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A New Species of *Euchirella* (Copepoda) from Sagami Bay, Middle Japan*

Makoto OMORI**

Abstract: A new species of calanoid copepod, *Euchirella tanseii* n. sp., is described from the bottom living crustacean collections made by the *RV Tansei Maru* in Sagami Bay. A female of the specimen was obtained in bottom net hauls taken on a sandy and gravelly substrate at a depth of 100 m. The species closely resembles *Euchirella venusta* GIESBRECHT and *E. pulchra* (LUBBOCK), but can be distinguished by shape of the genital segment and the number of setae on 2nd segment of endopodite of 2nd antenna. The comparison of systematical characters with these species is attempted.

Introduction

The genus *Euchirella* occurs predominantly in deep water in open sea. From Japanese waters, *Euchirella amoena* GIESBRECHT was reported first (MORI, 1937). TANAKA (1957), in his account of copepods of the Izu region, middle Japan, added the following 9 species: *E. rostrata* CLAUS, *E. pulchra* (LUBBOCK), *E. messinensis* (CLAUS), *E. venusta* GIESBRECHT, *E. intermedia* WITH, *E. trigrada* TANAKA, *E. areata* TANAKA, *E. curticauda* GIESBRECHT, and *E. bitumida* WITH. The author has recently obtained *E. galeata* GIESBRECHT in deep Sagami Bay, middle Japan.

During the cruise of *RV Tansei Maru*, Ocean Research Institute, several field tests of a new bottom net (OMORI, 1965 in press) designed to collect planktonic crustaceans living close to the sea floor were carried out in Sagami Bay, and samples were obtained which contained a number of specimens of mysids, decapods, amphipods, and copepods. The new copepod, *Euchirella tanseii* n. sp., described herein was found while examining these samples.

The specimen was obtained from Sagami Bay, in bottom hauls taken on a sandy and gravelly substrate at a depth of 100 m, on December 14, 1964. The bottom net, 80 × 80 cm

in mouth opening and 350 cm long with a coarse mesh size of approximately 2.00 mm, was towed on the bottom for 30 minutes at a speed of about 1.5 knots. By use of a release gear (OMORI, 1965 in press), during the lowering and raising of the net, contamination by animals from other zones was prevented.

Measurements of the specimen were made from dorsal view along midsagittal plane; cephalothorax measured from anteriormost margin of forehead to posterior margin of the 5th thoracic segment; length of abdomen from anterior margin of genital segment to posteriormost limit of right furcal ramus.

Euchirella tanseii n. sp.

Locality and material—Sagami Bay; 38°58.9'N, 139°35.4'E, *Tansei Maru* Cruise KT64-21, station 102, December 14, 1964, 100 m bottom haul, 1 female.

Type—A holotype has been figured, dissected, and the appendages mounted on slide; it is preserved in the collection of the Plankton Laboratory, Ocean Research Institute.

Female:

Total length, 4.30 mm: cephalothorax, 3.58 mm: abdomen, 0.88 mm. Living specimen shows an overall wash of reddish-orange. The shape of the body is robust, resembling that of *E. venusta* very closely (Figs. 1 and 2). The cephalothorax is a little more than four times the length of abdomen.

