

**PANDALOID SHRIMPS FROM THE NORTHERN SOUTH CHINA SEA,
WITH DESCRIPTION OF A NEW SPECIES OF *Plesionika*
(CRUSTACEA: DECAPODA: CARIDEA)**

Xinzheng Li

*Institute of Oceanology, Chinese Academy of Sciences, Qingdao 266071, China
Email: lixzh@ms.qdio.ac.cn*

Tomoyuki Komai

*Natural History Museum and Institute, Chiba, 955-2 Aoba-cho, Chuo-ku, Chiba 260-8682, Japan
Email: komai@chiba-muse.or.jp*

ABSTRACT. – The present paper deals with the pandaloid shrimp material collected from the northern part of the South China Sea during the Chinese government’s “National Comprehensive Oceanography Survey” program in 1958-1960. The collection includes two species of Thalassocarididae and 18 species of Pandalidae. A new species, *Plesionika longidactylus*, is described and compared with *P. exigua*, *P. mexicana*, *P. pumila* and *P. izumiae*. Four species are recorded from Chinese waters for the first time: *Plesionika kensleyi* Chace, 1985, *P. philippinensis* Chace, 1985, *P. pumila* Chace, 1985 and *P. spinensis* Chace, 1985.

KEY WORDS. – South China Sea, Crustacea, Decapoda, Pandaloida, taxonomy, new species.

INTRODUCTION

The regional pandaloid shrimp fauna of China was known from contributions by several writers (Liu, 1959, 1963; Shen & Liu, 1976; Wang, 1987; Dong, 1988; Tung et al., 1988; Tung & Wang, 1988; Fujian Institute of Oceanology, 1988; Wei & Chen, 1991). Liu & Zhong (1994) listed nine genera and 31 species belonging to two pandaloid families from Chinese waters. However, recent studies in Taiwan and Japan have revealed the existence of rich pandaloid fauna in the East China Sea (Hayashi, 1986; Chan & Yu, 1987, 1991, 2000; Li, 1990; Chan & Crosnier, 1991, 1997; Komai, 1999; Komai & Chan, 2002). There are also many taxonomic problems to be clarified (cf. Chan & Crosnier, 1997; Chan & Yu, 2000). It is noteworthy to mention that, in view of the recent revisionary studies on several major genera, such as *Heterocarpus*, *Pandalus*, *Pandalopsis* and *Plesionika* (Chace, 1985; Crosnier, 1988; Komai, 1994, 1999; Chan & Crosnier, 1991, 1997; Chan, in press), it is strongly recommended to review previous Chinese records and to update names of the recorded species.

An extensive collection of shrimps of the superfamily Pandaloida from the northern part of the South China Sea (Fig. 1), obtained during “The National Comprehensive Oceanography Survey” (NCOS) conducted by the Chinese government, represents the foundation of this report. Altogether 20 species belonging to two families have been identified. A new species, *Plesionika longidactylus*, is

described and illustrated. Four species are recorded from Chinese waters for the first time: *Plesionika kensleyi* Chace, 1985; *P. philippinensis* Chace, 1985; *P. pumila* Chace, 1985; and *P. spinensis* Chace, 1985. Brief review on regional records of particular species is also given.

MATERIALS AND METHODS

The specimens examined in this study are deposited in the following institutions: Marine Biological Museum, Chinese Academy of Sciences (MBMCAS) in the Institute of Oceanology, Chinese Academy of Sciences, Qingdao, China (IOCAS); Natural History Museum and Institute, Chiba (CBM); National Museum of Natural History, Smithsonian Institution (USNM), and Zoological Reference Collection (ZRC) of the Raffles Museum of Biodiversity Research, National University of Singapore. The following abbreviations are used in the text: “CN” in “Material examined” under each species account, preliminary registration number of collection; AT: Agassiz trawl; BT: beam trawl; cl: postorbital carapace length; coll.: collector(s); stn: station. Beibu Bay is the new name for the Tonkin Gulf.

Synonymies are restricted to the original references (including junior synonyms), most significant works accompanied by illustrations, and important local contributions. Genera and species are arranged in alphabetical order within families.

TAXONOMY

FAMILY THALASSOCARIDIDAE

Genus *Chlorotocoides* Kemp, 1925

Chlorotocoides spinicauda (De Man, 1902)

Chlorotocoides spinicauda De Man, 1902: 856, pl. 26, fig. 59-59h [type locality: Ternate, Indonesia]; 1920: 110, 182, pls. 15, 16, fig. 46-46e; Chace, 1985: 4, fig. 2; Liu & Zhong, 1994: 559.

Chlorotocoides spinicauda – Kemp, 1925: 277.

Thalassocaris maldivensis Borradaile, 1915: 208 [type locality: Maldives Islands]; 1917: 400, pl. 58: fig. 5.

Material examined. – 1 female (cl 4.0 mm) (IOCAS), CN 19-49, Beibu Bay, 18°00'N, 108°30'E, 79 m, muddy sand, BT, coll. Z. Fan, 28 Jan.1959; 3 females (cl 6.0-7.3 mm) (IOCAS), CN Q62B-33, 18°45'N, 108°15'E, 49 m, muddy sand, AT, coll. F. Xu, 17 Apr.1959; 3 males (cl 7.0-7.4 mm), 2 females (cl 6.0, 7.5 mm), 4 ovig. females (cl 7.0-7.9 mm) (IOCAS), 1 male, 1 female (CBM-ZC), CN Q118-40, 22°45'N, 116°00'E, 23 m, sandy mud, AT, coll. Wang, 10 Jan.1960; 10 males (cl 3.4-5.7 mm), 17 females (cl 3.1-5.0 mm), 17 ovig. females (cl 5.0-6.4 mm) (IOCAS), 1 male, 1 ovig. female (ZRC), CN N219B-178, 18°15'N, 108°30'E, 54 m, muddy sand, AT, coll. J. Liu, 16 May.1960; 1 ovig. female (cl 6.9 mm) (IOCAS), CN X295B-25B, Beibu Bay, 20°00'N, 108°30'E, 64 m, AT, 18 Oct.1962.

Distribution. – South China Sea, Maldives Islands, Andaman Islands, Indonesia, and Philippines; at depths of 15-141 m.

Remarks. – The present specimens agree closely with the previous descriptions of *Chlorotocoides spinicauda* (cf. De Man, 1902; Chace, 1985). Although the known records of this species are rather scarce, the species appears common in local waters.

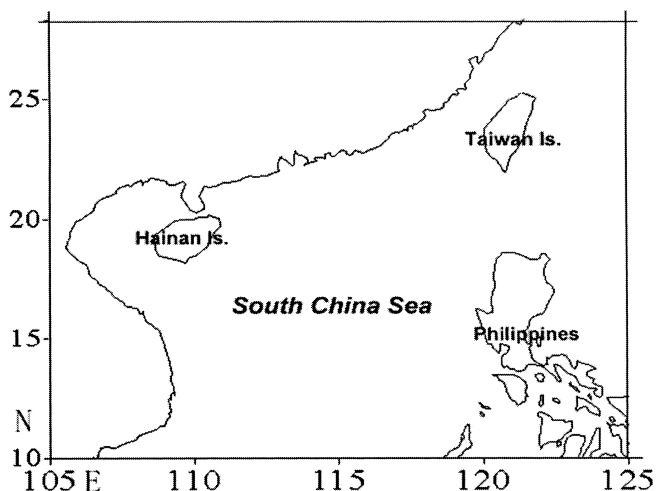


Fig. 1. Sketch map of northern part of South China Sea.

Genus *Thalassocaris* Stimpson, 1860

Thalassocaris crinita (Dana, 1852)

Regulus crinitus Dana, 1852: 27 [type locality: Sulu Sea].

Thalassocaris crinita – De Man, 1920: 95, 100, pl. 9, figs. 22-22o, pl. 10, figs. 23-23c; Kemp, 1925: 283; Menon & Williamson, 1971: 29, figs. 1b, 3, 5b, 6c, d, 10a, b, 11j-r, 13; Chace, 1985: 7, figs. 3-5; Liu & Zhong, 1994: 560.

Thalassocaris affinis Borradaile, 1915: 208 (part) [type locality: Maldives Islands and Saya de Malha Bank].

Material examined. – 1 male (cl 3.5 mm) (IOCAS), CN N219B-178B, 18°15'N, 108°30'E, 54 m, muddy sand, AT, coll. J. Liu, 16 May.1960.

Distribution. – Red Sea, Indian Ocean to Indonesia, Philippines, South China Sea, Japan, Marshall Islands; shallow waters to 100 m.

Remarks. – The present specimen is somewhat damaged: the rostrum and antennae are broken off, but the detached fragment of the rostrum is still preserved. It agrees well with the previous accounts of *Thalassocaris crinita* by De Man (1920), Menon & Williamson (1971) and Chace (1985).

FAMILY PANDALIDAE

Genus *Chlorotocella* Balss, 1914

Chlorotocella gracilis Balss, 1914

Chlorotocella gracilis Balss, 1914: 33, figs. 16-22 [type locality: Sagami Bay, Japan]; De Man, 1920: 110, 180, pl. 15, fig. 45, 45a; Hayashi & Miyake, 1968: 12, figs. 1a-c, 4 a; Chace, 1985: 11; Hayashi, 1986: 114, 115, 266, fig. 72; Wang, 1987: 49; Liu & Zhong, 1994: 559.

Material examined. – 1 male (cl 4.2 mm), 1 female (cl 4.5 mm) (IOCAS), CN X142B-18, Beibu Bay, 18°30'N, 108°30'E, 29 m, sandy mud, AT, coll. F. Sun, 6 Jan.1962; 1 male (cl 4.2 mm) (IOCAS), CN N220B-57, 18°15'N, 108°45'E, 38 m, sand and shells, AT, coll. J. Liu, 16 May.1960; 1 female (cl 4.2 mm) (IOCAS), CN 18-43, 17°30'N, 109°00'E, 91 m, sandy mud, AT, coll. J. Liu, 30 Jan.1959; 2 females (cl 3.5, 3.8 mm), 1 ovig. female (cl 3.9 mm) (IOCAS), CN X224B-65B, Beibu Bay, 18°30'N, 108°30'E, 26 m, sand, AT, 16 Aug.1962; 1 ovig. female (cl 5.2 mm) (IOCAS), CN N183B-58, 20°15'N, 110°45'E, 55 m, sand, AT, coll. Wang, 9 Apr.1960.

Distribution. – Andaman and Nicobar Islands, Singapore, Indonesia, Philippines, East and South China Seas, Japan; littoral to 91 m.

Remarks. – The present specimens from Chinese waters fit the previous accounts of *Chlorotocella gracilis* (cf. De Man 1920, Hayashi & Miyake 1968, Chace 1985) and agree with the comparative material from Japan. Other than *C. gracilis*, two nominal taxa known from Australia, *Pandalus leptorhynchus* Stimpson, 1860, and *Parapandalus leptorhynchus gibber* Hale, 1924, are referable to *Chlorotocella* as they possess the following generic features:

the rostrum bears only one fixed dorsal tooth arising somewhat anterior to the orbital margin; a supraorbital spine is present; the suborbital lobe is well developed, longer than the antennal spine; the fourth and fifth abdominal somites are each armed with posterolateral tooth; and the carpus of the second pereopods consists of three articles (see Hale, 1927). However, the relationships of these three taxa are still not clear.

Genus *Chlorotocus* A. Milne Edwards, 1882

Chlorotocus crassicornis (Costa, 1871)

Pandalus crassicornis Costa, 1871: 89, 90, pl. 2, fig. 2 [type locality: Gulf of Napoli].

Chlorotocus crassicornis – Sivertsen & Holthuis, 1956: 39, figs. 28, 29, pl. 3, fig. 3; Crosnier & Forest, 1973: 184, figs. 58-60; Chace, 1985: 12, figs. 7, 8; Hayashi, 1986: 116, 117, 267, fig. 73; Liu & Zhong, 1994: 560; Takeda & Hanamura, 1994: 20.

Chlorotocus crassicornis var. *andamanensis* Alcock & Anderson, 1899: 284 [type locality: Andaman Sea].

Chlorotocus gracilipes A. Milne Edwards, 1882: 14 [type locality: Alboran Sea off Mediterranean coast of Morocco].

