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Sea Shore Isopod Crustaceans Collected from Izu Islands, Middle Japan *

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伊豆諸島産海浜性等脚目甲殻類

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伊豆諸島においては，従来ほとんど，海浜産等脚類についての分類学的研究が行われたことはなかったので，八丈島，三宅島と式根島の潮間帯から飛沫帯，一部亜潮間帯の見付け取りを中心として現地調査を行った。八丈島では神湊，垂戸，屋ケンゲ浜，大潟浦など，三宅島では長太郎池，錆が浜，伊谷大船戸など，式根島では石白川，大浦等で調査を行った。その結果，24種を確認した。うち，純海産種は14種であった。また，そのうち，９種が新種であることが判明した。それらの標本は富山市科学文化センター，大阪市立自然史博物館ならびに千葉県立中央博物館において保管される。

ミズムシ亜目　Suborder Asellota
　ウミミズムシ科　Family Janiropsidae
　　ウミミズムシ属の１種　*Ianiropsis* sp. (aff. *longiantennata* Thielemann, 1910)
　ヒラタウミミズムシ科　Family Jaeropsidae
　　フトヒゲヒラタウミミズムシ(新称)　*Jaeropsis latiantennata*, n.sp.
ウミナナフシ亜目　Suborder Anthuridea
　ウミナナフシ科　Family Paranthuridae
　　ウミナナフシ属の１種　*Paranthura* sp. (aff. *kagawaensis* Nunomura, 1993)
有扇亜目　Flabellifera
　スナホリムシ科　Family Cirolanidae
　　ニセスナホリムシ　*Cirolana harfordi japonioca* Thielmann, 1910
　　リュウコツスナホリムシモドキ(新称)　*Metacirolana costata*, n.sp.
　コツブムシ科　Family Sphaeromatidae
　　シオムシ亜科　Sufamily Cassidininae
　　ヒラタウミセミ　*Leptosphaeroma gottschei* Hilgendorf, 1885
　　コツブムシ亜科　Subfamily Sphaeromatinae
　　ハバヒロコツブムシ　*Chitosphaeroma lata* (Nishimura, 1968)
　　ハチジョウイソコツブムシ(新称)　*Gnorimosphaeroma hachijoense*, n.sp.
　　シキネイソコツブムシ(新称)　*Gnorimosphaeroma shikinense*, n.sp.
　　シリケンウミセミ　*Dynoides dentisinus* Shen, 1929
　　ウミセミ亜科　Subfamily Dynameninae
　　チビウミセミ　*Holotelson tuberculatus* Richardson, 1909
　　カナエウミセミ(新称)　*Dynamenella laticauda*, n.sp.

*Contributions from the Toyama Science Museum, No.205

ヘラムシ亜目 SuborderValvifera
ヘラムシ科 Family Idoteidae
イソヘラムシ *Cleantiella isopus* (Grube, 1883)
オヒラキヘラムシ *Cleantiella strasseni* (Thielemann, 1910)
ワラジムシ亜目 Suborder Oniscidea
フナムシ科 Family Ligiidae
フナムシ *Ligia exotica* Roux, 1928
ハチジョウフナムシ(新称) *Ligia hachijoensis*, n.sp.
ミヤケフナムシ(新称) *Ligia miyakensis*, n.sp.
ヒゲナガワラジムシ科 Family Olibrinidae
ハチジョウミギワワラジムシ(新称) *Marinoniscus hachijoensis*, n.sp.
ミヤケミギワワラジムシ(新称) *Marinoniscus miyakensis*, n.sp.
ウミベワラジムシ科 Family Scyphacidae
ニホンハマワラジムシ *Armadilloniscus japonicus* Nunomura, 1984
ニホンタマワラジムシ *Alloniscus balssi* (Verhoeff, 1928)
ウミベワラジムシの1種 *Quelpartoniscus* sp.
オカダンゴムシ科 Armadillidae
オカダンゴムシ *Armadillidium vulgare* (Latreille, 1804)
ハマダンゴムシ亜目 Suborder Tyloidea
ハマダンゴムシ科 Family Tylidae
ハマダンゴムシ *Tylos granuliferus* Budde-Lund, 1885

キーワード：等脚目，分類学，伊豆諸島，八丈島，三宅島，式根島。

Marine isopod crustaceans of Izu Islands will be reported, based on the specimens which I collected from the Shkine, Miyake and Hachijo Islands, situated in the southern Tokyo, in 1998. I myself carried out a shore survey in several parts of these islands. At the result of the surveys, I could confirm 24 species, many of them are considered to be warmer elements. Of 24 species, 9 are proved to be new to science.

Key words : Isopod, taxonomy, fauna, Izu Islands, Hachijo Island, Miyake Island, Shikine Island.

Suborder Asellota

Family Janiropsidae

Ianiropsis sp. (aff. *longiantennata* Thielemann, 1910)

(Fig.1)

Material examined : 1♂ (2.1 ㎜ in body length) and 2♀♀ (2.0～2.1 ㎜ in body length), Taredo, Hachijo Island, May 25, 1998, coll. Noboru Nunomura. These specimens are deposited at the Toyama Science Museum (TOYA-Cr 12589～12591).

Description of male : Body (Fig.1A) 3.5 times as long as wide. Pleotelson with sinuate margin and 2～3 pairs of setae and several fine setae. Eyes large, each eye composed of 13 ommatida. Antennule (Fig.1B) relatively short, reaching the fourth peduncular segment of antenna. Flagellum 14-segmented. Antenna (Fig.1C) very long, reaching beyond the posterior margin of pleotelson Flagellum 33～36-segmented.

Mandible(Fig.1D). Pars incisiva 5 teeth at the tip ; 7 setae behind the pars. Maxillula (Fig.1E). Outer lobe with 10 setae at the tip ; inner lobe with 5 plumose setae at the tip. Maxilla(Fig.1F). Endopod with 5～6 setae and several setae ; both rami with 3 setae of outer lobe. Maxilliped(Fig.1G). Endite with many hairs and 2 coupling hooks. Palpal segments 1～3 wide, segment 4 narrow with 8～9 setae on outer margin, segment 5 short and round.

Pereopod 1(Fig.1H). Basis 3 times as long as wide ; ischium slender than basis with 3 short setae on outer margin ; merus triangular with 4 long setae at outer distal angle and 3 setae on inner margin; carpus long with 3 long setae on inner margin with 9~12 setae ; propodus long with 3 long setae on inner margin and 7~9 setae on outer margin and 2 long setae at outer distal angle ; dactylus bifid.

Pereopod 2 (Fig.1I). Basis ellipsoid, twice as long as wide on both margins ; ischium a little shorter than basis with 2 setae on outer margin ; merus triangular with 2 long setae at outer distal angle ; carpus rectangular with 3 groups of 2 setae ; propodus with 3~4 setae on inner margin and 4~5 setae on outer margin ; dactylus bifid.

Pereopod 4 (Fig.1J). Basis 3 times as long as wide ; ischium as long as basis with 2 setae on outer margin ; merus with 4 long setae at outer distal angle ; carpus long with 5~6 setae on inner margin and 7~8 long setae on outer margin ; dactylus bifid.

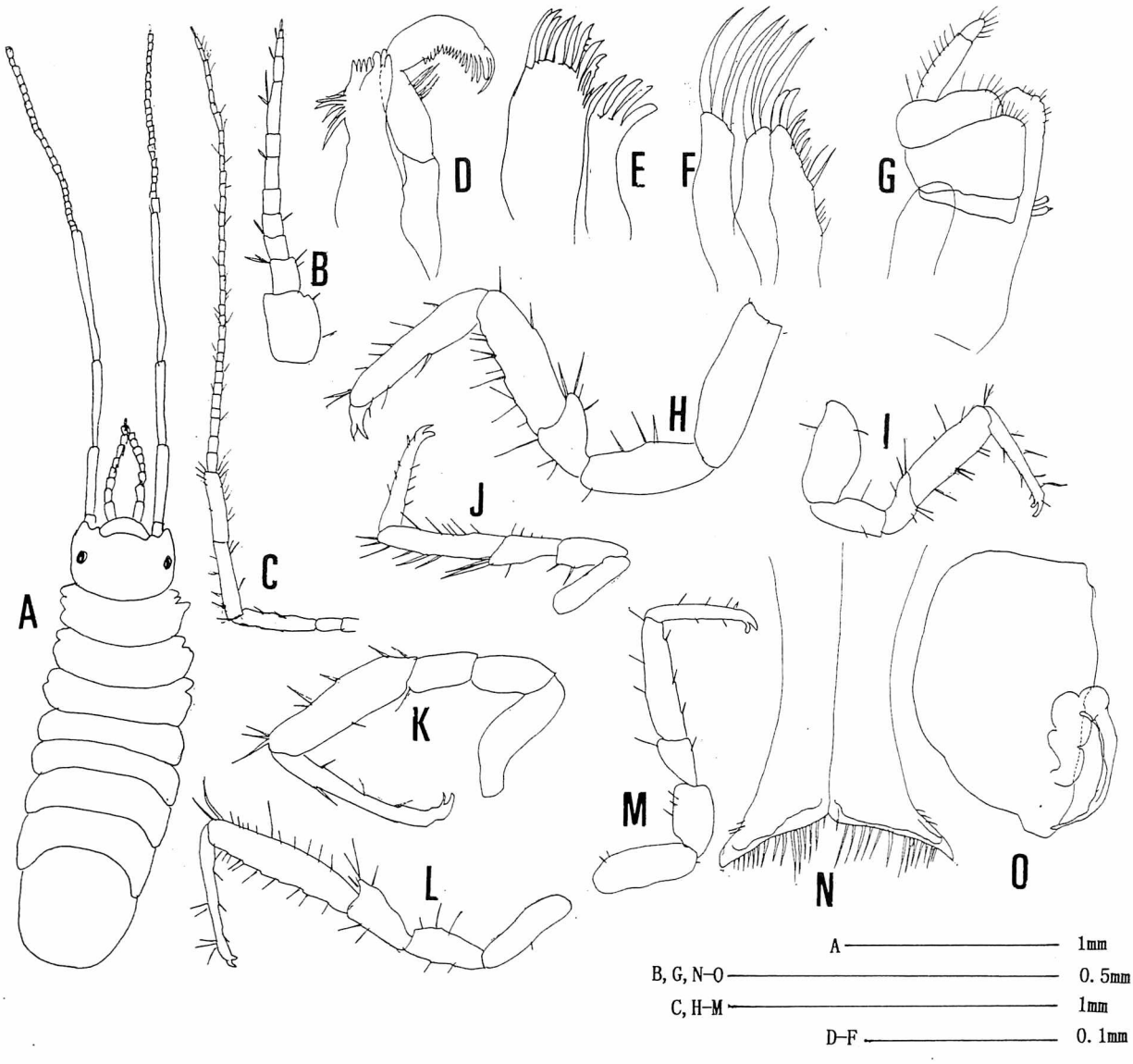

Fig 1. *Ianiropsis* sp.(aff. *longiantennata* Thielemann, 1910)
A.Dorsal view ; B.Antennule ; C.Antenna ; D.Mandible ; E.Maxillula ; F.Maxilla ; G.Maxilliped ; H-I.Pereopods 1-2 ; J-M.Pereopods 4~7. N.Pleopod 1 ; O.Pleopod 2.(All : Male from Hachijo Island)

Pereopod 5 (Fig.1K). Basis 4 times as long as wide ; ischium about half the length of basis ; merus as long as ischium with a seta ; carpus 2.5 times as long as carpus, with 8 setae on outer margin and a seta on inner margin ; propodus a little longer than carpus with 3 setae on inner margin and a seta on outer margin ; dactylus bifid.

Pereopod 6 (Fig.1L). Basis rectangular ; ischium as long as basis ; merus as long as ischium with outer distal corner with 4 setae there ; carpus long with 10 setae on inner, margin and 15 setae on outer margin ; propodus slender ; dactylus bifid.

Pereopod 7 (Fig.1M). Basis stout ; ischium a little shorter than basis ; merus short with a long seta at outer distal angle ; carpus long with 3 setae on inner margin and 3 setae on outer margin ; propodus 4/5 as long as carpus ; dactylus bifid.

Pleopod 1 (Fig.1N). Sympod normal in the genus.

Pleopod 2 (Fig.1O) semi-circular ; copulatory organ shorter than other species of the genus. Unfortunately, uropod is broken.

Female ; No distinguished difference was noted except the copulatory organs. A gravid female with 6 juveniles in her brood pouch.

Habitat : Under the stone in the intertidal zone.

Remarks : The present specimens are similar to *Ianiropsis longiantennata* Thielemann, reported from Japanese and Korean waters, but the former is separated from the latter in the following features : (1) more strongly protruded anterolateral margin of cephalon (2) not protruded posterior margin of pleotelson (3) lower posterolateral angles of sympod, and (4) fewer setae on pereopods. And this species is allied to *Ianiropsis serricaudis* reported from Korea and Russia but differs in the following features : (1) protruded anterolateral margin of cephalon (2) fewer segments of antennule, (3) fewer setae on maxilla (4) wider but shorter third palpal segment of maxilliped, and (5) fewer setae on all the pereopods. Unfortunately, both uropods and some appendages were lacking, Therefore, I refrained from establishing the new species.

Family Jaeropsidae

Jaeropsis latiantennata, n.sp.

(Japanese name : Futohige-hirata-umimizumushi, new)

(Fig.2)

Material examined : 1♂ (holotype 3.2 ㎜, in body length), Ishijiro-kawa, Shikine Island, Apr. 26, 1998, coll. Noboru Nunomura. Type is deposited at the Toyama Science Museum (TOY Cr-12597).

Description of male : Body 4.1 times longer than wide. almost parallel-sided. Color creamy white with darker patterns, especially the third and fourth pereonal somites are darker than the others. Cephalon. Rostrum with anterior shallow concavities. Eyes big, each eye with 35 ommatidia. Pleotelson round with 5 pairs of spines, several setae and serrated posterolateral margin.

Antennule (Fig.2C). Basal segment longest and widest, almost square ; segment 2 rectangular with the 3 serrated setae. Segments 3~5 much smaller than the 2 basal ones and with 1~2 aesthetascs; terminal segment with 3 aesthetascs at the tip. Antenna (Fig.2D). Peduncle very wide with sinuate margin and peduncle 5-segmented ; two basal segments short ; third segment big and sinuate margin segment 4 a little narrower than the third ; fifth segment again big with sinuate margin and 15 longer and more than a dozen shorter setae.

Mandible (Fig.2E). Pars incisiva 4-segmented ; spine row of 12 strong spines. Palp 3-segmented, segment 2 with 5 setae ; terminal segment with 11 setae. Maxillula (Fig.2F). Outer lobe with 11 serrated teeth at the tip. Maxilla (Fig.2G). Each ramus of outer lobe with four elongated fringed spines inner lobe with 3 simple setae. Maxilliped(Fig.2H). Endite broad with 3 coupling hooks. Palp

terminal segment small with about 10 setae around the margin.

Pereopod 1 (Fig.2I). Basis 3 times as long as wide ; ischium a little shorter than basis ; merus half the length of ischium, with a long seta ; carpus with 4 long setae on inner margin ; propodus as long as carpus ; 4 stout setae and many fine hair on inner margin ; dactylus bifid.

Pereopod 2 (Fig.2J). Basis rectangular ; ischium with a seta on sternal margin ; merus half the length of ischium with 3 setae on inner margin and a seta at outer distal angle ; carpus with 4 setae on inner margin ; propodus as long as carpus ; with 4 setae on inner margin ; propodus a little shorter than carpus with 4 setae on inner margin and 3 setae on outer margin ; dactylus bifid.

Pereopod 3. Basis rectangular with a seta at outer distal angle ; merus with 2 setae at outer distal angle and a seta at inner distal angle ; carpus with 3 relatively long setae and many short hair; propodus as long as carpus with 6 setae and 5~6 setae on outer margin ; dactylus bifid.

