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A NEW GENUS OF DEEP-SEA MAJID CRAB : *GRIFFINIA* GEN. NOV. (CRUSTACEA, DECAPODA, BRACHYURA).

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ABSTRACT

A new record from north-western Australia permits the description of the first male of *Griffinia lappacea* (Rathbun, 1918) comb. nov. The morphological features and the shape of the first pleopod merit the creation of a new genus for this deep sea species: *Griffinia* gen. nov. This new genus includes two other Pacific species, *G. gilloloensis* (Rathbun, 1916) and *G. polita* (Griffin and Tranter, 1986).

KEYWORDS: Crustacea, Decapoda, Brachyura, Majidae, *Griffinia*, new genus, deep-sea.

INTRODUCTION

In 1990, I found among the deep-sea material preserved in the Northern Territory Museum, three specimens of majid crabs from north-western Australia belonging to *Antilibinia lappacea* Rathbun, 1918. This species is very rare and not well known. Rathbun (1918) described it from a single female specimen from the Great Australian Bight. Barnard (1950), commenting on the South African species *Antilibinia smithii* MacLeay, 1838, remarks that *A. lappacea:* "does not seem ... to fit well into this genus".

In their preliminary work, listing the very rich material collected by the MUSORSTOM I cruise in the Philippine Islands (Forest, 1981), Serène and Vadon (1981) mentioned one female specimen of a "*Pisidarum* sp". These authors considered it to be an unknown species belonging to a new genus. The name *Pisidarum* means only "genus belonging to Pisidae" (D. Guinot *in litt.*).

Griffin and Tranter (1986) found another female specimen from Kai Islands (Indonesia) and remarked that it looked very similar to the *Pisidarum* sp. of Serène and Vadon. In the remarks about the affinities of their new species *A. polita*, Griffin and Tranter noted that "a new genus may be required for the western Pacific species".

After having examined the holotype and the first known male of *Antilibinia lappacea*, I think that the specimen from north-western Australia and the holotype belong to the same species (which does not belong to the genus *Antilibinia*). The holotype of *A. gilloloensis* Rathbun, 1916, and a male specimen of *A. smithii* MacLeay, 1838, from South Africa, were also examined. Therefore, it is necessary to separate the Pacific species (*A. lappacea, A. gilloloensis, A. polita)* from the type species *A. smithii*, and create for them a new genus, *Griffinia* gen. nov.

Abbreviations: AM = Australian Museum, Sydney; MNHN = Muséum national d'Histoire naturelle, Paris; NTM = Museums and Art Galleries of the Northern Territory; SAMA = South African Museum, Capetown; USNM = National Museum of Natural History, Washington. Measurements are in mm; the lengths are without rostrum.

Super-family Majoidea Samouelle, 1819
Family Majidae Samouelle, 1819
Sub-family Epialtinae MacLeay, 1838
Griffinia gen. nov.

Antilibinia - Rathbun 1918: 12; Hale 1927: 133; Griffin 1966: 267; Griffin and Tranter 1986: 70 (*pro-parte*: only *A. lappacea*).

