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The Fauna and Geography of the Maldive and Laccadive Archipelagoes

Being the Account of the Work carried on and
of the Collections made by an Expedition
during the years 1899 and 1900

Edited by

J. STANLEY GARDINER, M.A.

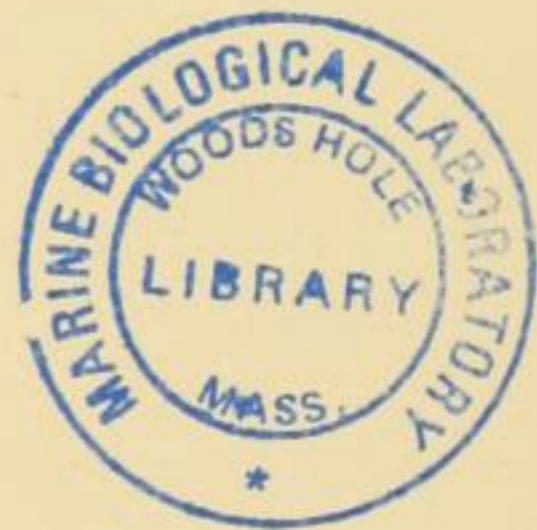
Fellow of Gonville and Caius College and late Balfour Student
of the University of Cambridge.

VOLUME II. PART IV.

With Plates LXVII—LXXXVII and Text-Illustrations 127—139

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MARINE CRUSTACEANS.

XIV. PAGURIDAE.

BY MAJOR ALCOCK, F.R.S., *Director of the Indian Museum, Calcutta.*

(With Plate LXVIII.)

THE collection of *Paguridae* made by Mr Stanley Gardiner in the Maldives and at Minikoi adds considerably to our knowledge, not only of the marine fauna of the islands themselves, but also of that of the northern part of the Indian Ocean; for of the 26 species and varieties obtained by Mr Gardiner no less than 9 have escaped the notice of the Indian Marine Survey-ship "Investigator" and of other Indian collectors.

From the island of Minikoi the following genera and species were obtained:

- | | |
|---------------------------------------|-------------------------------------|
| 1. <i>Calcinus herbstii</i> , de Man. | 6. <i>Pagurus fabimanus</i> , Dana. |
| 2. „ <i>elegans</i> , Edw. | 7. „ (?) <i>scabrimanus</i> , Dana. |
| 3. „ <i>gaimardii</i> , Edw. | 8. „ <i>guttatus</i> , Oliv. |
| 4. „ <i>terrae-reginae</i> , Haswell. | 9. „ <i>deformis</i> , Edw. |
| 5. <i>Diogenes gardineri</i> , n. sp. | |

The following is the list of the collection from the Maldives:

- | | |
|--|---|
| 1. <i>Paguristes</i> , sp. | 14. <i>Pagurus</i> (?) <i>scabrimanus</i> , Dana. |
| 2. <i>Clibanarius humilis</i> , Dana. | 15. „ <i>wood-masoni</i> , Alcock. |
| 3. <i>Calcinus herbstii</i> , de Man. | 16. „ <i>deformis</i> , Edw. |
| 4. „ „ var. <i>lividus</i> , Edw. | 17. „ <i>dearmatus</i> , Hend. |
| 5. „ <i>elegans</i> , Edw. | 18. „ <i>hessii</i> , Miers. |
| 6. „ <i>gaimardii</i> , Edw. | 19. <i>Eupagurus janitor</i> , n. sp. |
| 7. „ <i>latens</i> , Randall. | 20. <i>Nematopagurus muricatus</i> , Hend. |
| 8. „ <i>terrae-reginae</i> , Haswell. | 21. „ <i>gardineri</i> , n. sp. |
| 9. <i>Diogenes</i> sp. | 22. <i>Spiropagurus spiriger</i> , De Haan. |
| 10. „ „ <i>prox. pugilator</i> , Roux. | 23. <i>Anapagurus</i> sp. |
| 11. „ <i>gardineri</i> , n. sp. | 24. <i>Catapagurus ensifer</i> , Hend. |
| 12. <i>Pagurus punctulatus</i> , Oliv. | 25. <i>Cestopagurus olfaciens</i> , n. sp. |
| 13. „ <i>fabimanus</i> , Dana. | |

As will be seen from the foregoing lists, the *Paguridae* of the Maldives and Minikoi belong, for the most part, to species that have a wide range from the coasts of E. Africa, eastwards, far into Polynesia.

This, I may mention, is the case with the *littoral Paguridae*—and also with the *Coenobitidae*, which are *land-hermits*—of other parts of India; whereas the *sublittoral* (25—250 fathoms) genera and species inhabiting Indian seas appear to be most closely related to the sublittoral hermits of the West Indies and of the north-west coast of Africa and its outlying islands. As the sublittoral *Paguridae* are, as a whole, undoubtedly more primitive than their land and littoral relatives—as is shown by their occasional symmetry, and by the frequent persistence of paired appendages on the anterior segments of the abdomen—this correspondence is of great interest.

Subfamily **Pagurinae.**

Paguristes, Dana.

Two minute and damaged specimens from the Maldives—one from Suvadiva Atoll, the other from S. Nilandu—belong to an undescribed species of this genus. All that can be said of them is that they belong to that section of the genus which is characterized by having the rostrum obsolescent, the antennal flagellum very short, and the fingers of the chelipeds separated by a gap at base when closed, as in *P. hians*, *P. incomitatus*, and *P. jousseaumii*. From all these they are distinguished by their extremely pallid eyes.

Clibanarius, Dana.