Material examined. – 3 females (cl 9.4-10.0 mm) (IOCAS), CN L43B-4, 18°30'N, 111°30'E, 182 m, sandy mud, AT, coll. X. Ma, 11 Apr.1959; 1 female (cl 10.1 mm), 1 ovig. female (cl 11.4 mm) (IOCAS), CN K30B-33B, 20°00'N, 112°30'E, 99 m, sand, AT, coll. F. Sun, 18 Apr.1959; 2 ovig. females (cl 10.3, 11.0 mm) (IOCAS), CN L58B-5B, 19°30'N, 112°00'E, 120 m, sand, AT, coll. Y. Wang, 20 Apr.1959; 1 female (cl 9.7 mm), 1 ovig. female (cl 10.3 mm, 2 specimens (cl 6.6, 7.2, abdomens lost) (IOCAS), CN K33B-53, 19°30'N, 113°00'E, 180 m, muddy sand, AT, coll. F. Sun, 21 Apr.1959; 1 ovig. female (cl 10.2 mm) (IOCAS), CN K45B-54, 20°30'N, 113°30'E, 89 m, muddy sand, AT, coll. F. Sun, 25 Apr.1959; 1 female (cl 11.1 mm) (IOCAS), CN K46B2-21, 20°00'N, 113°30'E, 140 m, sand, AT, coll. F. Sun, 25 Apr.1959; 2 females (cl 6.4, 11.4 mm) (IOCAS), CN K55B-19, 19°30'N, 112°30'E, 156 m, shells and sand, AT, coll. Y. Wang and F. Sun, 5 Jul.1959; 2 specimens (damaged) (IOCAS), CN SIII19B-7, 21°30'N, 115°30'E, 115 m, sandy mud, AT, coll. W. Zhang, 14 Jul.1959; 1 female (cl 9.3 mm), 2 ovig. females (cl 8.3-9.4 mm) (IOCAS), 1 ovig. female (ZRC), CN R39A-5, 17°00'N, 109°30'E, 157 m, sandy mud, AT, coll. Z. Fan, 15 Jul.1959; 2 ovig. females (cl 10.7, 10.8 mm) (IOCAS), CN SIII28B-43B, 21°45'N, 116°00'E, 103 m, sand, AT, coll. WeiQuan Zhang, 15 Jul.1959; 1 female (cl 11.9 mm) (IOCAS), CN N90B-14, 19°30'N, 111°30'E, 102 m, sand, AT, coll. H. Li, 19 Oct.1959; 2 females (cl 10.2, 12.2 mm) (IOCAS), CN K88-55, 20°00'N, 113°00'E, 128 m, sand, AT, coll. Y. Wang, 20 Oct.1959; 1 male (cl 10.8 mm) (IOCAS), CN K102B-60, 19°30'N, 112°00'E, 122 m depth, muddy sand, AT, coll. F. Xu, 28 Oct.1959; 4 females (cl 7.3-10.6 mm), CN K84B2-24, 20°00'N, 113°30'E, 180 m, muddy sand, AT, coll. J. Liu, 20 Nov.1959; 1 ovig. female (cl 11.1 mm) (IOCAS), CN K123B-71, 19°30'N, 112°30'E, 174 m, sandy mud, AT, coll. S. Shen, 8 Feb.1960; 14 females (cl 9.3-15.8 mm, aver. 12.0 mm), 2 ovig. females (cl 13.9, 21.1 mm) (IOCAS), 1 female (ZRC), CN K122B-39, 19°00'N, 112°30'E, 300 m, sand, AT, coll. S. Shen, 8 Feb.1960; 3 specimens (damaged) (IOCAS), CN N115B-7, 18°30'N, 111°30'E, 220 m, muddy sand, AT, coll. J. Liu, 8 Feb.1960; 1 female (cl 10 mm) (IOCAS), CN K148B-16B, 19°30'N, 112°00'E, 124 m depth, sandy mud, AT, coll. Z. Tang, 4 Apr.1960; 2 ovig. females (cl 13.8, 16.2 mm) (IOCAS), CN K150B-27, 19°00'N, 112°30'E, 290 m, muddy sand, AT, coll. Tang, 6 Apr.1960; 1

female (cl 10.7 mm) (IOCAS), CN N172B-22, 19°00'N, 111°30'E, 162 m, sandy mud, AT, coll. Wang, 7 Apr.1960; 1 female (cl 9.3 mm) (IOCAS), CN S219B-2B, 21°30'N, 115°30'E, 115 m, muddy sand, AT, coll. J. Qu, 13 Apr.1960.

Distribution. – South and East China seas, Africa, Andaman Sea, Indonesia, Philippines, Korea Strait, eastern Atlantic and Mediterranean; at depths of 3-597 m.

Remarks. – Crosnier & Forest (1973) discussed the uncertain composition of *Chlorotocus*. They recognized *C. crassicornis* and *C. novaezealandiae* (Borradaile, 1916) are valid. They believed that the Japanese specimen doubtfully assigned to *Chlorotorus* [sic] *incertus* by Balss (1914) probably represents a distinct, otherwise undescribed species. Our specimens are identified as *C. crassicornis* following Chace (1985).

Crosnier & Forest (1973) determined by direct comparison that a proportionally shorter rostrum distinguishes *C. novaezealandiae* from *C. crassicornis*. However, we have found that the proportional length of the rostrum is considerably variable in our specimens without correlation with size or sex, and that it is not reliable in distinguishing the two taxa. A thorough revision is needed to clarify the identities of these two taxa.

Genus *Heterocarpus* A. Milne Edwards, 1881

Remarks. – Liu & Zhong (1994) listed the following eight species of *Heterocarpus* from Chinese waters: *H. alphonsi* Bate, 1888; *H. dorsalis* Bate, 1888; *H. gibbosus* Bate, 1888; *H. laevigatus* Bate, 1888 (as *lavigatus* [sic]); *H. parvispina* De Man, 1917; *H. sibogae* De Man, 1917; *H. tricarinatus* Alcock & Anderson, 1894; and *H. woodmasoni* Alcock, 1901. Crosnier (1988) concluded that *H. alphonsi* was a junior subjective synonym of *H. dorsalis*. Crosnier (1988) also showed that two species were confounded under the name *H. sibogae*, *H. sibogae s.s.* and *H. hayashii* Crosnier, 1988. The two species often occur in the same catch of deep-water trawl (Hayashi, 1986; Chan & Yu, 1987; personal observation). Therefore, it is possible that the Chinese records of *H. sibogae* contain the two species. During this study, *H. hayashii* has been identified from the present collection.

Heterocarpus hayashii Crosnier, 1988

Heterocarpus sibogae – Chace, 1985: 11 (part), fig. 20; Hayashi, 1986: 118, 119, 268, fig. 76; Chan & Yu, 1987: 57 (part), pl. 2, fig. c.

Heterocarpus hayashii Crosnier, 1988: 67, fig. 4b, pl. 1d, 3c-e [type locality: Chesterfield Islands]; Hanamura & Evans, 1996: 7, fig. 2.

Material examined. – 4 females (cl 13.3-20.1 mm), 1 ovig. female (cl 28.2 mm) (IOCAS), CN 33-45, 19°00'N, 113°00'E, 465 m, sand, AT, coll. H. Li, 17 Feb.1959; 1 male (cl 16.7 mm) (IOCAS), CN K150B-24, 19°00'N, 112°30'E, 290 m, muddy sand, AT, coll. Z. Tang, 6 Apr.1960.

Distribution. – Japan, East and South China seas, Philippines, New Caledonia, Samoa, Australia; at depths of 200-700 m.

Remarks. – *Heterocarpus hayashii* and *H. sibogae* are very similar morphologically. When fresh, the two species are readily separated by coloration (Crosnier, 1988): *H. hayashii* does not have a red patch on the lateral surface of the third abdominal somite, which is present in *H. sibogae*. However, morphological differences between the two are rather subtle. Hanamura & Evans (1996) argued that distinguishing features cited by Crosnier (1988) were not always reliable. They showed that only the relative length of the unarmed part of the dorsal margin of the carapace is reliable for discrimination of the two species: the unarmed part occupies 51.9-58.9% of the total length of the carapace in *H. hayashii*, and 43.5-49.0% in *H. sibogae*. No information on the coloration in life was available for our specimens, and therefore we identify them with *H. hayashii* following Hanamura & Evans (1996).

Genus *Plesionika* Bate, 1888

Remarks. – The taxonomy of *Plesionika* needs more extensive study in spite of recent revisionary studies (Chace, 1985; Crosnier, 1986; Chan & Crosnier, 1991, 1997; Chan & Yu, 1991, 2000; Chan, in press). We follow Chace (1985) in treating the genus *Parapandalus* Borradaile, 1899 as a synonym of *Plesionika*. Liu & Zhong (1994) listed the following 15 species from Chinese waters: *Plesionika alcocki* (Anderson, 1896); *P. binoculus* (Bate, 1888); *P. bifurca* Alcock & Anderson, 1894; *P. crosnieri* Chan & Yu, 1991; *P. dentirostris* Tung, Wang & Li, 1988; *P. edwardsii* (Brandt, 1851); *P. ensis* (A. Milne Edwards, 1881); *P. indica* De Man, 1917; *P. izumiae* Omori, 1971; *P. martia* (A. Milne Edwards, 1883); *P. ortmanni* Doflein, 1902; *P. semilaevis* Bate, 1888; *P. sindoi* (Rathbun, 1906); *P. unidens* Bate, 1888; and *P. yui* Chan & Crosnier, 1991.

The present study confirms the occurrence of the 12 previously known species in the northern part of the South China Sea: *P. bifurca*, *P. grandis*, *P. indica*, *P. izumiae*, *P. kensleyi*, *P. narval*, *P. philippinensis*, *P. puimila*, *P. ortmanni*, *P. semilaevis*, *P. sindoi*, and *P. spinensis*.

Chace (1985) revealed that all of the material assigned to *P. binoculus* since the original description by Bate (1888) (De Man, 1920; Boone, 1935; Hayashi & Koike, 1976) belonged to a distinct species, *P. lophotes* Chace, 1985. The true *P. binoculus* is so far represented with certainty only by the syntypes from the Arafura Sea. Although it is difficult to satisfactorily determine the specific identity of *P. binoculus* from Chinese waters without reexamination of the types, it is probable that the Chinese material represents this or other closely allied species (cf. Chan, in press).

Tung et al. (1988) described a new species *Plesionika dentirostris* from the East China Sea. Subsequently Chan & Yu (1991) described a new species *P. crosnieri* from Taiwan.

Chan & Yu (1991) compared the new species with *P. edwardsii*, but omitted to mention *P. dentirostris* despite the close similarity. Future study may eventually reveal that *P. crosnieri* and *P. dentirostris* are conspecific. The problem, however, is far more complicated since *P. costelloi* (Yaldwyn, 1971) and *P. chritchii* Burukovsky, 1978 also seem closely related to both *P. crosnieri* and *P. dentirostris*.

There are still many uncertainties concerning the relationship between *P. ensis* and *P. reflexa* Chace, 1985 (cf. Chan & Crosnier, 1997). Chace (1985) referred the material from the Philippines and Indonesia to *P. reflexa* and Hayashi (1986) reported this species from Japan. While the distribution of *P. ensis* in the northwestern Pacific remains not fully established. Therefore, the Chinese records of *P. ensis* may actually represent *P. reflexa*.

The *Plesionika martia* species group (cf. Chan & Crosnier, 1997) is generally considered to be a difficult species complex (e.g. Crosnier & Forest, 1973; Chace, 1985; Hanamura & Takeda, 1987; Kensley et al., 1987; Chan & Crosnier, 1997). It is possible that the Chinese records of *P. martia* contain more than two species.

Liu & Zhong (1994) listed *Parapandalus zurstrasseni* Balss, 1914 from the South China Sea. The name is generally considered to be a junior synonym of *Stylopandalus richardi* (Coutiere, 1905) (cf. Crosnier & Forest, 1973; Chace, 1985).

Plesionika bifurca Alcock & Anderson, 1894

Pandalus bifurca Alcock & Anderson, 1894: 155 [type locality: Arabian Sea].

Pandalus (Plesionika) bifurca – Alcock & McArdle, 1901, pl. 52, fig. 6.

Plesionika bifurca – De Man, 1920: 105, 136, pl. 12, fig. 31-31b; Chace, 1985: 56, fig. 24; Liu & Zhong, 1994: 560.

Material examined. – 3 females (cl 9.2-10.2 mm) (IOCAS), 1 female (ZRC), CN 33-48, 19°00'N, 113°00'E, 465 m, sand, AT, coll. H. Li, 17 Feb.1959; 1 female (cl 7.5 mm) (IOCAS), CN N115B-X, 18°30'N, 111°30'E, 220 m, muddy sand, AT, coll. J. Liu, 8 Feb.1960; 2 ovig. females (cl 9.0, 9.3 mm) (IOCAS), CN K122B-50, 19°00'N, 112°30'E, 300 m, sand, AT, coll. S. Shen, 8 Feb.1960; 1 male (cl 7.8 mm) (IOCAS), CN K150B-37, 19°00'N, 112°30'E, 290 m, muddy sand, AT, coll. Z. Tang, 6 Apr.1960.

Distribution. – Eastern Africa, Arabian Sea, Bay of Bengal, Andaman Sea, Indonesia, Philippines, South and East China seas, and Japan; at depths of 220-1412 m.

Plesionika grandis Doflein, 1902

Plesionika spinipes var. *grandis* Doflein, 1902: 618, pl. 3: figs. 3-5 [type locality: Sagami Bay, Japan].

Parapandalus spinipes – De Man, 1920: 108, 142, pl. 12: fig. 33a, c-e, pl. 13, fig. 33, 33b.

Plesionika grandis – Chace, 1985: 66, figs. 28, 29; Hayashi, 1986: 132, 133, 271, fig. 83; Chan & Crosnier, 1991: 423, figs. 3f, 22.

