

# The Polychaetous Annelids in Korea (I)

by

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## 한국산 다모환충류의 분류(I)

白 義 人\*

저자는 1970년 10월부터 1971년 12월 까지 남해안 일대(부산, 거제 칠천도, 충무, 여수, 벌교, 보성, 장흥, 서귀포)에서 채집된 다모환충류를 분류 동정한 결과 갯지렁이과(Nereidae)에 속하는 다음 5종의 한국 미기록종을 얻었기에 보고한다.

1. *Tylorrhynchus heterochaetus*
2. *Perinereis nuntia* var. *vallata*
3. *Perinereis nuntia* var. *brevicirris*
4. *Neanthes japonica*
5. *Nectoneanthes oxypoda*

### INTRODUCTION

Polychaetous annelids in Korea have not been studied up to the present time.

The author started a research on the classification of polychaetes. The materials were collected mostly by Mr. Hyng-Bum SHIN, one of my friends, from 1970 to 1971 along the southern coast of Korea (Busan (=Pusan), Chilcheondo in Geoje, Chungmu, Yeosu, Beolgyo, Boseong, Jangheung, Seo-gwipo).

The author briefly described the characteristics of each species. The specimens are kept at the Department of Fisheries Biology, Pusan Fisheries College.

### ACKNOWLEDGEMENT

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### DESCRIPTION

Fam. Nereidae

Gen. *Tylorrhynchus* GRUBE, 1869

#### 1. *Tylorrhynchus heterochaetus* (QUATREFAGAS, 1865)

(Fig. 1, a-g)

Korean name; Sil-gaet-jireong-i (실갯지렁이)

*Ceratocephala osawai* IZUKA, 1912, pp. 179-181.

*Tylorrhynchus heterochaetus*: IMAJIMA & HARTMAN, 1964, pp.154-155; IMAJIMA, 1972, pp.46-50, figs.405,7.

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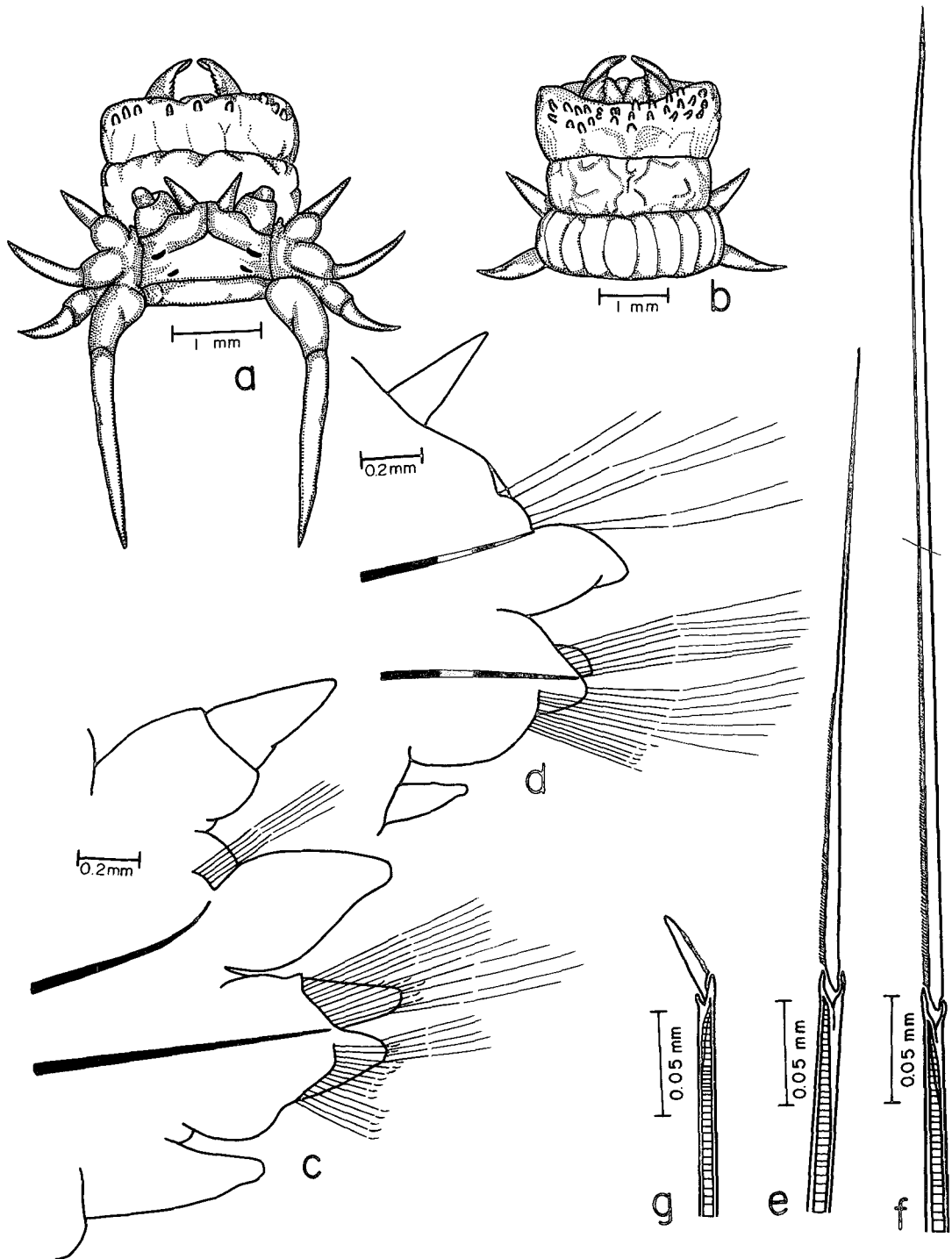


