

CALANOID COPEPODS OF THE GENUS *SCOTTOCALANUS* FROM THE FLORES SEA, INDONESIA

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ABSTRACT. - A taxonomic study was made on the genus *Scottocalanus* collected from the Flores Sea, Indonesia. Seven species of *Scottocalanus* were recorded, including one species, *S. helenae* reported from Indonesian waters for the first time. Descriptions, measurements and figures are given for all these species, along with a review of their distribution over the world's oceans, and with taxonomic remarks, ecological notes, and synonymies.

KEYWORDS. - Taxonomy, *Scottocalanus*, Flores Sea, Indonesia.

INTRODUCTION

Hitherto seven species of *Scottocalanus* have been reported by Scott (1909) in Indonesian waters. The species recorded are: *S. helenae* (Lubbock, 1856), *S. percecans* (Giesbrecht, 1895), *S. securifrons* (T. Scott, 1894), and four of A. Scott's own species, then described as new: *S. farrani*, *S. longicornis*, *S. setosus*, and *S. thomasi*. According to Vervoort (1965), A. Scott's (1909) reference to *S. helenae* from Indonesian waters, would in fact refer to *S. thori* With, 1915.

With the intention to confirm all previously recorded species of *Scottocalanus* from Indonesian waters, the author examined three samples collected from the Flores Sea (07°29'S 121°5'E).

The samples were provided from the collections of the Research and Development Centre for Oceanology, Indonesian Institute of Sciences (LIPI). Samples had been collected by vertical hauls from 200 m depth to the surface with a conical plankton net (0.33 mm mesh size; 0.45 m diameter mouth aperture) at night time on 15 February 1985.

Abbreviations used are as follows: A1, antennule; A2, antenna; Ms1-Ms5, metasomal somites 1-5; Ur1-Ur5, urosomal somites 1-5; CR, caudal rami; P1-P5, swimming legs 1-5; B1, B2, basipodal segments 1 and 2; Re1-Re3, exopodal segments 1 3; and Ri1, Ri2, endopodal segments 1 and 2. Lengths of prosome and urosome were taken dorsally from the anterior margin of head to the posterior corner of Ms5, and from anterior margin of Ur1 to posterior end of CR.

TAXONOMY

Scottocalanus farrani A. Scott, 1909

(Fig. 1)

Scottocalanus farrani A. Scott, 1909: 106, pl. 24, figs. 11-18 (Type locality: Celebes Sea); Sewell, 1913: 354, 1929:183; Wilson, 1950; Vervoort, 1965: 36; Grice, 1962: 213, pl. 19, figs. 16-20.

Material examined. - One male, total length (3.54 mm).

Male. - Body elongate and narrow, relative length of prosome to urosome 2.6 : 1. Cephalosome with median crest, apex of crest quite angular in lateral view, rostral points short (Fig. 1a, b, d). Posterior corners of Ms5 narrowly rounded (Fig. 1c). Urosome consisting of 5 somites, Ur1 (genital somite) shorter than Ur2; Ur2 as long as Ur3; Ur4 longest, posterior margins of Ur2-Ur4 with a row of hairs forming a hyaline plate; Ur5 (anal somite) very short; CR as long as wide, divergent, with 4 large and 1 small plumose setae.

A1 20-segmented, reaching distal end of Ur4 when folded backwards. P2, surface of Re2 and Re3 with 2 U-shaped rows of denticles. Surface of Ri2 with 3 pairs of spines (Fig. 1e). P3, surface of Re1 with 1 row and Re3 with 2 U-shaped rows of denticles (Fig. 1f). P4, surface of Re naked, Ri2 with 2 spinules, Ri3 with 2 groups of spinules (Fig. 1g). P5, right leg, distal end of B2 swollen, with a tooth-like process on outer margin; Re 3-segmented, Re1 long and styliform, inner margin with a median large process, distal end of internal margin armed with triangular tooth-like projection; Re2 greatly curved, Re3 cultriform and small; Ri 1-segmented, styliform and slightly longer than Re1. Left leg, basipods elongated; Re 2-segmented, Re1 as long as Re2; Re2 terminating in complicated process, armed with 2 very short curved spines; Ri 1-segmented, styliform, slightly shorter than Re1.

No female was found in the present samples.

Remarks. - The male of *S. farrani* most closely resembles that of *S. persecans*, but is distinguishable from the latter by the relatively short and undivided apical point of the rostrum, the structure of the P5, in particular the relative lengths of the exopods and endopods, and the presence of a tooth-like process on B2 of the right leg. *Scottocalanus farrani* has been widely recorded from eastern Indonesian waters, i.e., the Celebes Sea, the Molucca Passage, Manipa Strait, the Banda Sea (A. Scott, 1909), and the Flores Sea (present records), Philippine waters (Wilson, 1950), and the Indian Ocean (Sewell, 1929).

