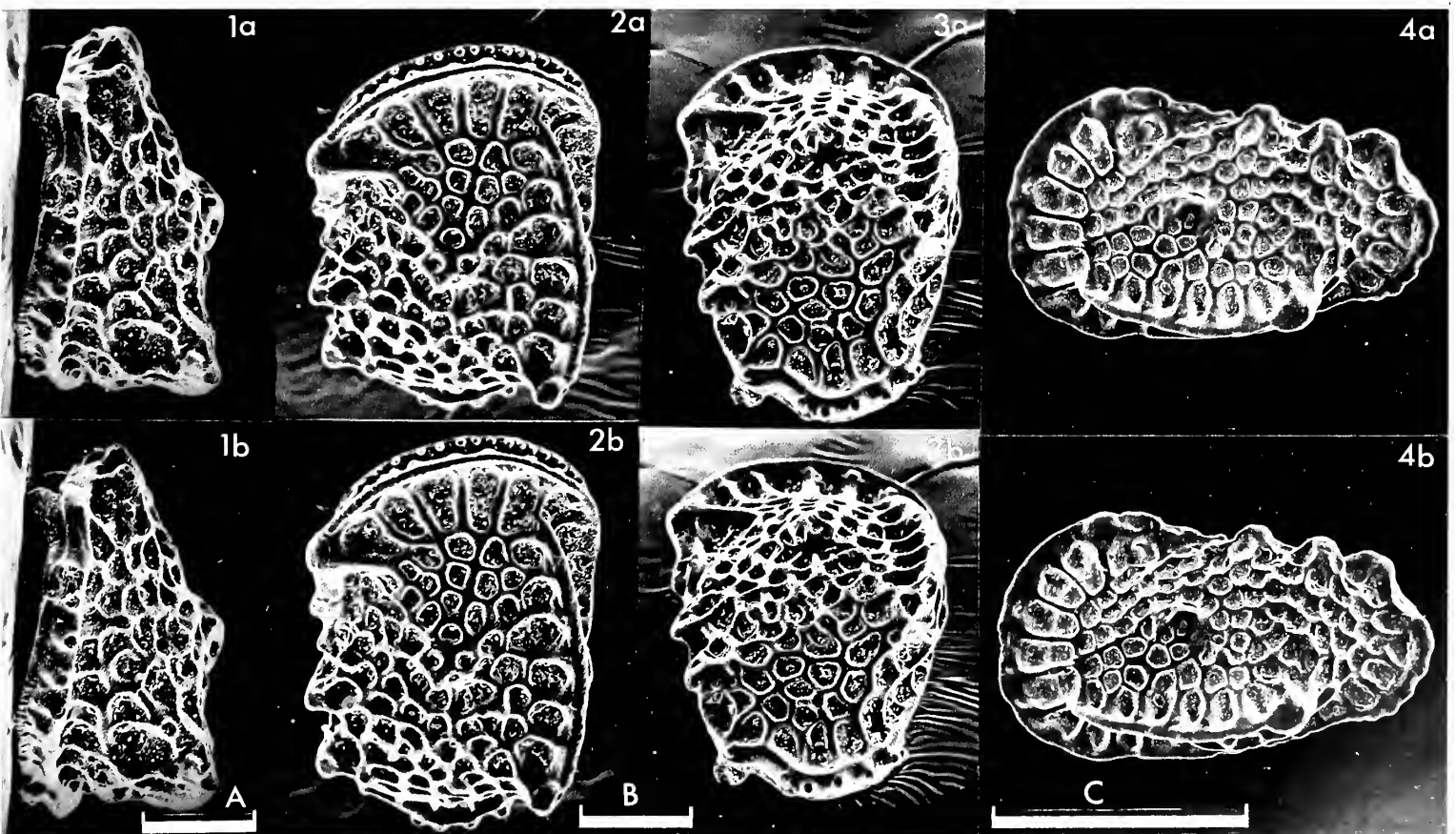
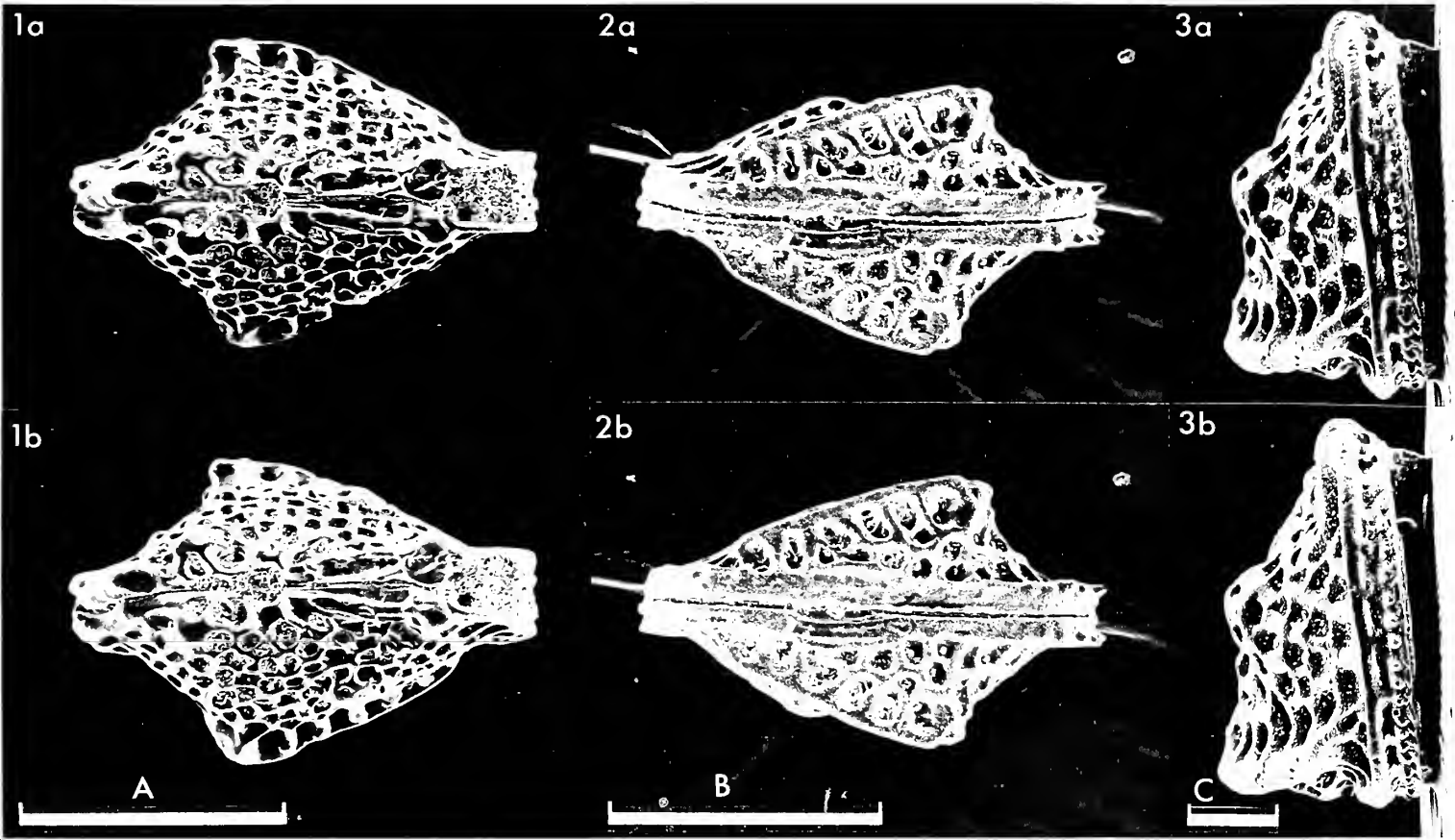


#### Explanation of Plate 2:37:238

Fig. 1, ♀ RV, ext. post. (IO 6811); fig. 2, ♂ RV, ext. ant. obl. (IO 6817, 854 µm long); fig. 3, ♂ RV, ext. post. obl. (IO 6817); fig. 4, ♀ LV, ext. lat. (IO 6818, 854 µm long).

Scale A (100 µm ; ×151), fig. 1; scale B (250 µm ; ×61), figs. 2, 3; scale C (500 µm ; ×70), fig. 4.









ON *ILYOCYPRIS SCHWARZBACHI* KEMPF  
by E. K. Kempf  
(University of Cologne, Germany)

*Ilyocypris schwarzbachi* Kempf, 1967

1967 *Ilyocypris schwarzbachi* sp. nov. E. K. Kempf, *Sonderveröff. geol. Inst. Köln*, vol. 13, pp. 67-70, pl. 1, figs. 1-13.

Holotype: ♀ carapace, transferred from Department of Geology, University of Cologne (no. 460) to Senckenberg Museum, Frankfurt (no. Xe 9730).

Type locality: Pleistocene loess deposits (horizon F of K. Brunnacker et al., *Mainzer Naturwiss. Arch.*, vol. 8, p. 119, 1969; vol. 9, fig. 1 between pp. 258-259, 1970; = ? Elster glacial stage) in clay pit 1 km SW of Kaerlich near Koblenz, German Federal Republic (German Nat. Grid Ref.: R 91380, H 84360; long 7°28'E, lat. 50°23'N). Author's coll., October and November 1966.

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Explanation of Plate 2:38:240

Fig. 1, ♂ RV, ext. lat. (Xe 9731a, 850 µm long); fig. 2, ♀ RV, ext. lat. (Xe 9731b, 850 µm long).

Scale A (100 µm ; ×110), figs. 1, 2.

Diagnosis: Shell surface pitted, except on the well developed ridge along the anterior margin, which is decorated with small spines; similar spines occur along the posterior margin. In other respects sexual dimorphism is well developed. Female valves with as many as six prominent conical processes, four aligned near the dorsal margin, the remaining two situated mid- and posteroventrally. Male valves are slightly smaller, especially in height, with conical processes missing or only vaguely developed. The U-shaped ridge in the posterior half, which marks the position of gonad traces, looks somewhat different in male and female valves.

Figured specimens: Senckenberg Museum, Frankfurt, nos. Xe 9731a (♂ RV: Pl. 2:38:240, fig. 1), Xe 9731b (♀ RV: Pl. 2:38:240, fig. 2), Xe 9731c, formerly Department of Geology, University of Cologne, no. 461 (♀ car.: Pl. 2:38:242, fig. 1), Xe 9731d (♀ car.: Pl. 2:38:242, fig. 2), Xe 9731e (♀ LV: Pl. 2:38:244, fig. 1), Xe 9731f (♂ LV: Pl. 2:38:244, fig. 2), Xe 9731g (♀ LV: Pl. 2:38:244, fig. 3), Xe 9731h (♀ RV: Pl. 2:38:246, fig. 1), Xe 9731i (♂ RV: Pl. 2:38:246, fig. 2).

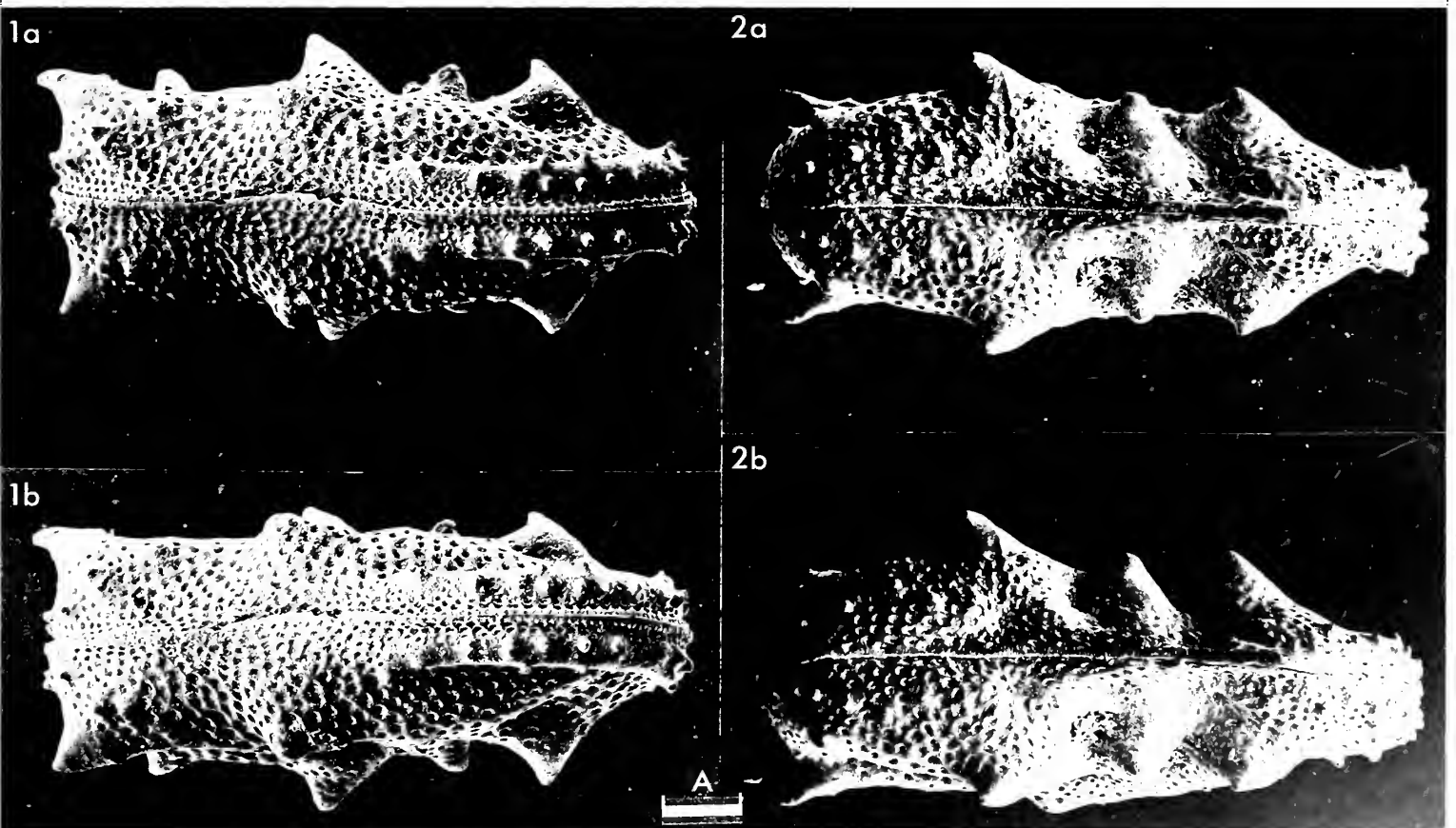
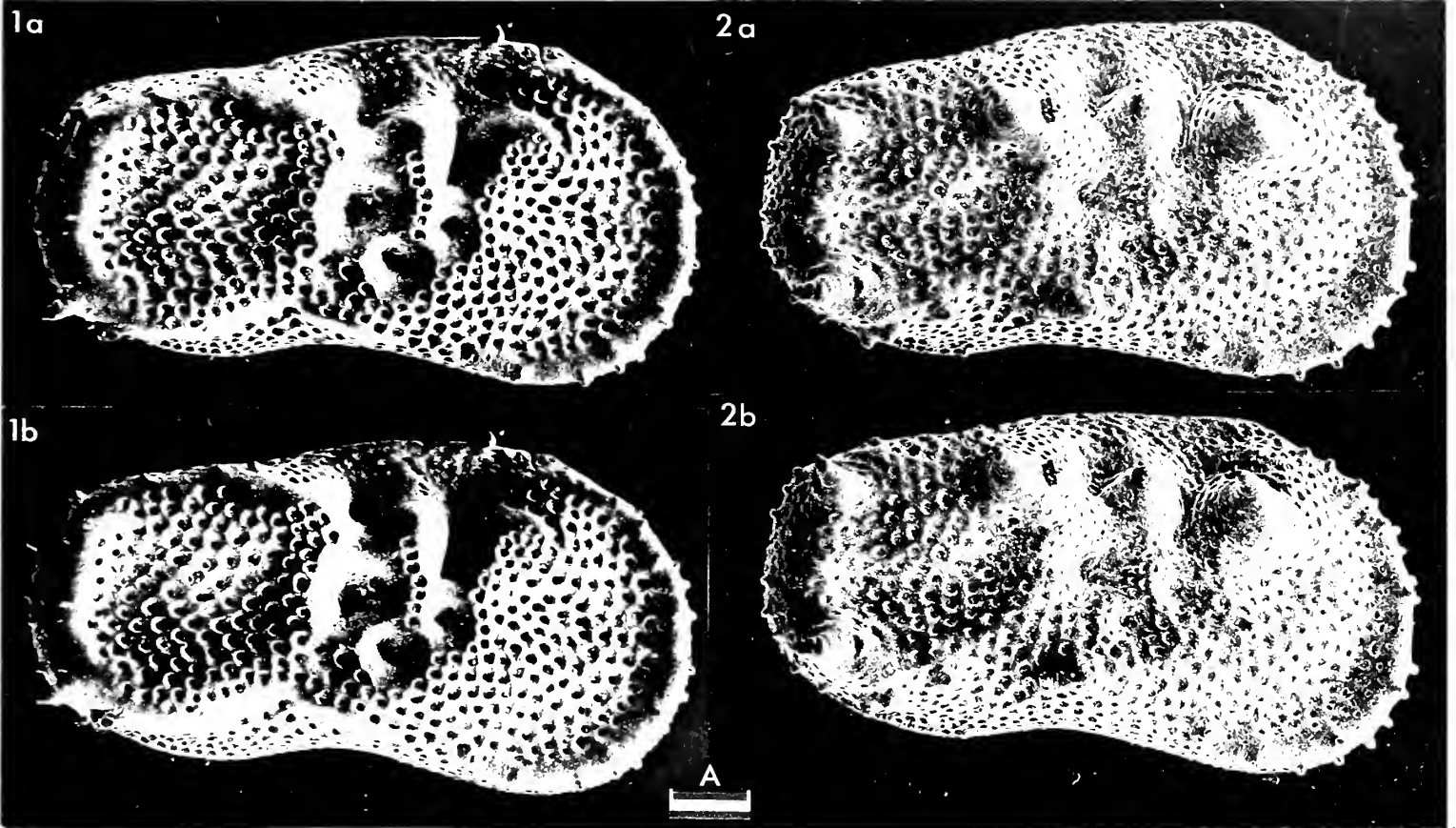
All specimens are from the type locality and type horizon.

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Explanation of Plate 2:38:242

Fig. 1, ♀ car., ext. vent. (Xe 9731c, 800 µm long); fig. 2, ♀ car., ext. dors. (Xe 9731d, 825 µm long).

Scale A (100 µm ; ×110), figs. 1, 2.







Sex	L (mm)				H (mm)				L/H			
	N	$\bar{x}$	Max.	Min.	N	$\bar{x}$	Max.	Min.	N	$\bar{x}$	Max.	Min.
♀♀ RV	20	0.845	0.925	0.775	20	0.457	0.500	0.425	20	1.848	1.892	1.785
♀♀ LV	20	0.840	0.915	0.750	20	0.468	0.500	0.412	20	1.795	1.838	1.725
♂♂ RV	20	0.812	0.850	0.775	20	0.430	0.450	0.400	20	1.890	2.000	1.778
♂♂ LV	20	0.818	0.875	0.750	20	0.447	0.475	0.412	20	1.827	1.942	1.758

Table 1. Measurements on specimens from type locality and type horizon; N = no. of specimens,  $\bar{x}$  = mean.

Remarks: So far some 80 species of the genus *Ilyocypris* have been named which, making allowance for synonymy, may represent about 40 true species. The ridge along the anterior margin distinguishes *Ilyocypris schwarzbachi* from nearly all other species of *Ilyocypris*. *Ilyocypris kashmirensis* Bhatia, 1968 (*Micropaleontology*, vol. 14, no. 3, p. 476) from the Pleistocene of India seems to be the only other congeneric species with such a ridge. Dr. Bhatia kindly provided me with paratypes of this species. Comparison of material reveals that *I. schwarzbachi* and *I. kashmirensis* though closely similar, are certainly not conspecific, as there are some obvious differences in shell character.

## Explanation of Plate 2:38:244

Fig. 1, ♀ LV, ext. lat. (Xe 9731e, 850  $\mu$ m long); fig. 2, ♂ LV, ext. lat. (Xe 9731f, 850  $\mu$ m long); fig. 3, ♀ LV, int. lat. to show central musc. sc. field (Xe 9731g).

Scale A (100  $\mu$ m ;  $\times 105$ ), figs. 1, 2; scale B (30  $\mu$ m ;  $\times 235$ ), fig. 3.

