

margin; this character is presented also by *S. bidens* and *S. guttata*, but never by *S. Dussumieri*. In both species the inner surface of the hands is only faintly granular. The joints of the male abdomen are quite similar in *S. Haswelli* and *S. bidens*; the figure of the latter in the 'Fauna Japonica' may therefore be consulted.

Dimensions of the larger specimen:—

	millim.
Distance between the extraorbital teeth	$17\frac{1}{5}$
Length of the cephalothorax	$13\frac{3}{4}$

Sesarma Haswelli occurs also at Ceylon, and I have little doubt that the specimen recorded by Hilgendorf from that locality belongs to *S. Haswelli* (Crustaceen von Ost-Africa, p. 91, in V. d. Decken's Reisen).

I now add for comparison the distinctive characters of *S. guttata*, which inhabits the eastern coast of Africa. This species is also most closely allied to *S. bidens*, but the tubercles of the upper margin of the mobile finger are larger and more prominent, and the penultimate joint of the male abdomen is comparatively much longer, the proportion of the breadth of its posterior margin to the length being in *S. guttata* as 7 : 5, and in *S. bidens* as 7 : $3\frac{1}{2}$. The prominent tooth near the distal end of the anterior margin of the arm, which in *S. bidens* is very acute, simple, and spiniform, is represented in *S. guttata* by an acute dentiform prominence, which is itself a little denticulate. The second antero-lateral teeth of the cephalothorax are somewhat more prominent in *S. guttata*. In other respects these two forms closely resemble one another.

97. *SESARMA DUSSUMIERI*, *M.-Edw.* (Pl. XII. figs. 8-12.)

Sesarma Dussumieri, *Milne-Edwards, Annales des Sciences Naturelles*, t. xx. 1853, p. 185.

One fine male specimen was collected at Tavoy.

Sesarma Dussumieri was unsatisfactorily characterized by the late H. Milne-Edwards, and it has therefore never been recognized by subsequent authors. It differs more from *S. bidens* than from *Sesarma Haswelli* and *S. guttata*. Except in the abdomen of the male, the joints of which have a different form, the cephalothorax of *Sesarma Dussumieri* resembles that of *Sesarma bidens*. The third joint of the male abdomen, which is the broadest of all, is comparatively shorter in *S. Dussu-*

mieri than in *S. bidens*; the fourth joint is also comparatively shorter and appears therefore more enlarged in this species than in de Haan's; the fifth joint has nearly the same form in both species. The penultimate joint, however, in *S. Dussumieri* is comparatively much longer than in *S. bidens*, the proportion of the breadth of the posterior margin to the length of the joint being as $7 : 4\frac{1}{2}$, and in *S. bidens* as $7 : 3\frac{1}{2}$; this joint, moreover, is more narrowed towards the terminal segment, the breadth of the posterior margin being in proportion to the breadth of the anterior margin as $7 : 3$, but in *S. bidens* as $7 : 4$. The lateral margins of this joint are also a little more rounded than those of *S. bidens*. The terminal joint is comparatively longer in *S. Dussumieri* than in *S. bidens*.

The anterior legs or chelipedes of *S. Dussumieri* are very distinctive of the species, and are, as in *S. bidens*, equal to one another. The upper margin of the arm of *S. bidens* terminates at the distal end in a short acute tooth, which is not found in *S. Dussumieri*. In the species of the 'Fauna Japonica' the anterior margin of the merus-joint is armed with a simple, strong, acute spine, but in *S. Dussumieri* this spine is represented by a prominent triangular tooth, the margins of which are denticulate.

In the general appearance of the hands and the proportion between the length of the fingers and of the palm, this species is very similar to *S. bidens*. The hands, however, present the following distinctive characters:—the outer surface of the palm and of the fingers in *S. Dussumieri* is more convex than in *S. bidens*, and the outer surface of the immobile finger is convex and quite smooth; whereas in *S. bidens*, *S. Haswelli*, and *S. guttata* it is flattened or even very slightly concave, somewhat granular and bordered below by a slight ridge-like elevation, parallel to the under margin. The outer surface of the palm is granular, as in *S. bidens*, but the granules gradually disappear towards the base of the immobile finger. In *S. Dussumieri* the inner surface of the palm is much more granular than in all the other species of this section, presenting many prominent, acute, subspiniiform granules of different sizes, the largest of which are found about the middle of the inner surface. The two pectinated ridges are a little longer and somewhat more oblique in this species than in *S. bidens*, and when the hands are in the ordinary position of rest, lying close to the cephalothorax, these ridges lie in a transverse direction,

parallel to the frontal margin; in *S. bidens*, *S. Haswelli*, and *S. guttata*, on the contrary, they appear to be directed obliquely, forming an angle with the frontal margin, when the hands are in the same position. The distal row is composed of 18–22 teeth, the other of a somewhat smaller number. The mobile finger is less granular externally than in *S. bidens*, presenting some granules only at the base; it is covered on its upper margin with a row of 12 or 13 transverse prominences, which differ much in form from those of *Sesarma bidens* and *S. guttata*. They are scalariform, and closely resemble those of *S. Haswelli*, each prominence being flattened above and more or less declivous at its distal margin; in *S. Dussumieri*, however, they are comparatively larger than in *S. Haswelli*, as well as fewer in number. The granules on the proximal half of the finger, at the inner side of the row of prominences, are more acute in *S. Haswelli* than in the other species, and nearly subspiniiform. The inner surface of the mobile finger is smooth, that of the immobile finger rather granular.

The ambulatory legs resemble closely those of *Sesarma bidens*, but the dactylopodites are a little longer in proportion to the propodites, the proportion of the propodites to the dactylopodites of the penultimate pair being in *S. Dussumieri* as 8 : 7, in *S. bidens* as 8 : 6.

Dimensions :—

	millim.
Distance between the extraorbital teeth	21 $\frac{1}{3}$
Length of the cephalothorax	18 $\frac{1}{3}$

In a typical specimen from the Paris Museum these numbers are respectively 30 and 25 $\frac{1}{2}$.

Sesarma Dussumieri has hitherto been recorded from Bombay; it thus inhabits the northern part of the Indian Ocean.

98. *SESARMA LIVIDA*, *A. M.-Edw.*

Sesarma lividum, *Alph. Milne-Edwards, Nouv. Archives du Muséum Hist. Nat. t. v. Bulletin*, p. 25 (1869), and t. ix. p. 303, pl. xvi. fig. 2 (1873).

Seven young male specimens were collected—three from the mangrove-swamps at Zediwon, one from Kisseraing, and three specimens elsewhere. These I refer with some doubt to this species.

Sesarma livida is the fifth species of this section of the genus, and has hitherto been known only from the seas of New Caledonia. It is closely allied to the four other representatives of this section mentioned above. Its cephalothorax resembles so

closely that of the other species, that it is scarcely possible to distinguish between them. The principal characters by which it differs from the other species are found in the anterior legs and more especially in the hands.

In *S. livida* the fingers are comparatively shorter in proportion to the palm, the latter being more developed. The proportion of the horizontal length of the fingers to that of the palm, measured at the lower margin, is in *S. livida* as 10 : 11, in *S. guttata* as 10 : $9\frac{1}{2}$, in *S. Haswelli* as 10 : 9, in *S. bidens* and in *S. Dussumieri* as 10 : 8. In *Sesarma livida* the immobile finger is thus shorter than the length of the lower margin of the palm; in the four other species the latter is shorter than the immobile finger.

The anterior margin of the arm presents a strong, simple, acute, and triangular tooth; and the upper margin of the immobile finger is covered with a longitudinal row of 10–11 low and somewhat scalariform prominences. As regards the form of the male abdomen, *S. livida* completely agrees with *S. bidens*.

The Mergui specimens agree very well, in the form of the cephalothorax and the shape of the male abdomen, with the adult typical specimen of *S. livida* in the Paris Museum. The legs, however, are slightly different. Thus the spine of the anterior margin of the arm has a somewhat different form from the New-Caledonian type, in which the anterior (distal) margin of the spine makes a rather obtuse angle with the distal part of the anterior margin of the arm, lying beyond the spine, whereas in the Mergui examples the angle so formed is nearly a right angle, as in *S. bidens*. The fingers are shorter than the palm, the above-defined proportion being as 10 : 12. The upper margin of the mobile finger presents only seven slightly prominent elevations, which seem to have a different structure from those of the New-Caledonian type specimen. The outer surface of the immobile finger is also a little more flattened than in the latter, and the meropodites of the ambulatory legs are somewhat more enlarged. Perhaps a careful examination of adult specimens of the Mergui species will prove it to be distinct from the New-Caledonian *Sesarma livida*.

Dimensions of the largest specimen : —

	millim.
Distance between the extraorbital teeth	$16\frac{3}{4}$
Length of the cephalothorax	13

SECTION D.—*Sesarmæ* the cephalothorax of which is armed with one or two epibranchial teeth behind the extraorbital tooth, and in which the palm of the anterior legs of the male is not armed with two oblique, parallel, minutely pectinated ridges.

This Section is represented in the Indo-Pacific Region by a rather large number of species, some of which it is difficult to distinguish.

99. *SESARMA TÆNIOLATA*, *White*.

Sesarma tæniolata, *White*, *List Crust. Brit. Mus.* p. 38 (1847); *Miers*, *Crustaceans from Duke-of-York Island*, *Proc. Zool. Soc.* 1877, p. 137 (footnote).

Sesarma tæniolata, *de Man*, *Notes from the Leyden Museum*, vol. ii. p. 26.

Sesarma Mederi, *Milne-Edwards*, *Ann. Sci. Nat.* t. xx. p. 185 (1853).

Three fine male specimens were collected. In all these examples the upper surface of the cephalothorax is densely covered with small tufts of hairs.

Sesarma tæniolata, *White*, is closely allied to *Sesarma Lafondi*, *Hombr. & Jacq.*, the cephalothorax and the ambulatory legs in both species being similar. The former, however, may be distinguished at first sight by the longitudinal pectinated ridge on the upper margin of the palm of its chelipedes, and by the occurrence of a longitudinal transversely striated ridge on its mobile finger. These two species differ from many other species of this section, in which the distance between the extraorbital teeth is greater than the length of the cephalothorax (as, *e.g.*, from *S. tetragona*, *S. rotundifrons*, *S. intermedia*, *S. sinensis*), by the upper margin of the arms of their anterior legs terminating in a strong acute tooth at its distal end, and by the anterior margin being armed with a prominent denticulated tooth. *S. tæniolata* serves to connect this section of the genus with the preceding, as the upper margin of the palm of the anterior legs is furnished with only a single pectinated ridge.

A careful examination of a typical specimen of *S. Mederi* in the Museum of Paris convinced me that this species is identical with *S. tæniolata*, *White*. Although the latter name has priority, the first description of this species was published by *Milne-Edwards*.

I have elsewhere pointed out that specimens of this species in the Leyden Museum had been labelled, by the author of the 'Fauna Japonica,' *Grapsus* (*Pachysoma*) *fascicularis* and *S. tetragona*, whereas these forms are perfectly distinct.

Sesarma tæniolata has been collected on the Philippine Islands, and in the seas of Celebes, Java, and Borneo.

100. *SESARMA INTERMEDIA*, de Haan.

Grapsus (*Pachysoma*) *intermedius*, de Haan, *Fauna Japonica*, Crust. p. 61, pl. xvi. fig. 5.

Sesarma intermedia, Milne-Edwards, *Ann. Sci. Nat.* 3^e série, t. xx. p. 186; de Man, *Notes from the Leyden Museum*, vol. ii. p. 25.

Thirteen very young specimens were collected (7 ♂, 6 ♀), nine of which were captured in the mangrove-swamps of Zediwon.

Sesarma intermedia, de Haan, and *S. sinensis*, M.-Edw., are two closely allied species inhabiting the same seas. Perhaps they may prove to be identical. I have before me a typical specimen of *S. sinensis*, M.-Edw., from the Paris Museum; but I have not been able to compare the Mergui specimens with the unique type of *S. intermedia* in the Leyden Museum, as the rules of the Museum did not admit of its being sent to me. The thirteen specimens undoubtedly belong to a different species from *S. sinensis*, and I am inclined to regard them as representatives of *S. intermedia*.

Sesarma intermedia and *S. sinensis* are to be placed along with those species of this section in which the distance between the extraorbital teeth is greater than the length of the cephalothorax, and in which the upper and anterior margins of the arms of the anterior legs are unarmed; they are therefore allied to *Sesarma tetragona*, M.-Edw., and *S. rotundifrons*, but they may be distinguished by their less enlarged, more quadrate, and more depressed cephalothorax.

The cephalothorax completely resembles that of *S. sinensis*; it is nearly quadrate, the proportion of the distance between the extraorbital teeth to the length being as 9:8 in both species; the upper surface is rather depressed, and the lateral margins are parallel to one another. The front, however, is a little narrower in *S. sinensis*, the proportion of the distance between the extraorbital teeth to the breadth of the front being as 11:6, and in these specimens as 11:7. As regards the form

of the joints of the male abdomen, the Mergui specimens perfectly agree with the figure in the 'Fauna Japonica.' Both species, however, may be distinguished by the form of the hands and of the ambulatory legs. The hands of these specimens closely resemble those of *S. tetragona*, M.-Edw. (*nec* Fabr.), the proportion of the length of the fingers to that of the palm, measured at the lower margin, being in both species as $17\frac{1}{2} : 13$, whereas in *S. sinensis* the numbers are respectively $17\frac{1}{2} : 9\frac{1}{2}$. In *S. sinensis* the fingers, therefore, are much longer in proportion to the size of the palm. The inner surface of the palm is armed with a transverse granulated crest, as in *S. sinensis*; the outer surface is also granular in both species, and the outer surface of the fingers is quite smooth. The upper margin of the mobile finger is somewhat granular at the base, but the rest is quite smooth; in *S. sinensis* this finger is also somewhat granular on its upper margin.

The ambulatory legs also present a good character for distinguishing both species. In *S. sinensis* the meropodites are slender, those of the first pair being three times as long as broad, whereas in the Mergui specimens they are enlarged, those of the first pair being scarcely twice as long as broad.

In other respects these two *Sesarmæ* closely resemble each other.

Dimensions of the largest specimen:—

	♂ millim.
Distance between the extraorbital teeth	$13\frac{2}{3}$
Length of the cephalothorax	$11\frac{2}{3}$
Breadth of the front, measured between the eyes..	$8\frac{2}{3}$

Sesarma intermedia has been recorded from Japan, Hong-kong, Shanghai, and from the coast of Java.

101. *SESARMA*, n. sp.? (Pl. XII. figs. 13-15.)

There is in the collection a small *Sesarma* from Tavoy, which I suppose to be new, but I hesitate to name it as it is an extremely young individual.

It is closely allied to *S. intermedia* and *S. sinensis*, but is distinguished from them by the occurrence of an acute spine on the anterior margin of the arms of the first pair of legs.

The cephalothorax appears to be scarcely more enlarged than that of *S. intermedia*, the proportion of the distance between

the extraorbital teeth to the length being as $9 : 7\frac{1}{2}$; it is, therefore, nearly quadrate. The upper surface is rather depressed as in *S. intermedia* and *S. sinensis*, and is smooth, glabrous, and shining, the interregional grooves being almost obsolete; the epigastric and the protogastric lobes are, however, marked with a few short and small impressions, as in many other species of this genus. The lateral margins are parallel to one another, and present a small, little prominent, epibranchial tooth behind the extraorbital tooth. Laterally, the upper surface presents the ordinary oblique, elevated lines. The front is similar to that of *S. sinensis*, and is vertically deflexed; the proportion of the distance between the extraorbital teeth to the breadth of the front, measured between the eye-peduncles, is as $11 : 6$, it is consequently a little broader than half the distance between the extraorbital teeth. The anterior margin is slightly emarginate in the middle, and the four postfrontal lobes are nearly equal to each other, and, being little prominent, they do not hide the anterior margin, when the carapace is looked at from above. The penultimate joint of the male abdomen (fig. 14) has a different form from that of *S. intermedia*, being comparatively much longer in proportion to its breadth.