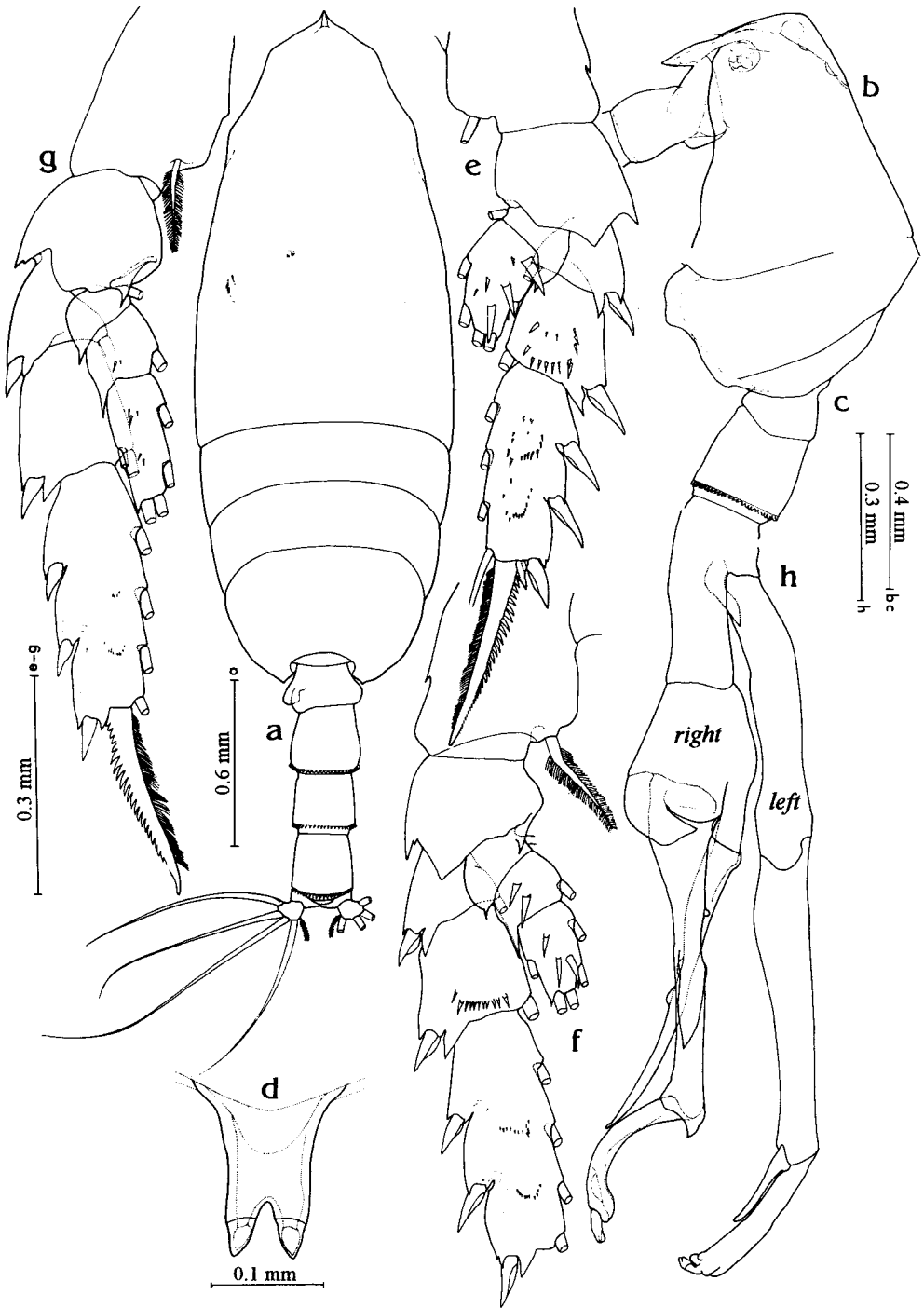


Fig. 1. *Scottocalanus farrani* A. Scott, 1909, male. a, whole animal, dorsal view; b, cephalon, lateral view; c, Ms5 and genital somite, lateral view; d, rostrum, anterior view; e-h, 2nd-5th legs.

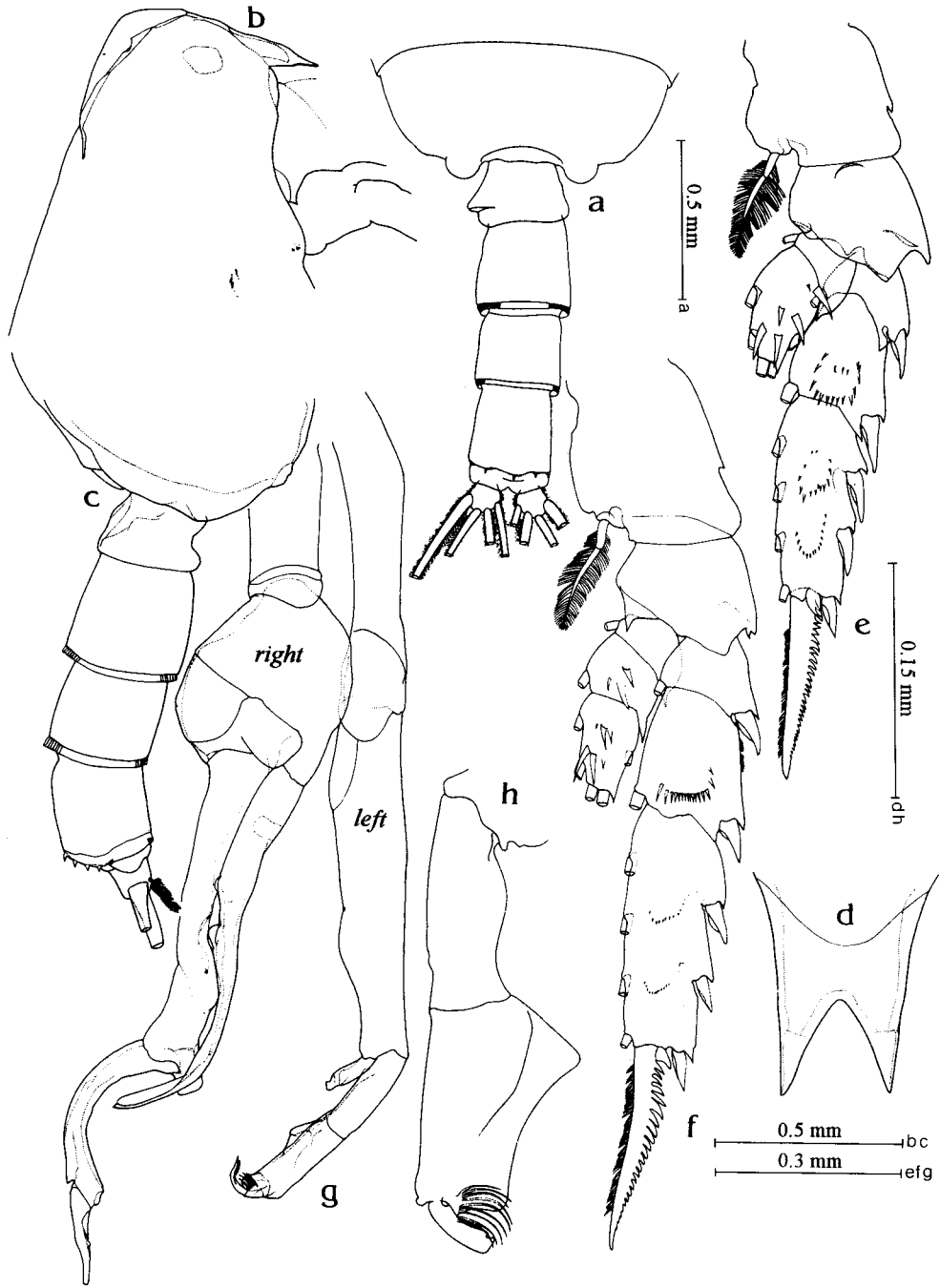


Fig. 2. *Scottocalanus helenae* (Lubbock, 1856), male. a, Ms5 and urosome, dorsal view; b, cephalon, lateral view; c, Ms5 and urosome, lateral view; d, rostrum, anterior view; e-f, 2nd-3rd legs; g, 5th legs; h, distal segment of right P5.

Scottocalanus helena (Lubbock, 1856)

(Fig. 2)

Undina helena Lubbock, 1856: 25, pl. 4, fig. 4, pl. 7, figs. 1-5 (Type locality: northern Atlantic); Giesbrecht, 1892: 302; Giesbrecht & Schmeil, 1898: 52.

Scolecithrix securifrons (male) T. Scott, 1894: 47, pl. 4, figs. 40, 42, 48, 53, 55; Giesbrecht & Schmeil, 1898: 49; Van Breemen, 1908: 76.

Scottocalanus australis Farran, 1936: 101, fig. 13.

Scottocalanus helena - Vervoort, 1965: 45-56, figs. 7-13.

Material examined. - Two males (3.86 mm).

Male. - Body robust, cephalon slightly contracted in the oral region, gradually narrowing anteriorly, forehead produced into triangular process, apex of median crest rounded in lateral view (Fig. 2b). Rostral plate strongly developed, provided with a broad, V-shaped incision at the apex (Fig. 2d).

