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Korean Shallow-water Pycnogonids based on the Collections of the Korea Ocean Research and Development Institute

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해양연구소에 보관되어 있던 한국 천해산 바다거미류

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적 요

해양연구소에 보관되어 있던 한국산 바다거미류를 조사한 결과 총 21종이 밝혀졌는데, 이 중에서 6종은 한국내 미기록종이고 1종은 신종임이 판명되어 *Anoplodactylus hwanghaensis* 라고 명명하여 기재 및 도해한다. 또 한국내 미기록종에 대한 고찰과 도해도 첨가한다.

Key words: Systematics, Pycnogonids, Korea.

The Korean pycnogonids have received relatively little attention and the fauna has remained poorly known. So far only 19 species were recorded from Korean waters (Kim, 1984, 1986).

The present paper is based on the collections of the Korea Ocean Research and Development Institute (KORDI). Most of the samples were collected by using the underwater SCUBA diving equipments from different localities around Korean Peninsula during the period from 1980 to 1983 (Fig. 1). The Korean pycnogonid fauna now comprises 26 species representing 10 genera and 4 families. A new species from the Yellow Sea is described and illustrated in this study. The materials examined herein are deposited in the Department of Bilolgy, Kangreung National University, Korea.

In the list of species given below, taxa newly recorded in the Korean fauna are preceded by an asterisk (*).

Family Nymphonidae

1. **Nymphon akane* Nakamura & Child

Family Callipallenidae

2. *Callipallene amaxana* (Ohshima)
3. *Callipallene dubiosa* Hedgpeth

4. **Callipallene sagamiensis* Nakamura & Child
5. **Propallene longiceps* (Böhm)

Family Phoxichilidiidae

6. **Anoplodactylus erectus* Cole
7. **Anoplodactylus hwanghaensis,* n. sp.
8. *Anoplodactylus pycnosoma* (Helfer)
9. *Anoplodactylus viridintestinalis* (Cole)

Family Ammotheidae

10. **Achelia alaskensis* (Cole)
11. *Achelia bituberculata* Hedgpeth
12. *Achelia echinata sinensis* (Lou)
13. *Achelia latifrons* (Cole)
14. *Ammothea hilgendorfi* (Böhm)
15. *Ammothella biunguiculata* (Dohrn)
16. *Ammothella indica* Stock
17. **Ascorhynchus glaberrimum* Schimkewitsch
18. *Ascorhynchus ramipes* (Böhm)
19. *Tanystylum scrutator* Stock
20. *Tanystylum ulreungum* Kim

Family Pycnogonidae

21. *Pycnogonum koreanum* Kim & Stock

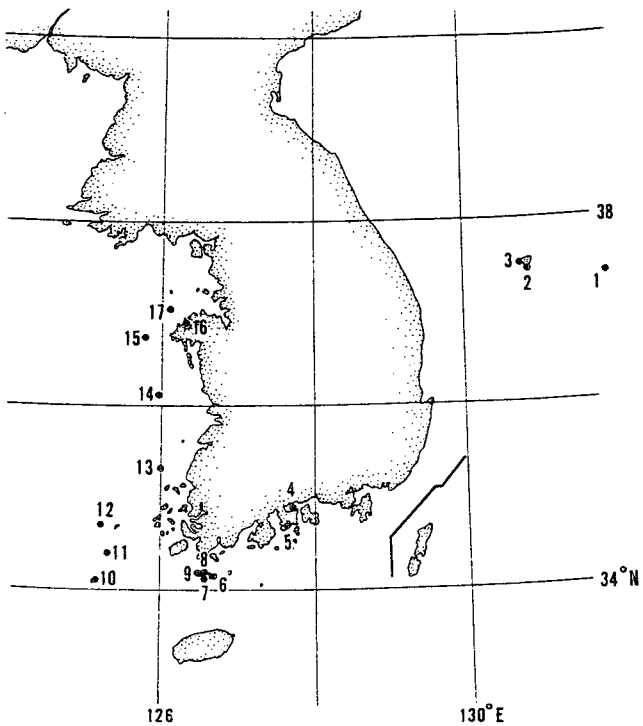

Fig. 1. Map showing the collection localities.

1. Tokto (독도)
2. Sadong, Ullŭng-do (울릉도 사동)
3. Namyang, Ullŭng-do (울릉도 남양)
4. Kwangyangman (광양만)
5. Kamakman (가막만)
6. Soan-do (소안도)
7. Chagae-do (자개도)
8. Pogil-do (보길도)
9. Maan-do (마안도)
10. Sohŭksan-do (소흑산도)
11. Anma-do (안마도)
12. Hong-do (홍도)
13. Hat'ae-do (하태도)
14. Ŏch'ŏng-do (어청도)
15. Sŏkto (석도)
16. Karorimman (가로림만)
17. Paega-do (백아도)

Family Nymphonidae Wilson

Genus *Nymphon* J. C. Fabricius, 1794

1. ***Nymphon akane*** Nakamura & Child 1983 (Fig. 2)

Nymphon akane Nakamura & Child, 1983, (p. 54, Fig. 19).

Material examined: 1♀, Karorimman, VIII/1980; 1♀, Kamakman, IX/1980; 3♀, Karorimman, XII/1980; 1♂, Karorimman, X/1981.

Remarks: Bucause this species was described originally with a single type female, the male specimen here is the first record. General body configurations are equal in both sexes. The proboscis is gradually narrower distally. The length of the chela finger is not over the twice as long as the palm. The chela finger teeth are 14 on movable finger, and 12 on immovable finger in numbers. The oc-