Material examined. – 6 females (cl 9.2-14.1 mm), 2 damaged females (IOCAS), CN K33B-51B, 19°30'N, 113°00'E, 180m, muddy sand, AT, coll. F. Sun, 21 Apr.1959; 24 males (cl 9.5-18 mm), 28 females (cl 9.2-14.5 mm), 1 ovig. female (cl 18.1 mm) (IOCAS), 1 male, 1 female (ZRC), CN K46B2-19, 20°00'N, 113°30'E, 140m, sand, AT, coll. F. Sun, 25 Apr.1959; 4 males (cl 9.4-16.0 mm), 2 females (cl 9.1, 11.3 mm), 2 juveniles (cl mm), 1 damaged specimen (not measured), CN K84B2-23, 20°00'N, 113°30'E, 180m, sand, AT, coll. J. Liu, 20 Nov.1959; 1 female (cl 17.1 mm) (IOCAS), CN K122B-42, 19°00'N, 112°30'E, 300m, sand, AT, coll. S. Shen, 8 Feb.1960; 1 female (cl 6.6 mm) (IOCAS), CN K142B-8, 20°00'N, 113°30'E, 141 m, sand and shells, AT, coll. S. Shen, 17 Feb.1960; 1 female (cl 8.9 mm) (IOCAS), CN K150B-28B, 19°00'N, 112°30'E, 290m, muddy sand, AT, coll. Z. Tang, 6 Apr.1960.

Distribution. – Widely distributed in the Indo-West Pacific, but known with certainty from Japan, East and South China seas, Philippines, Indonesia, northwestern Australia, Zanzibar area of eastern Africa and Madagascar, at depths of 110-375 m.

Remarks. – The taxonomic status of *Plesionika grandis* was rather controversial in its relationship to *P. spinipes* Bate, 1888 (see De Man, 1920; Chace, 1985). Chan & Crosnier (1991) concluded that the two forms are specifically distinct, differing in the rostral armature and the relative length of the dactylus of the third pereopod. Our examination of the present material supports the distinctiveness of the two species.

Plesionika indica De Man, 1917

Plesionika longipes var. *indica* De Man, 1917: 279 [type locality: Indonesia]; 1920: 106, 121, pl. 10, fig. 25a-g, pl. 11: fig. 25. *Plesionika sindoi* – Balss, 1925: 279, figs. 49-52, pl. 26. *Plesionika indica* – Calman, 1939: 198; Chace, 1985: 70, figs. 31, 32; Liu & Zhong, 1994: 560.

Material examined. – 1 male (cl 16.2 mm), 3 females (cl 12.4-15.1 mm) (IOCAS), CN 7-10, 19°00'N, 112°30'E, 472 m, AT, coll. Z. Tang, 17 Feb.1959.

Distribution. – Eastern Africa off Zanzibar, Indonesia, South China Sea, Philippines, Japan, at depths of 238-472 m.

Remarks. – This is one of the largest species of *Plesionika*, attaining 38 mm in the postorbital carapace length (Toriyama et al., 1990). The present specimens appear immature with the carapace lengths ranging from 12.4 to 16.2 mm. They are referred to *P. indica* on account of the following features: rostrum 1.8 times as long as carapace, far overreaching antennal scale, with more than 20 dorsal and more than 17 ventral teeth, 3 or 4 posteriormost dorsal teeth arising from carapace posterior to level of orbital margin; fourth abdominal somite with a small posteroventral tooth on pleuron; third maxilliped with penultimate segment about 1.6 times as long as terminal segment; and the presence of four anterior pairs of pereopods with hooked epipods (De Man, 1920; Chace, 1985).

Plesionika izumiae Omori, 1971

Plesionika izumiae Omori, 1971: 242, figs. 1, 2. [type locality: Suruga Bay, Japan]; Hayashi & Koike, 1976: 46, figs. 1, 2; Hayashi, 1986: 132, 133, 271, fig. 84; Jiang et. al., 1985: 91 (*Palesionika izumae*), Wang, 1987: 49; Liu & Zhong, 1994: 560.

Plesionika izumiae ? – Chace, 1985: 75, fig. 34.

Material examined. – 2 males (cl 7.3, 7.5 mm), 1 female (cl 7.3 mm), 1 ovig. female. (cl 7.3 mm) (IOCAS), CN 17-8, Beibu Bay, 17°30'N, 108°30'E, 97 m depth, muddy sand, BT, coll. Z. Fan, 28 Jan.1959; 1 ovig. female. (cl 6.7 mm) (IOCAS), CN S40B-2, 23°15'N, 117°00'E, 24m, AT, coll. W. Zhang, 2 Apr.1959; 2 ovig. females (cl 6.6-7.2 mm) (IOCAS), 1 ovig. female (ZRC), CN S62B-28, 22°30'N, 115°00'E, 22 m, AT, coll. S. Wu, 7 Apr.1959; 1 female (cl 6.3 mm) (IOCAS), CN 144B-12, 17°30'N, 109°00'E, 92 m, mud, AT, coll. Z. Fan, 11 Apr.1959; 2 males (cl 5.9, 6.5 mm), 1 ovig. female (cl 7.5 mm) (IOCAS), CN Q55B-36, 17°30'N, 108°00'E, 85 m, sandy mud, BT, coll. F. Xu, 16 Apr.1959; 1 female (cl 7.8 mm) (IOCAS), CN SIII2B-25, 22°00'N, 114°00'E, 34 m, mud, AT, coll. Weiquan Zhang, 9 Jul.1959; 1 female (cl 5.2 mm) (IOCAS), CN N93B-50B, 19°00'N, 111°00'E, 90 m, muddy sand, AT, coll. Z. Tang, 28 Oct.1959; 1 female (cl 6.3 mm), 1 ovig. female (cl 7.6 mm) (IOCAS), CN Q78B-22, 17°30'N, 109°00'E, 101 m, sandy mud, AT, coll. H. Li, 2 Nov.1959; 2 males (cl 6.0, 6.1 mm), CN Q87B-11, 17°30'N, 110°00'E, 125 m, muddy sand, AT, coll. Z. Tang, 23 Nov.1959; 1 male (cl 7.0 mm) (IOCAS), CN X40B-18, Beibu Bay, 18°00'N, 108°00'E, 93 m, muddy sand, AT, coll. X. Ma, 11 Dec.1959; 1 male (cl 6.3 mm), 3 females (cl 4.3-6.1 mm), 1 ovig. female (cl 6.1 mm) (IOCAS), CN S175B-25, 23°30'N, 117°30'E, 34 m, sand, AT, coll. S. Wu, 4 Jan.1960; 1 male (cl 7.4 mm) (IOCAS), CN N152B-30A, 17°00'N 109°00'E, 128 m, sandy mud, BT, coll. J. Liu, 11 Mar.1960; 1 male (cl 4.0 mm), 2 ovig. females (cl 4.3, 5.7 mm) (IOCAS), CN S227B-33, 22°00'N, 116°00'E, 84 m, mud, AT, coll. J. Qu, 22 Apr.1960; 3 males (cl 5.4-6.6 mm), 1 ovig. female (cl 5.1 mm) (IOCAS), 1 male (ZRC), CN S238B-5, 23°30'N, 117°30'E, 39 m, muddy sand, AT, coll. J. Chen and S. Lu, 24 Apr.1960.

Supplemental material. – 10 males (cl 4.7-7.5 mm), 2 females (cl 4.8, 5.3 mm), 8 ovig. females (cl 4.8-8.4 mm), used by Omori (1971) (CBM-ZC 6588), RV *Tansei-maru*, stn 392-1, Suruga Bay, Japan, 34°54.0'N, 138°27.0'E, 72 m, beam trawl, 13 May.1969; 3 males (cl 6.0-6.8 mm), 7 ovig. females (cl 5.3-8.3 mm) (CBM-ZC 3370), RV *Toyohata-maru*, Tosa Bay, Shikoku, Japan, 33°21.02'N, 133°36.98'E, 90-92 m, beam trawl, 3 Oct.1994; 4 ovig. females (cl 10.9-11.6 mm) (CBM-ZC 3776), Tokyo Bay off Yokohama, Japan, 30 m, commercial trawler, 28 Nov.1996.

Distribution. – Japan, northern part of South China Sea, and Philippines, at depths of 22-209 m.

Remarks. – The specific identity of the specimens from the South China Sea was confirmed by a comparison with 20 topotypic specimens of *Plesionika izumiae* from Suruga Bay used in Omori (1971) (CBM-ZC 6588).

After comparing with six specimens of *P. izumiae* kindly deposited by the original author in the USNM collection, Chace (1985) provisionally identified six *Albatross* specimens from the Philippines, including two males and four ovigerous females, with *P. izumiae*, as the Philippine specimens were apparently different from the original series in being somewhat larger size, in having the rostrum nearly

twice as long as the carapace, rather than little more than 1.3 times as long, and in having the dactylus of the three posterior pairs of pereopods slightly shorter in proportion to the other segments (according to Chace's figure (Fig. 34c), the dactylus is 0.48 times as long as the propodus). Examination of other Japanese specimens in the collection of CBM has shown that the size of ovigerous specimens is considerably variable from 4.8 mm to 11.6 mm in carapace length. As Omori (1971) noted, the rostrum tends to be proportionally longer in males than in females, though in males it appears become longer with the increase of body size. In the 20 topotypic specimens (CBM-ZC 6588), the rostrum is 0.93-1.84 times as long as the carapace in males, and 0.98-1.45 times as long in females. The dactylus of the third pereopod is 0.40-0.55 times as long as the propodus in 10 specimens with complete pereopods from the topotypic series. Thus, the supposed difference cited by Chace (1985) could all be within the range of variation of a single species.

Plesionika kensleyi Chace, 1985

Plesionika kensleyi Chace, 1985: 77, fig. 35, 36 [type locality: Mindanao Sea, Philippines].

Material examined. – 1 male (cl 4.9 mm) (IOCAS), CN 11-9, 18°15'N, 111°00'E, 170 m, mud, BT, coll. Y. Wang, 27 Jan.1959; 1 ovig. female (cl 7.4 mm) (IOCAS), CN 17-59, 17°30'N, 109°30'E, 110 m, sandy mud, AT, coll. J. Liu, 29 Jan.1959; 2 females (cl 5.6, 6.0 mm) (IOCAS), CN 6-18, 19°30'N, 112°30'E, 219 m, muddy sand, AT, coll. Z. Tang, 17 Feb.1959; 2 males (cl 5.8, 7.3 mm) (IOCAS), CN K33B-54, 19°30'N, 113°00'E, 180 m depth, muddy sand, AT, coll. F. Sun, 21 Apr.1959; 2 ovig. females (cl 6.1, 7.7 mm) (IOCAS), CN R30B-8, 18°00'N, 110°30'E, 145 m, muddy sand, AT, coll. F. Xu, 11 Jul.1959; 3 ovig. females (cl 6.9-8.9 mm) (IOCAS), CN R39A-8, 17°00'N, 109°30'E, 157 m, sandy mud, AT, coll. Z. Fan, 15 Jul.1959; 1 ovig. female (cl 7.7 mm) (IOCAS), CN R40B-32, 17°00'N, 109°00'E, 110 m, muddy sand, AT, coll. F. Xu, 15 Jul.1959; 1 ovig. female (cl 6.5 mm) (IOCAS), CN Q96B-18, 18°00'N, 110°30'E, 177 m, mud, AT, coll. Z. Tang, 25 Nov.1959; 1 male (cl 7.2 mm), 1 female (cl 6.0 mm), 1 ovig. female (cl 7.8 mm) (IOCAS), CN N115B-6, 18°30'N, 111°30'E, 220 m, muddy sand, AT, coll. J. Liu, 8 Feb.1960; 1 ovig. female (cl 7.2 mm) (IOCAS), CN N141B-24, 18°00'N, 110°30'E, 145 m, muddy sand, AT, coll. S. Shen, 9 Mar.1960; 1 male (cl 6.2 mm), 2 ovig. females (cl 6.5-7.2 mm) (IOCAS), 1 ovig. female (ZRC), CN N151B-32, 17°00'N, 109°30'E, 164 m, mud, BT, coll. J. Liu, 11 Mar.1960; 1 male (cl 5.8 mm) (IOCAS), CN N206B-70, 17°30'N, 109°30'E, 115 m, sandy mud, AT, coll. S. Shen, 14 May.1960.

Supplemental material. – 1 male (cl 8.6 mm), 1 ovig. female (cl 8.2 mm) (paratypes; CBM-ZC, removed from USNM 221396), "Albatross": stn 5517, west of Mindanao Sea, Philippines, 08°45.30'N, 123°33.45'E, 309 m, 9 Aug.1909.

Distribution. – Previously known only from the Philippines and off Durban, South Africa, and now newly recorded from the northern part of the South China Sea; at depths of 110-333 m.

