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Crabs from the East China Sea. III

Brachygnatha Oxyrhyncha[1]

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In the previous papers dealt with the crabs from the East China Sea altogether thirty-seven species of the section Corystoidea and the superfamily Brachyrhyncha of the section Brachygnatha are enumerated, though one species of the family Portunidae is not named due to the imperfect and young example. The present paper is concerned with twenty-nine species of the families Parthenopidae and Majidae. The species dealt herewith are listed as follows,

Section Brachygnatha
  Superfamily Oxyrhyncha
    Family Parthenopidae
      Subfamily Parthenopinae
        Tutankhamen pteromerus (Ortmann, 1893)
      Subfamily Zalasiinae
        Zalasius imajimai sp. nov.
    Family Majidae
      Subfamily Inachinae
        Oncinopus angustifrons sp. nov.
        Achaeus robustus Yokoya, 1933
        Achaeus tuberculatus Miers, 1879
        Achaeus varians sp. nov.
        Achaeus pugnax (de Man, 1928)
        Achaeus superciliaris (Ortmann, 1893)
        Prosphorachaeus suluensis (Rathbun, 1916), gen. nov.
        Pseudocollodes demani Balss, 1929
        Pleistacantha orynx Ortmann, 1893
        Pleistacantha simplex Rathbun, 1932
        Pleistacantha japonica (Yokoya, 1933)
        Platymaia fimbriata Rathbun, 1916

1) Contributions from the Zoological Laboratory, Faculty of Agriculture, Kyushu University, No. 422.

Platymaia alcocki Rathbun, 1916
Cyrtomaia owstoni Terazaki, 1903
Cyrtomaia platypes Yokoya, 1933
Subfamily Oregoniinae
Oregonia gracilis Dana. 1851
Subfamily Acanthonychinae
Pugettia incisa (de Haan, 1839)
Pugettia minor Ortmann, 1893
Pugettia nipponensis Rathbun, 1932
Subfamily Hyasteniinae
Hyastenus diacanthus (de Haan, 1835)
Hyastenus kyushuensis (Yokoya, 1933)
Subfamily Pisinae
Naxioides hystrix (Miers, 1886)
Choniognathus reini (Balss, 1924)
Subfamily Majinae
Maja sakaii sp. nov.
Leptomithrax edwardsii (de Haan, 1839)
Chlorinoides harmandi (Bouvier, 1906)
Entomonyx spinosus Miers, 1884

The general discussion about the geographical and bathymetric distribution is briefly given below, and the short systematic notes on some species are also inserted herein.

1) Family Parthenopidae

Of the two species here enumerated, ***Tutankhamen pteromerus*** which is referable to the subfamily Parthenopinae is known only from Japan and bears the typical form of the family. On the other hand, as regards ***Zalasius imajimai*** of the subfamily Zalasiinae, though the inclusion of a new species to the genus ***Zalasius*** Rathbun is quite natural, the systematic status of the genus leads to a dispute. It is apparent that the genus *Zalasius* as well as the genus ***Dairoides*** Stebbing comes near to the family Xanthidae on account of bearing the xanthoid carapace and the short and stout chelipeds. The formation of the front and the antennular fossae is, however, rather that of the family and somewhat different from that of the family Xanthidae. It is noteworthy that the antennules are folded longitudinally into the fossae formed below the narrow and arched front. Though the general formation of the carapace and chelipeds is too similar to that of the family Xanthidae, especially to the genus ***Banareia*** A. Milne Edwards, in the present paper the genus is inserted into the family Parthenopidae chiefly for a matter of convenience. The genus ***Zalasius*** has hitherto been known by four species from the

Indo-West Pacific waters, viz. ***Z. dromiaeformis*** (de Haan) from Japan and Australia, ***Z. sakai*** Balss from Singapore. *Z. horii* Miyake from the Palau Islands and *Z. indica* Sankarankutty from India. Only an other species described is ***Z. australis*** (Baker) from South Australia, which was well discussed by McNeil1 and Ward (1930). It is probable that the small, less hairy crabs represent the young stages of ***Z. dromiaefbrmis.***

2) Family Majidae

i) Subfamily lnachinac

The species of the subfamily Inachinat are rather abundant in the East China Sea, if the collection is an indication. Of the fifteen species enumerated. thirteen with two exceptions arc geographically restricted to the West Pacific, especially to the Japanese and its adjacent waters. One of the two exceptions, *Achaeus supercilialis*, is known from Japan and the Hawaiian Islands, and the another, ***Platymaia alcocki.*** is widely distributed in the Indo-West Pacific waters. However, the former species is known from the Hawaiian waters only on the authority of Rathbun (1906) based on the adult but smaller specimens than the Japanese materials, and the latter species is very close to ***P.*** *wyvillethomsoni* Miers and at present rather difficult to distinguish definitely the two species.

Though the genus ***Oncinopus*** has hitherto been known only by one species, ***0. aranea*** de Haan, it was proved to be represented by some species including the present new species with help of Dr. I. Gordon who kindly examined many specimens in the British Museum collection. After consultation of literature, however, it is almost impossible to define the geographical distribution of ***Oncinopus*** species due to having the great similarity of the general appearance. According to the kind information with figures of Dr. I. Gordon, 0. ***aranea*** ranges from Japan southwards to the Macclesfield Bank, the Torres Strait and the Holothuria Bank, and 0. *neptunus* Adams et White is otherwise sure to occur in Philippines and Australia. It is very desirable to review *Oncinopus* species based on the first male pleopods of many specimens from various localities.

As regards the bathymetric distribution, it is noted that the species of the genera ***Platymaia*** and *Cyrtomaia* usually inhabit much more deeper water than the others. Most of the other species in the present collection are found at the depths down to 200 m.

ii) Subfamily Oregoniinac

Among the species in the present collection only one representative is ***Oregonia gracilis*** which is known from the Pacific coast of North America and from the northern West Pacific. In the West Pacific it

has hitherto been recorded from the Bering Sea southwards to the Yellow Sea and North China along the continental shelf. Unfortunately, in the specimens at hand the exact localities in the Sea are not available. In the species it is peculiar that the bathymetric range is from very shallow water to 444 m.

iii) Subfamily Acanthonychinae

Three species of the genus *Pugettia* here reported are rather commonly found in the Japanese waters. Of the three species *P. minor* and *P. nipponensis* arc restricted to the Japanese waters and found from the shallow to very deep water, while the other *P. incisa* is known also from Amoy and found down to 150 m.

iv) Subfamily Hyasteniinae

This subfamily is distinguished from the following Pisinac only by bearing no intercalated spine. In the collection are comprised two species of the genus *Hyastenus,* viz. *H. diacanthus* from the Indo-West Pacific waters and *H. kyushuensis* from Japan.

v) Subfamily Pisinae

The members of this subfamily from the Sea are represented by an Indo-West Pacific *Naxioides hystrix* and a Japanese *Choniognathus reini.* The latter species is closely related to the species of *Eurynome*, but in this paper still retained in the genus distinct from *Eurynome* due to bearing the fused ischium and merus of the third maxilliped.

vi) Subfamily Majinae

Three species of four enumerated are known only from the Japanese waters. The last one which is somewhat questionable in its systematic status is rather widely distributed in the Indo-West Pacific waters from Japan through the north-west of Australia and the Andaman Sea to the Saya de Malha Bank and the Providence Islands. In the species, *Entomonyx spinosus,* which has been long known as *Acanthophrys,* the supraorbital eave and the basal antenna1 segment are so expanded laterally that the orbit is almost tubular. As discussed by Griffin (1966), therefore, in spite of close resembrance of the dorsal knobbed spines to *Chlorinoides* the species may be included in the subfamily Mithracinae Balss, not in Majinae to which *Chlorinoides* belongs.

The system of measurements is noted as follows. The length of the carapace including the rostra1 or pseudorostral spines or horns is taken along the median line of the carapace from the tips of the spines or horns to the posterior border of the carapace. In most of the species the branchial regions are swollen and form the greatest breadth of the carapace. The breadth of the carapace is measured at the greatest breadth without lateral spines.

The type-specimens of the new species are preserved in the Zoological Laboratory, Kyushu University (ZLKU) with an exception of the holotype of *Zalasius* ***imajimai*** sp. nov. which should be deposited in the National Science Museum, Tokyo.

Description of species

Family Parthenopidae
Subfamily Parthenopinae Miers, 1879
Genus *Tutankhamen* Rathbun, 1925

Tutankhamen pteromerus (Ortmann, 1893)

(Fig. 1)

Lambrus (Parthenopoides) pteromerus Ortmann, 1893, p. 416, pl. 17, fig. 1 - Sagami Bay, 215 m deep.

Parthenope (*Platylambrus*) *stellata lacunosa* Rathbun, 1906, p. 877, pl. 15, fig. 7 - Molokai I., Hawaii I., Pailolo Channel and Oahu I., Hawaiian Is., 235-355 m deep.

Lambrus (Parthenopoides) pteromerus, Balss, 1922, p. 135 - Sagami Bay.

Lambrus (Parthenopoides) pteromerus, Yokoya, 1933, p. 166 - North of Inubo-zaki, Kii, Tosa Bay, Bungo Str., Goto Is., off Fukui Pref., north of Noto Penin., Toyama Bay, off Yamagata Pref. and west of Lake Jusan-gata, 86-296 m deep.

Parthenopoides pteromerus, Sakai, 1935, p. 72, fig. 6 - Sagami Bay.

Parthenopoides pteromerus, Sakai, 1936, p. 110, fig. 51 - Japan.

Tutankhamen pteromerus, Sakai, 1938, p. 339, pl. 41, figs. 1, 2 - No new record.

Tutankhamen pteromerus, Miyake, 1961, p. 17 - Amakusa Sea.

Tutankhamen pteromerus, Sakai, 1965, p. 97, pl. 44, fig. 4 - Sagami Bay, 85-120 m deep.

Material examined.

32° 15.1′ N, 127° 58.9′ E, ***149*** m deep: 1 ♂, ZLKU No. 13407; Aug. 7, 1967; I. Uchimura leg.

32" 24.8' N, 129" 24.7' E ; 1 ♀, ZLKU No. 13347 ; Oct. 24, 1962 ; H. Yamashita leg.

Measurements.

♂ (No. ***13407***) : Length of carapace with median rostral spine, 13.5 mm; breadth of carapace, 18.9 mm.

♀ (No. 13347) : Length of carapace with median rostral spine, 15 mm ; breadth of carapace, 21.5 mm.

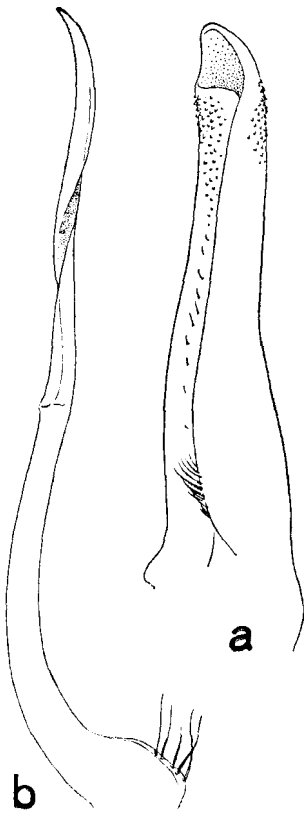

Fig. 1. *Tutankhamen pteromerus* (Ortmann), ♂ (No. 13407). a, b. Left first and second pleopods in abdominal view, 37.

Distribution. This species occurs in the Japanese waters and the Hawaiian Islands. In Japan it is widely distributed from the south of Inubo-zaki southwards to the Bungo Strait along the Pacific coast and from the Amakusa and Goto Islands northwards to the Lake Jusan-gata, Aomori Prefecture, the Sea of Japan. The bathymetric range is from 85 to 355 m.

Subfamily Zalasiinae Sérène, 1968

Genus Zalasius Rathbun, 1897

Zalasius *imajimai* sp. nov.

(Fig. 2, Pl. 17, Fig. D)

Description of holotype. The carapace, chelipeds and ambulatory legs are highly tomentose, so that the proper surfaces are not observable except for several granules on the dorsal surfaces of the carapace and chelipeds ; when the hairs are removed, the carapace is very distinctly sculptured by deep, rather wide furrows. each region is well isolated and strongly convex, being roughly covered with granules of good size ; among the granules the several are prominent and more or less tuberculiform, those on the hepatic region just behind the external orbital angle. at the posterolateral part of the protogastric region, on the inner areolet of the branchial region, and on the outer margin of the cardiac region ; three equidistant, tubercular granules along the lateral border of the carapace are prominent and somewhat angulated; of the three granules the anterior two are placed at more or less higher level than the lateral border. The subhepatic region is also armed with a tubercular granule. The front is narrow and conspicuously produced beyond the orbits ; its dorsal median sulcus is deep, and the true margin bears a V-shaped median sinus. The orbital borders bear four deep notches. two on the supraorbital and two on infraorbital border ; the supraorbital and infraorbital angles thus formed between the notches are somewhat angulated and as prominent as the external orbital angle, the inner infraorbital angle and

the distal ventral angle of the antenna1 basal segment. The antenna1 flagellum is fine and short, being excluded from the orbit by the ventral prolongation of the inner supraorbital angle and the prolongation of the outer angle of the antenna1 segment.

The chelipeds are equal, and roughly granulated beneath the long soft hairs ; several granulated prominences are not concealed by the tomentum ; the merus is provided with one on the distal upper margin, the carpus with four and the palm with three, of which the distal two on the carpus and two near and along the upper border of the palm are more prominent than the others. The granules on the outer surface of the palm are more or less beaded to form some longitudinal series. The distal halves of the fingers are naked and toothed, the tips being strongly crossed each other. The ambulatory legs are short and stout, being armed with sparse granules.

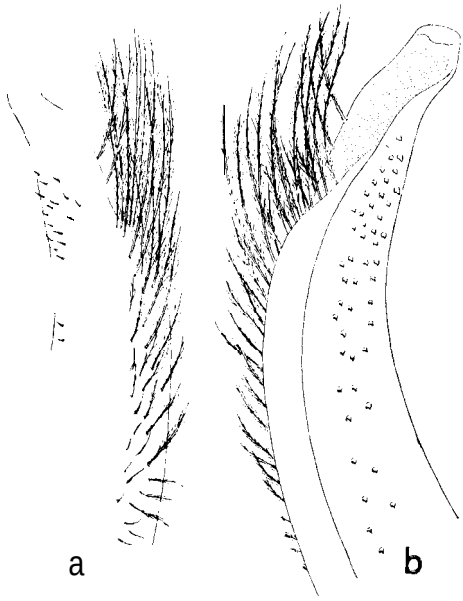

Fig. 2. *Zalasius imajimai* sp. nov., holotype, ♂ (No. 12966). a, b. Left first pleopod in sternal and abdominal view, ×40.

The abdomen is also densely covered with a tomentum and composed of five segments, the third to fifth segments being- fused ; there are no granulated rounded lobes protruding backwards from each side of the first segment.

In life the tomentum is dark grey, and the granulated prominences uncovered with the tomentum are pinkish red or crimson.

Description of paratype. The paratype is much smaller than the holotype. and unfortunately. the left chelipcds and all the ambulatory legs are missing. The hairiness and sculptures are almost exactly agreeable with those of the holotype. However, it may be noted that the hairs on the protogastric region and on the tubercular granules along the lateral borders of the carapace are rather distinctly tufted. Of the granulated prominences, otherwise, a small one on the outer lower surface of the palm is almost covered with the tomentum.

Material examined.

34" 25.1' N, 129" 59.3' E, ***115*** m deep, coarse sand and shell: **1** ♂ (holotype), ZLKU No. 12966; Aug. 4, 1968; Tsu-shima I. Exp. leg.

31" 29.2' N, 130" 1.5' E, 196 m deep ; 1 ♂ (paratype), ZLKLJ No. 13347 ; Jun. 13, 1964; II. Yamashita leg.

Measurements.

Holotype, ♂ (No. 12966) : Length of carapace, 20.9 mm ; breadth of carapace, 22.4 mm.

Paratype, ♂ (No. 13347) : Length of carapace, 10 mm ; breadth of carapace, 10.4 mm.

