

*CHONGXIDOTEA*, A NEW GENUS FOR *CLEANTIS ANNANDALEI*  
TATTERSALL, 1921 (ISOPODA, VALVIFERA, HOLOGNATHIDAE)

BY

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ABSTRACT

*Cleantis annandalei* Tattersall, 1921 has been included in *Cleantioides* Kensley & Kaufman, 1978 but was considered an aberrant representative of this genus. Here a new genus, *Chongxidotea*, is proposed to accommodate this species. *Chongxidotea* differs from all other holognathids in having a tapering body in dorsal view, both anteriorly and posteriorly, and in having a pleotelson tapering dorsoventrally and laterally to a narrow, notched apex. Pereopods 5-7 of *Chongxidotea* have more slender and also longer dactyli than other known holognathids.

RÉSUMÉ

*Cleantis annandalei* Tattersall, 1921 a été inclus dans le genre *Cleantioides* Kensley & Kaufman, 1978, mais était considéré comme un représentant aberrant de ce genre. Dans ce travail, un nouveau genre, *Chongxidotea*, est proposé pour traiter cette espèce. *Chongxidotea* diffère de tous les autres Holognathidae, avec un corps s'amincissant en vue dorsale, à la fois antérieurement et postérieurement et un pléotelson se rétrécissant dorso-ventralement et latéralement en une extrémité étroite pourvue d'une échancrure. Les péréiopodes 5-7 de *Chongxidotea* ont des dactyles plus minces et aussi plus longs que chez les autres Holognathidae connus.

INTRODUCTION

Isopods of the family Holognathidae Thomson, 1904 have cylindrical bodies, adapted, in some species at least, for a life inhabiting a hollow seagrass stem (Hale, 1924; Kwon, 1986; Poore & Lew Ton, 1990). This shape is effected by having the body of even width throughout, and the coxal plates directed ventrally rather than lateroventrally as in most valviferans. All have a reduced pair of fourth

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pereopods furnished with robust setae that would appear to assist in holding the animal in its home. One of the four genera, *Cleantioides* Kensley & Kaufman, 1978, is separated from the other three by the absence of the uropodal exopod (one ramus only) and having antennae 1 and 2 with clavate flagella, evident as a minute article much smaller than peduncle article 3 in antenna 1. These features distinguish the genus from *Cleantis* Dana, 1849 in particular. Of the 12 species of *Cleantioides*, from the eastern and northern Pacific, the Caribbean and central eastern Atlantic, and South Africa, one has long been recognized as aberrant: *Cleantis annandalei* Tattersall, 1921 has been included in *Cleantioides* but does not have the parallel-sided body and has a remarkably notched pleotelson (Kwon, 1986; Poore & Lew Ton, 1990). Here, we erect a new genus, *Chongxidotea*, to accommodate this species and also to correct earlier observations.

Some specimens were collected by Agassiz trawl in the course of a survey of the Yangtze River, and preserved in 75% alcohol. Others were obtained from Do Heon Kwon, Inje College, Pusan, Korea. The drawings were made with the aid of a drawing tube mounted on a Zeiss Stemi Sv11 compound microscope. Measurements are total body length. Specimens are deposited in the Chongxi Wetland Research Center, Shanghai, China (CWRC), and Museum Victoria, Melbourne, Australia (NMV).

#### SYSTEMATICS

##### HOLOGNATHIDAE Thomson, 1904

##### ***Chongxidotea* gen. nov.**

Type species. — *Cleantis annandalei* Tattersall, 1921, here designated.

Included species. — *Chongxidotea annandalei* (Tattersall, 1921).

