form, are even less granulated.* Indeed, the latter are scarcely more granulated than the ordinary form of *Ricordi.*

However, the front of *S. cinerea* is narrower and more arched than in *S. Ricordi;* its lower margin is less sinuous, narrows more toward the ends, and is less turned up at the edge, so that it is less concave above. The orbital notch is not so deep. Still these differences are but slight. The carapace seems to be slightly less convex. The chelæ are essentially the same in both, and the carpal joint is roughened in the same way. The merus joints of the pereiopods are about equally flattened in both; the brush of hairs on the under

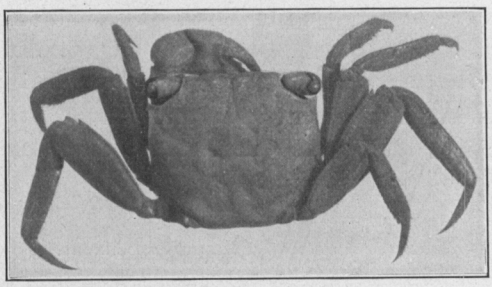

Figure 8.—*Sesarma cinerea* (from Florida), slightly enlarged. Phot. A. H. V.

side of the last two joints is nearly the same in both, though perhaps a little smaller, and with shorter hairs in *S. cinerea.* The differences are so slight that it seems not improbable that *S. cinerea* is another semiterrestrial race or subspecies that has been derived from *S. Ricordi,* under a somewhat different environment. In fact, all those species that live more or less on the dry land or in trees (e. g., *S. Roberti,* an arboreal West Indian species) must have been originally derived from amphibious or aquatic species, but the differentiation has gone farther in some than in others. Doubtless they all go into the sea to breed, and probably they all have similar zoëa and megalops larval stages.

But in the case of the Bermuda forms, it is easy to believe that they have acquired different breeding habits or different breeding

* In Miss Rathbun's analytical table of *Sesarmæ* (Synopsis American Sesarmæ, Proc. Biolog. Soc. Washington, xi, pp. 90, 91, 1897), the smoothness of the suprafrontal lobes, "smooth or nearly so," is made a diagnostic character for *S. Ricordi,* while *S. cinerea* is put in a group having the suprafrontal lobes "tuberculate or granulate," and in a subgroup having them "faintly granulate." The degree of granulation seems to be variable.

seasons, so that they may no longer interbreed. It is also probable that the young crabs of var. *terrestris*, when they quit the megalops stage at the shore, have inherited the instinct to seek the uplands. A careful study of these species in summer might settle these points.

Sesarma Miersii Rathbun.

Sesarma (Holometopus) Miersii M. J. Rathbun, Synopsis American Sesarmæ, Proc. Biolog. Soc. Wash., xi, p. 91, 1897 (descr. and synon.); Branner-Agassiz Exp. to Brazil, p. 138, 1900. Verrill, these Trans., vol. x, p. 574, 1900.

Sesarma Stimpsoni Miers, Rep. Voy. Challenger, Zool., xvii, p. 270, 1886 (not of 1881).

PLATE XII, FIGURE 5.

This species can be distinguished from the preceding by the tuberculated or distinctly granulated protogastric region of the carapace, which in the latter is nearly smooth.

Ordinary mature specimens have the carapace about 19^{mm} long and 21^{mm} wide.

Miss Rathbun refers a young specimen, collected by us in 1898, to this species. It appears to be very rare in Bermuda.

It ranges from Bermudas and the Bahamas to Rio Janeiro, Brazil. Rio Parahyba do Norte (Rathbun). It lives mostly among the roots of mangroves.

Cyclograpsus integer Edw.

Cyclograpsus integer Milne-Edw., Hist. Nat. des Crust., ii, p. 79, 1837. Kingsley, Proc. Acad. Nat. Sci., Philad., Carcinol. Notes, iv, p. 221, 1880. Rankin, Crust. Bermuda, p. 526, 1900. M. J. Rathbun, Brach. and Macr. of Porto Rico, p. 18, 1901.

PLATE XII, FIGURE 1.

This species is easily recognized by its smooth carapace, with convex sides. It is very rare in Bermuda.

It was not found by us, nor has it been taken by any recent collector. A single specimen in the collection of Mr. Goode was identified as this species by Prof. S. I. Smith. The same one was recorded by Rankin. The only other record is that of Heilprin, also a single specimen. It sometimes occurs on coral reefs.

It ranges from Florida to Brazil, and throughout the West Indies. Florida (Kingsley); Porto Rico (Rathbun); Brazil (M.-Edw.).

Plagusia depressa (Fabr.) Say.

Cancer depressus Fabr., Ent. Syst., Supl., p. 406, 1775.

Plagusia Sayi DeKay, N. York Fauna, p. 16. Stimpson, Notes on N. Amer. Crust., i, p. 18 [64]; ii, p. 104 [232].