Remarks. The genus ***Zalasius*** is represented by four species from the Indo-Pacific waters, viz. Z. ***dromiaeformis*** (de Haan), Z. ***sakai*** Balss, ***Z. horii*** Miyake and Z. *indica* Sankarankutty. The present new species is most close to Z. ***dromiaeformis*** from Japan and Australia, but separated from it by the following respects. (1) The carapace is much more deeply sculptured, especially the submedian furrows and those behind the external orbital angles are deep. (2) Several granulated prominences of the areolae are tuberculated, and the hepatic region behind the external angle is almost tuberculiform. (3) The first abdominal segment bears no rounded lobes. As regards the last features of the differences, it is well known that in both sexes of Z. ***dromiaeformis*** the first abdominal segment bears two lobular prominences at its either sides, though they are not figured by the original author due to the absence by the damage,

Family Majidae
Subfamily Inachinae Alcock, 1895
Genus Oncinopus de Haan, 1839

Inachus (Oncinopus) de Haan, *1839,* p. *87.*

Oncinopus, Miers, 1879a, p. 645; Miers, 1886, p. 20; Rlcock, 1895, p. 182; Sakni, 1938, pp. 204-206.

Remarks. The present genus is at present admitted to be the most primitive of all the genera of the family Majidae. It is noteworthy that the carapace, chelipeds and ambulatory legs are ill-calcified, the antennular and orbital regions are very imperfect, and the last ambulatory legs are subdorsal in position.

It has hitherto been wrongly considered that all the described species,

0. *neptunus* Adams et White, 0. *subpellucidus* Stimpson and 0. *angulatus* Haswell, are conspecific with 0. *uranea* de Haan and that the present genus is thereby represented only by one species. After examination of several specimens from Port Jackson, N. S. W., Australia kindly sent on loan by Dr. D. J. G. Griffin, 0. *subpellucidus* is distinct from 0. *aranea*. Though 0. *angulatus* is not quite sure due to the absence of the materials and figure, it is possible that it is identical with 0. *subpellucidus* as reported from the same locality. As regards 0. *neptunus* which is rather well described and figured in the original description, it is proved that the species is conspecific with the species reported by Stimpson (1858) as 0. *subpellucidus* due to the fine figures of the type-specimen of 0. *neptunus* by Dr. I. Gordon. Therefore, 0. *neptunus* prior to 0. *subpellucidus* is valid, and the latter species is synonymous with the former species.

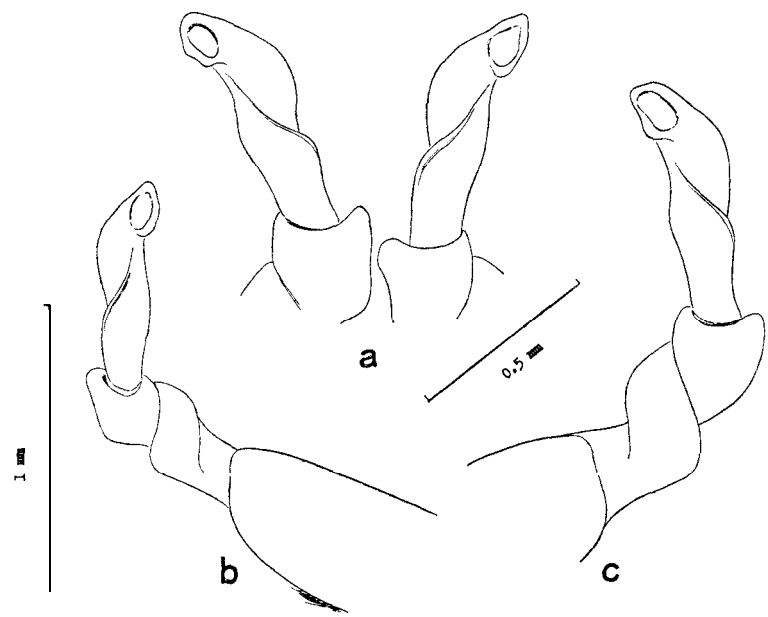

Fig. 3. *Oncinopus neptunus* Adams et White. 3, b,c. First pleopods of holotype *in situ* in abdominal view (after Dr. I. Gordon's camera lucida sketches). Dr. I. Gordon remarked as, "The position of the apical opening is rather different *in situ* from that in either of the two aspects one draws when the pleopod is detached from the specimen. As the apex of the terminal segment is turned upwards towards the lens (in a rather different plane from the proximal half of the same segment), I had to alter the focus very slightly as I drew from apex to base."

As a result, at present this peculiar, primitive genus comprises altogether three species, viz. 0. ***aranea*** de Haan, 0. *neptunus* Adams et White and 0. *angustifrons* sp. nov. According to the kind letters and illustrations from Dr. I. Gordon, otherwise, it is probable that some materials from the South China Sea and the Indian Ocean may represent one or two new species. In the following pages the first male pleopods of the three species are figured.

Oncinopus angustifrons sp. nov.

(Figs. 4,5,c,d)

Description ***of*** *holotype.* The carapace, chelipeds and ambulatory legs are very imperfectly indulated. The carapace is narrow and more or less elongate triangular as a whole with posterolateral expansions ; the circular gastric region is very convex, and its median posterior part is faintly demarcated from the remainder greater part; the cardiac region is also isolated and rather distinctly bifid at the summit; the lateral and posterior surfaces of the cardiac region is deeply sunken. The rostrum is turned down almost perpendicularly, so that in dorsal view the front is cut out to be a large, wide V-shaped notch ; the lateral border of the carapace just behind the front are deeply constricted; the lateral angles of the front are thereby very prominent and angulated, being directed obliquely outwards. The antennule is withdrawn beneath the front ; there is no distinct orbit, and the eyestalk is folded beneath the lateral margin of the carapace where is shallowly excavated; the antennular deep fossa is separated from the very imperfect orbit by an oblique row of several hairs.

The chelipeds are slender. The merus is fringed with a row of longish stout setae along both borders. The palm is not swollen and slightly shorter than the fingers which meet throughout and are obscurely toothed on the cutting edges. The first two pairs of the ambulatory legs arc long and stout ; the cylindrical merus and more or less depressed carpus are not joined at a level with each other ; the dactylus is also flattish and rather broadened in the middle; both borders of the carpus and propodus are fringed each with a row of long stout hairs, and along the upper borders are the curled hairs of various lengths; the dactylus is sickle-shaped, Unfortunately, the third and fourth ambulatory legs are missing.

The abdomen is wide and seven-segmented; the fifth and sixth segments bear each a median tubercle tipped with some stout setae, and in addition, the sixth is provided with a transverse row of three setae at each side of the tubercle; the terminal segment is wide and obtuse,

not pointed at the tip. The first pleopod is represented in Fig. 5, c, d, bearing no beak-like tip.

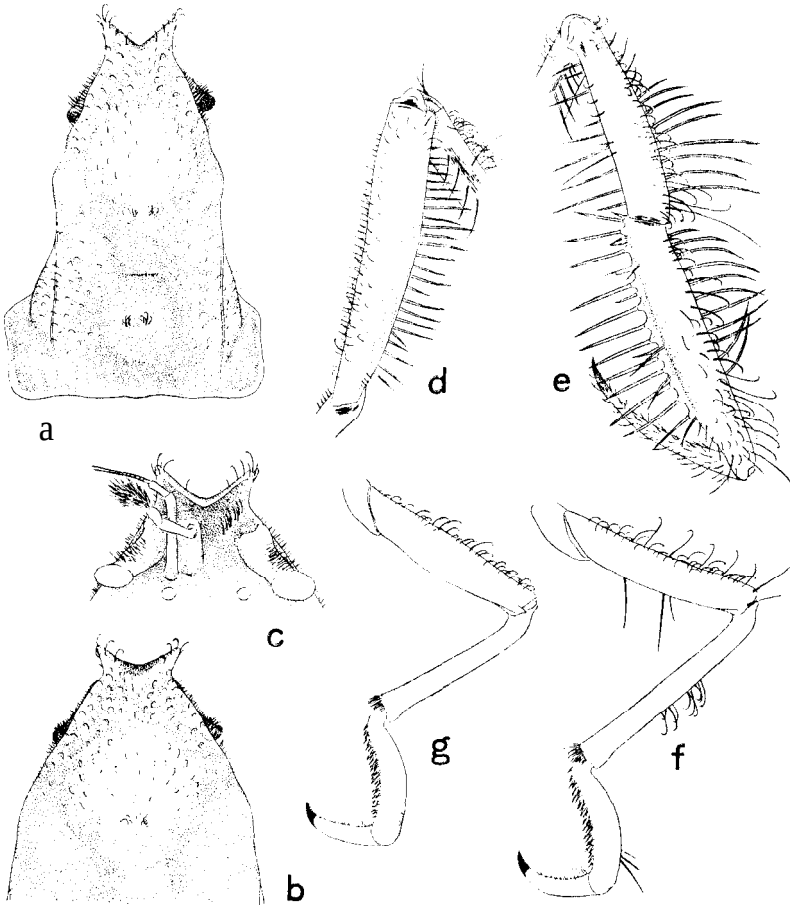

Fig. 4. ***Oncinoprrs*** *angustifrons* sp. nov. a. Carapace of holotype, × 7.5; h. Anterior part of carapace of allotype, × 7.5; c. Fronto-orbital region of allotype in abdominal view, × 12.5; d. Merus of right second ambulatory leg of holotype, × 7.5; e. Distal three segments of the same leg, × 7.5; f, g. Third and fourth ambulatory legs of allotype. × 7.5.

Description of allotype. The ornamentation of the dorsal surface of the carapace is quite like that of the holotype. The formation of the front is also similar to that of the holotype, but the lateral angles are so more strongly directed outwards that the carapace is somewhat "short-naked" in its appearance. The antennular fossae beneath the front are very deep like in the holotype. The chelipeds are further slenderer

than those of the holotype. The third and fourth ambulatory legs are devoid of long stout hairs; the propodus is short and curved with spiniform stout setae along the inner border, forming a chela together with the dentated dactylus; the fourth leg is subdorsal in position. Each of the second to fifth abdominal segments bears a median rounded tubercle with several short hairs ; the terminal segment is subacute at the tip,

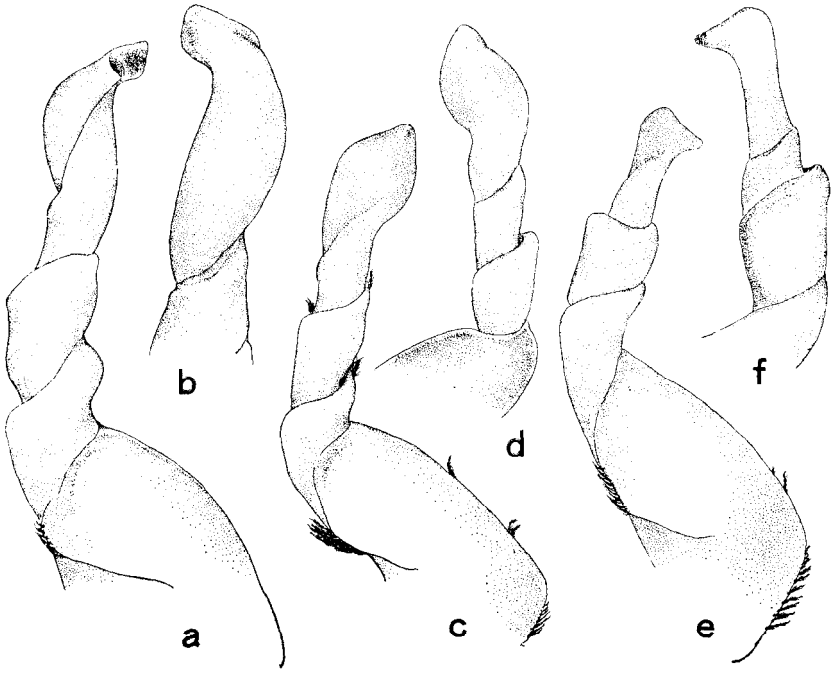

Fig. 5. ***Oncinopus*** *neptunus* Adams et White. 3, b. First pleopod of male from Port Jackson, Australia in abdominal and sternal view, × 30 and × 40.

Oncinopus ***angustifrons*** sp.nov.c,d. First pleopod of holotype in abdominal and sternal view, × 45.

Oncinopus aranea ***de*** Haan. e, f. First pleopod of male from Amakusa Is., Japan in abdominal and sternal view, × 40 and × 50.

Material examined.

27" 16′ N, ***125" 34.5'*** E; 1♂ (holotype), ZLKU No. 13290 ; Jun. 12, 1962 ; H. Yamashita leg.

Off Muko-shima I., Ogasawara Is., 200 m deep, rocky bottom ; 1 ovig. ♀ (allotype), ZLKU No. 1966; Jul. 21, 1938; H. Ikeda leg.

Measurements.

Holotype, ♂ (No. 13290) : Length of carapace in median line, 6.0 mm ; the same with lateral angle of front, 6.4 mm; breadth of carapace with posterolateral expansions, 4.3 mm.

Allotype, ovig. ♀ (No. 1966) : Length of carapace in median line, 7.7 mm ; the same with lateral angle of front, 8.2 mm ; breadth of carapace with posterolateral expansions, 6.5 mm.

Remarks. The new species is closely related to *0. aranea* de Haan, and in reality the ornamentation of the dorsal surface and the formation of the chelipeds and ambulatory legs are almost identical with each other. In the present species, however, the front is merely turned down and its lower surface is deeply excavated to be the antennular fossae which are very slightly separated from each of the imperfect orbits by an oblique row of hairs. The lateral borders of the carapace just behind the front are so strongly constricted that the lateral angles of the front are strongly angulated and directed obliquely forwards. The terminal segment of the male abdomen is wide and very obtuse at the tip, and the first male pleopod is rather thickened at the tip and different from that of 0. *aranea*.

Genus *Achaeus* Leach, 1817

Achaeus robustus Yokoya, 1933

Achaeus robustus Yokoya, 1933, p. 136, fig. 48 – Bungo Str., 106 m deep.
Achaeus robustus, Sakai, 1938, p. 212 -No new record.

Description. In the female the contour of the carapace is almost exactly trigonal, and the postocular constriction is distinct without a neck, so that the carapace is very stout; the surface is convex and fairly well separated into regions by rather shallow but distinct furrows; the entire dorsal surface as well as the abdomen is covered with thick microscopical spinules; the curled hairs on the lateral surfaces of the hepatic and branchial regions are denser than those on the other regions ; the gastric region is indistinctly subdivided into three, viz. the median posterior one with a median spiniform granule, and the anterior lateral two ; the cardiac region is prominently convex and much higher than the branchial region ; the summit of the cardiac region is nearly entire, but in reality two indistinct prominences side by side and one behind them are possibly traceable ; the hepatic projection is stout and rather directed downwards, being armed with two or three spinules somewhat anteriorly.

The rostrum is short and cut into two lobes by a median deep notch; the free margin of each lobe is armed with a spinule. The supraorbital eave is conspicuously divergent posteriorly and only minutely spinulated without prominent spines. The eyestalk is slender and fringed with some microscopical spinules and several short hairs along the anterior lower surface ; the terminal tubercle above the cornea is fairly distinct, but not strongly produced. The antennal basal segment is rather strongly curved dorsally near the distal end; it is bordered with spinules, being armed distally with a strong spine that is directed obliquely forwards.

The chelipeds are very slender in the female. Both borders of the palm are armed each with a row of several spinules and long hairs. The fingers are much longer than the palm and minutely toothed. The ambulatory legs are slender and provided with rather dense curled hairs and also with scant straight ones. The dactyli of the posterior two pairs are weakly falcate, each being armed with several minute, more or less recurved spinules along the posterior border.

Material examined.

27°16′ *N, 125° 34.5′* E ; 1 ♀ infested by *Sacculina*, ZLKU No. 13291; Jun. 12, 1962; H. Yamashita leg.

30° *15.2′ N, 127° 26.4′* E, 121 m deep ; 1 ovig. ♀, ZLKU No. 13292 ; Jun. 11, 1963 ; H. Yamashita leg.

Measurements.

