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Taxonomic notes on chitons. 5*. On some problematica and a new record of Polyplacophora from Indonesia.

(Mollusca)

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A range extension is given for *Parachiton politus* Saito, 1996, which is recorded from Indonesia and also from the Indian Ocean for the first time. Based on examination of type material, *Ischnochiton baliensis* Kaas & Van Belle, 1990 is here considered a junior synonym of *Ischnochiton albinus* Thiele, 1911. *Cryptoplax oculatus* (Quoy & Gaimard, 1835) is redescribed and a neotype is designated for nomenclatural stability. *Notoplax eximia* Thiele, 1909 is transferred to the genus *Acanthochitona* and synonymized with *Acanthochitona scutigera* (A. Adams & Reeve MS, Reeve, 1847). The syntype series of *Chiton coarctatus* Sowerby, 1841 consists of two species. One of the syntypes is shown to be a specimen of *Leptoplax varius* Nierstrasz, 1905 and to avoid taxonomic conflicts the figured syntype is here selected as the lectotype.

Type material is illustrated of the following species: *Ischnochiton baliensis* Kaas & Van Belle, 1990, *Callistochiton carpenterianus* Kaas, 1956, *Notoplax eximia* Thiele, 1909, *Chiton scutigerus* A. Adams & Reeve MS, Reeve, 1847, *Chiton larvaeformis* de Blainville MS, Burrow, 1815, *Chiton coarctatus* Sowerby, 1841, and *Leptoplax varius* Nierstrasz, 1905.

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Introduction

The Indonesian Archipelago with its innumerable islands serves as a bridge between the Australian and Asian faunas. The fauna is correspondingly diverse and thoroughly mixed, and the marine molluscs especially are the aim of several studies. The Polyplacophora, a class of exclusively marine molluscs with about 920 living species (Schwabe 2005b), are well represented in Indonesia, but the only available revision of shallow-water species dates about 100 years back (Nierstrasz 1905). Later work on Indonesian shallow water chitons was limited to some single species records (e.g. Strack 1990, 1992, 2001, Schwabe 2000, 2005a, Burghardt et al. 2006) and a comprehensive study is still lacking. Based on the material in the collections of H. L. Strack (the Netherlands), Dr. H. Saito (NSMT), and E. Schwabe (ZSM), about 30-35 species of Polyplacophora can be expected from Indonesian shallow waters. To prepare the way for a revision of Indonesian shallow water chitons (including a more complete bibliography), the taxonomic status of some of the Indonesian problematica is solved here, and additionally, a new record for Indonesia is presented.

* Part 4 was published in African Invertebrates 47: 23-30.

Abbreviations

IRSN	Institut Royal des Sciences Naturelles de Belgique, Bruxelles, Belgium
MNHN	Museum National d`Histoire Naturelle, Paris, France
NHM	The Natural History Museum, London, UK
NSMT	National Science Museum Tokyo, Japan
UF	University of Florida, Florida, USA
ZMA	Instituut voor Systematiek en Populatiebiologie (Zoölogisch Museum), Amsterdam, The Netherlands
ZMB	Natural History Museum Berlin (formerly Zoologisches Museum Berlin), Germany
ZSM	Bavarian State collection of Zoology (formerly Zoologische Staatssammlung Muenchen), Munich, Germany

Systematics

Family Leptochitonidae Dall, 1889

Genus *Parachiton* Thiele, 1909

Type species: *Lepidopleurus (Parachiton) acuminatus* Thiele, 1909, by original designation.
Genus distribution: Tropical and subtropical waters of the Indo-Pacific, also in the Mediterranean Sea.

Parachiton politus Saito, 1996
Fig. 1

Parachiton politus Saito 1996: 169-170, text fig. 7, pl. 1, figs 10-11, pl. 8.

Type locality: Japan, Nansei Islands, Yo, Amami-Oshima Island.
Primary type: NSMT-Mo 70475 (holotype).

Material examined: UF337890: 2 spms, Indonesia, Bali, at Nusa Penida Island [8°44'S 115°32'E], off Lembongan flat, sandy forereef interspersed with small patch, rubble and sand with large pinnacles and boulders 10-15 m. leg. Kirkendale, Lisa 20. Dec 1999, 95 % Ethanol fixed.

Habitat: The species inhabits shallow-water reefs with sand patches, where it lives on rocks burried in sand. Bathymetrically it occurs down to 15 m depth.
Remarks: The identity of the specimens from Indonesia is confirmed by a direct comparision with a paratype of *P. politus* (ZSM Mol 20013036, see Knebelsberger et al. 2005). The material reported here considerably extends the geographic range of *P. politus* by about 4000 km from the Japanese Nansei Islands to Nusa Penida Island and also reflects the first record of the species in the Indian Ocean.

Family Ischnochitonidae Dall, 1889

Genus *Ischnochiton* Gray, 1847

Type species: *Chiton textilis* Gray, 1828, by subsequent designation, Gray (1847).
Genus distribution: Worldwide in tropical and subtropical waters, also in subantarctic waters.

Ischnochiton albinus Thiele, 1911
Figs 2A,B

Ischnochiton albinus Thiele 1911: 400, pl. 6, fig. 4.
For bibliography see Kaas & Van Belle (1990: 218).
Ischnochiton (Ischnochiton) baliensis Kaas & Van Belle 1990: 142-144, fig. 62 (holotype [IRSN IG-23.377, type coll. 440], not seen; type locality: Indonesia, Bali Island, Kuta Beach) **syn. nov.**

Type locality: Australia, Western Australia, Sharks Bay, Surf Point, Outer Bar (St. 25), 05.-3.5 m.
Primary type: Holotype (ZMB 101.999).

Remarks: *Ischnochiton baliensis* was described on the basis of two specimens. Due the kindness of the late Richard Van Belle the present author was able to study the ethanol-fixed paratype VB 2980a (Figs 2A,B), which after Van Belle's death was also transfered to the collection of the Brussels museum. A superficial examination of the specimen brought to light a very important detail neglected in the original description. The dorsal perinotum scales bear (I stress again, on the paratype) distally a well developed row of spherules. This character is rare in chitons and only a few species are known with such modified scales. Among them is the Indo-Pacific species *Ischnochiton albinus* Thiele, 1911 of which I was able to study the holotype (ZMB 101.999). Unfortunately the examinations were not parallel and the available holotype is in bad condition so that the photo documentation is not very detailed, but in my opinion there is no doubt that the two taxa are conspecific and *Ischnochiton baliensis* is merely a junior synonym of *Ischnochiton albinus*. Also, if one compares the description of *I. baliensis* with that of *I. albinus* (both given in Kaas & Van Belle 1990, pp. 143 and 219, respectively), and takes into account that the perinotum scales of the former bear spherules, the differences shrink to minor radula characteristics only.