Plagusia depressa Say, Journ. Acad. Nat. Sci. Philad., i, p. 100, 1817. Rathbun, Dec. Crust. W. Africa, p. 281 (distribution). Results of Branner-Agassiz Exped. to Brazil, Biolog. Soc. Wash., ii, p. 138, 1900; Brach. and Macr. Porto Rico, p. 19, 1901. Verrill, these Trans., vol. x, p. 575, 1900. Benedict, Notice Crust. W. Africa, p. 538, 1893.

Plagusia squamosa Dana (*non* Edw.). Stimpson, Crust. N. Pacific Expl. Exp., Smithsonian Misc. Coll., xliv, p. 122, 1907.

FIGURE 9. PLATE X, FIGURE 1.

When full grown this is a large and handsomely colored crab, remarkable for its shyness and agility. Its colors, which are variable, are evidently protective, and by no means conspicuous when resting

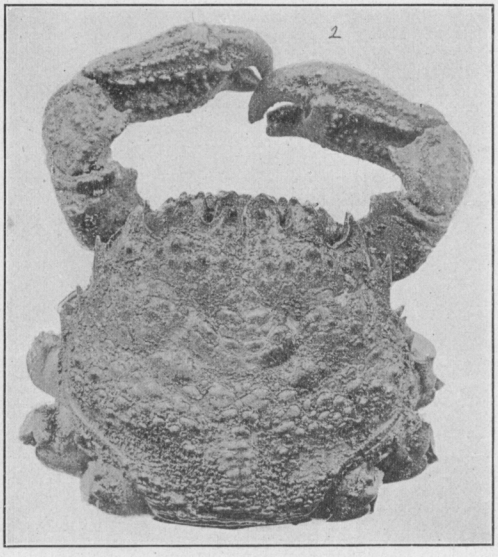

Figure 9.—*Plagusia depressa*, carapace and chelæ of adult male, about nat. size. Phot. A. H. Verrill.

among the rough and stained shore ledges where it usually lives. It is much less conspicuous than *Grapsus grapsus*, which lives in similar situations.

Some large specimens had a grayish or yellowish ground color, mottled and spotted with brown and red; the spots are often bright.

Measurements of Bermuda specimens.

No.	Sex	Carapace length	Carapace breadth	Front width	Chelæ length	Chelæ height
31	♂	51	49.5	34	28	13
3153	♀	45	48	21	r. 18	6
879 F. M.	♂	47	50	17	l. 22	11

Sometimes it may be seen running with great rapidity over the rough ledges and cliffs, often above high-tide mark, in the same manner as *Grapsus grapsus*, but it is even more alert, and swifter in its motions, so that its capture is difficult. It readily takes to water when pursued and swims very well.

Although not rare, it has occurred in but few Bermuda collections, and usually singly, owing probably to the difficulty of capturing it.

In 1898, April to June, we found it common on the rough shore ledges between tides and above high-water mark at Castle Island, Bailey Bay, and other localities, where also its recently cast-off shells were often found considerably above high tide, as they had been left by the crabs. In 1901, at the same season, we could not find a single specimen, even of the cast-off shells, at the same localities, or elsewhere. Probably the species had been greatly reduced in numbers by the unusually cold period in the preceding February, when great quantities of the native fishes also perished.*

It was represented by a single specimen in Mr. Goode's collection. It was also taken by the Field Nat. Hist. Museum expedition in 1905, and by Prof. T. Kincaid, 1903. A small specimen is also in the collection of the Bermuda Biological Station, 1903.

It has an extensive geographical range. On the Atlantic coast it ranges from South Carolina to Brazil, and throughout the West Indies. Pernambuco, Brazil (M. J. Rathbun). On the eastern side of the Atlantic it extends from the Mediterranean to South Africa. St. Helena, Ashantee (Benedict). Hong Kong, Bonin Is., Hawaiian Is., Loo Choo Is, and Madeira (Stimpson).

At Woods Hole, Mass., a single specimen was taken among barnacles from the bottom of a vessel that had just arrived from Swan Island, West Indies, Jl. 14, 1887. (t. S. I. Smith in MSS.)

* See p. 320 above, and the Bermuda Islands, i, p. 94 [506], 1901.

Percnon planissimum (Herbst), M. J. Rathbun. *Flat Crab.*

Cancer planissimus Herbst, Naturh. Krabb., p. 3, pl. lix, fig. 3, 1804.

Acanthopus planissimus Stimpson, op. cit., p. 104 [242], 1860; Crust. N. Pacific Expl. Exp., Smithsonian Misc. Coll., xlix, p. 123, 1870 (1907). (descr. colors) Bonin Is.

Acanthopus Gibbesii Milne-Edw., Mel. Carcin , p. 146.

