

IV. — SYNOPSIS OF THE GENERA *SESARMA*, *METASESARMA*, *SARMATIUM* AND *CLISTOCOELOMA*, WITH A KEY TO THE DETERMINATION OF THE INDO-PACIFIC SPECIES.

BY Dr. J. J. TESCH. — (WITH PLATES XV, XVI AND XVII, AND 8 TEXT-FIGURES).

The genus *Sesarma*, established in 1817 by Say to receive an American form has turned out to contain such a large number of species, that it is nowadays one of the most difficult ones to the systematist. No less than about 130 species without the subspecies are included in it. In dealing with so many forms the need of subdivision naturally presents itself, and so de Man in 1887 (Zool. Jahrb. Syst., Bd. 2) firstly distinguished four subgenera, to which in 1895 (Zool. Jahrb. Syst., Bd. 9) he gave the names of *Sesarma s.s.*, *Episesarma*, *Parasesarma* and *Perisesarma*. But already two years afterwards the often tyrannic exigencies of priority in nomenclature induced Miss Rathbun (Proc. Biol. Soc. Washington, v. 11) to alter the first two names into *Holometopus* and *Sesarma s.s.* respectively, and in 1909 (Proc. Biol. Soc. Washington, v. 22) this author again substituted the name *Chiromantes* Gistel for de Man's *Perisesarma*, so that now only *Parasesarma* has been left undisturbed.

Every carcinologist will be ready to acknowledge de Man's great merits in affording the most accurate and minute informations about insufficiently-known species and in describing new ones with such accuracy that we may safely follow his lead amongst the intricacies and sometimes bewildering complexities that present itself in Decapod literature. In the particular case we are now dealing with it is he, who has examined by far the greater number of species, at least those from Indo-Pacific origin, and as most of his material is represented in the Leiden Museum the present author has had ample occasion to test the reliability of his own determinations. In some doubtful cases Dr. de Man with never failing helpfulness has been always willing to give his advice and needless to say that I again feel greatly indebted to him.

*Metasesarma*, like *Sarmatium* and *Clistocoeloma*, is here treated of as a distinct genus. I have taken as base de Man's revision of the Indo-Pacific species of *Sesarma* (and *Metasesarma*) and *Sarmatium* that appeared in 1887 and prepared a list of all the species known, together with all their records and the synonymy. This drawing up of records has been the most tedious part of my task in the present paper and I feel sure that, notwithstanding all my trouble, some records have been fortuitously

overlooked<sup>1)</sup>; yet I hope such cases will not seriously interfere with its possible value.

Further I have tried to give a key to the Indo-Pacific species of the genera dealt with. As to the American species of *Sesarma* we possess a valuable, though rather concise, key, prepared by Miss Rathbun (Proc. Biol. Soc. Washington, v. 11, 1897, p. 89—92) and, though the number of species of course has increased during the last twenty years, her synopsis certainly has retained its value. Now it is a remarkable fact, that, with the only exception of a key to the subgenus *Parasesarma* by de Man (see Zool. Jahrb. Syst., Bd. 9, 1895, p. 181—182), never any attempt has been made to introduce the beginning student into the determination of Indo-Pacific *Sesarma*-species, be it only in a preliminary way, by means of a synoptical key<sup>2)</sup>. I have tried to fill up this gap, but in how far my attempts are successful may only be decided by practice. Determinations made by using this key should of course always be verified by perusing the literature and the most extensive description of the particular species, and it is for this reason, that, for the sake of convenience, I ranged the species merely alphabetically, without regarding the subgenus (though this is always mentioned), in order to save time to the reader.

Where it appeared necessary I have added a few remarks of my own in order to indicate the affinities and points of difference between closely allied species.

I. Synopsis of all the species of *Sesarma*, *Metasesarma*,  
*Sarmatium* and *Clistocoeloma*.

A. *Sesarma* Say 1817.

1. *Sesarma* (*Sesarma* s.s.) *aequatorialis* Ortmann.

1894. *Sesarma aequatorialis* Ortmann. Zool. Jahrb. Syst., Bd. 7 p. 722, pl. 23 f. 14 — Ecuador.  
1897. *Sesarma* (*Sesarma*) *aequatorialis* Rathbun. Proc. Biol. Soc. Washington, v. 11 p. 112 — no new locality.  
1901. *Sesarma* (*Sesarma*) *aequatorialis* Nobili. Boll. Mus. Torino, t. 16 n°. 415 p. 44 — Esmeraldas.

1) The mere mentioning of names, without adding any description or new record, of Kingsley in his Revision of the Grapsidae (Proc. Ac. Nat. Sc. Philadelphia, 1880) has not been included here.

2) The well known memoir of Alcock (Journ. As. Soc. Bengal, v. 69 prt. 2, 1900) deals only with Indian species.

2. *Sesarma* (*Sesarma* s.s.) *aequifrons* Rathbun.

1914. *Sesarma* (*Sesarma*) *aequifrons* Rathbun. Proc. U. S. Nat. Mus. v. 47 p. 76 — Busuanga Island (Philippines).

3. *Sesarma* (*Chiromantes*) *africana* H. Milne-Edwards.

1837. *Sesarma africana* H. Milne-Edwards. Hist. Nat. Crust., t. 2 p. 73 — Senegal.  
1851. *Sesarma africana* Herklots. Add. ad. faun. carc. Afr. occ., p. 9 — Boutry (Guinea).  
1853. *Sesarma africana* H. Milne-Edwards. Ann. Sc. Nat., (3) t. 20 p. 185 — Senegal.  
1880. *Sesarma africana* de Man. Notes Leyden Museum, v. 2 p. 29 — no new locality.  
1892. *Sesarma africana* Thallwitz. Abhandl. Mus. Dresden, Bd. 3 n<sup>o</sup>. 3, 1890/91, p. 40 — Ogowé (West Africa).  
1897. *Sesarma* (*Perisesarma*) *africana* Rathbun. Proc. Biol. Soc. Washington, v. 11 p. 89 — Barbados.  
1900. *Sesarma* (*Perisesarma*) *africanum* Rathbun. Proc. U. S. Nat. Mus. v. 22 p. 280 — enumeration of West-African localities.

Specimens in the Museum:

- 3 ♂, 3 ♀ (1 ♂ juv.) Boutry, Pel coll. (types of Herklots)  
1 ♂, Liberia, Büttikofer & Sala coll. 1881.

4. *Sesarma* (*Sesarma* s.s.) *amphinome* de Man.

1899. *Sesarma* (*Sesarma*) *amphinome* de Man. Notes Leyden Museum, v. 21 p. 133, pl. 12 f. 16 — Sintang (Borneo).

Specimens in the Museum:

- 2 ♂, 2 ♀ (types of de Man).

5. *Sesarma* (*Parasesarma*) *andersoni* de Man.

1887. *Sesarma andersoni* de Man. Zool. Jahrb. Syst., Bd. 2 p. 657 — Mergui Archipelago.  
1888. *Sesarma andersoni* de Man. Journ. Linn. Soc. London, v. 22 p. 172, pl. 12 f. 1—4 — Tenasserim River (Mergui Archipelago).  
1900. *Sesarma andersoni* Alcock. Journ. As. Soc. Bengal, v. 69 prt 2 p. 418 — Mergui Archipelago.

Specimens in the Museum:

- 1 ♂ (co-type of de Man).

6. *Sesarma (Holometopus) angolensis* Brito Capello.

1864. *Sesarma angolensis* Brito Capello. Descr. tres Sp. nuov. Crust. d. Afr. occ., p. 4 f. 2 — Angola.
1883. *Sesarma angolensis* de Man. Notes Leyden Museum, v. 5 p. 161 — Grand Cape Mount (Liberia).
1900. *Sesarma (Holometopus) angolensis* de Man. Mém. Soc. Zool. d. France, t. 13 p. 59, pl. 2 f. 11 — Mouth of Catumbella River (Angola).
1900. *Sesarma (Parasesarma) angolensis* Rathbun. Proc. U. S. Nat. Mus., v. 22 p. 280 — enumeration of West-African localities.

## Specimens in the Museum:

- 4 ♂, 3 ♀ Grand Cape Mount (Liberia), Büttikofer coll. 1882.
- 1 ♂, 2 ♀ Angola, Lobito, Kamerman coll. 1899.
- 2 ♀ Liberia, J. Demery coll. 1890 and 1897.

7. *Sesarma (Holometopus) angusta* Smith.

1870. *Sesarma angusta* Smith. Transact. Connecticut Ac., v. 2 p. 159 — Panama.
1897. *Sesarma (Holometopus) angusta* Rathbun. Proc. Biol. Soc. Washington, v. 11 p. 91 — no new locality.

8. *Sesarma (Sesarma s.s.) angustifrons* A. Milne-Edwards.

1869. *Sesarma angustifrons* A. Milne-Edwards. Nouv. Arch. Mus. Paris, t. 5, Bull. p. 26 — Sandwich Isles.
1887. *Sesarma angustifrons* de Man. Zool. Jahrb. Syst., Bd. 2 p. 655 — no new locality.
1889. *Sesarma angustifrons* de Man. Zool. Jahrb. Syst., Bd. 4 p. 432 pl. 10 f. 10 — Tahiti.
1899. *Sesarma angustifrons* de Man. Notes Leyden Museum, v. 21 p. 134, pl. 12 f. 17 — no new locality, redescription of the Tahiti-specimen of 1889.

## Specimens in the Museum:

- 1 ♂, Tahiti.
- 1 ♀, Wijnkoopsbay, Java, Dr. Boerlage coll. 1889.

9. *Sesarma (Holometopus) angustipes* Dana nec Miers.

1852. *Sesarma angustipes* Dana. U. S. Expl. Exp., Crust. p. 353, pl. 22 f. 7 — Rio de Janeiro?
1858. *Sesarma americana* de Saussure. Mém. Soc. phys. et hist. nat. Genève, t. 14 p. 441 — St. Thomas.



1858. *Sesarma angustipes* Stimpson. Proc. Ac. Nat. Sc. Philadelphia, 1858, p. 106 — Greytown (east coast of Nicaragua).  
1897. *Sesarma (Holometopus) angustipes* Rathbun. Proc. Biol. Soc. Washington, v. 11 p. 91 — no new locality.  
1907. *Sesarma angustipes* Stimpson. Smithson. Inst., Miscell. Coll., v. 49 p. 136 — same record as in 1858, besides: San Juan?

Specimens in the Museum:

- 1 ♀, Laguanta (Venezuela), M. D. Horst coll. 1907, in brook.

10. *Sesarma (Sesarma s.s.) aranea* Nobili.

*Sesarma aranea* Nobili. Ann. mus. civ. stor. nat. Genova, (2) t. 20 p. 510 — Nias (and Borneo?)

*Sesarma aranea* de Man. Rec. Ind. Mus. Calcutta, v. 2 prt. 2 n°. 22, p. 184 — description of co-type.

11. *Sesarma (Sesarma s.s.) atrorubens* Hess.

1865. *Sesarma atrorubens* Hess. Arch. Naturgesch., Jhrg. 31 p. 149, pl. 6 f. 12 — Sydney.  
1882. *Sesarma atrorubens* Haswell. Cat. Austral. Crust. p. 108 — same locality.  
1887. *Sesarma atrorubens* de Man. Zool. Jahrb. Syst. Bd. 2 p. 653 and 676 — Timor, Sanghir, Soela Besi and Amboina.  
1890. *Sesarma atrorubens* de Man. Notes Leyden Museum, v. 12 p. 95 — Fiji Isles.  
1894. *Sesarma atrorubens* Ortmann. Zool. Jahrb. Syst., Bd. 7 p. 724 — Fiji Isles.

Specimens in the Museum:

- |                                              |   |                          |
|----------------------------------------------|---|--------------------------|
| 1 ♂, Timor, Macklot coll.                    | } | mentioned by de Man 1887 |
| 1 ♂, Sanghir, Hoedt coll. 1867               |   |                          |
| 2 ♂, Soela Besi                              |   |                          |
| 1 ♀, Amboina, Ludeking coll. 1863            |   |                          |
| 2 ♂, Fiji Isles. (mentioned by de Man 1890). |   |                          |
- 1 ♂, unknown locality.

12. *Sesarma (Sesarma s.s.) barbimana* Cano nec de Man.

1889. *Sesarma barbimana* Cano (nec de Man). Boll. Soc. Nat. Napoli <sup>1)</sup>, t. 3 p. 245 — Payta (Peru).  
1892. *Sesarma barbimana* Gavino. Boll. Soc. Nat. Napoli <sup>1)</sup>, t. 3<sup>?</sup> p. 93 — Payta.

1) I have not been able to consult this periodical, so that I could only rely upon the Zoological Record.

1897. *Sesarma* (*Sesarma s.s.*) *barbimana* Rathbun. Proc. Biol. Soc. Washington, v. 11 p. 90 — no new locality.  
 1901. *Sesarma barbimana* Nobili. Boll. Mus. Torino, t. 16 n°. 415 p. 46 — no new locality.

13. *Sesarma* (*Parasesarma*) *bataviana* de Man.

1890. *Sesarma bataviana* de Man. Notes Leyden Museum, v. 12 p. 101, pl. 6 f. 12 — Batavia.

Specimens in the Museum:

- 1 ♂, Batavia (type of de Man) Semmelink coll. 1882.  
 2 ♂, north coast of Java, Buitendijk coll. 1904.

14. *Sesarma* (*Parasesarma*) *batavica* Moreira.

1890. *Sesarma barbimana* de Man (*nec* Cano). Notes Leyden Museum, v. 12 p. 104 pl. 6 f. 13 — Batavia.  
 1903. *Sesarma batavica* Moreira. Arch. Mus. Rio de Janeiro, v. 12 p. 117 — no new locality.

Specimens in the Museum:

- 1 ♂, Batavia (type of de Man), Semmelink coll. 1882.

15. *Sesarma* (*Holometopus*) *benedicti* Rathbun.

1892. *Sesarma recta* de Man (*nec* Randall). Notes Leyden Museum, v. 14 p. 249, pl. 10 f. 4 — Surinam.  
 1897. *Sesarma* (*Holometopus*) *benedicti* Rathbun. Proc. Biol. Soc. Washington, v. 11 p. 90 — no new locality.  
 1897. *Sesarma chiragra* Ortmann. Zool. Jahrb. Syst., Bd. 10 p. 331 — Pará.

Specimens in the Museum:

- 3 ♂, 3 ♀, Surinam, Dr. H. ten Kate coll. (types of de Man).  
 1 ♂, Paramaribo, Jhr. W. C. van Heurn coll. 1911.  
 1 ♂, Paramaribo, in river near mouth, M. D. Horst coll. 1907.

16. *Sesarma* (*Chiromantes*) *bidens* (de Haan).

1835. *Grapsus* (*Pachysoma*) *bidens* de Haan. Fauna Japon. Crust. p. 60 pl. 11 f. 4 (♀) pl. 16 f. 4 (♂) — Japan.  
 1852. *Sesarma bidens* Dana. U. S. Expl. Exp. Crust. p. 353 — Fiji Isles.  
 1853. *Sesarma bidens* H. Milne-Edwards. Ann. Sc. Nat. (3) t. 20 p. 185 — no new locality.  
 1858. *Sesarma bidens* Stimpson. Proc. Ac. Nat. Sc. Philadelphia, p. 105 — Simoda.

1865. *Sesarma bidens* Heller. Crust. Reise „Novara”, p. 64 — Hongkong and Nicobars.
1869. *Sesarma bidens* Hilgendorf. v. d. Decken's Reisen in Ost-Afrika, Bd. 3.1 p. 91, pl. 3 f. 3a<sup>1)</sup> — Ceylon and Zanzibar.
1874. *Sesarma bidens* Hoffmann. Crust. et Echinoderm. d. Madagascar p. 24 — Nossi Faly and Nossi Bé.
1880. *Sesarma bidens* Miers. Ann. Mag. Nat. Hist., (5) v. 5 p. 313 — Indo-Malayan Seas.
1880. *Sesarma bidens* (part.) de Man. Notes Leyden Museum, v. 2 p. 28 — Amboina<sup>2)</sup>.
1881. *Sesarma bidens* Lenz & Richters. Abhandl. Senckenb. Gesellsch., Bd. 12 p. 425 — Zanzibar.
1884. *Sesarma bidens* Miers. Zool. Voy. „Alert” p. 184 and 246 —
1887. *Sesarma bidens* de Man. Zool. Jahrb. Syst., Bd. 2 p. 658 — no new locality.
1892. *Sesarma bidens* de Man. M. Weber's Zool. Ergebn. Reise niederl. Ost-Ind., Bd. 2 p. 330 — Palima and Macassar (Celebes).
1893. *Sesarma bidens* Bürger. Zool. Jahrb. Syst., Bd. 7 p. 623 — Hongkong, Philippines and Pelew Isles.
1894. *Sesarma bidens* Ortmann. Zool. Jahrb. Syst. Bd. 7 p. 726 — Pacific and Japan.
1899. *Sesarma* (*Perisesarma*) *bidens* Nobili. Ann. mus. civ. stor. nat. Genova, (2) t. 20 p. 269 — South New Guinea, near mouth of Fly River, British New Guinea and Port Darwin (East Australia).
1900. *Sesarma bidens* Alcock. Journ. As. Soc. Bengal, v. 69 prt. 2 p. 415 — Bay of Bengal, Andamans, Nicobars and Ceylon.
1905. *Sesarma bidens* Lenz. Abhandl. Senckenb. Gesellsch., Bd. 27 Heft 14 p. 372 — Zanzibar.
1907. *Sesarma bidens* Stimpson. Smithson. Inst. Miscell. Coll., v. 49 p. 134 — Simoda and Hongkong.
1910. *Sesarma* (*Chiomantes*) *bidens* Rathbun. Bull. Mus. comp. Zool. Harvard Coll., v. 52 p. 309 — Halmageira.

Specimens in the Museum:

5 ♂ (3 juv.), 2 ♀ (1 juv.) Japan (types and co-types of de Haan).

1) Judging from Hilgendorf's figure of the cheliped it seems to me doubtful whether his specimens are really referable to this species, as the mobile finger is transversally striated, not tuberculated.

2) These specimens have been later (1902) referred by de Man partly to the subspec. *indica*, partly to *Sesarma livida*.

From the rather long list of records we should infer, that this species is generally distributed all along the Indo-Pacific coasts. De Man, however, in 1902 (Abhandl. Senckenb. Gesellsch., Bd. 25 Heft 3 p. 538—541) first called attention to the fact that the original specimen of Japan differs somewhat from Indian specimens, originating from Amboina and Ternate, not only in the lateral margin of the outer orbital angle being rather strongly convex in the Japanese or typical form and straight or nearly so in the Indian specimens, but especially in the penultimate segment of the male abdomen being more than twice as broad (at the posterior margin) as long in the specimen of de Haan, but exactly twice as broad as long, or slightly less, in the latter specimens from Amboina and Ternate, which induced him to establish a subspecies *indica* for these Indian specimens. I have thought it necessary to examine all the specimens of our Museum again and found that those from East-India did indeed agree with de Man's subspecies; whereas in Japanese specimens the posterior margin of the penultimate segment of the male abdomen was always more than twice the length of this segment, this proportion proved to be less in Indian specimens. Besides it seemed to me, that the epibranchial tooth behind the external orbital angle is more strongly curved upward in the Japanese form than in the subspecies *indica*. According to this result I have strong reason to believe that the typical *bidens* occurs in Japan and in neighbouring countries, but that at least the Indian specimens belong to the subspecies *indica*. Whether perhaps specimens from East Africa and from Australia must be referred to the same or to one or two other subspecies cannot as yet be decided. I have examined 4 ♂ of de Haan from Japan (3 of them were preserved dry) and give here the dimensions of the largest ♂ (n°. 1), together with those of the type-specimen (n°. 2), measured by de Man (l.c., 1902, p. 541).

	1	2	
Distance between external orbital angles	30.5	24.5	mm.
" " epibranchial teeth	30.—	24.—	"
Length of carapace in the median line	25.—	20.25	"
Posterior margin } of penultimate segment	8.25	7.— <sup>1)</sup>	"
Length } of abdomen	4.—	3.25 <sup>1)</sup>	"

It may also be possible, that among all the specimens recorded in the literature *Ses. livida* likewise is represented, for the outer aspect of this species is exceedingly like that of *Ses. bidens*, as de Man (l. c.) already remarked, and the two species may be only distinguished by

1) Approximately.

means of the tubercles on the movable finger. Indeed, among the very specimens of *Ses. bidens*, long before examined and determined by de Man, I found a large ♂ of *Ses. livida*. De Man himself has been in doubt, whether the two forms A (= *Ses. livida*) and B (= *Ses. bidens* subsp. *indica*) should be regarded as two varieties or as distinct species.

16a. *Sesarma (Chirromantes) bidens indica* de Man.

1902. *Sesarma (Perisesarma) bidens* var. *indica* de Man. Abhandl. Senckenb. Gesellsch., Bd. 25 Heft 3 p. 541 — Amboina and Ternate.

Specimens in the Museum:

5 ♂, 2 ♀ (2 ♂, 1 ♀ juv.), Amboina, Ludeking coll. 1863.

1 ♂ juv., New Guinea.

1 ♀ juv., Tjilatjap, south coast of Java, Buitendijk coll. 1905.

This subspecies, as has been remarked before, is distinguished by a somewhat different shape of the external orbital angle and especially by the narrower abdomen of the ♂. Perhaps this subspecies represents the typical Japanese form all throughout the East-Indian Archipelago, but before more material is available, this cannot be relied upon.

17. *Sesarma (Sesarma s.s.) bidentata* Benedict.

1892. *Sesarma bidentata* Benedict. John Hopkin's Univ. Circ., v. 11 p. 77 — Jamaica.

1897. *Sesarma bidentata* Rathbun. Ann. Inst. Jamaica, v. 1 p. 33 — Jamaica.

18. *Sesarma (Holometopus) biolleyi* Rathbun.

1906. *Sesarma (Holometopus) biolleyi* Rathbun. Proc. Biol. Soc. Washington, v. 19 p. 100 — Costa Rica.

19. *Sesarma (Sesarma s.s.) bocourti* A. Milne-Edwards.

1869. *Sesarma bocourti* A. Milne-Edwards. Nouv. Arch. Mus. Paris, t. 5 Bull. p. 28 — Bangkok (Siam).

1877. *Sesarma cheirogona* Targioni-Tozzetti. Zool. viaggio „Magenta” p. 141, pl. 9 f. 2 — Yokohama.

1880. *Sesarma bocourti* de Man. Notes Leyden Museum, v. 2 p. 28 — Borneo.

1880. *Sesarma bocourti* Miers. Ann. Mag. Nat. Hist., (5) v. 5 p. 313 — Borneo.

1887. *Sesarma bocourti* de Man. Zool. Jahrb. Syst., Bd. 2 p. 650 — no new locality.

1894. *Sesarma bocourti* Zehntner. Rev. suisse Zool., t. 2 p. 182 — Sarawak.

1895. *Sesarma* (*Episesarma*) *bocourti* de Man. Zool. Jahrb. Syst. Bd. 9 p. 169 — Pontianak.

1899. *Sesarma* (*Sesarma*) *bocourti* Nobili. Ann. mus. civ. stor. nat. Genova, (2) t. 20 p. 507 — Siboga, Padang, Sarawak.

Specimens in the Museum:

1 ♂, Borneo, Schwaner coll. 1844 (examined by de Man 1880)

1 ♂, Balikpapan, Kampmeiner coll. 1912.

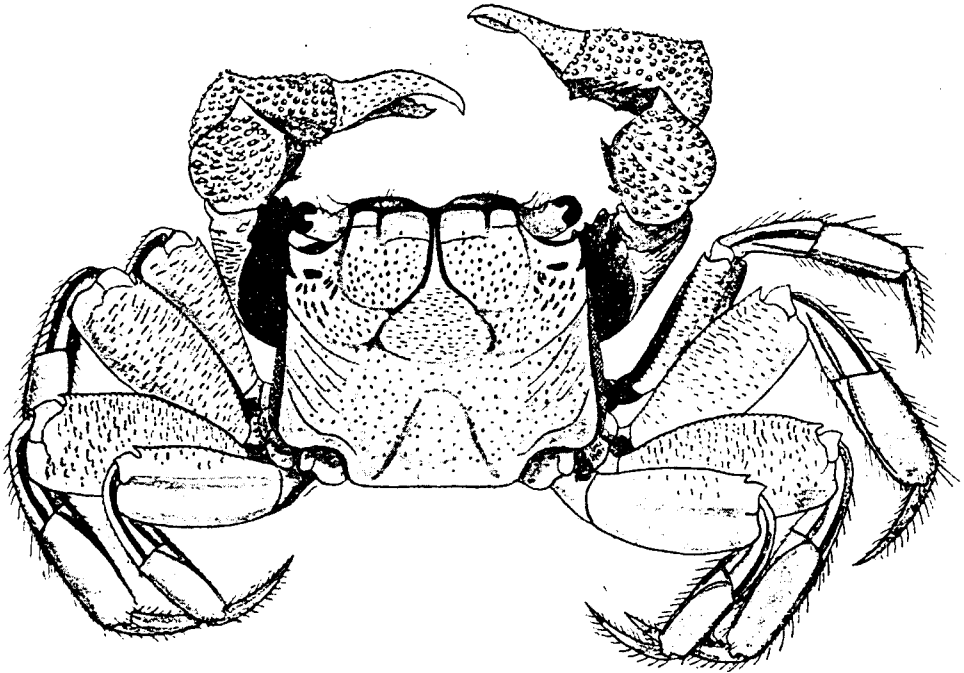


Fig. 1. *Sesarma bocourti* A. M. Edw. Magn. 1½.

This species is easily characterized, as Milne-Edwards and de Man observed, by the peculiar shape of the chelipeds. As the figure in the voyage of the „Magenta” seems to be the only one <sup>1)</sup> representing this species, I have deemed it not superfluous to give a new figure.

The carapace is convexly arched fore and aft, sloping down towards the branchial regions, where the usual obliquely transverse lines may be observed. The inner postfrontal lobes are more than 1½ times as broad

1) I myself could not consult this paper; Nobili has compared his specimens with the original specimen of Targioni-Tozzetti and, except for some small differences, found them perfectly alike.

as the lateral ones, sharply defined and separated by a deep groove; all the lobes bear, as de Man remarked (1895, p. 169), along their whole fore margin a transverse, rather deep groove. The front which is bent rectangularly to the postfrontal lobes, is slightly concave and projects at its free margin into two lateral projections, separated by a deep sinus, which is described by de Man (l.c.) as broad, not deep, but as no figure is provided by this author, the appreciation of this character remains subjective. The surface of the carapace is covered on the protogastric regions by a number of rounded tubercles, among which are scattered some larger ones; besides there are on the postfrontal lobes some groups of short, black hairs. The hepatic regions are provided with larger tubercles, the largest one of which is transversely elongated, immediately before a shallow groove, running transversely and parting from the incision between external orbital angle and epibranchial tooth. The external orbital angles are acute, directed forward, their outer margins are somewhat convex, converging distally; the epibranchial tooth is obtuse, anterior and lateral margins form a rectangular angle, and the latter are perfectly straight and parallel to each other. As de Man remarked, a second epibranchial tooth, though extremely minute, may be present or absent. According to this author the lateral margins of the carapace are nearly parallel, and the same character occurs in the older specimen from Borneo, but in the specimen from Balikpapan here figured the sides are somewhat diverging distally.

The chelipeds are of equal size; the superior margin of the arm is armed with a subdistal rectangular projection, but no real tooth; the anterior margin is serrated and the distal half somewhat expanded and provided with some larger teeth. The carpus has at its inner margin a thin, lamellar expansion, serrulated at its distal half and ending in a sharp spine. The upper surface of the carpus and the outer one of the palm are covered with large, black, rounded tubercles; those on the palm are largest towards the upper margin, gradually becoming smaller and more acute towards the carpal joint and the middle of the outer surface; at the inferior margin of the palm towards the base of the immobile finger and at the inferior margin of this finger, the tubercles are transformed gradually into acute spines directed forward. The most characteristic feature of the species consists in the remarkable flattened shape of the palm; looking from above, the outer surface is even slightly concave and rises into a well marked projection at the proximal end of this flattened region. This character is far more pronounced in the West-African *Sesarma büttikoferi* de Man, in which the outer surface of the palm is perfectly smooth and flattened like a looking-glass, but is carried

to an extreme by the remarkable *Platychirograpsus* 1) de Man from Gabun, in which the palm is elongated proximally beyond the carpal joint into a complete elbow. The upper margin of the palm in *S. bocourti* is feebly marked off and provided with three or four nearly parallel, longitudinal granular ridges; the inner surface presents a number of small largely separated and irregularly disposed tubercles. De Man says that there is no transverse granulated ridge at this inner surface, and in our older specimen from Borneo I could indeed observe no trace of it, but in the specimen of Balikpapan and in another specimen of the Zoological Museum of Amsterdam, originating from Deli, there is a row of 4—5 large granules and some smaller ones running from the base of the mobile finger in a curved line towards the proximal large tubercle on the cutting margin of the immobile finger. The upper margin of this mobile finger shows rather numerous sharp tubercles, irregularly placed; the finger itself, looked at from above, is, according to de Man, somewhat distorted or S-shaped, but I own, that I have not found anything irregular in its course. The inner surface of both fingers is perfectly smooth.

The walking legs are short; the meropodites much broadened, only about twice as long as broad; carpo- and propodite are only slightly hairy and the dactyli are rather long, scarcely shorter than the propodites, covered with bunches of hairs, and falciform.

In the abdomen of the male I noted a remarkable difference in the

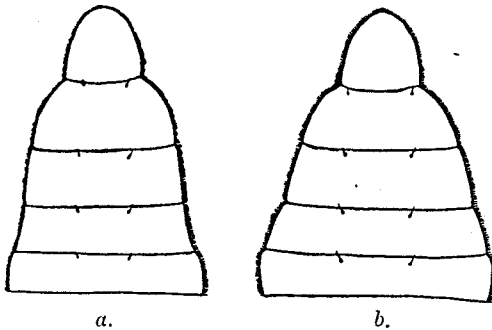


Fig. 2. *Sesarma bocourti* A. M. Edw.  
Abdomen, Magn. 2.

shape of the penultimate and of the 4th segment between the specimens at my disposal. In the older specimen from Borneo and that from Deli the abdomen (f. 2a) is rather narrow and the posterior margin of the penultimate segment is nearly exactly twice the length of this segment, as in the two specimens measured by de Man (l. c. p. 171), but the specimen of Balikpapan (f. 2b) has a much broader abdomen, the penultimate segment of which is nearly 3 times as broad at the posterior margin as long. Besides, in the first form the lateral margins of the 4th segment are slightly concave (f. 2a), in the latter form they are very slightly convex (f. 2b). It must remain undecided whether this

1) Mitt. naturhist. Mus. Hamburg, Bd. 13, 1896, p. 95—110, pl. 2, pl. 3 f. 4c.



difference is merely individual or indicates a real variety; if the two forms did not occur both in Borneo or its immediate neighbourhood, we should be inclined to accept the latter supposition, which now, however, seems uncertain.

Besides on the east coast of the Asiatic continent this species has been also found at Borneo, and Nobili has been the first to record it from Sumatra (Siboga and Padang). I do not know of any record from Java or the Moluccas, nor from New Guinea or Australia.

Dimensions of the three specimens examined (all ♂).

	1	2	3	
Distance between external orbital angles . . .	24.—	25.75	26.—	mm.
Greatest breadth of carapace (at the base of second pair of walking legs) . . . . .	24.5	28.—	27.—	"
Length of carapace in the median line . . . . .	21.5	24.25	23.25	"
Breadth of front . . . . .	14.—	14.5	14.75	"
Horizontal length of chela . . . . .	21.—	25.5	24.5	"
Greatest height of palm . . . . .	10.5	13.5	12.5	"
Length of meropodite } of penultimate pair of legs	16.—	19.—	19.—	"
Breadth of " }	7.75	9.—	10.—	"
Posterior margin of penultimate segment of abdomen . . . . .	9.—	10.5	9.25	"
Length of penultimate segment of abdomen . . . . .	4.—	3.75	4.5	"

N<sup>o</sup>. 1 is the old specimen from Borneo, n<sup>o</sup>. 2 that from Balikpapan, n<sup>o</sup>. 3 that from Deli (Zool. Mus. Amsterdam).

20. *Sesarma* (*Sesarma s.s.*) *brockii* de Man.

- 1887. *Sesarma brockii* de Man. Zool. Jahrb. Syst., Bd. 2 p. 651 — Amboina.
- 1888. *Sesarma brockii* de Man. Arch. Naturgesch., Jahrg. 53. 1. p. 373, pl. 16 f. 3 — Amboina.
- 1891. *Sesarma brockii* Thallwitz. Abhandl. Mus. Dresden, Bd. 3 1890/91 p. 39 — Ternate.
- 1894. *Sesarma brockii* Ortman. Zool. Jahrb. Syst., Bd. 7 p. 721 — Pacific.
- 1895. *Sesarma* (*Episesarma*) *brockii* de Man. Zool. Jahrb. Syst., Bd. 9 p. 171 — Pontianak.
- 1899. *Sesarma* (*Sesarma*) *brockii* Nobili. Ann. mus. civ. stor. nat. Genova, (2) t. 20 p. 507 — locality?
- 1900. *Sesarma brockii* Alcock. Journ. As. Soc. Bengal, v. 69 prt. 2 p. 421 — Andamans.
- 1901. *Sesarma* (*Episesarma*) *brockii* Nobili. Boll. Mus. Torino, t. 16 n<sup>o</sup>. 397 p. 3 — Sarawak (Borneo).

1902. *Sesarma* (*Sesarma*) *brockii* de Man. Abhandl. Senckenb. Gesellsch., Bd. 25 Heft 3 p. 516 — Halmaheira.
1903. *Sesarma* (*Sesarma*) *brockii* Nobili. Boll. Mus. Torino, t. 18 n°. 447 p. 26 — Samarinda (Borneo).

Specimens in the Museum:

- 1 ♀ juv., Skroë (New Guinea), Schädler coll. 1897.

In his last publication de Man has described a ♀ and remarked, that, whereas in his ♂, formerly described, from Amboina, the superior margin of the meropodite of the chelipeds has no subdistal tooth, such a tooth is present in the ♀. I have found the same in the single ♀ of the Museum.

21. *Sesarma* (*Holometopus*) *büttikoferi* de Man.

1883. *Sesarma büttikoferi* de Man. Notes Leyden Museum, v. 5 p. 163 — Grand Cape Mount (Liberia).
1891. *Sesarma büttikoferi* de Man. Notes Leyden Museum, v. 13 p. 50 — Junk River (Liberia).
1892. *Sesarma büttikoferi* Thallwitz. Abhandl. Mus. Dresden, Bd. 3 1890/91 p. 37 — Ogowé (West Africa).
1839. *Sesarma büttikoferi* Aurivillius. Bih. t. K. Svenska Ak. Forh., v. 24. 4. p. 11, pl. 3 f. 1—4 — Kamerun.
1900. *Sesarma* (*Parasesarma*) *büttikoferi* Rathbun. Proc. U. S. Nat Mus., v. 22 p. 290 — enumeration of West-African localities.

Specimens in the Museum:

- 1 ♂, Grand Cape Mount (Liberia), Büttikofer coll. 1882.
- 3 ♂, 3 ♀, Junk River (Liberia), Stämpfli coll. 1852.
- 1 ♂ (type) Fisherman Lake (Liberia), Büttikofer & Sala coll. 1881.

22. *Sesarma* (*Parasesarma*) *calypso* de Man.

1895. *Sesarma* (*Parasesarma*) *calypso* de Man. Zool. Jahrb. Syst., Bd. 9 p. 185, Bd. 10, 1898, pl. 30 f. 34 — Atjeh.
1899. *Sesarma* (*Parasesarma*) *calypso* Nobili. Ann. mus. civ. stor. nat. Genova, (2) t. 20 p. 514 — locality unknown.
1900. *Sesarma calypso* Lanchester. Proc. Zool. Soc. London, 1900, p. 757 — Malacca.
1900. *Sesarma calypso* Lanchester. Ann. Mag. Nat. Hist., (7) v. 6 p. 257 — Buntal (Borneo).

Specimens in the Museum:

- 1 ♂, 1 ♀ (co-types of de Man).

- 22a. *Sesarma* (*Parasesarma*) *calypso kükenthali* de Man.
1902. *Sesarma* (*Parasesarma*) *calypso* var. *kükenthali* de Man. Abhandl. Senckenb. Gesellsch., Bd. 25 Heft 3 p. 534 — Halmahera.
23. *Sesarma* (*Parasesarma*) *carolinensis* Rathbun.
1907. *Sesarma* (*Parasesarma*) *carolinensis* Rathbun. Mem. Mus. comp. Zool. Harvard Coll., v. 35 n<sup>o</sup>. 2 p. 34, pl. 5 f. 2—2a, pl. 9 f. 1 — Carolines.
24. *Sesarma* (*Parasesarma*) *catenata* Ortmann.
1897. *Sesarma catenata* Ortmann. Zool. Jahrb. Syst., Bd. 10 p. 334, pl. 17 f. 9 — New Zealand?
1897. *Sesarma catenatum* Stebbing. S. A. Crustacea. prt. 3 p. 44 — Kaerbooms River (South Africa).
1900. *Sesarma catenatum* Stebbing. S. A. Crustacea, prt. 5 p. 322 — same locality.
25. *Sesarma* (*Sesarma* s.s.) *celebensis* Schenkel.
1902. *Sesarma* (*Geosesarma*) *celebensis* Schenkel. Verhandl. naturforsch. Gesellsch. Basel, Bd. 13 p. 552, pl. 12 f. 18, 19b — Bwool and Enrekang (Celebes).
26. *Sesarma* (*Holometopus*) *cinerea* (Bosc).
- 1802—1803. *Grapsus cinereus* Bosc. Hist. nat. Crust., ed. 1, t. 1 p. 204, pl. 5<sup>1</sup>) f. 1 — Carolina.
1806. *Grapsus cinereus* Latreille. Hist. nat. Crust., t. 6 p. 72 — no new locality.
1818. *Sesarma cinerea* Say. Journ. Ac. Nat. Sc. Philadelphia, v. 1. p. 442 — Virginia, Florida, West Indies.
1828. *Grapsus cinereus* Bosc. Hist. nat. Crust., ed. 2, t. 1 p. 258, pl. 5 f. 1 — Carolina.
1837. *Sesarma cinerea* H. Milne-Edwards Hist. nat. Crust., v. 2 p. 75 — East coast of U. S. A. and Antilles.
1850. *Sesarma cinerea* Gibbes. Proc. Amer. Ass., v. 3 p. 180 — locality? <sup>2</sup>).
1853. *Sesarma cinerea* H. Milne-Edwards. Ann. Sc. nat., (3) t. 20 p. 182 — same localities as in 1837.
1862. *Sesarma cinerea* Stimpson. Ann. Lyc. Nat. Hist. New York, v. 7 p. 65 — locality? <sup>2</sup>)

1) Pl. 7, according to H. Milne-Edwards (1837); I have had no occasion to consult the work of Bosc.

2) Paper not seen by the present author.

1870. *Sesarma cinerea* Smith. Transact. Connecticut Ac., v. 2 p. 157 — Florida, South Carolina, Virginia.  
 1897. *Sesarma (Holometopus) cinerea* Rathbun. Proc. Biol. Soc. Washington, v. 11 p. 90 — no new locality.  
 1897. *Sesarma cinerea* (part.) Ortmann. Zool. Jahrb. Syst., Bd. 10 p. 329 — Bermudas.

This species seems often to have been confounded with *S. angustipes* Dana and *S. ricordi* H. Milne-Edwards; Ortmann united all three species under the name *S. cinerea*, but Miss Rathbun regarded them as distinct.

This species, with *S. plicata* Bosc the oldest known species of *Sesarma*, seems to be a common species along the east coast of the United States and ranges northward as far as the Bermudas.

27. *Sesarma (Sesarma s.s.) clavicurvis* Schenkel.

1902. *Sesarma clavicurvis* Schenkel. Verhandl. naturforsch. Gesellsch. Basel, Bd. 13 p. 556, pl. 12 f. 19c — Menado.

28. *Sesarma (Sesarma s.s.) crassipes* Cano.

1892. *Sesarma crassipes* Cano. Boll. Soc. nat. Napoli, t. 3 p. 244<sup>1)</sup> — Pernambuco.  
 1892. *Sesarma crassipes* de Man. Notes Leyden Museum, v. 14 p. 261 — no new locality.  
 1897. *Sesarma (Sesarma) crassipes* Rathbun. Proc. Biol. Soc. Washington, v. 11 p. 90 — no new locality.

29. *Sesarma (Sesarma s.s.) cruciata* Bürger.

1893. *Sesarma cruciata* Bürger. Zool. Jahrb. Syst., Bd. 7 p. 624, pl. 21 f. 6 — east coast of Mindanao (Philippines).

30. *Sesarma (Sesarma s.s.) curacaoensis* de Man.

1892. *Sesarma curacaoensis* de Man. Notes Leyden Museum, v. 14 p. 257, pl. 10 f. 6 — Curaçao.  
 1897. *Sesarma (Sesarma) curacaoensis* Rathbun. Proc. Biol. Soc. Washington, v. 11 p. 89 — no new locality.  
 1897. *Sesarma curacaoensis* Rathbun. Ann. Inst. Jamaica, v. 1 p. 33 — Jamaica.  
 1901. *Sesarma (Sesarma s.s.) curacaoensis* Rathbun. Bull. U. S. Fish Comm. for 1900, prt. 2 p. 18 — Porto Rico and Cuba.

Specimens in the Museum:

1 ♀ (type specimen of de Man).

1) Paper not seen by the present author.

Ortmann (Zool. Jahrb. Syst., Bd. 10, 1897, p. 333) identifies this species with *S. reticulata* Say, the type species of the genus, but Miss Rathbun regards it as a distinct species, though very closely related to that of Say; indeed, in her key to the American *Sesarmae* (Proc. Biol. Soc. Washington, v. 11 p. 89) the only difference given between the two species is, that in *S. curacaoensis* the eyes reach the outer orbital angle, whilst in *S. reticulata* they do not. De Man's figure however does not show this length of the eye-stalk, nor did I detect it in his typical specimen, preserved in the Museum.

