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ON SOME CRUSTACEA STOMATOPODA COLLECTED BY THE CANCAP EXPEDITIONS IN THE WATERS OF N. W. AFRICA AND THE AZORES

by

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Key words: Crustacea Stomatopoda; *Allosquilla*, *Coronida*, *Squilla*; description; distribution; N. W. Africa; Azores.

New records are given of *Allosquilla lillyae* Manning, 1977 from the Azores, *Coronida armata* (Leach, 1817) from the Canary Islands, *Squilla mantis* (Linnaeus, 1758) from Morocco and *Squilla cadenati* Manning, 1977 from Mauritania. *Allosquilla lillyae* is described in detail.

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Between 1976 and 1982 the Rijksmuseum van Natuurlijke Historie organized six oceanographic expeditions to the Azores, Madeira, Morocco, Mauritania, the Canary Islands and the Cape Verde Islands, which are usually indicated as CANCAP Expeditions I–VI (the name CANCAP referring to the last two areas mentioned: Canary and Cape Verde Islands). The first expedition was undertaken in 1976 with H. M. S. “Onversaagd” of the Royal Netherlands Navy; at this occasion the area of Morocco and Madeira was visited. The five other expeditions were made on board H. M. S. “Tydeman”, a research vessel specially designed for the purpose; CANCAP II (1977) explored the area of the Canary Islands, CANCAP III (1978) that of Mauritania and Madeira, CANCAP IV (1980) the Selvagens and Canary Islands, CANCAP V (1981) the region of the Azores, and CANCAP VI (1982) that of the Cape Verde Islands. At sea, the collections made from the ship were obtained with trawls, dredges, grabs and traps. Shore parties explored the littoral and sublittoral; while also scuba diving yielded interesting material.

The number of Stomatopoda collected is quite small, only three species

having been obtained. These, however, proved to be of interest, giving additional details of the morphology and distribution of the species.

Manning's (1977) monograph of the West African Stomatopoda was used as the basis for the present study.

***Allosquilla lillyae* Manning, 1977 (fig. 1)**

Allosquilla lillyae Manning, 1977: 67, figs. 17, 54.

North of Flores, Azores, 39°31'N 31°11'W; 52 m deep, bottom very fine mixed sand; Van Veen grab; 10 June 1981; CANCAP Exped. V, Sta. 159. — 2 ♀.

Description. — One of the two female specimens (total length 42 mm, carapace length, inclusive of rostrum 9 mm) is in perfect condition; the other (carapace length also 9 mm) lacks everything behind the second abdominal somite, and has only one of the two raptorial claws.

The dactylus of the raptorial claw in the present specimens bears ten or eleven (eleven in both claws of the complete specimen, ten in the other) teeth, including the apex of the dactylus. The lower margin of the dactylus has a blunt and wide notch in the extreme basal part, separating two blunt and low lobes. The propodus has a row of closely placed pectinated, blunt and short teeth on the margin opposing the dactylus, and four large, movable spines on the inner surface of the proximal end of this margin. The distal margin of the carpus shows a sharp, short dorsal spine, the lower margin is bluntly rounded. The lower anterior angles of the merus are rounded.

The lateral process of the fifth thoracic somite is rounded and hardly visible at all. The pleura of somites 6 to 8 have the lateral margin almost straight or even slightly sinuous; the anterior angle is rectangularly rounded, the posterior is also rounded but slightly produced backward.

The basal segments of the pereopods show the two spines described by Manning, especially those of the last pereopods being long and slender. The endopods of the walking legs are broadly oval.

The abdominal somites are entirely smooth. Only the posterior margin of the sixth somite shows a strong, posteriorly directed spine at either end. The lower margin of the sixth somite shows an external spine and a more internal rounded lobe, just before the base of the uropod; the lobe opposes a ridge on the base of the uropod and slides past it when the uropod is moved forwards.

