

INTRODUCTION

This is the second of my series on the galatheidean crustaceans (Chirostylidae and Galatheidae) of New Caledonia (BABA, 1991), reporting five species of the genera *Alainius* new genus, *Leiogalatea* Baba, 1969, and *Phylladiorhynchus* Baba, 1969. Specimens belonging to *Munida* Leach are currently being studied by Enrique MACPHERSON, and those belonging to *Munidopsis* Whiteaves by Michèle DE SAINT LAURENT. Seven specimens very close to the species of *Phylladiorhynchus* in rostral shape are excluded from the diagnosis of that genus, and a new genus *Alainius* is established for them. *Phylladiorhynchus* is redefined and it is suggested that *P. caribensis* Mayo, 1972, from the western Atlantic be removed from the genus. Also removed from *Phylladiorhynchus* is *P. antonbruuni* Tirmizi & Javed, 1980b from off Mozambique. Examination of the type material of that species as well as of a New Caledonian specimen which is very much like *P. antonbruuni* indicated that *P. antonbruuni* should be transferred to *Munida*.

The postorbital carapace lengths in mm are given under "Material examined." Colors of the specimens provided are described from transparencies. The material reported here is deposited in the Muséum national d'Histoire naturelle, Paris (MNHN).

SYSTEMATIC ACCOUNT

Genus *ALAINIUS* nov.

DIAGNOSIS. — Carapace lacking epigastric spines. Rostrum dagger-shaped, with moderately sized supraocular tooth on each side. Lateral limit of orbit unarmed, not produced. Basal segment of antennule with 3 terminal spines, distomesial one not double. First segment of antennal peduncle with prominent ventrodistal process mesially. Third thoracic sternite relatively wide, posteriorly narrowed. Male pleopods on first and second abdominal somites.

REMARKS. — The carapace ornamentation, well-developed eyes, a dagger-shaped rostrum with well-developed supraocular teeth, and a prominent anterior prolongation of the first segment of the antennal peduncle suggest that *Alainius* is very near *Phylladiorhynchus*. The new genus is most distinctively characterized by lack of epigastric spines, unarmed lateral limit of the orbit, single (not double) spine on the distomesial margin of the basal segment of the antennule, and presence of male pleopods on the first and second abdominal somites. *Alainius* differs from *Nanogalatea* Tirmizi & Javed, 1980a, by the same set of characters and the latter is further distinguished by the absence of supraocular teeth.

GENDER. — Masculine.

TYPE-SPECIES. — *Alainius crosnieri* sp. nov.

ETYMOLOGY. — The generic and specific names are dedicated to Alain CROSNIER who participated in the expeditions to New Caledonia and by whose effort the Museum collections have increased considerably in recent years.

Alainius crosnieri sp. nov.

Figs 1–2, 5

MATERIAL EXAMINED. — **Loyalty Islands.** MUSORSTOM 6 : stn CP 464, 21°02.30'S, 167.31.60'E, 430 m, 21 Feb. 1989 : 1 ♀ 5.0 mm [with externa of rhizocephalan parasite] (MNHN Ga 2036). — Stn DW 471, 21°08.00'S, 167°54.10'E, 460 m, 22 Feb. 1989 : 1 ♀ 3.3 mm (MNHN Ga 2037). — Stn DW 472, 21°08.60'S, 167°54.70'E, 300 m, 22 Feb. 1989 : 1 ♂ 3.9 mm (MNHN Ga 2038).

BIOCAL : stn DW 83, 20°35'S, 166°54'E, 460 m, 6 Sep. 1985 : 1 ♀ 3.9 mm (MNHN Ga 2040).

CALSUB : dive 03, 20°36'S, 167°13'E, 90–600 m, 22 Feb. 1989 : 1 ♂ 3.9 mm (MNHN Ga 2041).

New Caledonia. — CHALCAL 2 : stn DW 77, 23°38.35'S, 167°42.68'E, Norfolk Ridge, 435 m, 30 Oct. 1986 : 1 ♂ 4.1 mm, 1 ♀ 4.3 mm (MNHN Ga 2039).

TYPES. — The female (MNHN Ga 2037) from Stn DW 471 (MUSORSTOM 6) is selected as holotype, the remaining specimens are paratypes.

DESCRIPTION. — Carapace moderately convex dorsally from side to side, as long as wide; anterior half of dorsal surface with 4 transverse ridges, occasionally with fifth ridge; first one on epigastric region interrupted at middle, lacking spines. Posterior half with 4 uninterrupted transverse ridges usually interspersed with interrupted ones. All ridges fringed with fine setae, without long setae. Cervical groove indistinct. Lateral margins convex medially or somewhat divergent posteriorly (greatest width measured at about one-fourth from posterior end); bearing 4 spines of moderate size, first anterolateral, second to fourth situated on anterior branchial region.

Rostrum dagger-shaped, with moderately sized supraocular tooth on each side, feebly deflexed, length (from tip to between front margins) 1.3–1.9 times distance between lateral orbital limits, 0.35–0.43 times as long as remaining carapace; dorsal surface concave longitudinally (sides elevated, mid-longitudinal surface depressed), finely granulate; lateral margins somewhat convex, with feeble dentition usually on distal portion, rarely on whole length or rarely invisible. Orbit laterally unarmed; lateral portion of ventral margin finely granulate. Pterygostomial flap ending in small spine or rounded margin, with very weakly elevated, interrupted ridges on surface.

Abdomen unarmed, bearing sparse long coarse setae; tergite of second somite with 2 transverse ridges, those of third and fourth somites with anterior ridge only, no ridges on following somites. Telsonal plate without distinct subdivision. Male pleopods on first and second abdominal somites.

