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THE POSTLARVA OF THE STOMATOPOD CRUSTACEAN *HETEROSQUILLA POLYDACTYLA* (VON MARTENS)

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The postlarva of stomatopod crustaceans, the single transitional stage between the free-swimming larvae and the benthic adults, is rare in collections in comparison with either larvae or adults. Consequently, postlarvae are very poorly known and their identification with adults has often proved difficult. Recent studies on young stomatopods, including work by Alikunhi (1967) on various species, Bigelow (1931) on *Pseudosquilla*, Manning (1962) on *Alima*, Manning (1969a) on *Pseudosquillopsis*, and Michel and Manning (in press) on *Chorisquilla* have demonstrated that postlarvae often exhibit enough adult characters to allow their identification with certainty. Although postlarvae have been identified for several species in different genera, these stages apparently are not known for members of the lysiosquillid genus *Heterosquilla* which now includes 12 species in two subgenera.

In 1970, E. L. Bousfield, National Museum of Natural Sciences, Ottawa, a participant in the Hudson 70 Oceanographical Expedition to Cape Horn, collected 10 specimens of a lysiosquillid at Navarino Island, Chile. These specimens proved to be the postlarvae of *Heterosquilla polydactyla* (Von Martens), the only lysiosquillid known to occur in that area (Manning, 1969). Adults of this species have been taken at several localities between Valparaiso, Chile, and Golfo Nuevo, Argentina; other authors recently reporting this species include Schmitt (1940) and Bahamonde (1957, 1968).

I thank E. L. Bousfield for allowing me to work with these

specimens and for depositing some of them in the collection of the Division of Crustacea, National Museum of Natural History, Smithsonian Institution, and W. Duane Hope for reviewing the manuscript. The illustrations were made by my wife Lilly. Studies on larval and postlarval stomatopods have been supported through the Research Awards Program of the Smithsonian Institution.

Heterosquilla (*Heterosquilla*) *polydactyla* (Von Martens)

Figure 1

Heterosquilla (*Heterosquilla*) *polydactyla*.—Holthuis, 1967, p. 11 [complete synonymy].—Manning, 1969, p. 45, figure 8 [older references].
Heterosquilla polydactyla.—Bahamonde, 1968, p. 112, figures 3, 4.

Material: 10 postlarvae, total length 19–21.5 mm; Banco de Las Tacas, eastern Navarino Island, Chile; 55°05′ S, 67°04.5′ W; fine sand beach; E. L. Bousfield, Station F12; 5 February 1970.

Description: Eye of moderate size, cornea trilobed (appearing bilobed in dorsal view, inner lobe bilobed dorsoventrally), outer lobe the largest; eyes not extending to end of antennular peduncle. Ocular scales erect, completely fused along midline. Antennular peduncle half or slightly less than half carapace length; dorsal processes of antennular somite visible lateral to rostral plate as small, triangular projections; antennular flagella about half again as long as stalk, dorsomesial branch comprising 25-26 articles, stouter, shorter ventrolateral branch comprising 8 articles. Antennal scale suboval, about half as long as carapace; antennal peduncle not extending beyond eye; antennal flagellum about 1.3 times as long as scale, comprising about 15 articles; antennal papillae not visible. Rostral plate triangular, longer than broad, apex acute but rounded, deflexed mesially; plate completely covering ocular scales and bases of eyes. Carapace smooth, unarmed; gastric grooves distinct; lateral plates strongly narrowing anteriorly. Raptorial claw slender, dactylus armed with 14–17 teeth; propodus subequal to carapace in length, outer edge of opposable margin completely pectinate, inner edge of opposable margin with 4 movable spines; carpus of claw with sharp, dorsal ridge terminating in slender tooth; merus more than half again as long as ischium; basal segment of claw with prominent, ventrally projecting spine. Mandibular palp and 5 epipods present. Thoracic somites smooth dorsally; lateral margins of sixth and seventh somites subtruncate; ventral surface of sixth, seventh and eighth somites with ventral projection laterally, mesial to base of each walking leg; seventh and eighth thoracic somites with median ventral spine, sharper on seventh somite. Posterior margin of basal segment of each walking leg with inner and outer spines, projecting ventrally, sharpest on anterior two legs. Abdomen smooth, depressed, anterior 5 somites unarmed; articulated anterolateral plates present; sixth somite with strong posterolateral spines, lacking ventral spine in front of

