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ERRATA.

- Page 59, bottom line, for loupe read pocket-lens  
 „ 240, line 15 from top, for *N. plicata* read *N. sinuata*  
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XII. *Notes upon the Oyxstomatous Crustacea.* By EDWARD J. MIERS, F.L.S., F.Z.S.,  
Assistant in the Zoological Department, British Museum.

(Plates XXXVIII.—XL.)

Read June 15th, 1876.

I. Family LEUCOSIIDÆ.

*Remarks on the Literature of the Subject.*

SINCE 1855, when Mr. Bell published, in the 21st volume of the Society's 'Transactions,' his excellent monograph of the *Leucosiidæ*, several important memoirs have appeared, adding considerably to our knowledge of the genera and species of this family, which includes some of the most striking and beautiful forms in the whole range of the *Brachyura*. In the 'Proceedings of the Academy of Natural Sciences of Philadelphia' for 1858 Mr. W. Stimpson published diagnoses of several new genera and species of *Leucosiidæ*, collected during the United States' Expedition to the N. Pacific, chiefly in the Chinese seas. In the 'Journal of the Boston Society of Natural History,' vi. 1857, the 'Annals of the Lyceum of Natural History of New York' for 1860 and 1871, and in the 'Bulletin of the Museum of Comparative Zoology,' ii. 1870, the above-mentioned author has described a considerable number of new genera and species from different parts of the North-American coast. M. Alph. Milne-Edwards, in the 'Annales de la Société Entomologique de France,' v. 1865, the 'Nouvelles Archives du Muséum d'Histoire Naturelle,' x. 1874, and the 'Journal des Museum Godeffroy,' part iv. 1873, has described and beautifully figured many new and interesting genera and species from different parts of the world. Species of this family have also been described or noticed by Gibbes, Herbst, Hess, Kinahan, and others.

In the present essay the species of this family in the collection of the British Museum which do not appear to have been hitherto recorded, are described; and remarks are added upon a few other species in the national collection.

*Descriptions of New Species of the Family of Leucosiidæ.*

LEUCOSIA, Fabricius.

The species of this, the typical genus of the family, are remarkable in many instances for the beauty of the coloration and markings of the polished carapace. They are found throughout the tropical and warmer temperate zones of the oriental region, from the Red Sea to the islands of the Pacific.

Twenty species are enumerated by Bell in his monograph of the family. Stimpson, in 1858, added three species from the Chinese seas to the list. A species from the Australian coast was characterized in 1865 by Hess; M. Alph. Milne-Edwards in 1874 described and figured three species from New Caledonia; and in 1875 I described one



from the Samoa Islands. There are in the national collection eight species of this genus, apparently distinct from any that have been hitherto recorded.

1. *LEUCOSIA FUSCOMACULATA*, sp. n. (Pl. XXXVIII. figs. 1-3.) Allied to *L. urania*, Herbst, but less convex, with a more distinct, marginal beaded line; the carapace distinctly punctated on the sides; anterior part of the thoracic sinus much narrower, and its cavity, above the point of insertion of the thoracic anterior legs, filled by a confluent series of but three or four closely placed, flattened tubercles, whereas in *L. urania* the tubercles are at least twice as numerous, and remote from one another. Abdomen of male smooth, 4-jointed. Colour light, yellowish brown, with very indistinct spots and patches of dusky grey on the carapace. Length  $\frac{5}{6}$  in.; breadth  $\frac{3}{4}$  in.

*Hab.* Red Sea, Gulf of Suez.

2. *LEUCOSIA PULCHERRIMA*, sp. n. (Pl. XXXVIII. figs. 4-6.) Carapace smooth, convex, sparsely punctate towards the front and anterolateral margins, which are defined by a beaded line which terminates above the point of insertion of the first pair of ambulatory legs. Hepatic regions concave in their front portion, and slightly convex behind. Arm with a line of large tubercles on its anterior and posterior margins, upper surface with a group of small tubercles at base, followed by four larger; lower surface with many closely placed tubercles at base; wrist and hand smooth, fingers not quite meeting at base when closed. Thoracic sinus deep, narrow, and well-defined in front, with a beaded margin; its cavity, above the base of the anterior legs, filled with a series of about half-a-dozen small tubercles. Colour stone-grey, inclining to brown on the back and white on the ambulatory legs, a circle of rose-pink upon the back of each branchial region, a trilobate pattern formed by three confluent semicircles of the same colour upon each side of the anterior half of the carapace (these are confluent in the middle line, and together somewhat resemble in outline a butterfly with the wings extended); there are three white spots in the centre of each trilobate pattern; the basal half of the fingers is orange; and there are rings of the same colour surrounding the joints of the ambulatory legs and tubercles of the arms, also small spots of orange near the lateral margins and upon the inferior surface of the carapace. Length  $1\frac{1}{2}$  in.; breadth  $\frac{1}{2}$  in.

*Hab.* Lizard Island.

In all structural characteristics this species is nearly allied to *L. neocaledonica*, A. M.-Edw.; but it is preeminently distinguished from this and all other species of the genus by the strikingly beautiful coloration and markings of the carapace. The thoracic sinus is also deeper, narrower, and better-defined in front, with a beaded margin. Only a single specimen (♀) in the collection.

3. *LEUCOSIA ORNATA*, sp. n. (Plate XXXVIII. figs. 7-9.) This species, in all structural characteristics, very closely resembles *L. pulcherrima*; but it is more strongly



punctated, the concavity and convexity of the hepatic region is more decided, and there are but four clearly distinct tubercles in the cavity of the thoracic sinus. The colour is dark brown; there are three white spots upon each side of the gastric region, and a small red circle on the back of each branchial region. The bases of the fingers, tubercles of the arms, and joints of the ambulatory legs are banded with orange, as in many species of the genus. Length 1 in.; breadth  $\frac{5}{8}$  in.

*Hab.* Ceylon,

This species was presented to the Trustees of the British Museum by E. W. H. Holdsworth, Esq., with a valuable series of Crustacea from Ceylon. The specimen is a female.

4. *LEUCOSIA BRUNNEA*, sp. n. (Plate XXXVIII. figs. 10-12.) Carapace convex, smooth and polished, but very slightly punctated towards the anterolateral margins, and with a finely beaded line continued to the middle of the posterolateral margins. Front very slightly projecting beyond the eyes; behind it there is a short longitudinal median ridge between the concave hepatic regions. Thoracic sinus wide, its anterior margin straight, not beaded, and forming nearly a right angle with the anterolateral margin of the carapace. Arm with numerous, small, crowded tubercles upon its infero-anterior surface, upper surface with a group of very small tubercles at base, beyond them four tubercles placed in a quadrangle; anterior and posterior margins with a line of tubercles; wrist smooth; inner margin of hand with a granulated line; fingers straight. Colour brown, inclining to red on the back of the carapace. Length  $1\frac{1}{8}$  in.; breadth 1 in.

*Hab.* Singapore.

This species is distinguished from its congeners by the form of the thoracic sinus &c.

5. *LEUCOSIA RETICULATA*, sp. n. (Pl. XXXVIII. figs. 13-15.) Carapace subglobose, smooth; sides with a beaded line extending from the front of the hepatic regions along the anterolateral and about halfway along the posterolateral margins. Front flat above, and not produced beyond the eyes; anterior margin straight. Thoracic sinus short; anterior margin smooth, not beaded, and not defined at either extremity. The cavity of the thoracic sinus, above the insertion of the anterior legs, is filled by a series of about half-a-dozen flattened tubercles. Anterior legs strong; arm tubercular on the proximal half of its upper surface, the distal half smooth and polished; on the anterior and posterior margins the tubercles extend nearly to the extremity of the arm; on the anterior surface, and below at base, the tubercles are numerous and crowded; wrist smooth, hand compressed, outer margin smooth, inner with an obscurely beaded line. Abdomen of male smooth, without any tubercle on the penultimate joint; terminal joint very small, the others of about equal width throughout. Colour greyish green, yellowish on the sides and back of the carapace, which is marked with reticulating lines of a darker green. Ambulatory legs yellowish brown. On each side of the carapace, above the point of insertion of the anterior legs, there is a group of from six to a dozen small red granules. Length  $1\frac{1}{8}$  in.; breadth 1 in.



*Hab.* Western Australia, Shark's Bay.

This species is at once distinguished by its colour and the group of red granules on each side of the carapace. Specimens of both sexes are in the collection.

6. *LEUCOSIA WHITMEEI*. (Plate XXXVIII. figs. 16-18.)

*Leucosia whitmeei*, Miers, Ann. & Mag. Nat. Hist. xvi. p. 342 (1875).

This species was described by me in 1875 from a specimen from Samoa, presented by the Rev. S. J. Whitmee to the Trustees of the British Museum. Specimens are in the national collection, from Ovalau in the Fiji Islands, which probably belong to this species, with which they agree in structural characteristics; but all traces of the original coloration and markings of the carapace have disappeared.

7. *LEUCOSIA PERRYI*, sp. n. (Plate XXXVIII. figs. 19-21.) Carapace rather depressed, with a continuous beaded line defining the lateral and posterior margins, and with a slight longitudinal median ridge between the hepatic regions. Front tridentate, not concave above. Thoracic sinus entirely absent. Anterior legs rather slender; arm closely tuberculated above and below at and towards the base; wrist and hand smooth, hand rather compressed, but not keeled or beaded; fingers, when closed, meeting only at tips. Abdomen of male narrow, triangular, with the sides straight, and with a slight tubercular prominence on the penultimate segment. Colour of carapace deep brown, with two or three small, irregular, paler spots in front of the branchial regions; arms greyish; hands and ambulatory legs paler brown. Length  $\frac{2}{3}$  in.; breadth about  $\frac{1}{2}$  in.

*Hab.* Western Australia, Shark's Bay.

This species is distinguished from all others of the genus having a tridentate front by the entire absence of the thoracic sinus. In this respect it resembles *L. orbicularis*, Bell; but this species has the front much less produced forward, with the anterior margin concave. I have named it in honour of its discoverer, W. Wykeham Perry, Esq., by whom it was presented to the Trustees of the British Museum, with three others of the new species described in this paper\*.

8. *LEUCOSIA PUBESCENS*, sp. n. (Plate XXXVIII. figs. 22-24.) Carapace convex, smooth and polished; anterolateral margins with a finely beaded line, which does not extend beyond the commencement of the posterolateral margin. Hepatic regions concave. Front tridentate, flat above. Thoracic sinus with its anterior

\* The following is a list of the species of Crustacea (besides several interesting specimens too young for determination) that have been presented by Mr. Perry to the collection of the British Museum:—

*Lambrus nodosus.*

*Neptunus sanguinolentus.*

*Caphyra rotundifrons* (young).