The legs very closely resemble those of specimens of *S. intermedia* of equal size, but the following distinctive characters occur. The anterior margin of the arms is armed with a strong acute spine, which is denticulated along its margins. The outer surface of the hands is somewhat granular on its proximal half; the upper margin of the palm presents two or three oblique, minutely-granulated lines, but no trace of pectinated ridges. The convex, slightly granular, inner surface of the palm presents no trace of the granulated crest found in *S. intermedia*. The fingers are smooth externally as well as internally; the upper margin of the mobile finger is also smooth, but a row of nine or ten small red spots may be observed on it, which may perhaps become small tubercles at a more advanced age. The ambulatory legs agree with those of *S. intermedia*. The specimen is preserved in alcohol, and the upper surface of the cephalothorax of a dark greenish colour, the anterior legs being yellowish and the ambulatory legs greyish. The distal ends of the propodites are, however, marked with a fine violet colour, and the upper surface of the carpopodites and of the hands of the chelipeds are beautifully marked with small red spots.

	millim.
Distance between the extraorbital teeth	11 $\frac{3}{4}$
Length of the cephalothorax	9 $\frac{3}{4}$
Breadth of the front	6 $\frac{1}{2}$

102. *SESARMA EDWARDSI*, n. sp. (Pl. XIII. figs. 1-4.)

I have much pleasure in dedicating this new species to Prof. A. Milne-Edwards, by whose kindness I have been enabled to study many typical specimens of this difficult genus preserved in the Paris Museum.

The collection contains 58 specimens of this species. Forty specimens were collected on Sullivan Island, and of these 29 were obtained in fresh and brackish water, and eleven from underneath stones on a hillside above a stream. Four of the individuals found in water were infested with *Sacculinæ*. Four specimens were obtained in Elphinstone Island. The labels which accompanied the twelve remaining specimens have been lost.

This species, together with its variety *crassimana*, belongs to the division of this section of the genus in which the distance between the extraorbital teeth is greater than the length of the cephalothorax, and in which the cephalothorax is scarcely convex longitudinally, and has its lateral margins completely parallel. The upper margin of the arms of the anterior legs does not terminate in an acute tooth, and the anterior margin is never armed with a spine. *Sesarma Edwardsi* is therefore closely allied to *Sesarma intermedia*, de Haan, and to *S. sinensis*, M.-Edw.; it may, however, be distinguished by the form of the male abdomen, which is much more enlarged, and by the structure of the anterior legs, the carpopodite being armed, at the internal angle of the upper surface, with a short, acute, depressed tooth, which is not found in *S. intermedia* and *S. sinensis*, and by the inner surface of the palm never presenting a transverse granulated ridge.

The cephalothorax completely resembles that of *S. sinensis*, in the proportion of the distance between the extraorbital teeth to the length of the cephalothorax, and in the proportion of the distance between the extraorbital teeth to the breadth of the front, the former being as 9 : 8, and the latter as 11 : 6, in both species. Sometimes the latter proportion is as 11 : 6 $\frac{1}{3}$, but this is an individual variation. The upper surface is as little convex as that of *S. sinensis*, and presents quite the

same structure. The interregional grooves are rather well indicated, and the whole upper surface is punctate and marked, especially anteriorly, with numerous transverse, piliferous rugosities. The front is a little broader than half the distance between the extraorbital teeth, is somewhat granulated, nearly vertically deflexed downwards, and presents a horizontally prominent anterior margin. In *S. sinensis* this margin is widely emarginate in the middle, and the lateral lobes are rounded; in this new species the median sinus is equally deep, but a little narrower, and the lateral lobes are sinuous or slightly emarginate. The four epigastric (or postfrontal) lobes are as prominent as in *S. sinensis*, and separated from one another by rather deep incisions; the internal lobes are a little broader than the external, and do not hide the frontal margin when the carapace is viewed from above. The lateral margins are perfectly parallel to one another, as in *S. sinensis*. A small second (epibranchial) tooth is present behind the extraorbital tooth, but there is no trace of a third. The upper surface as usual is marked, laterally, with many oblique lines.

The male abdomen has a very characteristic form (fig. 2), being unusually enlarged. In its outer appearance it closely resembles the abdomen of *S. picta*, 'Fauna Japonica,' Crust. pl. xvi. fig. 6, but is a little more enlarged. The terminal (=seventh) joint is a little longer than broad at the base; the penultimate joint is extremely enlarged, its posterior margin being even a little broader than three times the length of the joint, which is a little shorter than the terminal joint; the next joint is but little longer, though still broader; the fourth and the third joint are a little shorter than the fifth, and still more enlarged; and the very short second joint is a little longer than the first, being contiguous to the posterior margin of the cephalothorax. Unfortunately the condition of the Paris typical specimen of *S. sinensis* makes it impossible for me to study the form of the abdomen; but the abdomen of *S. intermedia* is much less enlarged than that of this species, and presents a quite different form.

The anterior legs are very similar to those of *S. intermedia*. They are equal to one another, both in the male and in the female, and in the latter they are a little smaller than in the former. Sometimes in male specimens of equal size the anterior legs are of a different size.

The ischiopodites are armed anteriorly with a small, acute, dentiform tubercle. The upper margin of the arms does not, or only indistinctly, terminate in an acute tooth or spine at the distal end; the anterior margin is more or less dilated distally, according to the individuals, and it often presents a small denticulate prominence, as in *S. tæniolata* and in *S. Lafondi*, but never a spine. The under margin of the arm is minutely tubercular. The external surface of this joint is transversely rugose, but the inner and under surfaces are perfectly smooth, the former presenting the ordinary rows of hairs. The upper surface of the wrist is tubercular and armed, at its internal angle, with a short, acute, denticulate, depressed tooth, both in the male and in the female; this tooth is quite absent in *S. sinensis* and *S. intermedia*, and it is therefore a good character for distinguishing these species.

The hands of the male are very similar to those of *S. intermedia*. They are a little more than once and a half as long as high, and the proportion of the (horizontal) length of the fingers to the palm is nearly as $17\frac{1}{2} : 15$, the fingers being comparatively shorter in this species than in *S. sinensis*. The palm has a convex outer surface, and is everywhere closely covered with smooth granules; these granules appear a little smaller towards the rounded under surface of the hands, and some of them are arranged in a rather indistinct oblique row, about the middle of the outer surface, as in *S. sinensis*, *S. intermedia*, *S. tæniolata*, and *S. tetragona*, M.-Edw. Near the upper margin the granules are a little more acute, but the rest of the upper margin of the palm is quite similar to the outer surface, presenting no trace of pectinated ridges. The convex inner surface of the palm is covered with a few small, acute granules, but it has never the transverse granulated crest which characterizes *S. sinensis* and *S. intermedia*. The outer and the inner surfaces of the fingers are minutely punctate, but the rest is quite smooth; the upper margin of the mobile finger is covered with very small acute teeth or granules, which are arranged irregularly until some distance from the tip. Similar small acute teeth occur also on the under margin of the immobile finger. The tips of the fingers are scarcely excavated, and their inner margins are rather feebly denticulate.

As I have already observed, the hands of some male specimens are smaller than those of other specimens of an equal size. In

such specimens they are a little more elongated, being precisely twice as long as broad, and the fingers are a little longer in proportion to the length of the palm; in other respects the hands of these male specimens perfectly agree with those of the type.

The hands of the female are smaller than those of the male, and closely resemble those of the foregoing variety. The hands of the female are a little more than twice as long as high, and the fingers are a little longer in proportion to the palm than in the male; otherwise they present the same structure.

The ambulatory legs are similar to those of *S. intermedia*, the joints being enlarged, whereas in *S. sinensis* they are much more slender. Thus the meropodites of the first pair are not quite twice as long as broad, the proportion of the length of these joints to their breadth (near the distal end) being as 11:6. The other joints also completely resemble those of *S. intermedia*. The dactylopodites are somewhat spinulose and hairy along their inner (=posterior) margins.

Dimensions of the largest specimens:—

	♂ millim.	♀ millim.
Distance between the extraorbital teeth ..	20 $\frac{1}{3}$	19 $\frac{1}{2}$
Length of the cephalothorax (the front included)	18 $\frac{2}{3}$	17 $\frac{1}{3}$
Breadth of the front, measured between the eyes	11 $\frac{3}{4}$	10 $\frac{3}{4}$

Sesarma Edwardsi is evidently a common species. It is most closely allied to *S. intermedia*, but may be recognized by the enlarged abdomen of the male, and by the structure of the chelipedes, the wrist being armed with a small, acute, depressed tooth at the internal angle, and the inner surface of the palm being not armed with a transverse granular crest.

102 a. *SESARMA EDWARDSI*, var. *CRASSIMANA*, n. (Pl. XIII. figs. 5–6.)

The collection contains eight specimens (5 ♂, 3 ♀) of a *Sesarma* collected on the mangrove-swamps of Zediwon, which I regard as a variety of the preceding species. These specimens differ from the type specimens of *S. Edwardsi*, above described, in the following characters. The front is a little larger, the proportion of the distance between the extraorbital teeth to the

breadth of the front being as 11 : 7 ; the abdomen of the male is a little less enlarged, and therefore completely resembles the abdomen of *S. picta*, as figured by de Haan, the posterior margin of the penultimate joint being a little less than three times as broad as the length of the joint. The hands of the male differ from those of the type by the palm being a little larger in proportion to the fingers, the latter being quite as long as the palm. The hands are a little higher than half their length, the proportion of the latter to the height being as $16\frac{1}{2} : 9\frac{1}{2}$. The inner edges of the fingers are more strongly denticulated, the immobile finger being armed with three rather strong teeth, and with some smaller teeth at the base.

The coloration of the hands is also somewhat different from the type. In the latter the red colour of the palm extends nearly to the tip of the fingers ; but in this variety that colour is found only on the palm and at the base of the mobile finger, the fingers being of a yellowish colour.

Dimensions :—

	♂. millim.
Distance between the extraorbital teeth	$19\frac{1}{4}$
Length of the cephalothorax	$17\frac{1}{4}$
Breadth of the front	$11\frac{3}{4}$

103. *SESARMA POLITA*, n. sp. (Pl. XIII. figs. 7–9.)

Six fine specimens (4 ♂, 2 ♀) of this interesting species were collected at Sullivan Island.

Sesarma polita is one of the small number of those representatives of the genus in which the cephalothorax is longer than broad, and with two teeth behind the extraorbital tooth. It therefore appears to be allied to *S. oblonga*, v. Mart., from the Philippine Islands, and to some other species. In the form of its legs, this species more or less agrees with *S. atrorubens*, Hess, from Sydney, because the anterior legs are short and granular and the meropodites of the ambulatory legs rather slender and not dilated. The dactylopodites are short, thick, tomentose, and not spinulose, as in *S. rotundata*, Hess. Besides these characters *S. polita* may be recognized at first sight by the upper surface of the cephalothorax being extraordinarily flattened and plain.

The rather thin cephalothorax is longer than broad, the pro-

portion of its length to the distance between the extraorbital teeth, in the adult male, being as $30 : 24\frac{1}{2}$. The upper surface, which is as broad anteriorly as posteriorly, is perfectly flattened and even, both longitudinally and transversely, the posterolateral regions being only a little declivous. Except the deep grooves which separate the postfrontal lobes from one another, the cervical and branchiocardiac grooves, there are no grooves on the upper surface. The front is a little broader than half the distance between the extraorbital teeth, the proportion of the latter to the breadth of the front (measured between the eye-peduncles), in the adult male, being as $24 : 14$. The minutely granulated front has its anterior margin widely emarginate in the middle, presenting therefore on each side a slightly prominent and small lobe; sometimes these lobes are minutely denticulated. The postfrontal lobes are separated from one another by rather deep grooves; they are very prominent, and partially hide the front, when the carapace is viewed from above, though the lobes of the anterior margin are still visible in the groove between the external and internal lobes. The internal lobes are a little broader than the external, and all are very denticulate and spinulous on their cristate anterior margins; the upper surface of these postfrontal lobes is armed, moreover, with some small acute teeth or granules, arranged partly in transverse rows. The rest of the upper surface of the cephalothorax is smooth and shining, though minutely punctate when seen under a magnifying-glass; and, especially near the anterior and the lateral margins, in well-preserved specimens, a few very small tufts of short hairs are observed, which in most specimens, however, are rubbed off. The eyes are comparatively small. The lateral margins are nearly straight and parallel, terminating above the bases of the third pair of legs; behind the acute extraorbital tooth two acute teeth are found, of which the anterior is a little smaller than the extraorbital tooth, whereas the posterior is very small. Though the lateral margins are nearly straight, they appear, however, somewhat undulate, especially in the female, the anterior half of the margin being rather convex and the posterior half somewhat concave; the distance between the third pair of lateral teeth surpasses a little the distance between the extraorbital teeth. The sides of the upper surface do not present the oblique elevated lines which occur in most other species. The posterior margin of the carapace

is comparatively narrow, especially in the male, scarcely measuring a third of the distance between the extraorbital teeth.

The third joint of the outer foot-jaws is longer than broad, the proportion of its length to the breadth being as 5:3. In the shape of the male abdomen, this species nearly agrees with *S. tæniolata* or *S. bidens* (de Haan, *l. c.* pl. xvi. fig. 4). The terminal joint is a little longer than broad at the base, the penultimate about one half as long as broad at its base, and the following joints appear successively larger and shorter. In the largest female without eggs, and therefore probably not yet full-grown, the terminal somite of the abdomen is only partially pushed into the penultimate.

The anterior legs are very similar to those of *S. Edwardsi*, but the hands are somewhat more elongate. They are equal to one another, as in *S. tæniolata* and *S. Edwardsi*. The ischiopodites are armed anteriorly with a small acute tubercle near the articulation with the arm. The anterior margin of the latter is armed with some acute tubercles and with a somewhat larger acute tooth a little before its distal end; the upper margin is transversely rugose, and the inferior margin is armed with some acute tubercles. The outer surface of the arm is transversely rugose, but the inner and the under surfaces are quite smooth, the former being provided with the usual rows of hairs. The upper surface of the wrist is covered with granules and with minutely granulated oblique lines, and many small acute tubercles are seen along the inner margin. The hands are about twice as long as high, and the fingers are a little shorter than the palm. The convex outer surface of the latter is everywhere covered with small, more or less acute tubercles, which change into minutely granulated, oblique, elevated lines towards the articulation with the wrist. Similar granules are found also on the upper surface of the palm, and the inner margin of its upper surface is armed with some small acute tubercles, of which the distal one, placed near the articulation of the thumb, is somewhat larger and dentiform. The convex inner surface of the palm is granular, but never presents a granulated crest. There is no gap between the fingers, which have a smooth, though somewhat punctate outer surface. The mobile finger is but little arcuate, and its upper surface is armed with many small acute tubercles or teeth, which are found also on the under surface of the index; the fingers, which are slightly excavated before their

pointed tips, therefore agree with those of *S. Edwardsi*, but they are less strongly denticulated along their inner margins, presenting only some small teeth, of which the basal ones are a little larger than the others. The chelipedes of the female have quite the same form and structure as those of the male.

The ambulatory legs seem closely to resemble those of *S. atropubens*, Hess (Hess, Beiträge zur Kenntniss der Decapodenkrebse Ost-Australiens, 1865, Taf. vi. fig. 12), but the dactylopodites are very short, thick, and tomentose, resembling those of *Sesarma rotundata*, described by the same author. The meropodites are rather slender, being about three times as long as broad; their anterior margin is armed with an acute spine at the distal end, and their outer surface presents a few very small, scattered granules, except on the meropodites of the last pair. The posterior margin of these joints appears entire, except in the first two pairs of legs, in which these margins are a little denticulate near their distal end, somewhat as in *S. rotundata*. The outer surface of the other joints is smooth.