Urosome consisting of 5 somites, Ur1 asymmetrical, with process on left side of genital orifice; Ur2 and Ur3 with scale-shaped teeth along posterior margins; Ur4 with a few big teeth and some smaller scales in the vicinity of the bigger teeth; Ur5 (anal somite) very short, with small anal plate. CR as long as wide, with 4 strong and densely plumose setae, 2nd caudal seta elongate, twice as long as other setae.

P5 with complicated structure, right leg, B1 short, B2 distinctly swollen and more or less globular (Fig. 2g). Re 3-segmented, Re1 long and styliform, inner margin with distinct tubercle, distal end of internal margin armed with tooth-like projection; Re2 curved; Re3 cultriform and reaching 2/3rd the length of Re2; Ri 2-segmented, slightly curved at apex, and slightly longer than Re1; distal end of Ri2 with distinct carina. Left leg, distal end of B1 reaching articulation between basis and right Ri; B2 long, slightly shorter than Re1 on right side. Ri stout, club-shape process; Re 2-segmented, subequal, bears at least 2 haired tubercles and an acute pointed, hook-shape process at the apex, proximal part with distinct hyaline, shoulder-shaped tubercle.

No female was found in the present samples.

Remarks. - The male of *S. helena* most closely resembles that of *S. thori* (With, 1915), but is distinguishable from the latter by the well developed posterolateral ends of Ms5 and the structure of P5. *S. australis* Farran, 1936 has been synonymized with *S. helena* by Vervoort (1965). *S. helena* is known to occur in the Madeira region of the subtropical Atlantic (Lubbock, 1856, as *Undina helena*). It has also been recorded from several localities in the Gulf of Guinea (T. Scott, 1894, as *Scolecithrix acutifrons*), from the Great Barrier Reef (Farran, 1936, as *S. australis*), and the Flores Sea (present records).

Scottocalanus longispinus A. Scott, 1909

(Figs. 3-4)

Scottocalanus longispinus A. Scott, 1909: 109, pl, 25, figs. 10-18 (female) (Type locality: Halmahera Sea, Indonesia); Farran, 1936: 98, text-figs. 11a-g; Wilson, 1950; Vervoort, 1965: 36.

Material examined. - Three females (4.68-4.72 mm).

Female. - Body moderately robust, relative length of prosome and urosome 4.3 : 1. Cephalon with high and conspicuous median crest; in lateral view, crest with distinctly angular apex. Rostral points stout, 0.7 times as long as excavation depth.

Posterolateral ends of Ms5 pointed. Urosome composed of 4 somites, Ur1 (genital complex) distinctly longer than Ur2, Ur3 and Ur4 combined, ventral surface distinctly gibbous; Ur2

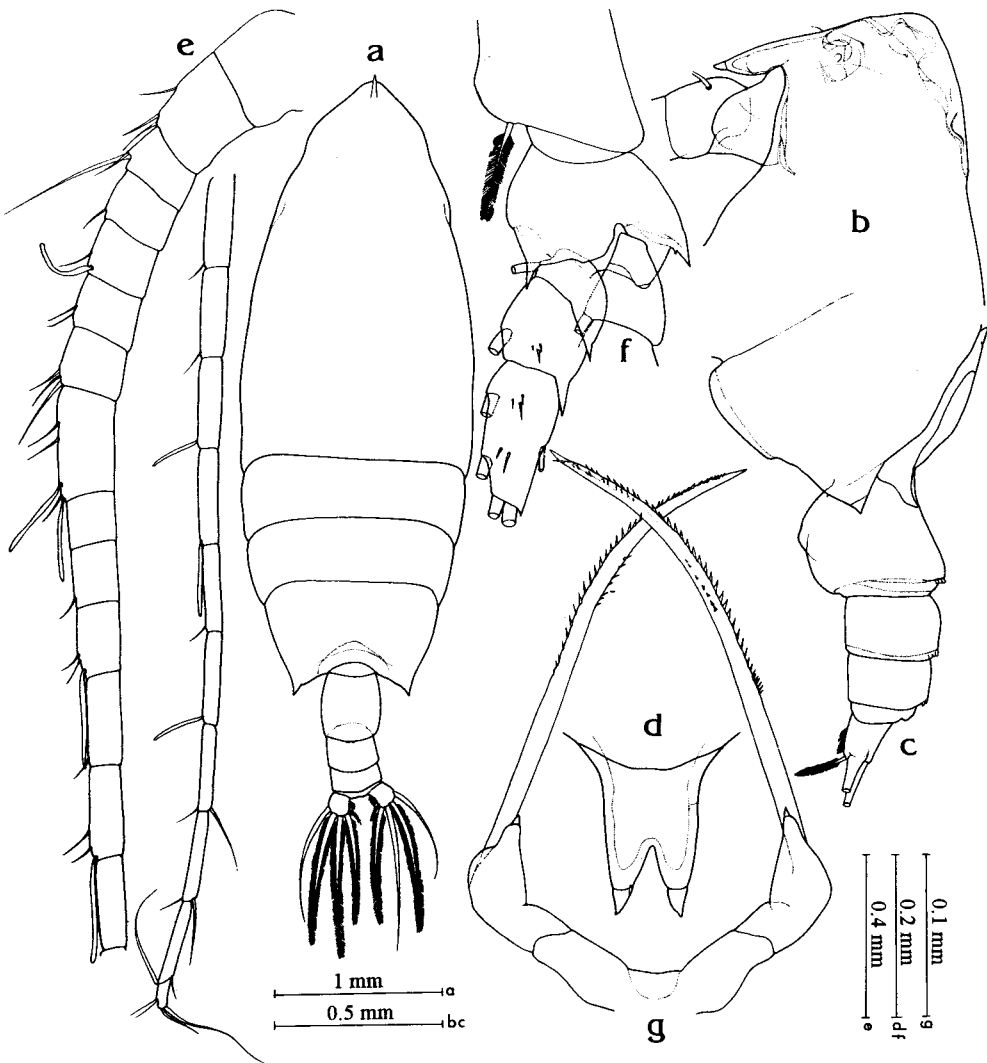


Fig. 3. *Scottocalanus longispinus* A. Scott, 1909, female. a, whole animal, dorsal view; b, cephalon, lateral view; c, Ms5 and urosome, lateral view; d, rostrum, anterior view; e, antennule; f, 4th leg; g, 5th legs.

longer than Ur3 and Ur4 combined; Ur4 (anal somite) very short; CR longer than wide. A1 24-segmented, reaching distal end of CR when folded backwards.

P1-P4 with 3-segmented Re; Ri 1-segmented in P1, 2-segmented in P2, and 3-segmented in P3-P4 (Fig. 4a-d). P5, Re with along inner spine, 4 times as long as Re, without bifurcated distal end; apical spine very short, only 0.02 the length of the long spine.

No male was found in the present samples.