*Gelasimus annulipes*, var.

*G. gaimardi.*

*Grapsus pictus.*

*Geograpsus crinipes.*

*Sesarma obesum.*

*S. quadratum.*

*Leucosia reticulata*, sp. n.

*L. perryi*, sp. n.

*Matuta crebrepunctata*, sp. n.

*Matuta obtusifrons*, sp. n.

*Calappa hepatica.*

*Remipes pacificus.*

*Squilla armata.*



margin smooth, not beaded, and not defined at either extremity, its cavity above the base of the anterior legs filled with a short close pubescence. Upper surface of arm with a group of small tubercles at base, followed by two larger, and with a patch of dense short pubescence. Anterior and posterior margins with a line of tubercles; lower surface densely tuberculated; wrist and hand smooth, fingers straight. Colour greenish grey, with a series of eight marginal spots of darker green, two spots of the same colour on the gastric region, and four on the cardiac region. There are also two white spots on each side of the gastric region. Abdomen of male smooth, with all the joints except the last coalescent. Length nearly 1 in.; breadth  $\frac{5}{6}$  in.

*Hab.* Western Australia, Shark's Bay.

This species is most nearly allied to *L. pallida*, Bell, but differs from it in the form of the thoracic sinus, which is wider in front; the arm of *L. pallida* has not the patch of pubescence on its upper surface at base that always exists in specimens of *L. pubescens*; the hand is slenderer, with a granulated line on its inner margin.

#### MYRA, Leach.

MYRA MAMMILLARIS, Bell. (Plate XXXVIII. figs. 25-27.) Some specimens from Australia, in the British-Museum collection, differ in several particulars from the adult specimens of *M. mammillaris*, but are, I think, the young of that species. In these examples the carapace is scarcely longer than broad, and there is a faintly marked longitudinal median carina. The hepatic regions are more strongly convex, the pterygostomian regions more decidedly angulated; the tubercles on the posterior margin of the carapace are more conical (though not acute), the anterior legs are much shorter, and the tubercle on the penultimate segment of the abdomen of the male much more prominent than in adult specimens of *M. mammillaris*. Length  $\frac{3}{4}$  inch; breadth  $\frac{2}{3}$  inch.

It is probable, if this determination be correct, that both *M. carinata* and *M. elegans*, Bell, are founded on specimens that have not attained quite their full size, and that the median carina, characteristic of these species, will be found to disappear entirely in fully matured animals. Should, however, the examination of a larger series of specimens prove the examples above described to be specifically distinct from *M. mammillaris*, they may be designated by the name of *M. angulata*.

#### NURSIA, Leach.

1. NURSIA SINUATA, sp. n. Carapace moderately convex, broader than long, with three tubercles placed on the cardiac region in the form of a triangle, a longitudinal median ridge extending from the front to the posterior margin, and a transverse curved ridge that extends from the cardiac region to the second tooth of the posterolateral margin. There is also a slight elevation in front of each anterior tubercle of the cardiac region. There are well-marked depressions between the ridges towards the margins. Posterolateral and posterior margins deeply sinuated, with



seven broad, triangular, nearly equal teeth. Anterior legs slender; arm granulous and rounded on its anterior and inferior and the proximal half of its posterior margins; wrist and hand smooth; hand slightly compressed, but scarcely carinated.

*Hab.* Australia, Moreton Bay.

In both *N. plicata* and *N. abbreviata* the anterior legs are smooth, the arm trigonous, and the hand angulated and carinated. In *N. plicata* the teeth of the posterolateral margins are unequal; in *N. abbreviata* they are nearly obsolete.

## 2. NURSIA PLICATA? (Plate XXXVIII. fig. 28.)

? *Cancer plicatus*, Herbst, Naturg. Krabben u. Krebse, iii. pl. lix. fig. 2 (1803).

*Nursia hardwickii*, Leach, Zool. Miscell. iii. p. 20 (1817); M.-Edw. Hist. Nat. Crust. ii. p. 137 (1837).

*Nursia plicata*, Bell, Trans. Linn. Soc. xxi. p. 307 (1855), no figure.

*Hab.* Indian Ocean.

Mr. Bell observes of this species, that the only specimens with which he was acquainted (those in the British-Museum collection) were brought from India by General Hardwicke. He evidently was unaware of the true habitat of the specimens of *N. plicata*, and confounded them with *N. hardwickii*. These specimens were in the collection in 1852, three years prior to the date of the publication of Mr. Bell's essay; and one of them is undoubtedly figured by him as *N. plicatus* (pl. xxxiv. fig. 4). In the British-Museum copy of Herbst's work the description and plate containing the figure of his *Cancer plicatus* are unfortunately wanting; and therefore I cannot tell to which of the undoubtedly distinct species, *N. sinuata* and *N. hardwickii*, it is to be referred. *N. hardwickii* of all ages is distinguished from the *N. sinuata* by the anterior legs, which are flat, smooth on the upper surface, with the anterior and posterior margins of the arms thin and sharp-edged, not rounded, as in *N. sinuata*.

The specimen I have figured is the typical example of *N. hardwickii*.

## ARCANIA, Leach.

ARCANIA GRANULOSA, sp. n. (Plate XXXVIII. fig. 29.) Carapace shining, subglobose, uniformly and distinctly granulated, with ten short, acute, equidistant, smooth marginal spines—and one on the intestinal region, above the two posterior marginal spines. The frontal spines short, projecting but slightly over the eyes. Anterior legs slender, about twice as long as the carapace; arm distinctly, wrist and hand very finely granulated. Length nearly  $\frac{1}{3}$  in.; breadth  $\frac{1}{4}$  inch.

*Hab.* Australia, Moreton Bay.

This species is distinguished by the granulated carapace (which is not at all tuberculate or spinulose on its upper surface) from the other species of the genus.

## CRYPTOCNEMUS, Stimpson.

This genus was established by Stimpson in 1858 for a Crustacean discovered in Japan, and remarkable for the extension of the carapace laterally over the ambulatory legs, to which he applied the specific name of *C. pentagonus*. A second species, *C. grandidierii*, was described by M. A. Milne-Edwards in 1865, from Zanzibar.



CRYPTOCNEMUS HOLDSWORTHI, sp. n. (Plate XXXVIII. figs. 30-32.) Carapace nearly transversely oblong, with the frontal region projecting; the lateral margins nearly as long as the anterior margins, and forming nearly a right angle with the straight, entire, posterior margin; smooth, without granules or tubercles, convex in the centre, and slightly concave towards the margins. There is a longitudinal median ridge between the front and cardiac region, and a less distinct, oblique ridge between the cardiac region and posterolateral angles of the carapace. Anterior legs (in female) smooth, with the arm trigonous, hand slightly compressed and cristate above, the margins straight, not sinuated; fingers nearly as long as palm, meeting throughout when closed. Ambulatory legs small, and entirely concealed beneath the carapace. Abdomen of female broad, punctulated, 4-jointed; the terminal joints coalescent. Length  $\frac{1}{4}$  in.; breadth  $\frac{1}{3}$  in.

*Hab.* Ceylon.

This species is named after its discoverer, E. W. H. Holdsworth, Esq. In *C. grandidieri*, A. M.-Edw., from Zanzibar, the front is broad and truncate, the elevated regions of the carapace marked with granulated lines, and its posterior border emarginate. In *C. pentagonus*, Stim., from Japan, the carapace is differently proportioned, the entire lower surface of the body smooth, and the fingers only one third the length of the hand, which has greatly expanded horizontal crests and deeply sinuated margins.

## II. Family MATUTIDÆ.

*Historical Summary.*—Although the remarkable crustaceans of the Oxystomatous genus *Matuta* are among the commonest of the species of Brachyura inhabiting the Oriental region, the differences in the armature and coloration of the carapace and anterior legs are so slight and so numerous that their determination is a matter of great difficulty; and most of the later naturalists have been content to admit one, or at most but two species, distinguished mainly by the coloration of the carapace. I have, after careful examination of the large series of specimens in the British Museum, arrived at the conclusion that there are at least nine well-marked species in the national collection.

In the following condensed summary of the history of the genus, the principal authors are mentioned who have contributed to our knowledge of the classification of the species.

Fabricius, in the Supplement to his 'Entomologia Systematica' (1798), established the genus *Matuta* for his previously described *Cancer victor*, and added another species, *M. planipes*, which he characterizes simply as "*thorace postice striato.*" It is impossible, from this brief diagnosis, to identify the species with any of those described below with any degree of certainty.

In 1817, Dr. Leach, in the third volume of his 'Zoological Miscellany,' p. 12, published an article on the "Characters of the Genus *Matuta*, with Descriptions of the Species." In this essay four species are described, and two figured; the *Matuta victor* of Fabricius is referred to, but not described; no attempt is made by Dr. Leach to identify with his own the species of Herbst, Desmarest, Latreille, and earlier authors. The characters employed in the definition of the species are unfortunately such as vary



with the age and sex of the specimen; and (in the case of *M. peronii* and *M. lunaris*) examples of widely separated species are brought together, and exist in the national collection under the same specific name. In the case of these species I have therefore considered the specimen figured by Dr. Leach the type of the species. Of *M. banksii* no labelled specimens are now in the collection; and I have been guided by the description alone.

In 1825, M. Latreille, in the tenth volume of the 'Encyclopédie Méthodique d'Histoire Naturelle,' published an excellent article upon the genus *Matuta*, in which he indicates, for the first time, what I believe to be the natural subdivisions of the genus, based upon the sculpture of the external surface of the hand. He describes a new species, *M. doryphora*, and in a footnote points out distinctive sexual characters. His essay is not noticed by M. Milne-Edwards in 'L'Histoire naturelle des Crustacés.' This naturalist, in his second volume of the work in question (1837), admits but two species of this genus, *M. victor* and *M. lunaris*, Herbst, characterized respectively by the carapace being marked with numerous scattered dots or reticulating lines.

De Haan, in the fifth fasciculus of his elaborate work on the Crustacea of the 'Fauna Japonica' of Von Siebold (1841), reunited under one name, *Matuta victor*, all the species of the genus, but distinguished six varieties, to which no original names are applied—although he quotes as synonyma the names of several of the species of the earlier authors, as referring to them, whether rightly I am not in every case able to determine. Dana, in 1852, in the first part of the 'Crustacea of the United-States Exploring Expedition,' xiii. p. 395–6, notes the sexual differences in the striation of the ridge on the mobile finger in the specimens collected by the Expedition, but adds nothing to our knowledge of the species.

