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NEW COPEPODS OF THE FAMILIES BRYCHIOPONTIIDAE AND NANASPIDIDAE (SIPHONOSTOMATOIDA): PARASITES OF HOLOTHURIANS IN THE PACIFIC WATERS OF JAPAN

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Two new species of parasitic copepods, *Pseudobrychiopontius brevicaudus* gen. et sp. n. (Brychiopontiidae) and *Honshia lobata* gen. et sp. n. (Nanaspididae) are described. The parasites were found in the intestine of holothurians *Pannychia moseleyi* Theel, 1882 and in the coelome of holothurians *Myriotrochus mitsukurii* Ohshima, 1915, respectively. Both species holothurians were collected off the Pacific coast of Honshu at a depth of 1240—1480 m. *Pseudobrychiopontius* gen. n. differs from the closely related monotypic genera *Brychiopontius* Humes, 1974 and *Neobrychiopontius* Mahatma, Arbizu and Ivanenko, 2010 according to the following features: the 3-segmented urosome in female and 4-segmented urosome in male, the short caudal ramus, the 19-segmented antennule in female and 16-segmented antennule in male, the terminal arms antenna and maxilliped, the 2-segmented endopod on leg 4, the reduced number of setae and spines on legs 1—4, the unarmed of leg 6 in female and the size and shape of the spine on the first exopodal segment of leg 1. *Honshia* gen. n. differs from the other genera of Nanaspididae due to the indistinctly 5-segmented cephalothoracic trunk and the absence of legs 3 and 4.

Key words: parasitic copepod, *Pseudobrychiopontius* gen. n., *Honshia* gen. n., deep-sea holothurians, Honshu.

НОВЫЕ КОПЕПОДЫ СЕМЕЙСТВ BRYCHIOPONTIIDAE И NANASPIDIDAE (SIPHONOSTOMATOIDA) ПАРАЗИТЫ ГОЛОТУРИЙ В ТИХООКЕАНСКИХ ВОДАХ ЯПОНИИ

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Описаны 2 новых вида паразитических копепод *Pseudobrychiopontius brevicaudus* gen. et sp. n. (Brychiopontiidae) и *Honshia lobata* gen. et sp. n. (Nanaspididae). Паразиты были обнаружены в кишечнике голотурии *Pannychia moseleyi* Theel, 1882 и в целоме

голотурии *Myriotrochus mitsukurii* Ohshima, 1915 соответственно. Оба вида голотурий были собраны у Тихоокеанского побережья о-ва Хонсю на глубине 1240—1480 м. *Pseudobrychiopontius* gen. n. отличается от близкородственных монотипичных родов *Brychiopontius* Humes, 1974 и *Neobrychiopontius* Mahatma, Arbizu and Ivanenko, 2010 следующими особенностями: 3-сегментной уросомой у самок и 4-сегментной — у самцов, короткими фуркальными ветвями, 19-сегментной антеннулой у самок и 16-сегментной — у самцов, терминальным вооружением антенны и максиллипеда, 2-сегментным эндоподитом у ножки 4, уменьшенным числом щетинок и шипиков на ножках 1—4, отсутствием вооружения на ножке 6 у самок и размером и формой шипа на первом сегменте экзоподита ножки 1. *Honshia* gen. n. отличается от других родов Nanaspididae 5-сегментным цефалоторокальным туловищем и отсутствием ножек 3 и 4.

Ключевые слова: паразитические копеподы, *Pseudobrychiopontius* gen. n., *Honshia* gen. n., глубоководные голотурии, о-в Хонсю.

Only four families of siphonostomatoid copepods were encountered in association with holothurians (Humes, 1980; Mahatma et al., 2008): Asterocheridae Giesbrecht, 1899 and Artotrogidae Brady, 1880 were associated with echinoderms, and both have only one species associated with shallow-water holothurians in the Mediterranean (Giesbrecht, 1899; Humes, 1980), while Nanaspididae Humes and Cressey, 1974 and Brychiopontiidae Humes, 1974 appear to be found only in holothurians. To date, three known species of copepods associated with holothurians have been found off the Pacific coast of Honshu: *Scambicornus hamatus* Heegaard, 1944 (Poecilolostomatoida: Synapticolidae) was found in *Neothyonidium hawaiiense* (Fisher) and *Humesia bicuspidata* Avdeev, 1980 and *H. alata* Avdeev, 1980 (Nanaspididae) were found in two species of unidentified holothurians belonging to the family Synallactidae (Avdeev, 1980; Humes, 1980).

MATERIAL AND METHODS

The parasitic copepods described in the present paper were collected by the author during an expedition organized by the Pacific Research Fisheries Centre in the northwest part of the Pacific Ocean. The copepod parasites that were removed from the holothurians were preserved in 70 % ethanol. They were subsequently cleared in lactic acid for approximately two hours before being dissected in a drop of lactic acid. All drawings were made with the aid of a camera lucida. The body lengths were measured from the anterior tip of the cephalothorax to the posterior margin of the caudal rami. The lengths of the segments in the antennule were measured along their posterior margins. Regarding the formula for the armature of the legs, Roman numerals indicate spines and Arabic numerals indicate setae.

Systematic part

Family BRYCHIOPONTIIDAE Humes, 1974
Pseudobrychiopontius Avdeev, gen. n.

Diagnosis. Prosome 4-segmented with rounded epimeral areas; urosome 3-segmented in female, 4-segmented in male. Caudal ramus short, with 6 setae. Rostral area projecting ventrally. Antennule 19-segmented in female, with aes-

thetasc on segment 16; that of male 16-segmented and geniculate, with aesthetasc on segment 15. Antenna with 1-segmented exopod bearing 3 setae and 2-segmented endopod bearing 3 setae and 2 claws on second segment. Oral cone short and robust. Mandible is elongate blade dentate at its tip and without palp. Maxillule bilobed: inner lobe with 3 setae, outer lobe with 4 setae. Maxilla 2-segmented, second segment in form well-developed recurved claw. Maxilliped prehensile and 5-segmented, with terminal claw. Legs 1—3 with 3-segmented rami. Leg 4 with 3-segmented exopod and 2-segmented endopod. Spine on first exopod segment of leg 1 is ordinary. Setae and spines on rami of legs 1—4 reduced in number. Leg 5 is 1-segmented, placed ventrolaterally, with 4 setae. Legs 1—5 without sexual dimorphism. Leg 6 represented in female by unarmed genital opercula and in male by genital flap bearing 2 setae.