31. *Sesarma (Holometopus) dehaani* H. Milne-Edwards.

1835. *Grapsus (Pachysoma) quadratus* de Haan (nec Fabricius). Fauna Japon. Crust., p. 62, pl. 8 f. 3 — Japan.
1853. *Sesarma dehaani* H. Milne-Edwards. Ann. Sc. nat., (3) t. 20 p. 184 — Japan.
1858. *Sesarma dehaani* Stimpson. Proc. Ac. Nat. Sc. Philadelphia, 1858, p. 106 — Bonin Islands, Hongkong and Simoda.
1865. *Sesarma dehaani* Heller. Crust. Reise „Novara”, p. 62 — Shanghai.
1887. *Sesarma dehaani* de Man. Zool. Jahrb. Syst., Bd. 2 p. 642 — no new locality.
1893. *Sesarma dehaani* Bürger. Zool. Jahrb. Syst., Bd. 7 p. 615 — Yokohama.
1894. *Sesarma dehaani* Ortmann. Zool. Jahrb. Syst., Bd. 7 p. 718 — Tokio; Nagasaki and Loo-Choo Islands.
1907. *Sesarma dehaani* Stimpson. Smithson. Inst. Miscell. Coll., v. 49 p. 134 — Bonin Islands, Whampoa (China) and Simoda (Japan).

Specimens in the Museum:

- 4 ♂, 1 ♀, Japan (type and co-types of de Haan).  
2 ♂, Kobe (Japan), v. Oordt v. Lauwenrecht coll. 1906.

De Haan's excellent figure of this species has enabled us to recognize it perfectly well, but as his description is somewhat short, I shall here try to make the *S. dehaani* better known. The carapace is regularly, but not strongly, convex in a longitudinal direction, nearly straight transversely, but, as usual, declivous along the branchial regions. The distance between the outer orbital angles is equal to the length of the carapace in the median line, but as the lateral sides are curved outward in their anterior third, the greatest breadth of the carapace (lying at the outer end of the anterior transverse line on the branchial regions, which latter are very strongly declivous) distinctly exceeds its length. As Ortmann rightly remarks all specimens show a trace of an epibran-

chial tooth behind the external orbital angle; the latter is directed straightly forward and the upper orbital border is deeply concave. The whole surface of the carapace is entirely destitute of hairs and pitted; these pits assume the shape of fine transverse lines on the mesogastric and anterior cardiac regions. All the usual grooves and furrows are distinctly pronounced; the postfrontal lobes sharply defined, the inner ones separated by a very deep furrow, into which the triangular lobe of the mesogastric area extends far forward; the outer postfrontal lobes are scarcely narrower than the inner ones, separated from the latter by a shallow, short furrow, and furnished at the level of the upper orbital border with a distinct additional lobe. The front is bent perpendicularly downward, its lateral sides are straight and the fore margin projects largely forward, so that the two broad lobes at either side of the deep, but broad sinus are clearly seen, if the carapace is looked at from above; the middle part of the sinus is straight, not concave.

The abdomen of the ♂ has been well figured by de Haan: it is rather broad, gradually narrowing towards the last segment, the penultimate segment being exactly twice as broad at the posterior margin as long.

The chelipeds are of equal size and very robust and bulky in the ♂. The anterior and posterior margin of the meropodite are coarsely dentate, more so in the case of the anterior margin, which is scarcely expanded in its anterior half and does not show a larger tooth; the superior margin has at the subdistal end a rectangular projection, but no acute, curved tooth. The wrist is transversely rugose at the upper surface, with obtusely-angled inner margin; at the under side, near the palmar joint, there is a transverse row of 3—4 acute spines, the inner of which is the larger; in some cases it is only this inner spine which is developed. The palm is very high, as high as long (without the fingers) and much inflated, covered at the outer surface, especially in its upper half, with larger, rounded tubercles, in the middle there is an indistinct obliquely transverse row, which is however not always developed, and beneath the anterior end of this row we observe a rather well defined group of very large tubercles, in the same way as in de Haan's *S. intermedia* (Faun. Jap., pl. 16 f. 5). De Haan himself does not describe or figure this peculiar group of tubercles, which seems to me a characteristic feature of the species. In the female this group is entirely wanting. The upper margin of the palm is formed by a broken line of fine granules, from which some very short, oblique lines run forward; one of these lines is composed of larger granules and much longer, it bends perpendicularly downward at its anterior end and is continued along the inner surface of the palm as a transverse row of very large tubercles

(5—6 in number). The inferior part of the inner surface is covered by small granules, of the same shape and size as those of the under margin of the palm; this latter is nearly in a straight line with the under margin of the immobile finger, along which the granules are continued towards the tip. The immobile finger is very high at the base, much flattened and minutely pitted at both surfaces; the dactylus is strongly curved, equally pitted, but covered along the whole upper surface with numerous minute granules. There is no gap between the fingers.

The meropodites of the walking legs are not considerably broadened, their length in the last pair being about  $2\frac{1}{2}$  their greatest breadth; the dactyli are only slightly shorter than the preceding propodites. As de Haan observed, both margins of carpo- and propodites and of the dactyli are clothed with short, black hairs, intermingled with much longer hairs, and this character is more pronounced in the ♂ than in the ♀: even the under margin of the meropodites show these two kinds of hairs, more especially so in the ♂, but the hairy coating is gradually reduced from the foremost pair of legs to the last, as is usual in *Sesarma*.

De Man has, though with some doubt, described a new species *S. neglecta* (Zool. Jahrb. Syst., Bd. 2 1887, p. 661), closely related to the present species; we may observe, however, the following differences:

	<i>S. dehaani</i>	<i>S. neglecta</i>
Distance between external orbital angles	nearly exactly equal to length of carapace in the median line	distinctly exceeding length of carapace in the median line
Lateral margins of carapace	parallel in their posterior two-thirds <sup>1)</sup>	converging in their posterior part
Fore margin of front	with deep and broad sinus	scarcely hollowed out
Inner side of palm	with transverse row of large granules	without transverse row of granules

Dimensions:

	1	2	3
Distance between external orbital angles . . . . .	35.—	30.75	27.5 mm.
Greatest breadth of carapace . . . . .	39.5	32.5	29.75 "
Length of carapace in the median line . . . . .	35.—	30.25	26.5 "
Breadth of front. . . . .	20.—	17.25	15.25 "
Horizontal length of palm . . . . .	19.—	14.—	12.— "

1) According to de Man the margins are diverging distally in de Haan's species, but he could only consult the figure in the Fauna Japonica and not examine the type specimen itself.

Horizontal length of immobile finger. . . . .	20.—	17.—	14.—	mm.	
Height of palm . . . . .	21.5	17.5	16.5	"	
Length of meropodite	1) {	24.—	20.5	18.5	
Breadth of meropodite		of penultimate	10.25	8.75	9.—
Length of carpo- + propodite		pair of legs	27.5	21.5	20.—
Length of dactylus			13.5	12.—	11.5
Posterior margin } of penultimate segment		11.25	10.25	9.75	
Length } of abdomen		5.5	5.—	5.—	

N<sup>o</sup>. 1 is the type specimen of de Haan, n<sup>o</sup>. 2 and n<sup>o</sup>. 3 are specimens from Kobe; the breadth of the last specimen is as large as that of *S. neglecta*, measured by de Man, but the length of the carapace is less.

32. *Sesarma* (*Sesarma s.s.*) *demani* Bürger.

1893. *Sesarma demani* Bürger. Zool. Jahrb. Syst., Bd. 7 p. 625, pl. 21 f. 7 — Siargao (Philippines).  
 1902. *Sesarma* (*Sesarma s.s.*) *demani* de Man. Abhandl. Senckenb. Gesellschaft., Bd. 25 Heft 3 p. 521 — same locality, description of co-type.

33. *Sesarma* (*Parasesarma*) *dumacensis* Rathbun.

1914. *Sesarma* (*Parasesarma*) *dumacensis* Rathbun. Proc. U. S. Nat. Mus., v. 47 p. 80 — Luzon.

34. *Sesarma* (*Chirromantes*) *dussumieri* H. Milne-Edwards.

1853. *Sesarma dussumieri* H. Milne-Edwards. Ann. Sc. nat., (3) t. 20 p. 185 — Bombay.  
 1877. *Sesarma dussumieri* Targioni-Tozzetti. Zool. viaggio „Magenta”, p. 145, pl. 9 f. 3 — Penang.  
 1887. *Sesarma dussumieri* de Man. Zool. Jahrb. Syst., Bd. 2 p. 659 — no new locality.  
 1888. *Sesarma dussumieri* de Man. Journ. Linn. Soc. London, v. 22 p. 177, pl. 12 f. 8—12 — Mergui Archipelago.  
 1894. *Sesarma dussumieri* Ortmann. Zool. Jahrb. Syst., Bd. 7 p. 726 — Salanga Island.  
 1895. *Sesarma* (*Perisesarma*) *dussumieri* de Man. Zool. Jahrb. Syst., Bd. 9 p. 208 — Penang.

1) Taken at the left side, the pair at the right side being regenerated and much shorter than the preceding pair; this regeneration of the legs is of frequent occurrence.



35. *Sesarma* (*Parasesarma*) *edamensis* de Man.

1887. *Sesarma edamensis* de Man. Zool. Jahrb. Syst., Bd. 2 p. 657 — north coast of Java.  
1888. *Sesarma edamensis* de Man. Arch. Naturgesch., Jahrg. 53. 1. p. 379, pl. 16 f. 5 — Edam and Noordwachter Island.

Specimens in the Museum:

1 ♂ (cotype of de Man).

36. *Sesarma* (*Sesarma s.s.*) *edwardsii* de Man.

1887. *Sesarma edwardsii* de Man. Zool. Jahrb. Syst., Bd. 2 p. 649 — Bay of Bengal.  
1888. *Sesarma edwardsi* de Man. Journ. Linn. Soc. London, v. 22 p. 185, pl. 13 f. 1—4 — Mergui Archipelago.  
1894. *Sesarma edwardsi* Ortmann. Zool. Jahrb. Syst., Bd. 7 p. 721 — Sydney.  
1900. *Sesarma edwardsi* Alcock. Journ. As. Soc. Bengal, v. 69 prt. 2 p. 416 — Burmah coast, Ganges-delta, Andamans and Ceylon.  
1900. *Sesarma edwardsi* Lanchester. Proc. Zool. Soc. London, 1900, p. 757 — Malacca.

Specimens in the Museum:

- 1 ♂, 2 ♀, New Guinea.  
4 ♂, 3 ♀. Besoeki (Java), Semmelink coll. 1864.  
1 ♂, Java.  
1 ♀, Bay of Gorontalo (Celebes).

36a. *Sesarma* (*Sesarma s.s.*) *edwardsii brevipes* de Man.

1889. *Sesarma edwardsii* var. *brevipes* de Man. Zool. Jahrb. Syst., Bd. 4 p. 425 — Sydney.  
1890. *Sesarma edwardsii* var. *brevipes* de Man. Notes Leyden Museum, v. 12 p. 94 — locality unknown.  
1892. *Sesarma edwardsii* var. *brevipes* de Man. Weber's Zool. Erg. Reise niederl. Ost-Ind., Bd. 2 p. 330 — Flores.  
1893. *Sesarma edwardsii* var. *brevipes* (err. *breviceps*) Bürger. Zool. Jahrb. Syst., Bd. 7 p. 617 — Philippines.  
1895. *Sesarma* (*Epiquesarma*) *edwardsi* var. *brevipes* de Man. Zool. Jahrb. Syst., Bd. 9 p. 173 — Atjeh.  
1902. *Sesarma* (*Sesarma s.s.*) *edwardsi* var. *brevipes* de Man. Abhandl. Senckenb. Gesellsch., Bd. 25 Heft 3 p. 509 — Ternate, Batjan, Halmaheira.

## Specimens in the Museum:

- 1 ♂, Batjan, Kükenthal coll 1893/94 (cf. de Man 1902).  
2 ♀, locality unknown.

36b. *Sesarma* (*Sesarma* s.s.) *edwardsi crassimana* de Man.

1887. *Sesarma edwardsii* var. *crassimana* de Man. Zool. Jahrb. Syst., Bd. 2 p. 649 — Bay of Bengal.  
1888. *Sesarma edwardsi* var. *crassimana* de Man. Journ. Linn. Soc. London, v. 22, p. 188, pl. 13 f. 5—6 — Mergui Archipelago.  
1894. *Sesarma edwardsi* var. *crassimana* Zehntner. Rev. suisse Zool., t. 2 p. 180 — Sarawak.  
1895. *Sesarma* (*Episesarma*) *edwardsi* var. *crassimana* de Man. Zool. Jahrb. Syst., Bd. 9 p. 174 — Pontianak.  
1900. *Sesarma edwardsi* var. *crassimana* Lanchester. Proc. Zool. Soc. London, 1900, p. 757 — Malacca.

36c. *Sesarma* (*Sesarma* s.s.) *edwardsi laevimana* Zehntner.

1894. *Sesarma edwardsi* var. *laevimana* Zehntner. Rev. suisse Zool., t. 2 p. 181 — Borneo.  
1900. *Sesarma edwardsi* var. *laevimana* Lanchester. Proc. Zool. Soc. London, 1900, p. 757 — Malacca.

36d. *Sesarma* (*Sesarma* s.s.) *edwardsi philippinensis* Rathbun.

1914. *Sesarma* (*Sesarma* s.s.) *edwardsi philippinense* Rathbun. Proc. U. S. Nat. Mus., v. 47 p. 76 — Busuanga Island (Philippines).

37. *Sesarma* (*Holometopus*) *elegans* Herklots.

1851. *Sesarma elegans* Herklots. Add. ad faun. Afric. occ., p. 10, pl. 1 f. 10 — Boutry (Guinea).  
1853. *Sesarma elegans* H. Milne-Edwards. Ann. Sc. nat., (3) t. 20 p. 187 — West-Africa.  
1879. *Sesarma elegans* de Man. Notes Leyden Museum, v. 1 p. 69 — no new locality.  
1892. *Sesarma elegans* Thallwitz. Abhandl. Mus. Dresden, Bd. 3 n<sup>o</sup> 3, 1890/91, p. 38 — Ogowé (West-Africa).  
1900. *Sesarma* (*Holometopus*) *elegans* Rathbun. Proc. U. S. Nat. Mus., v. 22 p. 280 — enumeration of West African records.  
1906. *Sesarma elegans* Nobili. Mem. soc. esp. hist. nat., v. 1 p. 314, pl. 8 f. 2 — Spanish Guinea.

## Specimens in the Museum:

- 4 ♂, 4 ♀, Boutry (Guinea), Pel coll. (types of Herklots).

38. *Sesarma (Holometopus) elongata* A. Milne-Edwards.

1869. *Sesarma elongatum* A. Milne-Edwards. Notv. Arch. Mus. Paris, t. 5, Bull. p. 30 — Madagascar.  
 1887. *Sesarma elongata* de Man. Zool. Jahrb. Syst., Bd. 2 p. 645 — no new locality.  
 1892. *Sesarma elongata* de Man. Notes Leyden Museum, v. 14 p. 256 — description of type specimen.  
 1894. *Sesarma elongata* Ortmann. Denkschr. med.-naturwiss. Gesellsch. Jena, Bd. 8 p. 56 — Dar-es-Salaam (E. Africa).

39. *Sesarma (Parasesarma) erythrodactyla* Hess.

1865. *Sesarma erythrodactyla* Hess. Arch. Naturgesch., Jahrg. 31. 1. p. 151, pl. 6 f. 10 — Sydney.  
 1882. *Sesarma erythrodactyla* Haswell. Cat. Austral. Crust., p. 109 — Sydney.  
 1887. *Sesarma erythrodactyla* de Man. Zool. Jahrb. Syst., Bd. 2 p. 656 and 686 — Sydney (description of co-type).  
 1889. *Sesarma erythrodactyla* de Man. Zool. Jahrb. Syst., Bd. 4 p. 436 — no locality (description of co-type).  
 1890. *Sesarma erythrodactyla* de Man. Notes Leyden Museum, v. 12 p. 100 — Sydney and Pacific.  
 1894. *Sesarma erythrodactyla* Ortmann. Zool. Jahrb. Syst., Bd. 7 p. 726 — Sydney and Japan.  
 1895. *Sesarma (Parasesarma) erythrodactyla* de Man. Zool. Jahrb. Syst., Bd. 9 p. 189 — description of types.

Specimens in the Museum:

2 ♂, Sydney, Schütte coll. } examined by de Man 1890.  
 3 ♂, juv., Pacific. }

39a. *Sesarma (Parasesarma) erythrodactyla africana* Ortmann.

1869. *Sesarma quadrata* Hilgendorf (*nec* Fabricius). v. d. Decken's Reisen in Ost-Afrika, Bd. 3. 1. p. 90, pl. 3 f. 3c, pl. 4. f. 3 — Zanzibar.  
 1894. *Sesarma erythrodactyla* var. *africana* Ortmann. Denkschr. med.-naturwiss. Gesellsch. Jena, Bd. 8 p. 56 — Mikindani and Dar-es-Salaam (E. Africa).

According to Ortmann this subspecies is distinguished from the type by a less developed granular transverse crest of the palm, by the absence of a longitudinal granular row at the outer surface of the same, by longer dactyli, as long as their respective propodites, and by the presence of an obtuse, dentate lobe (no spine) at the distal part of the arm

of the chelipeds. Ortmann supposes, that all the specimens of *erythroductyla* from Africa are referable to his subspecies.

40. *Sesarma (Holometopus) eulimene* de Man.

1898. *Sesarma (Sesarma) eulimene* de Man. Zool. Jahrb. Syst., Bd. 10 p. 157, pl. 15 f. 1 — Umbilo River (Natal).  
 1910. *Sesarma eulimene* Stebbing. S. A. Crust., prt. 5 p. 322 — same locality.

41. *Sesarma (Chiromantes) eunolpe* de Man.

1895. *Sesarma (Perisesarma) eunolpe* de Man. Zool. Jahrb. Syst., Bd. 9 p. 208, Bd. 10, 1898, pl. 31 f. 38 — Penang.

Specimens in the Museum :

- 1 ♂, 3 ♀, Batavia, Semmelink coll. 1882<sup>1)</sup>.  
 1 ♂, north coast of Java, Buitendijk coll. 1905.  
 1 ♀, north-west coast of Java, Buitendijk coll. 1906.  
 1 ♂, 1 ♀, locality unknown.

All the principal features of the cheliped are, as usual, much better pronounced in the ♂ than in the ♀, but in the latter sex the transverse tubercles show exactly the same character and are as numerous (22 in the larger cheliped of a ♀). Among the other species of the subgenus *Chiromantes* the present one seems to be distinguished by having the chelipeds often unequal; in the ♂ collected in 1905 the chelipeds do not show, however, any difference in size. The species was known as yet from Penang only.

42. *Sesarma (Holometopus) eydouxi* H. Milne-Edwards.

1853. *Sesarma eydouxi* H. Milne-Edwards. Ann. Sc. nat., (3) t. 20 p. 184 — Cochinchina.  
 1865. *Sesarma eydouxi* Heller. Crust. Reise „Novara”, p. 64 — Madras.  
 1880. *Sesarma eydouxi* de Man. Notes Leyden Museum, v. 2 p. 23 — locality unknown.  
 1887. *Sesarma eydouxi* de Man. Zool. Jahrb. Syst., Bd. 2 p. 643 — no new locality.  
 1892. *Sesarma eydouxi* de Man. Notes Leyden Museum, v. 14 p. 248 — description of type specimen.

1) These specimens had been determined as *Ses. bidens* de Haan.

Specimens in the Museum:

3 ♂, 2 ♀, locality unknown (♂ examined by de Man 1880).

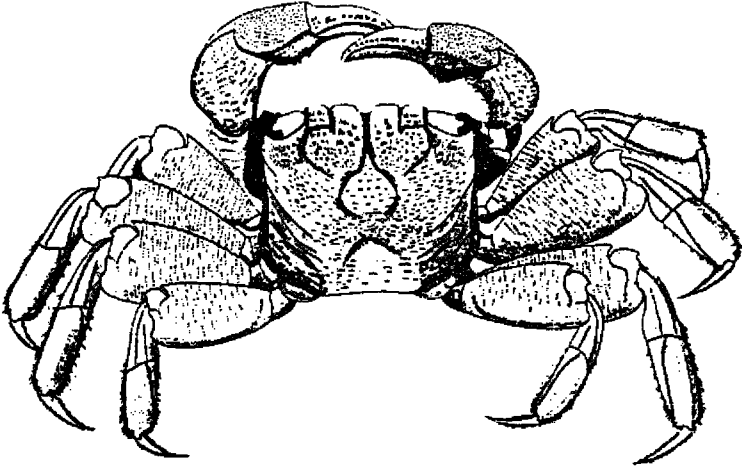


Fig. 3. *Sesarma eydouzi* H. M. Edw. Nat. size.

The carapace of this species is rather little convex in a longitudinal direction, and nearly straight transversely, with feebly sloping branchial regions; the greatest breadth is lying between the external orbital angles, which are acute and directed forward, with nearly parallel side margins. Behind these angles there is a trace of an epibranchial tooth, as de Man (1880) observes, whence the side margins converge very slightly backward (de Man 1892). The whole surface of the carapace is rugose, owing to a multitude of small tubercles, each of which seems to bear a small tuft of hair; this character is distinctly seen on the anterior third of the carapace, but farther behind, already on the mesogastric, and especially on the cardiac region, the tubercles gradually tend to become elongated transversely and are destitute of hairs, the posterior cardiac region being almost smooth and shining, though minutely pitted. All the usual furrows on the carapace are strongly pronounced, notably those circumscribing the mesogastric and protogastric regions. The post-frontal lobes are of nearly equal size, the median ones being but slightly broader than the lateral lobes, the median sulcus is very deep, that between the middle and the side lobes much shallower, extending till the distinct posterior lobe on the lateral ones. In dorsal view the front is not visible, as it is perpendicularly bent downward; the lateral margins are parallel and there is a deep and broad median sinus in the anterior margin. The eyes reach exactly to the tip of the outer orbital angle.

The chelipeds afford most characteristic features. They are large and bulky, of equal size, and apparently of a light colour in life. Superior border of arm with a rectangular tooth near the distal end, posterior border crenulate, with a sharp subdistal tooth, anterior border

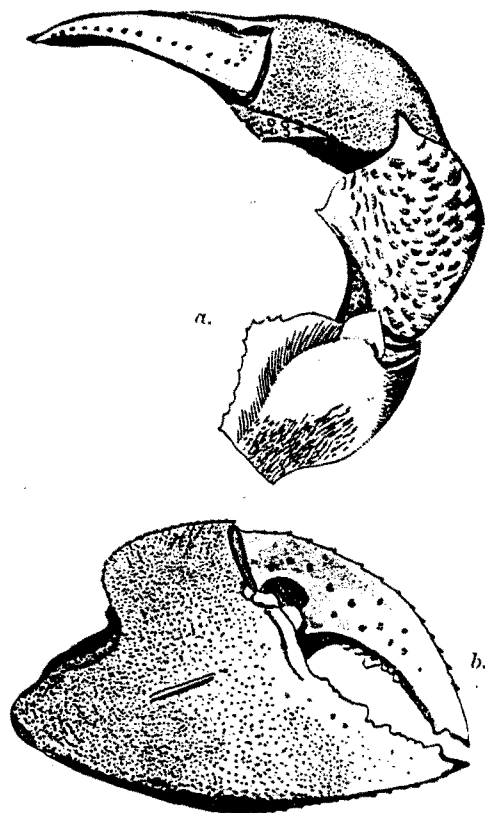


Fig. 4. *Sesarma eydouzi* H. M. Edw.  
a. Right cheliped, dorsal view.  
b. Right chela, outer view. Magn. 2.

dentate, posterior half forming about a right angle with anterior half (Fig. 4a). Carpopodite transversely rugose at the outer surface, inner angle produced. Palm much inflated, its height exceeding its horizontal length (Fig. 4b); outer surface very minutely granulated; near the carpal joint and towards the upper margin the granules tend to form short rows, but in the middle of the outer surface they are irregularly distributed; here a short obliquely longitudinal wrinkle is observed. The upper margin is sharply indicated by a row of horny-coloured granules, most of which are composed of two or even three granules, placed closely together. This characteristic row has been very well observed by de Man (1880). Inner surface of the palm coarsely but sparingly granulated, the largest granules being found in the superior half, especially towards the upper margin, but there is no transverse row. The immobile finger is much flattened, excavated at inner surface, but provided at under margin (which

is in a straight line with under margin of palm) with a row of sharp spines, directed forward and continued up to the tip. The movable finger is much curved, its back is provided with a longitudinal row of 12—13 denticles, with mostly horny-coloured tips; besides, there are at the base some smaller denticles, irregularly placed; outer and inner surface smooth and shining, with numerous small pits; near the base, at the outer surface, is a small, rather well defined excavation.

The meropodites of the walking legs are very much enlarged, being

not yet twice as long as broad. Carpo- and propodites are short, and covered at anterior and posterior margins with very short hairs, among which are placed some longer hairs, but the latter only at the hind margins of the propodites. The dactyli are short, with acute tips.

This species is exceedingly alike *Ses. recta* Randall of America, and I own to be at a loss to indicate any important point of difference between the two species. Comparing the specimens at my disposal I can only say, that in *Ses. eydouxi* the inner surface of the palm presents only irregularly placed granules, whereas in *Ses. recta* there is a somewhat elevated and rather well-defined group of such granules near the base of the dactylus; besides, in the former species the upper (anterior) border of the meropodites of the walking legs is only rough, whereas in the latter species this border is distinctly and sharply crenulate, up to the subdistal tooth. In the shape of the abdomen of the ♂ I have found no differences whatever between the two species.

Dimensions of *Ses. eydouxi* (all ♂):

	1	2	3	
Distance between external orbital angles . . .	31.—	28.—	23.5	mm.
Breadth of carapace above base of penultimate pair of legs . . . . .	29.—	26.—	21.75	"
Length of carapace in the median line . . . . .	26.75	23.5	19.—	"
Breadth of front . . . . .	18.5	16.25	13.25	"
Length of posterior margin of carapace . . . . .	13.75	12.75	11.25	"
Horizontal length of chela (palm + immobile finger)	30.—	25.5	18.—	"
Height of palm . . . . .	18.—	14.5	10.5	"
Length } of meropodite of penultimate pair	23.—	20.—	14.5	"
Breadth } of legs	12.—	11.5	7.75	"
Breadth of posterior margin } of penultimate segment	9.—	8.25	6.75	"
Length } of abdomen	4.75	4.—	3.5	"

The dimensions of the largest ♂ nearly exactly agree with those of the type specimen measured by de Man (1892).

43. *Sesarma* (*Parasesarma*) *fasciata* Lanchester.

1900. *Sesarma fasciata* Lanchester. Proc. Zool. Soc. London, 1900, p. 758, pl. 47 f. 12.— Singapore.

44. *Sesarma* (*Holometopus*) *festae* Nobili.

1901. *Sesarma (Holometopus) festae* Nobili. Boll. Mus. Torino, t. 16 n°. 415 p. 42 — Tumaco and Esmeraldas (Ecuador).

45. *Sesarma* (*Sesarma* s.s.) *finni* Alcock.

1900. *Sesarma finni* Alcock. Journ. As. Soc. Bengal, v. 69 prt. 2 p. 424 — Andamans.
1903. *Sesarma finni* Alcock & Mc. Ardle. Ill. Zool. „Investigator”, Crust., pl. 66 f. 1 — no locality.

46. *Sesarma* (*Sesarma* s.s.) *gracilipes* H. Milne-Edwards.

1853. *Sesarma impressa? junior* Jacquinot et Lucas. Zool. Voy. „Astrolabe” et „Zélée”, t. 3 p. 72, pl. 6 f. 5 — New Guinea.
1853. *Sesarma gracilipes* H. Milne-Edwards. Ann. Sc. nat., (3) t. 20 p. 182 — Vaoa (Tonga Islands).
1865. *Sesarma gracilipes* Heller. Crust. Reise „Novara”. p. 65 — Nicobars.
1865. *Sesarma schüttei* Hess. Arch. Naturgesch., Jahrg. 31. 1. p. 24, pl. 6 f. 11 — Sydney.
1880. *Sesarma gracilipes* de Man. Notes Leyden Museum, v. 2 p. 21 — New Guinea and Amboina.
1882. *Sesarma schüttei* Haswell. Cat. Austral. Crust., p. 109 — Sydney.
1886. *Sesarma schüttei* Miers. Brach. „Challenger” Rep., p. 271 — New South Wales.
1887. *Sesarma gracilipes* de Man. Zool. Jahrb. Syst., Bd. 2 p. 645 and 663 — Madagascar.
1892. *Sesarma gracilipes* Thallwitz. Abhandl. Mus. Dresden Bd. 3 n° 3 1890/91, p. 38 — Bay of Geelvink (Netherlands' New Guinea).
1894. *Sesarma jacquinoti* Ortmann. Zool. Jahrb. Syst., Bd. 7 p. 718 — Pacific and Tahiti.
1894. *Sesarma gracilipes* Ortmann. Denksch. med.-naturwiss. Gesellsch. Jena, Bd. 8 p. 56 — New Guinea.
1895. *Sesarma* (*Sesarma*) *gracilipes* de Man. Zool. Jahrb. Syst., Bd. 9 p. 165 — Atjeh.
1899. *Sesarma* (*Sesarma*) *gracilipes* Nobili. Ann. mus. civ. stor. nat. Genova, (2) t. 20 p. 267 — North-west New Guinea.
1902. *Sesarma* (*Sesarma*) *gracilipes* de Man. Abhandl. Senckenb. Gesellsch., Bd. 25 Heft 3 p. 507 — Ternate and Halmaheira.
1905. *Sesarma* (*Sesarma*) *gracilipes* Nobili. Ann. Mus. Hung., t. 3 p. 496 — Sattelberg (German New Guinea).
1910. *Sesarma* (*Sesarma*) *gracilipes* Rathbun, Bull. Mus. comp. Zool. Harvard Coll., v. 52 p. 309, pl. 3 f. 1—2 — Manokwari (Netherlands' New Guinea).



Specimens in the Museum:

- 1 ♂, Amboyna, Ludeking coll. 1863.  
1 ♂, 1 ♀, Andai (Netherlands' New Guinea),  
v. Rosenberg coll. 1870. } mentioned by de  
Man 1880.

The longitudinal crest at the upper border of the palm is often broken up, not entire; the upper border itself is much rounded off, and at the inner side of it numerous granules, similar to those composing the longitudinal crest, are placed in subparallel, short rows; the inner surface of the palm is provided with larger granules and near the base of the fingers an elevated knob bears some crowded granules, but only in adult specimens a true transverse row may be found (I have examined a rather large number of specimens, collected at Nias, and belonging to the Amsterdam Zoological Museum). There is a large tubercle and several smaller ones at the inner side of the base of the immobile finger. The characteristic prominent tubercle at the outer surface of the palm, is, as de Man (1902) remarks, nearly or wholly absent in the ♀, but also young ♂ have only a trace of it. As it is on account of the absence of this tubercle that Ortmann founded his species *Ses. jacquinoti* and de Man described a specimen (1902, p. 508—509), which appears in this respect to be identical with Ortmann's species, but was regarded by de Man at most as a variety, I see no reason to maintain Ortmann's species as distinct.

47. *Sesarma (Holometopus) granosimana* Miers.

1880. *Sesarma granosimana* Miers. Ann. Mag. Nat. Hist., (5) v. 5 p. 24, pl. 14 f. 3 — Indo-Malayan Seas.  
1887. *Sesarma granosimana* de Man. Zool. Jahrb. Syst., Bd. 2 p. 644 — no locality.  
1895. *Sesarma (Sesarma) granosimana* de Man. Zool. Jahrb. Syst., Bd. 9 p. 143 — Pontianak.

Specimens in the Museum:

- 1 ♂ (examined by de Man 1895).

48. *Sesarma (Chiromantes) guttata* A. Milne-Edwards.

1869. *Sesarma guttatum* A. Milne-Edwards. Nouv. Arch. Mus. Paris, t. 5, Bull. p. 26 — Zanzibar.  
1887. *Sesarma guttata* de Man. Zool. Jahrb. Syst., Bd. 2 p. 658 — no locality.  
1888. *Sesarma guttata* de Man. Journ. Linn. Soc. London, v. 22 p. 177 — no new locality.

49. *Sesarma* (*Holometopus*) *haematocheir* (de Haan).

1835. *Grapsus* (*Pachysoma*) *haematocheir* de Haan. Faun. Japon., Crust., p. 62, pl. 7 f. 4 — Japan.
1853. *Holometopus haematocheir* H. Milne-Edwards. Ann. Sc. nat., (3) t. 20 p. 188 — Japan.
1858. *Holometopus haematocheir* Stimpson. Proc. Ac. Nat. Sc. Philadelphia, 1858, p. 106 — Hongkong, Simoda and Ousima.
1865. *Holometopus haematocheir* Heller. Crust. Reise „Novara”, p. 66 — Hongkong.
1887. *Sesarma haematocheir* de Man Zool. Jahrb. Syst., Bd. 2 p. 642 — no new locality.
1893. *Sesarma haematocheir* Bürger. Zool. Jahrb. Syst., Bd. 7 p. 614, pl. 21 f. 3 — Yokohama and Hongkong.
1894. *Sesarma haematocheir* Ortmann. Zool. Jahrb. Syst., Bd. 7 p. 717 — Japan, Loo-Choo Islands and Singapore.
1907. *Holometopus haematocheir* Stimpson. Smithson. Inst. Miscell. Coll., v. 49 p. 137 — same localities as in 1858.

## Specimens in the Museum:

- 9 ♂, 4 ♀, Japan, v. Siebold coll. (types of de Haan).  
 1 ♂, 1 ♀, Amoy (China), G. Schlegel coll.  
 8 ♂ (partly juv.), 3 ♀, Kobe (Japan), v. Oordt v. Lauwenrecht coll. 1906.

This species, the type of the subgenus *Holometopus*, has been well figured by de Haan, but after him it is only Bürger who gave some more information about it. It is easily recognizable by its front being perfectly straight and the postfrontal lobes being scarcely indicated, indeed in such a way, that there is only a slight incision, separating the median lobes, while the lateral ones are not separated off. Now Bürger described and figured a variety, in which also the lateral lobes are indicated, and, though not so distinctly as figured by this author, I found the same among my material. The whole surface of the carapace is perfectly smooth and polished, the regions scarcely indicated, only the cervical furrow<sup>1)</sup>, between the gastric and cardiac region, being distinct. The anterior thirds of the lateral margins of the carapace are a little diverging distally, the posterior two-thirds are parallel. The front is vertically deflexed and hollowed out, the nearly continuous line of the postfrontal lobes is sharp. In some specimens the posterior margin

1) Bürger always calls the groove separating the median postfrontal lobes the cervical furrow, against the usual denomination.

of the carapace is as broad as the front, as Bürger observed, but in other cases the front is distinctly broader.

De Haan remarks, that the chelae are equal, but judging from my material this is not always the case. The whole cheliped is remarkably destitute of spines and even of granules. Superior border of arm without subdistal tooth, wrist with obtuse inner angle. Palm much inflated, very high, with rounded upper surface, which has some few subparallel, short lines of small granules running obliquely-longitudinally; whole surface perfectly smooth and shining, save some irregular granules in the middle of the inner surface.

Fingers widely gaping in the adult ♂, not so in young specimens; immobile finger very high at the base and much flattened, rapidly narrowing towards the tip. Upper margin of mobile finger with a regular series of 16—18 tubercles, somewhat less in the ♀ than in the ♂, gradually becoming indistinct towards the tip. This feature, however, is only pronounced in not yet full-grown specimens and disappears entirely in adult individuals. De Haan does not say anything about this row of tubercles, and Bürger only mentions a fine denticulation.

Meropodites of walking legs very slender, both margins of carpo- and propodites clothed with the usual short fur and some longer hairs; dactyli with short bristles, very slender, longer than their respective propodites.

The anterior part of the carapace is brightly red, which colour extends also to the cardiac region. Likely coloured are the carpopodite and the palm of the chelipeds; de Haan remarks that owing to its bright chelae the species is easily detected in life.

Dimensions:	1 ♂	2 ♀	
Distance between external orbital angles . . . . .	28.—	27.5	mm.
Greatest breadth of carapace . . . . .	30.5	31.5	"
Length of carapace in the median line . . . . .	27.—	27.—	"
Breadth of front . . . . .	14.5	14.5	"
Horizontal length of chela (palm + immobile finger) . . . . .	29.5 <sup>1)</sup>	20.—	"
Height of palm . . . . .	17.25	10.75	"
Length of meropodite	20.—	19.—	"
Breadth of meropodite	6.75	7.—	"
Length carpo- + propodite	} of penultimate pair of legs		"
Breadth of propodite			21.5
Length of dactylus	5.5	4.25	"
	15.—	13.5	"

1) In this specimen I measured the right cheliped, that was considerably larger than the left.

Greatest breadth of abdomen of ♂ . . . . .	13.5	—	mm.
(in the middle of 3 <sup>d</sup> segment)			
Posterior margin   of penultimate segment	7.—	—	"
Length   of abdomen	3.5	—	"

50. *Sesarma (Holometopus) hanseni* Rathbun.

1897. *Sesarma (Holometopus) hanseni* Rathbun. Proc. Biol. Soc. Washington, v. 11 p. 92 — West Indies.

51. *Sesarma (Chiromantes) haswelli* de Man.

1869. *Sesarma bidens* (part.) Hilgendorf. v. d. Decken's Reisen in Ost-Afrika, Bd. 3, Crust., p. 91 — Ceylon<sup>1)</sup>.  
 1887. *Sesarma haswelli* de Man. Zool. Jahrb. Syst., Bd. 2 p. 658 — Mergui Archipelago.  
 1888. *Sesarma haswelli* de Man. Journ. Linn. Soc. London, v. 22 p. 175 — Sullivan Island (Mergui Archipel.).  
 1910. *Sesarma (Chiromantes) haswelli* Rathbun. K. Dansk. Vid. Selsk. Skr., 7. Raekke, Afd. 5 n<sup>o</sup>. 4 p. 329 — Gulf of Siam.

52. *Sesarma (Sesarma s.s.) impressa* H. Milne-Edwards.

1837. *Sesarma impressa* H. Milne-Edwards. Hist. nat. Crust., t. 2 p. 74 — no locality.  
 1853. *Sesarma impressa* H. Milne-Edwards. Ann. Sc. nat., (3) t. 20 p. 186 — no locality.  
 1865. *Sesarma similis* Hess. Arch. Naturgesch. Jahrg. 31.1 p. 150 — Sydney.  
 1869. *Sesarma frontale* A. Milne-Edwards. Nouv. Arch. Mus. Paris, t. 5, Bull. p. 27 — West coast of Madagascar.  
 1882. *Sesarma similis* Haswell. Cat. Austral. Crust., p. 108 — Sydney.  
 1887. *Sesarma frontalis* de Man. Zool. Jahrb. Syst., Bd. 2 p. 649 — no new locality.  
 1887. *Sesarma impressa* de Man. Zool. Jahrb. Syst., Bd. 2 p. 653 and 671 — Madagascar.  
 1892. *Sesarma impressa* de Man. Weber's zool. Erg. Reise niederl. Ost-Indien, Bd. 2 p. 330 — Koinino River (Timor).  
 1892. *Sesarma frontalis* de Man. Weber's zool. Erg. Reise niederl. Ost-Indien, Bd. 2 p. 334, pl. 19 f. 13 — Flores.  
 1893. *Sesarma impressa* Bürger. Zool. Jahrb. Syst., Bd. 7 p. 620, pl. 21 f. 4—5 — Philippines and Pelew Islands.

1) According to de Man (1888).

1894. *Sesarma impressa* Ortmann. Zool. Jahrb. Syst., Bd. 7 p. 723 — Samoaah.
1895. *Sesarma (Episesarma) frontalis* de Man. Zool. Jahrb. Syst. Bd. 9 p. 172 — Atjeh.
1899. *Sesarma (Sesarma) impressa* Nobili. Ann. mus. civ. stor. nat. Genova, (2) t. 20 p. 507 — Mentawai Islands and Timor Kupang.
1899. *Sesarma (Sesarma) frontalis* Nobili. Ann. mus. civ. stor. nat. Genova, (2) t. 20 p. 509 — Engano (off west coast of Sumatra).
1902. *Sesarma (Sesarma) impressa* de Man. Abhandl. Senckenb. Gesellsch., Bd. 25 Heft 3 p. 527 — Ternate, Batjan, Halmaheira.
1902. *Sesarma impressa* Schenkel. Verhandl. naturforsch. Gesellsch. Basel, Bd. 13 p. 546 — Kema (Celebes).
1905. *Sesarma impressa* Lenz. Abhandl. Senckenb. Gesellsch., Bd. 27 Heft 14 p. 370 — Zanzibar.

Specimens in the Museum:

- 1 ♂, Halmaheira, Kükenthal coll. 1893—94 (examined by de Man 1902).
- 1 ♀, Halmaheira, Huetink coll. 1902.
- 1 ♂, 3 ♀, Soemalata (N. Celebes), E. E. W. Schröder coll.
- 3 ♂, Kisser (N. Guinea), Schädler coll. 1897.
- 1 ♀, Nias, E. E. W. Schröder coll. 1908.

The variation, shown by this species, in the proportion of the distance between the external orbital angles and the length of the carapace, in such a way, that sometimes the latter dimension exceeds the former, has been repeatedly discussed by de Man. He also was the first to recognize (1887) *Ses. similis* as synonymous with *Ses. impressa* and afterwards (1902) to show clearly, that *Ses. frontalis* has been founded on not yet fullgrown specimens of the present species. The large series of dimensions, taken from no less than 11 specimens by this author renders further measurements useless. I cannot as yet make up my mind to unite *Ses. intermedia* de Haan from Japan with *Ses. impressa*, as has been done by de Man (1902), who regarded the Japanese form at most as a variety, distinguished by somewhat less expanded meropodites of the walking legs.