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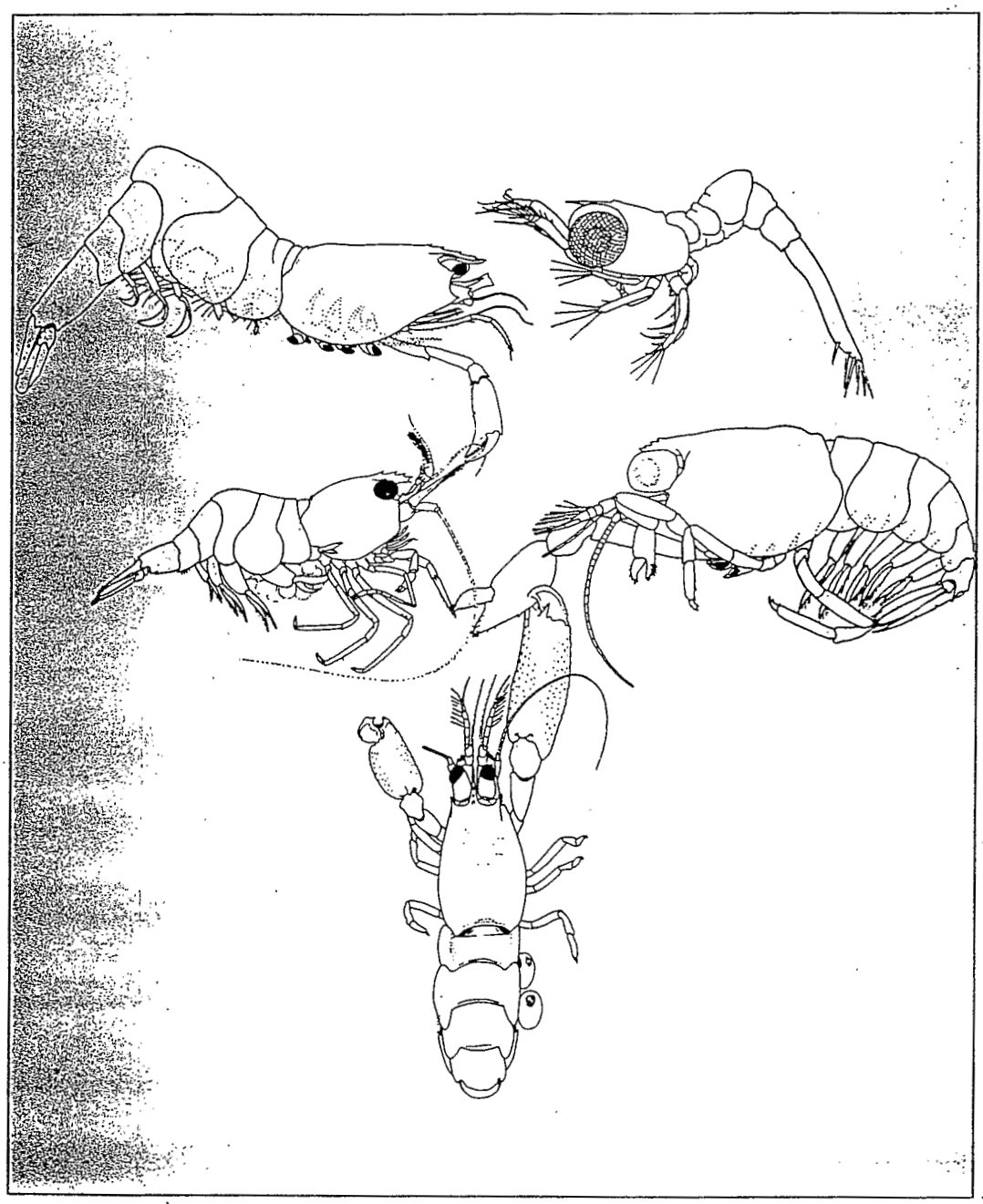