Distribution: For some years *Ilyocypris schwarzbachi* had been known only from the type locality, where it occurred in a horizon of about 50 cm in thickness. From the samples of this type horizon nearly 6000 valves of freshwater ostracodes were obtained, which formed the following community:

1	<i>Candona</i> sp. (undifferentiated instars)	68.6%
2	<i>Ilyocypris schwarzbachi</i> Kempf, 1967	10.3%
3	' <i>Eucypris</i> ' <i>serrata</i> (Mueller, 1900) Alm, 1915	7.3%
4	<i>Candona neglecta</i> Sars, 1887	3.6%
5	<i>Ilyocypris</i> cf. <i>bradyi</i> Sars, 1890	2.0%
6	<i>Herpetocypris reptans</i> (Baird, 1835) Brady & Norman, 1889	1.8%
7	<i>Limnocythere baltica</i> Diebel, 1965	1.8%
8	<i>Limnocythere falcata</i> Diebel, 1968	1.2%
9	<i>Cyclocypris ovum</i> (Jurine, 1820) Mueller, 1912	0.9%
10	<i>Candona levanderi</i> Hirschmann, 1912	0.8%
11	' <i>Eucypris</i> ' <i>clavata</i> (Baird, 1838) Daday, 1900	0.4%
12	<i>Candona tricatricosa</i> Diebel & Pietrzeniuk, 1969	0.3%
13	<i>Limnocythere suessenbornensis</i> Diebel, 1968	0.3%
14	<i>Paralimnocythere compressa</i> (Brady & Norman, 1889) Diebel & Pietrzeniuk, 1969	0.2%
15	<i>Stenocypris fischeri</i> (Lilljeborg, 1883) Mueller, 1901	0.2%
16	<i>Cypris pubera</i> Mueller, 1776	0.1%
17	<i>Potamocypris</i> sp.	0.1%
18	<i>Cypridopsis</i> sp.	0.1%

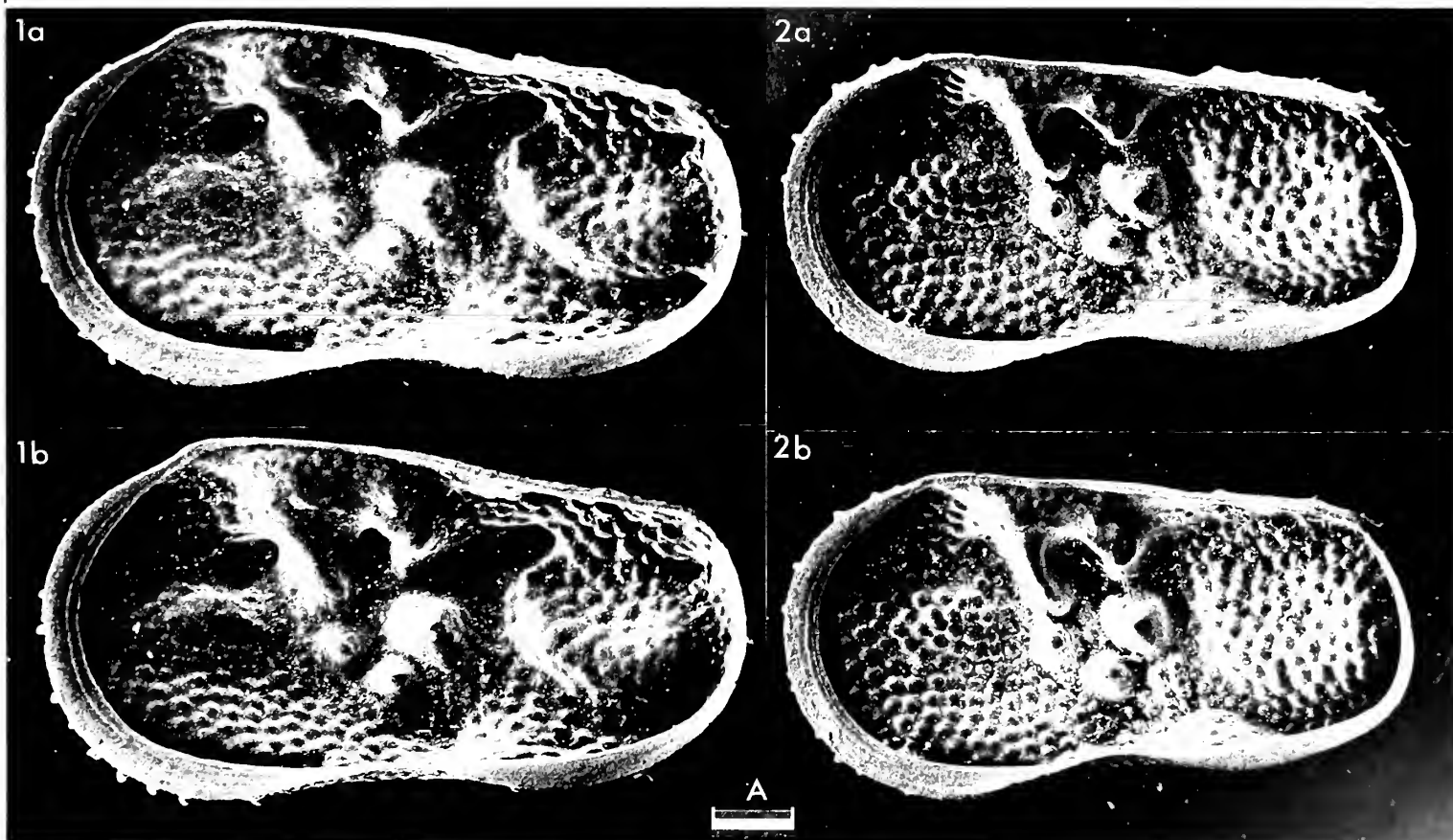
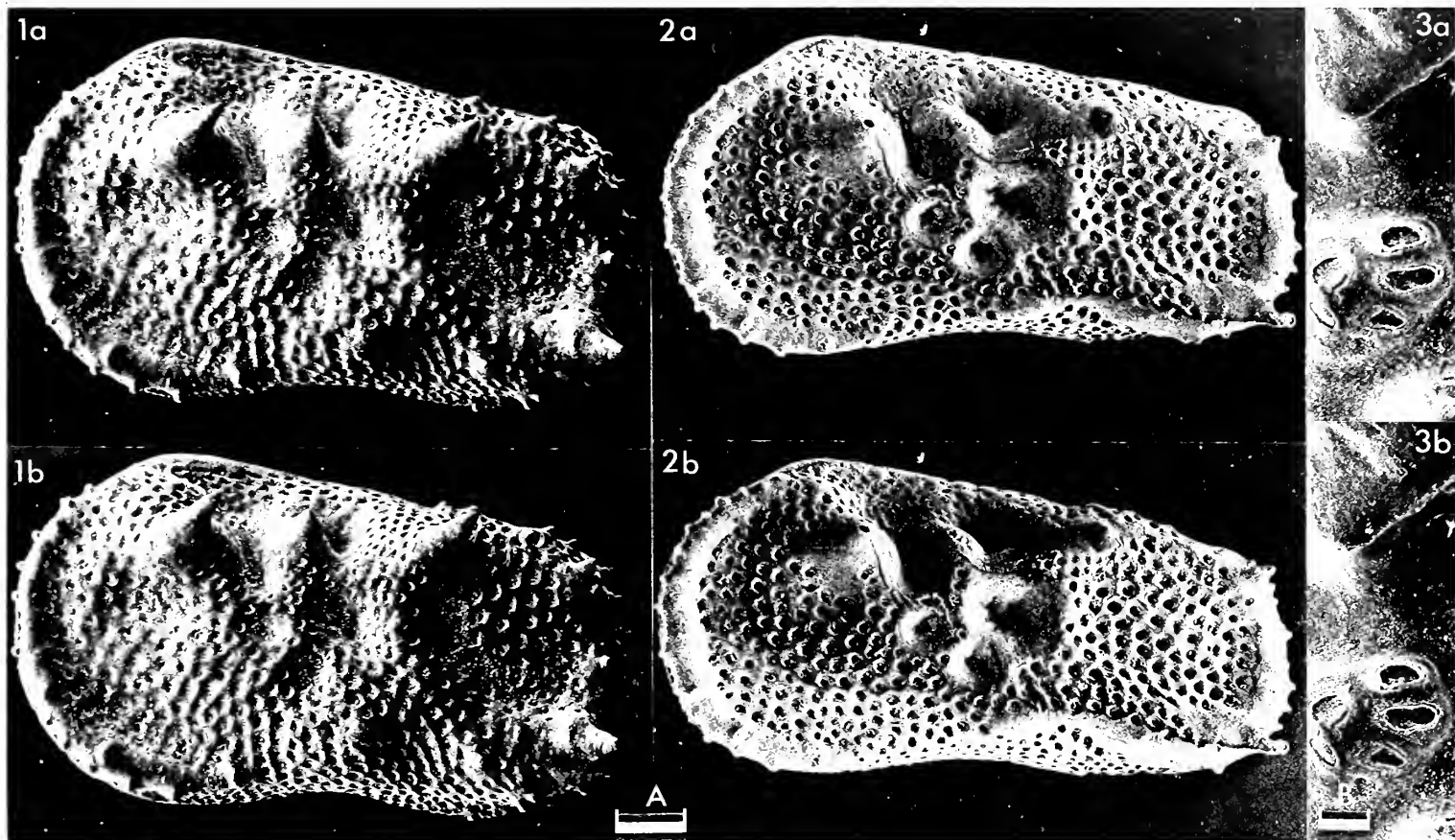
Recently *I. schwarzbachi* has been found in Middle Pleistocene sediments of Brozany, Czechoslovakia (Absolon, *Angabe zur Evolution der Süßwasser-ostracoden periodischer Gewässer*, *Internat. Symp. Evol. Post-Palaeozoic Ostracoda*, Hamburg 1974, in press) and in the Pleistocene of Burgtonna, German Democratic Republic (Diebel & Pietrzeniuk, in preparation).

## Explanation of Plate 2:38:246

Fig. 1, ♀ RV, int. lat. (Xe 9731h, 875  $\mu$ m long); fig. 2, ♂ RV, int. lat. (Xe 9731i, 800  $\mu$ m long).

Scale A (100  $\mu$ m ;  $\times 110$ ), figs. 1, 2.









ON *PROCYTHERIDEA EXEMPLA* PETERSON  
by P. F. Sherrington and Alan Lord  
(Robertson Research (North America) Ltd., Calgary and University College, London)

Genus *PROCYTHERIDEA* Peterson, 1954Type-species (by original designation): *Procytheridea exempla* Peterson, 1954*Procytheridea exempla* Peterson, 1954

- 1954 *Procytheridea exempla* sp. nov. J. A. Peterson, *J. Paleont.*, vol. 28, p. 171, pl. 19, figs. 6, 10, 12, 13; ? figs. 7, 8, 11, 14; non fig. 9.
- ? 1955 *Procytheridea exempla* Peterson; D. M. Loranger, *Proc. geol. Ass. Can.*, vol. 7, p. 53, pl. 8, figs. 3, 4.
- ? 1960 *Procytheridea exempla* Peterson; J. H. Wall, *Rep. Dep. Miner. Resour. Sask.*, no. 53, p. 141, pl. 25, figs. 2, 4.
- ? 1962 *Procytheridea exempla* Peterson; I. Weihmann, *Hermann-Aldinger-Festschrift*, Stuttgart, p. 194, pl. 9, figs. 1-4.
- ? 1966 *Procytheridea* ? aff. *exempla* Peterson; H. J. Oertli in W. Maync, *Bull. geol. Surv. Israel*, no. 40, pl. IX, figs. 24-26.
- 1972 *Procytheridea exempla* Peterson; M. M. Brooke & W. K. Braun, *Rep. Dep. Miner. Resour. Sask.*, no. 161, pl. 3, figs. 14, 16-19; non figs. 9-13, 15, 20 (see also pls. 20, 22, 23).

## Explanation of Plate 2:39:248

Fig. 1, ♀ car., ext. rt. lat. (U.S.N.M. 117930, 540 µm long); fig. 2, ♂ car., ext. rt. lat. (IO 6784, 630 µm long).

Scale A (250 µm ; ×135), fig. 1; scale B (250 µm ; ×115), fig. 2.

Holotype: United States National Museum, Washington, no. U.S.N.M. 117930, ♀ carapace; figured herein Pl. 2:39:248. fig. 1.

Type locality: Red Gulch, Sheridan County, Wyoming, U. S. A. (sec. 22, T.58N, R.89W; long. 107°35'W, lat. 44°59'30"N); Rierdon Formation, Callovian.

[Paratypes: Four from type locality and four specimens from Bacon Ranch, Piper, Fergus County, Montana, U. S. A. (sec. 17, T.14N, R.20E; long. 109°12'30"W, lat. 46°58'30"N); Rierdon Formation, Callovian].

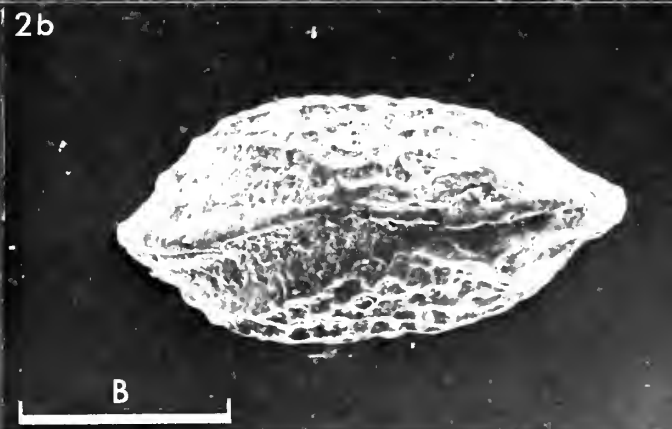
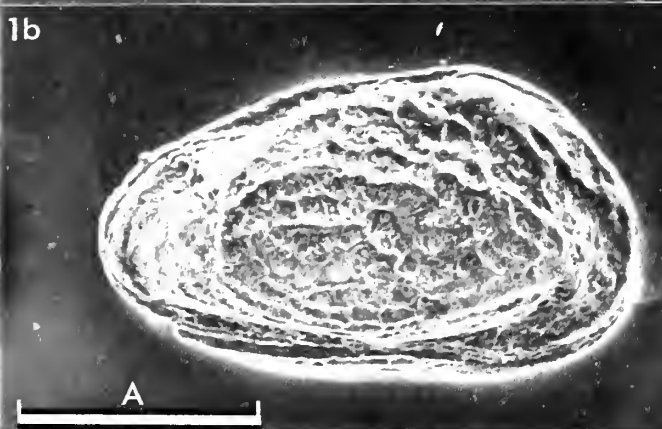
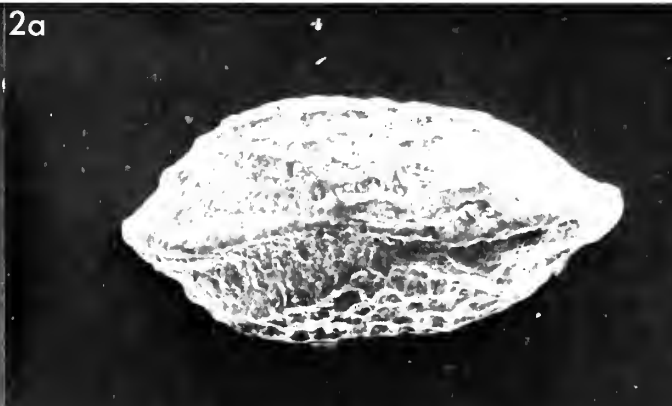
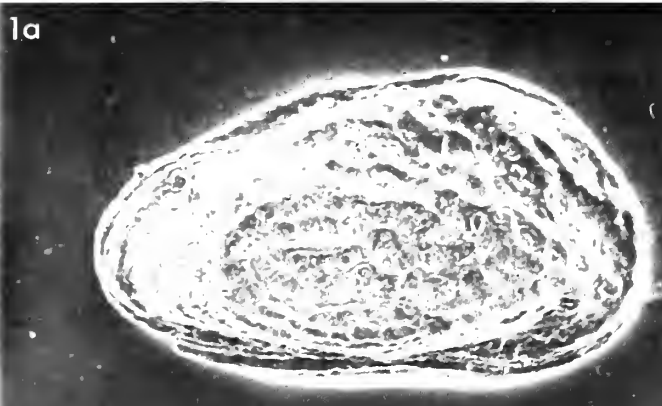
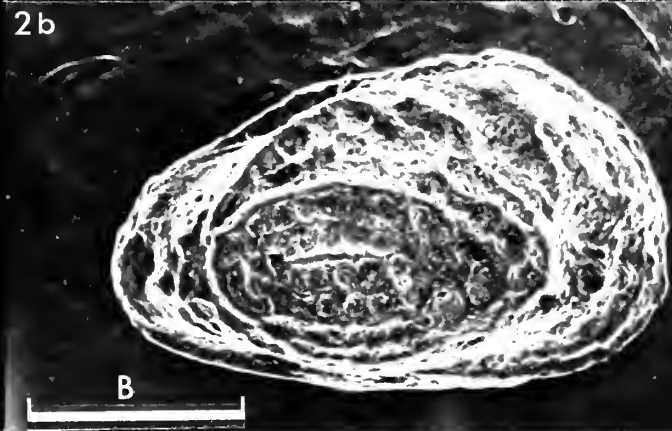
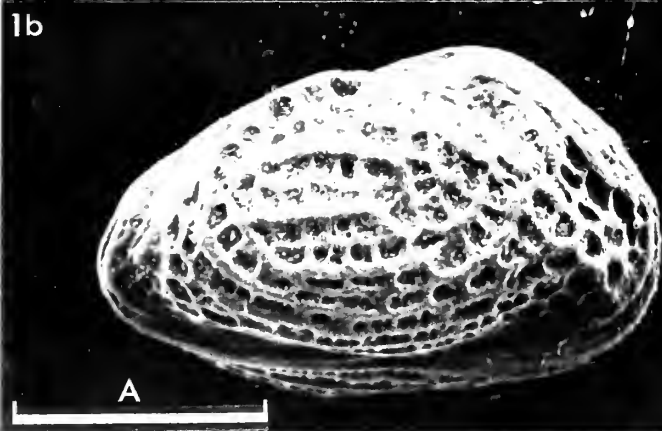
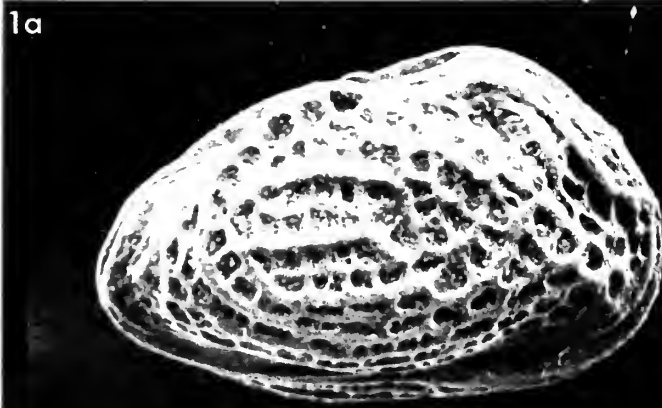
Figured specimens: U.S.N.M. no. 117930 (♀ car.: Pl. 2:39:248, fig. 1); Brit. Mus. (Nat. Hist.) nos. IO 6784 (♂ car.: Pl. 2:39:248, fig. 2), IO 6785 (? juv.-1 car.: Pl. 2:39:250, fig. 1), IO 6786 (♂ car.: Pl. 2:39:250, fig. 2), IO 6787 (♀ car.: Pl. 2:39:252, fig. 1; Pl. 2:39:254, fig. 2), IO 6788 (♀ car.: Pl. 2:39:252, fig. 2) and IO 6789 (♀ car.: Pl. 2:39:254, fig. 1).

All specimens (except holotype) from Rierdon Formation at the Bacon Ranch section, Montana (sec. 17, T.14N, R.20E; long. 109°12'30"W, lat. 46°58'30"N), samples 12 (specimens IO 6785-6789) and 13 (specimen IO 6784); coll. Sherrington and Lord.

## Explanation of Plate 2:39:250

Fig. 1, ? juv.-1 car., ext. rt. lat. (IO 6785, 510 µm long); fig. 2, ♂ car., ext. dors. (IO 6786, 630 µm long).

Scale A (250 µm ; ×135), fig. 1; scale B (250 µm ; ×110), fig. 2.







**Diagnosis:** A species of *Procytheridea* with a strongly developed reticulate ornament, where the primary ribbing is only slightly more developed than the intervening reticulation. Valves strongly inflated with mid-ventral expansion; sexually dimorphic.

**Remarks:** The material from Bacon Ranch has suffered recrystallisation and also appears worn, which together with dirt that could not be removed explains the relatively weaker appearance of the ornament on our specimens when compared with that of the holotype. The state of preservation also prevents us from adding to knowledge of the internal structures of *Procytheridea*. However, comparative material of *Procytheridea fraudator* Sherrington & Lord sp. nov. (see *Stereos-Atlas of Ostracod Shells*, vol. 2, pt. 4, pp. 255-262, 1975) from Saskatchewan was found to possess antimerodont hingement, a row of four vertically disposed central muscle-scars with a rounded frontal scar and simple, straight marginal pore canals (6-7+ anteriorly and 3-4 posteriorly). *Procytheridea exempla* and *P. fraudator* sp. nov. both possess a rounded frontal scar.

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Explanation of Plate 2:39:252

Fig. 1, ♀ car., ext. lt. lat. (IO 6787, 590 µm long); fig. 2, ♀ car., ext. rt. lat. (IO 6788, 580 µm long).

Scale A (250 µm ; ×110), fig. 1; scale B (250 µm ; ×120), fig. 2.

**Distribution:** Rierdon and Lower Sundance Formations, Callovian of Montana and Wyoming; rare in the Lower Vanguard Formation, Callovian of Saskatchewan. One uncertain record from the Callovian and Oxfordian of Israel (Oertli in Maync, op. cit.).

