

Crabs of the Ogasawara Islands  
VIII. Two Species of the Family Leucosiidae<sup>1)</sup>

By

**Masatsune TAKEDA**

Department of Zoology, National Science Museum,  
3–23–1 Hyakunincho, Shinjuku-ku, Tokyo, 169 Japan;  
Department of Biological Sciences, Graduate  
School of Science, University of Tokyo

and

**Hiroyuki TACHIKAWA**

Ogasawara Marine Center,  
Byobudani, Chichi-jima, Ogasawara-mura, Tokyo, 100–21 Japan

**Abstract** Two leucosiid crabs of the genus *Drachiella* GUINOT, 1976, are described on the empty shells from the Ogasawara Islands. One is the new species named *D. caelata*, and the other is *D. angulata* (IHLE, 1918), stat. nov., newly added to the carcinological fauna of Japan. The new species is characteristic in having the protogastric region distinctly isolated from the branchial region, and thus closer to the Neogene species, *D. guinotae* MORRIS et COLLINS from Sarawak, rather than to the recent five species known from the Indo-West Pacific.

During more than five years the junior author has collected many marine invertebrates as well as fishes to increase the knowledge about the fauna of the remote oceanic islands, Ogasawara, situated at about 1000 km south of Tokyo. As for the crabs, at present, we intend to record the species new to the Ogasawara Islands in some reports succeeded to the former serial studies entitled “Crabs of the Ogasawara Islands” (TAKEDA & MIYAKE, 1976; TAKEDA & KURATA, 1976a, b, 1977a, b, 1984; TAKEDA, 1977).

In the present part are recorded two leucosiid crabs of the genus *Drachiella* GUINOT (in SERÈNE & SOH, 1976), having the characteristic areolation of carapace engraved with deep grooves. One of them is a new species named *D. caelata*, and another is *D. angulata* (IHLE) which has been originally described as a variety of *Actaeomorpha aglypha* (LAURIE). The specimens at hand are the empty shells, but considered to be enough to depict the characteristics of the new

---

1) This study is partly supported by the Grant-in-aid No. 06304008 for Scientific Research from the Ministry of Education, Science, Sports and Culture, Japan.

species.

The holotype and paratype of the new species are preserved in the collection of the National Science Museum, Tokyo (NSMT).

Family Leucosiidae

Genus *Drachiella* GUINOT, 1976

*Drachiella caelata* sp. nov.

[New Japanese name: Ukibori-mizo-kobushi]

(Fig. 1)

*Material examined.* Holotype, ♀ (empty shell) (cb 19.4 × cl 15.8 mm), NSMT-Cr 11731; Kominato, 7–8 m deep, Chichi-jima I., Ogasawara Is.; Oct. 3, 1992; H. TACHIKAWA leg. Paratype, ♂ (empty shell) (cb 14.1 × cl 12.1 mm), NSMT-Cr 11732; North of Koumori-iwa, Ototo-jima I., Ogasawara Is.; June 6, 1994; H. TACHIKAWA leg.

*Description of holotype.* Carapace narrowly ovate; its dorsal surface strongly vaulted in both directions as a whole, especially so for its posterior half and lateral parts, engraved into regions by a series of broad deep, circumferential and interregional grooves. Regions thickly paved with smooth, truncated or weakly convex granules of polygonal shape and various sizes, their margins partly overhanging interregional grooves as thin roofs; bottom of grooves frosty, with small obtuse granules mixed with raised mushroom-like granules of good size. Frontal region rather quadrate, divided into two by a median, longitudinal shallow furrow, covered with smaller granules; its posterior median part connected with anterior prolongation of mesogastric region by a narrow bridge. Supra-orbital region forms a rounded lobe separated from outer prolongation of frontal lobe and also from inner prolongation of first lateral tooth of carapace each by a deep notch and a vestigial suture. Anterior prolongation of mesogastric region slowly widening posteriorly toward lateral angles, with weakly concave lateral margins, and then narrowing toward constriction between meso- and metagastric regions. Metagastric region completely confluent with mesogastric region, without trace of dorsal groove or even depression, its lateral margins being inclined inward, nearly parallel to lateral margins of mesogastric region. Protogastric region more or less longitudinally ovate, concave at its anterolateral part faced to first lateral tooth, bordered on anterior prolongation of mesogastric region for its inner median third; its outer margin zigzag in accordance with pavement, distinctly isolated from branchial region by a deep, wide oblique groove. Cardiac region rather quadrate, only slightly wider than meso- and metagastric regions, weakly convex dorsally as a whole, with zigzag lateral margins, being separated from posterior margin of metagastric region by a transverse, narrow but deep