Ovig. ♀ (No. 13292) : Length of carapace with rostrum, 5.0 mm; breadth of carapace, 4.3 mm.

Remarks. The original description is so short and not exhaustive that the re-identification of the species is rather difficult. The present specimens were compared with the holotype reported by Yokoya (1933) from the Bungo Strait, which is dry and now deposited in the Zoological Laboratoty, Kyushu University. In the holotype the length of the carapace including the rostrum is 5.7 mm and the greatest breadth of the carapace is 5.3 mm. In the holotype the median, posterior gastric region is unarmed but more or less strongly convex anteriorly, being rather distinctly separated from the anterior region. The cardiac region is high, stout and indistinctly bifid at the summit. The entire dorsal surface is thickly covered with microscopical spinules and rather densely covered with long curled hairs.

The general appearance of the carapace is much similar to that of ***A. japonicus*** de Haan, bearing the hepatic region not strongly expanded, and no distinct tubercles on the dorsal surface of the carapace. In ***A.***

japonicus, however, the dactyli of the last two ambulatory legs are strongly falcate, and the dorsal surface of the carapace is very smooth. The microscopical spinules on the dorsal surface of the carapace are characteristic of the present species, though they are not mentioned in the original description.

Distribution. This species has hitherto been known only from the type-locality, the Bungo Strait, 106 m deep.

Achaeus tuberculatus Miers, 1879

Achaeus tuberculatus Miers, 1879, p. 25 - Korean Str., 65 m deep.

Achaeus tuberculatus, Ortmann, 1893, p. 34 - Tokyo Bay, Kadsiyama (= Katsuyama), Kagoshima and Maizuru, 65-70 m deep.

Achaeus tuberculatus, Rathbun, 3894, p. 47 -Japan.

Achaeus tuberculatus, Parisi, 1915, p. 281, fig. 1 - Sagami Bay.

Achaeus tuberculatus, Balss, 1924, p. 20 - Sagami Bay, 80-180 m deep, Katiyarna (= Katsuyama) and Uraga Str., 150 m deep.

Achaeus tuberculatus, Yokoya, 1933, p. 135 -Many localities from Shiriya-zaki southwards to west of Kyushu and from Tsu-shima I. northwards to north of Noto Penin., 18-229 m deep.

Achaeus tuberculatus, Sakai, 1934, p. 293 - Nagasaki.

Achaeus tuberculatus, Sakai, 1936, p. 83, pl. 19, fig. 1 -Japan.

Achaeus tuberculatus, Shen, 1937, p. 385, fig. 4 - North China.

Achaeus tuberculatus, Sakai, 1938, p. 214, pl. 22, fig. 3 - Tateyama Bay, Sagami Bay, Shimoda, Ise Bay and Kii.

Achaeus tuberculatus, Miyake, 1961, p. 16 - No new record.

Achaeus tuberculatus, Sakai, 1965, p. 67, pl. 27, fig. 4 - Sagami Bay, 35-50 m deep.

Material ***examined.***

29° 18.2′ N, 125° 29.1′ E, 82-91 m deep ; 1 ♂, 1 ovig. ♀, ZLKU No. 13293; Jun. 29, 1962; H. Yamashita leg.

33° 59.4′ N, 128° 48′ E, 102 m deep; 1 ♀, ZLKU No. 13295; Jun. 19, 1964; H. Yamashita leg.

34° 0.7′ N, 129° 19.4′ E, 110 m deep ; 1 ovig. ♀, ZLKU No. 13296 ; Jun. 20, 1964; H. Yamashita leg.

Measurements.

Ovig. ♀ (No. 13296) : Length of carapace with rostrum, 9.0 mm ; breadth of carapace, 10.9 mm. Ovig. ♀ (No, 13293-2) : Length of carapace with rostrum, 5.9 mm ; breadth of carapace, 4.5 mm.

♀ (No. 13295) : Length of carapace with rostrum, 9.6 mm ; breadth of carapace, 7.4 mm.

Distribution. This species which is restricted to Japan and North China is widely distributed in the Japanese waters from Shiriya-zaki, the northern coast of Aomori Prefecture, southwards to the west of Kyushu along the Pacific coast, and from Tsu-shima Island and the Korean Strait northwards to the north of the Noto Peninsula, the Sea of Japan. The bathymetric range is from 18 to 229 m.

Achaeus varians sp. nov.

(Figs. 6, *7)*

Description of holotype. The carapace is more or less pyriform without a neck, widening nearly directly behind the orbits through the shallow sinus between the hepatic and branchial regions; the dorsal surface is smooth, sparingly covered with curled hairs and rather well sculptured into regions; the gastric region is indistinctly subdivided into three, of which the median posterior one is somewhat produced and convex; the postocular constriction is very distinct; the hepatic projection just behind the constriction is not prominent, but terminate as a lobular prominence, bearing a smaller one on its anterior slope; two stout roundrd pterygostomian tubercles, of which the anterior one is much larger, are visible in dorsal view in the shallow sinus between the hepatic and branchial regions ; the cardiac region is produced and bears two large but blunt tubercles side by side and a small one on its slope near the posterior end; the cardiac region is convex and unarmed except for two or three small rounded tubercles at the anterior lower margin behind the pterygostomian tuberclcs.

The rostrum is composed of two slender lobes that are incurved at the tips, leaving a rounded sinus between them; the median sinus is followed by a shallow dorsal sulcus to the postocular constriction; the free margin of the rostrum and supraocular eave are very minutely spinulated without prominent spines. The eyestalk is short and stout ; it is swollen distally and unarmed except for a small indistinct tubercle above the cornea; the cornea is terminal and chiefly ventral.

The antenna1 basal segment is rather strongly curved dorsally near the distal end, and only granulated without spines: the first segment of the free portion is about a half as long as thr basal segment and slightly shorter than the next segment, reaching hardly the tip of the rostrum ; the free portion is as a whole about two-thirds as long as the carapace and provided with short secondary hairs of various lengths.

The chelipeds are heavy and swollen. Especially, the merus is proximally swollen, and each of the upper, inner and lower borders is fringed with a row of granules of good size ; its outer surface is sparsely covered with curled hairs. The carpus is rather small and bordered with a row of spiniform granules and long hairs along its inner border; otherwise, its outer surface is armed with several, irregularly disposed granules, of which the proximal one near the articulation with the mcrus is the most prominent and more or less tuberculiform. The palm is much swollen on its outer surface, and its upper border is fringed with a row of granules and long straight hairs; the curled hairs on the outer surface are short and sparse. The fingers are compressed and as long as the palm, being only slightly curved inwards near the tips; the upper border of the movable finger is truncated along more than two-thirds its length, so that its outer and inner borders are rather strongly crested as well as the lower border of the immovable finger ;the upper surface of the movable finger thus formed is provided with longish straight hairs that are more or less arranged in a longitudinal series; the cutting edges are toothed and meet throughout the whole lengths; most of the teeth are small and conical, but some near the proximal ends are molar-like and finely toothed at the tips.

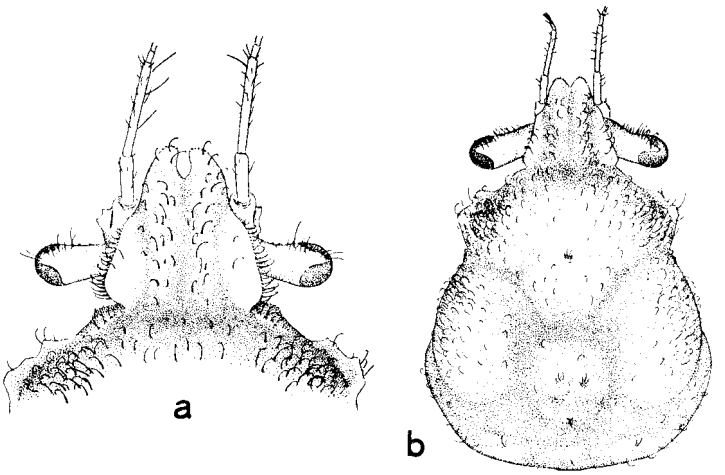

Fig. 6. *Achaeus* ***varians*** sp. nov. a. Anterior part of carapace of holotype, × 10; b. Carapace of paratype, × 10.

Only the left second and right fourth ambulatory legs are present; otherwise, a detached right ambulatory leg may be the second one on account of the same length as the left one. The fourth ambulatory leg is much shorter than the second: its dactylus is slender and as long as that of the second, being only slightly shorter than the pro-

podus; its posterior border bears a few indistinct spinulcs.

The terminal segment of the abdomen is obtusely pointed at the tip ; the distal three segments are unarmed, but medially marked with some setae.

Description of paratype. Each of the region is not sv strongly convex as those of the holotype; especially, the prominence of the cardiac region is low, though it is bifid at the summit and bears a very small, low prominence at the posterior end like in the holotype. The rostrum is merely separated into two stout lobes by a median V-shaped notch ; the formation of the rostrum is therefore diiferent from that of the holotype. The hepatic projection is rather distinctly bilobed and spinulated at their margins; the anterior lobule is less prominent and placed at the slope, but larger than that of the holotype.

Only the right cheliped is present. It is very slender and quite unlike that of the holotype, suggesting that the paratype is not full grown, though the first pleopod appears to be well developed and quite agreeable with that of the holotype. The fingers are as long as the palm, and its cutting edges are minutely and rather irregularly toothed along the whole lengths.

Material examined.

Tosa Bay, dredged up with ***Macrocheira kaempferi*** de Haan; 1♂ (holotype), ZLKU No. 9354; Mar. 28-30, 1960; K. Sakai leg.

28° 40′ N, 125° 31′ E, 99 m deep ; 1♂ (paratype), ZLKU No. 13297; Jul. 23, 1963; H. Yamashita leg.

Measurements.

Holotype, ♂ (No. 9354) : Length of carapace with rostrum, 9.0 mm; breadth of carapace, 7.0 mm.

Paratype, ♂ (No. 13297) : Length of carapace with rostrum, 5.1 mm ; breadth of carapace, 3.6 mm.

Remarks. The present new species is the most nearest kin of ***A. tuberculatus*** Miers which is rather variable in the ornamentation of the carapace including the formation of the rostrum. In the present new species the cardiac tubercle is distinctly bifid at the summit, the postocular constriction is more stronger than even in the female of ***A. tuberculatus,*** and the gastric region is only slightly produced somewhat like the female, but unlike the male of ***A. tuberculatus.*** The terminal segment of the abdomen is broad and obtuse at the tip in ***A. tuberculatus,*** and rather sharp in the present new species. The first male pleopods of both species are markedly different. That of ***A. tuberculatus*** is flat-

tened and spatulated at the tip, while that of the present new species is widened distally, and ventrally produced and convex at. the tip.

On the other hand, judging from the short diagnosis given by Kathbun (1916), *A. villosus* seems to come near to the present species. In the species, however, the carapace is covered with soft, mostly straight, hairs, the antenna1 second segment is nearly as long as the third and a little stouter, and the lingers are gaping and irregularly dentate for the basal three-fifths. Other small differences between the two species may be enumerated.

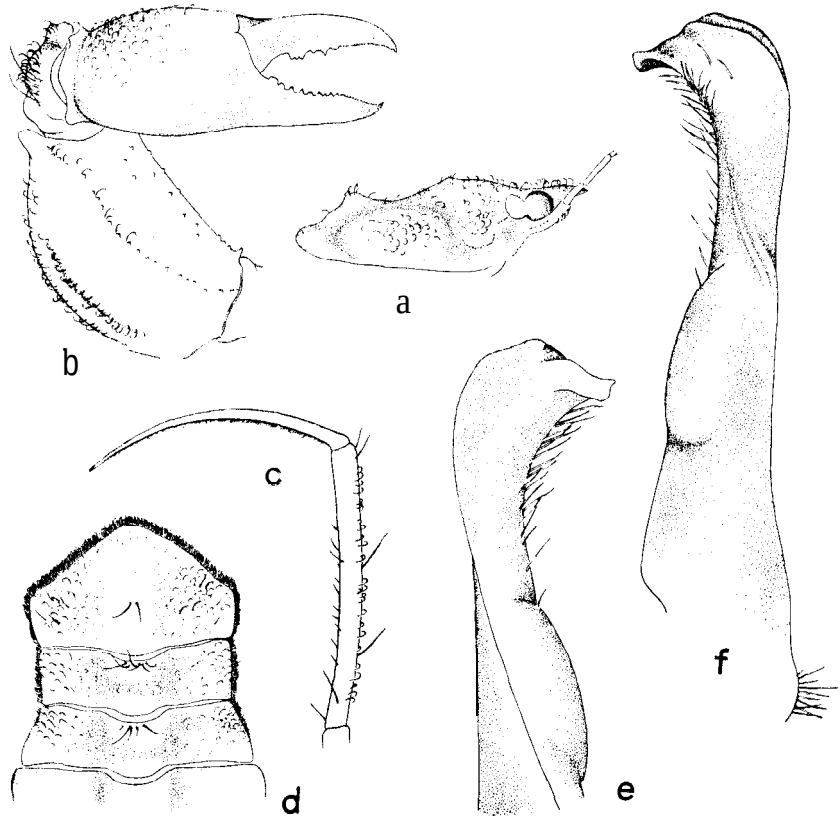

Fig. 7. ***Achaeus*** *varians* sp.nov. a. Carapace of paratype in lateral view, × 7.5; b. Cheliped of holotype, × 6.3; c. Propodus and dactylus of right fourth ambulatory leg of holotype in lower view, 7.5; d. Abdomen of holotype, × 10; e, f. Left first pleopod of holotype in sternal and abdominal view, ×32.5.

Achaeus pugnax (de Man, 1928)

Achaeopsis pugnax de Man, 1928, p. 7, figs. 1-1 i - Sagami Bay, 145-215 m deep,

Achaeus stenorhynchus Rathbun, 1932, p. 29 - Goto Is., 250 m deep.

Achaeus stenorhynchus, Yokoya, 1933, p. 136 - Koshiki-jima Is., 132 m deep and Goto Is., 1% m deep.

Ichaeus stenorhynchus, Sakai, 1936, p. 84, fig. 34, pl. 17, fig. 4 -Japan.

Achaeus pugnax, Sakai, 1938, p. 222, fig. 12, pl. 33, fig. 2 - Sagami Bay and Shimoda.

Achaeus pugnax, Sakai, 196'5, p. 68, pl. 28, fig. 2 - Sagami Bay, 83 m deep.

Material examined.

31° 29.2′ N, 130° 1.5′ E, *196* m deep ; 1 ♂ infested by *Bopyrus, 1* ovig. ♀, ZLKLJ No. 13298; Jun. 13, 1964; II. Yamashita leg.

31° 29.8′ N, 128" 1.5' E, 145 m deep; 1 ovig. ♀, ZLKLJ No. 13300 ; Jun. 23, 1963 ; H. Yamashita leg.

33° 59.4′ N, 128° 48′ E, 102 m deep; 1 ♂, ZLKU No. 13301; Jun. 19, 1964; II. Yamashita leg.

Measurements.

♂ *(No. 13301)* : Length of carapace with rostral spine, 7.5 mm ; breadth of carapace, 4.8 mm. ♂ infested by *Sacculina (No. 13298)* : Length of carapace with rostral spine, 9.0 mm.

Ovig. ♀ (No. 13298-2) : Length of carapace with rostral spine, 7.1 mm ; breadth of carapace, 5.0 mm. Ovig. ♀ (No. 13300) : Length of carapace with rostral spine, 7.9 mm; breadth of carapace 5.6 mm.

Distribution. This species is restricted to the Japanese waters. It has been recorded to date from the Sagami Bay and the Sagami Sea, and the Koshiki-jima and Goto Islands, the west of Kyushu, at the depths of 85 to 250 m.

Achaeus superciliaris (Ortmann, 1893)

Achaeopsis superciliaris Ortmann, 1893, p. 36, pl. 3, fig. 3 - Sagami Bay, 90-180 m deep.

Achaoepsis superciliaris, Rathbun, 1906, p. 877 - Laysan I., 105-295 m deep and Maui I., 100-105 m deep, Hawaiian Is.

Achaeopsis superciliaris, Balss, 1924, p. 21 - Sagami Bay, 130-180 m deep and Uraga Str., 150 m deep.

