Primary Types in the Collection of Molluscs in the KwaZulu-Natal Museum: Polyplacophora

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Primary types in the collection of molluscs in the KwaZulu-Natal Museum: Polyplacophora

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ABSTRACT

All primary types of Polyplacophora deposited in the KwaZulu-Natal Museum are presented. The reference to the original publication, including the original generic position, the type locality, the collector and the cited dimensions of the type specimen(s), is provided for each species, followed by information from the label for each type in the NMSA collection (catalogue number, type locality and collector), size of the type specimen, brief remarks and colour photographs.

KEY WORDS: Mollusca, Polyplacophora, primary types, KwaZulu-Natal Museum.

INTRODUCTION

All primary types of Polyplacophora discussed and illustrated here, were photographed during the ongoing revision of the type material deposited in the KwaZulu-Natal Museum. The historical review of the collection of molluscs can be found in our previous publication on the subject (Muratov & Davis 2011), where we presented illustrated annotations on primary types of Scaphopoda and Cephalopoda.

MATERIAL AND METHODS

The collection of the primary types of Polyplacophora in the KwaZulu-Natal Museum consists of 13 holotypes from the southeast African coast from Nacala Bay (Nampula, Mozambique) to Table Bay (Western Cape, South Africa). Some of these holotypes were not illustrated or were inadequately illustrated in previous publications, and in some cases even original descriptions were based mainly on paratypes.

Comprehensive labels were not produced by authors, except for *Lepidochitona dicksae* Sirenko & Hayes, 1999. All standard museum labels were produced by collection managers after types were received from authors. Names of all localities given after each type were copied from the labels, not from the original descriptions. Provincial names were standardised here using their current status.

The current status of each species is based here on the most recent comprehensive publication found and the complete synonymy is not given since this is not a taxonomic revision.

All measurements were made under a stereomicroscope using an ocular micrometer separately calibrated for each magnification (×6, ×12, ×25 & ×50) against a Vernier caliper and, for objects larger than 10 mm, confirmed by the same Vernier caliper. All scales were individually calculated for each illustrated object and, in cases with more than one object per scale, all illustrated objects with their corresponding scales were resized to fit each illustrated scale.

The following acronyms and abbreviations are used: NHMUK – The Natural History Museum, London, UK (formerly known as BNHM and BMNH); NMSA – The KwaZulu-

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Natal Museum, Pietermaritzburg, South Africa (formerly known as the Natal Museum); SAMC – South African Museum, Cape Town, South Africa.

All shell sizes are given using the following template: *l*×*w*, where *l* is length and *w* is width in dorsal view. The reference to the original publication, including the original generic position, the type locality, the collector and the cited dimensions of the type specimen(s), is provided for each species, followed by information from the label for each type in the NMSA collection (catalogue number, type locality and collector) and measured dimensions of the holotype.

One specimen of "*Chiton crawfordi* E.R. Sykes, 1899" in the NMSA collection was labelled "Syntype". However, after examination of the original description (Sykes 1899: 279) and the label, it became apparent that it is a paratype of that species and therefore it is not illustrated here.

ANNOTATED LIST OF PRIMARY TYPES

alfredensis Ashby, 1931: 31, pl. V, fig. 54 (holotype). [*Ischnochiton oniscus* subspecies, Cape, Port Alfred (Turton): 12.5×5 mm].

Holotype NMSA: B2763/T2352 (12.50×4.55 mm): SOUTH AFRICA: *Eastern Cape*: Port Alfred (W.H. Turton). Figs 1–3.

Paratypes (2) NMSA: (kept by Ashby). SOUTH AFRICA: *KwaZulu-Natal*: Umkomaas (H.C. Burnup).

Paratype NHMUK: 1932.3.29.43 (Sirenko & Schwabe 2002: 194).

Current status: *Ischnochiton oniscus* (Krauss, 1848) [Kaas & Van Belle 1998: 17].

Remarks: The holotype (now in NMSA) is not accompanied by the original label. Instead there are the following: label "85. *Chiton oniscus*. Krs. Umkomaas", written by H.C. Burnup with the red ink note "replaced with holotype from Port Alfred", written by Ashby; another label, "*Chiton oniscus*. Krss. H.B. Burnup. Natal.", written by H.F. Becker; and the separate red ink note "*Isch*^{n}. *oniscus alfredensis* Ashby Holotype. Col. by Turton in place of no 85 or 758", written by Ashby. The two paratypes collected by H.C. Burnup off Umkomaas (H.C. Burnup number 85 and possibly 758) became part of the collection of H.F. Becker. After his death in 1917, the Becker collection was bequeathed to the Transvaal Museum and in 1978 was transferred to the NMSA. However, the two paratypes in question were apparently kept by Ashby and inexplicably replaced by him at the Transvaal Museum with the holotype from Port Alfred (originally from the Oxford Museum). The labels, however, did not accompany their corresponding specimens. Instead Ashby wrote (with the same red ink as for *hewitti* below) two short notes indicating the replacement.

The width of the holotype given in the original publication (5 mm) is incorrect. The correct number measured in the preparation of this publication is 4.55 mm, which can be verified by the proportions of the original photograph (Ashby 1931: pl. V, fig. 54).

Sirenko and Schwabe (2002) have mentioned that they studied the holotype of "*Ischnochiton oniscus alfredensis* Ashby, 1931", but did not formally classify it. In the same paper they separated *I. elizabethensis* from *I. oniscus* and gave four "principal distinguishing features" to separate them (Sirenko & Schwabe 2002: 196–197). However, the holotype of *alfredensis* does not have the radula and thus, "the most stable and reliable" character cannot be checked. The width of the dorsal scales in the holotype of *alfredensis* is 95–140 μm, thus falling in between that of *oniscus* (90–110 μm)

and *elizabethensis* (150–200 µm). Sirenko and Schwabe (2002: 195–196, 197) also mentioned that "some specimens of *I. elizabethensis* from Port Alfred have longer shells (like *I. oniscus*) and their antemucronal area is equal [to] or even a little bit longer than their postmucronal area (like *I. oniscus*)", and "that northern specimens of *I. oniscus* (from Natal and Glen Eden) have clearer and coarser sculpture of the tegmentum than specimens from Port Alfred and Port Elizabeth. Perhaps this was one reason Ashby (1931a) described the new subspecies *I. oniscus alfredensis*". The antemucronal area of the tail valve of the holotype of *alfredensis* is roughly equal to the postmucronal area and the sculpture of the medium valves of *alfredensis* resembles the sculpture of *elizabethensis* more than that of *oniscus*. Thus it is unclear whether *alfredensis* should be considered a synonym (or a subspecies) of *oniscus* or a synonym (or a subspecies) of *elizabethensis*.

carnosa Kaas, 1979: 869, pl. 3, figs 1–10 (paratype NMSA: H2575). [*Tonicia* (*Lucilina*), Mozambique, Mozambique Province, Conducia Bay (K.J. Grosch): 21.7×11.1 mm].

Holotype NMSA: H2576/T2395 (21.5×11.1 mm). MOZAMBIQUE: *Nampula*: Conducia Bay. Det. P. Kaas 4/2/1978. Fig. 4.

Paratype NMSA: H2575/T2391 (disarticulated). MOZAMBIQUE: *Nampula*: Conducia Bay. Det. P. Kaas 4/2/1978.

Current status: *Tonica* (*Lucilina*) *carnosa* (Kaas, 1979) [Kaas *et al*. 2006: 323].

Remarks: Purchased by the NMSA from K.J. Grosch in September 1975.

dicksae Sirenko & Hayes, 1999: 81, figs 1(A–H), 2(A–C, G), 3(A, C, D) and 4(E–O) (holotype). [*Lepidochitona* (*Lepidochitona*), Noordhoek, Algoa Bay, Indian Ocean, South Africa (Brian Hayes): 4.6×2.7 mm].

Holotype NMSA: V6152/T1539 (disarticulated; width of the valves: 1.47, missing, 1.80, 1.90, missing, 1.88, 1.67, 1.29 mm); girdle and radula slide (Figs 10–12). SOUTH AFRICA: *Eastern Cape*: Noordhoek, Algoa Bay, Indian Ocean, 20 m deep, ex sea-fan, July 1995 (Brian Hayes). Figs 5–12.

Current status: *Lepidochitona* (*L.*) *dicksae* Sirenko & Hayes, 1999 [original combination].

Remarks: Donated by Sirenko in 1999. Size in the original description is given for the entire animal, not the shell (which is smaller). Valve IV is coated from the ventral side. Valves II and V are missing (identified based on the sizes and the original illustrations). Body is in alcohol (Fig. 9) with the valves VI and VII attached.

dispersus Kaas, 1985: 300, figs 1–13 (holotype). [*Leptochiton* (*Leptochiton*), S Africa, Transkei, off Qolora R., 32°45.0'S 28°35.3'E, dredged, 96 m, gorgonians, sponges, research vessel Meiring Naudé, 13.vi.1983: estimated when stretched ~11×6 mm].

Holotype NMSA: C4658/T3047 (disarticulated; width of the valves: 4.05, missing, broken, 4.05, 4.52, 4.44, 4.21, 3.57 mm); perinotum (Fig. 20) and radula (M189) (Fig. 21) slides. SOUTH AFRICA: *Eastern Cape*: off Qolora R., 32°45.0'S 28°35.3'E, dredged, 96 m, gorgonians, sponges, research vessel Meiring Naudé, Stn. Y6, 13.vi.1983. Figs 13–21.

Current status: *Leptochiton* (*L.*) *dispersus* Kaas, 1985 [original combination].

Remarks: The size in the original description is given for the entire animal, not the shell (which is smaller). Valve II (the only valve with the convex anterior margin, as stated and illustrated in the original description) is missing.

groschi Kaas, 1979: 864, pl. 2, figs 1–4 (holotype). [*Chiton* (*Chiton*), Mozambique, Mozambique Province, Conducia Bay (K.J. Grosch): 16.2×9.5 mm].

Holotype NMSA: H2580/T2394 (16.2×9.0 mm). MOZAMBIQUE: *Nampula*: Conducia Bay. Det. P. Kaas 4/2/1978. Figs 22–23.

Current status: *Chiton* (*C.*) *groschi* Kaas, 1979 [Kaas *et al*. 2006: 101].

Remarks: Apparently this species is known only from the holotype (Kaas *et al*. 2006: 103), which was purchased by the NMSA from K.J. Grosch in September 1975. The radula (Fig. 23), which was attached to the interior of valves II and III, was not mentioned in the original description and is apparently illustrated here for the first time. The width of the holotype given in the original description (9.5 mm) is incorrect. The correct number measured in the preparation of this publication is 9.0 mm, which can be verified by the proportions of the original illustration (Kaas 1979: 865, pl. 2, fig 1).

herberti Kaas & Van Belle, 1990: 24, fig. 9(1) (holotype), fig. 9(2–11) (paratypes), map 13. [*Callochiton*, Natal, Zululand, Sodwana Bay, Two Mile Reef, dived, 10–13 m, sorted from stone washings, 18–26.X.1986 (D. Herbert): estimated maximum 5–6×? mm].