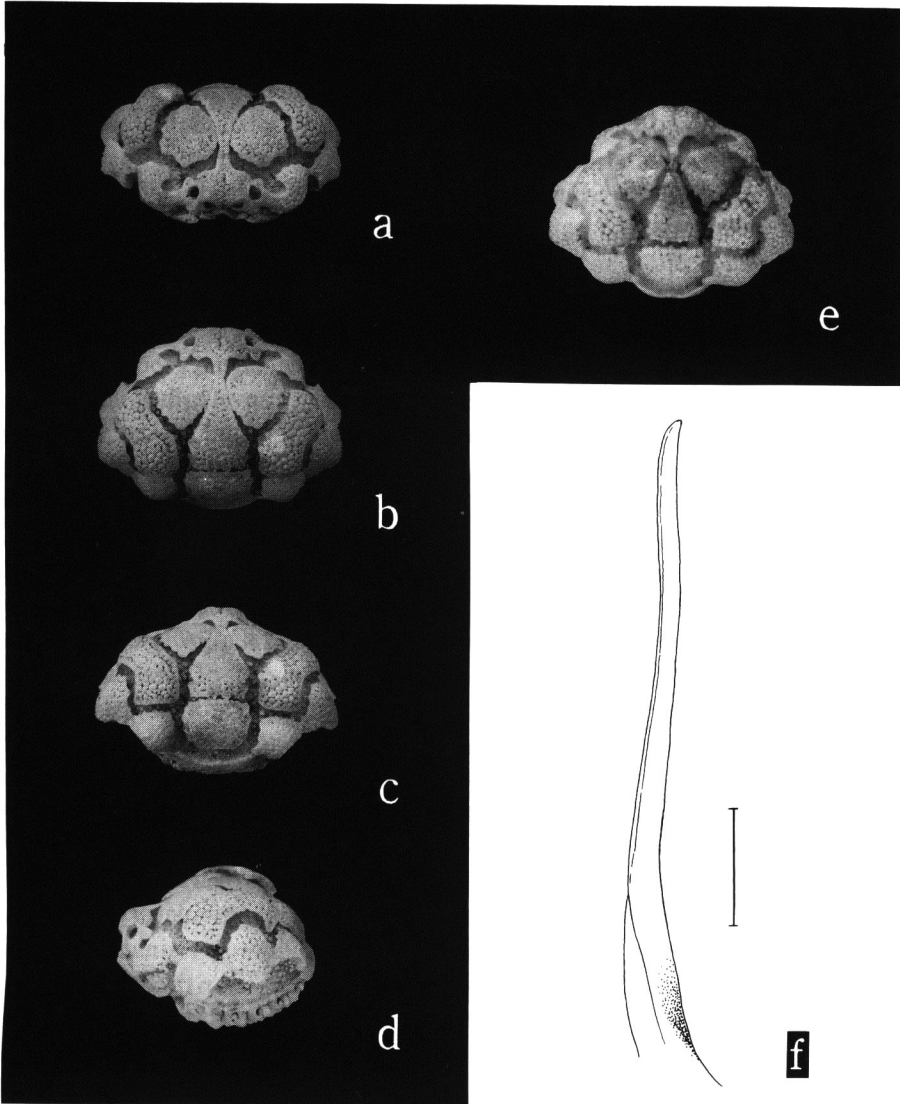


Fig. 1. *Drachiella caelata* sp. nov. — a-d: Holotype ♀ (NSMT-Cr 11731, empty shell; cb 19.4 mm, cl 15.8 mm), carapace in different views. e, f: Paratype ♂ (NSMT-Cr 11732, empty shell; cb 14.1 mm, cl 12.1 mm), carapace (e) in dorsal view and left first pleopod (f) in abdominal view. Scale bar = 1 mm.

groove. Intestinal region transverse, perpendicularly directed downward so as to give a false impression of posterior margin of carapace in dorsal view. Branchial region much more strongly raised than other regions, oblique and very weakly concave along anterior inner margin faced to protogastric region, nearly lon-

gitudinal along inner margin faced to meso- and metagastric regions, deeply concave along outer margin faced to third lateral tooth of carapace.