Remarks. - The female of *S. longispinus* is characterized by a triangular crest of the cephalon, the short urosome, the pointed posterior corners of Ms5, and the presence of the long and slender spine on the Re of P5. A. Scott (1909) established this species based on a single female from the Halmahera Sea. The male of this species was described by Farran (1936) from Great Barrier Reef waters (Vervoort, 1965).



Fig. 4. *Scottocalanus longispinus* A. Scott, 1909, female. a-d, 1st-4th legs.

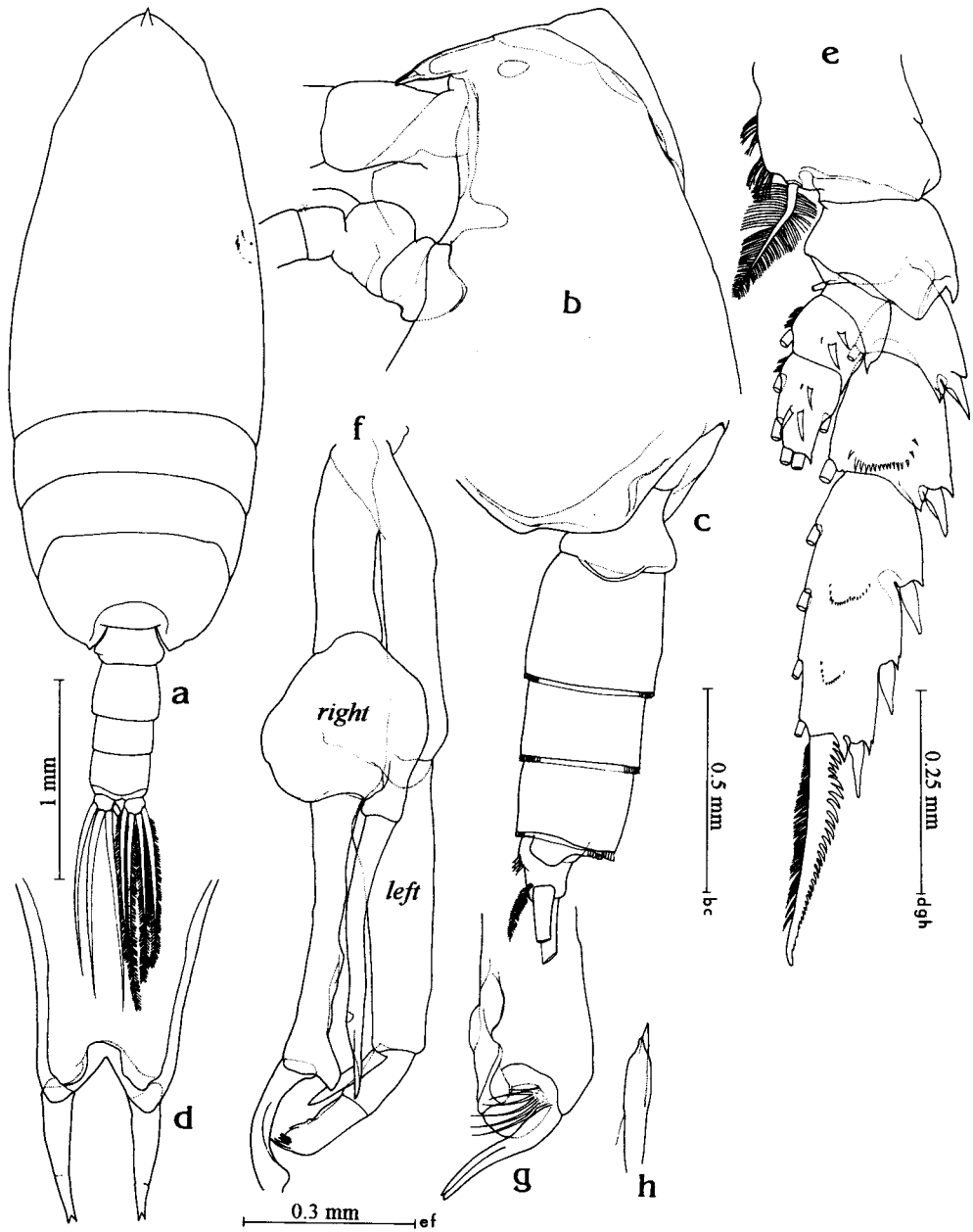


Fig. 5. *Scottocalanus persecans* (Giesbrecht, 1895), male. a, whole animal, dorsal view; b, cephalon, lateral view; c, Ms5 and urosome, lateral view; d, rostrum, anterior view; e, 3rd leg; f, 5th legs; g, apex of right distal segment; h, apex of left leg.

Scottocalanus persecans (Giesbrecht, 1895)

(Fig. 5)

Scolecithrix persecans Giesbrecht, 1895: 253, pl. 3, figs. 6-12 (male); Cleve, 1904: 197; Esterly, 1905: 166, fig. 28; Van Breemen, 1908: 80, fig. 94.

Scottocalanus persecans – A. Scott, 1909: 105, pl. 27, figs. 10-18; Wilson, 1950; Vervoort, 1965:38, figs. 3-6.

Material examined. - Two males (4.65 mm).

Male. - In lateral view, crest high and rather narrowly rounded at apex (Fig. 5b). Rostral plate not very deep, with longer rami, each ramus composed of a slightly chitinized basal part and soft apical portion with bifid apex (Fig. 5d). Posterolateral ends of Ms5 rounded, with scarcely visible lappets with rounded apex. A1 17-segmented, not reaching the posterior end of CR when folded backwards. Urosome consisting of 5 somites, Ur1 (genital somite) asymmetrical, genital opening on its left side; Ur2-Ur4 provided with hyaline lamella of flat teeth on posterior margins; Ur5 (anal somite) completely telescoped into Ur4; CR more densely haired than in female, marginal setae strongly chitinized and very densely plumose, 2nd caudal seta elongate.

P5, right leg with 1-segmented Ri, styliform and slightly longer than right Rel. Left leg, 3rd segment digitiform, bearing at least 3 strong bristles, and some lamellae with deeply incised apices.

No female was found in the present samples.

Remarks. - The male of *S. persecans* is easily identifiable by the moderately long spine on the rostral filaments, which has a bifid apex. This species probably represents a regular inhabitant of considerable depths, penetrating surface water of the upper 200 m at least during the night. The geographical distribution of *S. persecans* is very incompletely known, because of its repeated confusion with others species of *Scottocalanus*. It has been recorded from the Indo-Pacific at 35°N 125°W (Giesbrecht, 1895), the Gulf of Guinea (Vervoort, 1965), and from Indonesian waters: the Celebes Sea and the Halmahera Sea (A. Scott, 1909), Macassar Strait (Vervoort, 1965), and the Flores Sea (present records).

Scottocalanus securifrons (T. Scott, 1894)

(Fig. 6)

Scolecithrix securifrons T. Scott, 1894: 47, pl. 4, figs. 41, 43-47, 54, 56, pl. 5, fig. 1 (female) (Type locality: Gulf of Guinea); Giesbrecht & Schmeil, 1898: 49; Van Breemen, 1908: 76, fig. 88.