Hess (1865), in the 'Archiv f. Naturgeschichte,' xxxi. p. 158, pl. vi. f. 13, described and figured a new species, *M. picta*, from Sydney. F. Hilgendorf, in the 'Reisen in Ost-Afrika' of Baron van der Decken (1869), figures details of a species he refers, I believe, correctly to *M. victor* (*op. cit.* Crustaceen, p. 93, pl. iii. fig. 2), and adds remarks upon the striated areas upon the inner surface of the hand (which, he thinks, serve the purpose of producing sound), and upon the specific distinctness of *M. victor* and *M. lunaris*.

Lastly, in 1874, M. Alphonse Milne-Edwards, in the 'Nouvelles Archives du Muséum,' x. p. 54, reunites, under the name of *M. victor*, all the species of earlier authors, remarking that it is impossible to admit the numerous species proposed by different authors, every intermediate degree being found between forms which at first might appear distinct.

I have endeavoured to retain the names of the early authors for the species hereafter described, wherever possible; but their identification is often a matter of considerable difficulty, owing to the insufficiency of the descriptions and the inaccuracy of the figures. The species of the genus *Matuta* are distributed throughout the whole Oriental region; but I am not aware that any have been recorded from any other of the great geographical areas.



*A Revision of the Species of the Genus Matuta.*

## MATUTA, Fabricius.

In the species of this genus the carapace is usually slightly broader than long, broadest and with a strong, conical, acute, lateral spine at the junction of the anterolateral and posterolateral margins. The front is about equal to the orbit in width, slightly concave above, with a projecting median lobe, which in some species is notched, in others entire. The anterolateral margins are rather convex, with about six small tubercles behind the external orbital angle, and following them usually three granulated, larger tubercles. The posterolateral margin is straight, with a tubercle, that is sometimes obsolete, placed at some distance behind the lateral line. In the central region of the carapace are six tubercles, of which some, or all, may be obsolete; three of these are placed in a median transverse series, one anterior on each side of the gastric, and one posterior in the centre of the cardiac region. The anterior legs are robust, and may be closely applied to the body; the arm is smooth, the wrist slightly tuberculated upon its external surface; the upper margin of the hand has three prominent, acute lobes or spines; on the upper part of the external surface are three transverse ridges, or two parallel series of three tubercles; below these, on the outer surface, a ridge, or series of tubercles and spines, the direction and form of which varies in the different species of the genus; on the inner surface two small striated areas. The external surface of the mobile finger in the male is usually transversely striated or beaded. The four following pairs of legs have the two terminal joints more or less expanded and compressed; the expansion of the terminal joint is greatest in the first and fourth, and least in the third pair of legs; and this joint is acute at the extremity in the first three, and rounded in the last pair of legs.

(A) *Hand of male with an interrupted ridge or series of spines and tubercles crossing its outer surface obliquely, and continued along the outer surface of the lower (immobile) finger. Upper (mobile) finger with a strongly beaded ridge extending throughout its whole length.*

(a) Carapace covered with numerous dark-red spots.

## 1. MATUTA VICTRIX. (Plate XXXIX. figs. 1-3.)

*Cancer victor*, Fabr. Spec. Ins. ii. Append. p. 502 (1781); Ent. Syst. ii. p. 449 (1798)?

*Matuta victor*, Fabr. Ent. Syst. Suppl. p. 369 (1798); ? M.-Edw. Hist. Nat. Crust. ii. p. 115, pl. xx. figs. 3-6 (1837); Règne Animal de Cuvier, Atlas, Crustacés, pl. vii. fig. 1.

*Matuta peronii*, Leach, Zool. Miscell. iii. p. 13, pl. 127. figs. 1, 2 (1817) ♀.

*Matuta lesueurii*, Leach, Zool. Miscell. iii. p. 14 (1817) ♂.

Carapace finely but distinctly granulated; two anterior tubercles of the carapace obsolete, the remainder, as well as that upon each posterolateral margin, faintly marked; lateral marginal spine long, and directed slightly forward. Front slightly emarginate, with the lobes rounded. Hand not granulous upon its external surface, the tubercles on the upper half sharply defined; a small tubercle, followed by a very strong, conical spine at the base of the oblique ridge, which is interrupted at base,



and obscurely defined. Ridge upon the external surface of the mobile finger strongly beaded. Spots upon the carapace numerous, minute, simple, scattered, and without any tendency to form reticulating lines. Length  $1\frac{5}{8}$  in.; breadth nearly 2 in.

*Hab.* Red Sea; Zanzibar; Indian Ocean; Borneo; Australia.

This is the commonest and most widely distributed species of the genus. In the females the ridge upon the external surface of the palm is replaced by a series of two acute spines of unequal length, alternating with three small tubercles. The ridge upon the external surface of the mobile finger is very obscure or obsolete.

I adopt the name of *M. victrix* for this species, as it is certainly figured by M. Milne-Edwards as *Matuta victor* in the Atlas of the 'Histoire Naturelle des Crustacés;' and it is also the commonest species of the genus. Perhaps the *Matuta doryphora* of Latreille is also to be referred to this species. The description hardly suffices for its determination with certainty.

1 a. MATUTA VICTRIX, var. CREBREPUNCTATA. (Plate XXXIX. fig. 4.)

*Cancer lunaris*, Herbst, Naturg. der Krabben und Krebse, i. p. 140, pl. vi. fig. 44 (1790)<sup>83</sup>?

This differs from the preceding in having the carapace more coarsely granulated, the spots very numerous, crowded, and forming small compound spots, each having the form (under a lens) of a small curved line or circle with paler centre. In the females the form of the hand is similar to that of *M. victrix*.

*Hab.* Japan; Fiji Islands; New Hebrides.

This variety, on account of its crowded, dark-red spots, presents a very different external appearance from the preceding; and I am in some doubt whether it ought not to be separated as a distinct species.

(b) Carapace with numerous looped reticulated or anastomosing lines.

2. MATUTA RUBRO-LINEATA, sp. n. (Plate XXXIX. figs. 5 & 6.) Carapace finely but distinctly granulated. Two anterior tubercles of the carapace obsolete, the others, as well as the tubercle upon each posterolateral margin, faintly marked. Lateral marginal spine long and acute. Front distinctly emarginate, the lobes more acute than in *M. victrix*. Hand of male nearly as in that species, but with the spine at base of the oblique ridge shorter. The lines upon the carapace light red, often interrupted and more crowded anteriorly, rarely forming complete loops and circles. Length  $1\frac{1}{2}$  in.; breadth  $1\frac{7}{8}$  in.

*Hab.* Indian and Pacific Oceans; Cheefoo.

A specimen presented by the Smithsonian Institution is named *M. lunaris*.

In the females the oblique ridge upon the palm is replaced by a series of five prominences, the second of which is an acute spine, the others small and tuberculiform. The ridge upon the mobile finger is obsolete. In coloration this species resembles *Matuta lunaris*, but differs in the oblique ridge upon the external surface of the hand, and the beaded ridge upon the external surface of the mobile finger.



3. *MATUTA LINEIFERA*, sp. n. (Plate XXXIX. fig. 7.) Nearly allied to the preceding, but with the carapace more finely granulated, the tubercles more strongly marked, the two anterior distinct, as are also those of the posterolateral margins. Lines upon the carapace dark red, very fine, thread-like, usually uninterrupted, and forming complete but irregular loops and circles. Length  $1\frac{2}{3}$  in.; breadth  $1\frac{3}{4}$  in.

*Hab.* N.W. Australia, Nicol Bay.

Only a single male adult specimen is in the collection. A larger series of specimens might show that it is but a variety of the foregoing.

- (B) *Hand of male with an interrupted ridge, or series of tubercles and spines, crossing its external surface parallel to the lower margin, and terminating at the base of the upper margin of the lower (immobile) finger. The ridge upon the outer surface of the mobile finger obsolete, or smooth, or very finely striated at base, and beaded only towards the distal extremity.*

(a) Carapace marked with spots or blotches.

4. *MATUTA GRANULOSA*\*, sp. n. (Plate XXXIX. figs. 8 & 9.) Carapace rather coarsely granulated, especially towards the lateral marginal spines. Two anterior dorsal tubercles obsolete, the others and those on the posterolateral margins very indistinct. Lateral marginal spines short, conical, and rather obtuse; front slightly but distinctly emarginate, with the lobes rounded. Hand of male with the upper and lower part granulous between the tubercles; the ridge upon the outer surface in the male divided into five acute tubercles, of which the second is the largest. Ridge upon the external surface of the mobile finger thin, smooth, not beaded. Spots upon the carapace brownish red, of the same shape as in *M. victrix*, var. *crebrepunctata*, but less numerous. A brownish-red patch upon the basal half of each lateral spine. Length and breadth nearly  $1\frac{1}{2}$  in.

*Hab.* Eastern seas.

In the female of this species the tubercles of the ridge upon the external surface of the palm are disposed as in the males. The ridge upon the external surface of the mobile finger is obsolete.

5. *MATUTA BANKSII*. (Plate XL. figs. 1 & 2.)

*Matuta banksii*, Leach, Zool. Miscell. iii. p. 14 (1817)?

Carapace very coarsely granulated, especially in the centre and towards the lateral spines; the tubercles, as well as those of the posterolateral margins, very strong and distinct. Lateral marginal spines of moderate length, acute; front obtuse and rounded, or

\* Since the description of this species was drawn up (from three specimens, of which the exact locality is unknown, in the collection of the British Museum) I have had the opportunity of examining a series of seventeen specimens of both sexes and different ages in a collection made by Mr. Mac Farlane on the islands of the Torres Straits. These examples show that *M. granulosa* is never to be confounded with its nearest allies, *M. banksii* and *M. maculata*, from which it is always distinguishable by its coloration, the absence of the anterior pair of dorsal tubercles, &c. The characters generally are subject to little variation: the only points I have observed are, that in some specimens the tubercles are rather more clearly defined, and the ridge on the outer surface of the mobile finger faintly striated at its distal extremity, as in other species of this section of the genus.



very obscurely emarginate. Hand slightly granulous in its lower half, the tubercles very strongly marked, ridge in the male divided into three acute tubercles alternating with two spines. Ridge upon the outer surface of the mobile finger very finely striated in the greater part of its length, and obscurely beaded towards its distal extremity. Spots upon the carapace pink, more numerous and crowded upon the anterior portion, but not disposed in reticulated lines. Length and breadth about  $1\frac{1}{8}$  in.

*Hab.* Indian Ocean; China Seas; Philippine Islands.

A specimen from the Philippines has the spots more scattered, and a large pink blotch upon the penultimate and last joints of the second and fifth pair of legs.

In the female of this species there are two or three conical, acute tubercles and spines upon the external surface of the hand. Ridge of mobile finger obsolete.