Holotype NMSA: D5394/T16 (curled: 3.33×2.39 mm; calculated length if straightened: 4.14 mm). SOUTH AFRICA: *KwaZulu-Natal*: Sodwana Bay, Two Mile Reef, dived, 10–13 m, sorted from stone washings, 18–26.X.1986 (D. Herbert). Figs 24–28.

Paratypes (5 juv.) NMSA: D9855/T18 (disarticulated). SOUTH AFRICA: *KwaZulu-Natal*: off Kosi Bay, main reef 1–2 km south of estuary, dived, 9–17 m, sorted from stone washings, 12–20.VII.1987 (D. Herbert).

Paratype (juv.) NMSA: D9603/T19 (disarticulated); perinotum slide. SOUTH AFRICA: *KwaZulu-Natal*: between Bhanga Neck and Kosi Bay, no. 13 [marker of the turtle survey] reef, dived, 6–18 m, 12–20. VII.1987 (D. Herbert).

Current status: *Callochiton herberti* Kaas & Van Belle, 1990 [original combination].

Remarks: The width of valves IV and V of the holotype is the same (2.27 mm); body width is 2.39 mm. Probably due to a printing error, Kaas and Van Belle (1990: 24) cited "NM 09855" instead of "NM D9855" for five paratypes under that number.

hewitti Ashby, 1931: 33, pl. V, figs 50–53 (holotype). [*Ischnochiton*, Table Bay: 13×7 mm].

Holotype NMSA: B7413/T2848 (disarticulated; width of the valves: 4.17, missing, 5.16, broken, 5.60, missing, missing, 4.44 mm; Albany Museum number 8085): SOUTH AFRICA: *Western Cape*: Table Bay. Figs 29–33.

Holotype SAMC: A6757 (one medium valve). SOUTH AFRICA: *Western Cape*: Table Bay, Mouille Point, intertidal, 1900, (R.M. Lightfoot) (Giles & Gosliner 1983: 3).

Paratypes (2) NMSA: B7414/T2849 (Albany Museum numbers 8079 and 8082). SOUTH AFRICA: *Western Cape*: Table Bay.

Paratypes (?) (3) NMSA: B2730/T2353. SOUTH AFRICA: *Western Cape*: Table Bay.

Paratype SAMC: A33953. SOUTH AFRICA: *Western Cape*: Table Bay, Mouille Point, intertidal, 1900, (R.M. Lightfoot) (Giles & Gosliner 1983: 3).

Current status: *Ischnochiton bergoti* (Vélain, 1877) [Kaas & Van Belle 1998: 89].

Remarks: The holotype lot in the NMSA (B7413/T2848) consists of two vials: one with three valves (I, III, VIII: figs 29–31) illustrated in the original publication (Ashby 1931: pl. V, figs 51–53) and another one with two median valves (possibly IV and V: figs 32–33). Giles and Gosliner (1983: 3) list "Median valve of holotype" under number "SAM–A6757". Thus, two medium valves of the holotype are missing. According to

the original description, the entire type series consists of one holotype (8085) and two paratypes (8072, 8082) from the Albany Museum, five paratypes from the South African Museum (6757) and "a few more … (S.A. Mus., No. 6757), also from Table Bay, all eroded and labelled *I. elizabethensis*" (Ashby 1931: 34). Five (out of eight) valves of holotype (labelled by Ashby in red ink as "holotype") and two intact paratypes (with numbers 8072 and 8082 attached to each shell and labelled as paratypes with the same red ink handwriting) were transferred to the NMSA from the Albany Museum in 1980, along with three eroded shells also labelled as paratypes (NMSA B2730/T2353) without the Albany Museum number but with the same red ink handwriting (see remarks for *alfredensis*).

indecorus Kaas & Van Belle, 1990: 14, fig. 4(1–6, 10, 11) (paratype NMSA: D5001), fig. 4(7–9) (holotype), map 13. [*Leptochiton* (*Parachiton*), Natal, N Zululand, off Boteler Point, 27°00.8'S 32°55.1'E, 70 m, dredged, coarse sand + shell rubble, research vessel "Meiring Naudé", sta. ZB4, 6.VI.1987: estimated length *c*. 7 mm].

Holotype NMSA: D7408/T14 (curled: 5.16×4.44 mm; calculated length if straightened: 8.25 mm); perinotum slide (Fig. 38). SOUTH AFRICA: *KwaZulu-Natal*: N Zululand, off Boteler Point, 27°00.8'S 32°55.1'E, 70 m, dredged, some coarse sand, some shell rubble, research vessel "Meiring Naudé", sta. ZB4, 6.VI.1987. Figs 34–38.

Paratype NMSA: D5001/T15 (disarticulated), radula slide M237. SOUTH AFRICA: *KwaZulu-Natal*: N Zululand, between Bhanga Neck and Kosi Bay, no. 13 reef, drop off at outer edge, 12–20 m, dived, 12–20. VII.1987 (D. Herbert *et al*.).

Current status: *Parachiton indecorus* Kaas et Van Belle, 1990 [Recently *Parachiton* has been used as a distinct genus, and Dell'Angelo *et al*. (2010: 5), although not a comprehensive revision, is the latest published reference found for this combination].

Remarks: According to the original label, NMSA D7408 (in addition to the holotype of *indecorus*) contained one specimen of "*Notoplax* sp. (rose)", but this could not be located at NMSA.

jugotenuis Kaas, 1979: 873, pl. 4, figs 1–13 (disarticulated paratype NMSA: H2565). [*Acanthochitona*, Mozambique, Mozambique Province, S.E. Nacala Bay, off Maxilone, intertidal (K.J. Grosch): 30×12 mm].

Holotype NMSA: H2565/T2396 (27.8×11.5 mm). MOZAMBIQUE: *Nampula*: S.E. Nacala Bay, off Maxilone, under encrusted rocks, some *Thalassodendron*, four feet above low spring tide, VIII 1960 (K.J. Grosch). Det. P. Kaas 4/2/1978. Fig. 39.

Paratype NMSA: H2565/T2397 (22.9×9.1 mm). Same label data as for holotype.

Paratype NMSA: H2565 (disarticulated). Same label data as for holotype. Kept by Kaas.

Current status: *Acanthochitona jugotenuis* Kaas, 1979 [original combination].

Remarks: Holotype (apparently illustrated here for the first time) was purchased by NMSA from K.J. Grosch (collection number H3408) in September 1975. Both the holotype and the intact paratype are significantly (proportionally ~7%) smaller than stated in the original description.

kilburni Kaas, 1979: 857, pl. 1, figs 6–14 (paratype NMSA: G8789). [*Ischnochiton* (*Ischnochiton*), Mozambique, Inhambane Province, N. of Benguera Island, dredged, 3.0–12.5 m (R.N. Kilburn and P.&E. Roscoe): 9.0×5.5 mm, somewhat curled up. Length (when stretched) ± 10 mm, width 5.5 mm].

Holotype NMSA: G8789/T2393 (slightly curled: 8.87×6.27 mm, in alcohol). MOZAMBIQUE: *Inhambane*: channel north of Benguera, dredged, 10–40 ft, 16-19 VIII 1974 (R. Kilburn). Det. P. Kaas 4/2/1978. Figs 40–43.

Paratype NMSA: G8789/T2392 (disarticulated). Same label data as for holotype.

Current status: *Ischnochiton sansibarensis* Thiele, 1910 [Kaas & Van Belle 1998: 103].

Remarks: The holotype (apparently illustrated here for the first time) is slightly curled, so its length, if the animal were straightened, would be around 10 mm, in agreement with the original description. However, the width of the holotype was measured by Kaas (1979: 857) with significant error, even considering the fact that it is the width of the soft parts. The actual body width is at least 6.27 mm (not 5.5 mm); the width of valve V is 5.08 mm.

meiringae Kaas, 1985: 305, figs 26–30 (holotype). [*Leptochiton* (*Leptochiton*), S Africa, Eastern Cape, off East London, 33°04.7'S 28°07.2'E, 90 m, coarse sand, sponges, gorgonians, research vessel Meiring Naudé, 17.vii.1984: ~ 6×3 mm].

Holotype NMSA: D265/T3046 (4.52×2.71 mm, damaged, in alcohol); girdle slide (Fig. 51). SOUTH AFRICA: *Eastern Cape*: off East London, 33°04.7'S 28°07.2'E, dredged, 90 m, coarse sand, sponges, gorgonians, research vessel Meiring Naudé Stn. XX46, 17.vii.1984. Figs 44–51.

Current status: *Leptochiton* (*L.*) *meiringae* Kaas, 1985 [original combination].

Remarks: The length and the width of the holotype cannot be measured correctly anymore because the holotype was damaged prior to and during the original description. Nevertheless, precise measurements of the holotype in its current condition are given above.

natalensis Kaas & Van Belle, 1990: 31, fig. 12 (holotype), map 13. [*Chaetopleura* (*Chaetopleura*), Natal, 5 km S of Tongaat, 8–15 m, diving, 18.I.1987 (D. Herbert): ~ 25×15 mm].

Holotype NMSA: D4842/T20 (disarticulated, width of the tail valve is 6.59 mm); perinotum (Fig. 53) and radula (M238) (Fig. 54) slides. SOUTH AFRICA: *KwaZulu-Natal*: 5 km S of Tongaat, 8–15 m, dived, 18.i.1987 (D. Herbert). Figs 52–54.

Current status: *Chaetopleura pustulata* (Krauss, 1848) [Schwabe 2006: 27, fig. 2 E–F].

Remarks: All valves of holotype (except for the tail valve) are broken. The width of the tail valve calculated from the original illustration (Kaas & Van Belle 1990: 32, fig. 12/3) is 6.77 mm, which is essentially the same as measured by a micrometer (6.59 mm).

permodestus Kaas, 1985: 303, fig. 14 (holotype), figs 15–25 (paratype NMSA: C8006). [*Leptochiton* (*Leptochiton*), S Africa, Transkei, off Stony Point, 32°37.5'S 28°45.8'E, dredged, 390-400 m, muddy sand, small stones, research vessel Meiring Naudé, 2.vii.1984 (*sic*): estimated length ~8 mm].

Holotype NMSA: C8005/T3044 (6.9×3.77 mm in alcohol, curled, calculated length if straightened: 8.83 mm). SOUTH AFRICA: *Eastern Cape*: off Stony Point, 32°37.5'S 28°45.8'E, dredged, 390-400 m, muddy sand, small stones, research vessel Meiring Naudé Stn. VII, 12.vii.1984. Figs 55–58.

Paratypes (2) NMSA: C7157/T3304 [ex. C8006/T3045] (in alcohol). Same label data as for holotype.

Paratype NMSA: C7157/T3304 [ex. C8006/T3045] (in alcohol). Same label data as for holotype. Sent to State Museum, München, Germany on 22.01.2001 as gift.

Paratype NMSA: C8006/T3045 (disarticulated). Same label data as holotype.