Diagnosis. — Head with a deep longitudinal groove running from the anterior margin, with a transverse groove posteriorly; eyes present. Pereonite 1 shorter than head, little longer than pereonite 2. Pleonite 1 free and articulating; pleonites 2 and 3 well defined but not articulating; pleonite 4 incompletely defined laterally. Pleotelson tapering, evenly depressed dorsally from anterior, and with a narrowly notched apex. Antenna 1 flagellum a minute article, much smaller than peduncle article 3. Antenna 2 flagellum a single clavate article. Mandibular palp absent. Maxillipedal palp oval; articles 2 and 3 with a superficial suture between them (not articulating); article 5 short, broad. Dactylus of pereopod 4 minute, with short unguis. Pereopods 5-7 slender, carpi and propodi each about 5 times as long as deep, dactyli much longer than deep. Appendix masculina on male pleopod 2 apically acute. Uropod with 1 ramus.

Etymology. — From Chongxi, the wetland region at the mouth of the Huangpu and Yangtze rivers, China, and the generic name *Idotea*, referring to the region where the species was originally discovered. The gender of the name is feminine.

Remarks. — *Chongxidotea* differs from all other holoignathids in its profile in vertical view, tapering anteriorly and posteriorly as, for example, in most idoteids. It differs from other holoignathid genera in having a pleotelson tapering dorsoventrally and laterally to a narrow, deeply notched apex. Pereopods 5-7 of *Chongxidotea* are more slender than in other holoignathids (distal articles about five times as long as deep compared with around twice as long as deep in others). These characters can be viewed as autapomorphies of the monotypic *Chongxidotea*. *Chongxidotea* is most similar to *Cleantioides*, with which it shares a minute antenna 1 flagellum, a 1-articled antenna 2 flagellum, the minute dactylus on pereopod 4, and the uniramous uropod. The remaining species of *Cleantioides* (such as *C. albanensis* Poore & Lew Ton, 1990) differ from *Chongxidotea annandalei* in the pleotelson that ends in a rounded apex and an oblique plane. This synapomorphy justifies the creation of a separate genus for one unusual species.

Including this new genus, there now are five genera in the family. The new genus can be distinguished by the following key.

KEY TO THE GENERA OF THE FAMILY HOLOGNATHIDAE THOMSON, 1904

- 1 – Uropod with 2 rami ..... 2
- Uropod with 1 ramus ..... 3
- 2 – Pleotelson with 4 pleonites marked dorsally; maxillipedal palp with lobed article 4 and long article 5 ..... *Holognathus* Thomson, 1904
- Pleotelson with 2 or 3 pleonites marked dorsally; maxillipedal palp oval, article 5 shorter than broad ..... *Cleantis* Dana, 1849
- 3 – Antenna 2 flagellum multiarticulate; maxillipedal palp article 3 lobed and article 4 elongate ..... *Zenobianopsis* Hale, 1946
- Antenna 2 flagellum clavate; maxillipedal palp oval, article 3 not lobed and article 4 short . . . . . 4
- 4 – Pleotelson parallel-sided, with rounded or slightly excavate apex ..... *Cleantioides* Kensley & Kaufman, 1978
- Pleotelson tapering dorsoventrally and laterally, with deeply notched apex ..... *Chongxidotea* gen. nov.

***Chongxidotea annandalei* (Tattersall, 1921) comb. nov.**

(figs. 1-4)

*Cleantis annandalei* Tattersall, 1921: 429-430, pl. 27 figs. 1-11.

*Cleantioides annandalei* — Nierstrasz, 1941: 265; Kwon, 1986: 111, fig. 3C-E; Poore & Lew Ton, 1990: 59; Liu & He, 2007: 100.

Material examined. — Twelve ♂♂ (10.1-19.1 mm), 3 ♀♀ (18.1-19.1 mm) CWRC Ar-Cr-026, China, Yangtze Estuary, 31°44'14''N 122°11'29''E, 5 m depth, soft mud, Heng Zhang & Wenliang