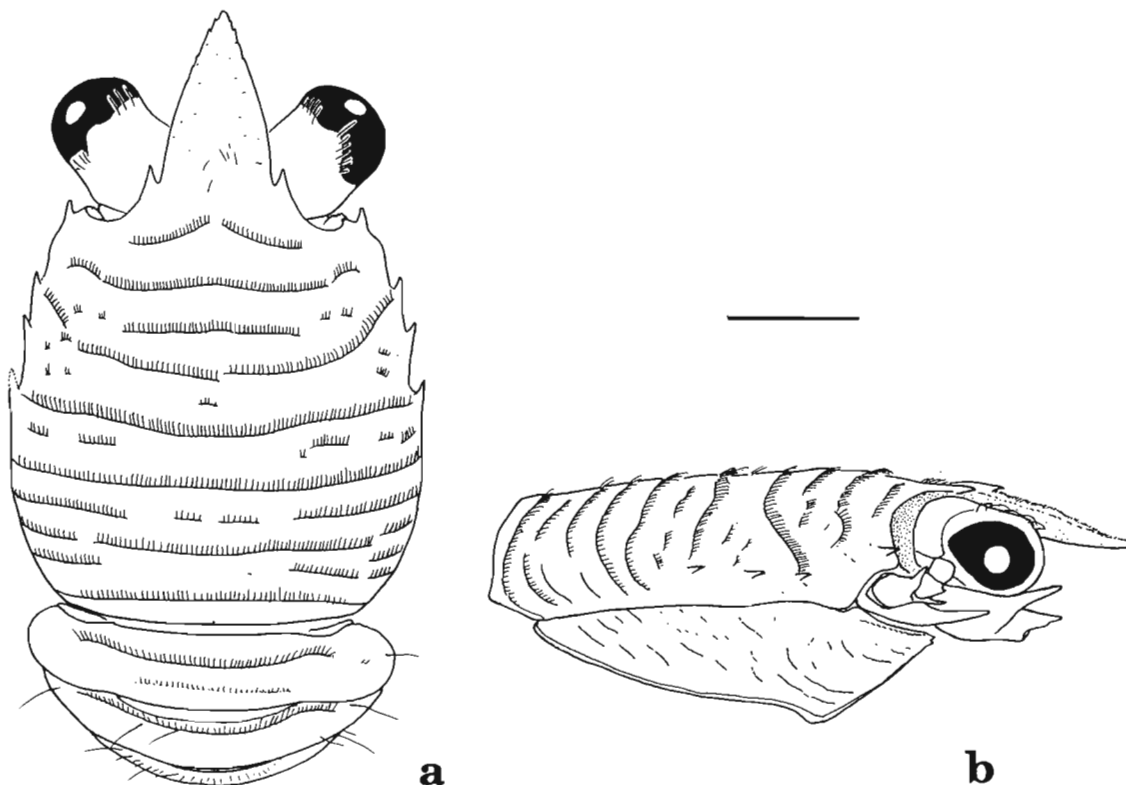


FIG. 1. — *Alainius crosnieri* sp. nov., ♀ holotype from Stn DW 471 (MUSORSTOM 6) : a, carapace and abdomen, dorsal view; b, carapace, lateral view.

Eyestalks well developed, about as wide as distance between mesial bases of supraocular teeth, cornea not dilated, about as wide as remainder of eyestalk.

Basal segment of antennule relatively stout and wide, bearing 3 well-developed terminal spines, mesial and lateral subequal, dorsal strongest, directed straight anterodorsally. Antennal peduncle well developed, first segment with strong distoventral process extending beyond end of peduncle, usually barely reaching (rarely fully over-reaching) end of antennular basal segment excluding spines; second segment with distomesial and distolateral spines; third and fourth segments unarmed.

Third maxilliped having ischium slightly shorter than merus when measured in midlateral line, with short terminal spines on dorsal and ventrolateral margins, mesial ridge with 17–22 denticles; merus with 2 well developed, elongate spines of subequal size on ventrolateral margin: 1 on distal end, 1 on midlength; distodorsal margin with small spine.

Third thoracic sternite anteriorly widened, posteriorly narrowed, anterior margin denticulate and convex usually with (rarely without) median excavation. Following sternite not triangular, anterior margin relatively wide, concave, and contiguous to preceding sternite, anterolateral margin rounded.

Chelipeds 3.1–3.8 (male) or 2.6–3.2 (female) times as long as postorbital carapace length, relatively massive, covered with scaly ridges fringed with fine plumose setae. Merus narrowed proximally, widened distally, armed with spines as figured; mesially with stronger spines arranged roughly in 3 rows (ventromesial, mesial, dorso-mesial), row of ventral spines invisible in dorsal aspect. Carpus 1.4 or 1.5 times as long as wide, 0.72 – 0.83 times as long as palm; feeble dorsal groove flanked by line of spines; 3 prominent mesial marginal spines oblique in arrangement, distal one somewhat dorsal, median one strongest, mesial, and proximal one ventral. Palm moderately depressed dorsoventrally, usually slightly longer than, rarely subequal to or shorter than, movable finger; 1.5 – 1.7 times as long as wide; mesially with 2 rows of few spines, one of them slightly dorsal in position; lateral margin usually with distal spine, occasionally with 1 or 2 accompanying spines proximal to it. Fingers with sparse long coarse setae, distally crossing, dorsally and ventrally with bare rounded longitudinal ridge; opposable margins nearly straight, or sinuous, with 2 distinct convexities and line of denticles, or rarely gaping in male; gaping fingers as illustrated (Fig. 2 g), movable finger nearly straight and relatively wide, with cutting edge bearing 2 low processes on proximal half, fixed finger fitting to opposing margin when closed by distal denticulate edge formed by low but basally wide process.