6. *MATUTA MACULATA*, sp. n. (Plate XL. figs. 3 & 4.) Carapace distinctly granulated, the granules coarser upon the raised parts of the carapace, but the tubercles, both of carapace and posterolateral margin, nearly obsolete. Lateral marginal spine very long and acute; front obtuse, or but very faintly emarginate. Hand granulous upon its inferior surface, the tubercles upon its upper part distinct, the ridge in the male with five prominences, of which the first, third, and fifth are indistinct tubercles, the second and fourth larger, acute. Ridge upon the mobile finger as in the preceding species. Spots upon the carapace small and crowded anteriorly, posteriorly larger, scattered, and each in the form of small curved lines and circles. Length and breadth about  $1\frac{1}{2}$  in.

*Hab.* Eastern and Chinese Seas; Panagatan Shoal.

In the female the tubercles of the ridge upon the hand are nearly as in the male. The ridge of the mobile finger is obsolete.

7. *MATUTA PICTA*. (Plate XL. figs. 5-7.)

*Cancer lunaris*, Leach, Zool. Miscell. iii. p. 13, pl. 127. figs. 3-5 (1817), nec Herbst.

*Matuta planipes*, Desm. Consid. Crust. p. 102 (1825), nec Fabricius.

*M. picta*, Hess, Archiv f. Naturg. xxxi. p. 158, pl. vi. fig. 13 (1865).

Carapace distinctly granulated. Tubercles of the carapace and posterolateral margins strongly marked. Lateral marginal spine of moderate length, directed slightly forward. Front obtuse and rounded or slightly emarginate. Hand not granulous upon its external surface; tubercles upon the upper part rounded and obtuse, ridge on external surface divided into four or five lobes, of which the second is an acute spine, the remainder small, obtuse, or truncate. Ridge upon the mobile finger distinctly striated in the greater part of its length, and beaded at its distal extremity. Spots upon the carapace very numerous and minute, often disposed in reticulated lines. Length  $1\frac{5}{6}$  in.; breadth  $1\frac{1}{2}$  in.

*Hab.* Ceylon; Indian Ocean; Zanzibar; Mauritius; Seychelles; Australian Seas.

In the single adult female of this species in the collection of the British Museum, the tubercles upon the lower part of the hand are stronger and interspersed with granules.



The second and fourth of the series of prominences on the external surface of the hand are acute, spiniform. The ridge upon the outer surface of the mobile finger is obsolete. The example figured by Hess under the name of *M. picta* is almost certainly the young of this species; and I have therefore adopted his specific name. It is easily distinguished by the tendency of the spots upon the carapace towards a disposition in reticulating lines.

The *Matuta distinguenda*, Hoffmann, Recherches sur la Faune de Madagascar, &c., Crust. p. 27, pl. vi. figs. 49-52, vii. 53-57 (1874), may, I think, be this species, although in the figure, which is evidently much exaggerated, the front is represented as entire, the tubercles much more prominent than in any species of the genus known to me, and the immobile finger of the hand of the female much abbreviated.

(b) Carapace marked with looped, reticulating, or anastomosing lines.

8. *MATUTA OBTUSIFRONS*, sp. n. (Plate XL. figs. 8 & 9.) Carapace rather coarsely granulated, especially in the centre and towards the lateral spines; tubercles all strongly marked and distinct. Lateral marginal spines of moderate length, acute. Front small, obtuse, rounded, and entire. Hand very faintly granulous upon its external surface, tubercles upon the upper part not strongly marked; ridge in the male nearly as in the preceding species. Ridge upon the mobile finger very finely striated for the greater part of its length, and obscurely beaded towards the distal extremity. Lines upon the carapace dark red, forming irregular loops and circles, which are smaller and more crowded anteriorly, and interspersed with spots. Length and breadth  $1\frac{1}{4}$  in.

*Hab.* Fiji Islands; New Hebrides.

In the female the same differences in the sculpture of the hand are observed as in the preceding species.

9. *MATUTA LUNARIS*. (Plate XL. figs. 10 & 11.)

*Cancer lunaris*, Herbst, Krabben u. Krebse, iii. p. 43, pl. xlvi. fig. 6 (1799). *No!*

Carapace very finely granulated; tubercles of the carapace and posterolateral margins obsolete (except in quite young specimens). Lateral marginal spines acute, of moderate length. Front divided by a triangular emargination into two sharply defined acute lobes. Hand not granulous, or very faintly granulous below; tubercles upon the upper part strongly marked; ridge upon the external surface in the male divided into five lobes, of which the second is acute, spiniform, and the others small, tuberculiform. Ridge upon the mobile finger obsolete. Lines upon the carapace pale red, more interrupted than in the preceding species. Length and breadth about  $1\frac{1}{3}$  in.

*Hab.* Indian Ocean, Ceylon.

The form of the hand is almost exactly the same in the male and female of this species.



## DESCRIPTION OF THE PLATES.

## PLATE XXXVIII.

## Illustrations of Species of the Family Leucosiidæ.

- Fig. 1. *Leucosia fuscomaculata*, sp. n., male: natural size.  
 Fig. 2. The same: lateral view of its thoracic sinus, enlarged.  
 Fig. 3. The same: outline of the abdomen, natural size.  
 Fig. 4. *L. pulcherrima*, sp. n., female: natural size.  
 Fig. 5. The same: lateral view of its thoracic sinus, enlarged.  
 Fig. 6. The same: outline of the abdomen, natural size.  
 Fig. 7. *L. ornata*, sp. n., female: natural size.  
 Fig. 8. The same: a lateral view of its thoracic sinus, enlarged.  
 Fig. 9. The same: outline of the abdomen, natural size.  
 Fig. 10. *L. brunnea*, sp. n., female: natural size.  
 Fig. 11. The same: inferior view, showing angular sinus, enlarged.  
 Fig. 12. The same: outline of the abdomen, natural size.  
 Fig. 13. *L. reticulata*, sp. n., male: natural size.  
 Fig. 14. The same: lateral view of its thoracic sinus, enlarged.  
 Fig. 15. The same: outline of the abdomen, natural size.  
 Fig. 16. *L. whitmeei*, Miers, male: natural size.  
 Fig. 17. The same: lateral view of its thoracic sinus, enlarged.  
 Fig. 18. The same: outline of the abdomen, natural size.  
 Fig. 19. *L. perryi*, sp. n., male: natural size.  
 Fig. 20. The same: lateral view, showing absence of thoracic sinus, enlarged.  
 Fig. 21. The same: outline of the abdomen, natural size.  
 Fig. 22. *L. pubescens*, male: natural size.  
 Fig. 23. The same: lateral view of thoracic sinus, enlarged.  
 Fig. 24. The same: outline of the abdomen, natural size.  
 Fig. 25. *Myra mammillaris*, Bell, young male: natural size.  
 Fig. 26. The same: lateral view, enlarged.  
 Fig. 27. The same: outline of the abdomen, natural size.  
 Fig. 28. *Nursia plicata*, Herbst, male: natural size.  
 Fig. 29. *Arcania granulosa*, male: enlarged.  
 Fig. 30. *Cryptocnemus holdsworthi*, female: enlarged.  
 Fig. 31. The same: outline of its abdomen, enlarged.  
 Fig. 32. The same: arm of female specimen, greatly enlarged.

## PLATE XXXIX.

Illustrations of Species of the Genus *Matuta*.

- Fig. 1. *Matuta victrix*, Fabr., male: natural size.  
 Fig. 2. The same, hand of male: natural size.  
 Fig. 3. The same, hand of female: natural size.



- Fig. 4. *M. victrix*, var. *crebrepunctata*, sp. n. : natural size.  
Fig. 5. *M. rubrolineata*, sp. n. : natural size.  
Fig. 6. The same : hand of male, natural size.  
Fig. 7. *M. lineifera*, sp. n. : natural size.  
Fig. 8. *M. granulosa*, sp. n. : natural size.  
Fig. 9. The same : hand of male, natural size.

## PLATE XL.

Illustrations of Species of the Genus *Matuta*.

- Fig. 1. *Matuta banksii*, Leach : male, natural size.  
Fig. 2. The same : hand of male, natural size.  
Fig. 3. *M. maculata*, sp. n. : male, natural size.  
Fig. 4. The same : hand of male, natural size.  
Fig. 5. *M. picta*, Hess : male, natural size.  
Fig. 6. The same : hand of male, natural size.  
Fig. 7. The same : hand of female, natural size.  
Fig. 8. *M. obtusifrons*, sp. n. : natural size.  
Fig. 9. The same : hand of male.  
Fig. 10. *M. lunaris*, Herbst : female, natural size.  
Fig. 11. The same : hand of female, natural size.



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### TABLE I

Illustrations of the various forms of the

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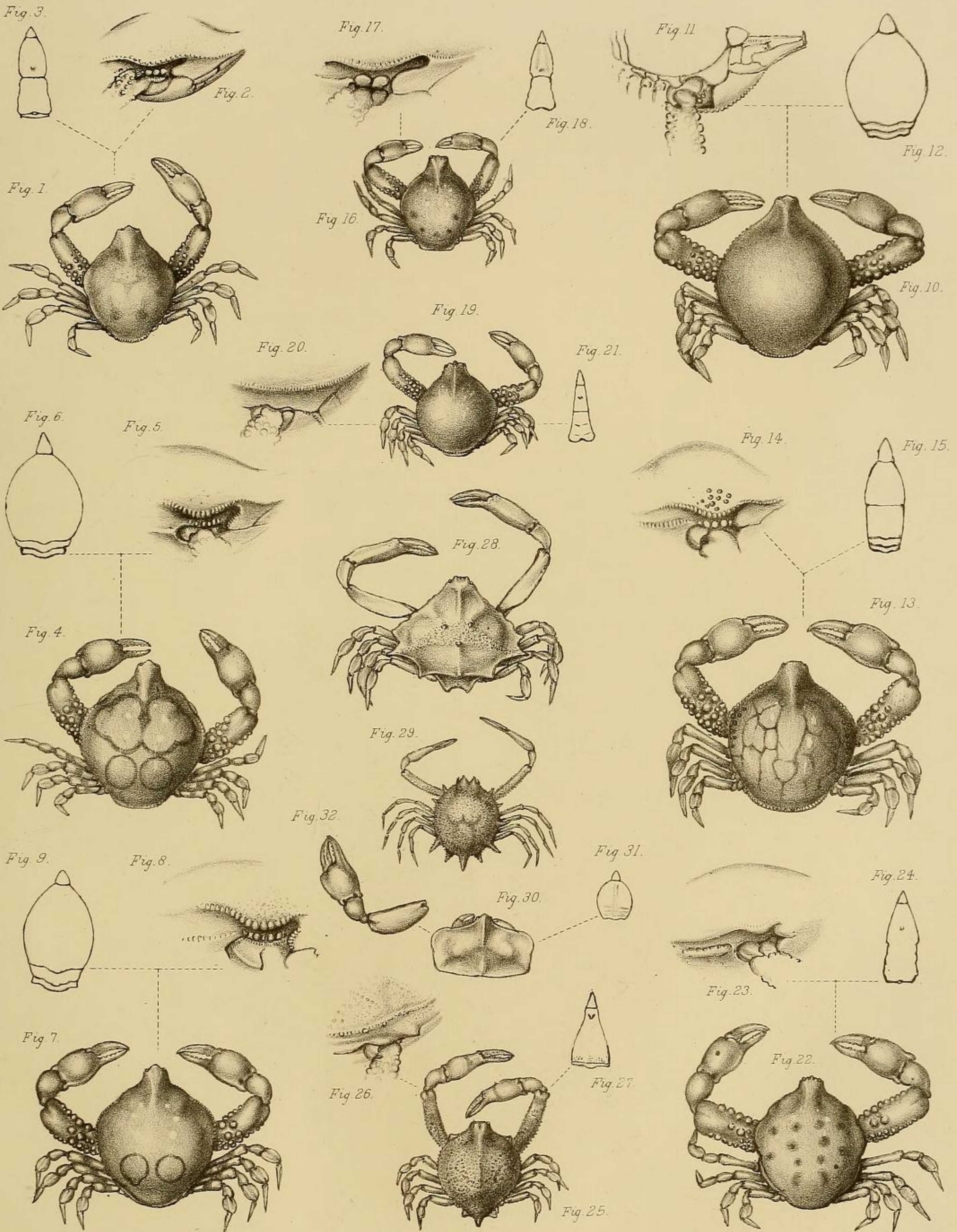