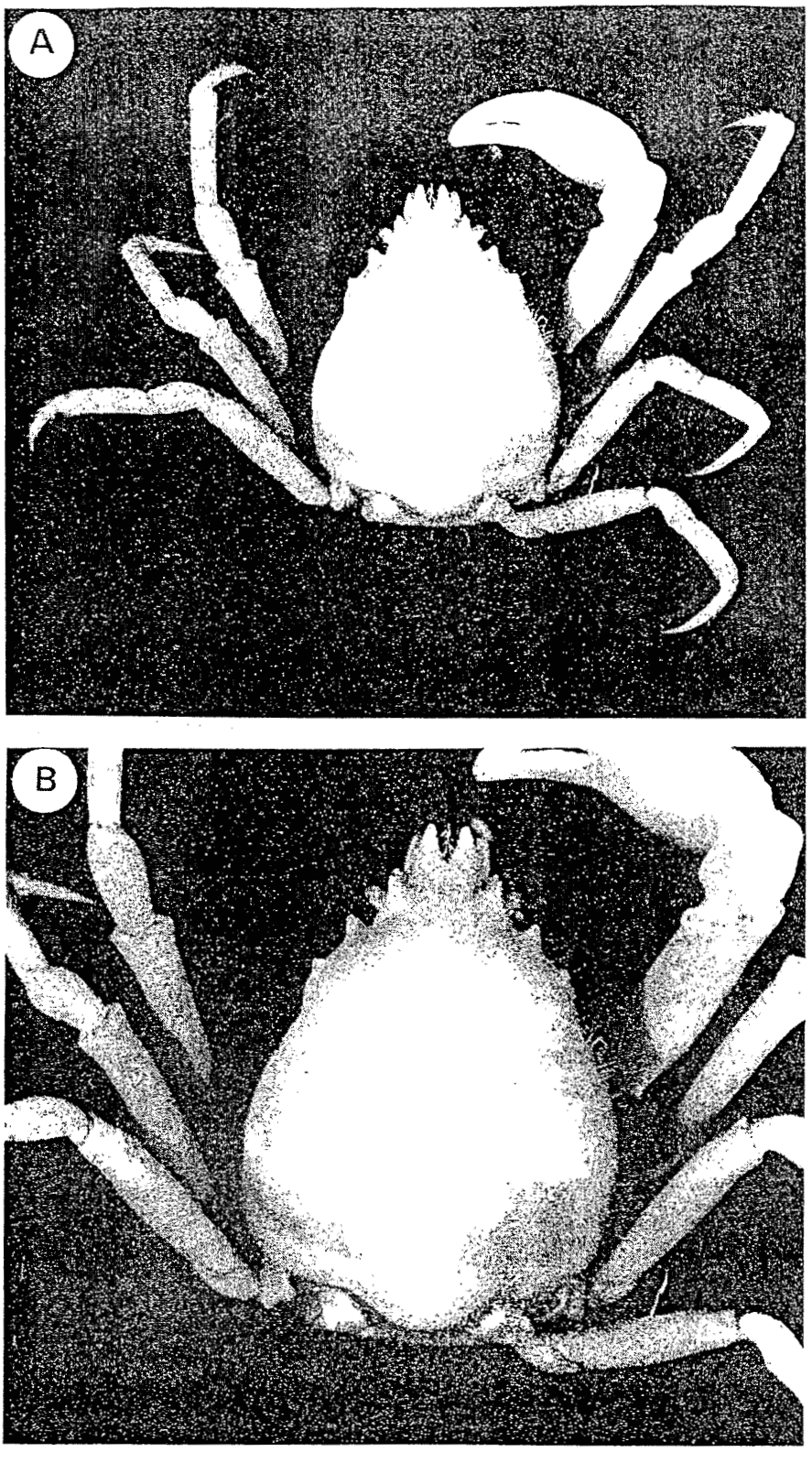

Fig. 1. *Griffinia gilloloensis* (Rathbun, 1916) comb. nov., male holotype 13.1 x 10 mm (USNM 48205). **A**, dorsal view; **B**, dorsal view of carapace.

Pisidarum Serène and Vadon, 1981: 128.

nec Antilibinia MacLeay, 1838: 56; Krauss 1843: 49; Stebbing 1910: 287; Stebbing 1918: 49; Rathbun 1916: 537; Barnard 1950: 36; Sakai 1965: 43; Sakai 1976: 201.

Diagnosis. A small species, less than 20 mm. Carapace pyriform, surface smooth, covered by long, thin, spaced hairs; without spines or tubercles. Rostrum composed of two divergent spines. Orbit very open, defined by strong, acute, preocular spine joining a very narrow supraocular eave ending in small, blunt, postocular spine. Basal antennal article longer than broad. Lateral border of the carapace with granules. One hepatic tooth, well developed in *G. lappacea*. Border of the pterygostomian area serrulate. Cheliped merus, carpus and propodus carinate in the male. Short ambulatory legs, cylindrical in cross-section. Abdomen with seven segments in male and six in female (fifth and sixth fused). First pleopod of male thin and straight, distally flattened with an apical opening.

