

surface of hand scarcely seriate, under surface of hand glabrous, fingers channeled, the upper spinulous above. Eight posterior feet hirsute, excepting sides of third joint, upper margin of third joint spinulous.

Plate 12, fig. 10 *a*, outline of antero-lateral margin; *b*, front view of front and base of outer antennæ; *c*, outline of back.

From the Sooloo Sea, or Balabac Passage.

In the *pilumnoides*, as described and figured by White, the antero-lateral margin has distinct teeth, and although consisting of spinules in part, there is a prominent or dominant spine. In our specimens, the five normal teeth may be distinguished, though much subdivided into smaller teeth, and irregularly so; D consists of two teeth; E of two; N of four; T of three, with two or three on the surface above; S of one, with one or two on the upper surface. D and E are so close together that they appear at first to make a single group. The minute tubercles of the anterior part of the carapax are somewhat acute, or like short spinules on the areolets near the antero-lateral margin. The surface of the carapax is hairy, but nearly naked posteriorly, and the legs are rather long hairy; the hairs are like bristles, and many of them black in their lower half, but become light-coloured in their upper half. The anterior margin of the arm has about three small teeth on its lower half, and is hardly denticulate above, instead of having prominent teeth, towards apex, as in the figure by Adams and White.

Chlorodius pilumnoides, ADAMS and WHITE, Crust. Voy. Samarang, 41, pl. 9, f. 3.

GENUS CYCLODIUS.

Chlorodio affinis, carapace angustiore, suborbiculato, articulo maxillipedum externorum tertio triangulato, paulo transverso, latere interiore brevissimo.

Near *Chlorodius*. Carapax narrower, suborbicular; third joint of outer maxillipeds triangular, a little transverse, the inner side below fourth joint very short.

The body in the species of this genus, appears very nearly circular, as the base of the abdomen projecting behind the carapax, in the natural state of the parts, added to the length of the carapax, very nearly equals the breadth of the carapax. The areolation of the carapax, in the species seen, is very similar to that of *C. ungulatus* and *C. monticulosus*, both for the anterior and posterior parts of the surface. The process of the front adjoining the outer antennæ is short and broad, as in *Chlorodius*, rather than like the same in *Pilodius*. The third joint of the outer maxillipeds is shorter than long, and the terminal side is the longest of the triangle; this side is notched for the insertion of the fourth joint, and also exterior to this joint, very much as in *Chlorodius*.

CYCLODIUS ORNATUS.

Carapax nudus, parce nitidus, anticè posticèque valde areolatus, areolis sæpe compositis, 2 M subdivisâ, 3 M tripartitâ; margine antero-laterali 5-dentato, dentibus tumidis, apiculatis, dente E minore, rotundato, D obtuso. Pedes spinulis armati, 8 posticis parce pubescentibus, manu seriatim spinulosâ, digitis spinulosis.

Carapax naked, somewhat shining, anteriorly and posteriorly areolate, areolets often compound, 2 M subdivided, 3 M tripartite; antero-lateral margin five-toothed, teeth tumid, apiculate, tooth E smaller than the others, D obtuse. Legs all armed with spines, posterior eight sparingly pubescent, hand seriately spinulous, fingers spinulous.

Plate 12, fig. 11 *a*, animal, enlarged three diameters; *b*, profile of front part of carapax; *c*, under view of anterior part of body; *d*, front view of front, showing process *p* in this view; *e*, view of lateral portion of ventral carapax, showing the areolation; *f*, abdomen, enlarged; *g*, hand.

Sooloo Sea, or Balabac Passage, north of Borneo.

Length of carapax, three and a half lines; greatest breadth, four and one-third lines; ratio of length to breadth, 1 : 1.25. The areolets

are very prominent, and broken much as in *Chlorodius monticulosus*. The abdomen has the last segment triangular, and a little oblong; the third joint abruptly broader than either the second or fourth, and on either side triangular.

CYCLODIUS GRACILIS.

C. ornato *aspectu areolisque similis, parce latior, dentibus antero-lateralibus tribus posticis tenuioribus et bene acutis, areolis vix compositis, 2M subdivisâ, 3M vix tripartitâ. Pedes armati, 8 posticis paulo pubescentibus, manu seriatim spinulosâ, digitis spinulosis.*

Near *ornatus* in appearance and areolation, but sparingly broader, three posterior antero-lateral teeth more slender and neatly acute, areolets hardly compound, 2M subdivided, 3M scarcely tripartite. Feet armed, eight posterior a little pubescent, hand seriatly spinulous, fingers spinulous.

Plate 12, fig. 12 *a*, animal, enlarged three diameters; *b*, leg of posterior pair, enlarged.

From Tutuila, Samoan Group, Pacific.

Length of carapax, three lines; greatest breadth, four lines; ratio of length to breadth, 1 : 1.33.

The abdomen and hands in this species, are the same very nearly as in the *ornatus* (see figures *f* and *g* of that species). The posterior legs are also similar; yet the spinules appear to be a little more prominent. It is possible that this may be only a variety of the *ornatus*.

GENUS CYMO, *De Haan*.

The species of *Cymo* have a very peculiar aspect, the body being flattened, and approaching orbicular in outline, and the larger hand rather long, with very stout fingers, the upper much curved. The front margin is equal to half the whole breadth of the carapax, and there is no point of separation between the antero-lateral and postero-

lateral margins. The species are small, the largest seen being about half an inch in length.

CYMO MELANODACTYLUS, *De Haan.*

Carapax vix areolatus, partim subtilissimè pubescens, lateribus convexis, sive non dentatis sive obsoletè 2-3-dentatis, fronte denticulato, dentibus acutis fere æquis. Pedes antici multo granulati, digitis nigris, valde scabris. Pedes 8 postici hirsuti.

Carapax hardly at all areolated, in part having an exceedingly short pubescence, sides convex, either not dentate or with two or three obsolescent dentations, front rather evenly denticulate, the teeth acute. Anterior feet much granulous, fingers black, scabrous. Posterior eight feet hirsute.

Plate 13, fig. 1, male, enlarged three diameters.

Feejee Islands.

Length and breadth of carapax of a male, each five lines. The teeth of the front margin are six in number, with an intermediate smaller one in one or two of the intervals. On the lateral margin towards the middle there are two obsolescent teeth. The granules of the hand are very closely set, and in two lines are somewhat seriate and more raised. The hand is rounded above; one of the specimens is a female, with eggs beneath the abdomen. The smaller hand has rather slender fingers, and they are in contact. The male abdomen appears to be five-jointed.

Cymo melanodactylus, DE HAAN, Faun. Japon., 22.

CYMO ANDREOSSYI (*Savigny*) *De Haan.*

Digitus manus majoris mobilis albus, lævis, juxta basin paulo scaber, crassus. Frons irregulariter denticulatus.

Moveable finger of larger hand white, smooth, a little scabrous near base, stout. Front irregularly denticulate.

Plate 13, fig. 2 *a*, male, enlarged three diameters; *b*, under view of front, showing base of outer antennæ.

Upolu, Samoan Group; also Tahiti, Society Group.

Length and breadth of carapax of a male, each six lines. The resemblance to the preceding species is very close, although the two are separated easily by the characters stated. The anterior part of the lateral margin is rather shorter than the posterior. The granules of the hand in the dried specimen are partly white and partly reddish, the red ones scattered among the others.

Pilumnus Andreossyi, SAVIGNY, Desc. de l'Égypte, Crust., p. 86, pl. 5, f. 5.
Cymo Andreossyi, DE HAAN, Faun. Japon., 22.

SUBFAMILY POLYDECTINÆ.

GENUS POLYDECTUS, *Edwards*.

The species here referred to *Polydectus* has many characters in common with the *P. cupulifer*, and the two, evidently, are congeneric. Besides general form and aspect, one of the most striking characteristics is the peculiarity of the hand, which is hardly stouter than the following legs, and although short, consists of long, slender fingers, the palm at the base of the fingers being very short. Moreover, these fingers are nearly equal, and have the apices incurved. Another character in common is observed in the orbit, there being three tubercles or lobes forming the under and outer part of the orbital margin; in the *cupulifer* these prominences are hollowed out,—a specific and not a proper generic distinction.

The genus *Polydectus* was transferred to the *Corystidæ* by Milne Edwards, from the genus *Pilumnus*, where it was placed originally by Latreille. The character of the outer antennæ, especially the slender, nearly naked flagellum, removes it from the *Corystidæ*; and it is not related particularly to that family in the form of the outer maxillipeds. The second joint of these organs is somewhat transverse in our

species, and but little oblong in the *cupulifer*; moreover they neatly close up the buccal area. It appears to be most closely like the Cancroidea, and may come near *Pilumnus*, or near *Halimede*. Still it differs widely from *Halimede*, as already explained.

The specimen from which our figure and description were taken, was lost, with others of the same region, in the wreck of the Peacock; and we cannot, therefore, resolve our doubts with regard to the character of the palate, which would definitely fix its true place. It is probable that the genus should form a subfamily distinct from any other described Cancroidea, and so we have made it; but its place with the Cancridæ rather than the Eriphidæ is hypothetical.

POLYDECTUS VILLOSUS.

Carapax pedesque densissimè villosi, pilis plumiformibus, fronte marginæque antero-laterali integris. Digitus mobilis parvis antici duabus spinis elongatis remotis et alter spinis tribus armatus. Antennæ externæ fronte vix longiores, flagello 10-articulato.

Carapax and feet with a dense villous coat, the hairs of which are plumiform; front and antero-lateral margin entire. Moveable finger with two remote slender spines within, and the thumb with three spines. Outer antennæ as long as the front, flagellum 10-jointed.

Plate 13, fig. 3 *a*, female, enlarged; *b*, under view; *c*, hand; *d*, abdomen of female; *e*, one of the plumose hairs of the villous coat.

Found under stones along the shallow shores of Raraka Island, Paumotu Group.

Length, four lines. Colour, pale ashy yellow. The hands in the specimen procured were overgrown with a kind of sponge, which had grown around and enclosed the fingers, as shown in the figure of the hand on the right. The form in the figure is not exactly the form of the carapax, but that due to the position of the villous covering. The flagellum of the outer antennæ has two or three short hairs at the apex of each of its joints. The last two joints of the base are much smaller than the first. Third and fourth pairs of legs the longest. Legs of the first pair equal. The fingers are like long, slender claws

incurved at apex, and when shut the tips alone close together. The spines of the inner margin nearest the apex are the smaller. On the outer side, towards the extremity, the fingers bear recurved hairs. The female abdomen is very broad oval, and consists of seven segments. The inter-orbital space is scarcely one-third the breadth of the carapax. The inner antennæ occupy transverse fossettes situated mostly anterior to a line between the orbits.

FAMILY III. ERIPHIIDÆ.

THE ridge upon the prælabial area or palate is prominent in *Eriphia* and *Ruppellia*, and a deep rounded emargination in the margin of the buccal area marks the termination of the efferent canal. A similar emargination, less distinct, exists in some other genera, as *Trapezia* and *Ozius*. Traces of this ridge are seen in some of the *Canceridæ*, as in certain *Actææ*, *Paraxanthi*, *Pseudocarcini*, &c.; but in these species, it is quite small, and stops far short of the anterior margin of the buccal area. In *Pilumnoides* it is very distinct and prominent, and it is also apparent in the *Pilumni*, although these species have in many respects the habit and form of some *Xanthodes*, in which the ridge is wanting or is obsolescent. In a few *Pilumni* it stops a little short of the anterior margin; but it is continued anterior to the first episternal suture which crosses the surface, which suture is indicated by a notch in the ridge, and is shown in our figure of the prælabial area of *Pseudozius planus*, pl. 13, fig. 6; the ridge has often a slight interruption at this point.

This family may be divided into subfamilies, on the same grounds nearly as the *Canceridæ*. The subfamily *Cancerinæ* is represented in this group by *Æthrinæ*, and a general parallelism is easily made out between the other subfamilies. These subdivisions and the genera included, with their characteristics, are presented in the following table:—

1. *ÆTHRINÆ*.—Carapax transversus, lateribus valde dilatatus et rotundatus. Antennæ internæ fere longitudinales.

G. 1. *ÆTHRA*, *Leach*.

2. OZINÆ.—Carapax plus minusve transversus, lateribus non dilatatus. Digiti acuminati. Antennæ internæ transversæ. Orbita hiatu interno basi antennæ occupato instructa. Abdomen *maris* 7-articulatum.

1. *Articulus antennæ externæ 1mus frontem bene attingens.*

- G. 1. GALENE, *De Haan*. *—Carapax transversus, longitudinaliter multo convexus, antice declivis.
G. 2. OZIUS, *Leach*.—Carapax transversus, latus, fere planus.

2. *Articulus antennæ externæ 1mus frontem non attingens.*

- G. 3. PSEUDOZIUS, *Dana*. †—Carapax transversus, fere planus, latior, margine antero-laterali brevior quam postero-lateralis.
G. 4. PILUMNUS, *Leach*.—Carapax angustus, parce transversus, sæpius convexus, margine antero-laterali brevior.
G. 5. PILUMNOIDES, *Edw. et Lucas*. ‡—Carapax angustus, parce transversus, valde convexus, margine antero-laterali longior, bene arcuato, super carapacem postice incurvato.
G. 6. MELIA, *Latr*.—Carapax subquadratus, fere planus, fronte lato, oculis versus angulos insitis. Pedes toti graciles. Basis antennæ externæ cylindrica.

An genus sequens hîc pertinet?

ACANTHODES, *De Haan*. §—Carapax angustus, *Pilumno* formâ affinis, spinis grandibus anticè armatus. Pedes spinosi.—Species *Acanthodes armatus* Haanii magnitudine portentosus.

3. ACTUMNINÆ.—Orbitâ *Ozinis* similis. Digiti instar cochlearis excavati.

G. ACTUMNUS, *Dana*. ||—Carapax paulo transversus, valde convexus, antice laterali-terque curvatim declivis. Articulus antennæ externæ 1mus processum frontis attingens tantum.

4. ERIPHINÆ.—Orbita infra bene clausa, hiatu interno carens, articulo antennæ basali e orbitâ omnino excluso. Carapax sive paulo transversus sive subquadratus.

* Faun. Japon., 19.

† Near Pseudocarcinus, from which it differs in the ridge on the prælabial plate, as well as in its flatter form.

‡ Crust. D'Orb. S. Am., 21.

§ Faun. Japon., 20.

|| Very near Actæa, but the prælabial plate or palate is strongly divided by a ridge either side. Besides, the form is much narrower and more convex than in the Actæa, being subglobose above.

- G. 1. RUPPELLIA, *Edw.*—Carapax latior. Antennæ pars mobilis externæ orbitâ paululum remota. Articulus maxillipedis externi 3tius paulo transversus.
- G. 2. ERIPHIA, *Latr.*—Carapax angustus, convexus, fronte sæpius valde declivi. Antennæ pars mobilis externæ orbitâ longe remota. Articulus maxillipedis externi 3tius paulo transversus.
- G. 3. DOMÆCIUS, *Eydoux et Souleyet*.*—*Ruppellia* formâ antennisque externis affinis. Carapax depressus, angustus. Articulus maxillipedis externi 3tius valde transversus, brevissimus.
- G. 4. TRAPEZIA, *Latr.*—Carapax subquadratus, planus, glaber, fronte horizontalis, leviter 6-8-dentatus ant sinuosus, lateribus longitudinalis. Tarsi non unguiculati, minutè spinulosi. Brachium ultra carapacem longe exsertum.
- G. 5. TETRALIA, *Dana*.†—Carapax aspectu *Trapezie* affinis. Frons horizontalis, rectiusculus, subtilissimè denticulatus. Tarsi breviter unguiculati. Brachium ultra carapacem paulo exsertum.
- G. 6. QUADRELLA, *Dana*.—Carapax subquadratus, paulo convexus, lævis, fronte horizontalis, 6-spinoso-dentatus. Tarsi unguiculati. Brachium ultra carapacem longe exsertum.

SUBFAMILY I. OZINÆ.

GENUS OZIUS.

OZIUS TRUNCATUS, *Edwards*.

Plate 13, fig. 4 *a*, female, natural size, from Bay of Islands, New Zealand; *b*, abdomen of same, natural size; *c*, moveable finger of larger hand.

Bay of Islands, New Zealand, and Illawarra, New South Wales.

Length of carapax from Illawarra, one and seven-eighths inches; greatest breadth, two and seven-eighths inches; ratio of length to breadth, 1 : 1.53. Of female, from New Zealand, length, one and one-sixth inches; breadth, one and three-fourths inches; ratio, 1 : 1.5. Carapax nearly plane above, but not glabrous, granulous anteriorly. The areolet 2 F is prominent; 1 M and 2 M are united; 2 M and 3 M

* *Voy. of the Bonite*, *Crust.*, pl. 2, f. 5; also, "*Voy. au Pole Sud*," under D'Urville, in the *Astrolabe and Zélée*, plate 6, figs. 3-7, by Hombron and Jacquinot.

† *Amer. Journal Sci.* [2], xi. 223.

are prominent anteriorly, but posteriorly become obsolete. 5 L, 6 L are also obsolete, and 2 L, 3 L, 4 L are united into a broad surface, the anterior margin of which runs obliquely inward and a little forward from the penult tooth, 4 L being partly separate. A prominent line starting from the last tooth (S), extends inward anterior to 5 L. In one specimen the outline of 1 P is perceptible; it is about as long as broad. The last three teeth of the lateral margin are the normal teeth, N, T, S. The only other is the orbital D, E being wanting; the surface in this part is somewhat rugose. The eight posterior legs are minutely rugose or granulous and hirsute; the tarsus is densely hirsute on all sides.

Colour of carapax, dark brown to brownish red, and rusty or grayish yellow anteriorly. Large hand, dark reddish brown, a little red on the inner side; fingers, brownish black.

Ozius truncatus, EDWARDS, Crustacés, i. 406, pl. 16, f. 11.

Xantho deplanatus, A. WHITE, Jukes's Voy., H. M. S. Fly, p. 337.

GENUS GALENE, *De Haan*.

The species of this genus below described, has a broad Eriphioid form, the greatest breadth being anterior to the middle. The characters are those of *Ozius*, as regards the outer antennæ, the prælabial ridge, and the emargination of the prælabial margin at the exit of the efferent canal. But the carapax, instead of being nearly flat above, is very convex longitudinally, the anterior portion curving very much downward. The third joint of the outer maxillipeds is articulated with the fourth by its inner apical angle, as in other Cancroidea; margin of the front very thin; epistome rather broad; inner antennæ very slender and quite transverse. Antero-lateral margin terminates anteriorly in the outer angle of the orbit. Male verges Cancroid as to their insertion, and not Grapsoid.