Fig. 1. *Tylorrhynchus heterochaetus* (QUATREFAGAS). a. anterior end, in dorsal view; b. proboscis showing papillae on maxillary ring; c. fifth parapodium; d. median parapodium; e. notopodial homogomph spiniger from median parapodium; f. neuropodial heterogomph spiniger in infra-acicular position from median parapodium; g. neuropodial heterogomph falciger in infra-acicular position from median parapodium.

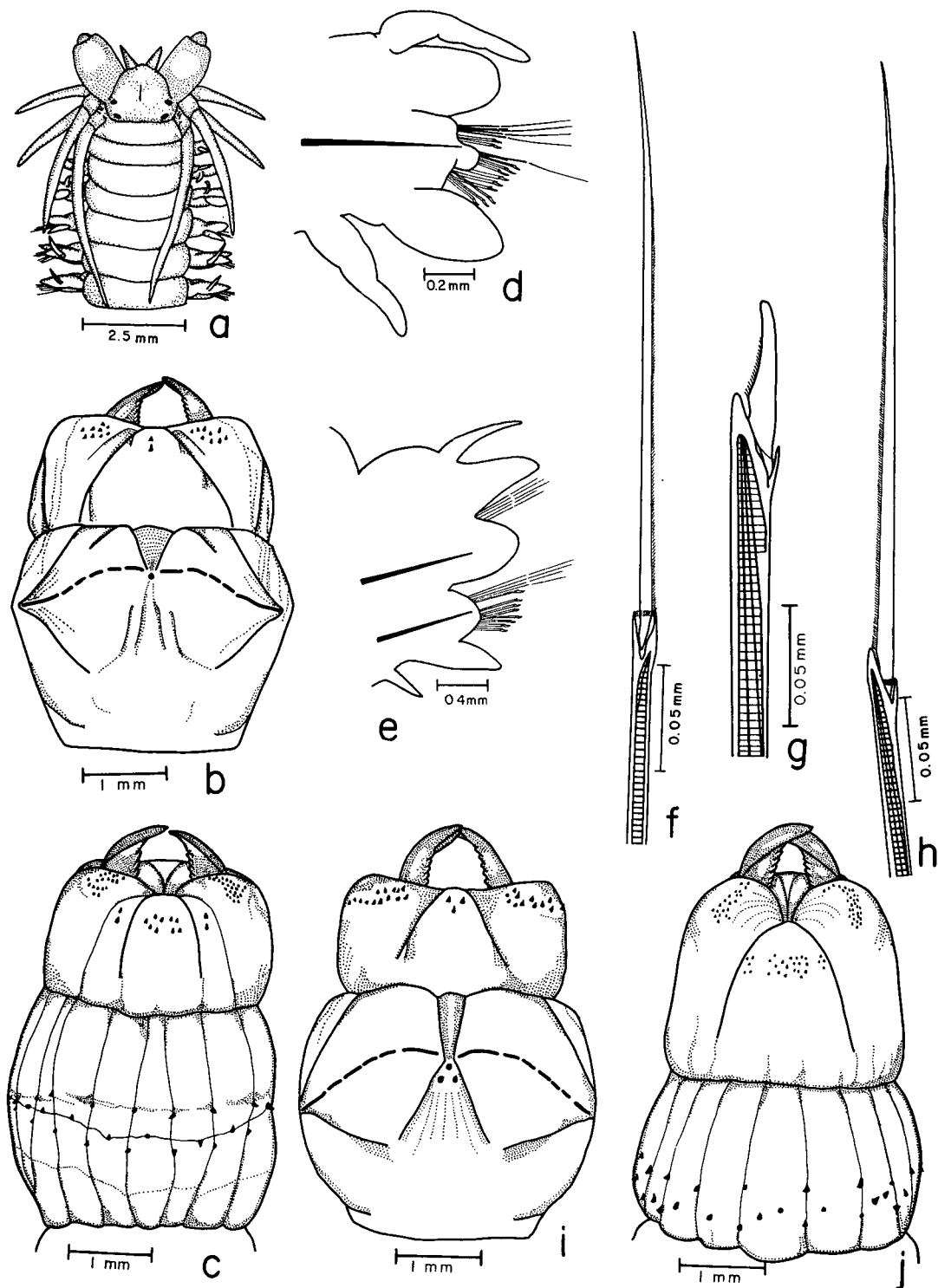


Fig. 2. *Perinereis nuntia* var. *vallata* (GRUBE). a. anterior end, in dorsal view; b. proboscis showing paragnaths, in dorsal view; c. the same, in ventral view; d. first parapodium; e. median parapodium; f. notopodial homogomph spiniger from median parapodium; g. neuropodial heterogomph falciger in supra-acicular position from median parapodium; h. neuropodial heterogomph spiniger in infra-acicular position from median parapodium, *Perinereis nuntia* var. *brevicirris* (GRUBE). i. proboscis showing paragnaths, in dorsal view; j. the same, in ventral view.

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**Material examined:** Estuary of the Nakdong River, Busan. ♀-1972(1020).

**Diagnosis:** Body very slender. The body is 170 to 210 mm long for about 300 segments and 3 to 6 mm wide including parapodia. The prostomium is subhexagonal, with a broad base; a median longitudinal groove is present on the anterior half. The frontal antennae are tapering and about half as long as the prostomium. The two pairs of eyes are in trapezoidal arrangement, located at the sides of the prostomium; the anterior pair is the larger. Peristomium with 4 pairs of tentacular cirri (fig. 1 a).