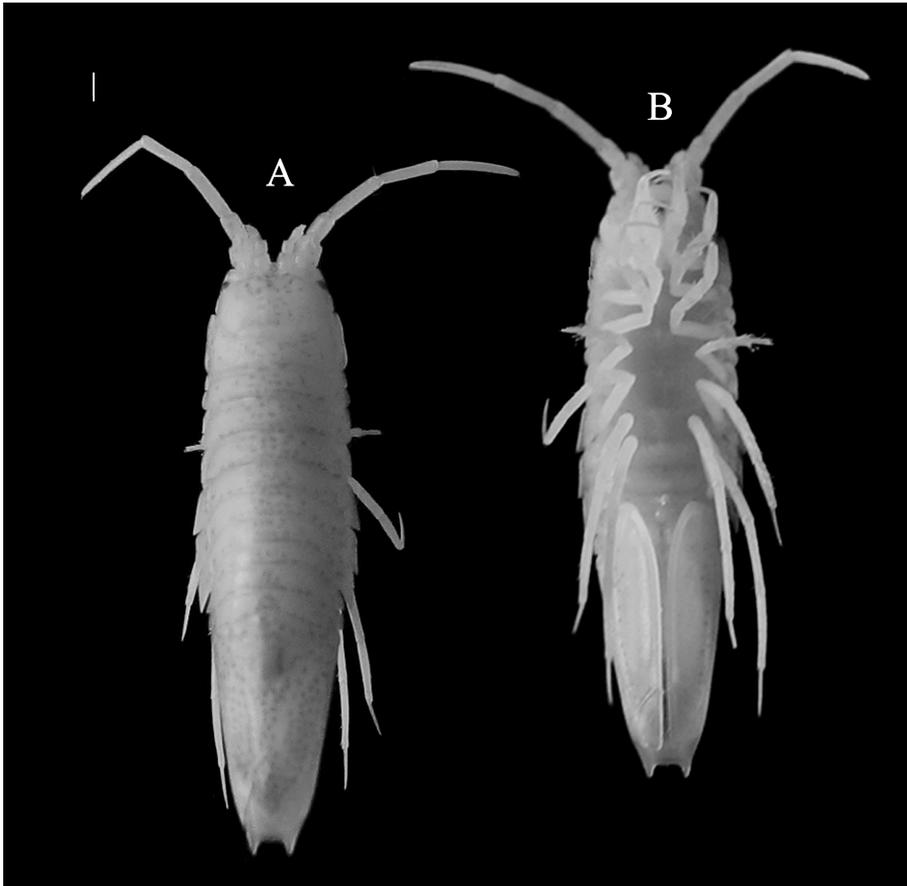


Fig. 1. *Chongxidotea amandalei* (Tattersall, 1921), male (total length: 19.1 mm): A, dorsal view; B, ventral view. Scale = 1 mm.

Liu coll., 29 September 2006; 5 ♂♂ (14-17 mm), 15 ovigerous ♀♀ (16 mm), NMV J22325, Korea, Kanghwado Is., Ch'oji-ri, D. H. Kwon coll., 4 May 1980; 5 ♂♂ (14-16 mm), 5 ovigerous ♀♀ (16 mm), NMV J22326, Korea, Pusan, Myong Ji, lower reach of Naktong River, D. S. Kim coll., 8 May 1978.

Description. — Adult male. Body (figs. 1A, B, 2A, G) almost 3.5 times as long as wide, with even brown pigment dorsally and on uropods. Dorsal surface largely smooth, without setae. Head 2 times as wide as long, anterior margin sinuous, excavate at midpoint; posterior margin convex; dorsally with a longitudinal groove in middle of anterior margin and transverse groove at back of head. Pereonite 1 shorter than head and longer than rest, pereonites 5-7 progressively shorter. Pleotelson 0.5 times whole length; pleonite 1 free and articulating, pleonites 2 and 3 well defined but not articulating, pleonite 4 incised laterally; pleotelson