The texture of the carapax is less calcareous than in other Cancridæ, being like that of the Telphusidæ, to which family the species may be allied.

Galene, DE HAAN, Faun. Japon., p. 19; KRAUSS, Südafrik. Crust., p. 31.

GALENE HAWAIIENSIS.

Carapax valde transversus, lævis, paulo nitidus, fronte paululum sinuoso, margine antero-laterali 4-dentato, dentibus 2 anticis obtusis, anteriore marginem paulo excavato. Pedes antici valde inæqui, læves, breves, supra rotundati, digito mobili leviter dentato, dente basali tuberculiformi, carpo intus unidentato. Pedes 8 postici sat graciles, articulo tertio supra paulo pubescente, sequentibus pubescentibus.

Carapax much transverse, smooth, a little shining, front a little sinuous; antero-lateral margin four-toothed, two anterior teeth obtuse, the first slightly excavate. Anterior feet very unequal, smooth, short, rounded above, moveable finger slightly dentate, also having a tuberculiform basal tooth; carpus having a tooth on inner side. Eight posterior feet rather slender, third joint somewhat pubescent above, the following pubescent.

Plate 13, fig. 5 *a*, outline of part of carapax, enlarged; *b*, buccal area.

Sandwich Islands.—C. Pickering.

Length of carapax, $7\frac{1}{2}$ lines; breadth, $10\frac{1}{2}$ lines; ratio of length to breadth, 1 : 1.5. This species is exceedingly near the *G. natalensis* of Krauss, from Southern Africa. It has, however, the first of the antero-lateral teeth, with a concave margin instead of convex, and the third joint of the eight posterior legs is not wholly naked, as in the *natalensis*. It is still possible that it is only a variety of that species.

PSEUDOZIUS, Dana.

Carapax plus minusve transversus, margine antero-laterali brevior quam postero-lateralis. Articulus antennarum externarum 1mus angustus et brevis, frontem non attingens (æque Pseudocarcino affinis). Area prælabialis lineâ elevatâ bene subdivisa (æque Ozio affinis). Digiti acuminati.

Carapax transverse, the antero-lateral margin shorter than the postero-lateral. First joint of outer antennæ not reaching to the front, as in *Pseudocarcinus*. Prælabial area divided throughout by a ridge, as in *Ozius*. Fingers pointed.

The species have the outer antennæ of *Pseudocarcinus*, and the prælabial area of *Ozius*. The following, here described, have a depressed or nearly flat back, and smooth surface.

PSEUDOZIUS PLANUS.

Carapax latus, lævis, fere planus, non areolatus, anticè prope marginem leviter impressus; fronte fere recto, paulo emarginato; margine antero-laterali paulo acuto, fere integro, levissimè 4-lobato, margine postero-laterali recto. Pedes antici paulo inæqui, læves et nudi, carpo non rugato, manu supra rotundatâ, digitis sat longis, non canaliculatis, digito mobili prope basin armato cum dente crasso obliquo. Pedes postici fere nudi, tarso hirsuto.

Carapax broad, smooth, nearly flat, not areolate, anteriorly near front margin somewhat impressed; front nearly straight, a little emarginate; antero-lateral margin somewhat acute, nearly entire, very faintly four-lobed; postero-lateral margin straight. Anterior feet a little unequal, smooth, and naked, carpus not rugate, hand rounded above, fingers rather long, not channeled, moveable finger having a large stout basal tooth. Posterior feet nearly naked, tarsus hirsute.

Plate 13, fig. 6 *a*, male, enlarged one and a half diameters; *b*, front view of front, showing outer antennæ; *c*, outer maxilliped; *d*, fingers of hand, one and a half diameters; *e, f*, male and female abdomens, one and a half diameters; *g*, tarsus of second pair of legs, in another specimen; *h*, palate and adjoining parts, enlarged.

Waterland Island, Raraka Island, and elsewhere, Paumotu Archipelago; also Wakes Island, North Pacific.

Length of carapax, in one specimen, 4·3 lines; breadth, 7·1 lines;

ratio, 1 : 1.66. In another, length, 5.5 lines; breadth, 9 lines; ratio, 1 : 1.64. Colour, light brown, often nearly white or dirty white, sometimes purplish; fingers, brownish black. The lobes of the antero-lateral margin are but faintly separated, especially the anterior two; the margin comes to an edge, except towards the orbit. The front is but slightly sinuous, as seen in a vertical view, and does not at all project. In a front view it is also nearly straight, and it shows a furrow quite near the edge. There are a very few hairs on the legs (exclusive of the tarsus, which is more or less hirsute), and these are mostly confined to the lower side of the penult joint. The tarsus of the posterior pair of legs is about half as long as in preceding pairs. The outer maxillipeds have the anterior margin neatly concave.

PSEUDOZIUS INORNATUS.

Pseud. plano carapace affinis. Carapax paulo latior, prope marginem anticum abruptius impressus, margine antero-laterali distinctius 4-lobato. Pedes antici inæqui, carpo leviter rugato. Pedes postici latiores, articulo penultimo supra sparsim hirsuto, tarso hirsuto.

Near *Pseud. planus* in the carapax, which is a little broader, and more abruptly impressed near the front margin. Anterior feet unequal, carpus a little rugate. Posterior feet also broader, penultimate joint above sparsely hirsute, tarsus hirsute.

Plate 13, fig. 7 *a*, front view, showing outer antennæ; *b*, outer maxilliped; *c*, abdomen, natural size; *d*, extremity of inner branch of first pair of maxillipeds.

Sandwich Islands.

Length of carapax, six and a half lines; greatest breadth, eleven and one-fourth lines; ratio of length to breadth, 1 : 1.73. The specimen is a female, with eggs. The carapax is broader than in the *planus*, and the lobes of the antero-lateral margin are much more distinct, and just posterior to the orbit the margin is quite thick, and the surface is uneven. The anterior margin of the outer maxillipeds is less concave, and the outer margin of the long joint of the fouette

to these maxillipeds is very short fringed. Besides, the eight posterior feet are somewhat hirsute below, and the penult joint is thinly hirsute above, the hairs being mostly in scattered tufts. The fingers of the hand also are much straighter, longer, and more slender, the lower finger in *planus* being twice as long as broad at base, while in the *inornatus* it is more than three times.

Plate 13, fig. 8 *a*, *b*, represents a specimen from Charlotte's Island, one of the Kingsmill Group, collected along the stony shores, April 24, 1841. The specimen was lost with the wreck of the Peacock, and we cannot, therefore, verify the identity in all points. It agrees with the *inornatus* in general form, and surface of the carapax, antero-lateral and front margin, rugulous carpus, and in the posterior legs. The form is hardly as broad, the hand more rugulous, and the dentation different, the thumb wanting the largish teeth near apex. (This last is a varying character for a species.)

PSEUDOZIUS DISPAR.

Carapax angustus, lævis, paulo nitidus, omnino usque ad frontem nec areolatus nec inæquabilis, fronte fere recto, leviter emarginato; margine antero-laterali levissimè 3-dentato, dentibus non salientibus. Pedes antici inæqui, major crassus, lævis, nudus, manu supra rotundatâ manu minore minutè tuberculatâ, tuberculis partim paulo seriatis. Pedes postici fere nudi, paucis pilis sparsis.

Carapax narrow, smooth, somewhat shining, not at all areolate or uneven in any part, front nearly straight, faintly emarginate; antero-lateral margin with three minute dentations. Anterior feet unequal, the larger stout, smooth, naked, hand rounded above, smaller hand minute tuberculate, tubercles in part somewhat seriate. Posterior feet nearly naked, a few scattered hairs.

Plate 13, fig. 9 *a*, female, enlarged three diameters; *b*, under view of front.

Sooloo Sea.

Length of carapax of female, 3·3 lines; greatest breadth, 4 lines;

ratio of length to breadth, 1 : 1.21. The resemblance to the *planus* is close, but the species is much narrower, and the smaller hand is minute tuberculate, instead of smooth, like the larger hand. The finger of the larger hand is smooth and round, and not channeled. The hairs of the eight posterior legs are few and distant, and are mostly confined to the fourth and fifth joints. The tarsus is somewhat hirsute on the upper and under side. The moveable finger of the large hand has not a large basal tooth.

GENUS PILUMNUS, *Leach.*

PILUMNUS VESPERTILIO (*Fabr.*), *Leach.*

Straits of Balabac.

PILUMNUS GLOBOSUS.

Carapax valde convexus, suborbicularis, parce transversus, non areolatus, vix granulatus, breviter pubescens, fronte emarginato; margine anterolaterali fere integro, dentibus minutis tribus vel quatuor granuliformibus, isolatis. Pedes antici crassi, inæqui, omnino hirsuti et minutè tuberculati, tuberculis nullis seriatis. Pedes 8 postici omnino hirsuti.

Carapax very convex, suborbicular, sparingly transverse, not areolate, hardly at all granulous, short pubescent; front emarginate, anterolateral margin nearly entire, teeth three or four, minute, granuliform, isolated. Anterior feet very stout, unequal, wholly hirsute and minutely tuberculate, none of the tubercles seriate. Eight posterior feet wholly hirsute.

Plate 13, fig. 10, female, enlarged three diameters.

Island of Tahiti; also Waterland and Raraka, Paumotu Group.

Length of carapax of a female, five and a half lines; greatest breadth, six and a half lines; ratio of length to breadth, 1 : 1.2. In a male, length, five lines; breadth, six lines; ratio, 1 : 1.2. The out-

line of the front and antero-lateral margins together is very regularly semicircular. The thickness of the larger hand is equal to half the breadth of the carapax. The inner margin of the hand and carpus is very regularly set with a range of longish hairs. The under surface of the larger hand is granulous (or tuberculous), but not hirsute. The female specimen has eggs under the abdomen.

PILUMNUS LEVIMANUS.

Carapax convexiusculus, non areolatus, anticè vix lævis, fronte emarginato; margine antero-laterali 3-dentato angulo orbitæ externo vix prominente excluso, dentibus minutis, non acutis. Pedes antici valde inæqui, carpo obsoletè tuberculato, manu majore crassâ, nudâ, lævi, extus non costatâ, minore hirsutâ et minutè tuberculatâ. Pedes 8 postici partim hirsuti.

Carapax somewhat convex, not areolate, hardly smooth anteriorly; front emarginate; antero-lateral margin three-toothed, teeth minute, not acute, outer angle of orbit but very slightly prominent. Anterior feet very unequal, carpus faint tuberculate, larger hand stout, naked, smooth, not costate without, smaller hand hirsute and minute tuberculate. Eight posterior feet in part hirsute.

Plate 13, fig. 11 *a*, male, enlarged three diameters; *b*, large hand, enlarged three and a half diameters.

Balabac Passage, north of Borneo.

Length of carapax of a male, 3 lines; greatest breadth, 3·9 lines; ratio of length to breadth, 1:1·3. The carapax is not quite smooth towards the front on the antero-lateral region, and seems to be very slightly pubescent in these parts. The large hand is rounded above and quite smooth, with some faint traces of minute tubercles towards the base. The eight posterior legs are rather slender, with the margins regular, and in part hirsute. The tarsus is but slightly hairy, and is nearly cylindrical.

PILUMNUS LÆVIS.

P. levimano affinis, latior. Carapax omnino lævis, nitidus, non areolatus, convexiusculus; fronte emarginato; margine antero-laterali 3-dentato, dentibus minutis spiniformibus, posteriore minimo, angulo orbitæ postico non prominente. Pedes antici valde inæqui, carpo lævi, non obsolete tuberculato, manu majore omnino lævi, minore sparsim hirsutâ, non tuberculatâ. Pedes 8 postici tenues, paulo hirsuti.

Near *P. levimanus*, but broader. Carapax smooth and shining, not areolate, rather convex; front emarginate; antero-lateral margin three-toothed, the teeth minute and like spines, the posterior much the smallest, outer angle of orbit not raised into a tooth. Anterior feet very unequal, carpus smooth, not even faint tuberculate; larger hand wholly smooth, smaller sparsely hirsute, not at all tuberculate. Posterior eight feet slender, somewhat hirsute.

Form very near the *P. levimanus*, but shorter for the breadth.

Mangsi Islands, Straits of Balabac.

Length of carapax of a female, 2·1 lines; greatest breadth, 2·95 lines; ratio of length to breadth, 1:1·4. The absence of a faint tuberculation, from the carpus of the larger of the anterior feet, and also from the smaller hand, is characteristic of this species. The eight posterior feet are quite slender, and very distinctly hirsute on some of the joints, the hairs being considerably longer than the diameter of the joints. The antero-lateral margin is quite short, and the postero-lateral is nearly longitudinal.

PILUMNUS CALCULOSUS.

Carapax convexiusculus, anticè non areolatus, paulo inæquabilis et pubescens; fronte emarginato; margine antero-laterali perbrevis, 4-dentato, dente postico minimo, ceteris crassiusculis; margine orbitali inferiore tridentato. Pedes antici subæqui, carpo tuberculis paucis grandibus

elongatis nudis complanatis armato et inter tuberculos hirsuto, manu supra æquè armatâ. Pedes 8 postici hirsuti, articulis 4to 5toque supra gibbosis.

Carapax somewhat convex, not areolate anteriorly, somewhat uneven and short hairy; front emarginate; antero-lateral margin very short, four-toothed, posterior tooth minute, the others rather stout; inferior orbital margin three-toothed. Anterior feet subequal, carpus armed with a few large tubercles, which are naked and flattened, between the tubercles hirsute, hand above with similar tubercles. Posterior eight feet hirsute, fourth and fifth joints above, gibbous.

Plate 13, fig. 12 *a*, female, enlarged three diameters; *b*, under view of part of front; *c*, outer maxilliped.

Madeira?

Length of carapax of female, three and one-fourth lines; greatest breadth, four and one-fourth lines; ratio of length to breadth, 1 : 1.3. The large, oblong, naked tubercles of the carpus lie along the surface, and those above are only five or six in number. Three similar, but more rounded, form the upper edge of the hand. The anterior part of the carapax is covered with scattered hairs, which, however, may disappear in larger specimens, if those under examination were young individuals. On the carapax, a short distance from each of the two prominent lateral teeth, there is a low tubercle. Of the three teeth of the inferior orbital margin, the inner is large and flat, with a rounded summit.

PILUMNUS TENELLUS.

Carapax pedesque toti subtilissimè omnino tomentosi. Carapax convexiusculus, non areolatus, fere quadratus, paulo transversus; fronte emarginato; margine antero-laterali perbrevis, 3-dentato, dentibus minutis spiniformibus, posteriore minimo. Pedes antici non tuberculati, 8 postici pertenues, tarso subtilissimè pubescente.

Carapax and all the feet covered with an exceedingly short tomentose

coat. Carapax somewhat convex, not areolate, nearly quadrate, a little transverse; front emarginate; antero-lateral margin very short, three-toothed, the teeth minute spines, posterior one much the smallest. Anterior feet not tuberculate; eight posterior feet quite slender, tarsus mostly covered with a very minute pubescence, like that of the legs and carapax.

Plate 13, fig. 13 *a*, outline of antero-lateral margin; *b*, leg of posterior pair, enlarged three diameters.

Sooloo Sea, or Straits of Balabac.

Length of carapax, 2·4 lines; greatest breadth, 3 lines; ratio of length to breadth, 1 : 1·25. The pubescence or tomentose covering is exceedingly short, and covers uniformly the carapax and legs; on the posterior legs, which are quite slender, its length is not equal to one-fourth the diameter of the fifth joint. The sternum, abdomen, pterygostomial region, and outer maxillipeds, are covered with the same kind of pubescence. The fingers are light-coloured.

PILUMNUS MUS.

P. ursulo affinis, carapace pedibusque densè crassequè lanatis, capillis tubulatis. Carapax parce granulatus. Frons fimbriâ longâ ornatus. Margo antero-lateralis crassè tridentato, dente altero brevi inter duos anteriores infra insito. Pedes antici inæqui, manu minutè tuberculatâ, tuberculis superficiei externæ seriatis.

Near *P. ursulus*, carapax and feet being densely covered throughout with long, coarse hairs, which are tubular. Surface of carapax slightly granulate. Front with a long fringe of similar hairs. Antero-lateral margin stout three-dentate, another short tooth. situated on a lower line, between the two anterior teeth. Anterior feet unequal, hand minutely tuberculate, tubercles of the outer surface seriate.

Tongatabu and Samoan Islands.

Length of the carapax of a male, eleven and one-half lines; greatest

breadth, sixteen lines; ratio of length to breadth, 1:1.4. This species has not the close-set tubercles of the *ursulus*, nor its division of the frontal hairs into five groups. The hand is without spines, and thus, as also, in other respects, it differs from the *lanatus*. The front between the outer antennæ is two-lobed, the lobes entire, and slightly arcuate in outline. The teeth of the antero-lateral margin are large and triangular, but are not visible until the hairs are removed.

GENUS PILUMNOIDES, *Edwards and Lucas.*

The ridges on the palate in *Pilumnoides*, are very distinct. The body in the known species is quite thick, with the areolets much subdivided, and the lateral teeth small and reflexed. The lateral margin is rounded, instead of forming an angle between the antero-lateral and postero-lateral parts.

PILUMNOIDES PERLATUS, *Edwards and Lucas.*

Valparaiso, Chili.

Length of carapax, seven and a half lines; greatest breadth, nine and a half lines; ratio of length to breadth, 1:1.27. The anterior part of the carapax has a semicircular outline, and the antero-lateral margin, which is narrow and reflexed, curves around upon the posterior part of the carapax; the whole area thus enclosed between the front and this margin, has a transverse-elliptical outline, and is much cut up into minor areolets, the normal areolets being subdivided. The areolets 2 M, 3 M, 4 M are distinct in outline; 5 L is much broken into ridglets. The teeth of the antero-lateral margin are all small; five are larger than the others (D, E, N, T, S), and between each there are one or two smaller, besides one or two posterior to S. The anterior legs are very stout, and small tuberculous. The hand on the outer surface has three slender costæ; the lower surface is smooth. Front emarginate.

Hepatus perlatus, PÆPPIG, *Archiv für Nat.*, 1836, 135, pl. 4, f. 2.

Pilumnoides perlatus, EDWARDS and LUCAS, *D'Orb. S. A. Crust.*, p. 21, pl. 9, f. 1.

GENUS MELIA, *Edwards.*

The subquadrate form in Melia is Grapsoid; yet the species, as shown by Milne Edwards (Crust., i. 431), has the outer maxillipeds of the Cancridæ, and the male verges are similar in position. Moreover, as we have observed, the palate has the two ridges of the Eriphidæ. The buccal area is nearly square, being a very little broader than long. The outer maxillipeds are not closely in contact by their inner margins, and the outer angle of the third joint is rounded. The legs in the known species are rather long, and the hand slender; the tarsus is but little curved, and not spinulous.