1. *Clibanarius humilis*, Dana.

Clibanarius humilis, Dana, *U.S. Expl. Exp. Crust.* Pt I. p. 469, Pl. XXIX. fig. 9: Heller, *Novara Crust.* p. 90.

Maldives, Goidu. One small specimen, which has been compared with one from Rarotonga.

Distribution. Laccadives and Maldives, Nicobars, Fiji Is., Tonga Is., Cook Is.

Calcinus, Dana.

2. *Calcinus herbstii*, de Man.

Calcinus herbstii, de Man, *Archiv für Naturges.* LIII. 1887, I. p. 437. *Pagurus tibicen*, Milne-Edwards, *Ann. Sci. Nat. Zool.* (2) VI. 1836, p. 278, and *Hist. Nat. Crust.* II. p. 229: *Calcinus tibicen*, Dana, *U.S. Expl. Exp. Crust.* Pt I. p. 457: Ortmann, *Zool. Jahrb. Syst.* 1891-92, p. 292. *Pagurus laevimanus*, Randall, *Journ. Acad. Philad.* VIII. 1839, p. 135 (*fide* Dana).

Numerous specimens from Minikoi, and from Goidu, Maldives.

Distribution. Indo-Pacific from South-east and East Africa to the Sandwich Islands, but not further north or south than 30°.

3. *Calcinus herbstii*, var. *lividus*, Edw.

Pagurus lividus, Milne-Edwards, *Ann. Sci. Nat. Zool.* (3) x. 1848, p. 63. *Calcinus herbstii*, var. *lividus*, Borradaile, *P.Z.S.* 1898, p. 462.

A single specimen from Goidu, Maldives.

4. *Calcinus elegans*, Edw.

Pagurus elegans, Milne-Edwards, *Ann. Sci. Nat. Zool.* (2) vi. 1836, p. 278, Pl. XIII. fig. 2, and *Hist. Nat. Crust.* II. p. 229. *Calcinus elegans*, Dana, *U.S. Expl. Exp. Crust.* Pt I. p. 458, Pl. XXVIII. fig. 10 a—c: Ortmann, *Zool. Jahrb. Syst.* vi. 1891–92, p. 294. *Pagurus pictus*, Owen, *Zool. H.M.S. Blossom*, 1839, *Crust.* p. 83, Pl. XXV. fig. 2. *Pagurus decorus*, Randall, *Journ. Acad. Philad.* 1839, p. 134.

Two specimens from Manadu, Addu, Maldives; one from Minikoi.

Distribution. Indo-Pacific, from S.E. Africa to the Sandwich Is., but not much north or south of the tropics. Miers also mentions, but I cannot discover his authority, Pacific coast of Patagonia.

5. *Calcinus gaimardii*, Edw., Dana.

Pagurus gaimardii, Milne-Edwards, *Ann. Sci. Nat. Zool.* (3) x. 1848, p. 63. *Calcinus gaimardii*, Dana, *U.S. Expl. Exp. Crust.* Pt I. p. 457, Pl. XXVIII. fig. 9: Ortmann, *Zool. Jahrb. Syst.* vi. 1891–92, p. 294.

Two specimens from Hulule, Male, Maldives; one from Minikoi.

Distribution. Islands of the Indo-Pacific from Minikoi and the Maldives to Tahiti (Minikoi, Maldives, Nicobars, Amboina, Balabac Str. and Sulu Sea, Liu Kiu and Ohosima, Funafuti, Rotuma, Fiji, Tahiti).

6. *Calcinus latens*, Randall, Dana.

Pagurus latens, Randall, *Journ. Acad. Philad.* 1839, p. 135 (*vide* Dana). *Calcinus latens*, Dana, *U.S. Expl. Exp. Crust.* Pt I. p. 459, Pl. XXVIII. fig. 11: Ortmann, *Zool. Jahrb. Syst.* vi. 1891–92, p. 293. *Calcinus intermedius*, de Man, *Notes Leyden Mus.* III. 1888, p. 102 (*vide* de Man, *Notes Leyden Mus.* XIII. 1891, p. 58).

One specimen from Hulule, Male, Maldives.

Distribution. From the Red Sea and E. coast of Africa to the Sandwich Is., not outside 27° N. or 34° S.

7. *Calcinus terrae-reginae*, Haswell.

Calcinus terrae-reginae, Haswell, *P.L.S. N.S.W.* vi. 1881–82, p. 760, and *Cat. Austral. Crust.* p. 158: de Man, *Archiv f. Naturges.* LIII. 1887, I. p. 439, and *Journ. Linn. Soc. Zool.* XXII. 1888, p. 226.

This species, which is probably only a variety of *C. latens*, Randall, seems to be common at Minikoi and the Maldives. Numerous specimens from Minikoi, and from Goidu, Hulule, Male, and Fadifolu, Maldives.

Distribution. Indian Seas, Malay Archipelago, Queensland.

Diogenes, Dana.

Three small species are represented in the collection. One of them is nearly related to *D. pallescens* Whitelegge, from Funafuti, and is here described as a new species. Another may perhaps be the young of *D. pugilator* Roux, a Mediterranean and Atlantic species which is also found in the Red Sea and, according to Nobili, at Singapore. The third form seems to be new, but it cannot be satisfactorily characterized from a single minute and damaged specimen.

8. *Diogenes gardineri*, n. sp. Plate LXVIII. fig. 1.

The rostrum is a simple spinule, and both the chelipeds are pilose.

Carapace elongate, nearly smooth, its antero-lateral borders finely serrulate. "Rostrum" a slender spinule slightly longer than the ophthalmic scales.