Fig. 5.

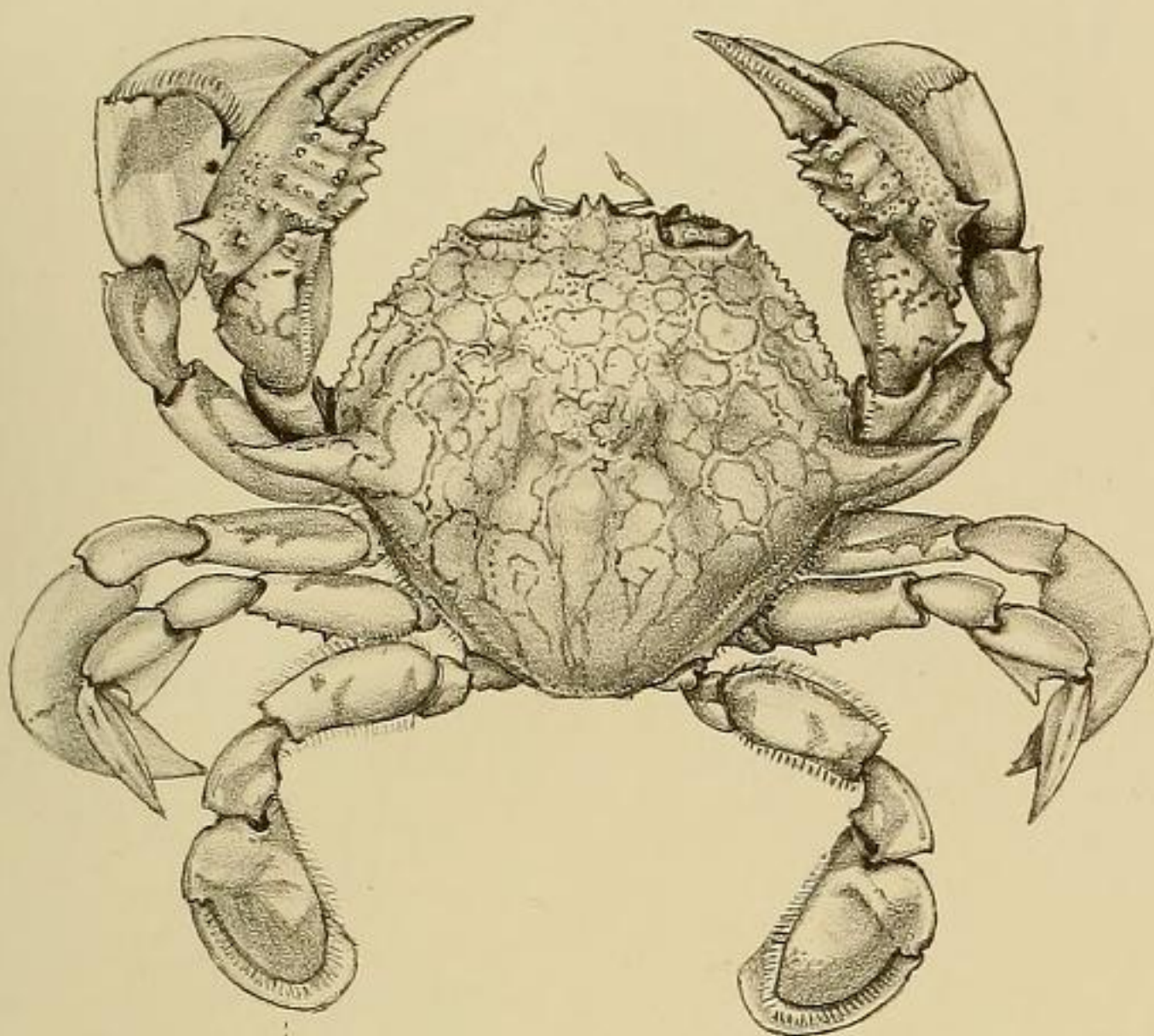


Fig. 4.

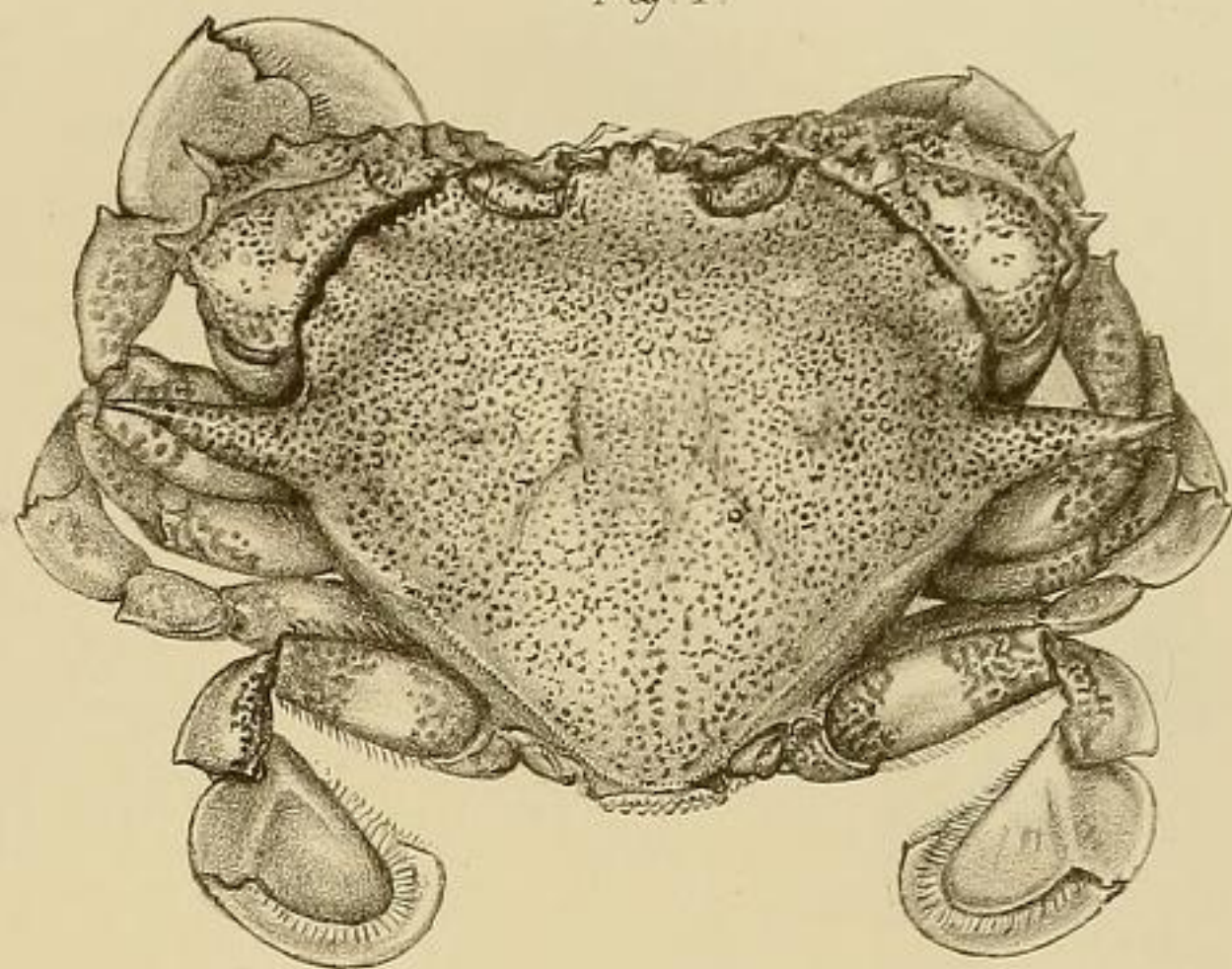


Fig. 1.