GENUS MELIA, *Latreille.*MELIA TESSELLATA (*Latreille*), *Elw.*

Plate 14, fig. 1 *a*, female, enlarged two and one-third diameters; *b*, under view of front; *c*, front view of front; *d*, female abdomen, enlarged two diameters.

From the coral reef of Wakes Island, North Pacific, Dec. 20, 1841.

The figure of this species in Milne Edwards's Crustacés, pl. 18 (fig. 8), is evidently coloured from a dried or alcoholic specimen, like most other figures of Crustacea extant, and does not do justice to this beautiful species. The carapax of the specimen collected by us was marked with a few large polygonal areas, separated by dark purple lines or bands. The three anterior of the areas are vermilion; the lateral either side are tinged with vermilion; the two posterior are yellowish with a small vermilion spot at centre. The legs have a light flesh tint, with *two* narrow carmine bands on each joint.

The carapax is but little shorter than broad, and nearly rectangular. The margin either side is nearly straight, inclining a little inward, and anteriorly, a short distance back of the orbits, the posterolateral margin terminates in a tooth, projecting forward. The carapax between the eyes is about half its greatest breadth. The front

margin has a slight indentation at centre, and another near the orbits. Along a transverse line just anterior to a line between the lateral teeth, there is an abrupt depression in the carapax. Quite near the front margin there are two small tufts of short hairs, and also other two on the angle of the abrupt depression in the surface of the carapax just alluded to.

The basal joint of the outer antennæ is much the largest, and sub-cylindrical. The apex of the base projects beyond the front margin of the carapax; the flagellum is as long as the front margin.

Melia tessellata, M. EDWARDS, Crustacés, i. 431, pl. 18, figs. 8, 9, and Cuv., pl. 15, f. 3.

SUBFAMILY II. ACTUMNINÆ.

GENUS ACTUMNUS.

Carapax angustus valde convexus, fronte et lateribus curvatim declivis. Area prælabialis lineâ elevatâ bene subdivisa. Articulus antennarum externarum 1mus processum frontis oblongum attingens tantum. Dijiti breves.

Carapax narrow, very convex, anteriorly and laterally curving downward. Prælabial area subdivided quite across by an elevated line. First joint of outer antennæ reaching barely an oblong process of the front. Fingers short and excavate spoon-like, as in *Actæa*.

The species have the aspect of a narrow, nearly globose ACTÆA, and one of them is granulous, like several of that genus. They also resemble the Pilumni, from which they differ in the excavate fingers. The postero-lateral margins, in the species known, are very much concave, with a smoothish or smooth surface. The name alludes to the intermediate character of the species between *Actæa* and *Pilumnus*.

ACTUMNUS TOMENTOSUS.

Carapax angustus, valde convexus, subglobosus, subtiliter tomentosus, anticè leviter partim areolatus; fronte emarginato; margine antero-

lateralì leviter 4-lobato, margine postero-lateralì concavo, lævi. Pedes antici crassi, subæqui, subtilissimè tomentosi, minutè tuberculati, digitis brevibus, dentibus eorum contiguis et non hiantibus. Pedes 8 postici æquè tomentosi, posteriores paulo dorsales.

Carapax narrow, very convex and subglobular, very minute tomentose, anterior portion in part faint areolate; front emarginate; antero-lateral margin very short four-lobed; postero-lateral margin concave, smooth. Anterior feet stout, subequal, tomentose like the carapax, minutely tuberculate, fingers short, their teeth contiguous and not gaping. Posterior eight feet also tomentose, posterior pair subdorsal.

Plate 14, fig. 2*a*, female, enlarged two diameters; *b*, under view of front; *c*, hand.

Tahiti or Upolu, Pacific Ocean.

Length of carapax of female, 4.1 lines; breadth, 5.1 lines; ratio of length to breadth, 1:1.24. The habit is that of a *Pilumnus*, and still it is more like a narrow *Zozymus*, as the surface is convex in all its sections. The frontal process reaching to the base of the outer antennæ is elongate, and the joint only reaches it, as seen in fig. 2*b*. The thumb of the hand is very short and stout; the teeth form a cutting edge raised considerably above the extremity of the finger, and thus meets the dentate edge of the moveable finger when the two are closed. The moveable finger has the upper side scabrous. At the outer angle of the orbit below, there is an imperfect fissure, approaching that of a *Pauopæus*.

ACTUMNUS OBESUS.

Carapax maximè convexus, suborbicularis, anticè leviter areolatus, areolis planis, granulosis, 2 M non subdivisâ, granulis nudis, interstitiis et sulcis subtilissimè velutinis; fronte paululo producto, emarginato; margine antero-lateralì arcuato, fere integro, levissimè 4-lobato. lobis minutè denticulatis; margine postero-lateralì valde concavo. Pedes antici crassi, manu acie supra instructâ, valde granulosa, granulis vix

seriatis, superioribus paulo elongatis et acutis, digito mobili spinuloso-granulato, pollice perbrevis. Pedes 8 postici valde compressi, minutè velutini, marginibus hirsutis.

Carapax very much convex, suborbicular, anterior regions faint areolate, areolets plane, granulose, 2 M not subdivided, granules naked, interstices and sulci with an extremely short velvety coating; front a little projecting, emarginate; antero-lateral margin arcuate, almost entire, very faintly four-lobed, lobes minutely denticulate; posterolateral margin much concave. Anterior feet stout, hand having an edge above, surface set with granules, the granules above somewhat elongated and acute, subspiniiform, moveable finger spinuloso-granulate, thumb very short. Eight posterior feet much compressed, minutely velvety, margins hirsute.

Plate 14, fig. 3 *a*, animal, enlarged two diameters; *b*, left hand.

Dredged at Lahaina, Island of Maui, Hawaiian Group.

Length of carapax, six and a half lines; breadth, eight and a half lines; ratio of length to breadth, 1:1.3. The velvety coating is shorter than the granules, which are naked and polished, and quite small. The antero-lateral edge does not appear to be lobed, except when carefully examined. The female abdomen is velvety, excepting the middle portion; the outer maxillipeds are naked. The granules of the hand cover closely the under surface, which, as well as the lower part of the outer surface, is otherwise naked. The tarsi are very hirsute on all sides. Each of the fingers has a tuft of hairs a short distance from the tip, and the tips are blunt and only imperfectly spoon-like. The areolets 2 L, 3 L are not separate; 5 L, 6 L are separate. 3 M is not divided. The surface of the carapax against which the posterior legs rub is very broad and smooth, and forms an angle with the upper surface of the carapax.

SUBFAMILY III. ERIPHINÆ.

GENUS RUPPELLIA.

The Ruppelliæ have a semicircular emargination of the front

margin of the buccal area, like the *Eriphiæ*, as a termination of the efferent canal. They are rather broader species, with a less abrupt front, though otherwise closely related. *Eudora* of De Haan (*Faun. Japon.*, p. 22), corresponds in part to this genus, as remarked upon on pages 72 and 145.

RUPPELLIA ANNULIPES? *Edwards.*

Plate 14, fig. 4 *a*, animal, natural size; *b*, under view; *c*, extremity of abdomen of female.

From Charlotte's Island, Kingsmill Group, North Pacific; also Tahiti, Society Islands.

The specimens have five antero-lateral teeth, besides the orbital margin; they are low and obtuse, but have not a crest, as mentioned by Edwards in his description of the *annulipes*. The first tooth belongs properly to the orbital border, although a little distant, and the series is therefore D, D', E, N, T, S. Areolets 1 M and 2 M are united, and anteriorly are prominent, though hardly limited behind. The antero-lateral region is neatly subdivided into three areolets, the anterior 1 L, the next corresponding to 2 L, 3 L, and the posterior to 5 L. 6 L is not distinct, neither are any of the posterior areolets. The surface is not shining, and under a lens appears granulous. The legs are naked throughout, excepting a few very short hairs on the under side of the tarsus. The hand under a lens appears faint granulous; or this is at least true of the smaller hand. The fingers are slender and not at all channeled. The outer maxillipeds have the anterior margin concave opposite the efferent branchial aperture.

The colour of the carapax varies from sienna to dirty brown, or consists of the former clouded with brown. The posterior eight legs are yellowish, banded with purple. The hand is dotted above with brownish purple.

GENUS ERIPHIA.

In the *Eriphiæ* the posterior regions are not subdivided, and part or all of the antero-lateral arcolets are wanting. The præmedial and

extramedial are usually coalescent, and the latter, with the intramedial, may or may not be distinct. Areolet 1 L is sometimes present as a tubercle, or spine, and 2 L and 3 L united, at times constitute a distinct areolet, the sulcus behind terminating between the third and fourth marginal teeth or spines. Traces of 5 L, 6 L are occasionally apparent. The teeth or spines of the antero-lateral margin are usually *six* and sometimes *seven*. We infer from the teeth of a *Ruppellia*, that the first and second are both orbital (or D, D'), and the following four are E, N, T, S; and a posterior one when present, s'.

ERIPHIA SCABRICULA.

Carapax partim scabriculus, areolâ 3 M circumscriptâ, 2 M 1 M 2 F coalitis, non transversim rugatis, regione antero-laterali non areolato; fronte integro, subtilissimè denticulato; margine orbitali nec infra nec supra spinuloso, extus 1-dentato; margine antero-laterali subacuto, 4-spinuloso (angulo orbitali excluso). Pedes antici omnino scabriculi manu carpoque pubescentibus; digito mobili cum dente basali paulo grandi armato. Pedes postici subtenués, paulo hirsuti.

Carapax in part scabrous, areolet 3 M circumscribed, 2 M, 1 M, 2 F coalescent, not transversely corrugate, antero-lateral margin not areolate, front entire, very minutely denticulate; orbital margin neither above nor below spinulous, exteriorly one-toothed; antero-lateral margin subacute, four-spinous, orbital angle excluded. Anterior feet throughout scabrous, hand and carpus pubescent; moveable finger armed with a large basal tooth. Posterior feet rather slender, somewhat hirsute.

Plate 14, fig. 5 *a*, male, enlarged one and a half diameters; *b*, under view of front and mouth.

Feejee Islands; also Society Islands, and Sooloo Sea.

Length of carapax of a male, six and three-fourths lines; greatest breadth, ten lines; ratio of length to breadth, 1 : 1.48. A specimen from Tahiti had a grayish colour clouded with brown; four posterior legs yellowish, with broad bands of deep brown, or brownish red.

The antero-lateral region is without areolets, excepting a small oblique areolet behind the orbit, not reaching towards the margin. The surface from the front margin to the posterior part of 2 M is evenly curved, without sulci dividing it into areolets. The hands are not very unequal in size.

ERIPHIA ARMATA.

Mediocriter crassa. Carapax anticè transversim paulo rugatus, margine areolarum 1 M 2 M et 5 L antico per rugam granulosam transversam conspicuis, areolâ 2 L + 3 L circumscriptâ, spinosâ; fronte paulo deflexo, emarginato, denticulato, denticulis parvulis conicis; regione orbitali interno 1-2-spinoso, ejus margine externo 2-3-spinoso, margine superno subtiliter denticulato; margine antero-laterali carapacis subacuto, 5-spinoso (spinis orbitæ exclusis), spinis acutis. Pedes antici spinulis valde armati et extus hirsuti, manu majore extus seriatim spinulosâ, infra lævi, digito ejus mobili cum dente magno obliquo infra armato. Pedes postici hirsuti.

Moderately stout. Carapax anteriorly transversely corrugate, anterior margin of areolets 1 M, 2 M and 5 L distinct through transverse granulous rugæ, areolet 2 L+3 L together circumscribed, spinulous; front a little deflexed, emarginate, denticulate, teeth small conical; inner orbital region one or two-spinous, its outer margin two or three-spinous, upper margin finely denticulate; antero-lateral margin of carapax subacute, five-spinous spines of orbit excluded, spines acute. Anterior feet armed with spinules, and exteriorly hirsute, hand rather large, seriatly spinulous on outer surface, smooth below, the moveable finger having a large stout basal tooth. Posterior feet hirsute.

Plate 14, fig. 6 *a*, female, natural size; *b*, front view (a little oblique) of front; *c*, moveable finger of larger hand; *d*, abdomen of female.

Rio Negro, eastern coast of Patagonia.

Length of carapax of female, nine and a half lines; greatest breadth, thirteen and three-fourths lines; ratio of length to breadth, 1 : 1.45.

This species has the areolet 2 L 3 L very distinct, and this character, together with the transverse ridgelets, hirsute anterior legs, and general form, distinguish it from the *E. Smithii*. One of the ridgelets or rugæ extends inward, nearly transversely (inclining somewhat forward) from the penult lateral spine; another interrupted range crosses the carapax by the front of 2 M, another by the front of 1 M, and a minute range marks the anterior limit of 2 F. The marginal teeth have often a spine on the posterior side. From the *spiniifrons* it differs in having the teeth of the front quite minute, and the hands and carpus thickly armed with spines, as well as pubescent. Moreover, it is broader for its length. The postero-lateral margin is rounded. The large oblique basal tooth of the moveable finger is alike in both sexes. There is a spine on the lower margin of the orbit, inner side.

ERIPHIA LEVIMANA (Latr.)

Valde obesa. Carapax anticè multo deflexus, areolâ 3 M circumscriptâ, 1 M 2 M coalitis, granulatis, regione antero-laterali nec anticè nec posticè areolato, granulato; fronte inter-antennali bilobato, 3-4-dentato, dentibus brevibus, obtusis; margine orbitali supra denticulato, externè bidentato, margine antero-laterali 5-6-dentato (dentibus orbitæ exclusis), dentibus parvulis, vix acutis, posterioribus granuliformibus. Pedes antici crassissimi, inæqui, nudi, læves, digitis ambobus manus grandioris dente brevi latissimo basali instructis. Pedes 8 postici articularum 3tii 4ti 5ti dorso paulo hirsuti, tarso in 4 lineis hirsuto.

Very thick. Carapax anteriorly much deflexed, areolet 3 M circumscribed; 1 M, 2 M coalescent, granulate, antero-lateral region not areolate in any part, granulous; front between the antennæ two-lobed, 3-4-toothed, teeth short, obtuse; orbital margin above denticulate, externally bidentate, antero-lateral margin with five or six teeth (teeth of orbit excluded), teeth small, hardly acute, the posterior granuliform. Anterior feet very stout, unequal, nude, smooth, both fingers of larger hand having a very stout basal tooth. Eight posterior feet a little hirsute on upper side of third, fourth, and fifth joints, tarsus hirsute in four lines.

Plate 14, fig. 7 *a*, male, natural size; *b*, under view of front; *c*, front view of front.

From several of the Paumotu Islands, as Honden Island, Wilson's; also the Society, Samoan, and Feejee Islands, being widely spread in the Pacific.

Length of the carapax of a female, twenty-two and a half lines; greatest breadth, twenty-nine lines; ratio of length to breadth, 1:1.29. The teeth of the lateral margin do not project so as to add to the breadth of the widest part of the carapax, they are small, and the posterior mere granules. The two teeth at the outer angle of the orbit are quite prominent in a large specimen, though not acute. The eyes are red, much like red sealing-wax.

The figure of this species by Guerin (Iconog. Crust., pl. 3, fig. 1), is very unlike our specimens, especially the representation of the front (1 c), as seen from below; yet we are disposed to refer our specimens here, as they agree exactly with the description by Milne Edwards (Crust., i. 427). The general form, and most of the characters, agree with the *E. Smithii* of M'Leay, as figured by Krauss (Südaf. Crust., pl. 2, f. 3), and Krauss observes that the male hands in that species are smooth. But in the Pacific specimen the hands are smooth in both sexes, and even in individuals half an inch long. The carapax is very thick and rounded at the sides, even along the antero-lateral margin, excepting its anterior part. In a front view, we observe that the suture between the orbit and the outer antennæ is very much flexed, which is not the case in the following species.

ERIPHIA GONAGRA.

Coast of South America, and probably Rio Janeiro.

Length of carapax of a male, fourteen and a half lines; greatest breadth, including teeth, twenty-one lines (the teeth adding one line to the breadth); ratio of length to breadth, 1:1.45 (excluding teeth, 1:1.4). Another smaller male, eight lines long, gives for the first ratio, 1:1.41. The teeth are stout and pointed, and have a somewhat tuberculous surface, as in figure 8, Plate 14; there is but a single post-orbital spine. The upper margin of the orbit is very finely denticulate. Areolets 3 M and 2 M (the latter united to 1 M), are distinct; so also a transverse areolet, posterior to the orbits, corresponding to 2 L + 3 L

is prominent. The anterior margin of 1M 2M, and 2L 3L, is somewhat denticulate, and there are some ranges of granules, sometimes raised into ridgelets, on the surface of these areolets, and also near the posterior teeth. From the posterior tooth backward the margin hardly forms an angle. The tubercles of the large hand are flat warts, and are not found on the lower half of the hand; those of the smaller hand are somewhat conical. Both hand and carpus are without hairs. The eight posterior legs are sparsely hairy on the margins of the fourth and fifth joints; and the tarsus is short hirsute in longitudinal lines or bands. The moveable finger of the large hand has a large basal tuberculiform tooth.

ERIPHIA SMITHII (*M'Leay*).

Singapore.

Length of carapax of a male, one inch five and one-fourth lines; breadth, one inch ten and one-fourth lines; ratio of length to breadth, 1 : 1.3. . The carpus and hands are covered with very small tubercles or incipient spines, which are smallest and in part obsolescent on the carpus of the larger leg. The figure of Krauss well represents the species.

E. Smithii, M'LEAY, Smith's Illustr. Zool. S. Africa, Annulosa, page 60; KRAUSS, Südaf. Crust., p. 36, pl. 2, f. 3.

GENUS DOMÆCIA, *Eydoux and Souleyet*.

This genus, although near *Ruppellia*, is singular in its very short third joint to the outer maxillipeds.

DOMÆCIA HISPIDA, *Eydoux and Souleyet*.

Coral reefs, island of Tahiti.

The species collected by us in Tahiti, appears to be the same with that described by Eydoux and Souleyet, *Voy. de la Bonite*, pl. 2, figs.

5-10, and Hombron and Jacquenot, *Voy. au Pole Sud.*, Plate 4, figs. 3-7. In our specimen, the length of the carapax was 4.1 lines; greatest breadth, 5.75 lines; ratio of length to breadth, 1:1.41. Colour of carapax, brown, or brownish yellow clouded with brown. The front is slightly convex, and has a length a little exceeding the breadth of the buccal area; it is imperfectly six-lobed, the two inner lobes narrowest, and all spinulous, with the spiniform teeth largest near the orbits, and a little incurved. Antero-lateral margin with four or five small spiniform teeth, and a few additional spines on the surface adjoining. Surface of carapax without distinct areas, slightly pubescent, somewhat shining. The orbits closed as in *Ruppellia*. Outer antennæ short. Inner antennæ in transverse fossæ. Outer maxillipeds with inner margins in close contact, third joint very short, and having a transverse row of spinules; in an under view, the maxillipeds are thrown so far forward as to conceal the inner antennæ. Inner and outer surface of hand smooth and shining, upper margin broad and finely spinous; carpus spinous. Eight posterior legs hirsute above. Abdomen of female broad elliptical, covering the whole space between the basal joints of the legs.