**Acknowledgements:** To Dr. R. H. Benson for providing the stereo-pair of the holotype, and to Dr. J. H. Wall for comparative material.

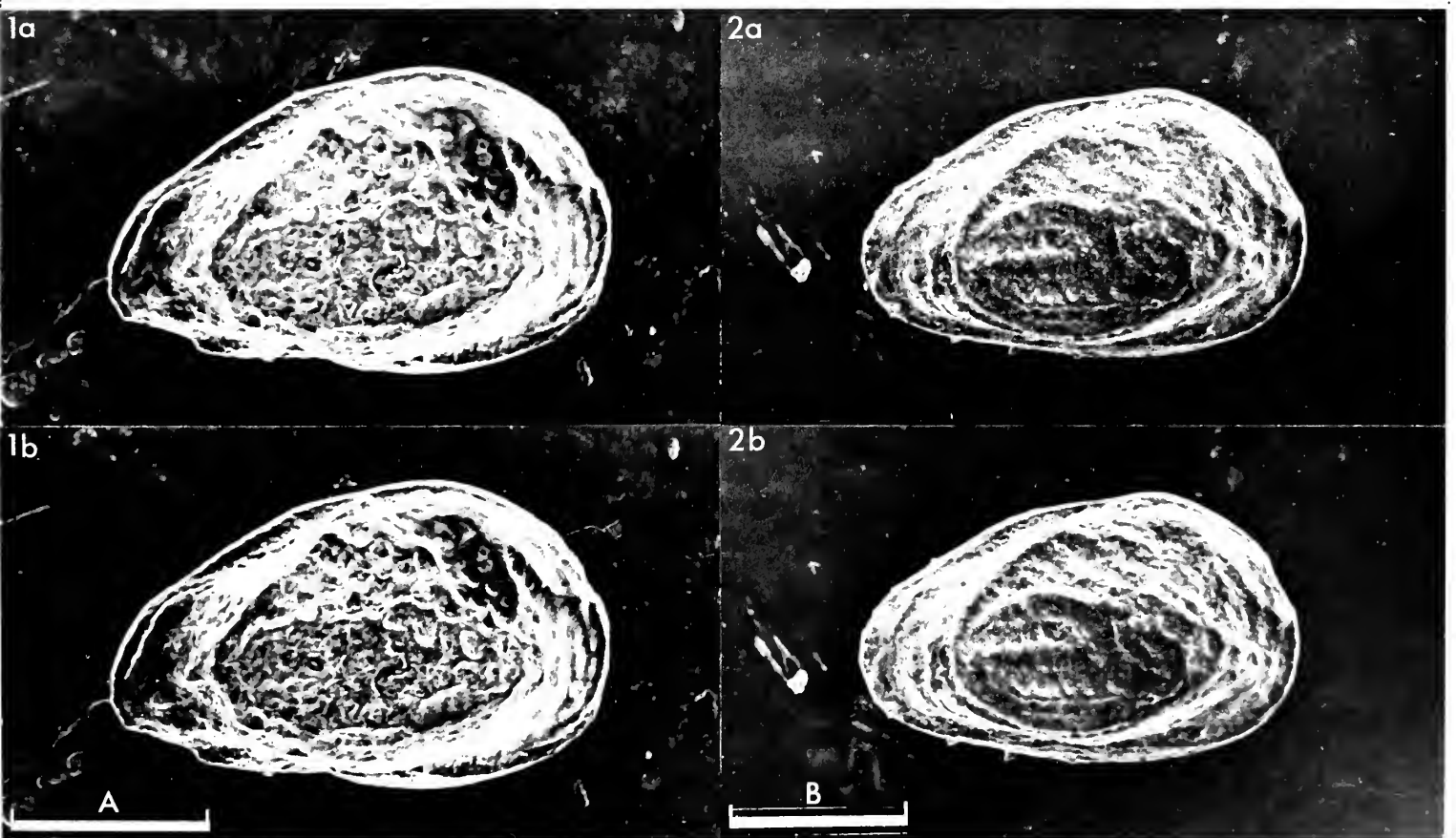
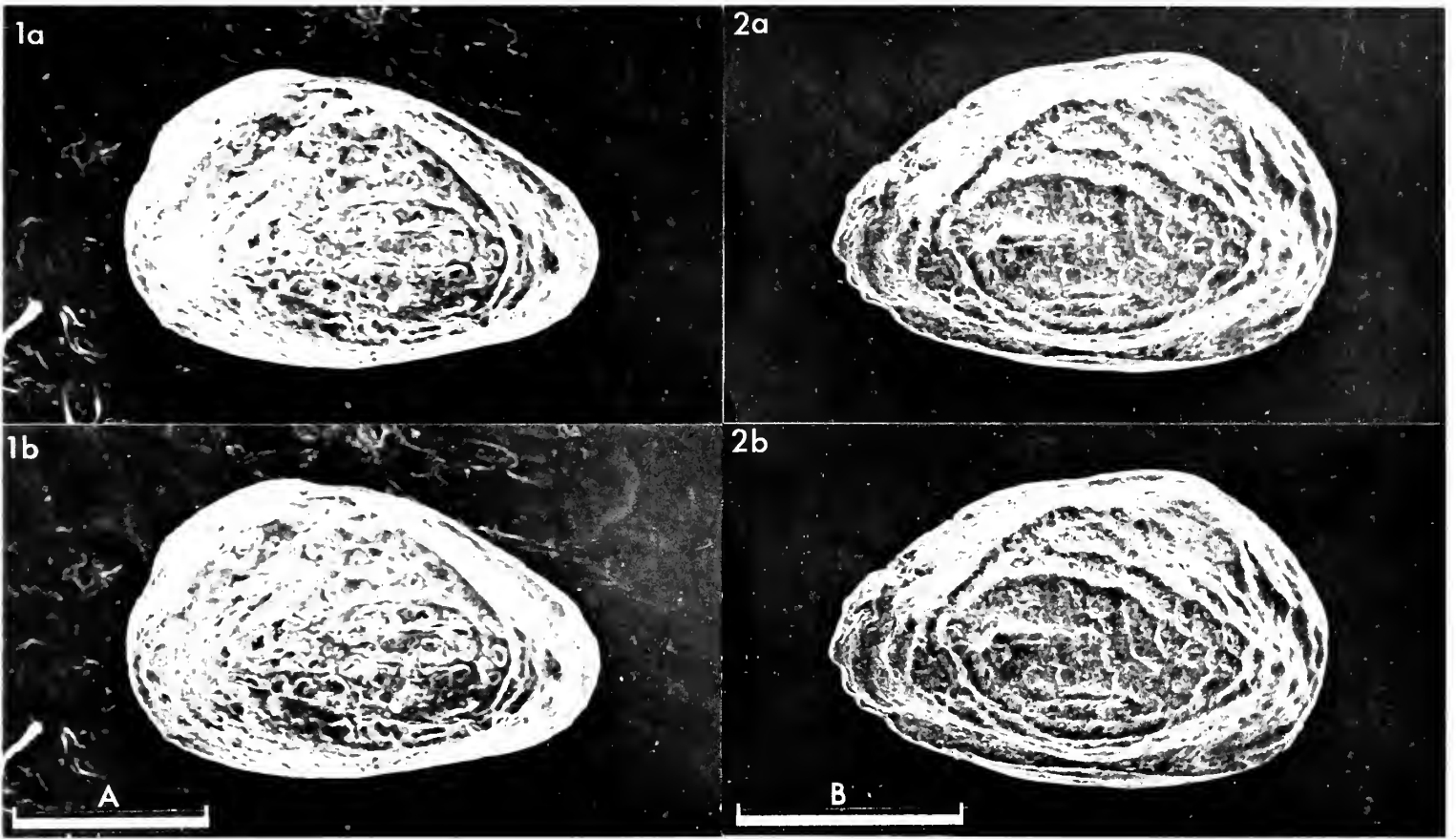
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Explanation of Plate 2:39:254

Fig. 1, ♀ car., ext. rt. lat. (IO 6789, 635 µm long); fig. 2, ♀ car., ext. rt. lat. (IO 6787).

Scale A (250 µm ; ×110), fig. 1; scale B (250 µm ; ×100), fig. 2.









ON *PROCYTHERIDEA FRAUDATOR* SHERRINGTON AND LORD sp. nov.  
by P. F. Sherrington and Alan Lord  
(Robertson Research (North America) Ltd., Calgary and University College, London)

*Procytheridea fraudator* sp. nov.

- 1954 *Procytheridea exempla* sp. nov. J. A. Peterson, *J. Paleont.*, vol. 28, p. 171, pl. 19, fig. 9, ? figs. 7, 8, 14.  
1960 *Procytheridea exempla* Peterson; J. H. Wall, *Rep. Dep. Miner. Resour. Sask.*, no. 53, p. 141, pl. 25, figs. 1, 3, ? figs. 5, 6.  
? 1962 *Procytheridea exempla* Peterson; I. Weihmann, *Hermann-Aldinger-Festschrift*, Stuttgart p. 194, pl. 9, figs. 1-4.  
1972 *Procytheridea exempla* Peterson; M. M. Brooke & W. K. Braun, *Rep. Dep. Miner. Resour. Sask.*, no. 161, pl. 3, figs. 9-13, 15, 20 (see also pls. 20, 22, 23).

Holotype: Brit. Mus. (Nat. Hist.) no. IO 6791, carapace.

Type locality: Bacon Ranch, Piper, Fergus County, Montana, U. S. A. (sec. 17, T.14N, R.20E; long. 109°12'30"W, lat. 46°58'30"N); Rierdon Formation, Callovian

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Explanation of Plate 2:40:256

Fig. 1, car., ext. lt. lat. (IO 6791, 560 µm long); fig. 2, car., ext. rt. lat. (IO 6792, 525 µm long).

Scale A (250 µm ; ×130), figs. 1, 2.

Derivation of name: From the Latin *fraudator*, an imposter.

Diagnosis: A species of *Procytheridea* with strong primary ornament and a weak secondary reticulation in the median area, but lacking the mid-ventral expansion seen in the type-species.

Figured specimens: Brit. Mus. (Nat. Hist.) nos. IO 6790 (RV: Pl. 2:40:262, fig. 1), IO 6791 (car.: Pl. 2:40:256, fig. 1), IO 6792 (car.: Pl. 2:40:256, fig. 2), IO 6793 (car.: Pl. 2:40:258, fig. 1), IO 6794 (LV: Pl. 2:40:258, fig. 2) IO 6795 (car.: Pl. 2:40:260, fig. 1), IO 6796 (car.: Pl. 2:40:260, fig. 2), and IO 6798 (LV: Pl. 2:40:262, fig. 2).

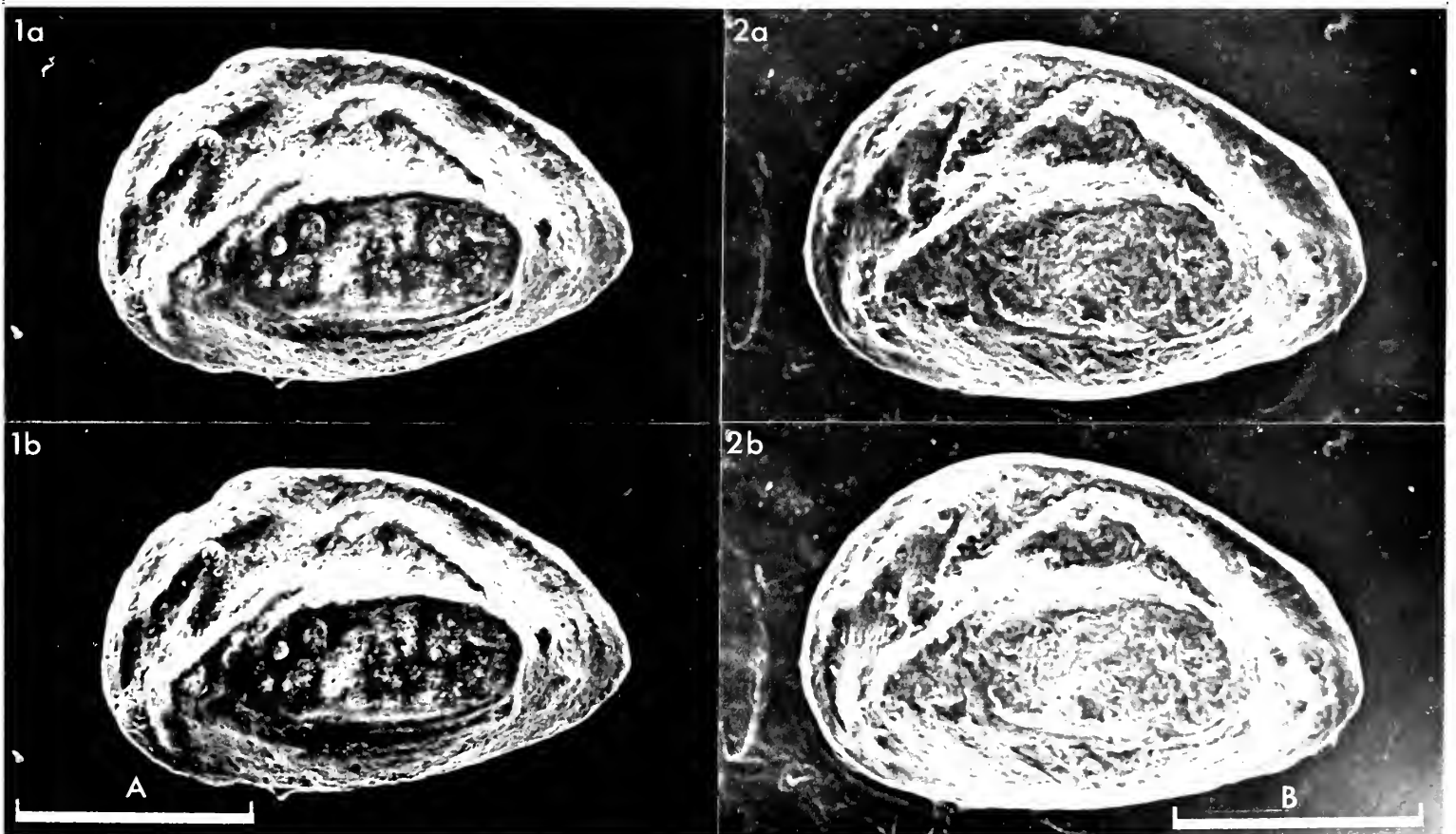
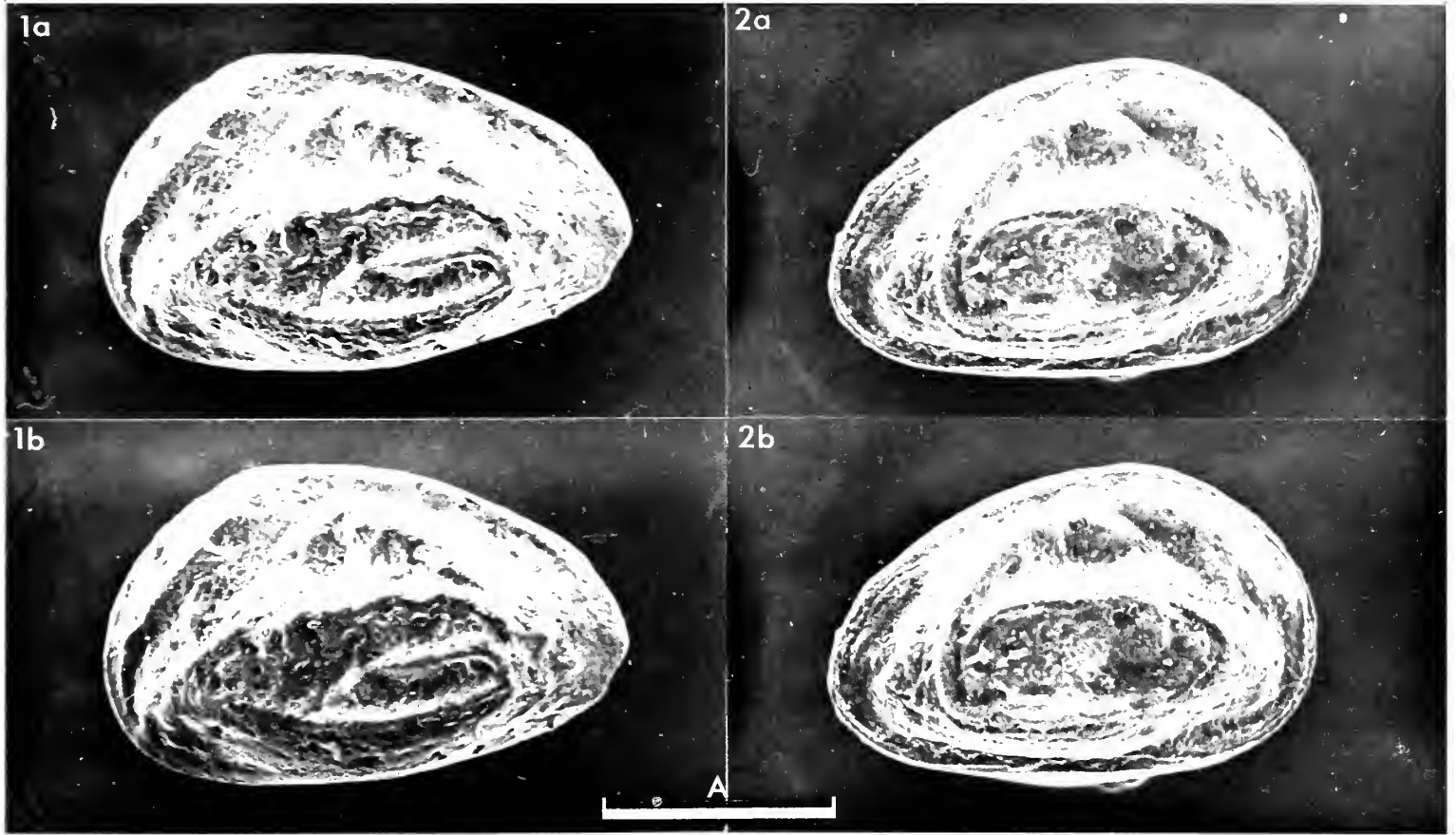
Specimens IO 6791-IO 6796, IO 6798 are from the same locality and sample (no. 9; coll. Sherrington and Lord) as the holotype, Rierdon Formation at the Bacon Ranch section, Montana. Specimen IO 6790 is from sample K7, 3538-3546 ft, Tidewater Kelstern Crown no. 1 borehole, Saskatchewan, Canada; Lower Vanguard Formation (for data see J. H. Wall, op. cit., pp. 162-166).

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Explanation of Plate 2:40:258

Fig. 1, car., ext. lt. lat. (IO 6793, 540 µm long); fig. 2, LV ext. lat. (IO 6794, 540 µm long).

Scale A (250 µm ; ×135), fig. 1; scale B (250 µm ; ×140), fig. 2.







Remarks: Our investigations showed that *Procytheridea exempla* Peterson, 1954 was associated with a clearly closely related, but readily distinguishable form which we propose as a new species. In our opinion the two species have been confused by previous workers, hence the allusion in the specific name. *Procytheridea fraudator* differs from the type-species in the development of the surface ornament and in the lack of any ventral expansion.

*P. fraudator* was found to possess antimerodont hingement, a row of four vertically disposed central muscle-scars with a rounded frontal scar and simple, straight marginal pore canals (6-7+ anteriorly and 3-4 posteriorly). The positions of the small raised tubercles containing normal pore canals in the anterior and posterior portions of the valves of *P. fraudator* are consistent.

Distribution: Known from the Rierdon, Lower Sundance and Lower Vanguard Formations, Callovian of Montana, Wyoming and Saskatchewan.

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Explanation of Plate 2:40:260

Fig. 1, car., ext. dors. (IO 6795, 550  $\mu\text{m}$  long); fig. 2, car., ext. rt. lat. (IO 6796, 540  $\mu\text{m}$  long).

Scale A (250  $\mu\text{m}$  ;  $\times 130$ ), figs. 1, 2.

