

IX PRELIMINARY DESCRIPTIONS OF
NEW SPECIES AND VARIETIES OF
CRUSTACEA STOMATOPODA IN
THE INDIAN MUSEUM

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The following short descriptions of twelve new forms are preliminary in nature and will be succeeded, at no distant date it is hoped, by a full illustrated account.

The late Mr. J Wood-Mason took a special interest in this group and would doubtless have published an extensive memoir on them, had he lived. To a considerable number of the new forms he had assigned manuscript names and from the notes and figures which he had made Col. Alcock, in 1895,¹ was able to edit an account of nine species. Other forms were also recognized under manuscript names, but from the rough notes which were available it was found impossible to draft adequate specific descriptions.

Wherever possible I have retained the names adopted by Wood-Mason and, thanks to the considerable additions which have since been made to the collection, I have also to introduce a number of other new species, most of which have been obtained by the R.I.M.S.S. 'Investigator.'

Gonodactylus (Protosquilla) nefandus, sp. nov.

This species is allied to *Gonodactylus trispinosus*, Dana, *G. pulchellus*,² Miers, and *G. tuberosus*, Pocock. Its closest affinities are with *G. pulchellus* and along with that species it may be distinguished from *G. trispinosus* and *tuberosus* by the smooth and unsculptured median portion of the fifth abdominal somite.

Several examples of *G. pulchellus* from Ceylon (the type locality) are preserved in the Indian Museum and, compared with these, *G. nefandus* shows the following distinctive features:—

The antero-lateral pair of rostral spines are short and stout and though acute are not nearly so slender as the median; the distal concavities between the teeth are also much less deep with the result that the undivided basal part is considerably longer. The dorsal processes of the ophthalmic somite consist of two

¹ J Wood-Mason, *Figures and descriptions of nine species of Squillidae in the Indian Museum*. Calcutta, 1895.

² *G. pulchellus* was originally described by Miers as a variety of *trispinosus*, but in my opinion is entitled to rank as a distinct species.

small plates with rectangular antero-lateral angles; in *G. pulchellus* these angles are narrow and acute and are produced obliquely outwards. The distal margin of the telson is in both species divided into four lobes on either side of the median line, but these in *G. nefandus* are merely bounded by grooves on the dorsal surface whereas in *G. pulchellus* they are separated by three incisions, cut right through the telson, which extend about half way to the outer of the three dorsal boss-like protuberances.

A number of specimens, the largest 39 mm. in length, from the Andamans, Cheduba (Arrakan Coast) and the Straits of Malacca.

Odontodactylus southwelli, sp. nov.

Odontodactylus southwelli is related to *O. hanseni*, Pocock, and *O. latirostris*, Borradaile, and, as in those species, the anterior half of the telson bears three carinae on either side between the median crest and the thickened lateral margin. The outermost of these three carinae is parallel to the external margin and does not diverge to the apex of the lateral spine as in *O. japonicus*. From all species with more than three teeth on the inner margin of the dactylus of the raptorial claw it may be distinguished at a glance by the enormous size of the eyes.

The rostrum is twice as broad as long and the anterior margin is evenly rounded from side to side. The breadth of the cornea is contained from two to two and a quarter times in the length of the carapace. The dactylus of the raptorial claw bears seven to nine teeth on its inner margin in addition to the terminal one. The lateral margins of the sixth and seventh thoracic somites are rounded, the former being a trifle broader than the latter. There are eight carinae on the dorsal surface of the sixth abdominal somite; the first intermediate carina, which alone does not terminate in a spine, is connected proximally by means of a ridge with the submedian. On the margin of the telson there are twelve to sixteen minute submedian spinules, two intermediate denticles and one lateral. In the uropod the outermost of the ten or eleven movable spines which fringe the exopod reaches almost or quite to the apex of the ultimate joint.

Several specimens, the largest 37 mm. in length, from the Andamans and Ceylon.

Lysiosquilla insignis, sp. nov.

This species does not appear to possess much affinity with any form previously described.