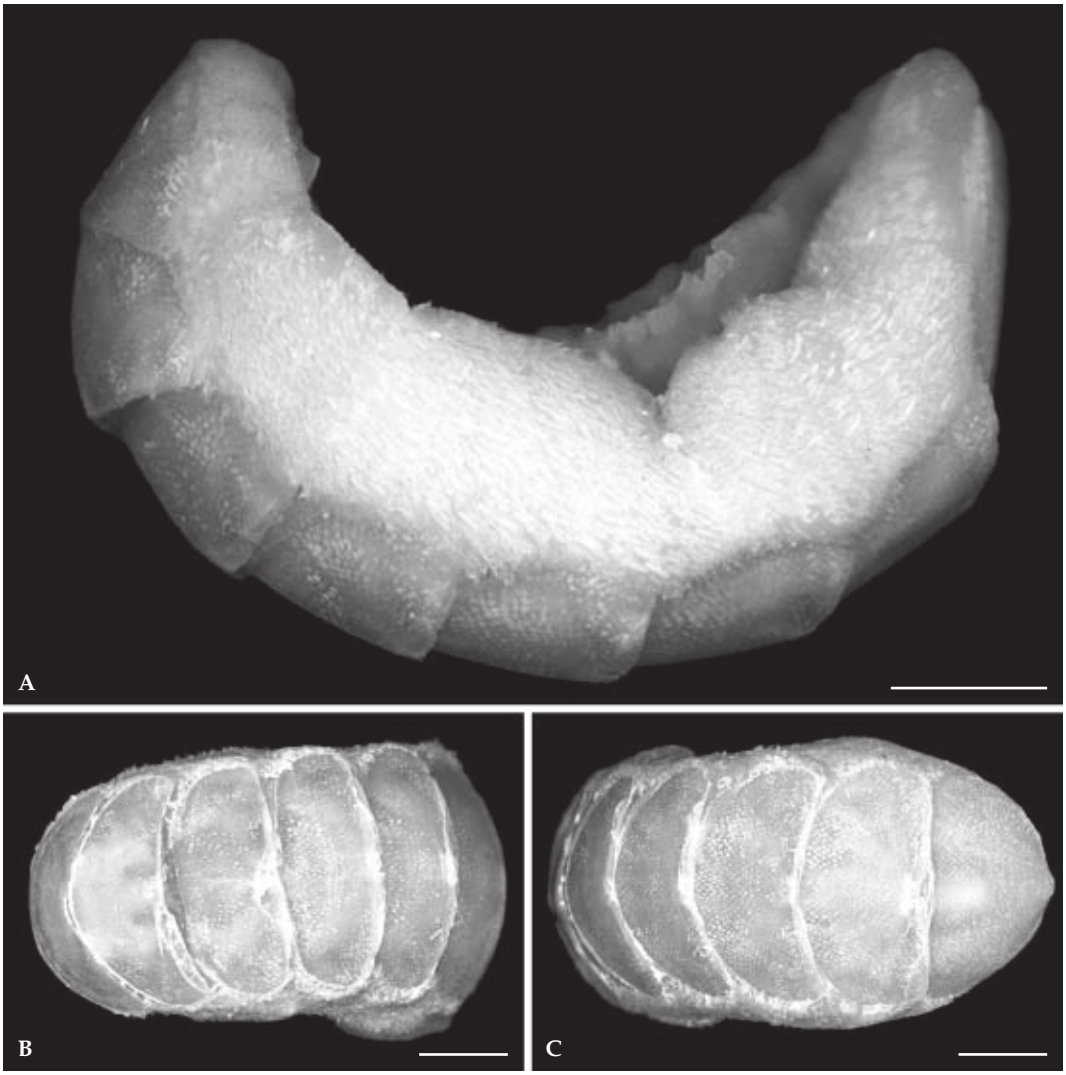

Fig. 1. *Parachiton politus* Saito, 1996 (UF337890) from Indonesia, Bali Island, at Nusa Penida Island, off Lembongan flat. **A.** Left lateral view of complete specimen. **B.** Dorsal view of the first five valves. **C.** Dorsal view of the posterior five valves. Anterior always at left. Scale bars = 1 mm.

Family Callistoplacidae Pilsbry, 1893

Genus *Callistochiton* Carpenter MS, Dall, 1879

Type species: *Callistochiton palmulatus* Carpenter MS, Dall, 1879, designated by monotypy.
Genus distribution: Tropical and subtropical waters.

***Callistochiton granifer* Hull, 1923**
Fig. 2C

Callistochiton granifer Hull 1923: 161, pl. 25, figs 5-8. For bibliography see Kaas & Van Belle (1994: 190-191).

Callistochiton (Lophochiton) carpenterianus Kaas 1956: 107. Nom. nov. pro *Callistochiton carpenteri* Nierstrasz, 1905 (non *Chiton (Callochiton) carpenteri* Clessin, 1903) (holotype [ZMA Moll. 3.05.024]; type locality: Indonesia, Banda-anchorage [Siboga Exp. station 240], on reef, between 9-45 m).