Type and only known species. *Pseudobrychiopontius brevicaudus* sp. n.

Etymology. The generic name is a combination of the Latin word «pseudo» and the name of the type genus. The gender is masculine.

Pseudobrychiopontius brevicaudus Avdeev, sp. n. (figs. 1—4)

Material examined: 3 ♀ and 2 ♂ from the intestine of 2 *Panrychia moseleyi* Théel, 1882, caught off the Pacific coast of Honshu (36° 24′ N, 141° 28′ E), depth 1480 m, 24.01.1980. Holotype (♀, AGK 99003) and paratypes (2 ♀ and 2 ♂, APK 99004) deposited in the parasitological collection of the Institute of Biology and Soil Science, Far Eastern Branch of the Russian Academy of Sciences, Vladivostok, Russia.

Description. Female. Body (fig. 1, *A*) 1.58 (1.41—1.61) mm long, slightly flattened dorsoventrally and gradually narrowed toward posterior end. Greatest width of cephalothorax 0.72 (0.69—0.74) mm, based on 3 specimens. Ratio of length to width of prosome 1.73 : 1. Ratio of length prosome to that of urosome 3.19 : 1. Somite bearing of leg 5 (156 × 187 μm) globose and significantly narrower than that of preceding somites. Genital double-somite (162 × 278 μm) broadest at anterior region. Area of attachment of egg sac (fig. 1, *B*) located dorsolaterally. Anal somite (115 × 129 μm) diminished anteriorly, and its posterior edge formed rounded medial dorsal projections and two ventral lobes with deep incision between them (fig. 1, *B*, *C*). Caudal ramus (fig. 1, *B*, *C*) short (39 × 35 μm), carrying 6 terminal setae (longest seta 220 μm in length). All setae naked. Egg sac unknown.

Rostrum (fig. 1, *A*) extended well beyond front margin of cephalothorax, posteroventrally visible as narrowing caudally plate with round tip, its anterior edge with 2 sensillae (fig. 1, *D*). Antennule (fig. 1, *D*) 19-segmented, 620 μm long. Lengths of segments 76 (129 μm along anterior margin), 20, 22, 18, 30, 22, 14, 18, 24, 34, 28, 42, 40, 36, 54, 52, 40, 30, and 20 μm, respectively. Setal formula: 5, 2, 2, 2, 2, 2, 2, 2, 2, 2, 2, 2, 2, 2, 2, 2 + 1 aesthetasc, 2, 4, and 7. All setae naked. Antenna (fig. 1, *E*) 278 μm long, coxa and basis elongated, without ornamentation or setation. Exopod 1-segmented, with 3 naked setae. Endopod 2-segmented: first segment elongated, with spinules along outer margin and on anterior surface and second segment bearing 2 unequal claws and 2 setae terminally, with spinules on outer edge and 1 basal seta. Labrum and labium plate-like (fig. 1, *F*) and formed short oral cone. Ratio of width of labrum to that of la-

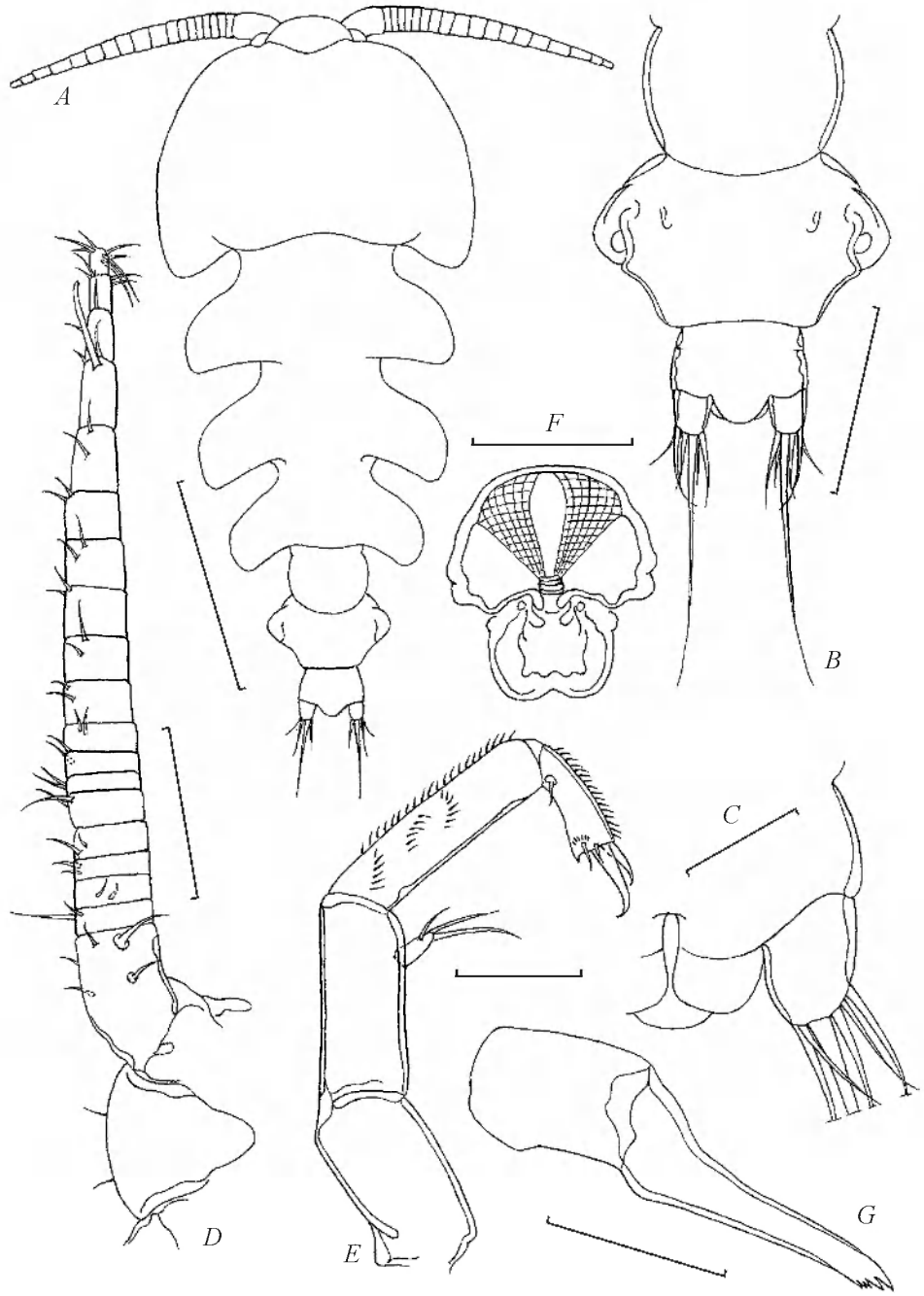

Fig. 1. *Pseudobrychiopontius brevicaudus* gen. et sp. n., female.