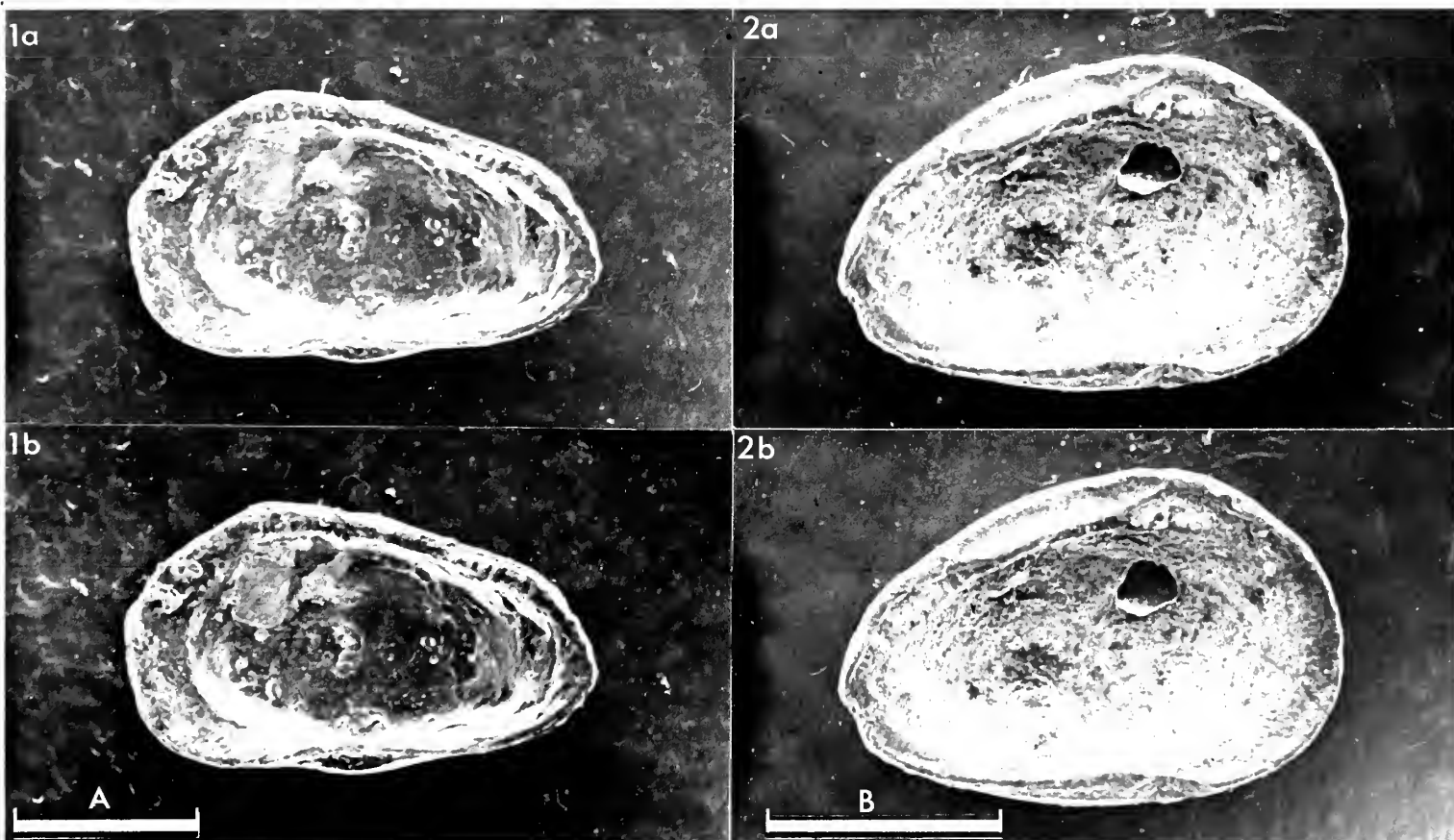
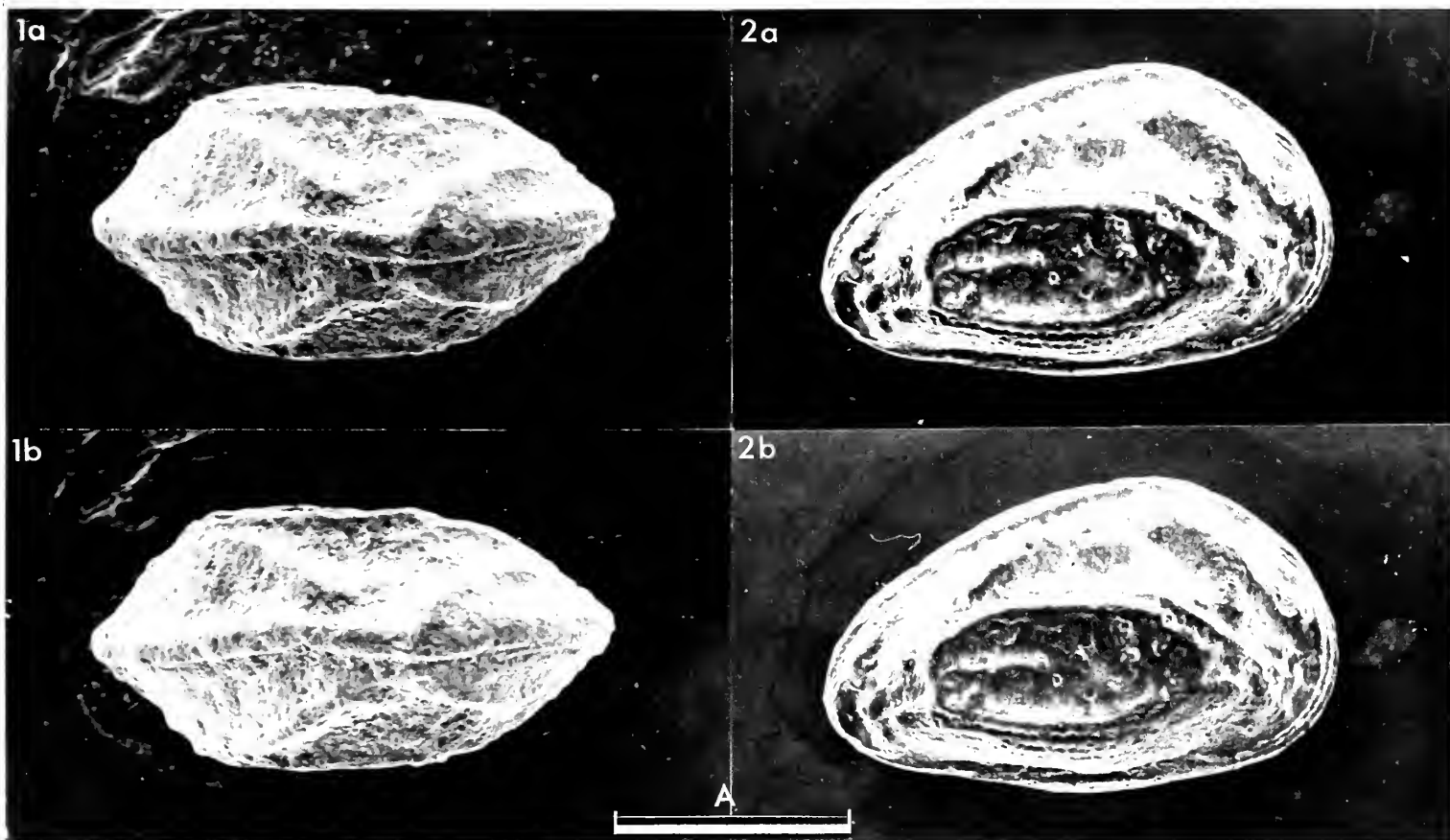
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Explanation of Plate 2:40:262

Fig. 1, RV int. lat. (IO 6790, 650  $\mu\text{m}$  long); fig. 2, LV int. lat. (IO 6798, 525  $\mu\text{m}$  long).

Scale A (250  $\mu\text{m}$  ;  $\times 100$ ), fig. 1; scale B (250  $\mu\text{m}$  ;  $\times 135$ ), fig. 2.









ON *MICROPNEUMATOCY THERE CRASSA* (PETERSON)

by P. F. Sherrington and Alan Lord

(Robertson Research (North America) Ltd., Calgary and University College, London)

*Micropneumatocythere crassa* (Peterson, 1954)

- 1954 *Procytheridea crassa* sp. nov. J. A. Peterson, *J. Paleont.*, vol. 28, p. 172, pl. 19, figs. 1-5.  
1960 *Procytheridea crassa* Peterson; J. H. Wall, *Rep. Dep. Miner. Resour. Sask.*, no. 53, p. 140, pl. 25, figs. 7, 8.  
1962 *Procytheridea crassa* Peterson; I. Weihmann, *Hermann-Aldinger-Festschrift*, Stuttgart, p. 194, pl. 9, figs. 5, 6.  
? 1966 *Procytheridea* ? aff. *crassa* Peterson; H. J. Oertli in W. Maync, *Bull. geol. Surv. Israel*, no. 40, pl. X, figs. 76-78.  
1972 *Procytheridea crassa* Peterson; M. M. Brooke & W. K. Braun, *Rep. Dep. Miner. Resour. Sask.*, no. 161, pl. 3, figs. 21-31 (see also pls. 21, 22).

Holotype: United States National Museum, Washington, no. U.S.N.M. 117927, ♀ carapace.

Type locality: Bacon Ranch, Piper, Fergus County, Montana, U. S. A. (sec. 17, T.14N, R.20E; long. 109°12'30"W, lat. 46°58'30"N); Rierdon Formation, Callovian

Explanation of Plate 2:41:264

Fig. 1, ♀ car., ext. lt. lat. (IO 6799, 565 µm long); fig. 2, ♂ car., ext. dors. (IO 6800, 610 µm long); fig. 3, ?? car., ext. rt. lat. (IO 6801, 600 µm long).

Scale A (200 µm ; ×105), fig. 1; scale B (200 µm ; ×100), figs. 2, 3.

Figured specimens: Brit. Mus. (Nat. Hist.) nos. IO 6799 (♀ car.: Pl. 2:41:264, fig. 1), IO 6800 (♂ car.: Pl. 2:41:264, fig. 2), IO 6801 (?? car.: Pl. 2:41:264, fig. 3), IO 6802 (♀ car.: Pl. 2:41:266, fig. 1), IO 6803 (♀ car.: Pl. 2:41:266, fig. 2), and IO 6804 (♀ car.: Pl. 2:41:266, fig. 3). All specimens (coll. Sherrington & Lord) from sample 12, Rierdon Formation, Bacon Ranch Section, Montana.

Diagnosis: A strongly inflated species of *Micropneumatocythere* with reticulate ornamentation and pronounced sexual dimorphism.

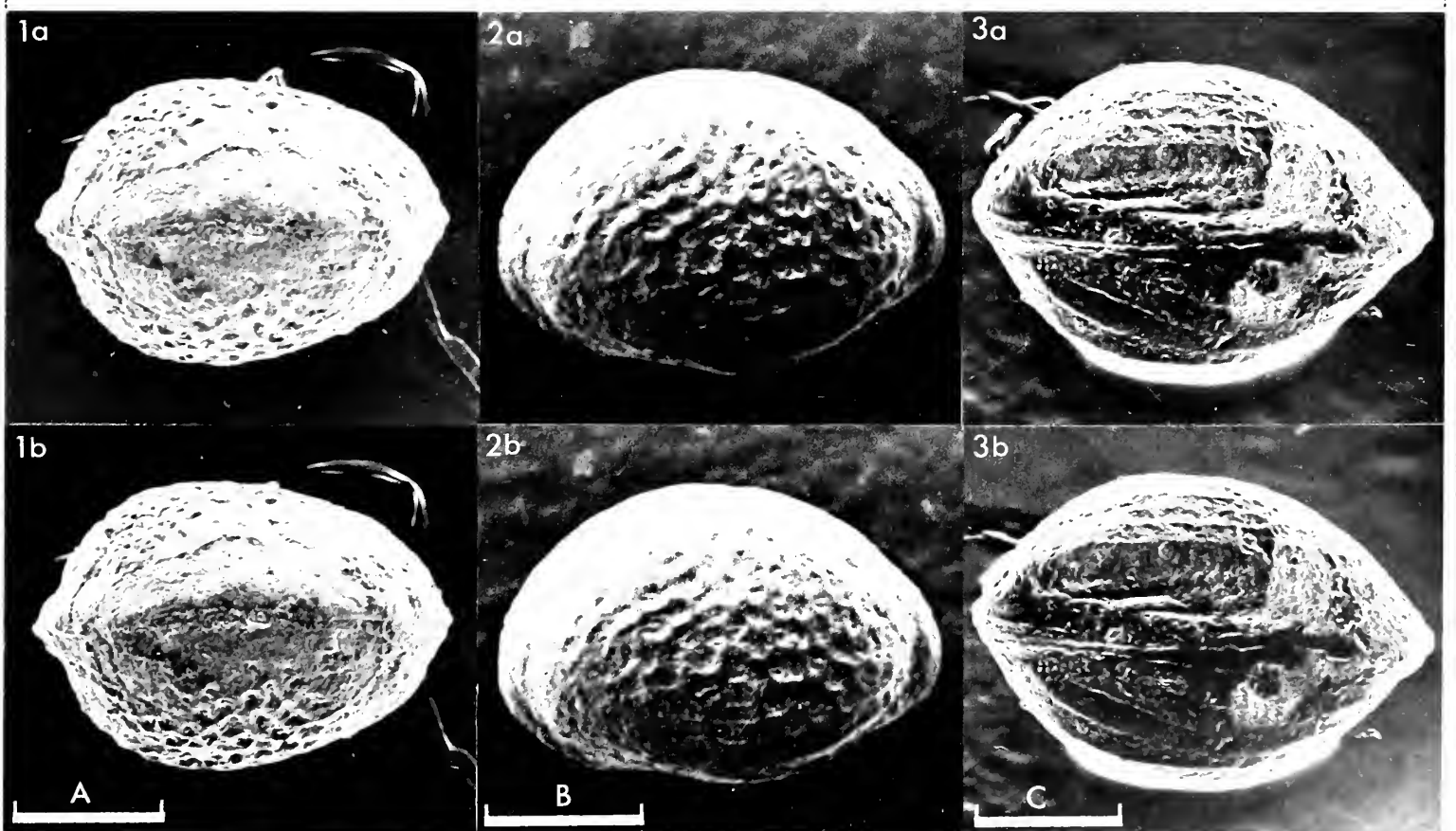
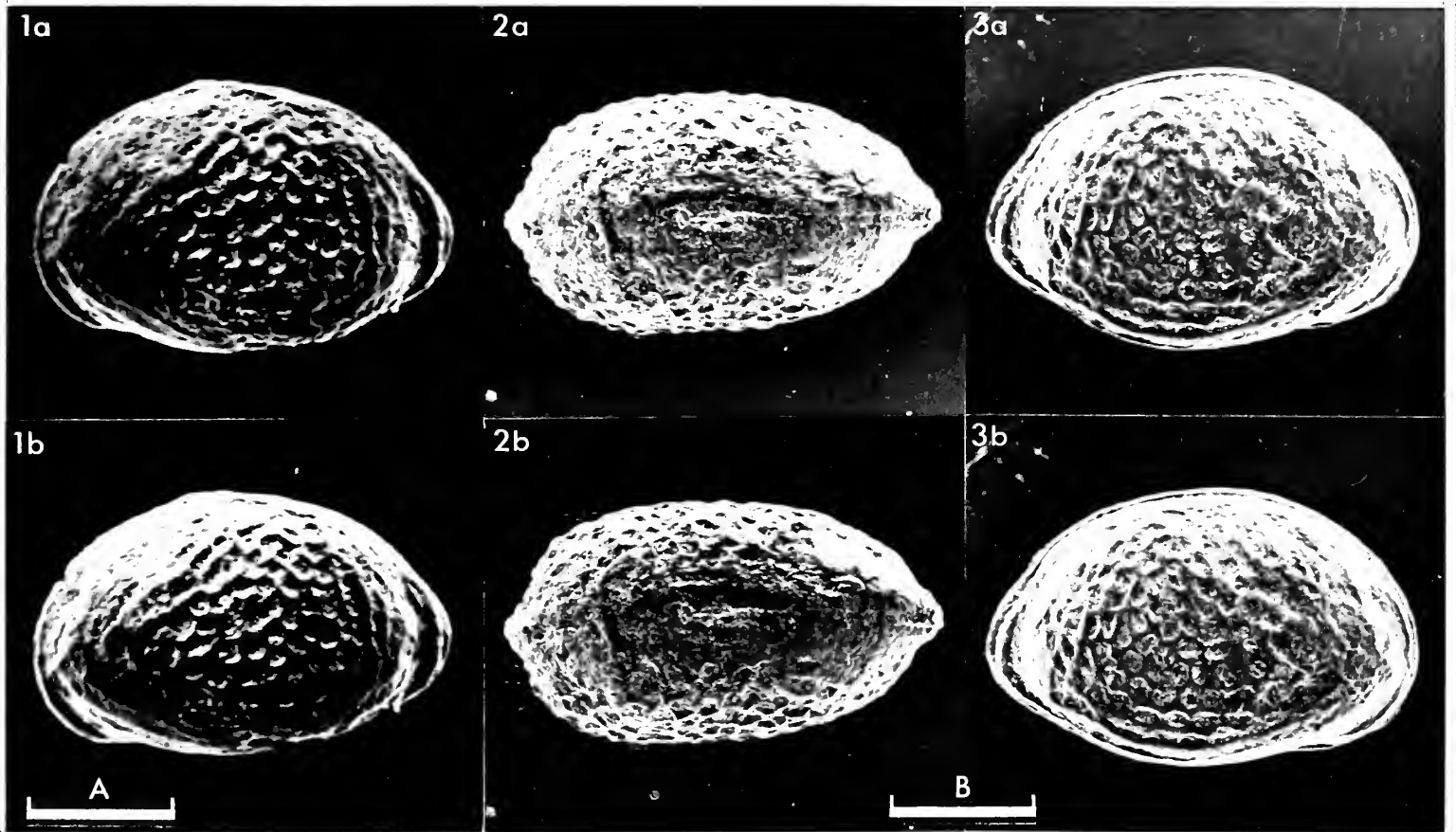
Remarks: The material illustrated here is from the same locality as the types of *Procytheridea exempla* Peterson, 1954 but is quite distinct from that species and we follow R. H. Bate (*Bull. Br. Mus. nat. Hist. (Geol.)*, vol. 9, p. 29, 1963) in placing it in *Micropneumatocythere*. The specimens from Saskatchewan, Canada illustrated by Brooke & Braun (op. cit.) tend to possess a more strongly developed ornament than Peterson's types or our topotype material from Montana. From our material, this variation appears to be due to differences in preservation.

Distribution: Rierdon, Lower Sundance and Lower Vanguard Formations, Callovian of Montana, Wyoming, Saskatchewan and Alberta. One uncertain record from the Bajocian of Israel (Oertli in Maync, op. cit.).

Explanation of Plate 2:41:266

Fig. 1, ♀ car., ext. dors. (IO 6802, 545 µm long); fig. 2, ♀ car., ext. lt. lat. (IO 6803, 510 µm long); fig. 3, ♀ car., ext. post. vent. obl. (IO 6804, 600 µm long).

Scale A (200 µm ; ×105), fig. 1; scale B (200 µm ; ×115), fig. 2; scale C (200 µm ; ×105), fig. 3.







ON *LOPHOCYTHERE* (*NEUROCYTHERE*) *MINUTA* (PETERSON)  
by P. F. Sherrington and Alan Lord  
(Robertson Research (North America) Ltd., Calgary and University College, London)

*Lophocythere* (*Neurocythere*) *minuta* (Peterson, 1954)

- 1954 *Procytheridea minuta* sp. nov. J. A. Peterson, *J. Paleont.*, vol. 28, pp. 174, 175, pl. 19, figs. 15-19.  
? 1955 ? *Procytheridea minuta* Peterson; D. M. Loranger, *Proc. geol. Ass. Can.*, vol. 7, pl. 11, figs. 5, 6.  
1960 *Procytheridea minuta* Peterson; J. H. Wall, *Rep. Dep. Miner. Resour. Sask.*, no. 53, pp. 142, 143, pl. 25, figs. 9-12.  
1962 *Procytheridea minuta* Peterson; I. Weihmann, *Hermann-Aldinger-Festschrift*, Stuttgart, p. 194, pl. 9, fig. 7.  
1972 *Procytheridea minuta* Peterson; M. M. Brooke & W. K. Braun, *Rep. Dep. Miner. Resour. Sask.*, no. 161, pl. 3, figs. 32-44 (see also pls. 17, 21-23, 25).

Holotype: United States National Museum, Washington, no. U.S.N.M. 108602, ♀.

Type locality: Red Dome, Pryor Mountains, near Bridger, Carbon County, Montana, U. S. A. (sec. 19, T.7S, R.24E; long. 108°50'W, lat. 45°12'30"N); Rierdon Formation, Callovian. [Paratypes: one from the type locality and three from Bacon Ranch, Piper, Fergus County, Montana (sec. 17, T.14N, R.20E; long. 109°12'30"W, lat. 46°58'30"N); Callovian, Rierdon Formation].

Explanation of Plate 2:42:268

Fig. 1, ♀ car., ext. lt. lat. (IO 6805, 345 µm long); fig. 2, ♂ car., ext. dors. (IO 6806, 345 µm long); fig. 3, ♀ car., ext. rt. lat. (IO 6807, 370 µm long).  
Scale A (100 µm ; ×160), figs. 1, 2; scale B (100 µm ; ×155), fig. 3.

Figured specimens: Brit. Mus. (Nat. Hist.) nos. IO 6805 (♀ car.: Pl. 2:42:268, fig. 1; Pl. 2:42:270, fig. 3), IO 6806 (♂ car.: Pl. 2:42:268, fig. 2), IO 6807 (♀ car.: Pl. 2:42:268, fig. 3), IO 6808 (♂ car.: Pl. 2:42:270, fig. 1), and IO 6809 (♀ car.: Pl. 2:42:270, fig. 2). All specimens (except IO 6806; sample 8) from sample 9, Rierdon Formation, Bacon Ranch, Montana; coll. Sherrington & Lord.

Diagnosis: Small, diagnostic longitudinal ribbing and secondary reticulation.