Etymology. Dedicated to Dr. D. J. G. Griffin, who recognized that the genus *Antilibinia* was heterogeneous.

Type species. *Griffinia lappacea* (Rathbun, 1918).

Griffinia gilloloensis (Rathbun, 1916) comb. nov.
(Figs 1A-B, 2A)

Antilibinia gilloloensis Rathbun, 1916: 537; Rathbun 1918: 13; Sakai 1965: 43, fig. 2; Sakai 1976: 201, fig. 109; Griffin and Tranter 1986: 70.

Material Examined. 1 male holotype 13.1 x 10 mm (USNM 48205), Philippines, between Gillolo and Makyam Islands, RV *Albatross*, st. 5624, 0°12'15"N - 127°29'30"E, 535 m, 29 November 1909 (M. J. Rathbun det. *Antilibinia gilloloensis*).

Remarks. *Griffinia gilloloensis* has a short, round shell with long, dispersed setae. The rostral spines are very short, the supraocular spines are short and there is an hepatic tubercle. The pereopods have setae.

The carapace is shorter in *G. gilloloensis* than in *G. lappacea*; the rostral spines and supraocular spines are shorter too. In *G. gilloloensis* there is only an hepatic tubercle but there is a very long, blade-like sub-hepatic spine in *G. lappacea*.

Rathbun (1916) described this species without any illustrations and placed it in the genus *Antilibinia* without discussion. The only previously published figure is in Sakai's (1965, 1976) work on Japanese specimens.

The male first pleopod is straight, thin, with a sharp tip (Fig. 2A).

Distribution. Philippines and Japan.

Griffinia lappacea (Rathbun, 1918) comb. nov.
(Figs 3A-D, 4B-C)

Antilibinia lappacea Rathbun, 1918: 12-14, fig. 3, pl. 7, fig. 3; - Hale 1927: 133-134, fig. 133; Barnard 1950: 37; Griffin 1966b: 267-268; Sakai 1976: 201; Griffin and Tranter 1986: 70.

Pisidarum sp. Serène and Vadon, 1981: 128, pl. IVF.

Material Examined. AUSTRALIA: Great Australian Bight, S of Eucla, 32°S 129°60'E, 366-548 m, 5 April 1913, RV *Endeavour*, ovigerous holotype, 12.8 x 9 mm, AM E.3659; north-western Australia, CSIRO cruise 0184, FRV *Soela*, Stn 44, 16°18.1'S 120°18.7'E, 496-500 m, 5

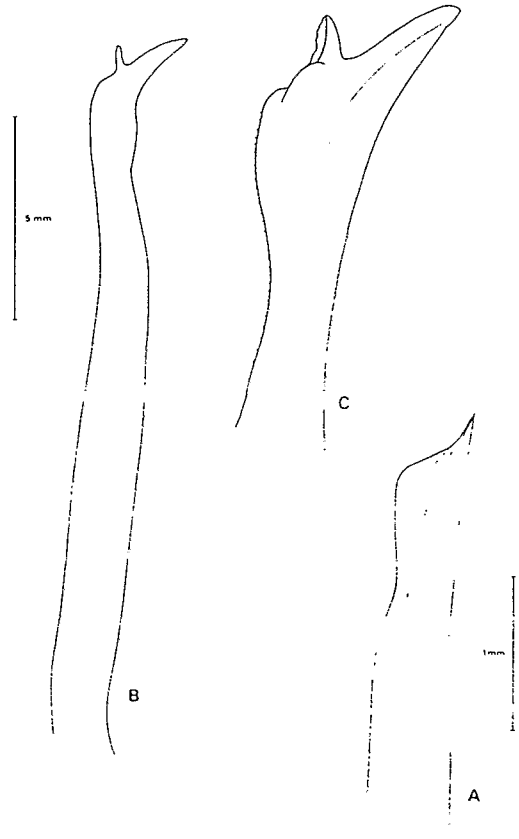

Fig. 2. Male first sexual pleopod. A, *Griffinia gilloloensis*; B, C, *Antilibinia smithii*.