The carpopodites and the propodites have about the same length in the first and in the last pair of ambulatory legs, but the latter are a little longer than the former in the ambulatory legs of the second and third pair. The dactylopodites are very short, thick, and closely tomentose, but not at all spinulose, and they terminate in an acute point; they are much shorter than the propodites, those of the penultimate pair of legs measuring scarcely two thirds of the length of the propodites.

The meropodites bear a few scattered hairs along their posterior margins; the propodites are a little more hairy, and present a tuft of hairs along the distal half of their posterior margins, and the dactylopodites also are clothed with some longer hairs among the short down which is found on their anterior and posterior margins.

Dimensions of the largest specimen :—

	♂ millim.	♀ millim.
Distance between the extraorbital teeth	24 $\frac{1}{3}$	23 $\frac{1}{4}$
Length of the cephalothorax	30	27 $\frac{1}{2}$
Breadth of the front between the eyes	14	13 $\frac{3}{4}$
Breadth of the posterior margin of the carapace	8 $\frac{1}{2}$	9 $\frac{1}{2}$
Length of the meropodites of the last pair of legs	15	14

	♂. millim.	♀. millim.
Length of the dactylopodites of the last pair of legs	7	6 $\frac{2}{3}$
Length of the hands	21	18 $\frac{1}{2}$
Length of the penultimate joint of the male abdomen	4 $\frac{1}{4}$	

104. *SESARMA KRAUSSI*, n. sp. (Pl. XIV. figs. 1-3.)

Sesarma longipes, White, *List of the Specimens of Crustacea in the Collection of the British Museum, London, 1847*, p. 39 (*nec Krauss*).

A single male specimen was found at the island of Kisseraing. This species is most closely allied to *Sesarma longipes*, Krauss, from the seas of Natal, and represents it in the Bay of Bengal, the two differing from each other only in subordinate characters. It will therefore be sufficient if I refer to Krauss's description and figure of *Sesarma longipes* (*Die Südafrikanischen Crustaceen, Stuttgart, 1843*, p. 44, Taf. iii. fig. 2), and point out the distinctive characters of the new form.

The anterior margin of the front, which is nearly straight in *S. longipes*, presents a rather deep median sinus in the Indian species. In *S. longipes* a single tooth is found behind the external orbital angle, but in *S. Kraussi* two teeth are observed behind the extraorbital tooth, the posterior one being very small. The penultimate joint of the male abdomen in *S. Kraussi* is a little longer in proportion to the breadth than in *S. longipes*. The hands of the male are of somewhat different size, the left being the larger. The outer surface of the palm is almost perfectly smooth, but a few minutely granulated lines occur close to the articulation with the wrist; two or three similar lines may also be observed on the upper margin of the palm, but the convex inner surface is nearly smooth, only three or four small tubercles being present near the middle. The fingers have pointed tips; the upper margin and the outer surface of the mobile finger are perfectly smooth, but the outer surface of the index is armed with a longitudinal row of 8-10 small, acute tubercles, with some minute hairs between them, the row proceeding from the base of the finger to near its horny tip. This row of acute tubercles occurs along the middle of the external surface of the index, whilst in *S. longipes* it occurs on the under margin of the finger. Each finger is armed along its inner

margin with a somewhat larger tooth at the base, and with some smaller teeth.

Both species, when compared together, may be readily distinguished by the ambulatory legs of *S. Kraussi* being longer than those of the African form. The penultimate pair of ambulatory legs in *S. Kraussi* are about four times as long as the distance between the extraorbital teeth of the carapace, but in *S. longipes* only three times. The joints of these legs are more slender and more elongate than in the African species; and thus the meropodites of the last pair of legs are about thrice as long as broad, whereas in *S. longipes* they are little more than twice as long as broad. So also the propodites of the penultimate pair of legs, the longest of all, are in *S. Kraussi* about five times, but in *S. longipes* only three times as long as broad. The dactylopodites are also more elongate than in the species described by Krauss. The whole upper surface of its carapace is rather coarsely punctate; near the greatly divergent lateral margins it is somewhat hairy, and the sides are marked with a few oblique, elevated, slightly hairy lines, the foremost terminating at the anterior epibranchial tooth. The postfrontal lobes are but little prominent, and do not hide the front, when the carapace is looked at from above; the median groove is very deep, as in *S. longipes*, and the cristate internal lobes are scarcely distinct from the much smaller external ones. The upper surface of the postfrontal lobes is transversely rugose.

Dimensions of the male:—

	millim.
Distance between the external orbital angles.....	13 $\frac{4}{5}$
Length of the carapace (with the front)	13 $\frac{1}{5}$
Breadth of the front, between the eye-peduncles ..	6 $\frac{1}{4}$
Breadth of the posterior margin of the cephalothorax between the basipodites of the last pair of legs ..	9 $\frac{1}{2}$
Length of the larger hand.....	11
Length of the first pair of ambulatory legs, the shortest of all	29
Length of the third pair of ambulatory legs, the longest of all	52
Length of the fourth (or last) pair of ambulatory legs	32
Length of the propodites of the longest pair of legs	12

Length of the dactylopodites of the longest pair of ^{millim.}
 legs $10\frac{1}{2}$

S. Kraussi has been recorded by White from Singapore as *S. longipes*. *S. angustifrons*, from the Sandwich Islands, is a distinct species, being distinguished, according to A. Milne-Edwards, by the inner surface of the hands being armed with a strong transverse crest.

Genus CLISTOCÆLOMA, *Alph. M.-Edw.*

This genus hitherto contained a single species, described by M. Alph. Milne-Edwards, from the shores of New Caledonia. The Mergui collection contains a small species which certainly belongs to the same genus. The *Clistocælomæ* are closely allied to the *Sesarmæ* proper, but may be distinguished by the shape of the carapace, the antero-lateral margins of which are peculiarly compressed and toothed, and by their external antennæ being excluded from the orbits.

105. CLISTOCÆLOMA MERGUIENSIS, n. sp. (Pl. XIII. fig. 10.)

A single female specimen, without eggs, was collected at Kisseraing Island.

This new form differs from *C. Balansæ* by its comparatively more enlarged carapace and by the form of the front, the external lobes of which are undivided. The rather thin cephalothorax is much broader than long, the proportion of the distance between the external orbital angles to the length of the carapace being as $9:7\frac{1}{2}$ (in *C. Balansæ* as $9:8\frac{4}{7}$). The upper surface is a little convex transversely, and the regions are tolerably distinct, although separated by rather shallow grooves; the whole surface is covered with a short, close down, and appears minutely punctate when seen under a strong magnifying-glass. The front is broad, as in *C. Balansæ*, and vertically deflexed; the anterior margin is slightly emarginate in the middle, but does not project horizontally. The postfrontal lobes are little prominent and separated by shallow grooves; the rounded internal lobes are a little broader than the external, which are still less prominent and not divided into two tuberculiform prominences as in *C. Balansæ*.

The anterior half of the lateral margin of the cephalothorax

is dentate, extends transversely a little more outward than the equally long posterior portion, and is somewhat compressed; both portions are parallel to one another. The antero-lateral portion being twice emarginate, two teeth are observed behind the obtuse external orbital angle; these teeth have the same size and shape as the extraorbital tooth, being obtuse and rounded. A small tubercle lies nearly on the middle of each postero-lateral region. The pterygostomian regions are reticulated as in *Sesarma*. The third joint of the outer foot-jaws is oval, being scarcely longer than broad. The terminal somite of the abdomen of the female is only partially pushed into the penultimate segment, at least in the specimen before me.

Having no male individuals I cannot describe the chelipedes of that sex; but in the female specimen they are small and equal to one another. They are everywhere clothed with the same down as is found on the upper surface of the carapace, and they are quite unarmed; the convex outer and inner surfaces of the hands are smooth, though rather coarsely punctate, and the upper margin of the palm is armed with a longitudinal crest. The fingers are smooth; the upper margin of the mobile finger is punctate, and both fingers are armed with five or six small teeth which terminate in pointed horny tips.

The ambulatory legs are similar to those of *C. Balansæ*; they are unarmed, covered with a close down, and are somewhat hairy, but the slender, little arcuate dactylopodites are unarmed and scarcely hairy, and gradually taper into a very acute point.

Dimensions of the single specimen:—

	♀. millim.
Distance between the extraorbital teeth	$8\frac{3}{4}$
Length of the carapace	$7\frac{1}{3}$
Breadth of the front	$5\frac{1}{2}$

Subtribe *Oxystomata*.

Family CALAPPIDÆ.

Genus CALAPPA, *Fabr.*

106. CALAPPA PHILARGIUS, *L.*

Calappa (Lophos) philargius, *de Haan, Fauna Japonica, Crustacea*, p. 71, tab. xix. fig. 1.

Cancer philargius, Linné, *Mus. Lud. Utr.* p. 432.

Cancer inconspicuous, *Herbst, Krabben und Krebse*, t. ii. p. 162, Taf. xl. fig. 3.

Calappa cristata, *Fabricius, Suppl. Entom.* p. 346.

Calappa cristata, *Milne-Edwards, Hist. Nat. Crustacés*, t. ii. p. 105, pl. xx. fig. 1.

Two almost adult specimens (♂ ♀) and a very young one were collected.

Calappa philargius inhabits the Indian Ocean (Ceylon), and the Chinese and Japanese seas.

107. *CALAPPA GALLUS*, *Herbst*.

Cancer gallus, *Herbst, Krabben und Krebse*, p. 46, pl. lviii. fig. 1.

Calappa gallus, *Milne-Edwards, Hist. Nat. Crustacés*, t. ii. p. 105.

A single male specimen was found at King Island Bay.

Calappa gallus has been recorded from Mauritius, the Philippine Islands, and New Caledonia.

Family LEUCOSIIDÆ.

Genus LEUCOSIA, *Fabr.*

108. *LEUCOSIA URANIA*, *Herbst*.

Cancer urania, *Herbst, Krabben und Krebse*, iii. tab. lxii. fig. 3.

Leucosia urania, *Milne-Edwards, Règne Animal de Cuvier, Crust.* pl. xxv. fig. 1.

Leucosia urania, *Bell, Monograph of the Leucosidæ, Trans. Linn. Soc.* vol. xxi. 1855, p. 283.

? *Leucosia longifrons*, *de Haan, Fauna Japon.* p. 132, tab. xxxiii. fig. 4.

? *Leucosia neocaledonica*, *A. Milne-Edwards, Nouv. Arch. du Muséum*, t. x. p. 40, pl. ii. fig. 1.

? *Leucosia pulcherrima*, *Miers, On the Oxystomatous Crustacea, Trans. Linn. Soc. ser. ii. Zool.* vol. i. p. 236, pl. xxxviii. figs. 4-6.

? *Leucosia ornata*, *Miers, l. c.* p. 236, pl. xxxviii. figs. 7-9; see also *de Man, Notes from the Leyden Museum*, vol. iii. p. 123.

A single female specimen was collected.

The cephalothorax is $17\frac{1}{3}$ mm. long and 16 mm. broad. The upper surface is only sparsely punctate on the front and towards the antero-lateral margins; there are five distinct tubercles in the cavity of the thoracic sinus. The coloration perfectly agrees with Bell's description.

Some time ago when remarking on this species, I pointed out that *L. neocaledonica*, A. M.-Edw., is identical with *L. longifrons*,

de Haan, and suggested that these supposed species were also identical with *L. pulcherrima*, Miers, and with *L. urania*, Herbst. To these synonyms I would now add *L. ornata*, Miers, from Ceylon, which is especially distinguished by its carapace being more strongly punctate. This character, however, may prove to be variable in the same way as the granulation of the carapace in some other species of Leucosiidæ (e. g. in *Philyra scabriuscula*) is variable.

Leucosia urania inhabits the Indian Ocean, the Chinese and Japanese seas, and occurs also on the shores of New Caledonia.

Genus PSEUDOPHILYRA, Miers.

109. PSEUDOPHILYRA HÆDTII, de Man.

Pseudophilyra Hædtii, de Man, *Notes from the Leyden Museum*, vol. iii. 1881, p. 125.

? *Leucosia pubescens*, Miers, *Trans. Linn. Soc. ser. ii. Zool. vol. i.* p. 238, pl. xxxviii. figs. 22-24 (1877).

A young male specimen was collected in the Mergui Archipelago, which I refer with some doubt to *Pseudophilyra Hædtii*, described by me five years ago from two specimens captured on the coast of Amboina.

It differs from the type specimens of *P. Hædtii*, one of which I have before me, in the following characters:—The external angles of the posterior margin of the cephalothorax are not rounded, but rather acute, dentiform, and slightly prominent. Stimpson many years ago proved this to be a youthful character of the Leucosiidæ (*Proc. Acad. Nat. Sci. Philad.* 1858, p. 159, *Leucosia vittata*).

The hepatic regions are slightly more concave, so that the anterior half of the cephalothorax is a little more produced than in the type specimen of *P. Hædtii*, and the outer foot-jaws are comparatively a little more elongate, the merus-joints and the palps being a little longer and more slender in proportion to the ischial joints. The anterior legs are scarcely longer than the cephalothorax, whereas, in the adult type specimens, they are about once and a half as long; they present, however, the same distinctive characters.

I presume that these differences are to be ascribed to the youthful state of the specimen; but a careful study of a large series of individuals can alone decide this question.

Having re-examined the type specimen of *P. Hædtii*, de Man,

it seems extremely probable to me that *P. pubescens*, Miers, from Western Australia, is identical with this species. Miers describes the thoracic sinus of *P. pubescens* as having "its anterior margin smooth, not beaded and not defined at either extremity, and having its cavity above the base of the anterior legs filled with a short close pubescence," a description which is applicable to *Pseudophilyra Hædtii*.

Leucosia vittata, Stimps., from Hong Kong, and *Leucosia rhomboidalis*, de Haan, are also closely allied forms. A thorough revision of the Leucosiidæ, based on a study of all the described type specimens in Museums, is much needed.

The young Mergui specimen is $9\frac{1}{2}$ mm. long and 8 mm. broad.

110. *PSEUDOPHILYRA MELITA**, n. sp.

Two male specimens were collected. This species is most closely allied to *Pseudophilyra orbicularis*, Bell = *Leucosia orbicularis*, Bell (Bell, *Horæ Carcinologicæ*, Trans. Linn. Soc. vol. xxi. 1855, p. 284, tab. xxx. fig. 1), in which the cephalothorax is almost orbicular in form, and the front does not extend as far forwards as the anterior margin of the buccal cavity. This species differs from the foregoing in the front being tridentate, in the palms of the hands being granulated on their inner (anterior or lower) margins, and in the shape of the male abdomen.

Both species closely resemble one another in their outer appearance, not only in their carapaces, which are scarcely longer than broad, but also in their legs, which are slender. The broad front does not extend as far forwards as the anterior margin of the buccal cavity; it is tridentate, the frontal margin having a small acute triangular tooth in the middle, but not projecting beyond the anterior margin of the buccal cavity, whereas the lateral angles are rather obtuse, the front being a little concave between them. The eyes are small. The upper surface is a little convex; each hepatic region rises into a small rounded tubercle, and these regions are thus separated from the front by a concavity.

Although the upper surface appears smooth and shining to the naked eye, with the aid of a lens it is seen to be covered on the middle of the cardiac, intestinal, and branchial regions with a few sparsely scattered, very small granules; anteriorly

* *Melita*, one of the Nereids.

the surface is very sparsely punctate. The posterior margin is rounded and defined, together with the lateral margins, by a continuous, minutely granulated line, the granules of which become less distinct anteriorly near the hepatic region. The inflected sides of the cephalothorax are quite smooth, presenting no trace of the thoracic sinus and no granules near the base of the chelipedes.

The outer maxillipeds have the merus-joint a little shorter than the ischium-joint and acute at its distal extremity; the exognath is broad, though scarcely broader in the middle than the anterior margin of the ischium-joint, with its outer margin a little arcuate and minutely granulate, and with an almost straight anterior margin. The outer surfaces of the outer foot-jaws are minutely punctate.

