

THE RARE AXIID GENUS *OXYRHYNCHAXIUS* PARISI, 1917
(DECAPODA: THALASSINIDEA), WITH A DESCRIPTION OF A NEW SPECIES
FROM AUSTRALIA

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A B S T R A C T

Recent discovery of a specimen of *Oxyrynchaxius* Parisi, 1917, from Taiwan led to a survey of the material of this rare and monotypic axiid genus deposited at various museums. Other than the type, five specimens of this genus from Japan, Taiwan, Hong Kong, and Australia were found and can be separated into two forms. Those from Japan to Hong Kong are large in size, have slender eyes and bear a dorsal carina on the posterior carapace but lack a median carina on the abdomen. The Australian specimens are small, have stout eyestalks and bear a median carina on the abdomen but lack a middorsal carina on the posterior carapace. The specimens from Japan to Hong Kong probably all belong to *O. japonicus* Parisi, 1917. The Australian material, though probably juvenile, represents a distinct species and is described as new.

The axiid genus *Oxyrynchaxius* was established by Parisi (1917) based on a single specimen from Japan. It differs from all the other axiids by having a very long eyestalk, the rostrum styliform, and the carapace covered with squamiform tubercles. Because material of this genus is very rare, some authors have cast doubts on its validity (e.g., de Man, 1925). Until recently, only one more specimen of this genus had been reported (Sakai and de Saint Laurent, 1989), but the specimen was obtained from a fish stomach and was in very poor condition.

In the ongoing studies of the decapod crustacean fauna of Taiwan by the third author, a fresh specimen of this rare genus was collected. This led to a survey of the *Oxyrynchaxius* material deposited in various museums. Aside from the holotype, altogether five specimens of this genus were examined. The three specimens from Japan, Hong Kong, and Taiwan can be identified with the type species *O. japonicus* Parisi, 1917. The two small specimens from Australia differ considerably from the other material and are determined to represent a new species. A redescription is provided for *O. japonicus*, and its coloration is illustrated.

The specimens are deposited at the National Taiwan Ocean University, Keelung (NTOU), the National Museum of Natural

History, Smithsonian Institution (USNM), Museum national d'Historie naturelle, Paris (MNHN), and the Museum of Victoria, Australia (NMV). Carapace length (cl) is measured dorsally from the orbital margin to the posterior margin of the carapace.

RESULTS

Oxyrynchaxius japonicus Parisi, 1917
Figs. 1, 2, 3a, b, e

Oxyrynchaxius japonicus Parisi, 1917: 18, figs. 5, 6 (type-locality: Japan); de Man, 1925: 7 (list only); Froggia and Grippa, 1986: 260, fig. 4; Sakai and de Saint Laurent, 1989: 65.

Material Examined.—USNM 155733, Japan: Sagami Bay, Atami, Ishibash, Honshu, coll. Mar 1893, 1 ovigerous female cl 22.5 mm; NTOU, Taiwan: northeastern coast, Tai-Chi fishing port, I-Lan County, commercial trawler, about 300 m, soft bottom, 25 May 1998, 1 female cl 13.5 mm; MNHN-Th 428, Hong Kong: Station 37, CR 7/65, D. Eg. *N. virgatus* stomach, 4 Jun 1965, 1 female cl 19.0 mm.

Description.—(females only). Carapace covered with squamiform tubercles, bearing 5 strong carinae; median carina running entire length of carapace, with part anterior to median tubercle sharply granular, posterior part entire; submedian carinae bearing 8–12 teeth; area between median and submedian carinae strongly tuberculate; lateral carinae armed with 4 strong teeth; small postantennal spine