Paratype NMSA: C8007/T3048] (in alcohol). SOUTH AFRICA: *Eastern Cape*: off Nqbara Point, 32°24.7'S 28°58.4'E, dredged, 400-410 m, fine muddy sand with shell conglomerate, research vessel Meiring Naudé Stn. S13, 13.vii.1984.

Current status: *Leptochiton* (*L.*) *permodestus* Kaas, 1985 [original combination].

Remarks: The collection date for the holotype was cited incorrectly in the original description. The width of the head valve is 3.40 mm.

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REFERENCES

Ashby, E. 1931. Monograph of the South African Polyplacophora (Chitons). *Annals of the South African Museum* **30** (1): 1–59, pls 1–7.

Dell'Angelo, B., Gori, S., Baschieri, L. & Bonfitto, A. 2010. Chitons (Mollusca, Polyplacophora) from the Maldive islands. *Zootaxa* **2673**: 1–38.

Giles, E. & Gosliner, T., 1983. Primary type specimens of marine Mollusca (excluding Cephalopoda) in the South African Museum. *Annals of the South African Museum* **92** (1): 1–52.

Kaas, P. 1979. The Chitons (Mollusca: Polyplacophora) of Mozambique. *Annals of the Natal Museum* **23** (3): 866–879.

————1985. Notes on Loricata (Mollusca) 11-14. *Zoologische Mededelingen* **59**: 299–320.

Kaas, P. & Van Belle, R.A. 1990. *Monograph of living chitons (Mollusca: Polyplacophora). Volume 4. Suborder Ischnochitonina: Ischnochitonidae: Ischnochitoninae (continued). Additions to volumes 1, 2 and 3*. Leiden: E.J. Brill.

Kaas, P. & Van Belle, R.A. 1998. *Catalogue of living chitons (Mollusca: Polyplacophora). Second, revised edition.* Leiden: Backhuys Publishers.

Kaas, P. , Van Belle, R.A. & Strack, H. L. 2006. *Monograph of living chitons (Mollusca: Polyplacophora). Volume 6. Suborder Ischnochitonina (concluded): Schizochitonidae & Chitonidae. Additions to Volumes 1–5*. Leiden: E.J. Brill.

Muratov, I. & Davis, L. 2011. Primary types in the collection of molluscs in the KwaZulu-Natal Museum: Scaphopoda and Cephalopoda. *African Invertebrates* **52** (2): 255–263.

Schwabe, E. 2006. Taxonomic notes on chitons. On some species of *Chaetopleura* from South Africa (Mollusca: Polyplacophora: Ischnochitonidae). *African Invertebrates* **47**: 23–30.

Sirenko, B.I. & Hayes, B. 1999. A new species of *Lepidochitona* (Mollusca, Polyplacophora) from South Africa. *Ruthenica* **9** (2): 81–86.

Sirenko, B. & Schwabe, E. 2002. Taxonomic notes on chitons. 2. Taxonomic status of chitons of the *Ischnochiton oniscus* group. (Mollusca, Polyplacophora, Ischnochitonidae). *Spixiana. Zeitschrift für Zoologie* **25** (3): 193–198.

Sykes, E.R. 1899. On *Dinoplax fossus*, n.sp., and *Chiton crawfordi*, n.sp., from South Africa. *Proceedings of the Malacological Society of London* **3**: 277–279.

Figs 1–3. *Ischnochiton oniscus alfredensis*, holotype B2763/T2352: (1) dorsal view; (2) details of the head valve and valve II; (3) details of the valve VII and tail valve. Scale bars = 1 mm.

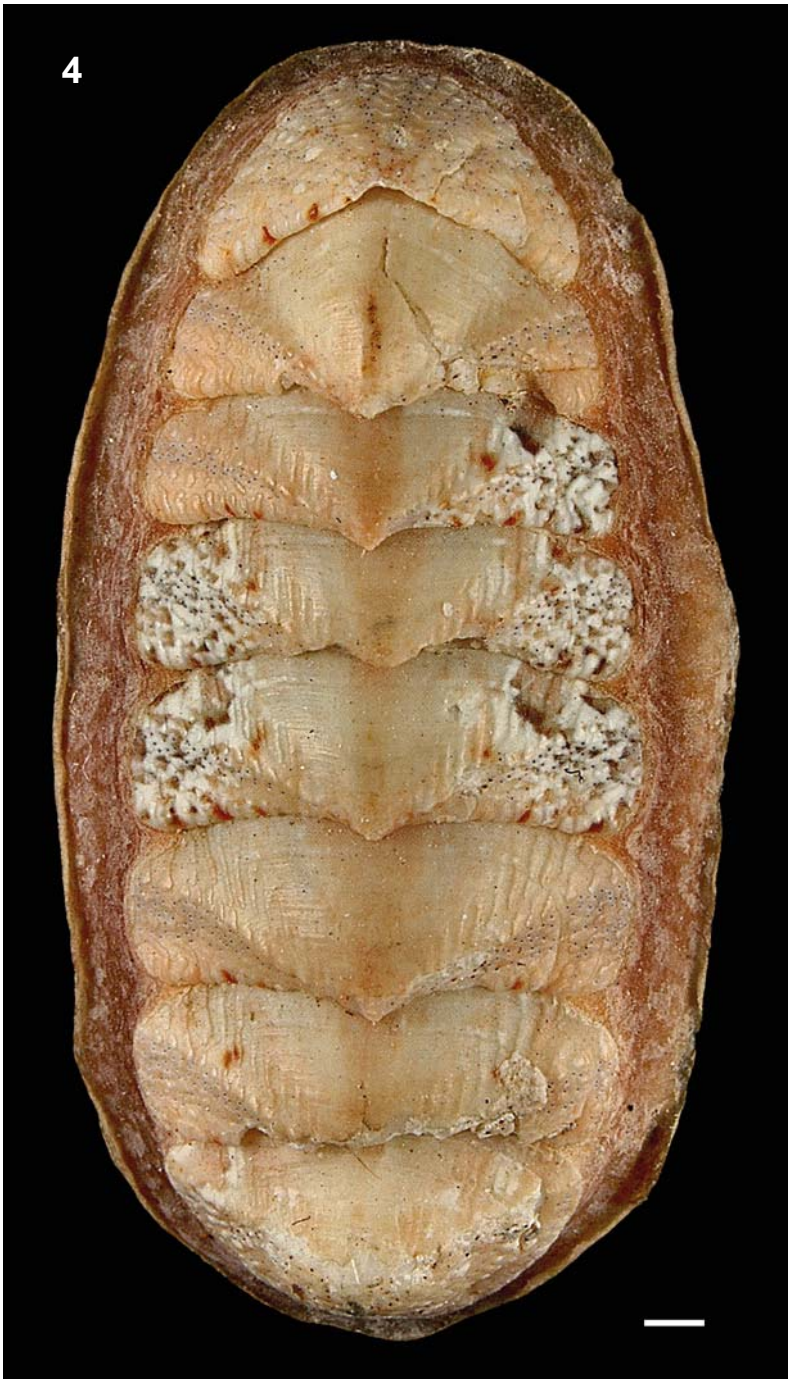
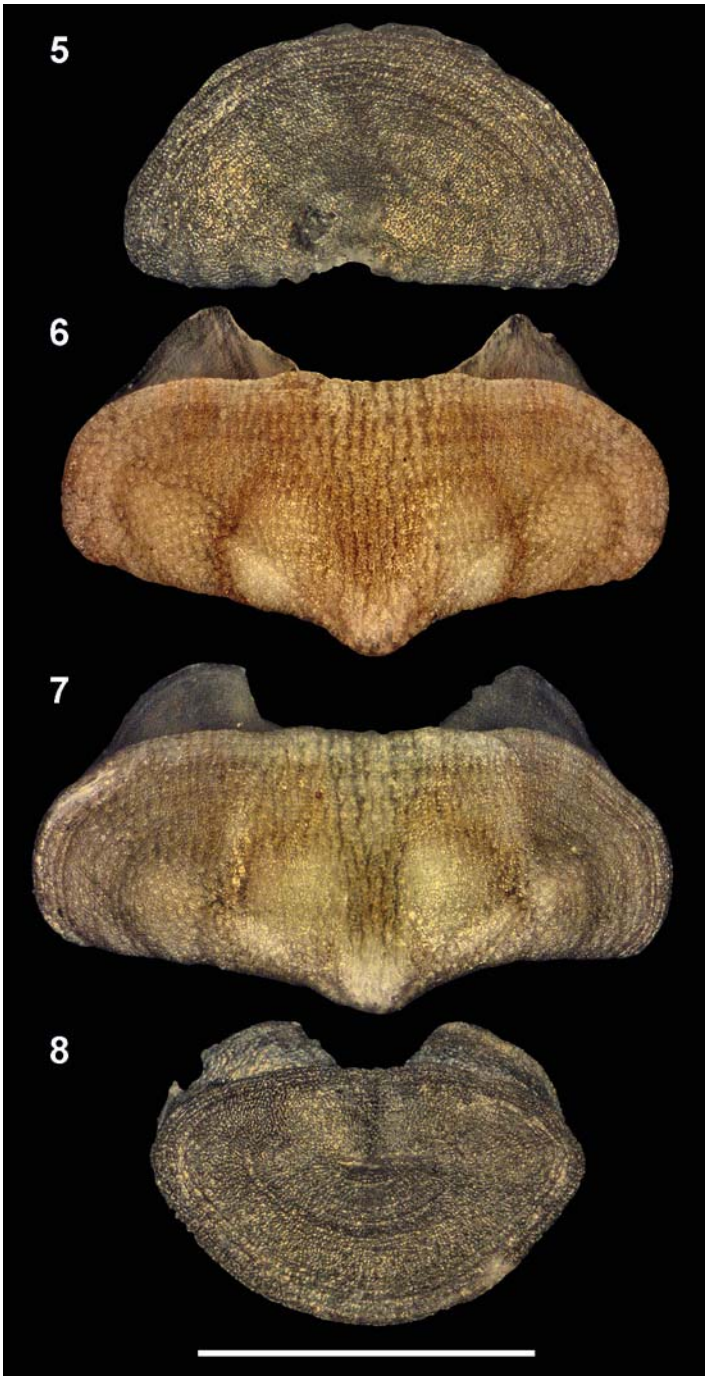


Fig. 4. *Tonicia* (*Lucilina*) *carnosa*, holotype H2576/T2395. Scale bar = 1 mm.



Figs 5–8. *Lepidochitona* (*L.*) *dicksae*, holotype V6152/T1539: (5) head valve; (6) valve III; (7) valve IV; (8) tail valve. Scale bar = 1 mm.

Fig. 9. *Lepidochitona* (*L.*) *dicksae*, holotype V6152/T1539: valves VI and VII attached to the body, in alcohol.