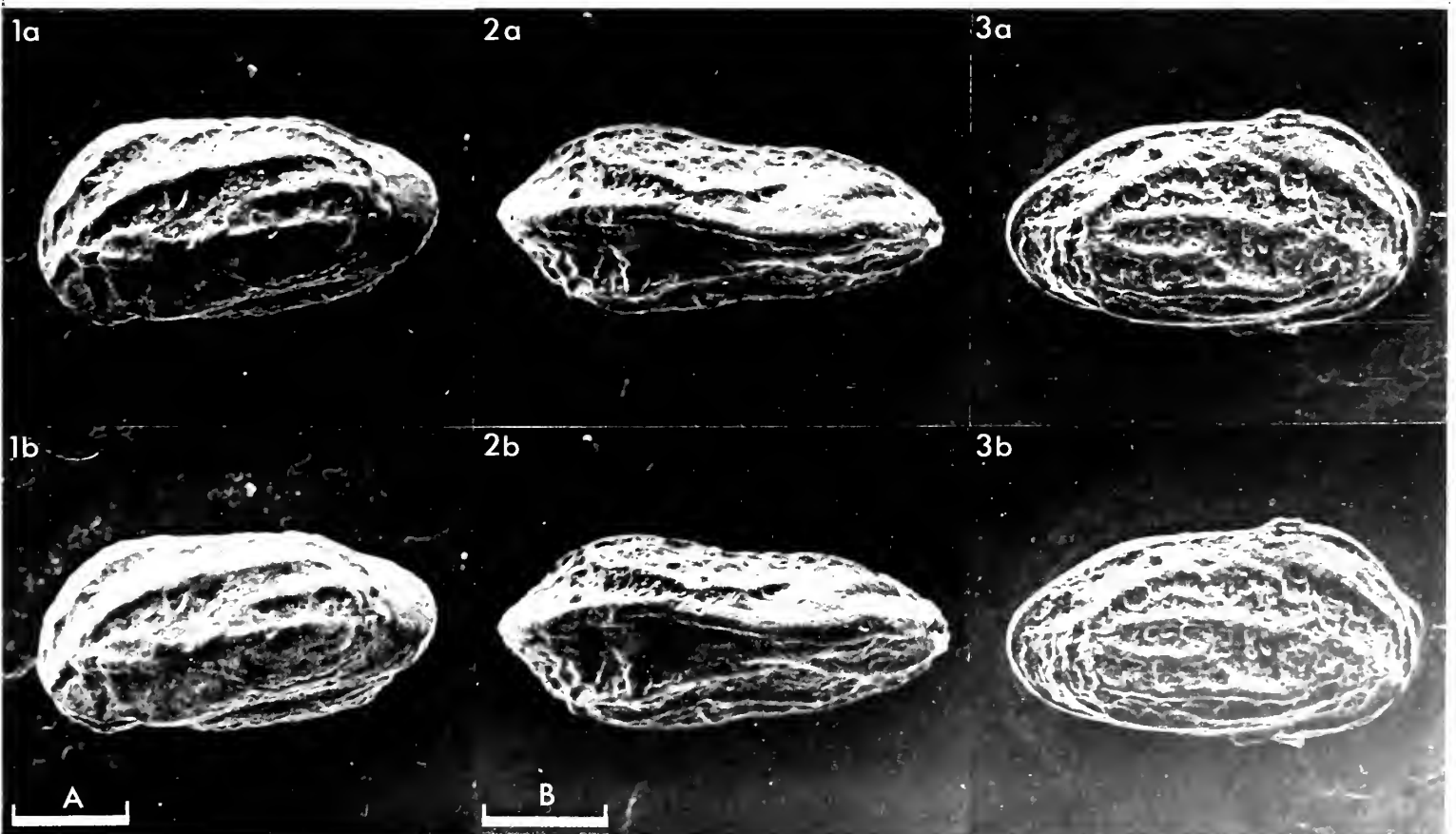
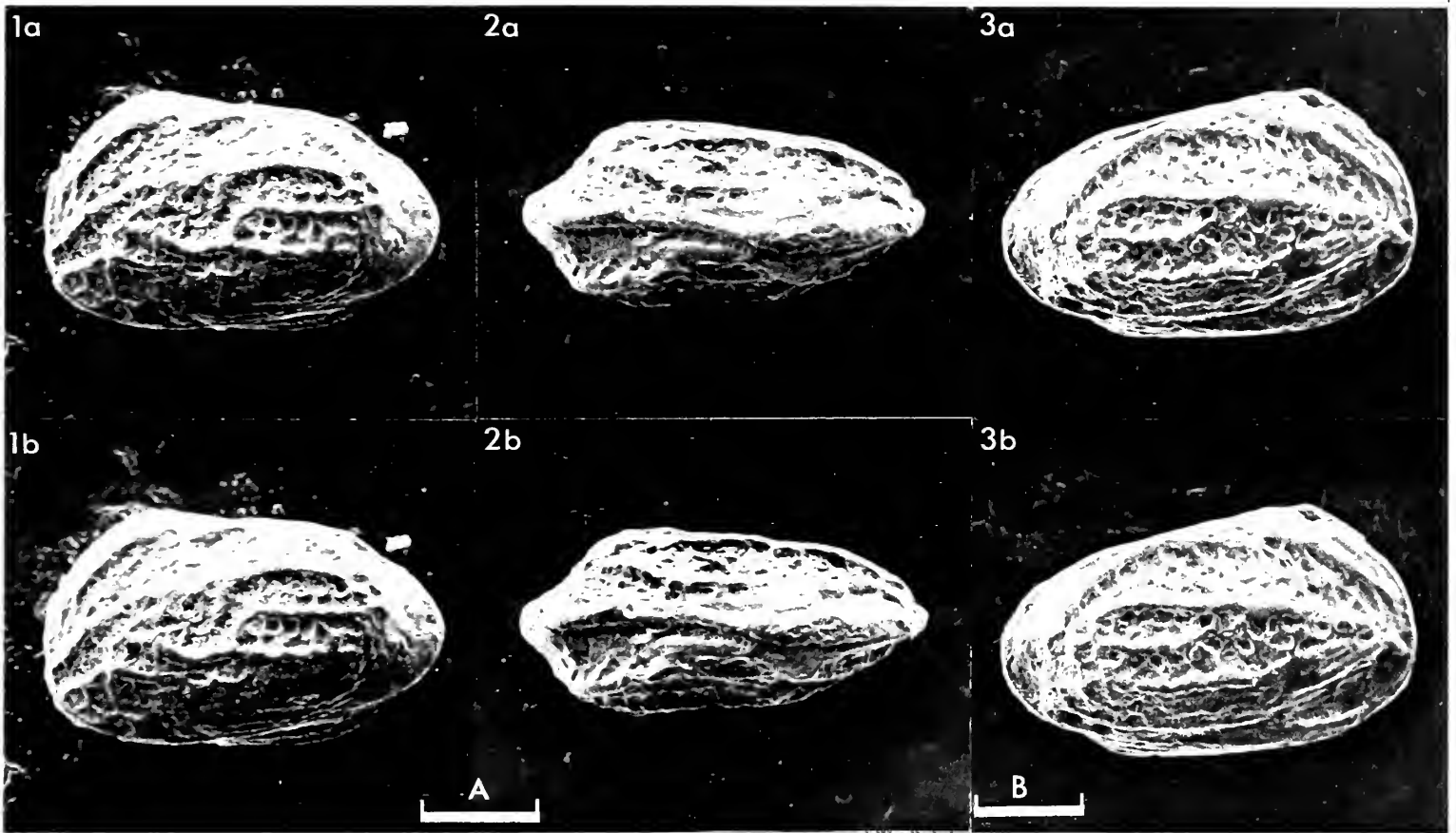
Remarks: Material resembles *Neurocythere* (Whatley, *Bull. Br. Mus. nat. Hist. (Geol.)*, 1970); internal details (imperfectly known) might confirm generic assignment. Brooke & Braun suggest this species may include *Protocythere quadricarinata* Swain & Peterson, 1952 (*Prof. Pap. U. S. geol. Surv.*, 243-A) and *P. cf. P. quadricarinata* of Peterson; both are appreciably larger than *L. minuta*. Moreover, the latter (rare in Lower Sundance Formation, Wyoming) is poorly preserved and dissimilar in shape to *L. minuta*, and the former differs in ornament (occupies only median two-thirds of each valve) and range (Upper Sundance Formation [Redwater Shale] and Swift Formation, Oxfordian). *P. quadricarinata* probably belongs to *Neurocythere* and may be a derivative of *L. minuta*.

Distribution: Rierdon Formation of Montana and Lower Vanguard Formation of Alberta and Saskatchewan, Canada; Callovian. Perhaps also from top of Piper Formation (Bathonian) at Bacon Ranch (cf. also range in Brooke & Braun, op. cit., p. 9, chart 20; from Upper Shaunavon Formation and Lower Shaunavon-Gravelbourg Formation [Bajocian-Bathonian] boundary, SW Saskatchewan).

Explanation of Plate 2:42:270

Fig. 1, ♂ car., ext. lt. lat. obl. (IO 6808, 340 mm long); fig. 2, ♀ car., ext. dors. (IO 6809, 345 µm long); fig. 3, ♀ car., ext. rt. lat. (IO 6805).  
Scale A (100 µm ; ×160); figs. 1, 3; scale B (100 µm ; ×175), fig. 2.









ON *CYTHERETTA TESHEKPUKENSIS* SWAIN  
by John W. Neale  
(University of Hull, England)

*Cytheretta teshekpukensis* Swain, 1963

- 1899 *Cythere septentrionalis* G. S. Brady; T. Scott, *J. Linn. Soc.*, vol. 27, p. 85 (pars).  
1963 *Cytheretta teshekpukensis* sp. nov. F. M. Swain, *J. Paleont.*, vol. 37, p. 831, pl. 95,  
figs. 19a, 19b, text-fig. 13a.  
? 1969 *Cytheretta teshekpukensis* Swain; O. M. Lev, in: *Ochenye Zapiski. Paleontologia i*  
*Biostratigrafia*, pt. 28, p. 30, pls. IV, V. Nauch. Issled. Inst. Geol. Arktiki,  
Leningrad.  
1975 *Cytheretta* sp.; J. W. Neale & H. V. Howe, in: *Biology and Paleobiology of Ostracoda*,  
p. 395, tab. 2, ed. F. M. Swain, Proc. Delaware Symposium, 1972.

Holotype: United States National Mus. coll. no. 647991, ♀ RV.

Type locality: Gubik Formation, Pleistocene, Teshekpuk Lake area, Arctic Coastal  
Plain, Alaska; Party 43 shot holes, line 2-48, shot-point 73 at 90 ft.  
Approx. long. 153°W, lat. 70°40'N.

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Explanation of Plate 2:43:272

Fig. 1, ♀ RV, ext. lat. (U.S.N.M. 647991, 1156 µm long); fig. 2, ♀ RV, ext. lat. (R.S.M.  
1921-145.1a, 1280 µm long).

Scale A (250 µm ; ×82), fig. 1; scale B (250 µm ; ×74), fig. 2.

Figured specimens: U.S.N.M. coll. no. 647991 (♀ RV: Pl. 2:43:272, fig. 1). Royal Scottish  
Museum (R.S.M.), Edinburgh coll. nos. 1921-145.1a (♀ RV: Pl. 2:43:272,  
fig. 2), 1921-145.2a (♂ RV: Pl. 2:43:274, fig. 1; Pl. 2:43:276, fig. 2),  
1921-145.2a (♂ LV: Pl. 2:43:274, fig. 2; Pl. 2:43:276, fig. 1), 1921-145.3  
(♀ car.: Pl. 2:43:278, fig. 1), 1921-145.4 (♂ car.: Pl. 2:43:278, fig. 2).

U.S.N.M. 647991 from the type locality. 1921-145.3 coll. July 1897 from  
2-10 fathoms, W Bay, Cape Flora, Franz Josef Land; approx. long. 50°01'E,  
lat. 79°57'N. 1921-145.1a, 1921-145.2a (LV & RV) and 1921-145.4 all coll.  
July 1897 from the vicinity of Cape Flora, Franz Josef Land.

Diagnosis: Ornament of fine, oblique longitudinal ribs of which one in the dorsal  
half of the valve tends to be accentuated and distinctly convex upwards.  
Well-developed inter-costal pitting and dimorphism. Marginal areas regular  
with about 25 radial pore canals in anterior half of shell.

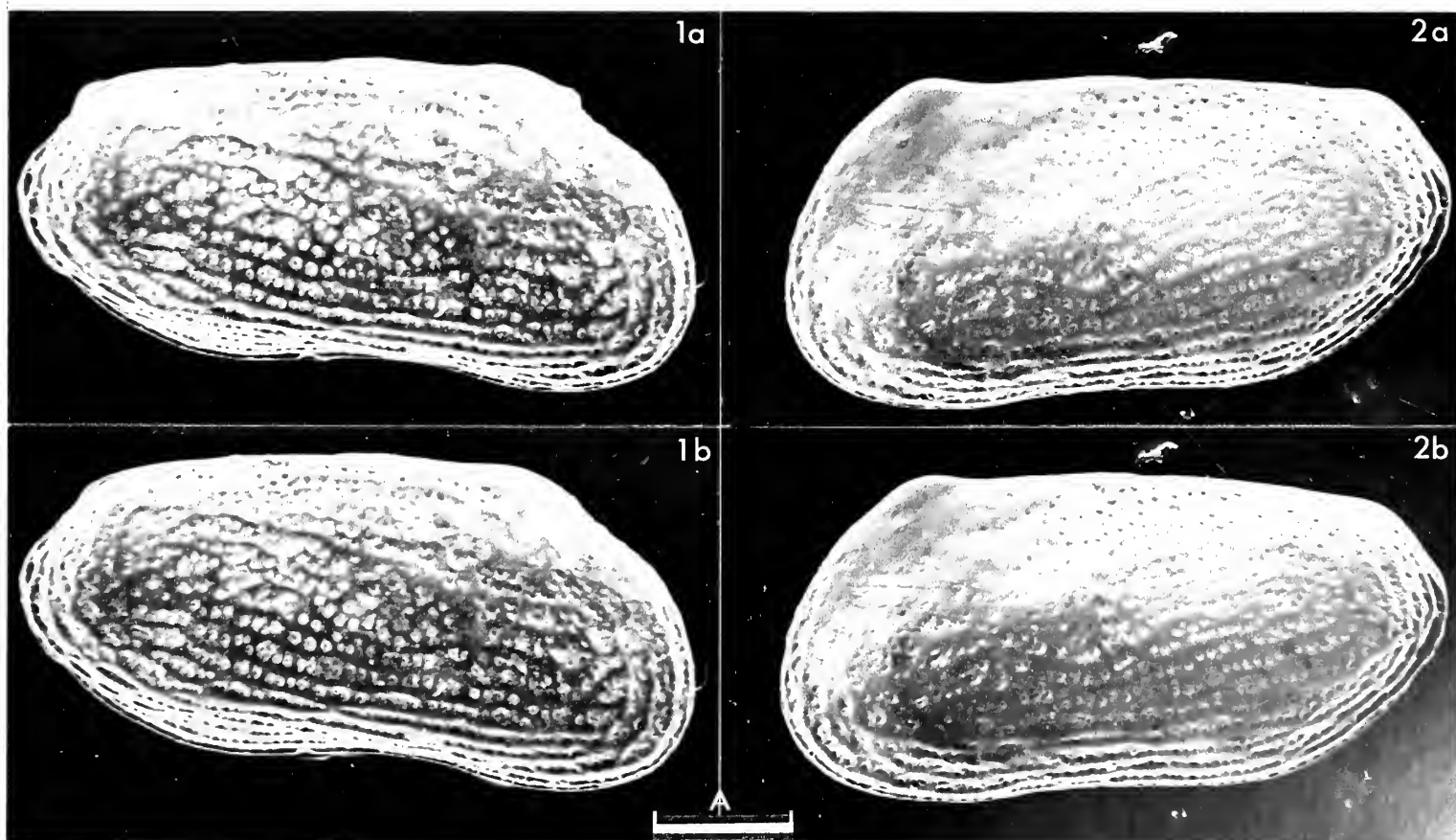
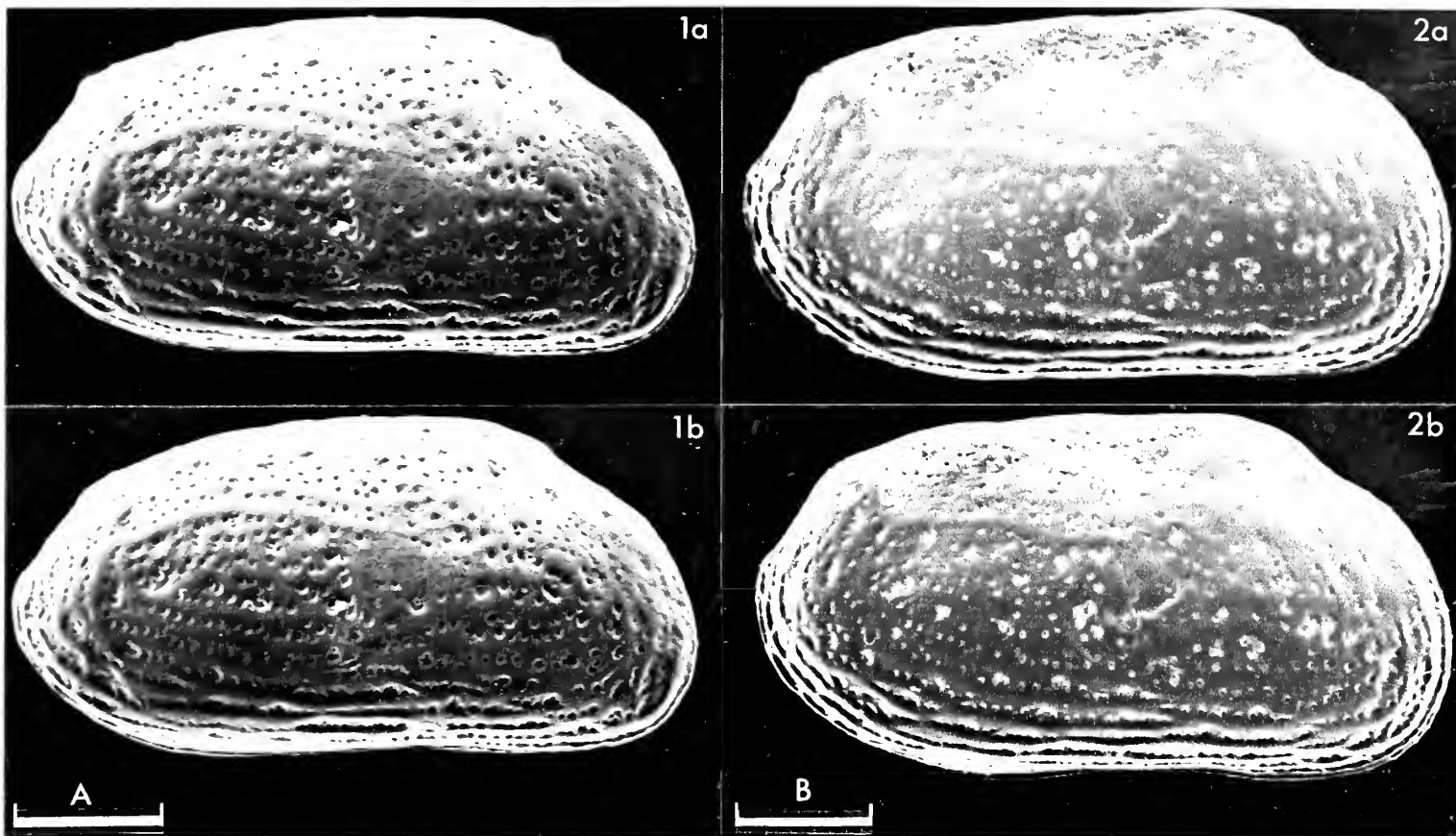
Remarks: This species occurs in the Pleistocene of Alaska and off Franz Josef Land  
(approx. long. 50°01'E, lat. 79°57'N) at the present day. Lev (op. cit.)  
recorded this species from her *Normanicythere concinella* and *Cytheretta*  
*teshekpukensis* communities from Quaternary deposits in the lower reaches  
of the R. Yenisei and the Cheski Gulf, but her figure shows the fine  
longitudinal ribbing to be less oblique and slightly concave upwards. In  
consequence, the Russian material is only tentatively referred to Swain's  
species in the synonymy given above.