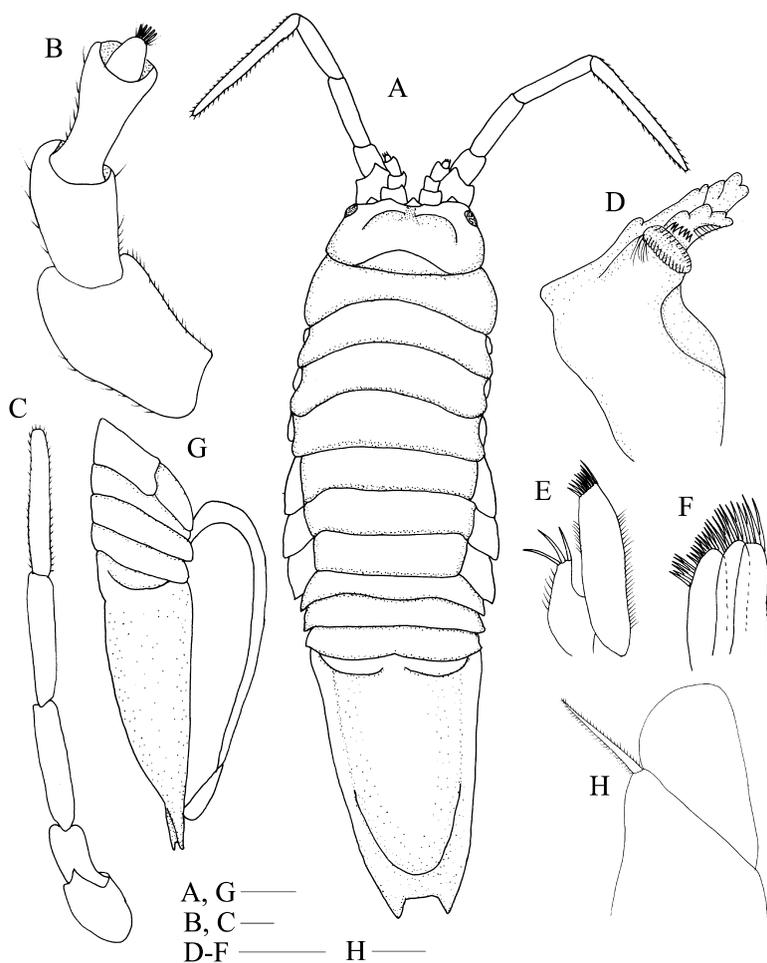


Fig. 2. *Chongxidotea annandalei* (Tattersall, 1921), male (total length: 19.1 mm): A, habitus in dorsal view; B, antenna 1; C, antenna 2; D, mandible; E, maxilla 1; F, maxilla 2; G, habitus in lateral view; H, uropodal ramus. Scale = 1mm.

subparallel and with notched apex, dorsum of distal half with well-defined oblique oval plane.

Antenna 1 (fig. 2B) reaching to end of first article of antenna 2 peduncle; peduncle article 3-3.5 times as long as wide; flagellum about 0.3 length of last article of peduncle, with apical aesthetascs. Antenna 2 (fig. 2C) about 0.4 length of body, 10 times as long as wide; flagellum of 1 article, with fine setae all over and a dense clump at apex. Mandibles (fig. 2D) asymmetrical; molar process bearing anterior spines, fine setae, and a ridged triturating surface; spine row of 5 dentate spines; lacinia mobilis a toothed blade (left) or a 3-spined tooth (right); incisor 4-toothed, broader and squarer on left. Maxilla 1 (fig. 2E) inner plate with 3 complex