GENUS TRAPEZIA, *Latreill.*

The genus *Trapezia*, as accepted by authors, includes two genera, one of which is here named *Tetralia*. In both genera, the carapax is subquadrate, smooth and shining, with the sides converging posteriorly from near the middle, the front horizontal and broad; the eyes occupy the angles, and the outer antennæ are excluded from the orbit. The true *Trapeziæ* have the following distinctive characters:—

Outer maxillipeds widely separate anterior to middle of second joint, and posterior margin of second joint nearly or quite transverse. Front margin of buccal area (see Plate 15) with an emargination, which terminates the efferent canal. Abdomen of male five to seven-jointed. Anterior legs with the arm much projecting beyond the body, and acute or nearly so at inner apex; the hand not strongly bent downward at its extremity. Tarsus not unguiculate, truncate at apex and spinulous. Pterygostomial region marked with a line running laterally and backward from near the posterior part of the outer maxillipeds.

The same species varies much in the dentation of the arm, even the right and left arm being often much unlike. Moreover the spine of the lateral margin, and that of the inner margin of the carpus, may become blunt, or almost disappear with age. It is, therefore, exceedingly difficult to determine how far these points may afford specific characters. The colour is various among the species, and seemingly important; yet we have been unable to test this importance, since specimens differing decidedly in style of colouring, are apparently identical in their other characters. Ruppell* considers the colour as a specific distinction, and has named several species on this ground, not mentioning other characters.

The character of the tarsus is quite peculiar, as shown in our figures. The extremity is an oblong process with a blunt apex, filled and not hollow. The upper margin of the apex is set with exceedingly short spines, blunt at the point, and other longer spines and hairs are situated as shown in the figures referred to. The pterygostomian region is crossed by a raised line, which begins either side of the buccal area, near its posterior part (fig. 5 *d*).

The species, as well as the Tetraliæ, are found among the closely entangled branches or folia of living corals, and are very common in the tropics.

Grapsillus, of M'Leay (Smith's Illust. S. Af., Annulosa, p. 67), is identical with *Trapezia* of Latreille, as remarked by Krauss (loc. cit., p. 35).

1. *Latera carapacis inermia*.

TRAPEZIA SPECIOSA.

Frons fere integer, versus oculos et ad medium obsolete emarginatus.

Pedes antici subæqui, carpo supra obtuso, articulo tertio apicem internum acuto (rectangulato) et marginem internum denticulato, denticulis subquadratis, minutis. Pedes 8 postici toti tenues, coxis articulisque sequentibus perangustis, subcylindricis.

Front very nearly entire, obsoletely emarginate at middle and also

* Krabben des rothen Meeres, Frankfurt, 1830, p. 27.

near the eyes. Anterior feet subequal; carpus obtuse; arm acute or rectangular at inner apex, and the margin denticulate, teeth quadrate. Eight posterior feet all slender, coxæ and following joints very narrow, subcylindrical.

Plate 15, fig. 1, animal, enlarged.

From the coral reef, Carlshoff Island.

Length, two and a half lines. Colour flesh-red, areolated with a few deep-red irregularly curving lines. These lines form two deep, contiguous U-shape curves over the anterior part of the carapax, adjoining the front margin, which together are somewhat like the letter ω , thus inverted. Anterior legs of the same colour; fingers brownish black. The tarsus is about half as long as the preceding joint.

TRAPEZIA BELLA.

Frons subinteger, obsoletè sinuosus, crenaturis sex obsoletis. Pedes antici subæqui, nudi, carpo obtuso; articulo tertio apicem internum acuto, (rectangulato), marginemque regulariter serrulato, denticulis triangulatis. Pedes octo postici graciles, articulis tertio et sequentibus tenuibus, subcylindricis.

Front subentire, obsoletely sinuous, six obsolete crenatures. Anterior feet subequal, naked; carpus obtuse, third joint with inner apex acute (rectangular), and inner margin regularly serrulate, teeth triangular. Eight posterior feet slender; third and following joints slender, subcylindrical.

Plate 15, fig. 2, animal, enlarged.

Coral reefs of Carlshoff Island, Paumotu Archipelago.

Length, two and a half lines. Colour flesh-red, dotted minutely with deeper red, both over carapax and legs; fingers brownish. This species resembles closely the *speciosa*; but the teeth of the arm are not quadrate. The tarsus is about half the preceding joint in length.

2. *Latera carapacis dente armata.*TRAPEZIA RUFO-PUNCTATA (*Herbst*), *Latr.*

Frons dentibus sex magnis subacutis armatus, spinula lateris acuta. Pedes antici subæqui, carpo intus valde acuto, articulo tertio apicem internum acuto, incurvato, marginem internum acute serrato, serraturis grandibus subæquis. Pedes 8 postici paulo pubescentes, articulo tertio parce crasso, quinto sat angustiore. Abdomen maris 7-articulatum, segmento secundo angustiore, tertio quartoque latioribus, reliquis decrescentibus, ultimo rotundato, brevioris quam precedens.

Front armed with six large, prominent teeth. Lateral spine acute. Anterior feet subequal, third joint or arm acutely projecting, and incurved at inner apex, and inner margin with a few large, sharp serratures. Eight posterior feet somewhat pubescent, third joint rather stout, the fifth considerably narrower. Abdomen of male seven-jointed, second segment narrower, third and fourth broader, the rest decreasing in width, the last rounded at apex, shorter than preceding.

Plate 15, fig. 3 *a*, animal, enlarged; *b*, male abdomen.

From outer reef of Tahiti, among branches of coral.

Length of carapax, six lines; breadth, seven lines. Colour ivory white, or a pale flesh tint, with quite large carmine spots rather thickly scattered; legs like carapax. Between the orbits, just back of front margin, there are in a row, six spots; in the three or four following rows, there is a spot on the medial line; but the rows are not regular, especially over the posterior part of the carapax. Length of third joint of posterior legs, two and one-half times its greatest breadth. Claw, smoky yellow; a slight tinge of red in the hand. The spots of colour are much larger than in the *rufo-punctata* of *Herbst*, but the teeth of the anterior margin are so similar to those of his species, that we believe our species identical with his. The inner two teeth of the front margin are separated by a rounded concavity,

the next on either side is prominent triangular. The inner acanthus of the orbit is prominent and acute.

Cancer rufopunctatus, HERBST, loc. cit., pl. 47, fig. 6.

Trapezia rufopunctata, LATREILLE, Encyc., x. 695; HOMBRON and JACQUENOT, Voy. au Pole Sud, pl. 4, f. 8, 9; EYDOUX and SOULEYET, Voy. de la Bonite, pl. 2, f. 3.

TRAPEZIA MACULATA (*M Leay*), *D.*

Frons sat sinuosus, paulo 6-dentatus. Dens lateralis acutus. Pedes antici grandes, manu nudâ, carpo apicem internum rotundato aut vix acuto, articulo tertio angulum internum rectangulato, marginem internum 5-6-dentato, dentibus interdum denticulatis. Pedes 8 postici sparsim pubescentes, articulo tertio sat angusto.

Front rather strongly sinuous, and somewhat six-toothed. Lateral tooth acute. Anterior feet large, hand naked, carpus rounded at the inner apex, third joint at inner angle rectangulate, inner margin dentate, teeth broad and truncate, sometimes subdivided. Eight posterior feet sparsely pubescent; third joint rather narrow.

Plate 15, fig. 4 *a*, animal, from Tahiti, enlarged; *b*, front of a Sandwich Island specimen; *c*, arm of same; *d*, arm of another specimen, from the same locality.

From the reefs of Tahiti, among living corals; also from the Sandwich Islands.

Length of Sandwich Island specimen, five and a half lines; breadth, six and a half lines; of Tahiti specimen, length, five lines; breadth, five and one-fourth lines. Colour a grayish or reddish yellow, spotted rather coarsely with rounded, deep-red spots. The coxæ of the eight posterior legs are not three times as long as broad. The legs have a few hairs only towards their extremities.

The different dentation of the arm of the two Sandwich Island specimens may indicate a more important difference than is here admitted; and the Tahitian specimen is somewhat peculiar in its greater

length. The species differs from the *rufopunctata* in its less deeply dentate front, and its obtuse carpus.

Grapsillus maculatus, M'LEAY, Crust. of Smith's Illust. Zool. S. Africa, p. 67.

Trapezia maculatus, KRAUSS, Südaf. Crust., 36.

Trapezia guttata? RÜPPELL, Krabben des rothen Meeres, 27.

Trapezia tigrina, EYDOUX and SOULEYET, Voy. de la Bonite, pl. 2, f. 4.

TRAPEZIA CYMODOCE (*Guerin*).

Frons leviter sinuosus. Dens orbitæ inferior non prominens. Dens carapacis lateralis aut obtusus aut obsolescens. Pedes antici subæqui, carpo angulum internum obtuso aut rotundato, brachio dentato. Pedes 8 postici mediocres.

Front somewhat sinuous. Inferior orbital tooth not prominent. Tooth on either side of carapax obtuse, or nearly wanting. Anterior feet subequal; inner angle of carpus obtuse or rounded, arm dentate. Eight posterior feet of moderate size.

Plate 15, fig. 5 *a*, specimen from Tahiti, enlarged; *b*, abdomen; *c*, outline of front between the orbits, enlarged, of a specimen from the Sandwich Islands; *d*, under view; *e*, male abdomen; *f*, extremity of leg of third pair; *g*, extremity of tarsus; *h*, outline of right arm (*r*, outline of carpus); *i*, outline of left arm of same individual.

Tahiti; also Sandwich Islands.

Length of carapax of Tahiti specimen, four and one-half lines; breadth, five and three-fourths lines; of specimen from the Sandwich Islands, length, five lines; breadth, six lines. From either of the preceding, this species differs in having the lateral tooth of the carapax obtuse or obsolescent, at the same time the inner angle of the carpus is obtuse, and the front is not very strongly sinuous. The colour is orange; fingers, grayish or brownish yellow. The tarsus is shown in figures *f*, *g*. The obtuse short spines at the extremity, in two parallel but imperfect series, have a brownish-yellow colour, and are very different in appearance from the spines behind. The under view, figure *d*, represents the general character of the maxillipeds in the Trapezia.

and shows the emargination of the anterior margin of the buccal area, at the termination of the efferent canal; it is somewhat triangular in form, with the outer side rounded. There is a tooth below, on the interior margin of the orbit, but it is not long and acute in this species. The depressed line on the second joint of the outer maxillipeds is not parallel with the inner margin. The third joint is about as long as broad, and is somewhat rounded at the outer angle.

This is a common species, and agrees with the *cymodoce* of Herbst, as well as that of Guerin, in having the carpus obtuse; and, although Herbst's figure is too broad, we deem it probable that it is his species; and, in either case, it may well receive his name, as applied by Guerin.

Cancer cymodoce? HERBST, op. cit., pl. 51, f. 5.

Trapezia cymodoce, GUERIN, Voy. de la Coquille, pl. 1, f. 4.

Trapezia miniata, HOMBRON and JACQUENOT, Voy. au Pôlé Sud, pl. 4, f. 10-13.

TRAPEZIA DENTATA (*M'Leay*), *Datna*.

Frons sat sinuosus, dentibus sex prominulis. Dens orbitæ inferior acutus. Dens carapacis lateralis acutus. Pedes antici subæquali, grandes, margine articuli tertii interno acutè serrato, dente acuto apicali curvato. Pedes octo postici sparsim pubescentes mediocres, paulo graciles.

Front rather strongly sinuous, inferior tooth of orbit, acute. Lateral tooth of carapax acute. Anterior feet subequal, large; inner margin of third joint acutely serrate, and apical tooth curved. Posterior feet sparsely pubescent, moderately stout, rather slender.

Plate 15, fig. 6 *a*, animal, from Tahiti, enlarged; *b*, abdomen of female; *c*, outline of front of specimen, from Tongatabu; *d*, outline of arm and carpus, *ibid*.

From the coral reefs of Tahiti; the Feejees; and Tongatabu.

Length, 0·30 inch; breadth, 0·36 inch; ratio 5 : 6. Colour, dark ochreous, also brownish, also deep vermilion, also dull purplish blue. Tooth on the front, near the orbital cavity, an acute spine.

Serratures of arm, five or six, acute, curved at apex. Fingers incurved at apex. Eight posterior legs rather slender, length of third joint more than three times its breadth, last three joints sparsely hairy.

Unlike the *cymodoce*, the lateral tooth of the carapax, the inner angle of the carpus, and the inferior orbital tooth, are all acute; and the front margin is rather more sinuous. There are six low prominences to this margin, of which the one next to the outer, either side, is truncate.

Var. subintegra.—Plate 15, fig. 7, represents a specimen from Disappointment Island (Paumotus), which has the lateral tooth and inner angle of carpus prominent acute, but the front of the carapax is only very slightly sinuous. The length was three lines. Colour, light orange, bordering on flesh-red. Eggs orange.

Grapsillus dentatus, M'LEAY, S. Af. Crust., pl. 3.

TRAPEZIA AREOLATA.

Frons sinuosus, angulo orbitæ inferiore interno subacuto. Pedes antici mediocres, margine articuli tertii interno serrato, dente apicali curvato; carpo angulum internum acuto. Pedes 8 postici sat breves, sparsim pubescentes, tarso paulo breviorè quam articulus precedens. Carapax colore brunneo latè areolatus.

Front sinuous, inner margin of orbit subacute. Anterior feet of moderate size, inner margin of third joint serrate, apical tooth curved; carpus acute within. Eight posterior feet rather short, sparsely pubescent, tarsus a little shorter than preceding joint. Carapax divided into large areas by brown lines.

Plate 15, fig. 8 *a*, animal, enlarged; *b*, abdomen of female.

From corals of outer reef of Tahiti.

Length, three and a half lines; breadth, four lines. Colour brownish or grayish yellow, darker anteriorly, with a coarse network of dark-brown lines, enclosing irregular angular areas. Legs brownish or red-

dish yellow, excepting anterior pair, which resembles carapax. Inner angle of orbital cavity on the front somewhat prolonged and acute, or subacute.

The sinuous front of the carapax has the two inner prominences low triangular, approximate, and separated as in most species by a semi-circular concavity; serratures of arm equal and acute, serratures sometimes slightly serrulate. Length of third joint of posterior legs, a little more than twice the breadth.

The legs are shorter than in the *dentata*, yet the species closely resemble one another, and if the areolation of the colour is not a specific character, this may be only a variety of that species.

T. septata (var.?) The areolation is much coarser than in the *areolata*, and the inner angle of the carpus is not acute. It is, perhaps, a variety of the *T. ferruginea*.

Plate 15, fig. 9 *a*, carapax, enlarged; *b*, male abdomen; *c*, arm and carpus in outline.

From the Sooloo Sea.

TRAPEZIA FERRUGINEA (*Latreille*).

Frons sinuosus, angulo orbitæ interno inferiore obtuso. Dens carapacis lateralis acutus. Pedes antici grandes, carpo apicem internum angulato, non acuto, articulo tertio apicem internum acuto, prominente, marginem internum dentato, denticulis truncatis aut subduplicibus aut serrulatis. Pedes postici paulo graciles, sparsim pubescentes, articulo tertio angusto.

Front sinuous, inner inferior angle of orbit obtuse. Lateral tooth of carapax acute. Anterior feet large, carpus angulate at inner apex but not acute, third joint prominent acute at inner apex. inner margin dentate, teeth truncate or somewhat double, or serrulate. Posterior feet sparsely pubescent, third joint narrow.

Plate 16, fig. 1 *a*, animal, enlarged; *b*, another variety.

Reefs of Tahiti (fig. 1 *a*), and Upolu, one of the Samoan Islands (fig. 1 *b*); also from the Sooloo Islands.

Length of carapax, four and a half lines; breadth, six lines. Carapax and anterior legs tawny yellow, or with a tinge of carmine; anterior and part of lateral margin of carapax, also margin of anterior legs, and all of eight posterior legs, tinged with carmine. Another variety (Samoa), carapax pearl-white, with a slight flesh tinge, front margin brown; eight posterior legs with brownish red spots or stripes. In some young specimens, the inner apex of carpus is acute and spiniform.

The species is near the *cymodoce*, but the side spine is more prominent acute.

We suspect, that the *T. septata*, from the Sooloo Sea, is only a variety of this species, although so different in colour.

Trapezia cymodoce, AUDOUIN, Savigny, op. cit., pl. 5, f. 2.

Trapezia ferruginea, LATREILLE, Encyc., x. 695; EDWARDS, Crust., i. 429.

GENUS TETRALIA, Dana.

Carapace Trapeziaë affinis, superficie glaberrimâ, fronte horizontali latissimo, oculis ad angulos anticos insitis, margine laterali fere longitudinali et posticè introrsum arcuato. Frons subtilitissimè denticulatus. Pedes antici breviores, brachio apicem paulo exserto, pollice valde deflexo; postici extremitate breviter unguiculati. Maxillipes externus marginem posticum valde obliquus, et non transversus, apicibus articulorum secundorum paulo remotis. Abdomen maris 7-articulatum.

Near *Trapezia* in the carapax, the surface being smooth, the front horizontal, very broad, eyes at the angles, lateral margin very nearly longitudinal, and behind arcuate inward. Front very minutely and neatly denticulate. Anterior feet much shorter than in *Trapezia*, extremity of arm little exsert, thumb very much deflexed; posterior feet having a short claw at extremity. Outer maxillipeds very oblique at the posterior margin, instead of transverse, apices of the second joints somewhat remote. Abdomen of male consisting of seven segments.

The species here included, hitherto referred to *Trapezia*, have many striking peculiarities, among which are,—the claw of the tarsus,—the shorter arm,—the hand bent downward at the extremity,—the posterior margins of the outer maxillipeds making a deep triangle with one another, instead of a transverse line nearly,—the less distance between the upper part of the second joint and the third joint of the outer maxillipeds—and seven segments to the male abdomen;—besides, the anterior margin of the buccal area is not at all emarginate for the termination of the efferent branchial canal, although a slightly-raised longitudinal line will be observed upon the prælabial surface. The character of the front is also quite different in the known species; and the third joint or arm of the anterior legs, instead of having an acute anterior apex, is rounded, and instead of being dentate along the whole inner margin, is denticulate only at or near the rounded apical margin. The sides of the carapax are usually without a spine, though not uniformly so. The fingers of the larger hand are in contact at apex, and the lower finger or thumb has a prominent middle to the inner margin; in the smaller hand, they are throughout in contact.