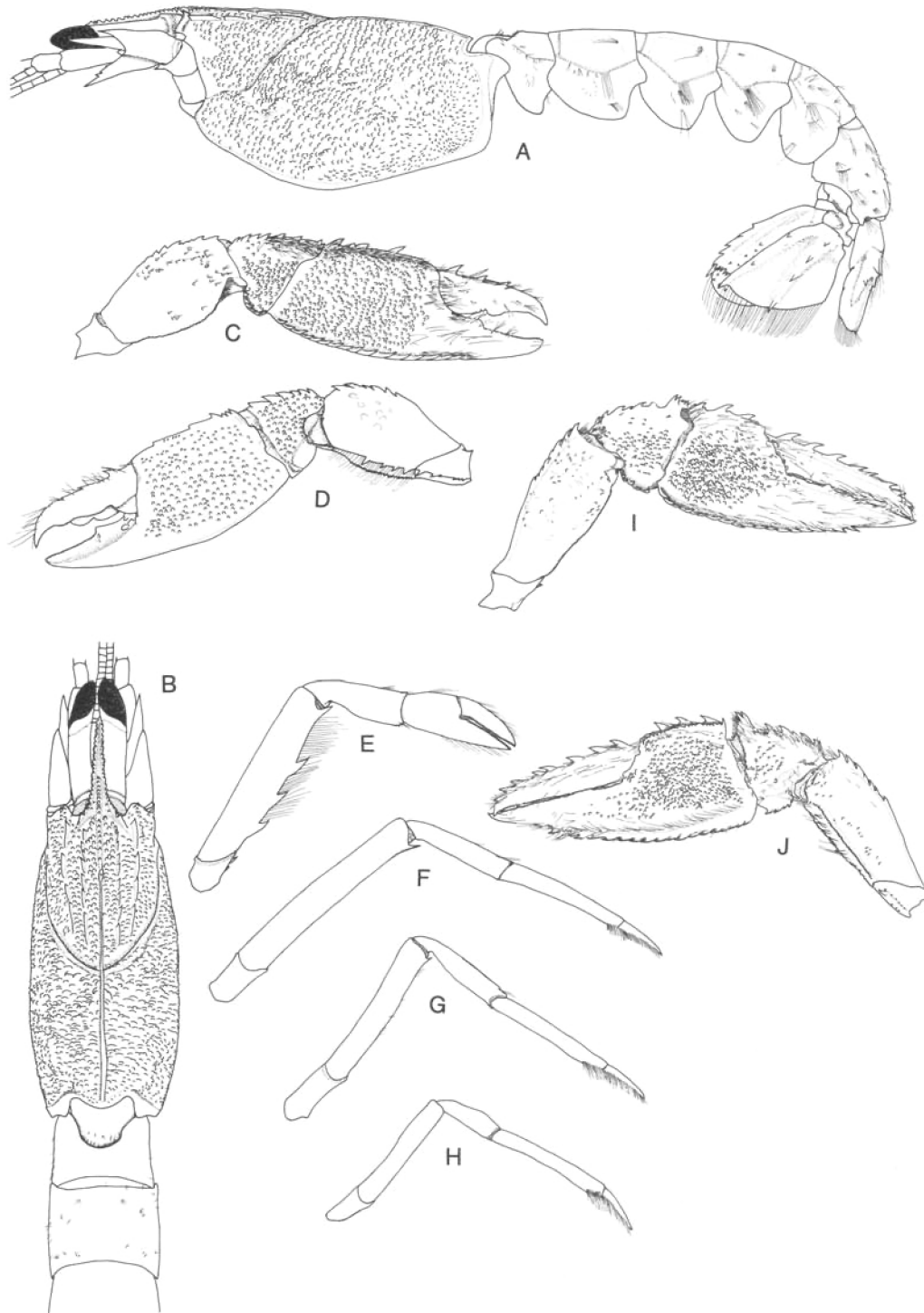


Fig. 1. *Oxyrhynchaxius japonicus* Parisi, 1917. A, Taiwan, ♀ cl 13.5 mm, lateral view; B, carapace and anterior two abdominal somites, dorsal view; C, pereopod 1, larger cheliped, lateral view; D, pereopod 1, larger cheliped, mesial view; E, pereopod 2; F, pereopod 3; G, pereopod 4; H, pereopod 5; I, Japan, ♀ cl 22.5 mm, pereopod 1, smaller cheliped, lateral view; J, pereopod 1, smaller cheliped, mesial view.