Eyestalks remarkably long, considerably longer than the anterior border of the carapace, almost as long as the peduncle of the antennule and very much longer than that of the antenna. Ophthalmic scales spinulose at the antero-internal angle.

Peduncle of the antenna remarkably short, barely reaching to the base of the terminal joint of that of the antennule. Antennal acicle a serrated spinule not surpassing the penultimate joint of the peduncle.

Chelipeds pilose. Left cheliped much the larger: when denuded its outer surface is smooth except for a longitudinal series of three or four spines on the outer surface of the carpus: the upper border of the merus is serrulate, and the lower outer border of the merus and the inner and anterior borders of the wrist and the upper border of the palm are spinulose: the outer surface of the palm is traversed by a longitudinal bulge, or low carina, the summit of which is finely granulous.

The 2nd and 3rd legs reach, or slightly surpass, the end of the left cheliped: they are setose and, except for a spinule at the far end of the anterior border of the carpus, smooth: the dactyli are longer than the propodites.

Length of carapace about 4 mm.

In the shell of a small species of *Cerithium*.

Mahlos, Maldives, 23 fathoms; Minikoi.

In the remarkable length of the eyestalk and the abbreviated antennal peduncle, this species resembles *D. pallescens* Whitelegge, from Funafuti.

Pagurus, Fabr.9. *Pagurus punctulatus*, Olivier.

Cancer megistos, Herbst, *Krabben u. Krebse*, III. iv. p. 23, Pl. LXI. fig. 1, 1804. *Pagurus punctulatus*, Olivier, *Encycl. Méthod.* VIII. p. 641, 1811: Quoy et Gaimard, *Voy. Uranie et Physicienne*, p. 528, Pl. LXXVIII. fig. 2: Milne-Edwards, *Hist. Nat. Crust.* II. p. 222: Dana, *U.S. Expl. Exp. Crust.* Pt I. p. 451, Pl. XXVIII. fig. 4 a, b: Ortmann, *Zool. Jahrb. Syst. etc.* VI. 1891, p. 286 (distrib.).

Two specimens from the Maldives, Hulule, Male Atoll. One of them is a giant, with a cephalothorax 70 mm. ($2\frac{4}{5}$ inches) long, and is lodged in a large shell of *Dolium* with several small sea-anemones attached.

Distribution. This common species ranges from the Red Sea and East coast of Africa eastwards as far as the Sandwich Is., and southwards as far as Australia; that is to say, from about 40° E. to about 150° W., and from about 28° N. to about 30° S.

10. *Pagurus fabimanus*, Dana.

Pagurus fabimanus, Dana, *U.S. Expl. Exp. Crust.* Pt I. p. 454, Pl. XXVIII. fig. 7 a—e, 1852: Hilgendorf, *MB. k. Akad. Berlin*, 1878, p. 819: Whitelegge, *Mem. III. Austral. Mus.* 1897, p. 142.

The numerous small specimens that I identify with this species I was at first inclined to regard as young of a variety of *P. sculptipes* Stimpson until I had seen the undoubted young of the latter species. They agree perfectly well with Dana's description and figures except that the dactylus of the left cheliped is less distinctly (more minutely) spinulose than Dana's fig. 7 b.

Four specimens from the Maldives, Hulule, Male Atoll, and seven from Miladumadulu Atoll: 15 from Minikoi.

Distribution. East coast of Africa (Ibo), Maldives and Minikoi, Philippines, Fiji, Tongatabu, Funafuti.

11. ?*Pagurus scabrimanus*, Dana.

Pagurus scabrimanus, Dana, *U.S. Expl. Exp. Crust.* Pt I. p. 455, Pl. XXVIII. fig. 8 a—c, 1852: ?de Man, *Notes Leyden Mus.* III. 1881, p. 100.

Two small specimens very closely resembling *P. fabimanus*, but differing therefrom in the shorter eyestalks, larger eyes, and different form and sculpture of the two terminal joints of the 3rd left leg, are doubtfully referred to this species.

One is from Minikoi, the other from the Maldives.

Distribution. Philippines, ?Red Sea, ?Minikoi and Maldives.

12. *Pagurus wood-masoni*, n. sp.

A diagnosis and figure of this species is about to be published in the Indian Museum Catalogue of Crustacea Anomura.

The eyestalks reach beyond the end of the antennular peduncle, but the eyes are large, occupying between a third and a fourth the length of the terminal joint of the eyestalk. Though the carapace is depressed, its length in the middle line exceeds its greatest breadth. The legs and chelipeds are strongly spinulose, but only sparsely setose. The left cheliped is vastly larger than the right, and when its joints are fully extended the hand is strongly inclined inwards—a diagnostic character that excludes all other *Paguri*.

A single small specimen from the Maldives.

Distribution. Andamans and Maldives.

13. *Pagurus guttatus*, Oliv., de Man.

Pagurus guttatus, Olivier, *Encycl. Méth.* VIII. 1811, p. 640: Quoy et Gaimard, *Voy. Uranie*, p. 533, Pl. LXXIX. fig. 3: Milne-Edwards, *Hist. Nat. Crust.* II. 223: Dana, *U.S. Expl. Exp.*

Crust. Pt I. p. 451, Pl. XXVIII. fig. 3 a, b: de Man, *Abh. senckenberg. Nat. Ges.* xxv. 1902, III. p. 738 (*ubi synonym.*). *Pagurus setifer*, Hess, *Archiv für Nat.* xxxi. 1865, p. 161: Hilgendorf, *MB. k. Ak. Berlin*, 1878, p. 815, Pl. III. fig. 8: Ortmann, *Zool. Jahrb. Syst.* vi. 1891, p. 287: Borradaile, *P.Z.S.* 1898, p. 460, and *Stom. and Macr. Willey's Exp.* p. 425.