The tarsus is pointed, as seen in a lateral view, and has a horny, claw-like extremity, which same horny texture extends back either side and also below, as shown on Plate 16. About the under surface of the tarsus there are several spinules in pairs and transverse series; and the claw portion is flattened below, with the margin a little raised.

The *Trapezia digitalis*, Edwards, Crust., i. 429, belongs to this genus, and is distinguished, according to the description given, by having the front armed with two small points at middle.

Tetralia, DANA, Am. Jour. Sci. [2], xi. 224.

1. *Latera carapacis inermis*.

TETRALIA NIGRIFRONS.

Frons subtiliter denticulatus, parce sinuosus, medio obsolete bi-lobatus. Pedes antici valde inæqui, carpo intus spini-acuto. Pedes S postici fere nudi, articulo tertio parvis posterioris latissimo, sesqui longiore quam lato, fere triplo latiore quam articulus quintus.

Front minutely denticulate, very slightly sinuous, two obsolescent lobes at middle. Anterior feet very unequal, the carpus acute within. Eight posterior feet nearly naked, third joint of posterior pair very broad, its length one and a half times the breadth, nearly three times as broad as the fifth joint.

Plate 16, fig. 2 *a*, animal, enlarged; *b*, outline of front; *c*, exterior maxillipeds; *d*, abdomen.

Coral reefs at Honden Island, Paumotu Archipelago.

Length, two to three lines. Carapax mostly whitish, with the front margin brownish black; legs dark brown.

The front may be said to be obsoletely four-lobed, the two inner lobes short, the outer long; but all are very slightly prominent. The teeth or pectinations on the margin are largest laterally. The apex of the basal portion of the outer antennæ was visible beyond the front in an upper view.

The abdomen was not closely applied to the venter when in its natural state, but appeared a little lax, as shown in the figure. Its form is oblong elliptical; but we are not certain that it was mature. The great breadth of the third joint of the posterior pair of legs is a striking character.

TETRALIA GLABERRIMA (*Herbst*), *Dana*.

Frons subtilissimè denticulatus, non sinuosus. Pedes antici inæqui, manu extus prope basin pubescente, articulo tertio apicem internum rotundato et ad marginem internum denticulato, carpo apicem internum rotundato. Pedes octo postici fere nudi, articulo tertio paris postici paululo latiore quam articulus quintus, articulo quinto crassiusculo.

Front very minutely denticulate, not sinuous. Anterior feet unequal, hand externally towards base somewhat pubescent, third joint on inner margin toward apex denticulate, carpus rounded within. Eight posterior feet nearly naked, third joint of posterior pair slightly broader than fifth joint, fifth joint stout.

Plate 16, fig. 3 *a*, animal, enlarged (from Carlshoff Island); *b*, under view of front and mouth; *c*, female abdomen; *d*, male abdomen of a specimen of similar colour, from Tongatabu; *e*, large hand, *ibid.*; *f*, tarsus, *ibid.*; *f'*, under view of extremity of same; *g*, another variety, Tahiti; *i*, *h*, abdomen of same variety.

From coral reefs of Carlshoff Island, Paumotus; also from the reefs of Tahiti, and from Tongatabu.

Colour, chestnut brown, excepting sometimes a border along the front and behind the eyes, which is often pale green, white, or grayish white. Legs brown, also pale yellow, approaching pale flesh-red, with the front margin sometimes brown. Length of carapax of specimen from Tongatabu, five and a half lines; breadth, six and a half lines; of specimen from Carlshoff Island, length, four lines; of Tahiti specimen, length, two and one-fourth lines, and breadth, three lines.

In most specimens, the right hand was very much the largest, as in the figure; but in others, apparently of the same species, the left was much the larger. The front, in the pale species from Tongatabu and Carlshoff, is not at all sinuous; and it is but slightly so in the Tahiti specimen, fig. *g*. The third joint of the posterior legs is less stout proportionally than in the *nigrifrons* (length to breadth, as 1 to 2), and the carpus is not acute within. The female abdomen is very large orbiculato-elliptical, and covers the whole sternum and even the insertions of the legs. The inner apex of the arm is rather evenly denticulate.

Cancer glaberrimus, HERBST, *op. cit.*, 262, pl. 20, f. 115.

Trapezia serratifrons, HOMBRON and JACQUENOT, *Voy. au Pole Sud*, pl. 4, f. 20-23.

Trapezia glaberrima, KRAUSS, *Südaf. Crust.*, 35.

Trapezia leucodactyla, RUPPELL, *loc. cit.*, 28.

2. *Carapacis latus spinâ armatum.*

TETRALIA ARMATA.

Frons subtilissimè denticulatus, non sinuosus. Pedes antici inæqui, manu extus prope basin pubescente, carpo spinis duabus intus armato, articulo tertio prope apicem internum 4 denticulis tenuibus ornato. Pedes postici mediocres, articulo tertio paulo angusto.

Front very minutely denticulate, not sinuous. Anterior feet unequal, hand externally near base pubescent, carpus armed on the inner side with two spines, third joint having four slender teeth near the inner apical margin. Posterior feet of moderate length, third joint rather narrow.

Plate 16, fig. 4 *a*, carapax, enlarged; *b*, outline of arm and carpus; *c*, part of hand.

Island of Tongatabu, Pacific Ocean.

Length of carapax, two lines; breadth, two and a half lines. Colour pale, with the anterior border brownish black.

NOTE. The *Trapezia digitalis* (M. Edwards's Crust., i. 429) evidently belongs to this genus, and it is distinguished from the others here described, by having the front armed at middle with two small pointed teeth, and elsewhere finely denticulate. The *T. leucodactyla* of Rüppell (loc. cit., p. 28), has not the side tooth, as is usual in the Tetraliæ, but the characters mentioned do not suffice to determine that it is a true Tetralia.

GENUS QUADRELLA.

Carapax convexus, lævis, subquadratus, margine laterali fere longitudinali, fronte lato, horizontali, bene spinoso, oculis ad angulos insitis. Articulus antennæ externæ 1mus perbrevis, secundo non longior, ad frontem non attingens, margine orbitæ hiatus carente exclusus. Pedes longi, posteriores graciles, tarsi unguiculatis.

Carapax convex, smooth, nearly square, sides nearly longitudinal; front broad, horizontal, regularly spinous, eyes at the angles of the carapax. First joint of outer antennæ, very short, not longer than second, not reaching to front, excluded from margin of orbit, there being no hiatus. Feet long, the posterior quite slender, tarsi unguiculate.

Near Trapezia, but the carapax is convex, the front has six pro-

minent acute teeth, the feet are long, the first joint of the outer antennæ is not longer than the second. The aspect is quite different, the carapax appearing harder, and quite as long as broad. There is a prominent spine at inner side of orbit, below the line of the front, and more prominent than the tooth of the front just above. There are no fissures above in the orbital margin. The arm is long (very nearly as long as the carapax), and projects very much beyond the carapax.

The species have much the aspect of one of the Grapsidæ; but the abdomen and the male sexual appendages are Cancroid, and the resemblance is close to Trapezia.

QUADRELLA CORONATA.

Carapax lævis, lateribus paululum arcuatis et medio uni-spinosis, dentibus frontis sex medianis paulo longioribus, externis perbrevis, dente infra-orbitali elongato. Pedes antici elongati, manu angustâ, triplo longiore quam dimidium corporis, inermi, lævi, carpo intus 2-spinoso. brachio ad marginem anticum bene 7-spinoso. Pedes postici fere cylindrici, articulis subtilissimè pubescentibus, articulo quinto marginibus parce pubescenti, tarso infra spinuloso.

Carapax smooth, sides slightly arcuate and with a single spine at middle, teeth of the front six the median longest, and the exterior quite short; an elongate infra-orbital tooth just below outer frontal. Anterior feet elongate; hand narrow, once and a half the length of the body, smooth and unarmed; carpus two-spinose on inner side; arm with a neat series of seven spines. Posterior feet nearly cylindrical, very minutely pubescent, fifth joint sparingly pubescent at the margins, tarsus spinulous below.

Plate 16, fig. 5 *a*, carapax, enlarged three diameters; *b*, under view of part of front, inner antennæ, except a portion of base removed; *c*, anterior leg, enlarged three diameters; *d*, one of eight posterior legs, *ibid.*

Sooloo Sea, or Balabac Straits.

Length of carapax, three and a half lines; breadth, the same; length of hand, five and a half lines; of moveable finger, two and a half lines; of arm, three and one-fourth lines. The post-orbital angle is very short acute. The teeth or spinules of the front are very nearly equally spaced, the interval between the two middle being a little the deepest. The lower finger has the apex incurved and acute. The seven teeth of the arm are acute spines, equally spaced. The eyes have very short peduncles, and project hardly as much as their diameter. The spine at inner angle of orbit below, projects forward nearly as far as the median teeth of the front, and is similar in form.

FAMILY IV. PORTUNIDÆ.

THE genera of Portunidæ, through the description of supposed new types and the subdivision of old genera, have been greatly increased in number beyond those published in the work by Milne Edwards. But some of these supposed new types are of doubtful merit, and the subdivisions in part objectionable. Of the latter, some have been introduced by De Haan, in following out his system of basing distinctions upon the maxillipeds. The difficulties of such a mode of characterizing or arranging genera, have been illustrated by reference to some of the Portunidæ, on pages 73, 74. Some of the genera, however, are well sustained. We refer to the pages mentioned for remarks on these genera, and continue here with a few additional observations.

The mouth organs, when their transitions are studied, scarcely afford satisfactory characters for separating either the *Lupa tranquebarica* or the *hexagonal* Lupas, from the rest. Yet there are other characters of importance, that sustain us in recognising each of these as distinct groups. The *Lupa tranquebarica* has a large massy hand, narrow above, and with bulging sides, not costate; while in the other Lupas, the hand has a trigonal or prismatic form, being strongly costate longitudinally. Moreover, in this species, the epistome is distinct across, posterior to the bases of the antennæ, while in other species, it is obsolete except in its medial portion.

Again, the *hexagonal Lupas* have the second, third, and fourth legs very slender; moreover, the short and large eyes, which are not concealed when retracted, give the crab a staring look. These characters, in connexion with the narrow form, and the transverse front making an angle with the sides, show that they are a distinct group, and belong together, although varying so widely in the outer maxillipeds, as mentioned on page 74. As in the genus *Lupa*, these species may have either a short or a long lateral tooth or spine, this distinction not being of generic importance.

But *Oceanus* is hardly distinct from *Charybdis*, and *Charybdis* graduates into *Thalamita*.

The peculiar character of the *Lupa cribraria*, mentioned on page 62, requires for it a distinct genus and family.

The *Platyonychidæ* are distinct from the *Portunidæ*, not only in the absence of the ridge on the prælabial plate, but also in the absence of the inner lobe to the inner branch of the first maxillipeds; and besides, the first joint of the outer antennæ is moveable and subcylindrical like the following joint.

The genera of *Portunidæ* which appear to stand on good characters are the following. We have doubt as to its being well to separate *Charybdis* and *Thalamita*, as the transitions closely unite them, and their characters are essentially the same.

1. LUPINÆ.—Sutura sterni mediana tria segmenta intersecans. Palati colliculi prominentes.

1. *Pars antennæ externæ mobilis hiatu orbitæ non oclusa, in orbitâ jaccendo aptata.*

G. 1. SCYLLA, *De Haan*.*—Valde latus et crassus, marginibus anterioribus simul sumtis bene arcuatis, antero-laterali longiore quam postero-lateralis. Pedes antici breviores, crassissimi, manu valde tumidâ, non angulatâ nec prismaticâ.

G. 2. LUPA, *Leach*.†—Valde latus, marginibus anterioribus totis simul sumtis bene arcuatis. Manus elongatè trigona aut prismatica, costata.

G. 3. AMPHITRITE, *De Haan*,‡ *Dana*.—Augustior. Margines frontalis antero-

* Faun. Japon., 11.

† *Neptunus*, *Pontus*, and *Achelous* of *De Haan* (Faun. Japon., 8, 9), the distinctions between which genera appear not to be sustained.

‡ Faun. Japon., 8. Includes, as here adopted, the *Lupa* of *De Haan*, which division he restricts to the *Lupa forceps* (Edw. Crust., i. 456). The *Lupocyclus* of *Adams* and *White* (Crust. Voy. Samarang, 46, pl. 12, f. 4), appears to be identical with *Amphitrite*.

lateralisque angulo convenientes, antero-laterali raro brevior quam postero-lateralis. Manus elongata, prismatica. Basis antennæ externæ crassus, hiatu orbitæ parce angustior.

G. 4. CARUPA, *Dana*.—Transversus. Margines frontalis antero-lateralisque angulo convenientes, fronte recto, medio sæpe emarginato. Basis antennæ externæ subcylindricus, hiatu orbitæ multo angustior.

2. *Pars antennarum externarum mobilis hiatu orbitæ omnino per basis processum oclusa, orbitâ plus minusve remota.*

G. 5. THALAMITA, *Latr.*—Latus. Frons dimidio latitudinis carapacis longior; margo antero-lateralis longitudinalis. Articulus antennæ externæ 1mus prælongus, 2dus orbitâ remotissimus. Pedes antici longi, manu elongatâ.

G. 6. CHARYBDIS, *De Haan, Dana*.*—Angustior. Frons dimidio latitudinis carapacis brevior; margo antero-lateralis obliquus. Articulus antennæ externæ 1mus paulo oblongus, 2dus orbitâ paulo remotus. Pedes antici longi, manu elongatâ.

G. 7. LISSOCARCINUS, *White*.†—Suborbiculatus, lævis, subporcellanus. Articulus antennæ externæ 1mus brevis, fere longitudinalis, articulo sequente orbitâ parce remoto. Pedes nudi; antici breves, brachio ultra carapacem vix saliente, manu perbrevis.

2. ARENÆINÆ.—Sutura sterni mediana tria segmenta intersecans. Palatum colliculo utrinque non divisum. Ramus maxillipedis 1mi internus ad apicem late transversim triangulatus, duobus inter se fere convenientibus.

G. ARENÆUS, *Dana*.—*Lupæ* affinis. Carapax valde latus, antice arcuatus. Pars antennæ externæ mobilis hiatu orbitæ insita. Manus prismatica.

3. PORTUNINÆ.—Sutura sterni mediana duo segmenta intersecans. Colliculi palati sæpe obsoleti.

G. PORTUNUS, *Fabr.*—Angustus, margine antero-laterali brevior quam postero-lateralis.‡

* Fauna Japon., 10. Includes both *Charybdis* and *Oceanus* of De Haan. Corresponds to the "Thalamites Hexagonales" of Edwards, *Crust.*, i. 461.

† *Crust. Voy. Samarang*, 45. We have taken the generic characters from a species collected by us, in connexion with the description by White.

‡ The above synopsis of Portunidæ, is published by the author in the *Amer. J. Sci.*, [2], xii. 129, 1851.

SUBFAMILY I. LUPINÆ.

GENUS SCYLLA, *De Haan*.

Scylla of De Haan (Faun. Japon., p. 11), corresponds to the first section of the genus Lupa in Milne Edwards's Crustacés, i. 448.

SCYLLA TRANQUEBARICA (*Fabr.*)

Singapore.

Ratio of length of carapax, 1 : 1.46 to 1 : 1.5. Medial region but faintly indicated.

Portunus tranquebaricus, FABRICIUS, Suppl., 366.

Portunus serratus, RUPPELL, Krabben des rothen Meeres, p. 10, pl. 2, f. 1.

Lupa tranquebarica, EDWARDS, Crust., i. 448.

Scylla serrata, DE HAAN, Crust. Fauna Japonica, 44; KRAUSS, Südaf. Crust., 25.

Var. ? *oceanica* (Plate 16, figs. 6 *a*, *b*, natural size). A specimen closely resembling the *S. tranquebarica*, if not identical with it, was obtained at the Navigator Islands. It has the median emargination of the front narrower and deeper than the next either side; the median region of the carapax a little more distinct than in the *tranquebarica*; male abdomen oblong triangular, its sides from near the base of the third joint to the apex very straight, instead of sinuous as represented by Rüppell.

The length of the carapax is two inches and seven lines; greatest breadth, three inches and ten lines; ratio of length to breadth, 1 : 1.48. There is also from the same islands, in our collections, a carapax of a larger specimen, measuring four inches and eight lines in length, and breadth, six inches ten and a half lines; ratio of length to breadth, 1 : 1.47.

GENUS LUPA.

De Haan, in his changes, restricted the name Lupa to the single

species *Lupa forceps*. We retain it for the typical part of the old genus, as good usage if not law requires. The *Lupa forceps* hardly differs enough from *Amphitrite*, another subdivision of the old genus *Lupa*, to be distinguished as the type of a separate genus. This genus corresponds in the main to De Haan's *Neptunus*.

LUPA PELAGICA (*Linn.*)

Singapore, East Indies.

Length of the carapax of a medium specimen, one inch and four lines; breadth between tips of longest lateral spines, two inches and eleven lines; ratio of length to breadth, 1 : 2·2; breadth between teeth next in advance, two inches and four lines; ratio of length to this breadth, 1 : 1·75.

Cancer pelagicus, LINN., Mus. Lud. Ulr., p. 434.

Lupa pelagica, LEACH, Edinb. Encyc.; EDWARDS, Crust., i. 450.

LUPA SANGUIOLENTA (*Herbst*), *Desm.*

Singapore, East Indies; also Sandwich Islands.

Length of carapax of a male, two inches and four lines; breadth between extremities of lateral spines, five inches and four lines; ratio of length to this breadth, 1 : 2·3; breadth between the two teeth next anterior to the spine, four inches and four lines; ratio of length to this breadth, 1 : 1·86. Third joint of exterior maxillipeds and pterygostomial region densely pubescent, while the same parts in the *dicantha* are naked; second joint of exterior maxillipeds naked and smooth. Teeth of fingers compressed incisors, each being supported on either side by a very small tooth or lobe; one basal tooth of moveable finger of larger hand, flattened molar in form.

Colour of living animal, yellowish gray with a tinge of green, and large brown areolation; large spots behind brown with a white ring around. Extremity of posterior eight legs blue, with red ciliation;

anterior legs with a large crimson spot on the inside of the moveable finger.

Cancer sanguinolentus, HERBST, i. 161, pl. 8, f. 56, 57.

Lupa sanguinolenta, DESMAREST, Crust., 99; EDWARDS, Crust., i. 451, and Cuv., pl. 10, f. 1.

Neptunus sanguinolentus, DE HAAN, Faun. Japon., 38.