February 1984, 1 male, 12 x 9.4 mm, NTM Cr.000931; FRV *Soela*, Stn 61, 14°40.7'S 121°26.7'E, 503 m, 12 February 1984, 2 ovigerous females, 13.6 x 9.5 mm, 12.6 x 9.3 mm, NTM Cr.008505. INDONESIA, East Tanimbar Islands: *Karubar* cruise, st. CP 38, 7°38'41"S 132°29'22"E, 620-670 m, 28 October 1991, 1 ovigerous female, 13.2 x 9.2 mm, MNHN B 22508; *Karubar* cruise, st. CP 39, 7°45'43"S 132°28'22"E, 466-500 m, 3 ovigerous females, 13.5 x 9.7 mm, 12.3 x 8.6 mm, 13 x 9.5 mm, MNHN B22506.

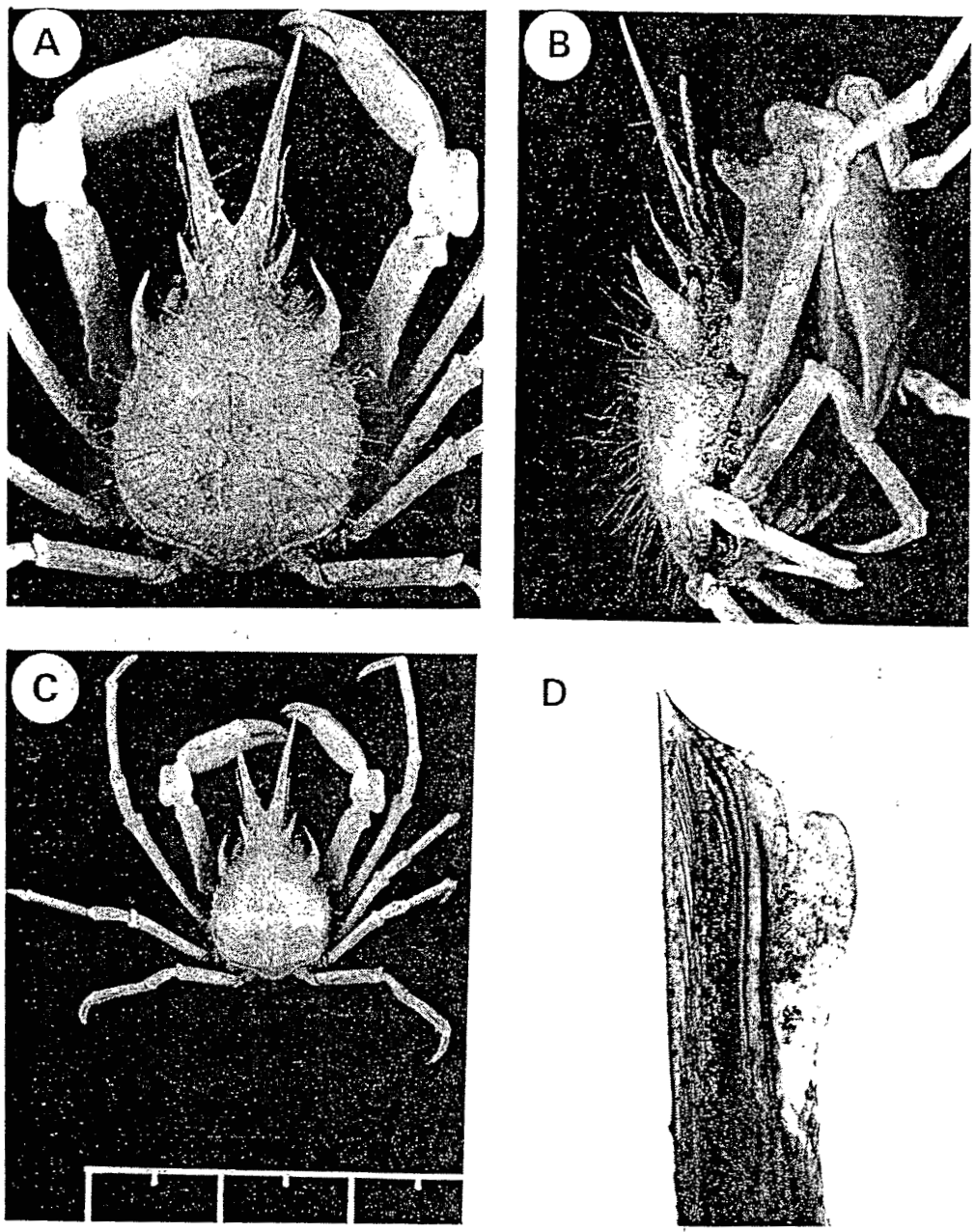

Fig. 3. *Griffinia lappacea* (Rathbun, 1918) comb. nov., male 12 x 9.4 mm. A, dorsal view; B, lateral view; C, general view; D, first pleopod, apical part.

Description. The following description, based on the 12 x 9.4 mm male, is the complement to Rathbun's 1918 description of the female holotype.

A small species (<20 mm), carapace pyriform, regularly rounded and without spines, area non-delimited, entirely covered by very long setae, straight and widely dispersed. Bifid rostrum, with two long sharp spines divergent into a V, setae present.

Orbit widely open with small eyes borne on short peduncles. One very strong preocular spine, slightly curved, pointing upward; small blunt post-ocular tooth very close to ocular peduncle. Sub-hepatic area surrounded by very long, flattened, curved blade-like spine, directed forward and upward (Figs 3B, 4C). Anterior border of branchial zone underlined by several large granules. Basal antennal article wide, with flat ventral side. Epistome longer than wide. Superior border of buccal cavity with three fissures, the median fissure deeper than others. Third maxilliped without spines, merus edge serrulate.

Chelipeds of male strong, with an inflated propodus, carinate at its superior edge; carpus with high foliate carina; merus also carinate, carina higher proximally and distally.