Remarks. – The present material agrees well with the original description of *Plesionika kensleyi* by Chace (1985). Further comparison with the two paratypes (USNM 221396)

confirmed the identity of our specimens with *P. kensleyi*. Among the Indo-West Pacific species of *Plesionika*, *P. kensleyi* is readily recognized by the short rostrum, which far falls short of the distal end of the antennal scale. In this respect, this species is similar to *P. acanthonotus* (Smith, 1882) from the western Atlantic and *P. holthuisi* Crosnier & Forest, 1968, from the eastern Atlantic. Differences amongst the three species were discussed by Chace (1985).

Plesionika longidactylus, new species (Figs. 2-5)

Material examined. – Holotype – male (cl 4.6 mm) (IOCAS), CN R38B-26, 17°30'N, 109°30'E, 106 m, sand, AT, coll. F. Xu, 14 Jul.1959

Paratypes – 2 ovig. females (cl 3.8, 4.2 mm) (IOCAS), 1 ovig. female (cl 4.4 mm) (CBM), CN 2-11, Beibu Bay, 18°45'N, 108°45'E, 54.5 m, mud, BT, coll. Z. Fan, 25 Jan.1959; 1 ovig. female (cl 4.8 mm) (IOCAS), CN L56B-84, 20°30'N, 112°00'E, 72 m, muddy sand, AT, coll. X. Ma, 20 Apr.1959; 1 ovig. female (cl 3.5 mm) (IOCAS), CN N96B-103, 19°30'N, 111°15'E, 89 m, sand, AT, coll. Z. Tang, 29 Oct.1959; 1 male (cl 4.3 mm) (CBM), 1 ovig. female (cl 4.6 mm) (IOCAS), CN N206B-71, 17°30'N, 109°30'E, 115 m, sandy mud, AT, coll. S. Shen, 14 May.1960.

Diagnosis. – Rostrum far overreaching antennal scale, 1.10-1.26 times as long as carapace, armed dorsally with 5 moderately large teeth in posterior 0.50-0.60, including 1 arising from anterior 0.10-0.18 of carapace length, each with obscurely barbed tip, and with 2 tiny subapical teeth, ventral margin with 10-13 teeth; third abdominal somite not compressed dorsally, unarmed on posterodorsal margin; fourth and fifth abdominal somites each with posteroventral tooth on pleuron; telson slightly shorter than sixth abdominal somite, bearing 4 pairs of dorsolateral spines, including 1 pair adjacent to lateral pair of posterior spine; third maxilliped with ultimate segment about 1.4 times as long as penultimate segment; anterior 3 pairs of pereopods with well developed, strap-like epipods each bearing terminal hook; second pereopods greatly unequal, left with 25-30 carpal articles, right with 8 carpal articles; third pereopod with dactylus 0.48-0.60 times as long as propodus.

Description of holotype (male). – Rostrum slender, curving somewhat dorsally, far overreaching antennal scale, 1.26 times as long as carapace; dorsal margin armed with 5 moderately large, widely spaced teeth in posterior 0.55, including 1 arising from level of 0.10 of carapace length, last 3 barbed and with distinct basal suture, and 2 tiny teeth near apex of rostrum, leaving subdistal 0.45 unarmed; ventral margin armed over most length with 13 small but distinct, discretely spaced teeth. Carapace with orbit regularly concave in dorsal portion and very faintly convex in ventral portion above antennal spine; antennal spine larger than pterygostomial spine; median postrostral ridge faintly concave, somewhat compressed, but not sharp, very short, not extending posteriorly to midlength of carapace.

Abdomen with third somite unarmed on posterodorsal margin, posterior part of tergum not compressed into median

subcarinate ridge. Pleura of anterior three somites broadly rounded, those of fourth and fifth somites terminating posteroventrally in small, sharp tooth, ventral margins slightly sinuous. Sixth somite about twice as long as fifth somite and 2.40 times as long as maximum height; posterolateral process terminating sharply; posteroventral angle with small spine. Telson slightly shorter than sixth somite, with 4 pairs of dorsolateral spines, including 1 pair adjacent to lateral pair of posterior spine, anteriormost pair arising somewhat anterior to level of midlength; posterior margin with 2 pairs of spines, lateral pair longer than mesial pair.

Eye somewhat compressed in lateral view, pyriform in dorsal view, maximum diameter 0.27 times of carapace length; ocellus large, lingulate, circular, in broad contact with remainder of cornea.

Antennular peduncle with small but distinct tooth on ventromesial margin of basal segment; stylocerite rounded distally, reaching about level of midlength of basal peduncular segment; ultimate segment somewhat longer than penultimate segment; outer flagellum with aesthetasc-bearing portion slightly shorter than carapace.

Antennal scale 0.82 times as long as carapace, 4.57 times as long as broad, lateral margin nearly straight, distolateral tooth distinctly overreaching truncate distal margin of blade. Basicerite with small ventrolateral distal tooth. Carpocerite not reaching to midlength of antennal scale.

Mouthparts typical of genus. Mandible with 3 small distal teeth on incisor process; palp 3-segmented. Maxillule with palp bilobed terminally. Maxilla with proximal endite bilobed, distal lobe very small; distal endite deeply bilobed; palp consisting of single lobe, rather abruptly tapering distally, reaching anterior margin of distal endite; scaphognathite with rounded posterior lobe fringed posteriorly with short setae. First maxilliped with 2-segmented endopod distinctly overreaching anterior margin of distal endite; caridean lobe moderately broad; epipod large, distinctly bilobed. Second maxilliped with 6-segmented endopod; dactylus narrow; exopod long, slender. Third maxilliped slender, reaching beyond distal margin of antennal scale; ultimate segment 1.40 times as long as penultimate segment; exopod overreaching midlength of ultimate segment; epipod with terminal hook.

Pereopods with well developed, terminally hooked epipods on anterior 3 pairs. First pereopod minutely chelate, long,

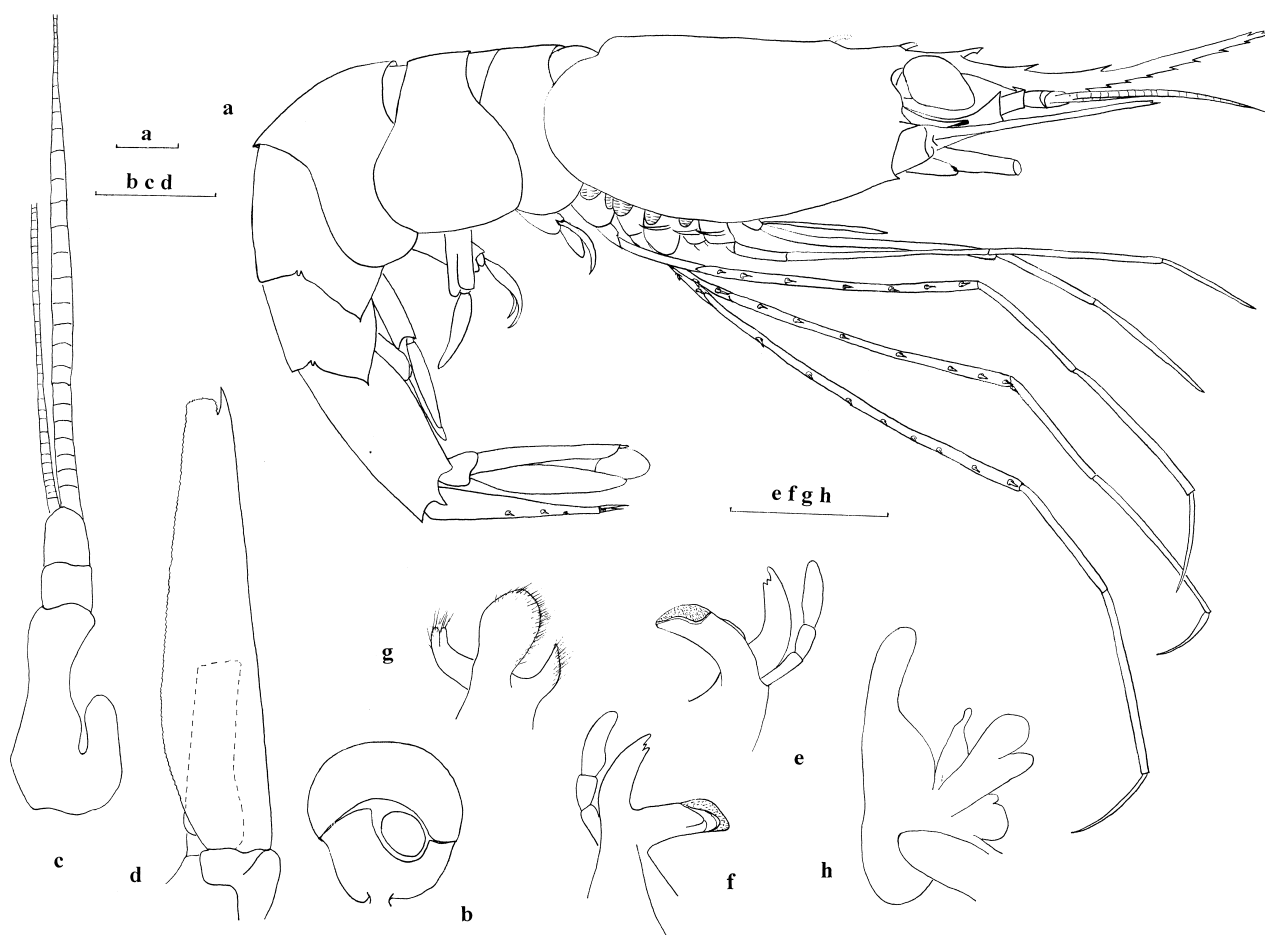


Fig. 2. *Plesionika longidactylus*, new species. a, body, lateral view; b, eye; c, antennule; d, antenna; e, mandible, ventral view; f, same, dorsal view; g, maxillula; h, maxilla. Holotype male from northern South China Sea (R38B-26, IOCAS). Scales = 1 mm.

slender, overreaching distal margin of antennal scale by full length of propodus; propodus 0.57 times as long as carpus; carpus elongate, 0.85 times as long as merus; ischium with ventrodistal portion produced, terminating acutely; ventral surface with few spinules. Second pereopod represented only by left overreaching antennal scale by length of chela and 0.30 of carpus; chela slightly longer than distalmost article of carpus; carpus composed of 30 articles; merus almost as long as ischium. Third pereopod overreaching antennal scale by length of dactylus, propodus and half of carpus; dactylus elongate, 0.57 times as long as propodus, slightly curved, terminating in simple, acuminate unguis, no accessory spinules on flexor margin; propodus with few setae; carpus 0.72 times as long as propodus, unarmed; merus 1.18 times as long as carapace, with 8 spines along the flexor margin, the apical one near to the apex of merus and located on the outside of the flexor margin; ischium with 2 ventral spine. Fourth pereopod similar to third, overreaching antennal scale by length of dactylus and propodus. Fifth pereopod overreaching antennal scale by length of dactylus and half of propodus; dactylus 0.48 times as long as propodus; carpus 0.70 times as long as propodus, unarmed; merus as long as carapace, with 7 spines along the flexor margin, the apical one near to the apex of merus and located on the outside of the flexor margin; ischium without ventral spine.

Endopod of male first pleopod with mesial margin slightly sinuous, notch separating appendix interna and distal lobe of endopod distinct. Appendix masculina on second pleopod reaching distal end of appendix interna, armed with about 11 long spines. Exopod of third pleopod 0.32 times as long as carapace. Endopod of uropod overreaching posterior end of telson; exopod longer and bearing movable spine mesial to distolateral tooth.

Description of paratypes. – Paratypes generally similar to holotype. Ventral margin of rostrum with 10-12 teeth. Right (shorter) second pereopod with 8-9 carpal articles; left (longer) second pereopod with 25-29 carpal articles; the dactylus of third pereopod is 0.48-0.60 times as long as propodus; eggs small, diameter along longer axis 0.4 mm.

Distribution. – Known only from the northern part of the South China Sea, at depths of 55-115 m. The type locality is in Beibu Bay at a depth of 106 m.

Etymology. – The species is named after its elongate dactyli of third to fifth pereopods. The name is used as a noun in apposition.