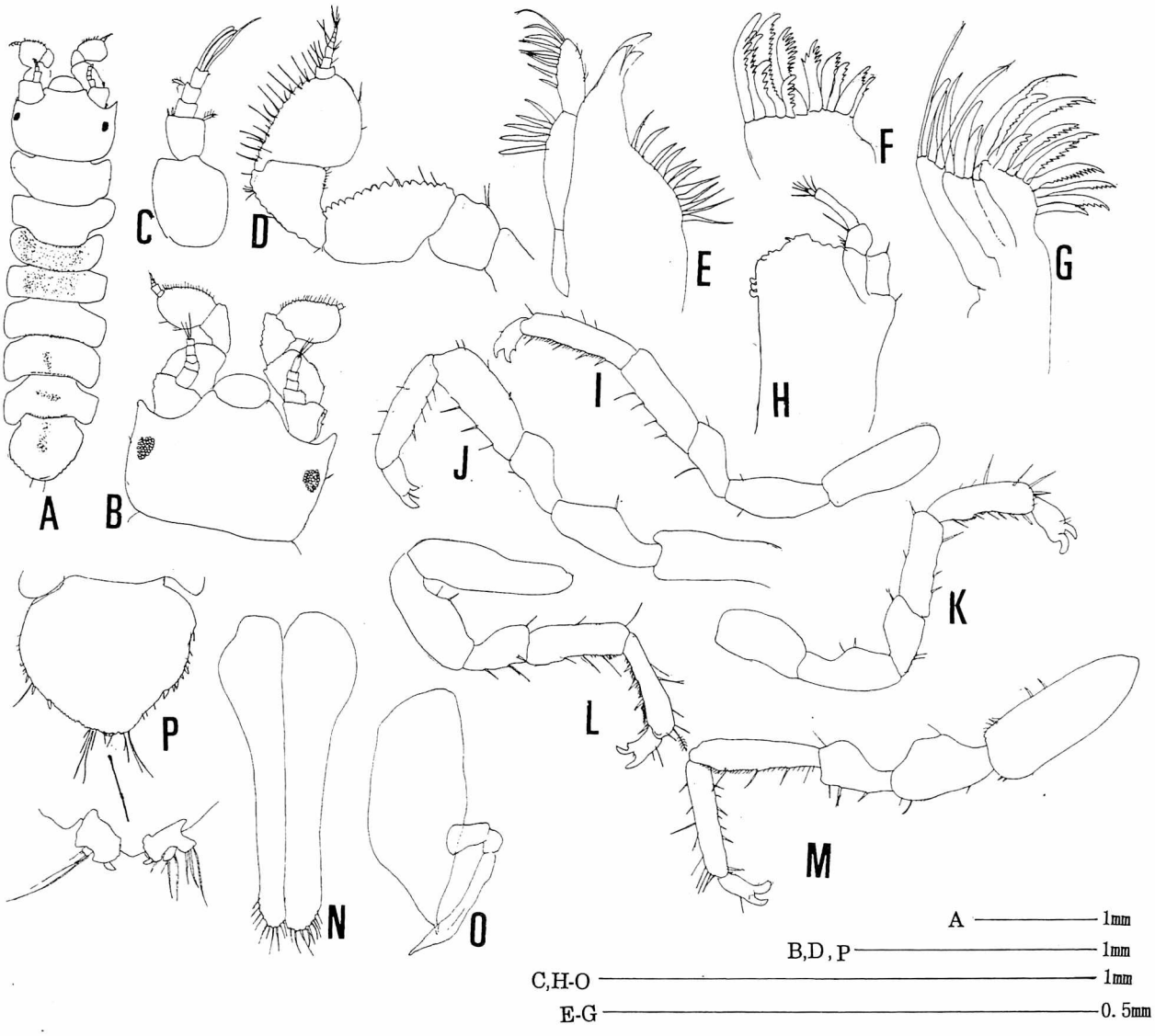

Fig.2 *Jaeropsis latiantennata*, n.sp.
A.Dorsal view ; B.Cephalon and both antennae ; C.Antennule ; D.Antennae, E.Mandible ; F.Outer lobe of maxillula ; G.Maxilla ; H.Maxilliped ; I-L.Pereopods 1-4 ; M.Pereopod 7 ; N.Pleopod 1 ; O.Pleopod 2 ; P.Pleopoelson and uropods (All : Holotype male)

Pereopod 4 (Fig.2K). Basis rectangular ; ischium as long as basis, with 2 setae on inner margin with 3 setae on inner margin and 2 setae at outer distal margin ; propodus as long as carpus with 6 setae and many hair on inner margin and 4 long setae ; each with 2～4 setae on outer margin, dactylus bifid.

Pereopod 5. Basis 2.3 times as long as wide ; ischium, 4/5 as long as basis with 4 setae on inner margin and a seta on outer margin ; merus with a seta at outer distal angle ; carpus as long as basis with 2 setae on inner margin ; propodus as long as carpus, with 4 setae inner margin and a group of setae at outer distal angle ; dactylus bifid.

Pereopod 6 (Fig.2L). Basis rectangular ; ischium as long as basis, with 2 setae on outer margin ; merus almost half the length of ischium with 3 setae on inner margin and a seta at outer distal angle; carpus as long as basis with 3 long setae and many hair on inner margin and a seta at outer distal angle ; propodus as long as carpus with 4～5 stout spines and many hair on inner margin and 5～6 setae on outer margin ; dactylus bifid.

Pereopod 7 (Fig.2M). Basis rectangular ; ischium 2/3 as long as basis ; merus with 3 setae on inner margin and a seta at outer distal angle ; carpus a little shorter than basis with setose inner margin with 4 longer setae ; propodus with 8 setae on inner margin and several setae near the distal are of outer margin ; dactylus bifid.

Pleopod 1 (Fig.2N). Two rami fused entirely ; terminal margin setose and sinuate.

Pleopod 2 (Fig.2O). Appendage slender and reaching as long as the tip of basal part.

Uropod (Fig.2P) small and almost square ; both rami small and with several long setae.

Habitat : Under the stones and among pebbles In the intertidal zone.

Etymology : The specific name is derived from the Latin latus-*braod* plus antenna.

Remarks ; The present new species is closely allied to *Jaeropsis lobata* Richardson, but the former is separated from the latter in the following features : (1) sinuate margin of peduncular segments of antennae, (2) sinuate posterolateral margin of pleotelson, (3) more numerous flagellum of antennae, (4) shape of uropod, and (5) shape of pleotelson.

The present new species is also allied to *Jaeropsis stebbingi* Kensley reported from South Africa, but it differs from the latter in the following features : (1) sinuate margin of antennae (2) sinuate posterolateral margin of pleotelson, (3) longer setae (4) more numerous setae of maxilla and (5) shape of uropod.

Suborder Anthuridea

Family Paranthuridae

Paranthura sp. (aff. *kagawaensis* Nunomura, 1993)

(Fig.3)

Materials examined : 1♀ (4.0 ㎜ in body length), Tsubota, Chotaro-ike, Miyake Island, Sep. 6, 1998, coll. Noboru Nunomura. This specimen is deposited at the Toyama Science Museum (TOYA-Cr 12623).

Description : Body (Fig.3) 10 times as long as wide, except of both antennae. Color dull yellow with irregular blacker patterns. Eyes large, each eye composed of 10～11 ommatidia, each ommatidium is separated each to one another. Pleotelson lanceolate with 5～6 setae at the tip.

Antennule, (Fig.3) 6 segmented ; Antennae (Fig.3C) 6-segmented. Mandible. (Fig.3E) Terminal palpal segment with 7 setae. Maxillula (Fig.3F) long, with 12～13 saw - like teeth. Maxilliped (Fig.3G) with 2 free segments ; both segments are same length ; terminal segment with 6～7 setae.

Pereopod 1 (Fig.3H) subchelate. Basis stout, twice as long as wide ; ischium a little shorter than basis ; merus a little shorter than ischium ; merus and carpus short ; propodus short but inner part

damaged in this specimen.

Pereopod 2 (Fig.3I) subchelate. Basis and ischium fusiform ; merus triangular with a seta at inner distal angle and 2 long setae at outer distal angle ; carpus triangular with a long seta on inner distal margin ; propodus robust with 5 stout setae ; dactylus relatively long.

Pereopod 3 (Fig.3J) subchelate. Basis and ischium fusiform ; merus triangular ; carpus triangular; propodus somewhat slenderer than the preceding two ones ; dactylus bifid.

Pereopod 4~7 (Fig.3K-N) similar. Basis and ischium with a seta at inner distal angle ; merus half length of ischium with a seta at outer distal angle and inner distal angle ; carpus as long as merus with 2~3 relatively, long setae at outer angle ; propodus rectangular with 2 stout setae on inner margin ; dactylus bifid.

Pleopods are not characteristic in female .

Uropod (Fig.3O) Endopod 2-segmented ; basal segment rectangular with a seta at inner distal angle, terminal segments round with sinuate margin and 16 setae. Exopod ellipsoid with sinuate margin with about 30 setae.

Habitat : Under the stone and among pebbles in the intertidal zone.

Remarks : This specimen is similar to but *Paranthura kagawaensis* recorded from the Seto Inland Sea, but differs from in the following features : (1) shorter pleonal somite, (2) fewer ommtidia of eyes, (3) fewer segment of antennule, (4) shorter pleotelson, and (5) fewer setae on the terminal segment of mandibular palp. This species is also similar to *Paranthura japonica* Richardson recorded from the

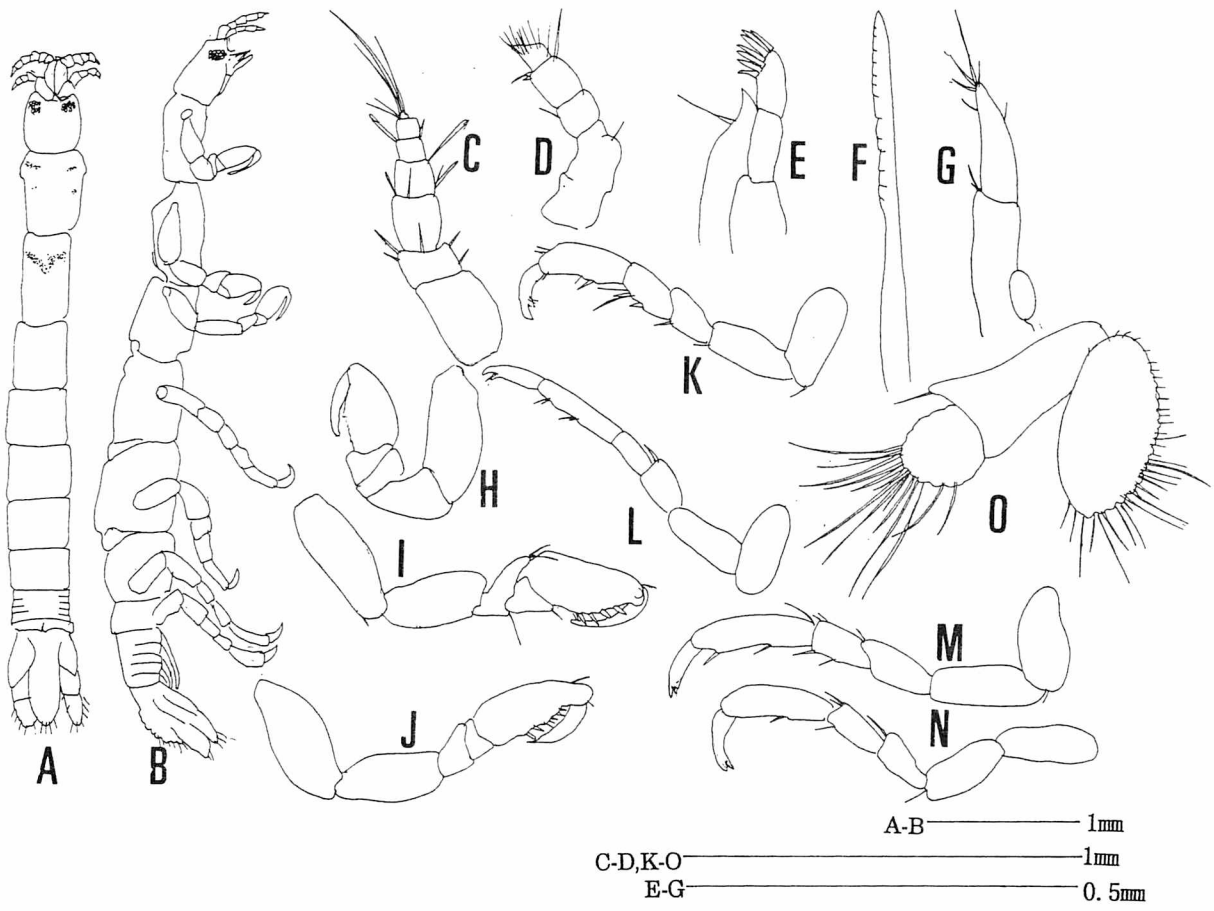

Fig.3 *Paranthura* sp. (aff. *kagawaensis* Nunomura, 1993)
A.Dorsal view ; B.Lateral View ; C.Antennule ; D.Antenna ; E.Mandible ; F.Maxillula ; G.Maxilliped; H-N.Per4eopods 1-7 ; O.Uropod. (All : Female specimen from Miyake Island).

various parts of Japan and its neighboring areas, but differs from in the following features : (1) separately arranged ommatidia of eye, (2) more numerous setae on uropod and pleotelson, (3) fewer saw-like teeth of maxillula, and (4) fewer flagellar segments of antennule.

Suborder Flabellifera
Family Cirolanidae
Cirolana harfordi japonioca Thielmann 1910

(Japanese name : Nise-sunahori-mushi)

Material examined : 5♀♀, Kaminato, Hachijo Island, May 28, 1998, coll. Noboru Nunomura ; 4♀♀, Hachijo, Island, Yokomagawa, May 24, 1998, coll. Noboru Nunomura ; 1♀, Kamisuki, Yunohama, Miyake Island, coll. Noboru Nunomura ; 2♂♂13♀♀, Yakengahama, Hachijo Island, May 28, 1998, coll. Noboru Nunomura ; 6♀♀, Taredo, Hachijio Island ; May 25, 1998, coll Noboru Nunomura ; 11♀♀ 6 youngs, Sabigahama, Hijikata, Miyake-Island, Sep. 6, 1998, Noboru Nunomura; 1♀, Ishijirokawa, Shikine Island, Apr. 26, 1998 ; coll. Noboru Nunomura.

Metacirolana costata, n.sp.

(Japanese name : Ryukotsu-sunahorimushi-modoki, new)

(Fig.4)

Material examined : 3♂♂ (1♂holotype, 3.0 ㎜ in body length and 2♂♂paratypes, 2.6~3.3 ㎜ in body length) and 10♀♀ (paratypes, 2.5~3.3 ㎜ in body length), Itani-Ofunato, Miyake Island, Sep. 6, 1998, coll. Noboru Nunomura. Type series is deposited as follows : Holotype (TOYA-Cr 12614), and 8 paratypes (TOYA-Cr 12615~12622) at the Toyama Science Museum ; 3 paratypes (OMNH Ar-4141~4143) at the Osaka Museum of Natural History and 3 paratypes (CBM-ZC 4871) at the Natural History Museum and Institute, Chiba.

Description : Body (Fig.4A) 2.0 times as long as wide. Color creamy white. Cephalon triangular with a protruded medial anterior tip. Eyes mediocre in size, each eye with 30 ommatidia. Epimera of pereonal somite well developed. Pleon short with 5 distinct segments. Pleotelson with medial ridge longitudinally and with 4~5 short setae near the tip.

Antennule (Fig.4B) with 6 segments. Antenna (Fig.4C) composed of 5 peduncular segments and 7~8 flagellar segments.

Mandible (Fig.4D). Incisor 3-segmented ; lacinia mobilis represents 9 teeth. Palpal segment 2 with 10 setae and segment 3 with 5 setae. Maxillula (Fig.4E). Exopod with 10 teeth at the tip, 4 of which are dentate ones. Maxilla (Fig.4F). Endopod broad and with 5 plumose setae. Exopod with 4 setae on inner lobe and 3 setae on outer lobe. Maxilliped(Fig.4G). Endite round posterior margin. Palp 5-segmented, segment 3 biggest.

Pereopod 1 (Fig.4H). Basis rectangular, 4 times as long as wide ; ischium almost square ; merus almost square with 3 pegs on inner margin a short seta at outer distal angle ; carpus short with 2 short setae at inner margin ; propodus stout with 6 stout setae and a few of thin setae on inner margin ; dactylus almost 2/3 as long as propodus.

Pereopod 2 (Fig.4I). Basis rectangular, ischium spread toward the tip with a seta at sternal angles ; merus almost square with protruded outer distal angle ; carpus short and triangular with 3 spines ; propodus round with 3 spines on inner margin ; dactylus half the length of propodus stout with 5 setae on inner margin ; dactylus long.