Walking legs relatively stout; distal 2 segments with long coarse setae. First and second walking legs subequal, third shorter; merus with 7–9 spines on dorsal margin, 1 on disto-ventrolateral margin on first and second legs, 5 on lateral surface on third leg; carpus with 4 or 5 dorsal marginal spines subparallel to lateral ridge without spines; propodus 1.3 – 1.5 times as long as dactylus, dorsal margin with 1 or 2 proximal spines but rarely spineless on third leg; dactylus distally curving, ending in sharp claw, ventrally serrate with 7 or 8 slender movable spines.

Chelipeds and first two walking legs with epipods.

COLOR. — Female paratype from Stn CP 464 (MUSORSTOM 6) (Fig. 5). Body including abdomen light orange, paler on posterior abdominal somites. Carapace with reddish anterolateral portion and lateral margins, but latter invisible in dorsal view; anterior one-fourth of carapace tinged with light purple. Pterygostomial flap with small red spots in longitudinal row. Pereopods orange, dactyli including fixed finger of cheliped very pale in color. Palm of cheliped distally with red semicircular mark extending from middorsal to midventral surface, including mesial face.

Genus *PHYLLADIORHYNCHUS* Baba, 1969

Phylladorhynchus Baba, 1969 : 3 (type-species : *Galathea pusilla* Henderson, 1885).

DIAGNOSIS. — Carapace with distinct epigastric spines. Rostrum dagger-shaped, with well developed supra-ocular tooth on each side. Lateral limit of orbit produced. Basal segment of antennule with double spines on distolateral margin. Antennal peduncle with strong anterior prolongation arising from distoventral margin of first segment. Male pleopods only on second abdominal somite.

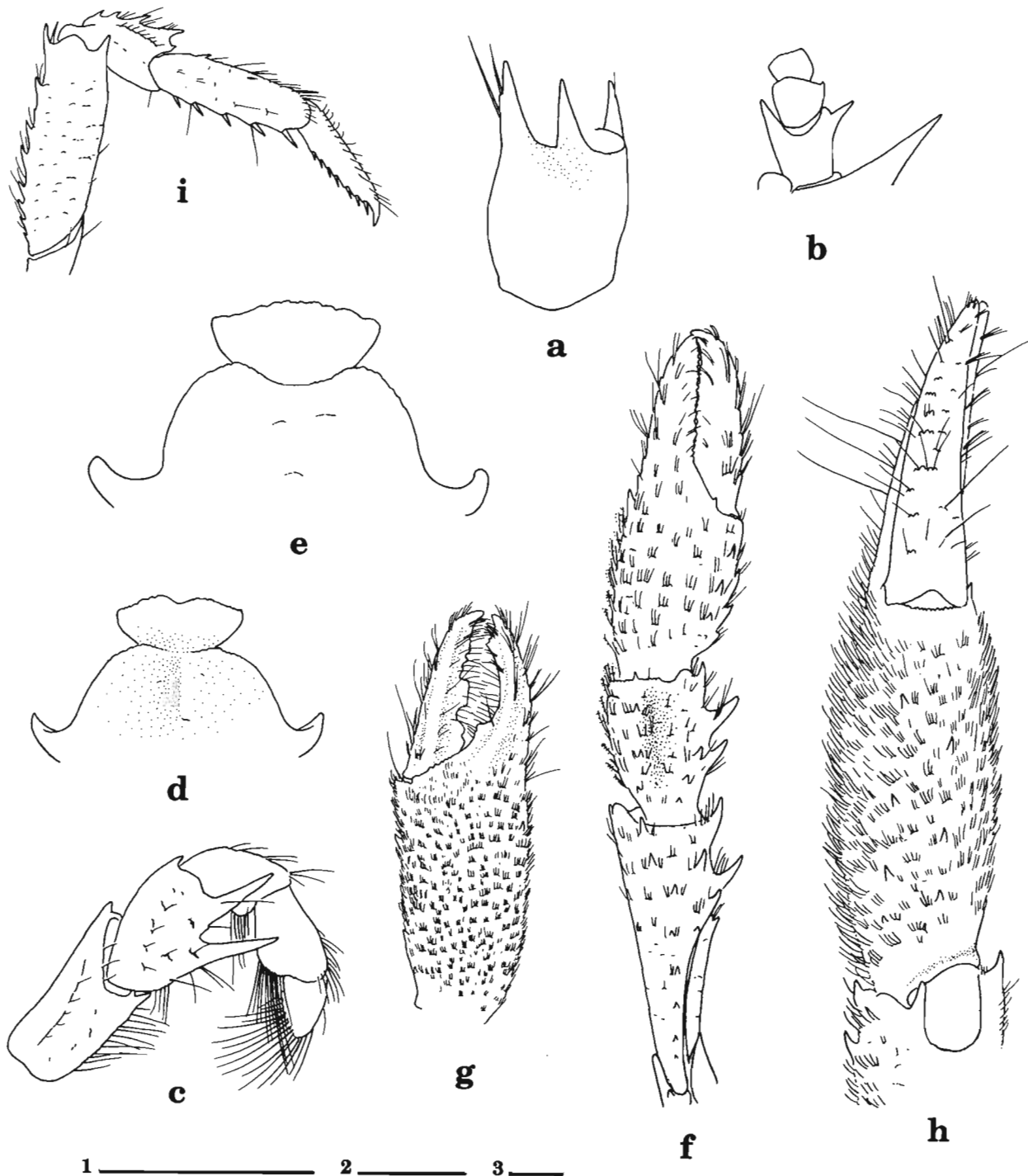


FIG. 2. — *Alainius crosnieri* sp. nov.; a–d, f, i, ♀ holotype from Stn DW 471 (MUSORSTOM 6); e, h, ♂ paratype collected by Dive 03 (CALSUB); g, ♂ paratype from Stn DW 472 (MUSORSTOM 6): a, basal segment of right antennule, ventral view; b, right antennal peduncle, ventral view; c, endopod of right third maxilliped, lateral view; d, anterior part of sternum; e, same; f, left cheliped, dorsal view; g, right chela, dorsal view; h, distal half of right cheliped, mesial view; i, right first walking leg. Scales = 1 mm; scale 1 for a–e; scale 2 for f, h, i; scale 3 for g.