The telson is about 4/3 as wide as long and resembles that of *Allosquilla africana* (Manning). The blunt, flattened median projection in the distal part of the dorsal surface is wider than that of *A. africana* and reaches slightly

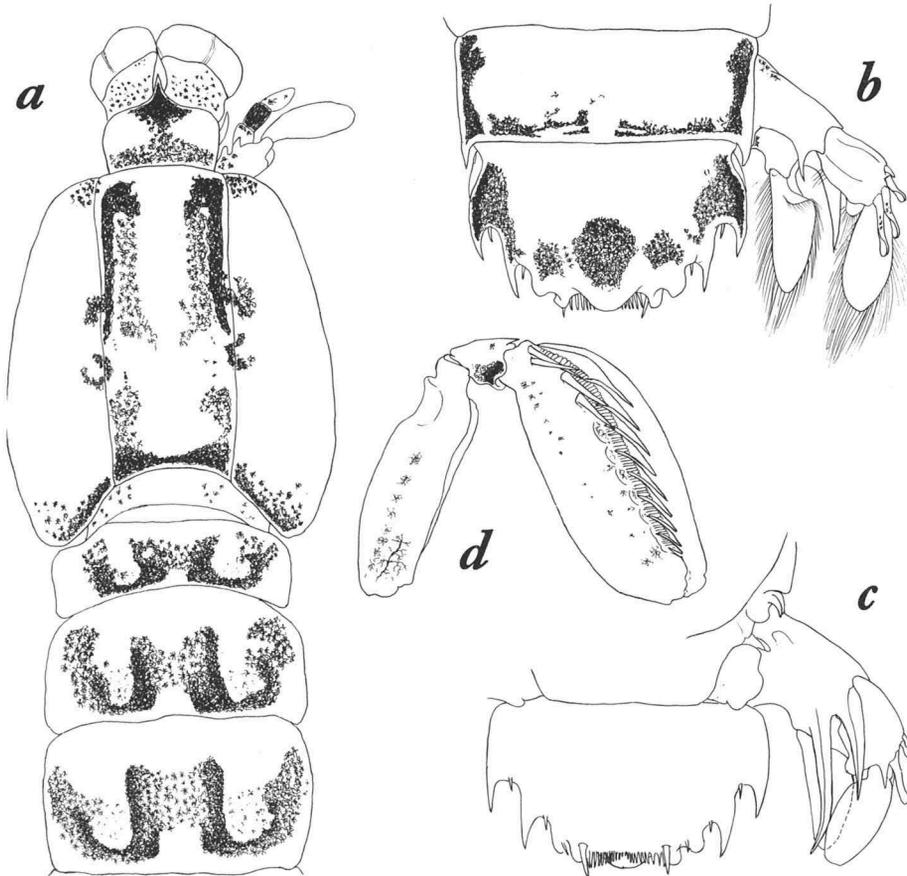


Fig. 1. *Allosquilla lillyae* Manning, 1977. a, anterior part of body in dorsal view; b, sixth abdominal somite and telson, dorsal view; c, idem, ventral view; d, raptorial claw, inside. a–d, $\times 6$.

beyond the small submedian denticles on the posterior margin of the telson. The pair of anterolateral dorsal tubercles of the telson is small. The lateral margin of the telson bears four distinct teeth; the outer two are large and sharply pointed, the inner two smaller, showing as blunt lobes. These blunt inner teeth are distinctly larger than those of *A. africana* and not triangular but more broadly lobiform, the tip being rounded or even slightly truncated. A small, movable spinule is present between the two outer lateral teeth; a second such spinule is found between the inner of the triangular teeth and the next lobiform inner tooth; and a third between the two rounded inner lateral teeth. The submedian denticles are slender and ten or eleven in number in each half of the telson; the two submedian teeth are longer and stronger than

the denticles, they are movable and their base is covered by the inner of the blunt lateral teeth. No other spines or spinules are present on the telson.

The basal segment of the uropod has the inner margin of the dorsal surface as a sharp carina which ends posteriorly in a sharp slender spine. The likewise carinate outer margin of the segment ends in a blunt tooth posteriorly. The basal segment of the exopod bears two longitudinal dorsal carinae: one along the outer margin, the other over the middle. The distal part of the inner margin of this segment is produced into a rounded setiferous lobe; the distal part of the outer margin bears four blunt, movable spines, which become progressively longer distally. The proximal spine is short and bluntly pointed, the others have the tips rounded, broadened and hollowed posteriorly, thereby becoming somewhat spoon-shaped. The largest spine reaches about the middle of the distal segment of the exopod. This distal segment is somewhat longer than the proximal. The uropodal endopod is triangular, having the greatest width just above the narrowly constricted base, and tapering to a broadly rounded apex. The setose rim of the inner margin of the endopod curves inward over the dorsal surface. The two spines of the basal prolongation are long and slender, the inner, being distinctly longer than the outer, is curved inward distally. Both inner and outer spine show a sharp ventral ridge; the inner spine also has a high ridge on the dorsal surface so that it is more or less quadrangular in transverse section, that of the outer tooth being triangular.