Pereopod 3 (Fig.4J). Basis twice as long as wide ; ischium half the length of basis ; merus almost square with a seta at outer distal angle ; carpus square with a seta at inner distal angle and outer distal angle ; propodus relatively short with 2 groups of 2 setae on inner margin ; dactylus shorter

than that of preceding pereopods.

Pereopod 4. Basis twice as long as wide, with 4~7 setae on inner margin and 3 simple setae and 2 plumose setae on outer margin ; ischium half the length of 4~5 setae on inner margin and 2 setae at outer distal angle merus with 4 setae on inner margin and 3 setae at outer distal angle ; carpus as long as merus with 4 setae on Inner margin and 2 setae at outer distal and protruded with 2 setae on inner margin and 2 setae at outer distal angle ; dactylus bifid.

Pereopod 5 (Fig.4K). Basis rectangular, 2.5 times as long as wide ; ischium as long as basis with 8 setae on distal margin ; merus 2/3 as long as ischium with 3 setae at outer distal angle and 2~3 setae on inner distal angle ; carpus as long as merus with 10 setae on distal margin ; propodus with 2 stout setae ; dactylus small.

Pereopod 6 (Fig.4L). Basis rectangular, 2.4 times as long as wide ; ischium 2~3 as long as basis, with a long seta at outer distal angle and 2 setae on inner margin ; merus 3/5 as long as ischium with 3~4 setae on both margins ; carpus as long as merus with 6~7 setae on distal margin ; propodus as long as merus with 2~3 setae on inner margin and 4~5 setae on distal margin ; dactylus bifid.

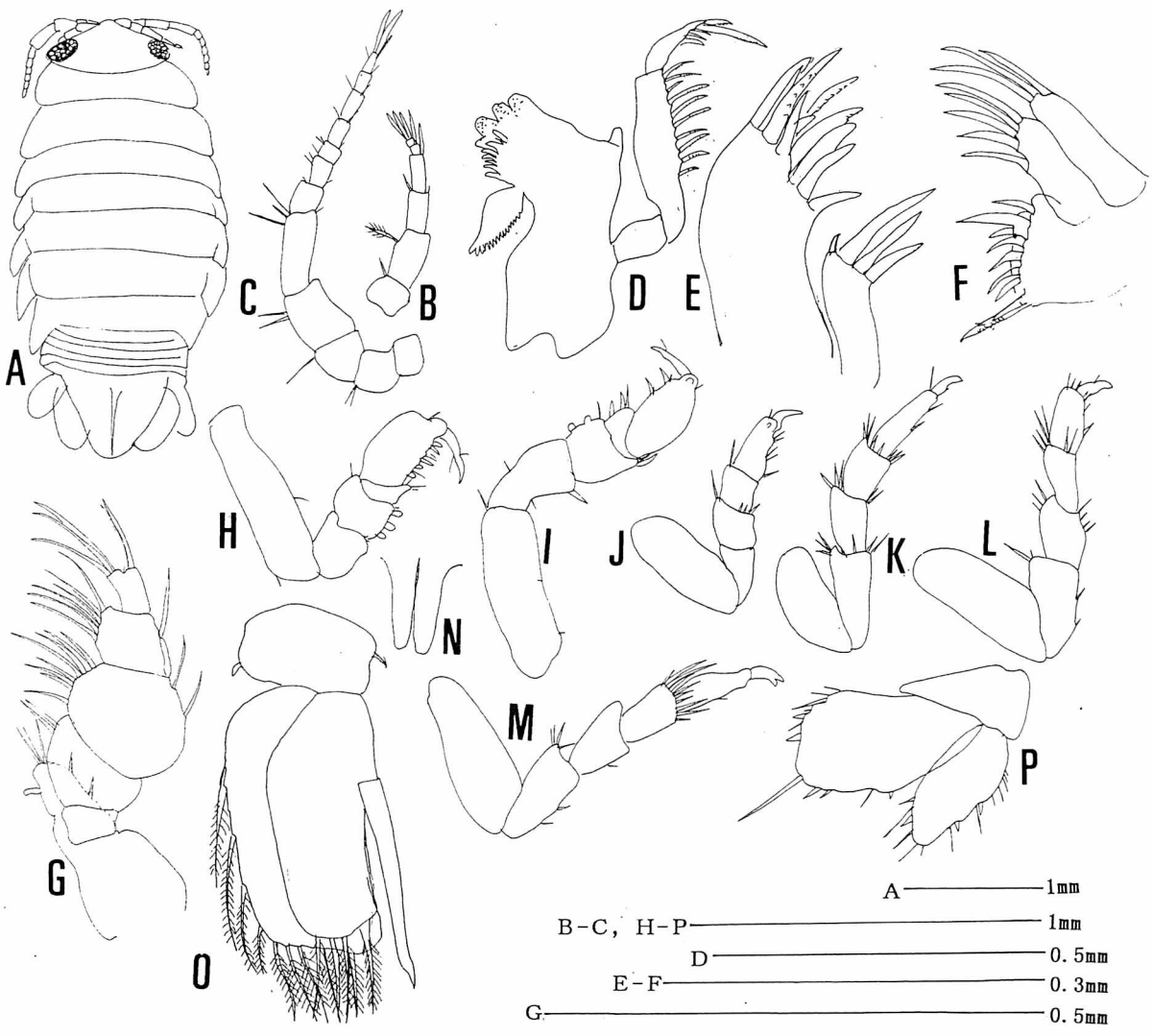

Fig. 4 *Metacirolana costata*, n.sp.
A.Dorsal view ; B.Antennule ; C.Antenna ; D.Mandible ; E.Maxilula ; F.Maxilla ; G.Maxilliped ; H-J.Peropods 1-3 ; K-M.pereopods 5-7 ; N.Penes ; O.Pereopod 2 ; P.Uropod. (All : Holotype Male).

Pereopod.7 (Fig.4M). Basis 2.2 times as long as wide ; ischium 3/5 as long as basis with 2 setae on inner margin and 3~4 setae at outer distal angle ; merus 3/4 as long as ischium ; carpus as long as merus with more than 12 long setae on distal margin ; propodus a little longer than carpus ; dactylus bifid.

Penes (Fig.4N) straight, each penis about 4.8 times as long as wide.

Pleopod 2 (Fig.4). Endopod ; lanceolate with 6 setae around the margin ; stylus a little exceeds beyond the endopod, whose tip is pointed. Exopod as long as endopod with 20 setae around the margin.

Uropod. (Fig.4P) Basis triangular. Endopod rectangular with sinuate margin bearing 4~5 stout spines ands 7~8 setae sparsely. Exopod lanceolate with sinuate margin bearing 3 spines and 12 setae.

Habitat : Under stones, intertidal zone.

Etymology : The specific epithet is derived from the Latin, costatus=ridged.

Remarks : The present new species is closely allied to *Metacirolana rugosa* reported from Australian waters but the former is separated from the latter in the following features : (1) longer and narrower medial ridge on the pleotelson, (2) absence of protrusion on pleonal somite, (3) rounder posterior end of cephalon, (4) straight boundary of pleonal somites, (5) rounded posterior end of pleotelson, (6) shorter both antennae. The present new species is separated form the another Japanese species *Metacirolana japonica* n the following features : (1) presence of medial ridge on the surface of pleotelson, (2) rounded posterior end of uropods, (3) rounded posterior end of pleotelson and (4) shorter antenna.

Family Sphaeromatidae

Leptosphaeroma gotteschei Hilgendorf, 1885

(Japanese name : Hirata-umisemi)

Material examined : 1♂1♀, Yunohama, Kamituski, Miyake Island, Sep.6, 1998. coll. Noboru Nunomura.

Chitonosphaera lata Nishimura, 1968

(Japasese name : Habahiro-kotsubumushi)

Gnborimospharo,ma lata Nishimura, 1968

Chitonosphaera lata (Nishimura), Kussakin, 1993

Material examined : 1♀, Chotaro Ike, Tsubota, Miyake Island, Sep.6, 1998, coll. Noboru Nunomura ; 4♀♀, Ishijirokawa, Shikine Island, Apr.26, 1998. coll. Noboru Nunomura.

Gnorimosphaeroma hachijoense, n.sp.

(Hachjio-isokotstubu-mushi, new)

(Fig. 5)

Material examined : 13♂♂ (1♂holotype, 4.5 ㎜ in body length, 12♂♂ paratypes, 4.0 ~ 6.3 ㎜ in body length) and 6♀♀ (paratypes, 3.0 ~ 5.9 ㎜ in body length), Shioma, Hachijo Island, May 26, 1998, coll. Noboru Nunomura ; 3♂♂, Yakenga-hama, Hachijo Islands, May 28, 1998, coll. Noboru Nunomura Types series is deposited as follows : holotype (TOYA-Cr 12646) and 7 paratypes (TOYA-Cr 12636~12645) at the Toyama Science Museum, 4 paratypes (OMNH-Cr 4144~4147) at the Osaka Museum of Natural History and 4 paratypes (CBM-ZC 4872) at the Natural history Museum and Institute, Chiba.

Description of male : Body (Fig.5A) 1.8 times as long as wide excluding uropods and antennae. Color grayish brown. Two suture lines on the pleotelson are equal in length. Posterior end of pleotelson end straight.

Antennule (Fig.5B) reaching posterior part of pereonal somite 1 and 15-segmented ; first and second segments stout ; third segment biggest ; flagellum composed of 12 segments, each segment with an aesthetasc. Antenna (Fig.5C), reaching the middle part of and composed of 5 peduncular and 12~13 flagellar segments.

Frontal lamina and clypeus (Fig.5D) almost pentagonal. Right mandible (Fig.5E). Pars incisiva 3 toothed lacinia mobilis 3 toothed ; 4 setal rows behind lacinia mobilis ; processus molaris wide. Left mandible (Fig.5F). Pars incisiva 3-toothed ; lacinia mobilis chitinized and 3-toothed ; plumose 3 setae behind the lacinia mobilis ; processus molaris wide. Palpal segment 2 with 13 setae ; segmengt 3 with 15 setae. Maxillula (Fig.5G). Outer lobe with 10 teeth at the tip ; inner lobe with 4 plumose setae at the tip. Maxilla (Fig.5H). Outer lobe with 10 setae on exopod and 11 setae on endopod, inner lobe with 10 plumose setae at the tip. Maxilliped (Fig.5I). Endite rectangular with 10~12 stout spines on distal end and a coupling hook on inner border. Palpal segment 2 with 7 setae on inner area;

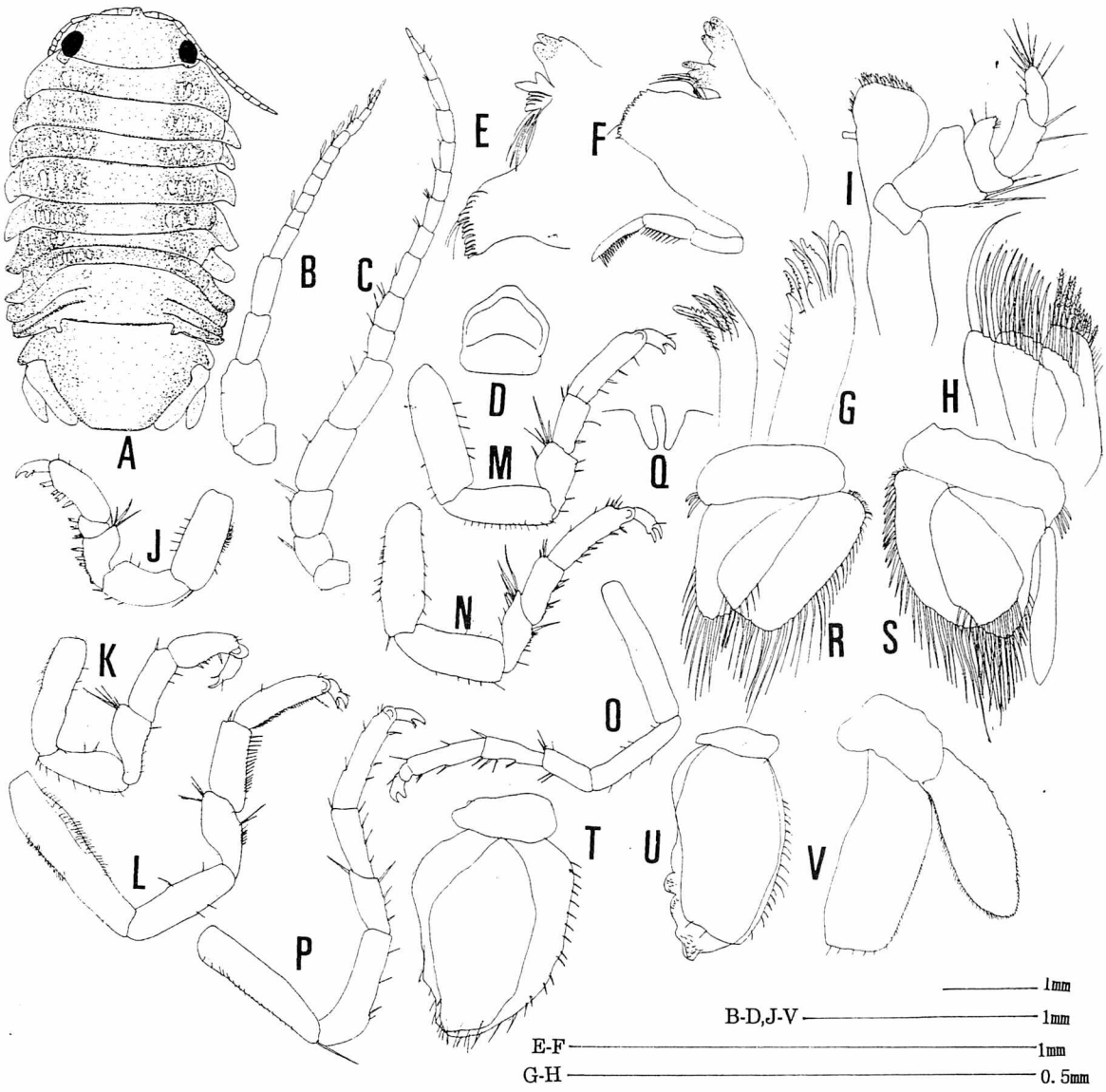

Fig.5 *Gnorimosphaeroma hachijoense*, n.sp.
A.Dorsal view ; B.Antennule ; C.Antenna ; D.Clypeus ; E.Right mandibe ; F.Left mandible ; G.Maxilulla ; H.Maxilla ; I.Maxilliped ; J-P.Pereopods 1-7 ; Q.Penes R-T.Pleopods 1-3 ; U.Pleopod 5 ; V.Uropod. (All : Male Holotype)

segment 3 relatively with 4 setae on inner margin ; segment 4 with 4 setae at inner distal angle ; terminal segment with 5~6 setae.

Pereopod. 1 (Fig.5J). Basis 2.5 times as long as wide, with 5~6 short setae on outer margin and 4~5 setae and a cluster of fine setae on inner margin ; ischium a little shorter than basis with 2~3 setae on both margins ; merus almost square with 3 stout bifid setae and 4 long setae at outer distal angle ; carpus low triangular with 2 stout bifid setae ; propodus robust with 4 stout bifid setae; dactylus bifid.

Pereopod. 2 (Fig.5K). Basis 3 times as long as wide with a relatively seta at inner distal angle ; ischium 3/4 as long as basis with 8~9 setae on inner margin and 2~3 setae on outer margin ; merus 3/5 time as long as basis with 8~10 short setae on inner margin and 4 long setae at outer distal angle ; carpus as long as merus with 2 setae on inner margin and a seta at outer distal angle ; propodus almost as long as carpus w but the basal half a little robuster than the distal half with 6~8 setae on inner margin and 2 short setae at outer distal angle ; dactylus bifid.

Pereopod 3 (Fig.5L). Basis long, 4 times longer than wide, with many short setae on both margins ; ischium 3/5 as long as basis ; merus about half the length of ischium with 2 longer and 7~8 shorter seta on inner margin and 3 relatively long setae at outer distal angle ; carpus a little logger than merus with 15~16 setae on inner margin and a seta at outer distal angle ; propodus as long as carpus with a relatively long seta and many short setae on inner margin and a short seta at outer distal angle ; dactylus bifid.

