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On Freshwater Prawns of the Family Atyidæ *from Queensland.* By W. T. Calman, D.Sc., F.R.S.

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The specimens described in this paper were collected by Capt. G. H. Wilkins in the course of his expedition to Australia (1923–25) on behalf of the British Museum (Natural History).

Bouvier's recently published Monograph * gives an admirable account of the morphology, relationships, and distribution of the members of the family.

Paratya australiensis, Kemp, var.

Paratya australiensis, Kemp, Rec. Indian Mus. xiii. pt. 5, p. 303, fig. 5 (1917); Bouvier, Recherches, p. 62, fig. 86 *bis.*

Occurrence. St. George District, Queensland. In bore water drain. 2 ♂.

Remarks. In both specimens the propodus of the third peræopods is about three times, that of the fifth distinctly less than three times, as long as the dactylus (including the terminal spine); in neither case is the propodus dilated; the dactyli are much more than three times as long as broad. The carpus of the first peræopods is about two and a half times as long as broad, that of the second pair about seven times. There are nine spines on the third dactylus, ten on the fourth, and about fifty-two on the fifth. The rostrum extends only to the middle of the second antennular segment or a little less, and has $\frac{16}{1}$ and $\frac{18}{2}$ teeth in the two specimens. All the dorsal teeth are in front of the orbital notch.

It will be seen that the specimens differ considerably from the typical form of *P. australiensis,* especially in the characters of the rostrum; and it is quite possible that they represent a distinct local race of the species. Ortmann

* E. L. Bouvier, "Recherches sur la morphologie, les variations, la distribution géographique des Crevettes de la famille des Atyidés." Encyclopédie Entomologique, iv. Paris (Lechevalier), 1925. 8vo, pp. 370, 716 text-figs.

records a member of the genus from Queensland, but gives few details as to its characters.

CARIDINIDES, gen. nov.

Resembling *Caridina*, but having a well-developed exopod on the first pair of chelipeds.

No supraorbital spine. Chelipeds of the *Caridina*-type, carpus of first pair slightly excavated. An arthrobranch at the base of first chelipeds (nine pairs of gills). A number of spines on exopod of uropods.

Genotype. *Caridinides wilkinsi*, sp. n.

Caridinides wilkinsi, sp. n. (Figs. 1 & 2.)

Occurrence. Olive River, Temple Bay, east coast of Cape York Peninsula. Many specimens were taken by Captain Wilkins at a point quite close to the sea, where the water was brackish. The river is separated from the sea by a sand-bar, which is covered at spring-tides.

Description. Rostrum equal to, or a little longer than, antennular peduncle, slightly sinuous, spines $\frac{1-3+17-22}{3-8}$, the dorsal spines continued, as a rule, to the tip. Postorbital length of carapace exceeding by one-third the dorsal length of sixth abdominal somite. Infraorbital angle prominent and distinct from antero-lateral spine. Pterygostomial angle narrowly rounded.

Antennular carina inconspicuous. Antennular peduncle about $\frac{4}{5}$ of length of carapace; second segment more than two-thirds as long as first, and nearly twice as long as third; stylocerite extending to three-fourths of first segment, distal spine to one-third of second segment. Antennal peduncle reaching to end of first antennular segment. Tip of antennal scale projecting beyond external spine, which extends a little beyond the antennular peduncle.

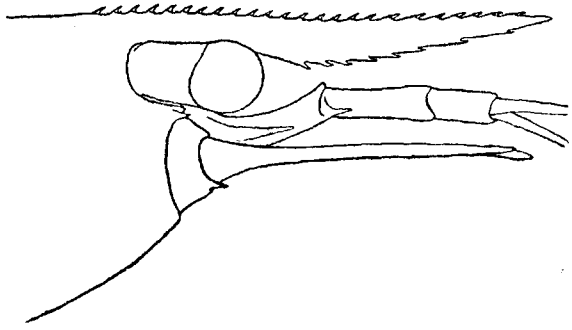
Distal lacinia of maxillula hardly produced beyond the spinose inner margin. Distal lobe of maxilla little more than half as long as the adjacent lobe; the hook at the base of the exopodal setæ serrated. Distal segment of third maxilliped more than two-thirds as long as the preceding, with about fifteen distal spinules.

First chelipeds with exopod extending to middle of merus, with a few long plumose setæ at tip; carpus slightly but distinctly excavated, nearly three times as long as wide and a little over four-fifths of length of chela; fingers a little longer than palm, with a terminal claw, broadly spatulate, incurved and truncate, flanked by three or more series of serrated spines.

Second chelipeds without exopod; carpus six times as long as wide, and one-third longer than chela; fingers longer than palm.

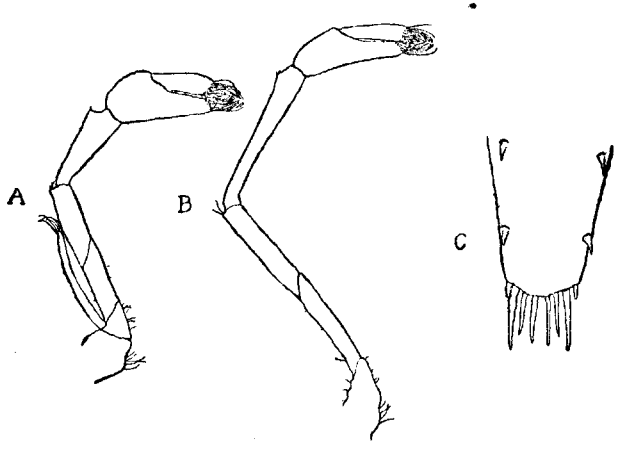
Third and fourth peræopods with with one spine on ischium, three or four on merus, and one large and two or

Fig. 1.