Lateral margin of carapace divided into four teeth which are directed obliquely downward and clearly cut off from protogastric, branchial and cardiac regions by a circumferential, deep submarginal groove being in connection with other interregional grooves. First tooth regularly convex in dorsal view, but its true margin more strongly directed downward, subtruncated, with weakly angulated posterior end; outer margin of circumferential groove deeply excavated outward so as to form an ovate concavity at anterior dorsal part of first tooth. Second tooth separated from the first by a deep U-shaped depression in dorsal view; in lateral view this depression longitudinal, forming a deep groove extending just to posterior corner of buccal frame. Subhepatic groove rather narrow, but deep, originating from longitudinal groove between first and second teeth and extending anteriorly just to level of anterior part of buccal frame. Pterygostomial region thus formed narrowing distally, covered thickly with conical granules of various sizes. Second tooth nearly conical in dorsal view, with angulated tip, but its anterior margin weakly concave near anterior end, making a bilobate appearance as a whole. Third tooth subequal to the second, with regularly convex tip, divided from it by a wide notch; its posterior margin very shallowly concave near posterior end. Fourth tooth oblique in front of lateral end of intestinal region, nearly conical and more or less angulated at median part in dorsal view; its posterior margin almost transverse or directed rather anteriorly, tip of fourth tooth failing to reach to level of intestinal margin in dorsal view. Lower surfaces of second to fourth teeth deeply excavated so as to be wing-like as a whole, covered with mushroom-like granules of various sizes as well as pleural surface; lower surfaces of second and third teeth and pleural surface with three rows of several granules of good size directing toward base of ambulatory legs from margins of teeth, viz., one from tip of second tooth and two originated from tip of third tooth; boundary of second and third teeth and also that of third and fourth teeth indicated by a small ovate hole opened to dorsal submarginal groove.

All appendages missing.

*Notes on paratype.* The characteristic areolation of carapace engraved with deep grooves basically agrees well with that of the holotype. In the paratype male, however, the anterior prolongation of the mesogastric region is interrupted at two places just inside of protogastric region, the meso- and metagastric regions are not distinct even for the lateral margins, and the protogastric and cardiac regions are distinctly separated from the meso- and metagastric regions by the wider grooves. These differences are without doubt due to the wearing state of preservation.

The sternum is detached and partly broken. The slender terminal segment and an elongated trapezoid piece of abdomen kept in the fossa are paved with flattened granules which are again thickly covered with microscopical frosty

granules; the latter piece may be represented by the third to fifth segments which are completely fused, having two lateral depressions; there is a median longitudinal fossa at its basal half bordered with several large, rounded granules, with a large oblong granule in the fossa; the median part of its distal third is produced to be a mound composed of some large, rounded granules; the sixth segment is missing; the terminal segment is weakly constricted at its base, and then very weakly narrowing distally toward rounded distal end, being thickly covered with frosty granules, larger ones on the median part and smaller ones on the marginal and distal parts.

The first pleopod is simply elongated as illustrated.

*Remarks.* The genus *Drachiella* was established by GUINOT (in SERÈNE & SOH, 1976), with the type species, *Lithadia* (?) *sculpta* HASWELL, 1879 from Australia and the Arafra Sea, and additionally to accommodate *Actaeomorpha morum* ALCOCK, 1896 ranging from India to Japan, *A. lepillula* ALCOCK, 1896 from Sri Lanka, *Lithadia sculpta* var. *aglypha* LAURIE, 1906 from the Gulf of Manaar, and *A. aglypha* var. *angulata* IHLE, 1918 from Banda. These are rather rare and have been known as a group in the genus *Actaeomorpha* MIERS, 1886, having the carapace with dorsal regions isolated by very deep, circumferential and some other interregional grooves.

Due to the distinctive dorsal grooves characteristic of each species they are readily distinguished from each other except for two very close species, *D. sculpta* and *D. morum*. GRIFFIN (1979) noted on *D. sculpta*, with fine photograph, that the dorsal regions of carapace are covered with simple tubercles of various sizes differing from mushroom-like ones in *D. morum* elaborately described by SERÈNE (1955).