Colour. — The colour description of the rostrum and carapace have been provided by Manning (1977). That of the present specimens agrees quite well with it. In the rostrum the tip has a very dark spot that continues posteriorly as a median dark line, while a transverse dark line extends along the posterior margin of the rostrum. Two longitudinal dark bands extend over the full length of the carapace, they are placed just within the gastric grooves. They are most distinct and darkest in the anterior half, in the posterior part they are broken up and more irregular. A transverse black band, interrupted by the gastric grooves, extends along the posterior margin of the carapace. As described by Manning, the exposed thoracic somites show on either half a U-shaped figure of black chromatophores, the U's opening anteriorly. The two U-shaped figures are connected in the middle of the body by a slightly lighter band. Also the first five abdominal somites show these U-shaped figures, although those on the posterior somites are less distinct than those of the anterior. The sixth abdominal somite shows an interrupted dark band along the posterior margin; from either end of this black band a longitudinal black band extends forward near the lateral margin of the somite with which it runs parallel. The telson shows a large, rounded, central dark spot at the base of the blunt median projection; a large dark spot is placed at the base of the

outer lateral tooth, extending towards the base of the second tooth. Between these two spots there is a third before the bases of the rounded lateral teeth.

The eye stalks show a few scattered chromatophores. The segments of the antennular peduncle have a few dark chromatophores each. The antennal peduncle has the penultimate segment black, the other segments show a few scattered chromatophores. The antennal scale is unpigmented.

The raptorial claw shows a line of dark chromatophores on the outer surface of the propodus along the bases of the pectinated teeth, a few chromatophores are visible on the rest of the surface. A similar colour pattern is noticeable on the inner surface of the propodus, only the line along the bases of the pectinated teeth is less distinct. On the outer surface of the claw a large, very dark spot covers the distal part of the merus, the ventral part of the carpus and is also, be it barely, visible at the extreme basal ventral angle of the propodus. On the inner surface this spot is only visible in the ventral part of the carpus. A few, rather faint, scattered chromatophores can be seen in the proximal part of the merus; they are more distinct on the inner than on the outer surface.

The pereopods show at most a few scattered chromatophores in the basal part.

No chromatophores are visible on the pleopods. Also the uropods are largely uncoloured: there are only a few scattered and inconspicuous dark chromatophores in the extreme basal part of the protopod and on two of the movable spines of the exopod.

Remarks. — So far, *Allosquilla lillyae* was only known from the two type specimens, a male and a female, both of which are very incomplete, lacking both raptorial claws and, evidently (although this has not been stated clearly) the entire abdomen or a large part of it. The details provided above of the Cancap specimens serve to complete Manning's original description. It is interesting to see that the description of a new species on very incomplete material, which usually is frowned upon, was fully justified here. The characters listed by Manning define the species admirably.

Distribution and habitat. — The type specimens were both collected near San Miguel in the Azores (37°39.5'N 25°36'W and 37°47.5'N 25°52.5'W), in localities situated only slightly S. and E. of that in which the Cancap specimens were obtained. The types were taken at depths of 345 m and 260–225 m, thus considerably deeper than the present specimens which come from only 52 m depth. The bottom from which the types were collected, was indicated as "sand, gravel, pebbles", and "sand, gravel, "lapilli", rocks". The present material was obtained from very fine mixed sand. As the types were dredged, and the present specimens taken by grab, the bottom indication of

the latter sample is more reliable and precise.

Affinities. — So far, three species of *Allosquilla* have been described: *A. lillyae* Manning from the Azores, *A. africana* (Manning, 1970) from off the Niger delta (3°50'N 7°08'E — 3°51'N 7°12'E, 174–148 m), and *A. adriatica* Stevcic, 1979, from the central Adriatic Sea (43°10'N 14°40'E, 130–150 m). Of *A. africana* only the holotype is known, a specimen lacking the raptorial claws; *A. adriatica* too, is only represented by the holotype, which, however, is complete. The telson of *A. africana* is very similar to that of *A. lillyae*, only the median projection is narrower and shorter, and the two blunt lateral teeth are shorter and smaller. *A. adriatica* differs from *A. lillyae* and resembles *A. africana* in the elongate rather than broad rostrum and the small, blunt lateral teeth of the telson, as well as in the relatively wide eyes. The three species also differ in the arrangement of spines and papillae on the antennal protopod.

