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A NEW GENUS AND SPECIES OF BLIND AMPHIPOD
WITH NOTES ON PARALLEL EVOLUTION IN
CERTAIN AMPHIPOD GENERA

BY EDWIN P. CREASER

THE new blind amphipod representing a new genus and species was presented to me by Dr. Wesley Clanton nearly five years ago. At the time the morphological peculiarities of these troglodytic crustaceans were recognized, but as only four specimens were available it was hoped that additional material might be obtained. Dr. Clanton has recently made a diligent but unsuccessful search for more specimens. This species is possibly seasonal in occurrence. In view of the unusual nature of the specimens the following description and notes seem in order.

FAMILY GAMMARIDAE

Synpleonia, new genus

Pleon segments 4, 5, and 6 united. Telson with rounded apex. First antennae with accessory flagellum of two segments. Third uropods uniramous. Mandibular palp of three segments, second and third segments subequal. Outer plate of maxilliped with many setae on inner margin. Fifth pereopod the longest. Eyes absent.

***Synpleonia clantoni*, new species**

The following description is based upon the male holotype.

BODY.—Thorax and abdomen long and narrow and varying little in diameter from head to uropods. Eyes absent. Pleon segments 4, 5, and 6 (those bearing the uropods) coalesced, forming a single segment.

FIRST ANTENNA.—Length equal to half length of body. Flagellum with forty-two segments. Secondary flagellum of two segments; apical segment half size of basal one, equipped with two long setae at tip. Basal segment of peduncle longer than second and third segments combined.

SECOND ANTENNA.—Length less than one-half that of first antenna. Flagellum with fifteen segments. Two distal segments of peduncle elongated and subequal. Third segment of peduncle short, width equal to length; spines present along margin and at apex. Second segment with a conical protuberance along inner side.

MANDIBLE.—Palp three jointed; terminal segment with a comb-like row of about twenty-four spines; apical spines the largest. Molar processes in two rows.

FIRST MAXILLA.—Palp of two segments, segmentation indistinct; extreme apex with cluster of eight spines. Outer plate the widest; armed at apex with seven stout spines some of which have accessory lateral spines; inner margin of outer plate with a few setae toward the apex. Inner plate with five setae along apex and inner lateral margin; each seta with long accessory setae.

SECOND MAXILLA.—Outer plate narrower than inner and with other margin curved; inner margin straight; apex with eight setae. Inner plate with outer margin rounded more than inner; apex and inner lateral margin with setae.

MAXILLIPED.—Inner plate somewhat oval with about five spines at apex and ten along inner margin. Outer plate flattened, setose along inner margin. Palp with a few ante-apical setae.

FIRST GNATHOPOD.—Propodus with setae at apex and along base of posterior margin. Posterior margin opposing claw

(dactyl) with a double row of bifurcate spines, about sixteen spines of considerable variation in size in each row.

SECOND GNATHOPOD.—Chela slightly smaller than in first gnathopod. Posterior margin behind claw longer; palm less oblique and anterior margin straighter than in first gnathopod.

PEREIOPODS.—Arranged in order of their lengths (longest leg first, then next longest, etc.): Fifth, fourth, first, third, second. There is but little difference in length in the last three named. Relative lengths of segments in each pereopod (basal segment, basipodite, is number 1; longest segment given first, then next longest, etc.): First pereopod: 1, 3, 5, 4, 2, 6. Second pereopod: 1, 3, 5, 4, 2, and 6. Third pereopod: 1, 3, 5, 4, 2, 6. Fourth pereopod: 1, 3, 5, 4, 2, and 6. Fifth pereopod: 5, 1, 4, 3, 6, 2.

FIRST UROPOD.—Both rami of approximately same size and terminating with a cluster of spines at apex. First uropod the longest and with rami exceeding the telson.

SECOND UROPOD.—Smallest of the two rami armed with spines at apex; one spine fully one-half length of ramus; margin with only two lateral spines. Largest ramus with a series of large spines at apex and with about seven marginal spines decreasing in size toward basal joint.