Leiolophus planissimus Miers, Catal. Crust. N. Zealand, p. 46, 1876.

Percnon planissimum Rathbun, Dec. Crust. W. Africa, Proc. U. S. Nat. Mus., xxii, p. 281, 1900; Brach. and Macr. Porto Rico, p. 19, 1901. Verrill, these Trans., vol x, p. 575, 1900.

Plate X, Figure 3. Plate XII, Figure 4.

Easily recognizable on account of its very flat, smooth body, and the slits in the front and in the eye-sockets. Its structure is admirably adapted to its habit of living in the confined spaces under stones.

In life the carapace is usually variegated or mottled with brown, pinkish flesh-color and salmon; there is generally a median longitudinal stripe of bright pale blue; the legs are banded with reddish brown and light pink. Ventral side of body pale blue; of legs pale pink (C. S. V.).

One female taken in April, 1901, carried eggs; also one taken in midsummer, by Prof. Kincaid.

Measurements of Bermuda specimens.

Number	Sex	Carapace length	Carapace breadth	Front width	Chelæ length	Chelæ height
30	♂	25.5	23.0	--	12.5	8.4
3005	♀	25.0	24.0	10	9.0	5.0
3005*a*	♂	20.0	18.0	8	7.5r.	5.0
----	♂	20.0	17.0	6	7	4.0
Figured	♀	19.0	16.5	6	5	3.5

The chelæ are feeble in the females but large in the males. In the males the two are unequal; the large chela has a large and long tuft of soft hairs on inside of merus.

It was found very commonly by us in 1898 and 1901, on many rocky shores under stones at about low-tide level. It was in the collections of J. M. Jones; G. Brown Goode; Prof. Kincaid, 1903; Field Museum Exped., 1905; Bermuda Biological Station, 1903, and others.

It is widely distributed throughout the West Indies to Brazil. Azores; Spain; Madeira; West Africa and South Africa; Mauritius to Japan, and Hawaiian Is., Bonin Is. Cape St. Lucas to Chili (Rathbun). Colon (Yale Mus.).

Superfamily or tribe **CYCLOMETOPA=CANCROIDEA** (see p. 14).

Family Pilumnidæ.

*Key to the Bermuda genera of the family Pilumnidæ.**

A. The ridges that define the efferent branchial channels, if present, are usually low and are confined to the posterior part of endostome, never reaching to anterior boundary of buccal cavern.

B. Fronto-orbital border less than half the greatest width of carapace.

C. Antero-lateral borders of carapace sharp, crest-like; upper border at least of arms, and of fourth, fifth, and sixth segments of legs sharp and crest-like ..... *Platypodia*

C′. Antero-lateral borders of carapace and upper borders of legs not crest-like

D. Antero-lateral borders divided into lobes or teeth.

E. Carapace usually conspicuously lobulate, granulate, and hairy, chelipeds and legs also granulate and hairy ..... *Actæa*

E′. Carapace, chelipeds, and legs not sharply granulate and hairy.

F. Fingers sharp-pointed, not hollowed ..... *Cycloxanthops*

F′. Fingers blunt-pointed, hollowed at tip ..... *Xanthodius*

B′. Fronto-orbital border half or more than half the greatest width of the carapace. (True of American species of *Liomera*.)

C. Carapace transversely oval.

D. Ambulatory legs with upper margins of the carpal joint bearing a horned or lunate crest ..... *Heteractæa*

D′. Ambulatory legs with upper margins smooth or nearly so.

E. Antero-lateral teeth strong, greatly projecting. Carapace deeply areolated ..... *Leptodius*

E′. Antero-lateral teeth small, little projecting. Carapace slightly or not at all areolated. Carapace without transverse granulated lines. Fingers somewhat hollowed at tip ..... *Liomera*

C′. Carapace more or less hexagonal, or subquadrate.

D. Ambulatory legs spinulose.

D′. Ambulatory legs not spinulose.

F. Front of moderate width. Postero-lateral margins not strongly converging ..... *Eupanopeus*

A′. The ridges that define the efferent branchial channels extend to anterior boundary of buccal cavern and are often very strong.

B′. Fronto-orbital border just about half or less than half greatest breadth of carapace, which is broad and transversely oval.

C. The basal antennal joint does not nearly reach the front.

C′. The basal antennal joint reaches the front.

D. Anterior margin of merus of outer maxillipeds not notched. *Eurytium*

* This table is taken from that of Miss M. J. Rathbun (Brachyura and Macrura of Porto Rico), with some alterations and omissions. It includes two additional genera (*Heteractæa* and *Lobopilumnus*).