REMARKS. — The genus as defined above accommodates four Indo-Pacific species: *P. bengalensis* Tirmizi & Javed, 1980b; *P. ikedai* (Miyake & Baba, 1965); *P. pusillus* (Henderson, 1885); and *P. integrirostris* (Dana, 1853) [= *P. serrirostris* (Melin, 1939), see below]. The eastern Pacific *P. lenzi* (Rathbun, 1907) may be identical with *P. pusillus* (see below under "Remarks" on *P. pusillus*). The species differ morphologically in ornamentation of the carapace (of dorsal spines in particular) and shape of the third thoracic sternite. There still remains some doubt as to the identity of the eastern Pacific specimens of *P. integrirostris* and *P. pusillus* (see below under "Range" of respective species) for their disjunct distribution, for which more careful study is desirable.

The small subapical rostral spines, originally thought diagnostic for the genus (BABA, 1969 : 3), were thought by TIRMIZI & JAVED (1980b) to be one of the specific characters. As apparent in Fig. 5, however, presence or absence of the spines is subject to intraspecific variation, although they are usually present. This variability was seen in specimens from New Zealand of *P. pusillus* (see BABA, 1974 : 381) (Unpublished data).

Phylladorhynchus antonbruuni Tirmizi & Javed, 1980b, from the Indian Ocean, is excluded from the genus (as presently defined) because of the lack of double distomesial spines on the antennular basal segment, the lack of prolongation of the ventral process on the first segment of the antennal peduncle, and an unarmed lateral limit of the orbit, upon which TIRMIZI & JAVED expanded the definition of *Phylladorhynchus*. Fortunately, a specimen that is very much like *P. antonbruuni* was found in the present collection. It was collected by MUSORSTOM 4 at Station 149 (19°07.60'S, 163°22.70'E) at 165 m, and apparently represents a young stage of *Munida* sp. The rostrum, antennule, antenna, third maxilliped and third thoracic sternite are like those in *P. antonbruuni* (see Fig. 3); however, the rostrum has on the dorsal surface a rounded longitudinal elevation discernible only under careful lighting, and suggesting an adult rostrum of *Munida*. The presence of not only the postcervical spines but also several ventral marginal spines on the merus of the walking leg displayed by *P. antonbruuni* is characteristic of *Munida*, not *Phylladorhynchus*. Examination of the holotype of *P. antonbruuni* (USNM 180386) confirmed to my satisfaction that the rostral dorsal ridge is distinct, although the type is now in very bad condition. Without doubt TIRMIZI & JAVED's species should now be transferred to *Munida*.

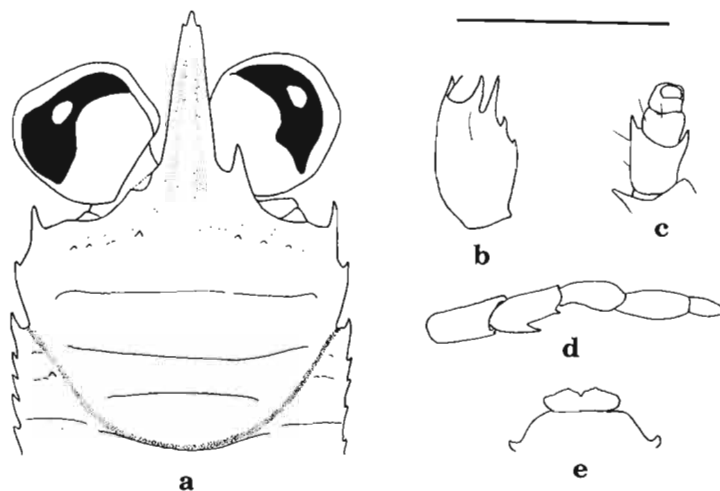


FIG. 3. — *Munida* sp. (sex indeterminate) from Stn 149 (MUSORSTOM 4): a, anterior half of carapace, dorsal view; b, basal segment of left antennule, ventral view; c, left antennal peduncle, ventral view; d, endopod of right third maxilliped, lateral view; e, anterior part of sternum. Scale = 1 mm.

Phylladorhynchus caribensis Mayo, 1972, from the Caribbean Sea, does not fall into the present definition of the genus, in that the antennular basal segment has three rather than four or five terminal spines [counting the doubled mesial terminal spine as two]; and that male pleopods are present on the first two abdominal segments (BABA, unpublished). These considerations confirm that it should eventually be placed in a new genus, as suggested by LEWINSOHN (1982 : 298). Further details including comparison with a closely related genus *Pleuroncodes* Stimpson, 1860, will be reported later elsewhere.

Key to species of *Phylladorhynchus*

1. Two epigastric spines *P. integrirostris*
 — More than 2 epigastric spines 2
2. Four epigastric spines *P. pusillus*
 — Five epigastric spines 3
3. Anterior margin of third thoracic sternite nearly transverse with median and lateral projections *P. bengalensis*
 — Anterior margin of third thoracic sternite moderately convex with feeble median excavation *P. ikedai*

Phylladorhynchus ikedai (Miyake & Baba, 1965)

Fig. 4 a-b

Galathea ikedai Miyake & Baba, 1965 : 588, figs 3-4.*Phylladorhynchus ikedai* - BABA, 1969 : 5; 1977 : 252.