Ambulatory legs long and slender; first ambulatory legs longer than chelipeds; legs diminishing in size from first to fourth pair; articles sub-cylindrical. Merus from second to fifth pereopod with bump on distal superior edge, spiniform on second. Dactyli long and sharp.

Male abdomen composed of seven segments (abdomen of adult female with six segments, five and six fused). Male pleopods straight, slender, with flattened extremity, sharp tip and sub-apical opening (Fig. 3D).

Distribution. South and north-western Australia, Philippines, Indonesia (Kai Islands).

Griffinia polita (Griffin and Tranter, 1986) comb. nov.

Antilibinia polita Griffin and Tranter, 1986: 70, fig. 19, pl. 8.

Remarks. The only two specimens known, described by Griffin and Tranter (1986) from the Mortensen Pacific Expedition in Philippines Islands, are now located in the Zoological Museum in Copenhagen and were not examined. According to the original description, this species belongs to the same genus as *G. lappacea*, but the spines have some similarities with *Huenia* De Haan, 1839. The carapace is smooth in *G. polita* and has long hairs in the two other species, *G. gilloloensis* and *G. lappacea*.

Distribution. Philippine Islands.

Antilibinia smithii MacLeay, 1838
(Figs 2B-C, 4A)

Antilibinia smithii MacLeay, 1838: 57, pl. 2; - Krauss 1843: 49, pl. 3; Stebbing 1893: 117; Stebbing 1910: 287; Stebbing 1918: 49; Rathbun 1916: 537; Rathbun 1918: 13; Barnard 1950: 38, fig. 7c-d; Griffin 1966: 267; Sakai 1976: 201; Griffin and Tranter 1986: 70.

Material Examined. South Africa, Coffee Bay, 31°59'14"S 29°9'14"E, "Caught on rocks just above deep pool at low tide", R. E. Stobbs coll., 5 November 1972, 1 male 55.7 x 52.4 mm, SAMA 13381.