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Explanation of Plate 2:43:274

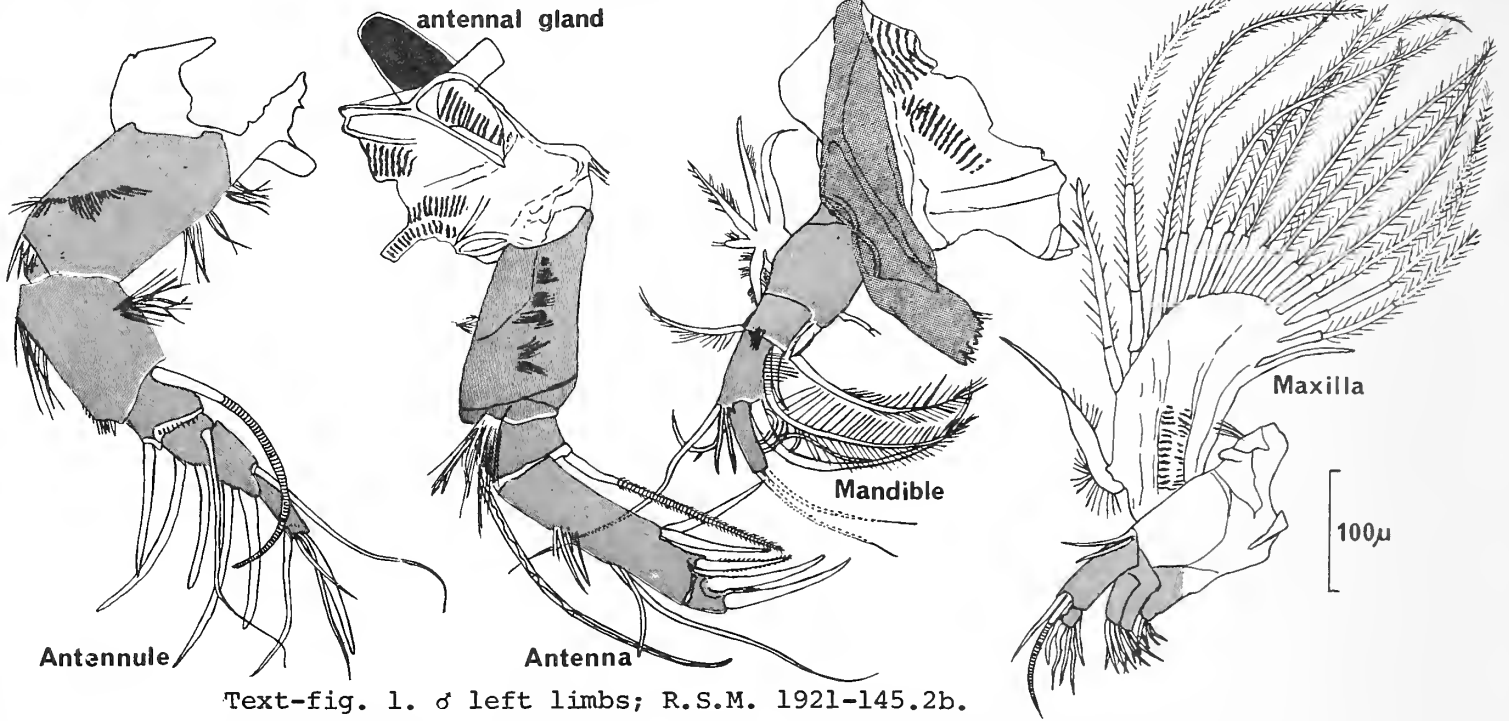
Fig. 1, ♂ RV, ext. lat. (R.S.M. 1921-145.2a, 1260 µm long); fig. 2, ♂ LV, ext. lat. (R.S.M.  
1921-145.2a; 1260 µm long).

Scale A (250 µm ; ×75), figs. 1, 2.







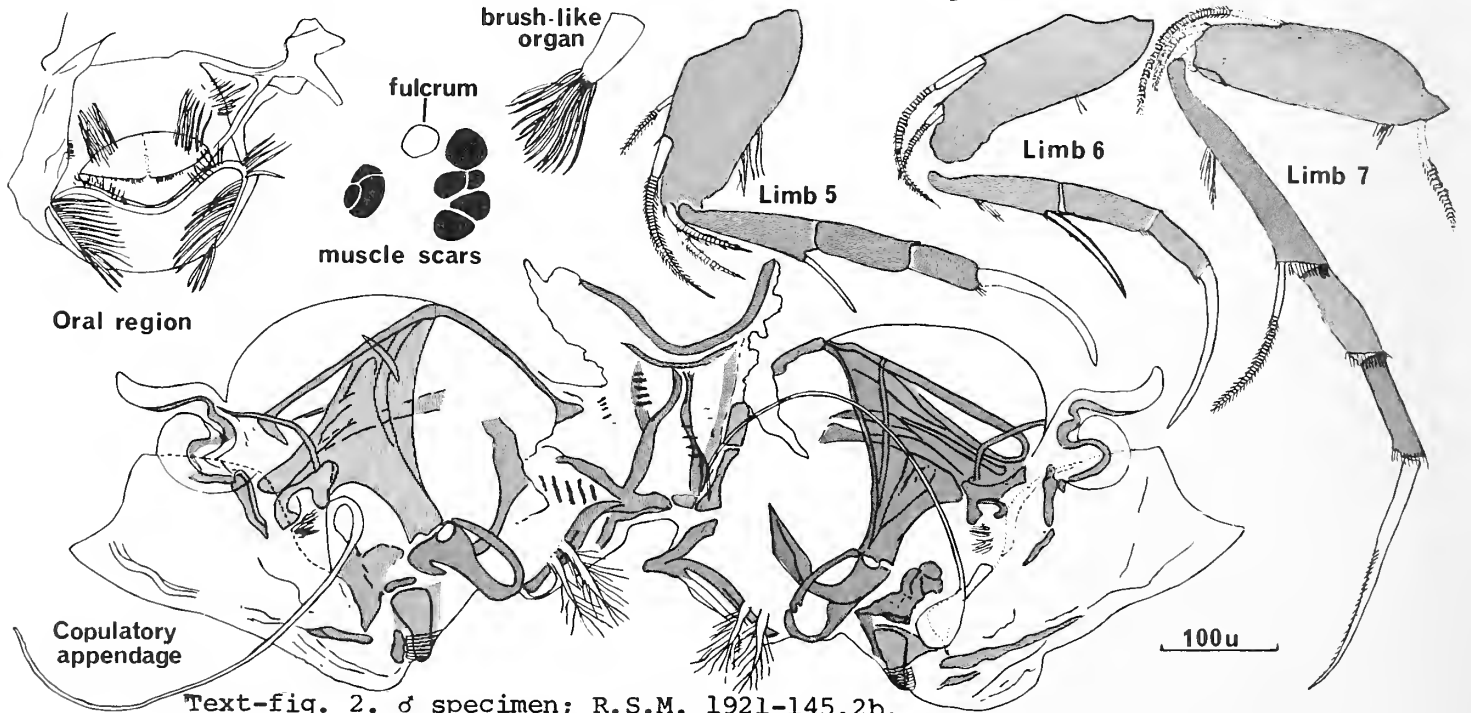


Text-fig. 1. ♂ left limbs; R.S.M. 1921-145.2b.

Explanation of Plate 2:43:276

Fig. 1, ♂ LV, int. lat. (R.S.M. 1921-145.2a; 1260 µm long); fig. 2, ♂ RV, int. lat. (R.S.M. 1921-145.2a; 1260 µm long).

Scale A (250 µm ; ×75), fig. 1; scale B (250 µm ; ×81), fig. 2.



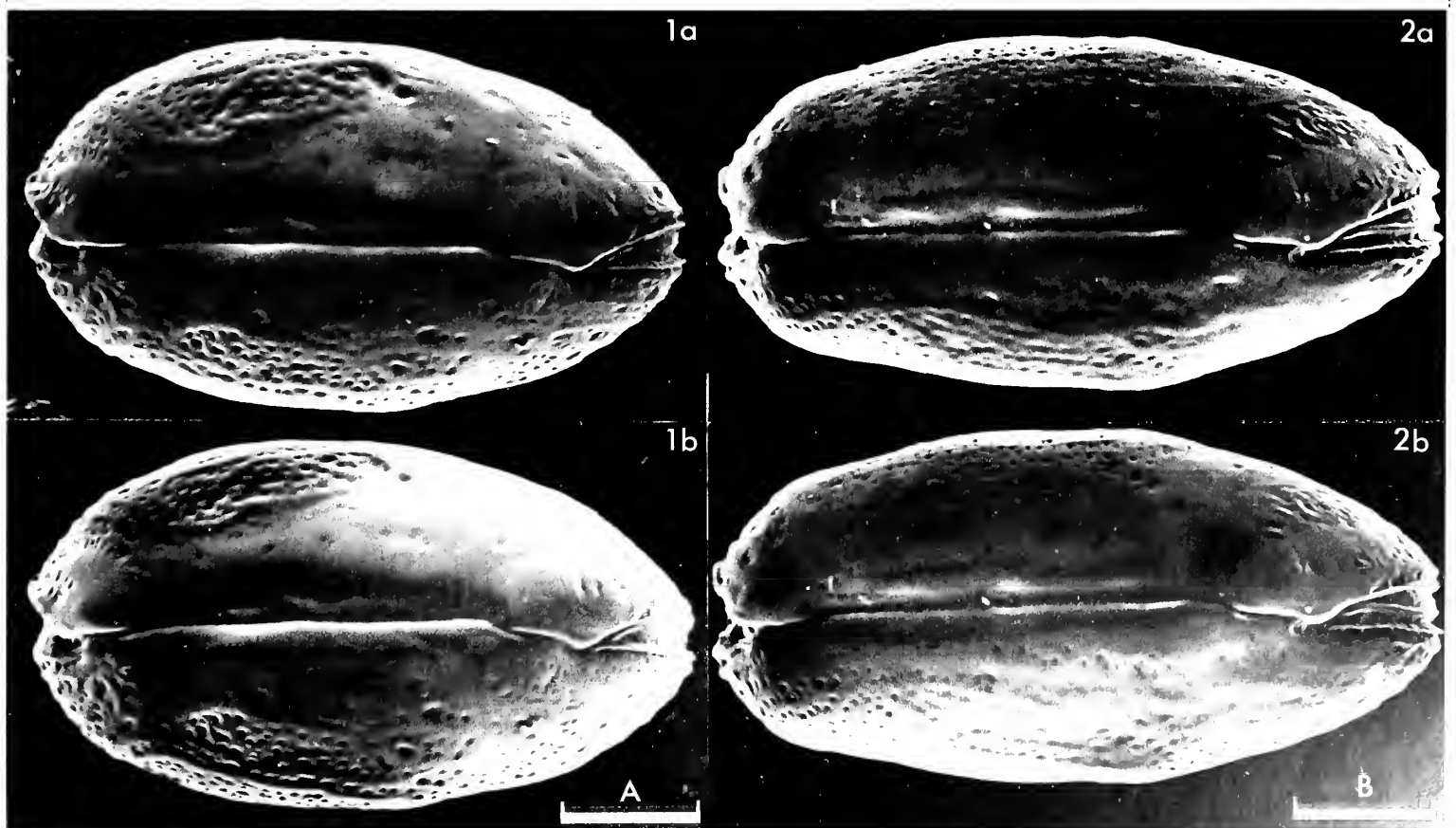
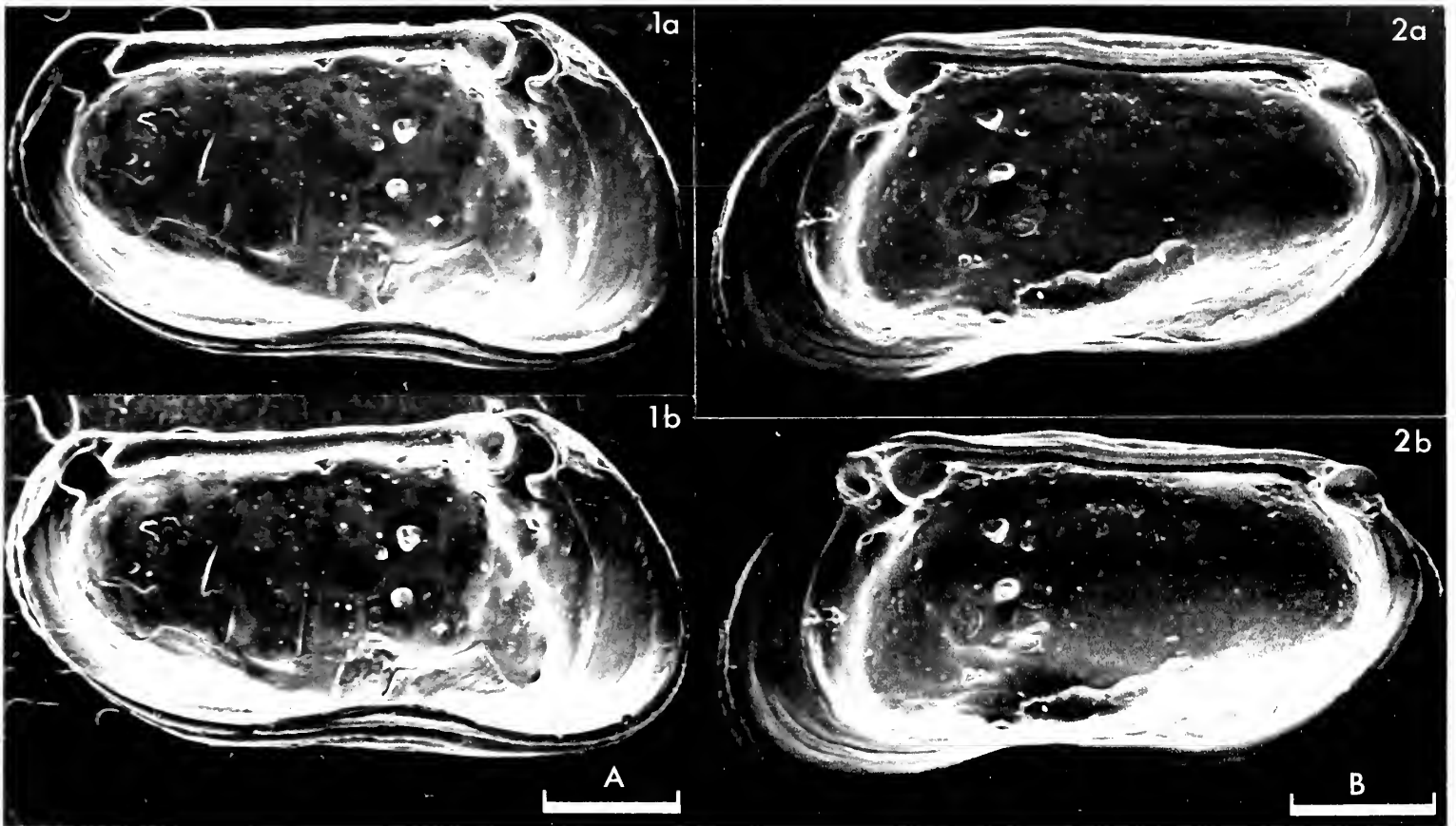
Text-fig. 2. ♂ specimen; R.S.M. 1921-145.2b.

Explanation of Plate 2:43:278

Fig. 1, ♀ car., ext. dors. (R.S.M. 1921-145.3; 1273 µm long); fig. 2, ♂ car., ext. dors. (R.S.M. 1921-145.4; 1290 µm long).

Scale A (250 µm ; ×73), fig. 1; scale B (250 µm ; ×78), fig. 2.









ON *PURIANA PACIFICA* BENSON  
by Richard H. Benson  
(*Smithsonian Institution, Washington, D.C., U.S.A.*)

*Puriana pacifica* Benson, 1959

- 1959 *Puriana pacifica* sp. nov. R. H. Benson, *Univ. Kans. Paleont. Contr. Arthro.*, art. 1, p. 60, pl. 5, figs. 5a, b; pl. 10, fig. 1.  
1967 *Puriana pacifica* Benson; F. M. Swain, *Mem. geol. Soc. Am.*, no. 101, p. 105, pl. 3, figs. 1a-c; pl. 6, figs. 4a-c.

Lectotype: U.S.N.M. coll. no. 113160, ♂ carapace; Benson, 1959, pl. 10, fig. 1.  
Designated by R. H. Benson, 1966, *J. Paleont.*, vol. 40, no. 3, p. 476.

Type locality: The upper end of the Estero de Punta Banda, Todos Santos Bay, Baja California, Mexico; approx. long. 116°38'W, lat. 31°46'N.

Figured specimens: U.S.N.M. coll. no. 113161 (♀ car.: Pl. 2:44:280, figs. 1, 2) and 190447 (♀ RV: Pl. 2:44:282, figs. 1-3). Both specimens are from the type locality at Todos Santos Bay, Baja California, Mexico; Recent.

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Explanation of Plate 2:44:280

Figs. 1, 2, ♀ car. (U.S.N.M. 113161, 610 µm long); fig. 1, ext. lt. lat.; fig. 2, detail of area of subcentral tubercle.

Scale A (250 µm ; ×138), fig. 1; scale B (100 µm ; ×360), fig. 2.

**Diagnosis:** A species of *Puriana* with irregular, short and variously oriented plications; surface papillate.

**Remarks:** A peculiar surface structure of thin folds lain flat and oriented with their crests directed towards the posterior. Much less massive than the more rugose or clavate species of *Puriana*.

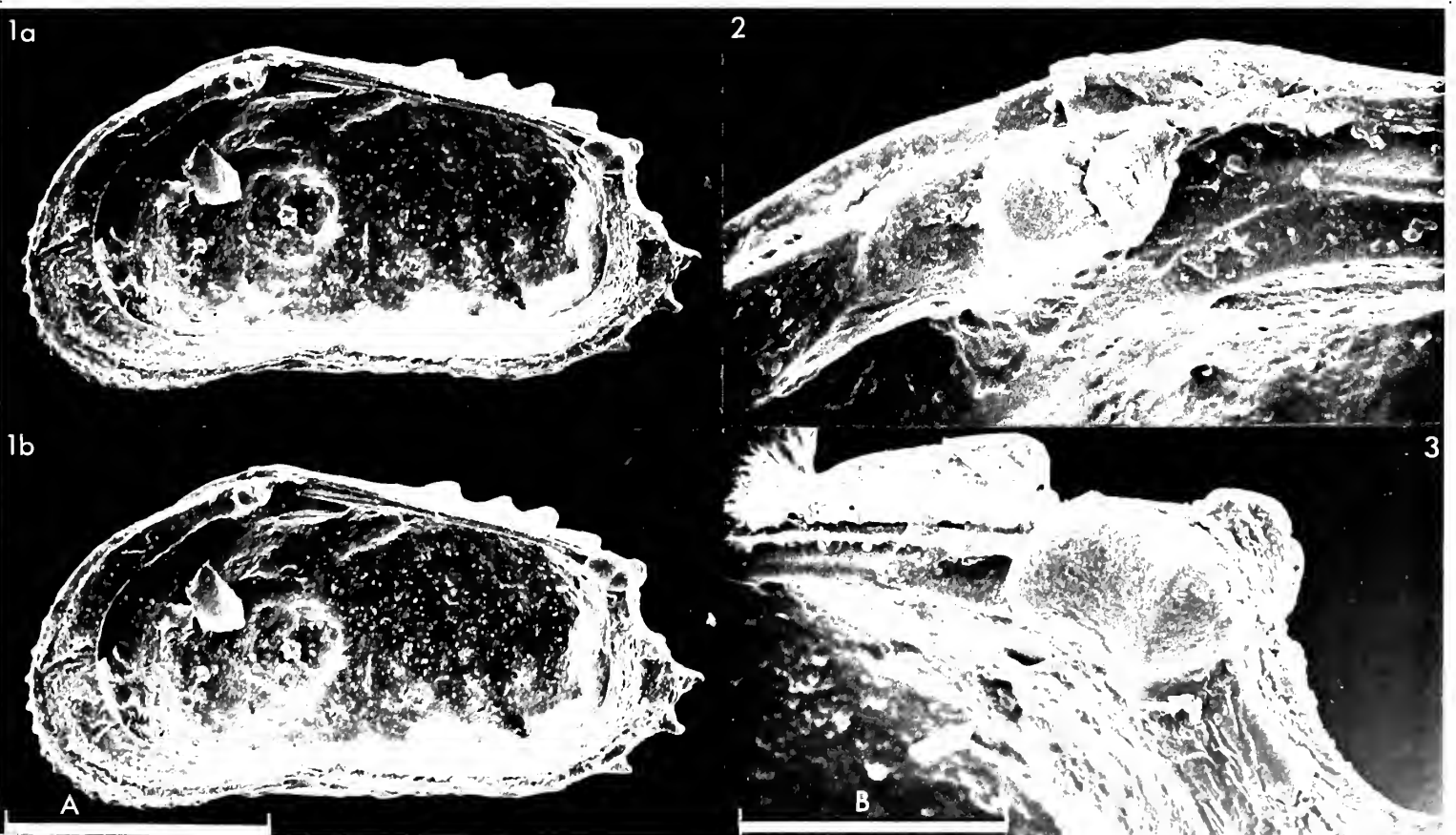
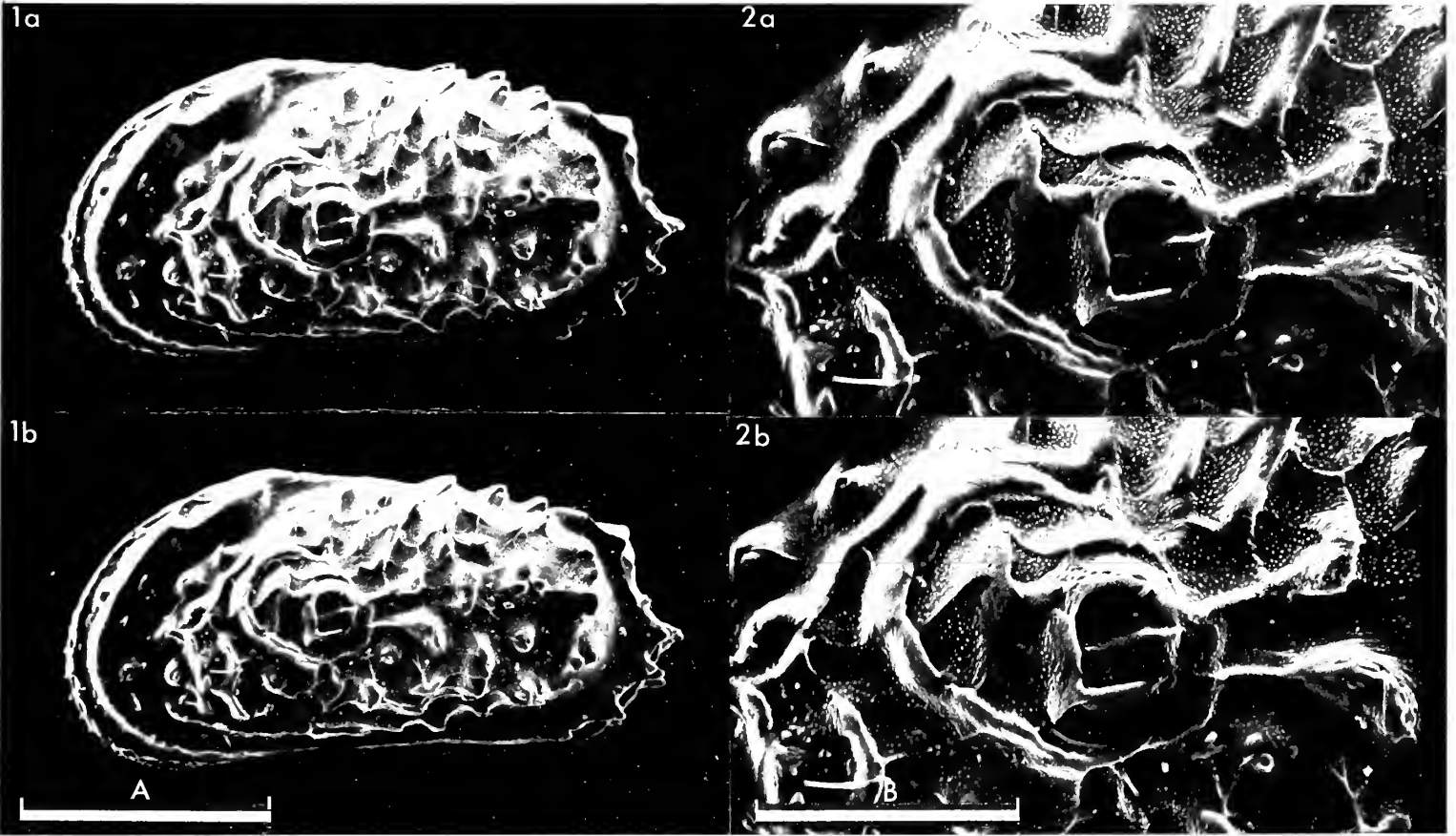
**Distribution:** Originally described from the lagoon of Estero de Punta Banda near Ensenada on the Pacific Coast of Baja California. Although it has been subsequently reported from as far S as Nicaragua, it is most typical of latitudes of about 25°-35° in restricted salt-water lagoons along the Pacific and Gulf of California coasts.