Pereopod 4 (Fig.5M). Basis 3 times as long as wide with 3~5 setae on both margins ; ischium a little shorter than basis with 15~16 short setae on inner margin ; merus 45% as long as ischium with 4 setae on inner margin and 4 long setae at outer distal angle ; carpus as long as merus, with 2 setae on inner margin and 3 setae at outer distal angle ; propodus 1.5 times as long as carpus with 4~5 setae on inner margin ; dactylus bifid.

Pereopod 5 (Fig.5N). Basis 3.3 times as long as wide, with 10~12 setae on inner margin, 6~7 setae on outer margin and a seta at inner distal angle ; ischium 70% as long as basis with 3~5 short setae on both margins ; merus about half the length of ischium, with 2 long setae at outer distal angle, 5~6 length on outer margin, and 7~10 setae on inner margin ; carpus as long as merus with 4~8 setae on inner margin and 3 setae at outer distal angle ; propodus 1.5 times as long as wide with 7~9 setae on inner margin and 6~8 setae on outer margin ; dactylus bifid.

Pereopod 6 (Fig.5O). Basis oblong ; ischium a little shorter than basis with 3 setae on both margins ; merus almost 2/3 as long as ischium with 2 setae at inner distal angle and 3~4 setae at outer distal angle ; carpus as long as merus ; propodus almost as long as ischium with 3 setae on both margins ; dactylus bifid.

Pereopod 7 (Fig.5P). Basis oblong ; ischium 2/3 as long as basis with 3 setae on inner margin ; merus 3/4 as long as basis with 4~5 setae on inner margin and 3 setae at outer distal angle ; carpus a little shorter than merus with 4 setae on inner margin and 2 setae at outer distal angle ; propodus as long as ischium with 3 setae on inner margin and 3~4 setae on outer margin ; dactylus bifid.

Penes (Fig.5Q) paired and slender and tapering towards the tip, each 3 times as long as wide.

Pleopod 1 (Fig.5R). Basis with 3 coupling hooks ; endopod 15~17 plumose setae around the margin ; exopod with 35~40 plumose setae and about 20 finer setae near the basal area.

Pleopod 2 (Fig.5S). Basis with 2 coupling hooks on inner margin. Endopod long, terminal part swollen with stylus.

Pleopod 3 (Fig.5T). Basis with coupling hooks ; endopod with 10 setae ; exopod with 35~38 setae.

Pleopod 4. Basis with coupling hooks ; endopod with 4 setae ; exopod with about 35 setae.

Pleopod 5 (Fig.5U). Basis with coupling hooks ; endopod with 2 bosses ; exopod 2 with setae.

Uropod (Fig.5V) long and occupies 10% of the body length. Basis 42% of the endopod in length; exopod 80% of endopod in length.

Habitat : Under the stone and among pebbles in the intertidal zone.

Etymology : Hachijo is the name of Island of type locality.

Remarks : The present new species is most closely allied to *Gnorimosphaeroma hoestlandti*, reported from the various parts in Japan. but the former is separated from the latter in the following features: (1) fewer setae at outer distal angle of merus of pereopod 1, (2) shorter penes, (3) fewer setae on palp of maxilliped, and (4) longer setae on mandibular palp. The present species is similar to *Gnorimosphaeroma tsushimaensis*, reported from the freshwater of the Tsushisma, Kyushu but the former is separated from the latter in the following features : (1) more numerous setae on pereopods, (2) longer stylus of male second pleopod, (3) fewer flagellum of antenna, (4) shorter penes, (5) more numerous teeth on the outer lobe of maxillula, (6) more numerous setae on maxilla, (7) shorter setae on mandibular palp, and (8) wider exopod of uropod.

Gnorimosphaeroma shikinense, n.sp.

(Japanese name : Shikine-isokotsubu-msuhsi, new)

(Fig.6)

Material examined : 10♂♂ (1♂holotype, 9.9 ㎜ in body length, 9♂♂ paratypes 5.6 ~ 8.5 ㎜ in body length) and 5♀♀ (paratypes 4.5 ~ 6.8 ㎜ in body length) ; Ooura, Shikine, 1998, coll. Noboru Nunomura ; 3♂♂, Ishijirokawa, Shikine Islands, Apr. 26, 1998, coll. Noboru Nunomura. Types series is deposited as follows ; holotype (TOYA-Cr 12604), and 8 paratypes (TOYA-Cr 12605~12612), at the Toyama Science Museum, 3 paratypes (OMNH-Ar 4148~4150) at the Osaka Museum of Natural History and 3 paratypes (CBM-ZC 4873) at the Natural History Museum and Institute, Chiba.

Description of male : Body (Fig.6A), 1.9 times as long as wide excluding uropods and antennae. Color dull yellow with 2~3 darker transverse bands. Two suture lines on the pleotelson are equal in length. Posterior end of pleotelson straight.

Antennule (Fig.6) reaching the first pereonal somite ; first segment stout ; second segment stout and fused to the first one ; peduncle composed of 3 segments, flagellum composed of 10 segments and each segment with an aesthetasc. Antenna (Fig.6B), reaching the part of posterior the first pereonal somite and composed of 5 peduncular and 13 flagellar segments.

Frontal lamina and clypeus (Fig.6D) pentagonal. Right mandible (Fig.6E). Pars incisiva 3-toothed ; lacinia mobilis 5~6 toothed ; plumose setae ; processus molaris wide. Left mandible. Pars incisiva 3-toothed ; lacinia mobilis 3 chitinized and toothed ; 6 plumose setae behind the lacinia mobilis; processus molaris wide. Maxillula (Fig.6F). Outer lobe with 10 teeth at the tip ; inner 6 dentate and outer 4 simple setae ; inner lobe with 4 plumose setae at the tip. Maxilla (Fig.6G). Outer lobe with 7 setae on exopod and 12 setae on endopod inner lobe with 11 plumose setae at the tip. Maxilliped. (Fig.6H) Endite rectangular with 8 stout spines on distal end and a coupling hook on inner border Palp segment 2 with setae on inner area segment with 12 setae on inner margin ; segment 4 with 4 setae at inner distal angle ; terminal segment with 5~6 setae.

Pereopod 1. (Fig.6I) Basis rectangular with a seta at inner distal angle ; ischium 3/5 as long as basis ; merus with 4~5 setae on inner margin and 4 setae at outer distal angle ; carpus triangular with 2 setae on inner margin ; propodus 4 setae on inner margin. ; dactylus bifid.

Pereopod 2 rectangular, 4 times as long as wide, with a short seta on outer margin ; ischium 3/5 as long as basis with 2 short setae on outer margin ; merus 3/5 as long as ischium, with 2 long setae on inner margin and 4 setae at outer distal angle ; carpus as long as ischium with 2 long setae and 2 short setae on inner margin and 10 setae on distal margin ; propodus as long as carpus with 4 setae

on inner margin, a short seta on outer margin and 2 setae at outer distal angle ; dactylus bifid.

Pereopod 3 (Fig.6J). Basis oblong, 4.5 times as long as wide, ischium with 3 setae on inner margin ; merus with a setae at inner distal angle and 3 setae at outer distal angle and many seta on inner margin ; carpus again long with a seta at inner distal angle and 4 setae at outer distal angle, inner margin setose ; propodus long with many setae on inner margin.

Pereopod 4. Basis 4 times as long as wide with a relatively short seta at inner distal angle and 4 ~6 short setae on outer margin ; ischium 2/3 as long as basis with 3~4 short setae on inner margin and a seta at outer distal margin ; merus 3/5 as long as wide with 1 or 2 long setae at inner distal angle, many hairs on inner margin and 2 setae at outer distal angle ; carpus 1.5 times as long as merus with dense hair on inner margin, a long seta on the distal half on inner margin and 3~6 setae at outer distal angle ; propodus a little longer than carpus with many setae and dense hair on inner margin, 2 long setae at outer distal angle and 2~3 short setae on outer margin ; dactylus bifid.

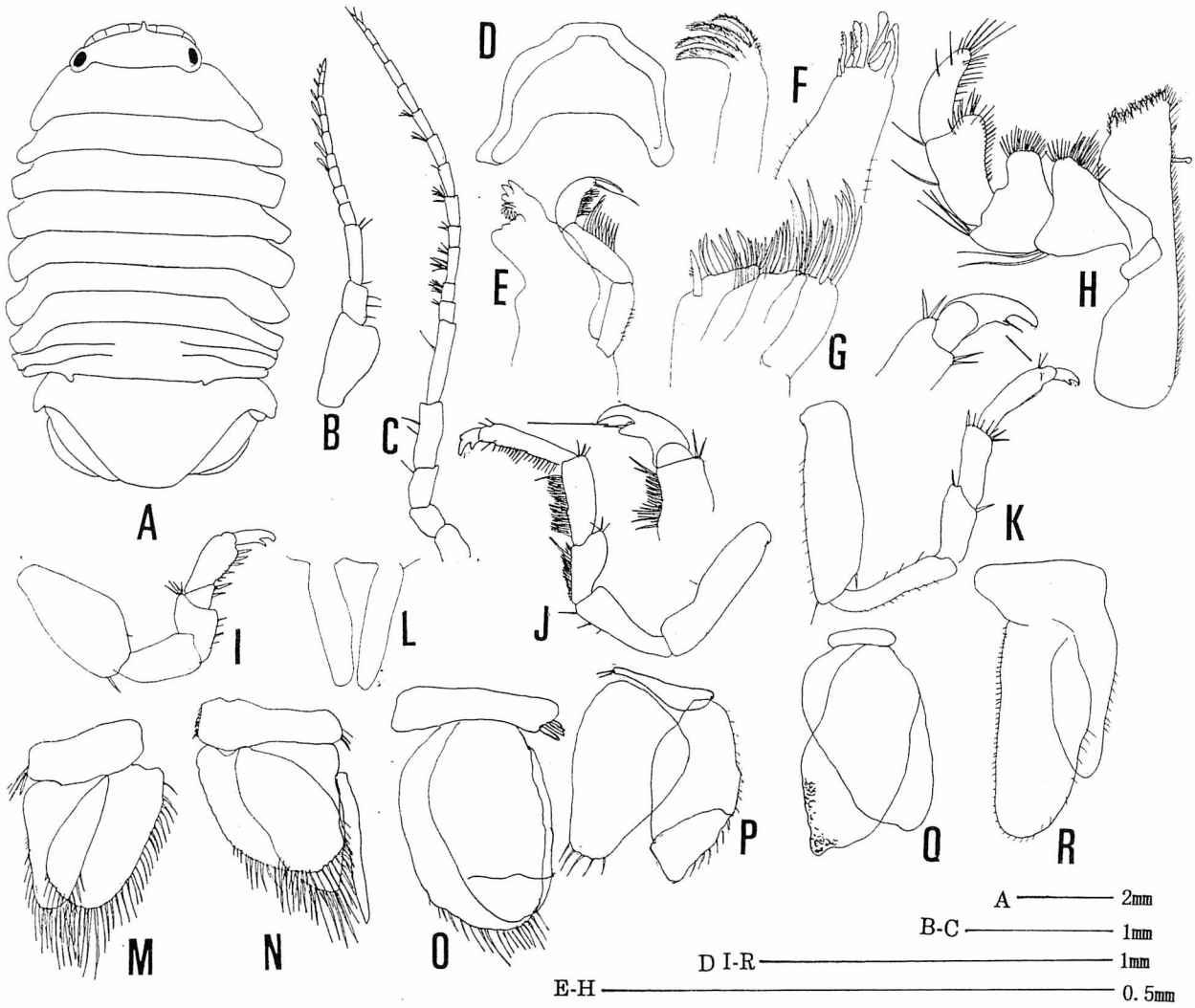

Fig.6 *Gnorimosphaeroma shikinense*, n.sp.
A.Dorsal view ; B.Antennule ; C.Antenna ; D.Clypeus ; E.Mandible ; F.Maxillula ; G.Maxilla ; H.Maxilliped ; I.-J.Peropods ; K.Pereopod 7 ; L.Penes ; M-O.Pleopods 1-5 ; R.Uropod.
(All : Holotype male).

Pereopod 5. Basis 3.5 times as long as wide with a short seta on both margins ; ischium 3/5 as long as basis with many hair on inner margin ; merus 1/3 as long as ischium, with 2 long setae and many hair on inner margin and 2 setae at outer distal angle ; carpus as long as merus with 6~7 setae on distal margin and many hair on inner margin ; propodus 1.8 times longer than carpus with many hair on inner margin and 2 setae at outer distal angle ; dactylus bifid.

Pereopod 6. Basis rectangular, 3.5 times as long as wide, with a few setae on outer margin and a seta at inner distal angle ; ischium 3/5 as long as basis with a seta on the middle part of outer margin and a few of setae at inner distal angle ; merus 2/3 as long as ischium with a long and 3~4 short setae on inner margin and 2 seta at outer distal angle ; carpus a little shorter than merus with 10~11 setae on distal margin ; propodus 1.5 times as long as carpus with 3 setae on inner margin and 2~3 setae at outer distal angle ; dactylus bifid.

Pereopod 7 (Fig.6K). Basis oblong with about a dozen of short setae on inner margin ; ischium slender with a dozen of setae on inner margin and 3 setae on outer margin ; merus 4/5 as long as ischium with a seta at inner distal angle and a seta outer distal angle ; carpus as long as merus with 6~7 setae on distal margin ; propodus a little longer than carpus,with 2 setae at inner distal angle and outer distal angle ; dactylus bifid.

Penes (Fig.6L) paired and slender, each 4 times as long as wide.

Pleopod 1 (Fig.6M). Basis rectangular with 4 coupling hooks ; endopod triangular with 20~23 plumose setae around the margin ; exopod rectangular with 47~50 plumose setae around the margin.

Pleopod 2 (Fig.6N). Basis rectangular with 4 coupling hooks ; endopod triangular with 11~13 plumose setae on the distal margin ; stylus exceeds far beyond the both rami, whose tip is pointed ; exopod elliptical with 32~34 plumose setae.

Pleopod 3 (Fig.6O). Basis with 3 coupling hooks ; endopod elliptical with about 10 setae ; exopod with 26~30 plumose setae on distal margin.

Pleopod 4 (Fig.6P). Basis with 2 coupling hooks ; endopod trapezoid with 4 setae on distal margin ; exopod elliptical with 27~29 short setae around the margin.

Pleopod 5 (Fig.6Q). Basis small without seta ; both rami lanceolate.

Uropod (Fig.6R). Basis about 40% of the endopod in length ; exopod 80% of endopod in length.

Habitat : Under the stone and among pebbles in the intertidal zone.

Etymology : The specific name derived from the type locality.

Remarks : The present new species is most closely allied to *Gnorimosphaera hoestlandti*, reported from various areas of Japanese water, but the former is separated from the latter in the following features: (1) less numerous setae at outer distal margin of merus of peropod 1, (2) longer and more numerous flagellar segment, (3) longer setae on pereopod 2 inner margin of merus, (4) more numerous teeth of maxilla. The present species is also similar to *Gnorimospharma tsushimaense* reported from Tsushima, but the former is separated from the latter in the following features : (1) more numerous setae at outer distal corner, (2) less numerous setae, (3) double copulatory hooks on the border of maxilliped, and (4) less numerous segment of antennae.

Holotelson tuberculatus Richardson, 1909

(Japanese name : Chibi-umisemi)

Material examined : 1 ♂, Sabiga-hama, Miyake Island, Sep. 6, 1998. coll. Noboru Nunomura.

Dynamenella laticauda, n.sp.

(Japanese name : Kanae-umisemi)

(Fig.7)

Material examined : 8♂♂ (1♂holotype, 2.8 mm in body length, 7♂♂ paratypes, 2.5~3.6 mm in body length) and 9♀♀ (paratypes, 2.6~3.6 mm in body length) ; Kamiminato, HachijoIsland, May 28, 1998, coll. Noboru Nunomura ; Types series is deposited as follows : holotype (TOYA-Cr 12666) and 8 paratypes (TOYA Cr 12667~12674) at the Toyama Science Museum, 4 paratypes (OMNH-Ar 4151~4154) at the Osaka Museum of Natural History and 4 paratypes (CBM-ZC 4874) at the Natural history Museum and Institute, Chiba. Other specimens : 6♂♂12♀♀, Taredo, Hachijo Island, May 27, 1998, coll. Noboru Nunomura ; 6♂♂12♀♀, Yakengahama, Hachijo Islands, May 28, 1998, coll. Noboru Nunomura ; 3♂♂8♀♀, Borawazawa, Hachijo Island, May 28, 1998, coll. Noboru Nunomura; 4♂♂5♀♀, Chotaro Ike, Tsubota, Miyake Island, Sep. 6, 1998, coll. Noboru Nunomura ; 1♂2♀♀, Shikine Island. Apr. 27, 1998, coll. Noboru Nunomura.