LUPA DICANTHA (*Latreille*).

Plate 16, fig. 7 *a*, abdomen of male, natural size; *b*, under view, showing mouth with part of the maxillipeds removed—*c*, the anterior margin of the prælabial plate—*mx*, inner branch of first maxillipeds—*md*, mandibles—*r*, ridge on prælabial plate; *e*, outer maxilliped.

Rio Janeiro.

Length of carapax of a male, two inches; breadth between tips of long lateral spine, four and one-half inches; ratio of length to this breadth, 1:2·25; breadth between the tips of the teeth next anterior, three inches and seven lines; ratio of length to this breadth, 1:2·1. In the same male, the breadth of the second joint of the abdomen is seventeen lines, and that of the fourth, which is linear, hardly two lines, making the ratio between the two, 1:9. The third joint of the outer maxillipeds is oblique subtriangular, the outer side being concave in outline, the inner obliquely truncate and convex, and not at all projecting just above the articulation with the next joint, but continuing in an uninterrupted line curving around to the outer apex. The colour of this species as observed at Rio Janeiro, is olive green, with the eight posterior legs in part bluish, and the arm and hand blue, with some reddish purple.

After a close examination of the two varieties of this species, the Brazilian with the median teeth of the front prominent and the other with them obsolete, we incline to the opinion, that they are distinct species, and that therefore, the *L. hastata* of Say will stand as a good species under his name; yet we cannot pronounce with certainty upon this point. The *Lupa hastata* of other authors is an Amphitrite.

Portunus dicanthus, LATREILLE, Encyc., x. 190.

Lupa hastata? SAY, J. Acad. Nat. Sci. Philad., i. 65.

Lupa dicantha, EDWARDS, Crust., i. 451.

LUPA SAYI, *Gibbes*.

Plate 16, fig. 8, abdomen of male, natural size.

Gulf weed, Atlantic Ocean.

Length of carapax of a male, fourteen and a half lines; breadth between tips of long lateral spines, twenty-eight and a half lines; ratio, nearly 1:2; breadth between teeth next anterior, twenty-four lines; ratio, 1:1.66. This is proportionally a much less broad species than the *L. dicantha*. The arm has not the spine at its posterior apex characteristic of that species. The male abdomen is much broader along its fourth joint, its breadth here being greater than one-fourth its basal breadth. The third joint of the outer maxillipeds is much less oblique, and broader at its anterior margin. The four medial of the frontal teeth are very nearly equal. The costæ of the hand are very nearly smooth, and the fingers of neither hand have any broad, rounded teeth near base. There are four spines on the anterior margin of the arm, instead of three as in the *dicantha*; the pterygostomian regions are pubescent, while they are naked or nearly so in the *dicantha*.

Portunus pelagicus, Bosc., Hist. Nat. des. Crust., i. 220, tab. 5, f. 3.

Lupa pelagica, SAY, Jour. Acad. Nat. Sci. Philad., i. 97; DEKAY, Zool. N. Y., Crust., p. 11, pl. 6, f. 8.

Lupa Sayi, L. R. GIBBES, Proc. Amer. Assoc., 1850, at Charleston, p. 178.

LUPA SPINIMANA, *Leach*.

Rio Janeiro, Brazil.

Length of carapax of a male, one inch eight and a half lines; greatest breadth, two inches and ten lines; ratio, 1:1.66. This species has the carapax covered with a short brownish down, except along certain lines and areolets. The medial areolet is often bare in its anterior part (præmedial areolet); also the extra-medial, ante-

riorly over a large surface, and another still larger transverse, behind this; on the intra-medial, the broad part of which has a nearly straight transverse anterior margin; also in a band running from either side of this areolet, curving first forward, and then around to the posterior tooth; also in other parts. The anterior legs are very long, and the arm projects far outside of the carapax.

Portunus spinimanus, LATREILLE, Encyc. x. 188.

Lupa spinimana, LEACH, DESMAREST, Crust., 98; EDWARDS, Crust., i. 452.

Achelous spinimanus, DE HAAN, Faun. Jap., 8.

LUPA PUBESCENS.

Carapax valde convexus, angustior, subtiliter granulatus, breviter hirsutus; fronte angusto, dentibus quatuor subæquis, parvis, dente præ-orbitali prominentioribus, emarginatione medianâ profundiore; margine antero-laterali 9-dentato, dente postico plus duplo longiore. Pedes antici breviores, non crassiores, hirsuti, brachio anticè trispinoso et apicem posticum non armato, manu superne trispinosâ, costis valde prominentibus, digito manus majoris mobili cum dente crasso obliquo basali armato.

Carapax more convex and narrower than usual, finely granulate, short hirsute, front narrow, four small subequal teeth, more prominent than præorbital tooth, median emargination deeper than the next; antero-lateral margin nine-toothed, posterior tooth rather more than twice as long as the others. Anterior feet rather short, but not stouter, hirsute, arm with three spines on its anterior margin, and not armed at its posterior apex, hand with three spines above, ribs very prominent; moveable finger of large hand with a stout and oblique basal tooth.

Plate 16, fig. 9 *a*, carapax, natural size; *b*, hand, enlarged two diameters; *c*, under view, showing prelabial plate, &c., the pubescence removed from the epistome and neighbouring parts, with *a*², outer antennæ—*a*¹, base of inner antennæ—*c*, epistome—*p*, prelabial plate and medial fissure of the plate—*p*², outer episternal suture of prelabial plate—*f*, *g*, outer parts of mandibular segment—*p*¹, inner and poste-

rior portion of inner episternal suture, the anterior portion, which properly extends to the margin of the plate just inside of the base of the outer antennæ, being obsolete.

Maui, Sandwich Islands.

Length of carapax, one inch and one line; breadth between tips of larger lateral teeth, one inch and eight lines; ratio of length to this breadth, 1:1.6; breadth between teeth next anterior, one inch six and three-fourths lines; ratio of length to this breadth, 1:1.44. It is thus seen that this is a peculiarly narrow species. A faint line (as seen on the bare carapax) extends from the larger lateral tooth to the anterior outer angle of the intra-medial areolet (3 M), which areolet is faintly brought out. The inner spine of the carpus is long and slender. The four teeth of the front are in pairs, and truncate. The orbital margin below the antennæ has a broad, rounded projection.

GENUS AMPHITRITE (*De Haan*), *Dana*.

Antennis externis Lupæ similis. Carapax angustus, subhexagonus, marginibus frontali antero-lateralique angulo convenientibus, antero-laterali raro brevior quam postero-lateralis. Oculi breves, grandes, in orbitis non omnino occulti. Manus elongata, subtrigona. Pedes 8 postici graciles.

Carapax narrow, subhexagonal, the frontal margin forming an angle with the antero-lateral, the antero-lateral rarely shorter than the postero-lateral. Eyes short and large, and when retracted not concealed by the orbits. Hand elongate, subtrigonal. Eight posterior feet slender.

In Amphitrite, the areas of the carapax are often quite prominent. The large eyes having a staring look. The species may have the posterior tooth of the lateral margin like the others, or elongated into a spine. In two species of the latter kind, described beyond, the front is four-toothed, with the two inner teeth quite small. In a species of the former kind, the front is five-toothed.

The genus *Lupocyclus* of Adams and White (Crust. Samarang, p. 46, pl. 12, f. 4), appears to be identical with *Amphitrite*. No characters are mentioned which would exclude the species from that genus, and the figure, not excepting the appearance of the eyes, confirms this conclusion.

1. *Dens lateralis posterior non elongatus.*

AMPHITRITE SPECIOSA.

Carapax areolatus, parce transversus, nudus, granulatus, fronte inter-antennali 5-dentato, dente mediano minutissimo, triangulato, proximo non prominente, remotiore prominente, obtuso; margine antero-laterali paulo arcuato, 9-dentato, dentibus alternatim paululo minoribus. Pedes antici sat validi, brachio postice 2-spinoso, antice 4-spinoso, carpo 2-spinoso, manu brevior quam latitudo carapacis, 2-spinosâ, spinâ anteriore brevissimâ vix conspicuâ. Arcola carapacis cardiaca bi-partita; intestinalis grandis, tripartita, parte medianâ fere linear.

Carapax areolate, sparingly transverse, nude, granulate, front between the antennæ five-toothed, the median tooth very minute triangular, the next either side not at all prominent, the next prominent, obtuse; antero-lateral margin nine-dentate, teeth alternately very slightly unequal. Anterior feet of medium size, arm with two spines behind and four before, carpus with two spines; hand shorter than the breadth of the carapax, having two spines, the anterior one very short and hardly distinct. Cardiac areolet of carapax bi-partite; intestinal large and tri-partite, the median part nearly linear.

Plate 17, fig. 1 *a*, male, enlarged two diameters; *b*, abdomen; *c*, outer maxilliped; *d*, summit of inner branch of first maxillipeds.

From the Feejee Archipelago, Pacific.

Length of carapax, eight lines; greatest breadth, eleven and one-fourth lines; ratio of length to breadth, 1:1.4. The median point of the front appears to proceed from a low lobe, the teeth either side which

together constitute this lobe scarcely projecting at all beyond the point where the median tooth begins. The antero-lateral margin is ciliate, and also both margins of the arm and the upper margin of the hand inside. The posterior side of the median region is in the same line with the posterior lateral teeth. The male abdomen is quite regularly triangular, a little oblong. On the outer side of the hand there is one very prominent and thin carina. The outer maxillipeds have the third joint oblong, longitudinally concave, and very oblique, it curving outward over the summit of the palpus, and at the same time bending, so as to present, to the front view, a surface instead of an edge. Inner surface of hand, especially the lower half, granulous; under surface nearly flat, smooth, and shining.

This species resembles somewhat the *Amphitrite gladiator* of De Haan, as figured by him on Plate 18, f. 1, though unlike his figure 5 on Plate 1 of the same species. From both it differs in the front, and in other characters.

2. *Dens lateralis posterior valde elongatus.*

AMPHITRITE LONGI-SPINOSA.

Carapax areolatus, paulo transversus, spinâ laterali diametro carapacis non duplo brevior, paulo reflexâ, dentibus antero-lateralibus 5 (angulo orbitæ excluso), minutis, non contiguis, inter sese subæquè remotis, fronte inter-antennali 4-dentato, dentibus medianis minutis, exterioribus prominenter triangulatis. Pedes antici mediocres, manu supernè 3-spinosâ, carpo 2-spinoso, brachio apicem externum uni-spinoso, marginem anticum 3-spinoso.

Carapax areolate, a little transverse, lateral spine as long as half the breadth of the carapax, somewhat reflexed; antero-lateral teeth five, minute, not contiguous, nearly equally spaced; inter-antennary front four-toothed, the two median teeth minute, the others prominent triangular. Anterior feet of medium size, hand with three spines above. Carpus with two spines, arm with a single spine at the outer apex, and three on the inner margin.

Plate 17, fig. 2*a*, animal, enlarged three diameters; *b*, male abdomen; *c*, outer maxillipeds.

Coral Reefs of Ovalau, Feejee Archipelago.

Length of carapax, three lines; breadth between tips of lateral spines, six and three-fourths lines; breadth just posterior to the spines, three and a half lines; length of spines, one and a half lines; length of hand, three lines. The second, third, and fourth pairs of legs are very slender. The third joint of the outer maxillipeds is oblong, but nearly flat to its anterior margin, yet somewhat obliquely curved in its anterior part. The length of the male abdomen is much less than its breadth at base.

De Haan's *Amphitrite hastatoides* (F. Jap., Pl. 1, f. 3), and *A. tenuipes* (Pl. 1, f. 4) have no spines on the upper side of the hand.

AMPHITRITE VIGILANS.

Carapax areolatus, paulo transversus, granulatus, spinâ laterali fere triplo breviorè quam latitudo carapacis, dentibus parvulis antero-lateralibus sex (angulo orbitæ excluso), quatuor posterioribus, duobus anterioribus; fronte 4-dentato, dentibus 2 mediocribus minutis, exterioribus prominenter triangulatis. Pedes antici mediocres, manu suprè 3-spinosâ, carpo 2-spinoso, brachio apicem externum uni-spinoso, marginem anticum 4-spinoso.

Carapax areolate, somewhat transverse, granulate; length of lateral spine about one-third the breadth of the carapax, the small antero-lateral teeth six in number, in two sets, four posterior and two anterior; front four-dentate, two inner teeth minute, outer prominent triangular. Anterior feet of moderate size, hand with three spines above, arm with one spine at outer apex and four on the inner margin.

Plate 17, fig. 3 *a*, part of a male, enlarged two diameters; *b*, male abdomen; *c*, outer maxillipeds; *d*, summit of inner branch of first maxillipeds.

Feejee Archipelago; also, Sandwich Islands.

Length of carapax, seven lines; breadth between tips of long

spines, fourteen lines; length of spine, three lines. The two anterior teeth of the antero-lateral margin point nearly forward, while the four posterior, which are separated from the anterior by considerable space, are directed more outward. The abdomen of the male is somewhat oblong, its length exceeding its basal breadth.

GENUS CARUPA, Dana.

Pedes antici sequentibus vix longiores, 2di 3tii 4tique longi, gracillimi, tarso valde tenui, 5ti bene natatorii, tarso elliptico. Articulus antennæ externæ Imus cylindricus sequenti similis. Carapax transversus.

Anterior feet hardly longer than the following pairs, second, third, and fourth pairs long and very slender, tarsus very slender, fifth pair natatory, the tarsus elliptical. First joint of outer antennæ cylindrical, and like the following. Carapax transverse.

The species for which this genus is instituted has the narrow first antennary joint of *Carcinus*; yet the posterior legs have an elliptical plate for a tarsus, and the six preceding pairs are very slender, much as in many *Amphitrite*. It is related to this last-mentioned genus; but in addition to the character of the outer antennæ, the male abdomen in our species has but four segments, the penult articulation common in other genera being here obsolete. Its form is triangular from a broad base. The prælabial plate has the usual dividing ridge. The hand is subtrigonal, but rather short, and the arm projects but little beyond the carapax. The third joint of the outer maxilliped is about as long as broad, oblique on the outer margin and arcuate within.

The species is much broader than either those of *Carcinus*, or *Amphitrite*. The name of the genus alludes to the intermediate character between *Carcinus* and *Lupa*.

CARUPA TENUIPES.

Carapax transversus, non areolatus, lævis, granulatus, nudus, fronte integro, medium paululo emarginato, margine antero-laterali 7-den-

tato, dentibus acutis, subæquis, dente 5to minimo; margine orbitali inferiore 4-lobato. Pedes antici breves, manu non armatâ, brachio anticè 3-spinoso, spinâ medianâ majore. Pedes sex proximi gracillimi, nudi, tarso longissimo. Pedes postici breviores, tarso oblongo, elliptico, apice breviter uni-spinoso.

Carapax transverse, not areolate, smooth, granulate, nude; front entire, slightly emarginate at middle, antero-lateral margin seven-toothed, teeth acute, subequal, fifth tooth much smaller than the others; inferior orbital margin unequally four-crenate. Anterior feet short, hand without spines, arm with three spines on the anterior margin, the middle spine longest. Next six feet very slender, nude, tarsus very long. Posterior feet shorter, tarsus oblong elliptic, with a short spine at apex.

Plate 17, fig. 4 *a*, male, enlarged four diameters; *b*, under view of part of front, showing base of outer antennæ, and outline of orbit below; *c*, outer maxilliped; *d*, male abdomen; *e*, arm, under view, separated from following joints.

Paumotu Archipelago?

Length of carapax, two and one-fourth lines; breadth, three and a half lines; ratio of length to breadth, 1:1.5. The carapax has a short arcuate line on its surface near each posterior tooth, but is otherwise nearly smooth. The specimen may be young, yet has characters that separate it widely from other genera.

GENUS THALAMITA, Latreille, *De Haan*.

Carapax latus, fronte longiore quam semilatitudo carapacis, margine antero-laterali longitudinali. Articulus antennaæ ceterum Imus prælongus, articulo sequente orbitâ remotissimo.

Carapax broad, front longer than half the breadth of carapax, antero-lateral margin longitudinal. First joint of outer antennæ very long, and following joint inserted far from orbit.

The old genus *Thalamita*, is divided by De Haan into *Oceanus* (for

T. crucifera), *Charybdis* (for *T. natator* and allied, the hexagonal species), and *Thalamita* (for the quadrilateral species). *Oceanus* does not, in our opinion, differ sufficiently from *Charybdis* to be sustained.

1. *Frons subinteger.*

THALAMITA ADMETE (*Herbst*).

Plate 17, fig. 5 *a*, outline of front, and of crest of base of outer antennæ, from Sandwich Islands; *b*, outer view of hand; *c*, summit of inner branch of first maxillipeds.

Sandwich Islands, Samoan Islands, and Wakes Island, Pacific Ocean; also Sooloo Sea, East Indies.

Length of carapax of a small specimen from Upolu, of the Samoan Group, six and three-fourths lines; breadth, eleven and one-fourth lines; ratio of length to breadth, 1 : 1.66. The crest of the base of the outer antennæ is evenly and short denticulate. The front is straight transverse and not arcuate. The medial region is crossed at middle by a strong line, and anteriorly either side there is a short line parallel; posteriorly another, which reaches to the posterior tooth either side. Although generally but four lateral teeth are present, a minute fifth between the third and fourth is sometimes seen.

Cancer admetus, HERBST, pl. 57, f. 1.

Portunus admete, LATREILLE, Nouv. Dict. d'Hist. Nat., xxviii. 44.

Thalamita admete, LATR., Reg. Anim., iv. 33; EDWARDS, Crust., i. 459.

THALAMITA INTEGRÆ.

Carapax convexior, glaber, nitidus, regione medianâ lineis elevatis non intersectâ, fronte paulo arcuato, lobo præorbitali longo et marginem recto, et paululo elevato, margine antero-laterali 5-dentato, dentibus acutis, 4to minuto. Articulus antennæ externæ 1mus prælongus, cristâ longâ integrâ. Pedes antici breves, manu nitidâ, omnino lævi, extus non costatâ, supernè breviter 3-spinosâ (spinâ unâ in margine

superno ad medium insitâ, secundâ in lineâ parallelâ externâ, tertiâ juxta basin).

Carapax much convex, smooth and shining, median region not crossed by any raised lines, front somewhat arcuate, præorbital lobe long and very low with a straight and not arcuate outline, antero-lateral margin five-toothed, teeth acute, fourth minute. First joint of outer antennæ very long, crest long and entire. Anterior feet short, hand shining, not costate on outer surface, above with three short spines—one at middle of upper edge, one on a parallel line exterior to this, and one near base.

Plate 17, fig. 6 *a*, male, enlarged two diameters; *b*, hand, *ibid.*; *c*, outer maxilliped; *d*, summit of inner branch of first maxillipeds.