The rostrum is triangular, one and a half times as long as wide, and terminates in a sharply acute apex. The cornea is set obliquely on the eyestalk and its breadth is about one third the mid-dorsal length of the carapace. The dactylus of the raptorial claw bears seven or eight teeth including the terminal one, the penultimate tooth, as in *L. acanthocarpus*, being noticeably

shorter than the antepenultimate. The sixth thoracic somite has an angular dorsal elevation on either side near the anterior edge: antero-laterally the margin is deeply excavate and behind this it projects in the form of a truncate lobe with rounded subrectangular anterior and posterior angles. The postero-lateral angles of the last three abdominal somites are sharply spinous. The fifth somite is provided with two obscure longitudinal carinae on either side; the sixth bears laterally near the distal margin a pair of spines in addition to those at the postero-lateral angles. These spines form the terminations of irregular carinae. The telson is provided dorsally with a trilobed median prominence, on either side of which there is a sharp intermediate spine and an angular lateral lobe. This armature is placed near the distal edge and is homologous with the curved row of spines found in *L. acanthocarpus* and *L. latijrons*; in front of it there are eight longitudinal carinae the outermost of which is proximally bifurcate. On the margin of the telson there are two long movable submedian spines and two pairs of large fixed laterals. There are four short spines between the submedians and the first laterals, and one between the two laterals. Six movable spines fringe the outer margin of the basal joint of the exopodite of the uropod and of these the two outermost are curved and much longer than the next of the series.

One specimen found in the neighbourhood of the Andamans in 235 fathoms.

Squilla gilesi, Wood-Mason, MS.

Squilla gilesi is related to *S. lata*, Brooks, but may readily be distinguished from it by the following characters:—

The carapace in front of the cervical groove is wholly without trace of carinae and its anterior margin on either side of the rostrum is strongly sinuous. The lateral edges of the rostrum are not concave near the apex as in *S. lata* but are evenly convex, and the lateral spinous process of the fifth thoracic somite is longer than in that species and has a stronger forward inclination. There are sharp submedian carinae on the last two thoracic and on all the abdominal somites. The sublateral carinae on the last three or four somites and the lateral carinae on the last four, five, or six terminate in spines. On either side of the median crest of the telson the impressed parallel lines found in *S. lata* are not visible and on the margin there are two or three submedian denticles, five to eight intermediate and one lateral. The inner margin of the bifurcate process of the uropod is finely serrate, not spinous.

The median carina and margins of the telson are strongly swollen in the adult male and the raptorial dactylus, which bears six teeth including the terminal one, is, in this sex, strongly sinuous: convex in the female. In the adult male, also, the propodus of the raptorial claw is very strongly dilated near its distal end.

This species bears a somewhat close superficial resemblance to *S. scorpio*, Latr.; but, apart from such details as the form of the rostrum and the carination of the carapace, there is in *S. gilesi* a well-developed three-jointed mandibular palp, an appendage which in *S. scorpio* is entirely missing.

Thirteen specimens of *S. gilesi*, the largest 94 mm. in length, are in the collection. They were found between 35 and 80 fathoms in the Persian Gulf, Bay of Bengal and Gulf of Martaban.

Squilla hieroglyphica, sp. nov.

This species is closely allied to the little known *S. laevis*, Hess. a form which appears to be restricted to the coasts of New South Wales. Mr. D. G. Stead has kindly presented us with examples of that species and, on comparison, *S. hieroglyphica* shows the following differences:—

The anterior bifurcated portion of the median carina of the carapace is entirely absent; the carapace is much narrower than in *S. laevis*, the anterior width being only about half the median length, including the rostrum. The rostrum is as long as wide and its lateral margins converge to a narrow rounded apex. The cornea of the eyes is set transversely on the stalk. The dactylus of the raptorial claw is armed with only five teeth including the terminal one. The lateral process of the sixth and seventh thoracic somites is more broadly rounded and the sublateral carinae of the fourth abdominal somite end in spines. The denticles on the margin of the telson are represented by the formula 5, 10—12, 1, whereas in *S. laevis* the corresponding numbers are 2—3, 6—8, 1.