Achaeopsis superciliaris, Sakai, 1936, p. 79, pl. 17, fig. 2 -Japan.

Achaeus superciliaris, Sakai, 1938, p. 79, fig. 10, pl. 21, fig. 2 - Sagami Bay.
Achaeus ***superciliaris,*** Sakai, 1965, p. 68, pl. 28, fig. 4 - Sagami Bay, 60-85 m deep.

Material examined.

31" 29.7′ N, ***128" 1.3'*** E. ***146*** m deep; 1 ♂, 1 ovig. , ZLKU No. 13302 ; Jun. 14, 1964; H. Yamashita leg.

31" 29.8' N, 128" 1.4' E 145 m deep ; 2 ♂♂, ZLKU No. 13304 ; Jun. 23, 1963 ; H. Yamashita leg.

33" 59.4' N, 128" 48' E, 102 m deep; 1 ovig. ♀, ZLKU No. 13306 ; Jun. 19, 1964; H. Yamashita leg.

34° 0.7′ N, 129° 19.4′ E, 110 m deep ; 1 ovig. ♀, ZLKU No. 11307; Jun. 20. 1964; H. Yamashita leg.

Measurements.

♂ ***(No. 13304)*** : Length of carapace with rostrum, 7.5 mm ; breadth of carapace, 5.3 mm.

Ovig. ♀ (No13307) : Length of carapace with rostrum, 7.2 mm ; breadth of carapace, 6.0 mm. Ovig. ♀ (No. 13306) : Length of carapace with rostrum, 6.4 mm ; breadth of carapace, 5.2 mm.

Distribution. The only locality but Japan recorded in literature is the Hawaiian Islands, though it is not sure whether the materials from the two localities are quite identical or not. In Japan it has been recorded only from the Sagami Bay at the depths of 60 to 180 m.

Genus *Prosphorachaeus* nov.

Diagnosis. Carapace pyriform and convex with dorsal tubercles. Postocular constriction distinct, but no postocular spine in front of hepatic projection. Rostrutn produced with two lobes. Basal antenna1 segment fused and distally curved dorsally outside of rostrum. Antennular fossae separated by anterior process of epistome and prominent thin true rostrum.

Ambulatory legs not much long. Merus, carpus and propodus more or less distinctly bulged at their middle parts.

Abdominal fossa very deep and narrow. First male pleopod well calcified and stout with a peculiar accessory near its tip. Male abdomen deeply excavated for acceptance of peculiar first pleopod. Of six abdominal segments, second, fourth and fifth ones short, while first, third and sixth ones very prominent. Female genital opening large in accordance with peculiar first male pleopod, and bears a semispherical

outgrowth. Female pleopods wide and lamellar throughout their lengths.

Type-species. ***Achaeupsis suluensis*** Rathbun, 1916.

Remarks. In the orbital details the present new genus is closely related to the genus ***Achaeus.*** The new genus is, however, distinct from the latter by the peculiar formation of the ambulatory legs, the abdominal fossa, the first male pleopod, the male abdomen, and the female genital opening.

In the species of ***Achaeus*** the ambulatory legs are very slender and filiform with or without the falcated dactyli of the last two pairs, the abdominal fossa is very shallow and not distinctly defined from the thoracic sternum, and the first male pleopod is slender or spatulated, being not calcified. The deeply excavated male abdomen and the large female genital openings of the new genus may be peculiar for acceptance of the stout, curiously formed first male pleopods. It is otherwise noted that the size of the type-species is much smaller than the species of ***Achaeus*** known to date.

Prosphorachaeus ***suluensis*** (Rathbun, 1916)

(Fig. 8)

Achaeopsis suluensis Rathbun, 1916, p. 535 - Tawi Tawi Group, Sulu Arch., 18 m deep.
Achaeopsis suluensis, Sakai, 1936, p. 79, pl. 18, fig. 1 - Shimoda, 55-105 m deep.
Achaeus suluensis, Sakai, 1938, p. 220, fig. 11, pl. 22, fig. 2 - No new record.
Achaeus ***srrlrrensis,*** Sakai, 1963, p. 68, pl. 28, fig. 3 - Sagami Bay, 70-90 m deep.

Material examined,

33" 23.4' N, 129" 3.9' E, 100 m deep ; 1 ♂, ZLKU No. 13308 ; Jun. 18, 1964 ; H. Yamashita leg.

Tanabe Bay, Kii, 30 m deep ; 1 ovig. ♀, ZLKU No. 3239 ; Apr. 6, 1937; 11. Utinomi leg.

Tomioka, Amakusa Is., 40-50 m deep ; 1 ♂, ZLKU No. 13348; Sept. 21, 1966; H. Minei leg.

Measurements.

♂ ***(No. 13308)*** : Length of carapace with rostrum, 3.8 mm ; breadth of carapace, 2.8 mm. ♂ (No. 13348) : Length of carapace with rostrum, 3.2 mm; breadth of carapace, 2.4 mm.

Ovig. ♀ (No. 3239) : Length of carapace with rostrum, 4.6 mm ; breadth of carapace, 3.8 mm.

Remarks. In having two large, median knobbed spines on the dorsal surface of the carapace the nearest kin of this species is ***Achaeus supercilliaris*** (Ortmann), though the latter is generically distinct. In the latter species, however, there are some other dorsal spines, the knobbed small tubercles on the margins are everywhere prominent, the rostrum and orbital region are more elongate, the ambulatory legs are very slender, and finally the abdominal fossae, male abdomen and first male pleopod are very different from those of the present species.

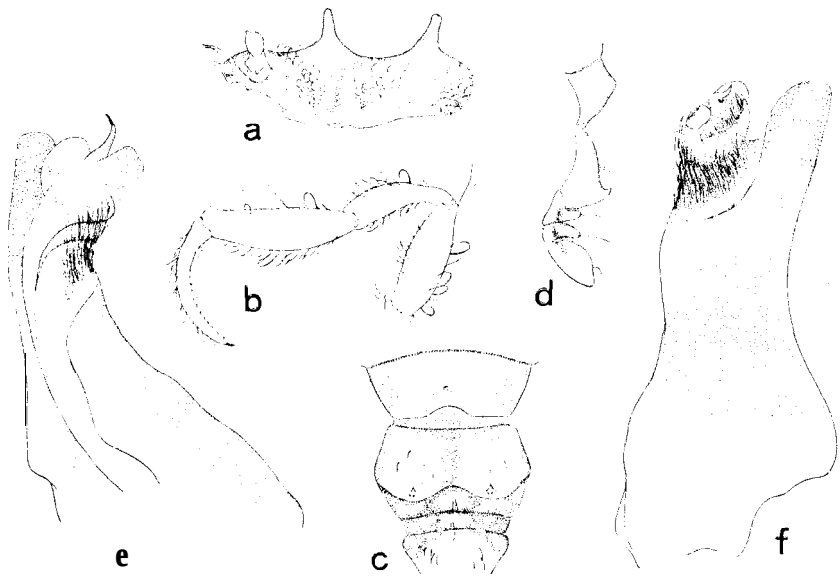

Fig. 8. ***Prosphorachaeus*** *suluensis* (Rathbun). a. Carapace of ♂ (No. 13348) in lateral view, ×10; b. Left fourth ambulatory leg of ♂ (No. 13308), ×15; c, d. Abdomen of ♂ (No. 13348), × 15; e, f. Left first pleopod of ♂ (No, 13308) in abdominal and sternal view, ×50.

Distribution. This species was originally recorded from the Sulu Archipelago, 18 m deep. The additional locality is Japan, and it ranges from the Sagami Ray through the Kii Peninsula southwards to the Amakusa Islands and the East China Sea, as reported here. The bathymetric range in Japan is from 30 to 105 m.

Genus *Pseudocollodes* Rathbun, 1911

Pseudocollodes demani Balss, 1929

Pseudocollodes ***demani*** Balss, 1929, p. 4, fig. 2 – Sagami Bay, 350 m deep.

Achaeopsis atypicus Rathbun, 1932, p. 29 - Off Sata Misaki, 275 m deep.

Pseudocollodes demani, Yokoya, 3933, p. 146, fig. 53 -South-west of Inubo-zaki, 115 m deep.

Pseudocollodes demani, Sakai, 1938, p. 225, fig. 16 - No new record.

Material examined.

33" 59.4′ *N,* 128° 48′ E, *102* m deep ; 1 ♂, *2* ovig. ♀♀, ZLKU No. 13309 ; Jun. 79, 1968; H. Yamashita leg.

Measurements.

Ovig. ♀ (No. 13309-2): Length of carapace with pseudorostral spine, 9.4 m; breadth of carapace, 7.7 mm.

Remarks. This species is fairly variable in the armatures especially with respect to those of the fronto-orbital region. In the present male the median sulcus is so deep that the true rostral spine arises from a much lower place than in thr females. The external orbital spine bears two or three accessory spinules, one of which is sometimes slender and nearly as long as the main one. In the present male, otherwise, a dorsal spine just in front of the last ambulatory leg is very small. The first male pleopod is well agreeable with the figure represented by Sakai (1938).

Distribution. This species has hitherto been known only from Japan. It has been recorded from the Sagami Bay by Balss, off Inubo-zaki, Boshu by Yokoya, and off Sata-misaki, Kagoshima Prefecture by Rathbun. Its bathymetric range is from 102 m recorded at present in the East China Sea to 350 m in the Sagami Bay.

Genus *Pleistacantha* Miers, 1879

Pleistacantha orynx Ortmann, 1893

Pleistacantha orynx Ortmann, 1893. p. 39 - Sagami Ray, 90-180 m deep.

Pleistacantha moseleyi, Balss, 1924, p. 21 - Yagoshima (?), 120 m deep.

Pleisticantha moseleyi, Yokoya, 1933, p. 138 -South of Inubo-zaki, Sagami Bay, Tosa Ray, Bungo Str. and Koshiki-jirna Is., 91-324 m deep.

Pleistacantha moseleyi, Sakai, 1938, p. 234, fig. 20, pl. 34, figs. 2, 3 - Sagami Bay, Kii, Miyazaki Pref. and Nagasaki.

Pleistacantha orynx, Sakai, 1965, p. 69, fig. 10, a, b, d, pl. 30, fig. 2 - Sagami Bay, 85 m deep and Tosa Bay.

Material examined.

OK Yonaguni I., Ryukyu Is. ; 2 ovig. ♀♀, ZLKU No. 2100 ; Jun. 1940 ; H. Ikeda leg.

27" 33.3' N, 126° 0.3' E 27" 29.3' N, 126" 8.5' E, 152-330 m deep ; 1 ♂, 1 ♀, ZLKJ ***No. 13349*** and 13312; Dec. 8, 1967; 11. Yamashita leg.

34" 58.5' N, 131" 4.9' E, 40 80 m deep ; 1 ♂, ZLKU No. 13409 ; Aug. 6, 1967 ; I. Uchimura leg.

Measurements.

♂ ***(No. 13349)*** : Length of carapace in median line, 13.5 mm; the same with pseudorostral spine, 18 mm ; breadth of carapace, 10 mm. ♂ (No. 13409) : Length of carapace in median line, 26 mm; the same with pseudorostral spine, 38 mm ; breadth of carapace, 20 mm.

♀ (No. 13312) : Length of carapace in median line, 44 mm; breadth of carapace, 33.5 mm.

Ovig. ♀ (No. 2100-l) : Length of carapace in median line, 24 mm ; breadth of carapace, 17.5 mm. Ovig. ♀ (So. 2100-2): Length of carapace in median line, 22.7 mm ; the same with pseudorostral spine, 30 mm ; breadth of carapace, 17 mm.

Remarks. This species which has long been confused with ***P. moseleyi*** Miers was recently confirmed to be distinct from it by Sakai (1965). It is remarkable that in one female (No. 13312) the pscudorostral spines arc very divergent and curved upwards, and the slender spines on the carapace arc altogether only six in number, viz. four on the gastric region, one at the anterior end of each branchial region. Of the gastric spines the median anterior one is somewhat directed anteriorly and the t n-o lateral ones obliquely outwards, and the median posterior one is exactly erect. The unovigerous female is devoid of the other slender spines but the mentioned six ones. In the other typical specimens the above-mentioned spines are not slender, and the two cardiac and an another posterior branchial spines arc more or less prominent than the other much smaller ones. It is otherwise ramarkable that the female is subadult and its abdomen and pleopods are not fully developed in spite of its large size. The first pleopods of the present males arc well agreeable with the figures given by Sakai (1965), each bearing a small protuberance near the inner distal end.

Distribution. This species is known only from Japan and ranges from the south of Inubo-zaki southwards to the west coast of Kyushu along the Pacific coast. Its bathymetric range is from 40 to 324 m.

Pleistacantha simplex Rathbun, 1932

(Fig. 9, a, b)

Pleistacantha simplex Rnthbun, 1933, p. SO-South of Goto Is.. 190 m deep.

Pleistacantha simplex, Sakai, 3935, p. 68, fig. 4, pl. 7, fig. 1 - Sagami Bay, 60-360 m deep.

Pleistacantha simplex, Sakai 3936, p. 78, fig. 31 -No new record.

Pleistacantha simplex, Sakai, 3938, p. 336 - No new record.

Pleistacantha simplex, Sakai. 1965, p. 71, pl. 31, fig. 1- Sagami Bay, 75-95 m deep.

Material examined.

31" 29.2' N, 130" 1.5' E, 196 m deep ; 1♂, 2 ovig. ♀♀, ZLKU No. 13313 ; Jun. 13, 1964; II. Yamashita leg.

32" 24.8' N, 129" 24.7' E ; 1♂, ZLKU No. 13316 ; Oct. 24, 1962 ; H. Yamashita leg.

Measurements.

♂ (No. 13316) : Length of carapace in median line, 7.6 mm; the same with pseudorostral spine, 8.6 mm ; breadth of carapace, 5.9 mm.

Ovig. ♀♀ (No. 13313-2, 3) : Length of carapace in median line, 6.0 and 8.7 mm ; the same with pseudorostral spine, 6.5 and 9.3 mm; breadth of carapace, 4.7 and 6.6 mm.

Distribution. This species has hitherto been recorded only from the Sagami Bay and the south of the Goto Islands at the depths of 60 to 360 m.

Pleistacantha japonica (Yokoya, 1933)

(Fig. 9, c, d, Pl. 18, Fig. A)

Parapleisticantha japonica Yokoya, 1933, p. 140, fig. 50 - South of Omaé-zaki, Kii, Amakusa Sea and Goto Is., 119-219 m deep.

Pleistacantha (Parapleisticantha) japonica, Sakai, 1938, p. 238 - No new record.

Description. The carapace is elongate pyriform and sculptured by the shallow interregional furrows ; the gastric, cardiac and branchial regions are distinct, and a small region is otherwise demarcated between the gastric and branchial regions ; each of the regions is more or less convex, the gastric one being prominently so; the entire surface is thickly covered with hairy spinules, several of which are more prominent, but not remarkably, than the othres, viz. three on the gastric

region, one on each region between the gastric and branchial regions, and two side by side on the caridac region; otherwise, the anterior lateral margin of the branchial region is armed with three or four more or less prominent spines.

The fronto-orbital region is narrow, but rather protruded anteriorly. The pseudorostral spines are short and widely separated each other at the base, being widely divergent and weakly curved upwards; each of the spines bears altogether four accessory spines, of which the two are placed on the outer border and the others on the lower border; of the two spines on the lower border, the distal one just near the tip of the pseudorostral spine is very small, and the proximal one is just near the distal one on the lateral border; otherwise, a spine at the antero-outer angle of the antennular fossa is very prominent ; the true rostrum, which becomes an anterior projection of the antennular septum, is high and bifid at the tip. The supraocular eave is armed with four spines, the last of which is the largest, bears an accessory spine at the posterior somewhat lower level, and is at some distance from the third. Of the two intercalated spines the posterior outer one is the larger, but much shorter than the postocular spine which bears an accessory spine in the middle of the lower borber. Behind the postocular spine the hepatic region is armed with a slender spine that is as large as the larger intercalated spine ; some other hepatic spines are much shorter, but more or less longer than the dorsal spinules and as prominent as the marginal spines of the branchial region.