Remarks. Large species. Shell rounded and flattened. Very short rostral spines. Strong, curved antero-lateral spines. Two strong spines on postero-lateral border, one cardiac and one branchial area of the shell well delimited. Gastric area and anterior part of branchial area tuberculate. Chelipeds without carinae. Ambulatory legs short with strong articles. First male pleopod long and straight, tip with two points (Fig. 2B-C).

DISCUSSION

The genus *Antilibinia* was described by MacLeay (1838) based on a large species (72 x 67 mm), *A. smithii*, from shallow waters of South Africa. Rathbun (1916, 1918) placed the genus *Antilibinia* in the sub-family Acanthonychinae. The genus contained three species: *A. smithii* MacLeay, 1838, *A. gilloloensis* Rathbun, 1916 and *A. lappacea* Rathbun, 1918. Barnard (1950) put this genus in the family Acanthonychidae and pointed out that the deep-water species of South Australia, *A. lappacea*, seems misplaced in the genus.

According to Garth (1958), the genus *Antilibinia* is clearly in the sub-family Acanthonychinae. However, Serène and Vadon (1981) thought that their specimen of "*Pisidarum*" belongs to the sub-family Pisinae. But, curiously, we can read in the same text "*Pisidarum* sp. est un spécimen ne correspondant à aucun des genres de Pisidae, voire de Majoidea, décrit à ce jour".

Griffin (1966) placed *Antilibinia* in the sub-family Acanthonychinae, characterized by an "eye stalk short, little moveable and either concealed by a preorbital spine or sunk in sides of rostrum". In 1986, Griffin and Tranter put this genus in the sub-family Epialtinae characterized by "a sunken orbit and short, often immobile, eyestalks and many species have a prominent beaked rostrum"; they also pointed out the diversity in male pleopods of this group. The Epialtinae was by then recognised as the correct name for what had been referred to previously as the Acanthonychinae.

Griffin and Tranter (1986) described another species in the genus *Antilibinia*, *A. polita*, and proposed to create a new genus for the Pacific species.