Fig. 2. *Oxyrhynchaxius japonicus* Parisi, 1917, ♀ cl 13.5 mm, Taiwan.

present; cervical groove well marked, deep. Rostrum styliform, directed slightly ventrally, about 0.35 times carapace length, more or less extending to distal segment of antennal peduncle, bearing 20–26 pairs of lateral denticles. Eyestalk large, elongate-cylindrical, about 5 times as long as wide and 0.4 times carapace length, distinctly longer than rostrum, cornea fully pigmented, with stalk bearing some setae. Antennal acicle large. Mouthparts typical of family. Abdomen generally smooth, with lateral parts bearing thick setae, only posterior two pleura sometimes bearing a minute denticle. Telson wider than long, generally bearing 2 pairs of submedian spines and 2 pairs of lateral spines, posterior margin having a median or pair of submedian spines. Uropods with lateral ramus bearing diaeresis, dorsal surface spinose, lateral margin armed with 4 or 5 spines; mesial ramus bearing 3 or 4 lateral spines, dorsal surface with median ridge bearing row of 4 large spines.

Pereiopod 1, larger cheliped sparsely setose; ischium having 2 ventral spines and some granules; merus bearing 8 dorsal and 4 ventral spines; carpus with surface granular, armed with 6 dorsal and 5 ventral spines; palm somewhat globular, 1.2 times as long as

high, surface granular and bearing 5 dorsal spines, propodus with ventral border laterally compressed, bearing 16 dorsolaterally directed spines; fingers as long as palm, cutting edge of fixed finger bearing 1 large rounded tooth and some minute crenulations, movable finger bearing 3 dorsal spines and with cutting edge slightly crenulated and having 3 rounded teeth. Pereiopod 1, smaller cheliped generally similar to large cheliped except for slight difference in number of spines and shape of chela; chela laterally compressed, palm 0.9 times as long as high, bearing 3 dorsal spines, ventral border of propodus strongly compressed laterally, armed with 19 dorsolaterally directed spines, fingers 1.4 times longer than palm, movable finger with 8 dorsal spines, cutting edges of fingers evenly crenulated except for rounded tooth on fixed finger. Pereiopod 2 with ischium bearing 1 or 2 ventral spines; merus armed with 4 strong ventral spines, carpus unarmed, palm about 1.5 times as long as wide, fingers as long as palm and with cutting edges bearing imbricate ridges. Pereiopod 3 with ischium unarmed; merus bearing a distoventral spine; carpus unarmed; propodus slender and unarmed; dactylus elongate, acute. Pereiopods 4 and 5 similar to pereiopod 3, except merus