The antennular basal segment is armed with a spine in middle of the surface, and the antennat one with the several, of which the three on the outer border and the one at the antero-inner angle are prominent. The third maxilliped is hairy and spinulated with the merus produced at the antero-external angle.

The chelipeds are hairy and armed with numerous spines that are beaded to form some longitudinal series on the merus and palm. Four or five spines on the upper border and the distal part of the merus are very prominent and slender. The ambulatory legs are also armed with spines and spinules and covered with straight and curled hairs; the fringes of the long stout hairs are very prominent.

Material examined.

31" 29.8' N, 128" 1.5' E, 145 m deep ; 1♂, ZLKU No. 13317 ; Jun. 23, 1963 ; H. Yamashita leg.

33" 34.9' N, 128" 25.2' E, 120 m deep ; 1♂, 1♀, ZLKU No. 13319 ; Jun. 18, 1964; H. Yamashita leg.

Measurements.

♂ ***(No.*** 13319-1) : Length of carapace in median line, 13.4 mm; the same

with pseudorostral spine, 16.6 mm; breadth of carapace, 10.2 mm.
♀ (No. 13319-2) : Length of carapace in median line, 19.0 mm ; the same with pseudorostr-al spine, 21.7 mm ; breadth of carapace, 14.8 mm.

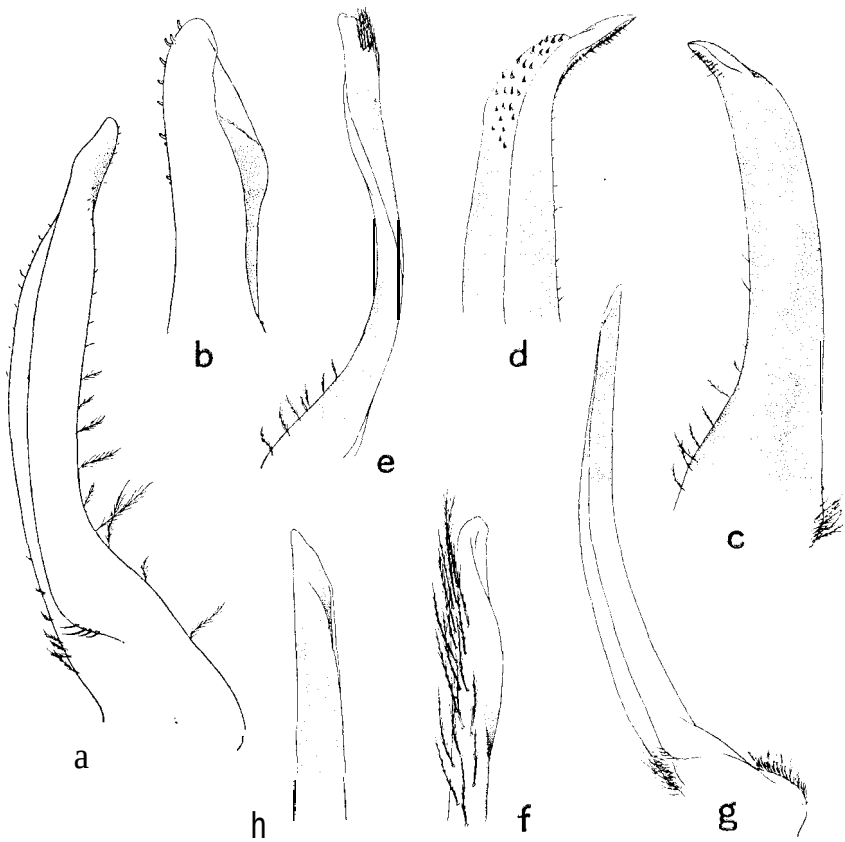

Fig. 9. ***Pleistacantha simplex*** Rathbun. a, b. Left first pleopod of ♂ (No. 13316) ***in*** abdominal and sternal view, ×40 and . 100.
Pleistacantha japonica (Yokoya). c, d. Left first pleopod of ♂ (No. 13319-1) in sternal and abdominal view, ×25 and ×30.
Hyastenus kyushuensis (Yokoya). e, f. Left first pleopod of ♂ (No. 13341-1) in sternal and abdominal view, × 25 and × 33.
Naxioides hystrix (Miers). g, h. Left first pleopod of ♂ (No. 573) in abdominal and sternal view, × 10 and × 20.

Remarks. The present specimens are agreeable in general with the short original diagnosis, but somewhat different from it in some details of the armatures of the fronto-orbital region. According to the original diagnosis, the supraorbital eave is armed with only two spinules,

while it is armed with four spines in the present specimens. In the original figure the pseudorostral spines are represented to be unarmed at all, but in the present specimens they bear some accessory spines. As regards the armatures of the antennal and buccal regions, it is probable that one of the figures given by the original author is somewhat diagrammatic.

At present, in the Zoological Laboratory, Kyushu University arc two syntypes, one male and one female, from the south-east of the Goto Islands, 152 m deep. In the male the length of the carapace in median line is 21.5 mm, the same including the pseudorostral spine is 26 mm, and the breadth of the carapace is 17 mm. In the female the length of the carapace in median line is 16 mm, the same including the pseudorostral spine is 18.5 mm, and the breadth of the carapace is 13.2 mm. Both specimens are very well agreeable with the present specimens. In the male, however, the chelipeds are enormously developed unlike in the female. The fingers meet at the distal two-thirds, gaping proximally. The lower border of the immovable finger is weakly convex in accordance with the gape. The immovable finger is minutely toothed throughout the length, while in the movable finger two teeth in the gape are much larger than the others.

The genus ***Parapleisticantha*** erected by Yokoya (1933) is considered by Sakai (1938) as a subgenus of ***Pleistacantha.*** Even if such a subdivision should be ever found necessary, however, the subgeneric rank is eliminated at present, since the antero-external angle of the merus of the third maxilliped is usually more or less produced in the species of *Pleistacantha*, and the short divergent rostral spines also occur in some other species.

Distribution. This species was originally recorded from the south of Omaé-zaki, the west of the Kii Peninsula, the Amakusa Sea, and the south-east and south-west of the Goto Islands at the depths of 119 to 219 m.

Genus *Platymaia* Miers, 1886

Platymaia jimbriata Rathbun, 1916

Platymaia fimbriata Rathbun, 1916, p. 531 – Sibuko Bay, Borneo, 755 m deep.

Platymaia jimbriata, Ihle and Ihle-Landenberg, 1931, p. 149 – North of Sumbawa, 521 m deep, north of Ceram, 835 m deep and Kei I., 560 m deep.

Platymaja *fimbriata*, Sakai, 1965a, pp. 39, 43, pl. 5, fig. 5 – Tosa Bay, Osaka Bay, Ise Bay and Suruga Bay.

Material examined.

29" 27.2' N, 128" 16.2' E – ***29" 33.3' N, 128" 23.5'*** E, ***1065-1075*** m deep ; 1 ovig. ♀, 1♀, ZLKU No. 13323: Dec. 6, 1967; II. Yamashita leg.

Measurements.

Ovig.♀ ***(No. 13323-l)*** : Length of carapace with pseudorostral spine, 39.5 mm ; the same with median rostra1 spine, 45.5 mm ; breadth of carapace, 35 mm.

♀(No.13323-2): Length of carapace with pseudorostral spine, 41 mm; the same with median rostra1 spine, 49.5 mm ; breadth of carapace, 34.5 mm.

Remarks. This species was recenty added to the fauna of Japan by Sakai (1965 a). It is peculiar in having the markedly spiny carapace and ambulatory legs, and the long rostra1 median spine that is more or less sinuate in lateral view with the tip curved downwards.

Distribution. This species is known from the West Pacific at the depths of 521 to 835 m. In Japan it ranges from the Suruga Bay southwards to the Tosa Bay and to the East China Sea as recorded at present. The bathymetric range is further extended down to 1075 m.

Platymaia alcocki Rathbun, 1916

(Figs. 10, 11, a-c)

Platymaia Wyville-Thomsoni, Wood-Mason and Alcock, 3891, p. 258 – Andaman Sea, 395-410 m deep.

Platymaia ***Wyville-Thomsoni,*** Alcock, 1894, p. 401 – Andaman Sea, 340-395 m deep.

Platymaia wyville-thomsoni, Alcock, 1895, p. 181 – Andaman Sea, 235-730 m deep.

Platymaia Wyville-Thomsoni, Illust. Zool. Invest., 1896, pl. 16.

Platymaia ***wyville-thomsoni,*** Doflein, 1904, p. 59, figs. 2-6, pls. 2, 20-23, 39, 43, figs. 5, 6, and 50, figs. 2, 5, 6 – East coast of Africa (3°7′S, 40°45.8′ E), 748 m deep, Zanzibar Canal, 463 m deep, off Dar es Salaam, 400-404 m deep and Great Nicobar I., 296 m deep.

Platymaia ***ulcocki*** Rathbun, 1916, p. 530 – No new record.

Plarymaiu Wyville-Thomsoni Alcocki, Ihle and Ihle-Landenberg, 3931, p. 349 – No new record.

Platymaja ***wyville-thomsoni,*** Miyake, 1936, p. 417, fig. 1, pl. 28, fig. 3 – Off Tori-shimn I., Danjo Is., 180 m deep and Tosa Bay.

Plutymaja wyville-thomsoni, Sakai, 1938, p. 238, pl. 24, fig. 2 – Tosa Bay and Nagasaki.

Platymaja alcocki, Sonô and Konno, 1954, pp. 85-88, pl. 2 – Rmatsu, Boshu, 260-270 m deep.

Material examined.

2733.3' N, 126" 0.3' E - 27° 29.3' N, 126° 8.5' E, 152-330 m deep ; 2 ♂♂, 1 ♀, ZLKU No. 13321; Dec. 8, 1967; H. Yamashita leg.

31" 29.7' N, 128" 1.3' E, 146 m deep ; 1 juv. ♂, ZLKU No. 13350; Jun. 14, 1964; H. Yamashita leg.

Material examined,

♂ *(No.* 13321-2) : Length of carapace with pseudorostral spine, 31.3 mm; the same with median rostra1 spine, 32.5 mm; breadth of carapace, 34.5 mm.

♀ (No. 13321-3) : Length of carapace with pseudorostral spine, 31 mm ; the same with median rostra1 spine, 32.5 mm ; breadth of carapace, 32 mm.

Remarks. This species bears a close affinity to *P. wyvillethomsoni* Miers, and it is sometimes difficult to discriminate this species from the latter. According to Ihle and Ihle-Landenberg who considered this species as a subspecies of *P. wyvillethomsoni,* this species is devoid of supraorbital spine at the posterior end of the preorbital lobe, and the branchial region near the cardiac region is raised and more or less convex in the full grown male. In each of the present males the length of the chela is rather short, being about two and a half times of its height. The proportion of the chela seems therefore to be of no specific importance. The spininess of the chela is rather variable, especially with respect to the teeth on the cutting edges and the spines on and along the lower border. As regards the two spiny lobes at the posterolateral region of the sternum between the ambulatory legs mentioned by Senô and Konno, the spines are also variable in number and length in the present specimens.

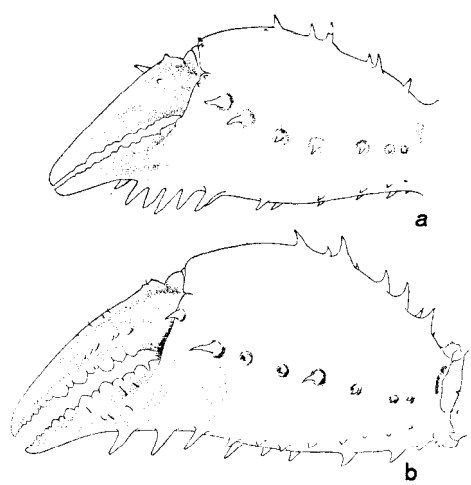

Fig. 10. *Platymaia nlcocki* Rathbun, a. Left chela of ♂ (No. *13321-Z).* × *2;* b. The same of ♂ (No. 13321-1), × 2.

In the present juvenile male the dorsal spines are rather long unlike those of the adult specimens. Especially two distant spines on the

lateral margin of the branchial region, and one just in front of the last ambulatory legs are slender, though they are small in the adult. In addition, four spines on the anterior thoracic sternum are also slender.

It is probable that the first male pleopods are effectively available for the discrimination of the two species. In view of the geographical distribution as remarked below, the Japanese materials are within the range of ***P. wyvillethomsoni***. Accordingly, the examinations of the first male pleopods of the materials from the various localities are desirable.

The specimens from the Danjo Islands and the Tosa Bay reported by Mipake in 1936 as ***P. wyville-thomsoni*** were r-e-examined and arc well agreeable with the present specimens.

Distribution. This species is widely distributed in the Indo-West Pacific waters from Japan through the west of Sumatra, Great Nicobar Island and the Andaman Sea to the east coast of Africa. It is therefore mainly known from the Indian Ocean, and only a record in the Pacific is that from Japan. In Japan it is recorded from Boshu as ***P. alcocki,*** and from the Tosa Bay, Nagasaki and the Danjo Islands as ***P. wyville-thomsoni.*** Its bathymetric range is from 180 to 748 m.

Genus Cyrtomaia Miers, 1886

Cyrtomaia owstoni Terazaki, 1903

(Fig. 11, d, e)

Cyrtomaia owstoni Terazaki, 1903, p. 239, 2 figs - Sagami Sea.

Cyrtomaia horrida japonica Balss, 1924, p. 23 - Sagami Bay, ***180*** and 900 m deep.

Cyrtomaia septemspinosa Rathbun, 1939, p. 30 - Koshiki-jima Is., 705 m deep.

Cyrtomaia septemspinosa, Yokoya, 1933, p. 144 (part) -East of Boshu, off Mie Pref. and south of Kagoshima Pref., 180-494 m deep.

Cyrtomaja owstoni, Sakai, 1938, p. 240, pl. 35, fig. 1 - Sagami Bay.

Cyrtomaja owstoni, Sakai, 1965, p. 71, pl. 31, fig. 2 - Sagami Bay, 85 m deep, Ise Bay, 65-120 m deep and Tosa Bay.

Material examined.

29° ***56.5' N, 127"*** 47' E - 30° 3' N, 127" 48' E, 362-396 m deep ; 1 ♂, ZLKU No. 13325; Dec. 13, 1967; H. Yamashita leg.

Measurements.

♂ ***(No. 13325)*** : Length of carapace with rostral spine, 11.5 mm ; breadth of carapace, 11.2 mm.

Distribution. This species is restricted to the Japanese waters. It ranges geographically from the east of Boshu and the Sagami Bay to the west of Kyushu and Tsu-shima Island, and bathymetrically from 65 to 900 m.

Cyrtomaia platypes Yokoya, 1933

(Fig. 11, f, g)

Cyrtomaia *septemspinosa*, Yokoya, 1933, p. ***144*** (part) - Tsu-shima I. and Goto Is., ***117 and 153*** m ***deep.***

Cyrtomaia ***platypes*** Yokoya, 1933, p. ***145, fig.*** 52 - Kii, Tosa Bay, Bungo Str., Tanegashim I., Goto Is. ***and*** Tsu-shima I., 106-219 m deep.

Cyrtomaja ***platypes,*** Sakai, 1938, p. 242 -No new record.

Description. The carapace is markedly convex and transversely oval with the protruded frontal region; the dorsal surface is armed with altogether nine slender spines, i. e. three on the gastric region, two side by side on the cardiac region, and two on each branchial region: of those the posterior one on the branchial region is the shortest, and the anterior one is the longest of all, but not remarkably so; both the external orbital and the hepatic spines are prominent, the former being longer and as long as the gastric and cardiac spines. The lateral margin of the branchial region is fringed with seven or eight spiniform granules of good size, that are subequal or only slightly diminish their sizes.

The true rostrum is long, rather deflexed and curved downwards near the tip; it is, however, clearly seen from above beyond the pseudorostral spines which are short but acuminate and somewhat directed upwards. There is no intercalated spine. The eyestalk bears two tubercles above the cornea. The two peduncular segments of the antenna are broad and foliaceous.