The male sternum is smooth in the middle, but granular laterally; in the first joint, which borders the buccal cavity posteriorly, the granules are found near the articulation of the chelipedes, but separated from their bases by a smooth space. In the other joints, the granules are found on those portions which border the bases of the legs laterally. The male abdomen is smooth, and is quite similar to that of *P. Perryi*, Miers (Trans. Linn. Soc. 1877, pl. xxxviii. fig. 21), being narrow and triangular, with straight margins; the penultimate joint, however, which is scarcely shorter than the antepenultimate, is quite smooth, and has no tubercular prominence as in *Pseudophilyra Perryi*, Miers. The lateral margins of the cavity which includes the abdomen are also granular, as far as they lie on the first joint of the sternum.

The chelipedes are slender, and similar to those of *P. orbicularis*, Bell, being twice as long as the length of the carapace. The arms are cylindrical, four times as long as broad, and covered on their upper surface with granules, partly arranged in longitudinal rows; but the distal third of the upper surface is nearly smooth, and bears only a few small granules near the anterior margin. The under surface of the arm is equally granular, the granules extending to near its distal end, but they are not arranged in longitudinal series. The wrist is smooth. The hands are quite similar to those of *P. orbicularis*, the palm being twice as long as broad, but the rounded inner (anterior or lower) margin is covered with small granules of unequal size and irregularly arranged. The remainder of the palm is

smooth, though sparsely punctate, and the outer (posterior or upper) margin is rounded. The fingers have a punctate surface and the inner edges are sharp, a little hairy and minutely denticulated.

The ambulatory legs are sparsely punctate, but otherwise quite smooth and glabrous.

The cephalothorax of the larger specimen is $10\frac{1}{3}$ millim. broad and $11\frac{1}{5}$ millim. long (from the posterior margin of the carapace to the anterior margin of the buccal cavity).

Genus PHILYRA, *Leach*.

111. PHILYRA SCABRIUSCULA, *Fabr.*

Leucosia scabriuscula, *Fabricius*, *Suppl. Entom.* p. 349.

Philyra scabriuscula, *Milne-Edwards*, *Hist. Nat. Crustacés*, t. ii. p. 132, pl. xx. figs. 9 and 10; *Bell*, *l. c.* p. 299; *de Man*, *Notes from the Leyden Museum*, vol. iii. p. 126.

A male specimen found at Sullivan Island agrees with my published description of this species quoted above.

In this individual, however, the branchial, cardiac, and intestinal regions are not uniformly covered with granules, as in the Atjeh specimens, described by me (*l. c.*), but a small spot on the middle of the cardiac region and another on either side of the branchio-cardiac sutures are devoid of granules. The granulation of the upper surface of the carapace would therefore appear to be somewhat variable.

Philyra scabriuscula has been recorded from Zanzibar (*Hilgendorf*), Madras (*Novara-Reise*), Atjeh and Amboina (*de Man*); it may probably therefore be found to occur elsewhere in the Indian Ocean and Malayan Archipelago.

112. PHILYRA PLATYCHEIRA, *de Haan*.

Philyra platycheira, *de Haan*, *Fauna Japonica, Crustacea*, p. 132, tab. xxxiii. fig. 6.

There are five specimens (one adult male, three young males, and one sterile young female) of this species in the collection.

The cephalothorax of the adult male is 16 millim. long (the epistome included). In this specimen the upper surface of the cephalothorax is sparsely punctate and under a lens is seen to be minutely granular on the sides of the branchial regions.

In the younger individuals the cardiac and intestinal regions are also minutely granular. The chelipedes of the adult male are twice and a half as long as the length of the carapace, but in the younger specimens, as in those described by de Haan, they are only twice as long. The fingers of the adult male are comparatively shorter in proportion to the length of the palm than those of the younger specimens, and the under margin of the index makes a straight line with the under margin of the palm, the fingers not being curved inwards, as in young specimens. *P. longimana*, Alph. M.-Edw., is apparently closely allied to this species, and is probably only a variety of it.

Although the Mergui specimens present a minute granulation on the postero-lateral surfaces of the carapace, the same as in *Philyra longimana*, I am disposed, notwithstanding, to identify them with *P. platycheira*, which has been recorded by Bell from the Philippine Islands.

Philyra platycheira has hitherto been recorded from Japan, Hong-Kong, and the Philippine Islands as just stated.

Dimensions of two male specimens:—

	millim.	millim.
Length of the cephalothorax	16	$7\frac{1}{2}$
Breadth of the cephalothorax	$15\frac{2}{3}$	$7\frac{1}{2}$
Length of the chelipedes	41	15
Length of the arm of the chelipedes	$17\frac{1}{2}$	6
Length of the whole hand	17	$6\frac{1}{2}$
Length of the palm	11	$3\frac{3}{4}$

113. PHILYRA GLOBOSA, Fabr.

(Compared with the typical specimens of Fabricius's *Leucosia globosa*.)

Cancer globosus, Fabricius, *Entom. Syst.* ii. p. 441. n. 9.

Leucosia globosa, Fabricius, *Suppl. Entom. Syst.* p. 349.

Philyra globulosa, Milne-Edwards, *Hist. Nat. des Crustacés*, ii. p. 132, and *Règne Animal de Cuvier*, pl. xxiv. fig. 4.

Philyra globulosa, Bell, *l. c.* p. 300.

This species is represented by six fine specimens, 4 ♂ and 2 ♀.

I have been enabled, by the courtesy of Prof. Möbius, who forwarded to me the two types of Fabricius's *Leucosia globosa*, to compare the Mergui specimens with those invaluable records

of the Kiel Museum. The types are a large adult and a smaller female, and both are labelled *Leucosia globosa*, Fabr. In the adult male the carpopodites of the anterior legs are distinctly granular along the inner margin of their upper surfaces, but its hands have a somewhat different appearance from those of the much smaller female. The cephalothorax of the adult male is $29\frac{1}{2}$ millim. long, whilst that of the female is scarcely 17 millim. The hands of the latter completely resemble those of the Mergui specimens; but in the male the hands, and more especially the palm, are comparatively more enlarged and distinctly granular on the inner margin of the palm and of the immobile finger than in the female; the fingers are more deflexed, more strongly denticulated on their inner edges, and more distinctly longitudinally grooved on their outer and inner surfaces; and the mobile finger, moreover, is granular on its upper margin. These differences are doubtless attributable to the large size of the individual, for in its other characters the male perfectly agrees with the female.

I have referred the Mergui specimens to *Philyra globosa*, because they perfectly agree with Fabricius's female type.

The cephalothorax of the Mergui specimens (excluding the epistome) is quite as long as broad; the convex upper surface presents no trace of divisional lines, but in the adult male specimen of Fabricius the branchio-cardiac grooves are faintly indicated. The upper surface is minutely punctate and covered with innumerable minute granules, which become a little more distinct towards the lateral margins.

A continuous beaded line defines the lateral and posterior margins, and the granules forming it are alternately a little larger and smaller, as described by Milne-Edwards. The posterior margin of the cephalothorax is rounded, but in a very young specimen, scarcely 4 millim. broad, a small angular prominence is present on each side, a juvenile character mentioned by Stimpson in his description of *Leucosia vittata*. The front is somewhat less prominent than the epistome, is a little deflexed, and broadly triangular, but rather acute in the middle. The upper orbital margin is marked with one or two fissures. The inflected sides of the cephalothorax are minutely granular. The external margins of the stalks of the outer foot-jaws are granular in both sexes; in the female (not in the male) each stalk presents a longitudinal row of hairs close and parallel to the

inner margins. The inner margin of the merus-joint is a little longer than that of the ischium-joint; the exognath is considerably enlarged, being broader than the anterior margin of the ischium-joint. The first joint of the sternum, which borders the buccal cavity posteriorly, is granular in both sexes; in the male the anterior granules are, however, a little larger than the posterior, but in the female this joint is shorter and uniformly covered with large granules. In the male the second joint of the sternum, lying between the bases of the anterior legs, is minutely granular anteriorly, the granules becoming gradually smaller and finally disappearing towards the posterior half, which is smooth; the lateral margins of this joint present somewhat larger granules. The third joint is granulated along its anterior and lateral margins, but is smooth in the middle; the two following joints are nearly completely granular. Those portions of the carapace which lie between the joints of the sternum and the bases of the legs are also coarsely granular.

The lateral margins of the cavity which includes the abdomen are granular. The small portion of the sternum of the female that is not covered by the abdomen is also granular. In the male abdomen the joints are united, except the last or the last two; it is smooth, though minutely and sparsely punctate, and is granulated at its base. In the large typical specimen of Fabricius the penultimate joint of the male abdomen is armed with a small tubercle on the middle of its anterior half. The basal joints of the abdomen of the female are granulated in the same way as in the male.

The anterior legs, as in the adult male specimen of Fabricius, are about twice as long as the cephalothorax. The arms are cylindrical, and are completely covered round their bases with rather small granules, which pass gradually into minute granules on the distal half of the arm, only visible by means of a lens. The carpopodites are minutely granular along the inner margin of the upper surface. In the Mergui specimens the hand is about as long as the arm, and the fingers are nearly as long as the palm; the palm is scarcely more than once and a half as long as broad. The immobile finger is scarcely deflexed. The palm is smooth, though appearing minutely granular on its inner margin, when examined under a magnifying-glass. The fingers are minutely punctate on their outer and inner surfaces, and their sharp, thin, inner edges are faintly denticulated,

each presenting two or three small teeth near their tips, whereas the mobile finger has some similarly small teeth along its inner edge.

The ambulatory legs are completely glabrous.

Dimensions of the Mergui specimens :—

	millim.
Length of the cephalothorax (the epistome included)	15
Breadth of the cephalothorax	$14\frac{3}{4}$
Length of the chelipedes	27
Length of the palm	$5\frac{3}{4}$
Breadth of the palm	$3\frac{3}{4}$

The following are the dimensions of Fabricius's large male specimen preserved in the Museum of the University of Kiel * :—

	millim.
Length of the cephalothorax (the epistome included)	$29\frac{1}{2}$
Breadth of the cephalothorax	$29\frac{1}{2}$
Length of the chelipedes	61
Length of the palm	$12\frac{1}{2}$
Breadth of the palm	10

Genus MYRA, Leach.

114. MYRA PUNCTATA, *Herbst*.

Cancer punctatus, *Herbst*, *Krabben und Krebse*, p. 89, pl. ii. figs. 15, 16.

Myra carinata, *Bell*, *l. c.* p. 297, pl. xxxii. fig. 3.

Myra punctata, *Hilgendorf*, *Monatsber. d. K. preuss. Akad. d. Wiss. Berlin*, Nov. 1878, p. 811.

Four male specimens of various sizes were collected.

The genus *Myra* without doubt stands much in need of revision, and it is extremely probable that many of the species

* Prof. Möbius also forwarded to me the type specimen of Fabricius's *Leucosia porcellana*, which has hitherto been regarded by authors as belonging to the genus *Philyra*, and was believed by Bell to be scarcely distinct from *Philyra globosa*. I am now able to state that *Leucosia porcellana* is a true *Leucosia*, somewhat allied to *L. rhomboidalis*, de Haan. In *Leucosia porcellana* there is a large thoracic sinus; the upper surface is smooth and the cephalothorax appears rhomboidal, being, however, less prominent anteriorly than in *L. rhomboidalis*, de Haan. The front is little prominent and triangular. The upper surfaces of the arms only present a few granules at their bases, covered by a tuft of hairs, and the inner margins of the hands are granular. The specimen sent to me was a female; the cephalothorax is $19\frac{1}{2}$ millim. long and $17\frac{1}{2}$ millim. broad.

created by Bell in his Monograph of the Leucosiidæ will not stand the test of revision. The granulation of the upper surface, even in the four Mergui specimens, is not equally developed, but the cariniform median granulated line is distinct in all. In three of them the median spine of the posterior margin is nearly three times as long as the lateral spines, but in the fourth specimen the three spines are about the same size.

Dimensions of the largest male specimen :—

	millim.
Length of the carapace (with the central spine)	19
Breadth of the carapace	14½
Length of the chelipedes	33
Length of the arm	13½
Length of the hand	14½
Length of the palm	9½

Myra punctata has hitherto been recorded from the Philippine Islands, the shores of Celebes (*Miers*), and Cape Grenville (Australia).

Family DORIPPIDÆ.

Genus DORIPPE, *Latr.*

115. DORIPPE QUADRIDENS, *Fabr.*

Dorippe quadridens, *Fabricius*, *Suppl. Ent.* p. 361; *Milne-Edwards*, *Hist. Nat. des Crustacés*, t. ii. p. 156; *de Haan*, *Fauna Japonica*, *Crustacea*, p. 121, Taf. xxxi. fig. 3.

A single male specimen was collected.

Dorippe quadridens, *Fabr.*, is a common species, and is distributed throughout the Indian Ocean, the Malayan Archipelago, along the coasts of Australia, and in the seas of China and Japan.

116. DORIPPE, *sp.*

A very young specimen in the Collection appears to be allied to *D. granulata*, *de Haan*, with which, however, I do not venture to identify it, as I do not know whether *D. granulata* occurs in the Bay of Bengal.

Tribe ANOMURA.

Family DROMIDIIDÆ.

Genus DROMIDIA, *Stimps.*117. DROMIDIA UNIDENTATA, *Rüpp.*, var. (Pl. XIV. figs. 4, 5.)

Dromia unidentata, *Rüppell*, *Beschreibungen und Abbildungen von 24 Arten kurzschwänzigen Krabben*, 1830, p. 16, Taf. iv. fig. 2.

Dromidia unidentata, *Kossmann*, *Zoolog. Ergebnisse einer Reise in die Küstengebiete des Rothen Meeres*, II. Hälfte, 1. Lief. 1880, p. 67.

Two specimens, an adult female and a young male, which ought probably to be referred to this species, were collected in King Island Bay.

As I was at first unable to identify them with any known species, I sent the female specimen to Dr. F. Richters, of the Museum of Frankfort on the Main, for comparison with Rüppell's types of *D. unidentata*. Dr. Richters kindly compared it with them, and informed me that, in his opinion, the female was a local variety of *D. unidentata*, Rüpp., differing from the four types of Rüppell's species in the following details:—

First, the two lateral teeth of the front are more acute and more straightly directed forward in the Mergui specimen than in those of Rüppell, in which they are more obtuse and more divergent; secondly, that portion of the lateral margin of the cephalothorax lying between the external orbital angle and the cervical suture is more regularly arcuate in Rüppell's typical specimens ("bildet einen vollkommeneren Bogen," as Dr. Richters writes) than in the Mergui female, in which the lateral margin is more prominent and therefore more angular.

In Rüppell's typical specimens the inner edge of the mobile finger of the hands is indistinctly dentate, whereas in the Mergui individual it is armed with five or six teeth. Dr. Richters also informs me that the words "superior integer" in Rüppell's diagnosis are not quite exact, the inner edge of the mobile finger being feebly dentate in all the four specimens in the Frankfort Collection.

With regard to the first difference pointed out by Dr. Richters, I would observe that in the young male specimen from Mergui

the lateral teeth of the front are a little more divergent than in the female, so that, in my opinion, it is only to the second difference observed by Dr. Richters that some value can be attached. I, however, accept his opinion that the Mergui examples represent a local variety of *D. unidentata*.

The median tooth of the front, which is acute and vertically deflexed, is scarcely visible when the carapace is viewed from above. The upper surface of the cephalothorax is minutely punctate.

The cephalothorax of the female specimen, which bears eggs, is 23 millim. long and 22 millim. broad. It is covered with a large sponge, which is much larger than the Crab itself.

Dromidia unidentata has been recorded from the Red Sea and from Mozambique.

118. *DROMIDIA CRANIOIDES*, n. sp. (Pl. XIV. figs. 6-8.)

A large male and a much smaller specimen of the same sex were collected, the latter at Elphinstone Island Bay; but the exact locality of the former is unrecorded.