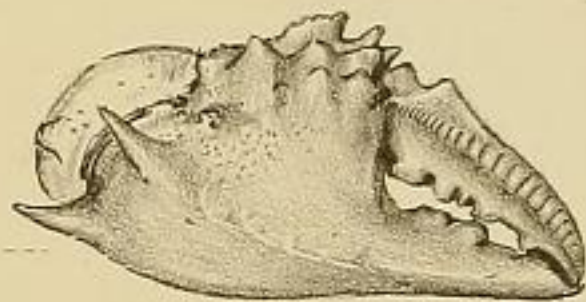
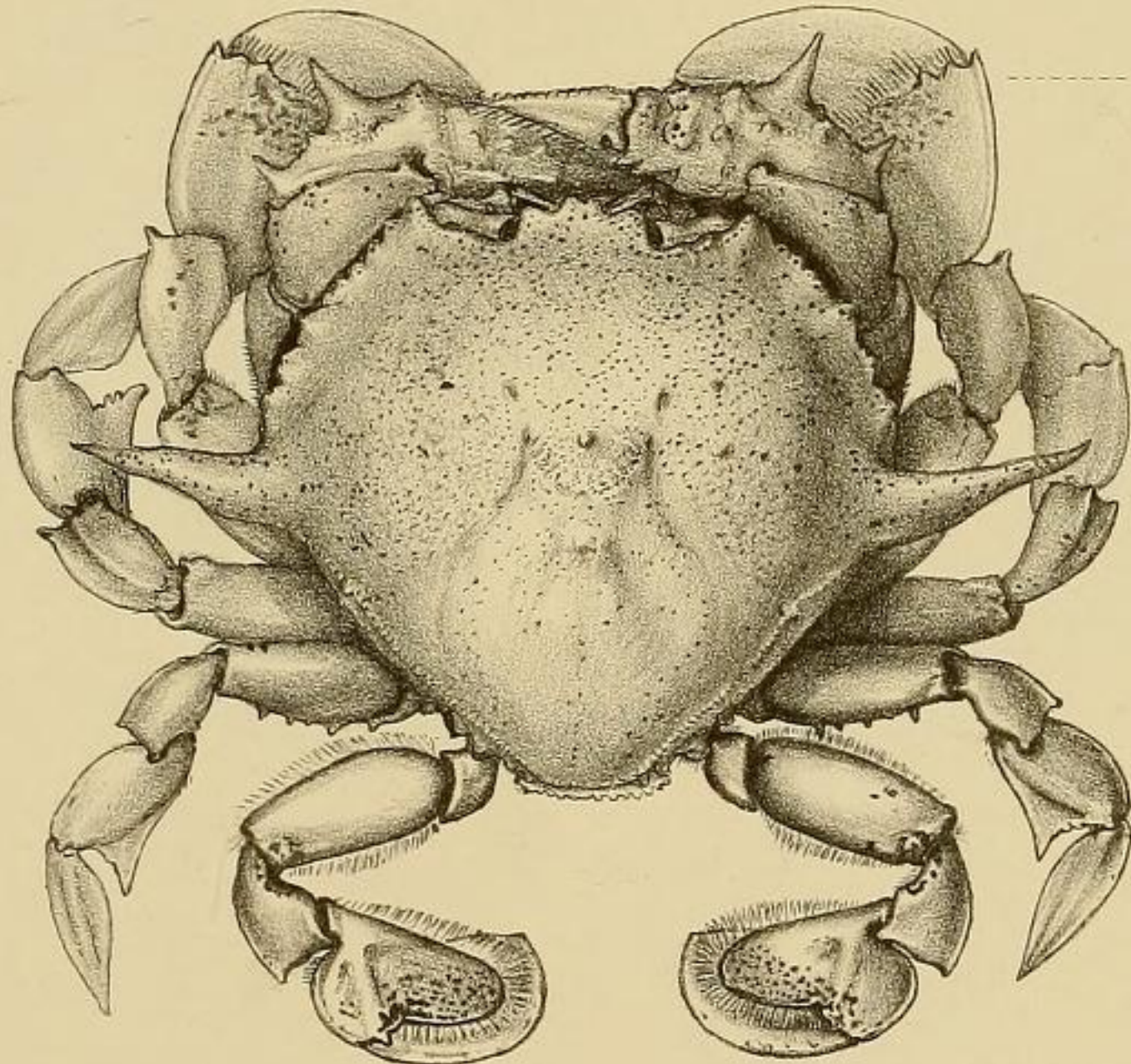


Fig. 2.



Fig. 6.



Fig. 3.

Fig. 9.



Fig. 8.

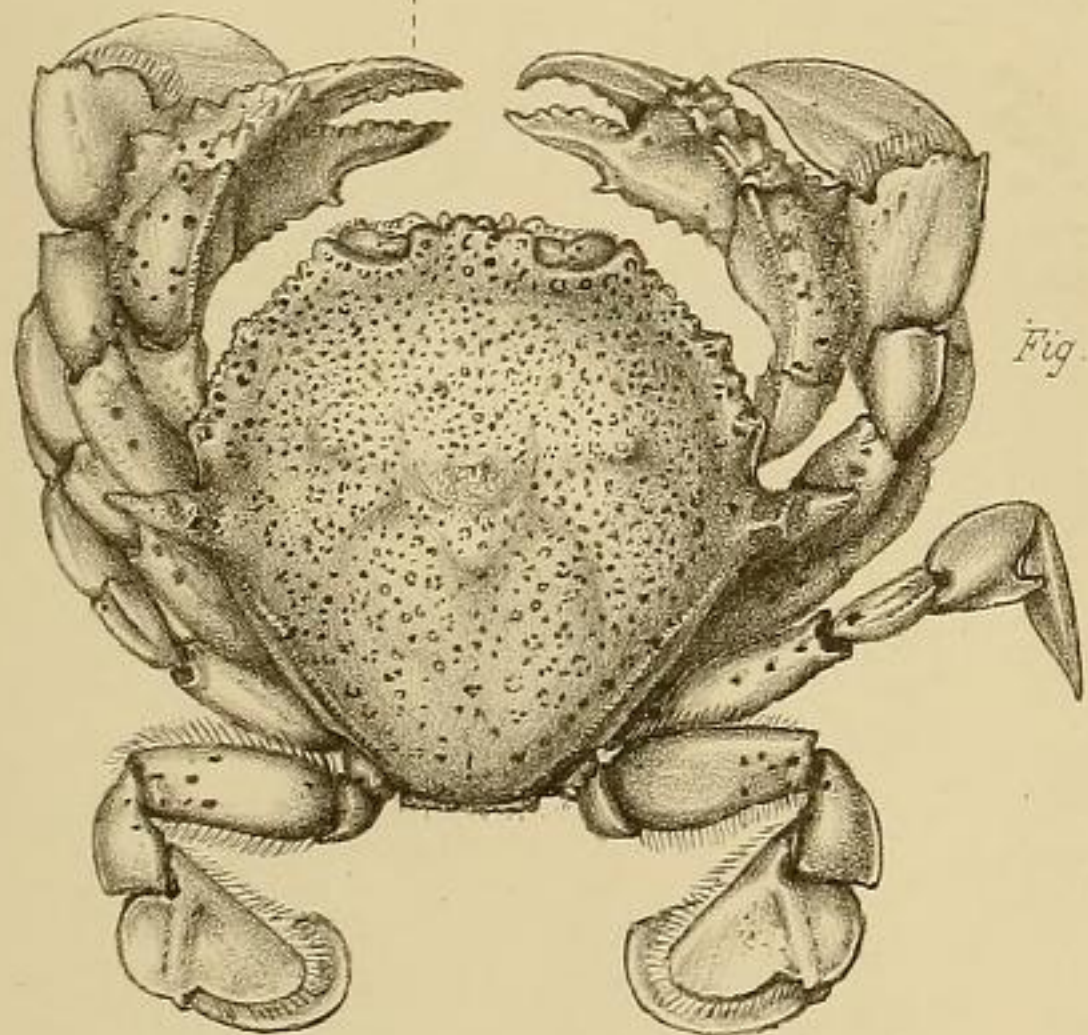
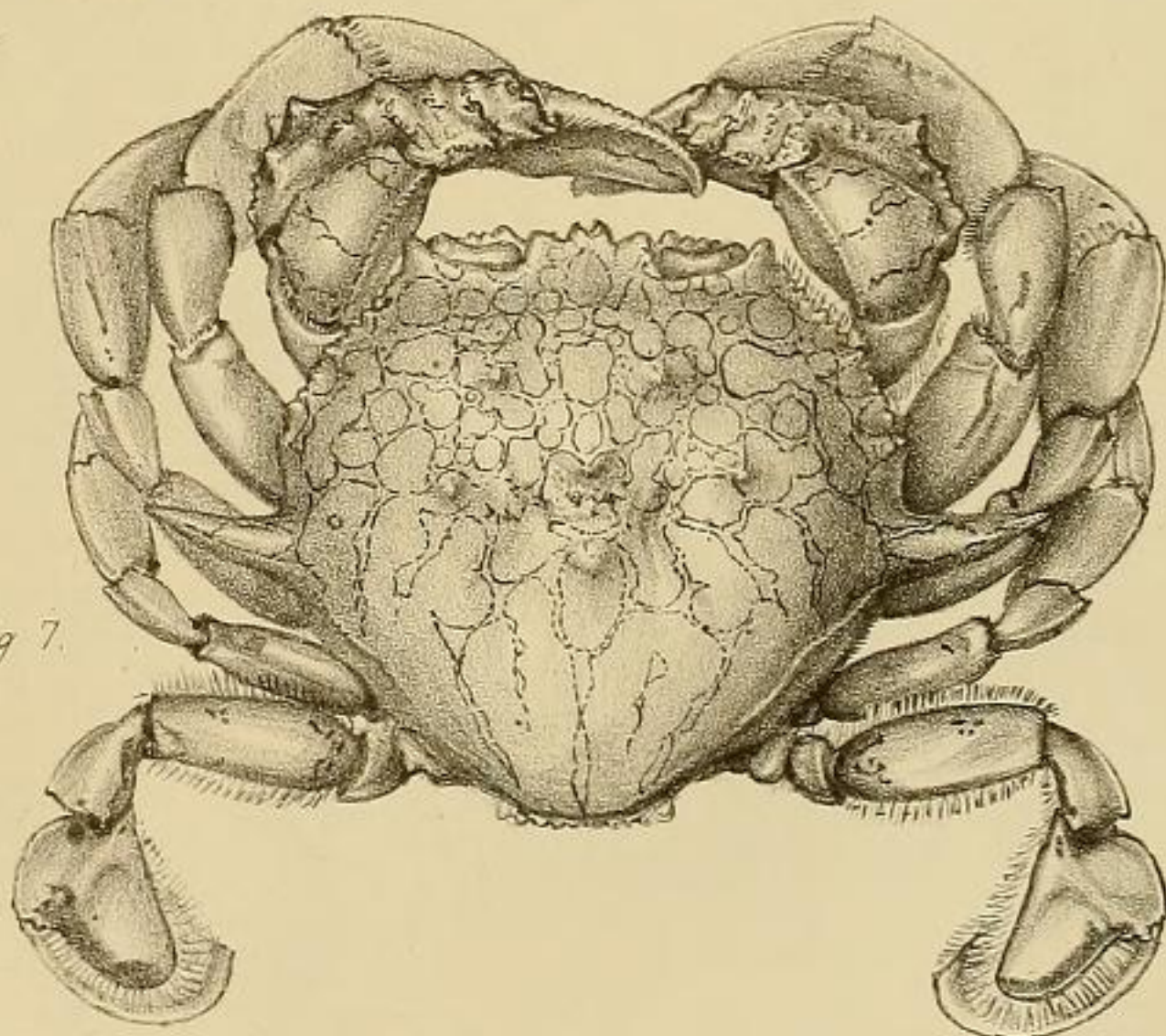
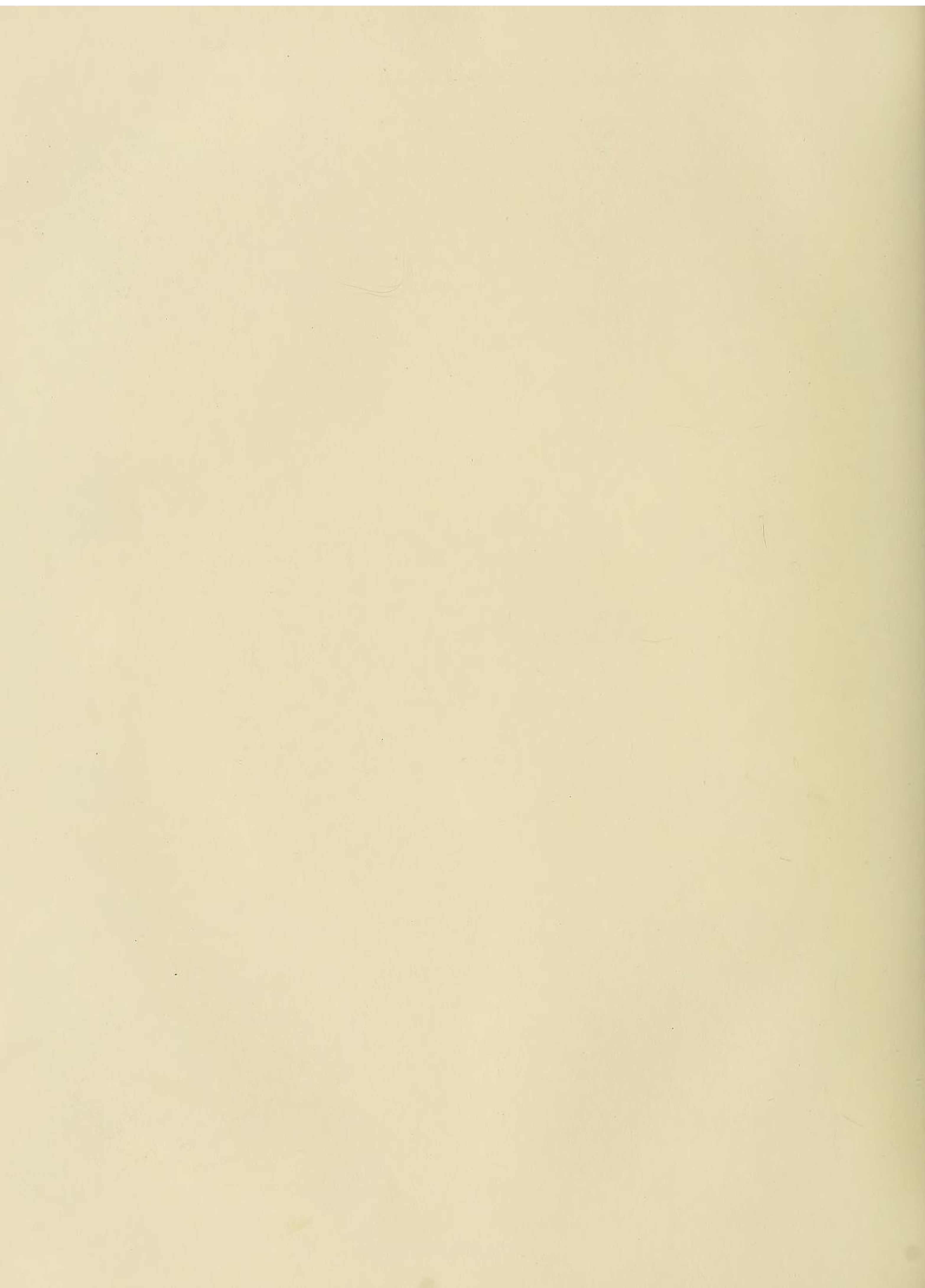