Both species agree in having the lateral process of the fifth thoracic somite bilobed and that of the two succeeding somites unilobed, differing in this respect from all other species with the same number (eight) of longitudinal carinae on the abdomen; from both species, moreover, the mandibular palp is absent.

A single specimen of unknown locality, 53 mm. in length, is preserved in the Indian Museum.

Squilla gonypetes, Wood-Mason, MS.

S. gonypetes is closely allied to Brooks' *S. quinquedentata*, but may be distinguished by the following characters:—

The rostrum is distinctly longer and its upturned lateral margins are rather more strongly convergent anteriorly. The cornea of the eyes is a little more expanded and is set very obliquely on the stalk. The antennular peduncle is longer than the carapace excluding the rostrum. The outer inferior margin of the merus of the raptorial claw is distally rounded and does not project in the form of a spine. The sublateral carinae of the last three, and the lateral carinae of the last four abdominal somites end in spines.

Four specimens, the largest 56 mm. in length, from the Persian Gulf, Andaman Is. and the Arrakan Coast.

***Squilla boopis*, sp. nov.**

This species is allied, though not very closely, to *S. quinque-dentata* and *S. gonypetes*, and is easily distinguished from both by the enormous size of the eyes.

The rostrum bears a sharp median longitudinal carina in its distal half. The cornea is set very obliquely on the stalk and its greatest breadth is considerably more than one third the median length of the carapace. The antero-lateral angles of the carapace are produced as acute points which project outwards and downwards and scarcely reach at all forwards beyond the adjacent anterior margin. The lateral margin of the seventh thoracic somite is not bilobed but is angled acutely behind and rectangularly in front. The sublateral carinae of the last five and the lateral carinae of all the abdominal somites terminate in spines.

The dactylus of the raptorial claw bears five teeth including the terminal one and the lateral processes of the fifth and sixth thoracic somites are bilobed. In both these characters *S. boopis* resembles the two species mentioned above.

A single specimen, 89 mm. in length, from the Gulf of Martaban, 67 fathoms.

***Squilla holoschista*, Wood-Mason, MS.**

This well-marked species is closely allied to *Squilla nepa*, Latr., and agrees with it in the form of the eyes, the number of spines on the raptorial dactylus and the shape of the lateral processes of the fifth to seventh thoracic somites. It may be distinguished by the following characters:—

The median carina of the carapace, in front of the cervical groove, is bifurcated anteriorly for less than one third of its length and is finely bicarinate throughout almost its entire extent. The cornea of the eyes is slightly but noticeably less expanded than in *S. nepa*, specimens of similar size being compared. The submedian carinae of the fourth abdominal somite never end in spines.

In the adult male the distal end of the propodus of the raptorial claw is much broader than in *S. nepa* of the same sex and the external margin of the dactylus is only very feebly sinuous.

Numerous specimens from the east coast of India, from Ceylon to the Ganges delta.

The three following forms are very closely allied to *Squilla oratoria* de Haan (= *S. affinis*, Berthold), and in order to facilitate comparison the following short account of the principal features which separate that species from its near allies is given:—

The breadth of the carapace, measured at the antero-lateral angles is distinctly less than half its median length, including the rostrum. The median carina of the carapace is bifurcated anteriorly for about one quarter its length in front of the cervical

groove and is sharp and distinct throughout its course. The dorsal surface both of the carapace and abdomen is usually strongly punctate and never presents a polished appearance. The anterior margin of the ophthalmic somite, between the bases of the eye-stalks is squarely truncate or emarginate, never pointed. The dorsal carina of the carpus of the raptorial claw bears from three to five sharp tubercles; the outer margin of the dactylus is sinuous. In the bifurcate process from the basal joint of the uropod the margin anterior to the small lobe on the external edge of the longer spine is always strongly concave.

I have reason to believe that this species is found in its typical form only in Chinese and Japanese waters. Three specimens from the Hawaiian and Philippine Is. have also been examined, but these differ from the others in several minute details. They may possibly represent a distinct sub-species, but the material at my disposal is not sufficient to establish this with any certainty.