Paumotu Archipelago and Sandwich Islands.

Length of carapax, seven and a half lines; breadth, one inch; ratio of length to breadth, 1:1.33. The general outline is much like that of the *Poissonii* of Audouin (Egypte, Crust., de M. Savigny, pl. 4, f. 3 and 4), and also like the figure of the *arcuatus* of De Haan (Fauna Japon., Crust., Pl. 13, fig. 1); but, unlike the former, it has only two short spines on the upper surface of the hand beside the basal one, and neither of these is at the apex of the hand. Unlike the latter, the hand is not punctate above, the præorbital tooth or lobe is longer and lower, and not arcuate in outline; the fourth lateral tooth is much smaller. At the apex of the hand there is a right angle in the margin, but no spine. The *Thalamita sima* also resembles this in outline, but the hand is strong costate without, and provided also with an apical spine. The smooth hand and carapax, and its unusual convexity, are prominent peculiarities; also the entire margin of the crest on the base of the outer antennæ.

2. *Frons multilobatus.*

THALAMITA CRENATA (*Latr.*) *Eldr.*

Plate 17, fig. 7 *a*, under view, showing crest of the base of outer antennæ; *b*, summit of inner branch of first maxillipeds.

Feejee Archipelago, Pacific Ocean.

Length of carapax of a male, twelve and a half lines; breadth, eighteen and a half lines; ratio of length to breadth, 1:1.48. The crest of the base of the outer antennæ in this species is finely and evenly denticulate, the teeth being rounded granuliform. Of the six interantennary front teeth, the outer is as broad as the next adjoining; the præorbital lobe is long, and but little raised. The hand has strong costæ, and above, there are five spines, two on the upper edge, two on a costa parallel with it, and one basal, adjoining the articulation; the other costæ are without spines.

Thalamita crenata, EDWARDS, i. 461.

THALAMITA SPINIMANA.

Carapax valde transversus, regione medianâ lineis elevatis intersectâ, margine antero-laterali æque 5-dentato, dentibus longis, acutis, curvatis, lobis frontalibus prominentibus, secundo latiore quam tertius, lobo præorbitali elongato et valde prominente. Articulus antennæ externæ Imus prælongus, cristâ irregulariter spinulosâ. Pedes antici valde armati, carpo 6-spinoso, manu 7-9-spinosâ, (margine superno 4-5-spinoso), costis duâbus externis e spinulis obsoletis seriatis instructis.

Carapax unusually transverse, median region crossed by raised lines, antero-lateral margin five-dentate, the teeth subequal, long, arcuate and acute; lobes of front prominent, the second broader than third, præorbital lobe elongate and very prominent. First joint of outer antennæ very long, crest irregularly spinulous. Anterior feet armed with many spines, the carpus with six spines and some spinules, the hand with seven to nine spines above (four to five of them on upper margin) and two costæ made up of series of obsolete spinules.

Plate 17, fig. 8 *a*, carapax, natural size; *b*, outside view of hand; *c*, under view showing crest of basal joint of outer antennæ.

Feejee Archipelago, Pacific Ocean.

Length of carapax of a female, one inch and seven lines; breadth, two inches and three lines; ratio of length to breadth, 1:1.6. This is a broader species than the *crenata*, with a more spinous hand. The outline of the front (by the front edge of the lobes) is quite straight and not arcuate. The penult joint of the posterior legs is spinulous below. The hands are rather slender. The arm has three or four spines on its anterior margin, the two outer large and oblong.

THALAMITA CRASSIMANA.

Carapax valde transversus, lævis, nitidus, regione medianâ 2 lineis elevatis intersectâ; fronte recto, lobis latis, perbrevis, truncatis, 2do latiore quam 3tio, 3tio rotundato, lobo præorbitali longo, puululo prominente, margine antero-laterali 5-dentato, dentibus acutis, 3tio non brevior, 4to brevissimo. Articulus antennæ externæ 1mus prælongus, cristâ irregulariter divisâ. Pedes antici crassi, manu paulo tumidâ supernè 5-spinosâ (margine superno spinis duabus mediâ, ad apicem nullâ), extus 2-costatâ, superficie minute tuberculatâ, carpo 4-spinoso et minutè tuberculato, brachio marginem anticum 3-spinoso.

Carapax strongly transverse, smooth, shining, median region crossed by two raised lines; front straight, lobes broad, very short, truncate, second broader than third, third rounded. præorbital lobe long, little prominent, antero-lateral margin five-toothed, teeth acute, third not shorter than second, fourth very short. First joint of outer antennæ very long, crest irregularly divided. Anterior feet stout, hand somewhat tumid, above with five spines (two median spines on upper margin and no apical), on outer surface two ribs, surface minutely tuberculate, carpus with four spines and minutely tuberculate, anterior margin of arm with three spines.

Plate 17, fig. 9 *a*, male, natural size; *b*, under view of part of front, showing crest of base of antennæ; *c*, outer view of hand; *d*, summit of inner branch of first maxillipeds.

Length of carapax, one inch and seven lines; breadth, two inches and three lines; ratio of length to breadth, 1:1.6. The species appears to be the *Thalamita prymna* as figured by De Haan (Pl. 12,

f. 2), but according to Edwards (Crust., i. 461), that species, besides having the fourth lateral tooth rudimentary, has the third tooth but little salient; while in our species the latter is quite as prominent as the second, and these two are the largest; also, the external frontal teeth are pointed and small, while they are rounded or subtruncate in the *crassimana*. It is also near the *Thalamita cæruleipes* of Hombron and Jacquinet (Crust., Voy. au Pole Sud, Pl. 5, f. 6), but that has the fourth lateral tooth much larger than in the above, although still a little shorter than the rest, and the peduncle of the eye is set around with short spines or processes, while in the above, there are no projecting points; the hand also is much less stout. The small tubercles of the hand are scattered over the upper and lateral surface, as far down as the first costa. The under and lower half of inner surface of the hand is smooth. The posterior natatory legs are smaller than usual in this genus.

GENUS CHARYBDIS.

Carapax angustior. *Frons dimidio latitudinis brevior, et margo antero-lateralis obliquus. Articulus antennæ externæ 1mus minus oblongus, articulo sequente a hiatu orbitæ paulum remoto.*

Carapax narrower than in *Thalamita*. Front shorter than half the breadth of carapax, and antero-lateral margin oblique. First joint of outer antennæ less oblong, and the following joint much less distant from the orbit.

CHARYBDIS ORIENTALIS.

Carapax lævis, regione medianâ 2-3-lineis elevatis intersectâ, fronte arcuato, dentibus valde obtusis, 3tio triangulato, margine antero-laterali 6-dentato, dentibus acutis, 2do minimo, postremo non longiore.

Carapax smooth, median region crossed by two or three raised lines, front arcuate, teeth very obtuse, third triangular, antero-lateral margin six-toothed, teeth acute, second very small, last not longer than others.

Plate 17, fig. 10, carapax, natural size.

Caldera, Island of Mindanao, Philippines.

Length of carapax, one inch three and one-fourth lines; breadth, one inch and ten lines; ratio of length to breadth, 1:1.5. The præ-orbital lobe is hardly broader than the second frontal lobe. The crest of the basal joint of the outer antennæ is short, rounded, entire, or nearly so. The second tooth of the antero-lateral margin is a part properly of the first tooth, a part cut from its posterior side. This species differs from the *C. anisodon*, De H. (F. Jap., 42), in not having the posterior of the lateral teeth larger than the others.

CHARYBDIS CRUCIFERA.

Plate 17, fig. 11 *a*, outline of carapax of a young individual, natural size; *b*, hand of same; *c*, summit of inner branch of first pair of maxillipeds.

Singapore, East Indies.

Length of the carapax of a male, two inches two and a half lines; breadth, three inches two and a half lines; ratio, 1:1.46. In the specimen supposed to be young of the *crucifera*, the carapax is short pubescent, and the last tooth is half longer than the others. The proportions are the same as in the large specimens, the length of the carapax being thirteen lines; breadth between tips of posterior teeth, nineteen lines; ratio of length to this breadth, 1:1.46; breadth between tips of next teeth anterior, seventeen and a half lines; ratio of length to this breadth, 1:1.35.

Portunus crucifer, FABR., Suppl., 364.

Thalamita crucifera, EDWARDS, Crust., i. 462.

Oceanus crucifer, DE HAAN, Crust., Faun. Japon., 40.

CHARYBDIS AFFINIS, Dana.

Plate 17, fig. 12 *a*, front, natural size; *b*, outer view of larger hand; *c*, part of inner branch of first maxillipeds.

Singapore.

The specimens here referred to, have the posterior lateral tooth nearly twice as long as either of the others, and directed outward, while the others point forward. There are six teeth in all, the anterior notched at top, or subtruncate. The medial region is crossed by two raised lines, rather strongly drawn, the hinder reaching to the posterior lateral teeth. The surface of the carapax has a very short downy coating. The hand has five spines above, two on the upper margin (one of them apical), and three parallel on an outer line. The arm has three spines on its anterior margin. The teeth of the front are somewhat triangular, but hardly acute. The hand has two costæ across the medial portion of the outer surface, besides a lower one running into the immoveable finger. The left hand is the largest in our specimens. The emargination in the under orbital margin is very narrow. There are three spines on the anterior margin of the arm, but the inner one is quite small, much less than half the size of the next. Length of carapax of a male, eleven and a half lines; breadth, between tips of larger teeth, seventeen and three-fourths lines; ratio of length to this breadth, 1 : 1.54; between tips of next anterior, sixteen lines; ratio of length to this breadth, 1 : 1.4.

The species pertains to that division of the genus having the posterior tooth larger than the others; it is unlike the *variegatus*, Fabr., (De H.), and the *anisodon*, De H., in the hand having five spines above, and unlike the *callianassa*, Edw., as the hand is not "hérissées d'épines courtes."

CHARYBDIS —————?

Plate 17, fig. 13 represents a young individual of a species of *Charybdis*, which we hesitate to characterize from the single specimen. The sketch is enlarged four diameters. The front is strongly arcuate and entire, excepting the median emargination. The antero-lateral margin has five nearly equal teeth. The first basal joint of the outer antennæ is short, and the next joint is articulated with it quite near the orbit, though separated from it by a thin process; there is a thin ridge or crest upon the first joint, just beneath the second. The surface of the carapax is naked and granulous. The legs of the second, third, and fourth pairs are long and very slender. Length of carapax, ten and a half lines; breadth, thirteen and a half lines; ratio of length to breadth, 1 : 1.3.

GENUS LISSOCARCINUS, *White.*

Carapax suborbicularis, fronte utraque margine antero-laterali simul arcuatis, fronte producto, sive integro sive medio emarginato. Articulus antennæ externæ 1mus fere longitudinalis, hiatus orbitæ occupans, processu angusto articulum sequentem e orbitâ præcludente. Pedes nudi, antici breves, brachio ultra carapacem vix saliente, manu perbrevis.

Carapax suborbicular, the front and either antero-lateral margin forming an arcuate outline, front produced, either entire or emarginate at middle. Feet nude, anterior short, arm hardly projecting beyond the carapax, or not at all so, hand very short. First joint of outer antennæ nearly longitudinal, filling the orbital hiatus, a narrow process separating the following joint from the orbit.

We have modified the generic characters of this genus, established by Adams and White, in order that it may include our species, which is evidently closely related to the *L. polybioides*.

The carapax is smooth and has a hard-looking surface, and the shell of the legs is equally thick and shining. The very short arm and hand, as well as the character of the front, distinguish it from any of the *Charybdes*. The lateral margin is thin and a little reflexed. The part of the hand posterior to the fingers is not longer than its vertical height; and it has not the costate appearance of most of the *Thalamitæ*. Moreover the species are very narrow, the following but little broader than its length, and the *polybioides* even narrower than long.

The third joint of the outer maxillipeds is transverse in the *polybioides*, but a little oblong in the *orbicularis*. The only marking on the surface of the carapax in each is a straight line extending inward from the posterior lateral lobe or tooth.

Lissocarcinus, WHITE, Samarang Crust., p. 45.

LISSOCARCINUS ORBICULARIS.

Carapax paululo latior quam longus, lævissimus, nitidus, fronte medio

parce angulato, integro, margine antero-laterali tenui, paulo reflexo, obsolete 5-lobato. Pedes antici perbreves, manu supernè bicarinatâ, carinis integris, digito mobili supra bene carinato. Pedes 8 postici nudi, articulo tertio superne obtuso, tarso pedis postici angustè subovato, apicem acuto et inflexo.

Carapax slightly broader than long, very smooth and shining, front having a slight angle at middle, entire, antero-lateral margin thin, a little reflexed, obsolete five-lobed. Anterior feet very short, hand bicarinate above, carinæ entire, moveable finger with a thin acute carina. Eight posterior feet nude, third joint obtuse above, tarsus of posterior pair narrow subovate, acute at apex and the point bent one side.

Plate 18, fig. 1 *a*, male, enlarged two diameters; *b*, under view of front; *c*, hand; *d*, summit of inner branch of first maxillipeds; *e*, male abdomen.

Coral reefs of Ovalau, Feejee Archipelago.

Length of carapax of male, five lines; breadth, five and a half lines; ratio of length to breadth, 1 : 1.1. The antero-lateral margin appears entire unless closely examined, when slight fissures are observed cutting the margin into lobes. The hand has a flat top between the two carinæ, and the outer surface, although not costate, is angled along two longitudinal lines. The eyes when thrown back are wholly concealed in the orbits. The medial sternal suture extends very nearly to the third transverse suture, counting from behind. The form of the sternum is orbiculato-cordate.

SUBFAMILY II. ARENÆINÆ.

GENUS ARENÆUS.

Lupæ antennis externis, formâ carapacis, manu prismaticâ affinis. Palatum colliculo utrinque non subdivisum.

Outer antennæ, form of carapax, and prismatic hand, same as in *Lupa*. Palate not divided either side by a longitudinal ridge.

ARENÆUS CRIBRARIUS, (*Lamk.*) *Dana*.

Plate 18, fig. 2 *a*, under view of mouth, the outer pairs of organs removed—showing, *e*, the anterior margin of the buccal area—*mx*, the summit of the inner branch of the first maxillipeds—*md*, the mandibles without the mandibular palpi; *b*, one of the outer maxillipeds.

Rio Janeiro, Brazil.

Length of carapax, one inch seven and a half lines; breadth between tips of long lateral spines, three inches and six lines; ratio of length to this breadth, 1:2·15; breadth between the teeth next anterior, two inches ten and one-fourth lines; ratio of length to this breadth, 1:1·76.

The habits of this species are different somewhat from the true *Lupas*, the individuals being found along the sandy beaches, about the harbour of Rio,—a peculiarity to which the name of the genus alludes. The colour of the carapax, to which the specific name refers, has a reticulated arrangement, there being a fine network of a purplish slate-colour on a pale yellowish ground; on the arm and hand the areolation is larger. The two teeth of the front either side of the middle are smaller and are united so as to form a doubly-pointed tooth, the inner point a little the longer. The arm is rather short, and has three spines on its anterior margin.

Portunus cribrarius, LAMARCK, v. 250.

Lupa cribraria, EDWARDS, i. 452.

FAMILY V. PLATYONYCHIDÆ.

Palatum lineâ elevatâ utrinque non subdichisum. Ramus maxillipedis imi internus simplex. Carapax angustus. Abdomen maris basi angustum.

Praelabial space or palate not divided on either side by a ridge. Inner branch of first maxillipeds simple. Carapax narrow. Male abdomen narrow at base.

The following are the genera of this family with their characteristics :—

I. *CARCINUS*, *Leach*.—Pedes postici male natatorii, tarso perangustolanceolato.

II. *PORTUMNUS*, *Leach*.—Pedes 5ti natatorii tantum, tarso latiore, lanceolato, acuto. Carapax non latior quam longus.

III. *PLATYONYCHUS*, *Latr*.—Pedes 5ti natatorii tantum, tarso lato, elliptico. Carapax latior quam longus.

IV. *POLYBIUS*, *Leach*.—Pedes 8 postici natatorii, tarsi latè lanceolatis.

The genus *Xaiva* of M'LEAY (Smith's *Illust. Zool. S. Africa*, pl. 3), is described as near *Carcinus*, the only distinguishing character mentioned being, that the third joint of the outer maxillipeds is subquadrate, carinate at base, and the inner margin is emarginated just above its middle, where the next joint arises. This form of the joint occurs in *Platyonychus*. The outer antennæ are inserted, as in *Carcinus*, in a fissure of the orbital margin, and the first joint is short and subtriangular.

PLATYONYCHUS PURPUREUS.

P. bipustulato affinis. Carapax paulo transversus (latitudine quartâ parte majore); margine antero-laterali brevior, crassè 5-dentato; fronte 4-dentato, dentibus acutis, inter sese non æque remotis, medianis propioribus. Pedes antici fere æqui, carpo granulis minutis reticulato et scabriculo, intus elongatè acuto, manu granulis asperatâ, infernè transversim plicatâ. Pedes postici margines densè ciliati, articulo tertio supernè non denticulato, tarso fere duplo longiore quam lato. Abdomen maris fere lineare, segmento penultimo basin non latiore.

Near *P. bipustulatus*. Carapax transverse (breadth one-fourth greater than length); antero-lateral margin shorter than postero-lateral, coarsely five-toothed; front four-toothed, teeth acute, the two me-

dian nearer than either median and the lateral. Anterior feet nearly equal, carpus reticulate, rough with minute granules, long acute within; hand rough with granules, below transverse plicate. Posterior feet having the margins of the joints dense ciliate, third joint not denticulate above, tarsus nearly twice longer than broad. Male abdomen nearly linear, penult segment not broader at base.

Plate 18, fig. 3, animal, natural size.

Length of carapax of a male, two inches and six lines; breadth, three inches and four lines; ratio of length to breadth, 1 : 1.33. Colour purple, in fine close dottings over the surface, becoming deep purple along the posterior of the median region, which is convex posteriorly and sublunate in outline; posterior to this for some distance yellowish, and also yellowish near the antero-lateral margin. Carpus reticulate with purple above. Other legs in part purple or reddish purple; tarsus of last pair having a middle of pale blue, a narrow border of purple, and the marginal hairs yellow and penult joint similar. The tarsus of the second pair of legs is broad lunate falciform, with a triangular channel in the dorsal margin.

In the male specimens of those in the collections, whose dimensions are given above, the third joint of the second pair of legs has its upper apical margin produced upward and cartilaginous at summit. In a smaller female, two and a quarter inches long, this part is much less prominent, and resembles the shell in its other part.

The species is near the *punctatus* of De Haan (F. Jap., p. 44, pl. 1, f. 2); but the two median teeth of the front are much nearer together and farther from the lateral, the male abdomen is more linear, the penult joint being no wider at base than at apex. The colour is yellow in the *punctatus*.