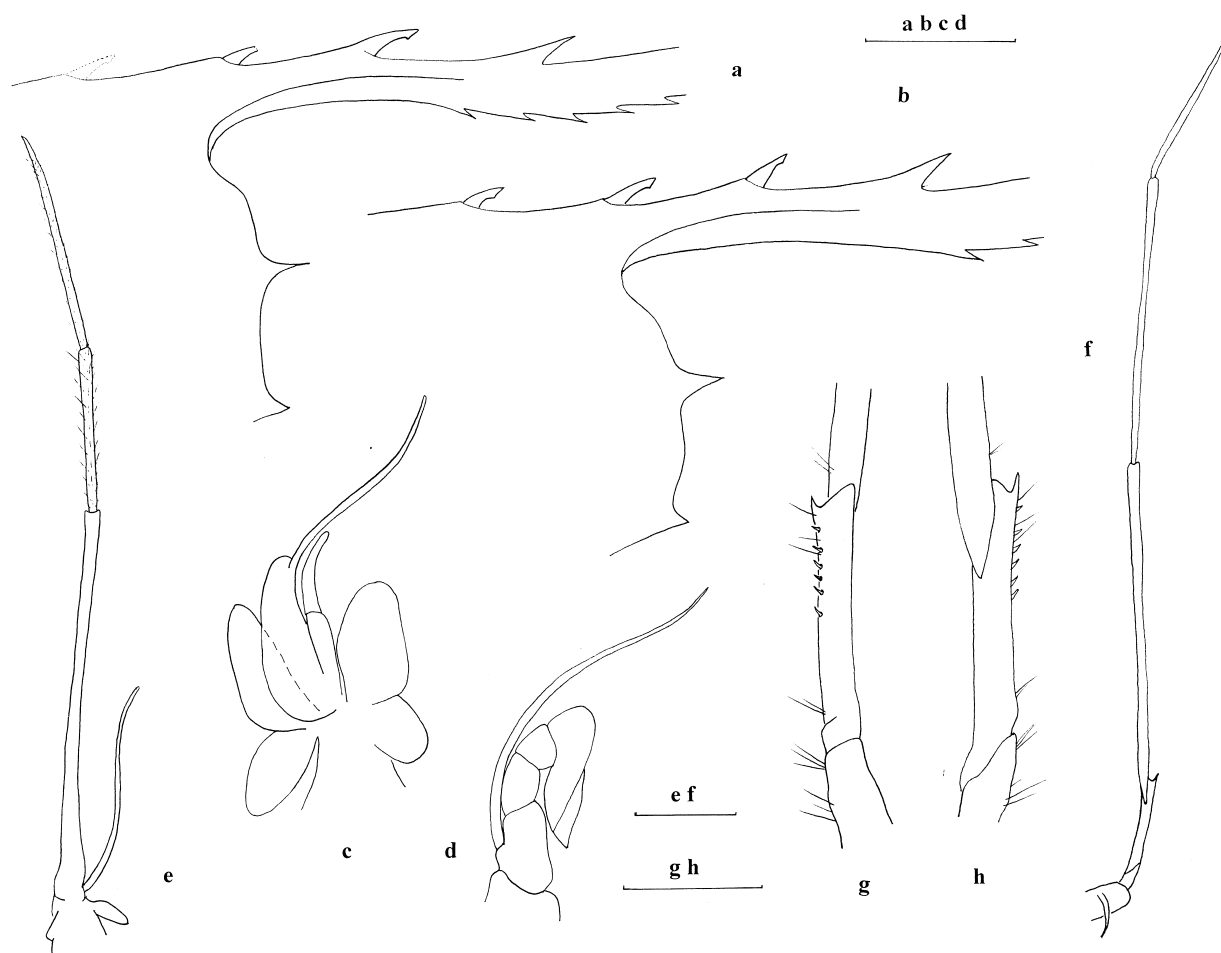


Fig. 3. *Plesionika longidactylus*, new species. a, b, anterior carapace, lateral view; c, right first maxilliped, ventral view; d, right second maxilliped, ventral view; e, right third maxilliped, dorsal view; f, right first pereopod, lateral view; g, same, ischium, mesial view; h, same, lateral view. a, c-h, holotype, male from northern South China Sea (R38B-26, IOCAS); b, paratype ovigerous female from northern South China Sea (L56B-84, IOCAS). Scales = 1 mm (a-f); 0.5 mm (g, h).

Remarks. – This new species appears close to *P. exigua* (Rathbun, 1906) from Hawaii, *P. mexicana* Chace, 1937, from the eastern Pacific and *P. pumila* Chace, 1985, from the Philippines, all of which have the teeth on the postrostral crest bluntly barbed. Comparisons with the published descriptions of these three species (Rathbun, 1906; Chace, 1937, 1985) have shown that the new species is immediately distinguished from these three taxa by the blunt, rather than acute, antennular stylocerite, elongate dactyli of the third to fifth pereopods (0.48-0.60 times as long as propodus versus less than 0.40 times as long) and the presence of epipods on the first to third pereopods. In *P. exigua*, the first and second pereopods bear epipods, while in *P. mexicana* and *P. pumila*, the anterior four pereopods have epipods. Further, the presence of only one postrostral tooth and the absence of prominent accessory spinules on pereopod dactyli distinguish the new species from *P. exigua*. From *P. mexicana*, the new species is separated by the fewer dorsal rostral teeth and distinctly shorter stylocerite, which falls short of the distal end of the basal antennular segment, rather than slightly overreaching that. Finally, the unarmed carpi of the third and fourth pereopods distinguish the new species from *P. pumila*.

***Plesionika narval* (Fabricius, 1787)**

Astacus Narval Fabricius, 1787: 331 [type locality: probably Nice, Mediterranean].

Parapandalus narval - Crosnier & Forest, 1973: 221, fig. 69a; Crosnier, 1976: 235, fig. 4b.

Plesionika serratifrons – Chace, 1985: 121, figs. 55, 56 (non Borradaile, 1899).

Plesionika narval – Lemaitre & Gore, 1988: 385, figs. 3k-m, 4; Chan & Crosnier, 1991: 443, figs. 12a-c, 13a, 14a-c, 15a-e, 34-36.

Material examined. – 1 male (cl 10.1 mm), 1 female (cl 6.7 mm) (IOCAS), CN 17-26, 17°30'N, 109°30'E, 110 m, sandy mud, AT, coll. J. Liu, 29 Jan.1959; 1 male (cl 9.9 mm) (IOCAS), CN 31-29, 20°00'N, 113°00'E, 114 m depth, muddy sand, AT, coll. S. Wang, 17 Feb.1959; 1 female (cl 11.8 mm), CN 23-8, 17°00'N, 109°30'E, 153 m, mud, AT, coll. F. Xu, 18 Feb.1959; 1 female (cl 6.5 mm) (IOCAS), CN 9-45, 19°00'N, 112°00'E, 202 m, muddy sand, AT, coll. Z. Tang, 19 Feb.1959; 1 female (cl 7.9 mm) (IOCAS), CN Q34B-3, 17°30'N, 110°00'E, 140 m, sandy mud, BT, coll. Z. Fan, 7 Apr.1959; 8 females (cl 6.9-11.4 mm, aver. 10.0 mm), 2 ovig. females (cl 14.4, 14.5 mm) (IOCAS), CN Q40B-10, 17°45'N, 109°30'E, 84 m, BT, coll. Z. Fan, 9 Apr.1959; 14 males (cl 8.7-11.0 mm), 12 females (cl 7.3-11.5 mm) (IOCAS), 1 male, 1 female

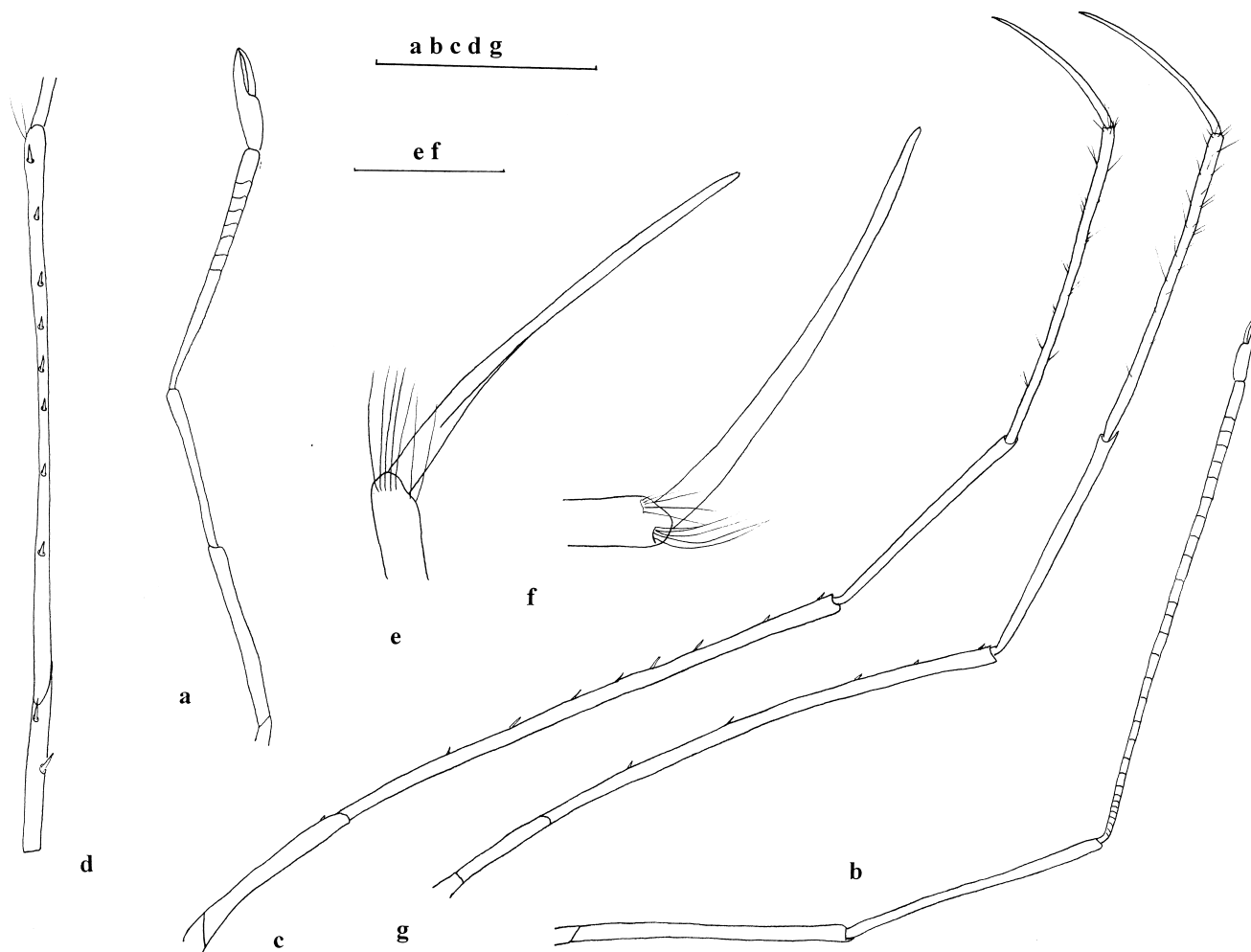


Fig. 4. *Plesionika longidactylus*, new species. a, right second pereopod, lateral view; b, left second pereopod, lateral view; c, right third pereopod, mesial view; d, same, ischium and merus, lateral ventral view; e, same, dactylus, lateral view; f, same, mesial view; g, right fifth pereopod, mesial view. a, paratype ovigerous female from Beibu Bay (CN 2-11, IOCAS); b-g, holotype, male from northern South China Sea (R38B-26, IOCAS). Scales = 2 mm (a-d, g); 0.5 mm (e, f).

(ZRC), CN K34B-65, 20°00'N, 113°00'E, 104 m, sand, AT, coll. F. Sun, 21 Apr.1959; 1 male (cl 6.7 mm) (IOCAS), CN K46B-19B, 20°00'N, 113°30'E, 140 m, sand, AT, coll. F. Sun, 25 Apr.1959; 1 female (cl 17.1 mm) (IOCAS), CN SIII20B-18, 21°45'N, 115°30'E, 105 m, sandy mud, AT, coll. W. Zhang, 14 Jul.1959; 2 males (cl 8.7 mm) (IOCAS), CN SIII28B-37, 21°45'N, 116°00'E, 103 m, sand, AT, coll. W. Zhang, 19 Jul.1959; 2 females (cl 6.3, 6.4 mm) (IOCAS), CN N151B-25, 17°00'N, 109°30'E, 164 m, mud, BT, coll. J. Liu, 11 Mar.1960; 3 females (cl 6.9-8.7 mm) (IOCAS), CN N152B-30, 17°00'N, 109°00'E, 128 m, sandy mud, BT, coll. J. Liu, 11 Mar.1960; 1 female (cl 6.0 mm) (IOCAS), CN K164B-6, 20°00'N, 113°30'E, 129 m, muddy sand, AT, coll. Z. Tang, 9 Apr.1960; 1 female (cl 11.3 mm) (IOCAS), CN N206B-66, 17°30'N, 109°30'E, 115 m, sandy mud, AT, coll. S. Shen, 14 May.1960.

Distribution. – Mediterranean, eastern Atlantic from Gibraltar to Cape Verde Islands, South Atlantic, Red Sea, Indo-West Pacific from Madagascar to French Polynesia and northward to Japan, at depths of 35-400 m.