A — body, dorsal; *B* — urosome, dorsal; *C* — posterolateral area of anal somite and caudal ramus, ventral; *D* — antennule and rostral area, ventral; *E* — antenna; *F* — oral cone; *G* — mandible. Scale bars: 0.05 mm in *C*, *E*, *G*; 0.1 mm in *F*; 0.2 mm in *B*, *D*; 0.5 mm in *A*.

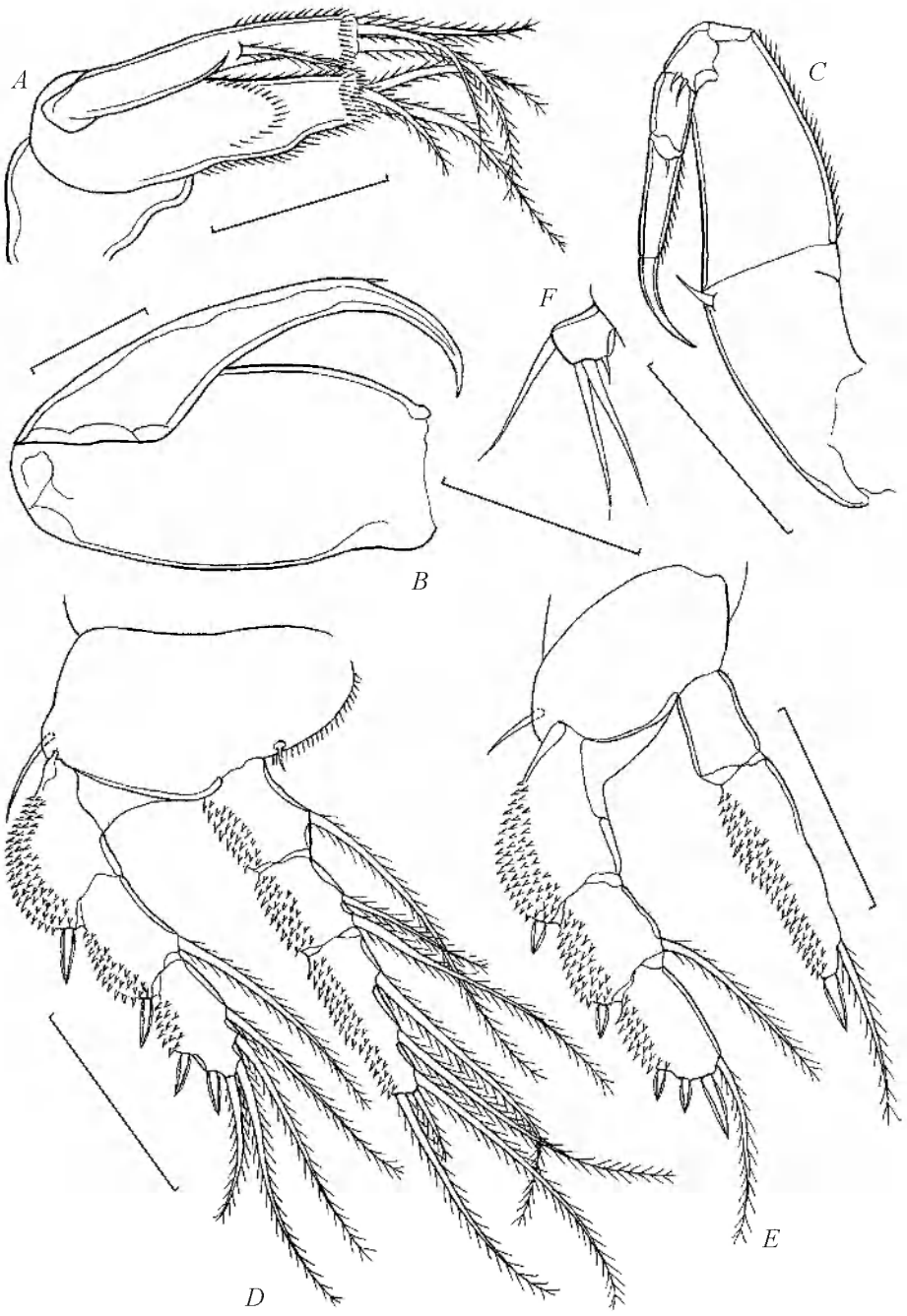

Fig. 2. *Pseudobrychiopontius brevicaudus* gen. et sp. n., female.
A — maxillule; *B* — maxilla; *C* — maxilliped; *D* — leg 1; *E* — leg 4; *F* — leg 5. Scale bars: 0.05 mm in *A*, *B*, *F*; 0.1 mm in *C*, *D*, *E*.