53. *Sesarma (Sesarma s.s.) indica* H. Milne-Edwards.

1837. *Sesarma indica* H. Milne-Edwards. Hist. nat. Crust., t. 2 p. 74 — Java.
1853. *Sesarma indica* H. Milne-Edwards. Ann. Sc. nat., (3) t. 20 p. 186 — Indian Seas.
1883. *Sesarma indica* de Man. Notes Leyden Museum, v. 5 p. 166 — Sumatra.

1887. *Sesarma indica* de Man. Zool. Jahrb. Syst., Bd. 2 p. 652 — no new locality.
1899. *Sesarma* (*Episesarma*) *indica* Nobili. Ann. mus. civ. stor. nat. Genova, (2) t. 20 p. 267 — New Guinea.
1899. *Sesarma* (*Sesarma*) *indica* Nobili. Ann. mus. civ. stor. nat. Genova, (2) t. 20 p. 507 — Nias.

Specimens in the Museum:

- |                                              |   |                              |
|----------------------------------------------|---|------------------------------|
| 1 ♀, locality unknown.                       | } | mentioned by de<br>Man 1883. |
| 1 ♀, Sinkel Island, D. P. Jentink coll. 1878 |   |                              |
| 1 ♂, locality unknown.                       |   |                              |

I have before me a very fine series of this species, originating from Nias, and belonging to the Amsterdam Zoological Museum. Save some remarks of Nobili (1899, p. 267) the only rather extensive description of *Ses. indica* is given by de Man, and I shall restrict myself here only to indicating its principal characters.

Carapace very much convex, especially in a longitudinal direction, about as in the genus *Sarmatium* <sup>1)</sup>, distinctly broader than long. Greatest breadth of carapace lying at level of second epibranchial tooth, from here distally the lateral margins are distinctly converging. Upper orbital border nearly straight, slightly wavy; external orbital angle acute, with convex lateral margin and separated by a deep incision from the anterior epibranchial tooth, that has about the same size, but the tip of which is directed somewhat more upward, and the lateral margin is nearly straight, not convex; second epibranchial tooth very distinctly developed, more so than in any other species of *Sesarma*, that I know off (in *Ses. tiomanensis* Rathbun, that is very closely related to the present species, it is said to be equally developed), of the same shape as the preceding tooth, but of smaller size. Surface of carapace closely covered with tufts of black hairs, largest on the anterior half of the carapace, but absent in the deep furrows, and reduced to short parallel rows on the branchial regions, which are only slightly sloping. The triangular intestinal region has some convex, long, hairy lines. All the regions are very distinct, as the grooves are deep, especially the mesial furrow, and those circumscribing the mesogastric area; the grooves between the median and lateral postfrontal lobes extending far backward. Median postfrontal lobes about  $1\frac{1}{2}$  times as large as the lateral ones; all with rounded anterior margins. Front

1) It is this superficial resemblance probably, that induced Heller (Crust. Reise „Novara“, 1865, p. 64) to refer a specimen of *Sarmatium punctatum* A. Milne-Edwards to the present species.

vertically deflexed, but free margin projecting and with a very deep and rather narrow median sinus; the lateral margins of the front are concave and pass with a sharp angle into the anterior margin. Chelipeds very massive; upper border of arm with a sharp, curved, subdistal tooth, anterior margin scarcely expanded in its distal half and, like the posterior border, coarsely serrate. Carpopodite rugose at the upper surface, with sharply produced inner angle; between this angle and the palmar joint, the anterior margin is provided with a row of 7—8 teeth. Palm much inflated and very high in the ♂; upper margin marked, at least in the proximal half by a longitudinal row of granules, which is dissolved anteriorly into some subparallel, much smaller, but similar, rows and ends, above the base of the mobile finger, with an acute spine; outer surface longitudinally wrinkled (in old specimens) or granular, especially in the inferior half; under margin much rounded off; inner surface with irregularly-placed, large granules. Fingers somewhat longer than the palm, immobile finger with horny-coloured denticles along its whole inferior border, flattened at the sides, that are perfectly smooth (with a few pits at the outer surface). The cutting margins of both fingers present in young specimens the usual denticles of different size, but with advancing age these seem to become obliterated, until in large specimens they have almost completely disappeared. The mobile finger, as both de Man and Nobili remarked, is strongly curved in the adult ♂, but in young specimens, and in the ♀ always, the finger presents only a feeble arch; the back has a row of 11—14 acute tubercles with horny tips and directed forward, they extend to the tip of the finger, but are somewhat irregularly distributed, notably more closely together near the tip and accompanied by smaller granules at the inner side of the base; this character again becomes indistinct with advancing age; outer and inner surface of the mobile finger are smooth, minutely pitted.

Walking legs short; meropodites rather slender, more than twice as long as broad; propodite covered at both margins with a short and close fur, which, however, scarcely extends to the carpopodite, not even in the first pair of walking legs. Dactyli long, strongly curved and pointed, with horny tips, as long as their respective propodites.

Abdomen of ♂ broad; posterior margin of penultimate segment somewhat more than twice the length of this segment.

Dimensions of 2 ♂ from Nias:

	1	2
Distance between external orbital angles . . . . .	36.75	37.75 mm.
Greatest breadth of carapace (at level of posterior epibranchial teeth) . . . . .	38.5	41.— „

Length of carapace in the median line. . . . .	32.—	34.5	mm.
Posterior margin . . . . .	18.—	19.25	"
Breadth of front . . . . .	18.5	19.75	"
Horizontal length of chela (palm immobile finger). . . . .	38.5	40.5	"
Height of palm. . . . .	23.—	24.5	"
Length of meropodite	26.5	28.—	"
Breadth " " of penultimate	11.5	12.—	"
Length of carpo- + propodite } pair of legs	29.—	31.—	"
Length of dactylus	17.—	15.—	"
Posterior margin } of penultimate segment	13.—	13.5	"
Length } of abdomen	5.75	6.5	"

54. *Sesarma* (*Sesarma s.s.*) *intermedia* (de Haan).

1835. *Grapsus* (*Pachysoma*) *intermedius* de Haan. Faun. Japon., Crust., p. 61, pl. 16 f. 5 — Japan and Soerabaya.
1853. *Sesarma intermedia* H. Milne-Edwards. Ann. Sc. nat., (3) t. 20 p. 186 — Japan.
1858. *Sesarma intermedia* Stimpson. Proc. Ac. Nat. Sc. Philadelphia, 1858, p. 105 — Simoda, Hongkong and Ousima.
1880. *Sesarma intermedia* de Man. Notes Leyden Museum, v. 2 p. 25 — Japan.
1880. *Sesarma intermedia* Miers. Ann. Mag. Nat. Hist., (5) v. 5 p. 314 — Japan.
1887. *Sesarma intermedia* de Man. Zool. Jahrb. Syst., Bd. 2 p. 649 — no new locality.
1892. *Sesarma intermedia* de Man. Weber's zool. Erg. Reise niederl. Ost-Indien, Bd. 2 p. 337 — description of type-specimen.
1894. *Sesarma intermedia* Ortmann. Zool. Jahrb. Syst., Bd. 7 p. 721 — Tokio.
1907. *Sesarma intermedia* Stimpson. Smithson. Inst. Miscell. Coll., v. 49 p. 133 — same localities as in 1858.  
*nec. Ses. intermedia* de Man. Journ. Linn. Soc. London, v. 22, 1888, p. 182 (= *Ses. moeschii* de Man).

Specimens in the Museum:

2 ♂, Japan (1 ♂, type, Burger coll. 1)

As has been remarked by de Man (1892, p. 336) this species is very much alike *Ses. impressa* H. Milne-Edwards and *Ses. moeschii* de Man. In 1902 he even identifies the present species with *Ses. impressa* (see

1) De Haan records still a specimen from Soerabaya. but this seems to be lost at present.



under the head of this species). I have here maintained it as a distinct form on account of the following features:

- 1°. The lateral margins of the carapace are slightly concave in the middle and subparallel in the Japanese typical specimen, distinctly diverging distally in *Ses. impressa*.
- 2°. The carapace is nearly smooth in the former, rough in the latter species.
- 3°. The median sinus of the front is narrow and deep in *Ses. impressa*, shallow and broad in *Ses. intermedia*.
- 4°. The outer surface of the palm of the chelipeds is nearly smooth in the Japanese species, with a distinctly defined group of large granules in the inferior part, but wholly covered with large, rounded tubercles in *Ses. impressa*.
- 5°. The anterior margin of the carpopodite is spined and the inner angle produced in *Ses. impressa*, but in *Ses. intermedia* the anterior margin is entire and the inner angle obtuse.
- 6°. The meropodites of the walking legs are somewhat more slender in the Japanese species and the carpo- and propodite are beset with long hairs, which hairs are nearly wholly absent in *Ses. impressa*.
- 7°. The distance between the external orbital angles is about equal to the length of the carapace in the median line in *Ses. impressa*, but in the typical specimen of *Ses. intermedia* the latter is distinctly shorter (distance between external orbital angles 23 mm., between epibranchial teeth 24 mm., length of carapace in the median line 22 mm.').

It are especially the first, fourth and fifth points of difference, that seem to me to be of systematic importance, but before more material of *Ses. intermedia* is available, in order to acquire a look over the range of variation, the right of existence of the species remains doubtful, though, as de Man (1902, p. 530) rightly remarks, in the case of identity, the name of de Haan would have priority.

55. *Sesarma* (*Sesarma* s.s.) *jacobsoni* Ihle.

1912. *Sesarma jacobsoni* Ihle. Notes Leyden Museum, v. 34 p. 178, pl. 9 — subterranean rivers on south coast of Java.

Specimens in the Museum:

5 ♂, 5 ♀ (types of Ihle), Jacobson coll. 1911.

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1) De Man (1892, p. 337) says, that in *Ses. intermedia* the distance between the epibranchial teeth exceeds that between the external orbital angles, but afterwards (1902, p. 528) he recognized, that the same may occur in *Ses. impressa*. He also remarks (1892, p. 337) that the hind margin of the type specimen of de Haan is damaged, but it is nevertheless possible to measure the length of the carapace.

56. *Sesarma* (*Sesarma* s.s.) *jarvisi* Rathbun.

1914. *Sesarma* (*Sesarma*) *jarvisi* Rathbun. Proc. U. S. Nat. Mus., v. 47 p. 124, pl. 7 f. 1—3 — Jamaica.

57. *Sesarma* (*Sesarma* s.s.) *jousseaumei* Nobili.

1906. *Sesarma jousseaumei* Nobili. Bull. scient. France et Belgique, t. 40 p. 411 — Red Sea.  
 1906. *Sesarma jousseaumei* Nobili. Ann. Sc. nat., (9) t. 4 p. 323, pl. 8 f. 9 (maxilliped) — same locality.

58. *Sesarma* (*Chirromantes*) *kamermani* de Man.

1883. *Sesarma kamermani* de Man. Notes Leyden Museum, v. 5 p. 165 — Muserra (Congo).  
 1900. *Sesarma* (*Perisesarma*) *kamermani* Rathbun. Proc. U. S. Nat. Mus., v. 22 p. 280 — no new locality.

## Specimens in the Museum:

- 1 ♂ (type of de Man), Kamerman coll. 1882.

59. *Sesarma* (*Sesarma* s.s.) *kraussi* de Man.

1847. *Sesarma longipes* White nec Krauss. List spec. Crust. Coll. Brit. Museum, p. 39 — Singapore.  
 1887. *Sesarma kraussii* de Man. Zool. Jahrb. Syst., Bd. 2 p. 652 — Bay of Bengal.  
 1888. *Sesarma kraussi* de Man. Journ. Linn. Soc. London, v. 22 p. 193, pl. 14 f. 1—3 — Kisseraing Island (Mergui archipelago).  
 1900. *Sesarma kraussi* Alcock. Journ. As. Soc. Bengal, v. 69 prt. 2 p. 425 — Nicobars.

60. *Sesarma* (*Sesarma* s.s.) *laevis* A. Milne-Edwards.

1869. *Sesarma laevis* A. Milne-Edwards. Nouv. Arch. Mus. Paris, t. 5, Bull. p. 27 — Aru Islands.  
 1887. *Sesarma laevis* de Man. Zool. Jahrb. Syst., Bd. 2 p. 649 — no new locality.  
 1892. *Sesarma laevis* de Man. Weber's zool. Erg. Reise niederl. Ost-Indien, Bd. 2 p. 333 — no locality, notes on type-specimen.

61. *Sesarma* (*Sesarma* s.s.) *lafondi* Jacquinet et Lucas.

1853. *Sesarma lafondi* Jacquinet et Lucas. Zool. Voyage „Astrolabe” et „Zélée”, Crust., t. 3 p. 70, pl. 6 f. 4 — no locality.

1853. *Sesarma lafondi* H. Milne-Edwards. Ann. Sc. nat., (3) t. 20 p. 185 — Pacific?
1887. *Sesarma lafondi* de Man. Zool. Jahrb. Syst., Bd. 2 p. 647 and 667 — no locality, description of co-type.
1892. *Sesarma lafondi*? de Man. Weber's zool. Erg. Reise niederl. Ost-Indien, Bd. 2 p. 331 — Deli (Sumatra).
1899. *Sesarma* (*Sesarma*) *lafondi* Nobili. Ann. mus. civ. stor. nat. Genova, (2) t. 20 p. 506 — Siboga (Sumatra).
1901. *Sesarma* (*Sesarma*) *lafondii* Lanchester. Proc. Zool. Soc. London, 1901, p. 550 — Singora (Malay Peninsula).

Pl. XV Fig. 1.

Specimens in the Museum:

1 ♀, Java.

Among the dry material of Crustacea in the Museum I found a full-grown ♀, which seems to me to belong to the present species, though I am not yet quite certain of my determination, as the relative length of the carapace in proportion to the distance between the external orbital angles does not agree with these dimensions, taken by de Man, of the co-type, and also the keel on the back of the mobile finger does not wholly answer to the description given by the latter author.

As both de Man and Nobili rightly remarked, the carapace of this species is very much like that of *Ses. taeniolata* White: it is little convex, in longitudinal as well as in transverse sense, the branchial regions are little declivous and the whole surface is smooth and shining on superficial examination, though on closer inspection the protogastric lobes prove to exhibit a great many longitudinal wrinkles in which, during life, probably bunches of hairs are inserted. Proto- and mesogastric regions are well marked; the mesial groove separating the median postfrontal lobes being very deep, not widening distally and the triangular lobe of the mesogastric region scarcely projects forward into this groove. The postfrontal lobes are of the same shape as in *Ses. taeniolata*, the median ones about  $1\frac{1}{2}$  times as broad as the outer ones, the latter with distinct posterior lobe; all the lobes with rounded anterior margin. Front vertically deflexed, with parallel and straight lateral margins and with two large projections at the fore margin, each of which bears a transverse, rather large knob (Pl. XV Fig. 1a); there is a deep and rather narrow, median sinus (in *Ses. taeniolata* it is much broader, and the middle part of the sinus is straight, not somewhat concave as in the present species); laterally these projections do not pass continually into

the fore margin of the front, but are separated off, both in *Ses. taeniolata* and in the present species by a nearly rectangular incision, so that the front projects at the lateral angles. The external orbital angles are acute with convex lateral margins, wholly as in *Ses. taeniolata*, separated by a deep incision from the much smaller and somewhat less projecting epibranchial teeth, the anterior and lateral margins of which form a right angle (acute in *Ses. taeniolata*), the latter margins are nearly straight, slightly converging distally, and the tip is much curved upward. Behind each epibranchial tooth there is still a trace of another tooth, behind which the lateral margins of the carapace are perfectly parallel, quite as in de Man's specimen of 1887. In *Ses. taeniolata* on the contrary the side margins are distinctly converging distally.

In de Man's co-type (1887) the length of the carapace seems to be considerably less in proportion to the distance between the external orbital angles than in my specimen, for in de Man's specimen these dimensions are respectively 33 and 38 mm. (87:100), in the Museum specimen 36.5 and 39.5 mm. (92:100), and in an exactly as large specimen of *Ses. taeniolata* (in which the distance between the external orbital angles is exactly the same as in my specimen of *Ses. lafondi*) the length of the carapace is even less (35.5 mm.). De Man and Nobili, on the contrary, remarked, that in *Ses. lafondi* the carapace is shorter and broader, in proportion to the distance between the external orbital angles, than in *Ses. taeniolata*, whereas I found the reverse.

The anterior border of the arm of the chelipeds is dentate, like the outer or posterior margin, and has at its subdistal end a sharp triangular projection, the margins of which are likewise dentate; the superior border bears a subdistal acute, strongly curved tooth, quite as in *Ses. taeniolata*. In both species the inner angle of the wrist is sharply produced. The palm (in ♀) is much shorter than the fingers; the upper border is sharp and at some distance runs a very characteristic granulated continuous row (Fig. 1b), that anteriorly unites with the upper border and has here some larger granules. A similar row, as is well-known, occurs in *Ses. taeniolata*, but here it is pectinated, consisting of numerous black and obtuse teeth, of the same structure as is generally found in the subgenera *Parasesarma* and *Chiromantes*. The outer surface bears numerous rounded granules, irregularly distributed, but in the left cheliped (here figured), not in the right, there is one short row of granules near the upper border. The inferior border is rounded off, in the same line with that of the immobile finger, and covered with granules, which tend to arrange themselves in sublongitudinal rows and disappear entirely on the immobile finger. Inner surface of palm with a few; largely-sepa-

rated granules, of the same size as those of the inferior border; no trace of a transverse crest, only a few scattered hairs are to be seen. Fingers long, not gaping, coloured in red, with some large pits at both surfaces, especially in the case of the immovable finger; back of movable finger with a characteristic low keel, which is most distinct in the proximal half and gradually disappears distally; it is accompanied by irregular granules at both sides, but especially at the outer side, and is broken up towards its end into 4—5 very indistinct parts, marked by a transverse section. This last character is not mentioned, neither by de Man nor by Nobili; the latter author makes mention of two or three granules at the base of the keel, that in my specimen, however, is entirely smooth.

The walking legs are short, very robust and entirely of the same shape as in *Ses. taeniolata*, though in the present species the dactyli are distinctly shorter and the propodites somewhat more slender. The mero-podites are twice as long as broad, transversely rugose (only minutely so in the case of the last pair), crenulate along the anterior margin and even at the distal fifth part of the posterior border. Carpo- and propodite together are longest in the case of the penultimate pair of legs. Dactyli always distinctly shorter than their respective propodites, acute, curved and hairy in the usual way. The propodites are furnished with hairs along the margins, but, as generally occurs in this genus, this hairiness extends farthest upward in the case of the first pair of walking legs and gradually diminishes in the other legs.

As my specimen was a ♀, as also those of de Man (1887 and 1892) and Nobili, the shape of the abdomen of the ♂ must remain unknown.

Dr. de Man very kindly lent me a specimen of the three young females, described by him in 1892. This small specimen, which was referred by the author to *Ses. lafondi*, though with some doubt, had a length of carapace of 18 mm.; the distance between the external orbital angles was 20 mm.; the proportion therefore 100 : 111, intermediate between what was found by de Man (1887) and by me in the case of the large specimen of the Museum. In the young ♀ I further remarked, that the lateral margins of the carapace are slightly converging distally, not parallel, that of a second epibranchial tooth merely a trace is found, and that the median sinus in the free margin of the front is very shallow and broad, scarcely indicated; besides, each large transverse tubercle on each projection of the free margin, which tubercle is so conspicuous in the large ♀, is replaced here by two minute granules, tipped with a hair. The keel on the upper margin of the movable finger is likewise present, though it is only distinct at the base and disappears very soon; also the

longitudinal row of small granules along the upper margin of the finger is distinctly represented. The small differences between the two females of very different size, though perhaps largely due to age, may be ascribed to a constant or merely individual variation, but I prefer to refer both the specimens to the present species.

It is a curious fact, that only females of this species have been examined; probably in the males the characters are much more pronounced<sup>1)</sup>.

The Museum specimen is still slightly larger than de Man's co-type (1887). Dimensions:

Distance between external orbital angles . . . . .	39.5 mm.
"          "      epibranchial teeth . . . . .	39.— "
Breadth of carapace above base of penultimate pair of legs	39.— "
Length of carapace in the median line . . . . .	36.5 "
Breadth of front. . . . .	21.— "
Posterior margin of carapace . . . . .	18.5 "
Horizontal length of palm . . . . .	10.5 "
Height of palm . . . . .	13.5 "
Length of mobile finger . . . . .	17.25 "
Length of meropodite	27.5 "
Breadth of meropodite	of penultimate 13.75 "
Length of carpo- + propodite	pair of legs 31.5 "
Length of dactylus	13.— "

62. *Sesarma* (*Sesarma* s.s.) *lanata* Alcock.

1900. *Sesarma lanatum* Alcock. Journ. As. Soc. Bengal, v. 69 prt. 2 p. 418 — Bombay and Karachi.  
 1903. *Sesarma lanatum* Alcock et Mc Ardl. Ill. Zool. „Investigator”, Crust. prt. 10, pl. 65 f. 4—4a — no locality.

63. *Sesarma* (*Holometopus*) *latifemur* Alcock.

1900. *Sesarma latifemur* Alcock. Journ. As. Soc. Bengal, v. 69 prt. 2 p. 421 — Andamans.  
 1903. *Sesarma latifemur* Alcock et Mc Ardl. Ill. Zool. „Investigator”, Crust. prt. 10, pl. 66 f. 2 — no locality.

64. *Sesarma* (*Parasesarma*) *lenzii* de Man.

1889. *Sesarma melissa?* de Man. Zool. Jahrb. Syst., Bd. 4 p. 434 — Fiji Isles.

1) As to specimens presumed to be the ♂ of this species, see *Sesarma taeniolata crebrestriata*).

- 1895—98. *Sesarma* (*Parasesarma*) *lenzii* de Man. Zool. Jahrb. Syst., Bd. 9 p. 199. Bd. 10, pl. 30 f. 35 — Atjeh and Penang.  
1902. *Sesarma* (*Parasesarma*) *lenzii* var. de Man. Abhandl. Senckenb. Gesellsch., Bd. 25 Heft 3 p. 536 — Halmaheira.

65. *Sesarma* (*Sesarma* s.s.) *leprosa* Schenkel.

1902. *Sesarma leprosa* Schenkel. Verhandl. naturf. Gesellsch. Basel, Bd. 13 p. 557, pl. 12 f. 19d—20 — Mount Masarang (Celebes).

66. *Sesarma* (*Parasesarma*) *leptosoma* Hilgendorf.

1869. *Sesarma leptosoma* Hilgendorf. v. d. Decken's Reisen in Ost-Afrika, Bd. 3.1, Crust., p. 91, pl. 6 f. 1 — Zanzibar.  
1887. *Sesarma leptosoma* de Man. Zool. Jahrb. Syst., Bd. 2 p. 645 — no new locality.  
1889. *Sesarma leptosoma* de Man. Zool. Jahrb. Syst., Bd. 4 p. 436, pl. 10 f. 11 — Fiji Isles.  
1889. *Sesarma leptosoma* Pfeffer. Mitt. naturhist. Mus. Hamburg, Bd. 6 p. 31 — Bagamoyo (E. Africa).  
1894. *Sesarma leptosoma* Ortmann. Zool. Jahrb. Syst., Bd. 7 p. 725 — Fiji Isles.  
1902. *Sesarma* (*Parasesarma*) *leptosoma* de Man. Abhandl. Senckenb. Gesellsch., Bd. 25 Heft 3, p. 534 — Halmaheira.  
1905. *Sesarma* (*Parasesarma*) *leptosoma* Nobili. Ann. Mus. Hung., v. 3 p. 497 — Friedrich Wilhelms-harbour (German New Guinea).  
1910. *Sesarma* (*Parasesarma*) *leptosoma* Rathbun. Bull. Mus. comp. Zool. Harvard Coll., v. 52 p. 309, pl. 4 f. 1 — Jobi island (Netherlands' New Guinea).

Specimens in the Museum:

2 ♂, Fiji Isles.

67. *Sesarma* (*Holometopus*) *limbensis* Rathbun.

1914. *Sesarma* (*Holometopus*) *limbense* Rathbun. Proc. U. S. Nat. Mus., v. 47 p. 79 — Gulf of Tomini (Celebes).

68. *Sesarma* (*Chiromantes*) *livida* A. Milne-Edwards.

1869. *Sesarma lividum* A. Milne-Edwards. Nouv. Arch. Mus. Paris, t. 5, Bull. p. 25 — New Caledonia.  
1873. *Sesarma lividum* A. Milne-Edwards. Nouv. Arch. Mus. Paris, t. 9 p. 303, pl. 16 f. 2 — New Caledonia.  
1875. *Sesarma lividum* Brocchi. Ann. Sc. nat., (6) t. 2 p. 83 — no locality, male appendages described.

1887. *Sesarma livida* de Man. Zool. Jahrb. Syst., Bd. 2 p. 659 — no new locality.
1888. *Sesarma livida* de Man. Arch. Naturgesch., Jahrg. 53.1. p. 381, pl. 17 f. 1 — Noordwachter Island (North coast of Java).
1902. *Sesarma (Perisesarma) livida* de Man. Abhandl. Senckenb. Gesellsch., Bd. 25 Heft 3 p. 539 — Amboyna.
1910. *Sesarma (Chiromantes) lividum* Rathbun. K. Dansk. Vid. Selsk. Skr., 7. Raekke, Afd. 5 n<sup>o</sup>. 4 p. 329 — Gulf of Siam.

Specimens in the Museum:

- 1 ♀, Pacific.
- 2 ♂, 3 ♀, Amboina, Ludeking coll. 1863 (examined by de Man 1902).

69. *Sesarma (Sesarma s.s.) longipes* Krauss.

1843. *Sesarma longipes* Krauss. Südafr. Crust., p. 44, pl. 3 f. 2 — Umlass river (Natal).
1886. *Helice? longipes* Miers. Brachyura Rep. „Challenger”, p. 268 — name only.
1887. *Sesarma longipes* de Man. Zool. Jahrb. Syst., Bd. 2 p. 651 — no new locality.
1900. *Sesarma longipes* Alcock. Journ. As. Soc. Bengal, v. 69 prt. 2 p. 424 — Andamans.
1907. *Sesarma longipes* Borradaile. Transact. Linn. Soc. London, (2) v. 12 p. 64 — Seychelles.
1910. *Sesarma longipes* Stebbing. S. A. Crust., prt. 5 p. 322 — no new locality.

70. *Sesarma (Sesarma s.s.) maculata* de Man.

1892. *Sesarma maculata* de Man. Weber's zool. Erg. Reise niederl. Ost-Indien, Bd. 2 p. 347, pl. 21 f. 19 — Flores.
1901. *Sesarma (Geosesarma) maculata* Lanchester. Proc. Zool. Soc. London, 1901, p. 550 — Lacom (Malay Peninsula).
1902. *Sesarma (Sesarma) maculata* de Man. Abhandl. Senckenb. Gesellsch., Bd. 25 Heft 3 p. 517 — Ternate, Batjan, Halmaheira.
1902. *Sesarma maculata* Schenkel. Verhandl. naturforsch. Gesellsch. Basel, Bd. 13 p. 550, pl. 12 f. 19a — Kema (Celebes).

Specimens in the Museum:

- 1 ♂, 1 ♀, Ternate, Kükenthal coll. 1893/94 (examined by de Man 1902).
- 1 ♀, Roti (near Timor). Dr. ten Kate coll. 1891.



71. *Sesarma* (*Sesarma* s.s.) *meinerti* de Man.

1837. *Sesarma tetragona* H. Milne-Edwards (*nec* Fabricius). Hist. nat. Crust., t. 2 p. 73 — Indian Ocean.
1843. *Sesarma tetragona* Krauss. Südafr. Crust. p. 44 — Bay of Natal.
1853. *Sesarma tetragona* H. Milne-Edwards. Ann. Sc. nat., (3) t. 20 p. 184 — Mauritius.
1868. *Sesarma tetragona* A. Milne-Edwards. Nouv. Arch. Mus. Paris, t. 4 p. 71 — Zanzibar.
1869. *Sesarma africana*?<sup>1)</sup> Bianconi. Spec. Zool. mosamb., fasc. 18 p. 341 — Mossambique.
1869. *Sesarma tetragona* Hilgendorf. v. d. Decken's Reisen in Ost-Afrika. Bd. 3.1., Crust., p. 90, pl. 3 f. 3d — Zanzibar and Mossambique.
1873. *Sesarma tetragonum* A. Milne-Edwards. Nouv. Arch. Mus. Paris, t. 9 p. 304, pl. 16 f. 4 — New Caledonia.
1874. *Sesarma tetragona* Hoffmann. Crust. et Echinod. Madagascar, p. 23 — Nossi Faly, Nossi Bé, Sakatia (Madagascar).
1879. *Sesarma tetragona* Hilgendorf. Monatsber. Ak. Wiss. Berlin, 1878, p. 809 — Mossambique.
1879. *Sesarma tetragonum* Miers. Philosoph. Transact. v. 168 p. 490 — Rodriguez.
1887. *Sesarma meinerti* de Man. Zool. Jahrb. Syst., Bd. 2 p. 648 and 668 — Madagascar.
1889. *Sesarma meinerti* Pfeffer. Mitt. naturhist. Mus. Hamburg, Bd. 6 p. 31 — Kingano (E. Africa).
1893. *Sesarma meinerti* Bürger. Zool. Jahrb. Syst., Bd. 7 p. 617 — Philippines.
1893. *Sesarma tetragona*? Henderson. Transact. Linn. Soc. London, (2) v. 5 p. 392 — British India.
1894. *Sesarma meinerti* Ortmann. Zool. Jahrb. Syst., Bd. 7 p. 720 — Pacific and Mauritius.
1894. *Sesarma meinerti* Ortmann. Denkschr. med.-naturwiss. Gesellsch. Jena, Bd. 7 p. 56 — Dar-es-Salaam (E. Africa).
1895. *Sesarma* (*Episesarma*) *meinerti* de Man. Zool. Jahrb. Syst., Bd. 9 p. 166 — Atjeh.
1900. *Sesarma meinerti* Alcock. Journ. As. Soc. Bengal, v. 69 prt. 2 p. 417 — Andamans and Madras.
1904. *Sesarma meinerti* Doflein. Zool. „Valdivia” Exp., Bd. 6 (Crust. Dec.) p. 130 — Dar-es-Salaam.

1) *Id.* Hilgendorf (1879, p. 809).

1905. *Sesarma meinerti* Lenz. Abhandl. Senckenb. Gesellsch., Bd. 27 Heft 4 p. 372. — Zanzibar.
1910. *Sesarma tetragonum* Stebbing. S. A. Crust., Prt. 5 p. 321 — South Africa.
1913. *Sesarma meinerti* Mc. Culloch. Rec. Austral. Mus., v. 9 n°. 3 p. 322 — Cooktown (E. Australia).

Specimens in the Museum:

- 1 ♀, Celebes.  
 1 ♀, Nossi Bé, Pollen & v. Dam coll. (examined by Hoffmann).  
 1 ♂, Soela Besi.  
 1 ♂, 1 ♀, Pacific.  
 1 ♂, Java.

In the shape of the carapace and that of the lateral teeth this species, like *Ses. smithi* H. Milne-Edwards, has much in common with the genus *Sarmatium*.

De Man (1895, p. 167) called attention to the considerable variations in the shape of the carapace, the greatest breadth of which is proportionally much larger in the ♀ than in the ♂, and in the former sex the posterior margin of the carapace may exceed the breadth of the front, whereas in the ♂ the reverse in the case.

Among the dried specimens of *Ses. taeniolata* White in the Museum I found a large ♂ of the present species (from Java), but the carapace of this specimen presents such a curious resemblance to that of *Ses. taeniolata*, that, were it not for the characteristic features of the chelipeds and walking legs and the peculiar shape of the abdomen, it might easily be mistaken for the latter species. The carapace of this specimen is only feebly curved in a longitudinal direction, nearly flattened; all the tufts of hair, though they may have been present, are now entirely rubbed off, the front is vertically deflexed, the shape of the postfrontal lobes is entirely the same as in *Ses. taeniolata*, the epibranchial teeth are acute, of the same shape as the outer orbital angles, and reach exactly as far outward; behind the epibranchial teeth the lateral margins of the carapace converge distally. On the other hand, the chelipeds, the little enlarged meropodites of the walking legs, and the shape of the abdomen (the penultimate segment of which is only slightly broader at the base than long<sup>1)</sup>, contrary to what is the usual case in this genus) entirely agree with the descriptions of A. Milne-Edwards, de Man, Alcock and others.

1) Pfeffer found the same relation in his specimens, but Lenz appears to refute this statement.

The following are the results, arrived at by de Man (1895), as to the shape of the carapace:

- 1°. In both sexes the proportion of the distance between the external orbital angles and the length of the carapace is the same.
- 2°. In the ♂ the posterior margin is about half the length of the carapace, and always considerably shorter than the breadth of the front; in the ♀, on the contrary, the posterior margin is much more than half the length of the carapace and broader or only very slightly shorter than the breadth of the front.
- 3°. The distance between the epibranchial teeth is proportionally much greater in the ♀ than in the ♂, so that in the latter sex the carapace appears to be narrower, in proportion to its length. From this we conclude, that in the ♀ the carapace is much more strongly narrowed anteriorly than in the ♂<sup>1)</sup>. De Man supposes this character to be a sexual difference, though, with regard to the few specimens examined, it cannot be said with certainty.

Now, if we put together some records in literature about the dimensions of the species, and these are arranged for each sex separately, the following table is arrived at:

1	2	3	4	5	6	7	8	9
♂	♂	♂	♂	♂	♀	♀	♀	♀
Dist. between ext. orb. angles								
41.5 (100)	33.33 (100)	32.— (100)	29.— (100)	28.— (100)	32.— (100)	29.— (100)	28.— (100)	27.75 (100)
Dist. between epibranch. teeth								
41.5 (100)	43.— (112.2)	34.5 (107.8)	31.25 (107.8)	30.5 (108.9)	35.— (109.4)	33.— (113.8)	30.— (107.1)	31.75 (114.4)
Length of carapace								
37.5 (90.4)	36.5 (95.2)	28.5 (89.0)	26.— (89.6)	25.5 (91.0)	30.— (93.4)	26.25 (90.5)	25.— (89.3)	25.66 (92.5)
Posterior margin of carapace								
17.5 (42.2)	17.5 (45.6)	14.5 (45.3)	13.— (44.8)	14.— (50.0)	16.— (50.0)	16.— (55.2)	14.— (50.0)	14.5 (52.3)
Breadth of front								
21.— (50.6)	21.5 (56.0)	17.75 (55.5)	16.25 (56.0)	16.— (57.1)	18.5 (57.8)	15.5 (53.4)	16.— (57.1)	15.— (54.0)

N°. 1 is the large ♂ of the Museum from Java, n°. 2 and 3 specimens of de Man (1887), n°. 4: de Man (1895), n°. 5 and 6: Lenz, n°. 7: de Man (1895), n°. 8: Lenz, n°. 9 de Man (1895).

For the sake of better comparison we take the distance between external orbital angles = 100, and, parting from this, we arrive at the numbers, entered in brackets. It may, then, be concluded: that indeed the proportion of the distance between the external orbital angles and the length of carapace is nearly constant in both sexes and at different

1) Lenz says, that, according to de Man, the length of the carapace with advancing age increases in proportion to its breadth, but I have not succeeded in finding out, where this presumption has been written by de Man.

ages; that, further, the distance between the epibranchial teeth, as compared with that between external orbital angles, is generally greater in the ♀ than in the ♂ (though the proportion between both sexes may be sometimes nearly equal: ♂ n<sup>o</sup>. 3 and 4, ♀ n<sup>o</sup>. 8 and even the reverse may occur); and that, finally, the posterior margin is indeed half the length of the carapace, and much shorter than the breadth of the front, in the ♂, whereas in the ♀ the posterior margin is proportionally much longer, and the breadth of the front in some cases is more, in other less than the length of the posterior margin. There seems to be no relation whatever between the age and the proportional dimensions of the individual.

72. *Sesarma* (*Parasesarma*) *melissa* de Man.

1887. *Sesarma melissa* de Man. Zool. Jahrb. Syst., Bd. 2 p. 656 — Mergui Archipelago.  
 1888. *Sesarma melissa* de Man. Journ. Linn. Soc. London, v. 22 p. 170, pl. 12 f. 5—7 — Kisseraing Island (Mergui Archipelago).  
 1895—'98. *Sesarma* (*Parasesarma*) *melissa* de Man. Zool. Jahrb. Syst., Bd. 9 p. 205, Bd. 10, pl. 31 f. 37 — Penang.  
*nec Sesarma melissa* de Man. Zool. Jahrb. Syst., Bd. 4, 1889, p. 434 (= *Ses. lenzii* de Man).

73. *Sesarma* (*Holometopus*) *miersii* Rathbun.

1881. *Sesarma angustipes?* Miers. Proc. Zool. Soc. London, 1881, p. 70 — Monte Video.  
 1886. *Sesarma stimpsonii* Miers. Brachyura Rep. „Challenger” p. 270 (*nec Ses. stimpsonii* Miers. Proc. Zool. Soc. London, 1881, p. 70 = *Ses. ricordi* H. Milne-Edwards) — no locality.  
 1897. *Sesarma* (*Holometopus*) *miersii* Rathbun. Proc. Biol. Soc. Washington, v. 11 p. 91 — Bahamas and Swan Island (Caribbean Sea), Desterro (Brazil).

74. *Sesarma* (*Sesarma s.s.*) *mindanaoensis* Rathbun.

1914. *Sesarma* (*Sesarma*) *mindanaoense* Rathbun. Proc. U. S. Nat. Mus., v. 47 p. 75 — Mindanao (Philippines).

75. *Sesarma* (*Sesarma s.s.*) *minuta* de Man.

1887. *Sesarma minuta* de Man. Zool. Jahrb. Syst., Bd. 2 p. 650 — Edam Island near Batavia.  
 1888. *Sesarma minuta* de Man. Arch. Naturgesch., Jahrg. 53.1, p. 377, pl. 16 f. 4 — same locality.

1910. *Sesarma (Sesarma) minutum* Rathbun. K. Dansk. Vid. Selsk. Skr.,  
7. Raekke, Afd. 5 n<sup>o</sup>. 4 p. 327 — Gulf of Siam.

76. *Sesarma (Sesarma s.s.) modesta* de Man.

1902. *Sesarma (Sesarma) modesta* de Man. Abhandl. Senckenb. Gesellsch.,  
Bd. 25 Heft 3 p. 511, pl. 19 f. 8 — Ternate.

Pl. XVI, Fig. 1.

I have before me some specimens from Nias, belonging to the Amsterdam Zoological Museum and, besides, one specimen, collected by the „Siboga“-Expedition. All these specimens are ♀, so that the determination presents great difficulties; on sending the material to Dr. de Man, I learned that these specimens are to be referred to the present species. As the ♀ is not yet known, I shall try to indicate the differences from the ♂, having chosen the „Siboga“-specimen as base of my description.

De Man compares his species in the first place with *Ses. angustifrons* A. Milne-Edwards, from which it is distinguished, however, by a much shallower emargination of the front, the lack of a transverse row of granules at the inner surface of the palm, but especially by the much broader and shorter walking legs, which give this species in my opinion a much greater likeness to *Ses. edwardsi* and *Ses. moeschii*, both described by de Man, and to *Ses. impressa* H. Milne-Edwards.

The carapace in the ♀ is rather strongly convex in a longitudinal and somewhat less so in a transverse direction; the branchial regions are very much declivous. Regions well marked, as in the ♂, especially the transversal furrow marking the posterior margin of the mesogastric area; this furrow is not interrupted in the middle, broadened and deepened at both ends; the grooves that mark the protogastric regions laterally, apparently distinct in the ♂, are lacking in my specimens. The mesogastric region itself is divided by a concave transverse groove into two parts, the anterior one of which is the larger. Anterior cardiac region separated by slight grooves from the branchial regions, in a similar way the intestinal region is separated off, but here the lateral boundaries are much less distinct. Postfrontal lobes straight at the fore margin, separated by very narrow grooves; lateral lobes about  $\frac{2}{3}$  times as broad as the inner lobes <sup>1)</sup>; the former with posterior lobe. All the lobes, especially the median ones, with a few transversely-elongated or rounded tubercles; similar rounded tubercles are also found on the much depressed

1) De Man says, that the fore margin of these outer lobes is transversely grooved, but more continuously so at the right lobe; in the ♀ this transverse furrow is equally developed at both lobes.

hepatic regions, where such tubercles are placed in groups on symmetrical verrucosities, but otherwise, except for the usual oblique lines on the branchial regions, the carapace shows only numerous small pits, tending to form transverse lines on the mesogastric and cardiac regions and oblique ones on the branchial areas.

In the ♂ the breadth of the front is exactly three-fifths of the distance between the external orbital angles, but seems to be somewhat less wide in the ♀ (about 57% of the said distance); the front itself is low, vertically deflexed, but whereas in the ♂ the free margin of the front is visible, if the carapace is looked at from above, it is nearly wholly concealed behind the postfrontal lobes in the case of the ♀. This anterior margin has a very broad but shallow median emargination, the lateral parts have a somewhat oblique, not exactly transverse course and are continued into the rounded corners of the front; the lateral margins of the latter are not exactly parallel, but, as de Man remarked, they are somewhat converging downwards.

The lateral margins of the carapace are somewhat diverging distally, so that the greatest breadth is lying above the base of the second pair of ambulatory legs. The outer orbital angles are sharp, directed forward, with convex lateral margins, that are nearly parallel to each other; the epibranchial teeth reach very slightly farther outward than the external orbital angles; they are separated from the latter by a distinct incision, and the anterior and lateral margins form a right angle with each other, the tip of which is rounded; the lateral margin of this tooth is as long as that of the external orbital angle, perfectly straight and somewhat diverging with that of the other side. In the ♂ there is still a trace of a second epibranchial tooth, but I have seen nothing of this kind in the ♀. The posterior margin of the carapace is in the ♀ exactly as broad as the front, in the ♂ it is somewhat narrower. As to the oblique lines on the branchial regions there seems to be no difference between the sexes.

