

ventrodiscal corner of basis of peraeopod I being one or two, while for group I it was four to seven. His biometric data implies that above two groups did not occur sympatrically. Examining our *G. rayi* specimens, we found that the two groups occur in the same specimen vial. Furthermore group II was always much smaller than the group I. There are considerable morphological discrepancies between the two groups, which are worthy of two distinct species. So we propose the group II as a new species. The new species is closely related to *G. rayi* and *G. ovatum*. *G. hoestlandti* is distinguished from the former by the much smaller body and peraeopod I bearing a long seta at ventrodiscal corner of basis. From the latter which has similar body size, *G. hoestlandti* differs in the merus of peraeopod I bearing two spines on ventral margin and eight setae at dorsal corner.

Habitat: All specimens were collected under stones on sand in the littoral zone and nearby sublittoral zone.

Etymology: Specific name of this species is honored to Dr. Henri Hoestlandt who noticed two groups in *G. rayi*.

Distribution: Japan (Awakominato, Misaki, Shimoda, Tomioka and Naka-Umi); Petrov I.; Hawaii.

Gnorimosphaeroma chinense (Tattersall, 1921)

(Figs. 9~10)

Exosphaeroma chinensis Tattersall, 1921, p. 423, pl. 16, figs. 6~15; Ueno, 1935, p. 90.

Gnorimosphaeroma chinensis: Menzies, 1954, p. 7.

Gnorimosphaeroma kurilense Kussakin, 1974, pp. 234~236, fig. 6.

Material examined: 5 ♂♂, 1 ♀, Sinjŏng-ri, Kanghwado I., Mar. 21, 1981. H.S. Kim.

Description: Male body length 6.3~6.7mm, width 3.4~3.9mm. Female body length 4.8mm, width 2.5mm. Body convex, dorsal surface smooth. Rostral process of cephalon small, apex acute. Coxal plates not distinct but fused with peraeonites. Pleon with two pairs of incomplete suture lines, anterior one very short and posterior one much longer.

Basal segments of peduncles of the first antenna approximating each other on the midline. Two pairs of antennae each with ten-segmented flagellum; when retracted, first antenna reaching the hind margin of peraeonite I, whilst second antenna exceeding a little beyond the hind margin of peraeonite II.

First maxilla with exopodite bearing ten stout spines, some are dentate, without accessory plumose setae; endopodite with three pectinated setae. Second maxilla with exopodite bearing three curved spines on outer lobe and four curved spines on inner lobe; endopodite with six pectinated setae of which innermost one largest. Maxillipedal palp five-segmented; segment 1 square, segments 2 and 3 without any setae on outer margin, segment 4 bearing a long setae at

the outer-distal corner; outer margins of segments 4 and 5 fringed with minute setae; segment 4 not elongated as in *G. noblei*.