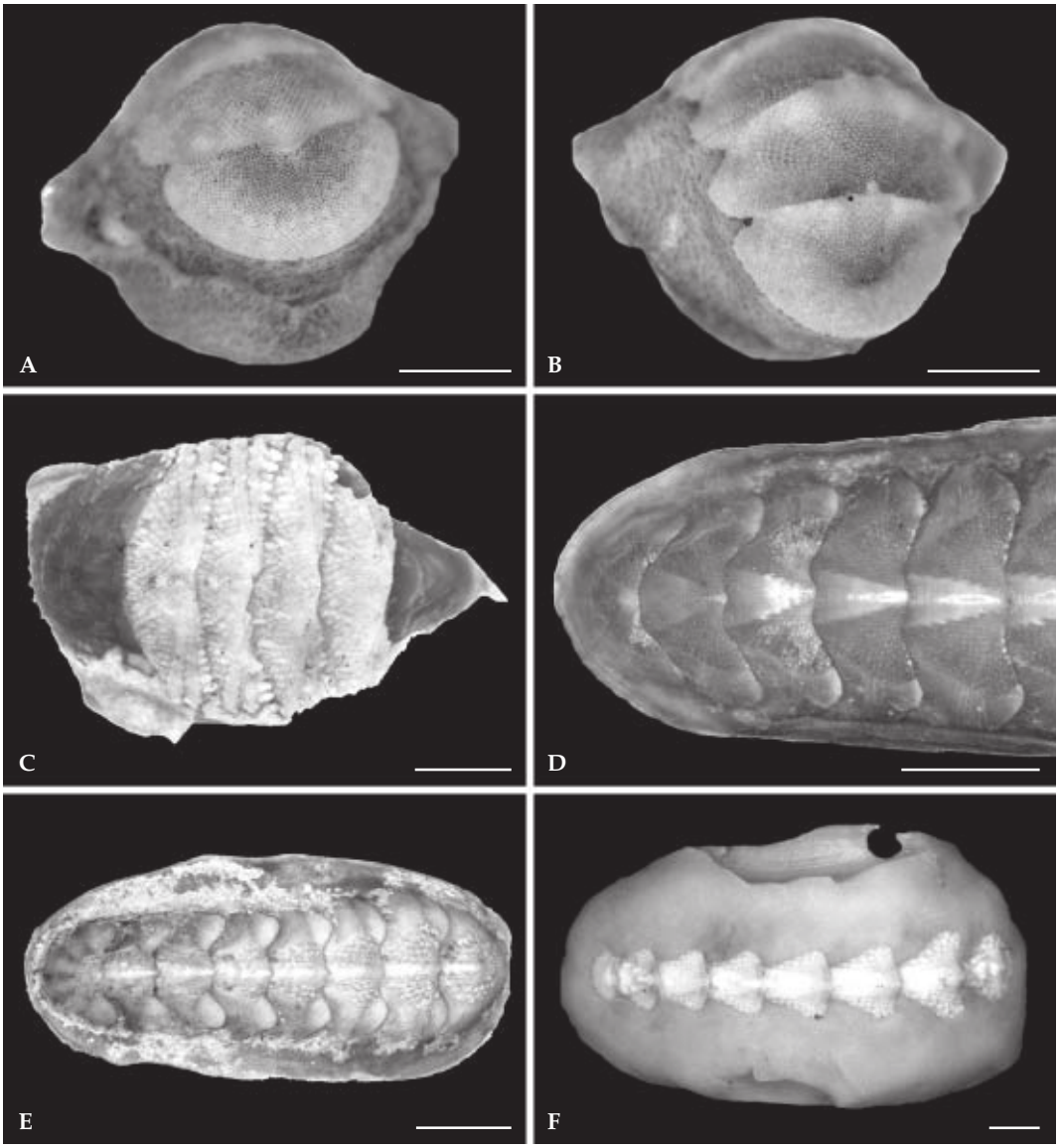

Fig. 2. A-B. Paratype of *Ischnochiton (Ischnochiton) baliensis* Kaas & Van Belle, 1990 (ex VB 2980a). **A.** Anterior portion. **B.** Posterior portion. **C.** Holotype of *Callistochiton carpenterianus* Kaas, 1956 (ZMA Moll. 3.05.024), anterior at left. **D.** Anterior half of the lectotype of *Chiton coarctatus* Sowerby, 1841 (NHM 1988034/1), anterior at left. **E.** *Leptoplax varius* Nierstrasz, 1905: a 15.3 mm long specimen from the syntype series of *Chiton coarctatus* Sowerby, 1841 (NHM 1988034/2-4), which must be excluded from this series, anterior at left. **F.** Syntype of *Leptoplax varius* Nierstrasz, 1905 (ZMA Moll.3.05.034), anterior at left. Scale bars A-C,F = 1 mm, D-E = 3 mm.

For bibliography see Kaas & Van Belle (1994: 150).

Type locality: Australia: Queensland, Palm Island, 18°40'S, 146°33'E, 27 m.
Primary type: Holotype (AMS C. 009306), not seen.

Remarks: When Kaas (1956) renamed Nierstrasz's *Callistochiton carpenteri* he did not mentioned the differences from other congeners. To the list of similar species of Callistochitons that Nierstrasz (1905) provided in his paper, a further Indo-Pacific species was added, when Hull (1923) described *Cal-*

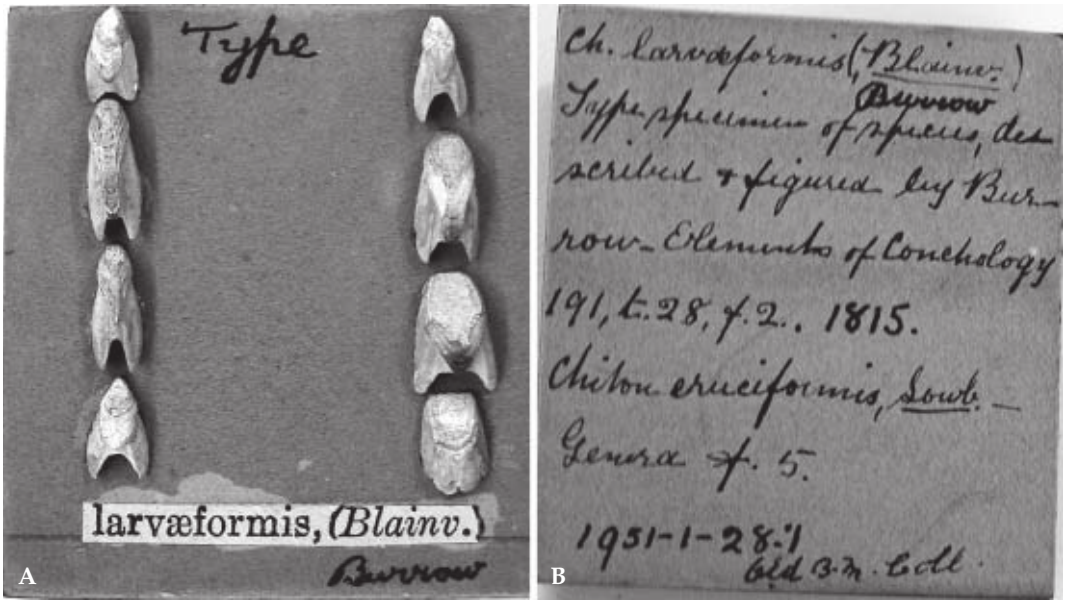

Fig. 3. Holotype and label of *Cryptoplax larvaeformis* (de Blainville MS, Burrow, 1815) (NHM 1951.1.28.1). **A.** Disarticulated valves, anterior is below, note that the head valve is in the lower right corner and the tail valve at the upper left. **B.** Back side of the tablet, with information on the type, written most probably in Carpenter's hand. Scale unknown.

listochiton granifer from Palm Island, Queensland, Australia. This species is known to occur from Queensland via New Caledonia to the Samoa Islands in the east (Hull 1923, Risbec 1946, Kaas 1990, Schwabe 1998), in Western Australia (Kaas & Van Belle 1994) and northwards via Papua New Guinea (Schwabe 2006) and Indonesia (Schwabe 2005a) to Japan (Saito 2001, as *Callistochiton carpenterianus*).

The present author was able to study the 4.8 mm-long holotype (Fig. 2C) of *Callistochiton carpenterianus* (wet preserved soft part with valves iii-vi in situ and a separate intermediate valve). This study and comparision with material from Queensland, Indonesia, Western Australia, Samoa and Papua New Guinea enables me to confirm the conspecifity of the holotype of *C. carpenterianus* with *Callistochiton granifer* as considered by Saito (2006).

Family Cryptoplacidae H. & A. Adams, 1858

Genus *Cryptoplax* de Blainville, 1818

Type species: *Cryptoconchus larvaeformis* de Blainville MS, Burrow, 1815, subsequent designated by Gray (1821).
Genus distribution: Tropical and subtropical waters of the Indo-Pacific.

Cryptoplax larvaeformis (de Blainville MS, Burrow, 1815)

Figs 3, 4A,C, 5A,C,E, 6A,C

Chiton larvaeformis de Blainville MS, Burrow 1815: 179-180, pl. 28, figs 2-4.
For synonymy see Kaas & Van Belle (1998: 106-107).

Type locality: Unknown.
Primary type: Holotype (NHM 1951.1.28.1) (Fig. 3)

Remarks: Although the soft part of the animal should be in the wet collection of the British Museum (Burrow 1815, p. 180), the author was able to detect the isolated valves only, which are glued to a cardboard tablet.

Cryptoplax oculatus (Quoy & Gaimard, 1835) reinstatement

Figs 4B,D, 5B,D,F, 6B,D, 7, 8

Chiton oculatus Quoy & Gaimard 1835: 410-411, pl. 73, figs 37-38.

Type locality: Originally described from "provient de la Nouvelle-Guinée ou de Vanikoro", **herein restricted** to Indonesia, Irian Jaya, North side of Jeftsiep Island (0°21.85'S 130°17.78'E), 2-3 m depth, under coral slabs on rubble slope.

Primary type: Lost. Neotype (ZSM Mol 20062203), **designated herein**.