MATERIAL EXAMINED. — **New Caledonia.** MUSORSTOM 4 : stn 151, 19°07.0'S, 163°22.0'E, 200 m, 14 Sept. 1985 : 1 ♂ 1.9 mm, 1 postlarva 1.4 mm (MNHN-Ga 2042). — Stn 238, 22°13.0'S, 167°14.0'E, 500–510 m, 2 Oct. 1985 : 1 ovig. ♀ 3.2 mm (MNHN-Ga 2043).

CALSUB : dive 18, 22°46'S, 167°20'E, Isle of Pines, 200–300 m, on block, 29 Mar. 1989 : 1 ♂ 2.0 mm (MNHN-Ga 2047).

Loyalty Islands. MUSORSTOM 6 : stn CP 401, 20°42.15'S, 167°00.35'E, 270 m, 14 Feb. 1989 : 1 ♂ 2.3 mm (MNHN-Ga 2044). — Stn DW 485, 21°23.48'S, 167°59.33'E, 350 m, 23 Feb. 1989 : 1 ♀ 2.7 mm (MNHN-Ga 2045).

CALSUB : dive 16, 20°37.8'S, 167°02.7'E, 500 m, 7 Mar. 1989 : 1 ♂ 2.8 mm; 370 m : 1 ♂ 1.6 mm; 825–370 m : 1 ♂ 2.8 mm (MNHN-Ga 2046).

RANGE. — Bonin Islands (type-locality), Maldives, and for the first time recorded from New Caledonia. If the «John Murray» material of *Galathea pusilla* reported by TIRMIZI (1966 : 175) proves to be identical with this species (see discussion under “Remarks” on *P. pusillus*), the geographical range will be extended west to the Red Sea. The bathymetric range now recorded for the first time is from 200 to at least 500 m.

Phylladorhynchus integrirostris (Dana, 1853)

Fig. 4 c-d

Galathea integrirostris Dana, 1853 : 482; 1855, pl. 30, fig. 12 a-b.? *Galathea integrirostris* - EDMONDSON, 1933 : 228.*Galathea serrirostris* Melin, 1939 : 72, figs 43–47.*Phylladorhynchus serrirostris* - BABA, 1969 : 4; 1990 : 969 (synonymy and references).*Phylladorhynchus integrirostris* - LEWINSOHN, 1982 : 295, fig. 1.

MATERIAL EXAMINED. — **Chesterfield Islands.** CHALCAL 1 : stn DC 26, 19°10.72'S, 158°34.95'E, 48 m, 18 Jul. 1984 : 1 ♂ 2.4 mm (MNHN-Ga 2055). — Stn DC 55, 21°23.90'S, 158°59.60'E, 55 m, 25 Jul. 1984 : 1 ♂ 2.6 mm (MNHN-Ga 2056).

CORAIL 2 : stn CP 23, 20°30.60'S, 161°03.55'E, 80–83 m, 22 Jul. 1988 : 1 ♂ 1.9 mm, 2 ovig. ♀ 1.7, 1.7 mm (MNHN-Ga 2048). — Stn CP 24, 20°27.35'S, 161°04.70'E; 74–75 m, 22 Jul. 1988 : 1 ovig. ♀ 1.9 mm (MNHN-Ga 2049). — Stn CP 25, 20°25.00'S, 161°05.00'E, 70–67 m, 22 Jul. 1988 : 1 ♂ 1.7 mm (MNHN-Ga 2050). — Stn DW 33, 19°24.97'S, 158°52.12'E, 52 m, 23 Jul. 1988 : 1 ovig. ♀ 2.0 mm (MNHN-Ga 2051). — Stn DW 88, 19°05.98'S, 158°55.85'E, 32 m, 26 Aug. 1988 : 1 ♂ 2.5 mm, 1 ♀ 2.8 mm (MNHN-Ga 2052). — Stn DW 101, 19°08.99'S, 158°26.24'E, 37 m, 27 Aug. 1988 : 1 ♂ 2.1 mm (MNHN-Ga 2053). — Stn DW 160, 19°46.00'S, 158°23.00'E, 35–41 m, 1 Sep. 1988 : 1 ♂ 2.6 mm (MNHN-Ga 2054).

New Caledonia. CHALCAL 2 : stn DW 80, 23°26.70'S, 168°01.80'E, Norfolk Ridge, 80–160 m, 30 Oct. 1986 : 2 ♂ 2.4, 2.9 mm, 1 ovig. ♀ 2.2 mm (MNHN-Ga 2057).

REMARKS. — No attention had been paid to the description of *Galathea integrirostris* from Hawaii by DANA (1853 : 482) until LEWINSOHN (1982 : 295) reported it from the Gulf of Aqaba. The topotypic material in the University of Copenhagen that I identified as *P. serrirostris* (see BABA, 1988 : 3) is referable to *P. integrirostris*. LEWINSOHN believed that the absence of small subapical teeth in DANA's description meant that his specimens from the Red Sea were different. Even if DANA mistakenly overlooked them, it seems that their absence would not be of specific importance, as discussed above under "Remarks" on the genus *Phylladorhynchus*.

The number of ventral marginal spines on the dactylus of the walking legs is mostly five, rarely four or six; this is smaller than in *P. ikedai* and *P. pusillus* which bear from six to nine (mostly seven or eight) spines.