Remarks. – It is difficult to distinguish this species from the allied *P. serratifrons* (Borradaile, 1899). Chan & Crosnier (1991) used the number of dorsal rostral teeth corresponding to the posteriormost 10 ventral rostrum teeth in distinguishing the two species. In our specimens, the posterior 10 ventral rostral teeth correspond to fewer than 13 dorsal rostral teeth. Thus we refer our specimens to *P. narval*. Other than the differences in the rostrum armature, Chan & Crosnier (1991) stated that the number of the carpal articles of the second

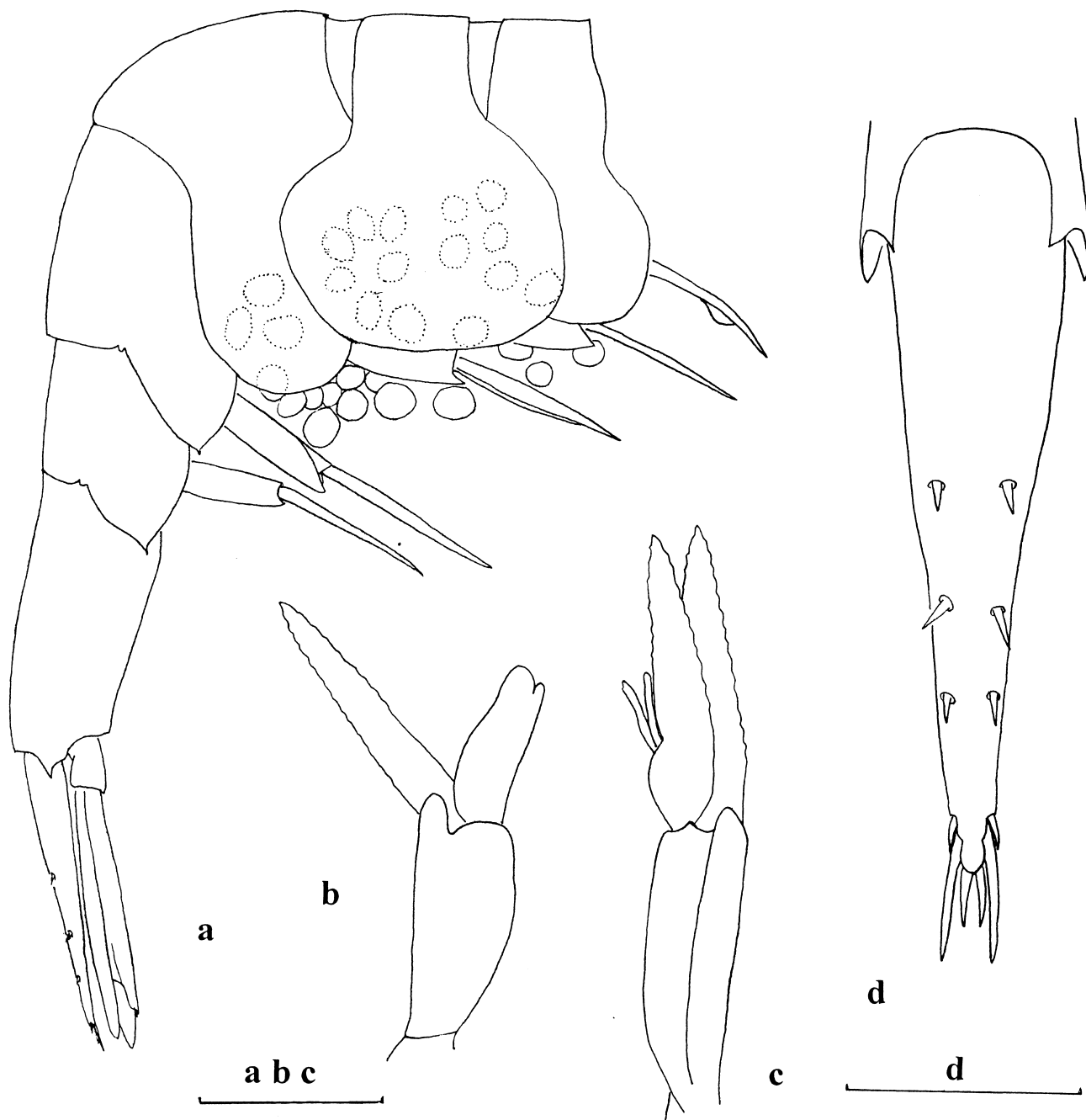


Fig. 5. *Plesionika longidactylus*, new species. a, abdomen, lateral view; b, right first pleopod, ventral view; c, left second pleopod, ventral view; d, telson, dorsal view. a, paratype, ovigerous female from Beibu Bay (CN 2-11, CBM); b-d, holotype, male from northern South China Sea (R38B-26, IOCAS). Scales = 2 mm (a); 1 mm (b-d).

pereopods, shape of the antennular stylocerite, and the presence or absence of a notch at the basal part of the rostrum are useful to differentiate *P. narval* and *P. serratifrons*. However, it has been found that these characters are subtle and difficult to use.

Plesionika ortmanni Doflein, 1902

Plesionika ortmanni Doflein, 1902: 616, pl. III, fig. 2 [type locality: south coast of Japan]; Balss, 1914: 30, fig. 14; De Man, 1920: 107, 124, pl. 11, fig. 26, 26a; Chace, 1985: 92, fig. 41; Hayashi, 1986: 136, 137, 272, fig. 87; Liu & Zhong, 1994: 560.

Material examined. – 1 female (cl 7.1 mm) (IOCAS), CN 36-27, 20°30'N, 113°30'E, 87 m, muddy sand, AT, coll. H. Li, 20 Feb.1959; 1 ovig. female (cl 5.5 mm) (IOCAS), CN S61B-6, 22°30'N, 115°30'E, 29 m, AT, coll. W. Zhang, 6 Apr.1959; 1 male (cl 9.4 mm) (IOCAS), CN L56B-31, 20°30'N, 112°00'E, 72 m, muddy sand, AT, coll. X. Ma., 20 Apr.1959; 1 female (cl 7.4 mm) (IOCAS), CN R28B-34, 18°30'N, 110°30'E, 103 m, sand, AT, coll. F. Xu, 10 Jul.1959; 1 male (cl 10.4 mm), 1 female (cl 11.1 mm) (IOCAS), CN N66B-14, 19°30'N, 111°15'E, 90 m, sandy mud, BT, coll. Z. Tang, 13 Jul.1959; 1 female (cl 11.4 mm) (IOCAS), CN SIII28B-8, 19°30'N, 111°15'E, 103 m, sand, AT, coll. W. Zhang, 19 Jul.1959; 1 female (cl 9.0 mm) (IOCAS), CN N90B-13B, 19°30'N, 111°30'E, 102 m, sand, AT, coll. H. Li, 19 Oct.1959; 6 males (cl 10.1-12.2 mm), 2 ovig. females (cl 11.6-12.6 mm) (IOCAS), 1 male, 1 ovig. female (ZRC), CN K98B-43, 20°00'N, 112°30'E, 104 m, sand, AT, coll. F. Xu, 22 Oct.1959; 2 specimens (damaged, sex could not be determined; cl 6.2, 7.0 mm) (IOCAS), CN N93B-57, 19°00'N, 111°00'E, 90 m, muddy sand, AT, coll. Z. Tang, 28 Oct.1959; 1 male (cl 9.2 mm) (IOCAS), CN Q77B-20, 17°00'N, 109°00'E, 113 m, muddy sand, AT, coll. Z. Tang, 20 Nov.1959; 1 male (cl 8.2 mm), 1 female (cl 10.3 mm) (IOCAS), CN K120B-29, 19°30'N, 112°00'E, 120 m, sand and shells, AT, coll. J. Qu, 6 Feb.1960; 2 females (cl 7.3, 7.7 mm) (IOCAS), CN K123B-70, 19°30'N, 112°30'E, 174 m, sandy mud, AT, S. Shen, 8 Feb.1960.

Distribution. – Western Pacific from Japan to Indonesia, at depths of 29-400 m.

Plesionika philippinensis Chace, 1985

(Fig. 6)

Plesionika philippinensis Chace, 1985: 97, fig. 44 [type locality: northern Srigao Strait, Philippines].

Material examined. – 1 female (cl 10.5 mm) (IOCAS)(its rostrum was broken and the apical portion lost maybe when it was collected), CN 6-2, 18°30'N, 110°30'E, 112 m, sandy mud, AT, coll. J. Liu, 27 Jan.1959; 7 females (cl 4.9-7.4 mm) (IOCAS), CN SIII28B-18, 21°45'N, 116°00'E, 103 m depth, sand, AT, coll. W. Zhang, 19 Jul.1959.

Distribution. – Previously known only from the northern Surigao Strait, Philippines, at depths of 123-135 m. The present material extends its geographical range to the northern part of the South China Sea at depths of 103-112 m.

Remarks. – *Plesionika philippinensis* has been represented

only by the type material from the northern Surigao Strait in the Philippines. The present specimens from the South China Sea agree well with the original description of the species by Chace (1985) in the following particulars: rostrum distinctly overreaching antennal scale, armed dorsally throughout length with 11-13 teeth, including 4 to 5 on carapace posterior to orbital margin, the fifth one usually just above the margin, 4-6 posteriormost teeth with distinct basal suture, and ventrally with 10-16 teeth; fourth and fifth abdominal somites each with posteroventral tooth on pleuron; telson 1.30-1.40 times as long as sixth abdominal somite, bearing 4 pairs of dorsolateral spines, including pair adjacent to lateral pair of posterior spines; ocellus skewed somewhat laterad, in rather broad contact with cornea but distinctly constricted at juncture with cornea; antennular stylocerite acute, slightly overreaching dorsal arc of distal margin of first antennular segment; third maxilliped with penultimate segment 0.75-0.80 times as long as terminal segment; third maxilliped through fourth pereopods with hooked epipods; second pereopods strongly unequal, right (shorter) one with 18 carpal articles, left (longer) one with 92 carpal articles; third pereopods not greatly elongate, overreaching antennal scale by length of dactyl and 0.75 of propodus, dactylus about 0.26 as long as propodus with accessory distal spinule more than half as long as and not much separated from main unguis, and with 3 accessory spinules in proximal 0.30 of flexor margin. As Chace (1985) mentioned, this species is very similar to *P. binoculus* and *P. izumiae*.

Plesionika pumila Chace, 1985

(Fig. 7)

Plesionika pumila Chace, 1985: 100, fig. 45, 46 [type locality: western part of Basilan Strait, Mindanao, the Philippines].

Material examined. – 2 ovig. females (cl 5.0, 5.5 mm) (IOCAS), CN 19-13, Beibu Bay, 18°00'N, 108°30'E, 79 m, muddy sand, AT, coll. Z. Fan, 28 Jan.1959; 1 ovig. female (cl 4.6 mm) (IOCAS), CN Q618-10, 18°45'N, 108°30'E, 20 m, muddy sand, BT, coll. F. Xu, 17 Apr.1959; 1 ovig. female (cl 3.5 mm) (IOCAS), CN R45B-30, 18°15'N, 108°45'E, 39 m, sandy mud, AT, coll. Z. Fan, 16 Jul.1959; 2 females (cl 4.2, 4.7 mm) (IOCAS), CN R42B-27B, 18°15'N, 109°00'E, 24 m, sand, AT, coll. F. Xu, 16 Jul.1959.

Distribution. – Previously known only from the western end of Basilan Strait, the Philippines, at depths of 46 m. The present material from the northern part of the South China Sea at depths of 20-79 m extends its geographical range to north and west.

Remarks. – *Plesionika pumila* has been previously represented only by the type material from the Basilan Island, the Philippines. The present specimens agree well with the original description of the species by Chace (1985), particularly in the following diagnostic features: rostrum armed dorsally with 4 teeth in basal part, including one on the carapace posterior to orbital margin, all with bluntly barbed tips; fourth and fifth abdominal somites each with posteroventral tooth on pleuron; telson about as long as sixth abdominal somite, bearing 4 pairs of dorsolateral spinules,

including pair adjacent to lateral pair of posterior spines; stylocerite acute, very short, at most reaching the half of first antennular segment; third maxilliped with epipod, penultimate segment 0.60 as long as terminal segment; anterior 4 pairs of pereopods with hooked epipods; left second pereopods with carpus consisting of about 37 articles; third pereopod with dactylus 0.36 times as long as propodus, devoid of accessory spinules on flexor margin. In the present material, the second pereopods are distinctly unequal; the right (shorter) second pereopods, which remains unknown before, with the carpus consists of 11 articles.

This species is apparently similar to *P. longidactylus*, new species. The affinities between these two species are discussed under the account of the new species.

***Plesionika semilaevis* Bate, 1888**

Plesionika semilaevis Bate, 1888: 644, pl. 68, fig. 3 [type locality (restricted by lectotype selection by Chace, 1985): Moro Gulf east of Basilan Strait, Philippines]; Chace, 1985: 113, figs 51-54; Ohtomi & Hayashi, 1995: 1035, fig. 1; Chan & Crosnier, 1997: 213; Liu & Zhong, 1994: 560.

Material examined. – 24 males (cl 12.9-19.9 mm), 9 females (cl 12.4-20.1 mm), 7 ovig. females (cl 16.3-21.3 mm) (IOCAS), 1 male, 1 female (ZRC), CN L33B-44, 19°00'N, 113°00'E, 465 m, sand, AT, coll. H. Li, 17 Feb.1959.

Distribution. – Philippines, Indonesia, South and East China seas, Japan; at depths of 176-700 m.