Redescription

Animal vermiform-cylindrical (Fig. 4B). Of 27 examined (wet preserved and thus shrunken) specimens the largest measures 68 × 24 mm (ZSM Mol 20052065, Indonesia, Irian Jaya, North side of Jeftsiep Island). Characterized by larger specimens (body length minimum about 40 mm) having the first four valves in contact and the following valves with spaces in between. Specimens about 20 mm in length have all valves in contact. In a 38 mm specimen (ZSM Mol 20040610, Indonesia, Flores Sea, North coast of Koka Atoll) the first five valves are still in contact, while the remainder are beginning to lose their contact. The distance between valves vi and vii is generally the widest. It also seems to be a rule that the distance between valves v and vi is wider than between the last two valves. Tegmental colouration cream to witish, partly or in some valves completely overlaing by a reddish-brown tone. Tegmentum of the head valve (Figs 4D, 5B) about squarish, taking up about 40 % of the whole valve. Anterior margin rounded, posteriorly straight. Second valve (Figs 4D, 5D) elliptical, anterior portion with oblique side margins and obtuse, straight anterior margin, posteriorly with a distinct apex. Valve iii has the anterior side margins nearly parallel-sided, towards the posterior part the tegmentum becomes more drop-shaped (Fig. 5F). Tegmental sculpture in uneroded specimens consists of elongate granules in the apical area, fused to form flat, longitudinal or radial ribs towards the sides. A 20 mm specimen (ZSM Mol 20033121, Indonesien, Sulawesi, Lembeh Strait) has about 16 such ribs on the head valve, 6 per side on the pleurolateral areas of valve ii and 5 on valve iii. The jugal area is smooth (except for a longitudinally arranged aesthete perforation, which appears as ribs) and parallel-sided from valve v on, in the other intermediate valves its form is slightly wedge-shaped. The tegmentum of the tail valve is elongate, anteriorly sharply pointed and posteriorly with a sharp-pointed, backward-directed, overhanging mucro (Figs 6B,D). Postmucronal area short, steep and concave. Antemucronal area sculptured like intermediate valves. Growth marks present on all valves. Aesthetes of jugal area of tail valve about 50 µm in diameter (Fig. 8B) in a 56 mm-long specimen (ZSM Mol 20052088, Indonesia SE of Ceram Island; following data refers also to this specimen).

Articulamentum white, strongly developed, forming large insertion plates in terminal valves (Figs 5B, 6B,D). Intermediate valves (Figs 5D,F) and tail valve with large triangular apophyses, which only form a jugal lamina in the tail valve (Fig. 6D). Slit formula: 3 / 0 / 0. Articulamentum underneath the jugal area spongy. Slit rays not present.

Perinotum wide and fleshy, appears velvety without tuft pores, but with a black (inner ring) and white spicule ring around the first three valves (Figs 4B,D). Colour generally cream to ochre with the anterior portion (up to the posterior margin of valve iii) clearly brighter than the remaining body part. Middle body portion mainly with chestnut, transverse bands, posterior portion usually brighter. There seems to be a correlation between the anterior colouration and the spicule ring. Dorsally (Figs 7A,B) there are dense, clubbed, straight, spicules, with circular cross section, which are generally deeply embedded in the thick cuticle. They measure c. 168 × 61 µm and are sculptured longitudinally with about 14-20 fine striae. Spicules of the same origin (Figs 7A,B), but larger and slightly curved (446 × 100 µm), occur less closely spaced. The marginal fringe shows smooth, obtusely pointed, straight spicules of 508 × 52 µm (Fig. 7D). The spicule ring consists of smooth, straigth spicules, measuring 453 × 69-78 µm (Fig. 7C). Ventrally (Figs 7D,E) there are short, straight, rather sharply pointed spicules, 62-82 × 17-20 µm that are longitudinally sculptured with about 8 dorsal ribs but have their tip smooth. The spicules are elliptical in cross section and mainly eroded.

Radula (Fig 7F, 8A) c. 17.5 mm long, of which 7.4 mm are taken up by the radula cartilage; 90 teeth rows, of which 71 are mineralised. Central tooth short, rectangular (Fig. 8A), c. 131 × 70 µm with sharp-pointed blade. First lateral tooth (Fig. 8A) wing-shaped and slightly curved, 190 µm in length, with the distal end tapered and curved. Second lateral tooth with a 375 µm-long, indistinctly keeled shaft. Head broadly rectangular (200 × 245 µm) with three obtusely pointed, large denticles, of which the outer one is slightly larger than the others (Fig. 7F). First uncinal tooth rhomboid, measuring 195 × 76 µm. Second uncinal tooth hammerhead-shaped, 170 µm in length and 100 µm wide. Major uncinal tooth slender, spoon shaped and 383 × 76 µm. First marginal tooth overlapping, rhomboid, with lateral depressions, 235 × 118 µm. Second marginal tooth scale-like (elongate-oval), slightly overlapping, anteriorly obtusely pointed, 200 × 100 µm. Third marginal tooth rectangular, anteriorly straight, posteriorly curved, isolated, 188 µm in length and 147 µm in width (Fig. 7F).

Digestive tract (seen from dorsal) (Figs 8C,D): Stomach pouchlike, blind end situated centrally underneath the aorta at the left side of the anterior dorsal portion of the digestive gland; anterior intestine originates from the left side of stomach, dorsally covered by the digestive glands; it runs from