The chelipeds of the ♀, except that they are of much inferior size than those of the ♂, and all characters are, as usual, much less pronounced, show essentially the same features: there is a rectangular subdistal tooth at the upper margin of the arm, the inner border of the arm is somewhat expanded in its distal part and feebly dentate. The wrist has rather few rounded tubercles, no granulated transverse lines as in the ♂, and the inner angle is produced at both sides into an acute depressed tooth. The outer surface of the palm has a small number of somewhat pointed tubercles, most distinct near the upper and the inferior border; near the upper border they are arranged in three longitudinal lines, those near the inferior border are continued up to the tip of the

immobile finger, but diminish gradually in size; in the middle of the outer surface the tubercles are more depressed, irregularly placed, but not confluent, as in the case of the ♂.

The upper border of the palm is marked by some longitudinal short rows of granules; the inner surface of palm and of both fingers is entirely smooth; the upper border of the mobile finger has a few irregularly placed denticles near the base, the outer surface of the fingers is minutely pitted, with longitudinal depression near the base, especially in the case of the immovable finger.

The ambulatory legs are very short and thick; the meropodites being only about twice as long as broad, with crenulate fore margins and a sharp subdistal tooth; the dactyli are long and pointed, slightly longer than the preceding joints. The outer border of carpo- and propodites are beset with a short and dense fur; the dactyli have isolated fascicles of hairs, and similar tufts are found at the inner border of the propodites and on the flattened upper surface of carpo- and propodites.

Dimensions:

Distance between external orbital angles . . . . .	19.75 mm.	
"    "    epibranchial teeth . . . . .	20.25 "	
Greatest breadth of carapace . . . . .	21.— "	
Posterior margin "    " . . . . .	11.25 "	
Breadth of front . . . . .	11.25 "	
Length of carapace. . . . .	17.— "	
Length of meropodite	} of penultimate pair of legs	
Breadth of "    "		12.5 "
Length of dactylus		6.25 "
	7.5 "	

77. *Sesarma* (*Sesarma s.s.*) *moeschii* de Man.

1888. *Sesarma intermedia* de Man (*nec* de Haan). Journ. Linn. Soc. London, v. 22 p. 182 — Mergui Archipelago.  
 1892. *Sesarma moeschii* de Man. Weber's zool. Erg. Reise niederl. Ost-Indien, Bd. 2 p. 331, pl. 20 f. 14 — Deli.  
 1900. *Sesarma intermedium* Alcock. Journ. As. Soc. Bengal, v. 69 prt. 2 p. 416 — Mergui Archipelago.

Specimens in the Museum:

1 ♂, Bay of Gorontalo (Celebes).

78. *Sesarma* (*Parasesarma*) *moluccensis* de Man.

1892. *Sesarma melissa* var. *moluccensis* de Man. Weber's zool. Erg. Reise niederl. Ost-Indien, Bd. 2 p. 328 — Flores.

1895—98. *Sesarma* (*Parasesarma*) *moluccensis* de Man. Zool. Jahrb. Syst., Bd. 9 p. 202, Bd. 10, pl. 31 f. 36 — description of same specimens.

78a. *Sesarma* (*Parasesarma*) *moluccensis jamelensis* Rathbun.

1914. *Sesarma* (*Parasesarma*) *moluccense jamelense* Rathbun. Proc. U. S. Nat. Mus., v. 47 p. 81 — Luzon (Philippines).

79. *Sesarma* (*Parasesarma*) *murrayi* Calman.

1909. *Sesarma murrayi* Calman. Proc. Zool. Soc. London, 1909, p. 708, pl. 72 f. 4—5 — Christmas Island.

80. *Sesarma* (*Sesarma* s.s.) *nannophyes* de Man.

1895—98. *Sesarma* (*Episesarma*) *nannophyes* de Man. Zool. Jahrb. Syst., Bd. 9 p. 174, Bd. 10, pl. 30 f. 32 — Atjeh.

81. *Sesarma* (*Holometopus*) *neglecta* de Man.

1887. *Sesarma neglecta* de Man. Zool. Jahrb. Syst., Bd. 2 p. 643 and 661 — Shanghai.

82. *Sesarma* (*Sesarma* s.s.) *nodulifera* de Man.

1892. *Sesarma* (*Geosesarma*) *nodulifera* de Man. Weber's zool. Erg. Reise niederl. Ost-Indien, Bd. 2 p. 342, pl. 20 f. 16 — Buitenzorg (Java).

1894. *Sesarma nodulifera* Ortmann. Denkschr. med.-naturwiss. Gesellsch. Jena, Bd. 8 p. 56 — Buitenzorg.

1899. *Sesarma* (*Geosesarma*) *nodulifera* Nobili. Ann. mus. civ. stor. nat. Genova, (2) t. 20 p. 512 — Buitenzorg and Tjibodas (Java).

1902. *Sesarma* (*Sesarma*) *nodulifera* de Man. Abhandl. Senckenb. Gesellsch., Bd. 25 Heft 3 p. 519 — Buitenzorg.

1910. *Sesarma* (*Sesarma*) *noduliferum* Rathbun. Bull. Mus. comp. Zool. Harvard Coll., v. 52 p. 309 — Buitenzorg.

Specimens in the Museum:

2 ♀, locality unknown.

82a. *Sesarma* (*Sesarma* s.s.) *nodulifera conferta* Ortmann.

1892. *Sesarma* (*Geosesarma*) sp. de Man. Weber's zool. Erg. Reise niederl. Ost-Indien, Bd. 2 p. 345 — Tjibanas and Tjibodas (Java).

1894. *Sesarma nodulifera* var. *conferta* Ortmann. Denkschr. med.-naturwiss. Gesellsch. Jena, Bd. 8 p. 56 — Tjibodas.



As de Man already observed, this subspecies is distinguished by the number and the disposition of the tubercles on the upper border of the movable finger, as these tubercles are more numerous and more crowded than in typical specimens.

83. *Sesarma (Holometopus) obesa* Dana.

1851. *Sesarma obesum* Dana. Proc. Ac. Nat. Sc. Philadelphia, 1851, p. 250 — Balabac Strait (N. Borneo).  
1852. *Sesarma obesum* Dana. U. S. Expl. Exp., Crust., p. 356, pl. 22 f. 10 — same locality.  
1887. *Sesarma obesa* de Man. Zool. Jahrb. Syst., Bd. 2 p. 643 — no new locality.

84. *Sesarma (Holometopus) obtusifrons* Dana.

1851. *Sesarma obtusifrons* Dana. Proc. Ac. Nat. Sc. Philadelphia, 1851, p. 250 — Sandwich Isles.  
1852. *Sesarma obtusifrons* Dana. U. S. Expl. Exp., Crust., p. 355, pl. 22 f. 9 — same locality.  
1887. *Sesarma obtusifrons* de Man. Zool. Jahrb. Syst., Bd. 2 p. 644 — no new locality.  
1895—98. *Sesarma (Sesarma) obtusifrons* de Man. Zool. Jahrb. Syst., Bd. 9 p. 161, Bd. 10, pl. 29 f. 31 — Atjeh.  
1907. *Sesarma (Holometopus) obtusifrons* Rathbun. Mem. Mus. comp. Zool. Harvard Coll., v. 35 n<sup>o</sup>. 2 p. 35 — Niue.

85. *Sesarma (Holometopus) occidentalis* Smith.

1870. *Sesarma occidentalis* Smith. Transact. Connecticut Ac., v. 2 p. 158 — Acajutla (west coast of Central America).  
1897. *Sesarma (Holometopus) occidentalis* Rathbun. Proc. Biol. Soc. Washington, v. 11 p. 90 — no locality.  
1901. *Sesarma (Holometopus) occidentalis* Nobili. Boll. Mus. Torino, t. 16 n<sup>o</sup>. 415 p. 42 — Tumaco.

86. *Sesarma (Sesarma s.s.) ocypoda* Nobili.

1899. *Sesarma ocypoda* Nobili. Ann. mus. civ. stor. nat. Genova, (2) t. 20 p. 513 — Benkoelen (Sumatra).  
1902. *Sesarma (Sesarma) ocypoda* de Man. Abhandl. Senckenb. Gesellsch., Bd. 25 Heft 3 p. 525, pl. 19 f. 10 — description of type-specimens.

86a. *Sesarma (Sesarma s.s.) ocypoda gracillima* de Man.

1902. *Sesarma (Sesarma) ocypoda* var. *gracillima* de Man. Abhandl. Senckenb. Gesellsch., Bd. 25 Heft 3 p. 522, pl. 19 f. 9 — Baram River (Borneo).

Specimens in the Museum:

3 ♂, 2 ♀, Natoena Islands, A. L. v. Hasselt coll.

Pl. XVII Fig. 1.

These specimens, which I had provisionally referred to *Ses. ocypoda* Nobili, were sent by me to Dr. de Man, who informed me that they indeed belonged to the subspecies *gracillima*. The following are the principal points of difference from *Ses. sylvicola* de Man:

- 1<sup>o</sup>. The front is somewhat broader in *Ses. sylvicola*, the outer orbital angle is obtuse and separated from the epibranchial tooth by a rather deep incision, the latter teeth are likewise obtuse and the distance between them is equal to that between the outer orbital angles; in *Ses. ocypoda gracillima* the front is narrower; outer orbital angles are more pointed and reach farther outward than the obtuse epibranchial teeth, that are separated off anteriorly by a narrow and small incision. In both species there is a trace of a second epibranchial tooth and the lateral borders of the carapace are diverging distally.
- 2<sup>o</sup>. The surface of the carapace is more granulated and the regions are much better marked in *Ses. ocypoda gracillima* than in *Ses. sylvicola*.
- 3<sup>o</sup>. In the abdomen of the ♂ the last segment is as long as broad (at the posterior margin) in *Ses. ocypoda gracillima*, in *Ses. sylvicola* it is much broader than long; in the former species the posterior margin of the penultimate segment is twice the length of this segment, in the latter species, however, nearly three times this length.
- 4<sup>o</sup>. The upper border of the mobile finger has a longitudinal row of 10—11 tubercles, placed at regular intervals and extending to near the tip, in *Ses. ocypoda gracillima*; the first (proximal) 4—5 of them are cone-shaped and their axis is disposed perpendicularly to the long axis of the finger, the following tubercles are directed more obliquely forward, with their tip turned towards the end of the finger; besides, outside of this row of tubercles, there is a smooth longitudinal keel, running in the distal half of the finger. In *Ses. sylvicola* the longitudinal row consists of only 6—7 acute tubercles, all turned forward, towards the tip of the finger, and the longitudinal keel in the distal half of the finger is more feebly developed.

The typical *Ses. ocypoda* is distinguished from the subspecies by a comparatively higher palm of the cheliped, by more numerous tubercles (14) at the upper border of the movable finger, all of them turned forward, by a shorter horny margin at the tip of both fingers (in the subspecies *gracillima* this horny margin occupies a third of the whole length

of the finger), by somewhat shorter walking legs, by shallower and narrower furrows separating the postfrontal lobes and by a narrower emargination of the free margin of the front.

All these points of difference, summed up by de Man, could be confirmed by me, but, as my specimens happened to be considerably larger than those of de Man, I have been able to add some more particulars. Unfortunately, none of the ♀ were carrying eggs, so that it has been impossible to make out, whether the subspecies *gracillima* should be referred to *Geosesarma*, the subgenus to which *Ses. sylvicola* belongs but which is not maintained by Dr. de Man, on account of its large and few ovae of the ovigerous ♀.

According to de Man, the lobes at either side of the median emargination of the front show, immediately at the margin, three small tubercles in the ♀, and in the ♂ these tubercles are united into a small transverse crest. In my larger specimens, however, I observed (Fig. 1a) that each lobe, that runs from the median emargination obliquely to the rounded corners of the front, is divided by a very slight emargination into two nearly equal parts, and the tips of each part is marked by a small rounded tubercle, placed very near to the margin, in both sexes, but somewhat more distinct in the ♂. The postfrontal lobes are separated by deep grooves; the median lobes, the breadth of which, as de Man observed, is about twice that of the lateral ones, are perpendicularly deflexed anteriorly, and the slightly projecting margin of all the lobes is acute, not transversely furrowed. These lobes and the whole protogastric regions, that are separated off distinctly from the hepatic areas, are closely granulated, which gives these parts of the carapace a rough and uneven appearance.

As to the chelipeds, de Man says, that the superior and anterior (inner) border of the arm is unarmed, but in my specimens the upper border has a small rectangular tooth near the distal end, and the anterior border is, like the posterior (outer) border, coarsely serrulate, not expanded in its distal half. The wrist is not produced at the inner angle. Palm shorter than the fingers; the latter are nearly straight along their whole course, not gaping, with smooth and shining outer and inner surfaces. As to the armature of the mobile finger, my specimens agreed with the description of de Man; in the largest ♂ there are 11 tubercles at the right side, and 10 at the left, but the proximal 4—5 of these are not exactly perpendicular to the long axis of the finger, but only more erect than the following tubercles, so that the difference in direction of the tubercles is in my specimens not so conspicuous as depicted by de Man. An important fact is the presence of a transverse row of

granules at the inner surface of the palm; this somewhat concave row consists of about 10 granules, that form the distal boundary of the granulated portion of the inner surface of the palm. In de Man's specimens, that were of smaller size, this row is not yet developed, and indeed I have observed it only in the two largest ♂. The horny margin at the tip of the fingers is much shorter than in de Man's specimens, occupying only one-fifth of the length of the finger, not one-third. This last feature and the slightly oblique direction of the proximal tubercles at the upper border of the mobile finger approach the specimens of the Notoena Islands somewhat to the typical *Ses. ocyropa*, which occurs in Benkoelen (Sumatra); de Man's specimens of the subspecies have been caught in the Baram River (Borneo).

Dimensions:	1 ♂	2 ♂	3 ♀
Distance between external orbital angles . . . . .	14.25	12.—	12.25 mm.
" " epibranchial teeth . . . . .	13.5	11.5	11.75 "
Greatest breadth of carapace. . . . .	14.5	12.25	13.— "
Posterior margin " " . . . . .	6.75	6.25	6.5 "
Length of carapace . . . . .	13.5	11.75	12.— "
Breadth of front. . . . .	7.—	6.—	6.25 "
Posterior margin of last segment	2.25	2.25	— "
Length of last segment	2.—	2.—	— "
Posterior margin of penultimate segment	4.75	4.5	— "
Length of penultimate segment	2.25	1.75	— "
Length of meropodite	9.25	9.—	9.— "
Breadth of " "	3.—	3.—	3.— "
Length of carpo- and propodite	10.75	10.5	11.— "
" " dactylus	6.25	5.75	6.— "

### 87. *Sesarma (Chiromantes) onychophora* de Man.

1888. *Sesarma livida* de Man (nec A. Milne-Edwards). Journ. Linn. Soc. London, v. 22 p. 179 — Mergui Archipelago.  
 1895—98. *Sesarma (Perisesarma) onychophora* de Man. Zool. Jahrb. Syst., Bd. 9 p. 214, Bd. 10, pl. 31 f. 39 — Penang, Atjeh and Pontianak.  
 1900. *Sesarma onychophora* Lanchester. Proc. Zool. Soc. London, 1900, p. 757 — Singapore.

#### Specimens in the Museum:

- 1 ♂, 1 ♀, Penang (co-types of de Man).  
 1 ♀ juv., Sumatra.

88. *Sesarma* (*Sesarma s.s.*) *ophioderma* Nobili.

1901. *Sesarma* (*Sesarma*) *ophioderma* Nobili. Boll. Mus. Torino, t. 16 n<sup>o</sup>. 415 p. 44 — Esmeraldas (Ecuador).

89. *Sesarma* (*Sesarma s.s.*) *palawanensis* Rathbun.

1914. *Sesarma* (*Sesarma*) *palawanense* Rathbun. Proc. U. S. Nat. Mus., v. 47 p. 72 — Palawan Island (Philippines).

Specimens in the Museum:

1 ♀, New Guinea, Macklot coll.

Pl. XVI Fig. 2.

Among the dried Crustacea of the Museum I found a very old specimen, collected by Macklot in New Guinea, which seems to be most likely referable to the species recently described by Miss Rathbun, though the determination must remain uncertain, as no figure has been as yet published.

This species belongs to the same natural group as *Ses. tetragona* Fabricius, *Ses. taeniolata* White and *Ses. lafouli* Hombron et Jacquinot. The carapace is much flattened, shining and smooth, though the postfrontal lobes, the mesogastric and the posterior cardiac region are well marked off. The whole surface is covered with numerous greyish-white spots, surrounded by a brown ring, which spots during life probably marked the insertion of tufts of hair; they are largest on the proto- and mesogastric region.

From *Ses. taeniolata*, to which the present species, as Miss Rathbun remarked, is most nearly allied, it is distinguished *i. a.* by having a narrower (longer) carapace and by the breadth of the front being less than half the distance between the external orbital angles (in *Ses. taeniolata* it is constantly more than half this distance). If we take the distance between the external orbital angles = 100, than the length of the carapace in the median line is in Rathbun's specimen = 94.7, the breadth of the front = 48.6; and in the specimen of the Museum these proportions are respectively 93.2 and 48.5.

In 5 specimens of *Ses. taeniolata* of different size the length of the carapace in % of the distance between external orbital angles is respectively: 93.0, 87.6, 88.1, 90.6 and 91.0; save in the first instance this proportion is thus always distinctly less than in *Ses. palawanensis*, and in the only exception the proportion is about equal to that of the Museum specimen of Rathbun's species. The breadth of the front is in *Ses. taeniolata*

always more than half the distance between the external orbital angles (in the 5 specimens measured this breadth is respectively 51.6, 52.4, 51.2, 52.5 and 53.2% of the said distance).

The postfrontal lobes are well marked, rounded at the anterior margin, the median lobes separated from each other by a deep and broad furrow, and separated from the outer ones by a much narrower and shorter furrow; the latter lobes are only  $\frac{2}{3}$  as broad as the median ones and bear a distinct posterior lobe. Owing to the comparative narrowness of the front the orbits seem to be larger than in *Ses. taeniolata*. The lateral margins of the front are somewhat concave, the fore margin has a deep and broad median sinus, of exactly the same appearance as in *Ses. taeniolata*, and the two lateral lobes, laterally separated off from the anterior edges of the front by a slight but distinct excavation, are also alike in both species.

The upper orbital border is oblique, ending in an acute external angle with convex lateral margin; this orbital angle is separated by a deep incision from the subrectangular but acuminate epibranchial tooth, the lateral margin of which is about as long as that of the external orbital angle, but perfectly straight and converging with that of the other side; from the base of the epibranchial teeth the lateral margins of the carapace converge distally. In *Ses. taeniolata* the external orbital angle is perfectly equally shaped to that of *Ses. palawanensis*, but the incision between this angle and the epibranchial tooth is somewhat broader, and the epibranchial tooth itself is acute, not subrectangular, with the tip much curved upward, and there is a very small second epibranchial tooth which is not found in *Ses. palawanensis*.

The chelipeds are in my single specimen (♀) wholly equal to each other; arm and wrist are similar to those of *Ses. taeniolata*, with a large, acute and curved tooth at the subdistal end of the superior border of the arm, and a dentate inner angle of the wrist, the upper surface of which seems somewhat less rugose and furnished with fewer granules in *Ses. palawanensis* than in White's species.

The palm is (in the ♀) shorter than the fingers; the outer surface is covered with granules, which are largest and most depressed towards the superior border, tending to form an obliquely longitudinal row of 3—4 granules in the middle of the outer surface, and becoming more crowded and sharper towards the under border; they do not extend on to the under border of the immobile finger. Near the upper border of the palm there is a continuous row of small granules, which, as has been observed also by Miss Rathbun, runs along the whole superior border, from the articulation with the wrist to the somewhat

projecting distal end of the border. At the inner side of this row some subparallel short rows of granules run forward in an obliquely-longitudinal direction. In *Ses. taeniolata* there is also a continuous longitudinal row near the upper border of the palm, but this row is composed of numerous teeth, placed closely together, so that the whole is comb-like, pectinated and of the same structure as the crests which characterize the subgenera *Parasesarma* and *Chiromantes*. The inner surface of the palm in *Ses. palawanensis* shows some rather sharp granules, continued partly on to the inner surface of the immobile finger; parallel with the base of the movable finger there is a straight, continuous row of 6—7 granules, which however do not form a projecting crest. The same transverse row occurs in the ♀ of *Ses. taeniolata*, but in the ♂ of this species there is a very marked, much projecting crest at the inner surface of the palm, which crest is somewhat excavated anteriorly and denticulate along its free margin. The fingers of *Ses. palawanensis* are narrowly gaping; the movable finger is slightly curved, and inner and outer surface are, like those of the immobile finger, perfectly smooth and shining, with a few small pits. The back is milled transversely (f. 2a) by numerous small grooves, the elevations, separated by these grooves, are horny-coloured and very much resemble those of *Ses. taeniolata*, but they are comparatively much smaller, fewer in number (I counted about 34 transverse tubercles in my specimen of *Ses. palawanensis*, whereas Miss Rathbun observed about 25 of them; in *Ses. taeniolata*, however, these tubercles number more than 40) and they are only developed on the proximal two-thirds of the finger, leaving the distal third free; in *Ses. taeniolata* the whole upper border of the finger is milled up to the tip, in the ♀ as well as in the ♂.

The walking legs, with their very broad meropodites, are similar to those of *Ses. taeniolata*, the hairy covering of the propodites and the dactyli is also the same<sup>1)</sup>.

Dimensions of the single specimen (♀):

Distance between external orbital angles . . . . .	33.— mm.
"          "    epibranchial teeth . . . . .	33.75 "
Breadth of carapace above base of second pair of walking legs	29.— "
Length of carapace . . . . .	30.75 "
Posterior margin of carapace . . . . .	14.— "
Breadth of front . . . . .	16.— "

1) In the specimen here figured the last leg on the right side seems to be regenerated, as it is more slender in its mero-, carpo- and propodite than that of the left side.

Horizontal length of palm . . . . .	9.5 mm.	
Height of palm . . . . .	11.—	"
Length of mobile finger . . . . .	13.—	"
"    " immobile finger . . . . .	10.5	"
Length of meropodite	25.5	"
Breadth of " "	13.—	"
Length of carpo- + propodite	26.5	"
Breadth of propodite	6.—	"
"    " dactylus	10.75	"

90. *Sesarma* (*Parasesarma*) *pangauranensis* Rathbun.

1914. *Sesarma* (*Parasesarma*) *pangauranense* Rathbun. Proc. U. S. Nat. Mus., v. 47 p. 81 — Busuanga Island (Philippines).

91. *Sesarma* (*Sesarma* s.s.) *pentagona* Hutton.

1875. *Sesarma pentagona* Hutton. Transact. New Zealand Inst., 1875, p. 279 — New Zealand.  
 1887. *Sesarma pentagona* de Man. Zool. Jahrb. Syst., Bd. 2 p. 650 — no new locality.

92. *Sesarma* (*Sesarma* s.s.) *peraccae* Nobili.

1903. *Sesarma* (*Sesarma*) *peraccae* Nobili. Boll. Mus. Torino, t. 18 n<sup>o</sup>. 455 p. 36 — Singapore.

93. *Sesarma* (*Parasesarma*) *picta* (de Haan).

1835. *Grapsus* (*Pachysoma*) *pictus* de Haan. Fauna Japonica, Crust., p. 61 and 66, pl. 16 f. 6 — Japan.  
 1843. *Sesarma picta*? Krauss. Südafrik. Crust., p. 45 — Bay of Natal.  
 1853. *Sesarma picta* H. Milne-Edwards. Ann. Sc. nat., (3) t. 20 p. 184 — Japan.  
 1858. *Sesarma picta* Stimpson. Proc. Acad. Nat. Sc. Philadelphia, 1858, p. 106 — Ousima.  
 1869. *Sesarma picta*? Hilgendorf. v. d. Decken's Reisen in Ost-Afrika, Bd. 3.1., Crust., p. 90 — Larantuka.  
 1880. *Sesarma picta* de Man. Notes Leyden Museum, v. 2 p. 22 — no new locality.  
 1887. *Sesarma picta* de Man. Zool. Jahrb. Syst., Bd. 2 p. 657 — no new locality.  
 1888. *Sesarma picta*? de Man. Journ. Linn. Soc. London, v. 22 p. 171 — Sullivan Island (Mergui Archipelago).



1893. *Sesarma picta* Bürger. Zool. Jahrb. Syst., Bd. 7 p. 626 — Hongkong and Amoy.
1894. *Sesarma picta* Ortmann. Zool. Jahrb. Syst., Bd. 7 p. 725 — Loo-Choo Isles and Ousima.
1895. *Sesarma* (*Parasesarma*) *picta* de Man. Zool. Jahrb. Syst., Bd. 9 p. 183 — description of type-specimens.
1900. *Sesarma pictum?* Alcock. Journ. As. Soc. Bengal, v. 69 prt. 2 p. 414 — Mergui Archipelago.
1907. *Sesarma picta* Stimpson. Smithson. Inst. Miscell. Coll., v. 49 p. 135 — Ousima.
1910. *Sesarma pictum?* Stebbing. S. A. Crust., prt. 5 p. 321 — no new locality.

Specimens in the Museum <sup>1)</sup>:

2 ♂, 1 ♀, Japan, Bürger coll. (types of de Haan).

All the records of this species from other localities than Japan or China seem to be uncertain: Ortmann and de Man (1895) have expressed their doubt about the record of Krauss, and de Man himself (1895) appears inclined to reject his own determination of 1888, based on a single young ♀. As it is this very specimen Alcock appears to have examined, and as, besides, Hilgendorf unites *Ses. picta* and *Ses. affinis* de Haan with *Ses. quadrata* Fabricius (= *Ses. plicata* Latreille), there is every reason to believe, that the present species is confined to the shores of Japan and China and does not live in the Indian Ocean <sup>2)</sup>.

94. *Sesarma* (*Parasesarma*) *plicata* Latreille.

1798. *Cancer quadratus* Fabricius. Suppl. Entom. Syst., p. 341 — E. India.
- 3)  $\left\{ \begin{array}{l} \textit{nec Cancer quadratus} \textit{ Meuschen 1778 (indeterminable species} \\ \textit{of Sesarma? from America).} \\ \textit{nec Cancer quadratus} \textit{ Fabricius 1787 Mant. Insect. v. 1 p.} \\ \textit{315 (= Ocypoda sp.).} \end{array} \right.$

1) De Man (1888, p. 172) records a specimen of the Leiden Museum from Macassar, but in the collection it is referred truly to *Ses. quadrata* (= *Ses. plicata*).

2) De Man (1888, p. 169) after examining a typical specimen (young ♀) of A. Milne-Edwards of „*Ses. quadrata*” declares this to be at any rate different from the genuine species of Fabricius, by its carapace „being almost exactly quadrate”. Does, then, this specimen belong to the same species, recorded by the authors here named from the Indian Ocean, and referred to *Ses. picta*, but probably representing a new form, closely related to the Japanese species?

3) Cited after Rathbun (1907). According to Carus' and Engelmann's Bibliotheca historico-naturalis F. C. Meuschen published an „Index Musei Gronoviani” in the year 1778. In the 13th edition of Linne's Syst. nat. (1789), t. 1 prt. 5 p. 2966, Gmelin mentions a *Cancer quadratus* and cites Fabricius' Mant. Insect. v. 1 p. 315 (from this we conclude that a species of *Ocypode* is meant); besides, Jamaica is given as the habitat of the species.

1802. *Ocypoda plicata?* Bosc. Hist. nat. Crust., t. 1 p. 198 — locality? <sup>1)</sup>
1806. *Ocypode plicata* Latreille. Hist. nat. Crust., t. 6 p. 47 — E. India.
1835. *Grapsus (Pachysoma) affinis* de Haan. Fauna Japonica, Crust., p. 66, pl. 18 f. 5 — Japan.
1837. *Sesarma quadrata* H. Milne-Edwards. Hist. nat. Crust., t. 2 p. 75 — Pondichéry.
1843. *Sesarma affinis* Krauss. Südafrik. Crust., p. 45 — Natal.
1853. *Sesarma quadrata* H. Milne-Edwards. Ann. Sc. nat., (3) t. 20 p. 183 — Pondichéry.
1853. *Sesarma affinis* H. Milne-Edwards. Ann. Sc. nat., (3) t. 183 — Japanese and Chinese seas.
1853. *Sesarma unguolata* H. Milne-Edwards. Ann. Sc. nat., (3) t. 20 p. 184 — Celebes.
1865. *Sesarma affinis* Heller. Crust. Reise „Novara”, p. 62 — Shanghai.
1865. *Sesarma aspera* Heller. Crust. Reise „Novara”, p. 63, pl. 6 f. 1 — Nicobars, Ceylon and Madras.
1868. *Sesarma unguolata* A. Milne-Edwards. Nouv. Arch. Mus. Paris, t. 4 p. 71 — Zanzibar.
1873. *Sesarma quadrata* A. Milne-Edwards. Nouv. Arch. Mus. Paris, t. 9 p. 302 — New Caledonia.
1878. *Sesarma quadrata* Hilgendorf. Monatsber. Ak. Wiss. Berlin, 1878, p. 809 — Ibo (E. Africa).
1879. *Sesarma quadratum* Miers. Philos. Transact., v. 168 p. 490 — Rodriguez.
1880. *Sesarma affinis* Miers. Ann. Mag. Nat. Hist., (5) v. 5 p. 312 — locality unknown.
1880. *Sesarma affinis* de Man. Notes Leyden Museum, v. 2 p. 22 — no new locality.
1880. *Sesarma quadrata* Richters. Moebius' Beitr. Meeresfaun. Mauritius, Decap., p. 157 — Mauritius.
1882. *Sesarma quadrata* Lenz et Richters. Abhandl. Senckenb. Gesellsch. Bd. 12 p. 425 — Madagascar.
1886. *Sesarma aspera* Müller. Verhandl. naturforsch. Gesellsch. Basel, 1886, p. 476 — Trincomali.
1887. *Sesarma quadrata* de Man. Zool. Jahrb. Syst., Bd. 2 p. 655 and 683, pl. 17 f. 2 — description of type-specimen of Fabricius.
1887. *Sesarma aspera* de Man. Zool. Jahrb. Syst., Bd. 2 p. 656 — no new locality.

1) Not seen by the present writer.

1888. *Sesarma aspera* de Man. Journ. Linn. Soc. London, v. 22 p. 169 — Mergui Archipelago and Madras.
1889. *Sesarma quadratum* de Man. Zool. Jahrb. Syst., Bd. 4 p. 434 — Madagascar.
1890. *Sesarma quadratum* de Man. Notes Leyden Museum, v. 12 p. 99 — Padang, Bezoeki (Java), Macassar, Japan (typ. *affinis*).
1892. *Sesarma quadratum* Thallwitz. Abhandl. Mus. Dresden, Bd. 3, 1890/91, p. 37 — Aru Islands.
1892. *Sesarma quadratum* de Man. Weber's zool. Erg. Reise niederl. Ost-Indien, Bd. 2 p. 328 — Macassar.
1893. *Sesarma quadratum* Henderson. Transact. Linn. Soc. London, (2) v. 5 p. 392 — British India.
1894. *Sesarma quadratum* var. *affinis* Ortmann. Zool. Jahrb. Syst., Bd. 7 p. 724 — Bay of Tokio (Japan).
1895. *Sesarma (Parasesarma) quadratum* de Man. Zool. Jahrb. Syst., Bd. 9 p. 182 — Atjeh.
1899. *Sesarma (Parasesarma) quadratum* Nobili. Ann. mus. civ. stor. nat. Genova, (2) t. 20 p. 514 — Siboga (Sumatra).
1900. *Sesarma quadratum* Alcock. Journ. As. Soc. Bengal, v. 69 prt. 2 p. 413 — British India, Ceylon, Andamans, Nicobars.
1900. *Sesarma quadratum* Lanchester. Proc. Zool. Soc. London, 1900, p. 756 — Singapore.
1900. *Sesarma quadratum* Lanchester. Ann. Mag. Nat. Hist., (7) v. 6 p. 257 — Santubong (Sarawak).
1901. *Sesarma (Parasesarma) quadratum* Lanchester. Proc. Zool. Soc. London, 1901, p. 550 — Trengganu (Malay Peninsula).
1902. *Sesarma (Parasesarma) quadratum* var. *affinis* de Man. Abhandl. Senckenb. Gesellsch., Bd. 25 Heft 3 p. 533 — Ternate.
1902. *Sesarma quadratum* Schenkel. Verhandl. naturforsch. Gesellsch. Basel, Bd. 13 p. 549 — Macassar.
1903. *Sesarma quadratum* Nobili. Boll. Mus. Torino, t. 18 n°. 452 p. 22 — Pondichéry.
1907. *Sesarma quadratum* Borradaile. Transact. Linn. Soc. London, (2) v. 12 p. 64 — Mahé (Seychelles).
1907. *Sesarma (Parasesarma) plicatum* Rathbun. Mem. Mus. comp. Zool. Harvard Coll., v. 35 n°. 2 p. 34 — Carolines.
1910. *Sesarma (Parasesarma) plicatum* Rathbun. K. Dansk. Vid. Selsk. Skr., 7. Raekke, Afd. 5 n°. 4 p. 329 — Gulf of Siam.
1910. *Sesarma (Parasesarma) plicatum* Rathbun. Bull. Mus. comp. Zool. Harvard Coll., v. 52 p. 309 — Macassar.
1910. *Sesarma quadratum* Stebbing. S. A. Crust., prt. 5 p. 321 — South Afr.

## Specimens in the Museum:

- |                                                                |                                      |
|----------------------------------------------------------------|--------------------------------------|
| 1 ♂, 1 ♀, Japan, Burger coll. (typ. <i>affinis</i> of de Haan) | } mentioned<br>bij de Man<br>(1890). |
| 1 ♂, Bezoeki (Java), Semmelink coll. 1865.                     |                                      |
| 1 ♂ ( <i>affinis</i> ), Padang.                                |                                      |
| 1 ♂, Macassar, Piller coll.                                    |                                      |
| 1 ♂ ( <i>affinis</i> ), Japan, v. Siebold.                     |                                      |
| 1 ♂, 1 ♀, Bay of Batavia, Buitendijk coll. 1906.               |                                      |

De Man, who had occasion to compare typical specimens of *Ses. unguolata* and of *Ses. affinis* (1888, p. 169) declared them to be identical with *Ses. quadrata*; he regards *Ses. aspera* as „probably a mere local variety of it”. There is in the present species a rather large variability in the number of transverse tubercles on the back of the movable finger: the typical *Ses. quadrata* has 11—14 tubercles, *Ses. aspera* even 17 tubercles, whereas there are only 7 in *Ses. affinis* and 8 in *Ses. unguolata* (de Man, l. c. p. 170).

95. *Sesarma* (*Sesarma* s.s.) *polita* de Man.

1887. *Sesarma polita* de Man. Zool. Jahrb. Syst., Bd. 2 p. 654 — Mergui Archipelago and western part of Indian Archipelago.
1888. *Sesarma polita* de Man. Journ. Linn. Soc. London, v. 22 p. 189, pl. 13 f. 7—9 — Sullivan Island (Mergui Arch.).
1900. *Sesarma politum* Alcock. Journ. As. Soc. Bengal, v. 69 prt. 2 p. 422 — same locality.

## Specimens in the Museum:

- 1 ♂, Mergui Arch. (co-type of de Man).

96. *Sesarma* (*Sesarma* s.s.) *pontianacensis* de Man.

- 1895—98. *Sesarma* (*Episesarma*) *pontianacensis* de Man. Zool. Jahrb. Syst., Bd. 9 p. 178, Bd. 10, pl. 30 f. 32 — Pontianak (West-Borneo).

97. *Sesarma* (*Holometopus*) *recta* Randall.

1839. *Sesarma recta* Randall. Journ. Ac. Nat. Sc. Philadelphia, v. 8 p. 123 — Surinam.
1869. *Sesarma mülleri* A. Milne-Edwards. Nouv. Arch. Mus. Paris, Bull. p. 29 — Desterro (Brazil).
1897. *Sesarma recta* Ortmann. Zool. Jahrb. Syst., Bd. 10 p. 331, pl. 17 f. 8 — Surinam and Brazil (description of typical specimen of Randall).  
*nec Sesarma mülleri* Miers. Brachyura Rep. „Challenger”, 1886, p. 270, pl. 21 f. 3 — Bahia (= *Ses. rubripes* Rathbun).

*nec Sesarma recta* de Man. Notes Leyden Museum, v. 14, 1892, p. 249, pl. 10 f. 4 — Surinam (= *Ses. benedicti* Rathbun).

Specimens in the Museum:

4 ♂, 4 ♀, Paramaribo. Jhr. W. C. v. Heurn coll. 1911.

1 ♂, Surinam River near Paramaribo, M. D. Horst coll. 1907.

98. *Sesarma* (*Sesarma s.s.*) *reticulata* Say.

1818. *Ocypode* (*Sesarma*) *reticulata* Say. Journ. Ac. Nat. Sc. Philadelphia, v. 1 p. 73 and 76, 442 (*Grapsus reticulatus*), pl. 4 f. 6<sup>1</sup>) — New Jersey.

1842. *Sesarma cinerea* Dekay *nec* Bosc. Crust. N. Y. Fauna, v. 6 p. 15 — Antilles.

1850. *Sesarma reticulata* Gibbes. Proc. Amer. Ass., v. 3 p. 180 — Key West (Florida), South Carolina and New Jersey.

1862. *Sesarma reticulata* Stimpson. Ann. Lyc. Nat. Hist. N. York, v. 7 p. 66 — locality<sup>2</sup>)?

1870. *Sesarma reticulata* Smith. Transact. Connecticut Acad., v. 2 p. 156 — New Haven.

1897. *Sesarma* (*Sesarma*) *reticulata* Rathbun. Proc. Biol. Soc. Washington, v. 11 p. 89 — no locality.

1897. *Sesarma reticulata* Ortmann. Zool. Jahrb. Syst., Bd. 10 p. 333 — Dennis Creek and Great Egg Harbour.

99. *Sesarma* (*Sesarma s.s.*) *rhizophorae* Rathbun.

1906. *Sesarma rhizophorae* Rathbun. Proc. Biol. Soc. Washington, v. 19 p. 99 — Costa Rica.

100. *Sesarma* (*Holometopus*) *ricordi* H. Milne-Edwards.

1853. *Sesarma ricordi* H. Milne-Edwards. Ann. Sc. nat., (3) t. 20 p. 183 — Haïti.

1853. *Sesarma guérini* H. Milne-Edwards. Ann. Sc. nat., (3) t. 20 p. 183 — locality unknown.

1858. *Sesarma miniata* de Saussure. Mém. Soc. phys. hist. nat. Genève, t. 14. 2. p. 442 — St. Thomas.

1862. *Sesarma angustipes* (part.) Stimpson *nec* Dana. Ann. Lyc. Nat. Hist. N. York, v. 7 p. 66 — locality<sup>2</sup>)?

1870. *Sesarma angustipes* Smith. Transact. Connecticut Acad., v. 2 p. 159 — Aspinwall (Colon) and Florida.

1) F. 5 according to H. Milne-Edwards, Hist. nat. Crust., t. 2, 1837, p. 75, who unites the species with *Ses. cinerea* Bosc; I have not seen the paper of Say.

2) Not seen by the present writer.

1872. *Sesarma ricordi* v. Martens. Arch. Naturgesch., Jahrg. 38.1. p. 110 — Cuba.
1881. *Sesarma stimpsoni* Miers. Proc. Zool. Soc. London, 1881, p. 70 — Monte Video.  
*nec* Brachyura Rep. „Challenger”, 1886, p. 270 (= *Ses. miersii* Rathbun).
1888. *Sesarma cinerea* Heilprin *nec* Bosc. Proc. Ac. Nat. Sc. Philadelphia, 1888, p. 320 — Bermudas.
1891. *Sesarma cinereu* Ives. Proc. Ac. Nat. Sc. Philadelphia, 1891, p. 181 — Port of Silam (Yucatan).
1892. *Sesarma angustipes* de Man *nec* Dana. Notes Leyden Museum, v. 14, p. 253, pl. 10 f. 5 — Dominica.
1894. *Sesarma ricordi* Ortmann. Zool. Jahrb. Syst., Bd. 7 p. 719 — Haïti.
1897. *Sesarma (Holometopus) ricordi* Rathbun. Proc. Biol. Soc. Washington, v. 11 p. 91 — no locality.
1897. *Sesarma (Holometopus) ricordi* Rathbun. Ann. Inst. Jamaica, v. 1 p. 30 — Jamaica.
1901. *Sesarma (Holometopus) ricordi* Rathbun. Bull. U. S. Fish Comm. for 1900, prt 2 p. 18 — Porto Rico.

Specimens in the Museum:

2 ♀, Dominica (mentioned by de Man).

1 ♂, Laguanta (Venezuela), M. D. Horst coll. 1907.

De Man, who perfectly recognized that his specimens were identical with *Ses. ricordi*, with the type-specimen of which he could compare them, nevertheless described them under the name *Ses. angustipes*, convinced that the species of Dana was identical with that of Milne-Edwards. Miss Rathbun, who had occasion to examine a large number of American specimens of *Sesarma*, and among these the type specimen of *Ses. ricordi*, declared this and Dana's species to be distinct (see Proc. Biol. Soc., v. 11, 1897, p. 90—91). Under the head of *Ses. cinerea* (Bosc) I have already referred to the great confusion existing between the three species here named, and continued until Miss Rathbun cleared the matter. All three species, together with the closely related *Ses. roberti* H. Milne-Edwards and *Ses. reticulata* Say seem to be common along the east coast of the United States and on the numerous West-Indian islands, but only *Ses. reticulata* extends as far north as New Jersey and New Haven.