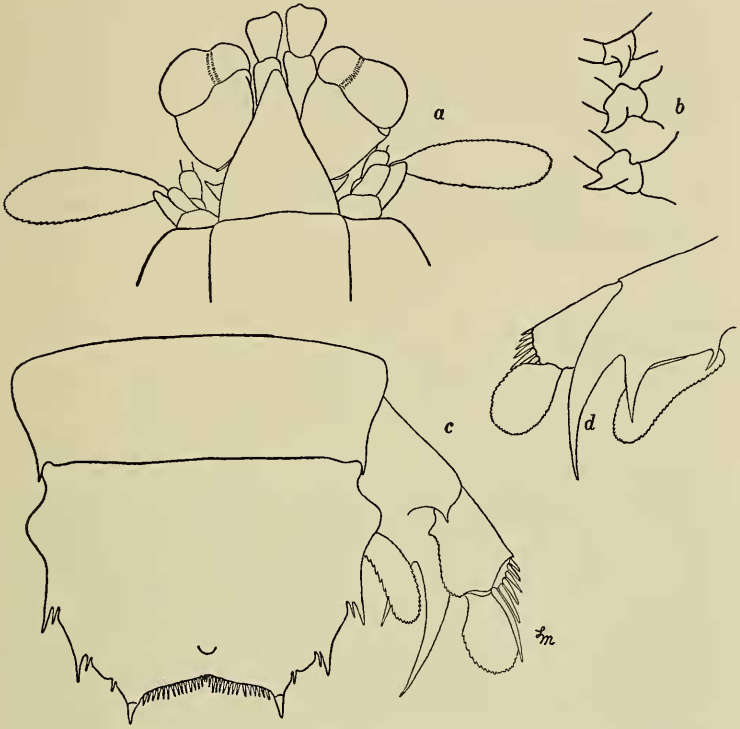

FIG. 1. Postlarva of *Heterosquilla polydactyla* (Von Martens): *a*, anterior portion of body; *b*, basal segments of walking legs; *c*, sixth abdominal somite, telson, and uropod; *d*, uropod, ventral view. (Setae omitted in all).

articulation of each uropod. Telson flattened, broader than long, with 3 pairs of marginal teeth, submedians with movable apices; lateral margins with broad, rounded lobe anteriorly; 14–15 slender submedian, 2 intermediate, and 1 lateral denticles present; dorsal surface of telson with low, inconspicuous longitudinal median boss, visible in some specimens, boss terminating in low, rounded median projection; submedian projections absent. Uropod flattened, basal segment with dorsal spine at articulation of exopod; proximal segment of exopod longer than distal, with 6–7 movable spines on outer margin, distalmost not extending to apex of distal segment; endopod slender, curved; basal prolongation of uropod consisting of 2 curved spines, outer larger, with smaller spine on inner margin at articulation of endopod. Color faded in most specimens, but one ornamented with scattered dark chromatophores on body, arranged in bands on thoracic and abdominal somites.

Measurements: Measurements, in mm, of selected specimens are as follows:

Total length	19.5	20	20	20.5	21
Carapace length	3.8	3.8	3.8	3.9	3.8
Cornea width	1.1	1.1	1.0	1.1	1.1
Rostral plate length	1.8	1.6	1.6	1.6	1.8
Rostral plate width	1.4	1.4	1.4	1.4	1.5
Fifth abdominal somite width	4.5	4.5	4.4	4.4	4.3
Telson length	3.1	3.1	3.0	3.0	2.9
Telson width	4.0	3.8	3.8	3.9	3.8
Teeth on claw	16	15	17	14	15
Uropod spines	7	6	7	6	7
Submedian denticles	14	14	15	15	14–15

Discussion: These specimens are readily identifiable as the postlarvae of *Heterosquilla polydactyla*: the long, triangular rostral plate and the large number of teeth on the dactylus of the claw are diagnostic for the species. Although identifiable with *H. polydactyla*, these specimens show several differences from the adults, a function of their immaturity. The eyes are of the postlarval type, trilobed rather than bilobed as in the adult; as pointed out by Manning (1969a), the secondary subdivision of one lobe of the eye is characteristic of the postlarvae of *Pseudosquillopsis*; it may help in recognizing postlarvae of *Heterosquilla* as well. The postlarvae lack the antennal papillae of adults; apparently they develop at some subsequent stage. Several features of the postlarva are absent or modified in the adult: the strong ventrally projecting ischial spine and the ventrally projecting thoracic spines found in the postlarvae are absent in the adult (the median ventral spine on the eighth thoracic somite of the postlarva is present as a low rounded keel in adults), and adults have but one rather than two basal spines on the walking legs. Lastly, the median and submedian bosses of the telson, well developed in adults, are represented by at most a low median boss terminating in a rounded posterior projection.

The characteristically banded color pattern of the adult is visible on one of the 10 specimens studied; presumably it first appears at this stage.

Usually it is possible to sex postlarvae, for the buds of the male copulatory tubes are visible at the bases of the last pair of walking legs. In these specimens the male copulatory tubes (if present) cannot be seen. The tubes may be obscured by the spines on the thoracic sterna and at the bases of the walking legs.

According to information supplied by E. L. Bousfield, the beach on which these specimens were collected had a very gentle slope; the substratum was fine to very fine dark sand of sedimentary rock and shell

origin. The collections were made at mid-water level at low tide. The animals were living in burrows in the sand, and those collected had left their burrows and had been trapped or blown away by drying winds. Associated organisms included small phoxocephalid and haustoriid amphipods and a large serolanid isopod. The surface temperature of the water was 9.5°C.

Distribution: Southern portion of South America, where it has been reported from scattered localities between Maullin Island (near Chiloe Island), Chile, to Chubut Province, Argentina.

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