Remarks. – As Chan & Crosnier (1997) suggested, the taxonomy of *P. martia* A. Milne Edwards, 1883 species group, to which this species belongs, is still unsettled. The present specimens are identified with *P. semilaevis* on account of the following features: the overall body size is relatively small (the average postorbital carapace length of the seven ovigerous females is 19.3 mm); the posterior margin of the orbit is notably inclined posterodorsal; the dactylus of the third pereopod is relatively long (about 0.30 length of the propodus); and the exopod of the third pleopod relatively short (usually less than 0.75 of the carapace length).

***Plesionika sindoi* (Rathbun, 1906)**

Pandalus sindoi Rathbun, 1906: 915, pl. 21, fig. 4 [type locality: Hawaiian islands].

Plesionika Sindoi – De Man, 1920: 126, pl. 11, fig. 27-27d, pl. 12, fig. 27e.

Plesionika ocellus – Chace, 1985: 90, fig. 40; Toriyama et al., 1990: 18, pl. 3a.

Plesionika sindoi – Poupin, 1996, pl. 5c; Liu & Zhong, 1994: 560; Chan & Crosnier, 1997: 216, figs. 17, 36-37.

Material examined. - 2 males (cl 6.4, 8.6 mm) (IOCAS), CN K122B-42B, 19°00'N, 112°30'E, 300 m, sand, AT, coll. S. Shen,

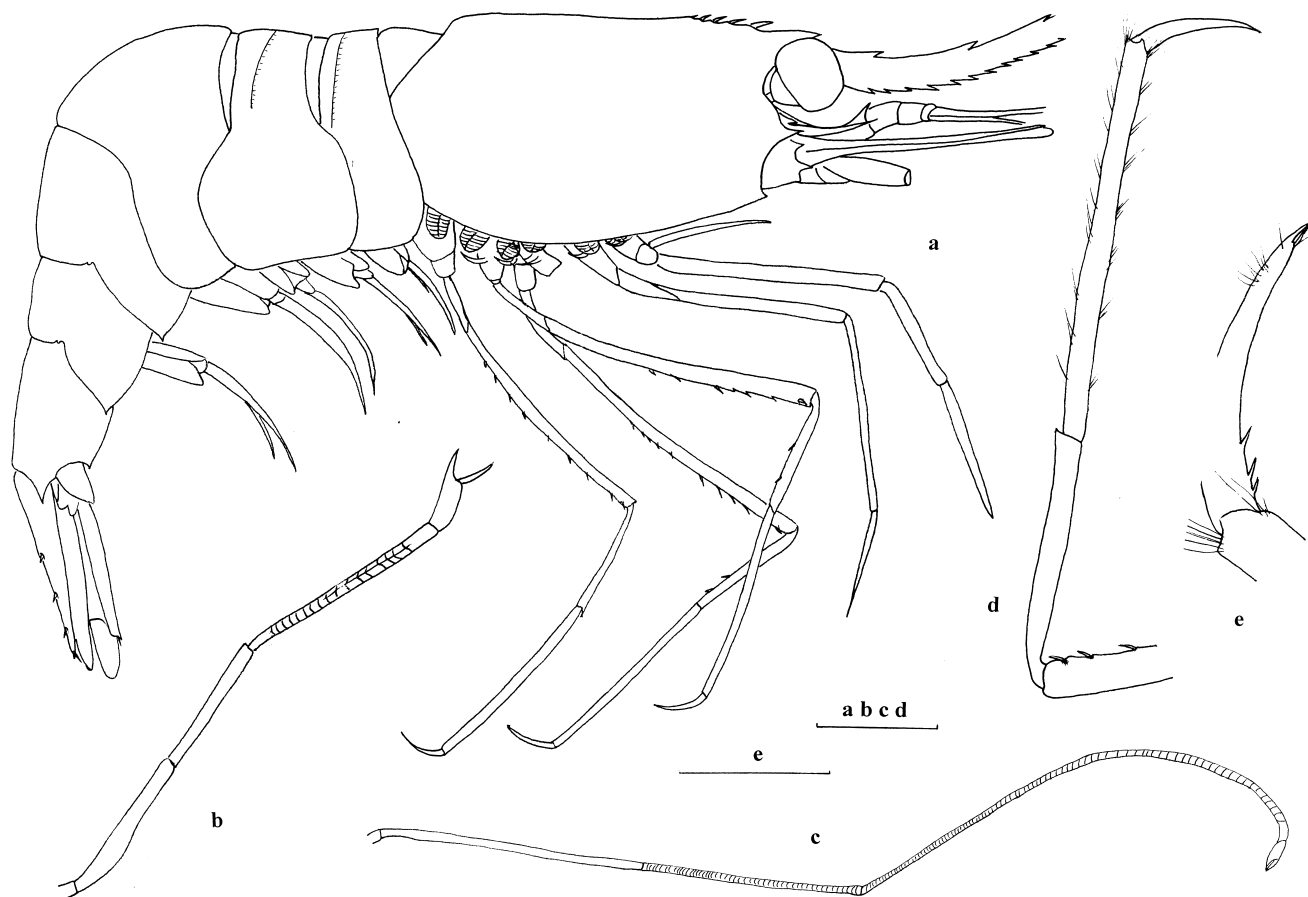


Fig. 6. *Plesionika philippinensis* Chace, 1985. a, body, lateral view; b, right second pereopod, lateral view; c, left second pereopod, lateral view; d, right third pereopod, lateral view; e, same, dactyl, lateral view. a, d, e, female from northern South China Sea (CN 6-2, IOCAS); b, c, female from northern South China Sea (SIII28B-18, IOCAS). Scales = 4 mm (a); 2 mm (b-d); 1 mm (e).

8 Feb.1960; 1 ovig. female (cl 9.9 mm) (IOCAS), CN K102B-61, 19°30'N, 112°00'E, 122 m, muddy sand, AT, coll. F. Xu, 28 Oct.1959.

Distribution. – Known with certainty from Japan, South China Sea, the Philippines, Indonesia, Hawaii and French Polynesia, at depths of 122-800 m.

Remarks. – Chan & Crosnier (1997) clarified the taxonomic confusion regarding *Plesionika sindoi* and *P. ocellus* Bate, 1888. They showed that *P. sindoi* differs from *P. ocellus* primarily in the absence of a posterolateral tooth on the pleuron of the fourth abdominal somite and that *P. chacei* Hayashi, 1986 was a junior subjective synonym of *P. ocellus*. The present material is clearly identifiable with *P. sindoi*. Detailed descriptions of this species can be found in De Man (1920) and Chace (1985, as *P. ocellus*).

Plesionika spinensis Chace, 1985

Plesionika spinensis Chace, 1985:129, figs. 58, 59 [type locality: western Mindanao Sea off Murcielagos Bay, Philippines]

Material examined. – 1 female (cl 9.4 mm) (IOCAS), CN K7B-11, 19°00'N, 112°30'E, 472 m, sand, AT, coll. Z. Tang, 17 Feb.1959; 1 female (cl 7.5 mm) (IOCAS), CN K122B-49, 19°00'N, 112°30'E, 300 m, sand, AT, coll. S. Shen, 8 Feb.1960.

Supplemental material. – 1 male (cl 10.1 mm), 1 ovig. female (cl 10.1 mm) (paratypes; CBM-ZC, transferred from USNM 205305), *Albatross*: stn 5517, west of Mindanao Sea, Philippines, 08°45.30'N, 123°33.45'E, 309 m, 9 Aug.1909.

Distribution. – Previously known only from the Philippines at depths of 199-333 m. The present specimens extend the geographical range of this species to north and west and bathymetrical range down to 472 m.

Remarks. – The present specimens fit well the original description of *P. spinensis* by Chace (1985). The identification was confirmed by comparison with two paratypes (USNM 205305).

This species is similar to the members of the *Plesionika ensis* (A. Milne Edwards, 1881) species group, including *P. ensis* from the western Atlantic and *P. reflexa* Chace, 1985, from the western Pacific. The three species share the following features: the upper orbital lobe is distinct; the third abdominal somite is armed with a median spine on the posterodorsal margin; the posterior three pereopods are not greatly elongate or extremely thin, with carpi being subequal to or slightly shorter than the propodi. *Plesionika spinensis* can be readily distinguished from the two relatives by the rostrum with dorsal margin dentate over the entire length, the absence of the ventral membranous part of the branchiostegite of the

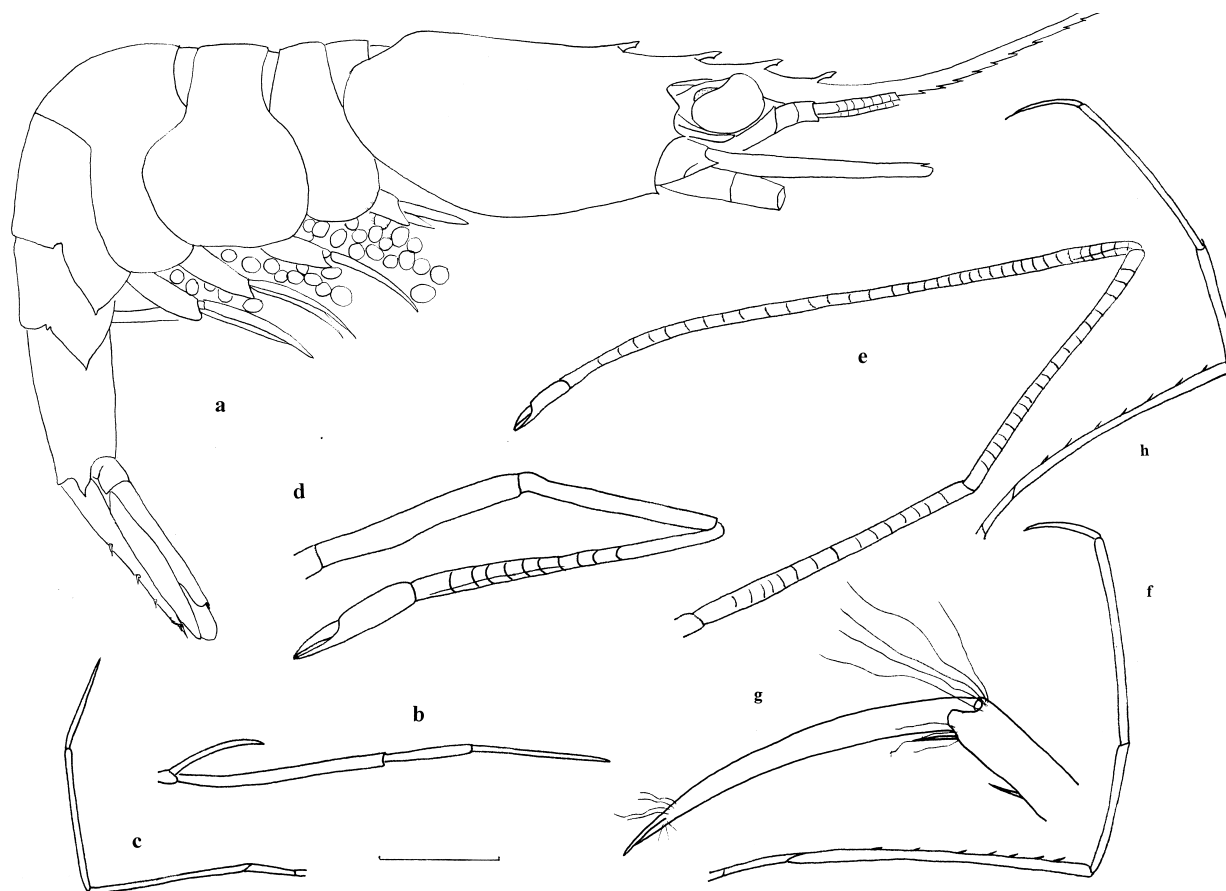


Fig. 7. *Plesionika pumila* Chace, 1985. a, body, lateral view; b, right third maxilliped, ventral view; c, left first pereopod, mesial view; d, right second pereopod, lateral view; e, left second pereopod, lateral view; f, left third pereopod, lateral view; g, same, dactylus and apical propodus; h, left fifth pereopod, lateral view. Oviparous female from the South China Sea (CN Q618-10, IOCAS). Scale = 2 mm (a-c, f, h); 1 mm (d, e); 0.4 mm (g).

carapace, the possession of a median tooth on the posterodorsal margin of the fourth abdominal somite, and the elongate dactyli of the third to fifth pereopods.

***Plesionika* aff. *binoculus* (Bate, 1888)**
(Fig. 8)

Material examined. – 1 ovig. female (cl 12.4 mm) (IOCAS), CN N139B-21, 18°30'N, 110°30'E, 101m, sandy mud, AT, coll. J. Liu, 9 Mar.1960.