This new species is most closely allied to *Dromidia caput mortuum*, M.-Edw. (Hist. Nat. des Crustacés, t. ii. p. 178); but, according to Prof. Milne-Edwards, who compared the larger specimen with his *Dromidia caput mortuum*, it differs from it in the front being a little less advanced, by the internal angle of the upper orbital margin and the infraorbital lobe being acute, by the protogastric lobes being not at all prominent, by the denticulation of the antero-lateral margins, and by the hands being somewhat spinulose.

The cephalothorax is nearly semiglobose and scarcely longer than broad, the proportion of the length to the breadth (distance between the last antero-lateral teeth) being as 28 : 27. The upper surface is semiglobose, extremely convex in all directions, and its sides therefore slope very steeply to the lateral margins. No divisional lines are found on the upper surface of the cephalothorax except the usual incision in each lateral margin, separating the antero-lateral from the postero-lateral margins, and forming the so-called cervical suture. The upper surface, indeed the entire animal, with the exception of its fingers, is covered with a short, close, velvety pubescence. The upper surface is quite smooth to the naked eye, but is seen to be minutely

punctated, when examined under a strong lens. The protogastric lobes are quite indistinct.

The front is strongly deflexed and tridentate (the supraocular teeth not being included). The median tooth is very small, subacute, and being directed perpendicularly downward is only partly visible when the carapace is viewed from above. The lateral teeth are conical, subacute, much larger than the median tooth, and directed forwards and slightly outwards. The internal angle of the upper orbital margin (supraocular tooth, *Miers*), which is rounded and obtuse in *D. caput-mortuum*, is rather acute in this species, and its distance from the lateral frontal tooth is quite as great as the distance between the two lateral frontal teeth. The external orbital angle is obtuse and scarcely prominent, and is separated by a narrow hiatus from the inferior margin of the orbits, the lobe of which is triangular and acute; the inferior orbital lobe of *D. caput-mortuum* is, on the contrary, very obtuse. The acute internal angle of the upper orbital margin is as far distant from the lateral frontal tooth as from the obtuse, external, orbital angle. The external antennæ are a little more than half as long as the cephalothorax.

The antero-lateral margins are as much longer than the postero-lateral as in *D. caput-mortuum*; they are armed, behind the external orbital angle, with four small acute teeth of nearly equal size. The first antero-lateral tooth is as far distant from the obtuse, little prominent, external orbital angle as the latter is from the internal angle of the upper orbital margin; the second tooth is a little smaller than the first, and its distance from the first is a little less than the distance of the first tooth from the external orbital angle. The third tooth, which is, again, as prominent as the first, is as far distant from the second as the second is from the first*; the distance of the fourth tooth from the third is almost twice as great as the distance between the third and the second, and the second tooth is as far distant from the fourth as the fourth is from the cervical suture. The fourth tooth is as prominent as the first and the third. A rather acute tooth, in which the slightly convex postero-lateral margin terminates, occurs

* In the small specimen, the cephalothorax of which is only 16 millim. long, the second antero-lateral tooth is situated closer to the first than to the third.

immediately behind the cervical suture. The posterior margin of the cephalothorax is nearly as broad as the distance between the first antero-lateral teeth.

The triangular epistome or interantennular space is in contact with the front. The slightly convex subhepatic and the pterygostomian regions are smooth and unarmed, but a small, subacute tooth occurs at the external angle of the anterior margin of the buccal cavity. The male abdomen is quite similar to that of *D. caput-mortuum*; the terminal joint is exactly once and a half as long as the penultimate, and the posterior margin of the penultimate joint measures twice the length of this joint.

The legs closely resemble those of *D. caput-mortuum*. The chelipedes are equal and smooth. The upper margin of the arm bears a row of five, small, equal, obtuse teeth or tubercles, and similar small tubercles are found on the two other margins. The three surfaces of the arm are smooth. The upper surface of the wrist is smooth; as in *D. caput-mortuum*, the anterior margin of the upper surface, which articulates with the hand, is raised on either side into an obtuse prominence, and the distal half of the inner margin is armed with four small obtuse teeth, which gradually increase a little in size, so that the distal one is the largest. The hands resemble those of *D. caput-mortuum*. Their outer and inner surfaces are smooth, but the upper margin of the palm is armed with two or three small, obtuse teeth. The calcareous fingers are of a beautiful rose-colour, and when closed meet together along their whole length; they are strongly toothed, the inner edge of the mobile finger with five, that of the immobile finger with four teeth, and the teeth of the index are slightly larger than those of the mobile finger.

The surfaces of the other legs are also smooth, and nowhere present nodosities or tubercles. The second and third pairs of legs are about of the same length, and almost as long, as the chelipedes; the fourth pair are only half as long, and the last pair are somewhat shorter and smaller than the legs of the second pair. As already observed, the entire animal, with the exception of the fingers of the anterior legs, which are smooth and glabrous, is everywhere covered with a close velvety pubescence.

Although I have not been able to study the female, I refer this species to the subgenus *Dromidia*, on account of its ridged endostome, and because it completely agrees in its generic characters with *D. unidentata*, Rüpp., which is undoubtedly a true *Dromidia*.

Dimensions of the larger specimen:—

	millim.
Length of cephalothorax, the lateral frontal teeth included.....	27½
Breadth of cephalothorax (=distance between the fourth or last antero-lateral teeth)	26½
Distance between the acute internal angles of the upper orbital margins	8¼
Distance between the first antero-lateral teeth....	17⅓
Length of the hand	14½

The smaller individual has a large sponge completely covering its carapace.

Genus CRYPTODROMIA, *Stimps.*

119. CRYPTODROMIA, sp.

The collection contains a young female specimen of a *Cryptodromia*, but I hesitate to refer it to any species. It was captured at King Island Bay, and appears to be allied to *C. lateralis*, Gray.

The cephalothorax is scarcely broader than long, only 5½ millim. long and 5⅓ millim. broad. The upper surface is very convex longitudinally as well as transversely, and is covered with a short pubescence; the upper surface, except the lateral portions of the cervical suture, presents no interregional grooves. The epigastric lobes are, however, distinctly indicated. The front is rather prominent and three-toothed; the mesial tooth is small, rounded, and deflexed, though distinctly visible when the carapace is looked at from above; the lateral teeth are triangular, obtuse, and directed horizontally forwards. The lateral teeth are separated by a concave margin from the less prominent, internal, orbital angles, which are dentiform and subacute. The external angles of the orbits are also dentiform and subacute. A small subacute tubercle is situated on the upper surface of the hepatic region of the cephalothorax a short distance behind the dentiform external orbital angles. A tubercle of this kind has not been described in *C. lateralis*.

The antero-lateral margins are armed with three teeth, between the dentiform extra-orbital angles and the cervical suture; the first tooth is truncate and placed on the subhepatic or pterygostomian region, a little below the orbits. Between this subhepatic tooth and the tuberculiform external angle of the anterior

margin of the buccal cavity another and similar tooth is found on the pterygostomian region, as in *Cryptodromia tomentosa*, Heller (Hilgendorf, Monatsb. Berlin. Akad. 1878, Taf. ii. fig. 5). The second antero-lateral tooth is situated in the middle between the external angle of the orbits and the cervical suture, and is slightly prominent, but obtuse. The third tooth is a little smaller than the second and subacute. A small tubercle occurs immediately behind the cervical suture; the postero-lateral margins of the cephalothorax are slightly convex; the abdomen is unarmed.

The anterior legs or chelipedes are equal. On the upper surface of the wrist there are four tubercles, two in the middle, being longitudinal, oval, and parallel with one another; there are also two other prominences on its distal margin at the articulation with the hand. The internal angle of the wrist is slightly prominent. The upper margin of the hand has also four tubercles, one at the proximal end near the articulation with the wrist, one in the middle, and two close to and above the articulation of the mobile finger; these tubercles are also obtuse, and the one in the middle of the upper surface is longitudinal and oval. The outer surface of the palm is probably granular, but the granules present are wholly concealed under a close pubescence, which also covers the anterior legs. The fingers are smooth and glabrous, and meet along their whole inner margins, which are denticulated, the immobile finger having three or four equal teeth, whereas the mobile finger is more feebly toothed.

The two succeeding pairs of legs are somewhat nodose at the distal ends of their propodites, and the last pair of legs are about once and a half as long as those of the penultimate pair. All these legs are covered with the same pubescence and are, moreover, a little hairy.

Family PORCELLANIDÆ.

Genus PORCELLANA, *Lam.*

Subgenus PETROLISTHES, *Stimps.*

- a. Lateral margins of the cephalothorax without an epibranchial tooth.

120. PORCELLANA INERMIS, *Heller.*

Porcellana inermis, *Heller*, *Crustaceen der Novara-Reise*, S. 76, Taf. vi. fig. 5 (*nec P. inermis*, *Haswell*!).

Porcellana Lamarekii, *Milne-Edwards, Hist. Nat. Crustacés*, t. ii. p. 251, var. (*nec Porcellana Lamarekii, Leach*).

Six fine specimens of this species were collected at Owen Island.

I have compared them with a typical specimen of this species, kindly sent me by Dr. C. Koelbel, of the Imperial Museum of Vienna, where the typical specimens of the 'Novara' Expedition are preserved.

The cephalothorax is flattened, and is quite as long as it is broad; its upper surface is punctate in the middle and posteriorly, and is marked with faint transverse striæ anteriorly and towards its lateral margins. The front is triangular, with the apex rounded and subconcave above; it presents a mesial furrow, and a shorter oblique one on each side, terminating at the internal angle of the orbits. The front is separated from the gastric region by a slightly elevated transverse crest, interrupted in the middle by the mesial frontal furrow. There is a faint cervical suture separating the gastric region from the rest of the upper surface. There is no epibranchial spine. The lateral margins are slightly cristate anteriorly, the carinæ extending to nearly the middle of the branchial regions. The antepenultimate joint of the peduncle of the external antennæ is provided with a small transverse crest.

The anterior legs are subequal. The arm has a blunt tooth at the distal end of the anterior margin and the external * margin of the under surface is armed with a small spinule about its middle. The wrist is nearly as long as the carapace and thrice as long as broad; its anterior margin is armed with three acute teeth, the first at the proximal end, the second a little before the middle, and the third as far distant from the second as the second is from the first. The obliquely rugose posterior margin of the wrist is prolonged at its distal end into a rather acute spine. The hands are much depressed and the inner borders of both fingers are densely hairy. The anterior half of the upper surface of the wrist is covered with flattened granules, which gradually pass into small, curved, transverse, squamiform lines at the posterior half; these granules and lines are bordered with minute hairs. The upper surface of the hands is covered with similar, flattened, piliferous granules and squamiform lines.

* The external margin is that which articulates with the wrist.

The anterior margins of the meropodites of the ambulatory legs are unarmed, but the posterior margins of the first two pairs are armed with an acute spine near their distal ends. In one large individual the latter margins are armed with two spines at the distal end, as a second smaller spinule occurs between the described one and the articulation. The posterior margins of the meropodites of the third pair of ambulatory legs (the penultimate pair of legs) are unarmed. The propodites of the first three pairs of ambulatory legs are armed with a small spinule in the middle, and with one somewhat larger and with two similar small spinules at the distal ends of their posterior margin; these spinules are all mobile. The dactylopodites of the first three pairs of ambulatory legs are short, terminate in a black horny claw, and are armed on their posterior or inner margins with two or three spinules. The ambulatory legs are somewhat hairy.

The specimens are of a yellowish-red colour, and marked with numerous small red spots on the carapace and on the ambulatory legs, and with some larger red spots on the anterior legs.

Mr. Miers has lately pointed out (Voyage of H.M.S. 'Alert,' p. 269) that the carapace of *Porcellana* (*Petrolisthes*) *Lamarckii*, Leach, from Australia, is armed with an epibranchial spine. I am indebted to Prof. Milne-Edwards for a typical specimen of *Porcellana* (*Petrolisthes*) *Lamarckii*, M.-Edw. (Hist. Nat. des Crust. t. ii. p. 251), from New Ireland, and having carefully examined it, I am disposed to regard this form as merely a variety of *P. inermis*, Heller, as the foregoing typical specimen differs from the Mergui specimens of *P. inermis* only in one character, viz., the presence of two small spinules on the anterior margins of the meropodites of the second and third pair of ambulatory legs.

Petrolisthes hastatus, Stimps., from Japan, seems to be identical with the New Ireland species. If this and the foregoing supposition prove to be true, then this species must bear the name of *P. hastata*, Stimps.

The cephalothorax of the largest Mergui specimen is nearly 12 millim. long.

Porcellana inermis, Heller, has hitherto been recorded only from the Nicobar Islands.

121. PORCELLANA JAPONICA, *de Haan*.

Porcellana japonica, *de Haan*, *Fauna Japonica*, *Crustacea*, p. 199, pl. 1. fig. 5.

Petrolisthes japonicus, *Stimpson*, *Proc. Acad. Nat. Sci. Phil.* 1858, p. 241.

Two individuals were collected, the smaller of the two having been obtained in Elphinstone Island Bay.

In this species the middle and posterior portion of the upper surface of the carapace are minutely punctated, whereas its anterior part and its sides are delicately lineolate. An epibranchial tooth is wanting, and the lateral margins of the cephalothorax are rather acute. The anterior margins of the meropodites of the somewhat unequal chelipedes are unilobate at their external angles; the exterior margins of these joints, by which they articulate with the carpopodites, are armed in the small specimen with a small acute tooth in the middle (which was not described by *de Haan*), but in the larger individual these margins are unarmed. The carpopodite is quite as long as the carapace; its anterior margin is armed, in both specimens, with only one small acute tooth, situated at the proximal end, and the posterior margin is bispinose, being armed with an acute tooth at the distal end, and with a second placed a little before it. The outer surface of the palm is rather convex, and the fingers are shorter than the palm, especially in the larger hand. They are hairy on their inner margins as in the preceding species.

Porcellana japonica is represented in the seas of New Zealand by *Porcellana elongata*, M.-Edw., a species which may be distinguished from that of *de Haan* by the upper surface of its carapace being distinctly granulated. *Porcellana inermis*, Haswell (nec Heller), from Port Denison, will probably prove to be identical with *P. elongata*.

Dimensions of the larger specimen:—

	millim.
Length of cephalothorax.....	$8\frac{1}{5}$
Breadth of same	$7\frac{2}{3}$
Length of carpopodite of anterior legs.....	$8\frac{1}{3}$
Length of larger hand.....	$15\frac{1}{2}$

Porcellana japonica has hitherto been recorded only from the Japanese and Chinese Seas (*de Haan*, *Stimpson*).

β. Lateral margins of the carapace armed with an epibranchial tooth.

122. *PORCELLANA DENTATA*, M.-Edw.

Porcellana dentata, M.-Edwards, *Hist. Nat. Crustacés*, t. ii. p. 251.

Porcellana bellis, Heller, *Crustaceen der Novara-Reise*, p. 76, Taf. vi. fig. 4.

Petrolisthes Haswelli, Miers, *Report Zoology Voyage of H.M.S. 'Alert,'* 1884, p. 269, pl. xxix. fig. A.

Fourteen specimens were collected, of which eleven were obtained at Owen Island and three at Sullivan Island.

I was enabled by Dr. C. Koelbel, of Vienna, to study one of Heller's types of *P. bellis*, and thus found out that the Mergui specimens were specifically identical with it. I then sent one of the Mergui specimens to Prof. Milne-Edwards, who informed me that it was identical with *Porcellana dentata*, M.-Edw. *Porcellana bellis*, Heller, is thus a synonym of the latter. No doubt, moreover, can be entertained that the Mergui specimens are also representatives of *P. Haswelli*, Miers, from Australia.