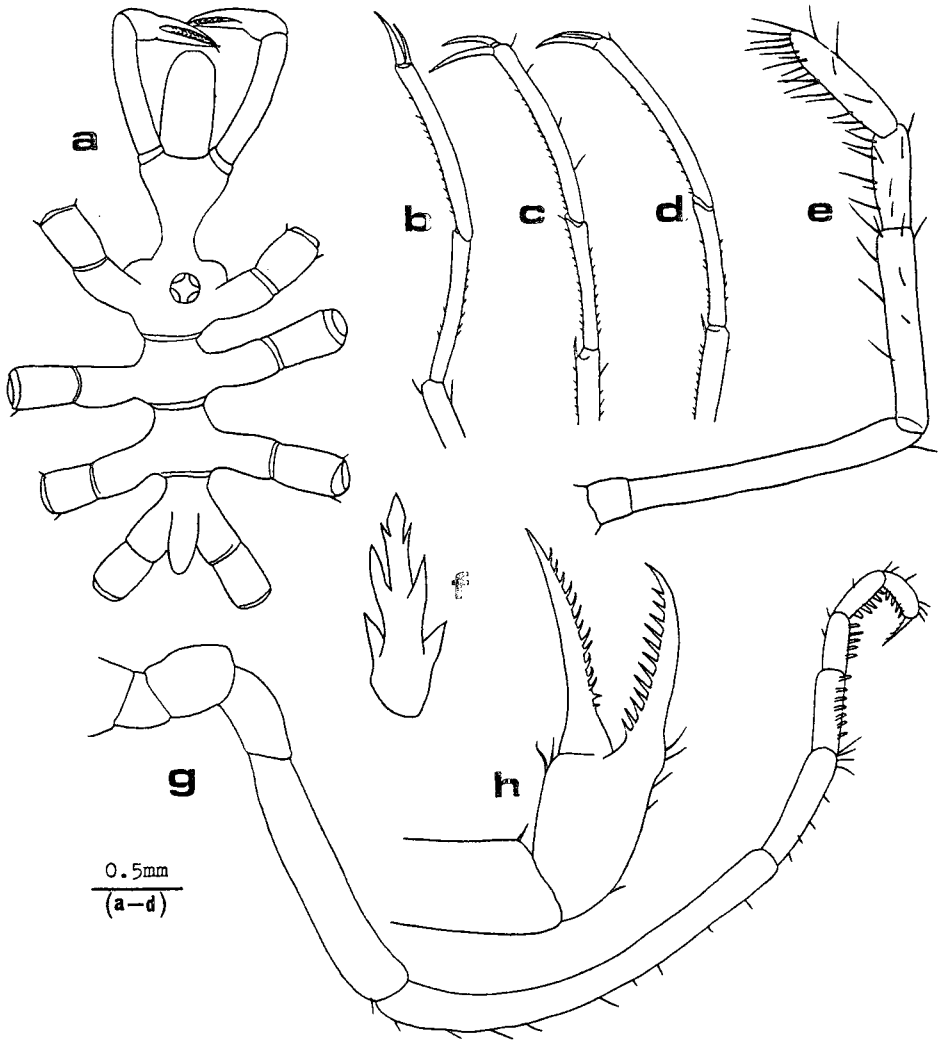

Fig. 2. *Nymphon akane* Nakamura & Child: a, dorsal view of trunk; b, distal joints of first leg; c, same of third leg; d, same of fourth leg; e, palp; f, denticulate spine of oviger; g, male oviger; h, chelifore.

ular tubercle is as tall as wide, with 2 small protuberances laterally at the tip. The fourth and fifth segments of the oviger are longer than those of female. The fifth segment is slender, curved and 1.5 times as long as the fourth. The denticulate spines formula are 7:5:5:5 in male and 7:6:5:6 in female. The length ratios of tarsus to propodus of the legs are getting shorter gradually from 0.8 in the first legs to 0.6 in the fourth legs.

Range: Japan (Sagami Bay).

Family Callipallenidae Hilton
Genus *Callipallene* Flynn, 1929

2. *Callipallene amaxana* (Ohshima, 1933)

Pallene amaxana Ohshima, 1933, (p. 216, figs. 8-12).

Callipallene phantoma: Utinomi, 1962, (p. 95, fig. 3).

Callipallene phantoma amaxana: Stock, 1968, (p. 37, fig. 14a-d).

Callipallene amaxana: Nakamura & Child, 1983, (p. 57: in key); Kim, 1986, (p. 1, fig. 1).

Material examined: 1♂, 5♀, Hong-do, VIII/1982; 2♂, 2♀, Sohŭksan-do, VIII/1982: 1♂, Soan-do, 2/VIII/1982.

Range: Southern Japan, Malacca Strait and Korea (Kŏmun-do).

3. *Callipallene dubiosa* Hedgpeth, 1949

Callipallene dubiosa Hedgpeth, 1949, (p. 275, fig. 35); Stock, 1954, (p. 41, fig. 17); Utinomi, 1971, (p. 322); Kim 1984, (p. 535, figs. 4f-i, 5a-c).

Material examined: 2♂, Namyang, Ullŭng-do, 2/X/1981; 3♂, 5♀, Hong-do, VIII/1982; 5♂, 5♀, 3 juv., Sŏkto, VIII/1982; 4♂, 11♀, 3 juv., Ŏch'ŏng-do, VIII/1982; 1♂, 1♀, Hat'ae-do, VIII/1982; 2♂, Anma-do, VIII/1982: 2♂, 2♀, Sohŭksan-do, VIII/1982; 1♂, 5♀, Chagae-do, 22/VIII/1982: 6♂, 3♀, 2 juv., Soan-do, 23/VIII/1982.

Range: Japan, southern China, Singapore, East Africa and Korea (this species is very common in Korean waters).

4. *Callipallene sagamiensis* Nakamura & Child, 1983 (Fig. 3)

Callipallene sagaminesis Nakamura & Child, 1983, (p. 59, fig. 20).

Material examined: 1♂, Karorimman, XII/1980; 3♀, Karorimman, X/1981; 1♂, Hong-do, VIII/1982.

Remarks: Among the Korean callipallenid species, this species has the medium-sized neck. The neck is longer than that of *C. dubiosa,* but is shorter than that of *C. amaxana.* The lateral processes separated from each other by more than their width, and longer than wide. The ocular tubercle is low, with the apex shortly pointed. The abdomen is short and truncated. The denticulate spines are all of identical shapes in both sexes, with the formula 10:8:8:8 in the males, and 9:6:7:8 in the females. The propodus has the weak heel which is armed with 3 spines. The cement glands are not visible.

Range: Japan (Sagami Bay).