Fig. 7.









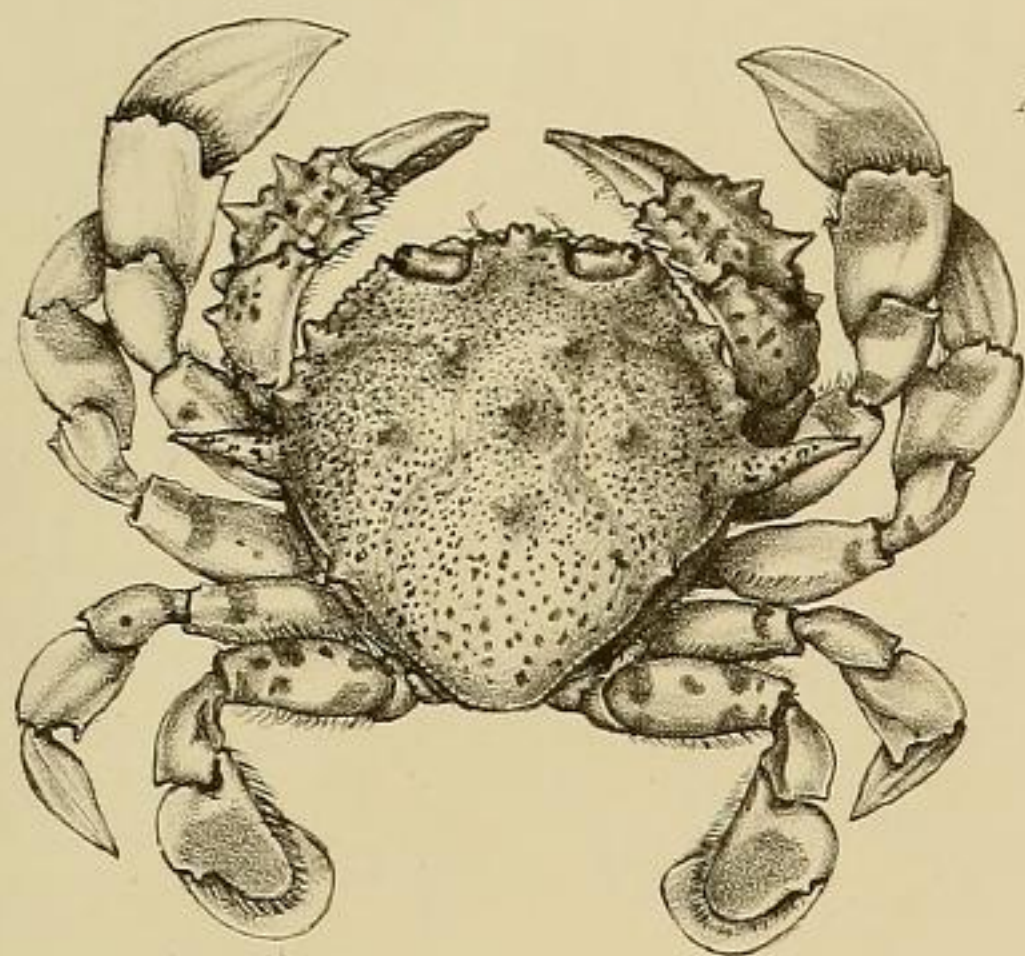


Fig. 1.

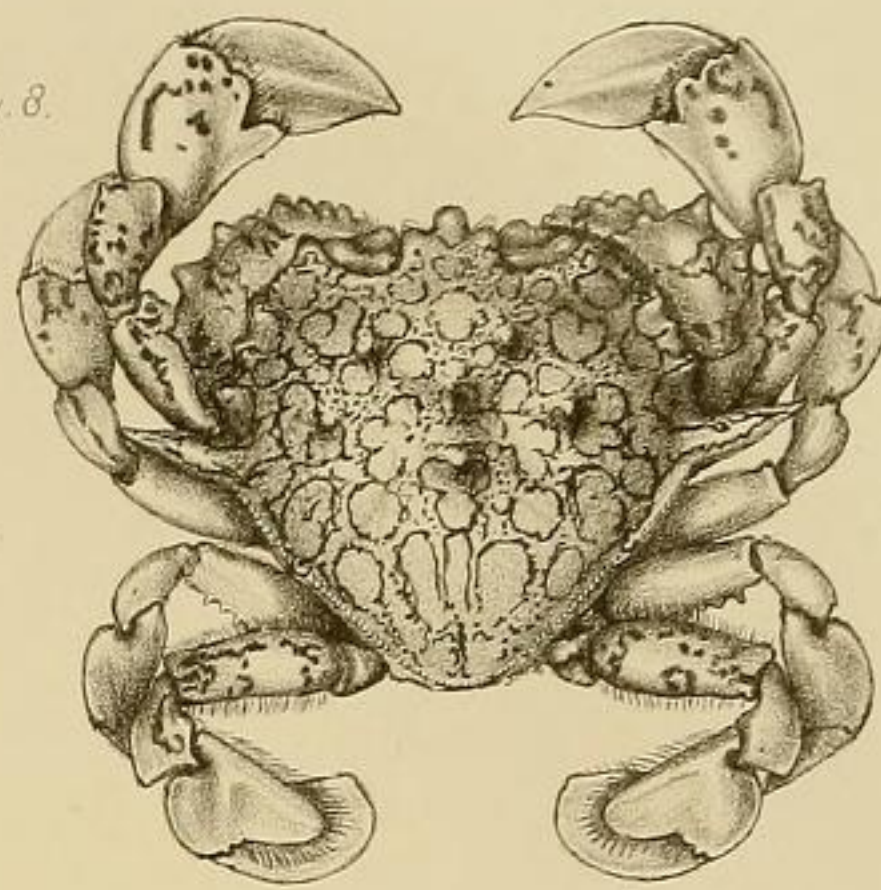


Fig. 8.

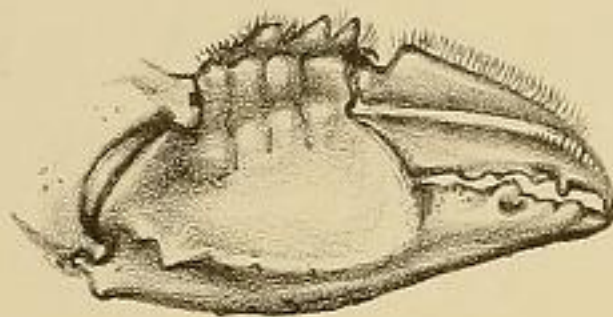


Fig. 6.



Fig. 2.



Fig. 9.