The rostrum is distinct but not so long,

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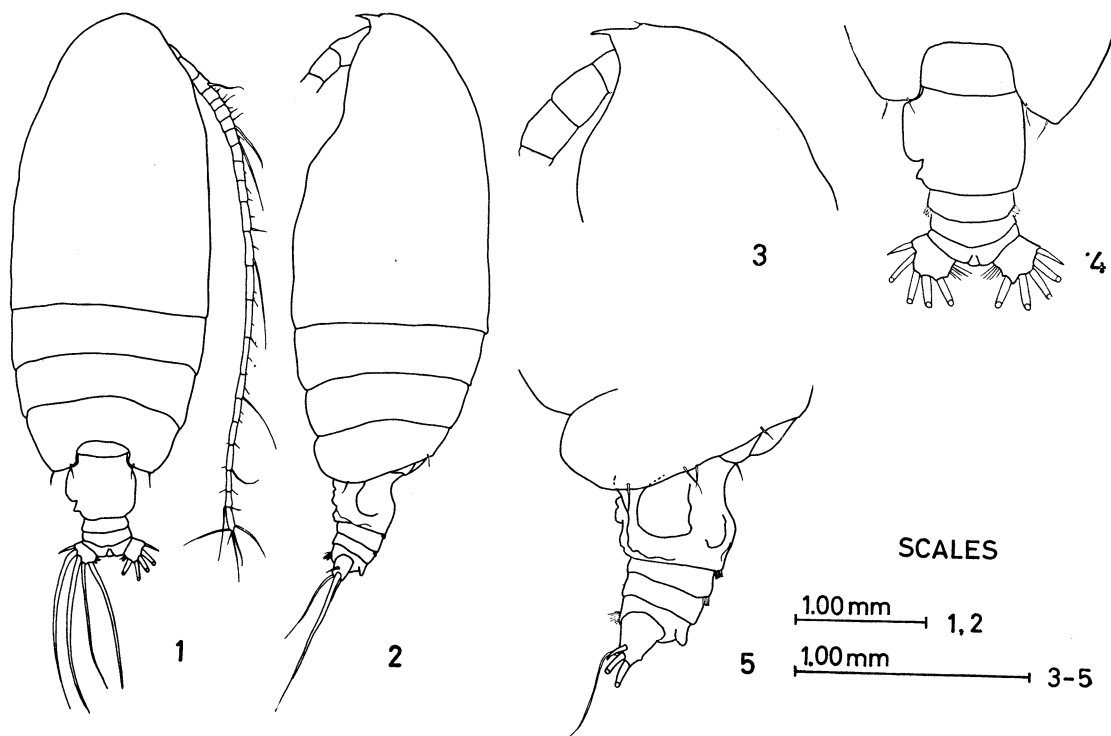
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directing straightly downwards (Fig. 3). The head and 1st thoracic segment as well as the 4th and 5th thoracic segments are completely fused. Last thoracic segment has scattered bristles on distal surface.

The abdomen consists of 4 segments and furca: that have the following proportions, 49: 14: 12: 9: 16=100 (Fig. 4). The genital segment is as long as broad, asymmetrical; there are two remarkable protuberances on the left

side of the segment, but the right side is very smooth. In lateral aspect a high ridge runs across the ventral part; the ventral protuberance situated anterior to the genital opening is very prominent; the left side of the segment shows a transversal groove, close to the distal margin (Fig. 5). The 1st and 2nd abdominal segments are armed with a row of small, triangular spinules along the dorsal distal margin.

The furcal rami are about as long as wide;



Figs. 1-5. *Euchirella tanseii* n. sp., female.

- 1. dorsal view.
- 2. lateral view.
- 3. head, lateral view.
- 4. abdomen, dorsal view.
- 5. abdomen, lateral view.

they bear 4 strong plumose subequal setae; in addition there is an outer short and a curved ventral seta on each ramus. The inner margins of the rami are densely haired.

The 1st antenna (Fig. 6), 23 free segments, extends to the distal end of the 3rd abdominal segment. The various segments have the following proportional lengths. The 8th and 9th segments are completely fused; the articulation

between 24th and 25th segments is very incomplete.