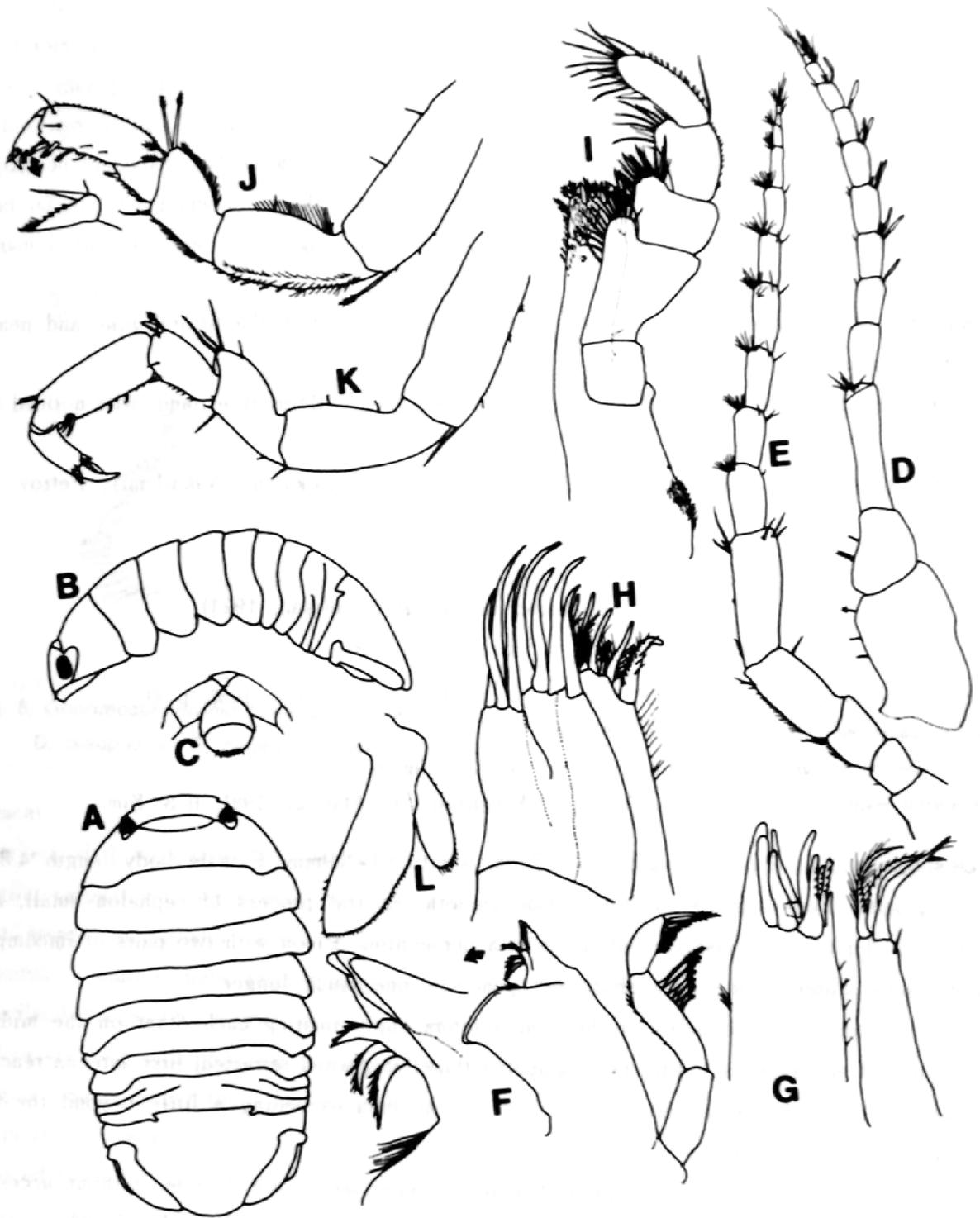


Fig. 9. *Gnorimosphaeroma chinense* (Tattersall), ♂: A, dorsal view; B, lateral view; C, epistome and upper lip; D, first antenna; E, second antenna; F, mandible; G, first maxilla; H, second maxilla; I, maxilliped; J, peraeopod I; K, peraeopod II; L, uropod. (A, B, X9; C, L, X22; D, E, J, K, X46.2; F, X46.2; F, X74; G, H, X192; I, X92.4)

Peraeopod I with propodus bearing a spine and two plumose setae on the ventral margin; carpus with one spine at ventral corner; merus with four plumose setae on dorsal corner; dorsoventral margins of merus and ischium dense with minute setae; ventral corner of basis with one plumose seta. Peraeopod II with propodus not swollen.

Appendix masculina of male pleopod 2 broad with round apex. Pleopods 3 and 4 with exopods partially segmented. Endopod of pleopod 4 and both rami of pleopod 5 without any marginal plumose setae. Uropodal exopod a half as long as the endopod, width a half as broad as the endopod; posterior apex of endopod acutely produced.

Remarks: Tattersall (1921) originally described this species from Whangpoo River (Huangpu River), China. Later Ueno (1933, 1935) recorded this species from the lakes in the Itutup I., Kurile Islands and southern Sakhalin. They were collected from both freshwater and brackish water. Although Tattersall described only the shapes of pleopods 3–5 with figures of them and