Description of male : Body (Fig.7A) 1.6 times as long as wide excluding uropods and antennae. Dorsal surface with many small protuberances. The posterior end with a deep concavity at the middle area.

Antennule (Fig.7C) reaching 1st pereonal somite ; first segment stout ; second segment stout and fused to the first one ; third segment long and with more than 6 setae ; flagellum composed of 8 segments, each segment with an aesthetasc.

Antenna (Fig.7D), reaching the middle part of 1st pereonal segment, composed of 5 peduncular and flagellar 11~12 segments.

Right mandible. (Fig.7E). Pars incisiva composed of 3 teeth ; lacinia mobilis composed of 6 teeth; 6 setal rows behind the lacinia mobilis ; processus molaris wide. Maxillula. (Fig.7F) Outer lobe with 9 teeth at the tip ; inner lobe with 9 plumose setae at the tip. Maxilla (Fig.7G). Outer lobe with 4 setae on exopod and 6 setae on endopod inner lobe with 4 plumose setae at the tip. Maxilliped (Fig.7H). Endite rectangular with 5 stout spines on distal end and a coupling hook on inner border Palpal segment 2 with 7 setae on inner area ; segment 3 rectangular with 4 setae on inner margin ; segment 4 with 4 setae at inner distal angle ; terminal segment 5~6 setae.

Pereopod 1 (Fig.7I). Basis rectangular, about 3 times as long as wide ; ischium 2.2 times as long as wide, with several setae on inner margin ; merus as long as wide with a seta at outer distal angle ; carpus triangular with a relatively long seta at inner distal angle ; propodus stout with a series of short setae on inner margin ; dactylus short.

Pereopod 2 (Fig.7J). Basis long, 6 times as long as wide with 2 setae at inner distal angle ; ischium a little shorter than basis ; merus 2.5 times as long as wide with 3 longer setae and many hairs on inner margin and a seta at outer distal angle ; carpus as long as merus with 2 longer and many short setae on inner margin ; propodus with 2 longer and about 20 setae on inner margin ; dactylus bifid.

Pereopod 3 (Fig.7K). Basis rectangular, 4 times as long as wide, with 10~11 setae on outer margin and a seta at inner distal angle ; ischium 3/4 as long as basis, with 18~20 short setae on inner margin ; merus about half the length of ischium with 15~18 short setae on inner margin and 2 long seta at outer distal angle ; carpus a little shorter than merus with a few of setae on inner margin and a seta at outer distal angle ; propodus twice as long and slightly swollen with 8 setae on inner margin and 2 setae at outer distal angle ; dactylus bifid.

Pereopod 4 (Fig.7L). Basis 3 times as long as wide with many short setae on both margins ; ischium a little shorter than basis with many setae on inner margin and 2 setae at outer distal angle; carpus a little shorter than merus with a longer and many shorter setae on inner margin and a seta at outer distal angle ; propodus as long as ischium with 2 long setae and many shorter setae on inner margin and 2 setae at outer distal angles ; dactylus bifid.

Pereopod 5. Basis about 3 times as long as wide with many setae on both margins ; ischium a

little shorter than basis with merus with on inner margin and 3 setae on distal margin ; merus short with many hair on inner margin and 2 long setae at outer distal angle ; carpus almost square and as long as merus, with many hair on inner margin and a seta at distal angle ; propodus twice as long as merus with 2 long setae and many setae on inner margin and 2~4 setae on outer margin ; dactylus bifid.

Pereopod 6. Basis 3 times as long as wide with 1 or 2 setae on outer margin ; ischium about half the length of basis with 1 or 2 setae on inner margin ; merus 1/3 as long as basis with 2 long setae ; carpus almost as long as merus with many short hair on inner margin ; propodus as long as ischium with 2~4 setae on inner margin and 2 setae at outer distal angle ; dactylus bifid.

Pereopod 7 (Fig.7M). Basis rectangular ; ischium as long as basis ; merus about half the length of ischium with a long seta at outer distal angle and with many setae on inner margin ; carpus, as long as merus, with a long seta at outer distal angle and with many setae on inner margin ; propodus,

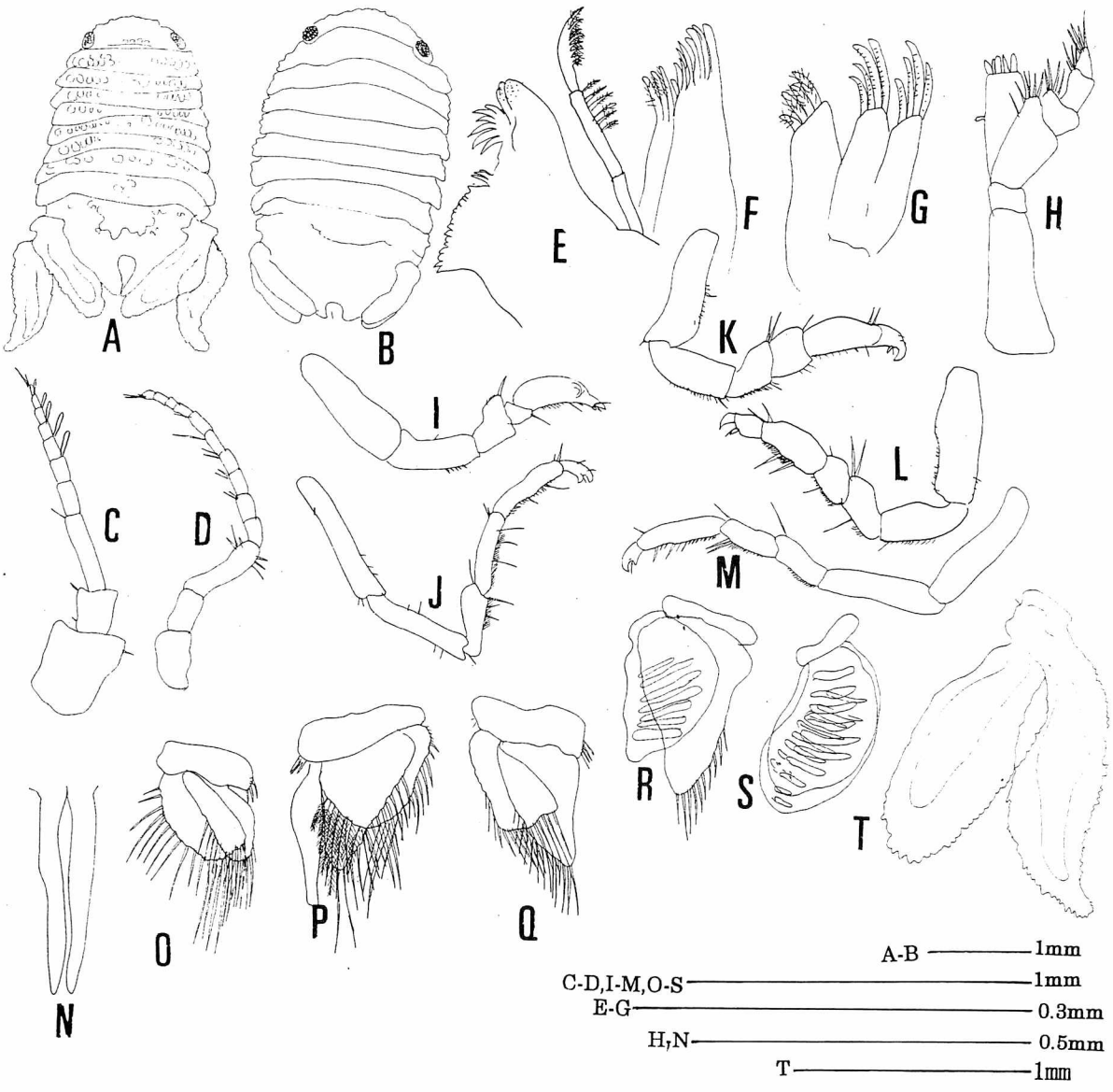

Fig.7. *Dynamenella laticauda*, n.sp.
A. Dorsal view of male ; B. Dorsal view of female ; C. Antennule ; D. Antenna ; E. Right mandible ; F. Maxilulla ; G. Maxilla ; H. Maxilliped ; I-L. Pereopoeds1-4 ; M. Pereopod 7 ; N. Penes ; O-S. Pleopods 1-5 ; T. Uropods (A, C-T. Holotype male ; B. Paratype female) .

1.4 times as long as carpus with a long seta at outer distal angle and with many setae on inner margin ; dactylus bifid.

Penes (Fig.7N) paired and slender, each penis 9 times as long as wide.

Pleopod 1 (Fig.7O). Basis rectangular with 3 coupling hooks ; endopod with 13～15 plumose setae; exopod with 19～25 plumose setae.

Pleopod 2 (Fig.7P). Basis with 3 coupling hooks ; endopod with stylus long, terminal part swollen and with 18～19 plumose setae around the margin.

Pleopod 3 (Fig.7Q). Basis with 4 coupling hooks, endopod triangular with 18～20 plumose setae ; exopod with 14～15 setae.

Pleopod 4 (Fig.7R). Basis without coupling hook, endopod elipsoid ; exopod triangular with about 10 setae.

Pleopod 5 (Fig.7S). Both rami ellipsoid.

Uropod (Fig.7T) long and occupies 41～44% of the body length ; exopod 1.2 times as long as endopod in length ; exopod 85% of endopod in length.

Female : Body 1.6 times as long as wide excluding uropods and antennae. Eyes small, each eye composed of 12～13 ommatidia. All the pereonal and pleonal somites with sinuate margins. Posterior margin with rounded cavity but not elevated structure. Antennule Peduncle 5 - segmented ; first segment stout ; second segment stout and fused to the first one ; flagellus composed of 6 segments, each segment with an aesthetasc. Antenna composed of 8 peduncular and flagellar 11～12 segments. Pleopod 2. Endopod long, terminal part swollen. Uropod shorter and less sinuate than in male.

Habitat : Under the stone and among pebbles In the intertidal zone.

Etymology : The specific epithet is derived from the Latin *latus*=broad, *caudatus*, means tail.

Remarks : The present new species is most closely allied to *Dynamenella nipponica* (Nishimura) reported from Kii Peninsula, middle Japan, but the former is separated from the latter in the following features : (1) absence of tube like structures of pleotelson, (2) bigger and more strongly sinuate margin of uropod in male, (3) absence of small protuberances on dorsal surface, (4) presence of many plumose setae on pereopods, and (5) less numerous setae on and maxilla.

Suborder Valvifera
Family Idoteidae
Cleantiella isopus Grube, 1883

(Japanese name : Iso-heramushi)

Material examined : 1♀, Oofunado, Igaya, Miyake Island, Sep. 7, 1998, coll. Noboru Nunomura, 2♀♀, Tsubota, Chotaro-Ike, Miyake Island, Sep. 6, 1998, coll. Noboru Nunomura ; 1♀, Kamanoshita-wan, Shikine Island, Apr. 25, 1998, coll. Noboru Nunomura.

Cleantiella strasseni (Thielemann, 1910)

(Japanese name : Ohiraki-heramushi)

Material examined : 1♂ Tsubota, Chotaro-Ike, Miyake Island, Sep. 6, 1998, coll. Noboru Nunomura.

Suborder Oniscidea
Family Ligiidae
Ligia exotica Roux, 1928

(Japanese name : Funamushi)

Material examined : 1♂4♀♀, Ishijirokawa, Shikine Island, Apr. 26, 1998, coll. Noboru Nunomura ; 1♂1♀, Sabiga-hama, Hijikata, Miyake Island, Sep. 6. 1998, coll. Noboru Nunomura.

***Ligia hachijoensis*, n.sp.**

(Japanese name : Hachijo-fuamushi, new)

(Fig.8)

Material examined : 4♂♂ (1♂holotype, 19.0 mm in body length and 3♂♂ paratypes 11.0 ~ 30.5 mm in body length) and 8♀♀ (paratypes 15.9 ~ 26.8 mm in body length) ; Shioma Hachijo Island, May 28, 1998, coll. Noboru Nunomura. Other specimens : 2♀♀, Shioma, Hachijo Island, May 27, 1998, coll. Nobnoru Nunomura ; 3♂♂2♀♀, Yaene, Hachijo Island, May 27, 1998, coll. Noboru Nunomura. Types series is deposited as follows : holotype, (TOYA-Cr 12627) and 7 paratypes, (TOYA-Cr 12628 ~12634) at the Toyama Science Museum, 2 paratypes, (OMNH-Ar 4155~4156) at the Osaka Museum of Natural History and 2 paratypes (CBM ZC-4875) at the Natural History Museum and Institute, Chiba.

Description : Body (Fig8A) 3.6 times as long as wide, excluding uropods and antennae, but 5.1 times as long as wide, including uropods. Color blackish. Surface almost smooth with sparsely scattered minute granules. Cephalon round. Eyes large and reniform, and each eye with about 950~ 1000 ommatidia. Pleotelson with 2 pairs of deep concavities, with protruded medial tip.

Antennule (Fig8B) short ; and 3-segmented ; first segment rectangular ; second segment rectangular ; terminal segment round. Antenna (Fig8C) very long, reaching the middle part of fifth pleonal somite, composed of 5 peduncular and 42~48 flagellar segments.

Right mandible (Fig8D). Pars incisiva with 2 teeth ; lacinia mobilis with 2 bigger and 4 smaller teeth 17 plumose setae ; processus molaris wide. Left mandible (Fig8E). Pars incisiva 3-toothed ; lacinia mobilis chitinized and 3-toothed ; 17 plumose setae behind the lacinia mobilis ; processus molaris wide. Maxillula (Fig.8F). Outer lobe with 12 teeth at the tip ; 2 of them are short, one is slenderer and dentate and the others are long, stout but simple. ;inner lobe with 3 plumose setae at the tip. Maxilla broad and weakly bilobed in two lappets. Maxilliped (Fig.8G). Endite with 16 stout spines with many hairs. Palp composed of 5 segments ; segment 1 without seta ; segment 2 with 12 setae on inner margin and 2 long setae on outer margin, segment 3 with 22~24 setae on inner margin and 3 stout setae on outer margin ; segment 4 with 12 spines on inner margin and 3 setae on outer margin and 3 stout spines on distal margin ; segment 5 round with more than 25 setae around the margin.

Pereopod 1 (Fig.8H) stout. Basis stout rectangular with 4 setae on inner margin ; ischium with 7 ~8 setae on inner margin and a setae on outer margin ; merus with 4 setae, 2 setae on outer margin and 4 setae at outer distal angle ; carpus with setae on inner margin and setae on outer margin ; propodus slender with 5 setae on inner margin ; dactylus without any protuberances.

Pereopod 2 (Fig.8I). Basis rectangular with 3 spines on inner margin and ; ischium with 7 setae on inner margin and seta outer margin ; merus 7~8 setae on inner margin and 3 setae on outer margin and 3 setae at outer distal angle ; carpus slender 8 setae on inner margin and 3 setae at outer distal angle ; propodus long with 5 setae ; dactylus bifid.

Pereopod 3. Basis, 2.4 times as long as wide, with 6~7 short setae on inner margin, 2 setae at inner distal angle and 7~8 setae on outer margin ; ischium 3/5 as long as basis with 4~5 short setae on inner margin and 3 setae on outer margin ; carpus 2/3 as long as wide with 12~14 setae on inner margin and 2 short setae on outer margin and 2 long setae at outer distal angle ; carpus a little shorter than basis with 3 setae on inner margin and a seta at outer distal angle ; propodus a little shorter than carpus with 15 setae on outer margin and a seta at outer distal angle ; dactylus bifid and long.

Pereopod 4 (Fig.8J). Basis twice as long as wide with 8~13 short setae on both margins ; ischium 3/5 times as long as basis, with 8~10 setae on inner margin and 3 setae at outer distal angle ;

merus2/3 as long as basis with 9~10 setae on inner margin and 3 short setae at outer distal angle ; carpus a little longer than merus with 12 setae on inner margin and 3 setae at outer distal angle ; propodus a little longer than carpus with 12 setae on inner margin ; dactylus bifid.