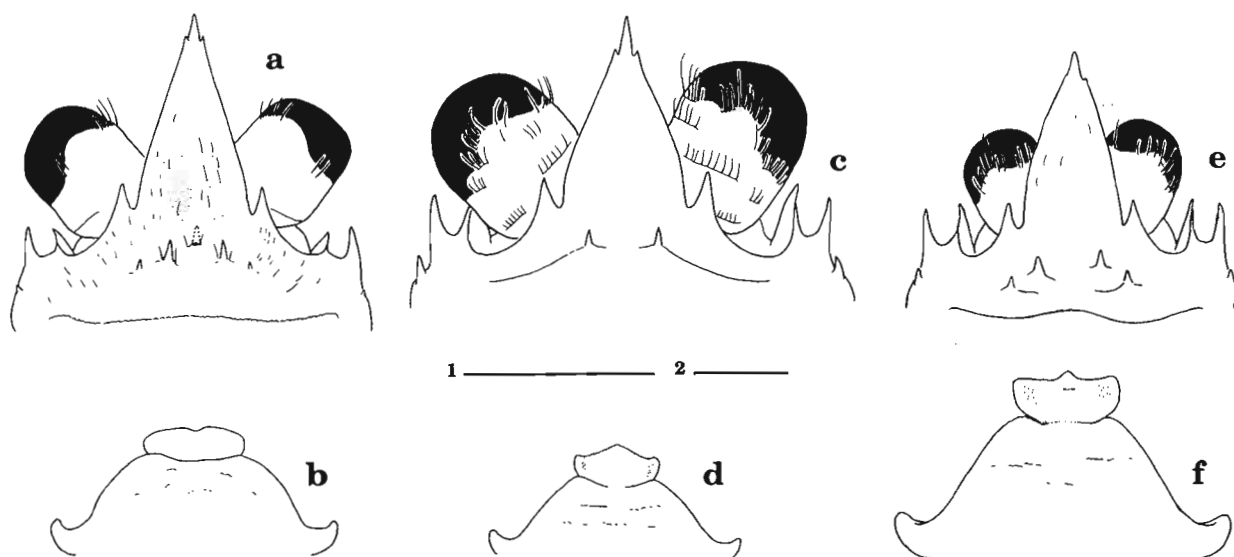


FIG. 4. — Anterior part of carapace with rostrum (upper) and third thoracic sternite (lower) : a, *Phylladorhynchus ikedai* (Miyake & Baba, 1965), ♂ from Stn CP 401 (MUSORSTOM 6); b, same, ♂ collected by Dive 16 (CALSUB). — c-d, *Phylladorhynchus integrirostris* (Dana, 1853), ♀ from Stn DW 88 (CORAIL 2). — e-f, *Phylladorhynchus pusillus* (Henderson, 1885), ovig. ♀ from Stn DW 355 (MUSORSTOM 5). Scales = 1 mm; scale 1 for a-d, f; scale 2 for e.

RANGE. — Given the synonymy with *P. serrirostris*, the species is widely distributed in the Indo-Pacific from the western Indian Ocean between the Red Sea and South Africa, to Juan Fernández and Easter Islands in the eastern Pacific (for the eastern Pacific record see notes under "Range" of *P. pusillus*), via Madagascar, Providence Island, Malay Archipelago, Andaman Sea, Moluccas, Ternate, Palau Islands, Ryukyu Islands, Japan, Bonin Islands, Marshall Islands and Hawaiian Islands.

Phylladorhynchus pusillus (Henderson, 1885)

Fig. 4 e-f

Galathea pusilla Henderson, 1885 : 407.

Galathea integra Benedict, 1902 : 248.

Phylladorhynchus pusillus - BABA, 1969 : 4 (synonymy and references). — HAIG, 1973 : 282.

MATERIAL EXAMINED. — **Chesterfield Islands.** MUSORSTOM 5 : stn DW 355, 19°36.43'S, 158°43.41'E, 580 m, 18 Oct. 1986 : 1 ♂ 4.0 mm, 2 ovig. ♀ 3.2, 3.3 mm (MNHN-Ga 2058).

REMARKS. — GRANT & MCCULLOCH (1906 : 50) noted that some of their specimens of *Galathea pusilla* had a pair of gastric spines, instead of four spines as in the type. It is possible that their collection included *P. integrirostris* which has two gastric spines. *Galathea pusilla* reported by MCNEILL from the Capricorn Group, Queensland, is also removed from the synonymy for the time being, because he identified his specimens according to the key to the species provided by GRANT and MCCULLOCH (see MCNEILL, 1926 : 305). Very possibly this species should be referred to *P. integrirostris* [= *P. serrirostris* (Melin, 1939), see below for synonymy], since MCNEILL recorded it from a reef pool and this is a typical habitat for *P. integrirostris* in tropical and subtropical regions (MIYAKE & BABA, 1966; BABA, 1977, 1979).

LEWINSOHN (1969 : 116) believed that the «John Murray» specimens reported by TIRMIZI (1966 : 175) as *Galathea pusilla* from the Red Sea could be placed in a new species. These specimens are possibly identical with *P. ikedai*, because they have five gastric spines. The triangular rostrum with straight, relatively short lateral margins and well-developed supraocular teeth displayed by the «John Murray» specimens was considered to be unusual (see LEWINSOHN, 1969 : 116), but it may fall within the limits of variation, for the following reason. A number of specimens of *P. pusillus* from New Zealand waters (BABA, 1974 : 381) are comparatively large and robust (the largest I have examined is about twice as big as those from either Japan or the East China Sea) and the rostrums have a nearly straight (not convex) lateral margin and a strong supraocular tooth as shown by TIRMIZI for the «John Murray» material. However, small specimens have a typical rostrum and I am unable to distinguish them from the New Caledonian specimens or from the other specimens I have examined from the other localities.

Galathea lenzi Rathbun, 1907, from Juan Fernández may be referable to *Phylladiorhynchus pusillus*; HAIG (1955 : 31) reported it from Chile, and her illustration apparently indicates that the specimen she examined has four gastric spines. The synonymy here proposed may be explained by examination of additional material from Juan Fernández noted below under "Range."