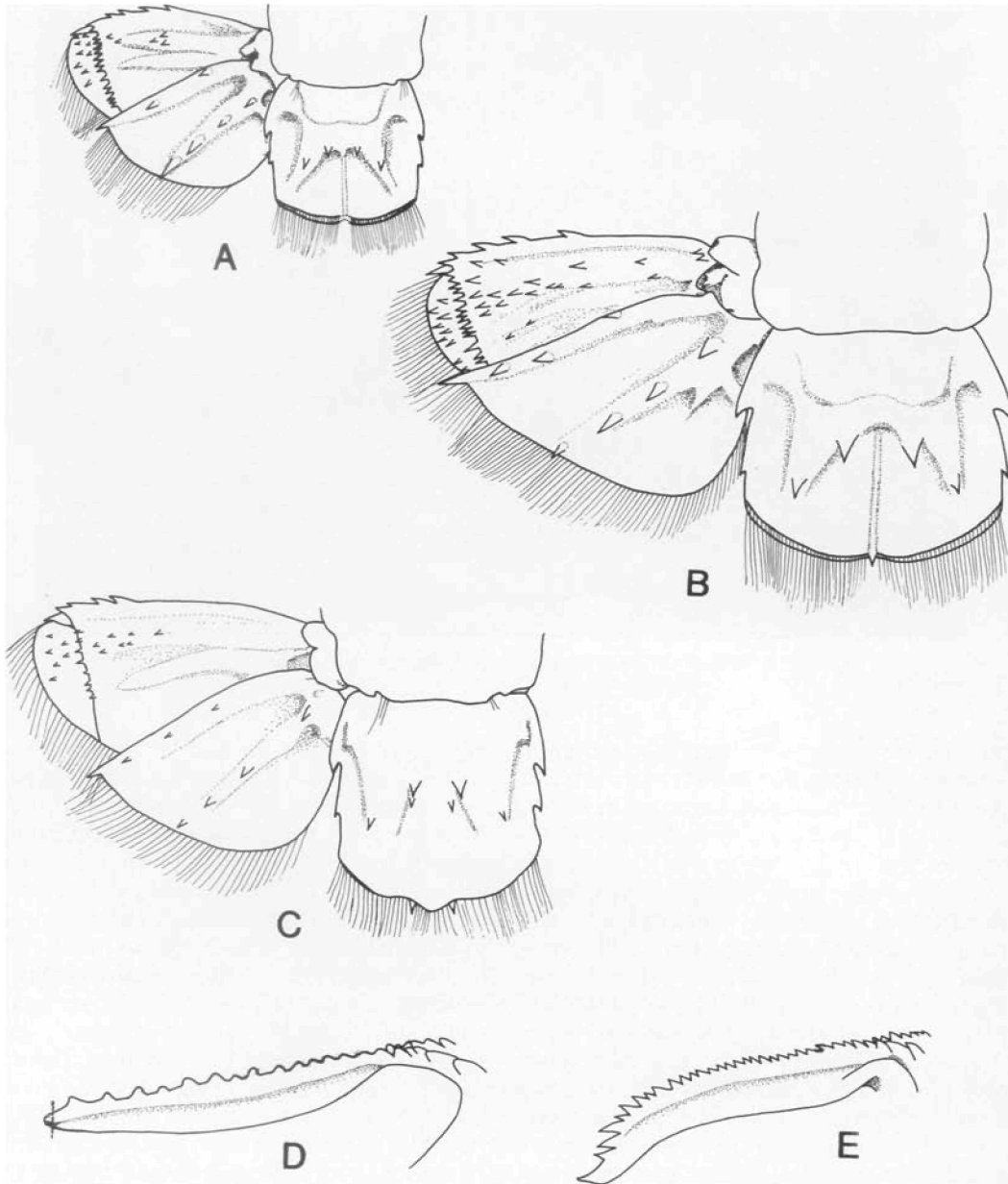


Fig. 3. *Oxyrynchaxius japonicus*. A, telson and left uropod, ♀ cl 13.5 mm, Taiwan; B, telson and left uropod, ♀ cl 22.5 mm, Japan; C, telson and left uropod, ♀ cl 19.0 mm, Hong Kong; D, rostrum, ♀ cl 13.5 mm, Taiwan; E, *Oxyrynchaxius manningi*, holotype, rostrum.

of pereopod 5 unarmed. Branchial formula as in Sakai and de Saint Laurent (1989: 65), except podobranch absent above pereopod 4. Pleopod 1 present in females but reduced and uniramous. Eggs subspherical, about 0.5 mm in diameter.

Coloration: Body generally orange, median part of lateral carapace purplish, while ventral and posterior carapace as well as ventral half of abdominal pleura whitish. Eye with stalk purplish and cornea deep brown. Antennal flagella purplish. Pereopod 1 with

basal segments whitish; distal half of merus orange, carpus, palm and fixed finger largely light purple, movable finger light orange. Pereiopods 2 to 5 generally whitish and covered with an orange band on distal part of merus. Tailfan deep orange. Setae orange-brown.

Size: The four known specimens (all females) ranging from carapace length 13.5 to 22.5 mm, only the largest one being ovigerous.

Distribution.—Western Pacific from Japan to Taiwan and Hong Kong, probably deep water (around 300 m) and on soft bottoms.