***Coronida armata* (Leach, 1817)**

Coronida bradyi — Manning, 1977: 69, figs. 18, 19, 52.

Arrecife, south-east coast of Lanzarote, Canary Islands, 28°57'N 13°33'W; rocky and sandy coast, depth 0 to 15 m; scuba diving; 20–21 May 1980; CANCAP Exped. IV, Sta. D.03.—1 ♀.

The specimen, which has a total length of 28 mm and a carapace length (rostrum included) of 7 mm, lacks a raptorial claw, but otherwise is complete. It agrees perfectly with Manning's (1977) description and figures.

The rostrum, eye stalks, antennulae and antennae show scattered dark chromatophores. The very wide transverse dark band over the larger posterior part of the carapace figured by Manning (1977: fig. 18a) is present, the anterior and posterior parts are darkest, with a paler area in between. A few scattered chromatophores are present in the median line of the carapace before the wide band and some are visible along the anterior margin. A distinct dark spot is placed to the inside of the anterior end of either gastric groove.

A few chromatophores are present on the fifth thoracic somite and in the middle of the sixth. Also in the median area of the first abdominal somite several scattered chromatophores can be noticed, but otherwise the thoracic somites and the abdomen are unpigmented. The carpus, the distal part of the merus and the extreme proximal part of the propodus of the raptorial claw show some distinct chromatophores.

Manning (1977: 70) used the name *Coronida bradyi* (A. Milne Edwards, 1869) for the species rather than the older *C. armata* (Leach, 1817). In my opinion Hansen's (1895: 81) argument for identifying *Smerdis armata* Leach,

1817 with *Squilla bradyi* A. Milne Edwards, 1869, still holds. *Coronida bradyi* so far is the only lysiosquillid known from West African waters having the raptorial claw with a dactylus bearing four teeth; this is one of the characters that Hansen used to positively identify *Smerdis armata* with it. Also the fact that the basal segment of the uropodal exopod bears eight or nine movable spines in both species, was taken into account by Hansen.

Heterosquilla maccullochae, which also has four teeth on the raptorial claw, so far has not been reported from West Africa; furthermore it has fewer spines on the basal segment of the uropodal exopod (six according to Schmitt, 1940: 200, his fig. 23 shows six on one side, seven on the other; seven or eight according to Manning, 1969: 57) and the raptorial claw seems more slender.

I fully agree with Manning that only a study of the larval development of the species, preferably in the laboratory, can solve the identity or distinctness of the two species. Until then I prefer to use the oldest name.

Distribution. — The adults of the species have been reported from the Cape Verde Islands, Ilha do Principe and Annobon. The present record of the species from the Canary Islands considerably extends the known range to the north. The type localities of *Smerdis armata* are off Liberia and off São Thomé.

***Squilla mantis* (Linnaeus, 1758)**

Squilla mantis — Manning, 1977: 146, figs. 48, 57.

Casablanca, Morocco; bought at market; 31 March 1976; CANCAP Exped. I. — 1 ♂.

Off Cape Hadid, Morocco, 31°54'N 9°55'W; depth 85 m, muddy sand; 5 m beam trawl; 25 March 1976; CANCAP Exped. I, Sta. 126. — 1 ♀.

Squilla mantis is the best known stomatopod of the Mediterranean and in the Eastern Atlantic it occurs from the British Isles to Angola. It has been frequently mentioned from Morocco. The collection of the Rijksmuseum van Natuurlijke Historie also holds two specimens of this species from off Cap Blanc, Mauritania (21°21'N 17°15'W and 20°49'N 17°23'W), collected by R. V. "Tridens" of the R.I.V.O. (Netherlands Institute for Fisheries Research).