The chelipeds are heavy and thickly covered with small conical granules mixed with large spiniform granules and spines. The merus is distinctly swollen in the middle, being more or less spindle-shaped. The palm is compressed and becomes broader distally ; the large granules and spines are beaded to form some longitudinal series along both borders and on both serfaces. The fingers somewhat gape proximally.

Meterial examined.

Off Yonaguni I., Ryukyu Is. ; 1 ovig. ♀, ZLKU No. 2112; Jun. 1940; H. Ikeda leg.

21" 29.7' N, 128" 1.3' E, 146 m deep ; 1♀, ZLKU No. 13326; Jun. 14, 1964; II. Yamashita leg.

31" 29.8' N, 128" 1.5' E, 145 m deep ; 1 ♂, ZLKU No. 13401 ; Jun. 23, 1963; H. Yamashita leg.

32" 13.5' N, 127" 58.2' E, 147 m deep; 1 ovig. ♀, ZLKU No. 13408; Aug. 7, 1967; I. Uchimura leg.

32" 24.8' N, 129° 24.7' E ; 3 ♂♂, ZLKU No. 13327 ; Oct. 24, 1962 ; H. Yamashita leg-.

33" 34.9' N, 128" 25.2' E, 120 m deep ; 1 ovig. ♀, ZLKU No. 13330 ; Jun. 18, 1964 ; H. Yamashita leg.

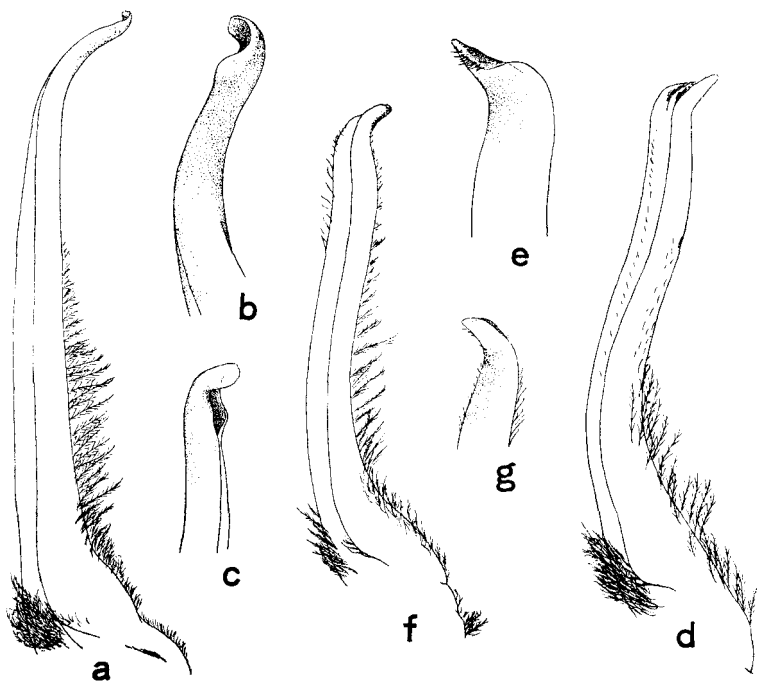

Fig. 11. *Platymaia alcocki* Rathbun. a. Left first pleopod of ♂ (No. 13321-2) in abdominal view, × 7.5; b, c. Distal portion of the same in abdominal and sternal view, × 17.5.

Cyrtomaia owstoni Terazaki. d. Left first pleopod of ♂ (No. 13325) in abdominal view, × 12.3; e. Distal portion of the same in sternal view, × 30.

Cyrtomaia platypes Yokoya. f. Left first pleopod of ♂ (No. 13327-l) in abdominal view, × 12.5; g. Distal portion of the same in sternal view, × 20.

Measurements.

♂ (No. 13327-1) : Length of carapace with pseudorostral spine, 15 mm; breadth of carapace, 15 mm.

Ovig. ♀ (No. 13330) : Length of carapace with pseudorostral spine, 20.2 mm; breadth of carapace, 20.3 mm. Ovig. ♀ (No. 13408) : Length of carapace with pseudorostral spine, 12.2 mm ; breadth of carapace, 12.5 mm.

♀ (No, 13326) : Length of carapace with pseudorostral spine, 12.3 mm ; breadth of carapace, 12.2 mm.

Remarks. This species is characteristic in having two foliaceous peduncular segments of the antenna and no intercalated spine. The meri of the chelipeds and first pair of the ambulatory legs are rather distinctly swollen in the middle.

In addition to the above specimens from the East China Sea, the following specimens collected by S. S. Soya-Maru and reported by Yokoya (1933) are preserved in the Zoological Laboratory, Kyushu University. Altogether seven specimens of the last two items in the following list were reported by Yokoya as C. *septemspinosa* Rathbun which is synonymous with C. *owstoni* Terazaki. The specimens but one ovigerous female from the station 324 are dry and the ambulatory legs are detached, and moreover one male from the station 325 is somewhat damaged.

1) St. 324, Bungo Strait, 106 m deep. July 21, 1928. 1 ovig. ♀, syntype.
2) St. 325, Bunto Strait, 210 m deep. July 21, 1928. 1 ♂, syntype.
3) St. 440, south-west of Goto Is., 152 m deep. July 19, 1929. 1 ♂, 4 ovig. ♀♀.
4) St. 462, south of Tsu-shima I., 117 m deep. July 24, 1929. 1 ♂, 1 ovig. ♀.

Distribution. This species was originally recorded from the Tosa Bay and its adjacent waters, and the south and north of Kyushu at the depths of 106 to 219 m.

Subfamily Oregoniinae Garth, 1958

Genus *Oregonia* Dana, 1851

Oregonia gracilis Dana, 1851

Oregonia gracilis, Dana, 1852, p.106- Puget Sound, Washington
Oregonia hirta, Dana, 1852, p.107- Puget Sound, Washington.

Orcgonia gracilis, Rathbun, 3925, p. 71, figs. 19, 20, pls. 24,25 (lit. and syn.)-Numerous localities from Bering Sea to Monterey Bay in California and to off Kinka-zan in Japan, from shallow water to 380 m deep.

Oregonia *gracilis,* Balss, 1924, p. 25 - Aomori and Awatscha.

Oregonia gracilis, Yokoya, 1928, p. 763 - Mutsu Bay, 20-60 m deep.

Oregonia gracilis, Shen, 1932, p. 45, figs. 23-25, pl. 3, fig. 1 -Shantung Penin., N. China.

Oregonia gracilis, Yokoya, 1933, p. 141 -Many localities from Tsugaru Str. southwards to south-east of Inubo-zaki along Pacific coast, and southwards to Korean Str., Sea of Japan, X-444 m deep.

Oregonia gracilis, Sakai, 1936, p. 82, fig. 32 - Japan.

Oregonia gracilis, Sakai, 1938, p. 231, pl. 34, fig. 1 -Akkeshi, Mutsu Bay and off Iwate Pref., Yellow Sea, 60-70 m deep and Manchoukuo.

Oregonia gracilis, Garth, 1958, p. 136, pl. 1, fig. 2, pl. 10, pl. 11, fig. 1 (lit. and syn.) -Many localities in British Columbia, Washington, Oregon and California, 6-135 m deep.

Material examined.

East China Sea ; 1 ♂, ZLKU No. 894 ; Aug. 25-Sept. 9, 1953; H. Maéda leg.

East China Sea ; 3 ♂♂, ZLKU No. 13398; Feb. 24, 1962; H. Yarnashita leg.

Measurements.

♂ (No. 894) : Length of carapace without rostral spines, 24 mm ; the same with the rostral spines, 29 mm ; breadth of carapace, 19 mm. ♂ (No. 13398-l) : Length of carapace without rostral spines, 28.2 mm ; breadth of carapace, 22.2 mm. ♂ (No. 13398 2) : Length of carapace without rostral spines, 25.5 mm ; the same with rostral spines, 34.4 mtn ; breadth of carapace, 19.6 mtn.

Distribution. This boreal, North Pacific species ranges from the Bering Sea to the Monterey Bay in Califoroia, the Pacific coast of America, and to Japan and North China. The distribution along the American coast in detail is referred to Rathbun (1925) and Garth (1958), and that in the West Pacific is noted below.

Rathbun (1925) reported the Japanese materials together with the boreal and American materials. According to her, the southern limit in Japan is off Kinka-zan at the depth of 230 m, the Pacific coast (38°9′ 24″N, 141°52′30″E), and the Sea of Japan (43°19′20″N, 140°17′E), 105 m deep. In 1932 Shen reported this species from the north of the Shantung Peninsula. Afterwards, by Yokoya (1933) the southern limit of distribution along the Pacific coast of Japan is further extended to the south-

east of Inubo-zaki, 123 i-n deep. Sakai (1938) also reported this species from the Yellow Sea. Accordingly, in the West Pacific this species is widely distributed from the Bering Sea southwards to the south of Inubo-zaki along the Pacific coast of Japan and North China, the Yellow Sea and the East China Sea. The bathymetric range is from very shallow water to 444m.

Subfamily Acanthonychinae Alcock, 1895

Genus *Pugettia* Dana, 1851

Pugettia incisa (de Haan, 1839)

Pisa (*Menaethius*) ***incisa*** de Haan, *1839*, p. *98*, pl. 24, *fig.* 3 -*Japan*.
Menaethius incisus, Adams and White, 1848, p. 20 - Japan.
Pugettia incisa, Miers, 1879, p. 23 - Tokyo Bay and Korean Str., 65 m deep.
Pugettia incisa, Miers, 1886, p. 40 - Yokosuka, 20 m deep.
Pugettia incisa, Ortmann, 1893, p. 44 -Tokyo Bay, Kagoshima and Nagasaki.
Pugettia incisa, Doflein, 1902, p. 656 - Sagami Bay.
Pugettia incisa, Stimpson, 1907, p. 34 - Hakodate Bay, 10 m deep.
Pugettia incisa, Parisi, 1915, p. 386 - Tokyo Bay.
Pugettia incisa, Balss, 1924, p. 26 - Aomori, Sagami Bay, 80-150 m deep and Nagasaki.
Pugettia incisa, Yokoya, 1928, p. *768* - Mutsu Bay.
Pugettia ***crisfafa*** Gordon, 1930, p. 520 - Amoy.
Pugettia cristata, Gordon, 1931, p. 555, figs, Xi, b, 31, d, e - No new record.
Pugettia incisa, Yokoya, 1933, p. 148 - Tsugaru Str., 44 m deep.
Pugettia incisa, Sakai, 1934, p. 294 - Nagasaki.
Pugettia incisa, Sakai, 1936, p. 88, fig. 38 -Japan.
Pugettia incisa, Sakai, 1938, p. 254, fig. 27 - Tateyama Bay, Ise Bay and Inland Sea.
Pugettia incisa, Miyake, 1961, p. 17 - Amakusa Sea, 30-50 m deep.
Pugettia incisa, Miyake, 1961a, p. 171 -Sea of Ariaké.
Pugettia incisa, Sakai, 1965, p. 72, pl. 3'2, figs. 1, 2 - Sagami Bay, 30-50 m deep.

Material examined.

27° 55′ N, 123° 35′ E ; 1 juv., ZLKU No, 13331 ; Apr. 9, 1962; H. Yamashita leg.

28° 44.7′ N, 124° 51.7′ E, 92 m deep ; 1 ♂, 1 juv., ZLKU No. 13332; Jun. 13, 1963; H. Yamashita leg.

28° 45′ N, 129° 31′ E, 99 m deep ; 1 ♀, ZLKU No. 13333; Jun. 13, 1963; H. Yamashita leg.

28° 45′ N, 126° 14.9′ E, 100 m deep; 1 juv., ZLKU No. 13334; Jun. 14, 1963 ;

H. Yamashita leg.

35" 16.1' N, 122" 51.5' E, 150 m deep ; 1 ovig. ♀, ZLKU No. 13335 ; Feb. 13, 1961 ; H. Yamashita leg.

Measurements.

Ovig. ♀ (No. 13335) : Length of carapace without pseudorostral spine, 13.7 mm ; the same with pseudorostral spine, 16.9 mm; breadth of carapace, 9.9 mm.

Distribution. This species is known from Amoy and Japan. It is widely distributed in the Japanese waters from the Hakodate Bay, the Tsugaru Strait and the Mutsu Bay southwards to the west coast of Kyushu and the Korean Strait along the Pacific coast. Its bathymetric range is from 10 to 150 m recorded at present.

Pugettia minor Ortmann, 1893

Pugettia minor Ortmann, 1893, p. 44 - Sagami Bay, 90-360 m deep and Maizuru, 65-70 m deep.

Pugettia minor, Doflein, 1902, p. 636 - Sagami Bay.

Pugettia minor, Parisi, 1913, p. 286 - Uraga Strait.

Pugettia minor, Balss, 1924, p. 31 - Sagami Bay, 80-180 m deep and Uraga Str., 150 m deep.

Pugettia minor, Yokoya, 1928, p. 768 - Mutsu Bay.

Pugettia minor, Yokoya, 1933, p. 149 (part) - Numerous localities from south of Shioyazaki southwards to Kyushu along Pacific coast and from Kyushu to north of Mikuni, Fukui Pref., Sea of Japan, 18-530 m deep.

Pugettia minor, Gordon, 1931, fig. 33, a.

Pugettia minor, Sakai, 1934, p. 294 - Nagasaki.

Pugettia minor, Sakai, 1936, p. 89, fig. 39, pl. 20, fig. 3 -Japan.

Pugettia minor, Sakai, 1938, p. 260, fig. 29, pl. 25, fig. 2 -- Sagami Bay and Shimoda.

Pugettia minor, Miyake, 1961, p. 16 - Amakusa Sea.

Pugettia minor, Miyake, 1961a, p. 172 -Sea of Ariaké.

Pugettia minor, Sakai, 1965, p. 72, pl. 31, fig. 4 - Sagami Bay, 35-65 m deep.

Material examined.

35" 16.1' N, 122" 51.5' E, 150 m deep ; 1 ♀, ZLKU No. 13336 ; Feb. 13, 1961 ; H. Yamashita leg.

Measurements.

- *(No. 13336)* : Length of carapace without pseudorostral spine, 8.7 mm ;

the same with pseudorostral spine, 10.0 mm ; breadth of carapace, 7.1 mm.

Remarks. This species is remarkable in having the cupped postocular tooth and the flattened first and second segments of the free portion of the antenna. It is shortly remarked here that several specimens reported by Yokoya (1933) are apparently referable to *P. nipponensis* Rathbun.

Distribution. This species is known only from Japan. It is rather commonly found along the Pacific coast from the Mutsu Bay, Aomori Prefecture southwards to the west coast of Kyushu, and along the coast of the Sea of Japan from northern Kyushu northwards to the north of Mikuni, Fukui Prefecture. The bathymetric range in literature is from 18 to 530m.

Pugettia nipponensis Rathbun, 1932

Pugettia nipponensis Kathbun, 1932, p. 31 - Doumiki Saki (?), 110 m deep.

Pugettia nipponensis, Yokoya. 1933, p. 152 - Sagami Ray, Suruga Bay, Kii Str. and Tosa Bay, 128-604 m *deep.*

Pugettia nipponensis, Snkai, 1936, p. 90, fig. 40, pl. 21, fig. 4 - Japan.

Pugettia nipponensis, Sakai, 1938, p. 261, fig. 30, pl. 26, fig. 2 - Onahamn, Sngami Bay and Shimoda.

Pugettia nipponensis, Miyake, 1961a, p. 172 - Sea of Ariaké.

Pugettia nipponensis, Sakai, 1965, p. 73, pl. 33, fig. 1 - Sngami Bay, 65-85 m deep.

Material examined.

27° 55′ N, 123" 35′ E ; 1 ♂, ZLKU No. 13337 ; Apr. 9, 1962 ; H. Yamashita leg.

31" 29.7' N, 128" 1.3' E, 146 m deep ; 1 ♂, ZLKLJ No. 13338 ; Jun. 14, 1964 ; II. Yamashita leg.

32" 36.7' N, 127" 42.8' E, 145 m deep ; 1 young ♂, ZLKU No. 13339 ; Jun. 17, 1964; II. Yamashita leg.