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Explanation of Plate 2:44:282

Figs. 1, 2, ♀ RV (U.S.N.M. 190447; 620 µm long); fig. 1, int. lat.; fig. 2, detail of ant. hinge element; fig. 3, detail of post. hinge element.

Scale A (250 µm ; ×147), fig. 1; scale B (50 µm ; ×735), figs. 2, 3.







ON *PURIANA FISSISPINATA* BENSON AND COLEMAN  
by Richard H. Benson  
(*Smithsonian Institution, Washington, D.C., U.S.A.*)

*Puriana fissispinata* Benson and Coleman, 1963

1963 *Puriana fissispinata* sp. nov. R. H. Benson & G. L. Coleman, *Univ. Kans. Paleont. Contr. Arthr.*, art. 2, p. 44, pl. 8, figs. 3, 4, text-fig. 28.

Lectotype: U.S.N.M. coll. no. 113213, ♂ carapace; Benson & Coleman (op. cit.), pl. 8, figs. 3, 4. Designated by R. H. Benson, *J. Paleont.*, vol. 40, no. 3, p. 746, 1966.

Type locality: The eastern Gulf of Mexico; approx. lat. 28°15'N, long. 84°05'W. Recent, at about 30 m.

Figured specimens: U.S.N.M. coll. no. 113213 (♂ LV: Pl. 2:45:284, figs. 1, 2; Pl. 2:45:286, fig. 2, and ♂ RV: Pl. 2:45:286, figs. 1, 3). Recent, from the type locality, eastern Gulf of Mexico; 30 m.

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Explanation of Plate 2:45:284

Figs. 1, 2, ♂ LV (U.S.N.M. 113213, 860 µm long): fig. 1, ext. lat.; fig. 2, detail of area of subcentral tubercle.

Scale A (250 µm ; ×92), fig. 1; scale B (100 µm ; ×230), fig. 2.

Diagnosis: Minutely foveolate, with tegminate labyrinthine fossae (Pl. 2:45:284, fig. 2).

Remarks: Ornament convergent to that seen in *Urocythereis lumbricularis* (Terquem) (see *Stereo-Atlas of Ostracod Shells*, vol. 2, pt. 1, pp. 49-52, 1974). Similar to a yet undescribed late Neogene and Recent species from N Carolina which is also foveolate but whose fossae are joined as long slits.

Distribution: Known from a depth range of 25-30 m in the open shallow shelf off W central Florida, U. S. A., in the Gulf of Mexico.

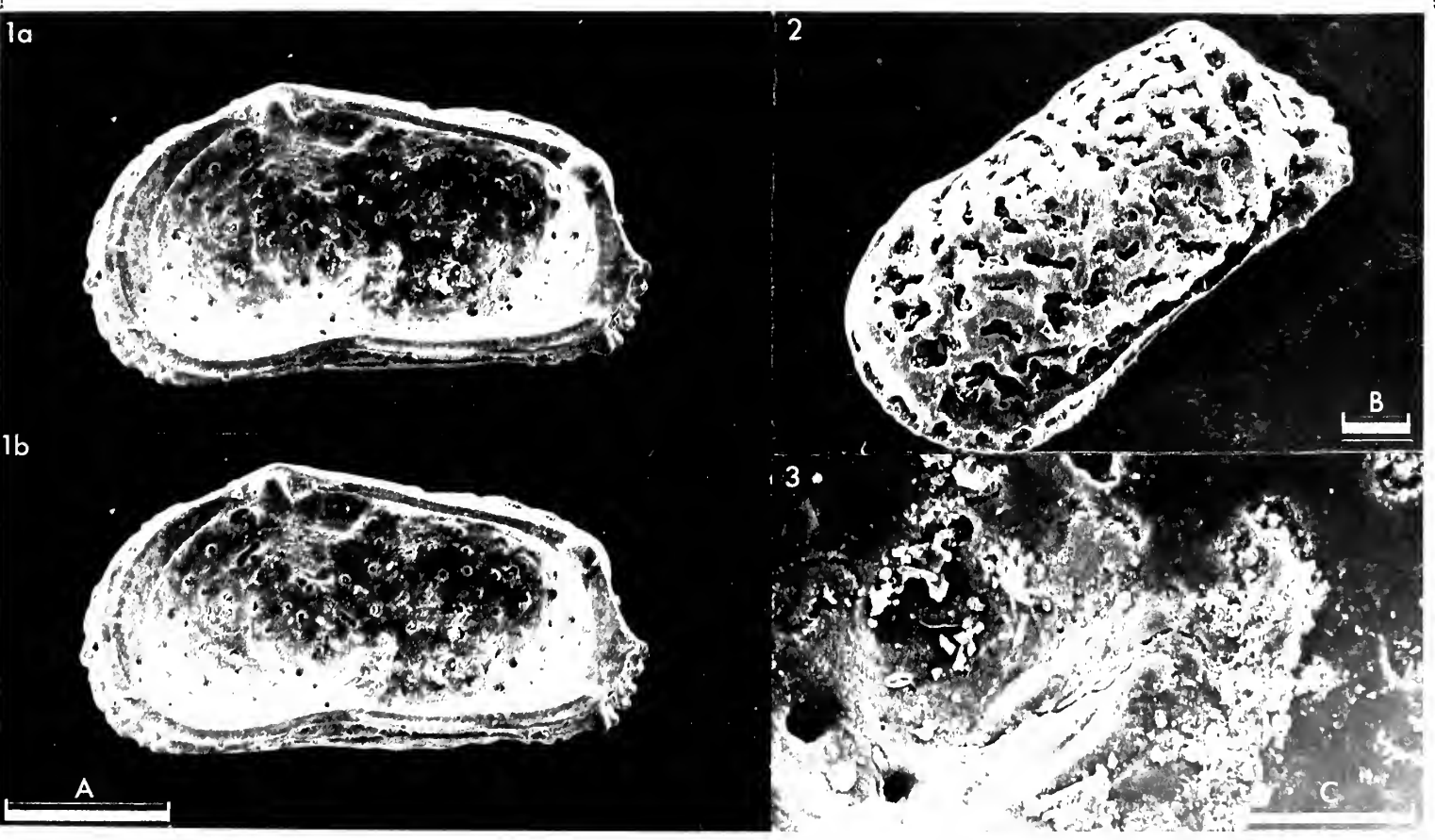
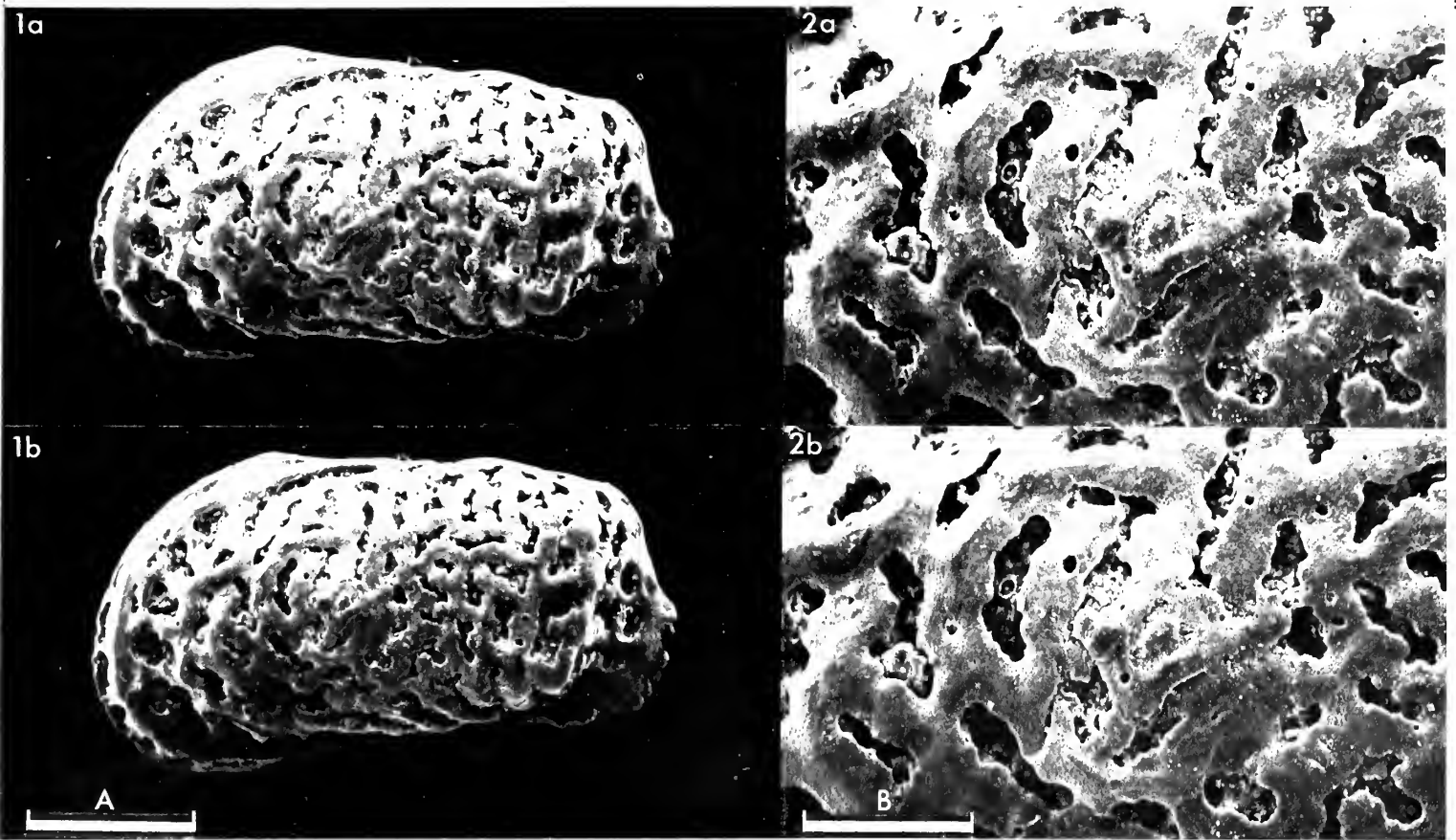
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Explanation of Plate 2:45:286

Figs. 1-3, ♂ (U.S.N.M. 113213): fig. 1, RV int. lat.; fig. 2, LV, ext. lat. obl.; fig. 3, RV, int. musc. sc.

Scale A (250 µm ; ×92), fig. 1; scale B (100 µm ; ×92), fig. 2; scale C (50 µm ; ×460), fig. 3.









Stereo-Atlas of Ostracod Shells, 2:46:287-294 (1975) *Celtia quadridentata* (1 of 8)  
595.337.14 (119.9) (261.273:162.006.51 + 261.26:162.002.55 + 261.26:162.002.54  
+ 261.26:161.000.57): 551.35

ON *CELTIA QUADRIDENTATA* (BAIRD)  
by John W. Neale  
(University of Hull, England)

Genus *CELTIA* Neale, 1973

Type-species (original designation): *Cythere quadridentata* Baird, 1850. [See *Bull. zool. Nomencl.*, vol. 32, pp. 161, 162, 1975].

**Diagnosis:** Strong holamphidont dentition with strongly buttressed anterior part of hinge and triangular posterior termination in lateral view. Compressed oblong in dorsal view. Costae vestigial or absent and ornamentation of deep slit-like and also equidimensional pits. Exopodite of second antenna club-like and not a Spinnbörste.

*Celtia quadridentata* (Baird, 1850)

- 1850 *Cythere quadridentata* sp. nov., W. Baird, *Natural History of the British Entomostraca*, Ray Soc. Publs., p. 173, pl. XXI, fig. 2.  
non 1941 *Cythereis* (?) *quadridentata* (Baird); E. Triebel, *Senckenbergiana*, vol. 23 (4/6), pl. 13.  
1973 *Celtia quadridentata* (Baird); J. W. Neale, *Revta esp. Micropaleont.*, p. 435, 1 pl., 3 figs. (q.v. for full synonymy).

**Diagnosis:** Shell strongly impressed in the posteroventral region.

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Explanation of Plate 2:46:288

Fig. 1, ♀ RV, ext. lat. (HU.90.R.34, 753 µm long); fig. 2, ♂ RV, ext. lat. (HU.49.R.1, 746 µm long).

Scale A (100 µm ; ×125), figs. 1, 2.

Stereo-Atlas of Ostracod Shells, 2:46:289 *Celtia quadridentata* (3 of 8)

**Type locality:** Obscure. Baird records, "Along with numerous specimens of *C. nigrescens*, marked as coming from Boston, Torquay and Arran, one single specimen of this pretty species was sent to me by W. C. Williamson, Esq."

**Figured specimens:** University of Hull coll. nos. HU.90.R.34 (♀ RV: Pl. 2:46:288, fig. 1), HU.90.R.35 (♀ car.: Pl. 2:46:290, fig. 1), HU.90.R.36 (♂ LV, specimen lost: Pl. 2:46:292, fig. 1), HU.49.R.1 (♂ RV: Pl. 2:46:288, fig. 2), HU.49.R.2 (♀ RV: Pl. 2:46:290, fig. 2), HU.49.R.3 (♂ RV: Pl. 2:46:290, fig. 3), HU.174.R.24a (♀ LV: Pl. 2:46:292, fig. 2; limbs & soft-parts = HU.174.R.24b), HU.174.R.22 (♀ RV: Pl. 2:46:294, figs. 1-3). Specimens HU.90.R.34-36 from 65 fathoms, Celtic Sea; long. 5°55.6'W, lat. 51°17.1'N. Specimens HU.49.R.1-3 from 27 fathoms, 7 miles ENE Tyne Entrance; long. 1°14'05"W, lat. 55°1'55"N. HU.174.R.24a & b from 73 m, S Forties; long. 0°28'E, lat. 57°25'N. HU.174.R.22 from about 25 fathoms, N Sea; approx. long. 1°08'W, lat. 54°53'N.

**Remarks:** This opportunity is taken to correct the synonymy given in Neale 1973 by removing the uncertainty attached to Ruggieri's references. Through the kindness of Professor Ruggieri I have been able to examine some of his material and can confirm that it is indeed the true *C. quadridentata*.

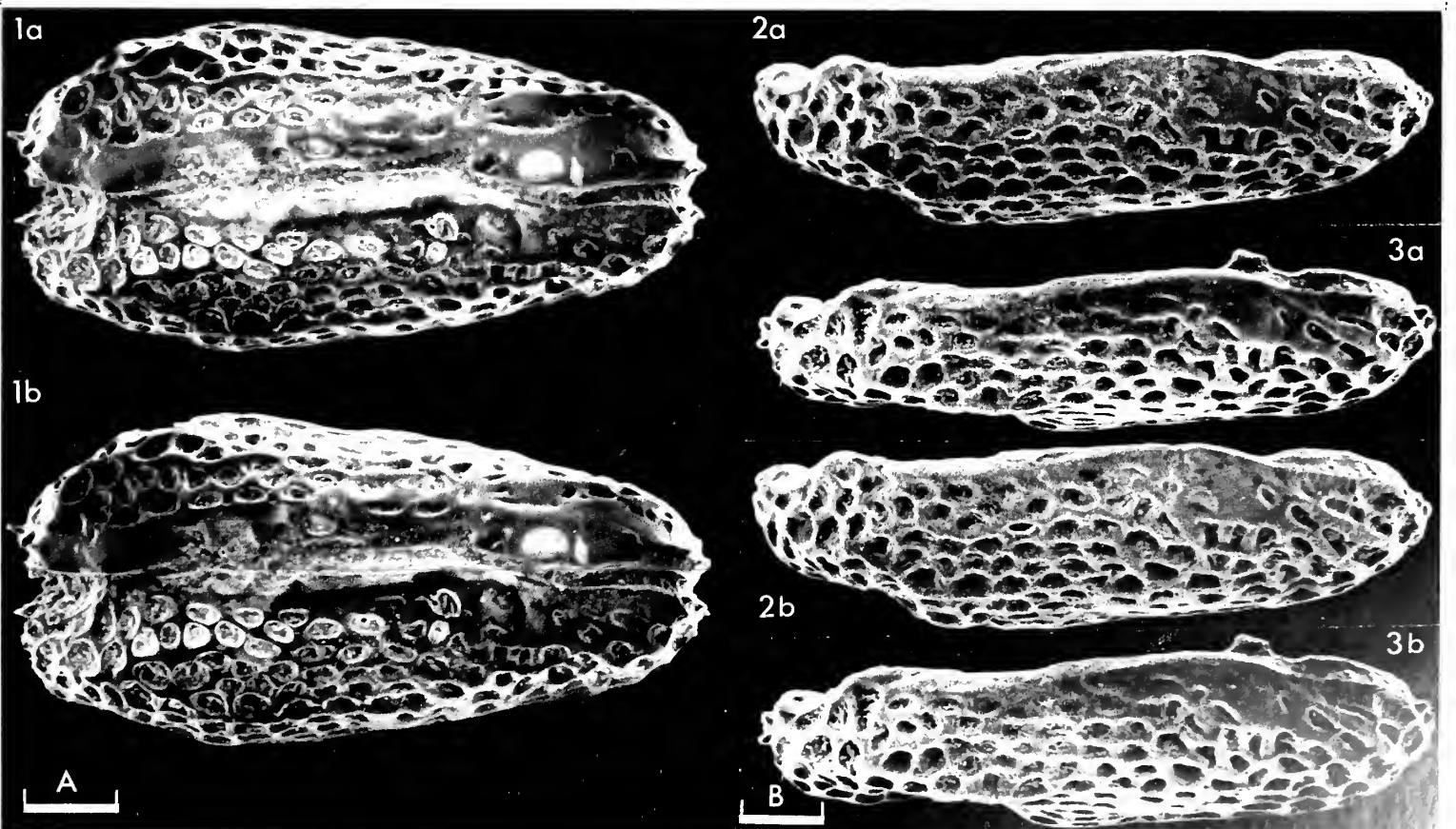
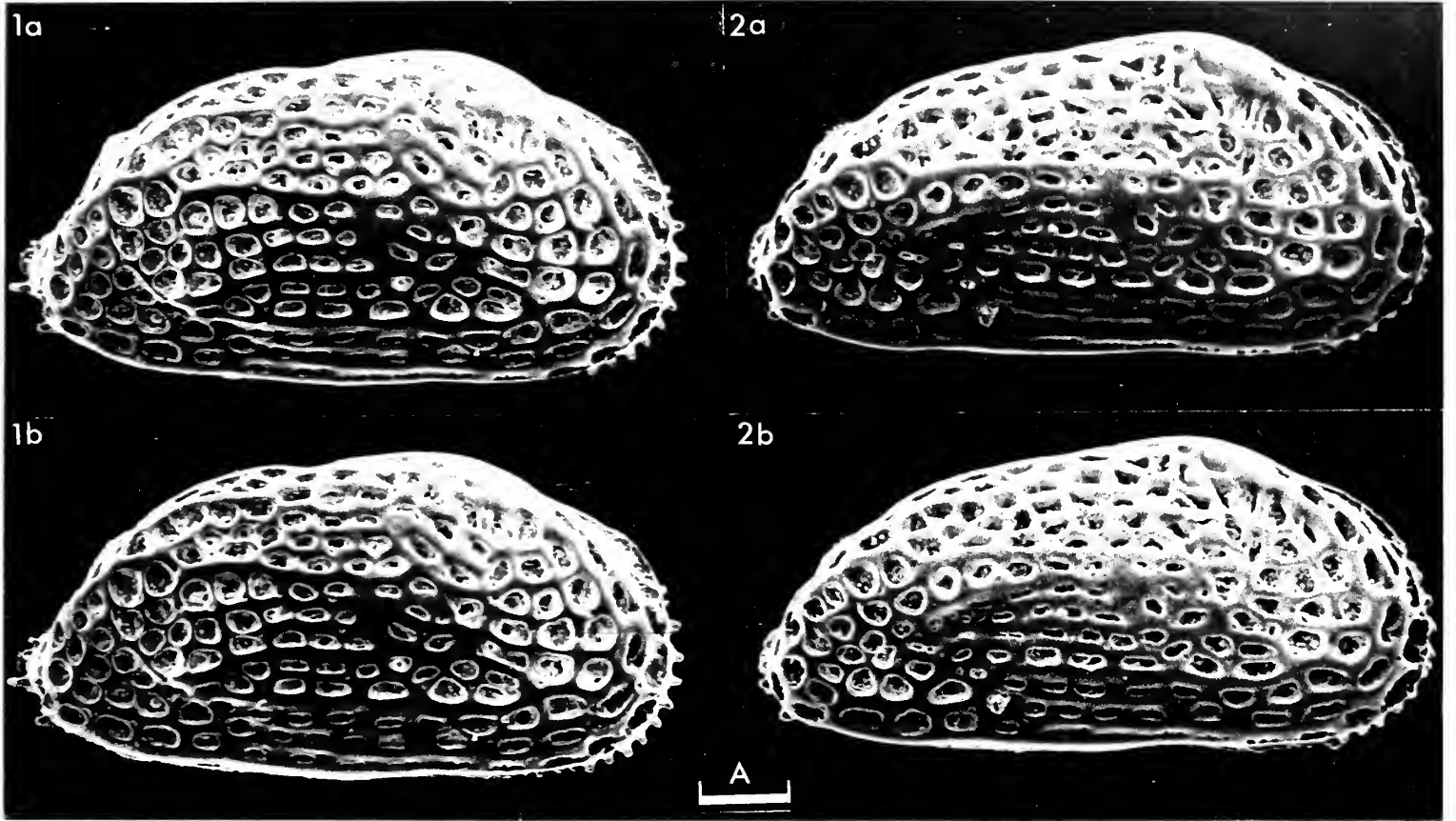
**Distribution:** The species is widely distributed from Shetland and S Norway to the Bay of Biscay at the present day and occurs more widely in the Pleistocene when it extended from the British area to the Mediterranean.