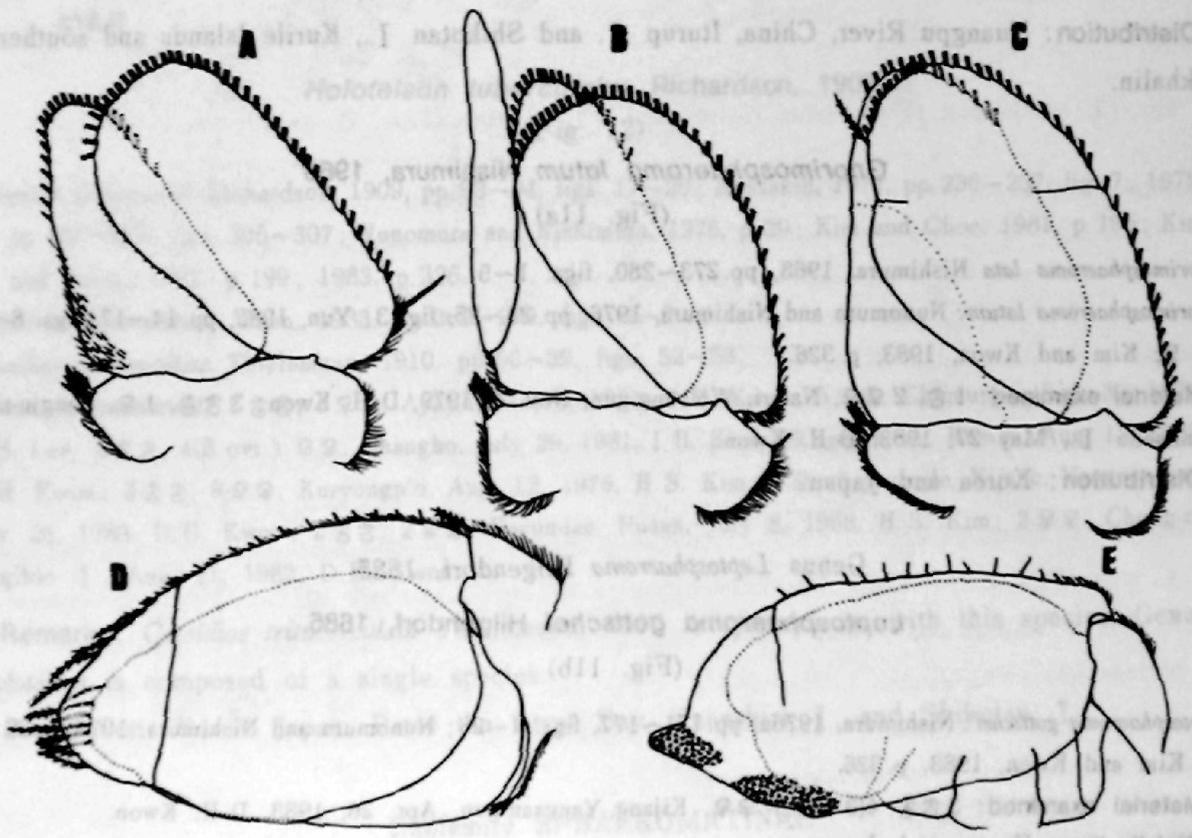


Fig. 10. *Gnorimosphaeroma chinense* (Tattersall), ♂ : A, pleopod 1; B, pleopod 2; C, pleopod 3; D, pleopod 4; E, pleopod 5. (A–E, X43.2). Most of the marginal plumose setae on pleopods 1–3 omitted.

several other appendages, they agree well with those of our specimens.

Kussakin (1979) described a new species, *G. kurilense*, from Shikotan, Kurile Islands. *G. kurilense* is distinguished from *G. chinense* by the freshwater or slightly salty habitat. He stated that *G. chinense* was a marine species, but the type locality of *G. chinense* (edge of Whangpoo River, between Shanghai and Wu Sung, China) and another collecting locality (Whangpoo River, about 10 miles below Shanghai) were freshwater but under the influence of tide. The present specimens were collected from brackish water at the depth of about 7m in the vicinity of the mouth of Han River. The figures of *G. kurilense* given by Kussakin (1979) are so similar with our *G. chinense* specimens that we can't find any considerable difference between the two species. It is our opinion that *G. kurilense* is a junior synonym of *G. chinense*.

G. chinense closely resembles *G. noblei* Menzies, 1954 in the approximation of the basal segments of peduncles of first antenna, the configuration of pleonal suture lines and the setation of pleopods. *G. chinense* differs from *G. noblei* by the much larger body (*G. noblei*, 2.9mm in male, 2.0mm in female), not elongated maxillipedal palp segment 4 and short appendix masculina of which apex is not curved.