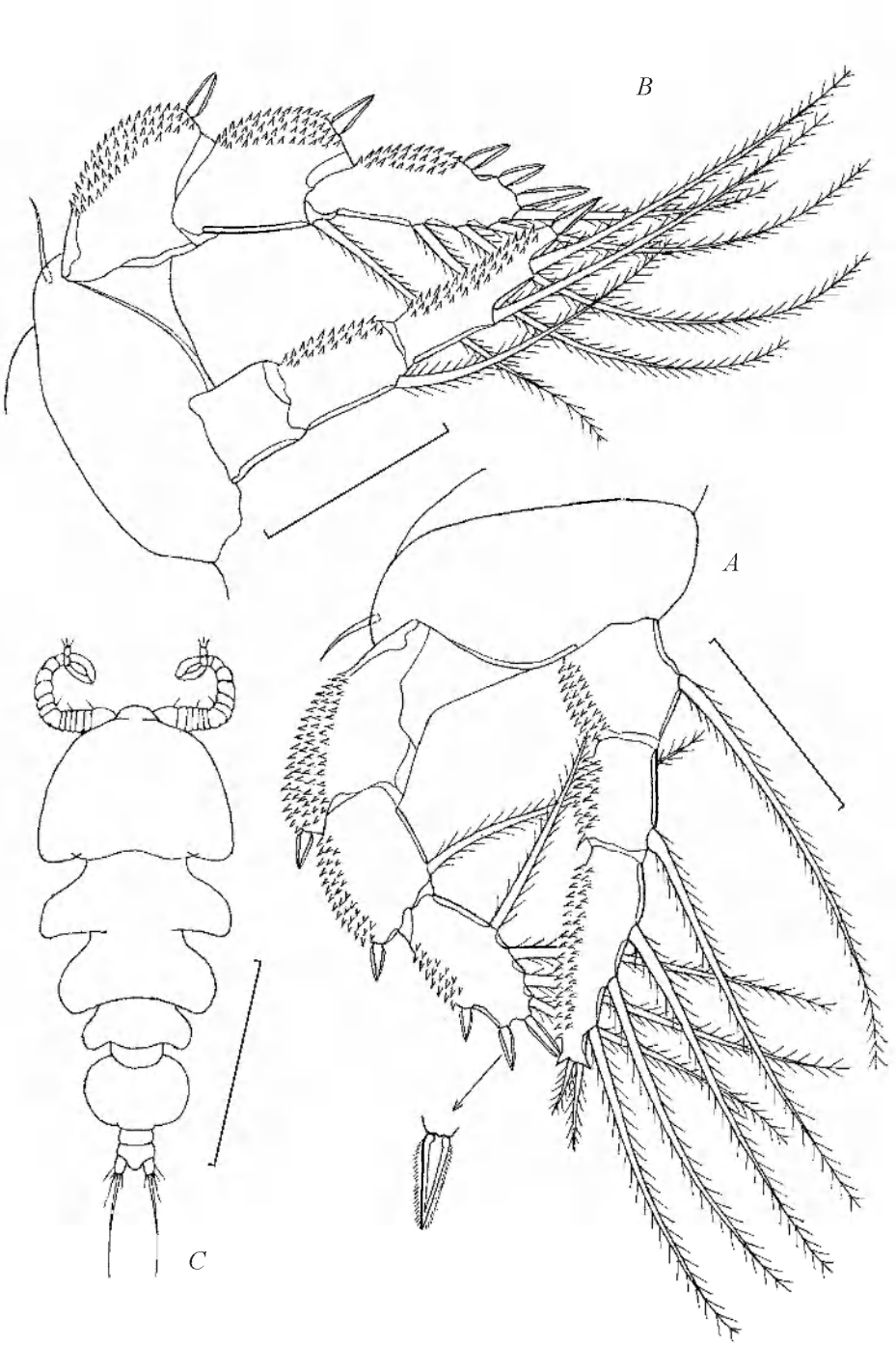

Fig. 3. *Pseudobrychiopontius brevicaudus* gen. et sp. n., female (*A*, *B*), male (*C*).
A — leg 2; *B* — leg 3; *C* — body, dorsal. Scale bars: 0.1 mm in *A*, *B*; 0.5 mm in *C*.