RANGE. — Victoria, Tasmania and Twofold Bay in Australia (110–275 m), east and west coasts of New Zealand (15–46 m), East China Sea (102–196 m) and Japan from Kyushu to Tsugaru Strait (71–300 m). This is the first record from New Caledonia. The species seems to be a temperate water form; in Japan it occurs in rather deep waters. At the request of Janet HAIG I have examined specimens of *Phylladiorhynchus* collected by "Anton Bruun" Cruise 12. One specimen from Más á Tierra Island, Cumberland Bay, Juan Fernández Islands, in 0–9 m is identified as *P. integrirostris*, and about 70 specimens from the same Bay in 130–160 m are referred to *P. pusillus*. Also the collection contains 11 specimens from Easter Island in 40 m; they are referable to *P. integrirostris*, and three specimens from Desventuradas Islands, San Felix Island in 75 m are identified as *P. pusillus*. More details will be discussed elsewhere by Janet HAIG.

Genus *LEIOGALATHEA* Baba, 1969

Leiogalathea laevirostris (Balss, 1913)

Galathea laevirostris Balss, 1913 : 221.

Leiogalathea laevirostris - BABA, 1969 : 3.

Liogalathea laevirostris - BABA, 1990 : 961 (synonymy and references).

MATERIAL EXAMINED. — New Caledonia. MUSORSTOM 4 : stn DW 165, 18°30.0'S, 163°14.5'E, 440 m, 16 Sept. 1985 : 1 ♀ 4.6 mm (MNHN-Ga 2059).

CHALCAL 2 : stn DW 73, 24°39.9'S, 168°38.1'E, Norfolk Ridge, 573 m, 29 Oct. 1986 : 2 ♂ 4.3, 4.3 mm, 5 ♀ 3.1–5.1 mm (MNHN-Ga 2061). — Stn DW 74, 24°40.36'S, 168°38.38'E, 650 m, 29 Oct. 1986 : 4 ♂ 3.3–4.2 mm, 1 ♀ 3.9 mm (MNHN-Ga 2062). — Stn DW 75, 24°39.31'S, 168°39.67'E, 600 m, 29 Oct. 1986 : 2 ♂ 4.3, 4.6 mm (MNHN-Ga 2063).

SMIB 3 : stn DW 1, 24°55.7'S, 168°21.8'E, Norfolk Ridge, 520 m, 6 May 1987 : 1 ovig ♀ 4.5 mm (MNHN-Ga 2064). — Stn DW 2, 24°53.4'S, 168°21.7'E, 530–537 m, 26 May 1987 : 1 ♂ 4.0 mm, 1 ovig ♀ 3.5 mm (MNHN-Ga 2065).

SMIB 4 (without station data) : 1 ♀ 4.2 mm (MNHN-Ga 2066).

Loyalty Islands. BIOGEOCAL : stn DW 307, 20°35.38'S, 166°55.25'E, 470–480 m, 1 May 1987 : 1 ♂ 4.5 mm (MNHN-Ga 2060).

Hunter and Matthew Islands. VOLSMAR : stn DW 5, 22°25.9'S, 171°46.5'E, 700 m, 1 Jun. 1989 : 3 ♂ 3.3-5.5 mm (MNHN-Ga 2067).

REMARKS. — Originally the generic name was spelled as *Leiogalatea* (see BABA, 1969 : 3), but it was decided to change the spelling by hand to *Liogalatea* in the first publication describing the genus. However, Michèle DE SAINT LAURENT suggested to me that the original name be retained, and this recommendation has now been accepted.

The rostral lateral teeth are barely discernible in the male from BIOGEOCAL Stn DW 307, as in the Japanese material (type of *G. imperialis*) and rudimentary (four in number) in the female from Stn DW 165 (MUSORSTOM 4). The remaining specimens examined have usually two, occasionally three distinct basal teeth and a few additional small ones anterior to them.

The carapace is also variably spinose on the lateral margin, bearing from one to five spines, in addition to the anterolateral one that is usually present. In the case of full armature with five spines, the first is located in front of the cervical groove, and the remainder are behind it or on the branchial margin. The spine at midlength of the lateral margin that is reported for the Madagascan specimen (see BABA, 1990 : 962) is the fourth of the five spines. When one or two spines are present, they are the first or first two of the five spines. In the case of three, they are the first, second, fourth; second, third, fourth; or, second fourth, fifth. In the case of four, the fifth is absent. Four-spined condition is most frequent in the present material, five is next and the remainder are less frequent.

RANGE. — Newly recorded here from New Caledonia. Previously known from Madagascar, Amirante, Nicobar Islands, and Sagami Bay, Japan, in 160–805 m. There are two male specimens (c.l. = 4.8, 5.0 mm) in the collection of the Muséum national d'Histoire naturelle, collected by J. POUPIN of the Service mixte de Contrôle biologique des Armées (SMCB) from Fakarava, Tuamotu Archipelago at Stn D 25 (16.07.33'S, 145.49.16'W), 398 m, dredge, 7 June 1990. This material also constitutes a new locality record.

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REFERENCES

- BABA, K., 1969. — Four new genera with their representatives and six new species of the Galatheidae in the collection of the Zoological Laboratory, Kyushu University, with redefinition of the genus *Galatea*. *OHMU, Occ. Pap. Zool. Lab., Fac. Agric., Kyushu Univ.*, 2 (1) : 1–32.
- BABA, K., 1974. — Four new species of galatheidean Crustacea from New Zealand waters. *Jl R. Soc. N. Z.*, 4 (4) : 381–393.
- BABA, K., 1977. — Biological results of the Snellius Expedition XXVIII. The galatheid Crustacea of the Snellius Expedition. *Zool. Meded. Leiden*, 50 (15) : 243–259.
- BABA, K., 1979. — Expédition Rumphius II (1975). Crustacés parasites, commensaux, etc. (Th. MONOD et R. SERÈNE, eds). VII. Galatheid crustaceans (Decapoda, Anomura). *Bull. Mus. natn. Hist. nat., Paris*, (4) 1, sect. A, (4) : 643–657.