Remarks. – The present specimen shows the following features: rostrum somewhat curved dorsally, distinctly overreaching antennal scale, armed dorsally with 12 irregularly spaced teeth, including four on carapace posterior to level of orbital margin, four posteriormost teeth basally articulated but none with barbed tips; ventral margin of rostrum armed with 13 teeth; postrostral crest weakly elevated; stylocerite acute, overreaching dorsal arc of distal margin of first antennular segment; third maxilliped with penultimate segment 0.60 times as long as ultimate segment; third maxilliped and anterior four pairs of pereopods each bearing hooked epipods; second pereopods greatly unequal, shorter (right) one with 30 carpal articles, longer (left) one with about 110 carpal articles; third pereopods with dactylus about 0.33 times as long as propodus; fourth and fifth abdominal somites each with pleural posteroventral tooth; telson bearing four pairs of

dorsolateral spines, including pair adjacent to lateral pair of posterior spines. Most of these features link this specimen to *Plesionika binoculus* (Bate, 1888) known so far only from the Arafura Sea (Chace, 1985). However, our specimen is apparently different from *P. binoculus* in having a relatively more elevated postrostral crest and two broadly based fixed teeth anterior to level of the orbital margin. In these points, our specimen shows some similarities to *P. lophotes* Chace, 1985. However, *P. lophotes* is characterized by having a very high rostral crest as well as very long dactyli on the posterior pereopods. It may be possible that our specimen represents an undescribed species, but the insufficiency of the material available for study prevents us for acting any further.

Genus *Procletes* Bate, 1888

Remarks. – The type species of this genus had long been known as *Heterocarpoides levicarina* (cf. Chace, 1985). Bate (1888) simultaneously described *Procletes biangulatus* Bate, 1888 and *Dorodotes levicarina* Bate, 1888. Menon (1972) interpreted that the two taxa are conspecific, and through the first reviser action of Menon the name *levicarina* was given precedence over *biangulatus*. *Dorodotes levicarina* is generically distinct from *Dorodotes reflexus* Bate, 1888, the type species of the genus. Thus the generic name *Procletes*, which has a priority over *Heterocarpoides*, should be used.

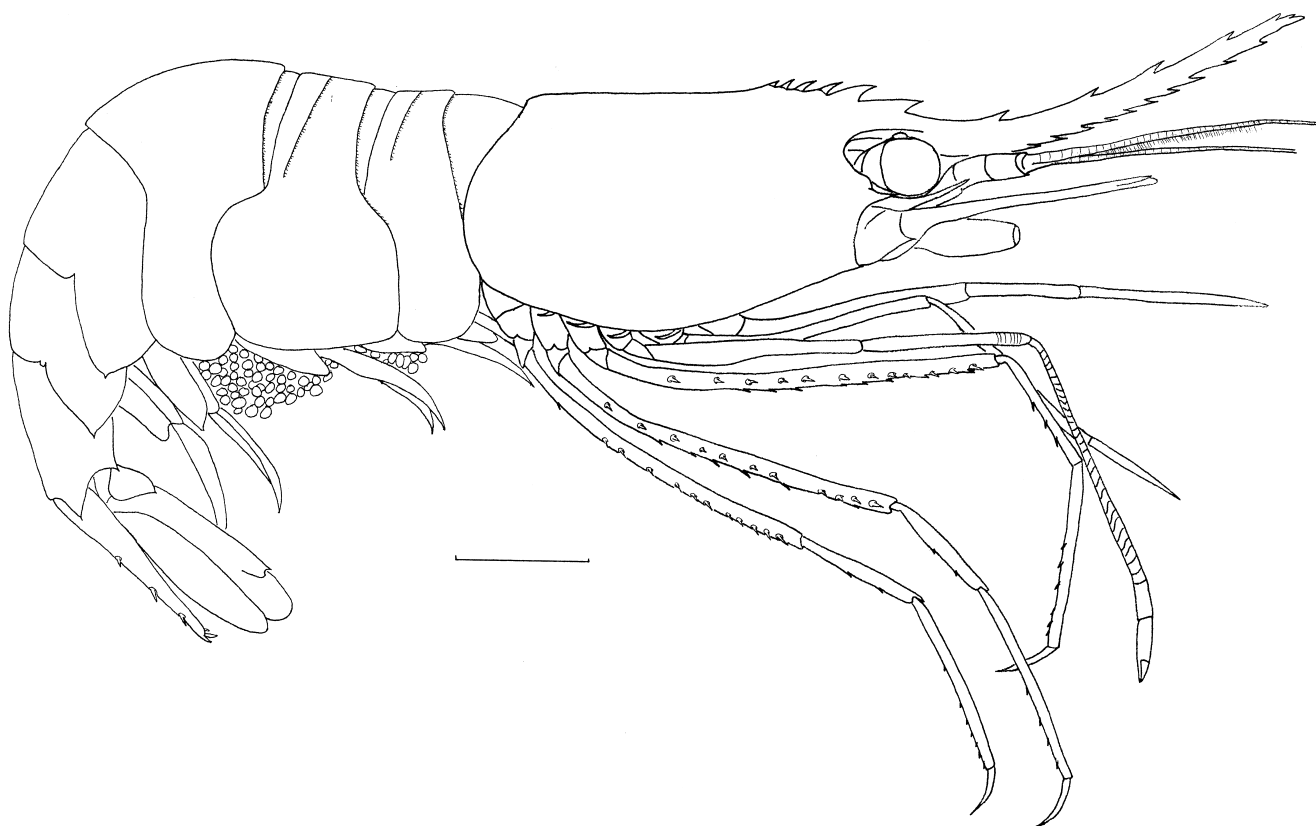


Fig. 8. *Plesionika* aff. *binoculus* (Bate, 1888). Body, lateral view. Ovigerous female from northern South China Sea (CN N139B-21, IOCAS). Scale = 4 mm.

***Procletes levicarina* (Bate, 1888)**

Dorodotes levicarina Bate, 1888: 680 [type locality: Arafura Sea west of Torres Strait].

Heterocarpus (Heterocarpoides) levicarina – De Man, 1920: 110, 178, pl. 15, fig. 44-44f.

Heterocarpoides levicarina – Office of NCOS, 1963: figs. 140-145; Liu, 1963: 231; Chace, 1985: 16, figs. 11, 12; Wang, 1987: 49; Liu & Zhong, 1994: 560.

Heterocarpus (Heterocarpoides) glabrus Zarenkov, 1971: 193, figs. 4 (16-27) [type locality: South China Sea].

Heterocarpus (Procletes) levicarina. – Menon, 1972: 382-390.

Procletes levicarina – Holthuis, 1993: 278, fig. 277.

Material examined. – 2 ovig. females (cl 15.7, 18.1 mm) (IOCAS), CN Q45B-19, 17°45'N, 109°00'E, 74 m, sandy mud, AT, coll. Z. Fan, 11 Apr.1959; 1 female (cl 12.2 mm) (IOCAS), CN Q57B-8, 18°15'N, 108°15'E, 71 m, mud, BT, coll. F. Xu, 16 Apr.1959; 3 males (cl 9.8-12.6 mm), 2 females (cl 10.1, 12.6 mm), 1 ovig. female (cl 15.5 mm) (IOCAS), CN N64B-32, 20°00'N, 111°15'E, 48 m, mud, AT, coll. Z. Tang, 12 Jul.1959; 1 juv. (cl 4.8 mm) (IOCAS), CN SIII28B-25B, 21°45'N, 116°00'E, 103 m, sand, AT, coll. W. Zhang, 15 Jul.1959; 4 females (cl 7.9-11.5 mm), 1 ovig. female (cl 11.1 mm) (IOCAS), 1 female (ZRC), CN K91B-2, 21°15'N, 113°00'E, 43 m, sandy mud, AT, coll. Y. Wang, 21 Oct.1959; 3 females (cl 10.0-12.6 mm) (IOCAS), CN S136B-24, 21°45'N, 114°00'E, 43 m, mud, AT, coll. S. Wu, 9 Dec.1959; 1 ovig. female (cl 9.6 mm) (IOCAS), CN X60B-8, Beibu Bay, 19°30'N, 107°00'E, 52 m, muddy sand, AT, coll. Z. Fan, 8 Feb.1960; 1 male (cl 12.7 mm) (IOCAS), CN Q183B-5, Beibu Bay, 20°30'N, 109°45'E, 14 m, sandy mud, AT, coll. F. Sun, 17 Apr.1960; 1 female (cl 6.7 mm) (IOCAS), CN N219B-170, 18°15'N, 108°30'E, 54 m, mud and shells, AT, coll. J. Liu, 16 May.1960; 1 male (cl 9.4 mm), 1 female (cl 9.9 mm), 1 ovig. female (cl 15.0 mm) (IOCAS), CN Z14B-21, Beibu Bay, 20°00'N, 109°00'E, 74 m, sandy mud, AT, coll. Z. Fan, 16 May.1960; 1 female (cl 9.1 mm) (IOCAS), CN Q290A-12, Beibu Bay, 20°30'N, 108°00'E, 45 m, muddy sand, coll. W. Zhang, 10 Nov.1960; 1 female (cl 10.5 mm) (IOCAS), CN X196B-46, Beibu Bay, 19°00'N, 107°00'E, 60 m, sandy mud, AT, 12 Apr.1962; 1 male (cl 10.4 mm) (IOCAS), CN K237B-28, Beibu Bay, 19°00'N, 107°00'E, 60 m, sandy mud, AT, coll. F. Sun, 19 Aug.1962.

Distribution. – Red Sea to Indonesia, South China Sea, Philippines, and Japan; 14-393 m.

Remarks. – Intraspecific variation in this species is here evaluated precisely, as abundant samples were available for examination during this study. In all the 28 specimens examined, the development of the lateral carinae on the carapace are variable from weak to rather distinct but not sharp. The development of the median carina on the first somite is also variable, as mentioned by Chace (1985). The mentioned carina is conspicuous in the 24 specimens, but it is absent in the three specimens (one females from N64B-32, one ovigerous females from X60B-8 and one juvenile from SIII28B-25) or discernible as a trace in one females from N219B-170. The number of the carpal articles of the second pereopods is usually six in either side in the 22 specimens with intact second pereopods, but it is only five in the right second pereopod of the two specimens (one female from S136B-24 and one male from Q183B-5). In the latter two specimens, the left second pereopods bear six carpal articles. We could not find any correlation

between the differences in the development of the lateral carinae on the carapace and of the median carina of the first abdominal somite, and the number of the carpal articles of the second pereopods. Therefore, we believe that the present specimens represent a single variable species.

Zarenkov (1971) described a new species, *Heterocarpus (Heterocarpoides [sic]) glabrus* based on a single female specimen taken by the RV *Orlik* in the South China Sea off the south Viet Nam at a depth of 75 m. He distinguished his new taxon from the present species by the possession of five, rather than six carpal articles of the second pereopods and indistinct median carina on the first abdominal somite. However, as mentioned above, these characters are variable intraspecifically. Chace (1985) suggested that it may be best to treat Zarenkov's (1971) specimen as a variant of *Procletes levicarina* (as *Heterocarpoides*) until additional specimens with five articles in the carpus of the second pereopod are found. Although the holotype of Zarenkov's taxon was not available for study, we believe that *Heterocarpus (Heterocarpoides) glabrus* is a junior subjective synonym of *Procletes levicarina*.

BIOGEOGRAPHY

The present paper records 20 species of the Pandaloida from the northern part of the South China Sea off mainland of China. The geographic ranges of the species are summarized in Table 1. Of which, 11 species are newly recorded from this area, including a new species, *Plesionika longidactylus*; one also recorded from the Yellow Sea and seven from the East China Sea; 12 are common with Japanese waters, 17 with Philippines, 12 with Indonesia, one with Singapore. More than 10 species are widely distributed in the Indo-West Pacific, but two extend their ranges to the Atlantic Ocean.

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Table 1. Geographic ranges of the Pandaloid species from the northern part of the South China Sea off mainland of China recorded in the present paper (those with * are recorded for the first time from this area)

	Yellow Sea	East China Sea	Japan	Phili- ppines	Indo- nesia	Singa- pore	Mid- Pacific South Ocean	Aus- tralia	Indian Ocean	Atlantic Ocean	Depth (m)
* <i>Chlorotocoides spinicauda</i>				+	+				+		15-145
* <i>Thalassocaris crinita</i>			+	+	+		+		+		0-100
* <i>Chlorotocella gracilis</i>		+	+	+	+	+			+		0-91
<i>Chlorotocus crassicornis</i>	+	+		+	+				+	+	3-597
<i>Heterocarpus hayashii</i>		+	+	+			+	+			200-700
<i>Plesionika bifurca</i>		+	+	+	+				+		220-1412
<i>Plesionika grandis</i>		+	+	+	+		+	+	+		110-375
<i>Plesionika indica</i>			+	+	+				+		238-472
* <i>Plesionika izumiae</i>		+	+	+							22-209
* <i>Plesionika kensleyi</i>				+					+		110-333
* <i>Plesionika longidactylus</i>											55-115
<i>Plesionika narval</i>			+	+	+		+	+	+	+	35-400
* <i>Plesionika ortmanni</i>			+		+						29-400
* <i>Plesionika philippinensis</i>				+							123-135
* <i>Plesionika pumila</i>				+							20-79
<i>Plesionika semilaevis</i>		+	+	+	+						176-700
<i>Plesionika sindoi</i>			+	+	+		+				122-800
* <i>Plesionika spinensis</i>				+							199-472
* <i>Plesionika aff. binoculus</i>								?			
<i>Procletes levicarina</i>			+	+	+				+		14-393
Total	1	7	12	17	12	1	5	3	10	2	

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