The proboscis has soft papillae only on the maxillary ring; there are no paragnaths. Area I has one papilla; II has one or five papillae; III and IV have a transverse cluster numbering about 25 papillae. The oral ring has a few large, fleshy papillae arranged irregularly (fig. 1 a, b). The jaw is blackish brown but translucent, with seven to nine teeth.

Parapodia nearly similar throughout the body, all being biramous and the notopodium represented only by a low dorsal ligule. Dorsal and ventral cirri are short, each with a ceratophore (fig. 1 c, d).

All notopodial setae are homogomph spinigers (fig. 1 e). Neuropodial setae are homogomph and heterogomph spinigers (fig. 1 f) and heterogomph falcigers in infra-acicular position (fig. 1 g).

**Distribution:** Japan; China; Java; New to Korea (Nakdong River).

Gen. *Perinereis* KINBERG, 1866

### 2. *Perinereis nuntia* var. *vallata* (GRUBE, 1857)

(Fig. 2, a-h)

Korean name; Hanjeom Haean-gaet-jireong-i (한점해안갯지렁이)

*Perinereis nuntia* var. *vallata*: IMAJIIMA, 1972, pp. 92-94, figs. 26-27.

**Material examined:** Chilcheondo in Geoje. X-1970(15), XII-1971(69); Yeosu. I-1972(10).

**Diagnosis:** Length 80 to 110 mm and width 5 to 6 mm for 104 to 122 segments. The prostomium is subtriangular; its frontal antennae are less than half as long as the prostomium, and separated at their bases. The two pairs of eyes are on the posterior half of the prostomium. The longest of the four pairs of peristomial cirri extends back to setiger 7 (fig. 2 a).