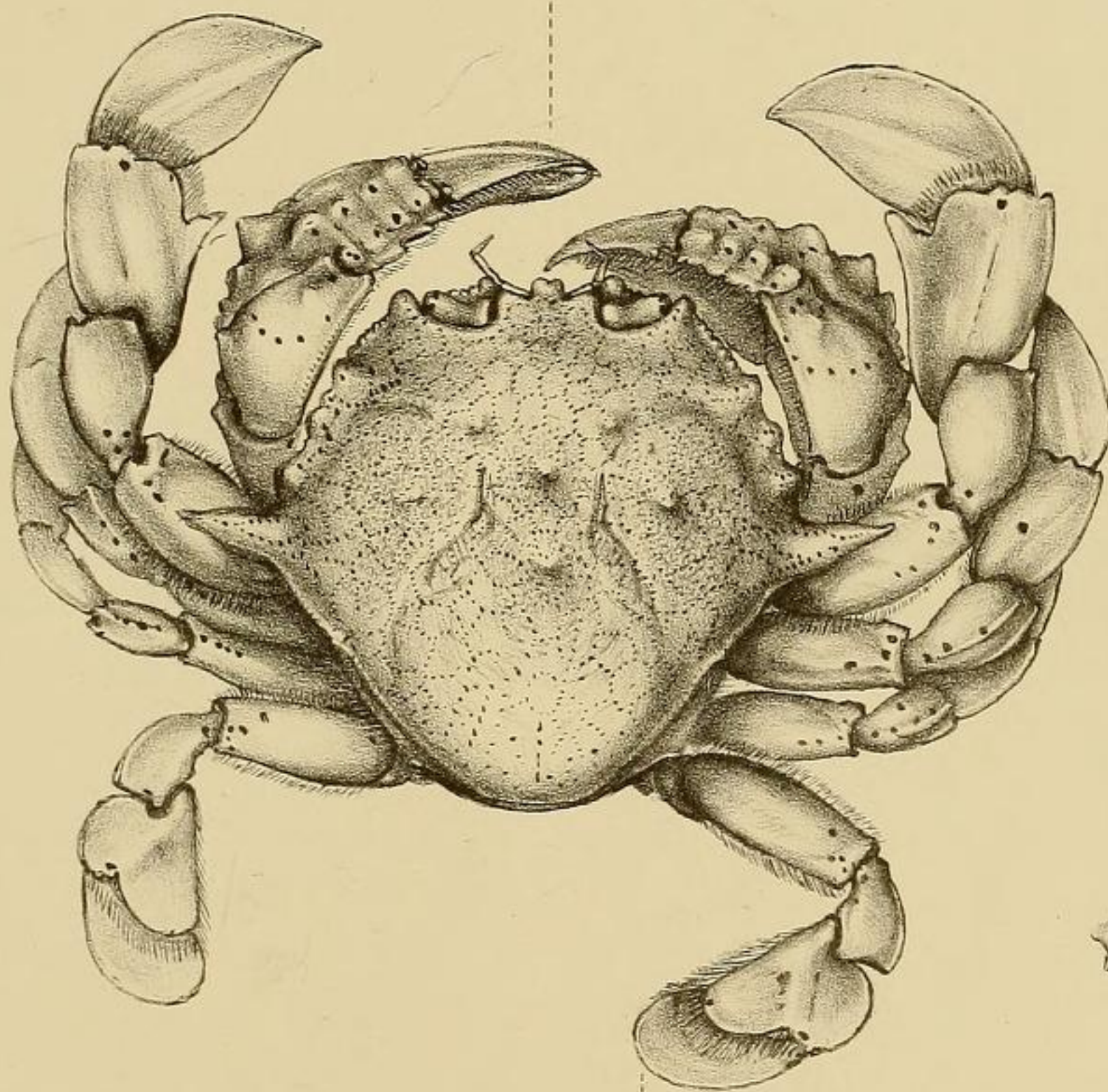


Fig. 5.



Fig. 4.



Fig. 11.

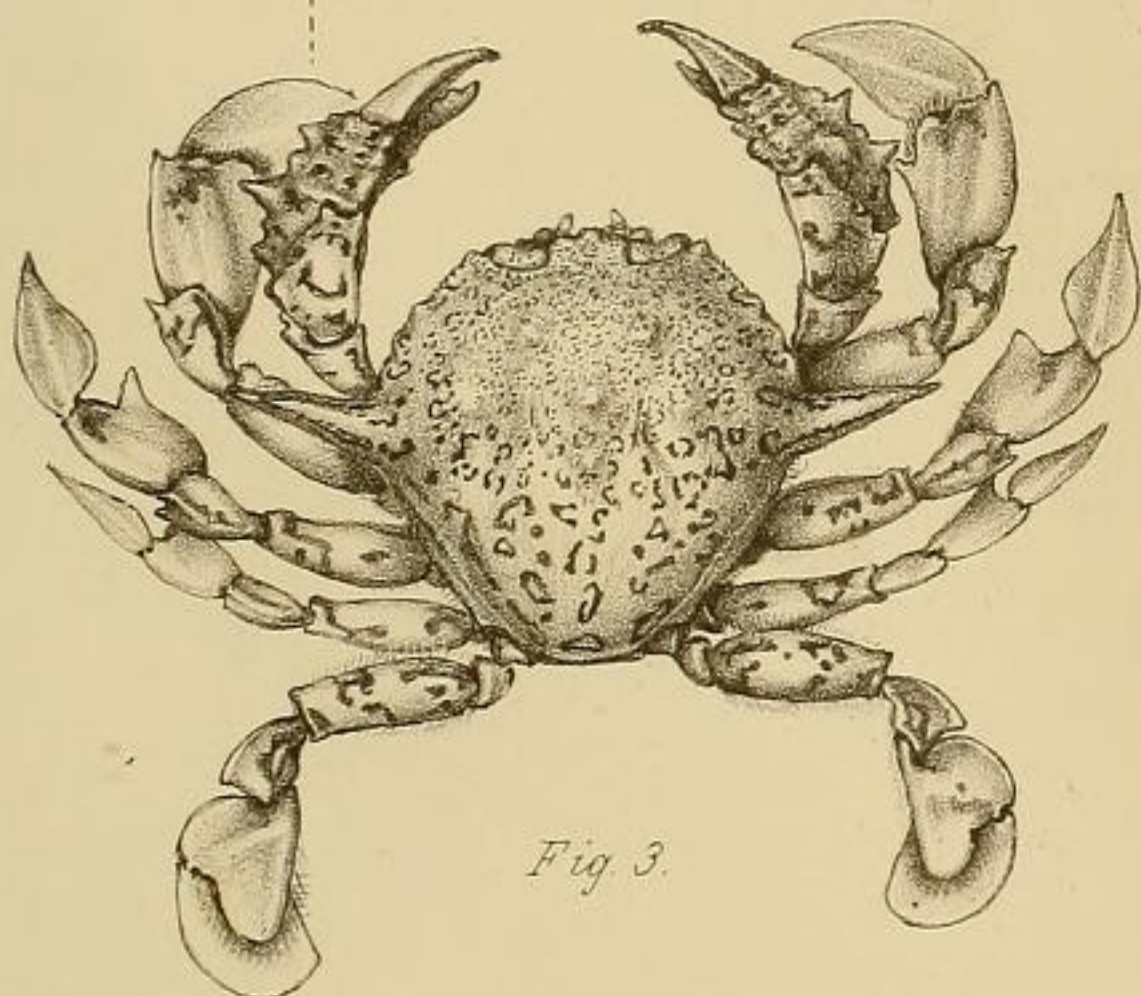


Fig. 3.

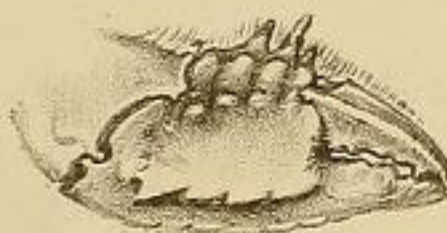


Fig. 7.

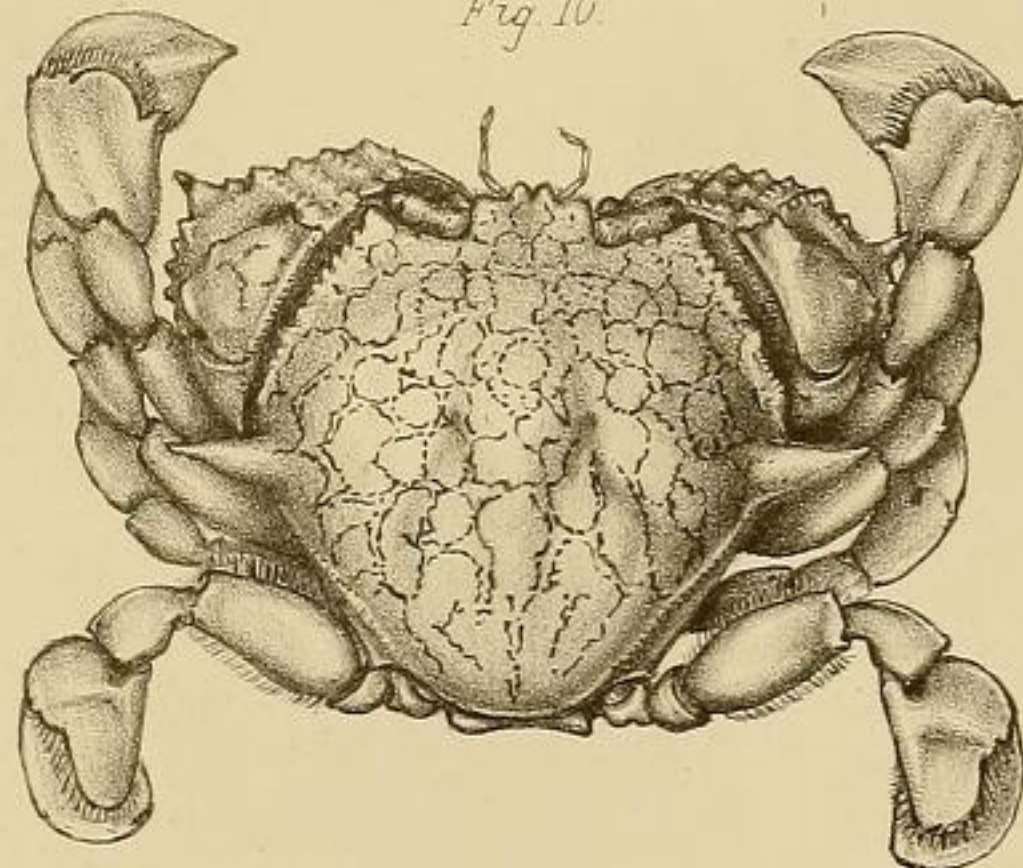


Fig. 10.