Distribution: Huangpu River, China, Iturup I. and Shikotan I., Kurile Islands and southern Sakhalin.

Gnorimosphaeroma latum Nishimura, 1968

(Fig. 11a)

Gnorimosphaeroma lata Nishimura, 1968, pp. 273~280, figs. 1~5.

Gnorimosphaeroma latum: Nunomura and Nishimura, 1976, pp. 24~25, fig. 3; Yun, 1982, pp. 14~17, figs. 8~9; Kim and Kwon, 1983, p. 326.

Material examined: 1 ♂, 2 ♀♀, Naa-ri, Wolsong-gun, Nov. 4, 1979, D.H. Kwon; 3 ♂♂, 1 ♀, Sangju-ri, Namhaedo I., May 27, 1983, D.H. Kwon.

Distribution: Korea and Japan.

Genus *Leptosphaeroma* Hilgendorf, 1885

Leptosphaeroma gottschei Hilgendorf, 1885.

(Fig. 11b)

Leptosphaeroma gottschei: Nishimura, 1976a, pp. 171~177, figs. 1~26; Nunomura and Nishimura, 1976, p. 25; Kim and Kwon, 1983, p. 326.

Material examined: 3 ♂♂ 4(3 ovi.) ♀♀, Kijang, Yangsan-gun, Apr. 26, 1983, D.H. Kwon.

Distribution: Korea and Japan.

Subfamily DYNAMENINAE

Genus *Holotelson* Richardson, 1909

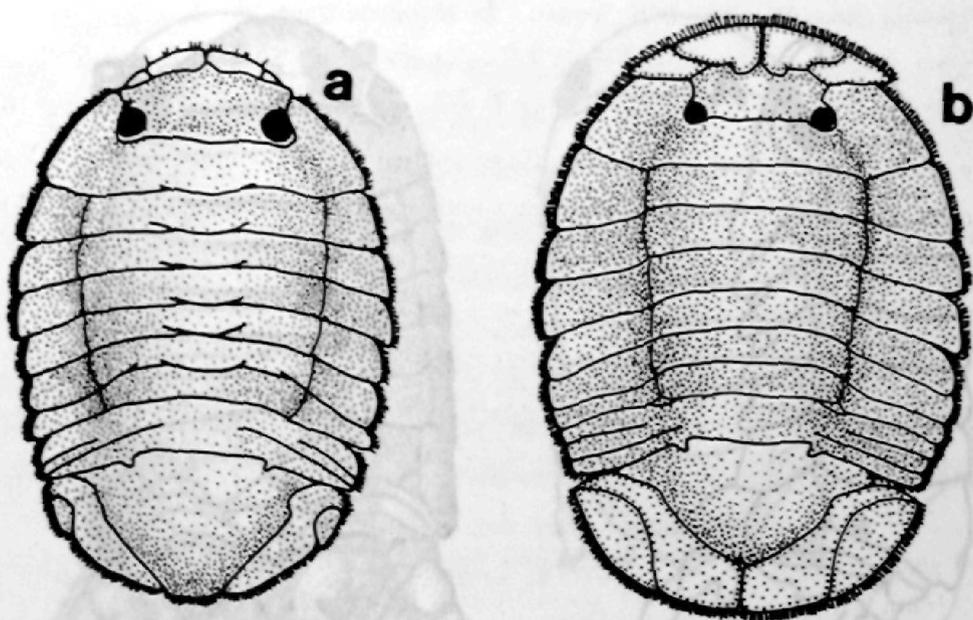


Fig. 11. a, *Gnorimosphaeroma latum* Nishimura; b, *Leptosphaeroma gottschei* Hilgendorf. (a, X25.6; b, X12.4)

Holotelson tuberculatus Richardson, 1909

(Fig. 12)

Holotelson tuberculatus Richardson, 1909, pp. 93~94, figs. 17~20; Kussakin, 1974, pp. 236~237, fig. 7; 1979, pp. 457~460, figs. 305~307; Nunomura and Nishimura, 1976, p. 20; Kim and Choe, 1981, p. 195; Kim and Kwon, 1982, p. 199; 1983, p. 326.