De Man (*l.c.*) adequately confirms Henderson's decision—questioned by Ortmann—that the name *P. setifer* cannot be applied to this species.

Two specimens from Minikoi.

Distribution. From E. Africa (Mozambique) eastwards as far as 180° E., its northerly limit about 8° N., its southerly limit about 34° S.

14. *Pagurus deformis*, Edw.

Pagurus deformis, Milne-Edwards, *Ann. Sci. Nat. Zool.* (2) vi. 1836, p. 272, and *Hist. Nat. Crust.* II. p. 222: Miers, *Zool. H.M.Ss. Erebus and Terror*, *Crust.* p. 3, Pl. II. fig. 3: Hilgendorf, *SB. Ges. Nat. Freunde, Berlin*, p. 1878, p. 186 (hermaphroditism): Ortmann, *Zool. Jahrb. Syst.* vi. 1891, p. 288 (*distrib.*). *Pagurus cavipes*, White, *P.Z.S.* 1847, p. 122. *Pagurus cultratus*, White, *List Crust. Brit. Mus.* p. 60, 1848 (*vide* Miers).

Maldives, Hulule, Male, 3 specimens; Manadu, Addu, 2 specimens; Laccadives, Minikoi, 1.

Distribution. From the east coast of Africa eastwards to about 150° W., with northern limit about 28° N. (Liu Kiu Is.) and southern limit about 18° S.

15. *Pagurus dearmatus*, Henderson.

Pagurus dearmatus, Henderson, *Challenger Anomura*, p. 58, 1888, and *Journ. As. Soc. Beng.* LXV. 1896, Pt II. p. 518.

Maldives, Haddumati 1, Mahlos 1.

Distribution. Maldives, Ceylon, Admiralty Is.

16. *Pagurus hessii*, Miers.

Pagurus hessii, Miers, *Zool. H.M.S. Alert*, pp. 185, 264, Pl. XXVIII. fig. A, 1884: Henderson, *Trans. Linn. Soc. Zool.* (2) v. 1893, p. 419 (*syn.*). *Pagurus similimanus*, Henderson, *Challenger Anomura*, p. 59, Pl. VI. fig. 6, 1888.

This is the only *Pagurus* in which the chelipeds and crawling-legs on both sides are quite identical in length, form, and sculpture.

Maldives, 1 broken specimen.

Distribution. Maldives, Bay of Bengal and Gulf of Martaban, 13 to 35 fathoms; Penang, Celebes Sea, 10 fathoms; Arafura Sea, 32 to 36 fathoms.

Subfamily **Eupagurinae.**

Eupagurus, Brandt.

Only one species of this cosmopolitan genus is represented in the collection, and is new to science.

17. *Eupagurus janitor*, n. sp. Plate LXVIII. figs. 2 and 4.

Closely related to *E. hirtimanus*, White.

As in *Pylopagurus* the enlarged right hand is deflexed at an angle with the wrist to form a door to the shell inhabited (a species of *Turbo*); and somewhat as in *Cancellus* the 2nd and 3rd pairs of legs support the door though they are not specially modified for the purpose.

Carapace bearing some tufts of setae, three tufts in a line on either side of the gastric region being conspicuous. Rostrum broadly triangular, but acute, much more prominent than the ill-defined antennal angles of the carapace.

Eyestalks almost piriform, much shorter than the anterior border of the carapace, reaching into the distal third of the terminal joint of the antennular peduncle, and into the distal half of the same joint of the antennal peduncle. Eyes subreniform, very large and black. Ophthalmic scales distant, narrow, foliaceous, dorsally concave.

Antennal peduncle decidedly larger than antennular peduncle, setose at base: acicle curved, setose, overlapping base of terminal joint of peduncle: flagellum nearly twice as long as the carapace, nude.

Chelipeds both tomentose and hairy, but not so as to entirely conceal surface sculpture; legs hairy.

Right cheliped vastly more massive than the left, short and stout, the hand permanently deflexed almost at right angles with the wrist: merus pyramidal, smooth and polished: carpus triangular, as long as merus and broader than long; there are 2 or 3 claw-like spines at the far end of its upper border, 3 or 4 spines in a longitudinal row on its upper surface, and a short irregular median series of granules on the same surface: the palm is longer and much broader than the wrist and much broader than long; its outer edge forms, with that of the fixed finger, a curve of about 120° , and its inner edge, with that of the dactylus, is almost straight, both edges being thickly setose and very regularly serrated; its extensor surface, when denuded, is found to be studded with granules, of which a few here and there are enlarged: the dactylus is much narrower than the fixed finger and has a median longitudinal row of pearly granules on its upper surface; the finger tips are calcareous.

The slender left cheliped reaches the base of the right dactylus: the lower border of its merus is spinulose, and the upper surface of its carpus carries two longitudinal rows of spines: the palm is about as long as the fingers, which are blunt and spooned.

The 2nd and 3rd legs slightly exceed the larger cheliped, those of the right side being the longer: their three distal joints are not capable of complete extension in a straight line with the merus and are carried, much as in *Cancellus*, almost at right angles with the merus, so that those of the right side are closely applied to the convex outer border of the deflexed hand. The legs are stout and beset with bristles: the dactyli end in sharp black claws, the dactylus of the 3rd pair being as long as, that of the second pair being shorter than, its propodite.