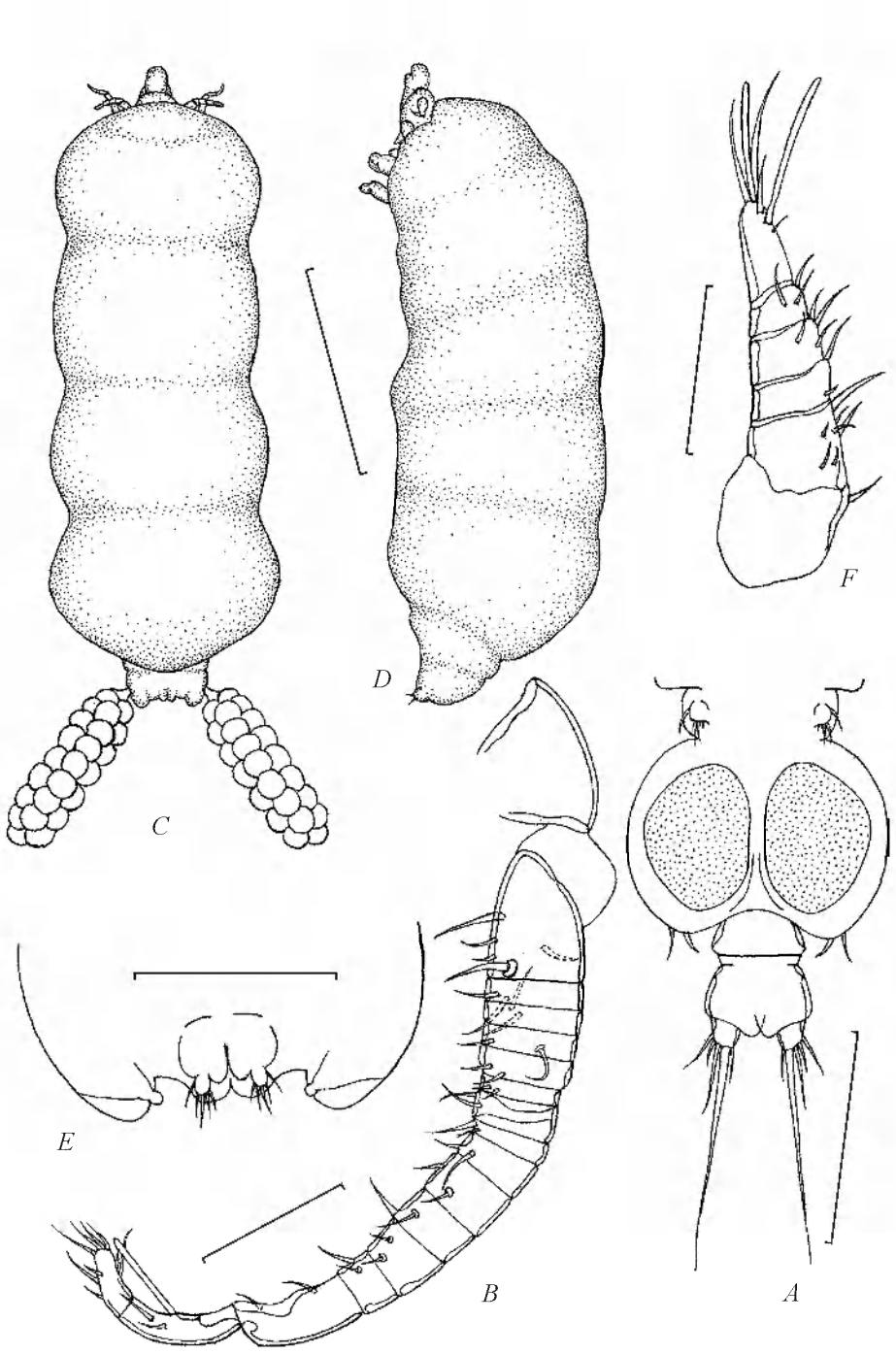

Fig. 4. *Pseudobrychiopontius brevicaudus* gen. et sp. n., male (*A*, *B*), *Honshia lobata* gen. et sp. n., female (*C*—*F*).

A — urosome and caudal rami, ventral; *B* — antennule and rostral area, ventral; *C* — body, dorsal; *D* — body, lateral; *E* — distal portion of genital somite, abdominal somite and caudal rami, ventral; *F* — antennule, ventral. Scale bars: 0.05 mm in *F*; 0.1 mm in *B*; 0.2 mm in *A*, *E*; 1.0 mm in *C*, *D*.

bium 1.75 : 1. Mandible (fig. 1, *G*) consisted of broad basal part and slender sclerotized blade, toothed terminally, without palp. Maxillule (fig. 2, *A*) with slender outer lobe bearing 4 plumose setae (3 terminal and 1 marginal), and inner lobe widened proximally and had 3 terminal plumose setae; both lobes are about equal length and ornamented with spinules. Maxilla (fig. 2, *B*) 2-segmented: first segment wide and unarmed, second segment claw-shaped and bears small spine on outer margin. Maxilliped (fig. 2, *C*) 5-segmented. Syncoxa with 1 seta on inner distal corner, basis with spinules along outer margin. Endopod 3-segmented: first and second segments bearing 2 and 1 terminal setae, respectively; third segment with spinules along inner margin and terminal claw.

Legs 1—4 (fig. 2, *D*, *E*; 3, *A*, *B*) with 3-segmented rami, with exception for 2-segmented endopod in leg 4. Formula for armature of legs 1—4 as follows:

	Coxa	Basis	Exopod	Endopod
Leg 1	0—0	1—1	I—0; I—1; II, 4	0—1; 0—1 or 2; 5
Leg 2	0—0	1—0	I—0; I—1; III, 4	0—1; 0—1; 5
Leg 3	0—0	1—0	I—0; I—1; III, 4	0—0; 0—1; I, 2
Leg 4	0—0	1—0	I—0; I—1; III, 1	0—0; I, 1

Outer surfaces of both rami of legs 1—4 covered with many spinules. Seta on endopod of leg 4 was shorter at both paratypes than that found on holotype. Leg 5 (fig. 2, *F*) 1-segmented and armed with 4 naked setae. Leg 6 represented by unarmed genital opercula.

Colour of body in life is orange.

Male: Body (fig. 3, *C*) generally resembled that of female. Length and width of each of 2 males 1.12 × 0.47 mm and 1.01 × 0.43 mm, respectively. Ratio of length to width of prosome 1.75 : 1. Ratio of length prosome to that of urosome 2.77 : 1. Somite bearing of leg 5 (28 × 148 μm) relatively shorter than that of female (fig. 4, *A*). Genital somite (fig. 4, *A*) globose (187 × 244 μm). Two postgenital somites 47 × 89 and 72 × 100 μm from anterior to posterior (fig. 4, *A*). Caudal ramus (fig. 4, *A*) similar to that of female, but smaller (21 × 30 μm).

Rostrum similar to that of female. Antennule (fig. 4, *B*) 16-segmented, 540 μm long, geniculation occurs between segments 14 and 15. Lengths of segments 63 (83 μm along anterior margin), 18, 17, 17, 20, 11, 26, 15, 27, 34, 28, 37, 26, 78, 77, and 46 μm, respectively. Setal formula: 5, 2, 2, 2, 2, 2, 2, 2, 2, 2, 2, 2, 2, 2, 2 + 1 aesthete, and 9. All setae naked. Antenna, oral cone, mandible, maxillule, maxilla, maxilliped and legs 1—5 as in female. Leg 6 (fig. 4, *A*) represented by genital flap bearing 2 setae.

Colour of body in life resembles that of the female.

Etymology. The specific name *brevicaudus* (Latin «brevis» — short and «cauda» — tail) refers to the relatively short caudal ramus in this species.

Remarks. To date, two brychiopontiid genera have described: *Brychiopontius* Humes, 1974 and *Neobrychiopontius* Mahatma, Arbizu et Ivanenko, 2008. Both genera are found associated with abyssal holothurians *Oneirophanta mutabilis* Théel in the eastern North Atlantic and *O. setigera* (Ludwig) in the Northeast Pacific nodule province, respectively. The new genus shows certain characteristics that are similar to those found in *Brychiopontius* and *Neobrychiopontius*. All three genera share the following characteristics: the aesthetasc on

Morphological differences between *Brychiopontius*, *Neobrychiopontius* and *Pseudobrychiopontius* gen. n. (Humes, 1974; Mahatma et al., 2008; present study)