Holotelson tuberculatum: Shen, 1933, pp. 269~279, figs. 1~9.

Cassidias trituberculata Thielemann, 1910, pp. 56~59, figs. 52~58.

Material examined: 2 ♂♂, 4 ♀♀, Ayajin, June 2, 1981, D.H. Kwon; 5 ♀♀, Chumunjin, Sep. 30, 1976, K.S. Lee; 2 ♂♂, 4(2 ovi.) ♀♀, Changho, July 29, 1981, I.H. Kim; 29 specimens, Kuman, Aug. 12, 1982, D.H. Kwon; 3 ♂♂, 9 ♀♀, Kuryongp'o, Aug. 12, 1976, H.S. Kim; 1 ♀, 1 juvenile, Kijang, Yangsan-gun, Apr. 26, 1983, D.H. Kwon; 2 ♂♂, 2 ♀♀, Haeundae, Pusan, July 8, 1968, H.S. Kim; 2 ♀♀, Chung-ri, Pogildo I., Aug. 21, 1982, D.H. Kwon.

Remarks: *Cassidias trituberculata* Thielemann, 1910 is synonymous with this species. Genus *Holotelson* is composed of a single species.

Distribution: Korea, Japan, Peter the Great Bay, Kunashiri I. and Shikotan I..

Subfamily SPHAEROMATINAE

Genus *Cymodoce* Leach, 1814

Cymodoce japonica Richardson, 1907.

(Fig. 12c-d)

Cymodoce japonica Richardson, 1907, pp. 7~8, fig. 11.

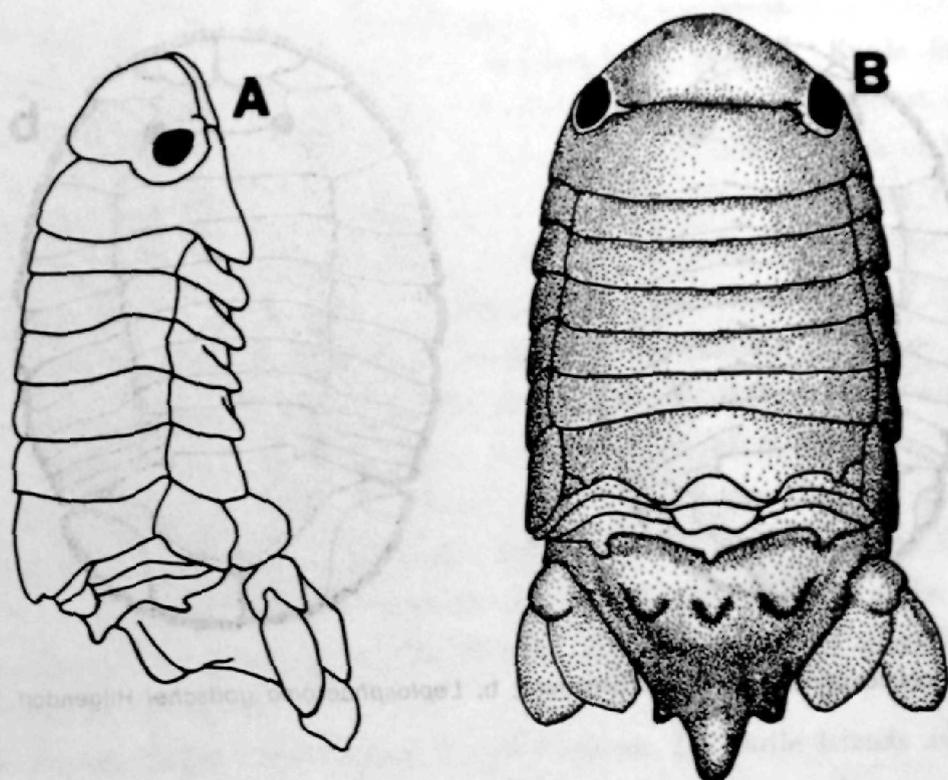


Fig. 12. *Holotelson tuberculatus* Richardson, ♂ : A, lateral view; B, dorsal view. (A, B, X8.6)

Cymodoce japonica: Richardson, 1909, p.92; Thielemann, 1910, pp.53-56, figs. 48-51; Shiino, 1944, pp.8-12, figs. 7-9; 1957, pp.172-178, figs. 7-9; Hatch, 1947, pp.214-215, pl. 13, figs. 150-151; Nunomura and Nishimura, 1976, p.20; Yun, 1982, pp.2-6, figs. 2-3.