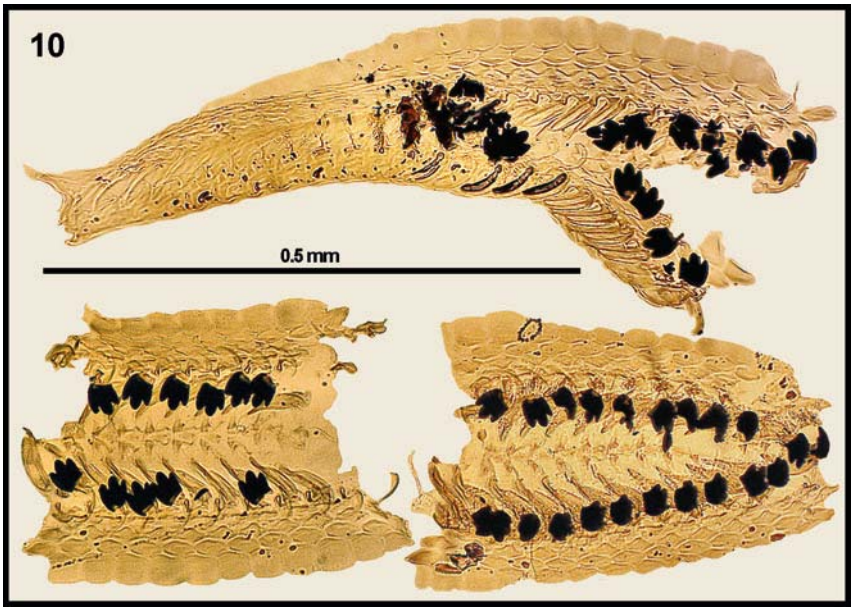


Fig. 10. *Lepidochitona* (*L.*) *dicksae*, holotype V6152/T1539: radula.

Fig. 11. *Lepidochitona* (*L.*) *dicksae*, holotype V6152/T1539: spicules of the girdle.

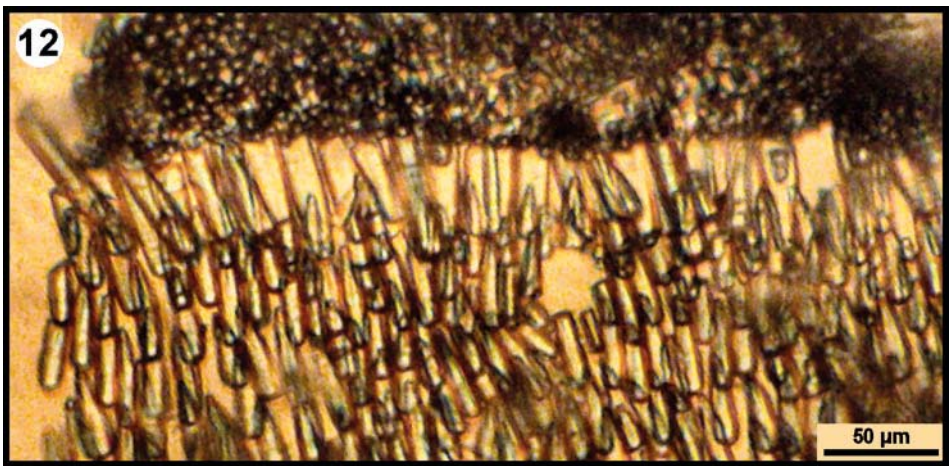
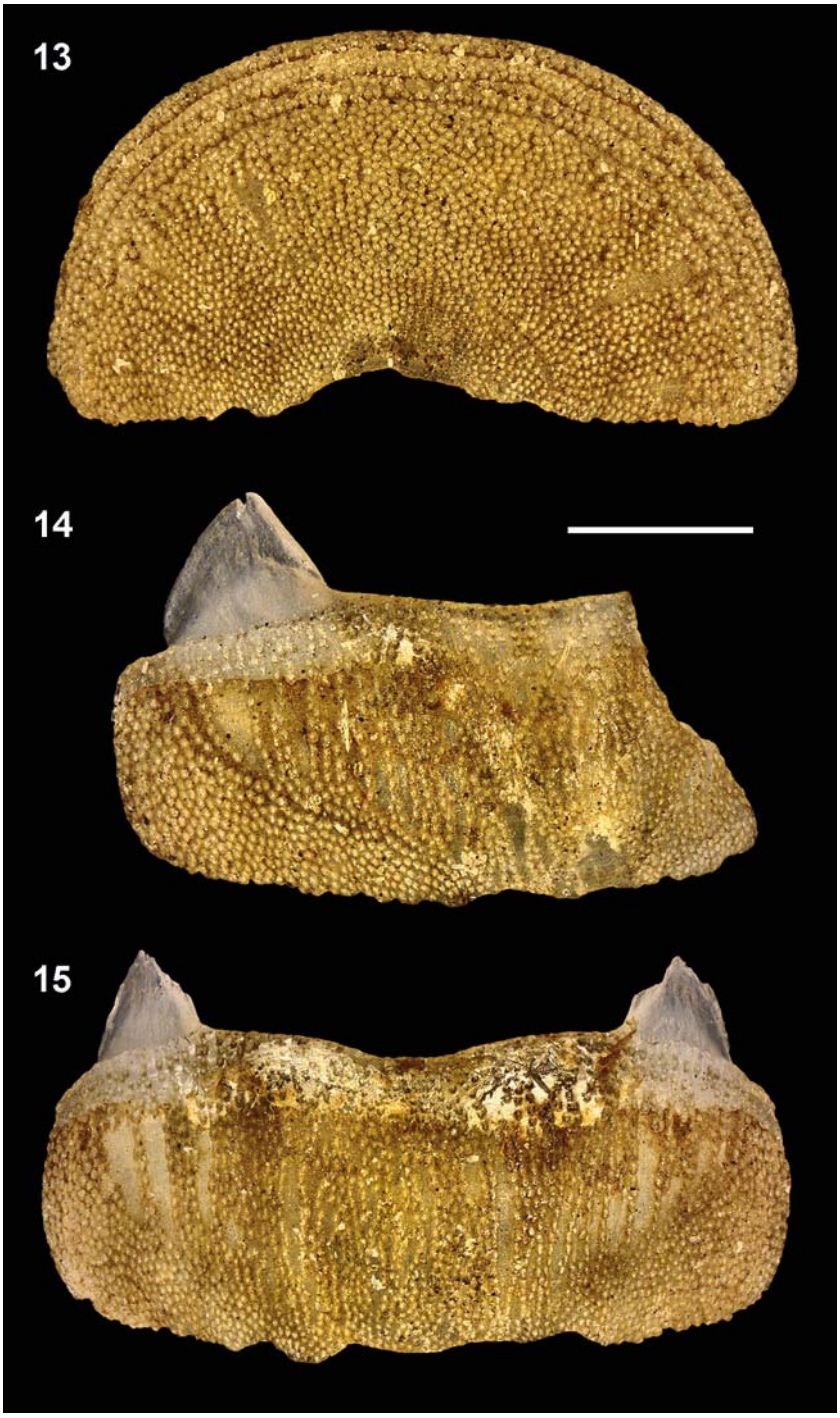
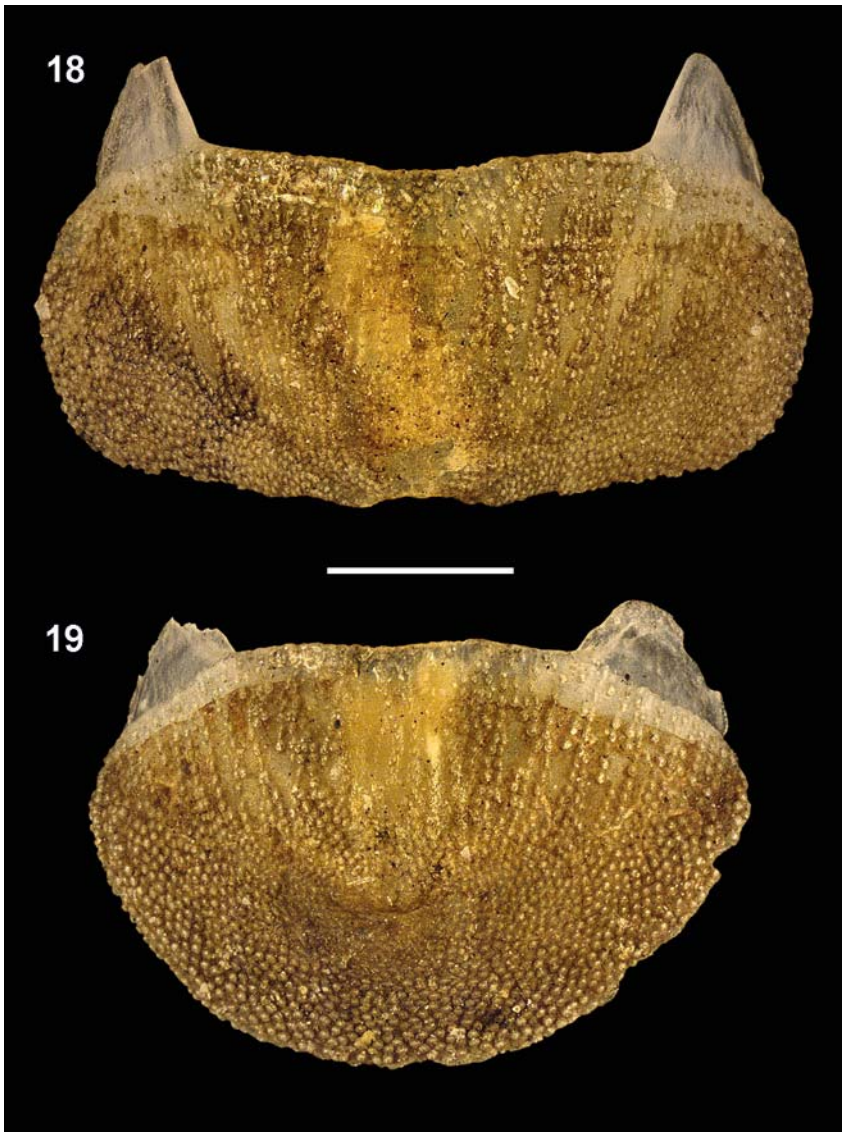


Fig. 12. *Lepidochitona* (*L.*) *dicksae*, holotype V6152/T1539: spicules of girdle with edge of perinotum.