100a. *Sesarma (Holometopus) ricordi terrestris* Verrill.

1908. *Sesarma ricordi var. terrestris* Verrill. Amer. Journ. Sc., v. 25 p. 119 — Bermudas.

1908. *Sesarma ricordi* var. *terrestris* Verrill. Transact. Connecticut Ac., v. 13 p. 328 — same locality.
101. *Sesarma (Holometopus) roberti* H. Milne-Edwards.
1838. *Sesarma reticulata*? Mc Leay in Smith's Ill. Zool. S. Afr., p. 65 — South Africa.
1853. *Sesarma roberti* H. Milne-Edwards. Ann. Sc. nat., (3) t. 20 p. 182 — Goree (Senegal).
1889. *Sesarma americana* Pocock nec de Saussure. Ann. Mag. Nat. Hist., (6) v. 3 p. 7 — Dominica.
1896. *Sesarma bromeliarum* Rathbun. Proc. U. S. Nat. Mus., v. 19 p. 143 — Haïti and Jamaica.
1897. *Sesarma (Holometopus) roberti* Rathbun. Proc. Biol. Soc. Washington, v. 11 p. 90 — no locality.
1900. *Sesarma (Holometopus) roberti* Rathbun. Proc. U. S. Nat. Mus., v. 22 p. 279 — enumeration of West-African and West-Indian localities.

Specimens in the Museum:

1 ♂, 2 ♀, Haïti, M. D. Horst coll. 1907.

102. *Sesarma (Sesarma s.s.) rotundata* Hess.

1865. *Sesarma rotundata* Hess. Arch. Naturgesch., Jahrg. 31.1 p. 149, pl. 6 f. 9 — Sydney.
1869. *Sesarma dentifrons* A. Milne-Edwards. Nouv. Arch. Mus. Paris, t. 5, Bull. p. 31 — Samoah Islands.
1877. *Sesarma rotundata* Miers. Proc. Zool. Soc. London, 1877, p. 133 and 136 — Duke-of-York Island, Fyi Islands.
1882. *Sesarma rotundata* Haswell. Cat. Austral. Crust., p. 108 — Sydney.
1887. *Sesarma dentifrons* de Man. Zool. Jahrb. Syst., Bd. 2 p. 651 — no new locality.
1887. *Sesarma rotundata* de Man. Zool. Jahrb. Syst., Bd. 2 p. 654 and 682 — no new locality (description of type-specimen of Hess).
1889. *Sesarma oceanica* de Man. Zool. Jahrb. Syst., Bd. 4 p. 429, pl. 10 f. 9 — Ponapé.
1891. *Sesarma oceanica* de Man. Notes Leyden Museum, v. 13 p. 52 — Tjibodas (Java).
1896. *Sesarma dentifrons* de Man. Mitt. naturhist. Mus. Hamburg, Bd. 13 p. 110, pl. 3 f. 6 — description of typical specimen.
1896. *Sesarma rotundata* de Man. Mitt. naturhist. Mus. Hamburg, Bd. 13 p. 110, pl. 3 f. 7 — description of typical specimen.

1899. *Sesarma* (*Episesarma*) *rotundata* var. *papuo-malesiaca* Nobili. Ann. mus. civ. stor. nat. Genova, (2) t. 20 p. 268 — New Guinea.
1899. *Sesarma* (*Sesarma*) *rotundata* var. *papuo-malesiaca* Nobili. Ann. mus. civ. stor. nat. Genova, (2) t. 20 p. 510 — Nias.
1900. *Sesarma gardineri* Borradaile. Proc. Zool. Soc. London, 1900, p. 593, pl. 42 f. 8 — Funafuti and Rotuma.
1900. *Sesarma oceanicum* Alcock. Journ. As. Soc. Bengal, v. 69 prt 2 p. 423 — Nicobars.
1905. *Sesarma* (*Sesarma*) *gardineri* Nobili. Ann. Mus. Hung., t. 3 p. 497 — Berlinhafen (German New Guinea).
1906. *Sarmatium faxoni* Rathbun. Bull. U. S. Fish Comm. for 1903, v. 23 prt 3, p. 841 pl. 7 f. 1 — Oahu and Marshall Islands.
1907. *Sesarma* (*Sesarma*) *rotundatum* Rathbun. Mem. Mus. comp. Zool. Harvard Coll., v. 35 n°. 2 p. 33 — Marshall Islands.

Specimens in the Museum:

- 1 ♂ (juv.), Tjibodas (Java), Dr. Boerlage coll. 1888  
(*Ses. oceanica*, examined by de Man 1891).
- 1 ♂ (juv.), Nias, E. E. W. Schröder coll. 1908.

Milne-Edwards founded his *Ses. dentifrons* on a ♀, Hess his *Ses. rotundata* on a ♂. De Man (1896) examined the typical specimens of both these species and came to the conclusion, that they probably belonged to one and the same species; the following difference, however, were observed:

- 1°. The carapace is in *Ses. rotundata* slightly more narrowed anteriorly than in *Ses. dentifrons*, as the distance between the external orbital angles, compared with the length of the carapace, is somewhat greater in the latter form.
- 2°. The posterior margin of the carapace is somewhat broader in *Ses. dentifrons*.
- 3°. The height of the front is 3 times the breadth in *Ses. rotundata*, somewhat less in *Ses. dentifrons*.
- 4°. The tubercles at upper surface of wrist of chelipeds are better pronounced in *Ses. dentifrons*, especially at anterior and outer border.
- 5°. The tubercles at outer surface of palm are more acute, cone-shaped in *Ses. dentifrons*.
- 6°. The hairy covering at the posterior margin of propodites and of dactyli of the ambulatory legs is much better developed in *Ses. rotundata*; in *Ses. dentifrons* these hairs are reduced to isolated brushes of short hairs.



7<sup>o</sup>. The carapace is, like the ambulatory legs, reddish-yellow in *Ses. dentifrons*.

I have examined 4 adult specimens of *Ses. rotundata*, which were caught during the „Siboga“-expedition to the East-Indian Archipelago, 2 ♂ and 2 ♀, and the study of these specimens has fully convinced me of the correctness of de Man's views regarding the minute differences here enumerated: these may be ascribed to sexual differences. In nearly all respects my ♂ of *Ses. rotundata* agree with the typical specimen of Hess, and the ♀ with *Ses. dentifrons*; the only restriction being that the minute dentiform processes, mentioned by de Man and figured by him, both in the case of the ♂ and of the ♀, at the free margin of the front are in my specimens only developed in the ♂ and even here very inconspicuously; besides there are at either side of the distinct, though narrow, median sinus (according to de Man this emargination is, however, broad and shallow) a group of three rounded tubercles, disposed in a single row, the two outer ones corresponding to the inner dentiform projections, spoken of, but lying immediately above these projections, on the surface of the front, not at the free border; these tubercles are only distinct, however, in the ♂.

Finally, though the preservation in alcohol during 17 years has much discoloured my specimens, it is still to be observed, that the carapace in the ♀ has a darker hue than that of the ♂, and, besides, the difference in hairiness of the propodites and the dactyli of the ambulatory legs between both sexes, exactly agree with the finds of de Man in this respect.

Though I do not hesitate in regarding *Ses. dentifrons* only as the ♀ of *Ses. rotundata*, I am inclined to regard the subspecies *papuo-malesiaca* of Nobili (Ann. mus. civ. stor. nat. Genova, (2) t. 20 p. 268, 1899) as an individual variation. Nobili distinguished his subspecies by the following characters:

- 1<sup>o</sup>. Inside the denticulated crest along the upper border of the palm, there are two small similar and subparallel crests, forming an angle with the large and continuous crest along the upper border. Nobili admitted, that these small crests may also exist in the type-specimens of de Man, though they were not mentioned by the latter author.
- 2<sup>o</sup>. The front is distinctly emarginated by a median sinus; according to de Man there is only a broad and shallow emargination.
- 3<sup>o</sup>. The greatest breadth of the carapace exceeds the length in the median line; in the typical specimens (de Man) these dimensions are nearly equal.
- 4<sup>o</sup>. The dimensions taken by Nobili (l. c. p. 510) indicate, that the pos-

terior margin of the carapace is equal to the breadth of the front (at least in the ♂); in de Man's specimens the posterior margin is broader, especially in the ♀.

As regards 1<sup>o</sup> en 2<sup>o</sup> the 4 adult specimens of the „Siboga“-expedition and the not yet full-grown Museum specimen (♂) of Nias (the very locality whence one of Nobili's examples originated) fully agree with the subspecies, but the greatest breadth of the carapace only very slightly exceeds its length; only in the case of the adult ♀ the proportion is the same as in Nobili's subspecies. As to the fourth point of difference here named, 3 specimens show, that the breadth of the front is nearly wholly as long as the posterior margin of the carapace; only the adult ♀ has the posterior margin distinctly longer, but it is this very character de Man (1896) points out as existing between *Ses. rotundata* (= ♂) and *Ses. dentifrons* (= ♀), and it must be regarded as a sexual difference.

As on a whole my specimens take an intermediate position between the type and Nobili's subspecies, though they do indeed approach the latter, I am inclined to drop this subspecies, the characters of which do not appear important enough to maintain its distinctness.

Another question, whether *Ses. oceanica* de Man is a distinct species, or merely a young stage of *Ses. rotundata* (which latter supposition has been advanced by de Man himself in 1891), must now be discussed. Besides by its smaller size *Ses. oceanica* is distinguished by the following characters:

- 1<sup>o</sup>. The length of the carapace is less in proportion to the distance between the external orbital angles.
- 2<sup>o</sup>. The front is somewhat lower, its height being not yet a third of its breadth.
- 3<sup>o</sup>. The lateral borders of the carapace are somewhat less curved.

Now, if we take the distance between the external orbital angles = 100, then the length of the carapace is in different specimens, arranged according to this latter dimension:

114	in ♂	(length of carapace 15.25 mm.).	<i>Ses. oceanica</i>	de Man	1889.
116	in ♀	” ” ” 17.25	”	”	”
121	in ♂	” ” ” 21.5	”	”	1891.
					(Museum sp.)
122	in ♂	” ” ” 24.5	<i>Ses. rotundata</i> .	Museum sp.	
					from Nias.
131	in ♀	” ” ” 32.—	”	”	Nobili, 1899,
					p. 269.

135 in ♂	(length of carapace 33.— mm.)	<i>Ses. rotundata</i> .	Nobili, 1899, p. 269.
123 " ♀	" " "	33.25 " " "	Siboga sp.
132 " ♂	" " "	38.5 " " "	" "
135 " ♂	" " "	39.— " " "	" "
132 " ♀	" " "	41.— " " "	de Man 1895 (type-sp. of <i>dentifrons</i> ).
138 " ♂	" " "	41.5 " " "	de Man 1895 (type-sp. of <i>rotundata</i> ).

We, then, conclude, that the length of the carapace, in proportion to the distance between the external orbital angles, increases with age and more so in the ♂ than in the ♀; it is this latter sexual difference which has been put forth by de Man (1896).

As to the second point of difference, de Man (1896) has already shown, that in *Ses. dentifrons* (= ♀) the front is lower, in proportion to its breadth, than in *Ses. rotundata* (= ♂) <sup>1)</sup>, and it is natural to suppose, that young ♂, such as are referred to *Ses. oceanica*, show the character, peculiar to the female sex.

That in *Ses. oceanica* the lateral borders of the carapace are somewhat less arched may, in my opinion, be ascribed to its being not yet full-grown; indeed, in the Museum specimen from Nias the curvature of the lateral borders is less pronounced than in quite adult specimens, but more so than in the true *oceanica*-specimen, which is somewhat smaller.

Besides, de Man (1889, p. 430) observed in *Ses. oceanica* near the free margin of the front four tubercles, corresponding with the four slight emarginations of this margin, at least in the ♂, and this very character has been found back by me, in ♂ and ♀ of the adult „Siboga“-specimens of *Ses. rotundata*.

Concluding, I cannot admit *Ses. oceanica* as a distinct species, and I think, that more material, if available, will confirm my surmise.

Dimensions :	1	2	3	4
	♂	♂	♀	♂
Distance between external orbital angles .	29.5	28.5	27.—	20.— mm.
"    "    second epibranchial teeth	36.—	35.—	32.5	24.— "
Greatest breadth of carapace. . . . .	40.—	40.—	35.—	25.5 "
Length of carapace . . . . .	39.—	38.5	33.25	24.5 "
Breadth of front . . . . .	13.75	13.5	12.5	9.25 "
Height of front . . . . .	4.5	4.5	4.25	2.75 "
Breadth of posterior margin of carapace.	12.75	13.—	13.75	9.5 "

1) I have found, however, no difference, in this respect, between the two sexes.

Length of meropodite	} of penultimate pair of legs	29.—	30.—	26.5	20.5	mm.
Breadth " "		8.75	9.—	8.—	6.—	"
Length " propodite		23.—	23.5	21.5	17.—	"
Breadth " "		5.75	5.75	4.5	4.25	"
Length " dactylus		12.—	12.5	12.5	8.5	"

N<sup>o</sup>. 1—3 are specimens of the „Siboga“-expedition, n<sup>o</sup>. 4 the Museum specimen from Nias.

103. *Sesarma* (*Sesarma* s.s.) *rotundifrons* A. Milne-Edwards.

1869. *Sesarma rotundifrons* A. Milne-Edwards. Nouv. Arch. Mus. Paris, t. 5, Bull. p. 30 — Samoah Islands.  
 1880. *Sesarma rotundifrons?* de Man. Notes Leyden Museum, v. 2 p. 24 — Sula Besi and Nossi Bé (Madagascar) <sup>1)</sup>.  
 1887. *Sesarma rotundifrons* de Man. Zool. Jahrb. Syst., Bd. 2 p. 648 — no new locality.

104. *Sesarma* (*Holometopus*) *rubripes* Rathbun.

1886. *Sesarma mülleri* Miers nec A. Milne-Edwards. Brachyura Rep. „Challenger“, p. 270, pl. 21 f. 3 — Bahia.  
 1897. *Sesarma (Holometopus) rubripes* Rathbun. Proc. Biol. Soc. Washington, v. 11 p. 90 — no locality.  
 1903. *Sesarma (Holometopus) rubripes* Moreira. Arch. Mus. Rio de Janeiro, v. 12 p. 112, pl. 1 — locality? <sup>2)</sup>.

105. *Sesarma* (*Holometopus*) *rupicola* Stimpson.

1858. *Sesarma rupicola* Stimpson. Proc. Ac. Nat. Sc. Philadelphia, 1858, p. 106 — Ousima (Japan).  
 1887. *Sesarma rupicola* de Man. Zool. Jahrb. Syst., Bd. 2 p. 644 — no new locality.  
 1907. *Sesarma rupicola* Stimpson. Smithsonian. Inst. Miscell. Coll., v. 49 p. 135, pl. 17 f. 1—1a—b — same locality as in 1858.

106. *Sesarma* (*Chiromantes*) *semperi* Bürger.

1893. *Sesarma semperi* Bürger. Zool. Jahrb. Syst. Bd. 7 p. 630, pl. 21 f. 1 — Bohol (Philippines).  
 1902. *Sesarma (Perisesarma) semperi* de Man. Abhandl. Senckenb. Gesellschaft., Bd. 25 Heft 3 p. 542 — description of co-type.

1) These specimens seem in later years to have been rightly referred to *Ses. meinerti* de Man; for it is under this name, that I found them in the collection of the Museum.

2) Not seen by the present writer.

107. *Sesarma (Chiromantes) siamensis* Rathbun.

1909. *Sesarma (Chiromantes) siamense* Rathbun. Proc. Biol. Soc. Washington, v. 22 p. 109 — Gulf of Siam.  
1910. *Sesarma (Chiromantes) siamense* Rathbun. K. Dansk. Vid. Selsk. Skr., 7. Raekke, Afd. 5 n<sup>o</sup>. 4 p. 328, textfig. 11 — same locality.

108. *Sesarma (Sesarma s.s.) sinensis* H. Milne-Edwards.

1853. *Sesarma sinensis* H. Milne-Edwards. Ann. Sc. nat., (3) t. 20 p. 186 — China.  
1858. *Sesarma sinensis* Stimpson. Proc. Ac. Nat. Sc. Philadelphia, 1858, p. 105 — Hongkong.  
1887. *Sesarma sinensis* de Man. Zool. Jahrb. Syst., Bd. 2 p. 648 and 669 — no new locality (description of type-specimen).  
1907. *Sesarma sinensis* Stimpson. Smithson. Inst. Miscell. Coll., v. 49 p. 133 — same locality as in 1858.

109. *Sesarma (Sesarma s.s.) smithii* H. Milne-Edwards.

1853. *Sesarma smithii* H. Milne-Edwards. Arch. Mus. Paris, t. 7 p. 149, pl. 9 f. 2 — South Africa.  
1853. *Sesarma smithi* H. Milne-Edwards. Ann. Sc. nat., (3) t. 20 p. 187 — Natal.  
1868. *Sesarma smithii* A. Milne-Edwards. Nouv. Arch. Mus. Paris, t. 4 p. 71 — Zanzibar.  
1873. *Sesarma smithii* A. Milne-Edwards. Nouv. Arch. Mus. Paris, t. 9 p. 305 — New Caledonia.  
1874. *Sesarma smithi* Hoffmann. Crust. et Echinod. Madagascar, p. 24 — Nossi Faly.  
1880. *Sesarma smithi* de Man. Notes Leyden Museum, v. 2 p. 29 — Nossi Faly, Tondano and Java.  
1887. *Sesarma smithi* de Man. Zool. Jahrb. Syst., Bd. 2 p. 652 — no new locality.  
1889. *Sesarma smithii* de Man. Zool. Jahrb. Syst., Bd. 4 p. 426 — Fiji Islands.  
1890. *Sesarma smithii* de Man. Notes Leyden Museum, v. 12 p. 94 — Fiji Islands.  
1893. *Sesarma smithi* Bürger, Zool. Jahrb. Syst., Bd. 7 p. 618, pl. 21 f. 2 — Manila.  
1894. *Sesarma smithi* Ortmann. Zool. Jahrb. Syst., Bd. 7 p. 722 — Fiji Islands.

1899. *Sesarma* (*Episesarma*) *smithi* Nobili. Ann. mus. civ. stor. nat. Genova, (2) t. 20 p. 267 — South New Guinea.  
 1910. *Sesarma* (*Sesarma*) *smithi* Rathbun. K. Dansk. Vid. Selsk. Skr., 7. Raekke, Afd. 5 n<sup>o</sup>. 4 p. 328 — Gulf of Siam.  
 1913. *Sesarma smithii* Mc Culloch. Rec. Austral. Mus., v. 9 n<sup>o</sup>. 3 p. 322 — Queensland.

## Specimens in the Museum:

- |                                            |   |                                      |
|--------------------------------------------|---|--------------------------------------|
| 1 ♀, Nossi Faly, Pollen & v. Dam coll.     | } | mentioned by de Man<br>1880 and 1890 |
| 1 ♂, 1 ♀, Tondano, v. Rosenberg coll. 1866 |   |                                      |
| 1 ♂, Java                                  |   |                                      |
| 1 ♂, 1 ♀, Fiji Islands                     |   |                                      |
| 1 ♀, Sumatra.                              |   |                                      |

This easily recognizable species bears a striking resemblance to the genus *Sarmatium*. It is especially characterized by its abdomen of the ♂, which is even more narrowed than in *Ses. meinerti* de Man, as the penultimate segment is distinctly longer than broad (at the posterior margin), a feature which does not occur in any other species of *Sesarma*.

110. *Sesarma* (*Holometopus*) *stormi* de Man.

- 1895—98. *Sesarma* (*Sesarma*) *stormi* de Man. Zool. Jahrb. Syst., Bd. 9 p. 148, Bd. 10 pl. 29 f. 29 — Atjeh.

## Specimens in the Museum:

- 1 ♂, Atjeh (co-type of de Man).

111. *Sesarma* (*Sesarma* s.s.) *sulcata* Smith.

1870. *Sesarma sulcata* Smith. Transact. Connecticut Ac., v. 2 p. 156 — Corinto (Nicaragua).  
 1892. *Sesarma sulcata* de Man. Notes Leyden Museum, v. 14 p. 260 — no new locality.  
 1897. *Sesarma* (*Sesarma*) *sulcata* Rathbun. Proc. Biol. Soc. Washington, v. 11 p. 90 — no new locality.

112. *Sesarma* (*Sesarma* s.s.) *sylvicola* de Man.

1892. *Sesarma* (*Geosesarma*) *sylvicola* de Man. Weber's zool. Erg. Reise niederl. Ost-Indien, Bd. 2 p. 345, pl. 20 f. 18 — Sumatra.  
 1899. *Sesarma* (*Geosesarma*) *sylvicola* Nobili. Ann. mus. civ. stor. nat. Genova, (2) t. 20 p. 513 — Padang.  
 1902. *Sesarma* (*Sesarma*) *sylvicola* de Man. Abhandl. Senckenb. Gesellsch., Bd. 25 Heft 3, p. 522, pl. 19 f. 11 — no new locality.

1910. *Sesarma (Sesarma) sylvicola* Rathbun. Bull. Mus. comp. Zool. Harvard Coll., v. 52. p. 309 — Mount Papangdajang (Java).
113. *Sesarma (Sesarma s.s.) taeniolata* White.
1835. *Sesarma tetragonus* (Fabricius) *vel fascicularis* (Herbst) de Haan *nec* Fabricius *nec* Herbst. Fauna Japon., Crust., p. 61 — no locality.
1847. *Sesarma taeniolata* (White) Gray. List spec. Crust. Coll. Brit. Mus., p. 38 — Philippines.
1853. *Sesarma mederi* H. Milne-Edwards. Ann. Sc. nat., (3) t. 20 p. 185 — Batavia.
1877. *Sesarma mederi* Targioni-Tozzetti. Zool. viag. „Magenta”, Crust., p. 136, pl. 9 f. 1 — locality? <sup>1)</sup>
1877. *Sesarma taeniolata* Miers. Proc. Zool. Soc. London, 1877, p. 137 — Philippines.
1880. *Sesarma taeniolata* de Man. Notes Leyden Museum, v. 2 p. 26 — Java and Celebes.
1880. *Sesarma taeniolata* Miers. Ann. Mag. Nat. Hist., (5) v. 5 p. 313 — Borneo.
1887. *Sesarma taeniolata* de Man. Zool. Jahrb. Syst., Bd. 2 p. 647 and 666 — no new locality.
1888. *Sesarma taeniolata* de Man. Journ. Linn. Soc. London, v. 22 p. 181 — Mergui Archipelago.
1892. *Sesarma taeniolata* de Man. Weber's zool. Erg. Reise niederl. Ost-Indien, Bd. 2 p. 330 — Macassar (Celebes).
1893. *Sesarma taeniolata* Bürger. Zool. Jahrb. Syst., Bd. 7 p. 615 — Manila and Bangkok.
1894. *Sesarma taeniolata* Ortmann. Zool. Jahrb. Syst., Bd. 7 p. 720 — Singapore.
1895. *Sesarma (Episesarma) taeniolata* de Man. Zool. Jahrb. Syst., Bd. 9 p. 166 — Atjeh, Penang, Pontianak.
1899. *Sesarma (Sesarma) taeniolata* Nobili. Ann. mus. civ. stor. nat. Genova, (2) t. 20 p. 506 — Singapore and Sarawak.
1900. *Sesarma taeniolatum* Alcock. Journ. As. Soc. Bengal, v. 69 prt. 2 p. 419 — Mergui Archipelago, Andamans and Penang.
1900. *Sesarma taeniolata* Lanchester. Proc. Zool. Soc. London, 1900, p. 756 — Malacca.
1910. *Sesarma (Sesarma) taeniolatum* Rathbun. K. Dansk. Vid. Selsk. Skr. 7. Raekke, Afd. 5 n<sup>o</sup>. 4 p. 327 — Gulf of Siam.

1) Not seen by the present writer.

## Specimens in the Museum:

- 1 ♂, 1 ♀, Java, Kuhl & v. Hasselt coll.  
 22 ♂, 14 ♀, Java (with label in de Haan's handwriting „*Sesarma fascicularis*”).  
 1 ♂, north coast of Java, Buitendijk coll. 1905.  
 3 ♂, 2 ♀, Batavia, Buitendijk coll. 1906.  
 2 ♂, north coast of Java, Buitendijk coll. 1910.  
 5 ♂, 1 ♀, Celebes?  
 1 ♂, 1 ♀, Macassar, Piller coll.  
 1 ♀, Philippines, v. d. Valk coll. 1897.

## Pl. XVI, Fig. 3.

In discussing *Ses. palawanensis* Rathbun I have had occasion to put forth the most important characters of the present species. The upper border of the mobile finger is provided with the well-known milled crest, which runs along the whole finger and ends near the tip of the finger, in both sexes. On close inspection the crest proves to be somewhat elevated above the level of the finger; it is flattened above, horny-coloured, and consists of a regular series of obliquely-transverse tubercles, straightly cut off, but having their anterior outer angle somewhat produced, and separated by narrow, deep grooves<sup>1)</sup>. In this way a longitudinal, brown stripe is formed along the whole upper border of the finger. De Man counted 50—60 of these tubercles on each chela, Nobili about 40, and Bürger 65 in the ♂, somewhat less in the ♀. I have examined 15 specimens, taken at random (11 ♂, 4 ♀), and found in the ♂ a number, varying from 46 to 62, in the ♀ from 42 to 59, of such tubercles.

Further characteristics are the longitudinal, pectinated crest, running at some distance from the upper border of the palm, and composed of obtuse, closely arranged teeth, such as are found in the subgenera *Parasarma* and *Chirromantes*. The inner surface of the palm is furnished with a transverse row of obtuse granules in the ♀, but in the ♂, even in halfgrown ones, this transverse row is elevated to a very conspicuous, prominent crest.

That in some specimens the distance between the external orbital angles may exceed that between the epibranchial teeth, whereas in other cases the reverse is found, has been already noticed by de Man (1892).

In examining the large series of specimens at my disposal, I detected a most curious character on the sternum of the present species. The 4<sup>th</sup> sternite, between the bases of the anterior pair of

1) It is improper to speak, as Alcock does, of „fine teeth”.



ambulatory legs and the penultimate segment of the abdomen, presents two large, oval "tympana", one at either side of the abdomen, similar to, but much larger than those that are found in the genus *Dotilla*. This "tympanum" occurs in all the ♂ examined, though it is generally much more conspicuous in dried specimens, than in those preserved in alcohol, but it is wholly absent in the ♀, where the sternites are wholly covered by the very broad, semicircular abdomen, the last segment of which is, as usual, deeply impacted into the preceding. So far as I am aware, none of my predecessors have noticed these characteristic "tympana". Whether they also occur in the closely-allied species, *Ses. palawanensis* Rathbun, *Ses. lafondi* Jacquinet et Lucas and *Ses. tetragona* Fabricius is not known; of the two first named species only ♀ are still caught.

113a. *Sesarma taeniolata crebrestriata* n. subsp.

Pl. XVI, Fig. 4.

I have examined some specimens of *Ses. taeniolata* from Nias, belonging to the Zoological Museum of Amsterdam, that in some respects show a distinct deviation from the type. There are altogether 5 specimens, none apparently adult, 4 ♂ and 1 ♀, the last one unfortunately without chelipeds. Besides, there is from the same locality a young ♀ of *Ses. lafondi* Jacquinet et Lucas.

The specimens differ in several more or less important features from the genuine *Ses. taeniolata*. In the first place the back of the mobile finger is much more finely striated transversely, so that there are no less than 85—90 transverse and narrow tubercles, the proximal 50—60 of which are extremely crowded, after which they become somewhat broader towards the tip (Pl. XVI, Fig 4). The comb-like crest along the upper border of the palm is present also in the subspecies, but the prominent transverse crest at the inner surface of the palm, so conspicuous even in not yet full-grown ♂ of *Ses. taeniolata*, is much less developed in *crebrestriata*: comparing two specimens of exactly the same size, one belonging to the type, the other to the subspecies, the difference in development of the transverse crest is at once noticed.

The surface of the carapace in the subspecies seemed to me to be much more hairy than in the type; the numerous tufts of black hairs are, as usual, larger on the anterior half of the carapace, but also the branchial regions are beset with numerous small groups, arranged among the sub-parallel, oblique lines that are observed here.

The free margin of the front is more excavated in the middle, so that the median sinus is narrower and entirely concave in the subspecies, broader and straight in the middle parts in the type (textfig. 5).

The projecting lobes on the front margin are provided each with an

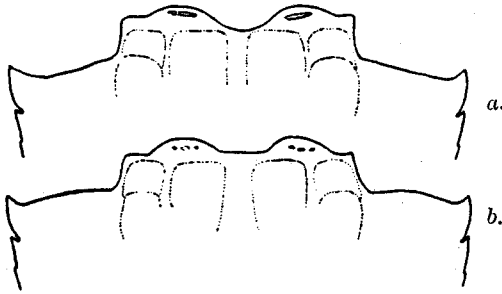


Fig. 5.

a. *Sesarma taeniolata crebrestriata* } Magn. 2.  
b. *Ses. taeniolata typ.*

oval tubercle, on which numerous hairs are inserted, in the subspecies; in the type we observe mostly a group of three similar, but much smaller, tubercles on each lobe, though in other specimens these tubercles tend to fuse into one larger tubercle. The difference in size between the inner and the outer post-frontal lobes is larger in the subspecies, owing to the fact,

that the median groove, separating the inner lobes, is much narrower here than in the type. Finally the upper orbital border is nearly wholly straight in the subspecies, but somewhat convex in the type.

The "tympana", at either side of the penultimate segment of the abdomen, on the sternum, are likewise present in the subspecies, though they are less distinct.

As I have already remarked, the single ♀ which I took to represent the ♀ of this subspecies, had lost its chelipeds, so that I am unable to say, whether the numerous transverse tubercles on the back of the mobile finger are likewise present in the ♀. But the fact, that in the same sample a young ♀ of *Ses. lafondi* has been found, which in its carapace and in its ambulatory legs did not show any difference from the ♀, presumed to be the ♀ of the present subspecies *crebrestriata*, has raised in me the belief, that this subspecies indeed belongs to *Ses. lafondi* and represents the ♂, so long sought for, of this species. We are obliged, then, to suppose that the longitudinal keel running along the upper border of the mobile finger in *Ses. lafondi*, and the granulated row along the upper margin of the palm, are merely sexual characters, and are replaced in the ♂ respectively by a transversely-milled crest, consisting of about 90 transverse tubercles, and by a pectinated, not granulated, crest at the palm; further, that the transverse row of granules at the inner surface of the palm is feebly developed in the ♂, but entirely absent in the ♀.

As to the first supposition, in the young ♀ before me, undoubtedly

belonging to *Ses. lafondi*, the longitudinal keel is indeed present on the mobile finger, but on close inspection this keel is transversely striated, so that it is divided into about 25 parts, each of which is about 3 times as long as broad; the keel itself occupies only the proximal half of the finger. Now, in the large ♀ of *Ses. lafondi* I have shown (p. 167), that the keel is somewhat longer, but exhibits at its distal end some detached portions, separated by a few transverse striae from the rest. Thus the gradual disappearance of these striae in *Ses. lafondi* may be ascribed to age, but their presence in the young ♀ is, in my opinion, a prove as to the specific identity of *Ses. lafondi* and the subspecies of *Ses. taeniolata* here described.

That in the ♀ a granulated row at the upper border of the palm takes the place of a pectinated crest on the same place in the ♂ is of frequent occurrence in *Sesarma*, and the same may be said about the presence or absence of a transverse granular row at the inner surface of the palm.

As to the deep and concave median sinus in the free margin of the front, the transverse tubercle on each lobe of the latter <sup>1)</sup> and the narrow groove separating the inner postfrontal lobes, in comparing Pl. XV Fig. 1 with the textfigure 5 there is, in my opinion, nothing at variance with the view here expressed. And yet I prefer, in spite of all these points of resemblance, and of the fact, that the ♂ of *Ses. lafondi* has never been observed, but that, now, this species is caught together with the new subspecies *crebrestriata* of *Ses. taeniolata*, to regard the latter as a distinct subspecies, as long as no larger material is at hand.

The following measurements may serve to elucidate the close relationship of the typical *Sesarma taeniolata* with the subsp. *crebrestriata* and with *Ses. lafondi*.

In order to facilitate the comparison I have chosen specimens of approximately the same size.

Dimensions:	1 ♂	2 ♂	3 ♂	4 ♀
Distance between external orbital angles	30.5	30.—	29.—	28.5 mm.
" " epibranchial teeth . . .	30.75	29.—	28.5	28.— "
Breadth of carapace at hind part. . .	26.5	27.5	27.5	25.5 "
(above base of penultimate pair of legs)				
Posterior margin of carapace . . . .	12.75	13.5	13.—	13.5 "

1) In the young ♀ of *Ses. lafondi* (see p. 167) from Deli I have described a flattened and shallow median sinus in the free margin of the front, and the transverse tubercle on each projection is replaced by two large granules, so that in this respect the specimen approaches the typ. *Ses. taeniolata*.

Length of carapace in the median line.	28.5	27.—	26.75	24.—	mm.
Breadth of front . . . . .	15.75	15.5	15.25	15.—	"
Posterior margin } of penultimate segment	9.75	11.5	11.5	—	"
Length } of abdomen	5.—	5.—	5.—	—	"
Horizontal length of chela . . . . .	23.—	20.5	19.75	15.—	"
Height of palm . . . . .	13.5	11.5	10.5	7.—	"
Length of meropodite	— <sup>1)</sup>	24.—	23.25	21.—	"
Breadth " " } of penult-	—	11.—	12.—	10.—	"
Length of carpo- + propodite } imate pair	—	26.5	25.5	24.5	"
Breadth of propodite } of legs	—	5.5	5.75	5.—	"
Length of dactylus	—	12.5	12.—	10.5	"

N<sup>o</sup>. 1: typ. *Ses. taeniolata*, n<sup>o</sup>. 2 and 3 subsp. *crebrestriata*, n<sup>o</sup>. 4 *Ses. lafondi*. We may observe that in the subspecies the abdomen is much broader than in the typ. *Ses. taeniolata*.

114. *Sesarma (Holometopus) tampicensis* Rathbun.

1914. *Sesarma (Holometopus) tampicense* Rathbun. Proc. U. S. Nat. Mus., v. 47 p. 124, pl. 8 f. 1—3 — Tampico (Mexico).

115. *Sesarma (Sesarma s.s.) tetragona* Fabricius.

1798. *Cancer tetragonus* Fabricius. Suppl. Entom. Syst., p. 341 — East India.

1799. *Cancer fascicularis* Herbst. Naturgesch. Krabben u. Krebse. Bd. 3 Heft 1 p. 49, pl. 47 f. 5 — East India.

1869. *Sesarma fascicularis* Hilgendorf. v. d. Decken's Reisen in Ost-Afrika. Bd. 3.1., Crust., p. 91 — notes on Herbst's specimen.

1887. *Sesarma tetragona* de Man. Zool. Jahrb. Syst., Bd. 2 p. 646 and 665, pl. 17 f. 1 — description of type-specimen of Fabricius.

1900. *Sesarma tetragonum?* Alcock. Journ. As. Soc. Bengal, v. 69 prt. 2 p. 420 — Ceylon, Madras, deltas of Mahanaddi and Ganges.  
nec *Sesarma tetragona* H. et A. Milne-Edwards, Hoffmann a. o.  
(= *Ses. meinerti* de Man).

This exceedingly rare species is probably represented in the Musea by two specimens only, one, being the type-specimen of Fabricius, at Copenhagen, the other, that of Herbst, at Berlin! As Dr. de Man informed me, it appears very doubtful, whether Alcock's specimens really

1) The specimen had lost all the ambulatory legs, except the anterior pair. The lost pairs, however, are all regenerating and budding out again. This indicates a great tenacity of life and a regenerative power which appears most enviable to everybody, especially in the war times of these days! The animal must have emerged out of some animated scrimmage in a deplorable state and, though its comparative helplessness must have rendered it an easy prey to any pursuer, it has managed up to the time of its caught to escape all dangers.

are referable to the present species, as the upper border of the mobile finger is described as being "coarsely crenulate", whereas no mention is made of the characteristic 9—10 tubercles, disposed at regular distances in a longitudinal groove on this finger, as denoted by Hilgendorf and de Man.

116. *Sesarma* (*Sesarma* s.s.) *thelxinoë* de Man.

1908. *Sesarma thelxinoë* de Man. Rec. Ind. Mus., v. 2 prt. 2 n<sup>o</sup>. 22 p. 181, pl. 11 — Port Blair (Andamans).

117. *Sesarma* (*Sesarma* s.s.) *tiomanensis* Rathbun.

1913. *Sesarma tiomanense* Rathbun. Proc. U. S. Nat. Mus., v. 46 p. 355, pl. 31 f. 1—3 — Pulo Tioman (Malay Peninsula).

118. *Sesarma* (*Sesarma* s.s.) *trapezoidea* Guérin.

1837. *Sesarma trapezoidea* (Guérin) H. Milne-Edwards. Hist. nat. Crust., t. 2 p. 74 — no locality.

1853. *Sesarma trapezoidea* H. Milne-Edwards. Ann. Sc. nat., (3) t. 20 p. 186 — locality unknown.

1868. *Sesarma oblonga* v. Martens. Monatsber. Ak. Wiss. Berlin, 1868, p. 611 — Philippines.

1887. *Sesarma trapezoidea* de Man. Zool. Jahrb. Syst., Bd. 2 p. 654 and 678 — description of type-specimen of Milne-Edwards and of that of v. Martens.

1889. *Sesarma trapezoidea* de Man. Zool. Jahrb. Syst., Bd. 4 p. 426, pl. 9 f. 7 — Fiji Islands.

1889. *Sesarma trapezoidea* var. *longitarsis* de Man. Zool. Jahrb. Syst., Bd. 4 p. 427, pl. 10 f. 8 — Fiji Islands.

1890. *Sesarma trapezoidea* de Man. Notes Leyden Museum, v. 12 p. 96 — Amboyna and Pacific.

1894. *Sesarma trapezoidea* Ortmann. Zool. Jahrb. Syst., Bd. 7 p. 719 — Queensland.

1899. *Sesarma* (*Sesarma*) *trapezoidea* Nobili. Ann. mus. civ. stor. nat. Genova, (2) t. 20 p. 510 — Mentawai Islands.

1902. *Sesarma trapezoidea* Schenkel. Verhandl. naturforsch. Gesellsch. Basel, Bd. 13 p. 545 — Lolak River (Celebes).

1902. *Sesarma* (*Sesarma*) *trapezoidea* de Man. Abhandl. Senckenb. Gesellsch., Bd. 25 Heft 3 p. 532<sup>1)</sup> — Halmaheira.

1907. *Sesarma* (*Sesarma*) *trapezoideum* Rathbun. Mem. Mus. comp. Zool. Harvard Coll., v. 35 n<sup>o</sup>. 2 p. 33 — Tahiti.

1) In this paper de Man recognized his subspecies *longitarsis* to be only an individual variation.

## Specimens in the Museum:

- 2 ♀, Amboina, Teysmann coll. 1877 }  
 1 ♂, 1 ♀, Pacific (var. *longitarsis*) } mentioned by de Man 1890.  
 1 ♂ (juv.), Soemalata (N. Celebes), E. E. W. Schröder coll.

119. *Sesarma* (*Sesarma* s.s.) *verleyi* Rathbun.

1914. *Sesarma* (*Sesarma*) *verleyi* Rathbun. Proc. U. S. Nat. Mus., v. 47 p. 123, pl. 6 f. 1—3 — Jamaica.

120. *Sesarma* (*Parasesarma*) *vestita* Stimpson.

1858. *Sesarma vestita* Stimpson. Proc. Ac. Nat. Sc. Philadelphia, 1858, p. 106 — Kikaisima and Ousima (Japan).  
 1887. *Sesarma vestita* de Man. Zool. Jahrb. Syst., Bd. 2 p. 644 — no new locality.  
 1907. *Sesarma vestita* Stimpson. Smithson. Inst. Miscell. Coll., v. 49 p. 136, pl. 13 f. 6 — same localities as in 1858.

121. *Sesarma* (*Sesarma* s.s.) *vicentensis* Rathbun.

1914. *Sesarma* (*Sesarma*) *vicentense* Rathbun. Proc. U. S. Nat. Mus., v. 47 p. 74 — Port San Vicente (off Luzon, Philippines).

122. *Sesarma* (*Holometopus*) *villosa* A. Milne-Edwards.

1869. *Sesarma villosum* A. Milne-Edwards. Nouv. Arch. Mus. Paris, t. 5, Bull. p. 31 — Samoah Islands.  
 1887. *Sesarma villosa* de Man. Zool. Jahrb. Syst., Bd. 2 p. 644 — no new locality.  
 1895—98. *Sesarma* (*Sesarma*) *villosa* de Man. Zool. Jahrb. Syst., Bd. 9 p. 153, Bd. 10 pl. 29 f. 30 — Atjeh.  
 1907. *Sesarma* (*Holometopus*) *villosa* Rathbun. Mem. Mus. comp. Zool. Harvard Coll., v. 35 n°. 2 p. 35 — Carolines.

## Specimens in the Museum:

- 1 ♀ (juv.), Skroë (N. Guinea), Schädler coll. 1897.

## Pl. XVII Fig. 2.

In the subgenus *Sesarma* s.s. there is a small group, characterized by the carapace and the walking legs being clothed by a dense fur of short hairs, among which isolated tufts of somewhat longer hairs are scattered. It is this character which makes such species bear a superficial resemblance to the genus *Clistocoeloma*, the more so because the front is not vertically but only obliquely deflexed, the free margin being nearly straight, and the postfrontal lobes feebly developed, at least in

*Ses. pontianacensis* de Man; in the other two species, *Ses. jousseaumei* Nobili and *Ses. lanata* Alcock, these lobes are more distinct.

The subgenus *Holometopus* contains also one species with similar characters: *Ses. villosa* A. Milne-Edwards. A small ♀, which was provisionally referred by me to the genus *Clistocoeloma*, has been kindly examined by Dr. de Man, who informed me that it really belonged, at least most probably, to the present species.