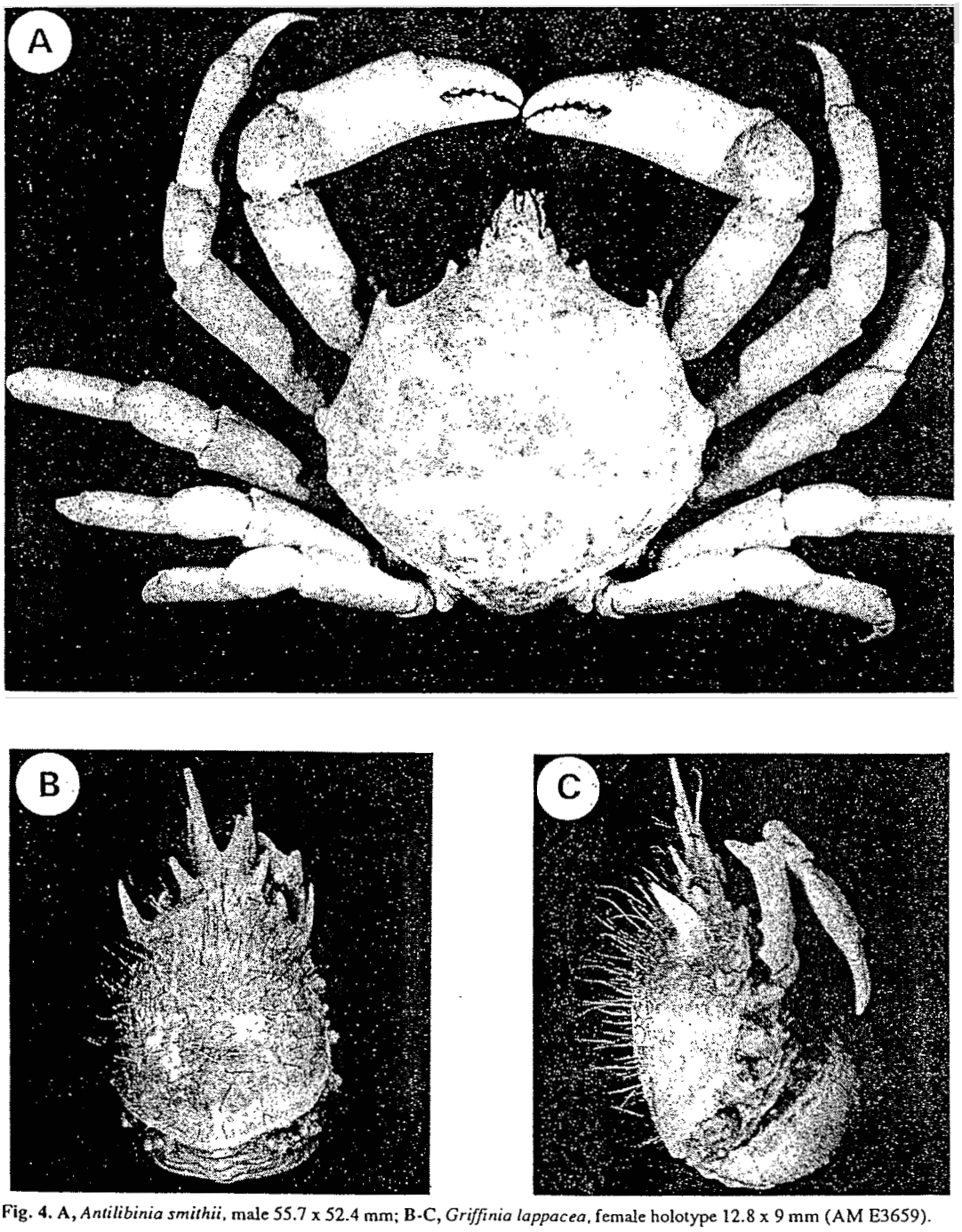

Fig. 4. A, *Antilibinia smithii*, male 55.7 x 52.4 mm; B-C, *Griffinia lappacea*, female holotype 12.8 x 9 mm (AM E3659).

The new genus *Griffinia* differs from *Antilibinia* by the following characters:

- *Griffinia* is composed of small species, but the single species of *Antilibinia* is large;
- a subpyriform carapace without a marked area present in *Griffinia*, subcircular with well defined zones in *Antilibinia*;
- carapace compressed, with two strong branchial and antero-lateral spines in *Antilibinia*; in *Griffinia* the carapace is not compressed and has only one lateral spine in the hepatic area;
- female abdomen with seven segments in *Antilibinia* and only six in *Griffinia*;
- long, thin ambulatory legs, articles of chelipeds carinate in *Griffinia*, in *Antilibinia* the ambulatory legs are thick and relatively short, and the cheliped of the male is stout with rounded edges;
- chelipeds shorter than the first ambulatory legs in *Griffinia*; longer in *Antilibinia*;
- first male pleopod with one apical spine in *Griffinia* and with two terminal spines in *Antilibinia*.

Finally, all *Griffinia* species are from deep waters and *Antilibinia* is from shallow water. The morphological differences between *Antilibinia smithii* and the *Griffinia* species (*G. gilloloensis*, *G. lappacea*, *G. polita*) are very significant.

In their extensive work on the Majidae of the Siboga-Expedition, Griffin and Tranter (1986) described a fourth species in the genus *Antilibinia*, *A. polita*, with a female holotype and a male juvenile paratype (6.5 mm). These authors recognised that the genus is heterogenous. They remark that *A. polita* has characters in common with *Huenia* De Haan, 1839, and that the male of *A. smithii* has a first pleopod similar to that of *Acanthonyx* Latreille, 1825.

Describing Japanese specimens of *Antilibinia gilloloensis*, Sakai (1965, 1976) said "As in the species of *Pugettia*, the anterior male pleopod is trilobate at tip". On the holotype of *A. gilloloensis* I observed a pleopod with only one spine as in *A. lappacea*.

The shape of the first pleopod of *Griffinia lappacea* (Rathbun, 1918) looks very similar to those of some *Rochinia* A. Milne Edwards, 1875, species such as *R. tomentosa* Griffin and Tranter, 1986.

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