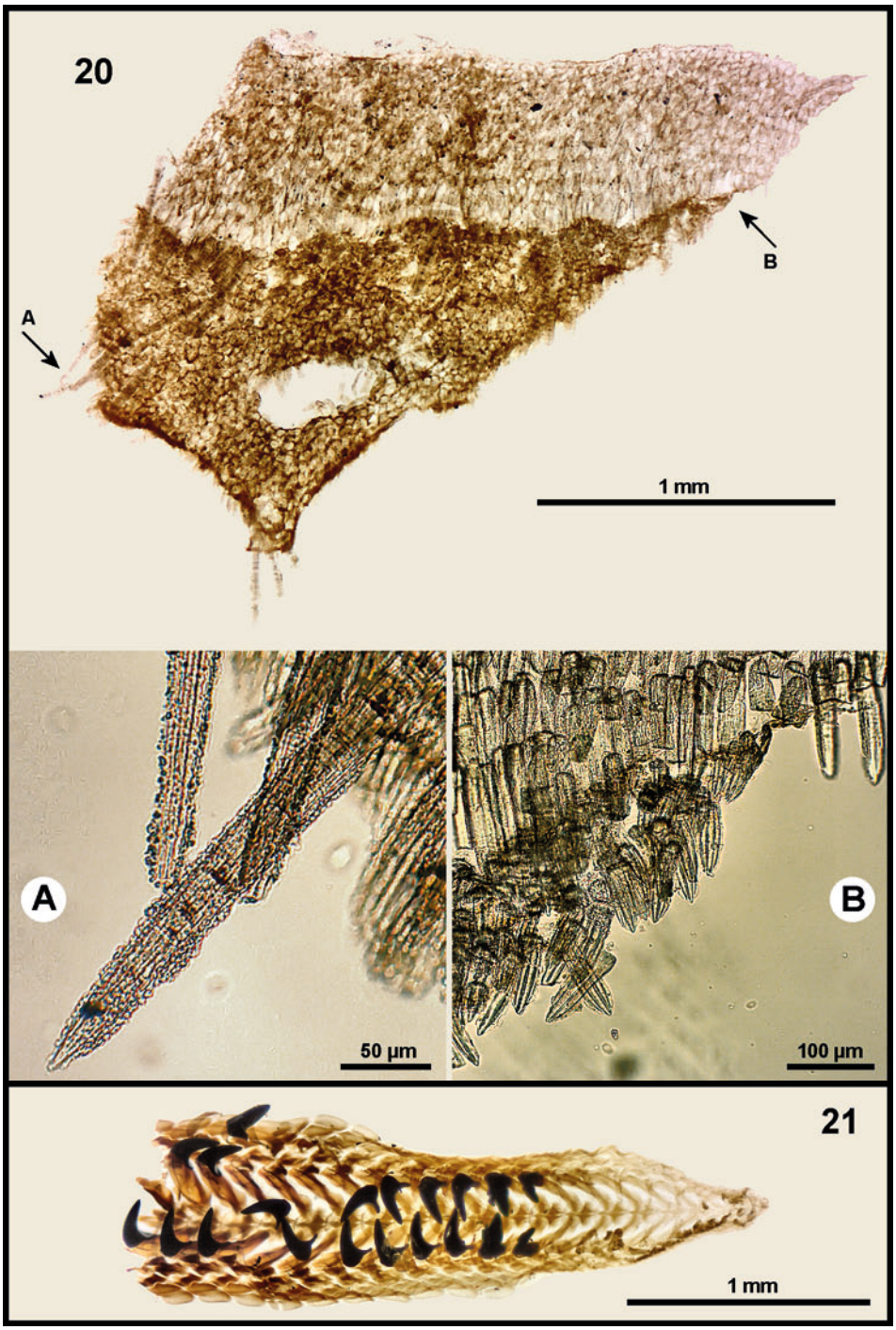


Figs 13–15. *Leptochiton* (*L.*) *dispersus*, holotype C4658/T3047: (13) head valve; (14) valve III; (15) valve IV. Scale bar = 1 mm.

Figs 16,17. *Leptochiton* (*L.*) *dispersus*, holotype C4658/T3047: (16) valve V; (17) valve VI. Scale bar = 1 mm.



Figs 18, 19. *Leptochiton* (*L.*) *dispersus*, holotype C4658/T3047: (18) valve VII; (19) tail valve. Scale bar = 1 mm.



Figs. 20, 21. *Leptochiton* (*L.*) *dispersus*, holotype C4658/T3047: (20) edge of perinotum with the enlarged areas (A & B); (21) radula.

Fig. 22. *Chiton* (*C.*) *groschi*, holotype H2580/T2394. Scale bar = 1 mm.

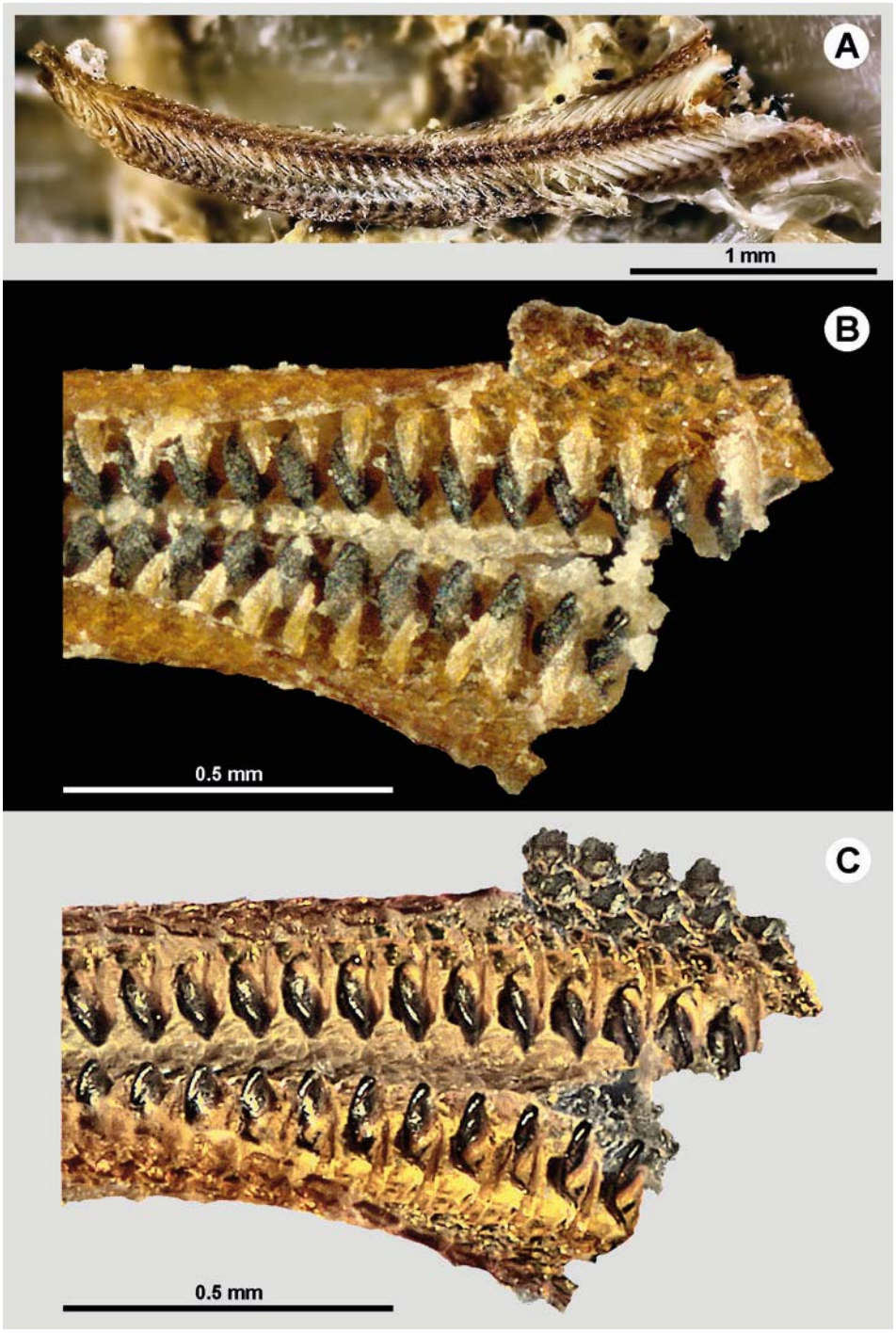


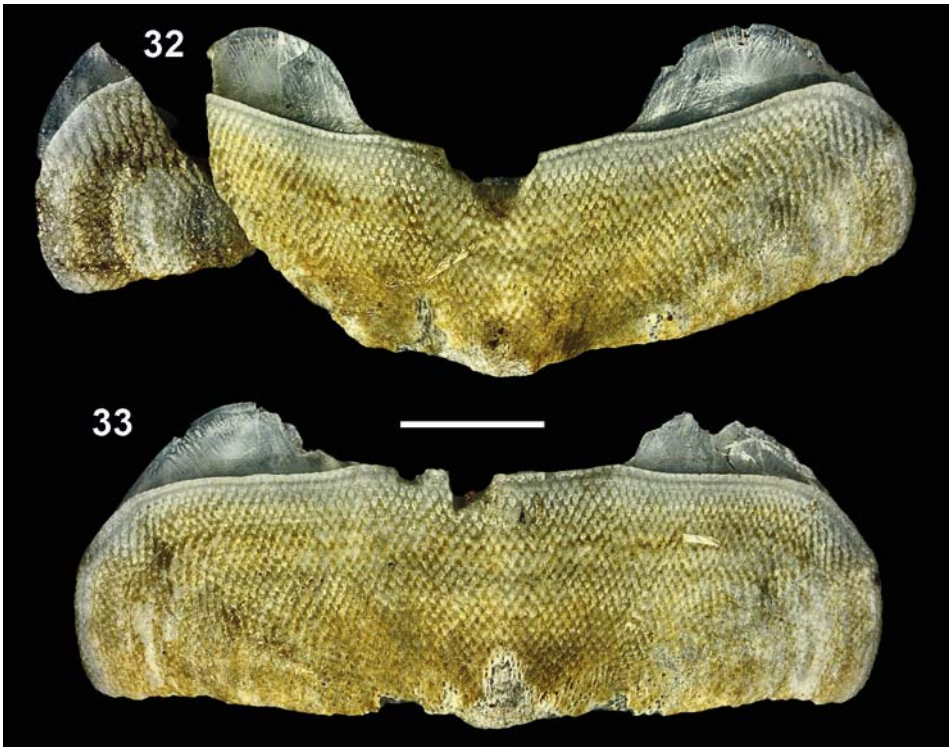
Fig. 23. *Chiton* (*C.*) *groschi*, holotype H2580/T2394: radula; (A) *in situ*; (B) dried; (C) in alcohol.

Fig. 24. *Callochiton herberti*, holotype D5394/T16: dorsal view. Scale bar = 1 mm.