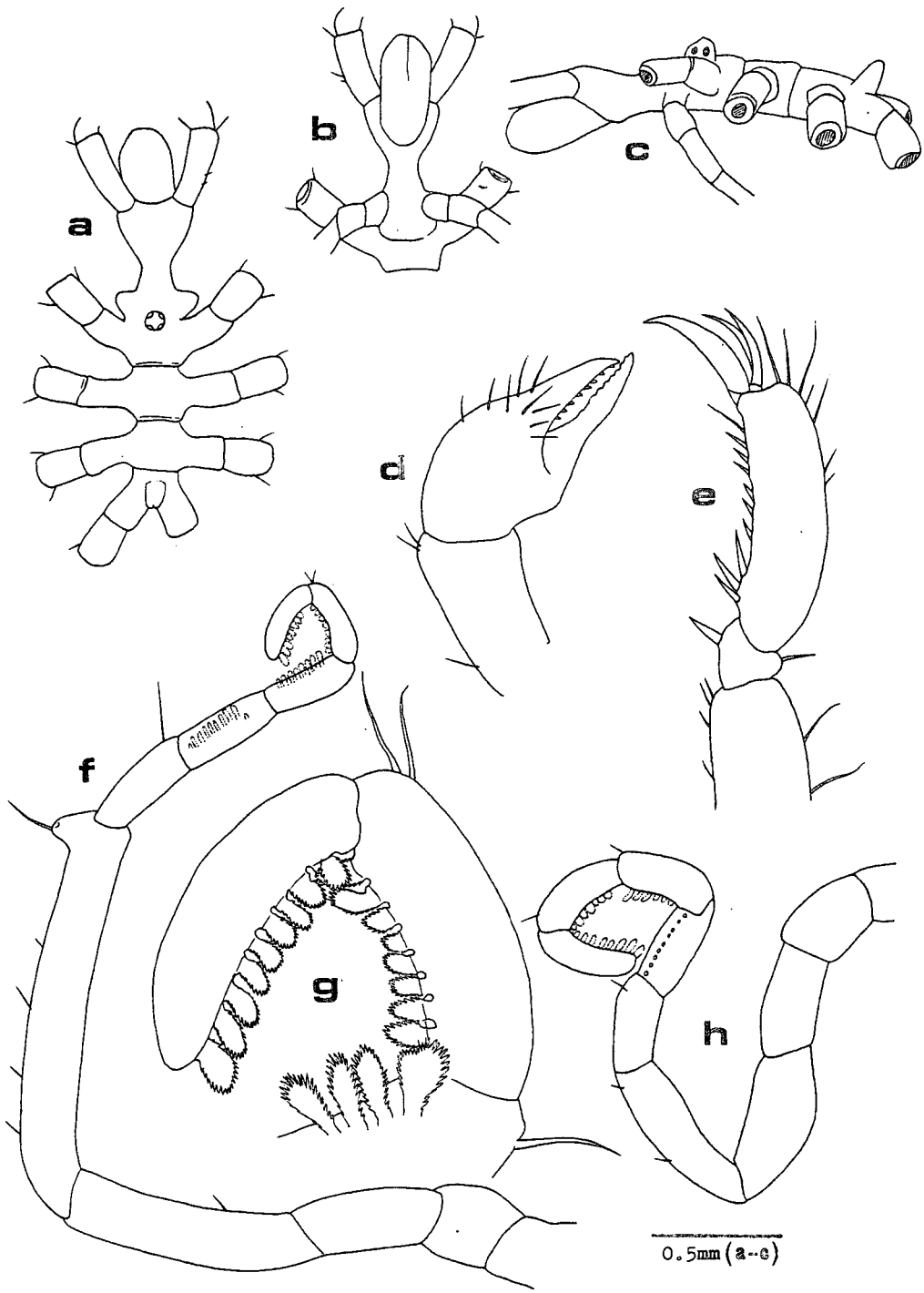

Fig. 3. *Callipallene sagaminesis* Nakamura & Child: a, dorsal view of trunk; b, ventral view of anterior trunk; c, lateral view of trunk; d, chelifore; e, distal joints of leg; f, male oviger; g, distal part of female oviger, enlarged; h, female oviger.

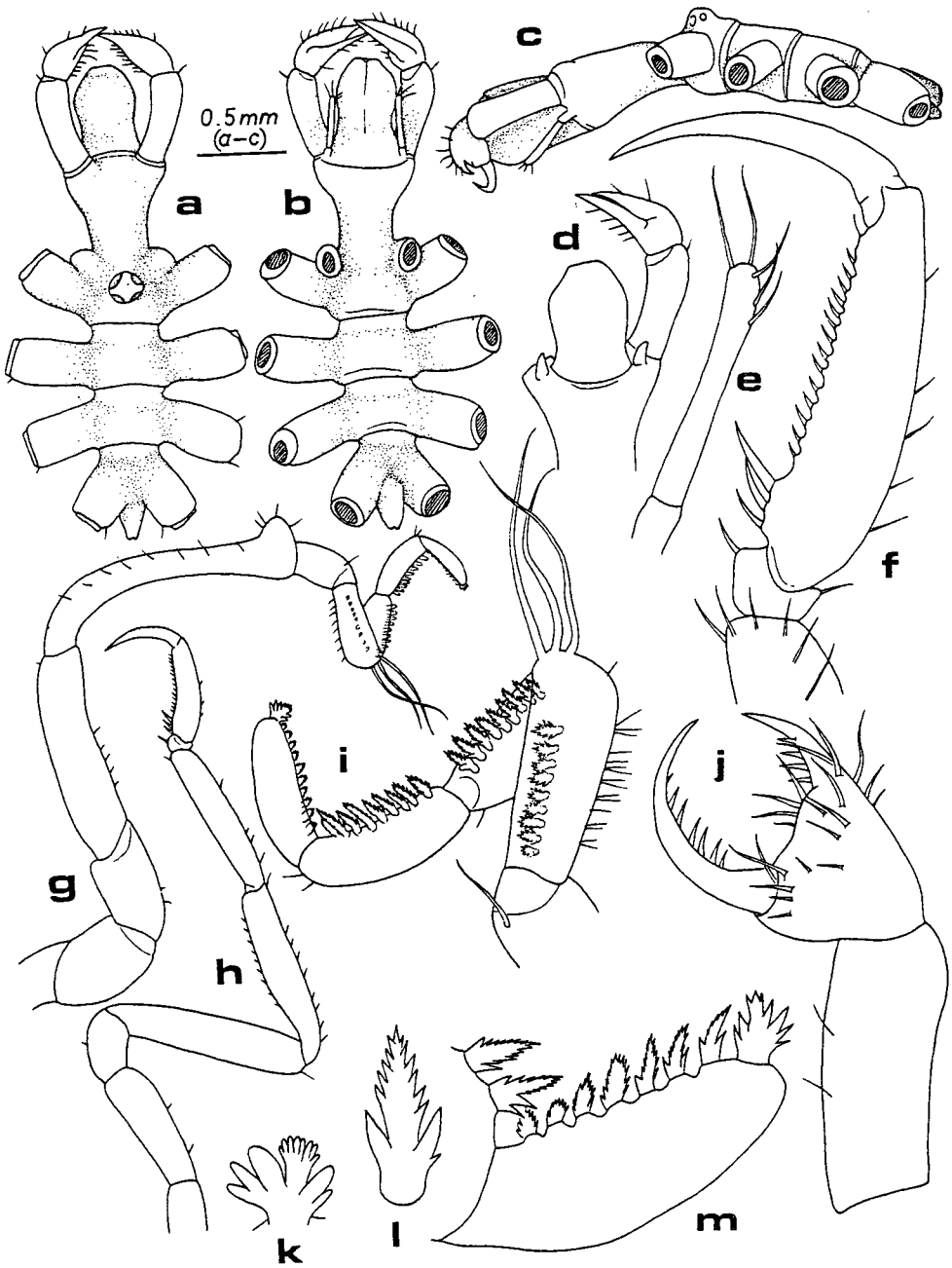

Fig. 4. *Propallene longiceps* (Böhm): a, dorsal view of male trunk; b, ventral view of same; c, lateral view of same; d, ventral view of anterior trunk of female; e, male palp; f, distal joints of fourth leg, male; g, male oviger; h, leg; i, distal segments of male oviger; j, chelifore; k, terminal spine of oviger segment 10, male; l, ninth spine of segment 10, male; m, distal part of female oviger, enlarged.

Genus *Propallene* Schimkwitsch, 1909

5. *Propallene longiceps* (Böhm, 1879) (Fig. 4)

Pallene longiceps: Ohshima, 1933, (p. 212, figs. 1-6).

Propallene longiceps: Stock, 1954, (p. 31, fig. 12a-b); 1975, (p. 90, figs. 1-20); Utinomi, 1959, (p. 199); 1962, (p. 96); 1971, (p. 322).

Material examined: 2♂, Karorimman, VIII/1980; 1♀, Karorimman, XII/1980.

Remarks: The notable features of the present specimens are as follows. The eyes are visible. The chela of the chelifore has the movable finger armed with 6 or 7 teeth, and the immovable finger armed with 4 teeth.

The male palp is slender, 2-segmented. The distal segment is narrow at the middle, with 5 setae distally. The female specimen has the palp, though it is represented as a small, rudimentary bud (Fig. 4d).

The male oviger segment 5 is the longest segment, curved proximally. The segment 7 is armed with 3 long distal setae. The compound spine formula is 9:10:9:10. The terminal spine of the segment 10 is much specialized (Fig. 4, k): It is palmlike and armed with 2 or 3 basal teeth at both sides and a rosette-shaped tooth at the middle. In the famale specimens this kind of specialization is absent. The compound spine formula in the female is 7:7:5:8.

The propodus is armed with 2 or 3 heel spines, and the distalmost one is distinctly larger.

Range: Japan (to 103 m: Nakamura & Child, 1983).

Family Phoxichilidiidae G. O. Sars

Genus *Anoplodactylus* Wilson, 1878

6. *Anoplodactylus erectus* Cole, 1904 (Fig. 5)

Anoplodactylus erectus Cole, 1904, (p. 289, pl. 14, fig. 12, pl. 26, figs. 1-9); Hilton, 1942, (p. 283); Stock, 1955, (p. 239, figs. 13, 14); Child, 1970, (p. 288); 1979, (p. 52).