Pereopod 5 (Fig.8K). Basis twice as long as wide, with a seta ; ischium 1.5 times as long as wide with 3 setae on inner margin and 2 setae at sternal margin ; merus as long as Ischium with 5 setae on inner margin and 3~4 setae at outer distal margin ; carpus 1.4 times as long as merus with 8 setae on inner margin and 3 setae at outer distal angle ; propodus 1.5 times as long as carpus with 5~6 setae on inner margin ; dactylus bifid.

Pereopod 6 (Fig.8L). Basis rectangular with 4 setae on inner margin ; ischium with 3 setae at sternal margin, 3 setae on distal margin and 8 setae on inner margin ; merus rectangular with 8 setae on inner margin and 7~8 setae on distal margin ; carpus rectangular with 10 setae on inner margin and 7~8 setae on distal margin ; propodus slender with 4 setae on inner margin ; dactylus bifid.

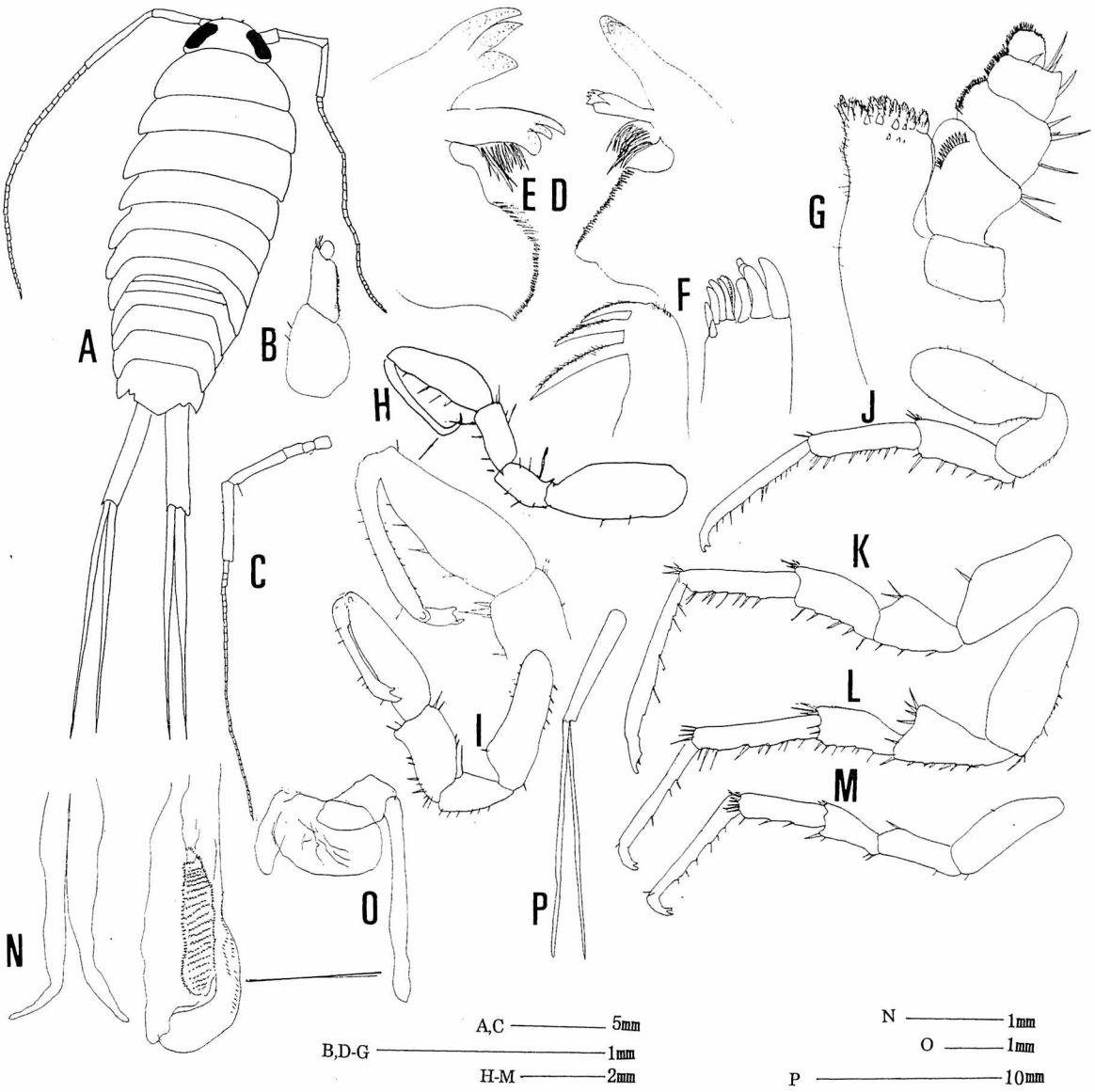

Fig.8. *Ligia hachijoensis*, n.sp.
A.Dorsal view ; B.Antennule ; C.Antenna ; D.Right mandible ; E.Left mandible ; F.Maxillula ; G.Maxilliped ; H.Peropods 1 ; I-M.Pereopod 3-7 ; N.Penes ; O.Pleopod 2 ; P.Uropod (All : Holotype Male).

Pereopod 7 (Fig.8M). Basis rectangular with a setae at inner distal angle ; ischium rectangular with 2 setae and a seta at outer distal angle ; merus 2 setae at inner distal angle and 2 setae at outer distal angle ; carpus 3 setae on inner margin and 8 setae on distal margin ; propodus long 8 setae ; dactylus.

Penes (Fig.8N) paired and slender, with many hair on distal margin each 12~13 times as long as wide.

Pleopod 1 Endopod exopod.

Pleopod 2 (Fig.8O). Endopod long, terminal part swollen with club-like structure bearing 36 rows of 25 or more numerous denticles. Exopod round.

Pleopods 3~5 rhomboid.

Uropod (Fig.8P) long and occupies 45% of the body length. Both rami almost equal in length and of whole length.

Habitat : Under the stone and among pebbles in the intertidal zone.

Etymology : The species name is after the type locality.

Remarks : The present new species is most closely allied to *Ligia ryukyuensis*, reported from the Ryukyu Archipelago. But the former is separated from the latter in the following features : (1) lack of protuberance on dactylus of male first pereopod, (2) shorter antennae, (3) shallower concavity of posterior margin of pleotelson, and (4) more numerous ommatida of eyes. The present species also differs from the common species in Japan, *Ligia exotica* Roux, The present new species is also separated from *Ligia yamanishii*, recorded in Bonin Island, in the following features : (1) longer both rami of uropod, (2) shorter basis of the same, (3) shorter but more numerous segment of antenna, (4) longer penes, (5) shorter teeth on the tip of outer lobe of maxillula, (6) longer apical part of male second pleopod, (7) stouter propodus of pereopod 1, and (8) deeper incision of posterior end of pleotelson.

Ligia miyakensis, n.sp.

(Japanese name : Miyake-funamushi, new)

(Fig.9)

Material examined : 4 ♂♂ (1♂ holotype, 24.5 ㎜ in body length, 3♂♂ paratypes, 17.9 ~ 19.5 ㎜ in body length) and 4♀♀ (paratypes.20.2 ~ 25.5 ㎜ in body length) ; Chotaro Ike, Tsubota, Miyake Island. Types series is deposited as follows holotype, and 3 paratypes at the Toyama Science Museum, 2 paratypes (OMNH-Ar 4157~14158) at the Osaka Museum of Natural History and 2 paratypes (CBM-ZC 4876) at the Natural History Museum and Institute, Chiba. Other specimens : Miyake, Meganeiwa, Sep. 7, 1998, coll. Noboru Nunomura : 1♀, Miyake, Yakengehama, Sep, 8, 1998, coll. Noboru Nunomnra ; 1♀, Sabniga-hama, Miyake Island, Sep. 6, 1998, coll. Noboru Nunomura ; Miyake, Igaya, Ofunato, Sep, 6, 1998, coll. Noboru Nunomura ; 7♀♀, Tsubota Chotaro-ike, Miyake Island, Sep. 7, 1998, coll. Noboru Nunomura ; 1♂2♀♀, Kamituski, Yunohama, Miyake Island, Sep. 6, 1998, coll. Noboru Nunomura ; 3♂♂4♀♀, Tsubota Port, Miyake Island, Sep. 6, 1998, coll. Noboru Nunomura.

Description : Body (Fig.9A) 2.8 times as long as wide excluding uropods and antennae, but 4.5 times as long as wide including uropods. Color grayish brown and reniform. Surface almost smooth with sparsely scattered minute granules. Cephalon round. Eyes large and each eye with about about 700 ommatidia. Pleotelson with 2 pairs of deep concavities, and with protruded tip.

Antennule (Fig.9B) small but relatively long ; first segment rectangular ; second segment with many setae ; terminal segment round. Antenna very long, reaching the middle part of basis of basis and composed of 5 peduncular and 56~62 flagellar segments.

Right mandible (Fig.9C). Pars incisiva 3-toothed ; lacinia mobilis 2-toothed ; a tuft of about 20 plumose setae ; processus molaris wide. Left mandible. Pars incisiva 3 - toothed ; Lacinia mobilis chitinized and 2-toothed ; plumose setae behind the lacinia mobilis ; processus molaris wide. Maxillula. (Fig.9D) Outer lobe with 13 teeth at the tip ; 3rd one is small and 2nd is dentate ; inner lobe with 3 plumose setae at the tip. Maxilla (Fig.9E) broad and weakly bilobed in two lappets with many fine hair. Maxilliped. (Fig.9F) Endite slender and setose with 18 stout setae on distal margin Palp segment 1 without seta ; segment 2 with 2 stout setae on outer margin and with about 20 short setae on inner margin ; segment 3 with about 25 setae on inner margin and 3 stout spines on outer margin segment 4 with 16~17 setae on inner margin and 3 stout spines on outer margin ; terminal segment round with 25~27 setae around the margin.

Pereopod 1 (Fig.9G). Basis 3 times as long as wide, with a seta at outer distal angle ; ischium 1/3 time as long as wide with 2~3 setae on outer margin and inner margin ; merus 1.5 times as long

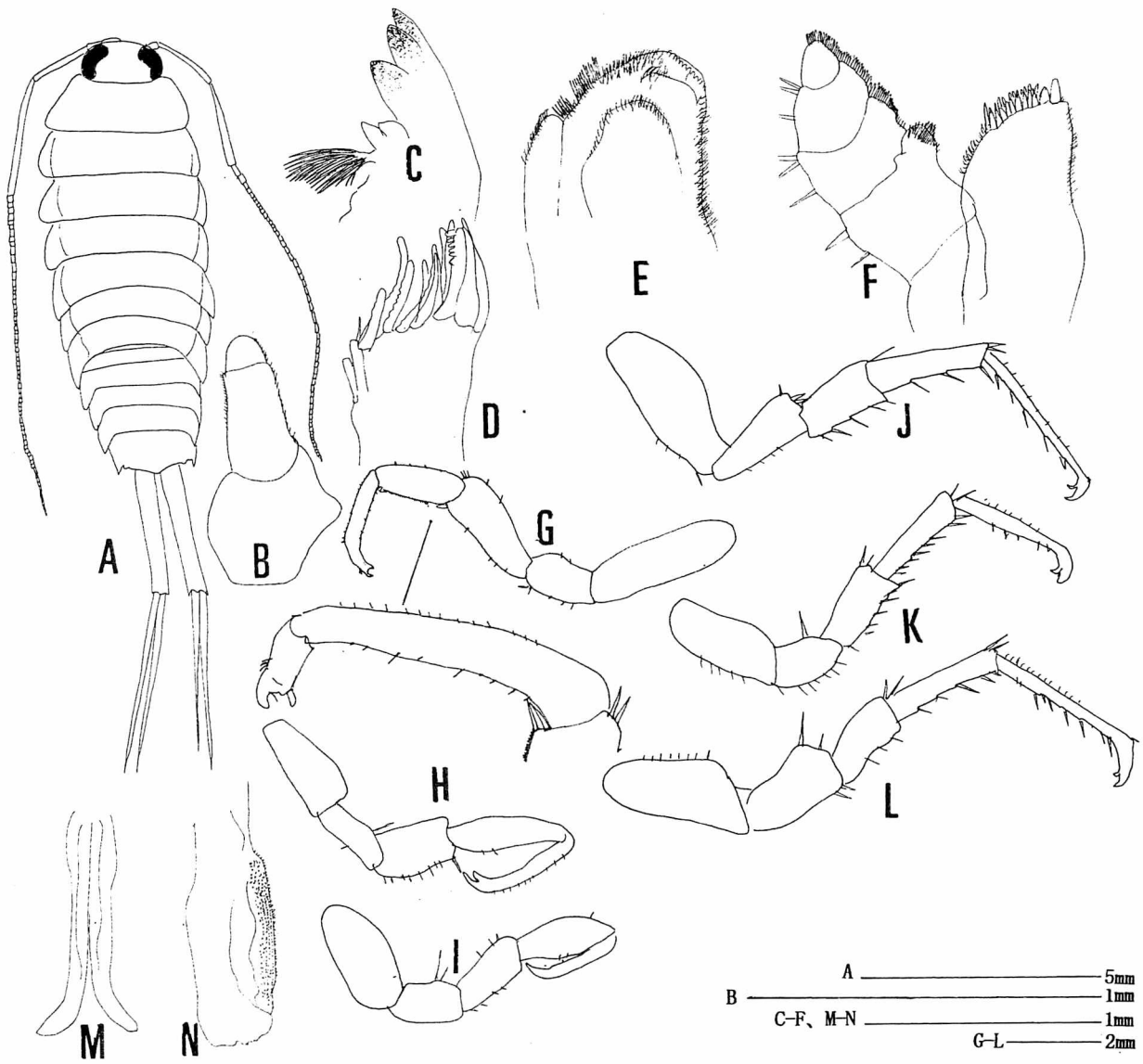

Fig.9. *Ligia miyakensis*, n.sp.
A.Dorsal view ; B.Antennule ; C.Antenna ; D.Maxillula ; E.Maxilla ; F.Maxilliped ; G-M.Peropods 1-7; H.Pereopod 2 ; N.Penes and Pleopod ; O.Peleopod 2 ; P.Uropod. (All : Holotype Male)

as ischium ; carpus a little shorter than merus with 2 setae at inner distal angle and 2 setae at outer distal angle ; propodus a little shorter than carpus ; dactylus without any protuberances.

Pereopod 2 (Fig.9H). Basis rectangular ; ischium shorter than basis with a seta on outer margin; merus as long as basis with 9~10 setae on inner margin and 3 setae at outer distal angle ; carpus somewhat shorter them merus ; propodus slender a little longer than carpus ; dactylus reddish.

Pereopod 3 (Fig.9I). Basis stout about twice as long as wide ; ischium 3/4 as long as basis with a seta on outer margin ; merus a little longer than ischium with many short setae on both margins ; carpus twice as long as merus ; propodus about twice as long as wide ; dactylus bifid.

Pereopod 4. Basis 2.4 times as long as wide, with 13~15 short setae on inner margin and 14~16 setae on outer margin ; ischium almost half the length of basis with 7~9 short setae and a long seta on outer margin ; merus 3/5 as long as merus with 5 longer and 10~12 shorter setae on inner margin and 4~5 setae at outer distal angle ; carpus as long as basis with 8 setae on inner margin and 2~3 setae at outer distal angle ; propodus a little longer than merus with 6 longer and 7~10 shorter setae on inner margin and 20~22 short setae on outer margin and a seta at outer distal angle ; dactylus bifid.

Pereopod 5 (Fig.9J). Basis 2.3 times as long as wide with a seta inner distal angle ; ischium with 3 setae on distal margin ; merus rectangular with 3 setae on inner margin and a long seta at outer distal angle ; carpus with 3~4 setae on inner margin and 3 distal setae on distal margin ; propodus slender with 5 setae on inner margin and many hair outer margin ; dactylus bifid and reddish.

Pereopod 6 (Fig.9K). Basis relatively short with 5~6 short setae on inner margin ; ischium a little longer than basis with several setae on inner margin and a seta on outer margin ; merus a little longer than ischium with 6~7 setae on inner margin and 2~3 setae at outer distal angle ; carpus almost as long as merus with 7~8 setae on inner margin and 2 setae at outer distal angle ; propodus a little shorter than carpus with 8~10 setae on inner margin ; dactylus bifid.

Pereopod 7 (Fig.9L). Basis relatively short with 8 short setae on outer margin ; ischium as long as basis, with 2~3 setae on inner margin and a seta at sternal angle ; merus a little shorter than ischium and 3 setae on inner margin and 2 setae at outer distal angle ; carpus 1.5 times as long as merus ; propodus a little longer than carpus with 8~10 setae on inner margin and 15 short setae on inner margin ; dactylus bifid.