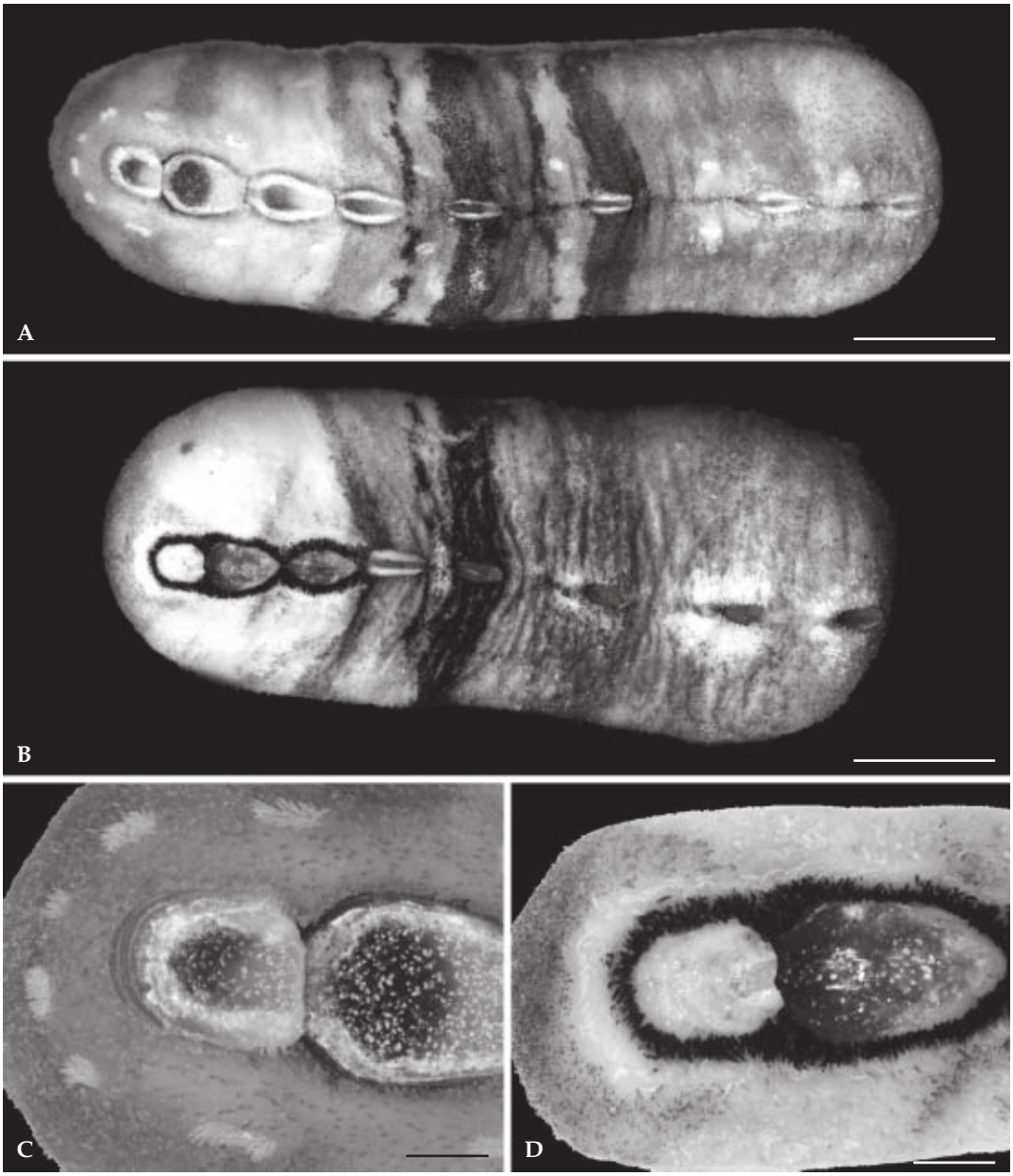

Fig. 4. A,C. *Cryptoplax larvaeformis* (de Blainville MS, Burrow, 1815) (ZSM Mol 20052064) from Indonesia, off Woka Island (01°02'05"S 128°13'58"E) and **B,D.** *Cryptoplax oculatus* (Quoy & Gaimard, 1835) (ZSM Mol 20052088) from Indonesia, SE of Ceram Island (03°38'13"S 131°03'55"E): a comparison. **A,B.** Dorsal view of a complete specimen. **C,D.** Head region, showing the first two valves and part of the perinotum coverage. Anterior always at left. Scale bars A,B = 10 mm, C,D = 2 mm.

the left side posteriorly to the right, forming a large U-shaped loop; intestine valve follows after two additional loops at the right posterior end of the intestinal mass, turns back and connects with the posterior intestine, which runs parallel to the anterior intestine; within the U-shaped loop of the anterior intestine it curls around itself, passes the digestive gland ventrally to the anterior intestine; forms

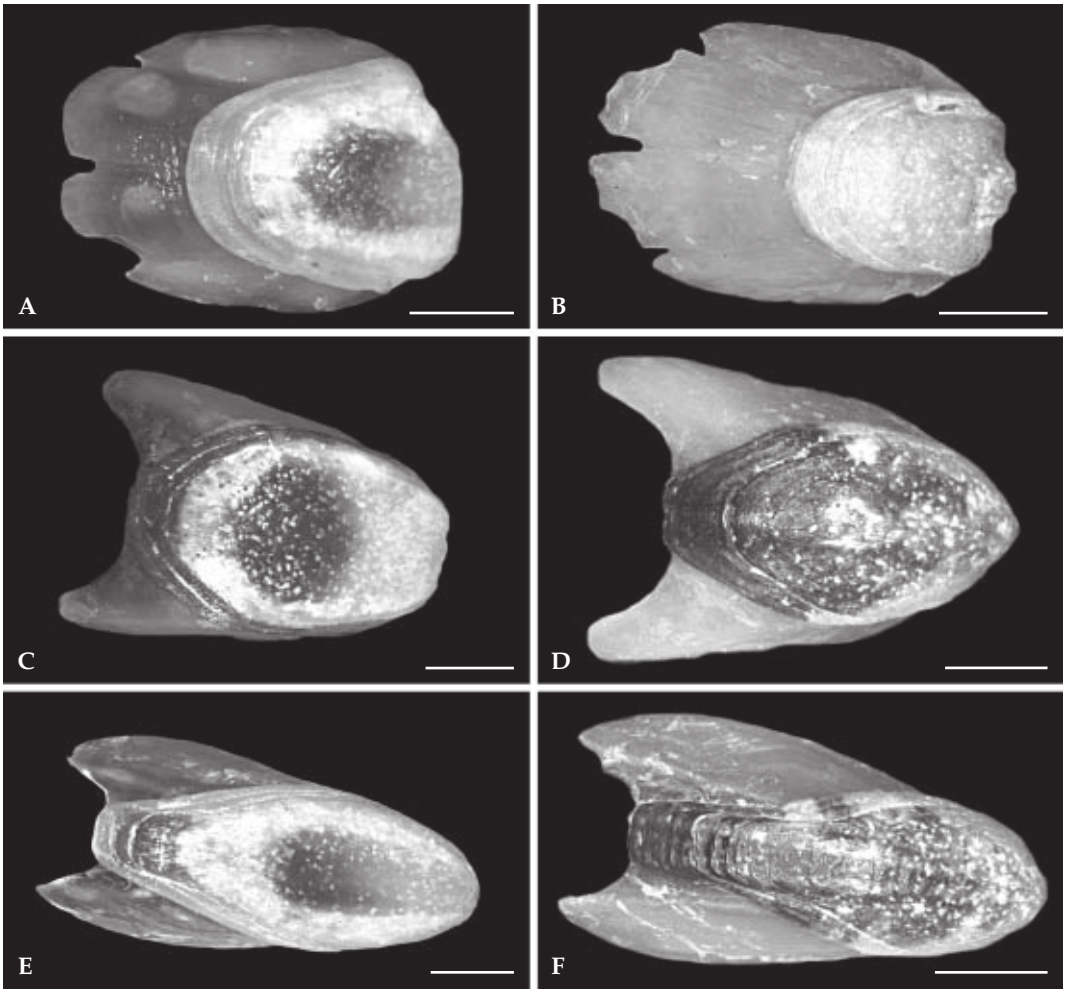

Fig. 5. A,C,E. *Cryptoplax larvaeformis* (de Blainville MS, Burrow, 1815) (ZSM Mol 20052064) from Indonesia, off Woka Island (01°02'05"S 128°13'58"E) and **B,D,F.** *Cryptoplax oculatus* (Quoy & Gaimard, 1835) (ZSM Mol 20052088) from Indonesia SE of Ceram Island (03°38'13"S 131°03'55"E): a comparison. **A,B.** Dorsal view of head valve. **C,D.** Dorsal view of valve ii. **E,F.** Dorsal view of valve iii. Anterior always at left. Scale bars = 2 mm.

a large S-shaped loop at the ventral side and revolves parallel to the former loops back to the posterior end, where it leads into the thickend rectum.

The ctenidia are restricted to the posterior fourth of the mantle cavity. There are 23 ctenidia on each side of the foot. The group of largest ctenidia is in the middle of the ctenidial row. Nephridiopores are situated between ctenidia 1-2 and gonopores between ctenidia 8-9 from the posterior. Ovary about 32 mm in length but irregularly creased, oviducts short (5 mm) and thickened with roundish slime sacs posteriorly (Fig. 8C).