B′. Fronto-orbital border much more than half greatest breadth of carapace.
C. Carapace nodose ..... *Lobopilumnus*
C′. Carapace not nodose.
D. Merus of external maxillipeds as long as or longer than broad.
E. Fronto-orbital border about two-thirds greatest breadth of carapace ..... *Pilumnus*
E′. Fronto-orbital border much more than two-thirds greatest breadth of carapace; arm scarcely projecting beyond lateral border of carapace ..... *Eriphia*
D′. Merus of external maxillipeds about twice as broad as long.. *Domecia*

Platypodia spectabilis (Herbst) Rathbun. *Calico Crab; Bandana Crab.*

Cancer spectabilis Herbst, Natur. Krabb., ii, 153, pl. xxxvii, f. 5, 1794.
Cancer lobata M.-Edw., Hist. Nat. Crust., i, p. 375, 1834.
Attergatis lobatus Stimpson, Ann. Lyc. Nat. Hist. N. York, vol. vii, p. 202 [74], 1860.
Lophactæa lobata A. M.-Edw., N. Arch. Mus., Mem., i, p. 249, pl. xvi, fig. 3, 3*a*; Miss. Sci. Mex., p. 242, 1879. Rankin, op. cit., p. 529, 1889.
Cancer venustus Desb. & Scramm., Crust. Guadeloupe, p. 23 (*t.* A. M.-Edw.).
Platypodia spectabilis M. J. Rathbun, Amer. Inst. Jamaica, i, p. 13, 1897; Brachyura and Macrura Porto Rico, p. 26, 1901. Verrill, Trans. Conn. Acad., xi, p. 17, pl. i, fig. 2, 1901 (descr. colors).

FIGURE 10. PLATE XIV, FIGURE 6.

This is a small and rather rare species, easily distinguishable by the form of its carapace and its remarkable coloration, which appears to be highly protective when the crab lives among the common bright

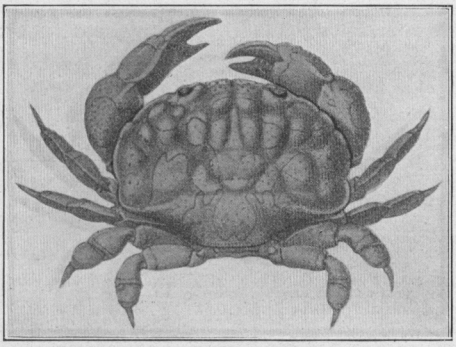

Figure 10.—Calico Crab, *Platypodia spectabilis*, enlarged about 1½ times. After A. M.-Edw.

red and orange-colored sponges (*Tedania ignis*), actiniæ, etc., with which it agrees well in colors, while their irregular arrangement serves to break up the outline of the carapace.

A specimen taken in Castle Harbor, near Walsingham Bay, May 5, 1901, had the colors as follows: Carapace deep orange red, varying to scarlet, with irregular paired spots of pale orange, concentrically bordered with white and purplish brown. The spots are of various sizes and shapes on the carapace, the larger ones often centered with smaller spots of purplish brown. On the chelipeds and legs the spots become transverse, and are mostly at the joints, and larger above than below. Dactylus and thumb black. Sternum orange with margined spots at the bases of the legs. Abdomen with two large spots of the same kind beneath, and smaller ones on the basal segments. Eye-stalks pale orange, with a purplish brown spot on the upper side.

Our largest specimens had the following coloration in life: The carapace was bright orange-red, with pale, particolored, broad, irregular streaks, blotches, and angular or rounded, often ocellated spots of variable sizes. The larger patches of color are frequently quite unsymmetrically developed. The ocellated spots have a small bright yellow center, surrounded by a broad circle of white, which is bordered externally with bright blue and enclosed by a narrow black line. Sometimes similar but smaller ocellated spots occur on the larger pale blotches, in lines and groups, or singly, while others are scattered on the ground-color. The chelipeds and legs are similarly colored, but on them the spots mostly take the form of half bands, with angular patches at the joints. Claws tipped with black. Small specimens are paler. (A. H. V.) These colors soon fade in alcohol.

Measurements of Bermuda specimens.

No.	Sex	Carapace length	Carapace breadth	Front width	Chelæ length	Chelæ height
4007	♂	16	24	6	r. 13 l. 14	r. 8 l. 8
4008	♂	13	18	5	l. 11	6
4008*a*	♀	9.5	13	4	l. 6	4

This handsome species is rare at the Bermudas. It occurs among rocks and cavernous corals, sponges, etc. Sometimes found on the reefs. We found it only in April, 1901 (five specimens), on serpuline atolls, near Hungry Bay; Castle Harbor, etc. (coll. A. H. Verrill).

A single specimen occurred in the collection of Mr. Goode. It was taken at Hungry Bay by the Bermuda Biol. Station, July, 1903.

Several specimens were also taken in 1906 by A. H. Verrill at Dominica Island, where they occurred in the cavities in and beneath