Material examined: 1♂, Soan-do, 23/VIII/1982.

Remarks: This single specimen agrees well with Cole's (1904) and Stock's (1955) descriptions in the respects that the fingers have no teeth, the proboscis is long, cylindrical, and the relative lengths of the oviger segments are coincide with the previous specimens.

The lateral processes are rather fatty, separated from one another by the intervals less than their own diameters, each with a prominent dorsodistal tubercles. The propodal heel is strong, at which there are 2 main spines proximally, successive 2 small spines and distal 2-4 setae. The sole is armed with 4-6, stout, up-curved spines. The propodal lamina covers less than a half of the sole. The femoral cement gland is subcuticular, semi-transparent, and leaves a slender tube which is longer than a third of the femoral width and positioned at the middle of the femur.

In Stock's specimens the trunks are very thin and long, and the oviger segment 3 is relatively far longer, so that the present specimen seems to belong to the "robust form" of Child (1979).

Range: California (type locality). Pacific sides of Mexico, Panama and Columbia, British Columbia (Canada), Hawaii and Tuamotu Archipelago.

7. *Anoplodactylus hwanghaensis,* n. sp. (Fig. 6)

Material examined: 5♂, 1♀, 3 juv. (1♂ holotype), Ŏch'ŏng-do, Yellow Sea, VIII/1982.

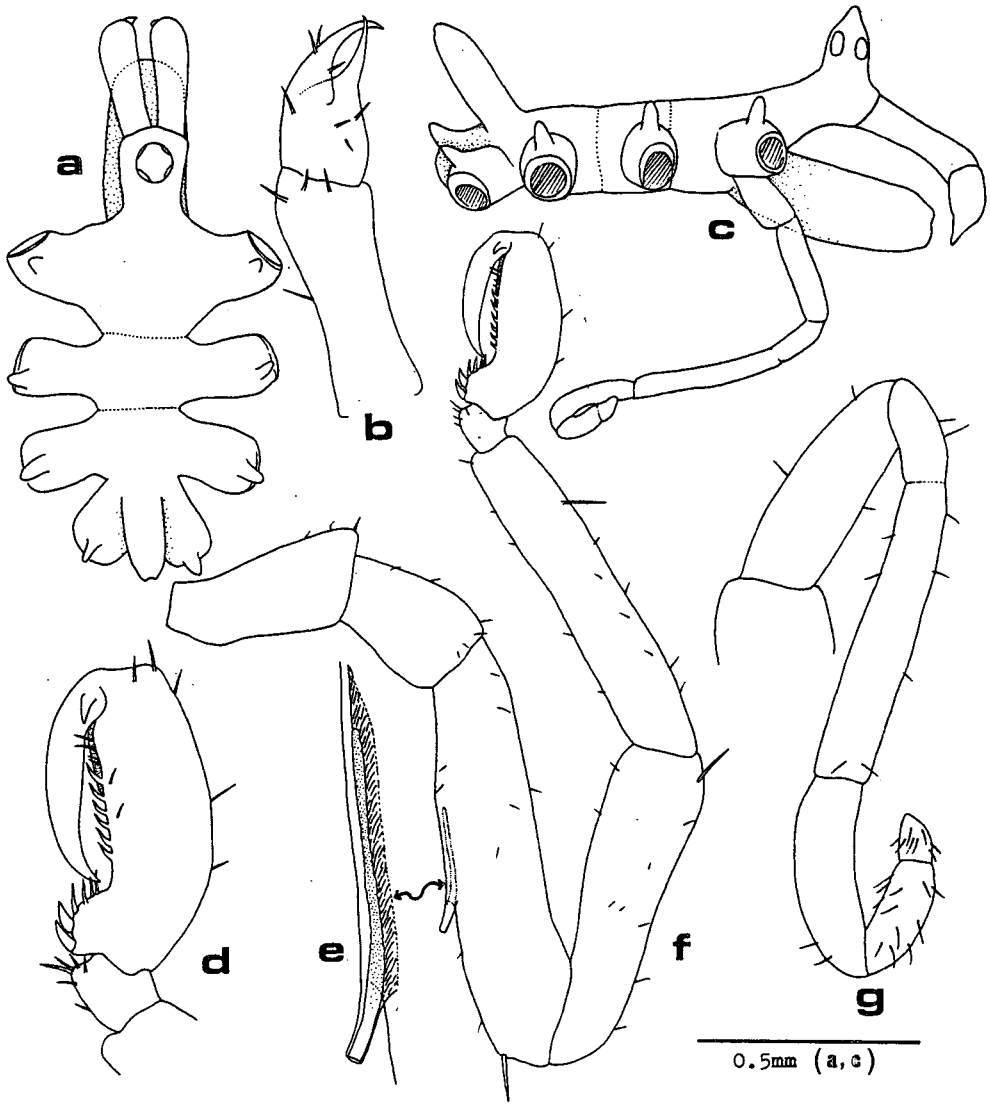

Fig. 5. *Anoplodactylus erectus* Cole, male: a, dorsal view of trunk; b, chelifore; c, lateral view of trunk; d, terminal segments of third leg; e, cement gland of third leg; f, third leg; g, oviger.

Description: Trunk compact, robust, first and second trunk segments distinct, third lacking. Lateral processes smooth, slightly longer than their diameters, almost touching proximally, but separated distally by their own diameters, without tubercles or setae. Neck very short, far broader than long. Ocular tubercle low, broad, rather flattened above, with apex round and positioned anteriorly. Abdomen shorter than the last pair of lateral process, ovoid in lateral view, directed posteriorly at an angle of about 30° from the horizontal. Proboscis short, robust, slightly longer than wide, truncated and darkly pigmented distally, with ventral margin roundly convex, longer and wider than dorsal margin.

Chelifore scape smooth, cylindrical, slightly longer than proboscis. Chela palm armed with a few