The male has 4 abdominal appendages on the right side.

Colours in spirit: eyestalks, chelipeds and legs, reddish-yellow.

Length of carapace of male nearly 12 mm.: a female with eggs is smaller.

Maldives, Hulule, Male Atoll, one male and one female.

In *Eupagurus operculatus*, Stimpson, from the Florida reefs the right hand forms an operculum as in *E. janitor*, but the two species do not seem to be otherwise alike.

Nematopagurus, Edw. and Bouv.

This genus resembles *Eupagurus* on the one hand and *Catapagurus* on the other, but differs from both in the rather remarkable character—a character shared also by *Pylopagurus*, *Pylopaguropsis*, and *Munidopagurus*—that the female only (not the male) has a pair of appendages, modified for sexual purposes, on the first abdominal segment.

It agrees with *Catapagurus* in having the vas deferens of the right side protruded, but the protruded tube ends in a long slender filament: moreover the left vas deferens also protrudes, though it forms only a short conical tube.

Five species of *Nematopagurus* are found in the seas of India, mostly in the sublittoral depths; the only other species known is *Nematopagurus longicornis*, Edw. and Bouv., from depths of about 42 to about 1410 fathoms of the Eastern Atlantic (from the North of Spain to Cape Verde) and the Western Mediterranean. It is a remarkable fact—one of many similar facts of distribution that will be discussed in a forthcoming volume on the Indian *Paguridae*—that this Atlantic and Mediterranean species differs in only a few trifling particulars from a species found at 102 fathoms in the Arabian Sea.

18. *Nematopagurus muricatus*, Henderson.

Catapagurus muricatus, Henderson, *Journ. Asiatic Soc. Bengal*, LXV. Pt II. 1896, p. 524.

Illustrations of the Zool. of the Investigator, *Crust.* Pl. XXXI. fig. 3.

Two males and a female from the Maldives.

Distribution. Maldives; off N.E. and S. coasts of Ceylon, 28—34 fathoms.

19. *Nematopagurus gardineri*, n. sp. Pl. LXVIII. fig. 3.

Resembles *N. indicus*, but has much longer eyestalks and more pilose chelipeds.

Carapace smooth, rostrum indistinct. Eyestalks as long as the anterior border of the carapace, longer than the antennal peduncles, and reaching to the distal fourth of the terminal joint of the antennular peduncles. Eyes not much expanded: ophthalmic scales very small, bifid at tip. Antennal acicle curved, setose, nearly reaching the end of the peduncle: flagellum long, nude.

Chelipeds thickly pilose, especially so on the outer surface of the wrist and palm; the right is a little larger than the left, but both are almost alike in form and sculpture: the carpus has an iridescent sheen, its inner edge is spinose, and there is a median longitudinal row of spines on its outer surface: both edges of the palm are well defined and serrulate, and there is a median longitudinal carina on the outer surface of the palm: the palm is slightly longer than broad, longer than the fingers in the right cheliped, and about as long as the fingers in the left.

Second and 3rd legs nearly a dactylus longer than the chelipeds: they are sparsely setose and except for a spine at the far end of the anterior border of the carpus are unarmed: the dactyli end in a sharp claw and have some capillary spinelets on their posterior border: the dactylus of the 3rd pair is about as long as the combined merus and carpus.

The paired appendages of the first abdominal somite of the female are slender, curved rods.

Length of carapace of an egg-laden female, 5 mm.

A single specimen, inhabiting a shell of a Cerithiid, from the Maldivé Is.