Character	*Brychiopontius*	*Neobrychiopontius*	*Pseudobrychio-pontius* gen. n.
Number of urosomal somites:			
female	5	5	3
male	6	—	4
Prosome	Wide	Wide	Narrow
Ratio of length to width of caudal ramus	6.4	12.0	1.3
Number of setae on caudal ramus	6	7	6
Rostrum postventrally	Not defined	Defined	Defined
Antennule:			
female	18-segmented	21-segmented	19-segmented
male	15-segmented	—	16-segmented
Antenna and maxilliped (terminal element)	Short and stout, with lamelliform distal part	Elongate, blunt-pointed and to-othlees terminal-ly	2 and 1 claw, respectively
Palp of mandible	Absent	Present	Absent
Number of setae on inner lobe of maxillule	5	5	3
Inner lobe of maxilla	Absent	Present	Absent
First segment of maxilla	With inner conical expansion	Without expansion	Without expansion
Leg 4 endopod	3-segmented	3-segmented	2-segmented
Outer spine on first exopod segment of leg 1	Greatly enlarged and falcate	Greatly enlarged and falcate	Ordinary
Number of setae on leg 6 (female)	1	2	Unarmed
Armament of leg 1—4: First and third exopod segments of leg 1	I—1; III, 4	I—1; II, 4	I—0; II, 4
First and third exopod segments of leg 2	I—1; III, I, 4	I—1; III, I, 4	I—0; III, 4
Second and third endopod segments of leg 2	0—2; 6	0—2; 6	0—1; 5
First and third exopod segments of leg 3	I—1; III, I, 4	I—1; III, I, 4	I—0; III, 4
Leg 3 endopod	0—1; 0—2; 1, I, 3	0—1; 0—2; 1, I, 3	0—0; 0—1; I, 2
Leg 4: exopod	I—1; I—1; III, I, 4	I—1; I—1; III, I, 4	I—0; I—1; III, 1
endopod	0—1; 0—2; 1, I, 2	0—1; 0—2; 1, I, 2	0—0; 0, 1

the antennule is located on the fourth segment from the end in the female («mark A» in Ivanenko, 1999) and on the second segment from the end in the male; the inner seta on the basis of leg 1 is present and the endopod of maxilliped is 5-segmented. These characteristics clearly distinguish Brychiopontiidae from other echinoderm-inhabiting siphonostomatoids (Humes, 1974; Boxshall, Ohtsuka, 2001). There are, however, important differences between *Pseudobrychiopontius* and two other genera of the Brychiopontiidae (see table). *Pseudobrychiopontius* is characterized by the following combination of apomorphi-

es: (1) the prosome narrow in both sexes; (2) the urosome is 3-segmented in the female and 4-segmented in the male; (3) the antenna and maxilliped have terminal endopodal claw-shaped elements; (3) the inner lobe of the maxillule with 3 setae; (4) the endopod of leg 4 is 2-segmented; (5) leg 6 is unarmed in female and (6) there are a reduced number of spines and setae on legs 2—4. The apomorphic characters of the genera *Brychiopontius* and *Neobrychiopontius* are the falcate, strong inwardly-curved outer spine on the first segment of the exopod of leg 1 and the blunt-pointed terminal element on the antenna and maxilliped (Mahatma et al., 2008). In *Pseudobrychiopontius* the outer spine on the first segment of the exopod of leg 1 is ordinary and the claw-shaped terminal elements on the antenna and maxilliped. Differences in apomorphies among brychiopontid related to the need to adapt *Pseudobrychiopontius* during the transition to endoparasitism. *Brychiopontius* and *Neobrychiopontius* localized on the surface of the holothurians genus *Oneirophanta* Theel, while *Pseudobrychiopontius* in the intestine of holothurians genus *Panrychia* Théel.

Family NANASPIDIDAE Humes and Cressey, 1959
Honshia Avdeev, gen. n.

Diagnosis. Female. Body modified and consist of large cephalothoracic trunk and small genito-abdomen. Trunk comprises cephalothorax (incorporating first pedigerous somite) and four weakly defined free somites, presumably those originally bearing legs 2 to 5. Genitoabdomen including genital and abdominal somites. Caudal ramus with 5 setae. Rostrum ventrally undeveloped. Antennule 6-segmented, with 2 aesthetascs on segment 6. Antenna 4-segmented, last segment with 1 claw and 1 terminal seta. Oral cone moderately elongate. Mandible represented by small lash. Maxillule bilobed: inner lobe as strong curved hook, outer lobe armed with 3 setae. Isolated seta (mandibular palp) located laterally from base of maxillule. Robust maxilla is strongly prehensile, with well developed claw. Maxilliped 4-segmented, comprising syncoxa, basis and 2-segmented endopod; setal formula 0, 0, 1, 1 + claw. Leg 1 with 1-segmented rami. Leg 2 with 2-segmented exopod and 1-segmented endopod. Legs 3—5 absent. Leg 6 unarmed.

Male. Body is tapering without distinction between prosome and urosome. Antennule 5-segmented, two basal segments enlarged. Other parts in general like those of female.

Type and only known species. *Honshia lobata* sp. n.

Etymology. The generic name is formed from Honshu, the name of the island, off the coast of which the new species was discovery. The gender is feminine.

Honshia lobata Avdeev, sp. n. (figs. 4—6)

Material examined. 15 ♀ and 15 ♂ from the coelome of 12 *Myriotrochus mitsukurii* Ohshima, 1915 caught off the Pacific coast of Honshu (38° 01′ N, 142° 35′ E), depth 1240 m, 28. 01.1980. Holotype (♀, AGK 99005) and paratypes (14 ♀ and 14 ♂, APK 99006) deposited in the parasitological col-