Porcellana dentata, M.-Edw., presents the following distinctive characters:—the front is triangular, with the sides a little emarginated, rounded anteriorly, and rather much prominent; it is somewhat deflexed, and has a shallow, longitudinal, mesial furrow. The gastric region is marked anteriorly, at the base of the front, with two transverse linear elevations. The upper surface of the carapace is punctate in the middle and posteriorly, and marked with delicate transverse lines anteriorly and near the sides; these lines, when seen under a strong magnifying-glass, appear to be provided anteriorly with microscopical hairs. Similar piliferous lines occur also in *Porcellana Boscii*, but in it they are much more visible to the naked eye, and the small hairs are also much longer. The lateral margins of the carapace are cristate, and terminate anteriorly in the acute epibranchial tooth. The chelipedes are almost equal to one another. The under margin of the meropodite is armed with a small acute tooth about its middle, and the anterior margin terminates in a rounded lobe at its external angle. The carpopodite measures nearly $\frac{3}{4}$ of the length of the carapace, and is nearly twice as long as broad. Its anterior margin is armed with five or six teeth; some of them, however, are often obsolete, and in individuals not fully grown only three or four teeth are found on this margin. The

posterior border is more or less spinulose along its whole length, but in most specimens only three or four of the distal spines are more distinctly developed. The outer surface of the hands is rather depressed and covered with minute granules, often arranged in very short transverse or oblique lines, especially near the upper margin, similar to those of the upper surface of the carpopodite. When examined under a strong magnifying-glass, these minute granules appear to be provided anteriorly with microscopical hairs. The fingers are shorter than the palm, and are not hairy along their inner surfaces.

The ambulatory legs are a little hairy. The anterior margin of the meropodites is unarmed, but one or two small teeth are observed at the distal ends of the posterior margins of the meropodites of the second and third pair of legs, those of the fourth pair having the posterior margins unarmed.

Dimensions of our largest specimen :—

	millim.
Length of cephalothorax	11 $\frac{1}{3}$
Breadth of same	11
Length of carpopodite.....	9
Length of hand	18

The largest specimen observed by Heller had the carapace 14 millim. long.

Porcellana dentata, M.-Edw., has been observed at the Nicobar Islands (*Heller*), on the coast of Java (*Milne-Edwards*), and on the shores of North and North-eastern Australia, appearing thus to inhabit the Malaysian Archipelago and the neighbouring seas.

123. PORCELLANA BOSCHII, *Aud.*

Porcellana Boschii, *Audouin, Savigny, Description de l'Égypte, Crust.* pl. vii. fig. 2.

Porcellana Boschii, *Heller, Sitzungsber. der Wiener Akad. der Wissensch.* Bd. xlv. p. 256.

Petrolisthes Boschii, *Kossmann, Zoolog. Ergebnisse einer Reise nach dem Rothen Meeres*, ii. Hälfte, 1^e Lief. p. 74.

Porcellana Boschii, *de Man, in Notes from the Leyden Museum*, vol. iii. p. 104.

Porcellana rugosa, *Milne-Edwards, Hist. Nat. des Crustacés*, t. ii. p. 252.

Fifteen specimens were captured at Elphinstone Island Bay, and one in King Island Bay.

In its outer appearance this species closely resembles *P. dentata*, M.-Edw., with which it lives, as is proved by this collection. In the form of the carapace, front, chelipedes, and ambulatory legs, and in the armature of the latter, both species closely resemble each other. *Porcellana Boscii*, however, is distinguished at first sight by the strong development of the minutely granulated, squamiform, piliferous, elevated lines with which the upper surface of the carapace and of the legs is covered. In Audouin's species this remarkable ornament of the carapace and of the anterior legs is distinctly visible to the naked eye, whereas in *P. dentata* the lines are extremely small and short, and only become visible by means of a magnifying-glass.

There are, however, other differences. In *Porcellana Boscii* the inner margins of the fingers are hairy, whilst in *Porcellana dentata* they are smooth and glabrous. In *P. Boscii* the upper exterior margin of the meropodite of each chelipede (by which that joint articulates with the carpopodite) is armed near the posterior end with a small acute spine, which is not found in the other species.

Dimensions.

	millim.
Length of cephalothorax.....	$8\frac{3}{4}$
Breadth of same	$8\frac{1}{3}$
Length of carpopodite.....	$5\frac{2}{3}$
Length of hand	12

Porcellana Boscii has hitherto been recorded only from the Red Sea.

Subgenus PISOSOMA, *Stimps.*

124. PORCELLANA SCULPTA, M.-Edw.

Porcellana sculpta, Milne-Edwards, *Hist. Nat. des Crustacés*, t. ii. p. 253.

Pisosoma sculptum, Stimpson, *Proc. Acad. Nat. Sci. Philad.* 1858, p. 228.

Porcellana pulchella, Haswell, *Catal. Australian Crustacea*, 1882, p. 148.

Pachycheles pulchellus, Miers, *Report Voyage of H.M.S. 'Alert,'* 1884, p. 273, pl. xxx. fig. A.

The collection contains a young specimen from Sullivan Island, which I refer to this species.

The upper surface of the carapace is smooth, though sparsely punctate. The front is rather broad, with a straight, truncate, anterior margin. The external orbital angle is acute, and there is no epibranchial tooth. The anterior half of the lateral margins is cristate, but the posterior is rounded and covered with some oblique elevated lines. The chelipedes are unequal, the left being the larger. The carpopodite is scarcely longer than broad, and is armed at its anterior margin with two or three acute teeth; the upper surface is somewhat uneven, presenting some oblique elevations, especially towards the posterior (external) margin. The outer surface of the hands bears three or four somewhat uneven longitudinal ridges, by which two or three longitudinal grooves are formed. The upper surface of the carpopodite and the outer surface of the hand are glabrous, but distinctly punctate. The fingers have somewhat curved, acute tips. The inner surfaces of the hands are very convex and also somewhat punctate.

The meropodites of the ambulatory legs are unarmed. The somewhat hairy carpopodites and propodites are longitudinally sulcate on their upper margins, and the acute dactylopodites are armed with two or three short spines on their inner margins.

Dimensions.

	millim.
Length of cephalothorax	$3\frac{3}{4}$
Breadth of same	$4\frac{1}{5}$

The specimen perfectly agrees with the description of *P. puchella*, Hasw. Mr. Haswell erred in separating his specimens as a distinct species from *P. sculpta*, M.-Edw., in which the anterior margin of the wrist of the chelipedes is armed with two strong teeth, as in *P. puchella*.

P. sculpta, Dana, however, is probably another species, as the anterior margin of the wrist seems to be unarmed.

Porcellana sculpta, M.-Edw., has been observed on the coasts of Java and of Northern and North-eastern Australia.

Subgenus PORCELLANA, *Stimps.*125. PORCELLANA CORALLICOLA, *Hasw.*

Porcellana corallicola, *Haswell, Catalogue Australian Crustacea*, 1882, p. 150.

Petrolisthes? *corallicola*, *Miers, Report Voyage H.M.S. 'Alert,'* 1884, p. 271, pl. xxix. fig. C.

A specimen found in Elphinstone Island Bay doubtless belongs to Haswell's *P. corallicola*, which has been more exactly described by Mr. Miers. It agrees with both descriptions except in the following details, viz. that the posterior margins of the wrist and of the hand of the anterior legs are not fringed with hairs, and that the ambulatory legs of the second and third pair are armed in the same manner as those of the first pair. The hairs of the wrist and palm appear to be worn off, as in the specimen described by Miers, in which the carpopodite had also lost its hairs, although the palm was still pubescent on its outer margin. I would also point out that the small spinules with which this animal is everywhere armed may easily be rubbed off.

The specimen is only 4 millim. long, and has the same breadth.

Porcellana corallicola has hitherto been recorded only from North-eastern Australia.

Subgenus PORCELLANELLA, *White.*126. PORCELLANA PICTA, *Stimpson.*

Porcellanella picta, *Stimpson, Proc. Acad. Nat. Sci. Philad.* 1858, p. 243.

The collection contains twenty-five fine specimens, which were found living on *Pennatulæ* in King Island Bay.

This interesting species is easily distinguished by many striking characters from all other species of the genus. The form of the carapace, which is much longer than broad, the extreme smoothness of its upper surface and of the legs, the flattened tridental front, and the shape of the chelipedes and of the ambulatory legs are distinctive features of this species. The lateral margins of the carapace are rather acute, without an epibranchial tooth. The chelipedes are a little unequal. The carpopodite is but little longer than broad, with smooth entire margins, and with a convex upper surface, smooth and shining to the naked eye, but covered in reality with minute transverse lines. Each hand is slender and elongate, with a convex outer and inner surface, the latter being ornamented at the distal half of the anterior side with a

thickish line of hairs, originating from the base of the fingers. The fingers are much shorter than the palm, and their pointed tips cross one another; the mobile finger is a little shorter than the index and somewhat distorted. The ambulatory legs are very short, the oval meropodites are but little longer than broad, and are flattened, smooth, and unarmed. The short carpopodites and propodites are equally smooth, and the quadri-unguiculated dactylopodites are very short.

The upper surfaces of the carapace and of the anterior legs are marked with some marginate spots.

Dimensions of an adult specimen:—

	millim.
Length of cephalothorax.....	10 $\frac{3}{4}$
Breadth of same	8
Length of larger chelipede	25
Length of carpopodite.....	4 $\frac{3}{4}$
Breadth of same	3 $\frac{1}{5}$
Length of hand	15
Breadth of same	4 $\frac{2}{3}$
Length of palm.....	11

Porcellana picta was originally found at Hongkong as a parasite on *Pennatulæ*.

I am unable to determine wherein *Porcellanella triloba*, White (Voyage of H.M.S. 'Rattlesnake,' Appendix, p. 394, pl. v. fig. 2), differs from *P. picta*. Haswell's short description of the former (Catalogue of the Australian Stalk- and Sessile-eyed Crustacea, p. 149) is wholly applicable to the latter. It is therefore probable that the two forms may prove to be identical, and in that case the name of *P. triloba* has priority.

Subgenus POLYONYX, *Stimps.*

127. PORCELLANA EUPHROSYNE, n. sp. (Pl. XV. figs. 1-3.)

A fine adult female specimen, without eggs, was found by Dr. Anderson, living along with an Annelid in its tube. This new species is doubtless closely allied to Haswell's *P. transversa* from the eastern Australian coast; and it is a remarkable fact that this species was also found in the siphons of an *Aspergillum*, so that the affinity of these two *Porcellanæ* is even proved by their similar habits of life.

This species undoubtedly belongs to Stimpson's subgenus

Polyonyx, and it seems almost a certainty that Haswell's species is also a representative of this subgenus. It appears to be distinguished from *P. transversa* by the upper surface of the carapace not being lineolate on its posterior half, by the protogastric lobes being not at all prominent, by the shape of the front, by the distinctly crested lateral margins, by the absence of a conical tooth at the base of the immobile finger of the hands, and probably by other characters, which will become manifest when both species are compared with one another.

P. Euphrosyne belongs to that small number of species in which the cephalothorax is much broader than long, the proportion of the breadth to the length being the same as in *P. transversa*. The upper surface is very convex longitudinally, and the lateral regions are very declivous towards the lateral margins, but the middle of the cephalothorax is transversely flattened. The regions are faintly indicated, and the upper surface is smooth and glabrous, except near the lateral margins, which are densely hairy. The front is rather narrow, measuring only a fourth of the breadth of the cephalothorax; it presents a much deflexed, scarcely prominent, subacute, median lobe, which projects a little more forward, *i. e.* more downwards, than the rounded lateral angles, which are formed by the internal angles of the orbits. The front is somewhat hairy above. The fronto-orbital margin therefore resembles somewhat that of *P. (Polyonyx) obesula*, White (Miers, Zoology of the Voyage of H.M.S. 'Alert,' 1884, pl. xxix. fig. D), but it is comparatively broader in that species. The orbits are comparatively small, like the eyes themselves; the external angles of the orbits are rounded or obtuse, not at all prominent, and the fronto-orbital margin passes continuously on either side into the lateral margins, which are distinctly carinate and prolonged backwards about to the posterior third. At some distance from the orbits the carinate lateral margins are interrupted by the lateral portions of the cervical suture; but no epibranchial tooth is found at that interruption. The posterior margin of the cephalothorax is slightly concave. The inflected sides of the carapace close to and below and behind the lateral margins are marked with some oblique rugose lines. The external antennæ are about twice as long as the length of the cephalothorax; the first exposed joint is unarmed, the second is a little longer and thinner than the first, and the third is the smallest of all, being only half as long as the second. The external maxillipeds have a quite smooth, glabrous,

outersurface, and are fringed along their inner margins with long hairs, those of the last three joints being very long. The abdomen is very long, even much longer than the carapace.

The anterior legs are somewhat unequal, the right being the larger. Except the basipodites, ischiopodites, and the base of the meropodites, the chelipedes are thickly clothed with hairs on their outer (upper) surface, and quite smooth and glabrous on their inner (under) surface, agreeing in this character with *P. transversa*. The anterior legs resemble somewhat those of *P. picta*, Stimps. The upper surface of the meropodite is convex and smooth, though marked with some delicate transverse lines on the distal half, which, however, are only visible by means of a magnifying-glass; this joint, the upper surface of which is densely hairy, except at its base, is armed with a prominent, rounded, minutely denticulate lobe at the distal end of its anterior margin. The wrist is scarcely twice as long as the merus-joint, and its upper surface is once and a half as long as broad; the inner or anterior margin is entire, scarcely arcuate, and projects in the form of a crest, almost as in *P. transversa*. The upper surface of the wrist is smooth, though minutely punctate, and is everywhere thickly clothed with hairs; the posterior margin is also entire. When the fingers are included, the hand is scarcely twice as long as the wrist. The fingers are comparatively short, being scarcely half as long as the palm, and the hand, including the fingers, is rather slender, being three times as long as high. The outer surface of the palm is smooth, although minutely punctate and densely hairy; the under or inner surface is convex, smooth, and glabrous. As in *P. transversa*, the lower border of the palm is marked with a minutely granulated line running to the end of the immobile finger; this granulated line, however, is scarcely visible to the naked eye. The fingers are densely hairy externally, and smooth and glabrous internally, except near their internal edges; they have arcuate pointed tips, which slightly cross one another. The lower border of the immobile finger forms a continuous straight line with the lower border of the palm, this finger not being deflexed. The external margin of the cutting-surface of the immobile finger is faintly crenulate and presents a small prominence a little beyond the middle; a conical tooth, however, is not found at the base of the cutting-surface, which is flattened or even slightly concave. The mobile finger is somewhat rugose or

granular and densely hairy above; the external margin of the cutting-edge presents a small transverse tooth at the base and appears, moreover, finely crenulate to near the tip. Near the latter, the inner margin of the cutting-edge is also somewhat crenulate.

The smaller chelipede is similar to the larger, but the fingers are a little longer in proportion to the palm. The three following pairs of ambulatory legs successively decrease in length; the anterior pair are the longest, measuring about once and a fourth the breadth of the cephalothorax, and the posterior are the shortest. These ambulatory legs are very hairy along their margins, especially along the upper margin. The meropodites and carpopodites are unarmed; the propodites are a little shorter than the carpopodites, and measure about two-fifths of the length of the meropodites. Each propodite is armed on the middle of its under margin with a minute spinule and with three or four similar spinules at the distal end of this margin. The dactylopodites are very short; each terminates in a short, acute, arcuate claw, armed on its upper or external margin with a smaller accessory claw; the inner margin of the dactylopodite presents, moreover, one or two minute spinules. The dorsal accessory claw is directed close to and parallel with the larger terminal claw.

The legs of the fifth pair have the usual form.

This species differs from *P. biunguiculata*, Dana, and *P. obesula*, White, by many characters, *e. g.* in its larger size, in the shape of its hands, the fingers of which are much shorter than the palm, in the structure of its ambulatory legs, in the animal being clothed with hairs, &c.; *Polyonyx sinensis*, Stimps., is doubtless another species.

Dimensions of *Porcellana (Polyonyx) Euphrosyne*:—

	millim.
Breadth of cephalothorax	13
Length of same	9½
Breadth of front	3¼
Length of larger chelipede	30
Length of wrist of same	8
Length of larger hand	14
Height of palm thereof	5
Length of first pair of ambulatory legs	15½

Family PAGURIDEA.