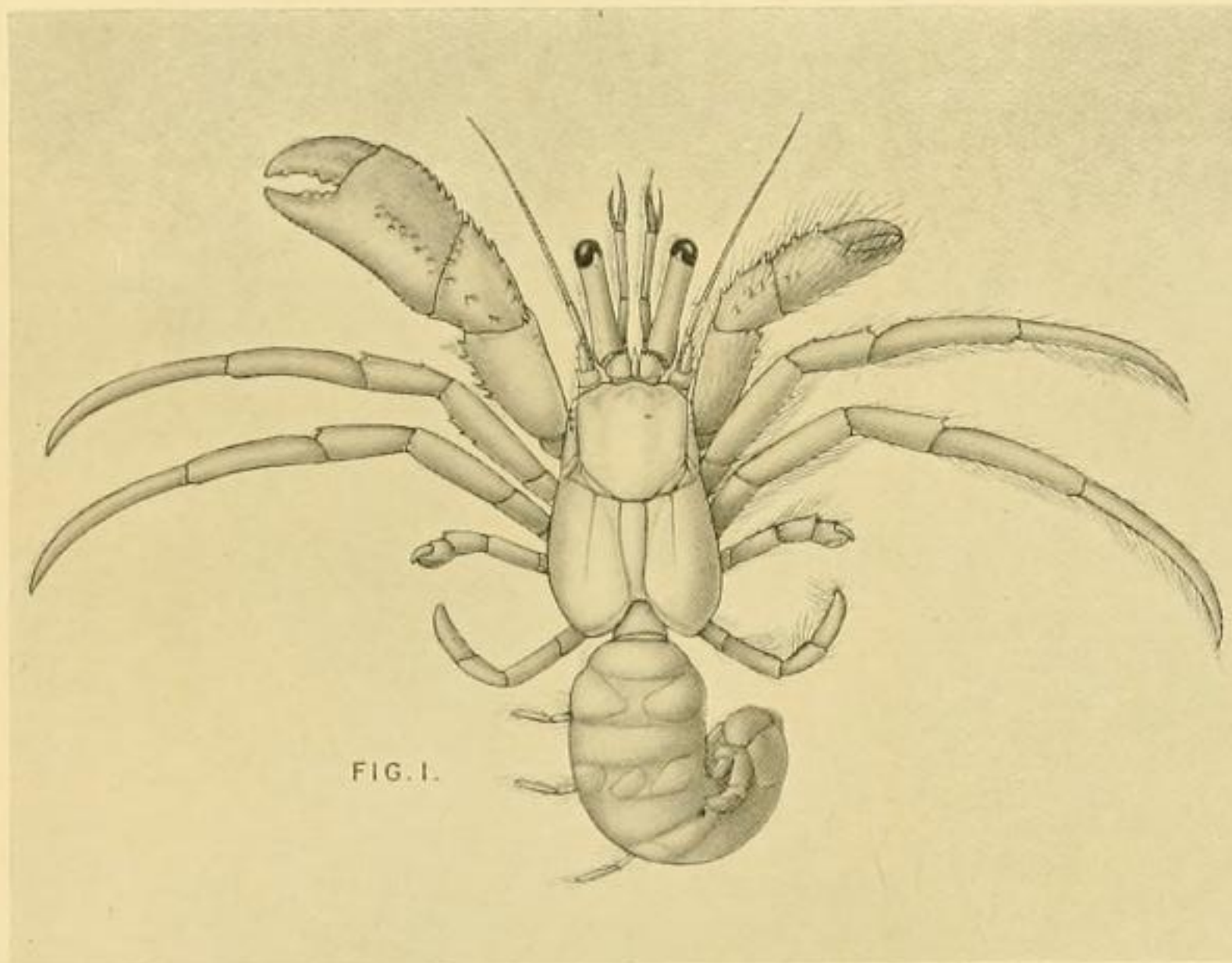


FIG. 1.

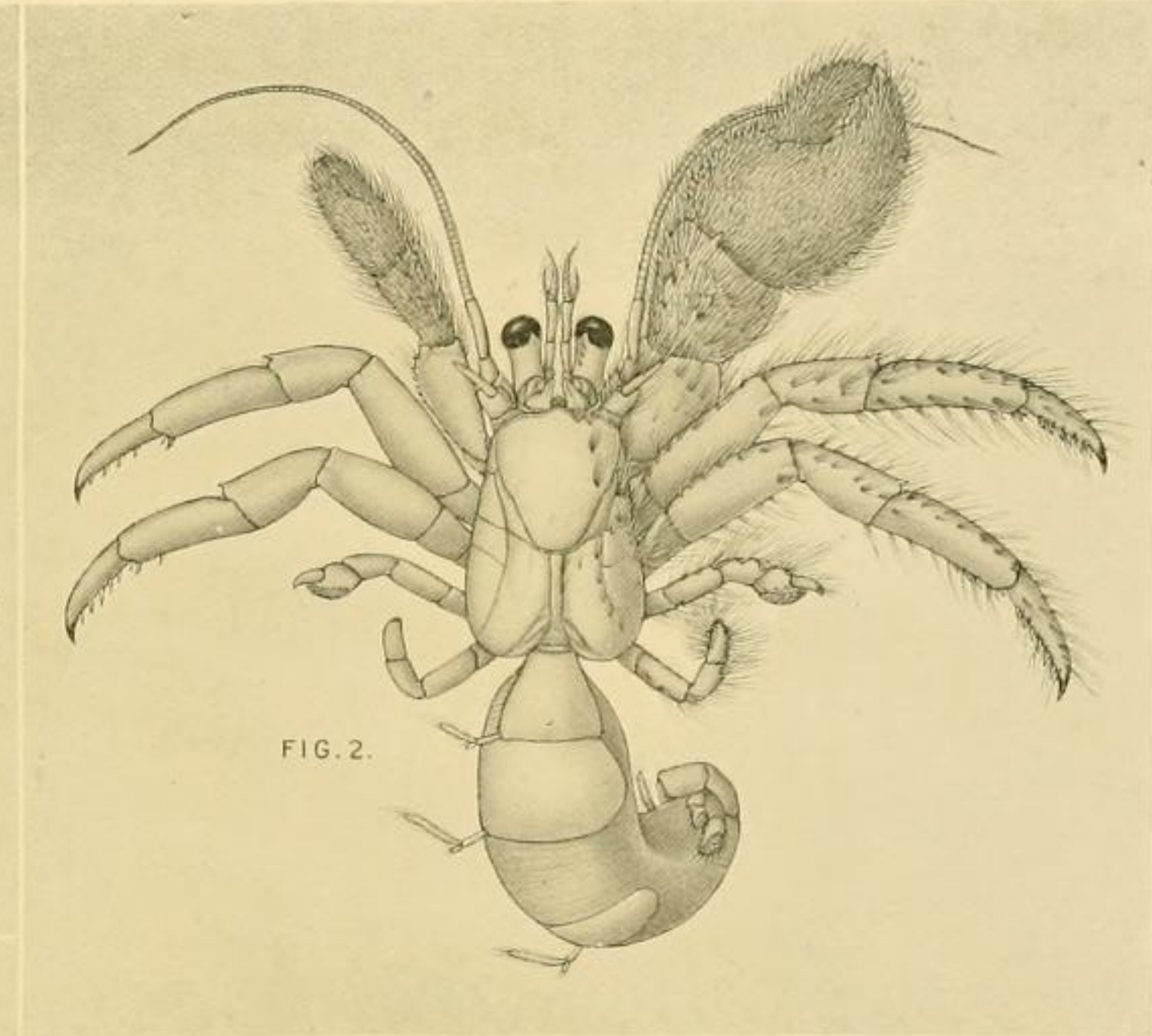


FIG. 2.