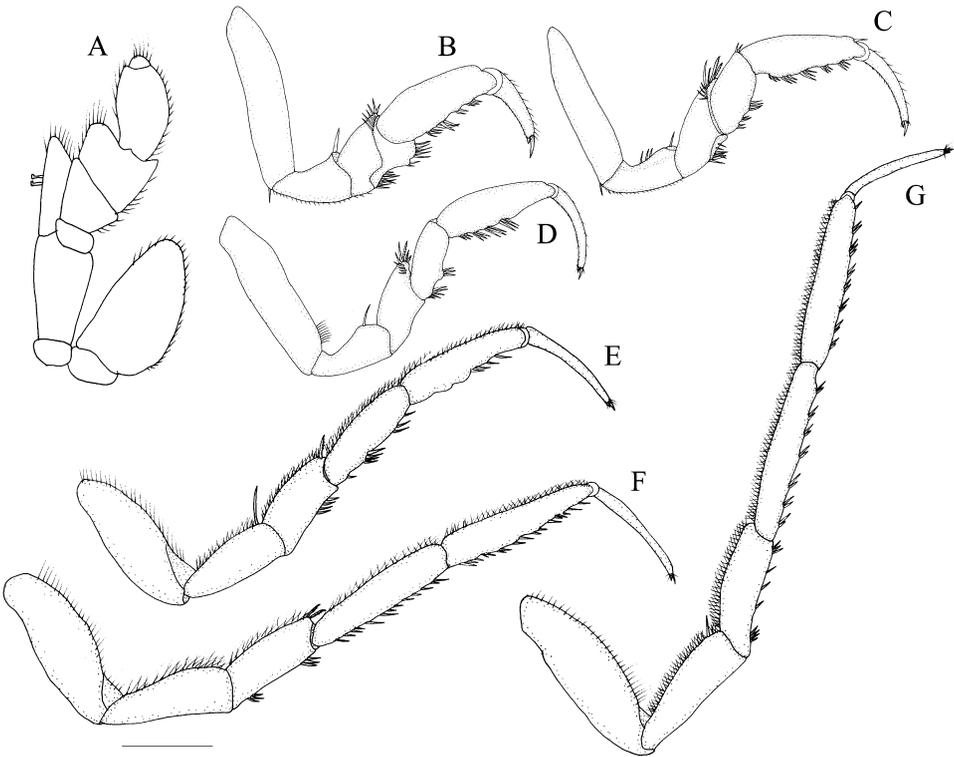


Fig. 3. *Chongxidotea annandalei* (Tattersall, 1921), male (total length: 19.1 mm): A, maxilliped; B-D, pereopod 1-3; E-G, pereopod 5-7. Scale = 1 mm.

setae; outer plate with 12 apical spines, some toothed. Maxilla 2 (fig. 2F) inner plate with oblique row of about 12 plumose setae on inner margin plus about 10 simple apical setae; middle and lateral plates with oblique rows of 8 setae. Maxillipedal endite (fig. 3A) with a row of 10 plumose setae mesially, some fine setae on outer margin; palp twice as long as endite; articles 2-5 medially setose, 3 and 4 with fine lateral setae; article 3 mediodistally lobed; article 5 wider than long, 0.2 length of article 4; epipod apically truncate.

Pereopods 1-3 increasing in length; pereopod 4 is 0.6 length of pereopod 3; pereopods 4-7 increasing in length. Pereopod 1 (fig. 3B) with 1 anterodistal spine on ischium, 6-8 anterodistal spines on merus; few posterior spines on merus, carpus and propodus; dactylus 0.75 length of propodus. Pereopods 2 (fig. 3C) and 3 similar, 1 anterodistal spine on ischium, 6 anterodistal spines and 2-3 anterodistal pectinate spines on merus, 2 rows of posterior spines on merus, 3 rows on carpus, 5 rows on propodus; dactylus 0.75 length of propodus. Pereopod 3 (fig. 3D) with 1 anterodistal spine on ischium, 6 anterodistal spines and 2-3 anterodistal pectinate spines on merus, without posterior spines; 2 rows of posterior spines on carpus, 4 rows on propodus; dactylus 0.75 length of propodus. Pereopod 4