Lateral mantle fold reaches from the posterior end of the mantle cavity to the 7th ctenidia from the posterior. It is elongate and very narrow with an anterior extension.

Aorta straight, ventricle about 6 mm. Although Plate (1901, p. 348) mentioned 2 pairs of auriculoventricular ostia, in the examined specimen only one pair could be detected, above the oviducts.

Remarks: This is one of the most beautiful chiton species and belongs to a species that was mostly misinterpreted in the past. When Quoy & Gaimard (1835) described this species, they provided a very vague figure that does not make a differentiation of this species from congeners possible. It was Haddon (1886, p. 41) who for the first time pointed out the

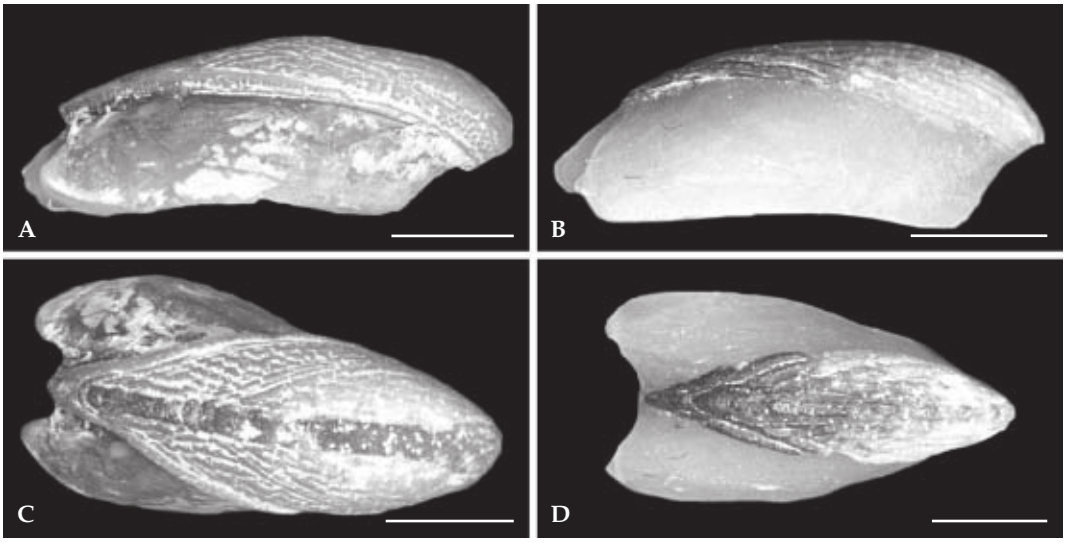

Fig. 6. A,C. *Cryptoplax larvaeformis* (de Blainville MS, Burrow, 1815) (ZSM Mol 20052064) from Indonesia, off Woka Island (01°02'05"S 128°13'58"E) and **B,D.** *Cryptoplax oculatus* (Quoy & Gaimard, 1835) (ZSM Mol 20052088) from Indonesia SE of Ceram Island (03°38'13"S 131°03'55"E): a comparison. **A,B.** Left lateral view of tail valve. **C,D.** dorsal view of tail valve. Anterior always at left. Scale bars = 2 mm.

misinterpretations of this species and I have to refer to his works for an earlier history of this species. The best descriptions of the species are given by Pilsbry (1893, pp. 55-56), Plate (1901, pp. 333-351), Nierstrasz (1905, pp. 74-75), and Ang (1967, pp. 432-435) where also additional references to the species can be found. Ashby (1923, pp. 241-242) followed Haddon's concept of two separate species, but pointed out that the type of *Cryptoplax montanoi* de Rochebrune, 1882 (holotype in MNHN) might be identical to the type of *C. oculatus*, of which no type material could be found (Ashby 1922, p. 576; own examinations). Although Ashby (1922) has already shown, that de Rochebrune simple renamed species, I do not think that happened in this case. The illustration by Quoy and Gaimard (1835, fig. 37) leads me to believe that at least one valve was removed, but that is not the case in the type of *C. montanoi*, where all valves are still *in situ*. The measurements given for *C. oculatus* are 67.5 × 38.3 mm ("longueur: 2 pouces and 6 lignes, circonference: 1 pouce and 5 lignes") and *C. montanoi* measures 39.7 × 9.4 mm. Additionally the type locality is different. It is still questionable, whether *C. montanoi* is conspecific with *C. oculatus* (as proposed by Thiele 1909). Both species lack the tuft pores, but in the former the spicule ring around the first plates is less distinct than in the latter. As long as no better material from the type locality of *C. montanoi* (Borneo, Lucon [Philippines: Luzon], however, the label is marked with "Iles Soulou", so the type locality is restricted herein to: Philippines: Sulu Islands) is available, the author follows Thiele (1909) and Ashby (1923) in considering the species a junior synonym of *C. oculatus*.

Since Kaas & Van Belle (1980) considered *C. oculatus* conspecific with *C. larvaeformis*, the earlier excellent descriptions of *C. oculatus* were obviously ignored, resulting in an unwarranted rejection and misinterpretations of the species in modern works (e.g.: Kaas & Van Belle 1998, p. 134; Saito 2001, p. 23; Slieker 2000, p. 149; Gowlett-Holmes 2001, p. 47; Coleman 2003, p. 70). To avoid further taxonomic conflict the species is redescribed herein and a 60 mm long specimen from Indonesia, Irian Jaya, North side of Jeftsiep Island (0°21.85'S 130°17.78'E), 2-3 m depth, under coral slabs on rubble slope (ZSM Mol 20062203) is proposed as the neotype.

Family Acanthochitonidae Pilsbry, 1893

Genus *Acanthochitona* Gray, 1821

Type species: *Chiton fascicularis* Linnaeus, 1767, designated by monotypy.
Genus distribution: Worldwide except for the Arctic and Antarctic waters.

