

1935

Author's Copy

RECORDS
of the
INDIAN MUSEUM

Vol. XXXVII. Part I, pp. 85-92

Further Notes on Crustacea Decapoda
in the Indian Museum.
VII. On a New Species of Freshwater
Crab (Family Potamonidae) from the
Bombay Presidency, together with
notes on some allied species.

By
B. CHOPRA
&
K. N. DAS

INVERTEBRATE
ZOOLOGY
Crustacea

CALCUTTA :
APRIL, 1935

FURTHER NOTES ON CRUSTACEA DECAPODA IN THE INDIAN MUSEUM.

VII. ON A NEW SPECIES OF FRESHWATER CRAB (FAMILY POTAMONIDÆ) FROM THE BOMBAY PRESIDENCY, TOGETHER WITH NOTES ON SOME ALLIED SPECIES.

By B. CHOPRA, D.Sc., and K. N. DAS, M.Sc., *Zoological Survey of India, Calcutta.*

(PLATE IV.)

Recently Mr. C. McCann of the Bombay Natural History Society sent to us for identification a large number of Potamonid crabs that he had collected round about Bombay in connection with some work on the biology of these crabs that he was carrying on at the time. The collection for the most part consists of *Paratelphusa* (*Barytelphusa*) *guerini* M.-Edw., a species that is known to occur commonly in the Bombay Presidency and the adjoining areas, and one or two specimens each of *Paratelphusa* (*Barytelphusa*) *jacquemontii* (Rathbun) and *Gecarcinus* (*Gecarcinus*) *jacquemontii* M.-Edw.; the two latter species also are common in Bombay and parts of the Western Ghats. Along with these species, there are four specimens, two males and two females, that though agreeing closely with *P. guerini*, show some well-marked and constant characters that are not met with in this species. A careful examination of a large number of specimens of *P. guerini* and its allies in the collection of the Zoological Survey of India has shown that these specimens represent a hitherto undescribed species. In addition to these four specimens, another example, a large male, of the new species has been found in the collection of the Zoological Survey mixed with the material of a variety of *P. guerini*.

Alecock¹ in his admirable account of the Indian Potamonids recognised two varieties of *Paratelphusa* (*Barytelphusa*) *guerini*, viz., var. *planata* A. M.-Edw., and var. *pocockiana* Henderson. *P. guerini* was described by H. Milne-Edwards² in 1853, and except for the name of the genus and subgenus in which it has been included by different authors, there has been no doubt about its validity; the position assigned to it by Alecock in the *jacquemontii* group of his sub-genus *Barytelphusa* of the genus *Paratelphusa* is now generally accepted. The position of the other two forms, *planata* and *pocockiana* has, however, given rise to some doubt. The former was described by A. Milne-Edwards³ in 1869 as *Telphusa planata* from a single specimen from Bombay, while Henderson⁴ described the latter from material obtained at Jubbulpore. Wood-

¹ Alecock, *Cat. Ind. Decap. Crust.*, part 1, Brachyura, fasc. ii, Potamonidae, pp. 87-89, fig. 57 (1910).

² Milne-Edwards, *Ann. Sci. Nat.* (3) XX, p. 210 (1853).

³ A. Milne-Edwards, *Nouv. Arch. Mus. Hist. Nat. Paris* V, p. 181, pl. xi, fig. 3 (1869).

⁴ Henderson, *Trans. Linn. Soc. London* (2) Zool. V, p. 381, pl. xxxvii, figs. 5-8 (1893).

Mason¹ and Ortmann² considered *planata* as only a synonym of *guerini*, but the latter recognised *pocockiana* as a distinct species. Miss Rathbun³ in her monumental work on "Les Crabes d'eau douce" came to the conclusion, apparently after an examination of the type-specimen, that *planata* was a valid species, whereas *pocockiana* was probably the same form as *guerini*. Alcock, who had ample material of both these forms from various localities, including those from which they had originally been collected, considered both of them distinct from *guerini*, as also from one another, but instead of recognising them as distinct species relegated them to varietal rank. We have also carefully re-examined the Indian Museum material, and are convinced that Alcock was right in considering both *planata* and *pocockiana* as distinct from *guerini*, but we are inclined to believe that the differences between the three forms are sufficiently well-marked for recognising the first two as distinct species, rather than as varieties of the third. The chief difference between the three forms, as stressed by Alcock, is in the convexity or flatness of the dorsal surface of the carapace, but in addition to this we have found a few other minor differences, which appear to be constant, at least in the material at our disposal. Some of these differences are shown in a tabular form on page 91.