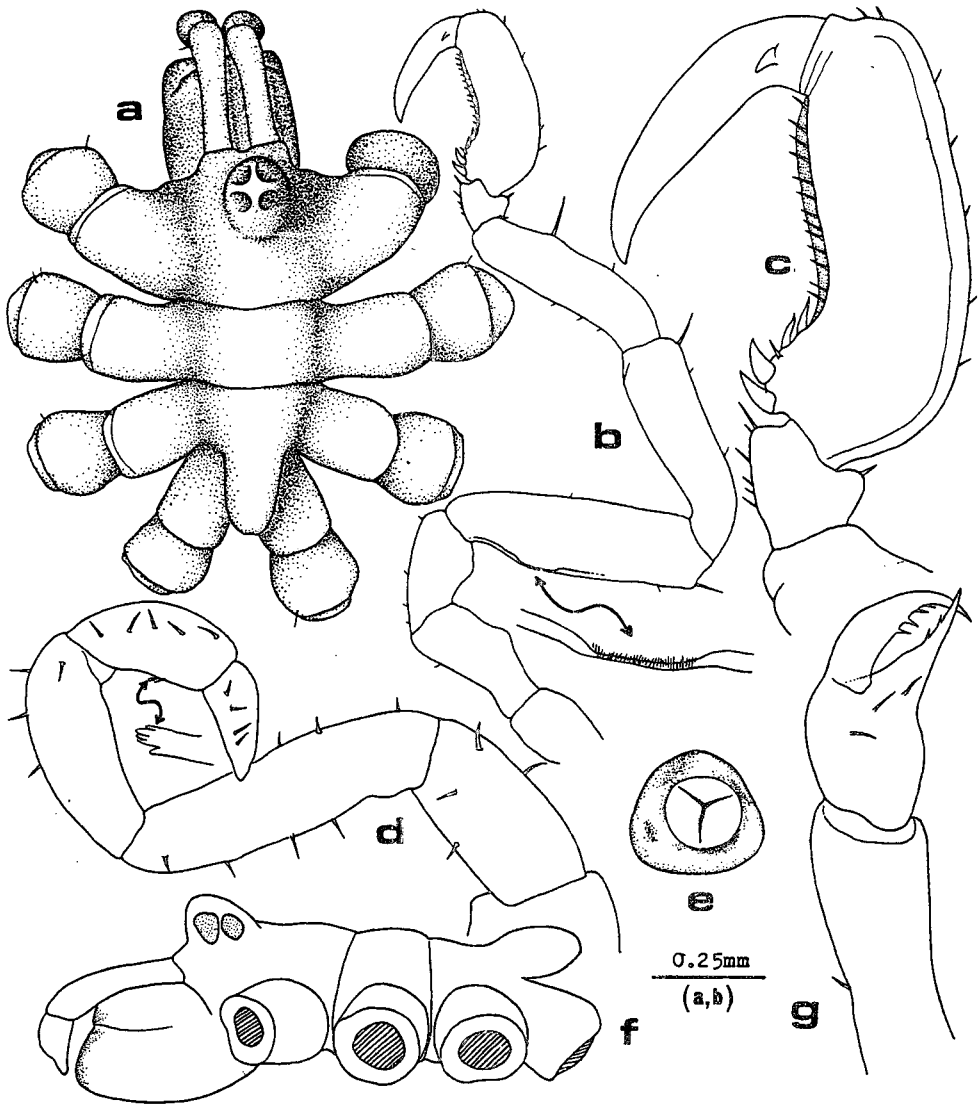

Fig. 6. *Anoplodactylus hwanghaensis,* n. sp. holotype, male: a, dorsal view of trunk; b. second leg; c, distal segments of second leg; d, oviger; e, frontal view of proboscis; f, lateral view of trunk; g, chelifore.

distal setae. Movable finger strongly curved, with 4 teeth. Immovable finger nearly straight, armed with 2 small teeth.

Oviger 6-segmented. First segment very broad. Third segment the longest, with setae on both sides. Fourth segment a little longer than the second, widened distally, with several setae on outer margin. Fifth segment armed with 5 or 6 recurved outer setae and 2 (or 1) inner middle setae, one of the latter is palm-like when greatly magnified. Terminal segment tapered and pointed, longer than the half length of fifth segment, with 4-6 recurved setae.

Legs moderatly short, the posterior pairs shorter than the preceding ones. Cement gland pore flat, not raised, and situated at proximal third of femur. Femur the longest segment, with a dorsodistal

spine. Tibia 1 and 2 equal in lengths. Propudus with a strong heel armed with 2 curved spines and upper 2 smaller ones. Sole armed with more than 10, small and thin setae. Propodal lamina covers entire sole. Claw as long as sole, with curved tip. Auxiliary claws very small.

Measurements (in mm): Trunk length (neck to tip of lateral processes), 0.93; trunk width (across second lateral processes), 0.78; proboscis length (from ventral side), 0.40; abdomen length, 0.19; first leg (including claw), 3.27; second leg, 2.95; third leg, 2.81; fourth leg, 2.63.

Etymology: The specific name, *hwanghaensis,* is derived from a Korean language, Hwanghae (=Yellow Sea) in which the type locality is situated.

Remarks: This tiny species belongs to the old genus *Halosoma* and to the so called *Anoplodactylus pygmaeus* complex. The new species has the following combination of characters: Body compact, two heel spines, long propodal lamina, chela fingers with teeth, cement gland pore flat and positioned at proximal third of femur, very robust proboscis, lack of tubercles or spines on lateral processes, auxiliary claws present.

The new species is similar in body configurations to two Panama species, *Anoplodactylus* sp. 1 Child, 1979 and *A. stri* Child, 1979. In the shape of proboscis, *Anoplodactylus* sp. 1 is very similar to the new species, but differs in having tubercles on the lateral processes and short lamina on the propodal sole. *A. stri* has also smooth lateral processes, long propodal lamina, and chela finger teeth, but in this species the proboscis is more longer and the main heel spine of propodus is only one.

The new species can be distinguished from *A. compactus* Hilton, 1939, another relative species from California. The large tubercle on each lateral processes, rather long proboscis and the lack of body segmentation of *A. compactus* are the characters different from the new species.

8. ***Anoplodactylus pycnosoma*** (Helfer, 1938)

Anoplodactylus pycnosoma: Stock, 1954, (p. 75, fig. 33); Utinomi, 1971, (p. 326); Nakamura & Child, 1983, (p. 50); Kim, 1984, (p. 536, fig. 5d-h).

Material examined: 1♂, Sadong, Ullŭng-do, X/1981; 1♂, 1♀, Tokto, X/1981; 1♂, Sohŭksan-do, VIII/1982; 1♀, Hong-do, VIII/1982; 1♂, Anma-do, VIII/1982; 1♂, Sokto, VIII/1982; 1♀, Ŏch'ŏng-do, VIII/1982; 3♂, 2♀, Soan-do, 23/VIII/1982.

Range: Southern Japan, Korea, western Australia and Tanzania.

9. ***Anoplodactylus viridintestinalis*** (Cole, 1904)

Halosoma viridintestinalis Cole, 1904, (p. 286, pl. 14, fig. 11, pl. 24, figs. 6-8, pl. 25, figs. 1-4); Hedgpeth, 1948, (p. 217, fig. 25).

Anoplodactylus viridintestinalis: Stock, 1955, (p. 239); Child, 1979, (p. 63); Kim, 1986, (p. 3, fig. 2).

Material examined: 1♂, Karorimman, X/1980: 1♀, Sadong, Ullŭng-do, X/1981; 1♂, 4♀, Soan-do, 23/VIII/1982; 4♂, 7♀, Sohŭksan-do, VIII/1982; 1♀, Hong-do, VIII/1982.

Range: East Pacific from California to Panama, and Korea (Kŏmun-do, littoral).

Family Ammotheidae Dohrn
Genus *Achelia* Hodge, 1864

10. ***Achelia alaskensis*** (Cole, 1904) (Fig. 7)

Ammothea alaskensis Cole, 1904, (p. 266, pl. 12, fig. 4, pl. 17, figs. 4-12).