Cymodocea affinis Richardson, 1907, pp.11-12, fig. 15.

Cymodoce acuta: Kussakin, 1974, pp.237-238, fig. 8; 1979, pp. 430-432, figs. 280-281. (*non* Richardson).

Material examined: 4 ♀♀, Mip'o, Pusan, May 1, 1981, H.S. Kim; 1 ♂, Mip'o, Pusan (from gill net), Apr. 26, 1983, D.H. Kwon; 10 ♀♀, Ch'ongsando I., Aug. 20, 1982, D.H. Kwon; 2 ♀♀, Soando I., Aug. 23, 1982, D.H. Kwon.

Remarks: Kussakin (1974, 1979) erroneously regarded *Cymodoce japonica* as a junior synonym of *C. acuta* Richardson, 1904. Above two species are clearly distinct species. *Cymodoce japonica* is often found among sea weeds and in oyster or mussel cultivation farms (Yun, 1982).

Distribution: Philippine, Korea, Japan, Peter the Great Bay, Port Arther and Washington, U.S.A.. *C. japonica* from Washington was supposed to have introduced from Japan (Hatch, 1947). Intertidal to 864 fathoms.

Cymodoce acuta Richardson, 1904

(Fig. 13a-b)

Cymodocea acuta Richardson, 1904, pp.38-39, figs. 8-10.

Cymodoce acuta: Thielemann, 1910, p.56; Kim and Kwon, 1983, p.326.