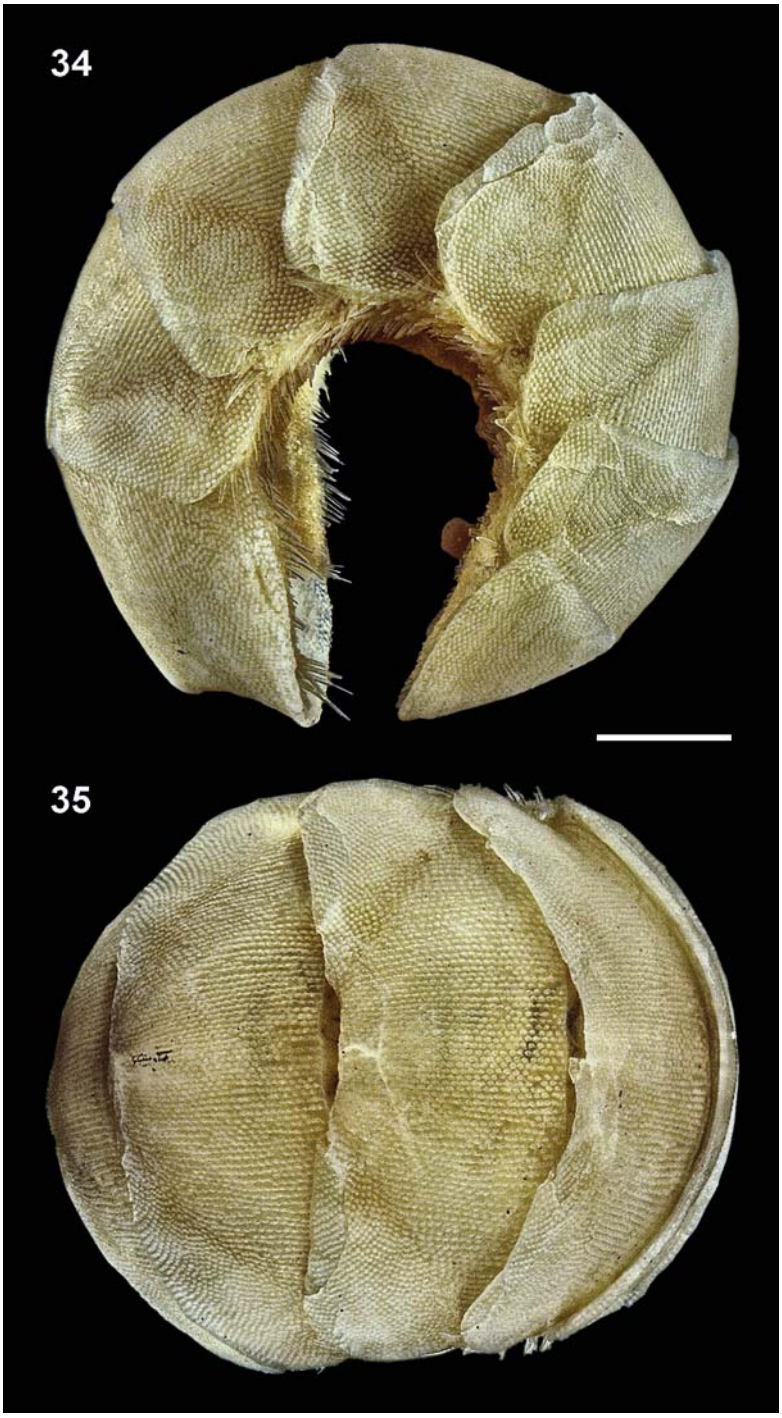
Figs 25, 26. *Callochiton herberti*, holotype D5394/T16: lateral views. Scale bar = 1 mm.

Figs 27, 28. *Callochiton herberti*, holotype D5394/T16: (27) anterior view; (28) posterior view. Scale bar = 1 mm.

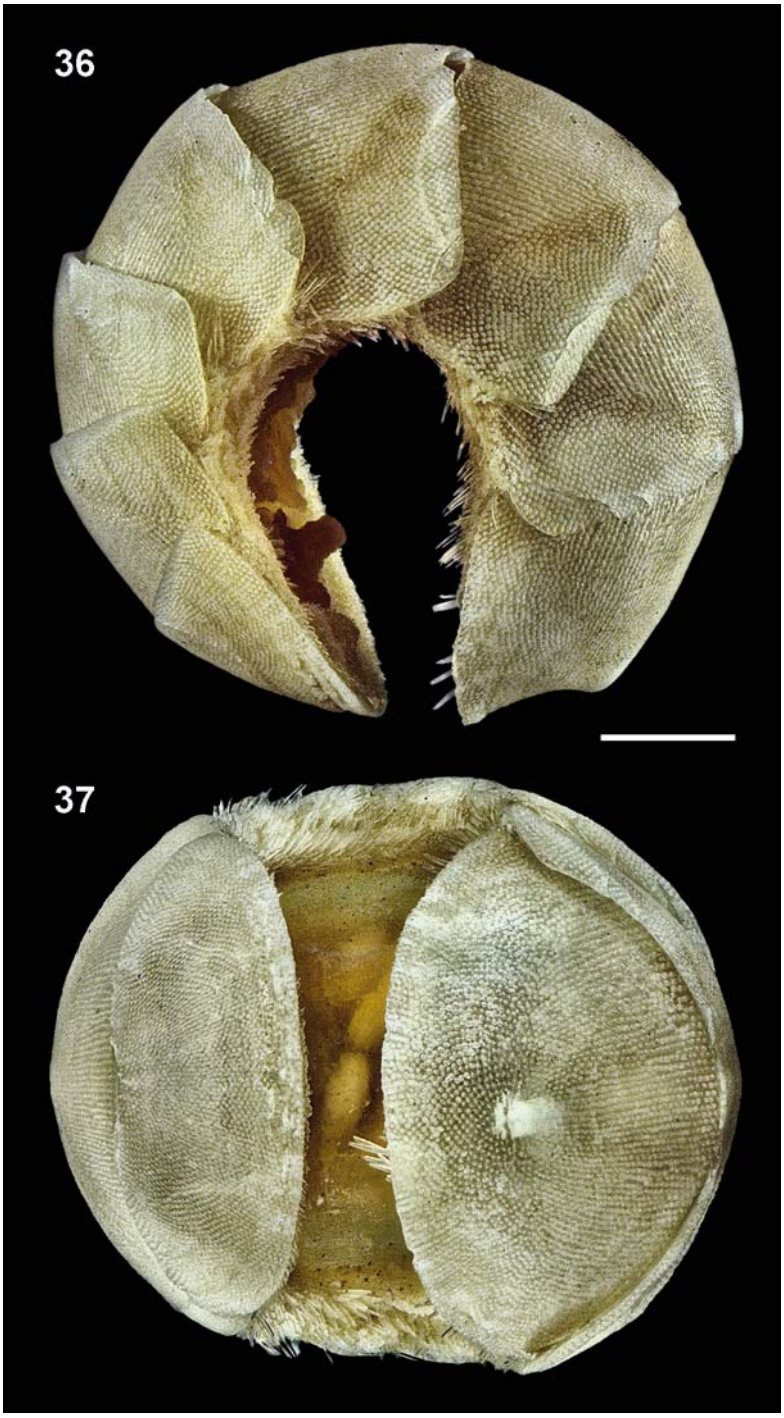
Figs 29–31. *Ischnochiton hewitti*, holotype B7413/T2848: (29) head valve; (30) valve III; (31) tail valve. Scale bar = 1 mm.



Figs 32, 33. *Ischnochiton hewitti*, holotype B7413/T2848: (32) valve IV?; (33) valve V?. Scale bar = 1 mm.



Figs 34, 35. *Leptochiton* (*Parachiton*) *indecorus*, holotype D7408/T14: (34) lateral view; (35) dorsal view. Scale bar = 1 mm.



Figs 36, 37. *Leptochiton* (*Parachiton*) *indecorus*, holotype D7408/T14: (36) lateral view; (37) ventral view. Scale bar = 1 mm.

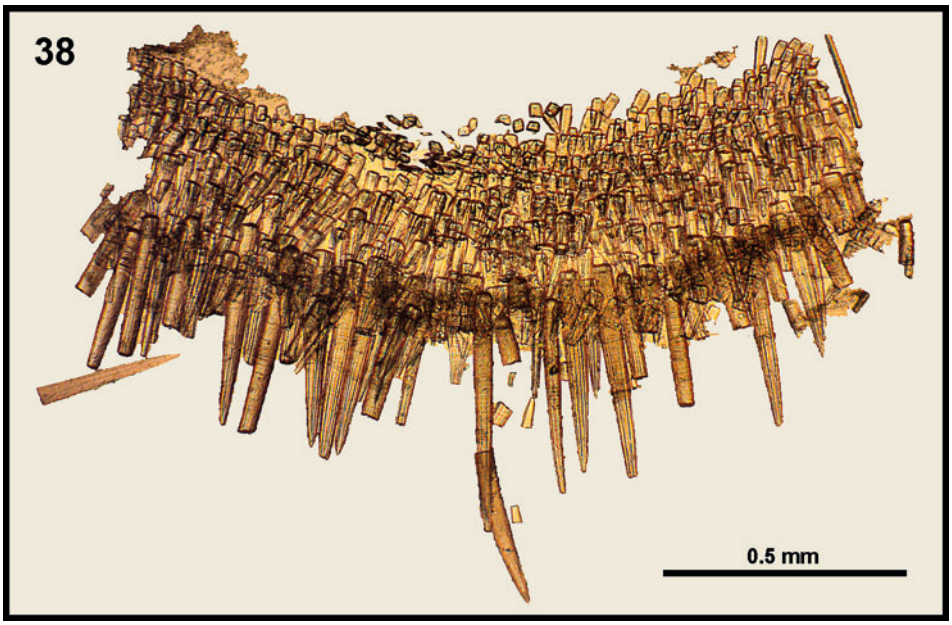
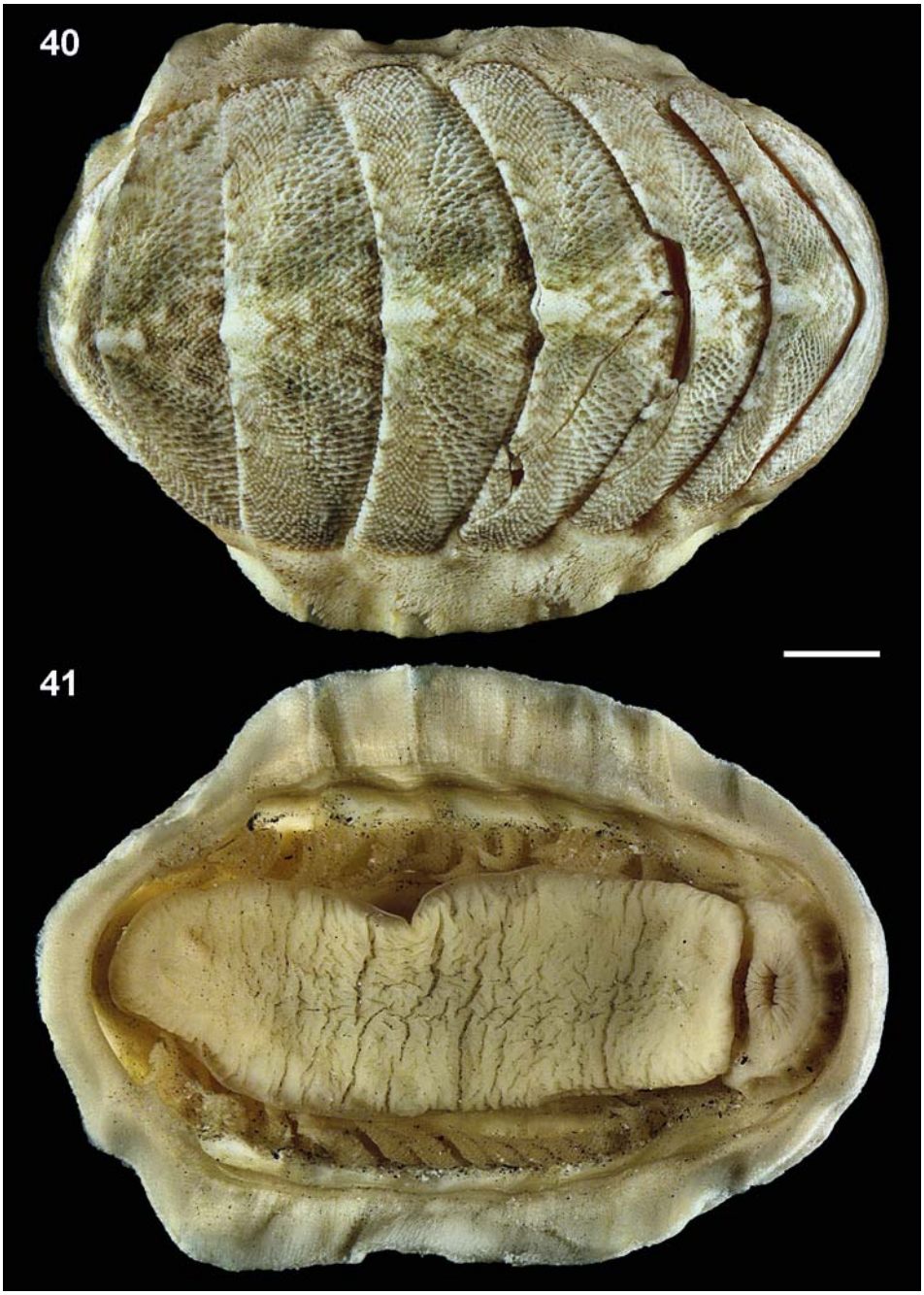