Genus PAGURUS, *Dana*.128. PAGURUS PUNCTULATUS, *Oliv.*

Pagurus punctulatus, *Milne-Edwards*, *Hist. Nat. des Crustacés*, t. ii. p. 222.

Pagurus punctulatus, *Miers*, *Voyage of H.M.S. 'Alert'*, 1884, p. 555.

One specimen was collected in Elphinstone Island Bay, and a smaller one at Owen Island.

In these specimens the eye-peduncles are nearly as long as the anterior margin of the carapace, whereas *Milne-Edwards* describes the eye-peduncles as being "beaucoup moins long" than that margin. I am disposed therefore to regard his description as inexact, because these specimens in their other details agree perfectly with the description in the 'Histoire Naturelle des Crustacés.' The eye-peduncles surpass the peduncle of the outer antennæ by the length of the cornea, and they are a little shorter than the peduncle of the inner antennæ.

Pagurus punctulatus has been recorded from nearly the whole Indo-Pacific region, from the Red Sea and Madagascar to Australia and the Sandwich Islands.

129. PAGURUS DEFORMIS, *M.-Edw.*

Pagurus deformis, *Milne-Edwards*, *Hist. Nat. des Crustacés*, t. ii. p. 222; *Hilgendorf*, *Monatsber. Berliner Akademie*, Nov. 1878, p. 818.

One female specimen, inhabiting the shell of a *Turbo*, was found at Owen Island.

Pagurus deformis has been recorded from the coast of Mozambique (*Hilgendorf*), the Mauritius and the Seychelles (*Milne-Edwards*), Timor, Amboina, the Anachorettes, New Ireland (*Hilgendorf*), and the island of Oushima, Japan (*Stimpson*).

It is a little doubtful whether the specimen collected at Tahiti and described by Heller (*Crustaceen der Novara-Reise*, p. 86) really belongs to this species, because Heller describes the terminal joint of the third pair of ambulatory legs as being twice as long as the penultimate, whereas in the true *P. deformis* the terminal joint does not attain that length.

Genus CALCINUS, Dana.

130. CALCINUS TERRÆ-REGINÆ, Hasw.

Calcinus terræ-reginæ, Haswell, *Catalogue of the Australian Stalk- and Sessile-eyed Crustacea*, 1882, p. 158.

A single representative of this genus, inhabiting the shell of a *Murex*, was found at Elphinstone Island. I regard it as a variety of Haswell's *C. terræ-reginæ*, a species which occurs on the coast of Queensland, Australia.

Three species of the genus *Calcinus* are very closely allied to one another, viz. *C. intermedius*, de Man, from the Red Sea, *C. terræ-reginæ*, Hasw., from Queensland, and *C. nitidus*, Heller, from Tahiti. *Calcinus intermedius** seems to differ from the Mergui species in the following characters:—The fingers of the larger hand are minutely punctate and nearly as long as the palm in *C. intermedius*, whereas in the Mergui specimen they are distinctly shorter than the palm, and covered with small rounded and flattened granules. The inner surface of the palm of the larger hand is quite smooth in *C. intermedius*, but a little granular towards the base of the immobile finger in the Mergui specimen. The carpopodites of the legs of the second pair are armed with two small spines at the distal ends of their upper margins in *C. intermedius*, but only with one small spine in the Mergui species. The dactylopodites of the ambulatory legs of *C. intermedius* are scarcely shorter than the penultimate joints, but in the Mergui species they are distinctly shorter, those of the second legs measuring two thirds of the length of the propodites, whereas the propodites of the legs of the third pair are $5\frac{1}{2}$ millim., and the dactylopodites $4\frac{1}{2}$ millim. long. The Mergui species is, moreover, differently coloured from the species from Djiddah.

I regard this specimen as a variety of Haswell's *Calcinus terræ-reginæ*, with whose description it completely agrees except in its coloration, and in the armature of the mobile finger of the smaller (right) chelipede. In the Mergui specimen this structure is armed with twelve small teeth placed biserially, as in *C. intermedius*, whereas in the species from the Queensland

* I am unable to compare the specimen from Elphinstone Island with the typical and only specimen of *C. intermedius*, preserved in the Leyden Museum, because the Museum statutes do not admit of the specimen being sent to me.

coast only three or four small teeth are present. In Haswell's specimens of *C. terræ-reginæ*, preserved in spirit, the chelipedes were green, the fingers colourless; the propodites of the ambulatory legs were light dull red, the basal portion of the dactylopodites being dark purple, the distal portion light yellow with a black tip, whereas the rest of the surface was washed with light brown and olive. In the Mergui specimen, also preserved in alcohol, we find the following coloration:—The anterior calcified portion of the upper surface of the cephalothorax is of a fine red colour (a mixture of crimson with rough sienna), the minute scattered punctations, especially of the posterior half, being of a yellowish colour; on each side of the median frontal tooth the frontal margin appears white for a short distance, the external angles presenting again the red colour. The external antennæ are of a beautiful saffron-colour, like the eye-peduncles; but the latter are more reddish-coloured on the basal halves of their upper surfaces, and are provided with a milk-white ring immediately before the cornea. The legs present the same red colour as the gastric region of the cephalothorax; but the carpopodites and the hands of the chelipedes and the last three joints of the legs of the second and third pair are of a darker red; the spoon-like excavated tips of the fingers and the small acute spines at the distal ends of the upper margin of the carpopodites are of a white colour. The minute scattered punctations on the legs are equally white, and the dactylopodites of the legs of the second and third pairs have black tips. I may add that the basipodites of all the legs are marked on their under surfaces with an oval yellowish spot.

New researches will have to decide whether the coloration of the species of the genus *Calcinus* is constant or variable. Perhaps the coloration of the same species will prove to be different in different localities.

Perhaps even Haswell's species may prove to be a colour-variety of Heller's *Calcinus nitidus* from Tahiti.

The cephalothorax of this specimen is 13 millim. long, its anterior margin 4 millim. broad, and the eye-peduncles are $6\frac{1}{2}$ millim. long. I may add that the last two joints of the legs of the third pair are provided with many tufts of long hairs along their under margins, as in *Calcinus Gaimardi* from Amboina.

Genus *DIOGENES*, Dana.131. *DIOGENES MERGUIENSIS*, n. sp. (Pl. XV. figs. 4-6.)

Pagurus miles, Milne-Edwards, in *Annales des Sciences Nat.* 2 sér. t. vi. p. 284, pl. xiv. fig. 2.

Pagurus miles, Milne-Edwards, *Hist. Nat. Crustacés*, t. ii. p. 235.

Diogenes miles, Dana, *United States Explor. Exp., Crustacea*, pl. xxvii. fig. 9.

Nec Cancer miles, Herbst, *Krabben und Krebse*, t. ii. S. 19, Taf. xxii. fig. 7.

Two fine specimens were collected, a male without definite locality and a female from Elphinstone Island Bay. The latter specimen inhabits the shell of an *Eburna*.

As has been observed by Mr. Miers, the species which Herbst figured as *Pagurus miles* is certainly different from the true *Cancer miles* of Fabricius, and even from the *Pagurus miles* of Milne-Edwards and Dana.

Although *Diogenes merguiensis* appears to be identical with the species described fifty years ago by Milne-Edwards as *Pagurus miles*, I nevertheless propose to describe the anterior part of the cephalothorax and the legs, as some details of structure distinctive of these parts has not been mentioned by Milne-Edwards. I would first direct attention to the circumstance that each of the transverse elevated lines with which the upper surface of the cephalothorax is covered in front of the cervical suture is ornamented anteriorly with a row of a few short stiff hairs; in the same manner, all the more or less acute tubercles and spinules which are found on the chelipedes and on the joints of the other legs are piliferous, being provided anteriorly with transverse rows of similar short, stiff hairs, each row consisting of about five to ten hairs. The frontal region and the peduncles of the eyes and of the antennæ of these specimens tolerably well agree with the figure published by Milne-Edwards. The rostrum is very acute, spinulose, and projects a little beyond the level of the ophthalmic scales. The ophthalmic scales, which are comparatively much larger in this species than in *Diog. miles*, Fabr., are subtriangulate and denticulate along their anterior margin; the median tooth, at the internal angle of this margin, is much larger than the others, which gradually diminish in size towards the lateral angle, and the upper surface of each scale is covered with a piliferous, slightly elevated line. The eye-peduncles scarcely project beyond the penultimate joints of the outer and inner

antennæ. They are much shorter than the anterior margin of the carapace, and are a little dilated towards the cornea; each peduncle is marked on its upper surface with two longitudinal, reddish-brown lines. The external antennæ are very hairy. The basal joint of each peduncle, which projects nearly as far forwards as the two triangular prominences of the anterior margin of the carapace, presents a few small spinules on its anterior margin. The next joint, which extends almost as far forwards as the acute tip of the rostrum, is armed with a short spine at the external angle of its anterior margin, but this spine is not represented in Milne-Edwards's figure (*l. c.* pl. xiv. fig. 2). The next or penultimate joint is provided at the base of its upper surface with a small scale which terminates in two spines, which much resemble those in Milne-Edwards's figure, the longer external spine projecting a little beyond the distal end of the penultimate joint, whereas the shorter internal spine scarcely projects so far forwards. As in the same figure, the inner margins of these spines are also spiniferous; but the spinules are more numerous in the Mergui specimens, for in them the external spine is armed with five, and the internal spine with three spinules.

As the foremost of the already described transverse, piliferous, elevated lines on the anterior part of the cephalothorax are minutely spinulose, this region appears somewhat hairy. The anterior margin also is armed with some small spinules between the two lateral spinulose prominences, and some small spinules occur at its external angles. The surface behind the cervical suture is also covered with many long hairs.

The left chelipede is much larger than the right. The arcuate, hairy, upper and internal margin of the meropodite of the larger chelipede is armed with 13-14 small acute spines, all of which are directed forwards; the anterior margin of the upper and external surface is also hairy, and presents a similar number of small spinules, which gradually diminish somewhat in size from the internal to the external angle. This somewhat hairy outer surface of the meropodite is almost wholly flattened and smooth, presenting only some small piliferous spinules and elevated lines on its upper part, in the angle between the anterior and the upper internal margins, and a few piliferous elevated lines near the distal end of the under and external margin. These groups of piliferous lines are united

with one another by a longer, piliferous, elevated line, which proceeds close to and parallel with the anterior margin. The under (external) margin of the outer surface is likewise hairy and armed with some small spinules, which gradually change into piliferous tubercles or elevated lines at the proximal end. The inner surface of the arm is quite flattened and smooth, and the somewhat convex under surface is somewhat granular, and covered with rather long hairs.

The whole upper surface of the carpopodite is everywhere covered with piliferous acute tubercles, which gradually change into acute spinules towards the margins; thus the internal margin is armed with two parallel rows of about 11-12 acute spinules, the foremost of which is a little larger than the others. The much smaller internal surface of the wrist, which is also covered with a few piliferous, smooth, and depressed tubercles, gradually passes into the still smaller concave and smooth under surface.

The compressed hand is a little longer than high, the proportion of its length (the fingers included) to its height being about 12:9; the lower margin of the immobile finger is in a straight line with the lower margin of the palm. The whole, scarcely convex, outer surface of the palm is covered with small, more or less acute tubercles, which are all piliferous, like those of the preceding joints. These small tubercles gradually change into spinules towards the comparatively short upper margin, which therefore presents two parallel rows of small spinules, an external of eight, and an internal row of five spinules. The under margin of the palm is covered with acute tubercles similar to those of the outer surface. Towards the index these tubercles are arranged biserially close to one another, and this double row proceeds upon the under margin of the immobile finger. The inner surface of the hand also presents some sparsely distributed, piliferous tubercles. The fingers are rather much compressed, and there is no gap between their inner margins. Their outer surfaces present some more or less acute piliferous granules, but their inner surfaces are nearly smooth, though somewhat hairy, especially the inner surface of the index. The upper margin of the mobile finger is armed with a row of about 16-17 acute piliferous spinules, which gradually diminish in size towards the pointed, somewhat hooked tip; at the inner side of this row, a second row of much smaller spinules is seen on the upper margin of the thumb. The inner margins of the fingers

are not dentate, but only present some parallel, transverse grooves.

The right chelipede is much smaller and still more hairy. The acute upper margin of the meropodite is clothed with long hairs, and armed at its distal end with three acute spinules. The internal surface appears everywhere smooth and flattened, but the flattened outer surface is covered with some piliferous elevated lines. The under surfaces of the meropodite and ischiopodite are hairy. The internal margin of the upper surface of the wrist is clothed with rather long hairs; the upper surface itself is covered with piliferous acute tubercles or spinules. The hand is very hairy, and its outer surface is also armed with many piliferous acute tubercles and spinules.

As the legs of the second and third pair almost closely resemble one another, I will only describe the right leg of the third pair. All the joints are clothed along their upper margins with long hairs, which are also found along the under margins of the ischiopodite and meropodite. The outer surface of the meropodite is covered with many transverse, piliferous, elevated lines, and its upper margin is armed with a row of sharp spinules. The inner surface of this joint, and that of the carpopodite, appear perfectly smooth. The upper margin of the carpopodite is armed with a row of small spinules, which gradually increase a little in size towards the distal end, and the outer surface is covered with some piliferous elevated lines, arranged longitudinally.

The outer surface of the propodite, which is about four times as long as broad, and somewhat arcuate, is covered with three or four rows of piliferous tubercles, of which those of the upper row are rather acute; the upper margin of this joint presents a row of acute piliferous spinules, and some small, depressed, piliferous granules are also found on its inner surface.

The somewhat arcuate dactylopodite, which is about once and a half as long as the propodite, gradually tapers to its pointed tip. The upper margin of this joint presents some very small spinules along its proximal third; its outer surface is longitudinally sulcate, but its inner surface presents a longitudinal ridge, clothed with hairs, some hairs being also found along its acute upper and under margins.

I may add that the male and female completely agree with one another.

Diogenes penicillatus, Stimps., from Japan, is certainly closely allied to *D. merguiensis*, but may be distinguished from it by its eye-peduncles, which are longer than the peduncles of the external antennæ, by its shorter rostrum, which probably is not spiniferous, and by the structure of its hand, the outer surface of which presents a transverse denticulated crest.

D. rectimanus, Miers, from North Australia, is also a distinct species.

Dimensions of the female specimen:—

	millim.
Length of the anterior part of the upper surface of the cephalothorax, in front of the cervical suture, measured in the median line (without the rostrum)	6
Length of the rostrum	$1\frac{4}{5}$
Distance between the external angles of the anterior margin of the cephalothorax	6
Length of the larger hand	$12\frac{1}{2}$
Breadth of same	9
Length of the meropodite of the right leg of the third pair	$6\frac{1}{2}$
Length of the carpopodite of the right leg of the third pair	6
Length of the propodite of the right leg of the third pair	8
Length of the dactylopodite of the right leg of the third pair	12

132. *DIOGENES MILES*, *Fabr.* (Pl. XV. figs. 7–9.)

Pagurus miles, *Fabricius*, *Entom. Syst.* 2. 470. 6; *Suppl. Entom. Syst.* p. 412. 6.

Nec Pagurus miles, *Herbst*, *Krabben und Krebse*, t. ii. p. 19, Taf. xxii. fig. 7.

Nec Pagurus miles, *Milne-Edwards*, *Annal. des Scienc. Nat.* ii. série, t. vi. 1836, p. 284, pl. xiv. fig. 2; *Hist. Nat. des Crust.* t. ii. p. 235.

Nec Diogenes miles, *Dana*, *Unit. Stat. Expl. Exp.*, *Crustacea*, pl. xxvii. fig. 9, a, b.

Nec Diogenes miles, *Haswell*, *Catalogue Australian Malacostraca*, p. 156.