Remarks.—The Japanese specimen in the USNM, although not in good condition (probably previously dried and rehydrated), is almost identical with the figures of the holotype (from Enoshima, Japan, 20 mm cl) provided by Parisi (1917) and Froggia and Grippa (1986). Both the USNM specimen and the holotype were collected from Sagami Bay and are of similar size. The slightly smaller specimen from Hong Kong was obtained from the stomach contents of a fish and is in poor condition with most of the pereiopods missing. It is very similar to the Japanese material except in having fewer spines on the lateral ramus of the uropod and the posterior margin of the telson bearing a pair of submedian spines (Fig. 3C) instead of a single median spine (Fig. 3B). The specimen from Taiwan, nearly half the size of the Japanese material, is in good condition except with some missing pereiopods. It is generally similar to the Japanese and Hong Kong material, with only the tubercles on the carapace slightly less pronounced. The spination on the lateral ramus of the uropod in the Taiwanese specimen (Fig. 3A) is similar to that of the specimen from Hong Kong except for having more spines on the diaeresis (but in this respect similar to that of the Japanese specimen). The posterior margin of the telson is somewhat damaged in the specimen from Taiwan. We feel justified to conclude that the material from Japan, Hong Kong, and Taiwan all belong to the same species and that the slight variations in the tailfan may be due to size or individual differences. This is supported by pleopod 1 which is quite long in the Japanese specimen (cl 22.5 mm) but rather short in the Taiwanese specimen (cl 13.5 mm),

while that of the Hong Kong specimen (cl 19.0 mm) is intermediate in size.

All three specimens examined here have gonopores located on pereiopods 3 and bear reduced pleopods 1, with the largest specimen being ovigerous. Thus, it appears that females of this genus possess a pleopod 1 as suggested by Sakai and de Saint Laurent (1989) and Poore (1994). Therefore the holotype, described by Parisi (1917) as having pleopod 1, is probably a female rather than a male as first proposed. Further, Parisi (1917) mentioned that the cornea was unpigmented in the holotype but reexamination of the holotype by Froggia and Grippa (1986) showed that the cornea is actually distinctly pigmented. The specimens examined here all have the cornea deeply pigmented (also see Fig. 2).

Only the right pereiopod 1 is still present in the Japanese and Taiwanese specimens. The one on the Taiwanese specimen is the large cheliped but that of the Japanese specimen likely represents the small cheliped. In the holotype, the right pereiopod 1 is the large cheliped. The setae on the abdomen and the tubercles between the median and submedian carinae of the carapace are relatively less developed in the Taiwanese specimen. Because pleopod 1 is also shorter in this specimen, it is likely that the Taiwanese specimen is a subadult or juvenile.

Oxyrynchaxius manningi, new species
Figs. 3 c, d, f, 4

Material Examined.—Holotype: NMV J15419, Australia, North West Shelf between Port Hedland and Dampier, sled, 134 m, 4 Jun 1983, female cl 7.7 mm; *Paratype*: NMV J15419, same data as holotype, female cl 5.1 mm.

Description.—(females only). Carapace covered with squamiform tubercles and bearing 5 strong carinae; median carina starting from mid-rostrum and terminating at cervical groove, part anterior to median tubercle sharply granular while posterior part having 4 or 5 small teeth; submedian carinae having 9–12 spines; lateral carinae armed with 6 or 7 spines; small postantennal spine present; cervical groove well marked, deep. Rostrum styliform but strongly curving ventrally at tip, about half carapace length, extending to second segment of antennal peduncle, lateral margins minutely dentate and bearing 5 spines near tip. Eyestalk large, cylindrical, about 2.5 times as long as wide and 0.45