Before giving a description of our new species we wish to express our thanks to Mr. C. McCann for affording us an opportunity to examine his valuable collection. A study of the fine series of specimens of *Paratelphusa guerini* that he had collected has enabled us to understand the limits and also the relationships of this species.

Paratelphusa (Barytelphusa) mccanni, sp. nov.

The carapace (Plate IV, fig. 1) is more or less flat, though the three main regions have their individual convexities. Its length is a little over two-third of its greatest breadth, though in the females the carapace is proportionately slightly longer. In the males the depth⁴ is about three-fifth of the length, but in young females it is slightly less. The surface is practically smooth, but under a lens a few sparsely-scattered punctations can be seen on the gastric region; in the younger examples these punctations extend to the branchial regions also. Besides these, the outer half of each epibranchial region is traversed by numerous short oblique ridges—these are very clearly seen in small specimens only, but become indistinct in larger examples, and barely any traces of these are left in a large male specimen.

The cervical groove is more or less deep and distinctly marked throughout its course. It forms a broad V, with its posterior part, where it bounds the mesogastric area, forming almost an arc of a circle. It is deeper in the posterior part than anywhere else: anteriorly it

¹ Wood-Mason, *Journ. As. Soc. Bengal* XI, p. 203 (1871).

² Ortmann, *Zool. Jahrb., Syst.* X, pp. 306, 307 (1898).

³ Rathbun, *Nour. Arch. Mus. Hist. Nat. Paris* (1) VI, VII, VIII (1904-06); *op. cit.* VII, pp. 186, 187, pl. xvi, figs. 2 and 4 of Vol. VI (1905).

⁴ The depth of the carapace has been measured as explained on p. 89.

becomes broader and shallower and near the post-orbital crest it is rather faint. It stops short at its junction with the crest well on the inside and behind the lateral epibranchial tooth. The mesogastric furrow is deep and well-marked.

The front (Plate IV, figs. 1 and 2), as is usually the case, is somewhat broader in smaller individuals than in larger ones, but the breadth at the base of the antennae is always slightly less than one-fourth the greatest breadth of the carapace. Its sides are only slightly convergent, so that the front has a square-cut appearance. It is considerably deflexed and its edge is faintly bilobed. Its surface is sparsely punctate. The angles formed by the sides with the anterior border are somewhat rounded right angles.

The orbits and their inner gaps are wide. Their borders are almost smooth, but the lower border, especially its inner part, shows indications of being faintly crenulate; this is better seen in smaller examples. The external orbital angle is rather broad, low and bluntly pointed and there is no trace of a gap between it and the lower border of the orbit.

The antero-lateral borders of the carapace, which are strongly arched, are not sharply defined and only in small examples are more or less crenulate. The lateral epibranchial tooth is very minute, especially in larger examples. The postero-lateral borders are more or less straight and strongly converge posteriorly. The posterior border is straight.

The epigastric and post-orbital crests are well pronounced, making a bold continuous ridge on either side of the mesogastric furrow. The epigastric portion is blunt and thick, while the post-orbital part is sharper and more crest-like; in a smaller specimen it is very faintly crenulate. The crest on either side runs in a more or less straight line, with a slight anterior concavity and only a very small part of the epigastric crest lies in front of an imaginary line joining the upper border of the two orbits. The crests stop short on the dorsum of the carapace well behind the lateral epibranchial tooth, though in smaller specimens there are very faint indications of its turning backwards to join the lateral border. On either side of the carapace there is a deep concavity between the upper border of the orbit and the post-orbital crest; this concavity becomes broad and somewhat shallow near the lateral border of the carapace. The cervical groove does not anywhere cut the crest, but meets it near the outer end of the crest.

In the abdomen of the male (Plate IV, fig. 4) the sides of the sixth segment are distinctly convergent and slightly convex. The length of this segment is considerably less than its greatest breadth (at the proximal border) and slightly more than the breadth at the distal end. In the seventh segment the length equals the breadth at the base and the distal end is regularly and somewhat broadly rounded.