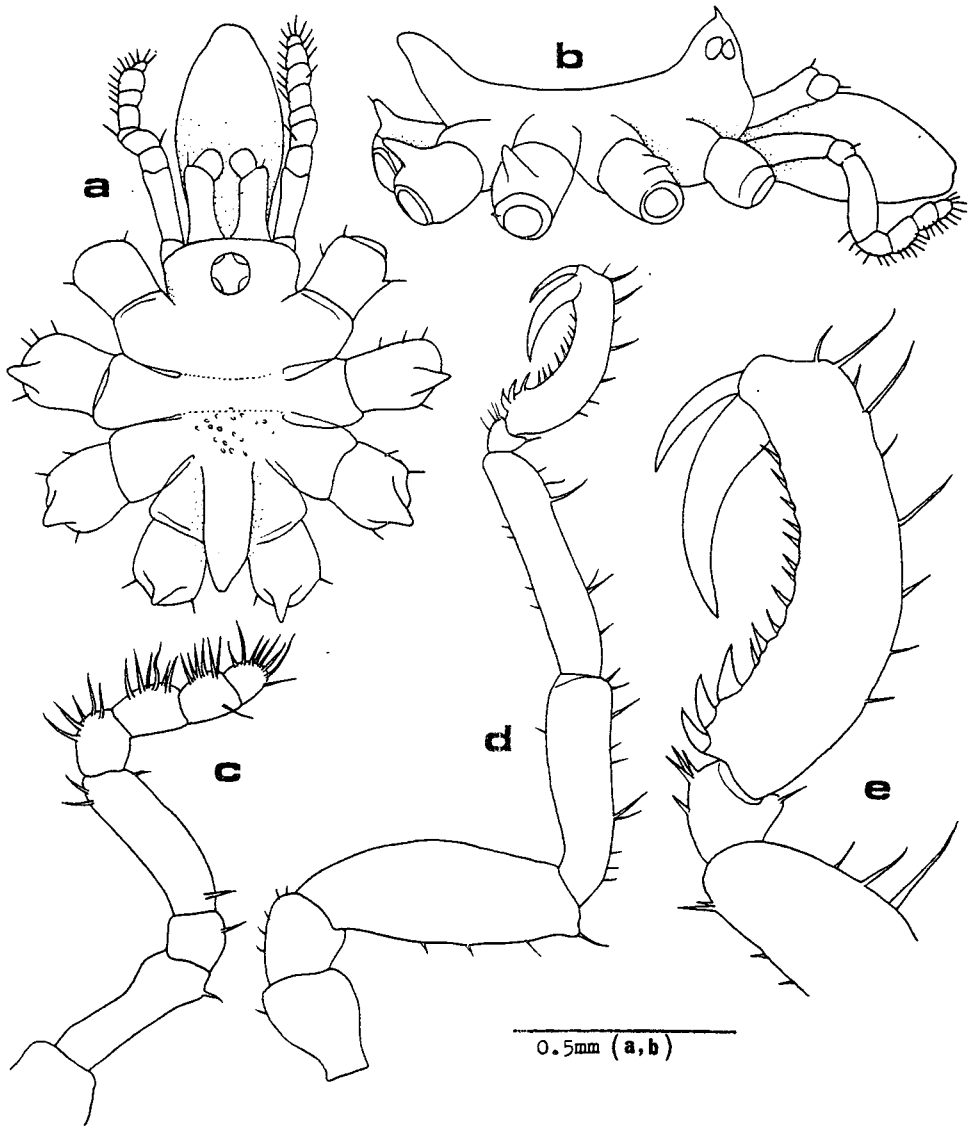

Fig. 7. *Achelia alaskensis* (Cole), female: a, dorsal view of trunk; b, lateral view of trunk; c, palp; d, fourth leg; e, distal segments of third leg.

Achelia alaskensis: Utinomi, 1954, (p. 14, figs. 6, 7); 1971, (p. 329); Losina-Losinsky, 1961, (p. 91).

Material examined: 1♀, Karorimman, X/1981.

Remarks: The ocular tubercle is low conic, and the apex is pointed. The compound spine formula of the oviger is 2:2:2:2.

Utinomi (1954) summarized the diagnostic characters of this species. The present female specimen agrees well with his description, except for the following points. The chelifore scape and lateral processes are smooth, without any kind of protuberance. There is a prominent dorsal tubercle on each of posterior 3 coxae, however, the coxa 1 is smooth, without protuberance. The abdomen is not horizontal, but erect at a half of a right angle.

This North Pacific species extends its distributional range far to the south, because its previously known southern limit of the range was Hokkaido, Japan.

Range: Bering Sea, Alaska, Okhotsk Sea and Japan (Hakkaido).

11. *Achelia bituberculata* Hedgpeth, 1949

Achelia bituberculata Hedgpeth, 1949, (p. 287. fig. 41a-g); Stock, 1954, (p. 94, fig. 44); Utinomi, 1962, (p. 97, fig. 4); Nakamura & Child, 1983, (p. 6); Kim, 1984, (p. 537, fig. 6a-i).

Achelia ohshimai Utinomi, 1951, (p. 163, fig. 2); 1954, (p. 18, fig. 8); Kim, 1984, (p. 538, fig. 8a-h).

Material examined: 1♂, 3 juv., Sadong, Ullŭng-do, X/1981; 1♂, 4♀, Namyang, Ullŭng-do, 2/X/1981; 2♂, Sohŭksan-do, VIII/1982; 2♂, 2 juv., Hat'ae-do, VIII/1982; 1♂, Hong-do, VIII/1982; 1♀, Maan-do, 22/VIII/1982; 4♂, 7 juv., Soan-do, 23/VIII/1982.

Range: Japan and Korea.

12. *Achelia echinata sinensis* (Lou, 1936)

Achelia echinata orientalis: Hedgpeth, 1949, (p. 318).

Achelia echinata: Utinomi, 1954, (p. 11, figs. 4, 5); 1959, (p. 201, fig. 1).

Achelia echinata nasuta: Stock, 1956, (p. 98, fig. 16a).

Achelia echinata sinensis: Utinomi, 1971, (p. 328); Nakamura & Child, 1983, (p. 7); Kim, 1984, (p. 537, fig. 7a-i).

Material examined: 1♀, 1 juv., Karorimman, VIII/1980; 2♂, 2♀, 1 juv., Karorimman, X/1980; 1 , Karorimman, XIII/1980; 1♀, Karorimman, X/1981; 7♂, 17♀, 4 juv., Hong-do, VIII/1982; 4♀, Sŏkto, VIII/1982; 2♂, 2♀, 1 juv., Hat'ae-do, VIII/1982; 1 juv., Paega-do, VIII/1982; 1 juv., Ŏch'ŏng-do, VIII/1982; 1♂, Sohŭksan-do, VIII/1982; 2♂, 2♀, 3 juv., Soan-do, 23/VIII/1982.

Range: Japan, northern China and Korea.

13. *Achelia latifrons* (Cole, 1904) (Fig. 8)

Ammothea latifrons Cole, 1904, (p. 263, pl. 11, fig. 3, pl. 16, figs. 1-9, pl. 17, figs. 1-3); Hilton, 1942, (p. 93. pl. 41).

Achelia latifrons: Stock, 1954, (p. 96).

Achelia orpax Nakamura & Child, 1983, (p. 8, fig. 2).

Material examined: 1♂, Hong-do, X/1981.

Remarks; This specimen is almost identical with both *Achelia latifrons* (Cole, 1904) and *A. orpax* Nakamura & Child, 1983, and they can hardly be regarded as separate species. *A. latifrons, A. orpax* and the present specimen have following major characters in common: (1) Trunk compact, circular and unsegmented. (2) Cephalic segment armed with a spines-bearing tubercle on each of anterior corners. (3) Ocular tubercle tall, slender and positioned at extreme anterior of cephalic segment. (4) Proboscis elliptical, rather large. (5) Abdomen long and armed dorsally with several spines. (6) Chelifore scape long and curved, chela small, globular, without finger. (7) Propodus slender, roundedly curved, with 3 heel spines. (8) Proboscis, trunk and abdomen are nearly equal in lengths.