Measurements.

♂ (No. 13337) : Length of carapace without pseudorostral spine, 13.5 mm, the same with pseudorostral spine, 17.4 mm ; breadth of carapace, 10.0 mm.

Distribution. This species has hitherto been recorded from Onahama, the southern coast of Fukushima Prefecture, southwards to the Tosa Bay along the Pacific coast. The bathymetric range is from 65 to 604 m.

Subfamily Hyasteniinae Balss, 1929

Genus *Hyastenus* White, 1847

Hyastenus diacanthus (de Haan, 1839)

Pisa (Naxia) ***diacantha*** de Haan, 1839, p. 96, pl. 24, fig. 1 -Japan.

Naxia diacantha, Adams and White, 1848, p. 10- No definite locality.

Hyastenus diacanthus, A. Milne Edwards, 1872, p. 250 (in list).

Hyastenus diacanthus, Miers, 1879, p. 26 - Oushima, 18 m deep and China Sea (34°4′N, 1% 18′E), 40 m deep.

Hyastenus ***diacunthus,*** Haswell, ***1880,*** p. ***442 - N. S.*** W. and Queens, Aust.

Ifyastenus diacanthus, Miers, 1884, p. 194 - Queens., N. Terr. and W. Aust., 0-25 m deep and Penang, Malay Penin.

Hyastenus ***diucanthus,*** Miers, 1886, p. 57 (part) - Arafra Sea, 90 m deep.

Hyastenus ***diacunthus,*** Haswell, ***1882,*** p. 20- N. S. \V. and Queens., Rust. and Philippines.

Hyastenus ***diacunthus,*** Walker, 1887, p. 109 -Singapore.

Hyastenus diacanthus, de Man, 1888, p. 220 - Noordwachter I., Java,

Hyustenus diucanthus, Rathbun, 1893, p. 83 -Japan and Sydney, N. S. W.

Hyastenus diucanthus, Ortmann, 1893, p. 55- No new record.

Hyastenus ***diucanthus,*** Ortmann, 1894, p. 42 -Thursday I.

Hyustenus *diacanthus*, Alcock, 1895, p. 210 -Australia, Chinese Sea, Ceylon, Orrisn, Tavoy and Andamans.

Halimus ***diacunthus,*** Rathbun, 1902, p. 29 - Kii and Nagasaki.

Ifyastenus diacanthus, Grant and McCulloch, 1906, p. 32 - Port Curtis, Queens., 15 m deep.

Naxia ***diacuntha,*** Stimpson, 1907, p. 16 - Hongkong, 18m deep, northern China Sea, 35 m deep and Kagoshima Bay, 35 m deep.

Halimus diacanthus, Rathbun, 1910, p. 317 - Gulf of Siam, 5-55 m deep,

Hyastenus ***diacanthus,*** Rathbun, 1918, p. 15 -Off Double I., Queens., 60 m deep.

Halimus ***diucanthus,*** Balss, 1924, p. 32- Nagasaki, Sagami Bay, 150 m deep and Hongkong.

Halirnus diacanthus, Sakai, 1934, p. 295, fig. 9, c - Nagasaki, Amakusa and Kagoshima.

Hyastenus ***diacanthus,*** Sakai, 1936, p. 95, pl. 24, fig. 2 -Japan.

Hyastenus diacanthus, Sakai, 1938, p. 279, fig. 36, pl. 29, fig. 2 - Tateyama Bay, Ise Bay and Kii.

Hyastenus diacanthus, Buitendijk, 1939, p. 241, figs. 5-8 - Bools.

Hyastenus diacanthus, Buitendijk, 1950, p. 62 -Singapore, and 4°21′3″N, 111°58′50″E, 73 m deep.

Ifyastenus diacanthus, Miyake, 1961, p. 16 - Amakusa **Sea.**

Hyastenus ***diucanthus,*** Miyake, 1961a, p. 172 -Sea of Ariaké.

Hyastenus diacanthus, Sakai, 1965, p. 81, pl. 36, fig. 1– Sagami Bay, 35-55m deep.

Material examined.

Off Chilung, Taiwan ; 1 ovig. ♀, ZLKU No. 13392; Nov. 1966; Taiwan Mar. Res. Inst. leg., received through Mr. II. P. Yu.

Measurements.

Ovig. ♀ (No. 13392) : Length of carapace in median line, 32.8 mm; the same with pseudorostral horn, 41.7 mm ; breadth of carapace with lateral spines, 38.5 mm.

Distribution. This species is rather widely distributed in the Indo-West Pacific waters from Japan southwards to Australia and westwards to the Andaman Sea, Ceylon and India. Bennett (1964) and Griffin (1966a) excluded this species from the fauna of New Zealand due to the previous records based upon the incorrectly labelled materials. The bathymetric range is from the intertidal zone to 150 m.

Hyastenus kyushuensis (Yokoya, *1933)*

(Fig. 9, e, f)

Halimus kyushuensis Yokoya, 1933, p. 143, fig. 51 -West of Tanega-shima I., 126 m deep.

Halimus kyushuensis, Sakai, 1935, p. 70 – Sagami Bay, 80-100 m deep.

Hyastenus kyushuensis, Sakai, 1936, p. 96, pl. 24, fig. 1 -No new record.

Halimus kyushuensis, Miyake, 1937, p. 27, fig. 1 –Me-shima I., Danjo Is.

Hyastenus kyushuensis, Sakai, 1938, p. 282, pl. 29, fig. 1 – No new record.

Hyastenus kyushuensis, Sakai, 1965, p. Xl, pl. 36, fig. 3– Sagami Bay, 50-80 m deep.

Material examined.

28° 45′ *N, 126" 14.9' E, 100* m deep ; 2 ♂♂, ZLKU No. 13341; Jun. 14, 1963; II. Yamashita leg.

Measurements.

♂ (No. 13341-I) : Length of carapace without pseudorostral horn, 11.5 mm; breadth of carapace, 8.7 mm.

Remarks. In the present specimens the one male is somewhat young and the other larger male bears the pseudorostral horns broken off. In the larger male the fingers leave a wide gape, being well agreeable with the figure given by the original author. In both specimens each

of the postocular cup bears a small but distinct lobular process in the middle of its anterior border.

Distribution. This species has hitherto been recorded only from the Sagami Bay, 50-100 m deep, the west of Tanega-shima Island, 126m deep and the Danjo Islands.

Subfamily Pisinae Alcock, 1895

Genus *Naxioides* A. Milne Edwards, 1865

Naxioides hystrix (Miers, 1886)

(Fig. 9, g, h)

Naxia hystrix Miers, 1886, p. 60, pl. 6, fig. 4 - Amboina, Moluccas, 180 m deep.

Naxia hystrix, Pocock, 1890, p. 79 (in key).

Naxia hystrix, Ortmann, 1894. p. 43 (in key).

Naxia hystrix, Alcock, 1895, p. 220 - Andaman Sea, 70 m deep.

Naxia hystrix, Parisi, 1915, p. 293 - Sagami Bay.

Naxia hystrix, Balss, 1924, p. 32 - Sagami Ray, 1X1-1511 m deep.

Naxioides hystrix Balss, 1929, p. 14 (in list).

Naxia hystrix, Sakai, 1932, p. 46, fig. 4, pl. 3, fig. 1 - Tateyama Bay, Sagami Bay, Suruga Bay and Amakusa Is.

Naxia hystrix, Yokoya, 1933, p. 162, fig. 59 - Suruga Bay, Bungo Str., Tsu-shima Str., 62-106 m deep.

Naxioides hystrix, Sakai, 1934, p. 296 -No new record.

Vuxioides hystrix, Sakai, 3936, p. 92, pl. 22, fig. 2 -Japan.

Naxioides hystrix, Sakai, 1938, p. 268, pl. 27, fig. 3 - Tokyo Bay, Izu, Ise Bay, Kii and Nagasaki.

Naxioides hystrix, Miynke, 1961, p. 16 - Amakusa Sea, 30-50 m deep.

Naxioides hystrix, Sakai, 1965, p. 77, pl. 34, fig. 4 - Sagami Bay, W-83 m deep.

Material examined.

27° 45′ N, 125° 20′ E, 102 m deep; 1 ♂, ZLKU No. 573; Jul. 9, 1954; H. Yamashita leg.

Off Chilung, Taiwan; 1 ♂ without chelipeds and ambulatory legs, ZLKU No. 13391; Nov. 1966; Taiwan Mar. Res. Inst. leg., received through Mr. H. P. Yu.

Measurements.

♂ (No. 573): Length of carapace in median line without posterior spine,

21.5 mm; the same with pseudorostral spine, 23.6 mm; breadth of carapace, 17.3 mm. ♂ (No. 13391) : Length of carapace in median line without posterior spine, 25 mm ; the same with pseudorostral spine, 28 mm; breadth of carapace with lateral spines, 20.5 mm.

Distribution. This species is distributed in the Indo-West Pacific waters from Japan through Amboina, the Moloccus, westwards to the Andaman Sea. In Japan it is rather commonly found from the Tokyo Bay southwards to the west of Kyushu along the Pacific coast, and from the Tsu-shima Strait northwards to off Yamaguclii Prefecture, the Sea of Japan. The bathymetric range is from 30 to 180 m.

Genus ***Choniognathus*** Rathbun, 1932

Choniognathus reini (Balss, 1924)

Eurynome reini Balss, 1924, p. 31, pl. 1, fig. 3 - Sagami Bay, 180 m deep.

Choniognarhus koreensis Rathbun, 1932, p. 33 - Oki I., 105 m deep.

Eurynome reini, Yokoya, 1933, p. 158, fig. 37 -Off Mikuni, Fukui Pref., 113 m deep.

Eurynome reini, Sakai, 1936, p. 92, pl. 22, fig. 1 -Japan.

Choniognarhus reini, Sakai, 1938, p. 273, fig. 34, pl. 27, fig. 2 - Sagami Bay and Shimoda.

Choniognathus reini, Sakai, 1965, p, 78, pl. 35, fig. 2 - Sagami Bay, 80-120 m deep.

Material examined.

27" 16′ N, 125' 34.5' E ; 1 ♀, ZLKU No. 13340 ; Jun. 12, 1962 ; H. Yamashita leg.

Measurements.

♀ ***(No. 13340)*** : Length of carapace without pseudorostral spine, 5.8 mm ; the same with pseudorostral spine, 6.3 mm; breadth of carapace, 4.0 mm.

Remarks. This species is very peculiar in having the fused ischium and merus of the third maxilliped, by which it is separated from the species of the genus ***Eurynome.*** Though Griffin (1962) considers that this species should be transferred back to its original position due to having many points of resembrance to ***E. granulosa*** Baker, here this species is still retained in the genus distinct from Eurynome.

Distribution. This species is known only from Japan. It has hitherto

been recorded from the Sagami Bay and the Sagami Sea, the Pacific coast, and from Oki Island and off Fukui Prefecture, the Sea of Japan. Its bathymetric range is from 80 to 120 m.

Subfamily Majinae Alcock, 1895

Genus *Maja* Lamarck, 1801

*Maja **sakaii*** sp. nov.

(Pl. 17, Fig. C)

*Maja **japonica,*** Sakai, 1934, p. 297, figs. 10, 11, a - East China Sea.

*Maja **japonicu,*** Sakai, 1936, p. 99, fig. 45, pl. 25, fig. 2 - Sagami Bay, 55 m deep.

*Maja **juponica,*** Sakai, 1938, p. 299, pl. 30, fig. 2 - No new record.

Material examined.

29° 55.5′ ***N,*** 127° 22.9′ E, ***126*** m deep; 1 ovig. ♀ (holotype), ZLKU No. 13343; Dec. 5, 1967; H. Yamashita leg.

Measurements.

Holotype, ovig. ♀ (No. 13343) : Length of carapace in median line without posterior spine, 12.9 mm ; the same with pseudorostral spine, 14.7 mm ; breadth of carapace, 10.0 mm.

Remarks. According to Sakai (1965) who examined Rathbun's type-specimen of ***M. japonica,*** both Rathbun's and Yokoya's ***M. japonica*** are conspecific. *M.* ***nipponensis*** Sakai substituted for Yokoya's *M.* ***japonica*** is therefore synonymized with *M.* ***japonica*** Rathbun. Accordingly, ***M.*** *japonica* reported by Sakai from the East China Sea and the Sagami Bay is a distinct species on account of bearing the different contour of the carapace and shape of the first male pleopod. Unfortunately, since Sakai (1965) did not renamed the species, the new name, ***M. sakaii,*** is proposed in hornour of Dr. T. Sakai who was the first to report and represent this species and to work out the confused synonymy.

The holotype, an ovigerous female, is well agreeable with the figure given by Sakai (1934, fig. 10), bearing the rather slender, pyriform carapace. The sinus between the hepatic projection and the branchial region is shallow and the branchial region is not so strongly swollen laterally. The carapace is therefore slenderer than that of ***M. japonica*** Rathbun, in which the branchial region is so strongly inflated that the carapace has a rounded appearance with a short neck. The epistome is rather long due to bearing the long neck. Otherwise, tho dorsal knobbed

spines are distinctly longer than those of the specimens from the Tosa Bay referable to *M. japonica*. The first male pleopod was represented by Sakai (1934, fig. 11, a).

The present holotype was also compared with the syntypes of Yokoya's *M. japonica* which is now known to be synonymous with *M. japonica* Rathbun. In the Zoological Laboratory, Kyushu University are one dry female from the station 211, near Tanabe, Wakayama Prefecture, 190 m deep, and one male and one female from the station 431, the south-east of the Goto Islands, 152 m deep. A female from the station 431 is represented in the plate.

Distribution. This species is only known from the East China Sea and the Sagami Bay at the depths of 55 to 126 m.

Genus Leptomithrax Miers, 1876

Leptomithrax edwardsii (de Haan, 1839)

(Fig. 12, a-c)

Maja (Paramithrax) Peronii, de Haan, *1837*, pl. 21, fig. 2.

Maja (Paramithrax) Edwardsii de Haan, 1839, p. 92 - Japan.

Paramithrax Edwardsii, Adams and White, *1848*, p. *14 -Japan.*

Paramithrax (Leptomithrax) Edwardsii, Miers, *1876*, p. 220 (in list).

Paramithrax (Leptomithrax) edwardsi, Ortmann, 1893, p. 52- Tokyo Bay.

Paramithrax edwardsii, Kathbun, 1894, p. 81 -Japan.

Paramithrax (Leptomithrax) edwardsi, Doflein, 1902, p. 656- Sagami Bay.

Paramithrax (Leptomithrax) edwardsi, Parisi, 1915, p. 289- Sagami Bay.

Paramithrax (Leptomithrax) edwardsii, Balss, 1924, p. 34- Sagami Bay, 100 m deep, Boshu, 150 m deep and Uraga Strait.

Paramithrax (Leptomithrax) edwardsi, Yokoya, 1933, p. 160 - Off Omaé-zaki, off Mie Pref., west of Kyushu, Tsu-shima Str. and off Yamaguchi Pref., 77-303 m deep.

Leptomithrax edwardsii, Sakai, 1934, p. 298- Nagasaki.

Lepfomithrax edwardsi, Sakai, 1936, p. 100, pl. 26, fig. 3 -Japan.

Leptomithrax edwardsi, Sakai, 1938, p. 302, pl. 30, fig. 4 - Tateyama Bay, Sagami Bay, Shimoda, Ise Bay and Kii.

Leptomithrax edwardsii, Miyake, 1961, p. 16 - Amakusa Sea, 70 m deep.

Leptomithrax edwardsi, Sakai, 1965, p. 86, pl. 39, figs. 2, 3 - Sagami Bay, 80-120 m deep.

Material examined.

27° 55′ N, 123° 35′ E ; 1 young ♂, ZLKU No. 13344; Apr. 9, 1962 ; H. Yama-

shita leg.

East China Sea; 2 ♂♂, 2 ovig. ♀♀, ZLKU No. 877; Jul.-Sept. 1953; H. Maéda leg.

Measurements.

2 ♂♂ (No. 877-1, 2) : Length of carapace without pseudorostral spine, 70 and 65 mm ; the same with pseudorostral spine, 78 and 73.5 mm ; breadth of carapace without lateral spines, 66 and 61 mm; the same with lateral spines, 71.5 and 67 mm.