Penes (Fig.9M) paired and slender and apical part bents outwards, each penis 12 times as long as wide.

Pleopod 2 (Fig.9N). Endopod long, terminal part swollen with many minute denticles.

Uropod long and occupies 42% of the body length. Basis 48% of the endopod in length.

Exopod a little longer than endopod in length.

Habitat : On the stone in the intertidal zone.

Etymology : The specific name is derived from the type locality.

Remarks : The present species is similar to *Ligia ryukyuensis*, reported from Ryukyu Island, but the former is separated from the latter in the following features : (1) shape of uropod, especially basis, (2) longer apical part of endopod of male second pleopod, (3) more numerous flagellum of antenna, (4) outwardly bent penes, (5) longer and more numerous teeth on outer ward of maxilliped and the present new species is also allied to *Ligia hachijoensis*, already described in this paper but the former is separated from the latter in the following features : (1) longer basis of basis and shorter both rami of uropod, (2) longer and more numerous flagellar segments of antenna, (3) shallower incisions of posterior margin of pleotelson, (4) longer teeth on outer lobe of maxillula, and (5) absence of longer setae on inner margin of propodus of pereopod 1.

Family Olibrinidae

Marinomisus hachijoensis, n.sp

(Japanese name : Hachijo-migiwa-warajimushi, new)

(Fig.10)

Material examined : 6♂♂ (1♂holotype, 2.6 ㎜ in body length, 5♂♂ paratypes 3.8~4.5 ㎜ in body length) and 8♀♀ (paratypes 2.3 ~3.5 ㎜ in body length) ; intertidal zone of Okataura, Hachijo Island, May 27, 1998. coll. Noboru Nunomura. Types series is deposited as follows : holotype (TOYA-Cr 12654), and 7 paratypes (TOYA-Cr 12655~12661) at the Toyama Science Museum, 3 paratypes (OMNH-Ar 4159~4161) at the Osaka Museum of Natural History and 3 paratypes (CBM-ZC 4877) at the Natural History Museum and Institute, Chiba.

Description of male : Body (Fig.10A) 2.9 times as long as wide excluding uropods and antennae, but 3.5 times as long as wide including uropods. Color orange-red in alive. Surface almost smooth with sparsely scattered minute granules. Cephalon round. Eyes small and each eye with about 8 ommatidia. Pleotelson with 2 pairs of small concavities near lateral margin and with round tip.

Antennule (Fig.10B) short ; first segment rectangular ; second segment with a long seta ; terminal segment with 5~7 aesthetascs at the tip. Antenna (Fig.10C) long, reaching the middle part of the third pereonal somite and composed of 5 peduncular and 8 flagellar segments.

Right mandible (Fig.10D). Pars incisiva with 3 teeth ; lacinia mobilis 3 long plumose setae ; processus molaris wide. Left mandible. Pars incisiva with 3-teeth ; lacinia mobilis chitinized and 3-toothed ; 3 long plumose setae behind the lacinia mobilis ; processus molaris wide. Maxillula. Outer lobe (Fig.10E) with 7~11 teeth at the tip. Maxilla (Fig.10F) narrow with many hair. Maxilliped. (Fig.10G) Endite slender with 2 long setae at the tip and many hair on whole margin. Palp weakly segmented with many setae.

Position of Noduli lateralis as follows :

Pereopod 1 (Fig.10H). Basis rectangular, 3 times as long as wide, with 3 setae on both margins;

Number of pereonite	d/c	b/c
1	0.05	0.69
2	0.12	0.48
3	0.19	0.51
4	0.08	0.42
5	0.06	0.42
6	0.09	0.19
7	0.08	0.17

ischium 2/3 as long as basis with 3~4 setae on outer margin and 4 setae on inner margin ; merus a little shorter than Ischium, with 8 setae on inner margin and 3 setae at outer distal angle ; carpus a little shorter than merus with 4 setae on inner margin ; propodus as long as merus with 7~10 shorter setae on basal half of inner margin and 2 setae on distal half of inner margin, and 6 setae on outer margin ; dactylus bifid with a sensory seta.

Pereopod 2 (Fig.10I). Basis 3 times with 2 short setae on both margins ; ischium 2/3 times as long as basis with 4 setae on inner margin and a seta at outer distal angle ; merus as long as ischium with 5 setae on inner margin and a seta at outer distal angle ; carpus a little longer than merus with 7~8 relatively long setae on inner margin and ; propodus almost as long as carpus with a group of hair on the inner ; dactylus bifid with a sensory seta.

Pereopod 3 (Fig.10J). Basis 3.5 times with 5 setae on inner margin ; ischium half the length of basis with 3 setae on inner margin and a setae on outer margin ; merus as long as ischium with 4~5 setae on inner margin and a seta at outer distal angle ; carpus with 5~6 setae on inner margin and a seta on outer margin ; propodus with 3 seta on inner margin and 6 short setae on outer margin ;

dactylus. bifid with a sensory seta.

Pereopod 4 (Fig.10K). Basis 3.5 times as long as wide with 4 short setae on inner margin ; ischium almost half the length of basis with 4 setae on inner margin ; merus 7~8 setae on inner margin and 2 setae at outer distal angle ; carpus with 7~8 setae on inner margin ; propodus 4~5 seta on inner margin and 5~6 setae on outer margin ; dactylus relatively long bifid and with a sensory seta.

Pereopod 5 (Fig.10L). Basis 3.5 times as long as wide with 2~3 short setae on inner margin ; ischium 4/5 time as long as basis with 5~6 setae inner margin and 3 setae on outer margin ; merus about half the length of basis with 6~7 long setae o n inner margin and 2~3 relatively long setae on outer distal angle ; carpus with 4~5 setae on outer margin ; propodus with 2 groups of 2 setae on inner margin and 6~8 setae on outer margin ; dactylus bifid with a sensory seta.

Pereopod 6 (Fig.10M). Basis 3.3 times as long as wide ; ischium a little shorter than basis with 2

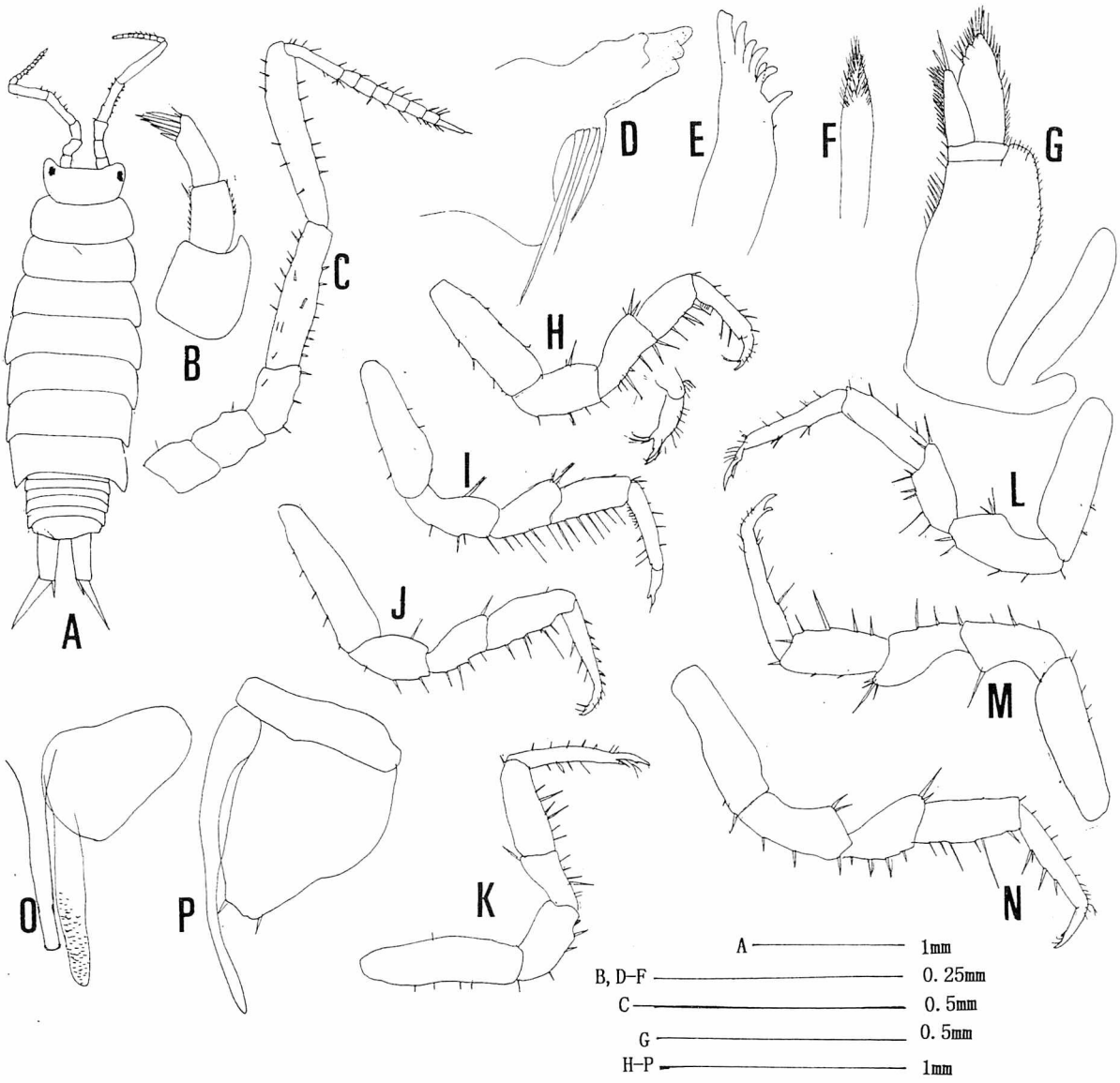

Fig.10 *Marinonisus hachijoeensis*, n.sp.
A.Dorsal view ; B.Antennule ; C.Antenna ; D.Right mandible ; E.Outer lobe of maxillula ; F.Maxilla; G.Maxilliped ; H-N.Pereopods 1-7 ; O.Pleopod 1 ; P.Pleopod 2 (All : Holotype male)

setae on inner margin and a seta at the sternal margin ; merus with 5 setae on inner margin and a seta at outer distal angle ; carpus as long as ischium with 6 setae in margin and a spine propodus with 2 setae and 6 short setae.

Pereopod 7 (Fig. 10N). Basis 3 times as long as wide, with a short seta at inner distal angle ; ischium 3/4 as long as basis with 3 setae on inner margin and 2 setae at outer distal margin ; merus a little shorter than 6～7 setae on inner margin and 2 setae at outer distal angle ; carpus as long as ischium with 6 setae on inner margin ; propodus a little longer than carpus with 4 setae on inner margin and 6～9 setae on outer margin ; dactylus relatively long bifid with a sensory seta.

Penes (Fig.10) paired and slender, each 9 times as long as wide.

Pleopod 1 (Fig.10O). Endopod straight and with many transverse structure. Exopod rectanglar.

Pleopod 2 (Fig.10P). Endopod : long, terminal part pointed ; exopod rectangular with 2 setae.

Uropod. Basis half of the endopod in length ; exopod 1/3 of endopod in length.

Habitat : Among the relatively big rock, intertidal zone, pebbles sheltered by big rocks.

Etymology : The specific name is derived from the type locality.

Remarks : The present new species is most closely allied to *Marinoniscus aesthuari* Nunomura from Okinawa Island, but the former is separated from the latter in the following features : (1) bigger eyes with more numerous ommtidia, (2) more numerous aesthetascs at the tip of antennule, (3) fewer setae on pereopods, (4) more numerous flagellum of antenna.

The present species is also allied to *Marnionscus kosugei* Nunomura reprted from Okinawa Island, but the for mer is separated from the latter in the following feature : (1) bigger eye consisting more numerous ammtidia, (2) longer setae rows of mandible, (3) shorter pleon, (4) less numerous segmentation of antenna and, (5) position of noduli lateralis on dorsal surface.

Marinoniscus miyakensis, n.sp.

(Japanese name : Miyake-migiwa-warajimushi, new)

(Fig.11)

Material examined : 3♂♂ (1♂holotype, 2.3 ㎜ in body length and 2♂♂ paratypes, 2.1～3,5 ㎜ in body length) and 5♀♀ (paratypes 2.3～3.1 ㎜ in body length), intertidal zone of Chotaro-Ike, Tsubota, Miyake Island, Sep, 1998, coll. Noboru Nunomura. Types series is deposited as follows holotype (TOYA-Cr 12662), and 3 paratypes (TOYA-Cr 12663～12665), at the Toyama Science Museum, 2 paratype (OMNH-Ar 4162～4163) at the Osaka Museum of Natural History and 2 paratypes (CBM ZC 4878) at the Natural history Museum and Institute, Chiba.

Description of male : Body (Fig.11A) 2.5 times as long as wide, excluding uropods and antennae, but times as long as wide including uropods. Color orange-red in alive state. Surface almost smooth with sparsely scattered minute granules. Cephalon round. Eyes, small and each eye with about 10 ommatidia. Pleotelson with round tip.

Antenna (Fig.11C) long, reaching the middle part of 3rd pereonal somite and composed of 5 peduncular and 7～10 flagellar segments.

Right mandible (Fig.11D). Pars incisiva with 3 teeth ; lacinia mobilis 4 long plumose setae ; processus molaris wide. Left mandible (Fig.11E). Pars incisiva with 3 teeth ; lacinia mobilis chitinized and 3 - toothed ; plumose setae behind the lacinia mobilis ; processus molaris wide. Maxillula. (Fig.11F). Outer lobe with 12 teeth at the tip. Maxilla (Fig.11G) narrows with many hair. Maxilliped (Fig.11H). Endite slender with 2 long setae at the tip and many hair on whole margin. Palp weakly segmented.

Position of Noduli lateralis as follows :

Number of pereonite	d/c	b/c
1	0.09	0.46
2	0.12	0.83
3	0.19	0.57
4	0.10	0.50
5	0.21	0.38
6	0.18	0.27
7	0.30	0.31

Pereopod 1. (Fig.11I) Basis rectangular, twice as long as wide with a seta at inner distal angle ; ischium 2/3 as long as basis with 2 setae on inner margin and a seta on outer margin ; merus as long as ischium, with 4 setae on inner margin and a seta at outer distal angle ; carpus with 5~6 long setae on inner margin ; propodus as long as carpus with 3~4 setae inner margin and a seta at outer distal

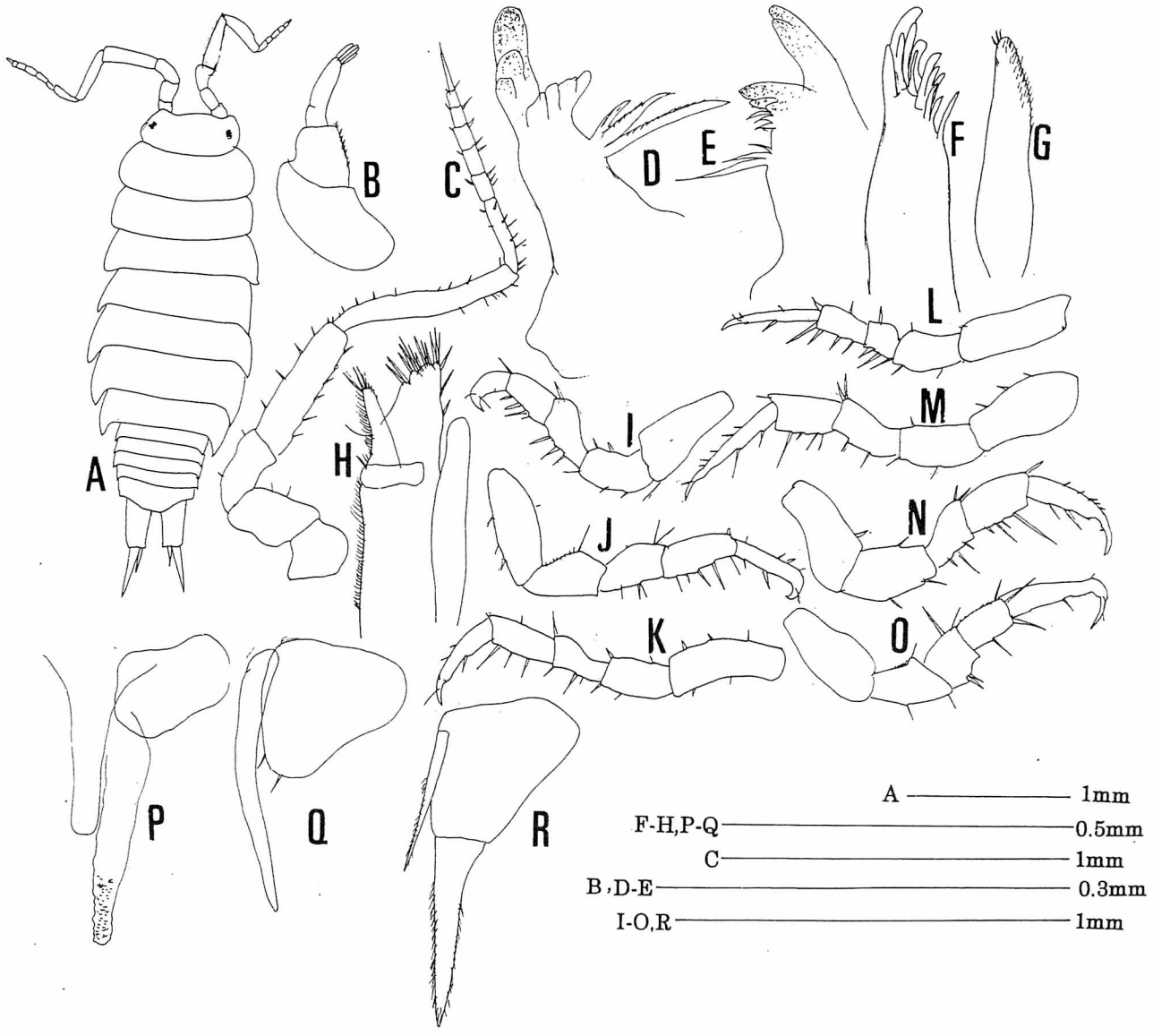

Fig.11. *Marinoniscus miyakensis*, n.sp.
A.Dorsal view ; B.Antennule ; C.Antenna ; D.Right mandible ; E.Left mandible ; F.Outer lobe of maxillula ; G.Maxilla ; H.Maxilliped ; I-O.Pereopods 1-7 ; P.Penes and Pleopod 1 ; Q.Pleopod 2 ; R.Uropod (All : Holotype male).

angle ; dactylus rather short.