The noteworthy difference among them is the numbers of tubercles on lateral process and coxa 1. Cole (1904) described that his type specimens have 3 tubercles on lateral process and 3 on coxa 1, while these are 1 and 1 in *A. orpax*, and 2 or 3 and 1 in our specimen. Our specimen is same in every

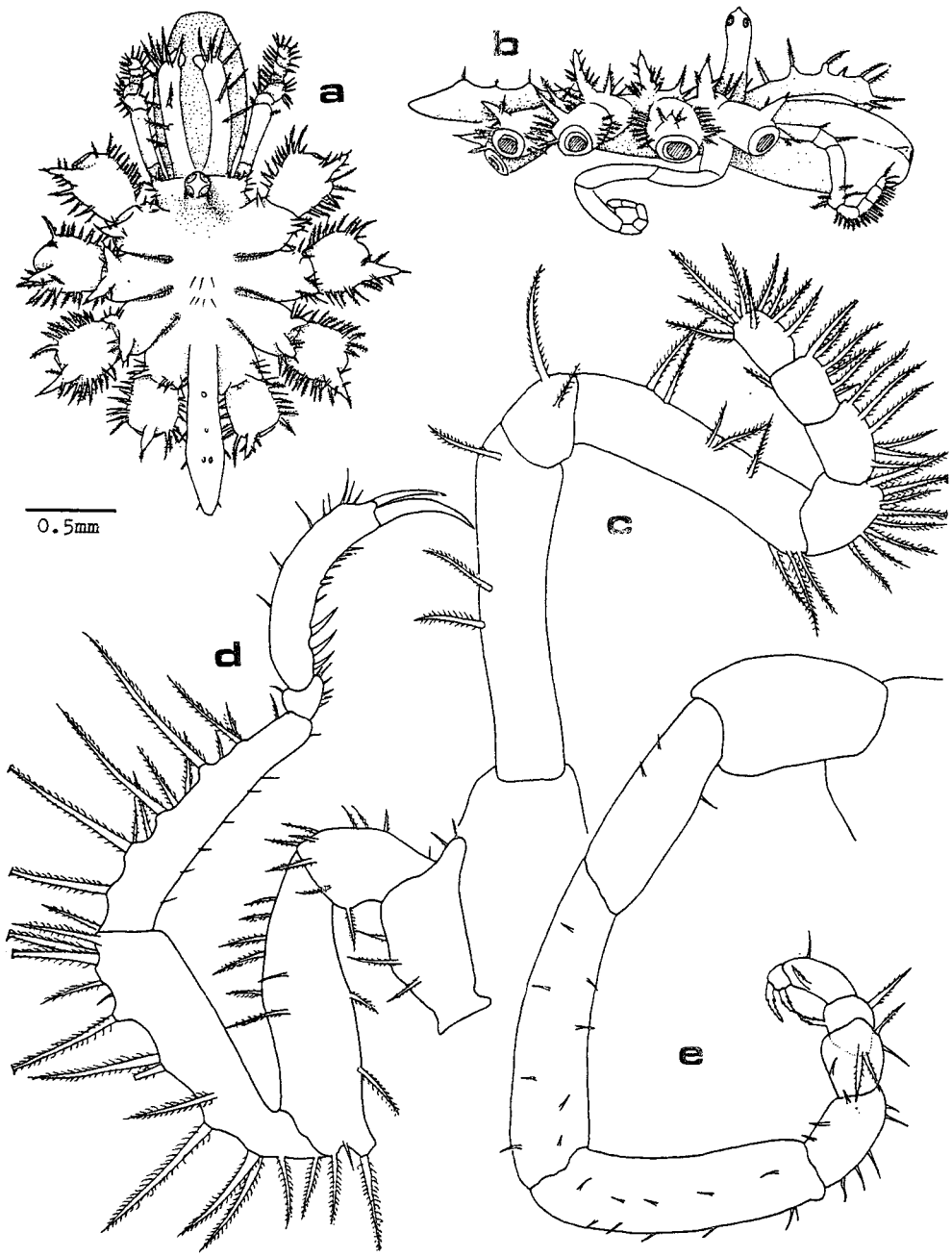

Fig. 8. *Achelia latifrons* (Cole), male: a, dorsal view of trunk; b, lateral view of trunk; c, palp; d, fourth leg; e, oviger.

details as *A. orpax* except for the number of tubercles on lateral process, however this difference seems negligible, for the male is usually more tuberculate than the female.

Nakamura & Child (1983) characterized *A. orpax* by its "unique" feathered spines, as does our specimen, but, in our opinion, this feature would not be noticed by Cole, otherwise he might thought

these as foreign debris judging from his remarks (p. 266) as "All the specimens of *A. latifrons* had a quantity of foreign materials entangled in the spines..."

Range: Bering Sea, Alaska, California (north of Santa Barbara Island), and Japan (Sagami Bay).

Genus *Ammothea* Leach, 1814

14. ***Ammothea hilgendorfi*** (Böhm, 1879)

Lecythorhynchus hilgendorfi: Hedgpeth, 1949, (p. 296, fig. a, b); Utinomi, 1951, (p. 166); 1959, (p. 209, figs. 5, 6); 1971, (p. 336); Losina-Losinsky, 1961, (p. 53).

Lecythorhynchus marginatus Cole, 1904, (p. 260, pl. 11, figs. 1, 2, pl. 15, figs. 1-8); Stock, 1954, (p. 139, fig. 69).

Ammothea hilgendorfi: Child, 1970, (p. 292); Clark, 1977, (p. 174).

Material examined: 1♀, Kamakman, IX/1980; 1♀, Karorimman, XII/1980; 1♀, Karorimman, X/1981; 5♂, 2♀, 18 juv., Hong-do, VIII/1982; numerous specimens, Sohŭksan-do, VIII/1982; numerous specimens, Ŏch'ŏng-do VIII/1982; 1♂, 13 juv., Sokto, VIII/1982; 1♂, 1♀, 3 juv., Paega-do, VIII/1982; 2♂, 1♀, Anma-do, VIII/1982; 3♂, 3 juv., Pogil-do, VIII/1982; 7 juv., Chagae-do, 22/VIII/1982; 1♀, 15 juv., Soan-do, 23/VIII/1982.

Range: North Pacific.

Genus *Ammothella* Verrill, 1900

15. ***Ammothella biunguiculata*** (Dohrn, 1881)

Ammothella biunguiculata: Stock, 1968, (p. 14); Utinomi, 1971, (p. 330); Kim, 1984, (p. 539, fig. 9b-f).

Material examined: 1♂, Sohŭksan-do, VIII/1982.; 1♀, Hat'ae-do, VIII/1982.

Range: Cosmopolitan.

16. ***Ammothella indica*** Stock, 1954

Ammothella indica Stock, 1954, (p. 113, figs. 54-56c, 57a-c); 1959, (p. 551); 1968, (p. 11); Utinomi, 1959, (p. 203, figs. 2, 3); Kim, 1986, (p. 5, fig. 3).

Material examined: 2 juv., Hong-do, VIII/1982; 1 juv., Soan-do, 23/VIII/1982.

Range: In Pacific including Korea (Kŏmun-do).

Genus *Ascorhynchus* G. O. Sars, 1877

17. ***Ascorhynchus glaberrimum*** Schimkewitsch, 1913 (Fig. 9)

Ascorhynchus glaberrimum: Hedgpeth, 1949, (p. 293); Utinomi, 1955, (p. 26, fig. 15); 1959, (p. 208); Nakamura & Child, 1983, (p. 24, fig. 7).

Material examined: 1♂, 2♀, Kwangyangman, II/1983.

Remarks: The specimens are as the figure of Nakamura & Child, 1983. The chelifore scape bulged distally. The chela is partly sunken into the scape. The tip of the chela finger is typically chitinized, and yellow and semi-transparent. The tubercles on the lateral processes are less prominent than those of Utinomi (1955) and Nakamura & Child (1983).