The mandibular palp has the structure that is peculiar to the genus *Paratelpusa*. The exopodite of the external maxilliped (Plate IV, fig. 3) is considerably longer than the ischium and carries the usual plumose flagellum. The longitudinal groove running parallel to the inner border of the ischium is comparatively faintly marked; the merus is considerably broader than long and is more or less quadrangular in shape, its anterior border being more or less straight.

The chelipeds (Plate IV, fig. 5) are very unequal in both the sexes, only very slightly more so in the male than in the female. In the merus the borders are coarsely crenulate and the outer surface is covered with obscure rows of squamiform low tubercles. The inner margin of the merus has a short blunt spine about its middle and its upper and outer surfaces are rugose and sparsely pitted. The outer and upper surfaces of the palm and the fingers are also pitted and are covered with scale-like markings. The pitting of the fingers has a linear arrangement and there are a few rows of very minute granules on the upper surface of the dactylus. There is a row of squamiform tubercles on the lower border of the palm. The tips of the fingers are strongly hooked, and cross each other when they meet. Both the fingers are broad, the fixed finger being only a little broader than the dactylus. In the larger chela the dactylus is arched and the fingers, therefore, gape when the tips are apposed. The palm is a little less than one and a half times as high as its length along the upper border and the dactylus is one and a quarter times as long as the height of the palm. The fingers have fairly even teeth along the cutting margins. The length of the lower border of the palm and the fixed finger is somewhat less than twice the height of the palm. In the smaller chela the dactylus is less arched and there is hardly any gap when the tips meet. The palm is proportionately less high and the fingers are proportionately longer, the height of the former being considerably less than one and a half times its length along the upper border and the latter being more than one and a quarter times the height of the palm. The lower border of the palm and the fixed finger is also a little more than twice the height of the palm, and the teeth are smaller and more even. The chelae in the female are more or less like those in the male and the proportions of the various parts are also practically similar. The differences between the larger and the smaller chela mentioned for the male, can be seen in the female also.

The walking legs (Plate IV, fig. 1) are strong and are considerably shorter than the chelipeds. The measurements of some of the segments of the third and fourth legs are given below in millimetres. The meropodites are considerably flattened, but their breadth is less than half of their length. Their anterior border is bluntly crenulate, especially

Sex.	♂	♂	♂	♀	♀
Carapace length	37.5	27.0	26.0	21.0	18.0
3rd Walking leg—					
Length of meropodite	22.0	18.0	17.0	14.2	12.2
Breadth of meropodite	9.5	7.0	6.1	5.5	5.0
Length of propodite	13.5	10.5	9.8	8.5	7.3
Breadth of propodite	6.2	4.6	4.2	3.6	3.1
Length of dactylus	16.0	13.2	..	10.4	..
4th Walking leg—					
Length of meropodite	19.0	14.5	..	11.4	9.8
Breadth of meropodite	8.0	6.0	..	4.7	4.0
Length of propodite	10.7	8.2	..	6.6	5.7
Breadth of propodite	6.0	4.8	..	3.4	3.0
Length of dactylus	14.5	11.3	..	8.8	7.4

in the anterior pairs. The upper margins of the carpus, propodus and dactylus and the lower margins of the last two segments are spinate. The propodus in the third pair of legs is more than twice as long as broad, but in the ultimate pair the breadth is more than half of the length. The upper margin of the propodus is distinctly bicarinate in the first pair of walking legs, both the carinae bearing minute spines; the carinae become progressively blunt in the posterior pairs and only the one at the anterior side bears spines. The dactylus is considerably longer than the propodus and is only slightly arched, bears four rows of small spines, two on the upper margin and two on the lower, and ends in a sharply pointed horny tip.

Measurements of three specimens, two males and one female, are given below in a tabular form. The largest male has a carapace length of 37.5 mm. and the greatest breadth 54.6 mm., while the smallest example, a young female, has the carapace 18 mm. long and 26 mm. broad.

The colour of the spirit specimens is dark-brown, with the larger examples becoming pale on side, retaining, however, the brown colour on the gastric region of the carapace.

Type-specimen.—C 716/1, Zoological Survey of India (*Ind. Mus.*).