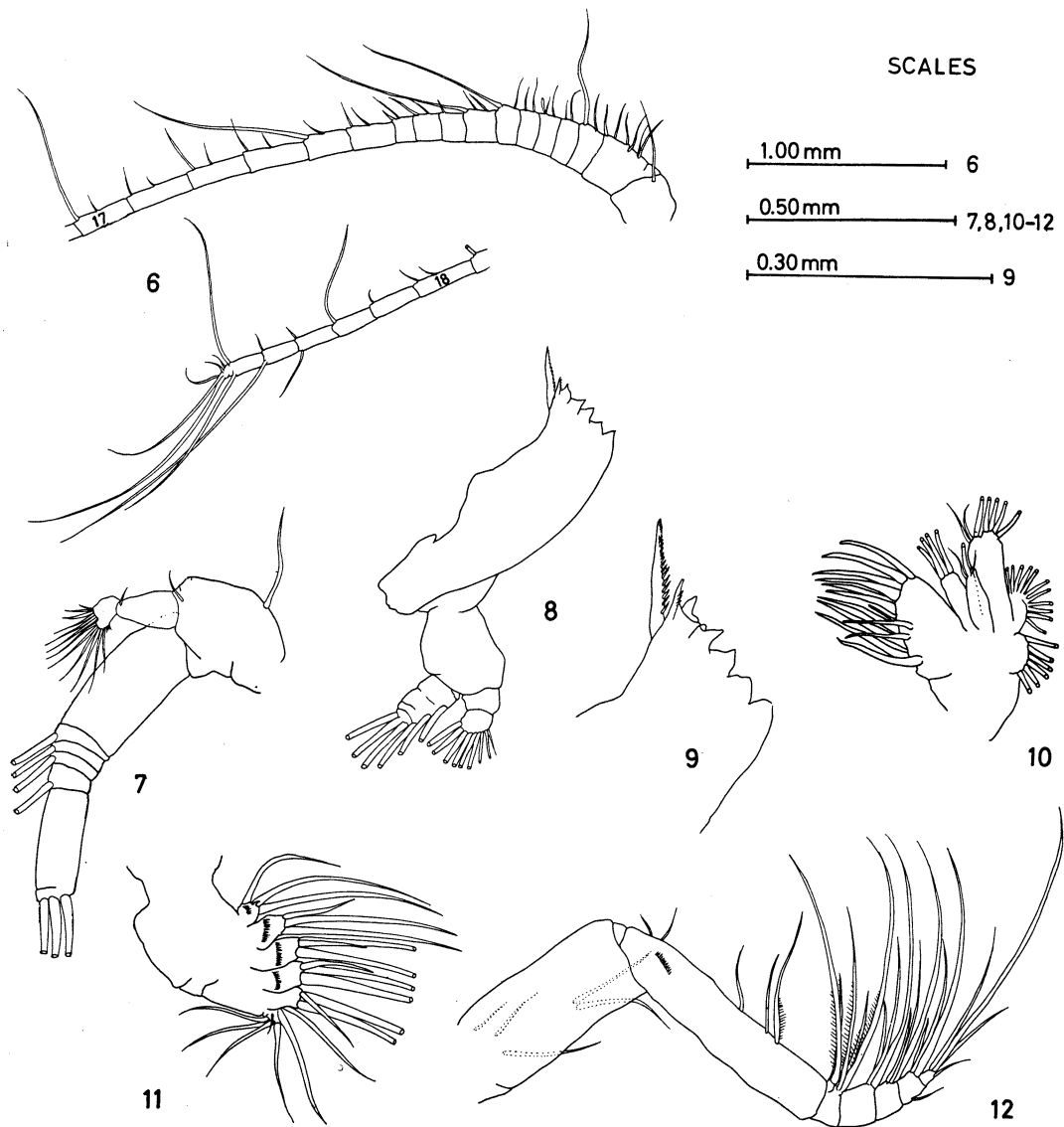
1	2	3	4	5	6	7	8-9	10	11	12	13	14	15
43	50	20	20	23	23	23	36	27	29	27	48	52	68
16	17	18	19	20	21	22	23	24-25					
68	70	63	68	56	48	48	38	52=1,000					

The 2nd antenna with exopodite about 3.6

times the length of the endopodite (Fig. 7). The outer lobe of the endopodite has 6 setae; the inner lobe has 6 large and 4 minute setae.

The mouth parts agree closely with those of *E. venusta* and *E. pulchra*. The mandible has 6 setae on the exopodite, and 9 setae on the endopodite (Fig. 8). The mandible blade is

robust and has a long inner marginal seta (Fig. 9). The 1st maxilla has 11 setae on exopodite, 4 setae on endopodite, 4 setae on 2nd inner lobe, 3 setae on 3rd inner lobe, and 3 setae on 2nd basal segment (Fig. 10). The 2nd maxilla is without characteristic features (Fig. 11). The maxilliped has 4 setae on 1st, 3 setae on 2nd,



Figs. 6-12. *Euchiarella tanseii* n. sp., female.

- | | | |
|---------------------|------------------|------------------|
| 6. 1st antenna. | 7. 2nd antenna. | 8. mandible. |
| 9. mandible blade. | 10. 1st maxilla. | 11. 2nd maxilla. |
| 12. 2nd maxilliped. | | |