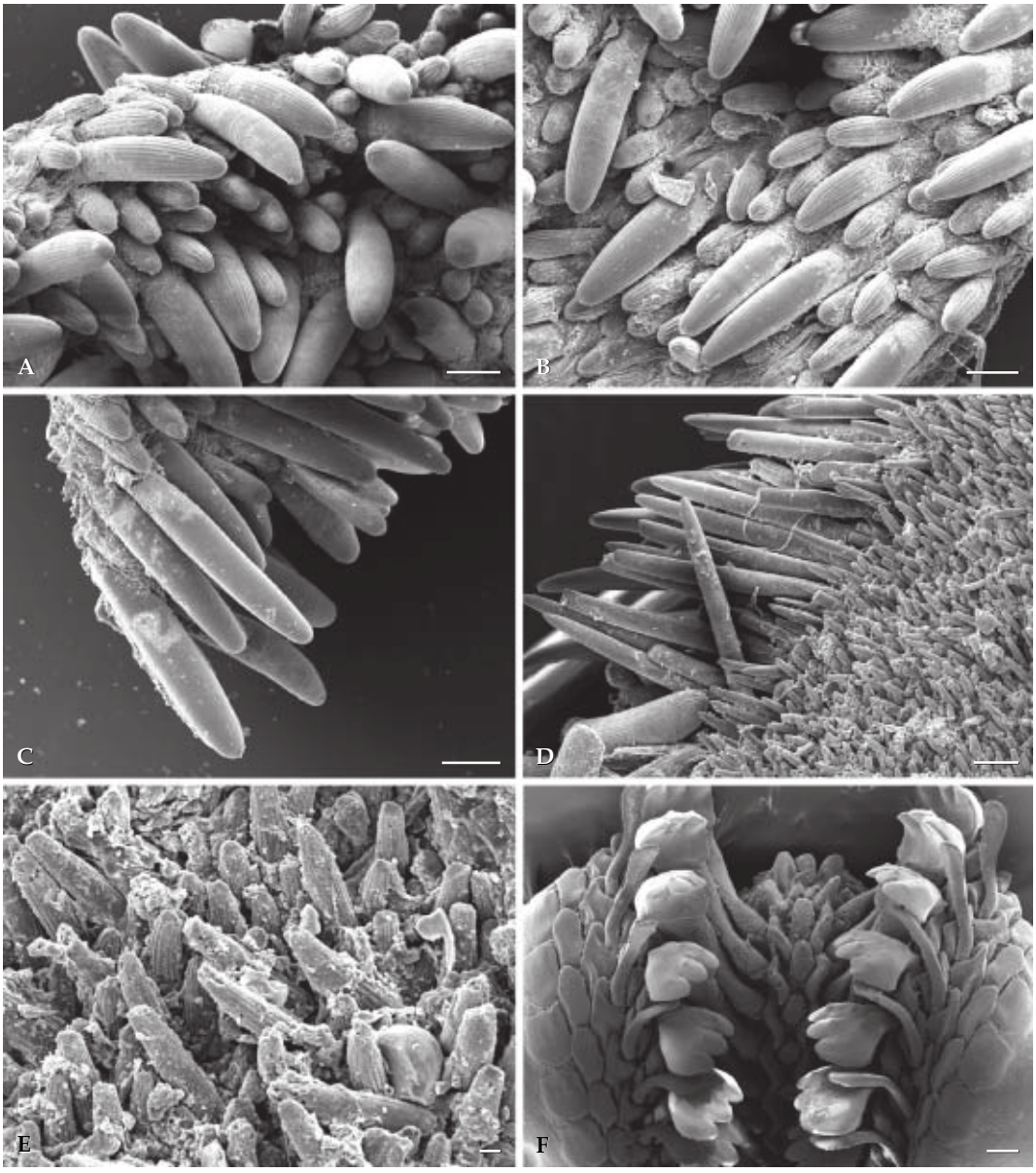

Fig. 7. *Cryptoplax oculatus* (Quoy & Gaimard, 1835) (ZSM Mol 20052088) from Indonesia, SE of Ceram Island (03°38'13"S 131°03'55"E). **A.** Dorsal perinotum spicules from the vicinity of the margin, in situ. **B.** Dorsal perinotum spicules from the middle part, in situ. **C.** Dorsal perinotum spicules from the spicule ring of valve iii, in situ. **D.** Marginal fringe (left) and ventral perinotum elements, in situ. **E.** Ventral perinotum elements, in situ. **F.** Anterior portion of radula. Scale bars A-D,F = 100 µm, E = 10 µm.

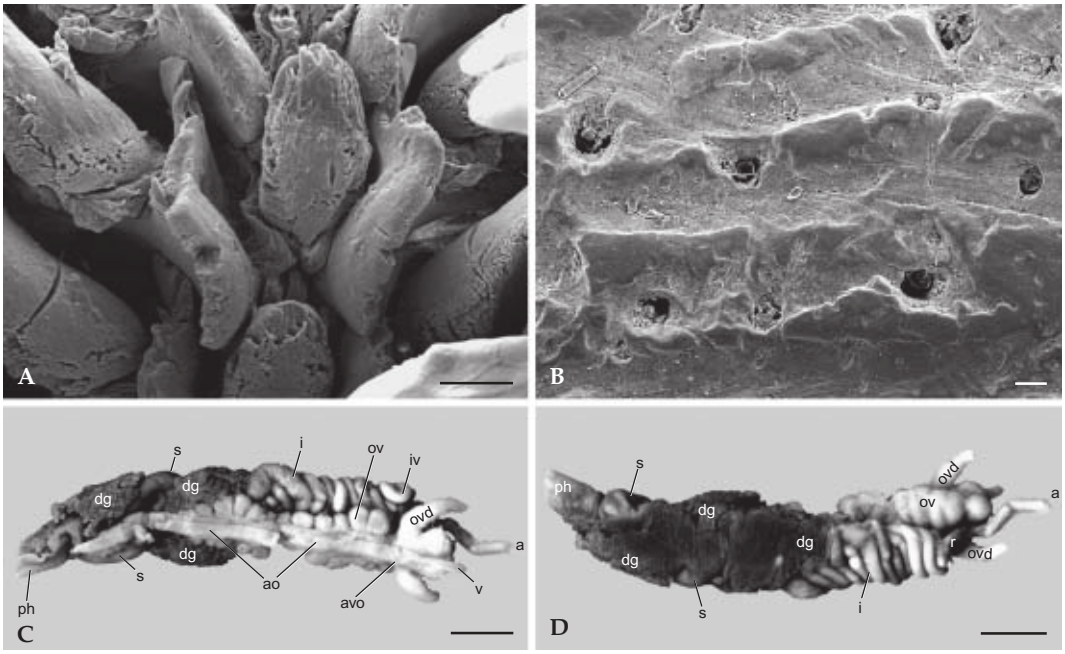

Fig. 8. *Cryptoplax oculatus* (Quoy & Gaimard, 1835) (ZSM Mol 20052088) from Indonesia, SE of Ceram Island (03°38'13"S 131°03'55"E). **A.** Central tooth and first lateral teeth of radula. **B.** Tegmentum detail of the tail valve, showing the arrangement of aesthetes. **C.** Dorsal view of the digestive tract, aorta and ovary. **D.** Ventral view of the digestive tract. C, D. Anterior at left. Scale bars A,B = 50 µm, C,D = 5 mm. **a**, anus; **ao**, aorta; **avo**, auriculo-ventricular ostia; **dg**, digestive gland; **i**, intestine; **iv**, intestinal valve; **ov**, ovary; **ovd**, oviduct; **ph**, pharynx; **r**, rectum; **s**, stomach.

Acanthochitona scutigera (A. Adams & Reeve MS, Reeve, 1847)

Figs 9A-D

Chiton scutiger A. Adams & Reeve MS, Reeve 1847: pl. 27, fig. and spec. 178.

Notoplax eximia Thiele 1909: 41, pl. 5, figs 51-58 (holotype [ZMB 102.018] **syn. nov.**; type locality: "Cape Rivers", Indonesien, Sulawesi, Cape Rivers [restricted by Kaas & Van Belle 1980], **here** restricted to Indonesia, Sulawesi, Sulawesi Tengah, Ujung Malangka [01°20'N 120°48'E]).

Type locality: Korea, Cheju-do (= Island of Quelpart).
Primary type: Figured syntype (NHM 1992052/1).

Remarks: The holotype of *Notoplax eximia* is about 33 × 20.2 mm (Thiele 1909, p. 41 gave a size of 45 × 22.5 mm), partly wet-preserved and strongly curled (Fig. 9D). The body has the valves ii-iv, vi and vii *in situ*, the terminal valves and valve v are preserved dry (Figs 9A-C). Watters (1990, p. 262) pointed out the very close similarity of this species with representatives from Latin America [*Acanthochitona rhodea* (Pilsbry, 1893), *Acanthochitona hemphilli* (Pilsbry, 1893) and *Acanthochitona ferreirai* Lyons, 1988], being aware that the morphology of the species is *Acanthochitona*-like. While studying Indo-Pacific chitons the present author was able to examine the figured syntype of *Chiton scutiger* A. Adams & Reeve MS, Reeve, 1847 (NHM 1992052/1), which is dry and preserved flat, measuring 24.8 × 12.6 mm (Figs 9E-F).