Locality.—The type specimen, a large male, with its larger chela missing, was collected in rice fields at Kumta in North Kanara District, Bombay Presidency, by Mr. P. V. Wagle some years back. The other four examples, two males and two females, were obtained by Mr. C. McCann of the Bombay Natural History Society at Audheri, near Bombay between August and October, 1934.

In the following table we have given the measurements and proportions of the carapace and some appendages, etc., of three examples of *P. maccanni*, and for purposes of comparison have included similar measurements and proportions of two typical specimens, a male and a female, of each of the three allied species, *P. guerini*, *P. planata* and *P. pocockiana*. The length of the carapace has been measured along the median line and its depth represents the least distance along the middle line between the dorsal surface of the carapace and the thoracic sternum a little in front of the terminal abdominal segment. Most of the measurements have been taken with a pair of parallel-jawed calipers, giving direct reading on a dial; all the measurements are in millimetres.

Sex.	<i>P. guerini</i> .		<i>P. planata</i> .		<i>P. pocockiana</i> .		<i>P. maccanni</i> .		
	♂	♀	♂	♀	♂	♀	♂	♂	♀
Carapace length	35.0	32.7	36.4	22.2	32.9	37.0	37.5	27.0	18.0
Carapace breadth	50.6	45.3	53.3	34.5	46.8	51.9	54.6	39.8	26.0
Fronto-orbital breadth	32.8	29.3	32.3	24.4	29.6	33.3	33.2	24.6	16.6
Epibranchial breadth	39.4	35.7	40.2	25.3	36.7	40.6	40.5	30.0	20.0
Carapace depth	23.5	21.0	23.1	12.9	19.4	20.5	22.5	16.4	10.0
Front (breadth at base of antennae)	14.3	12.7	14.0	8.9	13.1	14.8	13.2	9.6	6.4
Carapace length Carapace breadth	.691	.721	.682	.764	.703	.712	.684	.678	.692

Sex.	<i>P. guerini</i> .		<i>P. planata</i> .		<i>P. pocockiana</i> .		<i>P. mccanni</i> .		
	♂	♀	♂	♀	♂	♀	♂	♂	♀
Carapace depth									
Carapace length	·671	·642	·631	·581	·589	·551	·600	·607	·555
Front breadth									
Carapace breadth	·282	·280	·262	·282	·279	·285	·241	·241	·246
Large Chela :—									
Height of Palm	21·8	13·3	25·8	12·6	21·6	19·6	..	17·2	9·6
Length of upper border of Palm	14·3	9·3	17·0	8·0	14·7	13·8	..	12·0	6·8
Length of Dactylus (Upper border)	28·0	17·3	35·4	14·7	28·5	23·9	..	21·0	11·6
Length of lower border of Palm and Fixed Finger.	38·5	26·6	48·0	21·9	39·5	37·2	..	31·2	17·3
Height of Palm									
Upper border of Palm	1·52	1·43	1·51	1·57	1·46	1·42	..	1·43	1·41
Dactylus									
Height of Palm	1·28	1·30	1·37	1·16	1·31	1·21	..	1·22	1·20
Lower border of Palm									
Height of Palm	1·76	2·00	1·86	1·73	1·82	1·89	..	1·81	1·80
Small Chela :—									
Height of Palm	13·6	11·2	16·6	8·6	13·8	13·9	15·5	16·3	6·2
Length of Upper border of Palm	10·5	8·2	11·7	5·8	10·3	10·6	11·8	7·8	4·7
Length of Dactylus (Upper border)	19·6	15·3	24·1	10·9	19·6*	19·5	21·0	14·0	8·1
Length of lower border of Palm and Fixed Finger	29·0	24·4	33·6	16·8	28·9	29·4	31·6	24·8	13·2
Height of Palm									
Upper border of Palm	1·29	1·36	1·41	1·48	1·33	1·31	1·31	1·32	1·31
Dactylus									
Upper border of Palm	1·44	1·36	1·45	1·26	1·42	1·40	1·35	1·35	1·35
Lower border of Palm									
Height of Palm	2·13	2·17	2·02	1·95	2·09	2·11	2·03	2·10	2·12
Abdomen of Male :—									
Length of sixth segment in middle line	7·3		7·0		6·2		7·6	5·5	
Breadth of sixth segment at proximal end	8·6		9·0		8·4		10·0	7·5	
Breadth of sixth segment at distal end	6·1		6·5		6·1		7·1	5·2	
Length of seventh segment	7·4		7·4		6·4		7·2	5·2	

* Slightly broken.