The species of *Sesarma* that resemble *Clistocoeloma* are, of course, to be distinguished from the latter genus by the orbit being open: the inner suborbital lobe does not touch the front, so as to exclude the outer antenna from the orbit, as occurs in *Clistocoeloma*.

I have figured here the Museum specimen in order to point out some differences with the types, described at full length by de Man, and also to illustrate the remarkable resemblance with *Ses. lanata* Alcock (see Ill. Zool. "Investigator", Crust., prt. 10, 1903, pl. 65 f. 4). In both species, indeed, the carapace and the legs are covered with the same dense fur of short hairs and small tufts of somewhat longer hairs are scattered about. De Man has in a full-grown ♂ exactly denoted the place of all the larger tufts. It may be ascribed both to the sex and to the youth of my specimen that in the first place the tufts of hair are all approximately of the same size, and secondly that they are rather irregularly distributed and not in the design described by de Man, occupying the whole anterior half of the carapace. As de Man rightly remarked, the carapace and also the legs are found to be entirely smooth, after removal of the fur, but very finely punctate, owing to the insertion of the minute hairs. The different regions on the carapace are very faintly marked, the mesial furrow separating the median postfrontal lobes being the only one that is distinct; the grooves circumscribing the mesogastric area may also be traced out, though more by the fact, that the dense fur of the carapace does not extend to this mesogastric area (nor to the anterior cardiac region), than by real grooves. The postfrontal lobes are very little developed, the median lobes being scarcely separated off from the lateral ones. The front is not vertically deflexed in my young specimen, nearly wholly vertical however according to de Man; the free margin is scarcely excavated in the middle and convexly arched, but I have seen no horizontal projection, as observed by de Man. As to the lateral margins of the carapace, the latter author has described them as being wholly without teeth, diverging distally until the bases of the second pair of walking legs. As shown in my figure I have removed the hairs near the left margin of the carapace, in order to show its course. It is true, that I found the external orbital angle to be feebly developed, scarcely protuding, but behind it I noted

two distinct concave portions at considerable distances from each other, one immediately behind the external orbital angle and the other about in the middle of the lateral margin, between them the margin is feebly bulging out and therefore not straight. The branchial regions are very much sloping, so that the lateral margin of the carapace, if looked at from the side, shows a considerable downward curve in its hinder part. I shall not describe at full length the chelipeds, as these offer in the ♀ very little characteristics, unlike those of the ♂. We know that in the latter sex the upper border of the palm is provided with a longitudinal pectinated crest, consisting of about 25—30 juxtaposed teeth, but this crest is replaced in the ♀ (de Man) by a row of extremely minute granules. I have seen only a few isolated tufts of hair on the outer surface of the palm, near the upper border, else the outer surface of the palm, like the inner, is perfectly devoid of hairs. At the inner surface of the palm there is no trace of the transverse row of granules, so conspicuous in the ♂, and at the upper border of the mobile finger I have found in my young ♀ scarcely any trace of transverse tubercles, which, according to de Man, are present in the adult ♀, in the number of 11—12, though much less developed than in the other sex.

The meropodites of the walking legs are very much hairy, with isolated tufts of hair on the upper surface, but the under surface is entirely hairless, at least in the central parts, a character, that I have not found in de Man's description; the meropodites themselves are not much foliaceous, and the anterior margin bears at its subdistal end only a rectangular tooth, not an acute one. The dactyli, the tip of which is much pointed and devoid of hairs, are nearly straight, and always shorter than their respective propodites, those of the penultimate pair of legs being the longest.

Dimensions:

Distance between external orbital angles . . . . .	10.5 mm.
Greatest breadth of carapace . . . . .	11.25 "
Length of carapace . . . . .	9.25 "
Breadth of front . . . . .	6.— "
Height of front . . . . .	1.5 "
Posterior margin of carapace . . . . .	5.75 "
Length of meropodite, } of penultimate pair of legs	8.— "
Breadth of meropodite }	2.75 "
Length of carpo- + propodite } of penultimate pair.	7.5 "
Breadth of propodite }	1.75 "
Length of dactylus }	4.75 "



123. *Sesarma* (*Sesarma* s.s.) *weberi* de Man.

1892. *Sesarma weberi* de Man. Weber's zool. Erg. Reise niederl. Ost-Indien, Bd. 2 p. 338, pl. 20 f. 15 — Flores.  
1893. *Sesarma weberi* Bürger. Zool. Jahrb. Syst., Bd. 7 p. 622, pl. 21 f. 8 — Marineles (Philippines).  
1902. *Sesarma* (*Sesarma*) *weberi* de Man. Abhandl. Senckenb. Gesellsch., Bd. 25 Heft 3 p. 520 — Ternate, Halmaheira and Batjan.  
1905. *Sesarma* (*Sesarma*) *weberi* Nobili. Ann. Mus. Hung., v. 3 p. 497 — Stephansort (German New Guinea).

B. *Metasesarma* H. Milne-Edwards 1853.

1. *Metasesarma aubryi* A. Milne-Edwards.

1869. *Sesarma* (*Holometopus*) *aubryi* A. Milne-Edwards. Nouv. Arch. Mus. Paris, t. 5, Bull. p. 25 — New Caledonia.  
1873. *Sesarma* (*Holometopus*) *aubryi* A. Milne-Edwards. Nouv. Arch. Mus. Paris, t. 9 p. 307, pl. 16 f. 3 — same locality.  
1880. *Sesarma aubryi* de Man. Notes Leyden Museum, v. 2 p. 30 — Amboyna.  
1886. *Sesarma* (*Holometopus*) *aubryi* Miers. Brachyura Rep. "Challenger", p. 271 — New Hebrides, Arou Islands, Wild Islands, Admiralty Islands.  
1887. *Sesarma aubryi* de Man. Zool. Jahrb. Syst., Bd. 2 p. 642 and 661 (*part.*) — New Guinea.  
1890. *Sesarma aubryi* de Man. Notes Leyden Museum, v. 12 p. 93 — Pacific, Amboyna and Morotai.  
1892. *Sesarma aubryi* Thallwitz. Abhandl. Mus. Dresden 1890/91, Bd. 3 n<sup>o</sup>. 3 p. 38 — New Guinea.  
1893. *Sesarma aubryi* de Man. Notes Leyden Museum, v. 15 p. 287 — Great Bastaard Island near Flores.  
1894. *Sesarma aubryi* Ortmann. Zool. Jahrb. Syst., Bd. 7 p. 718 — New Guinea.  
1895—98. *Sesarma* (*Metasesarma*) *aubryi* de Man. Zool. Jahrb. Syst., Bd. 9 p. 130, Bd. 10 pl. 29 f. 27 (*ext. maxilliped*) — Atjeh.  
1899. *Sesarma* (*Metasesarma*) *aubryi* Nobili. Ann. mus. civ. stor. nat. Genova, (2) t. 20 p. 267 — Salawatti Island near north-west New Guinea.  
1899. *Sesarma* (*Metasesarma*) *aubryi* Nobili. Ann. mus. civ. stor. nat. Genova, (2) t. 20 p. 505 — Nias and Engano.  
1900. *Sesarma aubryi* Borradaile. Proc. Zool. Soc. London, 1900, p. 593 — Rotuma.

1902. *Sesarma (Metasesarma) aubryi* de Man. Abhandl. Senckenb. Gesellschaft., Bd. 25 Heft 3 p. 507 — Ternate and Halmaheira.
1910. *Sesarma (Holometopus) aubryi* Rathbun. K. Dansk. Vid. Selsk. Skr., 7. Raekke, Afd. 5 n<sup>o</sup>. 4 p. 329 — Gulf of Siam.
1910. *Metasesarma aubryi* Rathbun. Bull. Mus. comp. Zool. Harvard Coll., v. 52 p. 308 — Halmaheira, Sorong and Manokwari (Netherlands New Guinea).

Specimens in the Museum:

- 1 ♂, Morotai, Bernstein coll.
- 1 ♂, 3 ♀, Amboina, Ludeking coll. 1863.
- 1 ♂, 1 ♀, Great Bataard Island (near Flores), Dr. H. ten Kate coll. 1891.
- 4 ♂, 3 ♀, Skroë (N. Guinea), Schädler coll. 1897.
- 1 ♀, Kisser (N. Guinea), Schädler coll. 1898.
- 1 ♂, north coast of Java, Buitendijk coll. 1910.
- 47 ♂, 33 ♀, Poeloe Weh (north of Sumatra), Buitendijk coll. Aug. and Dec. 1910.

2. *Metasesarma rousseauxi* H. Milne-Edwards.

1853. *Metasesarma rousseauxi* H. Milne-Edwards. Ann. Sc. nat., (3) t. 20 p. 188 — Zanzibar.
1855. *Metasesarma rousseauxi* H. Milne-Edwards. Arch. Mus. Paris, t. 7 p. 158, pl. 10 f. 1 — no new locality.
1862. *Metasesarma granularis* Heller. Verhandl. zool. bot. Gesellsch. Wien, 1862, p. 522 — Tahiti.
1865. *Metasesarma rugulosa* Heller. Crust. Reise "Novara", p. 65 — Tahiti and Nicobars<sup>1)</sup>.
1887. *Sesarma aubryi (part.)* de Man. Zool. Jahrb. Syst. Bd. 2 p. 661 — no locality.
1888. *Sesarma aubryi* de Man. Journ. Linn. Soc. London, v. 22 p. 168 Mergui Archipelago.
1888. *Sesarma aubryi* de Man. Arch. Naturgesch., Jahrg. 53.1. p. 372 — north coast of Java and Amboyna.
1889. *Metasesarma rousseauxi* de Man. Zool. Jahrb. Syst., Bd. 4 p. 439 — Madagascar.
1890. *Metasesarma rousseauxi* de Man. Notes Leyden Museum, v. 12 p. 93 — no locality.
1892. *Metasesarma rousseauxi* de Man. Weber's zool. Erg. Reise niederl. Ost-Ind., Bd. 2 p. 350 — Flores.
1893. *Metasesarma rousseauxi* Henderson. Transact. Linn. Soc. London, (2) v. 5 p. 392 — Ennore.

1) See de Man. Zool. Jahrb. Syst., Bd. 9 p. 130, note.

1894. *Metasesarma rousseauxi* Ortmann. Zool. Jahrb. Syst., Bd. 7 p. 717 — Samoah, Tahiti and Philippines.
- 1895—98. *Sesarma (Metasesarma) rousseauxi* de Man. Zool. Jahrb. Syst., Bd. 9 p. 138, Bd. 10 pl. 29 f. 28 (ext. maxilliped) — Atjeh and Penang.
1899. *Sesarma (Metasesarma) rousseauxi* Nobili. Ann. mus. civ. stor. nat. Genova, (2) t. 20 p. 506 — Ceylon.
1900. *Metasesarma rousseauxii* Alcock. Journ. As. Soc. Bengal, v. 69 prt. 2 p. 427 — Andamans, Nicobars, Mergui Arch., Ganges Delta, Madras and Minnikoy (Laccadives).
1902. *Sesarma (Metasesarma) rousseauxii* de Man. Abhandl. Senckenb. Gesellsch., Bd. 25 Heft 3 p. 506 — Halmaheira.
1905. *Metasesarma rousseauxi* Nobili. Ann. Mus. Hung., v. 3 p. 501 — Berlinhafen (German New Guinea).
1910. *Metasesarma rousseauxi* Rathbun. Bull. Mus. comp. Zool. Harvard Coll., v. 52 p. 308 — Halmaheira, Waigeu and Manokwari (Netherland's New Guinea).

Specimens in the Museum:

- 2 ♂, 2 ♀, Atjeh, Storm coll. (examined by de Man 1895).
- 6 ♂, 3 ♀, Amboina, Ludeking coll. 1863.
- 1 ♂, 3 ♀, Bezian (?) 1831.
- 1 ♀, Aroe Islands, v. Rosenberg coll.
- 1 ♀, New Guinea.
- 1 ♂, 3 ♀, Poeloe Weh (north of Sumatra), Buitendijk coll. Dec. 1910.

3. *Metasesarma trapezium* (Dana).

1852. *Sesarma trapezium* Dana. U. S. Expl. Exp., Crust., p. 354, pl. 22 f. 8 — Sandwich Islands.
1861. *Metasesarma trapezium* Stimpson. Proc. Ac. Nat. Sc. Philadelphia, 1861, p. 373 — description of type-specimens.

C. *Sarmatium* Dana 1851

= *Metagrapsus* H. Milne-Edwards 1853.

1. *Sarmatium biróí* Nobili.

1905. *Sarmatium biróí* Nobili. Ann. Mus. Hung., v. 3 p. 498 — Stephansort (German New Guinea).

This species of which only the ♀ is known is nearest related to *S. punctatum* A. Milne-Edwards, but, according to Nobili, the following points of difference are to be observed.

	<i>S. birói</i>	<i>S. punctatum</i>
External orbital angles	Lateral margins slightly diverging distally.	Lateral margins strongly diverging distally.
Epibranchial teeth	Not projecting forward, separated from external orbital angles by a minute incision, without oblique crest; lateral margins converging distally and shorter than those of external orbital angles.	Projecting forward, separated from external orbital angles by a deep and wide incision, with oblique crest; lateral margins diverging distally and longer than those of external orbital angles.
Traces of second epibranchial teeth.	Absent.	Present.
Front.	Less wide, measuring half the distance between external orbital angles; with deep and wide median emargination.	Wider, measuring about $\frac{2}{3}$ of the distance between external orbital angles; regularly convex at the free margin.
Postfrontal lobes	Median lobes more than twice as broad as the lateral ones.	Median lobes about $1\frac{1}{2}$ times as broad as the lateral ones.
Chelipeds	Meropodite without subdistal tooth at superior border; upper border of mobile finger with a longitudinal row of 5 spiniform teeth.	Meropodite with rectangular subdistal tooth at superior border; upper border of mobile finger with two thick, cone-shaped teeth.
Walking legs	Meropodite and propodite of penultimate pair of legs more than twice as long as broad; in the first to third pair the distal third of the posterior border of the meropodite is minutely denticulate.	Meropodite and propodite of penultimate pair of legs exactly twice as long as broad; in all the legs the distal third of the posterior border of the meropodite is smooth.

2. *Sarmatium crassum* Dana.

1851. *Sarmatium crassum* Dana. Proc. Ac. Nat. Sc. Philadelphia, 1851, p. 251 — Upolu (Samoa).  
1852. *Sarmatium crassum* Dana. U. S. Expl. Exp., Crust., p. 358, pl. 23 f. 1 — same locality.  
1869. *Sesarma germani* A. Milne-Edwards. Nouv. Arch. Mus. Paris, t. 5, Bull. p. 28 — Poeloe Condore (South China).  
1887. *Sesarma germani* de Man. Zool. Jahrb. Syst., Bd. 2 p. 651 — no new locality.  
1887. *Sarmatium crassum* de Man. Zool. Jahrb. Syst., Bd. 2 p. 660 — no new locality.  
1891. *Sesarma germani* de Man. Notes Leyden Museum, v. 13 p. 51 — Pacific, description of type-specimen <sup>1)</sup> of Milne-Edwards.  
1899. *Sarmatium crassum* Nobili. Ann. mus. civ. stor. nat. Genova, (2) t. 20 p. 505 — Siboga (Sumatra).  
1900. *Sarmatium crassum* Alcock. Journ. As. Soc. Bengal, v. 69 prt. 2 p. 426 — Nicobars.

Specimens in the Museum:

1 ♀, Pacific.

This small species is characterized by its smooth carapace, by the palm of the cheliped being not tuberculate at the outer surface and especially by the 6—7 transverse parallel crests near the upper border of the palm, in the case of the ♂. The upper border of the movable finger of the ♂ bears four short spines, but there are none in the ♀.

3. *Sarmatium curvatum* H. Milne-Edwards.

1837. *Sesarma curvata* H. Milne-Edwards. Hist. nat. Crust., t. 2 p. 75 — Senegal.  
1851. *Sesarma violacea* Herklots. Add. faun. carc. Afr. occ., p. 10, pl. 1 f. 9 — Boutry and Saccondé (Guinea).  
1853. *Metagrapsus curvatus* H. Milne-Edwards. Ann. Sc. nat., (3) t. 20 p. 189 — Senegal.  
1855. *Metagrapsus curvatus* H. Milne-Edwards. Arch. Mus. Paris, t. 7 p. 160, pl. 10 f. 3 — same locality.  
1880. *Sesarma violacea* de Man. Notes Leyden Museum, v. 2 p. 31 — same locality as given by Herklots.  
1892. *Sarmatium violaceum* Thallwitz. Abhandl. Mus. Dresden, Bd. 3 n<sup>o</sup>. 3 1890—91, p. 40 — Ogowé (West Africa).

1) This specimen is here recognized to be identical with *Sarmatium crassum*.

1900. *Sesarma* (*Sarmatium*) *curvatum* Rathbun. Proc. U. S. Nat. Mus., v. 22 p. 281 — enumeration of West African localities.

Specimens in the Museum:

4 ♂, 3 ♀ (type-specimens of Herklots).

Though this species at first sight resembles *Sarm. punctatum*, it is distinguished by an occasional third epibranchial tooth, by the last segment of the abdomen of the ♂ being much elongated, much longer than broad at the base, and by some characters of the chelipeds; parallel with the upper border of the palm, but at considerable distance from the border itself, there runs a longitudinal granulated row, from the carpal joint to the base of the movable finger, somewhat curved inward in its distal fourth part; here, over a greater or lesser distance, the row is modified into a pectinated crest, consisting of erect, horny-coloured teeth, of the same appearance as is generally met with in the subgenera *Parasarma* and *Chirromantes* of the genus *Sesarma*. The upper border of the mobile finger is provided with a longitudinal row of 9—10 low spines, turned forward, and outside of this row the border is transversely milled, in adult ♂, along nearly its whole course.

#### 4. *Sarmatium fryatti* n. sp.

Specimens in the Museum:

1 ♂, Nias, E. E. W. Schröder coll. 1908.

1 ♀, Obi, Bernstein coll.

1 ♀, Java, Kuhl & v. Hasselt coll. (placed in the collection s. n. *Chas-magnathus gibbosus* de Haan).

Besides the fine ♂ from Nias I have examined a ♀, likewise from Nias, and belonging to the Amsterdam Zoological Museum; the two ♀ of the Museum were found by me among the dried material of Crustacea and are much damaged.

The species is nearest related to *Sarmatium birói* Nobili aud *Sarmatium punctatum* (A. Milne-Edwards). It resembles the former species by the width of the front, by the superior border of the arm of the chelipeds not being armed with a subdistal tooth, by the comparative slenderness of the walking legs, and by the upper border of the movable finger being armed with 4—5 spines; the general shape of the carapace, and especially that of external orbital angles and epibranchial teeth, is, on the contrary, much more like what is found in *Sarm. punctatum*.

As usual, the carapace is much inflated, strongly curved in longitudinal direction, but scarcely so transversely, and the branchial regions

are very much sloping downward. Looked at from above, the lateral margins of the carapace are much narrowed anteriorly and the greatest breadth is found between the posterior epibranchial teeth, further distally the margins are distinctly concave, bulging out again in their distal third part and ending above the bases of the penultimate pair of legs. The external orbital angles are acute, directed forward and inward; the distance between them is distinctly greater than the length of the carapace in the median line; the lateral margins are much diverging distally and are separated off from the epibranchial teeth by a deep and wide

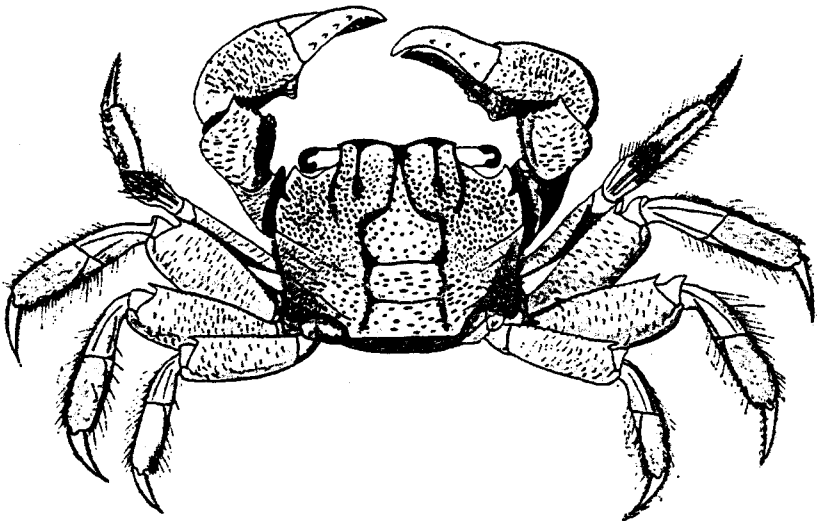


Fig. 6. *Sarmatium fryatti* n. sp. ♂. Nat. size.

incision; the latter teeth are somewhat projecting forward, there is no oblique crest, ending at the tip of the tooth, unlike *Sarm. punctatum*; the lateral margins are slightly convex, and feebly diverging distally, they are longer than those of the external orbital angles, and are defined posteriorly by a trace of a second epibranchial tooth, forming the lateral end of the anterior oblique line on the branchial regions; this line is followed by 4—5 similar ones. Greatest breadth of the carapace, in proportion to the length of the latter, 1.3:1 in the present species, 1.24:1 in *Sarm. biróii*. Posterior margin of carapace equal to width of front between the eye-stalks. The front is vertically deflexed, but owing to the fact that the protogastric regions are very much sloping and the postfrontal lobes much rounded-off, it is scarcely defined towards the carapace; the anterior margin is not at all curved upward, and has a

broad but not very deep emargination in the middle; in this respect, and also by the width of the front being nearly equal to half the distance between the external orbital angles, the species resembles *Sarm. birvi*; the lateral parts of the anterior margin of the front, if viewed from above, are sloping obliquely backward towards the distinctly pointed angles; the side margins of the front are much concave. The median postfrontal lobes are  $1\frac{1}{2}$  times as broad at the outer ones (like *Sarm. punctatum*); the groove between the inner lobes is very broad, but not deep, and the median triangular portion of the mesogastric region projects far forward; inner and outer lobes are separated by narrow furrows, and the latter lobes are defined laterally along some distance by concave grooves, marking off the protogastric regions. The mesogastric area is well-defined, especially at the four angles, by deep grooves; the cardiac region is somewhat less distinctly separated off from the branchial areas, and the former is divided by a transverse furrow into an anterior and a posterior part.

The whole surface of the carapace is smooth and glossy, but everywhere crowded with minute pits, that, in life, apparently mark the insertion of numerous tufts of hairs; such tufts are largest on the hepatic and the posterior part of the protogastric regions, extending also on towards the postfrontal lobes; on the branchial regions the hairs are arranged in oblique, parallel rows.

The abdomen of the ♂ (Fig. 7) is narrow; the posterior margin of the penultimate segment is  $1\frac{1}{3}$  times the length of the segment; the last segment is longer than broad at the base.

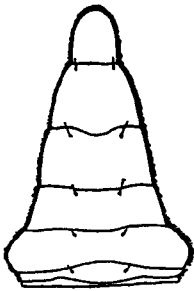


Fig. 7.  
*Sarmatium fryatti*  
n. sp. Abdomen.  
Magn.  $1\frac{1}{2}$ .

Chelipeds generally equal in size in both sexes, but in the ♀ from Obi the right is somewhat larger than the left. Upper border of arm, like the outer surface, transversely rugose, more so in the ♂ than in the ♀, but there is no tooth near the distal end; outer border regularly and coarsely denticulate; inner border with some few teeth in the middle third, but otherwise entirely smooth, somewhat expanded in its distal half. Wrist with wavy rows of minute granules above, denticulate at the inner part of the anterior

margin, but inner angle not produced; under surface with transverse row of about 10 granules. Palm (Fig. 8) shorter than fingers; horizontal length equal to height; outer surface convex, in the ♂ covered with numerous rugosities and pits of different size, an obliquely-horizontal wrinkle in the middle; towards the upper border about 8—9 short transverse rows of very



small pits may be observed; in the ♀ these characters are, as usual, much less pronounced. Upper border of palm somewhat raised and irregularly granulate; at the beginning of the distal third a row of some 3—4 granules branches off obliquely forward at the inner side. Inner face of palm smooth, with some isolated granules, and a transverse row of granules, numbering 7—9 in the ♂, much smaller and fewer in number in the ♀. Immobile finger very thick and high at the base, but slightly hollowed out at the inner face of the latter, under margin nearly straight in the ♀, but with a sigmoid curve in the ♂; outer surface pitted and provided with some oblique striae; inner surface smooth, but with a row of 5—6 granules, bordering the upper border of the excavation at the base of the finger; cutting margin horny at the tip, but otherwise nearly wholly destitute of teeth; looked at from above, the cutting margin has a flattened, triangular shape, in the proximal half we observe a small tubercle, followed by a larger one, that is transversely developed; between the latter and the horny margin of the tip there are only a few, isolated denticles. The opposite border of the movable finger is provided with three larger tubercles and some smaller ones between them; the distance between the largest (proximal) tubercle and the middle one is half the distance between the latter and the

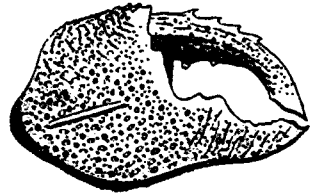


Fig. 8. *Sarmatium fryatti*  
n. sp. Chela. Magn.  $1\frac{1}{4}$ .

distal tubercle, that marks the beginning of the horny margin at the tip of the finger; this movable finger is much curved, especially so in the ♂, both in dorsal and in side view; inner and outer surface are covered with numerous pits, but the latter face is somewhat flattened near the base, and the pits are connected by reticulating grooves; the upper border is provided with 4 spinules, directed obliquely towards the tip, numbering 4 in the ♂, 4—5 in the ♀, arranged in a longitudinal row at regular distances, but occupying only the proximal half of the finger.

The walking legs are rather slender, but not very long, the penultimate pair, the longest of all, measuring  $1\frac{2}{3}$  times the greatest breadth of the carapace. Meropodites  $2\frac{1}{2}$  times as long as broad; anterior border crenulate, with subdistal acute tooth, posterior border smooth, like under surface, upper surface somewhat rugose transversely. Carpo- and propodite together about as long as meropodite of the same leg, length of propodite in the median line about  $2\frac{1}{2}$  times the breadth in the middle, dactylus pointed, nearly straight, shorter than the preceding joint. Outer border of carpo- and propodite, like the inner of the propodite, covered with



6. *Sarmatium inerme* de Man.

1887. *Sarmatium inerme* de Man. Zool. Jahrb. Syst., Bd. 2 p. 660 and 687 — Cochinchina and Poeloe Condore.

7. *Sarmatium integrum* (A. Milne-Edwards).

1873. *Metagrapsus integer* A. Milne-Edwards. Nouv. Arch. Mus. Paris, t. 9 p. 309, pl. 17 f. 3 — New Caledonia.  
1887. *Sarmatium integrum* de Man. Zool. Jahrb. Syst., Bd. 2 p. 660 — no new locality.

8. *Sarmatium pectinatum* (H. Milne-Edwards).

1853. *Metagrapsus pectinatus* H. Milne-Edwards. Ann. Sc. nat., (3) t. 20 p. 189 — Martinique.

9. *Sarmatium punctatum* (A. Milne-Edwards).

1865. *Sesarma indica* Heller nec H. Milne-Edwards. Crust. Reise „Novara”, p. 64 — Ceylon, Nicobars.  
1873. *Metagrapsus punctatus* A. Milne-Edwards. Nouv. Arch. Mus. Paris, t. 9 p. 308, pl. 17 f. 2 — New Caledonia.  
1880. *Metagrapsus punctatus* de Man. Notes Leyden Museum, v. 2 p. 31 — Padang.  
1887. *Sarmatium punctatum* de Man. Zool. Jahrb. Syst., Bd. 2 p. 660 — no new locality.  
1892. *Sarmatium punctatum* Thallwitz. Abhandl. Mus. Dresden, Bd. 3 n<sup>o</sup>. 3, 1890—91, p. 41 — Madras.

Specimens in the Museum :

- 1 ♂, Padang (examined by de Man 1880).

This species closely resembles *Sarm. fryatti*, but besides by the width of the front exceeding half the distance between the external orbital angles, the carapace is everywhere smooth and shining, without any trace of hairs, and minutely punctate. The anterior margin of the front is regularly convex in dorsal view, with scarcely any trace of a median emargination; the upper border of the movable finger bears only two very thick and blunt spines, and the walking legs are much more robust than in *Sarm. fryatti*, the meropodites being only twice as long as broad. The shape of the abdomen of the ♂ is the same in both species.

D. *Clistocoeloma* A. Milne-Edwards 1873.1. *Clistocoeloma balansae* A. Milne Edwards.

1873. *Clistocoeloma balansae* A. Milne-Edwards. Nouv. Arch. Mus. Paris, t. 9 p. 311, pl. 17 f. 1 — New Caledonia.
1896. *Clistocoeloma balansae* de Man. Zool. Jahrb. Syst., Bd. 9 p. 340 — description of type-specimens.
1900. *Clistocoeloma balansae* Alcock. Journ. As. Soc. Bengal, v. 69 prt. 2 p. 429 — Nicobars<sup>1)</sup>.

2. *Clistocoeloma merguense* de Man.

1888. *Clistocoeloma merguensis* de Man. Journ. Linn. Soc. London, v. 22 p. 195, pl. 13 f. 10 — Kisseraing Island (Mergui Archipelago).
1890. *Clistocoeloma merguensis?* de Man. Notes Leyden Museum, v. 12 p. 92 — Amboyna.
- 1896—98. *Clistocoeloma merguensis* de Man. Zool. Jahrb. Syst., Bd. 9 p. 339, Bd. 10 pl. 31 f. 40 — Penang.
1900. *Clistocoeloma merguense* Alcock. Journ. As. Soc. Bengal, v. 69 prt. 2 p. 429 — Nicobars.

Specimens in the Museum:

- 1 ♀, Amboina, Ludeking coll. 1863 (examined by de Man 1890).

3. *Clistocoeloma tectum* (Rathbun).

1914. *Sesarma* (*Sesarma*) *tectum* Rathbun. Proc. U. S. Nat. Mus., v. 47 p. 78 — Port San Vicente, near Luzon (Philippines).

Pl. XVII Fig. 3.

This species has been recently made known by Miss Rathbun, who, however, erroneously referred it to *Sesarma*. I have examined a ♀ from Nias, belonging to the Amsterdam Zoological Museum and besides, 3 ♀ and 1 ♂ collected by the „Siboga”-expedition in the Talaut Archipelago. As the ♂ has not yet been described, it is not without importance to put forth its principal features.

The species belongs clearly to the present genus, on account of the outer antennae being completely excluded from the orbit. by means of a triangular lobe rising from the inner part of the inferior orbital border and being nearly in contact with the lateral corner of the

1) Judging from Alcock's description I should think, that his specimens belong to *Cl. tectum*, as the carapace is said to be "boldly and symmetrically lobulated".

front. The outer appearance is much like that of the other species of *Clistocoeloma*; carapace and legs are everywhere covered with a close down of short hairs, the postfrontal lobes are little projecting, the front is bent obliquely, not perpendicularly, downward, the lateral margins of the carapace are toothed anteriorly, and the upper orbital border is very oblique.

*Cl. tectum* bears a very great resemblance to *Cl. balansae* A. Milne-Edwards, on account of the carapace being quadrate, and the distance between the outer orbital angles only slightly or not at all exceeding the length of the carapace, and the external postfrontal lobes being subdivided into two small tubercles. It differs by the course of the upper orbital border, that is not waved, by the tubercles on the carapace, the shape of the abdomen of the ♂ and probably by some other characters.

The carapace, as has been said, is quadrate; its surface is somewhat curved in a transverse direction, but nearly straight longitudinally, though very much uneven. The place of the large tubercles has been indicated by Miss Rathbun, and may be seen in my figure: firstly there is a tubercle, at the level of the external orbital angle, behind each lateral postfrontal lobe, and a much larger one, lying farther backward, behind each median lobe; these tubercles are much better defined anteriorly than the postfrontal lobes themselves. Secondly there is a somewhat concave row of 7 tubercles of different size: on the mesogastric region is lying the median of these tubercles; at either side of it is found a somewhat larger one, and finally there are again two very small ones, laterally of the larger one, on the hepatic areas. The cardiac region has three rather large tubercles, two anteriorly and one posteriorly, and laterally of these there are again two longitudinally-elongated tubercles on the inner parts of the branchial regions. These tubercles are not much prominent, but nevertheless they are very conspicuous in alcohol-specimens, on account of their being covered by some longer and thicker hairs, of a brownish colour, that are at once marked out among the very short, greyish or blackish hairs of the general fur of the carapace, which latter hairy covering affords a characteristic general dark hue to the animal. When the hairy coating is removed the carapace is smooth, shining, minutely punctate.

The front is bent obliquely-downward, ill-defined towards the post-frontal lobes, rather high ( $3\frac{1}{2}$  times as long as broad), with concave surface, and somewhat projecting anterior margin; the latter bears a narrow, distinct emargination in the middle, the lateral parts are sloping somewhat obliquely-backward, and each part has two small prominences, so that six of them are in all counted; the hairs are somewhat longer

at the margin than on the surface itself, and, besides, there is a tuft of longer hairs on each side, beneath and somewhat outward of the median postfrontal lobes; the lateral margins of the front are concave, and the angles, where again a small tuft of hairs is observed, are rectangular, so that the anterior margin slightly exceeds the breadth of the front between the eye-stalks; the latter width is  $\frac{2}{3}$  of the distance between the outer orbital angles. The postfrontal lobes are indistinct, owing to the hairy covering, and the grooves separating them are very shallow, and broad, but, after removal of the hairs, the median lobes prove to be twice as large as the external ones, and the latter are divided, by a very indistinct furrow, into two parts, the outer one being the larger and situated farther forward. According to Miss Rathbun the postfrontal lobes are "prominent and deeply separated, the outer a little narrower than the inner", but this difference from my description may be perhaps merely subjective. The orbits are very high, owing to the fact, that the upper orbital border is very much sloping backward, but there is no trace of a convex inner part, as in *Cl. balansae*; it is regularly curved and passes with a right angle into the small external orbital angle; the latter is, however, still somewhat larger than the anterior epibranchial tooth, and has a convex outer margin, that is separated from the following tooth by a deep incision, though in other case this incision is much less marked, and, likewise, the tip of the epibranchial tooth may be somewhat pointed or quite obtuse. Again, behind the anterior epibranchial tooth, there is a second, with convex outer margin, that is somewhat longer than that of the preceding tooth, but scarcely defined posteriorly. All the teeth have thickened, minutely punctate margins, and this character is caused by the insertion of numerous thick, brown hairs, that project beyond the teeth, and make them look much longer than they really are, especially in the case of the posterior tooth; in fact the distance between external orbital angles and epibranchial teeth is about the same and about equal to the length of the carapace in the median line, though more exactly so in the older specimens, at least in my only full-grown ova-bearing ♀; Miss Rathbun has, besides, observed the same in her only specimen, an adult ♀. The lateral margins of the carapace are exactly parallel, but slightly hollowed out immediately behind the posterior epibranchial teeth.

The abdomen of the ♂ (Fig. 3c) is much like that of the other species of this genus, but the 5th segment is as long as the 6th segment, though distinctly longer than the preceding joint; the posterior margin of the penultimate segment is only  $2\frac{1}{2}$  times (in the other species nearly three times) the length of this joint. The last segment is much shorter

than in the other species, its length slightly exceeding the breadth at the base and the length of the preceding segment, whereas both in *Cl. balansae* and *Cl. merguense* the length of the last segment distinctly exceeds its breadth at the base and is twice as long as the preceding segment (de Man 1896).

All the minute characters of the chelipeds are, like those of the walking legs, concealed beneath the same continuous fur, that clothes the upper surface of the carapace, and among this fur numerous small tufts of somewhat longer hairs are freely scattered. Only the fingers of the chelae and the tip of the dactyli are free from hairs, the former are of an ivory colour, very conspicuous against the general dark hue of the palm. If the upper border of the arm of the cheliped be denuded, a minute, rectangular subdistal tooth proves to be present, as has been observed by Miss Rathbun, but it is wanting in the other species (de Man 1896); the anterior and posterior border are smooth, not at all toothed, the former scarcely expanded near its distal end. The carpopodite (wrist) is rugose; the upper surface bears some large tubercles, each of which is covered by a tuft of hairs; the inner angle is somewhat produced in my specimens, though it is described as being blunt by Miss Rathbun, as in the other species of this genus. The palm (Fig. 3a) is somewhat longer than the fingers, about as long as high, smooth and shining, continuously covered at the outer surface with hairs, but with denuded patches at the inner face, and with isolated tufts of hairs outside the upper border; the latter is somewhat better marked in the ♀ than in the ♂ and very finely punctate, but in the latter sex a distinct pectinated crest, consisting of more than 30 horny-coloured, pointed and erect teeth, is observed, the height of which teeth is largest in the middle of the longitudinal crest and decreases towards both ends. A similar crest occurs in the ♂ of the other species (de Man 1896).

The fingers, as has been said, are naked, with only some patches of hairs near the base; they are shorter than the palm, not gaping, straight, with smaller and larger pits at both inner and outer surface, arranged in indistinct longitudinal rows, but elsewhere smooth and shining; the tips are provided with horny margins, and the crenulation of the cutting margins is not very prominent; the under margin of the immobile finger is in a straight line with that of the palm. The upper border of the movable finger of the ♂ presents a longitudinal row of 14—15 transverse tubercles, extending to near the tip; the proximal tubercle, near the base, is rounded off, but the following are oval, their longer axis being not exactly perpendicular to the long axis

of the finger, but slightly oblique, as the inner end reaches farther forward (this character is not indicated in my figure 3a); the proximal slope is twice as long as the distal one, but the tubercles are obtuse at the tip, without smooth ridge, and entirely destitute of sculpture. This row of tubercles agrees with that described by de Man (1896) in the other species of this genus, and, likewise, it seems to be entirely absent in the young ♀; only the ova-bearing ♀, that is considerably larger than my only ♂, presents a similar row on the mobile finger<sup>1)</sup>, though the tubercles are smaller and somewhat less in number; in young ♀ the upper border is only punctate.

The meropodites of the walking legs are "bordered by irregular tufts of hair which have the appearance of lobes", as Miss Rathbun rightly remarks; in fact, there are four such tufted lobes of longitudinally inserted hairs at the anterior margin, and a much smaller one on the tip of the meropodite; the median lobes are the larger, but the outer one, which occupies the place, where in other species a subdistal acute tooth is found, is better defined and more prominent, though likewise rounded off at the tip. The hinder margin of the meropodites are likewise wavy and the prominent parts are also provided with a tuft of longer hairs, the outer one being the most distinct, but the preceding lobe is the longest. The meropodites themselves are rather slender, their length being nearly 3 times the greatest breadth. The peculiar wavy course of the margins seems to be much better pronounced in this species than in its congeners; de Man has not made mention of it, but in the ♀ of *Cl. merguense*, examined by this author himself in 1890, I observed a similar character, though much less distinct than in *Cl. tectum*.

In comparing the two species, I observed, that the propodite of the penultimate pair of legs is distinctly shorter and comparatively broader in *Cl. merguense*: it is 3 times as long as broad in *Cl. tectum*, twice in *Cl. merguense*<sup>2)</sup>. The dactyli are distinctly shorter than the preceding joints, very thin, curved and pointed; the tips are hairless. Both margins of carpo- and propodite are clothed with hairs, that are longest at the posterior margin of the propodite of the last legs.

From *Cl. merguense* the present species is distinguished by the distance between the external orbital angles being about equal to the length of the carapace, by the latter being covered with large tubercles, arranged

1) It is curious, that Miss Rathbun, who likewise examined an adult ♀, of the same size as my largest ♀, apparently has overlooked this character.

2) In his figure of this species (de Man 1888) the legs are more slender, about as in *Cl. tectum*, but afterwards (1896) this author remarks, that they are in reality shorter than depicted by him.



in a regular way (in the single ♀ of *Cl. merguinese* small patches of hairs are observed on the anterior part of the carapace, much more numerous and rather irregularly disposed), by the lateral postfrontal lobes being subdivided, by longer propodites and shorter dactyli of the walking legs, and by some differences in the abdomen of the ♂. From the species of Milne-Edwards it is equally distinguished by the latter character, by the regular curve of the upper orbital border, being not convex in its inner half, and by the same differences in regard to the walking legs.

Dimensions :	1 ♂	2 ♀	3 ♀	
Distance between external orbital angles. . . . .	16.5	19.5	14.5	mm.
Length of carapace . . . . .	16.5	19.—	13.75	"
Breadth of front (at upper margin) . . . . .	10.—	12.5	9.5	"
Posterior margin of carapace. . . . .	8.25	9.5	7.—	"
Horizontal length of palm. . . . .	5.—	5.5	3.—	"
Height of palm . . . . .	5.5	6.5	3.5	"
Length of movable finger. . . . .	6.25	7.—	3.75	"
Length of meropodite	—	14.—	9.75	"
Breadth " " of penultimate	—	5.25	4.—	"
Length " carpo- + propodite pair of legs	—	14.—	11.—	"
" " dactylus	—	— <sup>1)</sup>	4.5	"
Posterior margin of 5th (antepenultimate) segment of abdomen	5.75	—	—	"
Length of 5th (antepenultimate) segment of abdomen	1.90	—	—	"
Posterior margin of 6th (penultimate) segment of abdomen	4.90	—	—	"
Length of 6th (penultimate) segment of abdomen	1.85	—	—	"
Base of last segment of abdomen	2.35	—	—	"
Length of last segment of abdomen	2.66	—	—	"

N<sup>o</sup>. 1 and 2 are „Siboga” specimens from the Talaut Archipelago (n<sup>o</sup>. 2 is adult, with numerous, small ovae beneath the abdomen), n<sup>o</sup>. 3 is from Nias.