Caridinides wilkinsi, sp. n.
Anterior part of carapace &c., lateral view.

Fig. 2.



Caridinides wilkinsi, sp. n
A. First cheliped. B. Second cheliped. C. Tip of telson.

three small ones on carpus; dactylus less than one-fourth of length of propodus, with seven to nine spines. Fifth peræopods with no spine on ischium and only one on merus; dactylus about one-third of length of propodus, with 34–50 spines.

Epipods absent from last three pairs of legs.

Uropods with eight or nine spines on exopod. Telson with four pairs of dorsal spinules (including subterminal pair) and three pairs of terminal spiniform setæ, of which the intermediate pair are the shortest.

Total length of largest specimens about 20 mm. No ovigerous specimens were found.

Remarks. The only Atyidæ hitherto known which have exopods on any of the peræopods are the genus *Xiphocaris* and the group of genera forming Bouvier's "Série paratyienne." The former is distinguished by a number of other characters, which justify us in regarding it as a very primitive member of the family. The Paratyan series of genera have also certain features in common—such as the supraorbital spines, the absence of arthrobranchs from the legs, and the presence of only one or two exopodal spines on the uropods—which mark them off as a natural group, and as, on the whole, more primitive than the remaining genera, although more specialized than *Xiphocaris*.

The new species now described does not disturb the basis of Bouvier's classification, since it shows no approach in other characters to the Paratyan series. Except for the presence of an exopod on the first cheliped, it is a normal *Caridina* belonging to the group of *C. nilotica*, and approximating, in Bouvier's key, to *C. propinqua*, de Man, and its neighbours. It has been given a new generic name merely as a measure of practical convenience, and not as indicating a belief that it is phylogenetically more primitive than any of the numerous species of *Caridina*. It may be so; but, as Kemp has pointed out (Rec. Indian Mus. xix. p. 138, 1920), it is unsafe to regard the presence of exopods on the peræopods as necessarily a primitive character among the Caridea, since they are frequently retained in the larvæ. The occasional persistence of a larval character in the adult stage of unrelated genera would not infringe the law of the "irreversibility of evolution."

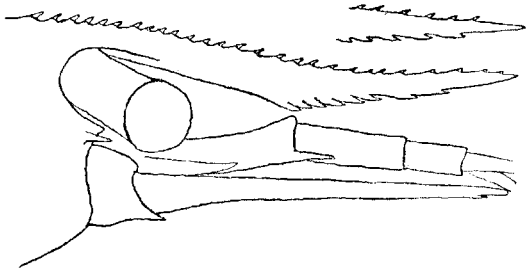
Caridina indistincta, sp. n. (Fig. 3.)

Occurrence. St. George District, Queensland. In bore water drain. Eight specimens.

Description. Rostrum extending slightly beyond the antennular peduncle, gently curved downwards at the base and upwards at the tip, slender, its depth not more than one-ninth of its length; 20 to 32 spinules above, of which

1 to 3 are behind the orbit, the distal ones extending almost or quite to the tip, and 4 to 8 teeth below. Stylocerite reaching about the middle of the first antennular segment, distal spine not reaching middle of second, which is not quite two-thirds of the first; third segment more than half as long as second. Antennal scale about equal to rostrum; angle of second segment spiniform. Carpus of first chelipeds about three times as long as wide, and shorter than the chela, which has the fingers longer than the palm. Carpus of second chelipeds about six times as long as wide, longer by one-quarter than the chela, which has the fingers longer than the palm. Dactylus of third and fourth peræopods less than one-third of propodus, with seven and eight evenly graduated spines respectively; that of fifth peræopod one-third of propodus, with thirty-three spines.

Fig. 3.



Caridina indistincta, sp. n.

Anterior part of carapace &c., lateral view.

Merus of third and fourth pairs with two spines, that of fifth with one. Epipods on peræopods 1 to 4. Telson with six pairs of dorsal spinules (including subterminal pair), and with seven or eight terminal plumose spines (in about half of the specimens the number is odd), of which the outer pair are longer and stronger than the others. Exopod of uropods with nine spines.

The following proportions are expressed according to the scheme adopted by Bouvier (p. 47):—

$\frac{pa^1}{c}=\cdot93$, $\frac{pr\cdot p^3}{c}=\cdot5$, $\frac{6s}{c}=\cdot72$, $\frac{d}{pr}p^3=\cdot28$, $\frac{d}{pr}p^5=\cdot33$.

Total length (♀) 17 mm.

Remarks. The length of the antennular peduncle and of the sixth abdominal somite, the form of the rostrum, and the number of the uropodal spines show that this species belongs to the group of *C. nilotica* as defined by Bouvier

It is not impossible that it may even deserve to be included within the wide limits assigned to the polymorphic type-species of the group, which has already been recorded from Queensland under the name of *C. wycki* by Ortmann *. It differs from all the subspecies of *C. nilotica*, except one, in having the dorsal serrations of the rostrum continued, without any interruption, to the tip. Kemp and Bouvier have described a similar armature of the rostrum in some forms of *C. brachydactyla*, which Bouvier ranks as one of the subspecies of *C. nilotica*; but in other respects (the short dactyli of the walking-legs, and the enlarged subapical spine of the third and fourth pairs) *C. brachydactyla* differs greatly from the Australian form. Of the other species of this group, Bouvier's key brings it into closest relationship with *C. de mani*, Roux, and *C. rajadhari*, Bouvier, from both of which it differs widely in nearly all the proportional measurements given above.

* Bouvier's statement ('Recherches,' p. 260) that the genus *Caridina* may, perhaps, be absent from Australia is probably an oversight, and not intended to throw doubt on Ortmann's record.