Pereopod 2. (Fig.11J) Basis rectangular with 3 setae on inner margin ; ischium a little shorter than basis, with several setae on outer margin ; merus a little shorter than ischium with 3 setae on inner margin and 2 setae at outer distal margin ; carpus as long as ischium with 5 setae on inner margin ; propodus as long as carpus with 2 setae on inner margin.

Pereopod 3. (Fig.11K). Basis rectangular with 3 short setae on inner margin and 2/3 setae on outer margin ; ischium 2/3 as long as basis with a longer and about 10 shorter setae ; merus a little shorter than ischium with 2 setae on inner margin and a seta at outer distal angle ; carpus a little longer than merus with 4 setae on inner margin and a seta on outer margin ; propodus with 2 setae on inner margin and 2~3 setae on outer margin.

Pereopod 4 (Fig.11L). Basis twice as long as wide ; ischium 55% as long as basis, with 5 setae on inner margin and a seta on outer margin ; merus relatively short with 3 setae on inner margin and a seta on outer margin ; carpus as long as merus, with 4~5 setae on inner margin and 2~3 setae on outer margin ; propodus slender with as seta at the middle part.

Pereopod 5 (Fig.11M). Basis rectangular ; ischium a little shorter than basis 2 setae on inner margin and a seta on outer margin ; merus with 4 setae on inner margin and a seta at outer distal angle carpus as long as merus with 4~5 setae on inner margin and a seta at outer distal angle ; propodus with a seta on inner margin.

Pereopod 6 (Fig.11N). Basis twice as long as wide ; ischium almost as long as basis with 2 relatively short setae on inner margin. and a short seta on inner margin ; merus almost square with 3 setae on inner margin and 2 setae at outer distal angle ; carpus 1.4 times as long as merus, with 2 long and 2 short setae on inner margin and a seta at outer distal angle ; propodus almost as long as carpus with 2 relatively long setae on inner margin and 7~10 short setae on outer margin.

Pereopod 7 (Fig.11O). Basis twice as long as wide without seta ; ischium a little shorter than basis with a seta on inner margin and a seta on outer margin ; merus half the length of ischium with 2~3 setae on inner margin and 2 setae on outer margin ; carpus a little longer than merus with 3 setae on inner margin and a long seta at inner distal angle ; propodus with 2 setae on inner margin and 5~6 setae on outer margin ; dactylus rather long.

Penes (Fig.11P) slender, each 3 times as long as wide.

Pleopod 1 (Fig.11P). Endopod straight with many bar-like structures on its distal half. Exopod ellipsoid.

Pleopod 2 (Fig.11Q). Endopod long, terminal part pointed. Exopod ellipsoid with 2 setae on distal margin.

Uropod (Fig.11R) long and occupies 20% of the body length. Basis 80% of the exopod in length ; endopod 70% of exopod in length.

Habitat : Among the pebbles sheltered by a relatively big rock, intertidal zone.

Etymology : The specific name is derived from the type locality.

Remarks : The present new species is most closely allied to *Marinoniscus hachijoensis* already described in this paper but the former is separated from the latter in the following features : (1) less segmented flagellum of antenna, (2) shorter setal row of mandibles, (3) less numerous aesthetascs on the antennule, (4) longer exopod of male second pleopod, (5) shorter pereopods, and (6) smaller eyes, especially less numerous ommtidia of eyes.

The present new species is also allied to the species reported as *Marinoniscus* sp. (Nunomura, 1986) recorded from Okinoerabu Island, Amami Islands, Kagoshima Prefecture, but the former is separated from the latter in the following features : (1) less segmented, (2) longer and more numerous setal row of mandibles, (3) less numerous, and (4) more numerous teeth on outer lobe of maxillula.

Family Scyphacidae

Armadilloniscus japonicus Nunomura, 1984

(Japanese name : Nihon-hama-warajimushi)

Material examined : 1♀, Yokomagaura, Hachijo Island, May 24, 1998, coll. Noboru Nunomura.

Alloniscus balssi (Verhoeff, 1928)

(Japanese name : Nihon-tama-warajimushi)

Material examined : 8♂♂10♀♀ youngs, Hachijo Island, Taredo, May, 25, 1998, coll. Noboru Nunomura ; 4♂♂10♀♀, Yokomagaura, Hachijo Island, May, 24, 1998, coll. Noboru Nunomra ; 3♂♂ 4♀♀, Borawazawa, Hachijo Island, May 26, 1998, coll. Noboru Nunomura ; 1♂1♀, Sabigahama, Miyake Island, Sep. 6, 1998, coll. Noboru Nunomura ; 1♀, Sabigaura, Miyake Island, Sep, 6, 198, coll. Noboru Nunomura ; 3♂♂1♀, Komitsuki-yunohama, Miyake Island, Sep. 6, 1998. coll. Noboru Nunoura ; 1♂ Nabeta, Miyake Island. Sep. 6, 1998, coll. Noboru Nunomura ; 1♀, Ishijirokawa, Shikine Islands, Apr. 26, 1998.

Quelpartoniscus sp.

(Fig.12)

Material examined 3♀♀ (2.2～2.9 ㎜ in body length), Igaya-ōfunato, Miyake Islands, Sep. 6, 1998, coll. Noboru Nunomura.

Description : Body (Fig.12A) 2.3 times as long as wide. Color pale brown in alcohol ; Cephalon 0.78 time as long as wide. Anterolateral angles small but acute. Eyes mediocre in size, each eye composed of 30～35 ommtidia. Pleonal somite not abruptly narrower than the pereonal somites. Pleotelson as long as wide ; posterior margin almost triangular.

Antennule (Fig.12B) small and 3-segmented : segment 1 rectangular ; second segment rectangular with a long seta and 4 shorter setae ; terminal segment narrow with 2 aesthetascs at the tip.

Antenna (Fig.12C) relatively long, reaching the anterior half of 3rd pereonal somite ; peduncular segment 1 short ; segment 2 rectangular. Flagellum, as long as the fifth peduncular segment, composed of 3 segments. All the segments with many spines of whole the margin.

Mandible (Fig.12D) with pars incisiva ; lacinia mobilis with 3 setal rows, processus molaris wide. Maxillula (Fig.12E) with 9 teeth at the tip. Maxilla (Fig.12F) slender with many setae. Maxilliped (Fig.12G) weakly 5 segmented.

Pereopod 1 (Fig.12H). Basis rectangular with 2 small setae on inner margin ischium a little shorter than basis with 3 setae on inner margin ; merus as long as ischium with 6 setae on inner margin and 2 setae at outer distal angles ; carpus as long as merus with 5～6 setae on inner margin ; propodus slightly shorten towards the tip ; dactylus bifid.

Pereopod 2 (Fig.12I). Basis rectangular with 3 short setae on inner margin ; ischium half the length of basis ; merus as long as ischium with 6～8 setae on inner margin ; carpus a little longer than merus with 5 setae inner margin and 2 setae on outer margin ; propodus as long as carpus with 2 setae on inner margin and 5 setae on outer margin ; dactylus bifid.

Pereopod 3 (Fig.12J). Basis 3 times as long as wide ; ischium twice as long as wide with 2～3 setae on inner margin ; carpus as long as ischium with 4 setae on inner margin and a seta at outer distal angle ; carpus almost as long as merus, with 4 setae on inner margin ; propodus as long as carpus with 2 seta on inner margin and 7～8 short setae on outer margin ; dactylus bifid.

Pereopod 4 (Fig.12K). Basis stout and rectangular ; ischium about half as long as basis ; merus a little longer than ischium ; carpus as long as merus with 3 setae and a longer setae on inner margin ; propodus a little shorter and tapering towards the tip with 3～4 setae on inner margin and a seta on

outer margin ; dactylus.

Pereopod 5 (Fig.12L). Basis relatively stout, almost twice as long as wide ; ischium 1.5 times as long as wide with 3 setae on inner margin ; merus a little shorter than ischium, with a group of 3 setae on inner margin and 2 setae at outer distal angle ; carpus as long as ischium with 2 setae on inner margin and a group of 3 setae at outer distal angle ; dactylus short.

Pereopod 6 (Fig.12M). Basis 2.5 times as long as wide ; ischium 3/4 as long as basis ; merus a little longer than wide with a setae at outer distal angle ; carpus twice as long as wide with 2 setae on inner margin and 2~3 short setae at outer distal angle ; propodus a little shorter and narrower than carpus with a seta on inner margin and 4~5 setae at outer distal angle.

Pereopod 7 (Fig.12N). Basis twice as long as wide with 2 setae at inner distal angle ; ischium a little shorter than basis, with 3 setae on inner margin ; merus as long as ischium with 2 setae on inner margin and a seta at outer distal angle ; carpus a little shorter than merus with 2 seta on inner margin and a seta at outer distal angel ; propodus with a setae at the middle part on inner margin.

Pleopods (Fig.12O) are all round.

Uropods (Fig.12). Basis stout ; exopod a little longer than basis and 1.5 times as long as endopod.

Habitat : Under the stone and among pebbles In the intertidal zone.

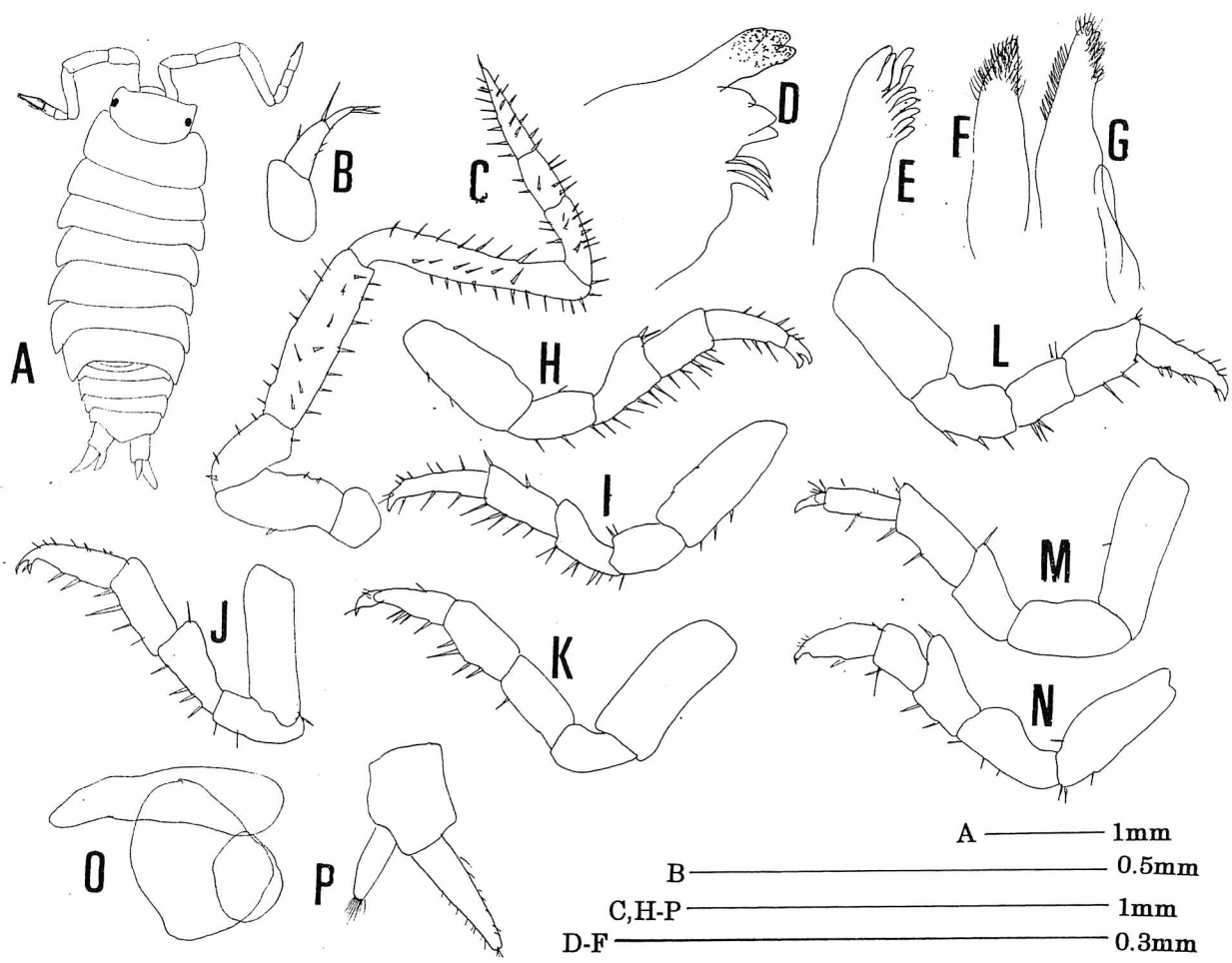

Fig.12 *Quelpartoniscus* sp.

A.Dorsal view ; B.Antennule ; C.Antenna ; D.Right mandible ; E.Outer lobe of maxillula ; F.Maxilla; G.Maxilliped ; H-N.Perepods1-7 ; O.plepod1 ; P.Uropod (All : Female from Miyake Island).

Remarks : The present species is similar to *Quelpartoniscus nipponensis*, reported from Osaka Bay but the former is separated from the latter in the following features : (1) shorter antenna, (2) lack of bifid setae on inner margin of pereopods 1~2, (3) simple teeth of the outer lobe of maxillula, (4) more numerous setal row of right mandible, (5) shorter dactylus of pereopods and (6) absence of well developed sensory setae on pereopod. Unfortunately, hitherto, no male specimen has collected, therefore, I refrained from establishing new species.

Family Armadilldiidae

Armadillidium vulgare (Latreille, 1804)

(Japanese name : Oka-dangomushi)

Material examined : 1♂3♀♀, Borawazawa. Hachijo Island, coll. Noboru Nunomura ; 3♂♂1♀, Kaminato, Hachijo Island. May, 28, 1998, coll. Noboru Nunomura.

Suborder Tyloidea

Family Tylidae

Tylos granuliferus Budde-Lund, 1885

Material examined : 2♂♂, Shikine Island, July 27, 1995, coll. Katsuhiko Tanaka.

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