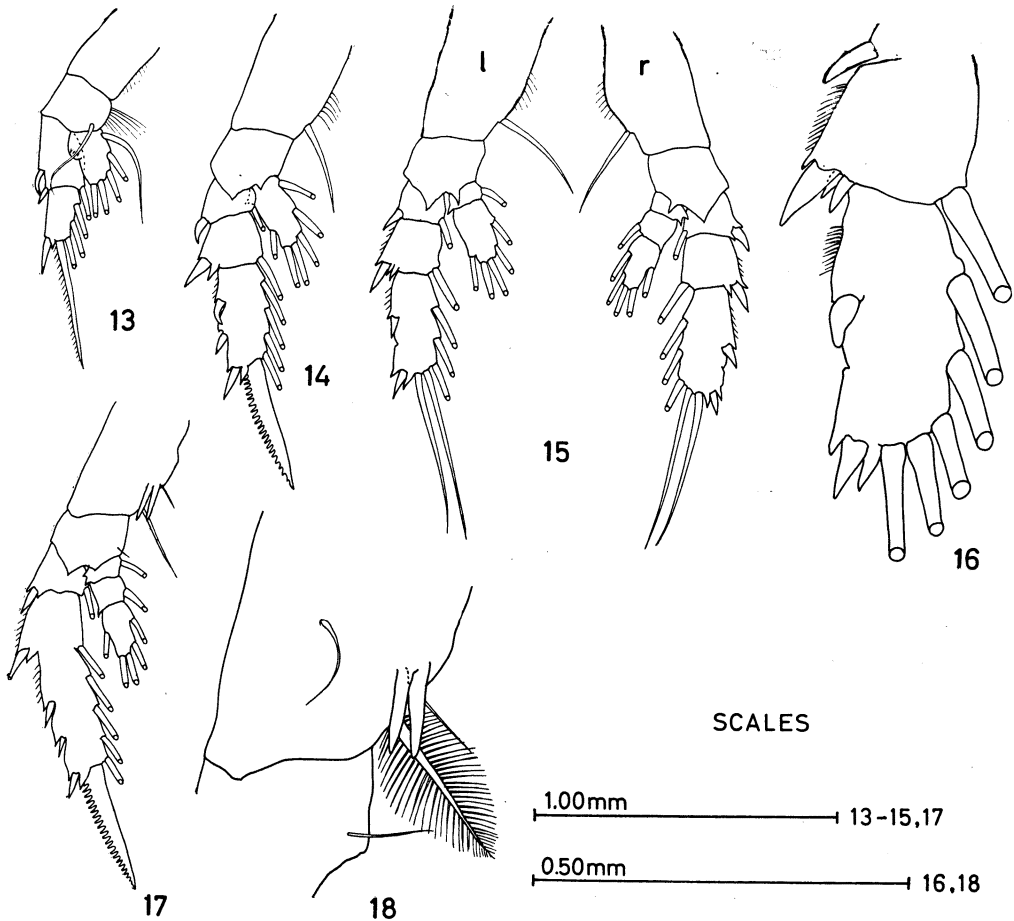
3 setae on 3rd, 3 setae and 1 external seta on 4th, 3 setae and 1 external seta on 5th segment, respectively; 2 swellings on the distal half of the outer margin of 2nd basal segment are not distinct (Fig. 12).

The exopodite of the 1st pair of legs is 2-segmented (Fig. 13). There are 2 outer marginal spines on the 1st segment of exopodite as in other members of the genus, but the 1st spine is slightly curves to the inside and exceeds the distal margin of the segment. The inner margin of the 1st segment of the exopodite of the legs is fringed with hairs.

The 2nd pair of legs has a 3-segmented

exopodite and 1-segmented endopodite; 1st outer spine on the 3rd segment and outer spine on the 1st segment of exopodite curve to inside (Fig. 14) Terminal spine of exopodite of the leg has 20 teeth.

The structure of the 3rd pair of legs is so different from those in other members of the genus that it is doubtful whether this is the normal type (Fig. 15). The legs are asymmetrical; the endopodite of the right leg is 3-segmented while the left one is 2-segmented. Both the exopodites are 3-segmented, but the 2nd segment of exopodite of the left leg has 3 small spines at the base of the outer spine.



Figs. 13-18. *Euchirella tanseii* n. sp., female.

- | | | |
|--|-----------------------------------|---------------|
| 13. 1st leg. | 14. 2nd leg. | 15. 3rd legs. |
| 16. distal portion of the exopodite of 3rd leg, left side. | | |
| 17. 4th leg. | 18. basal portion of the 4th leg. | |