Ovig. ♀♀ (No. 877-3, 4) : Length of carapace without pseudorostral spine, 66.5 and 54 mm ; the same with pseudorostral spine, 76.5 an 61.5 mm ; breadth of carapace without lateral spines, 58 and 47.5 mm the same with lateral spines, 65 and 53.5 mm.

Remarks. In the young specimen (No. 13344) a white spherical boss at the articulation of the ischium with the merus of the third maxilliped is prominent, spreading on to both segments.

Distribution. This species has been recorded from the Tokyo Bay to the west of Kyushu along the Pacific coast and from the Tsu-shima Strait northwards to off Niigata Prefecture, the Sea of Japan. The bathymetric range is from 77 to 303m.

Genus *Chlorinoides* Haswell, 1880

Chlorinoides harmandi (Bouvier 1906)

Acanthophrys Harmandi Bouvier, 1906, p. ***484 -Japan.***

Acanthophrys Harmandi, Parisi, 1915, p. 290, pl. 7, fig. ***4*** - Sagami Bay.

Acanthophrys ***harmandi,*** Balss, 1924, p. ***29*** - Sagami Bay, 180 m deep.

Acanthophrys harmandi, Sakai, 1938, p. 307, ***fig. 42*** - Sagami Bay and Kii.

Acanthophrys ***harmandi,*** Sakai, 1965, p. 87, pl. 40, ***fig. 3*** - Sagami Bay, 80-150 m deep.

Chlorinoider *harmandi*, Griffin, 1966, pp. ***4, 13*** (in list and key).

Material examined.

29° 10′ N, 126° 16′ E, ***93*** m deep; 1 ovig. ♀, ZLKU No, 572; Jul. 10, 1954 ; H. Yamashita leg.

Off Yonaguni I., Ryukyu Is., 1 dry ♂, ZLKU No. 2126; Jun. 1940; H. Ikeda leg.

Measurements.

♂ (No. 2126) : Length of carapace in median line, 35.0 mm ; breadth of carapace, 23.2 mm.

Ovig. ♀ (No. 572) : Length of carapace in median line, 37.3 mm ; the same with pseudorostral spine, 51.7 mm ; breadth carapace, 26.0 mm.

Distribution. This species has hitherto been recorded only from the Sagami Bay and Kii at the depths of 85 to 180 m.

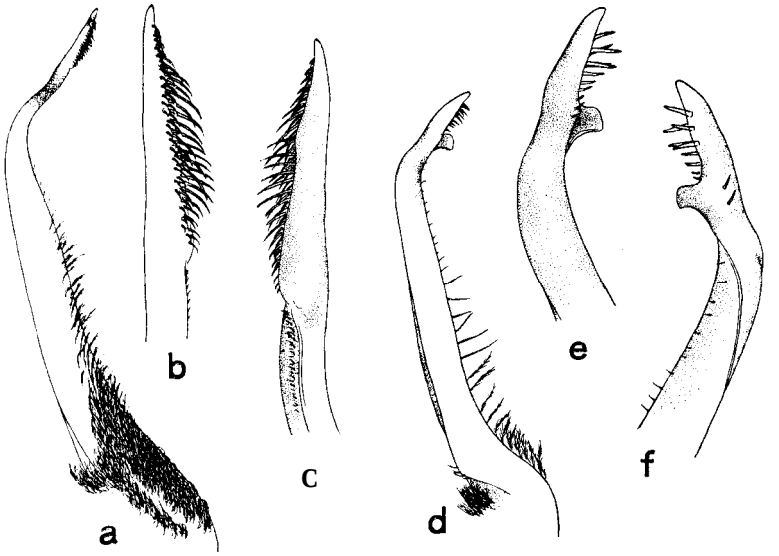

Fig. 12. *Leptomithrax edwardsii (de* Haan). a. Left first pleopod of ♂ (No. 877-2) in abdominal view, × 3.8; b, c. Distal portion of the same in abdominal and sternal view, ×15.
Entomonyx spinosus Miers. d. Left first pleopod of ♂ (No. 13345) in abdominal view, ×15; e, f. Distal portion of the same in abdominal and sternal view, × 30.

Genus *Entomonyx* Miers, 1884

Entomonyx spinosus Miers, 1884

(Fig. 12, d-f)

Entomonyx spinosus Miers, 1884, p. 326, pl. 47, fig. B – Providence Is., 35-45 m deep.
Macrocoeloma nummifer Alcock, 1895, p. 255, pl. 4, fig. 4 – Andaman Sea, 30-65 m deep and off Ceylon, 60 m deep.

Macrocoeloma nummifer, Illust. Zool. Invest., 1896, pl. 21, figs. 3, 4.

Macrocoeloma nummifer, Borradaile, 1903, p. 689 - Maldive Is., 40-55 m deep.

Macrocoeloma nummifer, Rathbun, 1911, p. 253 -Say-a de Malha Bank, 100 m deep, Amirantes, 45-145 m deep and Seychelles, 55-80 m deep.

Acanthophrys spinosus, Balss, 1929, p. 20 - N. W. Aust., 110 m deep.

Acanthophrys spinosus, Sakai, 1936, p. 102, pl. 26, fig. 3 - Sagami Bay, 60-100 m deep.

Acanthophrys spinosus, Sakai, 1938, p. 309, pl. 31, fig. 3 -No new record.

Acanthophrys spinosus, Sakai, 1965, p. 88, pl. 40, fig. 2 - Sagami Bay, 80-96 m deep.

Entomonyx spinosus, Griffin, 1966, p. 10 (in discussion).

Material examined.

27" 55′ *N, 123"* 35′ E ; 1♂, ZLKU No. 13345 ; Apr. 9, 1962; H. Yamashita leg.

32" 5.3′ N, 128" 14.8′ E, 149 m deep ; 1♀, ZLKU No. 13410; Aug. 6, 1967 ; I. Uchimura leg.

Measurements.

♂ *(No. 13345)* : Length of carapace in median line, 12.3 mm ; the same with pseudorostral spine, 14 mm; breadth of carapace, 9 mm.

♀ (No. 13410) : Length of carapace in median line, 18 mm; the same with pseudorostral spine, 20 mm ; breadth of carapace, 13.5 mm.

Remarks. According to Griffin (1966), the genus *Entomonyx,* which has hitherto been considered to be a synonym of *Acanthophrys* reduced to synonymy with *Hyastenus by* him, should be resurrected to contain the present single species. In spite of the close resembrance of disposition of the knobbed spines to the species of *Chlorinoides,* especially to *Ch. longispinus* (de Haan), it is peculiar that the supraorbital eave and the basal antenna1 segment are so expanded laterally that the orbit is almost tubular. Griffin also commented that in the orbital characters the present species resembles those species at present placed in the subfamily Mithracinae Balss and not the Majinae in which *Chlorinoides* belongs.

Distribution. This species is widely distributed in the Indo-West Pacific waters. It ranges from Japan through the north-west of Australia and the Andaman Sea westwards to the Saya de Malha Bank and the Providence Islands. In Japan it has been recorded only from the Sagami Bay. The bathymetric range is from 30 to 145 m.

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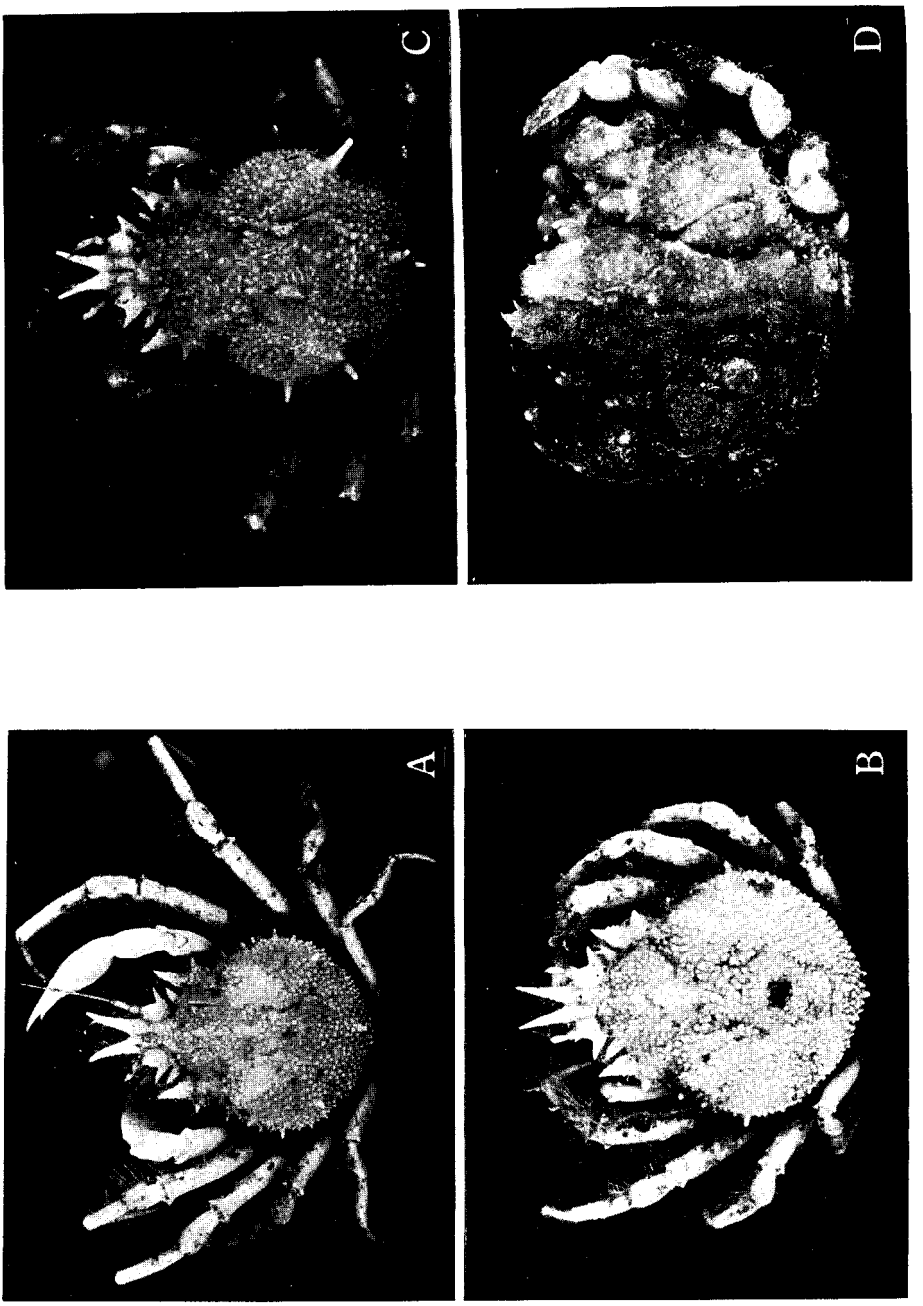
Explanation of Plate 17

Fig. A. *Maja japonica* Rathbun. ♂ from the Tosa Bay, 145-215 m deep. Length of the carapace in median line, 21.4 mm.

Fig. B. ***Maja japonica*** Rathbun. ♀ from the Tosa Bay, 145 m deep. Length of the carapace in median line, 21.2 mm.

Fig. C. *Maja sakaii* sp. nov. Ovig. ♀, holotype, from the East China Sea, 126 m deep. Length of the carapace in median line without posterior spine, 12.9 mm.

Fig. D. *Zalasius imajimai* sp. nov. ♂, holotype, from the east of Tsushima Island, 115 m deep. Length of the carapace, 20.9 mm.

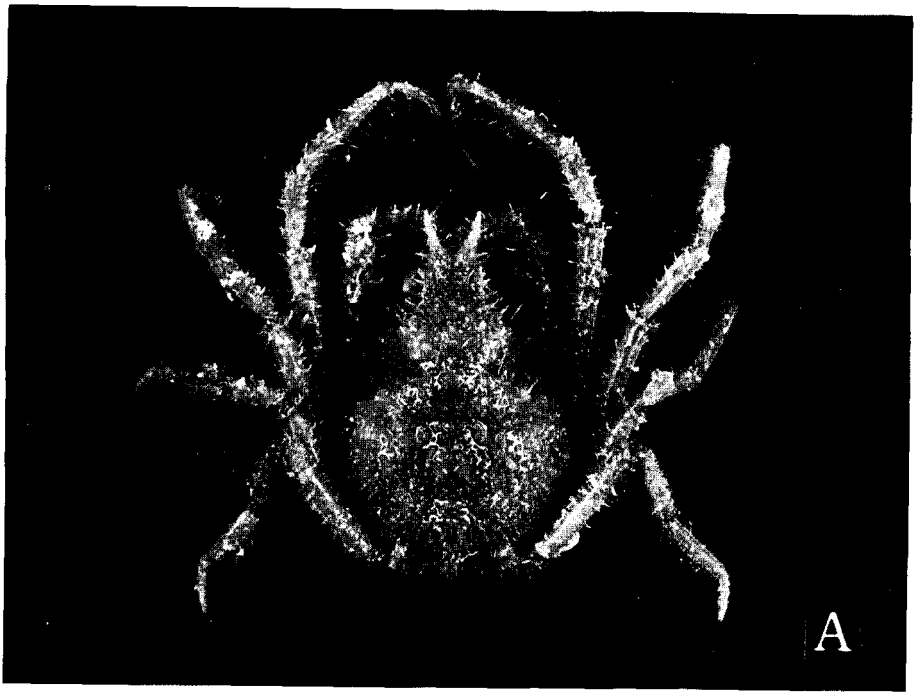


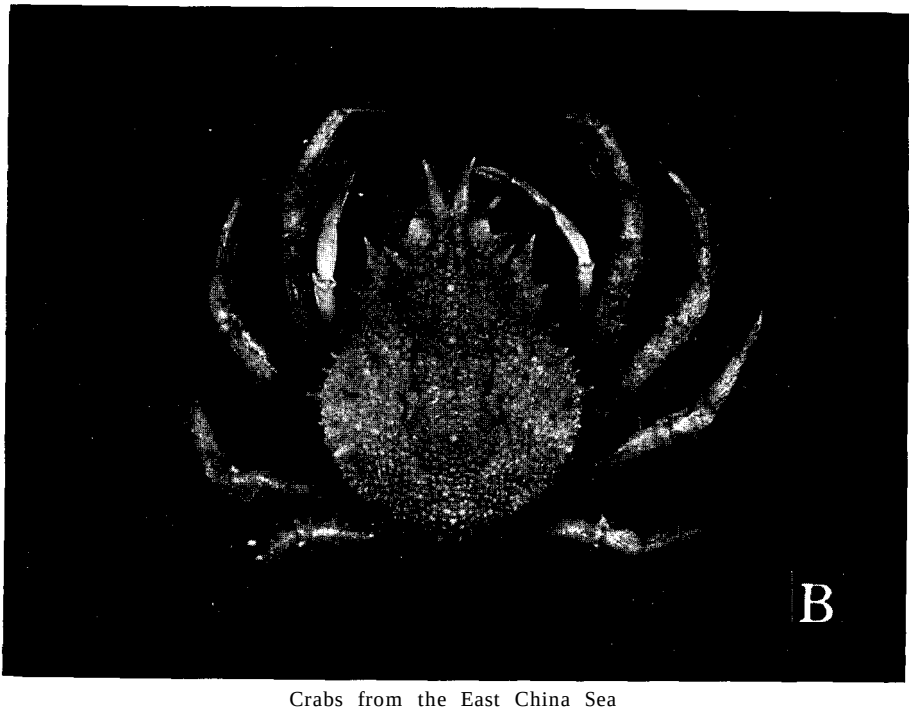
Crabs from the East China Sea

Explanation of Plate 18

Fig. A. ***Pleistacantha japonica*** (Yokoya). ♀ from the south-east of the Goto Islands, 152 m deep. Syntype of ***Parapleisticantha japonica*** Yokoya.

Fig. B. ***Maja japonica*** Rathbun. ♀ from the south-east of the Goto Islands, 152 m deep. Syntype of ***Maja japonica*** Yokoya.





Crabs from the East China Sea