Longhurst (1958: 64, 86) mentioned *Squilla mantis* from off Sierra Leone, namely from Sta. MB5/A2, 07°04'N 11°57'W, depth 36 m, sandy mud (by implication, as no other station combines this depth and type of bottom deposit, cf. pp. 73 and 86). Furthermore, reference is made by Longhurst (1958: 64, 79, 86) to material collected by the "Cape St. Mary" in 1952 off Nigeria ("CSM/N 41–113" on p. 86). In 1953 this Nigerian material, or at least part of it, was sent to me for identification by mr. P. H. Creutzberg, at that time of

W. A. F. R. I., Sierra Leone. In all I received four lots: Sta. N/C2, 4°9.5'N 8°19'E, 24 fathoms, blue mud, 3 July 1952, 1 ♂, 2 ♀; Sta. N/D4, 3°54'N 7°38'E, 10 fms, blue-green mud, 4 July 1952, 1 ♀; Sta. N/A2, 3°50'N 9°3'E, 30 fms, green mud, 1 July 1952, 1 ♀; Sta. N/G4, 6°8'N 2°58'E, 50 fms, blue mud, 3 August 1952, 3 ♀. All this material was identified by me as *Squilla mantis*, and this identification was evidently used by Longhurst (1958). The lots from the last two stations (N/A2 and N/G4) were sent by Dr. Longhurst to the British Museum (Natural History), and formed the subject of a publication by Ingle (1959: 573, figs. 11, 12), who redescribed and figured the material, clearly showing that it is not *Squilla mantis*. Ingle identified this material as well as specimens from "off Nigeria" (without further information), also obtained from Dr. Longhurst, as *Squilla intermedia* Bigelow. Manning (1977: 141, figs. 47, 57) described a new species, *Squilla cadenati*, and showed that Ingle's material belonged to the new species rather than to *S. intermedia*. The two remaining lots from Nigeria collected by the "Cape St. Mary" were donated by W.A.F.R.I. to the Rijksmuseum van Natuurlijke Historie and could be re-examined. The three specimens from Sta. N/C2 proved to be indeed *Squilla mantis*, while that of Sta. N/D4 is *Squilla cadenati*. Longhurst's (1958) record of *Squilla mantis* thus is based on at least two species, the true *S. mantis* (Sta. N/C2) and *S. cadenati* (Sta. N/D4, N/A2, N/G 4 and the material from "off Nigeria", mentioned by Ingle). Unfortunately, Longhurst's material from Sierra Leone has not been re-examined.

***Squilla cadenati* Manning, 1977**

Squilla cadenati Manning, 1977: 141, figs. 47, 57.

Apart from the paratype material mentioned by Manning (1977: 145) and the above-mentioned "Cape St. Mary" specimen from Sta. N/D4, the Rijksmuseum van Natuurlijke Historie holds three more lots of this species, all three from Mauritania:

Off Cap Blanc, 21°16.4'N 17°30.4'W – 21°10.4'N 17°31.8'W, depth 218–230 m, "Thalassa" Sta. 0.250, 14 November 1963, C. Maurin. — 1 ♂.

Off Cap Blanc, 20°49'N 17°23'W, "Tridens" Sta. 15, 5–14 January 1975, don. R.I.V.O. — 1 ♂, 1 ♀.

Off Mauritania, 16°13'N 16°39'W, "Tridens" Sta. 29A, 5–14 January 1975, don. R.I.V.O. — 1 ♂.

So far the northernmost record of the species was from "South of Saint Louis, Sénégal" (Manning, 1977: 141). The present Mauritanian material shows that the species occurs at least as far north as Cap Blanc at 21°10.4'N.

REFERENCES

- Hansen, H. J., 1895. Isopoden, Cumaceen und Stomatopoden der Plankton-Expedition. — *Ergebn. Plankton-Exped.* 2 (Gc): 1–105, pls. 1–8.
- Ingle, R. W., 1959. *Squilla labadiensis* n. sp. and *Squilla intermedia* Bigelow, two stomatopod crustaceans new to the West African coast. — *Ann. Mag. Nat. Hist.* (13) 2: 565–576, figs. 1–14.
- Longhurst, A. R., 1958. An ecological survey of the West African marine benthos. — *Fisher. Publ. Colonial Off. London* 11: 1–102, figs. 1–11.
- Manning, R. B., 1969. Stomatopod Crustacea of the Western Atlantic. — *Stud. Trop. Oceanogr.* 8: i-viii, 1–380, figs. 1–91.
- Manning, R. B., 1977. A monograph of the West African stomatopod Crustacea. — *Atlantide Rep.* 12: 25–181, figs. 1–57.
- Schmitt, W. L., 1940. The Stomatopoda of the west coast of America based on collections made by the Allan Hancock expeditions, 1933–38. — *Allan Hancock Pacific Exped.* 5 (4): 129–225, figs. 1–33.