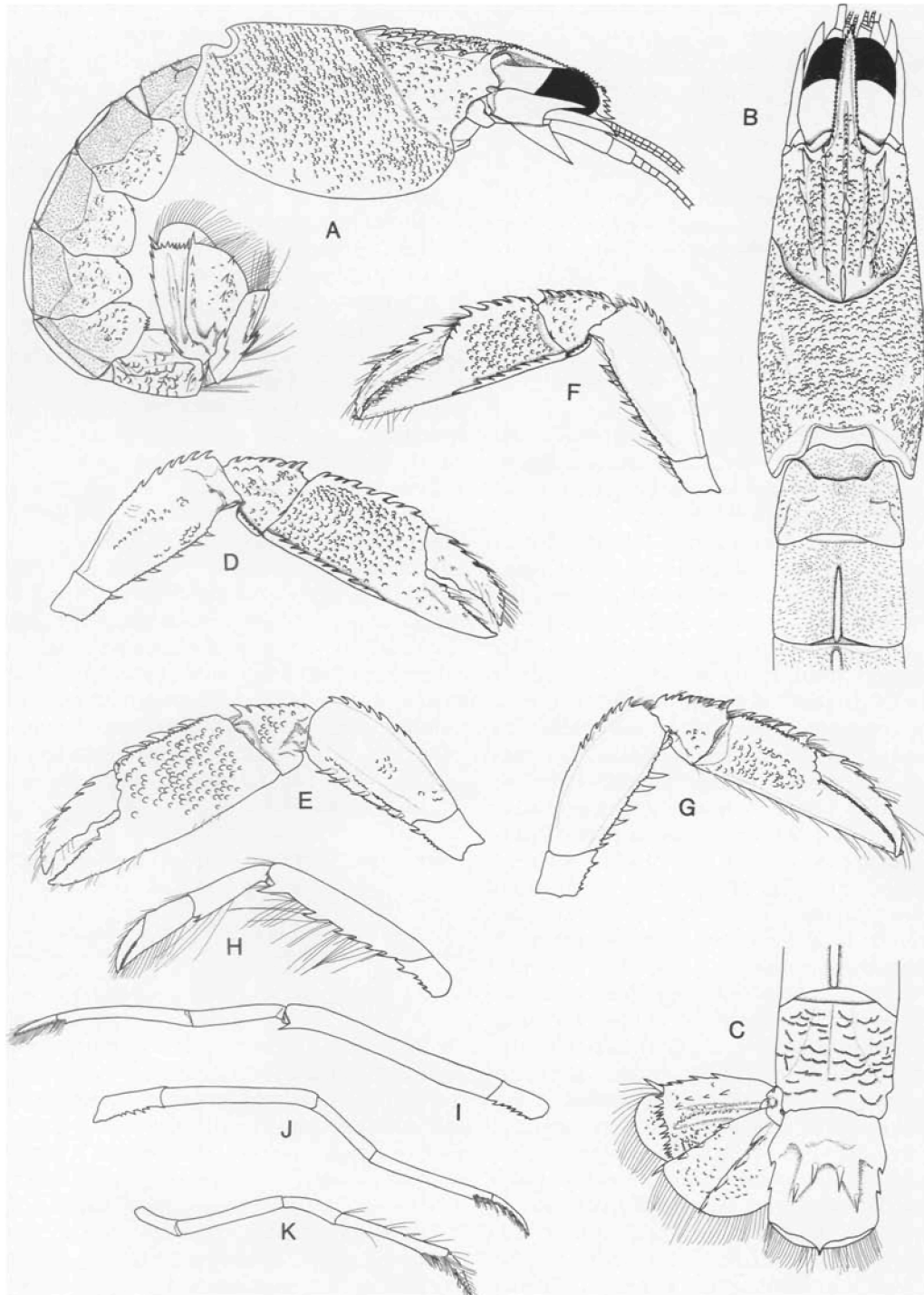


Fig. 4. *Oxyrhynchaxius manningi*, holotype. A, lateral view; B, carapace and anterior two abdominal somites, dorsal view; C, abdominal somite 6, telson, and left uropod, dorsal view; D, pereopod 1, larger cheliped, lateral view; E, pereopod 1, larger cheliped, mesial view; F, pereopod 1 smaller cheliped, lateral view; G, pereopod 1, smaller cheliped, lateral view; H, pereopod 1 smaller cheliped, mesial view; I, pereopod 3; J, pereopod 4; K, pereopod 5.