Amalophora securifrons – Wolfenden, 1904: 145.

Lopothrix securifrons – Wolfenden, 1904: 111, 120, 141, pl. 9, figs. 12-15; 1911: 268.

Scottocalanus acutus Sars – 1905a: 1, 7.

Scottocalanus securifrons – A. Scott, 1909: 104, pl. 25, figs. 1-9, pl. 28, figs. 1-9; Farran, 1908:14, 57; 1920: 18; 1926: 267; Sars, 1912: 654; With, 1915: 220, figs. 71-73, pl. 8, fig. 13; Rose, 1933: 144, fig. 144; Wilson, 1936: 91; 1950: 340; Tanaka, 1937: 254, fig. 9a-c; 1953: 132; 1961: 140; Sewell, 1947: 143; Brodskii, 1950: 242, fig. 152; Grice, 1962: 203, pl. 19, figs.12-15; Owre, 1962: 492; Vervoort, 1965: 36.

Scottocalanus cuneifrons Willey, 1919: 178, 194, 219, figs. 17-24.

Material examined. - Two males (4.55 mm).

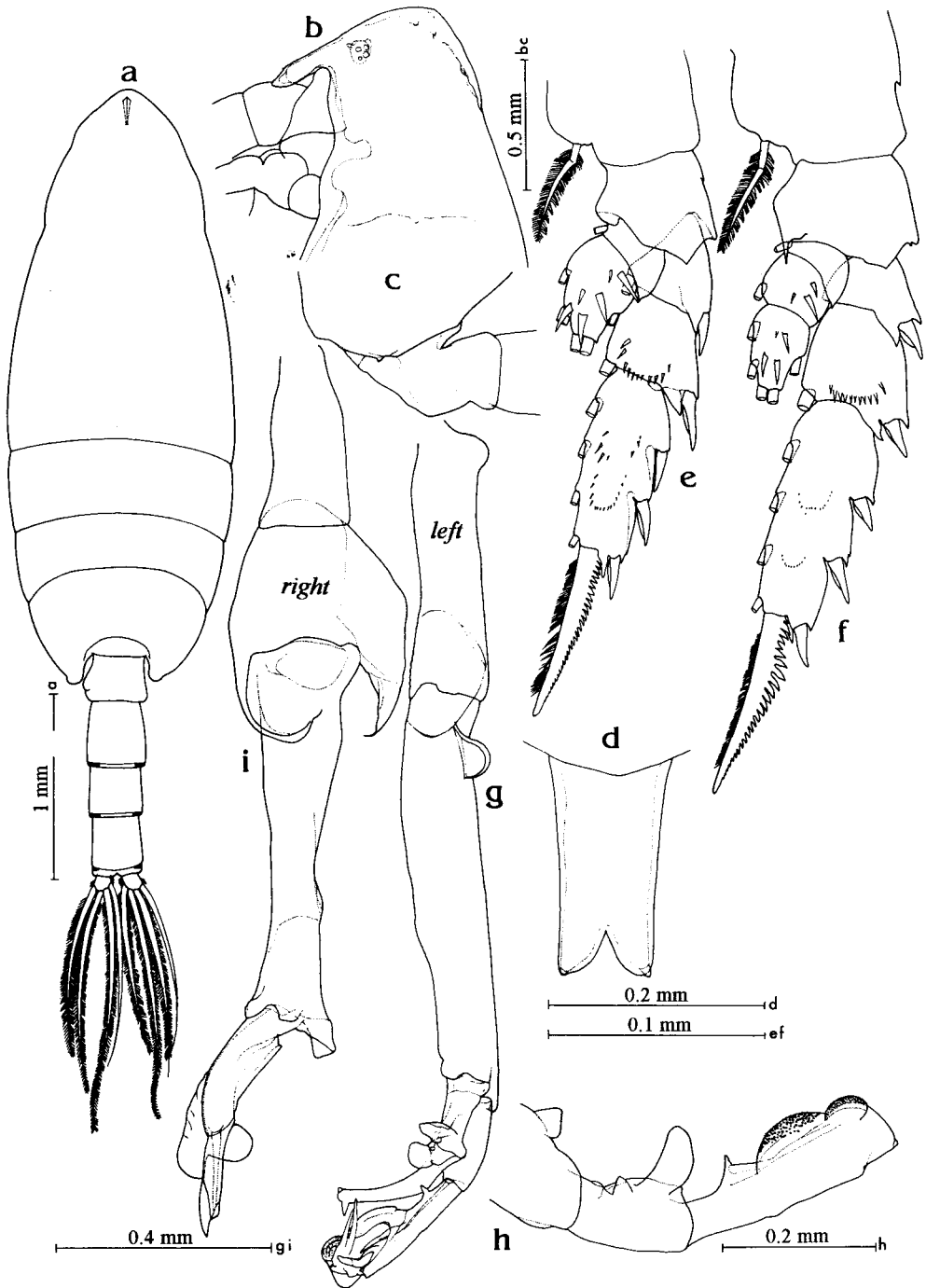


Fig. 6. *Scottocalanus securifrons* (T. Scott, 1894), male. a, whole animal, dorsal view; b, cephalon, lateral view; c, Ms5 and genital somite, lateral view; d, rostrum, anterior view; e-f, 2nd-3rd legs; g, right 5th leg; h, distal segment of right P5; i, left 5th leg.

Body elongated, relative length of prosome to urosome 2.5 : 1 (Fig. 6a). Cephalon with high median crest, in lateral view crest rounded at apex (Fig. 6b); rostrum narrow, rostral rami short, armed with minute spine at apex (Fig. 6d). Posterolateral ends of Ms5 much contracted near posterior end. P2, Re2 with 1 row and Re3 with 2 U-shaped rows of denticles; Ri2 with 3 pairs of spines (Fig. 6e). P3, Re2 with 1 row and Re3 with 2 U-shaped rows of denticles (Fig. 6f). P5, right leg, B2 swollen, Re1 long and styliform, distal end of internal margin armed with tooth-like projection; Re2 with slightly curved, irregularly shaped distal segment; Re3 short; Ri very short (Fig. 6h, i). Left leg, B2 longer than B1 with a proximal semi-circular process; Re 1 short; Re2 complicated in structure. Ri of left leg complex, and irregular in form (Fig. 6f).

Remarks. - The male of *S. securifrons* is identifiable by the minute spine on the apex of the rostral rami, and the posterior corners of Ms5 which are much contracted near their posterior end. This species has been considered as a species from deep and intermediate water layers. It seems to be capable of rapid vertical movements as it has been found at the surface during the night. *S. securifrons* is widely distributed over large areas penetrating at least as far north as the Atlantic slope off Cibota Strait (Rose, 1933) and the Gulf of Guinea (T. Scott, 1894). Widely distributed in the Indo-Pacific, from the central and southern parts of the Arabian Sea (Sewell, 1947), the Indian Ocean off Port Shepstone, South Africa (Cleve, 1904). Sagami and Suruga Bays (Tanaka, 1937, 1961), Philippine waters (Wilson, 1950), and eastern Indonesian waters (A. Scott, 1909).