## II. Habits and Distribution.

The few and scanty notes scattered about in the literature concerning the habits of the species we are here dealing with, indicate that the latter in the vast majority inhabit mangrove swamps, mouths of rivers and brooks and are even normally found in fresh water, far from the sea and high up into the country. Though not bound so strictly to fresh water as the true river crabs (Potamonidae), they nevertheless ascend rivers and brooks, may leave the water and wander about on land, where many

1) Absent in the specimen.

2) Measured under the microscope.

species of *Sesarma* are known to dig holes into which they retire at approaching danger, in the way of *Ocypode*; nay, some species, that were partly enclosed by de Man in a subgenus *Geosesarma*, on account of the few and large ovae, carried along by the ♀, normally live in woods, far from any water, hiding under leaves and fallen stems. Such species as frequent mangrove swamps are generally found together with the common fiddler crabs, but, unlike these, they do not seem to be gregarious, though they likewise dig holes above the flood-line. I know only of one species, that seems to be strictly marine, *Sesarma rupicola* Stimpson, which, according to its discoverer, „lives among rocks at about half-tide, on shores more or less exposed to the surf”. There are rather many species living both in brackish and in fresh water and, not content with this, are frequently found strolling about on land. These excursions are apt to expose the animals to many dangers, but the crabs seem to be gifted with real courage: at least *Sesarma dehaani* H. Milne-Edwards is known to defend „itself successfully from the attacks of small dogs” (Stimpson). They part with their limbs with the utmost ease. Birds and other land animals may prey upon them and pick away their limbs; the crabs themselves are likely to indulge in occasional battles, for the sake of the fair sex, but the loss of even the greater part of their legs does not seem to afflict them in the least, as the remaining stump rapidly buds out again (see also note on p. 206). I do not know of any species producing a sound, though it is not unlikely that the very prominent transverse crest at the inner face of the palm of *Sesarma taeniolata* White, at least in the case of the ♂, may serve for this purpose.

As to the distribution in the tropical countries, four areas are to be distinguished, the Indo-Pacific, the West African, the East and the West American regions. There is scarcely, if at all, a species of the genera here spoken of, occurring in more than one of this regions. *Metasesarma* and *Clistocoeloma* are Indo-Pacific; also *Sarmatium*, with the exception of one species (*Sarm. pectinatum* H. Milne-Edwards) in the East American, and another (*Sarm. curvatum* H. Milne-Edwards) in the West African region. South Africa belongs in this respect wholly to the Indo-Pacific region, in which the vast majority of *Sesarma*-species occur.

The following list contains the species of *Sesarma*, *Metasesarma*, *Sarmatium* and *Clistocoeloma*, found in the Indo-Pacific region. With an asterisk are marked those species that are contained in the collection of the Leiden Museum, or, at least, will form part of it before long.

*Ses. (Ses.) aequifrons* Rathbun.

\**Ses. (Ses.) umphinome* de Man.

- \**Ses.* (*Parases.*) *andersoni* de Man.
- \**Ses.* (*Ses.*) *angustifrons* A. Milne-Edwards.
  - Ses.* (*Ses.*) *aranea* Nobili.
- \**Ses.* (*Ses.*) *atrorubens* Hess.
- \**Ses.* (*Parases.*) *bataviana* de Man.
- \**Ses.* (*Parases.*) *batavica* Moreira.
- \**Ses.* (*Chirom.*) *bidens* (de Haan) with subsp. *indica* de Man.
- \**Ses.* (*Ses.*) *bocourti* A. Milne-Edwards.
- \**Ses.* (*Ses.*) *brockii* de Man.
- \**Ses.* (*Parases.*) *calypso* de Man with subsp. *kükenthali* de Man.
  - Ses.* (*Parases.*) *carolinensis* Rathbun.
  - Ses.* (*Parases.*) *catenata* Ortmann.
  - Ses.* (*Ses.*) *celebensis* Schenkel.
  - Ses.* (*Ses.*) *clavicruris* Schenkel.
  - Ses.* (*Ses.*) *cruciata* Bürger.
- \**Ses.* (*Hol.*) *dehaani* H. Milne-Edwards.
  - Ses.* (*Ses.*) *demani* Bürger.
  - Ses.* (*Parases.*) *dumacensis* Rathbun.
  - Ses.* (*Chirom.*) *dussumieri* H. Milne-Edwards.
- \**Ses.* (*Parases.*) *edamensis* de Man.
- \**Ses.* (*Ses.*) *edwardsi* de Man with subsp. \**brevipes* de Man, *crassimana* de Man, *laevimana* Zehntner and *philippinensis* Rathbun.
  - Ses.* (*Hol.*) *elongata* A. Milne-Edwards.
- \**Ses.* (*Parases.*) *erythrodactyla* Hess with subsp. *africana* Ortmann.
  - Ses.* (*Hol.*) *eulimene* de Man.
- \**Ses.* (*Chirom.*) *eumolpe* de Man.
- \**Ses.* (*Hol.*) *eydouxi* H. Milne-Edwards.
  - Ses.* (*Parases.*) *fasciata* Lanchester.
  - Ses.* (*Ses.*) *finni* Alcock.
- \**Ses.* (*Ses.*) *gracilipes* H. Milne-Edwards.
- \**Ses.* (*Hol.*) *granosimana* Miers.
  - Ses.* (*Chirom.*) *guttata* A. Milne-Edwards.
- \**Ses.* (*Hol.*) *haematocheir* (de Haan).
  - Ses.* (*Chirom.*) *haswelli* de Man.
- \**Ses.* (*Ses.*) *impressu* H. Milne-Edwards.
- \**Ses.* (*Ses.*) *indica* H. Milne-Edwards.
- \**Ses.* (*Ses.*) *intermedia* (de Haan).
- \**Ses.* (*Ses.*) *jacobsoni* Ihle.
  - Ses.* (*Ses.*) *jousseau mei* Nobili.
  - Ses.* (*Ses.*) *kraussi* de Man.
  - Ses.* (*Ses.*) *laevis* A. Milne-Edwards.

- \**Ses. (Ses.) lufondi* Jacquinet et Lucas.  
*Ses. (Ses.) lunata* Alcock.  
*Ses. (Hol.) latifemur* Alcock.  
*Ses. (Parases.) lenzii* de Man.  
*Ses. (Ses.) leprosa* Schenkel.  
 \**Ses. (Parases.) leptosoma* Hilgendorf.  
*Ses. (Hol.) limbensis* Rathbun.  
 \**Ses. (Chirom.) livida* A. Milne-Edwards.  
*Ses. (Ses.) longipes* Krauss  
 \**Ses. (Ses.) maculata* de Man.  
 \**Ses. (Ses.) meinerti* de Man.  
*Ses. (Parases.) melissa* de Man.  
*Ses. (Ses.) mindanuoensis* Rathbun.  
*Ses. (Ses.) minuta* de Man.  
 \**Ses. (Ses.) modesta* de Man.  
 \**Ses. (Ses.) moeschii* de Man.  
*Ses. (Parases.) moluccensis* de Man with subsp. *jamelensis* Rathbun.  
*Ses. (Parases.) murrayi* Calman.  
*Ses. (Ses.) nannophyes* de Man.  
*Ses. (Hol.) neglecta* de Man.  
 \**Ses. (Ses.) nodulifera* de Man with subsp. *conferta* Ortman.  
*Ses. (Hol.) obesa* Dana.  
*Ses. (Hol.) obtusifrons* Dana.  
*Ses. (Ses.) ocyпода* with subsp. \**gracillima* de Man.  
 \**Ses. (Chirom.) onychophora* de Man.  
 \**Ses. (Ses.) palawanensis* Rathbun.  
*Ses. (Parases.) pangauranensis* Rathbun.  
*Ses. (Ses.) pentagona* Hutton.  
*Ses. (Ses.) peraccae* Nobili.  
 \**Ses. (Parases.) picta* (de Haan).  
 \**Ses. (Parases.) plicata* Latreille.  
 \**Ses. (Ses.) polita* de Man.  
*Ses. (Ses.) pontianacensis* de Man.  
 \**Ses. (Ses.) rotundata* Hess.  
*Ses. (Ses.) rotundifrons* A. Milne-Edwards.  
*Ses. (Hol.) rupicola* Stimpson.  
*Ses. (Chirom.) semperi* Bürger.  
*Ses. (Chirom.) siamensis* Rathbun.  
*Ses. (Ses.) sinensis* H. Milne-Edwards.  
 \**Ses. (Ses.) smithii* H. Milne-Edwards.  
 \**Ses. (Hol.) stormi* de Man.

- Ses.* (*Ses.*) *sylicola* de Man.  
 \**Ses.* (*Ses.*) *taeniolata* White with subsp. \**crebrestriata* Tesch.  
*Ses.* (*Ses.*) *tetragona* Fabricius.  
*Ses.* (*Ses.*) *thelxinoë* de Man.  
*Ses.* (*Ses.*) *tiomanensis* Rathbun.  
 \**Ses.* (*Ses.*) *trapezoidea* Guérin.  
*Ses.* (*Parases.*) *vestita* Stimpson.  
*Ses.* (*Ses.*) *vicentensis* Rathbun.  
 \**Ses.* (*Hol.*) *villosa* A. Milne-Edwards.  
*Ses.* (*Ses.*) *weberi* de Man.
- \**Metases.* *aubryi* A. Milne-Edwards.  
 \**Metases.* *rousseauxi* H. Milne-Edwards.  
*Metases.* *trapezium* (Dana).
- Sarm.* *birói* Nobili.  
 \**Sarm.* *crassum* Dana.  
 \**Sarm.* *fryatti* Tesch.  
*Sarm.* *indicum* (A. Milne-Edwards) with subsp. *malabaricum* Henderson.  
*Sarm.* *inerme* de Man.  
*Sarm.* *integrum* (A. Milne-Edwards).  
 \**Sarm.* *punctatum* (A. Milne-Edwards).
- Clistoc.* *balansae* A. Milne-Edwards.  
 \**Clistoc.* *merguiense* de Man.  
 \**Clistoc.* *tectum* (Rathbun).

Of the 123 species of *Sesarma* no less than 93, more than 75%, are living in the Indo-Pacific region. Some of these species have an extremely wide range, occurring from East Africa and Madagascar to New Caledonia and the Fiji Islands; others are very local. The Red Sea, that has no fresh water at all at its coasts, possesses only a single species (*Ses. jousseaumei*) and this has not been found elsewhere.

The only subregion seems to be Japan; at least I am inclined to believe, that nearly all the species of *Sesarma* recorded from Japanese and neighbouring seas, down to Cochinchina and the Gulf of Siam, do not occur elsewhere. These species are: *Ses. bidens*, *dehaani*, *haematocheir*, *intermedia*, *neglecta*, *picta*, *plicata*, *rupicola*, *sinensis* and *vestita*. Some of these (*bidens*, *picta*) are recorded from some localities in the Indian Ocean or the Malay Archipelago, but in the case of *Ses. bidens* all specimens from other localities than Japan are perhaps to be referred to the sub-

species *indica*, and in the case of *Ses. picta* the records from the Indian Ocean and even of South Africa are not at all certain. Only *Ses. plicata* (= *quadrata*) is a very widely-spread species. The occurrence of *Ses. haematocheir* at Singapore must be regarded either as quite exceptional or even accidental.

Of the Indo-Pacific species of *Sesarma* 14 (6) belong to the subgenus *Holometopus*, 51 (24) to *Sesarma s.s.*, 19 (9) to *Parasesarma* and 9 (4) to *Chiromantes*. Of all the 93 species the Museum contains 43, and the numbers in brackets indicate how these are distributed over the four subgenera. At the close of this paper I have given a key to all the Indo-Pacific species of the genera here spoken of.

The West African region contains the following species:

- \**Ses. (Chirom.) africana* H. Milne-Edwards.
- \**Ses. (Hol.) angolensis* Brito Capello <sup>1)</sup>.
- \**Ses. (Hol.) büttikoferi* de Man <sup>1)</sup>.
- \**Ses. (Hol.) elegans* Herklots.
- \**Ses. (Chirom.) kamermani* de Man.
- Ses. (Hol.) roberti* H. Milne-Edwards.

- \**Sarm. curvatum* H. Milne-Edwards.

These species have been enumerated already by Miss Rathbun (see note on this page). Of the 6 species of *Sesarma* 4 belong to *Holometopus* and 2 to *Chiromantes*, the subgenera *Parasesarma* and *Sesarma s.s.* being not at all represented; *Parasesarma* is wholly confined to the Indo-Pacific region.

As in many other instances both coasts of the Atlantic have some forms in common, viz. *Ses. africana* and *Ses. roberti*; the first of these is at least recorded by Miss Rathbun from Barbados, and the second seems to have its principal habitat in the West Indies. These are the only instances of species of the genus *Sesarma*, occurring in two of the four areas of distribution.

With the exception of *Ses. roberti* all the West African species are contained in the Leiden Museum; in 3 cases (*Ses. büttikoferi*, *elegans* and *kamermani*) the type-specimens are even present; and the only species of *Sarmatium* is represented by the type-specimens of *Ses. violacea* Herklots.

In the East American region the following species have been found:

<sup>1)</sup> This species has been erroneously referred by Miss Rathbun (Proc. U. S. Nat. Mus., v. 22, 1900, p. 280) to *Parasesarma*.

- Ses.* (*Chirom.*) *africana* H. Milne-Edwards.  
\**Ses.* (*Hol.*) *angustipes* Dana.  
\**Ses.* (*Hol.*) *benedicti* Rathbun.  
*Ses.* (*Ses.*) *bidentata* Benedict.  
*Ses.* (*Hol.*) *cinerea* (Bosc).  
*Ses.* (*Ses.*) *crassipes* Cado.  
\**Scs.* (*Ses.*) *curaçaoensis* de Man.  
*Ses.* (*Hol.*) *hanseni* Rathbun.  
*Ses.* (*Ses.*) *jarvisi* Rathbun.  
*Ses.* (*Hol.*) *miersii* Rathbun.  
\**Ses.* (*Hol.*) *recta* Randall.  
*Ses.* (*Ses.*) *reticulata* Say.  
\**Ses.* (*Hol.*) *ricordi* H. Milne-Edwards and subsp. *terrestris* Verrill.  
\**Ses.* (*Hol.*) *roberti* H. Milne-Edwards.  
*Ses.* (*Hol.*) *rubripes* Rathbun.  
*Ses.* (*Hol.*) *tampicensis* Rathbun.  
*Ses.* (*Ses.*) *verleyi* Rathbun.
- Sarm.* *pectinatum* H. Milne-Edwards.

Thus there are 17 species of *Sesarma* (10 of *Holometopus*, 6 of *Sesarma* s.s. and 1 of *Chiromantes*). So, along both coasts of the Atlantic, *Holometopus* furnishes most of the *Sesarma*-species, unlike the ratio of numbers in the Indo-Pacific region. The majority of species has been found in the West Indies, and two species from these islands are also found at the opposite coast of West Africa (*Ses. africana* and *Ses. roberti*, see preceding page). One species (*Ses. reticulata*) extends far to the north, even to New Haven, where, according to S. J. Smith, it inhabits salt marshes. On the Bermudas two species are found: *Ses. cinerea* and *Ses. ricordi*, the latter with the subspecies *terrestris*. The Leiden Museum contains 6 of the 17 *Sesarma*-species here enumerated.

Miss Rathbun (Proc. Biol. Soc. Washington, v. 11, 1897, p. 97) has given a very useful, though rather concise, key to all the American species of *Sesarma*. Since then, however, several new species have been made known (*Ses. jarvisi*, *tampicensis* and *verleyi* by the same author, and the subsp. *terrestris* of *Ses. ricordi* by Verrill).

The West American region contains only the following species:

- Ses.* (*Ses.*) *aequatorialis* Ortmann.  
*Ses.* (*Hol.*) *angusta* Smith.  
*Ses.* (*Ses.*) *barbimana* Cano.  
*Ses.* (*Hol.*) *biolleyi* Rathbun.

- Ses. (Hol.) festae* Nobili.  
*Ses. (Hol.) occidentalis* Smith.  
*Ses. (Ses.) ophioderma* Nobili.  
*Ses. (Ses.) rhizophorae* Rathbun.  
*Ses. (Ses.) sulcata* Smith.

Of these 9 species 4 belong to *Holometopus* and 5 to *Sesarma* s.s. In Miss Rathbun's key to the American *Sesarmæ*, above referred to, these species are included <sup>1)</sup>, with exception of *Ses. biolleyi*, *festae*, *ophioderma* and *rhizophorae*, that were afterwards described by the author herself and by Nobili. The majority of the species are from Central America; at the coast of California the genus does not seem to be at all represented, and south of Ecuador I know only of one single species (*Ses. barbimana* from Peru) <sup>2)</sup>. I have scarcely any doubt, that further collections from these little-explored regions will furnish several new forms of *Sesarma*.

None of the West American species of this genus are contained in the Leiden Museum.

### III. Key to the Indo-Pacific species of *Sesarma*, *Metasesarma*, *Sarmatium* and *Clistocoeloma*.

The four genera may be characterized by the following key:

- 1 Outer antennae not excluded from the orbit. 2  
 Outer antennae excluded from the orbit: the inner border of the latter with a prominent triangular lobe, that meets a projection of the lateral corner of the front, though there may remain a narrow gap between the inner orbital lobe and the front. 3

- 2 Carapace flattened or convex, with distinct and deeply separated postfrontal lobes; front vertically and generally abruptly deflexed; last segment of abdomen of ♂ usually shorter than broad at the base, that of ♀ (in adult specimens) deeply impacted in the foregoing segment.

*Sesarma*.

Carapace very convex; postfrontal lobes rounded-off anteriorly, not prominent; front obliquely deflexed, gradually declivous; last segment of abdomen of ♂ longer than broad at the base, that of ♀ not deeply impacted in the penultimate segment. *Sarmatium*.

1) *Ses. aequaloralis* has been afterwards added by the author on p. 112.

2) In Miss Rathbun's list of the Decapod Crustaceans from Peru and the adjacent coasts (Proc. U. S. Nat. Mus., v. 38, 1910, p. 590) six of the species here enumerated are recorded. In this paper the whole coast from Panama to Chiloë is taken into account.



- 3 Carapace smooth, shining, hairless; lateral margins not toothed behind the external orbital angles; postfrontal lobes only indicated by very narrow and short grooves, rather sharp anteriorly. *Metasesarma*.  
Carapace very uneven, covered (like the legs) with a dense fur; laksal margin toothed behind the external orbital angles; postfrontal lobes distinct, rounded off anteriorly, concealed beneath the general hairy coating. *Clistocoeloma*.

A. *Sesarma*.

Key to the subgenera:

- 1 Lateral margins of carapace not dentate behind the external orbital angles, or at most with traces of teeth. 2  
Lateral margins of carapace always dentate behind the external orbital angles. 3
- 2 Upper part of palm of chela either smooth or (in rare cases) with a single longitudinal pectinated crest. *Holometopus*.  
Upper part of palm with 2—3 transverse pectinated crests; superior border of movable finger mostly with a row of transverse tubercles. *Parasesarma*.
- 3 Upper part of palm of chela nearly always without pectinated crest; such a crest is present in some cases, but always longitudinal. *Sesarma s.s.*  
Upper part of palm of cheliped always with 2—3 transverse pectinated crests; superior border of movable finger with a longitudinal row of transverse tubercles. *Chiromantes* 1).

1. *Holometopus*.

- 1 Postfrontal lobes very inconspicuous, upper border of the front being perfectly straight and only with a very narrow incision in

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1) This subgenus was first established by de Man (1887) and afterwards (1895) called by him *Perisesarma*; Miss Rathbun however recently (1909) changed this name into *Chiromantes*. I could not make out the reason of this, but the latter name has been used in 1848 by Gistel (Naturgesch. d. Tierreichs, p. X, according to the „Index Zool.” of the Zoological Record 1880—1900, 1902, p. 72, and Carus' and Engelmann's Biblioth. Zool., Bd 1, 1861, p. 250). As the paper of Gistel is often quoted by Miss Rathbun, it must be supposed that the name *Chiromantes* has been proposed by Gistel to receive a species of *Perisesarma*.

the middle, separating the median lobes one from another; inner and outer lobes mostly not separated at all. Carapace smooth, perfectly hairless, with mesogastric region scarcely indicated. Front flattened, not rugose, with anterior margin not emarginated. Lateral margins of carapace convex, arcuate. Walking legs slender. Upper border of movable finger of cheliped smooth in full-grown specimens, with a row of transverse tubercles in young specimens.

*Ses. haematocheir* (de Haan).

Postfrontal lobes distinct. Carapace with regions better marked out, sometimes hairy. 2

2 Inner edge of carpopodite (wrist) of cheliped rounded or at least not conspicuously prominent. 3

Inner edge of carpopodite distinctly produced. 12

3 Mobile finger of cheliped transversely striated or tuberculated. 4  
" " " " smooth or armed with longitudinally  
disposed tubercles or spines. 9

4 Upper margin of palm with longitudinal pectinated crest <sup>1)</sup>, consisting of minute, horny-coloured teeth, close together. 5

Upper margin of palm without pectinated crest, sometimes with a single granulated line. 7

5 Mobile finger of cheliped at upper border with about 40 small transverse ridges. Carapace flattened, with parallel sides; distance between external orbital angles somewhat less than length of carapace (at least in adult specimens). Meropodites of walking legs foliaceous, breadth more than half their length; dactyli very short.

*Ses. elongata* A. Milne-Edwards.

Distance between external orbital angles exceeding length of carapace. Meropodites of walking legs less enlarged, breadth less than half their length; dactyli longer. 6

6 Sides of carapace parallel; surface punctate, not hairy. Crest on upper margin of palm consisting of 20—25 brown, obtuse teeth, continued towards the carpal articulation into a granulated line; mobile finger at upper border with a row of 11—12 transverse tu-

1) At least in the ♂; in the ♀ the crest is often replaced by a row of obtuse granules.

bercles on the proximal half, each of which with a narrow, smooth stripe in its longer axis; distal half of mobile finger with 3—4 longer, less prominent tubercles and numerous transverse, somewhat convex ridges.

*Ses. eulimene* de Man.

Sides of carapace divergent posteriorly; surface with numerous tufts of hairs, looking like small tubercles. Crest on upper margin of palm consisting of 25—30 minute, horny-coloured teeth; mobile finger with 15—16 smooth, transverse tubercles, each of which has a shallow and narrow groove in its longer axis. Meropodites of walking legs at the anterior margin with a little prominent, rectangular, subdistal tooth.

*Ses. villosa* A. Mille-Edwards.

7 Length of carapace less than distance between external orbital angles; sides not divergent posteriorly. 8

Length of carapace more than distance between external orbital angles; sides divergent posteriorly. Mobile finger of cheliped with a milled crest consisting of about 40 teeth. Meropodites of walking legs much foliaceous, less than twice as long as broad; dactyli short, less than half the length of the very robust propodites.

*Ses. latifemur* Alcock 1).

8 Sides of carapace nearly parallel, only slightly converging posteriorly. Mobile finger of cheliped with 8—9 scalariform tubercles in ♂, 5—6 in ♀. Meropodites of walking legs more than twice as long as broad, with acuminate spine near the distal end of the anterior margin; propodites slender, more than 4 times as long as broad; dactyli short, not half the length of the preceding joint. *Ses. limbensis* Rathbun.

Sides of carapace distinctly converging posteriorly, immediately behind the external orbital angles. Mobile finger of cheliped at upper border with 15—20 smooth, transverse ridges. Meropodites of walking legs foliaceous, less than twice as long as broad, with rectangular, not acuminate, spine near the distal end of the anterior margin; propodites broad, about  $2\frac{1}{2}$  times as long as broad; dactyli rather long, slightly shorter than the preceding joint. *Ses. stormi* de Man.

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1) As Alcock himself admits, his species bears a very striking resemblance to *Ses. elongata* A. Milne-Edwards and it is not improbable, that these species are identical, but in *Ses. latifemur* no mention is made of the pectinated crest near the upper border of the palm of the cheliped (though something of this kind is indicated in Alcock's figure) and the sides of the carapace are „decidedly divergent posteriorly” (Alcock), not „nearly parallel” (de Man, 1892, in his description of the type-specimen of *Ses. elongata*). Moreover the former species has a comparatively much longer and narrower carapace.

- 9 Sides of carapace straight, not convexly arched. 10  
 Sides of carapace rather regularly convexly arched; greatest breadth of carapace considerably more than length. Front high, perpendicularly curved; anterior margin regularly convex in ♀, if viewed from above, in ♂ with very slight emargination. Postfrontal lobes rounded off, not sharp anteriorly. Inner surface of palm of cheliped with prominent, curved crest, consisting of 10—11 granules. *Ses. obtusifrons* Dana.
- 10 Upper border of mobile finger of cheliped with 2—3 longitudinal rows of very small tubercles. Japanese species, living on rocks below high-water mark, exposed to the surf; breadth of carapace about 20 mm. *Ses. rupicola* Stimpson.  
 Upper border of mobile finger of cheliped smooth or provided at most with very small tubercles, irregularly disposed. Species living on banks near brackish water; breadth of carapace exceeding 25 mm. 11
- 11 Carapace nearly quadraté, length nearly equal to distance between external orbital angles; sides slightly divergent posteriorly. Anterior margin of front deeply emarginate. *Ses. dehaani* H. Milne-Edwards<sup>1)</sup>.  
 Carapace longer, length distinctly less than distance between external orbital angles; sides convergent posteriorly. Anterior margin of front with a shallow and indistinct emargination. *Ses. neglecta* de Man.
- 12 Upper margin of palm with a distinct, horny-coloured, granulate crest. Mobile finger of cheliped furnished with 13—15 obtuse, spiniform tubercles. *Ses. eydouxi* H. Milne-Edwards.  
 Upper margin of palm without a continuous granulate crest. Mobile finger of cheliped with 8—9 acute tubercles. *Ses. granosimana* Miers.

## 2. *Sesarma* s.s.

(*Ses. pentagona* Hutton is not included in this key, on account of its being quite insufficiently known.)

- 1 Distance between external orbital angles more than or equal to (in rare cases even slightly less than) the length of the carapace in the median line. 2

1) *Ses. obesa* Dana is evidently nearly related to this species, but it is much smaller (length of carapace 6 mm., breadth 6.75 mm.), the palm seems to be very high, and the length of the movable finger equals the height of the palm; the walking legs are much less hairy than those of *Ses. dehaani*.

Distance between external orbital angles distinctly less than the length of the carapace in the median line. 42

- 2 Carapace and legs closely covered with a dense fur amid which are "freely scattered little dense, adherent tufts of hair resembling tubercles" (Alcock); on either side of the carapace two obtuse epibranchial teeth, of the same shape and size as the external orbital angle; sides of carapace parallel. Upper border of palm of cheliped with a longitudinal crest. Meropodites of walking legs broad, though the breadth is less than half the length; apparently without subdistal tooth at the anterior margin. Small species, breadth of carapace about 10 mm. *Ses. lanata* Alcock<sup>1)</sup>.

These characters not combined. 3

- 3 Median postfrontal lobes narrower than outer ones; anterior margin of front nearly straight in the middle; sides of carapace parallel. Upper border of movable finger of cheliped at base with 2—3 smooth, oblique pliae, elsewhere smooth; upper border of palm with some oblique rows of granules. Small species with a breadth of carapace of less than 10 mm. *Ses. nannophyes* de Man.

These characters not combined. 4

- 4 Upper border of palm provided with longitudinal pectinated crest, consisting of minute, horny-coloured teeth, placed close together. 5

Upper margin of palm without such a pectinated crest, in some cases with a longitudinal row of granules. 6

- 5 Carapace flattened, subquadrate, with nearly parallel sides, and very small tufts of hair on the anterior part; second epibranchial tooth scarcely indicated. Pectinated crest at upper border of palm of cheliped consisting of about 35 teeth; upper border of movable finger with about 25 transverse tubercles, each of which is provided with a smooth stripe along the longitudinal axis of the tubercle. Walking legs rather long and slender, dactyli short. Middle-sized species, maximum breadth of carapace reaching to about 26 mm.

*Ses. brockii* de Man.

Carapace flattened, much more broad than long, with sides con-

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1) It is with some doubt, that this species is included here, for the whole appearance of the animal reminds one strongly of *Clistocoeloma* rather than of *Sesarma*. On the other hand it must not be forgotten that in the preceding subgenus *Ses. villosa* A. Milne-Edwards. that is a true *Sesarma*, bears a similar resemblance to *Clistocoeloma*.

vergent posteriorly; numerous tufts of hair on anterior parts of carapace; anterior epibranchial tooth well developed, acutely prominent; a second very small one may be present. Pectinated crest at upper border of palm of cheliped consisting of about 60 teeth; upper border of movable finger very regularly and transversely milled by minute grooves; in this way a longitudinal row of about 60 transverse, horny-coloured tubercles is formed; inner surface of palm with transverse granulated crest, that is very prominent in ♂. Large species, distance between external orbital angles reaching to about 40 mm.

*Ses. taeniolata* White <sup>1)</sup>.

- 6 Upper border of palm of cheliped with longitudinal row of granules, that of movable finger either regularly transversely milled or with a longitudinal keel (near base of finger) or groove. Walking legs very robust, meropodites foliaceous, their breadth being about half their length. Large species, distance between external orbital angles 30—40 mm. 7

These characters not combined. 9

- 7 Upper border of movable finger with about 25 transverse grooves, leaving the distal third of the finger free. Sides of carapace distinctly convergent posteriorly. *Ses. palawanensis* Rathbun.

Upper border of movable finger with a longitudinal keel near base or a groove. Sides of carapace (at least in adult specimens) nearly parallel. 8

- 8 Upper border of movable finger with a longitudinal keel.

*Ses. lafondi* Jacquinet et Lucas.

Upper border of movable finger with a longitudinal groove, in which 9—10 small tubercles are placed. *Ses. tetragona* (Fabricius).

- 9 Posterior margin of meropodites of walking legs with one larger tooth, and between this and the carpal joint 2—3 smaller teeth. Sides of carapace much convergent posteriorly. Wrist and outer surface of palm of chelipeds covered with a woolly fur. Small species, distance between external orbital angles 5 mm. *Ses. minuta* de Man.

Posterior margin of meropodites of walking legs always without any tooth, at most faintly crenulate. 10

1) The subspecies *crebrestriata* described by me in this paper (p. 203) may be distinguished especially by the number of the transverse tubercles at upper border of movable finger (85—90), that are much smaller and narrower than those of the genuine *taeniolata*. I have already referred (l. c.) to the probability of this subspecies being the ♂ of *Ses. lafondi* Jacquinet et Lucas.

- 10 Outer surface of palm of cheliped with a brush of longer hair. Carapace and legs covered with short hairs and tufts of longer hairs, as in *Ses. lanata* Alcock; sides of carapace nearly parallel, somewhat convergent posteriorly. Small species, distance between external orbital angles 5 mm.; in the Red Sea. *Ses. jousseaumei* Nobili.  
Outer surface of palm of cheliped without a brush of hair. 11
- 11 Sides of carapace very strongly divergent posteriorly. Walking legs very much elongated, penultimate pair of legs 3—4 times as long as distance between external orbital angles. 12  
Sides of carapace much less divergent posteriorly. Walking legs much shorter, at least less than 3 times the distance between external orbital angles. 13
- 12 Penultimate pair of walking legs about 4 times as long as the distance between the external orbital angles; propodite about 5 times as long as broad. A longitudinal row of 8—10 acute tubercles along the middle of the external surface of the immobile finger. Two epibranchial teeth on either side of the carapace behind external orbital angle; anterior margin of front rather deeply emarginate in the middle. Middle-sized species, greatest breadth of carapace about 18 mm.  
*Ses. kraussi* de Man.  
Penultimate pair of walking legs about 3 times as long as the distance between the external orbital angles; propodite about 3 times as long as broad. A longitudinal row of about 10 tubercles along the inferior border of the immobile finger. One single epibranchial tooth on either side of the carapace behind external orbital angle; anterior margin of front nearly straight. Middle-sized species, of the size of the preceding.  
*Ses. longipes* Krauss.
- 13 Two epibranchial teeth behind external orbital angle on either side of the carapace, the posterior still very distinct, prominent and acute; carapace very convex in longitudinal direction, and covered with dark tufts of hair on the anterior parts, distinctly broader between external orbital angles than long. Upper margin of arm of cheliped armed with an acute, very strong tooth near the distal end; inner angle of wrist produced into a spine. Large species, distance between external orbital angles 35—40 mm. 14  
These characters not combined. 15
- 14 Mesogastric region of carapace smooth. Anterior margin of front with a deep and narrow exargination. *Ses. indica* H. Milne-Edwards.

Mesogastric region of carapace with a median ridge. Anterior margin of front with a faint and broad emargination.

*Ses. tiomanensis* Rathbun.

- 15 Walking legs slender; meropodites of penultimate pair at least  $2\frac{1}{2}$  times as long as broad. Mostly small species. 16

Walking legs shorter, more robust; meropodites of penultimate pair about twice as long as broad. 32

- 16 Epibranchial teeth on either side of carapace, behind external orbital angle, very minute, not prominent, scarcely indicated by a thickening of the margin, both of equal shape; sides of carapace parallel, at least in their posterior half. Upper border of palm of cheliped defined by a longitudinal row of minute granules, that is, however, sometimes discontinuous. Postfrontal lobes sharpened anteriorly; front with nearly straight anterior margin. Walking legs very long and slender. 17.

Sides of carapace generally divergent posteriorly, rarely subparallel; distance between external orbital angles thus in most cases less than breadth of carapace at the level of the penultimate pair of legs; external orbital angle always defined posteriorly by a distinct incision, so that an epibranchial teeth, of the same general shape as the preceding tooth, though generally smaller and less acute, is formed; generally a trace of a second epibranchial tooth is present. 18

- 17 Superior and anterior border of arm of cheliped without subdistal tooth; outer surface of palm granulated, in the middle of the outer surface generally some tubercles unite to form an acuminate, prominent knob, that gives a characteristic appearance to the palm when looked at from above; upper border of palm with a granulated row, which is, however, often disconnected and interrupted at one or more places; upper border of movable finger with a longitudinal row of 12—16 acute spines with horny-coloured tips in ♂, with 5—6 sharpened granules only in ♀.

*Ses. gracilipes* H. Milne-Edwards.

Superior and anterior border of arm of cheliped with an acute tooth; outer surface of palm granulated, regularly convex, upper border "traversed, fore and aft . . . . . by a fine and finely milled ridge" (Alcock). *Ses. finni* Alcock.

- 18 Sides of carapace subparallel; width of front distinctly more than half the distance between external orbital angles. Middle-



sized species, distance between external orbital angles 18—22 mm.; in Chinese and Japanese seas. 19

Sides of carapace always more or less divergent posteriorly; width of front generally equal to half the distance between external orbital angles. Small species, distance between external orbital angles generally less than 14 mm. 20

- 19 A trace of a second epibranchial tooth present. Outer surface of palm of cheliped granulate, with an obliquely-longitudinal line in the middle, and beneath this line a defined group of larger granules. Meropodites of walking legs only  $2\frac{1}{2}$  times as long as broad.

*Ses. intermedia* de Haan.

No trace of a second epibranchial tooth. Outer surface of palm of cheliped finely granulate. Meropodites of walking legs more slender, three times as long as broad. *Ses. sinensis* H. Milne-Edwards.

- 20 Protogastric region of the carapace smooth and shining, not tuberculate, only finely punctate; median postfrontal lobes twice as broad as the external. Outer surface of palm of cheliped perfectly smooth, inner surface without transverse crest; upper border of movable finger wholly covered with irregularly-arranged, minute granules.

*Ses. thelxinoë* de Man.

Protogastric region of the carapace, like the rest, granulate, tuberculate, or hairy; median postfrontal lobes only  $1\frac{1}{2}$  times as broad as the external. Outer surface of palm of cheliped generally granulate. 21

- 21 Width of front (between eye-stalks) distinctly more than half the distance between external orbital angles. 22

Width of front (between eye-stalks) about exactly equal to or less than distance between external orbital angles. 24

- 22 Surface of carapace roughly pitted, with tufts of hair in most of the pits; behind each postfrontal lobe a tubercle, with a bunch of hair, the external of nearly the same size as the lobes and farther forward than the median ones. Inner surface of palm of cheliped smooth. Meropodites of walking legs  $2\frac{1}{2}$  times as long as broad.

*Ses. mindanaoensis* Rathbun.

Surface of carapace granulate, with some very small tufts of hair, but no larger, tufted tubercle behind each postfrontal lobe. Inner surface of palm of cheliped with transverse, sometimes even prominent,

row of granules. Meropodites of walking legs nearly 3 times as long as broad, in ♀ apparently somewhat broader than in the ♂. 23

- 23 Lateral margins of external orbital angles subparallel, longer than those of the epibranchial teeth; anterior margin of front with a deep emargination. Inner surface of palm of cheliped with prominent transverse crest, the edge of which is granulate.

*Ses. angustifrons* A. Milne-Edwards.

Lateral margins of external orbital angles much converging posteriorly, shorter than those of epibranchial teeth; anterior margin of front with a shallow emargination, not visible in front view; a transverse ridge on the surface of the front, on either side of the median emargination, about as broad as the inner postfrontal lobes, and near to the lower margin of the front. Inner surface of palm of cheliped with granular, transverse, not prominent row.

*Ses. amphinome* de Man.

- 24 Upper border of movable finger of cheliped very minutely transversely grooved. 25  
Upper border of movable finger of cheliped mostly with a longitudinal row of spinules. 26

- 25 Carapace punctate, with isolated small tufts of hair; lateral margin of external orbital angle longer than that of epibranchial tooth; distance between external orbital angles always less than length of carapace in the median line. Upper border of movable finger of cheliped granulate at base and with about 50 transverse grooves.

*Ses. weberi* de Man.

Carapace very strongly and closely granulate; lateral margin of external orbital angle shorter than that of epibranchial tooth; distance between external orbital angles equal to or slightly exceeding the length of the carapace in the median line. Upper border of movable finger of cheliped with numerous transverse grooves, at the inside of which a longitudinal row of 6—7 denticles is found.

*Ses. leprosa* Schenkel.

- 26 Upper border of movable finger of cheliped rather irregularly granulate, the granules occupying the proximal two-thirds of the finger, 8—10 of which are dentiform; under margin of immobile finger dentate; inner surface of palm with transverse row of granules.

*Ses. perraccae* Nobili.

- Upper border of movable finger of cheliped with a longitudinal row of spinules or tubercles. 27
- 27 Distance between external orbital angles larger than that between anterior epibranchial teeth. 28  
Distance between external orbital angles equal to that between anterior epibranchial teeth. 31
- 28 Upper margin of movable finger of cheliped armed with a longitudinal row of 5—6 spinules, at its proximal half only; outer surface of palm nearly smooth, punctate, near upper border sharply granulated and provided with obliquely-longitudinal and discontinuous lines of granules. *Ses. vicentensis* Rathbun.  
Upper margin of movable finger of cheliped armed with a longitudinal row of 9—13 spinules or tubercles (less in ♀), occupying the larger part of the finger; outer surface of palm granulate. 29
- 29 Upper border of movable finger of cheliped with 12—13 knob-like tubercles (somewhat less in ♀), each of which tubercles is surrounded by an ovoid patch. Eggs of ♀ few in number and large (subg. *Geosarma* de Man). Species living on Java. *Ses. nodulifera* de Man <sup>1)</sup>.  
Upper border of movable finger of cheliped with a row of acute spinules. 30
- 30 Carapace finely granulate, flattened. Upper border of movable finger of cheliped at inside with a row of 9—10 acute tubercles (somewhat less in ♀ and in young specimens). Dactyli of walking legs, save in the case of the last pair, shorter than the preceding joints. *Ses. aranea* Nobili.  
Carapace much more strongly granulate, rugose, convex in longitudinal direction. Upper border of movable finger of cheliped with a row of 13—15 acute denticles. Dactyli of walking legs about as long as preceding joints. *Ses. ocyropa* Nobili <sup>2)</sup>.
- 31 Upper border of movable finger of cheliped with a longitudinal row of 6—7 acute denticles. Posterior margin of penultimate segment

1) The subspecies *conferta* Ortmann is distinguished by more numerous and more crowded tubercles on the movable finger.

2) The subspecies *gracillima* de Man is distinguished by less numerous spinules on the movable finger, the proximal 4—5 of which are not directed obliquely forward, but perpendicularly to the long axis of the finger. Besides, the emargination of the front is deeper and narrower.

of abdomen of ♂ very broad, somewhat less than three times the length of this segment. Eggs of ♀ few in number and large (subg. *Geosesarma* de Man). *Ses. sylvicola* de Man.

Upper border of movable finger of cheliped with a longitudinal row of 9—10 acute denticles. Posterior margin of penultimate segment of abdomen of ♂ short, less than twice the length of this segment. Eggs of ♀ small and numerous. *Ses. maculata* de Man.

- 32 Outer surface of palm of cheliped concave or at least much flattened in dorsal view, so that a sharpened edge is formed near the carpal joint; palm very high, closely granulate. Carapace convex; with rather prominent, sharp postfrontal lobes; sides subparallel.

*Ses. bocourti* A. Milne-Edwards.

Outer surface of palm of cheliped regularly convex in dorsal view. 33

- 33 Carapace strongly vaulted in longitudinal direction, with bunches of black hairs on the anterior part; epibranchial teeth nearly always reaching much farther outward than external orbital angles (especially so in the case of ♀); side margins of carapace distinctly converging posteriorly. Penultimate segment of abdomen of ♂ narrow, only slightly broader at the posterior margin than long. Superior and anterior border of arm of cheliped wholly unarmed. Meropodites of walking legs rather slender, more than twice as long as broad. Large species, distance between external orbital angles reaching to 40 mm. 34

Carapace either naked or with sparse tufts of hair, in the neighbourhood of the postfrontal lobes and on the hepatic regions; distance between external orbital angles about equal to that between epibranchial teeth. 35

- 34 Posterior margin of carapace shorter than breadth of front, at least in the ♂; ratio of greatest breadth of carapace to length as 100 : 83.7<sup>1)</sup>.

*Ses. meinerti* de Man.