times as long as carapace, almost reaching tip of rostrum; cornea fully pigmented, stalk bearing a few setae. Antennal acicle large. Abdomen covered with fine setae; tergites 2 to 5 bearing distinct dorsal carinae; pleura with surfaces finely granular, ventrally rounded but anterior margins of pleura 3 to 6 each bearing 1 or 2 spines while posterior margins of pleura 1 and 5 also armed with 1 and 4 spines respectively. Telson slightly longer than wide, bearing 2 pairs of submedian and 2 pairs of lateral spines, posterior margin armed with a median spine. Uropods with lateral ramus bearing diaeresis, dorsal surface granular and spinose, 5 or 6 lateral spines present; mesial ramus having 4 lateral spines, dorsal surface granular, bearing median ridge having 4 large spines.

Pereiopod 1, larger cheliped sparsely setose; ischium having 1 ventral spine as well as some spinules; merus bearing 10 dorsal (posterior 3 rather small) and 5 ventral spines; carpus with surface granular, armed with 8 dorsal and 6 ventral teeth; palm somewhat globular and 1.3 times as long as high, lateral surfaces granular, armed with 7 dorsal spines, propodus with ventral border laterally compressed, having 10 dorsolaterally directed spines; fingers slightly shorter than palm; cutting edge of fixed finger crenulated, bearing 2 large rounded teeth; movable finger bearing 4 dorsal spines, cutting edge crenulated, having 1 large rounded tooth. Pereiopod 1, smaller cheliped generally similar to large cheliped except merus bearing 6 ventral spines and chela laterally compressed; palm 1.6 times as long as high, having 5 dorsal spines, ventral border of propodus strongly compressed laterally, bearing 8 dorsolaterally directed spines, fingers slightly longer than palm, with cutting edges almost evenly crenulated. Pereiopod 2 with 4 ventral spines on ischium, 6 on merus, and 1 on carpus; palm about 2 times as long as wide and 1.5 times longer than fingers, cutting edges of fingers bearing imbricate ridges. Pereiopod 3 with 6 ventral spines on ischium, 1 ventral spine on merus, carpus unarmed, propodus unarmed and slender; dactylus elongate, acute. Pereiopods 4 and 5 similar to pereiopod 3, except lacking ventral spine (but ventral margin of ischium of pereiopod 4 sharply tuberculate). Pleopod 1 present in females but reduced and uniramous.

Coloration: Not known.

Size: Only two females known, cl 5.1 and 7.7 mm.

Distribution.—Known only from the North West Shelf of Australia, at depth of 134 m, probably on soft bottom.

Remarks.—The two Australian specimens are much smaller than the material from Japan to Hong Kong. Pleopod 1 is rather short in the larger Australian specimen (cl 7.7 mm) and rudimentary (bud-like) in the smaller specimen (cl 5.1 mm). It is likely that these two specimens are juveniles and that some of the differences exhibited between the Australian and the other material are related to size. For example, the relatively longer telson of the Australian material may be due to the specimens being still very young. It is rather difficult to determine whether the curved rostrum, the much stouter eyes, the more spinose carapace carinae and abdominal pleura in the Australian material are size-related. However, the presence or absence of a dorsal carina on the posterior part of the carapace and the abdomen is not likely to change after the postlarva stage in decapod crustaceans. Therefore, it seems necessary to treat the Australian form as distinct even though the available specimens are juveniles.

Both pereiopods 1 are present in the holotype, with the right one being the larger. Only the right pereiopod 1 is present in the paratype, and it is a small cheliped. The tip of the rostrum is also broken in the paratype. Although the eyes are much thicker in *O. manningi*, their relative lengths are very similar to those of *O. japonicus*. A relatively long eyestalk is thus still a unique character of this genus.

Etymology.—The species is named for Dr. R. B. Manning, in recognition of his many important contributions to the taxonomy of thalassinideans, as well as other decapod and stomatopod crustaceans.

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