All previous references of *Squilla oratoria* or *affinis* from localities west of the Philippine Is. are, I believe, based on one or other of the new forms described below, and of this in several instances I have direct proof. In all, several hundreds of specimens have been examined, including a fine collection from many widely distant localities kindly lent by the Trustees of the British Museum.

***Squilla oratoria*, de Haan, var. *perpensa*, nov.**

This variety is distinguished from the typical form by the following characters:—

The median carina of the carapace is interrupted and wholly absent for a short space at the base of the anterior bifurcation. The two arms of the bifurcate portion are frequently very fine and are rarely obsolete. The carpus of the raptorial claw has a sharp elevated carina on its dorsal aspect which terminates abruptly before reaching the anterior margin; apart from this there is no trace whatever of any dorsal tubercle.

Very numerous specimens from localities ranging from Hong-kong and N. Australia to the Persian Gulf. The largest example is 107 mm. in length. Four specimens only out of the large series examined exhibit characters intermediate between the variety and the typical form

***Squilla interrupta*, Wood-Mason, MS.**

This abundant species may be separated from *S. oratoria*, *s.s.*, by the following characters:—

The median carina of the carapace is interrupted at the base of the anterior bifurcated part precisely as in the var. *perpensa*. The breadth of the cornea of the eyes is distinctly less than in either of the two preceding forms, specimens of similar size being compared. The carpus of the raptorial claw is constantly provided with two, and only two, stout dorsal tubercles. In the bifurcate

process from the base of the uropod the outer margin of the longer spine anterior to the well-developed lobe is never concave; it is occasionally feebly sinuous, but in nearly every instance is definitely convex.

Very numerous specimens, the largest 119 mm. in length, exhibit the above characters with most remarkable constancy. They were taken at localities ranging from Hongkong to the Persian Gulf.

***Squilla wood-masoni*, sp. nov.**

Squilla polita, Wood-Mason, MS., *nec* Bigelow.

Squilla wood-masoni may be separated from *S. oratoria*, its variety *perpcensa* and *S. interrupta* by the use of the following characters:—

The dorsal surface of the carapace and abdomen is smooth, highly polished and without trace of punctuation. The carapace is shorter and broader than in any of the preceding forms, its breadth at the antero lateral angles being *at least* one half its length including the rostrum. The anterior bifurcated portion of the median carina of the carapace is entirely obsolete. The distal edge of the ophthalmic somite is produced to a small point between the bases of the eyestalks and is not truncate or slightly emarginate as in the preceding forms. The eyes are large, much as in *S. oratoria*, and the carpus of the raptorial claw also resembles that species in bearing three or four tubercles on its dorsal edge. The dactylus of the same limb is strongly sinuate externally and is of a much more clumsy build than in any of the preceding forms. The bifurcate process of the uropod is similar to that of *S. oratoria*, but the lobe on the external margin of the longer spine is, in all except very young specimens, much smaller.

Numerous examples, the largest 109 mm. in length, from localities ranging from Hongkong to Aden.

***Squilla annandalei*, sp. nov.**

This species is closely allied to the well-known *S. raphidea*, Fabr., and the propodus of the raptorial claw bears, as in that species, a number of large fixed spines along the margin opposed to the dactylus. It may be distinguished by the following features:—

The rostrum is shorter—more so than in the form of *S. raphidea* which de Haan described under the name of *harpax*—and its apex is more broadly rounded. The antennular peduncle is longer than the rostrum and carapace combined. The anterior lobes of the lateral margins of the sixth and seventh thoracic somites are quite distinct, whereas they are wholly obsolete in *S. raphidea*. The sublateral carinae of the last three thoracic and the submedian carinae of the last *two* abdominal somites end in spines. The marginal spines of the telson are sharper than in *S. raphidea* and the inner uropod is narrower in proportion to its length.

Spirit specimens differ noticeably from the allied species in the colour of the inner uropod. This in *S. annandalei* is entirely jet black, except for a pale median longitudinal stripe, whereas in *S. raphidea* the inner margin only is suffused with black pigment.

Four specimens, the longest 115 mm. in length, from the Gulf of Martaban between 53 and 67 fathoms.