Paratylphusa (Barytylphusa) mccanni closely resembles *P. (B.) guerini* and is undoubtedly a member of the group in which, besides the latter species, *P. (B.) planata* and *P. (B.) pocockiana* are included. The epigastric and post-orbital crests forming a continuous prominent ridge on either side of the mesogastric furrow and ending on the dorsum of the carapace well behind the level of the greatly reduced lateral epibranchial tooth show the close resemblance between the present species and other members of the *guerini* group. A large number of other characters also show this similarity in an unmistakable way.

Some of the characters in which the new species differs from its nearest allies, *P. guerini*, *P. planata* and *P. pocockiana* are clearly brought out in the accompanying table. The most noteworthy of these differences

Table giving some of the characters in which *Paratelphusa meacani* differs from *P. guerini*, *P. planata* and *P. pookhiana*.

<i>Paratelphusa guerini</i> .	<i>Paratelphusa planata</i> .	<i>Paratelphusa pookhiana</i> .	<i>Paratelphusa meacani</i> .
1. Carapace strongly convex	1. Carapace less convex	1. Carapace almost flat	1. Carapace almost flat, but less so than in <i>P. pookhiana</i> .
2. Cervical groove deep and distinct throughout.	2. Cervical groove distinct throughout, but deep only posteriorly.	2. Cervical groove shallow and faint.	2. Cervical groove deep in the posterior part, becoming shallow and faint anteriorly.
3. Epigastric and post-orbital crests forming a bold curve on either side of the mesogastric furrow, with a considerable part of the epigastric crest lying in advance of the upper borders of the orbits; epigastric crests blunt and thick.	3. The crests forming a more or less straight line with only a very small part of the epigastric crest in advance of the upper borders of the orbits; epigastric crests not quite as blunt as in <i>P. guerini</i> .	3. The crests considerably arched more or less as in <i>P. guerini</i> , with a considerable part of the epigastric portion in advance of the upper borders of the orbits; epigastric crests very little blunt.	3. The crests forming a more or less straight line, with only a very small part of the epigastric portion in advance of the upper borders of the orbits; epigastric crests blunt and thick.
4. Front more than one-fourth of the greatest breadth of the carapace, with its sides anteriorly convergent.	4. Front more than one-fourth of the greatest breadth of the carapace, with its sides only somewhat convergent.	4. Front more than one-fourth of the greatest breadth of the carapace with its sides parallel.	4. Front less than one-fourth of the greatest breadth of the carapace, with its sides only slightly convergent anteriorly.
5. Antero-lateral borders of the carapace crest-like, crenulate.	5. Crests on the antero-lateral borders less pronounced.	5. Crests on the antero-lateral borders less pronounced.	5. Antero-lateral borders of the carapace hardly forming a crest, at least in large specimens.
6. Ischial groove distinct.	6. Ischial groove faint.	6. Ischial groove very faint.	6. Ischial groove faint.
7. Depth of carapace in males more than three-fifths of its length.	7. Depth of carapace in males only a little more than three-fifths of its length.	7. Depth of carapace in males less than three-fifths of its length.	7. Depth of carapace in males about three-fifths of its length.
8. Spine on inner margin of carpus of cheliped long and sharp.	8. Spine sharp, but smaller than in <i>P. guerini</i> .	8. Spine sharp, but smaller than in <i>P. guerini</i> .	8. Spine small and blunt.
9. Sides of 6th abdominal segment of male straight or slightly concave, its length considerably more than its breadth at the distal end; length of seventh segment considerably more than its breadth at base.	9. Sides of 6th abdominal segment of male straight or slightly concave, its length more than its breadth at distal end; length of seventh segment considerably more than its breadth at base.	9. Sides of 6th abdominal segment of male straight or slightly concave, its length equal to its breadth at distal end; length of seventh segment very slightly more than its breadth at base.	9. Sides of 6th abdominal segment of male slightly convex, its length slightly more than its breadth at distal end; length of seventh segment equal to its breadth at base.

1 The depth of carapace is measured as explained on p. 89, and its proportion to length given in this table represents the average of a number of measurements.

are that in *P. mccanni* the front is always proportionately shorter, though only slightly so; the antero-lateral margins are hardly cristiform; the sixth abdominal segment of the male has somewhat convex sides, with its length only slightly more than its breadth at the distal end; and the seventh segment of the male abdomen is only a little shorter than the sixth.