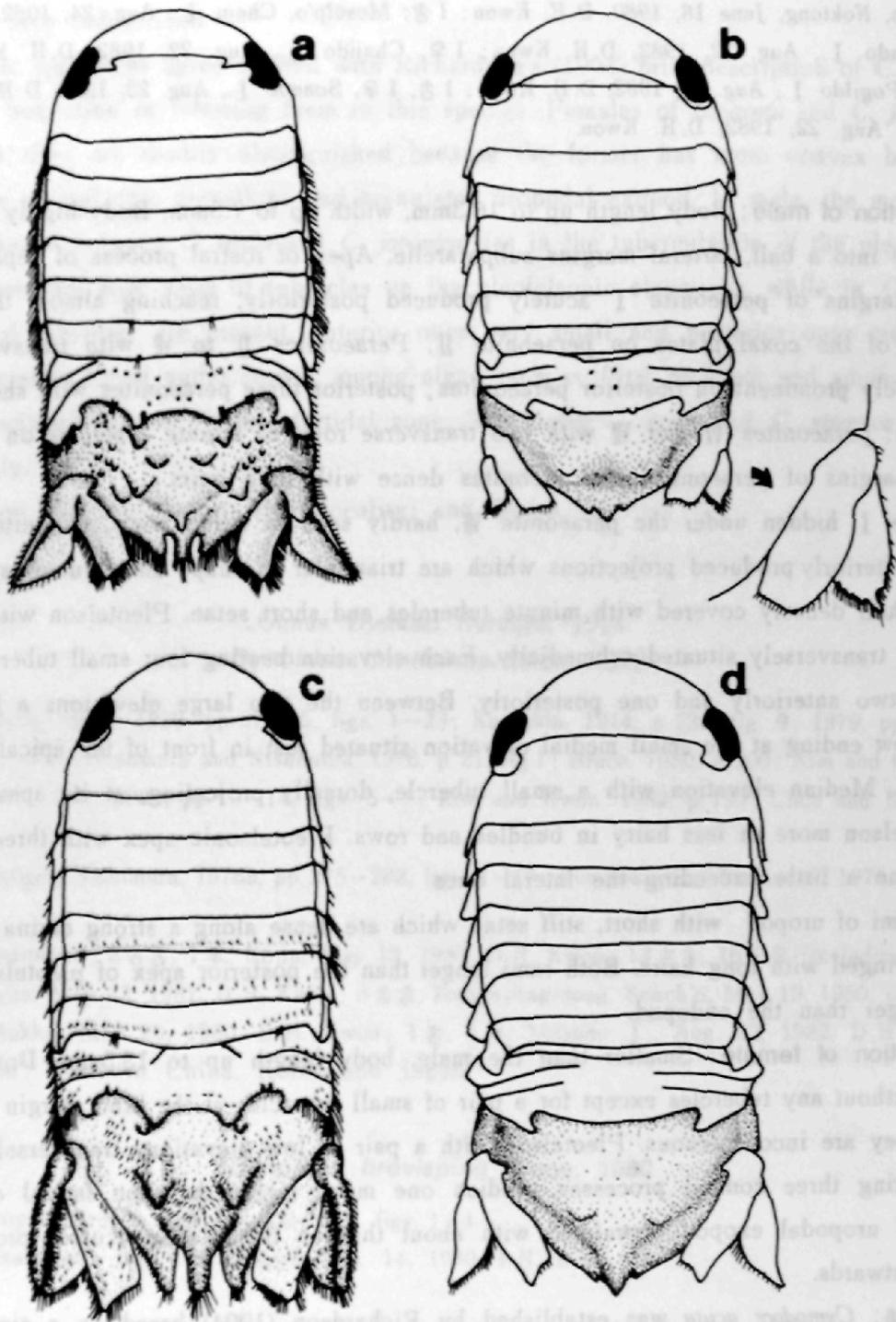


Fig. 13. a, b, *Cymodoce acuta* Richardson: a, male, dorsal view; b, female, dorsal view. c, d, *Cymodoce japonica* Richardson: c, male, dorsal view; d, female, dorsal view. (a, c, X4.6; b, d, X6.8)

Material examined: 1 ♂, Kangnŕng, June 30, 1980, I.H. Kim; 9 ♂♂, 9 ♀♀, Changho, Aug. 16, 1982, D.H. Kwon; 1 ♂, 3 ♀♀, Chukpyŕn, Aug. 15, 1982, D.H. Kwon; 2 ♀♀, Kanggu, Aug. 13, 1982, D.H. Kwon; 2 ♂♂, 4 ♀♀, Kuryongp'o, Aug. 10, 1982, D.H. Kwon; 1 ♀, Mip'o, Pusan, May 1, 1981, H.S. Kim;

2 juveniles, Noktong, June 18, 1980, D.H. Kwon; 1 ♂, Mosŭlp'o, Cheju I., Aug. 24, 1982, B.L. Choe; 1 ♀, Maando I., Aug. 22, 1982, D.H. Kwon; 1 ♀, Chajido I., Aug. 22, 1982, D.H. Kwon; 2 ♀♀, Chung-ri, Pogildo I., Aug. 21, 1982, D.H. Kwon; 1 ♂, 1 ♀, Soando I., Aug. 23, 1982, D.H. Kwon; 1 ♀, Nŏpto I., Aug. 22, 1982, D.H. Kwon.

Description of male: Body length up to 16.3mm, width up to 7.5mm. Body highly convex and contractile into a ball, larteral margins subpararelle. Apex of rostral process of cephalon acute. Lateral margins of peraeonite I acutely produced posteriorly, reaching almost the posterior extremity of the coxal plates on peraeonite II. Peraeonites II to VI with transverse ridges, progressively prominent on posterior peraeonites; posterior three peraeonites with short setae on the ridges; peraeonites VI and VII with two transverse rows of minute tubercles on each ridge. Lateral margins of peraeonites and pleonites dense with long hairs.

Pleonite I hidden under the peraeonite VII, hardly seen in dorsal view. Pleonite II with a pair of posteriorly produced projections which are triangular in shape and situated submedially; posterior half densely covered with minute tubercles and short setae. Pleotelson with two large elevations transversely situated submedially. Each elevation bearing four small tubercles, one at its apex, two anteriorly and one posteriorly. Between the two large elevations a longitudinal deep furrow ending at the small medial elevation situated just in front of the apical notches of pleotelson. Median elevation with a small tubercle, dorsally projecting, at its apex. Pleonites and pleotelson more or less hairy in bundles and rows. Pleotelsonic apex with three processes, median one a little exceeding the lateral ones.