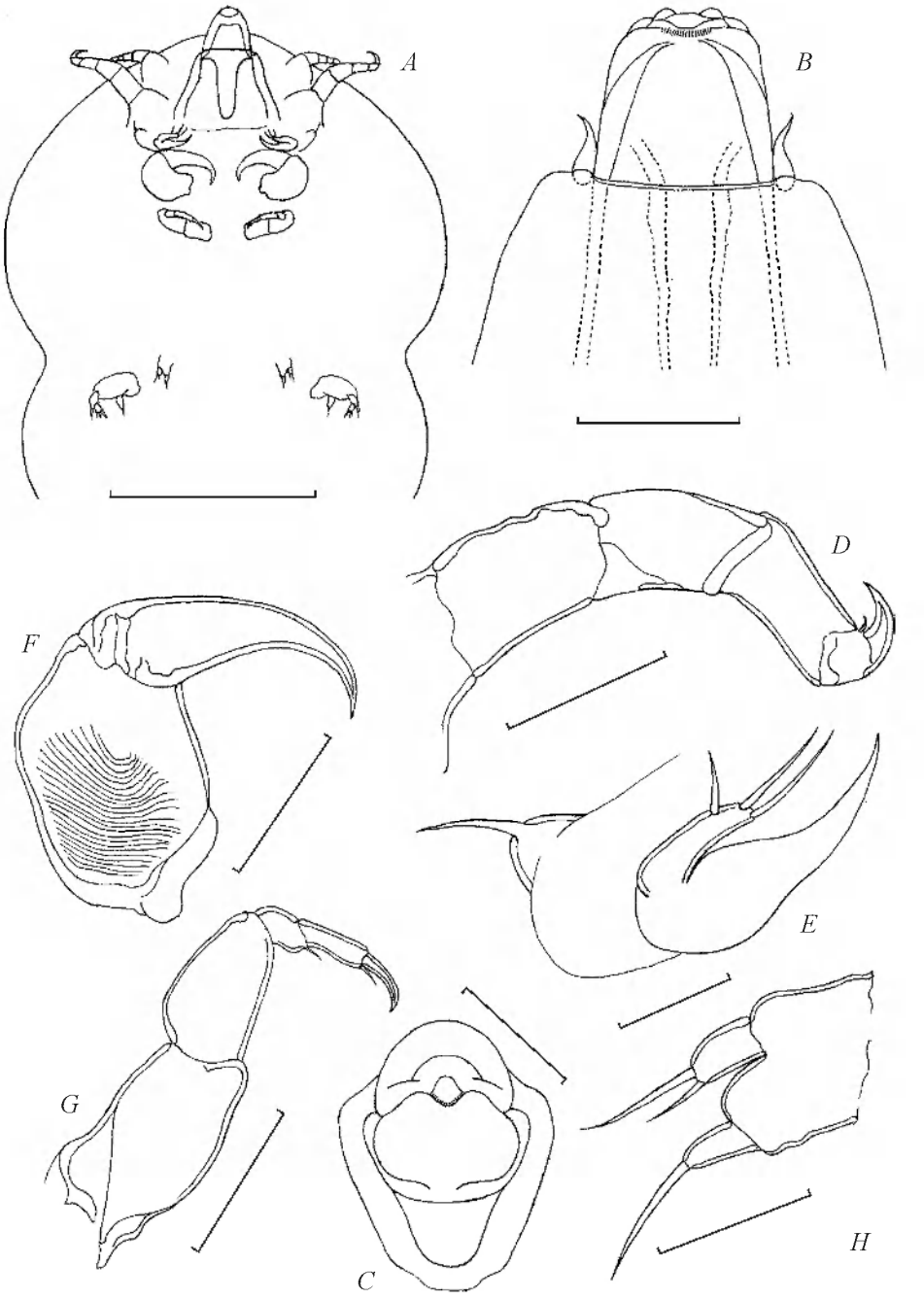

Fig. 5. *Honshia lobata* gen. et sp. n., female.

A — cephalotorax and somite bearing leg 2, ventral; *B* — oral cone and mandible, ventral; *C* — oral cone, anterior; *D* — antenna; *E* — maxillule and isolated seta (mandibular palp); *F* — maxilla; *G* — maxilliped; *H* — leg 1. Scale bars: 0.05 mm in *E*, *H*; 0.1 mm in *B*, *C*, *F*, *G*; 0.2 mm in *D*; 0.5 mm in *A*.

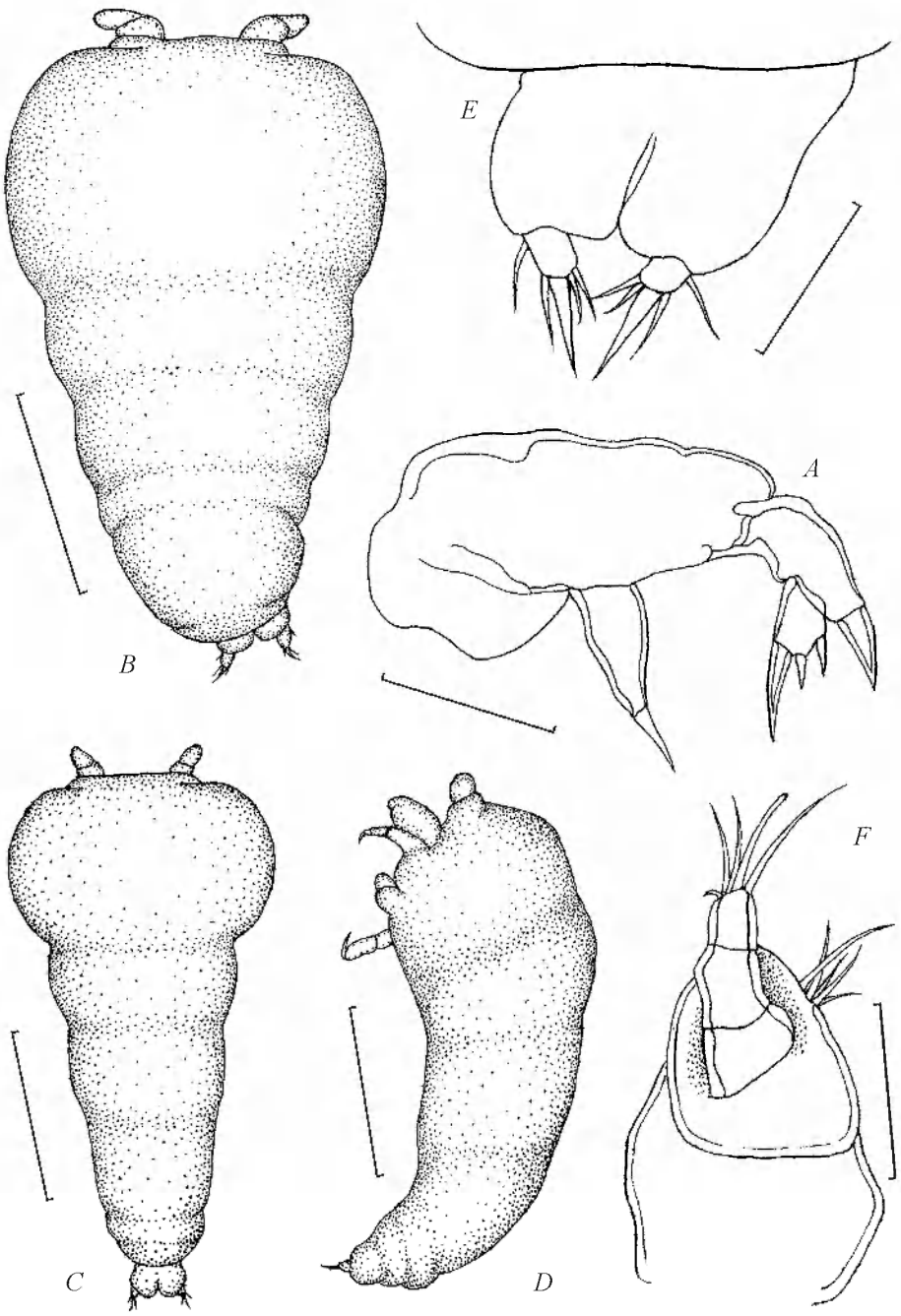

Fig. 6. *Honshia lobata* gen. et sp. n., female (*A*), male (*C—F*).
A — leg 2; *B*, *C* — body, dorsal; *D* — body, lateral; *E* — anal somite and caudal rami, ventral; *F* — antennule, ventral. Scale bars: 0.05 mm in *A*, *E*, *F*; 0.3 mm in *B*, *C*, *D*.