The paragnaths of the proboscis are as follows: area I has a single or two cones in line; area II has 8 to 13 cones in three oblique rows; area III has 10 to 16 cones in rectangular patch, with two to four cones on the sides; IV has 18 to 26 cones in triangular cluster; area V has a single cone; area VI has 4 to 7 flat cones in a transverse row; area VII and VIII have three alternating rows of cones (fig. 2 b, c).

The first parapodia have ellipsoial ligules, and dorsal and ventral cirri are comparatively longer (fig. 2 d). Other parapodia are biramous. Median and posterior parapodia are similar; the notopodial superior ligules are subtriangular, with distally pointed ends, and slightly longer than the infra-acicular ligules. Dorsal cirri are short digitiform; they do not extend to the tips of superior ligules. The ventral cirri are shorter than the dorsal cirri (fig. 2 e).

All notopodial setae are homogomph spinigers; each has a long appendage with minute serration along the cutting edge (fig. 2 f). Neuropodial setae are homogomph spinigers and heterogomph falcigers (fig. 2 g) in supra-acicular position, and heterogomph spinigers (fig. 2 h) and falcigers in infra-acicular position. The falcigers have straight appendages with blunt tips.

**Distribution:** Chile; Red Sea; Indian Ocean; South-west Africa; New Zealand; Yellow Sea; Japan; New to Korea.

### 3. *Perinereis nuntia* var. *brevicirris* (GRUBE, 1857)

(Fig. 2, i-j)

## Eui-In PAIK

Korean name; Sejeom Haean-gaet-jireong-i(세점해안갯지렁이)

*Nereis mictodonta*: IZUKA, 1912, pp. 148-151, pl, figs. 1-6.

*Perinereis nuntia* var. *brevicirris*: OKUDA & YAMADA, 1954, p. 184, text-fig. 3E; IMAJIMA, 1972, pp. 94-96, fig. 26, l-m. fig. 27.

*Perinereis brevicirris*: IMAJIMA & HARTMAN, 1964, pp. 151-152; IMAJIMA & GAMO, 1970, p. 14, figs. 59-60.

**Material examined**: Chilchendo in Geoje. X-1970(10), XIII-1971(41); Yeosu. I-1972(4).

**Diagnosis**: The general appearance is similar to that of *Perinereis nuntia* var. *vallata*; the principal differences are in the arrangement of the paragnaths on the proboscis. Paragnaths are arranged as follows: Area I has 2 to 4 cones; area II has 9 to 27 cones in oblique rows; area III has 10 to 25 cones in many longitudinal rows of 3 or 4 cones each with 2 to 6 cones on the sides; area IV has 23 to 38 cones in crescentic clusters; area V has 3 cones in a triangle; area VI has 5 to 8 flat cones in a transverse row; area VII and VIII have 28 to 37 cones in three irregular rows (fig. 2 i, j). *Perinereis nuntia* var. *vallata* and var. *brevicirris* are found together in the same situations.

**Distribution**: Saint Paul Island; Red Sea; Indo-Pacific regions; Australia; New Zealand; Yellow Sea; Japan; New to Korea.

Gen. *Neanthes* KINBERG, 1866

### 4. *Neanthes japonica* (IZUKA, 1908)

(Fig. 3, a-i)

Korean name; Cham-gaet-jireong-i(참갯지렁이)

*Nereis japonica* IZUKA, 1912, pp. 163-169, pl. 17, figs. 14-16, 18, 4 text-figs.; OKUDA, 1933, pp. 247-248, pl. 13, figs. i-j; 1935, p. 243; OKUDA & YAMADA, 1954, pp. 182-183, text-fig. 3A.

*Neanthes diversicolor*: IMAJIMA & HARTMAN, 1964, pp. 143-144.

*Neanthes japonica*: IMAJIMA, 1972, pp. 102-105, figs. 30, 37.

**Material examined**: Yongho Basin, Busan. XI-1971 (63); Estuary of the Nakdong River, Busan. XIII-1971(135); Yeosu, intertidal zone. I-1972 (20); Chungmu, intertidal zone. XIII-1971(6); Seo-gwipo, intertidal zone. I-1971 (32).

**Diagnosis**: The body is 65 to 92 mm long and 3 to 9 mm wide, for 75 to 91 segments. Body rather stout anteriorly, posteriorly gradually tapering. Pinkish yellow when alive, with two brownish longitudinal band on the anterior segments. The prostomium and the dorsal surface of the anterior region are covered with chestnut-brown pigments. Prostomium is broader than long and has a pair of short frontal antennae and two pairs of eyes in trapezoidal arrangement (fig. 3 a). The four pairs of peristomial cirri are slender; the longest pair extending to the fourth setigerous segment.