Another character, which helps in separating the species of the *guerini* group and to which both Miss Rathbun and Alcock have attached some importance, is in reference to the relative depth and distinctness of the ischial furrow—a longitudinal groove running parallel to and on the inside of the inner margin of the ischium of the external maxilliped. In *P. guerini* this groove is distinct and deep throughout its course, in *P. planata* it is fainter and in *P. pocockiana* is even less distinct than in *P. planata*. As stated above, in *P. mccanni* also the ischial groove is faint, more or less like that of *planata*. This character is fairly constant, but we have observed a certain amount of overlapping in the collection we have examined. Generally the ischial groove in the different species is as stated above, but in some specimens of *P. planata*, for instance, one may sometimes find it almost as distinct as in typical *guerini*, and in others almost as faint as in *pocockiana*. The same holds good for *P. guerini*, and to a lesser extent for *P. pocockiana* also. We are, therefore, of the opinion that though this character is useful in a general way, too much reliance cannot be put on it alone.

Within the *guerini* group, *Paratelphusa mccanni* appears to resemble *P. planata* more than the other two species.

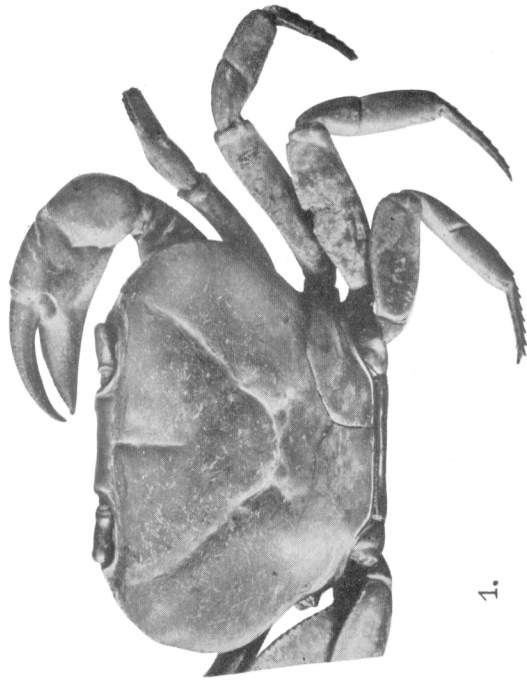
EXPLANATION OF PLATE IV.

Paratelphusa (Barytelphusa) mccanni, sp. nov.

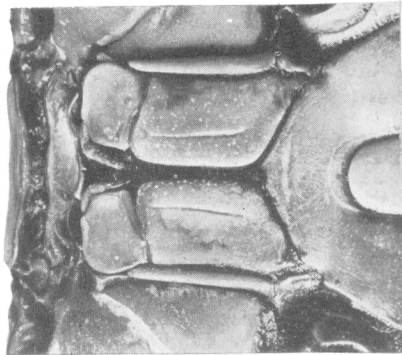
- FIG. 1.—Dorsal view of male specimen : nat. size. The larger cheliped is missing.
- FIG. 2.—Frontal view of same : nat. size.
- FIG. 3.—Ventral view of third maxillipeds of same : $\times 2$.
- FIG. 4.—Terminal abdominal segments of same : $\times 2$.
- FIG. 5.—Large chela of another male specimen : $\times ca. 1.5$.



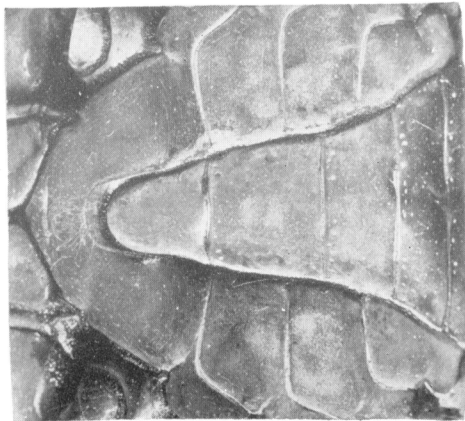
2.



1.



3.



4.



5.

Paratelpusa (Barytelpusa) meccanni, sp. nov.