***Scottocalanus setosus* A. Scott, 1909**

(Fig. 7)

Scottocalanus setosus A. Scott, 1909: 108, pl. 24, figs. 10-18 (female) (Type locality: Celebes Sea, Indonesia); Wilson, 1950: 340; Vervoort, 1965: 36.

Material examined. - Five females (3.32-3.37 mm).

Female. - Body moderately robust, relative length of prosome to urosome 4 : 1. Cephalon with high crest, distinctly angular at apex (Fig. 7b). Rostral points stout, shorter than the depth of the excavation (Fig. 7d). Posterolateral ends of Ms5 produced into short, curved point, in lateral view distal end of point sinuate. Urosome composed of 4 somites, Ur1 (genital complex) slightly longer than Ur2, Ur3, and Ur4 combined, tumid and broadly rounded on ventral surface; Ur2 as long as Ur3 and Ur4 combined; Ur4 (anal somite) very short; Ur1-Ur3 with hyaline plate on posterior margins; CR longer than wide, as long as Ur2, 2nd caudal seta of right ramus much longer than corresponding seta of left one. P5 with inner margin of Re slightly concave, dilated at apex, apical spine very small, about 0.06 times length of long spine; long spine 3.5 times as long as Re, apically bifurcate.

Remarks. - The female of *S. setosus* is identifiable by the triangular shape of the cephalic crest, the abrupt prolongations of the posterolateral ends of Ms5, the bifurcate apex of the long spine of P5, and by the 2nd caudal seta of right CR being by far the longest. *S. setosus* has been recorded from the Gulf of Guinea (Vervoort, 1965), Philippine waters (Wilson, 1950), eastern Indonesian waters (A. Scott, 1909), and the Flores Sea (present records). The male of *S. setosus* is unknown.

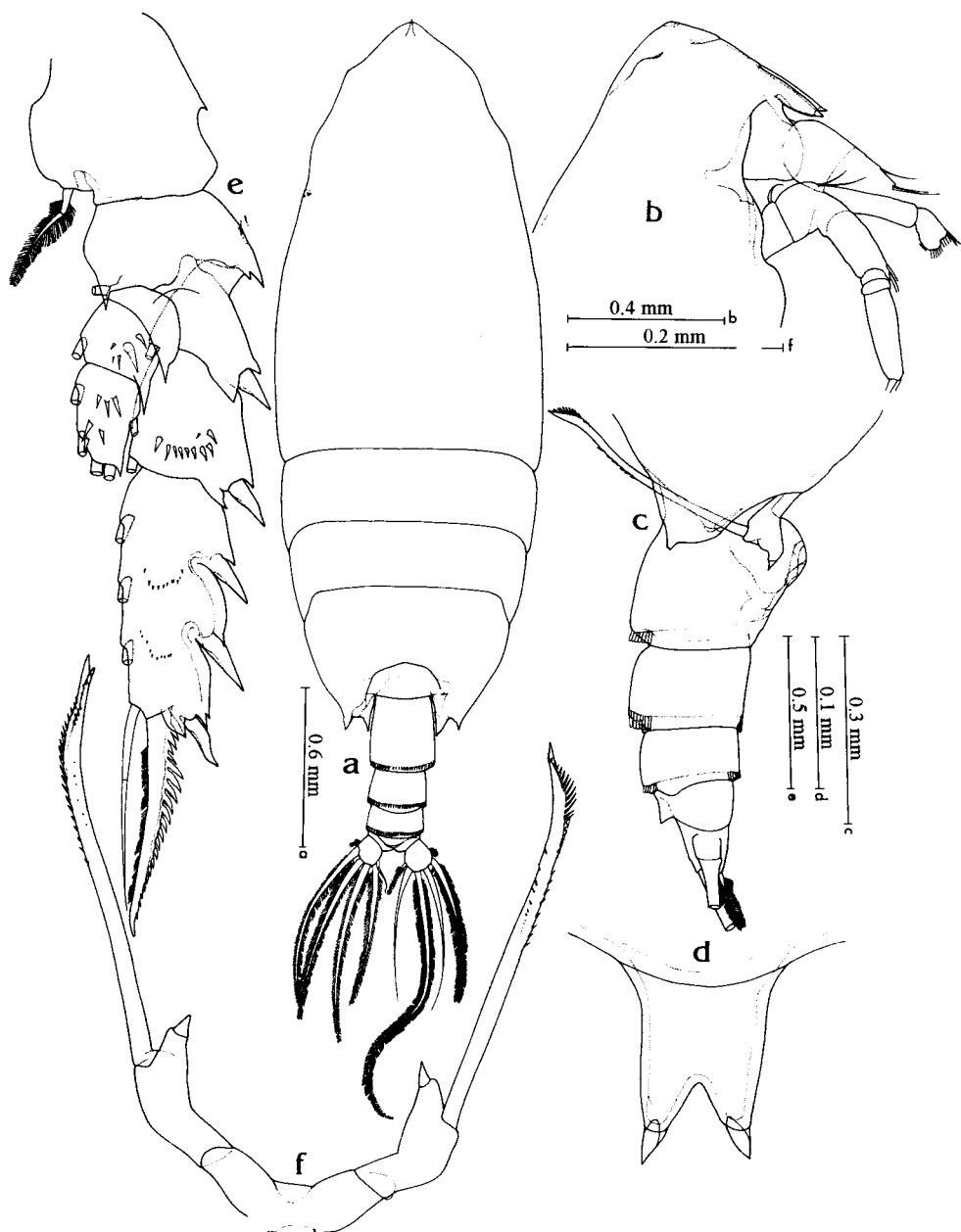


Fig. 7. *Scottocalanus setosus* A. Scott, 1909, female. a, whole animal, dorsal view; b, cephalon, lateral view; c, Ms5 and urosome, lateral view; d, rostrum, anterior view; e, 3rd leg; f, 5th leg.

Scottocalanus thomasi A. Scott, 1909

(Fig. 8)

Scottocalanus thomasi A. Scott, 1909: 109, pl. 26, figs. 1-10, pl. 28, figs. 10-17 (Type locality: Banda Sea, Indonesia); Sewell, 1929: 184; Wilson, 1950: 340, fig. 547; Tanaka, 1961: 140; Vervoort, 1965: 57.

Material examined. - One female (5.78 mm).

Female. - Body elongate, ovate, relative length of prosome to urosome 3.5 : 1. Cephalon sharply triangular, in lateral view crest broadly rounded at apex. Rostrum short and very wide, apical spines very small, and stout. Posterolateral ends of Ms5 sharply pointed. Urosome composed of 4 somites, Ur1 (genital complex) as long as Ur2 and Ur3 combined, ventral surface produced into broadly triangular process armed with 2 spines near distal end; CR longer than wide, as long as Ur2 (Fig. 8a, c-e). A1 over reaching distal end of CR by the last 2 segments when folded backwards.