The proboscis lacks paragnaths on area V. The proboscis has paragnaths as follows: I has 1 to 4 small pointed cones; II has 9 to 17 cones in a 2 or 3 oblique rows; III has 28 to 45 cones; IV has 12 to 25 cones in a curved group; V has none; VI is variable, with a single cone or up to 6 cones in a small cluster; areas VII and VIII are continuous, with single continuous transverse row. Jaws are amber or dusky; each piece has 7 to 8 teeth along the cutting edge (fig. 3 a, b).

Posterior parapodia (fig. 3 c) differ little from those in front and middle regions (fig. 3 d, e) of the body. All have similar notopodial lobes, except then anterior ones has a preacicular lobe nearly as large as its accompanying posterior lobe; it diminishes farther back and is nearly absent

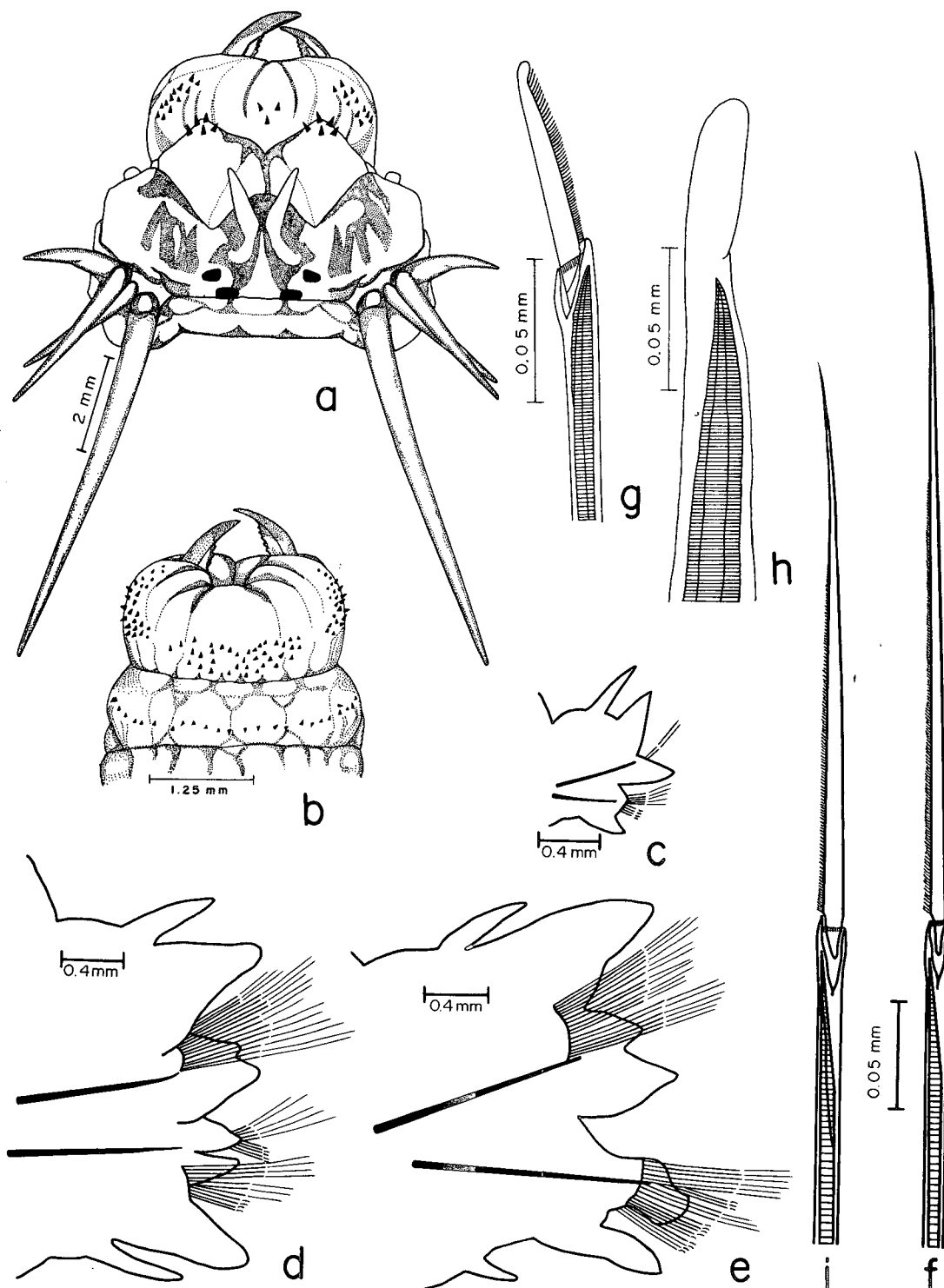


Fig. 3. *Neanthes japonica* (IZUKA). a. anterior end, in dorsal view; b. proboscis showing paragnaths, in ventral view; c. last parapodium; d. fifth parapodium; e. median parapodium; f. notopodial homogomph spiniger from median parapodium; g. neuropodial heterogomph falciger in supra-acicular position from median parapodium; h. neuropodial simple seta in supra-acicular position from posterior parapodium; i. neuropodial heterogomph spiniger in infra-acicular position from median parapodium.