Otherwise it is noted, as discussed later in detail, that the variety described by IHLE (1918) is better to be considered as a full species, since the details of the dorsal grooves are generally close to, but apparently distinct from each other. TAKEDA (1977) transferred *Actaeomorphora aglypha* var. *angulata* IHLE to the genus *Oreophorus* and proposed a substitute name, *O. aglyphus ihlei*, nec *Oreophorus angulatus* (RATHBUN). At present, however, this species group is accommodated to the genus *Drachiella* distinct from *Oreophorus*, and thus the new name has to be rejected.

The basic formation of the anterolateral armature and dorsal areolation isolated by deep grooves indicates the systematic status of the new species close to *D. sculpta* and *D. morum*, but the new species differs from them as well as the other known species in having each branchial region completely isolated from the protogastric region by an oblique deep groove. In the two species the protogastric-branchial region is very shallowly depressed at the place corresponding to the deep groove of the new species.

In addition to the recent species mentioned above, a fossil species, *D.*

*guinotae*, was described by MORRIS and COLLINS (1991) from the Neogene layer of Sarawak. The holotype specimen is in a good state of preservation, and described with the excellent photographs of dorsal, frontal and ventral views. This fossil species is remarkably different from all of the recent species by having each branchial region isolated from the protogastric region just like the present new species. This indicates that the general appearance of the new species is closer to the fossil species, *D. guinotae*, rather than those of the recent species. In the fossil species, however, the protogastric region is distinctly triangular, with a sharp posterior end, and ornamented with a curved furrow or depression along its anterior margin to form the epigastric region. The branchial region is distinctly narrower in the new species.

*Etymology.* The name of the new species is referred to the deeply sculptured carapace with the interregional and circumferential grooves.

*Drachiella angulata* (IHLE, 1918), stat. nov.

[New Japanese name: Mizo-kobushi]

(Fig. 2)

*Actaeomorpha aglypha* var. *angulata* IHLE, 1918: 209, fig. 120.—Banda, 9–36 m.

*Oreophorus (Oreophorus) aglyphus ihlei* TAKEDA, 1977: 120.—New name substituted for *Actaeomorpha aglypha* var. *angulata* IHLE, 1918, nec *Oreophorus angulatus* (RATHBUN, 1906).

*Material examined.* Takinoura Bay, 15 m deep, Ani-jima I., Ogasawara Is.;

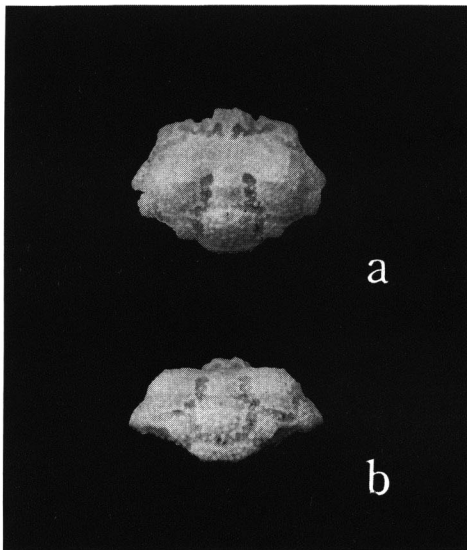


Fig. 2. *Drachiella angulata* (IHLE). — Carapace (NSMT-Cr 11733; cb 10.3 mm, cl 7.5+ mm) in dorsal (a) and posterior (b) views.

1 ex. (carapace; cb  $10.3 \times$  cl  $7.5+$  mm), NSMT-Cr 11733; 12-XII-1993; H. TACHIKAWA leg.

*Remarks.* The carapace at hand is in a good condition of preservation except for somewhat broken frontal region. The areolation of the dorsal surface sculptured with a circumferential and some other deep grooves indicates the true systematic position in the genus *Drachiella*.

This specimen agrees well with the original figure and description of *Actaeomorpha aglypha* var. *angulata* IHLE based on a male (cb  $6.5 \times$  cl  $5.5$  mm) from Banda. According to the original author, the new varietal name is derived from the different nature of the circumferential groove angulated at some places. In *D. aglypha* (LAURIE) which was originally referred to the variety of *Lithadia sculpta* HASWELL and recently recorded from the Philippines by CHEN (1989), the circumferential groove is very close to, and regularly curved along the indistinctly lobate lateral margin of carapace. The distinctive circumferential groove and toothed anterolateral armature of the carapace justify the elevation to the specific rank.