P2, surface of Re2 armed with 3 U-shaped rows of denticles, proximal 2 rows with larger denticles than distal row; Re3 with 2 U-shaped rows of denticles, proximal one being much larger than distal row. Ri produced into outer distolateral spine-like process and inner seta, Ri2 with 5 setae and 3 pairs of surface spines. P4, B1 with 1 inner seta, outer spine absent; B2 with 2 outer spines on distal corner; Re and Ri 3-segmented, surface Re naked, Ri2 with a group of small spinules distally, Ri3 with 2 groups of small spinules. P5, with a long, curved spine, distal third of spine smooth, armed with spinules arranged irregularly, bifurcate at apex.

No male was found in the present samples.

Remarks. - This is a very characteristic species, which is easily identifiable by the peculiarly rounded crest of the cephalon, and by the long and curved spine on the apical segment of P5. So far *S. thomasi* has been recorded from the Indo-West Pacific: the Indian Ocean, the Bay of Bengal (Sewell, 1929), the Gulf of Guinea (Vervoort (1965). In the Pacific, from the Hawaiian Islands waters and Philippine waters (Wilson, 1950). From Indonesian waters: the Banda Sea (A. Scott, 1909; Vervoort, 1946), and the Flores Sea (present records).

Scottocalanus thori With, 1915

(Fig. 9)

Scottocalanus thori With, 1915: 215, pl. 5, figs. 68-70, pl. 6, fig. 14, pl. 8, fig. 14; Farran, 1926: 266; Tanaka, 1961: 140; Vervoort, 1965: 56

Scottocalanus helenae - A. Scott, 1909: 111, pl. 27, figs. 1-9; Sewell, 1929: 183; 1947: 143; Mori, 1937: 49, pl. 23, figs. 9-15; Wilson, 1950: 338, pl. 36, figs. 545-546; Chiba, 1956: 14, 23, 40, fig. 47; Tsuruta et al., 1957: 11.

Scottocalanus persekans - Cleve, 1904: 183, 197; Sars, 1925: 157, pl. 44; Wilson, 1932: 80, fig. 55; Sewell, 1947: 143; Brodskii, 1950: 241, fig. 151; Tanaka, 1961: 140.

Scottocalanus terranova Farran, 1929: 25 1, fig. 18e-a (male).

Material examined. - Five males (4.51-4.55 mm).

Male. - Body elongated and narrow, relative length of prosome to urosome 2.5 : 1. Cephalon with conspicuous crest. Rostral plate is not very deep, long, with 2 short appendages resting

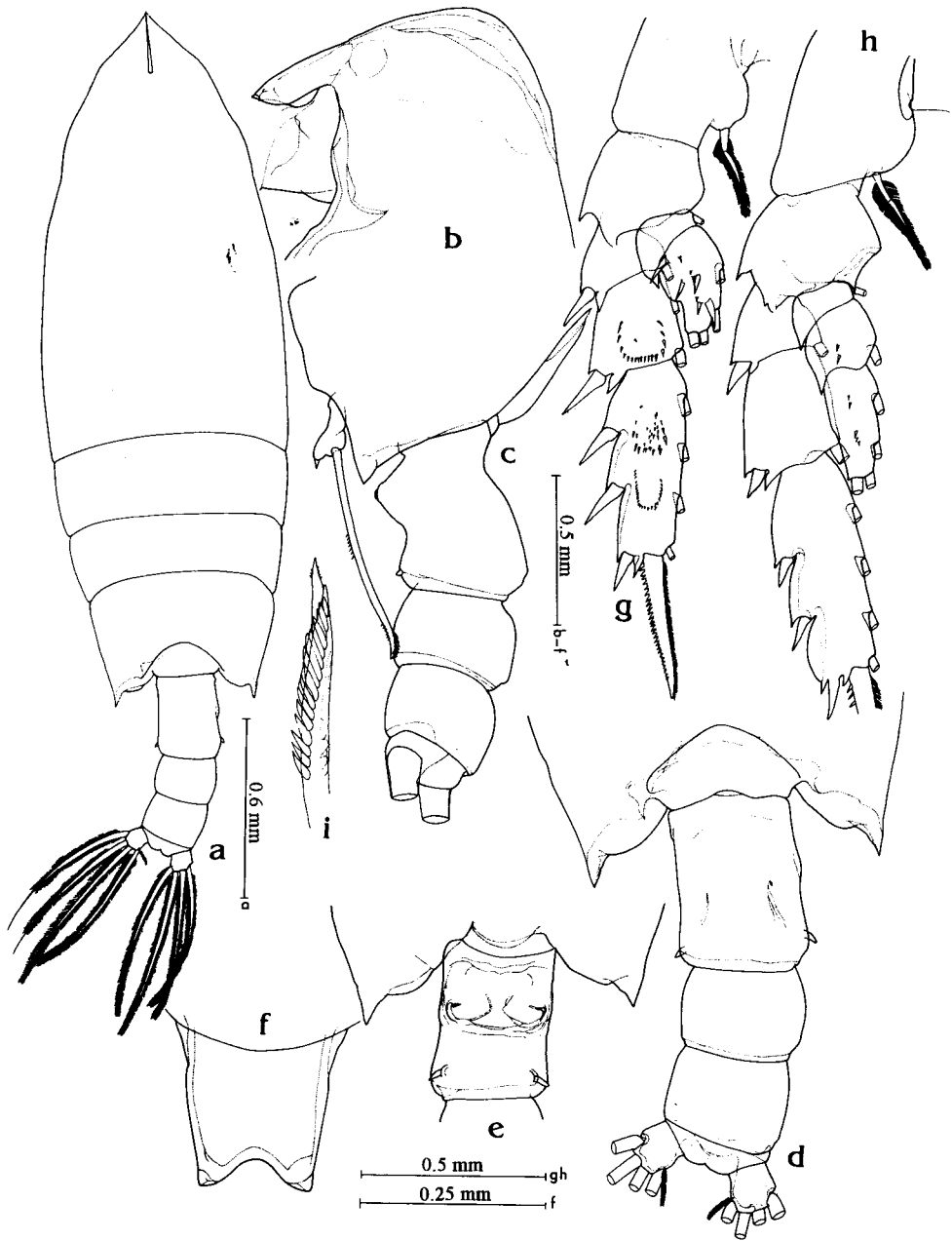


Fig. 8. *Scottocalanus thomasi* A. Scott, 1909, female. a, whole animal, dorsal view; b, cephalon, lateral view; c, Ms5 and urosome, lateral view; d, Ms5 and urosome, dorsal view; e, Ms5 and genital complex, ventral view; f, rostrum, anterior view; g, 2nd leg; h, 3rd leg; i, apex of 5th leg.