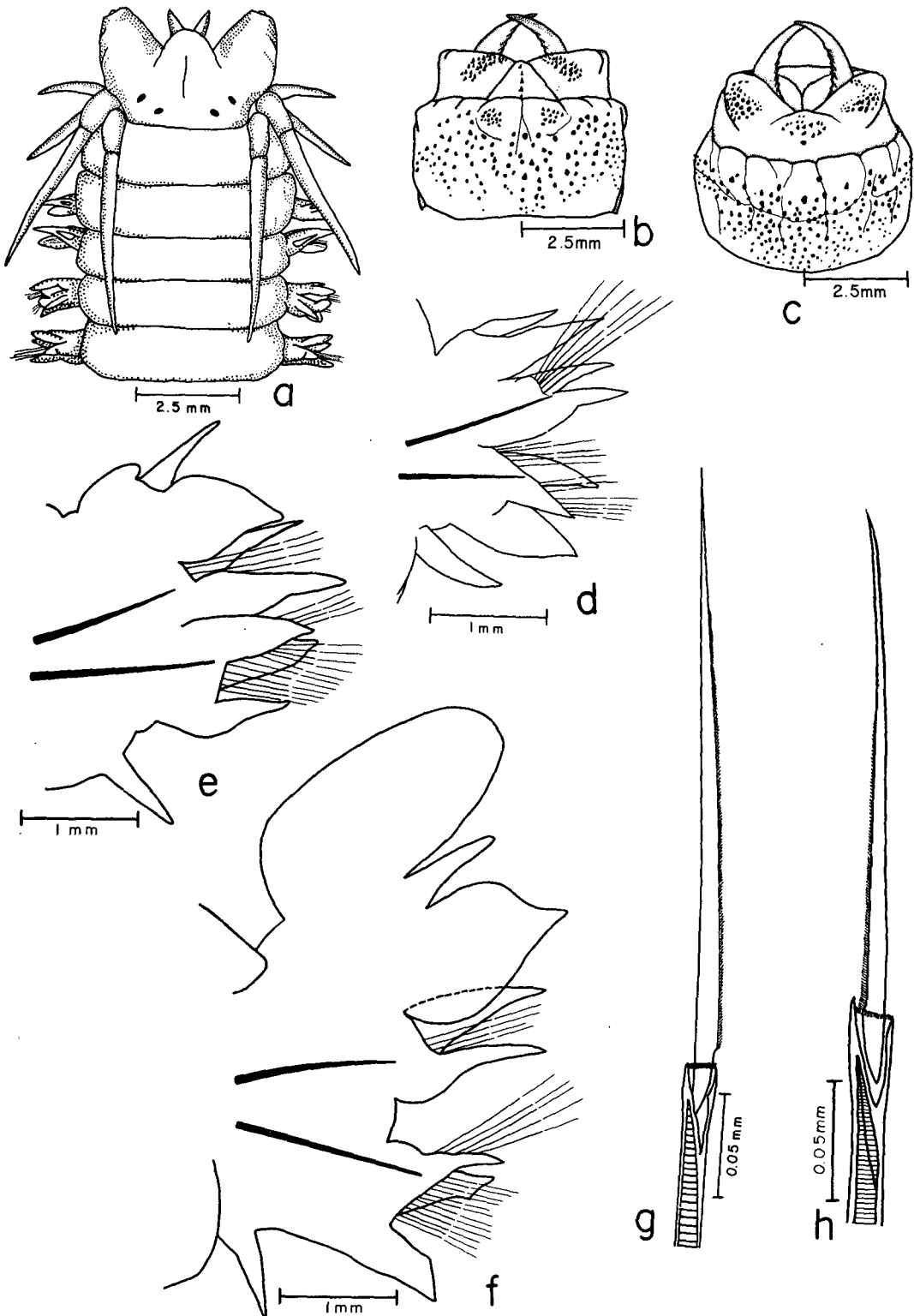


Fig. 4. *Nectoneanthes oxypoda*(MARENZELLER). a. anterior end, in dorsal view; b. proboscis showing paragnaths, in dorsal view; c. the same, in ventral view; d. second parapodium; e. 13th parapodium; f. 30th parapodium; g. notopodial homogomph spiniger from median parapodium; h. neuropodial homogomph spiniger in infra-acicular position from median parapodium.

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in posterior segments.

Notopodia have homogomph spinigers in which the appendages are very slender (fig. 3 f), they have no falcigers. Superior neuropodia have homogomph spinigers; 2 to 4 stout heterogomph falcigers in anterior parapodia (fig. 3 g), replaced by 1 to 2 heavy fused setae in the posterior half of the body (fig. 3 h). Inferior neuropodia have homogomph spinigers above, then a variable number of heterogomph spinigers (fig. 3 i) with heterogomph falcigers below.

**Distribution:** Japan; South Sakhalin; Yellow Sea; New to Korea.

Gen. *Nectoneanthes* IMAJIMA, 1972

### 5. *Nectoneanthes oxypoda* (MARENZELLER, 1879)

(Fig. 4, a—h)

Korean name; Neobjeogbal-gaet-jireong-i (넙적발갯지렁이)

*Nereis oxypoda*: Izuka, 1912, pp. 171—173, pl. 18, figs. 8—11; OKUDA, 1933, p. 247, pl. 13, figs. f—h.

*Neanthes oxypoda*: HARTMAN, 1954, p. 3; IMAJIMA & HARTMAN, 1964, p. 145.

**Material examined:** Boseong. XI—1971(24); Jangheung. XI—1971(20); Beolgyo. XII—1971(48).

**Diagnosis:** The body is 90 to 200 mm long and 9 to 14 mm wide, including parapodia and has 140 to 161 segments. The prostomium and the anterior dorsum are deep brown and the rest is brownish red. The prostomium is broader than long and has two short frontal antennae. The peristomial cirri are slender and the longest pair reaches back to the fourth [setigerous segment (fig. 4 a).