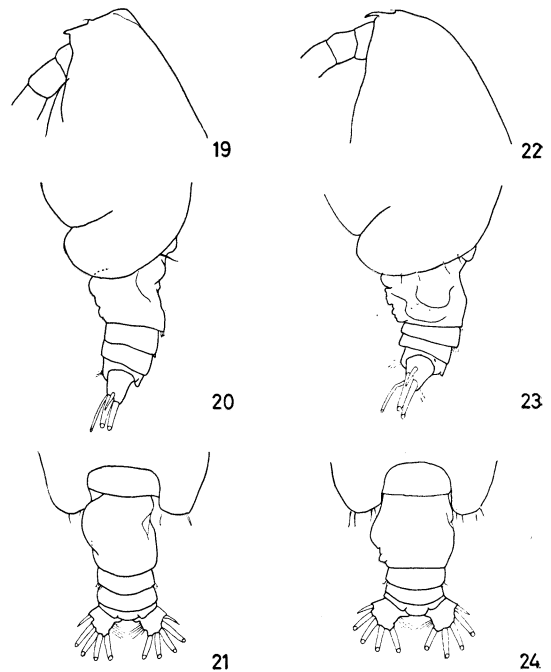
The 3rd segment of exopodite has 2 outer spines; there is a notch on the outer margin between those 2 spines (Fig. 16). In place of the terminal spine, there is a plumose seta.

The 4th pair of legs has a 3-segmented endopodite and 3-segmented exopodite (Fig. 17). The 1st basal segment of the legs has 2 subequal spines on the posterior surface near the inner margin, both reaching beyond the proximal margin of the 2nd basal segment of the leg (Fig. 18). There are scattered bristles on the 1st and 2nd basal segments. The terminal spine of exopodite has 21 teeth.

Remarks

This species closely resembles *E. venusta* and *E. pulchra*, but it may be distinguished from these two species in a number of ways. *E. venusta* and *E. pulchra* are occasionally found in water deeper than 400 m in Sagami Bay. Thus these specimens were compared with *E. tanseii*, and their main differences of systematical importance are shown in Table 1.

In the female of *E. pulchra* (Figs. 19-21) there is trace of a crest on the head, but not in the other two species. *E. pulchra* is also distinguished by the shape of the genital segment which has a protuberance on the left side. *E. venusta* (Figs. 22-24) and *E. tanseii* have two protuberances on the same portion, but the protrusion of the proximal one of *E. tanseii* is more distinct than that of *E. venusta*. The right side of the genital segment of *E. tanseii* is very smooth whereas in *E. venusta* there is



SCALES

1.00mm 19-21

1.00mm 22-24

Figs. 19-21. *Euchirella pulchra* (LUBBOCK), female.

19. head, lateral view.

20. abdomen, lateral view.

21. abdomen, dorsal view.

Figs. 22-24. *Euchirella venusta* (GIESBRECHT), female.

22. head, lateral view.

23. abdomen, lateral view.

24. abdomen, dorsal view.

Table 1. Comparison of characters of systematical importance among three species of *Euchirella*.

	<i>E. tanseii</i>	<i>E. venusta</i>	<i>E. pulchra</i>
Body length	4.30 mm	4.44~5.00 mm	3.80~4.08 mm
Head: Trace of a crest	none	none	exist
Structure of the genital segment:			
Left side in dorsal	2 protuberances	2 protuberances	1 protuberance
Right side in dorsal	very smooth	an indent	an indent
2nd antenna:			
Number of setae on 2nd segment of endopodite	outer lobe: 6 inner lobe: 6	5 4	6 6
Proportional length in the endopodite and exopodite	3.6	3.4	2.7
1st pair of legs:			
1st outer spine of the 1st segment of exopodite	curved	straight	straight

a small but clear indent in the middle of the segment. WILSON (1950) figured *E. venusta* which has no indent on the identical portion, but this might have been a mistake. The number of setae on the 2nd segment of endopodite of 2nd antenna of *E. tanseii* seems to slightly differ from that of *E. venusta*. The internal lobe has 6 and the external lobe has 6 setae in the former species, while they are 4 and 5 in the latter one as described by VERVOORT (1949). The 1st outer spine of the 1st segment of exopodite of 1st pair of legs of *E. tanseii* curves to the inside. The structure of 3rd pair of legs of *E. tanseii* seems so abnormal that it might be safe to not consider the characteristic feature of the species.

The three species differ in size and probably in vertical distribution. The total length of the Sagami Bay specimens of *E. venusta* is 4.44~5.00 mm and that of *E. pulchra* is 3.80~4.08 mm. *E. tanseii* is 4.30 mm. In Japanese waters, only *E. amoena* and *E. rostrata* occur in shallow layer. All other species of *Euchirella* have so far been found below 200m in the daytime (TANAKA, personal communication). *E. tanseii* has been collected from a tow at 100m depth in the daytime.

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