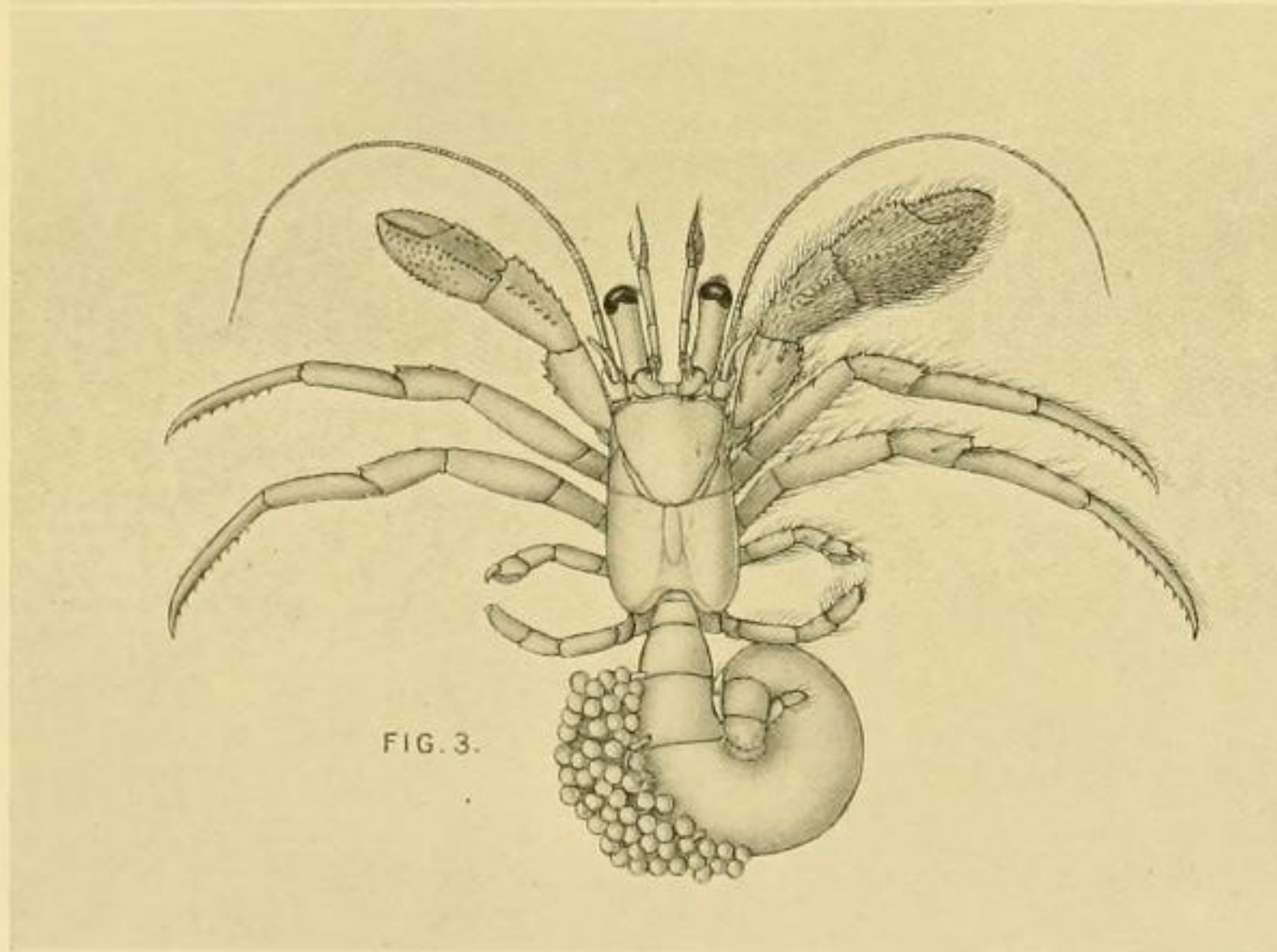


FIG. 3.