The remarkable characters are briefly described in the following lines.

“Carapace transversely ovate, strongly convex as a whole, with regions paved with flattened or rounded granules and engraved with deep grooves; gastric and branchial regions completely fused without sutures, except for meso- and metagastric parts which are also fused together, united with frontal region through a short and narrow bridge; entire margin of this gastro-branchial region jagged with pavement; meso- and metagastric part isolated laterally from branchial part and posteriorly from cardiac region by deep grooves; cardiac region wider than meso- and metagastric part, with jagged or minutely serrated margin; intestinal region transverse, almost perpendicular in dorsal view. Lateral margin of carapace cut into four teeth; first tooth conical, with obtuse tip, its anterior margin being transverse; second tooth prominent, subacute at tip, with anterior margin divided into two by a median shallow depression; third tooth obliquely directed posteriorly outward, with its transverse posterior margin shorter than anterior one; fourth tooth formed at posterior end of lateral margin, deeply isolated anteriorly from branchial region and laterally from cardiac region by transverse and longitudinal grooves, respectively; circumferential groove submarginal along anterior three teeth and marginal along posterolateral part of lateral margin of carapace.”

### Literature

- ALCOCK, A., 1895. Materials for a carcinological fauna of India. No. 2. The Brachyura Oxystoma. *J. Asiat. Soc. Bengal*, 65: 135–296, pls. 6–8.
- CHEN, H., 1989. Leucosiidae (Crustacea, Brachyura). In: FOREST, J. (ed.), Résultats des Campagnes MUSORSTOM, Vol. 5. *Mém. Mus. natn. Hist. nat.*, Paris, (A), 144: 181–263.

- GRIFFIN, D. J. G., 1972. Brachyura collected by Danish expeditions in south-eastern Australia (Crustacea, Decapoda). *Steenstrupia*, 2: 49-90.
- GUINOT, D., 1976. See SERÈNE & SOH, 1976.
- HASWELL, W. A., 1880. Contributions to a monograph of Australian Leucosiidae. *Proc. Linn. Soc. N.S.W.*, 4: 44-60, pls. 5, 6.
- IHLE, J. E. W., 1918. Die Decapoda Brachyura der Siboga-Expedition. III. Oxystomata: Calappidae, Leucosiidae, Raninidae. *Siboga-Exp.*, 39b<sup>2</sup>: 159-322.
- LAURIE, R. D., 1906. Report on the Brachyura collected by Prof. HERDMAN at Ceylon in 1902. *Ceylon Pearl Oyster Fish.*, Suppl. Rep., 40: 349-432, pls. 1, 2.
- SERÈNE, R., 1954. Sur quelques espèce rares de Brachyures (Leucosiidae) de l'Indo-Pacifique. *Treubia*, 22: 453-499, pls. 7-10.
- & C. L. SOH, 1976. Brachyura collected during the Thai-Danish expedition (1966). *Res. Bull., Phuket mar. biol. Cent.*, (12): 1-37, figs. 1-28, pls. 1-8.
- TAKEDA, M., 1977. Crabs of the Ogasawara Islands, V. A collection made by dredging. *Mem. natn. Sci. Mus.*, Tokyo, (10): 113-140, pls. 12-17.
- & Y. KURATA, 1976a. Ditto. II. First report on the species obtained from stomachs of fishes. *Ibid.*, (7): 116-137.
- & ——— 1976b. Ditto. III. Some species collected by coral fishing boats. *Bull. natn. Sci. Mus.*, Tokyo, 2: 19-32, pls. 1, 2.
- & ——— 1977a. Ditto. IV. A collection made at the new volcanic island, Nishinoshima-shinto, in 1975. *Ibid.*, 3: 91-111.
- & ——— 1977b. Ditto. VI. Second report on the species obtained from stomachs of fishes. *Mem. natn. Sci. Mus.*, Tokyo, (10): 141-145. (In Japanese with English summary.)
- & ——— 1984. Ditto. VII. Third report on the species obtained from stomachs of fishes. *Bull. natn. Sci. Mus.*, Tokyo, (A), 10: 195-202.
- & S. MIYAKE, 1976. Ditto. I. List of the known species. *Res. Crust.*, (7): 101-115. (In Japanese with English summary.)