THIRD UROPOD.—One ramus only present. Apical segment less than one-half length of basal segment and armed at apex with either two or three spines. No lateral spines on either basal or apical segment.

TELSON.—Width more than one-half length; apex entire, slightly rounded, armed with about twenty spines; lateral margins without spines.

FEMALE.—Chelae weaker and smaller than in male. First and second antennae much smaller than in male specimens.

The male holotype is No. 53420, the female allotype, No. 53421 in the University of Michigan, Museum of Zoology collection of crustaceans. A male paratype has been deposited in the United States National Museum.

These amphipods were obtained on August 28, 1928, by Dr. Wesley Clanton from a well on his father's farm, four

miles southeast of Ottawa, Franklin County, Kansas. The wells in this vicinity are blasted out of the solid limestone. Blind isopods, *Caecidotea tridentata* Hungerford, are also found in the same locality. It is a real pleasure to associate Dr. Clanton's name with this species.

RELATIONSHIPS.—In the family Gammaridae there are three genera which have fused pleon segments. These are: *Stygonectes* Hay, *Boruta* Wrzesniowski, and *Synurella* Wrzesniowski. *Stygonectes* contains a single blind species which has pleon segments 5 and 6 fused. *Boruta* and *Synurella* are closely related genera differing essentially only in the absence of eyes in *Boruta*. The representative species of these genera have the fourth pereopod longer than the fifth and pleon segments 4, 5, and 6 coalesced. It is the writer's belief in consideration of the morphological characters of the new genus that its affinities in reality rest more closely with the genus *Crangonyx* than with any of the other genera mentioned above. The true affinities are probably hidden in this instance by parallel evolution.

EVIDENCES OF PARALLEL EVOLUTION

The genera *Stygonectes*, *Boruta*, *Synurella*, and *Synpleonia* display notable differences in certain characters although they are similar in having some fused pleon segments. *Stygonectes* has the following morphological features peculiar to it alone: Third uropods biramous; telson with rounded apex and with marginal spines; first antennae as long as body; fifth and sixth pleon segments fused. *Boruta* and *Synurella* display the following morphological peculiarities: Fourth pereopod the longest; first maxilla with seven setae on inner plate and seven spines on outer plate; telson with apex cleft or emarginate. *Stygonectes* is probably related to *Eucrangonyx*. The immediate affinities of *Boruta* and *Synurella* are not apparent. *Boruta* in any event is much different from *Crangonyx* which is apparently related to the new genus. Fusion of pleon segments occurs in one other family of the gammarid amphipods. The marine family Atylidae of which *Atylus* and

Nototropis are representative genera have pleon segments 5 and 6 fused.

Fusion of pleon segments gives added strength with loss of flexibility. It is perhaps not at all remarkable that characters of this sort should undergo parallel evolution in these amphipod genera.

Although the distribution of the various species can cast no light on the evidence of parallel evolution it is interesting to note that *Stygonectes* occurs only in the United States (in Texas and, I am recently informed by J. G. Mackin, in Oklahoma), *Boruta* in Northern Hungary, *Synurella* in Germany, Poland, and Alaska.

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Edwin P. Creaser

PLATE I

The figures were drawn with the aid of a camera lucida. The scale beside or below the figures shows the amount of enlargement.

- FIG. 1. Lateral view of *Synpleonia clantoni*.
- FIG. 2. Third uropod.
- FIG. 3. Apex of third uropod showing variation in spines.
- FIG. 4. Peduncle, accessory flagellum, and first five segments of first antenna.
- FIG. 5. Accessory flagellum of first antenna.
- FIG. 6. Peduncle and first three segments of second antenna.
- FIG. 7. Second maxilla.
- FIG. 8. Maxilliped.
- FIG. 9. Second gnathopod.
- FIG. 10. First maxilla.
- FIG. 11. Telson.
- FIG. 12. Mandible.
- FIG. 13. First gnathopod.

PLATE I