As no parallel examination of both specimens was possible, the comparision is based on the notes and pictures I took, but in my opinion it is obvious that both specimens are different growth stages of a single species: *Acanthochitona scutigera* (A. Adams & Reeve MS, Reeve, 1847). Thus I consider *Notoplax eximia* Thiele, 1909 a junior synonym of *Chiton scutiger* A. Adams & Reeve MS, Reeve, 1847.

Genus *Leptoplax* Carpenter MS, Dall, 1882

Type species: *Chiton coarctatus* Sowerby, 1841, designated by monotypy.
Genus distribution: Tropical and subtropical waters of the Indo-Pacific.

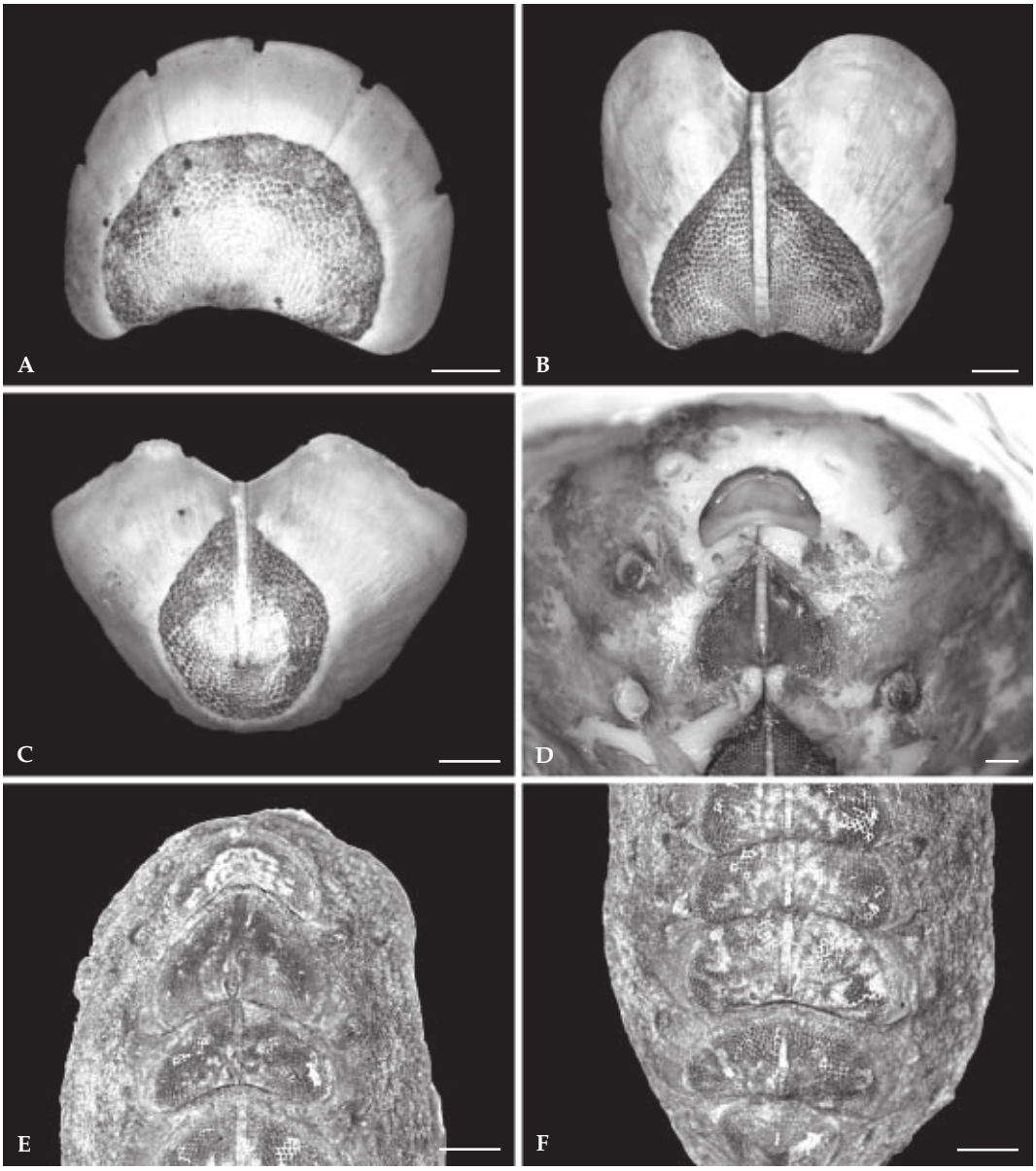

Fig. 9. A-D. Holotype of *Notoplax eximia* Thiele, 1909 (ZMB 102.018). **A.** Head valve, dorsal view. **B.** Valve v, dorsal view. **C.** Tail valve, dorsal view. **D.** Anterior portion of soft part, with valve ii. **E-F** Figured syntype of *Chiton scutiger* A. Adams & Reeve MS, Reeve, 1847 (NHM 1992052/1). **E.** Anterior half. **F.** Posterior half. Scale bars A-D = 1 mm, E-F = 2 mm.

Leptoplax coarctata (Sowerby, 1841)
Fig. 2D

Chiton coarctatus Sowerby 1841: 62.

For synonymy see Kaas & Van Belle (1998: 48).

Type locality: "ad insulam Bohol", Philippines, Visayan Islands, Bohol Island, under stones at low tide.
Primary type: Syntype NHM 1988034/1 (Acc. 1829), **here designated as lectotype** (see remarks).

Remarks: With the figured dry syntype cited above (Reeve 1847, pl. 20, fig. 127), measuring 16.8 × 7.5 mm (Fig. 2D), is a second lot consisting of 3 specimens also marked as syntypes (NHM 1988034/2-4). Two of them (16.5 × 8.6 mm, 13.6 × 6.7 mm) agree well with the figured syntype. The third specimen measures 15.3 × 7.1 mm (Fig. 2E), has all valves in situ and the perinotum almost completely lost. Not only the varying tegmental sculpture and the different shape of the jugal area but also the articulamentum coloration shining through make this specimen easily distinguishable from the remaining specimens and it is clear that two different species are involved. This distinct specimen is here identified as *Leptoplax varius* Nierstrasz, 1905, of which I have examined the syntype material (ZMA Moll.3.05.034 and 3.05. 033) (Fig. 2F). These lots consist of three wet-preserved specimens (a fourth specimen is in IRSN), measuring 9.3 × 5.1 mm, 13.3 × 6.8 mm and 10.1 × 4.9 mm. On the label is written in Leloup's hand, that the species is identical with *Leptoplax coarctata*, an opinion he also published (Leloup 1951, p. 3). It is possible that Leloup had access to the syntypes of *Chiton coarctatus* and remembered the strong sculpture of the single specimen mentioned above, which indeed is *Leptoplax varius*. To avoid further potential misinterpretations of *Leptoplax coarctatus* among other Indonesian taxa and for nomenclatural stability the figured syntype of *Chiton coarctatus* (NHM 1988034/1 [Acc. 1829]) is **here** designated as the lectotype.

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