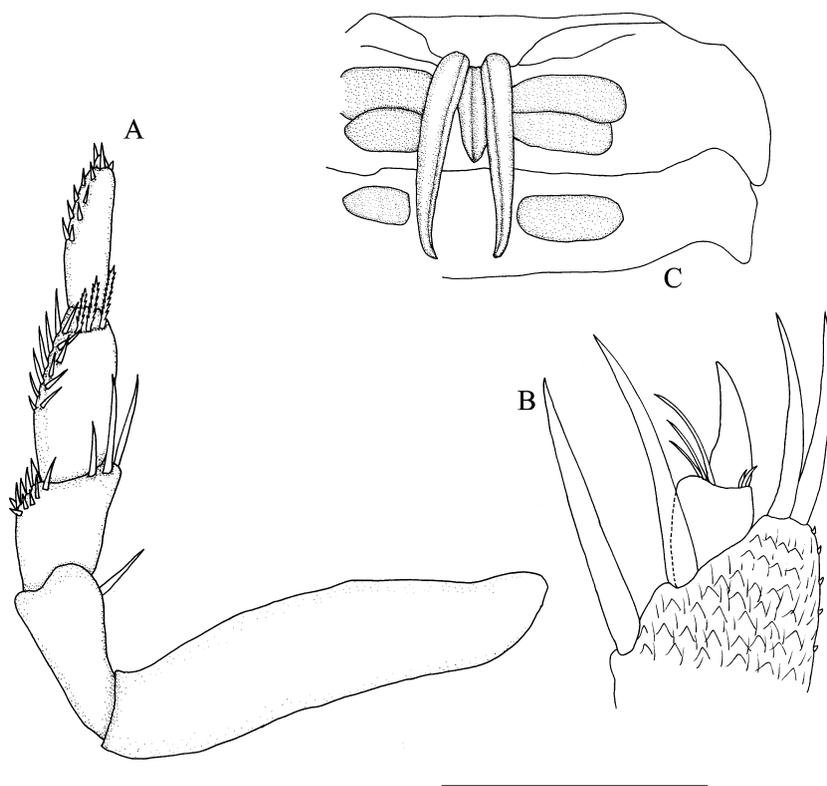


Fig. 4. *Chongxidotea annandalei* (Tattersall, 1921), male (total length: 19.1 mm): A, B, pereopod 4 and detail of dactylus; C, penial plates (ventral). Scale = 1 mm for A; 0.25 mm for B; 1.65 mm for C.

(fig. 4A, B) ischium with 1 anterodistal spine; merus with 6 anterodistal spines and posterodistal U-shaped rows of 10 spines; carpus with 6 anterodistal pectinate spines and posterodistal U-shaped rows of 12 spines; propodus with 1 small anterodistal spine and posterodistal U-shaped rows of 10 spines; dactylus reduced to a compact unguis only; every article with fine setae on anterior margin. Pereopod 5-7 (fig. 3E-G) increasing in length. Basis, ischium, merus and carpus with dense fine setae on anterior margin. Every dactylus narrow and long, about 0.9, 0.7, and 0.7 length of every propodus, respectively. Pereopod 5, 6, and 7 similar, with anterodistal spines on ischium and merus; with rows of spines on posterior margin of merus, carpus, and propodus.

Penes (fig. 4C) long and narrow, attached at the anterior margin of pleonite 1 and separated by a sharp sternal ridge.

Pleopod 1 (fig. 5A) endopod with about 70 plumose setae around all of margin, distal ones little shorter than ramus; exopod with about 80 plumose setae laterally and distomesially. Pleopod 2 (fig. 5B) with similar arrangement of setae;