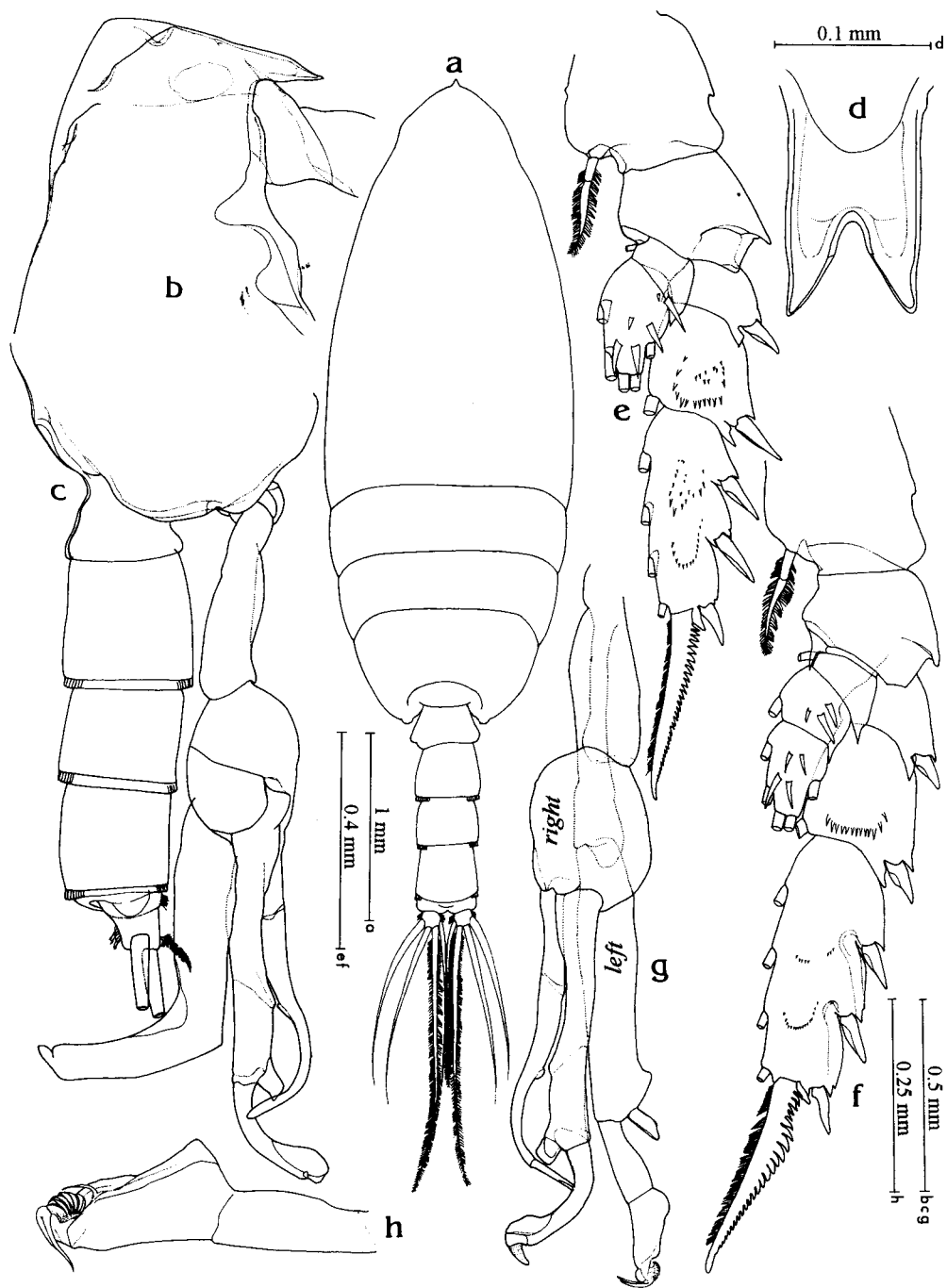


Fig. 9. *Scottocalanus thori* With, 1915, male. a, whole animal, dorsal view; b, cephalon, lateral view; c, Ms5 and urosome, lateral view; d, rostrum view; e-f, 2nd-3rd legs; g, 5th legs; h, distal segment of right P5.

terminally on branches of the bifurcated plate. Posterior corners of Ms5 rounded. A1 reaching anal somite when folded backwards.

P5 large, asymmetrical, projecting beyond CR, right leg more developed, longer than left leg, B2 very swollen. Re1 long and styliform, with angular process on inner distal corner, Re2 sickle-shaped, swollen at tip, armed with 1 curved spine bearing 1 basal and 1 apical processes; Re3 short. Ri long, 2-segmented, Ri2 sickle-shaped, with distinct tooth near center of outer margin, apically reaching and even slightly protruding beyond base of distal segment. Left leg, basipods very long, ending slightly before apex of Re1 of right leg; Re short, 2-segmented, with 2 subequal segments, terminal segment tipped with 2 long, curved filaments and much shorter ones on inner distal margin (Fig. 9g, h). Ri very short.

Remarks. - This species has been repeatedly confused with *S. persecans* and *S. helenae*, to such an extent that the geographical distribution can't be given accurately (cf. Vervoort, 1965).

GENERAL REMARKS

Since the creation of this genus for the species *Scottocalanus securifrons* (T. Scott, 1894), about 13 species have been documented. The genus comprises medium- and large-sized marine copepods, which are known to inhabit deep and intermediate water layers.

Characteristically, the species of the genus has a medial crest on the cephalon, and a massive rostrum. The female P5 is very indistinctly segmented, and armed with a very long serrated seta and a very short apical spine. The males are mainly identified by comparing the anatomical details of the P5 as in most species of calanoid copepods. In addition to the numbers of surface denticles, which are present on Re and Ri of P1-P4. According to the characters of the cephalic crest and the posterior corners of Ms5 of the females, *Scottocalanus* species have been divided into two groups by Vervoort (1965): (1) The group with pointed posterior corners of Ms5 consists of the uncrested form (*S. rotundatus* Tanaka, 1961), the triangularly crested forms (*S. longispinus* A. Scott 1909; *S. securifrons* (T. Scott, 1894); *S. sedatus* Farran, 1936; and *S. setosus* A. Scott, 1909), and the rounded crested form (*S. thomasi* A. Scott, 1909). (2) The group with the rounded posterior corners of Ms5 consists of an uncrested form (*S. investigatoris* Sewell, 1929), and the triangular crested forms (*S. australis* Farran, 1936; *S. farrani* A. Scott, 1909; *S. daughlihi* Sewell, 1929; *S. helenae* (Lubbock, 1856); *S. persecans* (Giesbrecht, 1895); *S. terranova* Farran, 1929; and *S. thori* With, 1915). The males appears to be much more variable than the females. This makes it not easy to arrange the species in several phylogenetically meaningful groups.

The geographical distribution of the members of *Scottocalanus* are generally incompletely known because of repeated confusion with other species of the genus. The *Scottocalanus* species thus rank among the most poorly known marine copepods. Most of them are so rare that their original descriptions are often based on a single specimen and many have never been found a second time. Furthermore, the differences between species are very slight, so that the female and male of the same species are often described as separate species or misidentified as different species. Nevertheless, almost all of the numerous species of *Scottocalanus* occur in the tropics, especially in the eastern Indonesian waters and near the coast of Australia to tropical and subtropical zones (A. Scott, 1909; Farran, 1936; Vervoort, 1965).

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