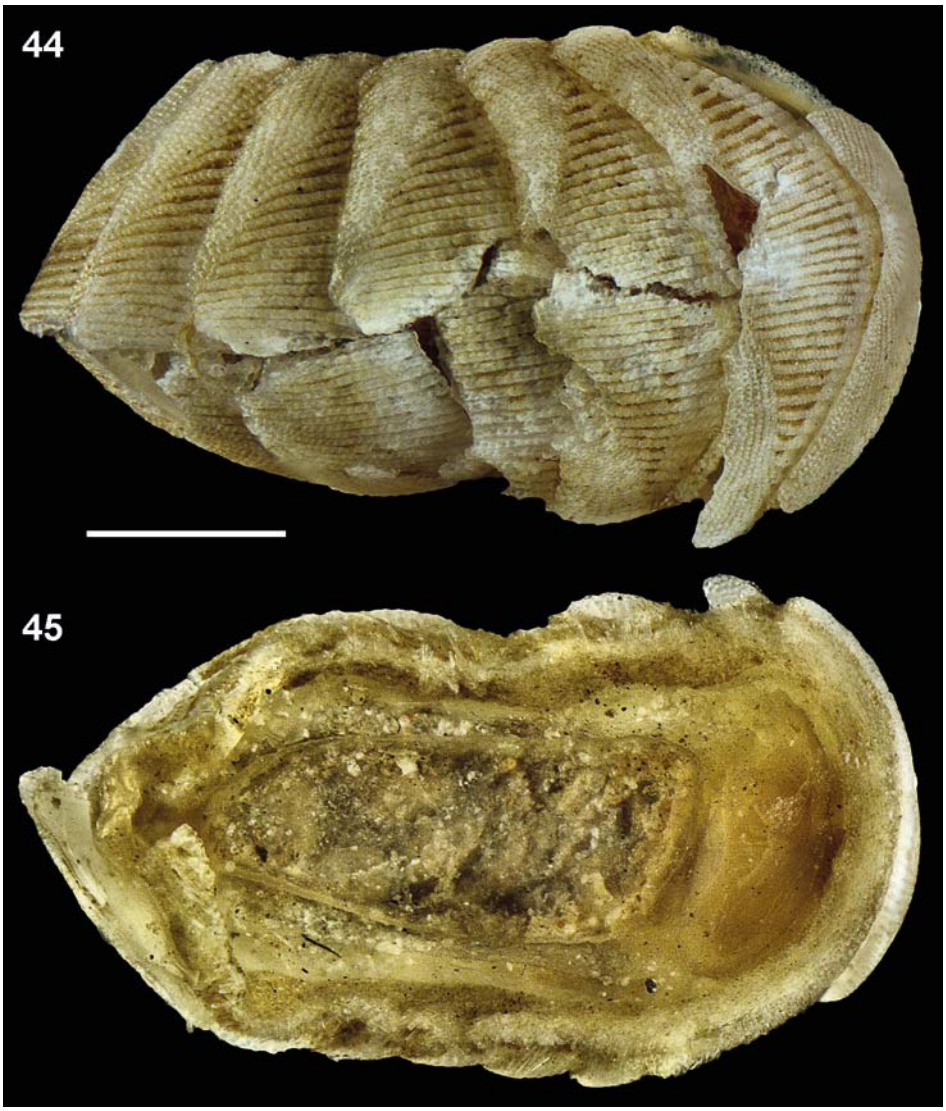
Fig. 38. *Leptochiton* (*Parachiton*) *indecorus*, holotype D7408/T14: spicules of girdle with edge of perinotum.

Fig. 39. *Acanthochitona jugotenuis*, holotype H2565/T2396. Scale bar = 1 mm.

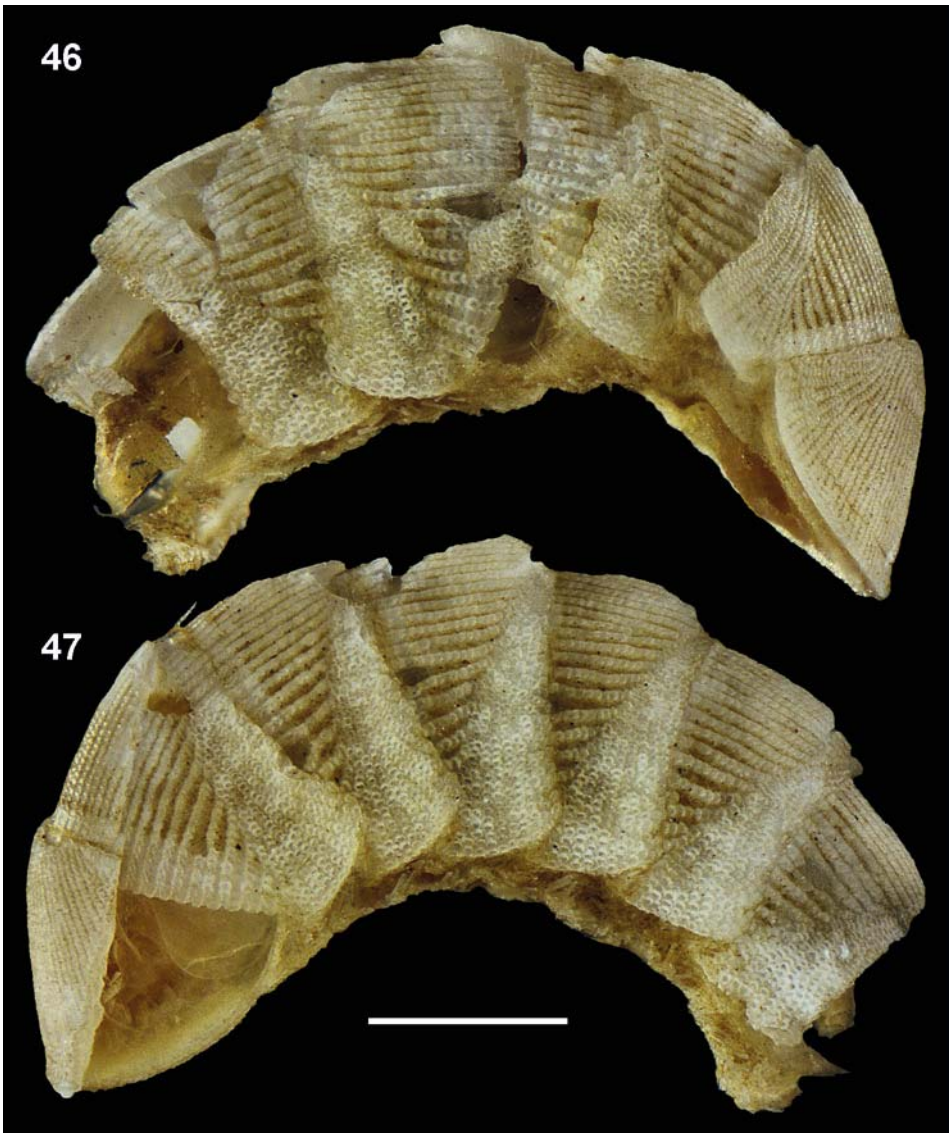


Figs 40, 41. *Ischnochiton kilburni*, holotype G8789/T2393: (40) dorsal view; (41) ventral view. Scale bar = 1 mm.

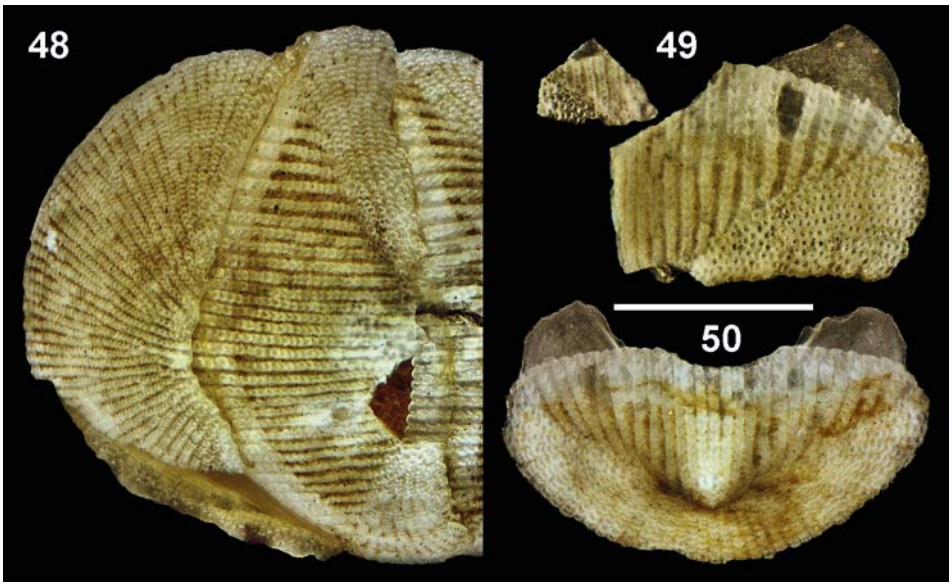
Figs 42, 43. *Ischnochiton kilburni*, holotype G8789/T2393: (42) head and II valves view; (43) VII and tail valves view. Scale bar = 1 mm.