A single specimen, not provided with eggs, was collected at Sullivan Island, inhabiting, like the preceding species, the shell of an *Eburna*. I refer this specimen to *Diogenes miles*, *Fabr.*,

having compared it with the typical specimen of *Pagurus miles*, Fabr., which was sent to me by Prof. Möbius, of Kiel University. The type unfortunately is in an extremely bad state, being broken into many pieces, and some of the fragments, such as the hands of the anterior legs, are missing. The type specimen is much larger than the Mergui individual, the cephalothorax, including the rostrum, being about 32 millim. long. The latter, however, almost completely agrees with the fragments of the type. In the structure of its cephalothorax, rostrum, ophthalmic scales, and antennal peduncles, the Mergui specimen completely agrees with the type of *D. miles*. The legs of the two specimens, so far as I can judge from the fragments of them remaining in the type, show striking resemblances, but the dactylopodites of the second and third pairs in the typical specimen are armed above only with one row of acute spinules, whereas in the Mergui specimen two parallel rows are present. Although I am inclined to ascribe this slight difference to the larger size of the typical specimen, I must acknowledge, however, that the identification is inconclusive, as the hands of the typical specimen are not available for comparison, and that further researches are necessary to decide whether I am right in considering the Mergui Crab to be a young individual of *Pagurus miles*, Fabr.

As has already been observed by Mr. Miers, *P. miles*, Herbst, is a distinct species from *P. miles*, Fabr., differing from it by the larger hand having a smooth outer surface, and by the existence of a strong blunt lobe or tubercle on the inner margin of the wrist. *D. miles* of Milne-Edwards, Dana, and Haswell is a third species, which I have described above as new, under the name of *D. merguiensis*. I will first point out some characters by which it will be possible to distinguish this species, as here understood, from *D. merguiensis*.

The rostrum of *D. miles*, Fabr., is comparatively much longer than that of *D. merguiensis*, being almost twice as long as the inner margin of the ophthalmic scales; it is strongly spinulose at its distal half and armed on each side with three or four spinules. The spines in which the basal scale on the upper surface of the penultimate joint of the peduncle of the external antennæ terminates are comparatively shorter in *D. miles*, the internal spine reaching scarcely to the middle of the joint, whereas in *D. merguiensis* the internal spine projects even slightly beyond its distal end. The legs of *D. miles* are less

hairy, the palm of the larger hand and the propodites of the legs of the second and third pairs being almost wholly glabrous, their tubercles and spines being not piliferous. The outer surface of the larger hand and also of its fingers are covered in the Mergui specimen (the hands of the typical specimen are missing) with more numerous, though much smaller granules than in *D. merguiensis*. As regards the upper surface of the cephalothorax, both species almost wholly agree with one another, for in *D. miles*, as in *D. merguiensis*, the part which lies before the cervical suture is also covered with transverse, piliferous, elevated lines, of which the anterior ones are minutely spinulose. In the same manner the anterior margin is armed with minute spinules, and similar spinules are found on the lateral margins and at the external angles. The two lateral prominences on the anterior margin are, however, a little less prominent than in *D. merguiensis*. The part of the upper surface behind the cervical suture is covered with hairs.

The acute rostrum extends quite to the middle of the distance between the anterior margin of the cephalothorax and the rounded ends of the eye-peduncles; it is about twice as long as the inner margin of the ophthalmic scales, and it exceeds by its anterior third the inner margin of the antepenultimate joint of the peduncle of the external antennæ. The basal half of the rostrum (between the ophthalmic scales) presents some minute spinules, and the free terminal half is armed on each side with three somewhat larger spinules, whereas the rostrum terminates anteriorly in two spinules. The ophthalmic scales nearly agree with those of *D. merguiensis*, but they are comparatively much smaller in proportion to the breadth of the cephalothorax. The external antennæ are somewhat hairy; the basal or first joint projects as far forward as the triangular teeth on the anterior margin of the carapace, and it is armed at the external angle of its minutely spinulose anterior margin with a small spine. The second or antepenultimate joint perfectly resembles that of *D. merguiensis*, being armed with a spinule at the outer angle of the anterior margin. The two spines in which the basal scale of the upper surface of the following or penultimate joint terminates are shorter than in *D. merguiensis*, the external spine scarcely projecting beyond the distal end of the joint, whereas the internal spine only reaches to its middle. The external spine is armed at its inner margin with about five

or six spinules, and the internal with two. The eye-peduncles are marked with similar reddish-brown lines to those apparent in *D. merguiensis*.

The legs much resemble those of the latter species, so that I will only describe their distinctive characters. The meropodite of the larger chelipede is quite similar to that of *D. merguiensis*. Also as regards the carpopodite, both species nearly agree with one another, but in *D. miles* the tubercles of the upper surface are somewhat more numerous, smaller, and less piliferous; as in *D. merguiensis*, two parallel rows of somewhat larger acute spinules are found along the inner margin of the upper surface. As regards its shape and form, the larger hand is quite similar to that of *D. merguiensis*; its outer surface, however, is covered, in the Mergui specimen, with much more numerous, much smaller, and quite glabrous granules. In both species the lower margin of the immobile finger makes a straight line with the lower margin of the palm. Towards the upper margin, and near the articulation with the wrist, these granules, now ever are slightly larger and acute, and the upper margin of the palm presents two parallel rows of acute spinules, much as in *D. merguiensis*. The inner surface of the palm is a little granular and hairy in the middle, being armed with a few sparsely distributed small granules; near the upper margin it presents some acute spinules, and the under surface or margin of the palm is also a little more coarsely granulated. The outer surface of the fingers is covered with much more numerous and much smaller granules than in *D. merguiensis*, and their inner margins are more distinctly dentate. The granules of the fingers, like those of the outer surface of the palm, are not piliferous, but quite glabrous. As in *D. merguiensis*, the inner margins of the fingers on both sides of the teeth present some small tufts of hairs. The upper margin of the mobile finger likewise presents two parallel rows of acute granules, those of the external being much larger than those of the internal row; these granules, however, are much smaller in *D. miles* than in *D. merguiensis*, in which they are more spiniform; they are also more numerous, the external row consisting of about 30 granules, whereas in *D. merguiensis* there are only 16 or 17. They gradually diminish in size towards the pointed, hooked tip. The upper margin presents some few hairs. On the middle of the smooth inner surface of the thumb some small granules are observed, more numerous

and smaller than in *D. merguiensis*. Both species very nearly agree in the character of the right chelipede; this leg likewise is very hairy and piliferous, but the external surface of the hand bears smaller and less acute granules than in *D. merguiensis*. The other legs are almost similar in both species, the joints presenting the same form and size as in *D. merguiensis*. The distinguishing characters are the following:—

The outer surfaces of the joints, as on the larger hand, are covered with more numerous, smaller, and less piliferous granules than in *D. merguiensis*, and their upper margins are also less hairy. In comparing the right third pair of legs of both species with one another, I observe that the upper margin of the meropodite of *D. miles* is armed with a row of more numerous and larger spinules than in *D. merguiensis*, and that the upper margin of the dactylopodite in the Mergui specimen of *D. miles* presents two rows of small spinules, of which those of the inner row are a little larger than those of the outer. These rows extend beyond the middle of the dactylopodite. In the larger and typical specimen of *D. miles*, Fabr., as already observed, there is only one row of spinules on the dactylopodite. In *D. merguiensis* there is a single but much shorter row of acute granules along the proximal third of the dactylopodite. The outer surface of the dactylopodite of *D. miles* is longitudinally sulcate, and the inner surface is covered with a few acute granules at its base.

Both species probably grow to the same size, and their carapace and legs have similar dimensions.

133. *DIODES AVARUS*, Heller.

Diodes avarus, Heller, *Crustaceen der Novara-Reise*, p. 83, Taf. vii. fig. 2.

Six specimens were collected in Elphinstone Island Bay. Three were found in the shell of a species of *Nassa*, the fourth in a young *Strombus*-shell, the fifth in a *Cerithium*. The sixth has been removed from its shell; it is very young, and the carpopodite and the hand of its larger chelipede are not yet as elongated as in the adult.

Diodes avarus has been recorded from the Nicobar Islands.

134. *DIODES*, sp.

The collection contains yet a fourth species of this genus represented by a very young specimen, inhabiting a *Nassa*-shell,

found in Elphinstone Island Bay. I hesitate to determine it, because young specimens differ much from the adult. It seems, however, to be allied to *Diogenes senex*, Heller, a species from Sydney, distinguished at first sight from *D. avarus* by the larger hand being very pilose.

Genus CLIBANARIUS, Dana.

A. Dactylopodites of the legs of the second and third pair distinctly longer than the propodites.

135. CLIBANARIUS INFRASPINATUS, Hilgendorf.

Pagurus (Clibanarius) infraspinatus, Hilgendorf, *Crustaceen von Ost-Afrika*, 1869, p. 97 (footnote).

Six fine specimens of this common Indian species were collected; four of them are without definite locality, and inhabit shells of *Pyrula*, whereas the two others were found in King Island Bay: one of the latter has no shell, and the other much smaller individual inhabits a *Buccinum*.

Dr. Hilgendorf has kindly compared a specimen for me with his types of *Clibanarius infraspinatus* from Singapore in the Berlin Museum, and communicated me some remarks about this species and *C. vulgaris*, Dana (= *Cancer clibanarius*, Herbst).

According to Dr. Hilgendorf, the latter species, which was adopted by Dana as the type of his genus *Clibanarius*, and named by him *Clibanarius vulgaris*, is closely allied to *C. infraspinatus*, Hilgendorf, and only differs from it by the arms of the anterior legs not being armed with a spiniform tubercle at the proximal end of the inner margin of the under surface. The large typical specimen of *Cancer clibanarius*, which Herbst figured (t. ii. pl. xxiii. fig. 1), and which is still preserved in the Berlin Museum, had and still has a uniform red colour, but another specimen in Herbst's collection presents the same coloration as *Clibanarius infraspinatus*. When we consider that the Berlin Museum, since the days of Herbst, has not received a single crab agreeing with his types of *C. clibanarius*, but that numerous specimens identical with *C. infraspinatus* have been frequently added to the collection of that institution, I think we have some reason to regard the old type of Herbst as a mere variety of *C. infraspinatus*. I am therefore inclined to unite both species under the name of *C. vulgaris*, Dana.

I will now describe the largest of the Mergui specimens.

The median rostral tooth of the cephalothorax is rather small, triangular, acute, and in all the specimens it projects a little more forwards than the lateral frontal teeth situated just outside of the bases of the eye-peduncles. The latter are slender and (the basal scales included) about as long as the width of the anterior margin of the cephalothorax; the basal scales are rather small, a little longer than broad, and armed, on their anterior margins, with four acute spinules, the innermost of which is the largest, whereas the others successively decrease in length outwards. The eye-peduncles are longer than the peduncles of the external antennæ, but shorter than those of the internal antennæ. The antepenultimate joint of the peduncle of each external antenna is armed at the internal angle of its anterior margin with an acute minute spinule; a similar spinule is found at the external angle of the anterior margin of the penultimate joint. The spiniform aciculum which projects from the dorsal surface of the penultimate joint, extends a little less forward than the middle of the terminal joint of the peduncle, and is armed on its inner margin with a row of 6-8 acute spinules and with some yellowish hairs.

In some of the specimens the right chelipede, and more especially the right hand, is a little smaller than the left; in most specimens, however, they appear equal at a first sight, but on a more careful examination a slight difference in size is perceptible. In one specimen the difference of size is somewhat more considerable, so that the left chelipede of this individual appears at first sight larger than the other.

In all the specimens the inner margins of the under surfaces of the arms are armed at their proximal ends with a more or less elevated dentiform tubercle, which is not acute, or scarcely so. The wrist is armed above with some acute spiniform teeth, three larger than the others being arranged in a longitudinal row along the inner margin. The hands are covered on their flattened upper surfaces with numerous acute dentiform tubercles, particularly crowded on their rounded outer margins and towards the internal margins of the palms, whereas they are less numerous on the middle of the upper surfaces. Five or six somewhat larger acute teeth are situated, in a longitudinal row, along the inner margin of the upper surface. The under surfaces of the hands are almost smooth. The upper surface of the mobile

finger presents two or three longitudinal rows of small, acute, black-pointed spinules; the immobile finger is armed with similar spinules, partly arranged in longitudinal series; the under surfaces of the fingers are nearly smooth. The chelipedes are covered with some yellowish hairs, which are more numerous on the fingers, and arranged on the latter in small transverse tufts, as well on their upper as on their under surfaces.

Each meropodite of the first and second ambulatory legs is armed with an acute spinule at the distal end of the under margin of its external surface near the articulation; but otherwise these joints are unarmed. The carpopodites of the first pair of ambulatory legs present a longitudinal row of acute teeth on their upper margins, of which the distal one is the largest; those of the second pair are only armed with a single acute spine at the distal ends of their upper margins. The propodites are nearly quite unarmed, presenting sometimes only a small acute spinule at the distal ends of their upper margins. The slender, somewhat arcuate dactylopodites of these two pairs of legs are longer than the propodites; those of the first pair are once and a half as long as the propodites, and those of the second pair are somewhat longer still. Their upper margin presents a somewhat elevated, smooth, longitudinal ridge; and the under margin is armed with a longitudinal row of 7 or 8 black acute spinules along the distal half. The dactylopodites terminate in acute black points. The ambulatory legs of the first and second pairs are clothed with small tufts of hairs along their upper and under margins, those of the upper margins of the dactylopodites are arranged along the inner side of the longitudinal ridge. The legs of the two posterior pairs are also very hairy.

The coloration of this species is very characteristic. The anterior part of the upper surface of the cephalothorax is of a uniform pale colour and is not marked with longitudinal lines, though it presents in some specimens a few small red spots. The lateral sides of the carapace are a little reddish. The eyepeduncles are of a red colour and marked along the inner margins of their upper surfaces with a narrow longitudinal pale line, proceeding from the cornea to the base; another longitudinal pale line proceeds at the outer side of the upper surface, from the cornea, gradually tapering till near the base of the peduncle.

The red peduncles of the antennæ and antennules are also marked with narrow longitudinal pale lines. The chelipedes are of the same red colour, that is more intense on the upper than on the under surface; the dentiform acute tubercles with which they are armed are of a paler colour and, especially those of the hands, contrast rather strongly with the red ground-colour of the palm. The fingers have subexcavate corneous tips, the upper margins of which are black. The first and second pair of ambulatory legs are also of the same red colour, and are marked, moreover, with longitudinal pale lines bordered by a darker red. The upper margins of the meropodites of the first pair of ambulatory legs are marked on their upper margins with a similar longitudinal pale line; this line divides near the middle of the upper margin into two pale lines, one of which proceeds further forwards on to the upper margin and is continued along the upper margins of the following joints, while the other is directed towards the middle of the external surface of the joint, and is then continued on to the middle of the outer surfaces of the following joints. The ambulatory legs of the second pair are marked with precisely similar lines, except that the outer surfaces of the meropodites are marked moreover with a third longitudinal pale line on the middle of their outer surfaces, which, however, is not continued on to the following joints. The under margins of the joints are also of a pale colour, which is especially distinct on those of the propodites and dactylopodites.

Dimensions of the largest specimen :—

	millim.
Length of the cephalothorax	20
Length of the anterior part of the upper surface, which is bordered posteriorly by the cervical suture	10
Breadth of the front	8
Length of the eye-peduncles	$8\frac{1}{4}$
Length of the hands	14
Breadth of the hands at base	$6\frac{3}{4}$
Length of the meropodites of the right ambulatory legs of the second pair	9
Length of the carpopodites	8
Length of the propodites	$9\frac{1}{2}$
Length of the dactylopodites	$17\frac{1}{2}$



Man, J G. 1888. "Report on the Podophthalmous Crustacea of the Mergui Archipelago, collected for the Trustees of the Indian Museum, Calcutta, by Dr. John Anderson, F.R.S., Superintendent of the Museum.-Part IV." *The Journal of the Linnean Society of London. Zoology* 22, 177-240.
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