- BABA, K., 1988. — Chirostylid and Galatheid Crustaceans (Decapoda: Anomura) of the «Albatross» Philippine Expedition, 1907–1910. *Researches Crust.*, Special Number 2, v + 203 pp.
- BABA, K., 1990. — Chirostylid and Galatheid Crustaceans of Madagascar (Decapoda, Anomura). *Bull. Mus. natn. Hist. nat., Paris*, (4) 11, sect. A, (4) : 921–975.
- BABA, K., 1991. — Crustacea Decapoda : *Chirostylus* Ortmann, 1892, and *Gastroptychus* Caullery, 1896 (Chirostylidae) from New Caledonia. In : A. CROSNIER (ed.), Résultats des Campagnes MUSORSTOM, Volume 9. *Mém. Mus. natn. Hist. nat., Paris*, (A), 152 : 463–477.
- BALSS, H., 1913. — Neue Galatheiden aus der Ausbeute der deutschen Tiefsee-Expedition «Valdivia». *Zool. Anz.*, 41 (5) : 221–226.
- BENEDICT, J. E., 1902. — Descriptions of a new genus and forty-six new species of crustaceans of the family Galatheidae, with a list of the known marine species. *Proc. U. S. nat. Mus.*, 26 : 243–334.
- DANA, J. D., 1853. — Crustacea, Part 1. In : United States Exploring Expedition, During the Years 1838, 1839, 1840, 1841, 1842, Under the Command of Charles Wilkes, U.S.N., 13, viii + 685 pp., Philadelphia.
- DANA, J. D., 1855. — Crustacea, Atlas. In : United States Exploring Expedition, During the Years 1838, 1839, 1840, 1841, 1842, Under the Command of Charles Wilkes, U.S.N., 14, 24 pp., 96 pls, Philadelphia.
- EDMONDSON, C. H., 1933. — Crustacea. In : Reef and shore fauna of Hawaii. *Spec. Publs Bishop Mus.*, 22 : 191–271.
- GRANT, F. E., & MCCULLOCH, A. R., 1906. — On a collection of Crustacea from the Port Curtis district, Queensland. *Proc. Linn. Soc. N. S. W.*, 31 : 2–53, pls 1–4.
- HAIG, J., 1955. — The Crustacea Anomura of Chile. In : Reports of the Lund University Chile Expedition 1948–49, 20. *Kungl. Fysiogr. Sällsk. Handl.*, N.F., 66 (12) : 1–68.
- HAIG, J., 1973. — Galatheidea (Crustacea, Decapoda, Anomura) collected by the F.I.S. Endeavour. *Rec. Aust. Mus.*, 28 (14) : 269–289.
- HENDERSON, J. R., 1885. — Diagnoses of the new species of Galatheidea collected during the «Challenger» Expedition. *Ann. Mag. nat. Hist.*, (5) 16 : 407–421.
- LEWINSOHN, C., 1969. — Die Anomuren des Roten Meeres (Crustacea Decapoda: Paguridea, Galatheidea, Hippidea). *Zool. Verhand., Leiden*, 104, 213 pp., 2 pls.
- LEWINSOHN, C., 1982. — *Phylladorhynchus integristrois* (Dana) und *Lauriea gardineri* (Laurie) (Decapoda, Anomura) aus dem nördlichen Roten Meer. *Crustaceana*, 42 (3) : 295–301.
- MAYO, B. S., 1972. — Three new species of the family Galatheidae (Crustacea, Anomura) from the western Atlantic. *Bull. mar. Sci.*, 22 (2) : 522–535.
- MCNEILL, F. A., 1926. — The biology of North-west Islet, Capricorn Group. (J). Crustacea. *Aust. Zool.*, 4 (5) : 298–318, 1 pl.
- MELIN, G., 1939. — Paguriden und Galatheiden von Prof. Dr. Sixten Bocks Expedition nach den Bonin-Inseln 1914. *K. svenska VetenskAkad. Handl.*, (3) 18 (2) : 1–119.
- MIYAKE, S., & BABA, K., 1965. — Some galatheids obtained from the Bonin Islands (Crustacea, Anomura). *J. Fac. Agric., Kyushu Univ.*, 13 (3) : 585–593.
- MIYAKE, S., & BABA, K., 1966. — Descriptions of galatheids from the coral reefs of the Ryukyu Islands. *J. Fac. Agric., Kyushu Univ.*, 14 (1) : 57–79.
- RATHBUN, M. J., 1907. — South American Crustacea. *Revta chilena Hist. nat.*, 11 : 45–50, pls 2–3.
- STIMPSON, W., 1860. — Notes on North American Crustacea, in the Museum of the Smithsonian Institution, No. II. *Ann. Lyceum nat. Hist.*, 7 : 177–246, pls 2, 5.
- TIRMIZI, N. M., 1966. — Crustacea : Galatheidae. *Sci. Rept. John Murray Exped.*, 11 (2) : 167–234.
- TIRMIZI, N. M., & JAVED, W., 1980 a. — *Nanogalatea raymondi*, a new genus and species of Galatheidae (Decapoda, Anomura) from the Bay of Bengal. *Crustaceana*, 38 (2) : 127–130.
- TIRMIZI, N. M., & JAVED, W., 1980 b. — Two new species and one new record of *Phylladorhynchus* Baba from the Indian Ocean (Decapoda, Galatheidae). *Crustaceana*, 39 (3) : 255–262.

FIGURE 5

Alainius crosnieri sp. nov., ♀ paratype (c.l. 5.0 mm) from Stn CP 464 (MUSORSTOM 6) : **a**, dorsal view; **b**, lateral view.