Figs 44, 45. *Leptochiton* (*L.*) *meiringae*, holotype D265/T3046: (44) dorsal view; (45) ventral view. Scale bar = 1 mm.



Figs 46, 47. *Leptochiton* (*L.*) *meiringae*, holotype D265/T3046: lateral views. Scale bar = 1 mm.



Figs 48–50. *Leptochiton* (*L.*) *meiringae*, holotype D265/T3046: (48) head and II valves view; (49) fragments of valve VII; (50) tail valve. Scale bar = 1 mm.

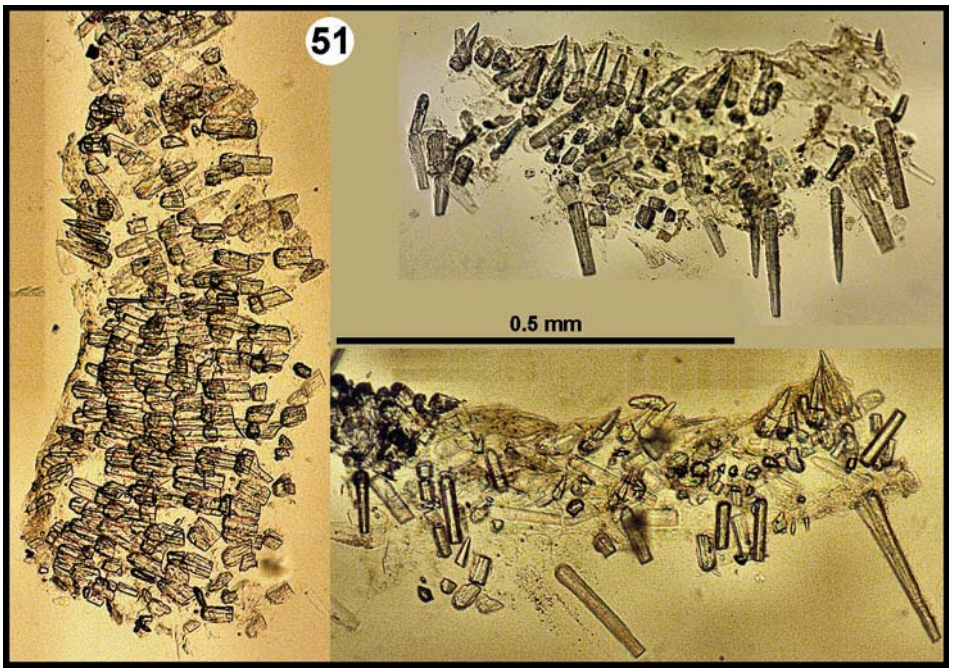
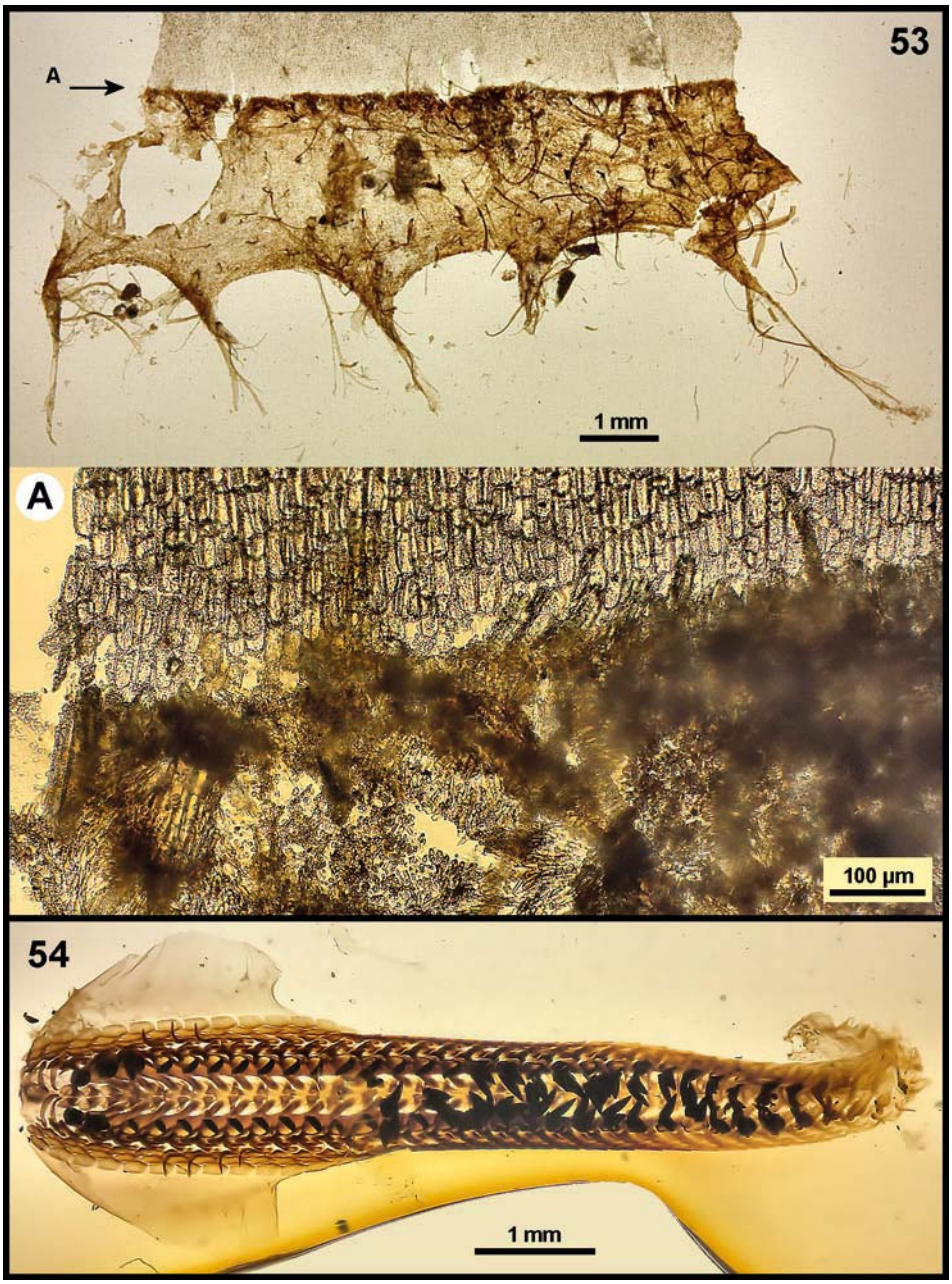


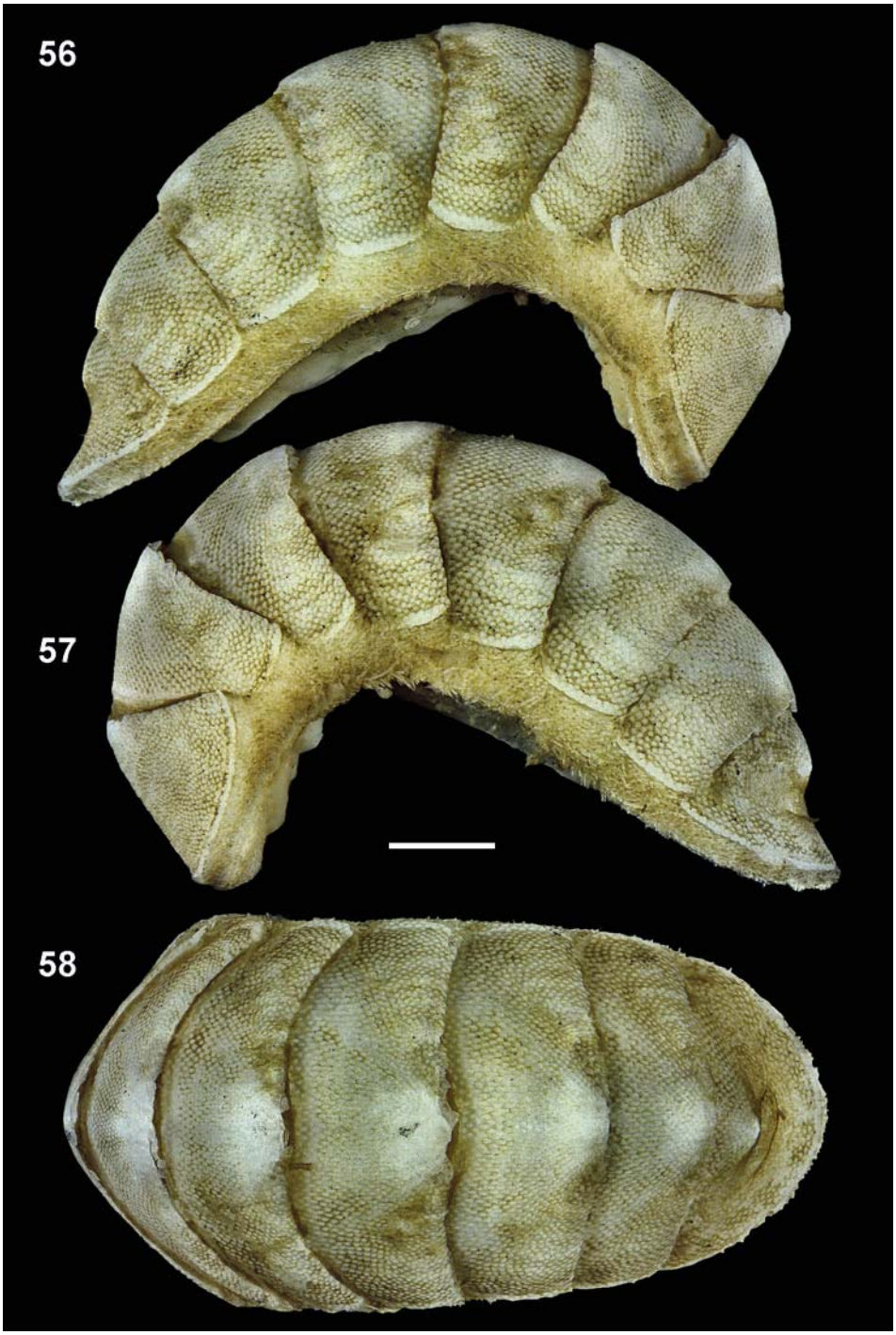
Fig. 51. *Leptochiton* (*L.*) *meiringae*, holotype D265/T3046: spicules of girdle.

Fig. 52. *Chaetopleura* (*C.*) *natalensis*, holotype D4842/T20: fragments of valves. Scale bar = 1 mm.



Figs 53, 54. *Chaetopleura* (*C.*) *natalensis*, holotype D4842/T20: (53) fragments of perinotum with the enlarged area (A); (54) radula.

Fig. 55. *Leptochiton* (*L.*) *permodestus*, holotype C8005/T3044: anterio-ventral view. Scale bar = 1 mm.



Figs 56–58. *Leptochiton* (*L.*) *permodestus*, holotype C8005/T3044: (56 & 57) lateral views; (58) dorsal view. Scale bar = 1 mm.