Posterior margin of carapace longer than breadth of front; ratio of greatest breadth of carapace to length as 100 : 79.4<sup>2)</sup>.

*Ses. rotundifrons* A. Milne-Edwards.

1) See de Man, Zool. Jahrb. Syst., Bd. 2, 1887 p. 669 (2 ♂).

2) See A. Milne-Edwards, Nouv. Arch. Mus. Paris, t. 5, 1869, Bull. p. 30 (1 ♂).

The difference between this species and the preceding remains doubtful, so long as nothing more definite is known about the species of Milne-Edwards, On p. 173 of the present paper I have pointed out, that also in the ♀ of *Ses. meinerti* the length of the posterior margin of the carapace may be longer than the width of the front between the eyes.

- 35 Sides of carapace parallel in their anterior half (slightly concave behind epibranchial teeth); distance between external orbital angles larger than or equal to that between epibranchial teeth. Middle-sized species, distance between external orbital angles 15—20 mm. 36  
 Sides of carapace not parallel; distance between external orbital angles nearly always less than that between anterior epibranchial teeth. 37
- 36 Anterior margin of front with a rather narrow and deep emargination; abdomen of ♂ very broad, posterior margin of penultimate segment more than three times the length of this segment (save in subsp. *crassimana* de Man). Wrist of cheliped produced at inner angle; inner surface of palm granulate, without transverse crest.  
*Ses. edwardsi* de Man <sup>1)</sup>.
- Anterior margin of front nearly without median emargination; abdomen of ♂ much narrower, posterior margin of penultimate segment about twice the length of this segment. Inner angle of wrist of cheliped obtuse; inner surface of palm with transverse granular crest.  
*Ses. moeschii* de Man.
- 37 Carapace flattened, smooth and shining, with indistinct regions. Small species, distance between external angles 10—11 mm. 38  
 Carapace vaulted, granulate or hairy, with distinct regions. 39
- 38 Ratio of breadth of carapace to length as 100 : 70; anterior margin of front nearly wholly straight. *Ses. laevis* A. Milne-Edwards.  
 Ratio of breadth of carapace (at anterior epibranchial teeth) to length as 100 : 84.2; anterior margin of front emarginate; side margins of carapace converging posteriorly. "Upper surface of palm flattened,

1) This species has been subdivided in no less than five subspecies, that may be distinguished by the following key (only the ♂):

- |   |                                                                                                                                                                          |   |
|---|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---|
| 1 | Terminal segment of abdomen of ♂ not at all inserted in penultimate segment.                                                                                             | 2 |
|   | " " " " " " somewhat " " " "                                                                                                                                             | 4 |
| 2 | Outer surface of palm distinctly granulate.                                                                                                                              | 3 |
|   | " " " " feebly " or smooth. subsp. <i>laevimana</i> Zehntner.                                                                                                            |   |
| 3 | Penultimate segment of abdomen of ♂ more than three times as broad at posterior margin as long. subsp. <i>edwardsi</i> de Man.                                           |   |
|   | Penultimate segment of abdomen of ♂ less than three times as broad at posterior margin as long. subsp. <i>crassimana</i> de Man.                                         |   |
| 4 | Legs rather slender, as in typ. <i>edwardsi</i> ; propodites of walking legs about 2½ times as long (in the middle line) as broad. subsp. <i>philippinensis</i> Rathbun. |   |
|   | Legs rather robust, shortened and thick; propodites of walking legs about twice as long (in the middle line) as broad. subsp. <i>brevipes</i> de Man.                    |   |

limited outwardly by a smooth, blunt ridge and inwardly by an uneven granulated margin" (Rathbun); inner surface of palm with a transverse row of granules. *Ses. aequifrons* Rathbun.

- 39 Lateral margin of external orbital angle shorter than that of anterior epibranchial tooth. Small species, breadth of carapace about 10—13 mm.; in Celebes. 40

Lateral margin of external orbital angle at least equal to or longer than that of anterior epibranchial tooth. Inner angle of wrist of cheliped dentate. Large or middle-sized species, breadth of carapace 20—40 mm. 41

- 40 Meropodites of walking legs very broad, club-like, less than twice as long as broad, with very convex anterior border, and the greatest breadth lying near the distal end. *Ses. clavicuris* Schenkel.

Meropodites of walking legs slightly more than twice as long as broad, with feebly arcuate anterior border. Eggs of ♀ large and few in number (subg. *Geosesarma* de Man). *Ses. celebensis* Schenkel.

- 41 Anterior margin of front scarcely emarginate in the middle; post-frontal lobes in a straight line, the outer lobes being not more advanced than the inner; distance between external orbital angles always distinctly more than length of carapace in the median line. Superior border of arm of cheliped with an obtuse prominence near the distal end; outer surface of palm with many confluent and irregular wrinkles (at least in ♂), inner surface without transverse row of granules; mobile finger at outer surface without concavity near base. Middle-sized species, breadth of carapace about 20 mm.

*Ses. modesta* de Man.

Anterior margin of front with a narrow and deep emargination; external postfrontal lobes slightly more advanced than the median ones (at least in adult specimens); distance between external orbital angles not rarely equal to or even less than length of carapace in the median line. Superior border of arm of cheliped with an acute tooth near the distal end; outer surface of palm strongly granulate, inner surface with a transverse row of granules; outer surface of immobile finger with a large depression, that of mobile finger with a narrow, but rather deep, longitudinal concavity near base. Large species, breadth of carapace reaching to nearly 40 mm.

*Ses. impressa* H. Milne-Edwards.

- 42 Sides of carapace parallel, upper surface very much flattened, smooth and shining; postfrontal lobes much prominent, sharply spinulous at their anterior margin. *Ses. polita* de Man.  
Sides of carapace convexly arched or divergent posteriorly, surface uneven. 43
- 43 Chelipeds and walking legs much hairy; meropodites of the latter very broad, their length being only  $1\frac{1}{2}$  times their greatest breadth, which is lying at the distal end. Postfrontal lobes very slightly pronounced, each of them tufted by long hairs. Very small species, breadth of carapace about 7—8 mm. *Ses. pontianacensis* de Man.  
Chelipeds not hairy at all, at least not at the outer surface of wrist, palm and fingers. Postfrontal lobes well indicated, sometimes rounded off at their anterior margin. 44
- 44 Sides of carapace convexly arched in their anterior half only, concave in their distal half; anterior epibranchial tooth with a very long lateral margin; second epibranchial tooth well indicated, prominent. Adult ♂ with two black, blunt spines at upper border of mobile finger. *Ses. smithi* H. Milne-Edwards.  
Sides of carapace convexly arched along their whole course, or divergent posteriorly; second epibranchial tooth, if present at all, very minute. Upper margin of movable finger in adult ♂ often with a longitudinal row of transverse tubercles or rounded knobs. 45
- 45 Greatest breadth of carapace lying at the level of the posterior epibranchial teeth; sides of carapace rather regularly convexly arched. 46  
Greatest breadth of carapace lying at the level of the penultimate part of legs; sides of carapace straight or even slightly concave, but always more or less divergent posteriorly. 47
- 46 Carapace flattened; inner postfrontal lobes nearly 3 times as broad as the outer ones. Inner angle of wrist of cheliped produced; upper margin of palm with a coarsely serrulate longitudinal crest. Dactyli of walking legs thickly tomentose, as also the outer border of the propodites. *Ses. rotundata* Hess.  
Carapace more vaulted; inner postfrontal lobes nearly as broad as the outer ones. Walking legs with only some few isolated hairs. *Ses. cruciata* Bürger.
- 47 Upper border of mobile finger of cheliped with a rather sharp,

but smooth keel, at the base of which some acute granules are found; at the inner side of this finger a longitudinal row of 9 tubercles (especially distinct in ♂); inner surface of palm with a transverse row of granules. Postfrontal lobes sharpened, and, like the anterior margin of the front, denticulate anteriorly. *Ses. demani* Bürger.

Upper border of mobile finger of cheliped without a longitudinal keel, in adult ♂ regularly transversely milled or provided with a row of tubercles. 48

- 48 Sides of carapace very strongly divergent posteriorly; lateral margin of external orbital angle as long as that of anterior epibranchial tooth; ocular peduncles short, corneae small. Outer surface of palm of cheliped smooth; upper border of movable finger with a longitudinal row of 9—10 widely-separated knobs. Walking legs robust, but with much elongated carpo- and propodite (save in the first pair); dactyli of two last pairs of legs very long and slender, nearly as long as anterior (outer) margin of the preceding joints. Species living in subterranean rivers at south coast of Java. *Ses. jacobsoni* Ihle.

Sides of carapace much less strongly divergent posteriorly, nearly parallel. Upper border of movable finger of cheliped (in adult ♂) with regular transverse grooves. Postfrontal lobes much prominent and sharp at anterior margin. 49

- 49 Carapace flattened, smooth, shining. Outer surface of palm of cheliped (in adult ♂) with a violet hue and a few very large, rounded, white tubercles; upper border of movable finger with a longitudinal row of 25—30 small, smooth, transverse ribs (in the ♀ the outer surface of the palm is light brown, and there are a great many more tubercles, that are much smaller; upper border of movable finger with some irregular granules). Walking legs robust; dactyli long, scarcely shorter than the preceding joints. *Ses. atrorubens* Hess.

Carapace more convex, with more distinct regions. Outer surface of palm of cheliped with some irregular granules; upper border of movable finger in adult ♂ regularly and transversely milled (40—50 minute grooves), in ♀ smooth. Walking legs slender; propodites much elongated; dactyli very slender, though shorter than propodites (in the individual variation *longitarsis* de Man this difference is however only very feebly marked). *Ses. trapezoidea* Guérin.



3. *Parasesarma* <sup>1)</sup>.

1. Posterior border of meropodites of walking legs with some spines near the distal end. 2  
 Posterior border of meropodites of walking legs without spines. 6
2. Fingers externally covered with woolly tufts of dark brown hair; upper border of movable finger with a row of 12 transverse tubercles. *Ses. batavica* Moreira.  
 (= *Ses. barbimana* de Man nec Cano).  
 Fingers glabrous, without hairs. Margins of carapace rather strongly convergent posteriorly. 3
3. Upper border of palm of cheliped (in ♂) with 2—3 oblique pectinated ridges, that near the base of the movable finger being the longer. Carapace hairy. 4  
 Upper border of palm of cheliped (in ♂) with more than 3 oblique pectinated ridges. Carapace glabrous and shining. 5
4. Distance between external orbital angles  $1\frac{1}{2}$  times the length of the carapace in the median line. Upper border of movable finger of cheliped with a row of 11—13 transverse tubercles. Walking legs very short and thickened; carpo- and propodite nearly as broad as long; dactyli very short, strongly curved. *Ses. edamensis* de Man.  
 Distance between external orbital angles only slightly more than length of carapace in the median line. Upper border of movable finger of cheliped smooth, with a sharpened, longitudinal keel. Walking legs moderately long; dactyli very slender. *Ses. vestita* Stimpson.
5. Carapace smooth, punctate; sides not much convergent posteriorly; a trace of an anterior and even of a posterior epibranchial tooth may be seen on either side behind the external orbital angle <sup>2)</sup>. Upper border of palm of cheliped (in ♂) with two larger pectinated ridges and no less than 7—8 smaller ones; upper border of mobile finger with a longitudinal row of 13—14 transverse ridges. Meropodites of walking legs with 4—5 teeth at the posterior margin near the carpal joint, diminishing in size distally. *Ses. andersoni* de Man.

1) The key to this subgenus has been constructed in the main after that of de Man (Notes Leyden Museum, v. 12, 1890, p. 97, and Zool. Jahrb. Syst., Bd. 9, 1895, p. 181). Of course the species described after the latter date are inserted.

2) By this character the species is approached to the subgenus *Chiromantes*, but here the epibranchial tooth is prominent and acute.

Carapace with numerous transverse striae, oblique on the branchial regions. Sides strongly convergent posteriorly, without a tooth behind the external orbital angle. Upper border of palm of cheliped with a longitudinal line, with a number of oblique lines on the inner, and some fainter ones on the outer sides; all these lines not pectinated, but beaded; upper border of mobile finger with some fine, oblique, beaded lines near the base. Meropodites of walking legs with 2—3 strong teeth at the posterior margin; meropodites of hinder legs moreover with 2 teeth, placed side by side, near the proximal end.

*Ses. murrayi* Calman.

- 6 Sides of carapace parallel. Transverse tubercles on upper border of mobile finger of cheliped smooth.

Sides of carapace convergent distally.

8

- 7 Upper border of mobile finger of cheliped with a row of 16 transverse tubercles, symmetrical with respect to the longer axis of the latter; inner surface of palm with a transverse row of granules. Width of front between the eyes only very slightly longer than half the distance between external orbital angles. Middle-sized species, distance between external orbital angles 20 mm.

*Ses. picta* de Haan.

Upper border of mobile finger of cheliped with only 5—6 obscure, low tubercles, that (according to the figure of Lanchester) are not symmetrical with respect to the longer axis of the tubercles, as the proximal slope is longer than the distal one; inner surface of palm without transverse row of granules, smooth. Width of front between the eyes distinctly more than half the distance between external orbital angles. Small species, distance between external orbital angles about 9 mm.

*Ses. fasciata* Lanchester.

- 8 Transverse tubercles on upper border of movable finger of cheliped symmetrical with respect to their longer axis, numbering 11—14, each of which has a narrow smooth stripe in its longer axis („*Chiton*”-like). Meropodites of walking legs very broad, not exactly twice as long as broad.

*Ses. plicata* (Latreille).

Transverse tubercles on upper border of movable finger of cheliped not symmetrical with respect to their longer axis, so that the proximal slope is longer or shorter than the distal one.

9

- 9 Proximal slope of the said transverse tubercles longer than distal one.

10

- Proximal slope of the said transverse tubercles shorter than distal one. 18
- 10 Both fingers of cheliped at base of outer and inner surface and along cutting margins with numerous short hairs; upper border of movable finger with 4—5 elongated, longitudinal, oval tubercles, each of which is finely and transversely milled. *Ses. catenata* Ortmann.  
Cheliped not hairy; tubercles at upper border of movable finger separated from each other and transverse. 11
- 11 Upper border of movable finger of cheliped with 9—10 tubercles in ♂ (7—8 in ♀), that are smooth, rounded off. Dactyli of walking legs only a third of the length of the very much elongated and slender preceding propodites.  
*Ses. leptosoma* Hilgendorf.  
Dactyli of walking legs longer, not very much shorter than the preceding joints. 12
- 12 Pectinated ridge near upper border of palm of cheliped one, running obliquely-longitudinal, not nearly transverse; tubercles at upper border of movable finger 7 in the proximal half, "each one is divided by a transverse line into a large proximal, and a small tuberculiform distal portion" (Rathbun). *Ses. dumacensis* Rathbun<sup>1)</sup>.  
Pectinated ridges near upper border of palm of cheliped generally two, running obliquely-transverse. 13
- 13 Inner surface of palm of cheliped with a transverse crest (in adult ♂ at least) or with a row of granules. 14  
Inner surface of palm of cheliped without trace of a transverse crest. 16
- 14 Tubercles at upper border of movable finger 12—13 in ♂ (9—10 much smaller ones in ♀), the proximal slope of which is transversely vaulted and provided with 3—4 somewhat prominent, transverse ridges, the distal slope has likewise 2—3 of these ridges. Mero-podites of penultimate pair of walking legs broadened, twice as long as broad.  
*Ses. calypso* de Man<sup>2)</sup>.

1) Of this species only the ♀ is known, and it cannot be said whether in the ♂ also only one pectinated ridge is found on the palm of the cheliped; frequently in the ♀ of *Parascarma* these pectinated ridges are greatly reduced in size, especially the hind one, and may be replaced even by granulate rows.

2) The subspecies *kükenthali* de Man is distinguished by a smaller number of tubercles (only 9 in the ♂), that are larger, and provided with 5—6 transverse ridges; moreover the transverse row of granules at the inner surface of the palm is quite absent.

Tubercles at upper border of movable finger 20—25, not conspicuously transversely vaulted on the proximal part, but longitudinally striated. 15

- 15 Anterior margin of front faintly concave. Upper border of arm of cheliped ending in an obtuse angle, anterior border with a denticulate prominence near the distal end; inner surface of palm with a prominent, transverse crest; pectinated ridges running parallel to the oblique posterior margin of the upper surface of the palm; outer surface of immobile finger without longitudinal rim.

*Ses. erythroductyla* Hess<sup>1)</sup>.

Anterior margin of front widely but profoundly emarginate. Upper border of arm of cheliped terminating in an acute tooth, anterior border with a triangular spine; inner surface with a very short, granulate, transverse crest of 6—7 granules (in ♂); pectinated ridges running nearly parallel to the joint of the palm and the movable finger; proximal part of outer surface of immobile finger with a longitudinal rim.

*Ses. bataviana* de Man.

- 16 Meropodites of penultimate pair of legs slender, about 3 times as long as broad. "Outer postfrontal lobes scarcely more than half as wide as inner ones, their anterior margin being continued downward toward the lower outer angle of the front" (Rathbun); width of front between the eyes not reaching to half the distance between external orbital angles. Near the upper border of the palm of the cheliped there are three longitudinally-oblique ridges, nearly parallel to the oblique posterior margin of the palm; upper border of movable finger with about 11 very small and low tubercles on the proximal half.

*Ses. pangauranensis* Rathbun<sup>2)</sup>.

Meropodites of penultimate pair of legs broader, twice as long as broad. Tubercles at upper border of movable finger of cheliped numbering 13—15. 17

1) The subspecies *africana* Ortman is distinguished by the lesser development of the prominent transverse crest at the inner surface of the palm, by the presence of an obtuse dentate lobe at the anterior (inner) border of the arm of the cheliped and by longer dactyli of the ambulatory legs, these dactyli being nearly as long as the preceding joints.

2) Of this small species only the ♀ is known; the ♂ will perhaps present much more characteristic features. On the whole it may be said, that it is very difficult to insert the species of Miss Rathbun (described in the Proc. U. S. Nat. Museum, v. 47, 1914) in the present keys, as no figures have as yet been published.

- 17 Anterior margin of front only faintly concave.

*Ses. carolinensis* Rathbun.

Anterior margin of front wavy, with three emarginations, the median one the larger; outer postfrontal lobes only slightly narrower than the inner ones; width of front between the eyes  $57-60\%$  of the distance between the external orbital angles. *Ses. lenzii* de Man.

- 18 Transverse tubercles on upper border of movable finger of cheliped 8—10, scalariform, distal slope vaulted, dull, not shining.

*Ses. moluccensis* de Man<sup>1)</sup>.

Transverse tubercles on upper border of movable finger of cheliped 15—16, smooth, bright, horse-shoe shaped (distal portion concave).

*Ses. melissa* de Man.

#### 4. *Chiromantes*.

- 1 Tubercles at upper borders of movable finger of cheliped numbering 12—13, large, prominent, „*Chiton*”-like (with a smooth stripe along their long axis, perpendicular to the longitudinal axis of the finger; outer surface of immovable finger flattened, with a longitudinal rim; anterior margin of arm with a subdistal, acute prominence, which is itself denticulate. Posterior margin of penultimate segment of abdomen of ♂ not yet  $1\frac{1}{2}$  times the length of this segment. Species living at the east coast of Africa. *Ses. guttata* A. Milne-Edwards.

Tubercles at upper border of movable finger of cheliped without a smooth stripe along their long axis. 2

- 2 Chelipeds equal: upper border of movable finger with a row of 12—13 tubercles, that are scalariform, flattened above and more or less declivous at their distal margin; inner surface of palm with very large spiniform granules, the largest of which are found in the middle of the inner surface; forming an indistinct, transverse row; anterior (inner) margin of arm armed with a prominent, triangular tooth, the margins of which are denticulate; superior border of arm unarmed; outer surface of immo-

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1) In the subspecies *jamelensis* Rathbun the carapace is a little narrower in proportion to its length and the front is also narrower in proportion to the distance between the external orbital angles; moreover the 9—10 tubercles on the upper border of the movable finger are obliquely-transverse.

- bile finger regularly convex, without longitudinal rim. Species found in British India. *Ses. dussumieri* H. Milne-Edwards<sup>1)</sup>.  
 These characters not combined 3
- 3 Tubercles at upper border of movable finger of cheliped scalari-form, flattened above, asymmetrical with respect to their long axis (which is perpendicular to the long axis of the finger), proximal slope longitudinally striated. 4  
 Tubercles at upper border of movable finger of cheliped symmetrical, proximal slope not longer than distal one, sometimes replaced by a row of spines. 6
- 4 Chelipeds unequal; upper border of movable finger with 18—19 tubercles; outer surface of immobile finger with longitudinal rim, parallel to the under border; length of immobile finger exceeding that of palm. *Ses. haswelli* de Man.  
 Chelipeds equal; upper border of movable finger with only 7—10 tubercles; length of immobile finger less than that of palm. 5
- 5 Said tubercles numbering 7—9, proximal slope elongated, with a small, smooth, quadrangular portion in the middle, in the shape of a human finger-nail, last tubercle very long, occupying more than one-fifth of the whole length of the finger.  
*Ses. onychophora* de Man.  
 Said tubercles numbering 9—10, somewhat oblique with respect to longitudinal axis of finger and arranged in 4—5 groups, each of which is composed of two tubercles of different aspect: the proximal tubercle of each group is horse-shoe shaped, with the concavity turned towards the tip of the finger, and the distal tubercle is straight, the proximal slope being vaulted transversely and striated longitudinally.  
*Ses. livida* A. Milne-Edwards.
- 6 Sides of carapace somewhat diverging posteriorly. Upper

1) In his „Materials for a carcinological fauna of India” (Journ. As. Soc. Bengal, v. 69, prt. 2. 1900, p. 415) Alcock unites *Ses. dussumieri*, *haswelli* and *livida* with *Ses. bidens*. It is true, that these four species present a striking resemblance to each other, but before more specimens and especially adult ones of each are examined, we are not justified to accept Alcock's synonymy. Moreover, among other characteristics, the size of the abdomen of the ♂ distinguishes *Ses. dussumieri* from *Ses. bidens*, as in the former species the posterior margin of the penultimate segment is  $1\frac{1}{2}$  times its length, in the latter twice this length.

border of movable finger of cheliped with a row of 6—7 acute spines, occupying the proximal two-thirds of the finger.

*Ses. siamensis* Rathbun.

Sides of carapace converging posteriorly. Upper border of movable finger of cheliped always with a row of obtuse tubercles. 7

- 7 Said tubercles numbering about 23, each of which is about  $2\frac{1}{2}$  times as long as broad (at least in the middle of the row, where they are largest), with a broad groove along its longer axis, the rim of which groove is ornamented by transverse striae, perpendicular to the longer axis of the tubercle; on the distal tubercles this groove disappears and the proximal slope becomes longer than the distal one, though the fine longitudinal striation remains, save on the 3—4 last tubercles near tip of finger.

*Ses. eumolpe* de Man.

Said tubercles numbering 7—13, not grooved along their longer axis. 8

- 8 Said tubercles numbering 7, strongly prominent, dome-shaped. Carapace strongly convex, smooth and shining. *Ses. semperi* Bürger.

Said tubercles numbering 12—13, less prominent, broader than long, proximal slope striated. *Ses. bidens* (de Haan) <sup>1)</sup>

#### B. *Metasesarma*.

- 1 Sides of carapace convergent posteriorly. Outer surface of palm of cheliped covered with spiniform granules. *Metases. trapezium* (Dana).

Sides of carapace convexly arched in their anterior part or parallel to each other. Outer surface of palm of cheliped smooth, punctate. 2

- 2 Inner infra-orbital lobe often in contact with the lateral processus of the anterior margin of the front, in such a way, that the orbital lobe in outer view is concealed by the frontal processus (though also the reverse may be observed); not rarely, however, there is a more or less wide gap between this orbital lobe and the frontal processus, so that the outer antenna is not excluded from the orbit; width of front always more than half the greatest breadth of the carapace. *Metases. rousseauri* H. Milne-Edwards.

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1) In the subspecies *indica* de Man there are only 11 tubercles on the upper border of the movable finger of cheliped; these tubercles are approximately quadrate, with both axes nearly equally long, and the finely-striated proximal slope is somewhat longer than the distal one; the posterior margin of the penultimate segment of the abdomen of the ♂ is somewhat less than twice the length of this segment, whereas it is more than twice this length in the typical species.

Inner infra-orbital lobe usually meeting the lateral processus of the anterior margin of the front, in such a way that the frontal processus in outer view is concealed by the orbital lobe; the contact is not always present, and a more or less wide gap between the antennar cavity and the orbit exists in this case; width of front always half the greatest breadth of the carapace.

*Metases. aubryi*. A. Milne-Edwards.

C. *Sarmatium* <sup>1)</sup>.

- 1 Sides of carapace with one or two epibranchial teeth behind the external orbital angle. 2

Sides of carapace entire, not toothed at all.

*Sarm. integrum* (A. Milne-Edwards).

- 2 Palm of cheliped smooth at outer surface. 3

Palm of cheliped roughly granulate at outer surface. 4

- 3 Carapace smooth, regions indistinct. Palm of cheliped (of ♂) at upper surface with 6—7 transverse, parallel crests; upper border of movable finger with 4 short spines in the ♂, none in the ♀.

*Sarm. crassum* Dana.

Carapace areolate, regions distinct (at least the mesogastric area). Palm of cheliped at upper surface quite smooth, and the same is true for the upper border of the movable finger, in both sexes; inner surface of palm with a transverse row of granules.

*Sarm. inerme* de Man.

- 4 Inner surface of palm of cheliped without transverse row of granules.

*Sarm. indicum* (A. Milne-Edwards) <sup>2)</sup>.

Inner surface of palm of cheliped with transverse row of granules. 5

- 5 Anterior margin of front with a deep median emargination, width of front between eye-stalks about half the distance between external orbital angles. Superior border of arm of cheliped without subdistal tooth; upper border of movable finger with 4—5 spines. Meropodites

1) This key has been based upon that given by Kingsley in his revision of the Grapsidae (Proc. Ac. Nat. Sc. Philadelphia, 1880, p. 212), and the new species have been inserted.

2) There is a subspecies *malabaricum* Henderson of this species, but I have had no occasion to study its main characters.



of walking legs (at least in the case of the penultimate pair) more than twice as long as broad. 6

Anterior margin of front nearly straight in dorsal view, width of front between eye-stalks  $\frac{1}{4}$  of the distance between external orbital angles; surface of carapace smooth and shining, without hairs, finely punctate; side margins much divergent posteriorly in their anterior half. Superior border of arm of cheliped with rectangular, subdistal tooth; upper border of movable finger with two thick, cone-shaped teeth (especially developed in the ♂). Meropodites of walking legs (at least in the case of the penultimate pair) exactly twice as long as broad; carpo- and propodite thickly hairy.

*Sarm. punctatum* (A. Milne-Edwards).

- 6 Lateral margins of external orbital angles subparallel to each other, only slightly diverging posteriorly, separated from the next tooth by a narrow incision; lateral margins of epibranchial teeth convergent posteriorly and shorter than those of outer orbital angles; no trace of a second (posterior) epibranchial tooth; postfrontal lobes very unequal, the inner more than twice as broad as the outer ones.

*Sarm. birói* Nobili.

Lateral margins of external orbital angles strongly divergent posteriorly, separated from the next tooth by a very deep incision; lateral margins of epibranchial teeth subparallel to each other, somewhat convex and distinctly longer than those of external orbital angles; a second (posterior) epibranchial tooth indicated; median postfrontal lobes only  $1\frac{1}{2}$  times as broad as the outer ones.

*Sarm. fryatti* Tesch.

#### D. *Clistocoeloma*.

- 1 Distance between external orbital angles distinctly more than length of carapace in the median line; external postfrontal lobes not subdivided by a short longitudinal groove. Last segment of abdomen of ♂ much longer than broad at the base, twice as long as the preceding segment.

*Cl. merguense* de Man.

Distance between external orbital angles about equal to length of carapace in the median line; external postfrontal lobes subdivided anteriorly by a very short longitudinal groove into two tubercles. 2

- 2 Superior orbital border convex in its inner part. 5<sup>th</sup> segment of abdomen of ♂ longer than 6<sup>th</sup> (penultimate) segment; terminal seg-

ment twice as long as preceding segment, posterior margin of the latter nearly three times the length of this segment.

*Cl. balansae* A. Milne-Edwards.

Superior orbital border regularly concave in its inner part; surface of carapace with regularly-distributed large, tufted tubercles. 5th segment of abdomen of ♂ as long as 6th (penultimate) segment; terminal segment only slightly longer than the preceding segment, posterior margin of the latter  $2\frac{1}{2}$  times the length of this segment.

*Cl. tectum* (Rathbun).

Leiden Museum, September 29, 1916.

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### EXPLANATION OF PLATES.

#### Pl. XV.

- Fig. 1. *Sesarma lafondi* Jacquinet et Lucas, ♀, natural size. 1a, front view of carapace, enl.  $1\frac{1}{2}$ . 1b cheliped, dorsal view, enl. 2.

#### Pl. XVI.

- Fig. 1. *Sesarma modesta* de Man, ♀, enl. 2.  
 Fig. 2. *Sesarma palawanensis* Rathbun, ♀, natural size. 2a cheliped, dorsal view, enl. 2.  
 Fig. 3. *Sesarma taeniolata* White, cheliped of ♂, dorsal view, enl.  $1\frac{1}{2}$ .  
 Fig. 4. *Sesarma taeniolata crebrestriata* n. subsp., cheliped of ♂, dorsal view, enl. 2.

#### Pl. XVII.

- Fig. 1. *Sesarma ocy-poda gracillima* de Man, ♂, enl. 2. 1a front of carapace, obliquely-anterior and dorsal view, enl. 3. 1b chela, outer surface, enl. 3.  
 Fig. 2. *Sesarma villosa* de Man, ♀, enl. 3.  
 Fig. 3. *Clistocoeloma tectum* (Rathbun), ♀, enl. 2. 3a cheliped of ♂, dorsal view, enl. 3. 3b outer view of chela of the same ♂, enl. 3. 3c abdomen of the same ♂, enl. 3.
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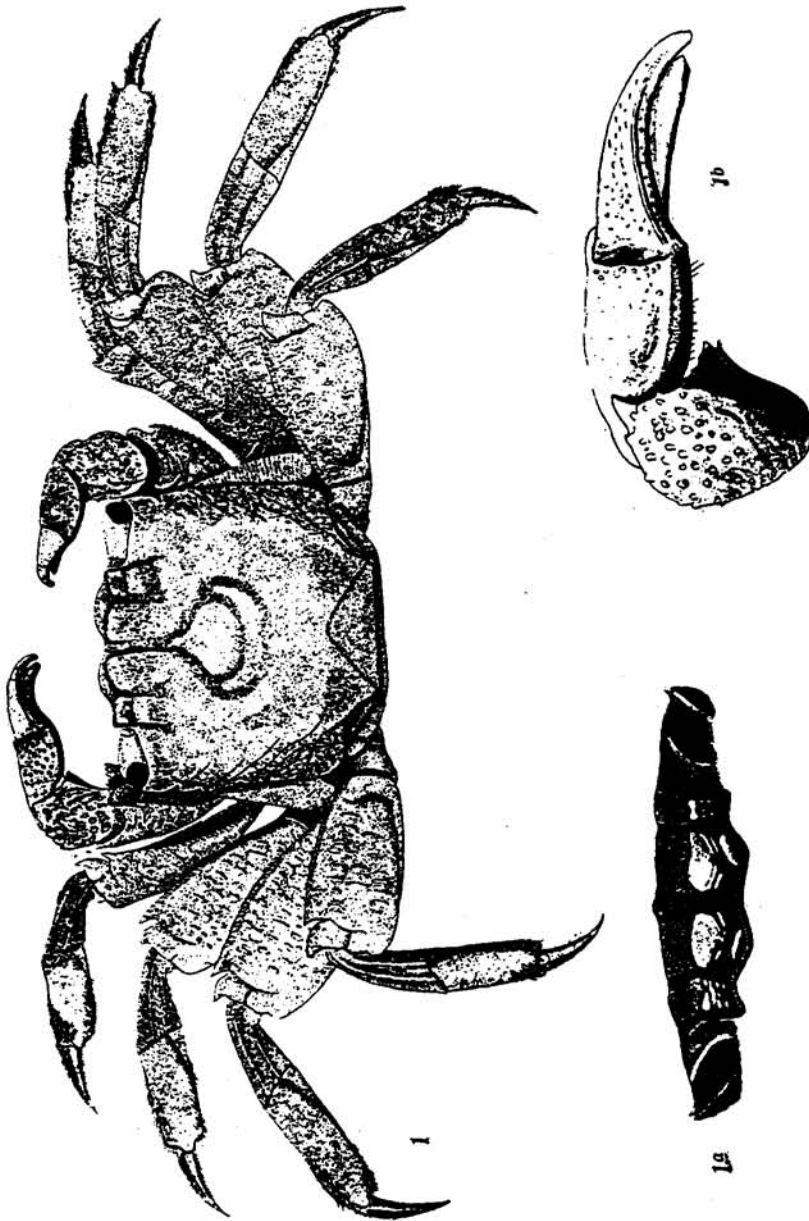


Fig. 1. *Sesarma (Sesarma) lafondi* H. M. Edw. ♀, nat. size.  
" 1a, front view of carapace, magn.  $1\frac{1}{2}$ .  
" 1b, cheliped, dorsal view, magn. 2.

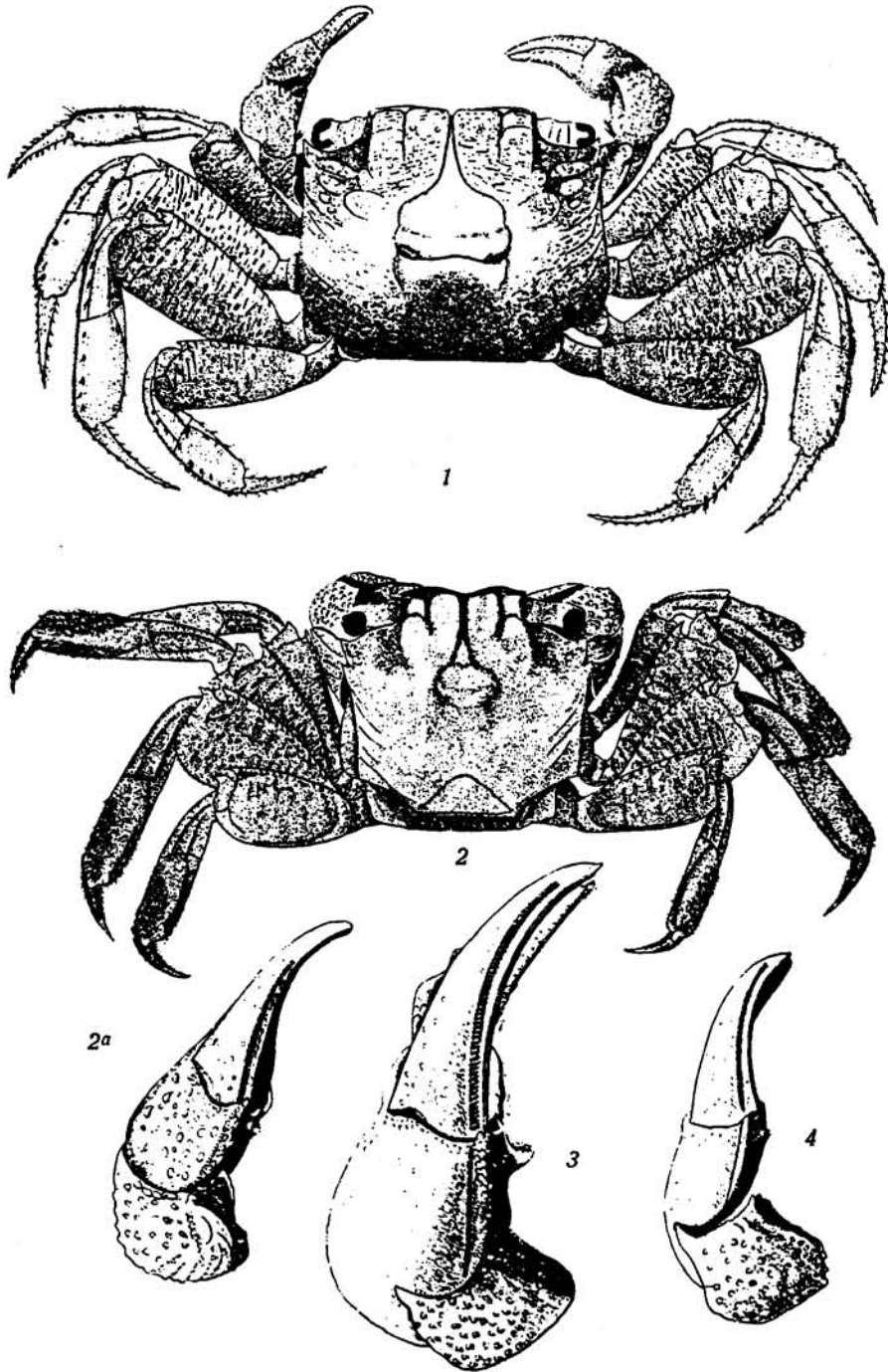


Fig. 1. *Sesarma (Sesarma) modesta* de Man. ♀, magn. 2.  
 » 2. *Sesarma (Sesarma) palawanensis* Rathbun. ♀, nat. size. Fig. 2a cheliped, of ♀, magn. 2.  
 » 3. *Sesarma (Sesarma) taeniolata* White, cheliped of ♂, magn. 1½.  
 » 4. *Sesarma taeniolata* subsp. *crebrestriata* Tesch, cheliped of ♂, magn. 2.

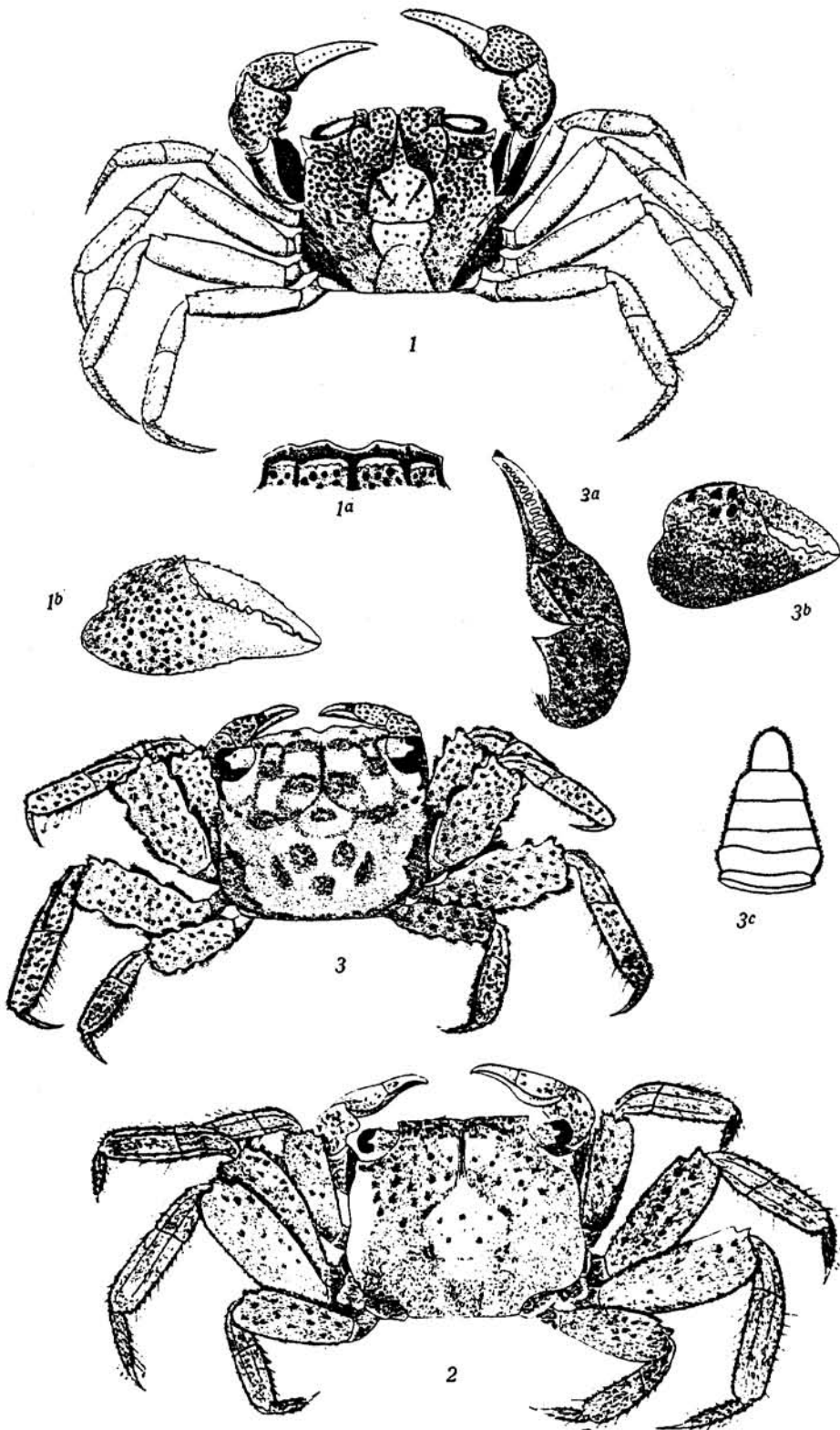


Fig. 1. *Sesarma (Sesarma) ocyпода Nobili subsp. gracillima* de Man, ♂, magn. 2.  
 Fig. 1a, front, seen obliquely from above, magn. 3. Fig. 1b, outer surface of chela, magn. 3.  
 » 2. *Sesarma (Holometopus) villosa* de Man, ♀, magn. 3.  
 » 3. *Clistocoeloma tectum* (Rathbun), ♀, magn. 2. Fig. 3a, cheliped of ♂, dorsal view, magn. 3. Fig. 3b, outer surface of chela of ♂, magn. 3. Fig. 3c, abdomen of ♂, magn. 3. DT by Mr. Koenigsdam