The paragnaths of the proboscis are as follows: area I has 2 to 6 cones in a longitudinal row; area II has 22 to 37 cones in three oblique rows; area III has 10 to 25 cones in a triangular cluster; area IV has 21 to 49 cones, in a curved group; area V has a single cone; area VI has 9 to 18 cones, in a circular group; areas VII and VIII, continuous, have a broad, transverse band consisting of many irregular rows (fig. 4 b, c).

Anterior parapodia have three conical notopodial ligules (fig. 4 d). The dorsal cirrus of the 13th parapodium has a conical lobe at its base (fig. 4 e). At the 30th parapodium the superior lobe of the notopodium is much enlarged, as well as the base of the dorsal cirrus. The dorsal cirrus is deeply inserted between the dorsal lobe and the superior ligule (fig. 4 f).

All notopodial and neuropodial setae have homogomph spinigers only (fig. 4 g); neuropodial setae in the infra-acicular position seem to be slightly heterogomph seen in different view (fig. 4 h).

**Distribution:** Japan (Central to Southern regions); Yellow Sea; Amoy; Western Australia; New to Korea.

## SUMMARY

The materials were obtained from Busan (=Pusan), Chilcheondo in Geoje, Chungmu, Yeosu, Beolgyo, Boseong, Jangheung, Seo-gwipo of the southern coast of Korea during the period from 1970 to 1971.

As a result of the study on the animals of Nereidae, the following five species were identified, which are newly recorded to Korean fauna:

*Tylorrhynchus heterochaetus*

*Perinereis nuntia* var. *vallata*



*Perinereis nuntia* var. *brevicirris*

*Neanthes japonica*

*Nectoneanthes oxypoda*

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