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Explanation of Plate 2:46:290

Fig. 1, ♀ car., ext. dors. (HU.90.R.35, 779 µm long); fig. 2, ♀ RV, ext. dors. (HU.49.R.2, 792 µm long); fig. 3, ♂ RV, ext. dors. (HU.49.R.3, 805 µm long).

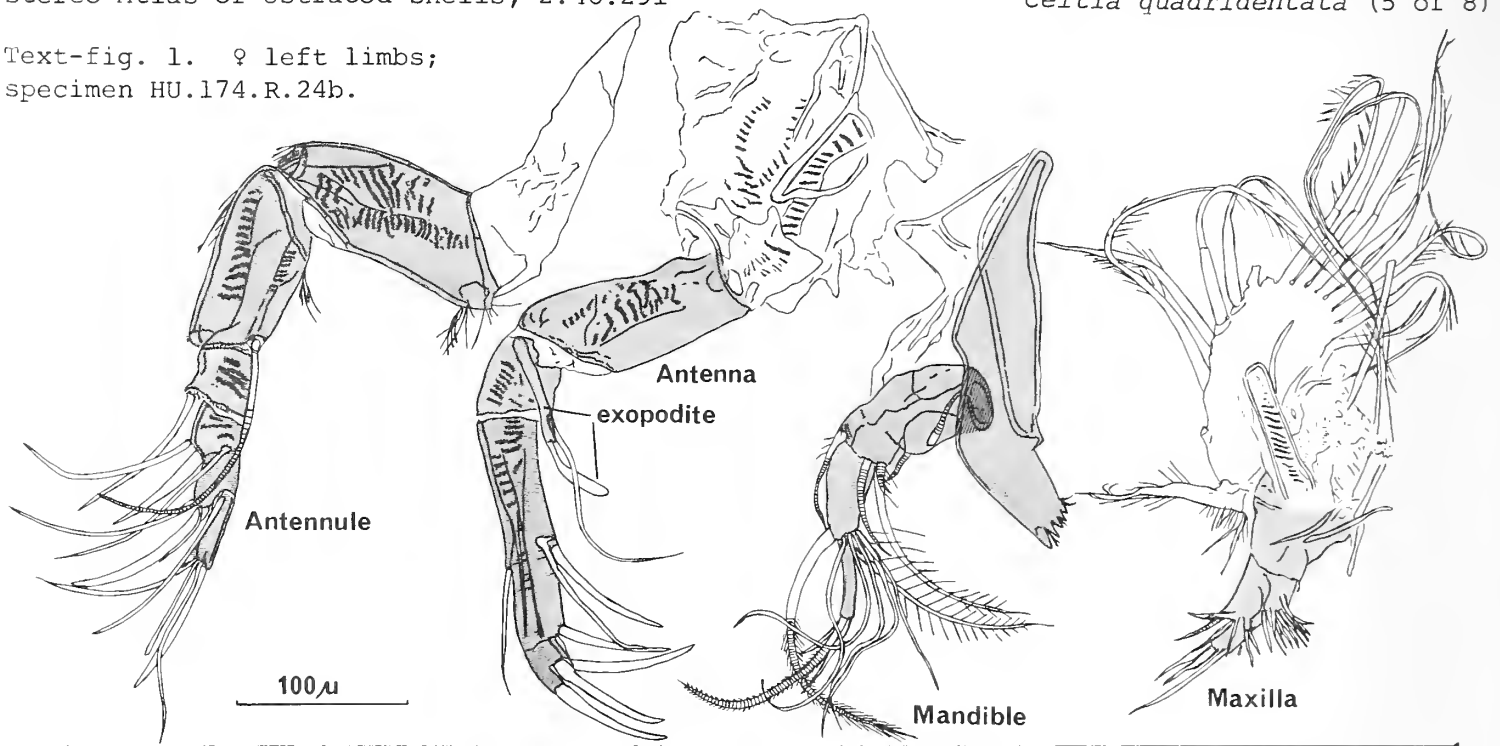
Scale A (100 µm ; ×125), fig. 1; scale B (100 µm ; ×119), figs. 2, 3.







Text-fig. 1. ♀ left limbs;  
specimen HU.174.R.24b.

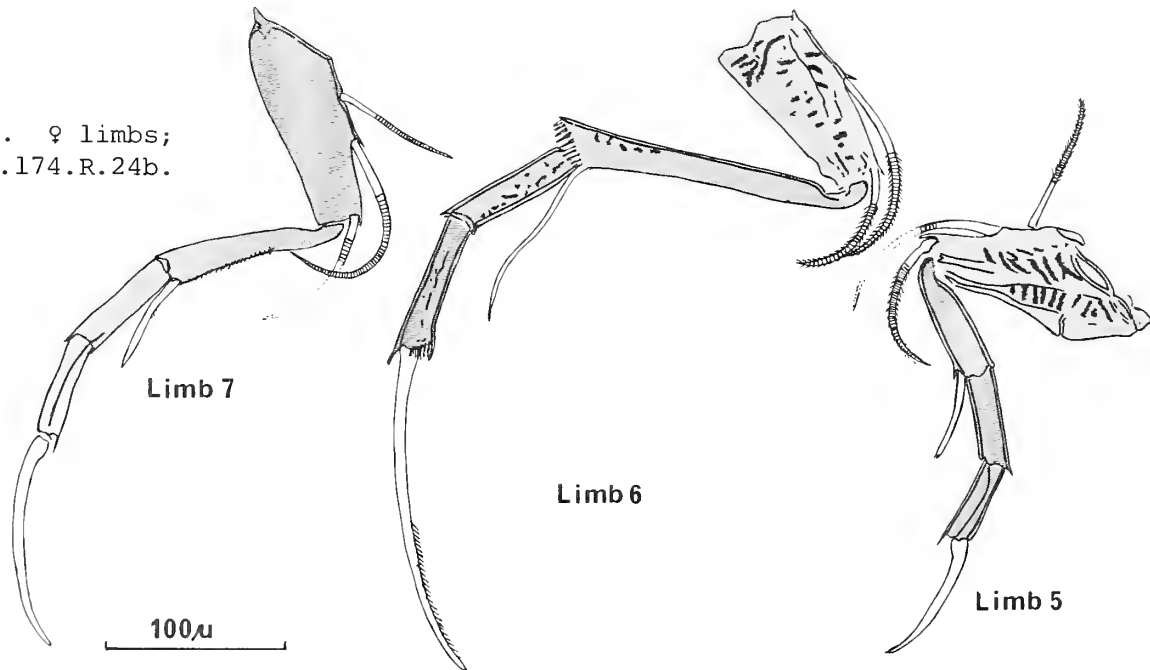


Explanation of Plate 2:46:292

Fig. 1, ♂ LV, ext. lat. (HU.90.R.36, 733 μm long; specimen lost); fig. 2, ♀ LV, ext. lat. (HU.174.R.24a, 818 μm long).

Scale A (100 μm ; ×129), fig. 1; scale B (100 μm , ×116), fig. 2.

Text-fig. 2. ♀ limbs;  
specimen HU.174.R.24b.

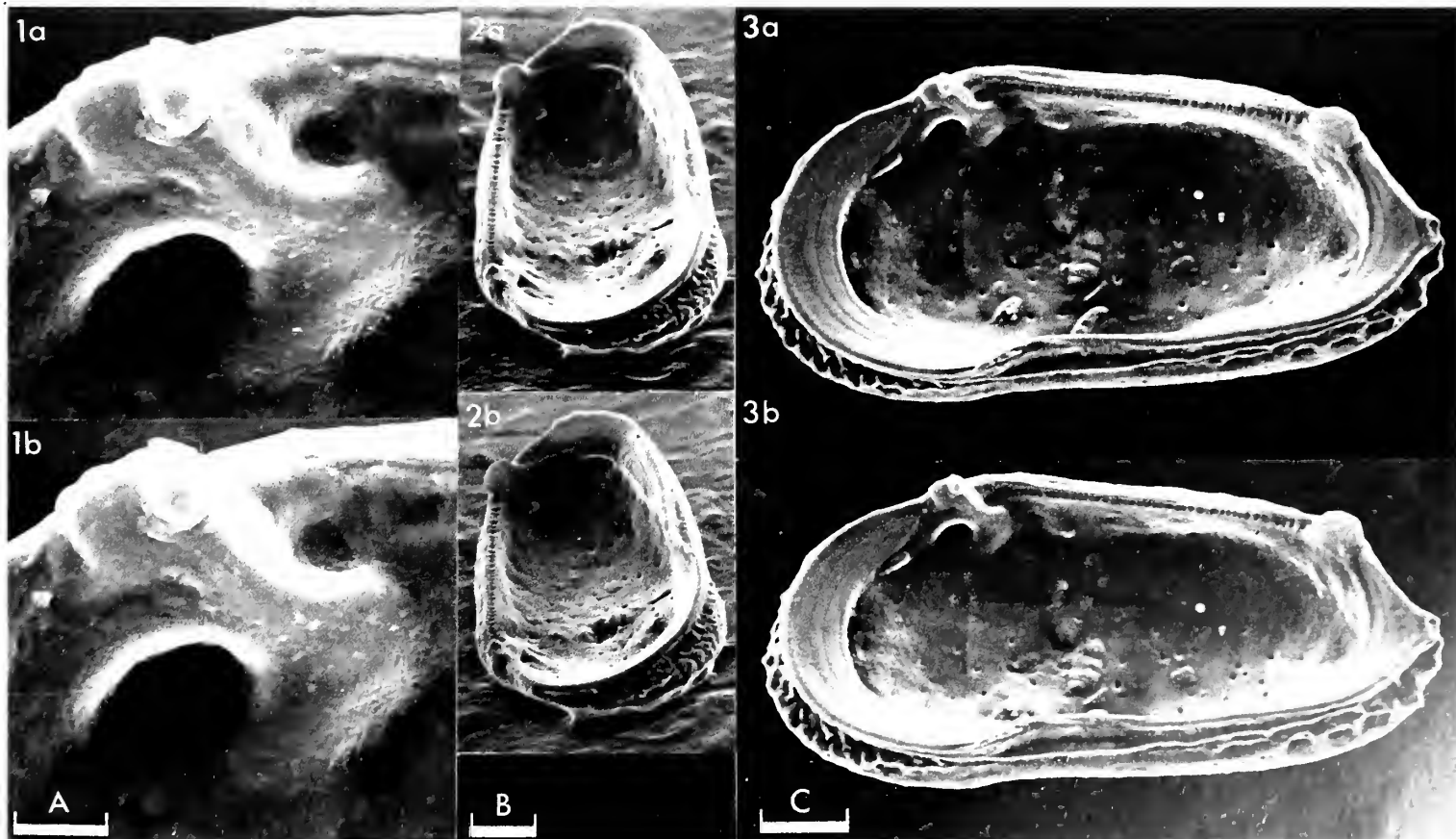
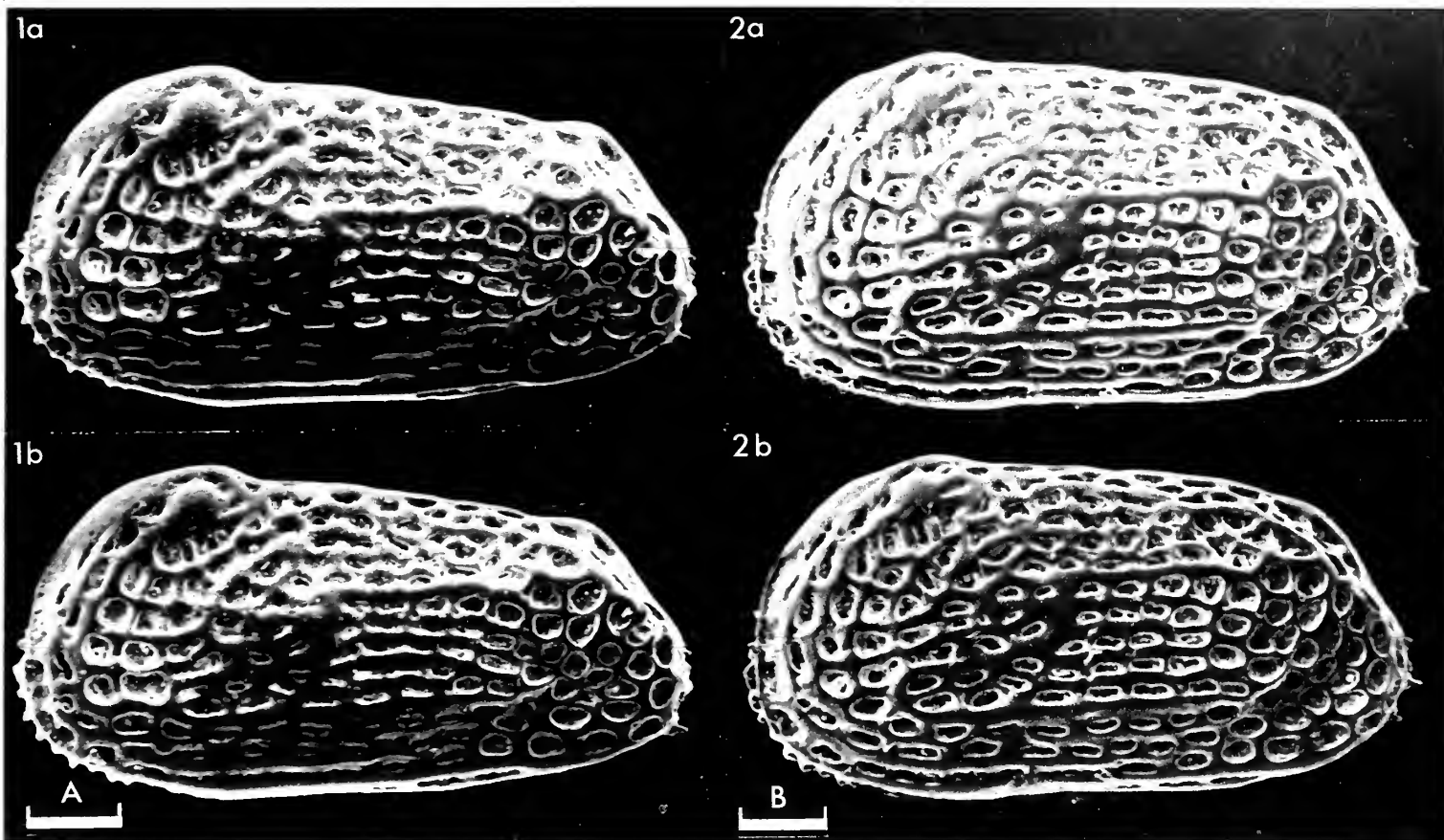


Explanation of Plate 2:46:294

Figs. 1-3, ♀ RV (HU.174.R.22, 785 μm long). Fig. 1, int. ant. tooth & buttress; fig. 2, int. ant. obl.; fig. 3, int. lat.

Scale A (20 μm ; ×650), fig. 1; scale B (100 μm ; ×89), fig. 2; scale C (100 μm ; ×120), fig. 3.







ON *MUTILUS ELEGANTULUS* RUGGIERI AND SYLVESTER-BRADLEY sp. nov.  
by G. Ruggieri and P. C. Sylvester-Bradley  
(University of Palermo, Italy and University of Leicester, England)

*Mutilus elegantulus* sp. nov.

non 1878 *Cythere retiformis* sp. nov. O. Terquem, *Mém. Soc. géol. Fr.*, ser. 3, vol. 1, p. 116, pl. 13, figs. 16a-d.

1973 *Mutilus retiformis* (Terquem, 1878); G. Ruggieri & P. C. Sylvester-Bradley, *A Stereo-Atlas of Ostracod Shells*, vol. 1, pt. 2, pp. 109-116.

Holotype: Brit. Mus. (Nat. Hist.) IO 5546, RV. [Paratypes: IO 5547 (LV), IO 5548 (LV), IO 5549 (RV)].

Type locality: Middle Pliocene (grey marls) of River Modione, near Partanna, Trapani, Sicily; approx. long. 12°50'E, lat. 37°22'N.

Diagnosis: Reticulate pattern shown in pl. 110, figs. 1, 4 of Ruggieri & Sylvester-Bradley (op. cit.) diagnostic, more deeply excavated and with narrower muri than in either *M. retiformis* (Terquem) or *M. laticancellatus* Neviani (see below).

Remarks: The examination by K. Wouters of the type-specimens of *Cythere retiformis* has shown that that species has been misidentified (*Ostracodologist*, no. 21, pp. 2-11, 1974). In forthcoming papers K. Wouters, W. Sissingh and ourselves will show that the true *C. retiformis* is the senior synonym of *Mutilus dohrni* Uliczny, 1969, and that that species differs both from *M. elegantulus* sp. nov. and from *M. laticancellatus* Neviani, 1928 with which species it has previously been confused.

ON *CHILIELLA* ROSE nom. nov.  
by John F. Rose  
(University of Hull, England)

Genus *ARGENTICYTHERETTA* Rossi de Garcia, 1969

Subgenus *CHILIELLA* Rose nom. nov.

1975 *Argenticytheretta* (*Chilea*) subgen. nov., J. F. Rose, *A Stereo-Atlas of Ostracod Shells*, vol. 2, pt. 3, pp. 207-210.

Type-species (by original designation): *Argenticytheretta* (*Chilea*) *brunswickensis* Rose, 1975

Derivation of name: From southern Chile.

Remarks: In a recent paper in *A Stereo-Atlas of Ostracod Shells* (1975, vol. 2, pt. 3, pp. 207-210) I established the subgeneric name *Chilea* (type-species by original designation *Argenticytheretta* (*Chilea*) *brunswickensis* sp. nov.) for a new subgenus of *Argenticytheretta* Rossi de Garcia, 1969. Dr. H. J. Oertli has kindly pointed out (pers. comm.) that *Chilea* is preoccupied by *Chilea* Dalman, 1820 (Lepidoptera). I therefore propose the name *Chiliella* nom. nov. to replace the junior homonym *Chilea* Rose, 1975.



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