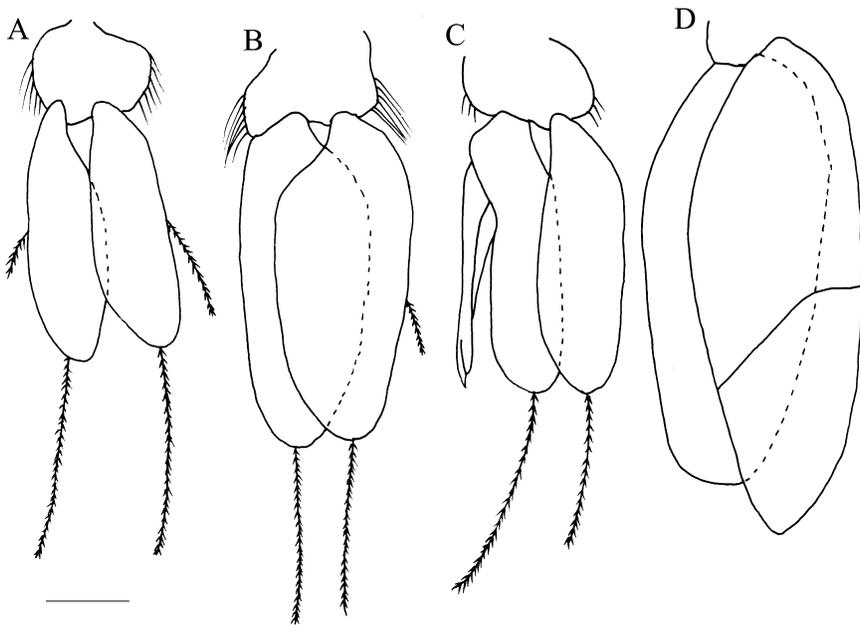


Fig. 5. *Chongxidotea annandalei* (Tattersall, 1921), male (total length: 19.1 mm): A, pleopod 1 (representative setae shown only); B, pleopod 2 (representative setae shown only, endopod with complete appendix masculina); C, pleopod 3 (representative setae shown only); D, pleopod 5. Scale = 1 mm.

peduncle with short proximally directed lateral lobe; appendix masculina as long as endopod. Pleopod 3 (fig. 5C) peduncle with mesial setae carried on a digitate lobe; endopod with distal seta; exopod with 30 distolateral plumose setae. Pleopods 4 and 5 (fig. 4G) similar, rami with short marginal setae laterally.

Uropodal endopod (fig. 2H) with inner angle square, distolaterally rounded, apically truncate; exopod absent.

Adult female. Similar to the male. Oostegites on pereopods 1-5, first much smaller than rest.

Type locality. — China, Huangpu River (as Whangpoo River), about 16 km (10 miles) below Shanghai, 5-7 m depth, fresh water.

Distribution and habitat. — Lower reaches of Huangpu River and Yangtze Estuary, Shanghai, China; lower reaches of Naktong, Küm, and Han rivers, southeastern and western Korea; from fresh water and low salinities.

Remarks. — The species was described and figured in detail by Tattersall (1921) and again by Kwon (1986). It is easily distinguished from other hognathids and idoteids, particularly by the unique pleotelsonic notch (fig. 1). Tattersall (1921) erred in stating that pereopod 4 lacked a dactylus: in fact, a dactylus is present with a short unguis (fig. 4A, B) as in *Cleantioides* (see SEMs in Poore & Lew Ton,

1990, fig. 15). We illustrate the male penial plates for the first time (fig. 2C), which are narrower than in species of *Cleantioides*. At 19 mm long, our new material is longer than the types at 13 mm. The species is a common inhabitant of fresh water and estuaries around the Yellow Sea and the Korean Peninsula (Kwon, 1986). In the Yangtze Estuary it is found in nearly fresh water (0.20‰) and up to a salinity of 7.37‰.

#### ACKNOWLEDGMENTS

This work was supported by a grant from the Shanghai Science and technology commissions (No. 07dz12039). We thank Do Heon Kwon, Inje College, Pusan, Korea, for the donation of Korean material to Museum Victoria. The first author wishes to acknowledge Dr. Wenshan He, Dr. Chunfu Tong, Dr. Lijun Hou, Dr. Feijun Zhang, Dr. Heng Zhang, Dr. Lihu Xiong, Mr. Zehua Yang, and Mr. Zhifa Xie (CWRC) for sharing the joys and triumphs of the scientific expedition to the Yangtze Estuary wetlands, and also thanks Prof. Ruiyu Liu (Institute of Oceanology, Chinese Academy of Sciences) for his considerable support.

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