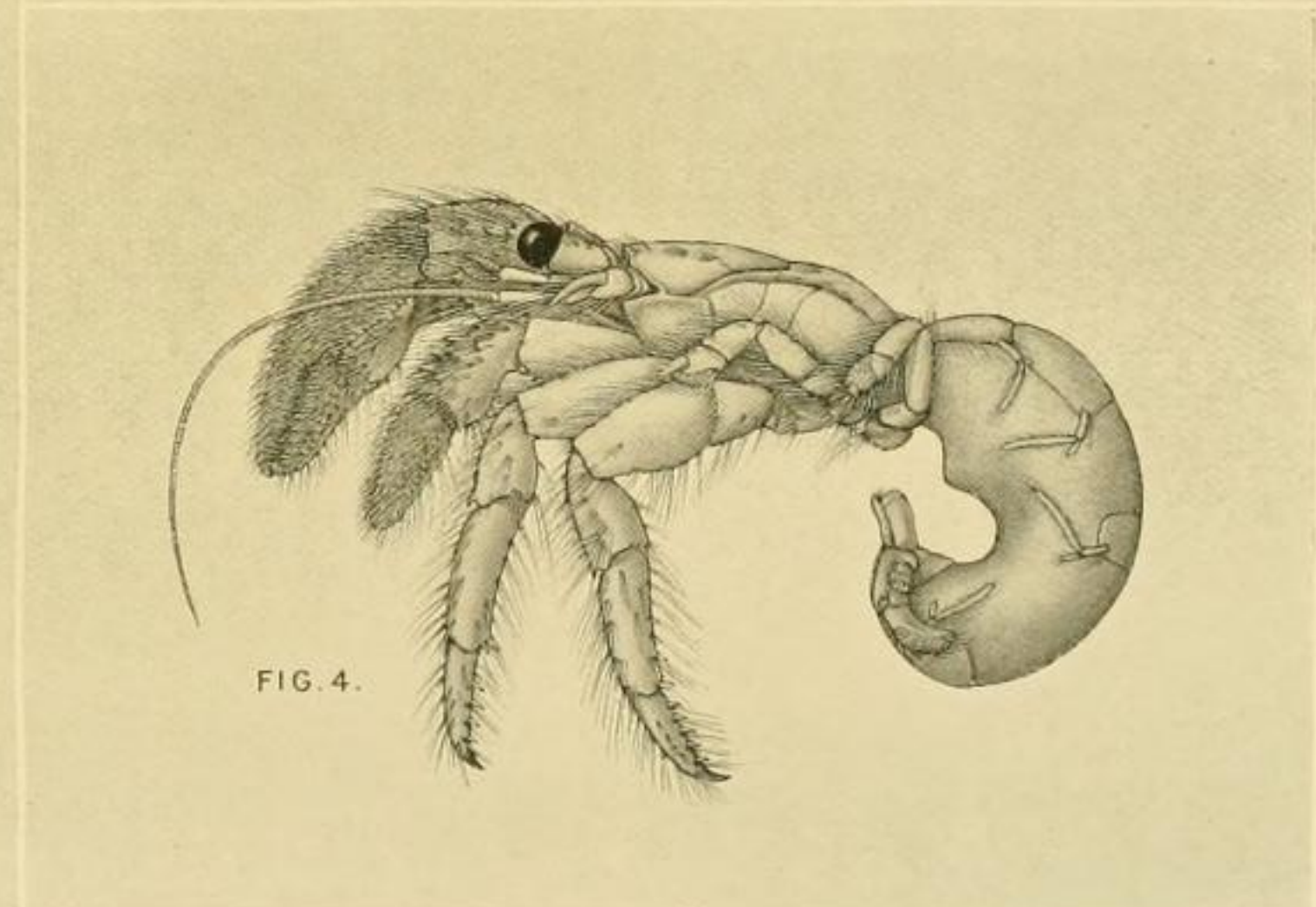


FIG. 4.

Spiropagurus, Stimpson.20. *Spiropagurus spiriger*, De Haan.

Pagurus spiriger, De Haan, *Faun. Japon. Crust.* p. 206, Pl. XLIX. fig. 2. *Spiropagurus spiriger*, Stimpson, *Proc. Acad. Nat. Sci. Philad.* (1858) 1859, p. 248: Henderson, *Challenger Anomura*, p. 72: Ortmann, *Zool. Jahrb. Syst.* VI. 1891—92, p. 297.

Several small specimens from the Maldives.

Distribution. Japanese and Chinese Seas, to 16 fathoms: Seas of the East Indian Archipelago, to 49 fathoms: Bay of Bengal, to 30 fathoms: Maldives.

The adult animal seems to love light shells like those of *Pirula*.

Anapagurus, Henderson.21. *Anapagurus*, sp.

A small specimen *minus* most of its appendages, from the Maldivé Is., is perhaps referable to this genus.

Catapagurus, A. M.-Edw.22. *Catapagurus ensifer*, Henderson, *Trans. Linn. Soc. Zool.* (2) v. 1893, p. 424, Pl. XXXVIII. figs. 16—19.

Numerous specimens, males and egg-laden females, from the Maldives. Some with a commensal sea-anemone.

Distribution. Gulf of Martaban, Maldives.

Cestopagurus, Bouvier.23. *Cestopagurus olfaciens*, n. sp.

Rostrum fairly prominent. Eyestalks longer than the anterior border of the carapace and than the antennal peduncles, but much shorter than the antennular peduncles. These last are particularly long and stout, their terminal joint is club-shaped, and their upper flagellum is divided into about 9 segments (not including the terminal filament), each of which carries a bunch of hairs that is longer and more conspicuous than the lower flagellum.

The right cheliped is very much larger than the left, and is smooth and almost bare: the hand is the biggest joint, and the palm is longer than broad, and broader at its far end than at its near end.

The 2nd and 3rd legs are smooth and bare, the dactyli being long and very slender.

The right vas deferens passes from the coxa of the 5th right leg across the *ventral* surface of the abdomen, and then ascends obliquely over the *left* flank: it increases slightly in calibre distally, and ends abruptly.

The length of a carapace of a male is 3 mm., of an egg-laden female 2 mm. In two males the left gill-chamber is greatly distended by a parasite.

N. Male Atoll, Maldivé Is. Several specimens, in tiny shells of various kinds, chiefly long turret-shells.

This species differs from *C. coutieri* in its very long antennules, its remarkably long and stout olfactory hairs, its smooth and bare chelipeds, its abruptly-ending vas deferens, and its long and slender dactyli of the 2nd and 3rd legs.

PLATE LXVIII.

FIG. 1. *Diogenes gardineri* n. sp. × 6.

FIG. 3. *Nematopagurus gardineri* n. sp. × 4.

FIG. 2. *Eupagurus janitor* n. sp. × 2.

FIG. 4. *Eupagurus janitor* n. sp. × 2.