Both rami of uropod with short, stiff setae which are dense along a strong carina of exopod; margins fringed with long hairs. Both rami longer than the posterior apex of pleotelson, exopod much longer than the endopod.

Description of female: Smaller than the male, body length up to 13.5mm. Dorsal surface smooth without any tubercles except for a pair of small tubercles at the hind margin of pleonite II, but they are inconspicuous. Pleotelson with a pair of low elevations transversely situated; apex bearing three conical processes, median one much larger than the lateral ones. Inner margin of uropodal exopod crenulated with about thirteen teeth, apex acutely produced and curved outwards.

Remarks: *Cymodoce acuta* was established by Richardson (1904) based on a single female specimen. No male specimen having been found thereafter, this species was often synonymized with *C. japonica* Richardson, 1907 (Kussakin, 1974, 1979; Yun, 1982). Thielemann (1910), without examining the specimen, believed that *C. acuta* might be a defect female specimen of *C. japonica*, as he stated "Da indessen Miss Richardson nur ein einziges, vielleicht defektes Exemplar der neuen Form zur Verfügung stand, daß es sich bei diesem um ein ♀ von *Cymodoce japonica* Richardson handeln könnte". *C. acuta* was rediscovered by us (Kim and Kwon,

1983) and here redescribed.

Our female specimens agree so well with Richardson's (1904) brief description of *C. acuta* that we had no hesitation in referring them to this species. Females of *C. acuta* and *C. japonica* are similar, but they are readily distinguished because the former has more convex body, more conspicuous pleotelsonic elevations and crenulated uropodal exopod. In male, the most conspicuous difference between *C. acuta* and *C. japonica* lies in the tuberculation of the pleotelson. In *C. acuta*, there are four pairs of tubercles on the pleotelsonic elevations, while in *C. japonica*, two pairs of tubercles are present, anterior ones very small and posterior ones much larger.

This species is found under stones, among algae such as *Ulva perforata* and among the roots of *Phyllospadix* or *Zostera*. From intertidal zone. Sometimes *C. acuta* and *C. japonica* are found sympatrically.

Distribution: Enoura, Japan (type locality) and Korea.

Genus *Dynoides* Barnard, 1914

Dynoides dentisinus Shen, 1929

Dynoides dentisinus Shen, 1929, pp. 67-75, figs. 1-23; Kussakin, 1914, p. 238, fig. 9; 1979, pp. 433-436, figs. 282-284; Nunomura and Nishimura, 1976, p. 21, fig. 1; Bruce, 1980, p. 200; Kim and Choe, 1981, p. 195, 197; Yun, 1982, pp. 10-14, figs. 6-7; Kim and Kwon, 1982, p. 199; Choe and Kwon, 1982, p. 258.

Dynoidella conchicola Nishimura, 1976b, pp. 275-282, figs. 1-19; Nunomura and Nishimura, 1976, pp. 22-23, fig. 2.

Material examined: 2 ♂♂, 1 ♀, Kōjin, May 19, 1980, D. H. Kwon; 12 ♂♂, 16 ♀♀ (including ovigerous females), Ayajin, May 22, 1981, D. H. Kwon; 3 ♂♂, Tongmyōng-dong, Sokch'o, May 19, 1980, D. H. Kwon; 1 ♂, 1 ♀, Mukho, May 20, 1980, D. H. Kwon; 1 ♂, 1 ♀, Maando I., Aug. 22, 1982, D. H. Kwon.

Distribution: Northern China, Korea and Japan.

Dynoides brevispina Bruce, 1980

Dynoides brevispina Bruce, 1980, pp. 200-205, figs. 1-4.

Material examined: 1 ♂, 1 ♀, Namae, Sep. 14, 1980, I. H. Kim.

Remarks: There are slight differences between the present female specimen and the original description (Bruce, 1980). A female specimen is about 2.9mm in length, much smaller than the Japanese specimens (up to 4mm, Bruce, 1980) but carries eggs. Uropod of female with endopod fringed with compact setae on the posterior half of outer margin; exopod fringed with compact setae on outer margin, hind margin crenulated. Bruce stated the pleotelson of female to be smooth with few setae, but the present specimen has pleotelson covered with numerous tubercles each bears a relatively long seta on it. The present material was collected under stones from