lection of the Institute of Biology and Soil Science, Far East Branch of Russian Academy of Sciences, Vladivostok, Russia.

Description. Female. Body (fig. 4, *C*, *D*) subcylindrical, 2.81 (2.52—2.96) mm long and 1.06 (0.97—1.10) mm wide, based on 10 specimens. Demarcation between somites of cephalothoracic trunk indicated by swelling of epimeral areas. Ratio of length cephalothoracic trunk to that of genitoabdomen 11.42 : 1. Genital somite (181 × 394 μm) with characteristic subspherical lobe on each of its postlateral corners, and at base of each lobe ventrally located appendage directed mediocaudally. Apex of this appendage knobby; moreover, its mid-posterior margin curved, W-shaped (fig. 4, *E*). Attachment area of egg sac situated laterally. Abdominal somite small (67 × 95 μm) and located on ventral surface of genital somite, its posterior margin with deep medial incision. Caudal ramus (fig. 4, *E*) 20 × 15 μm at its maximum dimension, with 5 setae. Egg sac elongated (860 × 281 μm) and contained 30—32 eggs.

Rostrum undeveloped. Antennule (fig. 4, *F*) 6-segmented, 107 μm long. Lengths of segments 26, 10, 12, 14, 12, and 33 μm, respectively. Setal formula: 1, 7, 2, 4, 3, and 7 + 2 aesthetasc. All setae naked. Antenna (fig. 5, *D*) 4-segmented, 344 μm long. Coxa, basis and first endopod segment approximately equal in length and unarmed; second endopod segment small, armed terminally with 1 claw and 1 small seta. Oral cone (fig. 5, *A*, *B*) moderately elongated and situated on protrusion formed by ventral surface of cephalothorax between bases of antennae. It is directed anteriorly and extends beyond front edge of cephalothorax and slightly ciliated at its extremity (fig. 5, *C*). Mandible (fig. 5, *B*) represented by small lash situated at side of base of oral cone. Maxillule (fig. 5, *E*) with inner lobe as strong curved hook and outer lobe bearing 3 setae (2 terminal and 1 subterminal). Isolated seta (mandibular palp) located laterally near base of maxillule. Maxilla (fig. 5, *F*) 2-segmented, proximal segment large and unarmed, distal segment claw-shaped. Maxilliped (fig. 5, *G*) 4-segmented, comprising syncoxa, basis and 2-segmented endopod; setal formula 0, 0, 1, and 1 + claw.

Leg 1 (fig. 5, *H*) with 1-segmented rami. Leg 2 (fig. 6, *A*) with 2-segmented exopod and 1-segmented endopod. Formula for armature of legs 1—2 as follows:

	Protopod	Exopod	Endopod
Leg 1	0—0	2	1
Leg 2	0—0	I; 1, 2	1

Colour of body in life is orange, egg sacs are white.

Male: Body (fig. 6, *B*—*D*) gradually narrowed toward posterior end without distinction between prosome and urosome. Length 0.87 (0.68—0.93) mm and width 0.54 (0.45—0.56) mm, based on 10 specimens. Demarcation between somites of body indicated by feebly expressed swelling of epimeral areas. Anal somite (59 × 886 μm) slightly wider than long, its postventral surface with deep incision (fig. 6, *B*, *C*). Caudal ramus short (13 × 11 μm), with 6 setae (longest seta 31 μm in length), all setae naked.

Antennule (fig. 6, *F*) included two enlarged basal segments and three narrow distal segments. First segment (74 × 60 μm) largest and unarmed. Second segment (60 × 51 mm) rounded, with 5 setae and 1 large socket receiving lateral

process of female genital somite during copulation. 3-segmented distal part of antennule attaches to ventral surface of second basal segment at posterior margin of socked. Lengths of segments 18, 22 and, 17 μm, respectively. Setal formula: 0, 0, and 4 + 1 aesthetasc. All setae naked. Other details as in female.

Colour of body in life similar to that of female.

Etymology. The specific name *lobata* alludes to the lobate posterior margin of the genital somite of the female.

Remarks. To date, four nanaspidid genera have been described: *Allantogynus* Changeux, 1958, *Humesia* Avdeev, 1980, *Nanaspis* Humes et Cressey, 1959 and *Stephopontius* Thompson et Scott, 1903 (Walter, Boxshall, 2016). Each of these genera is characterised by the following synapomorphies: the reduction of the mandibular palp to a single hirsute seta located lateral to the base of the maxillule, and the failure of expression of the articulation between pedigerous somites 3 and 4 (Boxshall, Ohtsuka, 2001; Boxshall, Halsey, 2004; Kim, 2010). *Honshia* is the fifth genus of nanaspidid copepods found in association with holothurians and is the second record of the family Nanaspididae to be in the Pacific waters of Japan (Avdeev, 1980). In contrast to other genera of the Nanaspididae, the cephalothoracic trunk is 5-segmented in *Honshia*. In addition to the differences in body tagmosis, *Honshia* differs from congenera lack of legs 3 and 4. Among all the known genera of Nanaspididae, only in *Allantogynus*, as in *Honshia*, the prosome subcylindrical; the slightly elongated oral cone situated prominently on the ventral surface of the cephalothorax between the basis of the antennae and the inner lobe of the maxillule as a strong curved hook (Changeux, 1958). *Humesia*, *Nanaspis* and *Stephopontius* have the following distinctive features: the prosome is dorsoventrally flattened, the mouth cone is short and the inner lobe of the maxillule tapers and is armed with a curved apical seta.

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