The male specimens have 8 to 11 cement galand pores. These pores seem to be of each separate cement glands (Fig. 9 j). The male gonopores are present at the ventrodistal corners of coxae 2 of

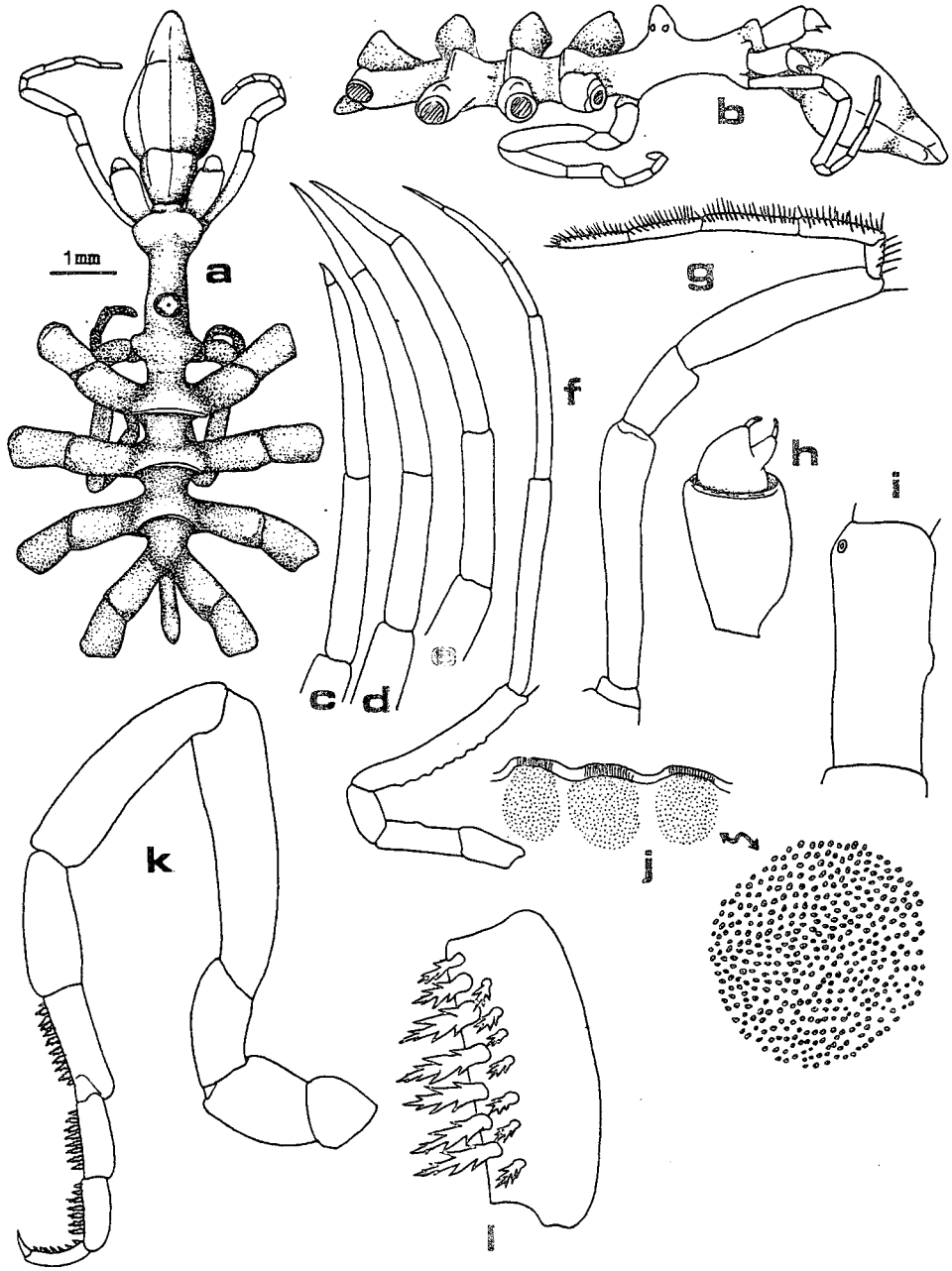

Fig. 9. *Ascorhynchus glaberrimum* Schimkewitsch: a, dorsal view of trunk; b, lateral view of trunk; c, d, e, distal segments of first, third and fourth legs; f, second leg; g, palp; h, chelifore; i. coxa 2; j, cement glands; k, oviger; 1, ninth segment of oviger.

third and fourth legs. The denticulate spine formula of the male oviger is 10:8:7:7 or 11:8:8:8.

Range: Known only from Japan (shore to 93 m: Nakamura & Child, 1983).

18. *Ascorhynchus ramipes* (Böhm, 1879)

Ascorhynchus ramipes: Loman, 1911, (p. 6); Hedgpeth, 1949, (p. 292); Utinomi, 1959, (p. 207, fig. 4B); 1962, (p. 99); 1971, (p. 332); Nakamura & Child, 1983, (p. 29); Kim, 1986, (p. 7, fig. 4).

Ascorhynchus latum: Stock, 1954, (p. 128, fig. 63 a-c).

Material examined: 1♀, 1 juv., Kamakman, X/1980; 1♂, 4♀, Karorimman, X/1980; 2♀, Karorimman, XII/1980; 4♀, Karorimman, 29/I/1981; 1♀, Karorimman, II/1981; 1♂, 1♀, Karorimman, X/1981; numerous specimens, Karorimman, with trawl, XI/1981

Range: Northern China, Gulf of Siam, Indian Ocean (Gulf of Manaar), Japan (Sagami Bay to Kyushu) and Korea (Inch'ŏn and Dŏkjŏk-to).

Gunus *Tanystylum* Miers, 1879

19. *Tanystylum scrutator* Stock, 1954

Tanystylum scrutator Stock, 1954, (p. 142, fig. 70).

Material examined: 1♀, Hong-do, VIII/1982; 5♂, 2♀, 8 juv., Sohŭksan-do, VIII/1982; 1♀, Hat'ae-do, VIII/1982; 3♂, 2♀, Chagae-do, 22/VIII/1982.

Range: Japan and Korea.

20. *Tanystylum ulreungum* Kim, 1983

Tanystylum ulreungum Kim, 1983, (p. 467, figs. 1, 2).

Tanystylum nabetensis Nakamura & Child, 1983, (p. 39, fig. 13).

Material examined: 2♂, 4♀, Namyang, Ullŭng-do, 2/X/1981; 1♀, Sohŭksan-do, VIII/1982.

Range: Korea (Ullŭng-do) and Japan (Sagami Bay).

Family Pycnogonidae Wilson

Genus *Pycnogonum* Brünnich, 1764

21. *Pycnogonum koreanum* Kim & Stock, 1984

Pycnogonum koreanum Kim & Stock, 1984, (p. 685, figs. 1-6).

Material examined: 2♂, 2♀, Namyang, Ullŭng-do, X/1981; 2♂, Hong-do, VIII/1982; 1♂, 1♀, Hat'ae-do, VIII/1982; 1♂, 3♀, Sohŭksan-do, VIII/1982.

Range: Korea (Ullŭng-do). Probably widely distributed around Korean seas to where the warm current reaches.

ABSTRACT

Twenty one species of Korean pycnogonids are represented in the collections of the Korea Ocean

Research and Development Institute, Korea. The collections include six species which are newly recorded in the Korean fauna and a new species from the Yellow Sea, *Anoplodactylus hwanghaensis,* which is described and illustrated. Illustrations and remarks of the newly recorded species from Korea are also provided.

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