II. TELPHUSINEA, OR CANCROIDEA GRAPSIDICA.

THIS section includes, besides the recognised species, the genus *Orthostoma* of Dr. J. W. Randall (Proc. Acad. Nat. Sci. Philad., viii.

121). It was placed near *Gecarcinus* by Dr. Randall; but the insertion of the male verges is in the bases of the posterior legs and not in the sternum. It has the fourth joint of the outer maxillipeds articulated with the outer apex of the third, as in *Trichodactylus*. But the general form of the body is much more convex, and the third joint of these maxillipeds is narrow oblong, and but slightly shorter than the second. The antero-lateral margin of the carapax is denticulate. The texture of the shell resembles that of the other *Telphusidæ*. The male abdomen is quite broad triangular. The palate is not divided by two longitudinal ridges as in the other *Telphusineæ*, and it is probable that the *Orthostomata* should constitute a distinct family. These ridges are, however, rather indistinct in some *Telphusæ*. The *Orthostomata* appear to form a transition between the *Telphusidæ* and the *Gecarcinidæ*; there is a resemblance to the latter in general form, as well as in the absence of these ridges.

The genus *GALENE* arranged with the *Eriphidæ*, has close relations to this group.

Many Crustacea of this family were collected; but, the unfortunate loss of the Peacock was the loss of all the specimens, excepting a *Trichodactylus*.

From the occurrence of the species of *Telphusineæ* mostly in fresh waters, they are properly called the *Cancroidea Fluvialica*, while the other species already described are the *Cancroidea Marina*. The peculiarity in the branchial cavity is connected with this peculiarity in their habits.

- G. 1. *TELPHUSA*, *Latr.*—Articulus maxillipedis externi 3tius subquadratus, 2do multo brevior, 4tum angulo apicali interno gerens.
- G. 2. *VALDIVIA*, *White.*—Articulus maxillipedis externi 3tius oblongus, 2dus transversus. [Carapax margine antero-laterali 4-dentatus.] Pedes longi.
- G. 3. *POTAMIA*, *Latr.*—Articulus maxillipedis externi 3tius subquadratus, apice subtriangulatus anguloque apicali 4tum gerens.
- G. 4. *TRICHODACTYLUS*, *Latr.*—Carapax marginibus subinteger. Articulus maxillipedis externi 2dus oblongus, 3tius vix oblongus, subtriangulatus, margine terminali valde obliquo anguloque externo 4tum gerens, 2do multo brevior.
- G. 5. *ORTHOSTOMA*, *Randall.*—Carapax margine antero-laterali dentatus. Articulus maxillipedis externi 2dus oblongus, 3tius oblongus, 2do paulo brevior, apice obliquus, prope angulum exteriorem articulum 4tum gerens.

GENUS TRICHODACTYLUS.

TRICHODACTYLUS PUNCTATUS (?), *Eydoux and Souleyet*.

T. quadrato affinis. Punctatus. Margo carapacis antero-lateralis minutè bi-emarginatus, non reflexus. Frons leviter excavatus. Digiti plerumque brevissimè tomentosi, eoque tarsi similes. Articulus maxillipedis externi 3tius 2do vix brevior.

Near *T. quadratus*. Punctate. Antero-lateral margin of carapax minutely bi-emarginate, not reflexed. Front slightly excavate. Fingers mostly tomentose like the tarsi. Third joint of outer maxillipeds but little shorter than second.

Rio Janeiro.

Length of carapax, thirteen lines; greatest breadth, fifteen lines; ratio of length to breadth, 1:1.15. This species may be the *quadratus*; but that species, according to the figure in Edwards's Cuvier, Plate 15, represents the margin entire. The punctate character is a peculiarity also of the *quadratus*.

III. CYCLINEA.

Pedes postici non natatorii. Antennæ externæ obsolete. Ramus maxillipedis 1mi internus simplex. Carapax angustus vel suborbicularis.

Not natatory. Outer antennæ obsolete. Inner branch of first maxillipeds simple. Carapax narrow or suborbicular.

The singular species here included, has much the appearance of an *Ateleyclus*, and its relation to that group is suggested by Lucas.

The buccal area is well closed by the outer maxillipeds, as is usual in the Cancridæ, the orbit is not open on the outer inferior side as in *Atelecyclus*, the abdomen (narrow in the males, broad in the females), is that of the Cancridæ, and excepting the form and the absence of the moveable part of the outer antennæ, we should at once recognise them as pertaining to that group. The buccal area is a little narrower anteriorly, but this is not sufficient (as it is not connected with an adaptation of the inner branch of the first maxillipeds to the formation of a tube for the efferent canal), to prove any relation to the true *Oxystomes*. *Acanthocyclus* has the inner antennæ unfolding from a longitudinal fissure in the front margin, as in *Plagusia*; and the form, appearance, and habit, are much as in the thicker *Plagusiæ*. The articulation of the fourth joint of the outer maxillipeds with the inner apex of the third, is also a characteristic of *Plagusia*. But the narrow sternum behind, and the position of the male verges, exclude the species from any intimate relation with that group; still it exemplifies, not only a passage from the Cancridæ to *Atelecyclus*, but also to *Plagusiæ*.

In *Acanthocyclus*, the front margin of the prælabial area is rather narrow, and has two deep emarginations (somewhat as in *Eriphia*) as the aperture of the efferent canal, but the palate is without ridges.

The only known genus referable to this group is *Acanthocyclus*. *Cymo* has the same orbicular outline, but has the outer antennæ complete. The number of branchiæ forming the exterior of the branchial pyramid in *Acanthocyclus*, is but five, and in this respect also, the species approach the *Plagusiæ*.

ACANTHOCYCLUS GAYI, *Lucas*.

Plate 18, fig. 4 *a*, outer or third maxilliped, enlarged; *b*, second maxilliped; *c*, part of first maxilliped.

Valparaiso, Chili.

Length of the carapax of a male, nine and three-fourths lines; breadth, ten lines. The carapax is pubescent, especially towards the front and antero-lateral margins. The male abdomen is very nearly naked, though in parts very short tomentose. The under surface of

the hand is also naked. The front between the inner antennæ is small, triangular, and pointed, and this point rather seems to arise from the spine of the interantennary septum, the front bending down somewhat, so as to meet it and coalesce with it; as seen from below, the under side passes horizontally inward to the space between the antennæ. The tarsus is conical and smooth, but very much incurved, and it is naked, except a short tomentose covering at base.

III. CRUSTACEA CORYSTOIDEA.

THE Corystoidea resemble the Canceroidea in the character of the mouth and the efferent channel, and are represented in the latter group by the Cancrinæ and Platyonychidæ. The extension of the outer maxillipeds over the epistome is common to most of the species of these three groups; but the true Corystoidea are readily distinguished by the outer antennæ, which are more or less elongated and hairy; and with few exceptions they bend inward and forward.

Part of the species of this group have the transverse, non-rostrate form of the Canceroidea, with sometimes the outer maxillipeds fitting neatly to the epistome; but these pass into others that are elongate, and approximate in many characters to the Hippidea. In attempting to arrange the genera in natural groups, this relation of the species to the higher and lower orders should be observed. We thus distinguish three families: the *first*, in which the carapax is transverse and non-rostrate, the outer maxillipeds fitted neatly to the anterior margin of the buccal area, the outer antennæ short and subpilose; the *second*, having the carapax suborbicular and non-rostrate, the outer maxillipeds projecting over the epistome, in Corystoid style, the outer antennæ short and subpilose; the *third*, having the carapax orbicular or oblong, and rostrate, the outer maxillipeds projecting over the epistome, the outer antennæ elongated and pilose. These families, and the genera they contain, are as follows:

FAM. I. TRICHOCERIDÆ.

Carapax formâ Cancroideus, fronte non rostratus. Antennæ internæ longitudinales. Antennæ externæ breves, flagello parce piloso. Maxillipedes externi super epistoma non producti, sed margini areæ buccalis bene adaptati.

G. TRICHOCERA, *De Haan*.*—Frons dentatus. Articulus maxillipedis externi 3tius apice truncatus. Articulus antennarum externarum 1mus elongatus, hiatum orbitæ bene occupans.

FAM. II. THIIDÆ.

Carapax suborbicularis, non oblongus, fronte non rostratus. Antennæ internæ transversæ vel obliquæ. Antennæ externæ breves, flagello parce piloso. Maxillipedes externi super epistoma producti.

G. 1. THIA, *Leach*.—Frons integer, arcuatus. Antennæ internæ transversæ. Pedes nulli natatorii. Articulus maxillipedis externi 3tius vix oblongus.

G. 2. KRAUSSIA, *Dana*.—Carapax paulo transversus, margine postero-laterali brevi, fronte denticulato, medio emarginato. Antennæ internæ obliquæ. Pedes 8 postici natatorii, tarso falciformi. Articulus maxillipedis externi 3tius vix oblongus.

FAM. III. CORYSTIDÆ.

Carapax sive suborbicularis sive multum angustus, fronte plus minusve rostrato. Maxillipedes externi super epistoma producti.

1. *Pedes nulli natatorii.*

G. 1. TELMESSUS, *White*.†—Carapax parce transversus, pone medium latior, fronte paulo producto et medio emarginato. Articulus antennarum externarum 1mus elongatus, processu elongato hiatum orbitæ bene occupans. Articulus maxillipedis externi 3tius parce oblongus apice triangulatus, articulum 4tum prope apicem gerens.

G. 2. ATELECYCLUS, *Leach*.‡—Carapax fere orbicularis, lateraliter arcuatus, fronte

* Faun. Japon. (1833), p. 16.

† A. White, Ann. Mag. Nat. Hist., xvii. 497, 1846; Voy. Samarang, 14, tab. 3.

‡ *Chlorodius*, De Haan, Faun. Japon., 13.

- paulo producto. Articulus antennarum externarum 1mus elongatus hiatum bene occupans. Articulus maxillipedis externi 3tius oblongus, apice oblique truncatus, in marginis interni emarginatione articulum 4tum gerens.
- G. 3. PELTARION, *Hombron et Jacquinot*.*—Carapax suborbicularis, ante medium latior, fronte triangulatè rostrato. Articulus antennæ externæ 1mus perbrevis, 2do parce crassior. Articulus maxillipedis externi 3tius non oblongus, apice truncatus. Articulus pedum 8 posticorum 5tus 4to vix brevior.
- G. 4. PSEUDOCORYSTES, *Edwards*.—Carapax suborbicularis, parce oblongus, triangulatè rostratus. Articulus maxillipedis externi 3tius vix oblongus. Articulus pedum 8 posticorum 5tus 4to duplo brevior.
- G. 5. GOMEZA, *Gray*.†—Carapax oblongus, fere ellipticus, triangulatè rostratus. Oculi parvi vel mediocres. Articulus maxillipedis externi 3tius vix oblongus vel transversus, apice truncatus. Articuli pedum 8 posticorum 4tus et 5tus fere æqui.
- G. 6. OEÏDIA, *De Haan* (partim).‡—Carapax oblongus, antice non angustans, fronte breviter rostrato. Oculi permagni. Articulus maxillipedis externi 3tius latus, oblongus, 2do paulo brevior. Articuli pedum 8 posticorum 5tus et 4tus fere æqui.
- G. 7. CORYSTES, *Jatreille*.—Carapax oblongus, rostratus. Oculi mediocres. Articulus maxillipedis externi 3tius angustè oblongus, 2do vix brevior.

2. *Pedes postici natatorii.*

- G. 8. DICERA, *De Haan*.§—Carapax oblongus, rostro late triangulato. Pedes postici natatorii, tarso falciformi. Articulus maxillipedis, externi 3tius angustè oblongus, 2do parce brevior.

The areolation of the carapax in the Corystoidea, where distinct, is Cancroid in character, yet with some peculiarities in the more typical species. The medial region is much elongated behind, this elongation occurring mainly in the intramedial areolet (3 M), which in its posterior part, is about as long as broad or even oblong, reaching two-thirds of the distance to the posterior margin of the carapax. Consequently the cardiac areolet is placed far back of the middle in the posterior third of the body. The five teeth or lobes D, E, X, T, S, may be distinctly counted in some species, as in Peltarion and Gomeza (Plate 18), as explained more particularly beyond; and in these and similar cases, the antero-lateral margin extends far back

* Hombron et Jacquinot, *Voy. au Pole Sud*, tab. 8, f. 1.

† *Oeïdia*, De Haan in part, *Faun. Japon.*, 15. The typical species of *Oeïdia* (*O. 20-spinosa*) is a true Gomeza, as recognised by Gray.

‡ *Faun. Japon.*, 15, 45. Species *Oeïdia distincta*, De Haan, is the type of the genus as received. *Jonas*, Hombron et Jacquinot, *Voy. au Pole Sud*, tab. 8, f. 4-8.

§ *Faun. Japon.*, 14 (1833). *Nautilocorystes*, Edwards, *Crust.*, ii. 149 (1837).

of the middle of the carapax, and the antero-lateral regions constitute about three-fourths of the whole surface. In other species, however, as of *Corystes* and *Dicera*, the antero-lateral margin appears to be very short, although as to the regions of the surface nearly as above described; but this point requires fuller investigation.

FAMILY I. TRICHOCERIDÆ.

GENUS TRICHOCERA, *De Haan*.

TRICHOCERA OREGONENSIS.

Carapax transversus, convexus, gibbosus, granulosis, anticè lateraliterque bene arcuatus, angulo laterali vix instructus, margine laterali (postero-laterali incluso) dentato, 13 dentibus, regularibus, brevibus; margine postero-laterali recto; fronte inter-antennali brevi, recto, medium non emarginato. Pedes antici crassi, manu perbrevis, altâ, supernè minutè tuberculatâ, extus lævi et obsolete 5-costatâ. Pedes 8 postici pubescentes.

Carapax transverse, convex, gibbous, granulous anteriorly, either side arcuate, and hardly having an angle on the lateral margin, this whole margin (including the postero-lateral), dentate with thirteen short, regular teeth, postero-lateral margin straight; inter-antennary front short, straight, not emarginate at middle. Anterior feet stout, hand very short, high, minutely tuberculate above, outer surface smooth, and having five exceedingly slender costæ. Eight posterior feet pubescent.

Plate 18, fig. 5 *a*, animal, natural size; *b*, under view of part of front; *c*, outer or third pair of maxillipeds; *d*, second maxillipeds; *e*, first maxillipeds; *f*, outer view of hand; *g*, tarsus.

Puget's Sound, western coast of North America.—C. Pickering.

Length of carapax, eight and a half lines; breadth, eleven lines; ratio of length to breadth, 1:1.3. The front has a very slight trace of an emargination either side of the middle, although none at middle, and with this exception is entire; it does not project at all forward of the line of the orbits. The medial region is somewhat prominent, the areolets 2M and 3M being distinct, so also the cardiac, and several of the antero-lateral areolets, although none are very well defined. The surface of the carapax is granulous, especially about the upper part of the areolets and along the margins. The antero-lateral teeth are alternately acute, or appear to have a spiniform termination. These alternate, acute teeth are the first, third, fifth, seventh, ninth, and they correspond to the normal teeth, D, E, N, T, S; the first four normal teeth being double, make up the number *nine*. The outer antennæ are nearly half as long as the carapax, the basal joint of this pair is quite broad and prominent, somewhat above the orbit.

FAMILY II. THIIDÆ.

GENUS KRAUSSIA, Dana.

Thiæ affinis. Carapax transversim crenulato-lineolatis, fere orbiculatus, margine antero-laterali multo longiore quam postero-laterali, dentato aut denticulato. Pedes antici mediocres, digitis instar cochlearis excavatis. Pedes 8 postici tarso ensiformi confecti. Articulus maxillipedis externi 3tius parvulus, articulum proximam angulo interno excavato ferens. Antenne interne valde obliquæ, externæ breves, fere nulæ.

Near *Thia*. Carapax transversely crenulato-lineolate, nearly orbicular, antero-lateral margin much longer than postero-lateral, dentate or denticulate. Anterior feet of moderate size, finger spoon-like at extremity. Eight posterior feet with an ensiform tarsus. Third joint of outer maxillipeds small, bearing next joint at inner

angle, which is excavate. Inner antennæ very oblique; outer short and nearly naked.

The genus *Kraussia* is instituted for a species figured by Krauss, in his work on South African Crustacea, as a *Platyonychus** (*De Haan*, *Portumnus* of Leach); and for another described and figured by De Haan as a *Xantho*.† It is very far removed from *Xantho*, and not remote in its relations from *Portumnus*. Yet it appears to be more closely like the *Corystoidea*, especially *Thia*, and we therefore arrange it in this group. It differs widely, in fact, from *Portumnus* and the related genus *Platyonychus*, in having the postero-lateral margin much shorter than the antero-lateral, in being a little wider than long, in having the front two-lobed and denticulate, and in the outer antennæ not being as naked, although less hairy and shorter than in most other *Corystoid* species, a peculiarity in which it is near *Trichocera*. Moreover, the surface in one of the species, if not both, is marked transversely by interrupted, obsolescent lines, having a crenulate margin, as in the *Hippidea*, and some other *Anomoura*.

The abdomen in both sexes is short and narrow; in the male five-jointed, in females seven-jointed. The tarsi of all the eight posterior legs are thin ensiform. The buccal area is somewhat oblong, a little narrower behind. Orbit with two indentations in the margin above. Internal orbital fissure filled or nearly so, by the first joint of the outer antennæ. Eyes of moderate size. In our specimen, the tarsus of the second, third, and fourth pairs of legs is a thin blade, concave in outline above, with the back thin except a small broad triangle at base, which is concave in its surface, and the penult joint is flattened above with the anterior of the upper margins subcristate. The tarsus of the fifth pair is a similar blade, but with a broad concave back reaching to its tip. The inner antennæ make an angle of about sixty degrees with one another, and are but imperfectly retracted into fossettes, the fossettes being very shallow.

The *Trichocera porcellana* of A. White (*Voy. Samarang*, *Crust.*, p. 69), appears to be a *Kraussia*; and is possibly identical with Krauss's species.

* *Platyonychus rugulosus*, KRAUSS, page 26, Plate 1, fig. 5.

† *Xantho integer*, DE HAAN, *Faun. Japon.*, p. 66, Pl. 18, fig. 6.

KRAUSSIA RUGULOSA (*Krauss*), *Dana*.

Carapax fere orbiculatus, parce transversus, fronte inter-antennali bilobato, lobis parce excavatis, 9-10-denticulatis et elongato-ciliatis; margine antero-laterali remotè 5-denticulatis denticulis spiniformibus et inter denticulos denticulis aliis minutis, paulo ciliatis, superficie carapacis inconspicuè areolatâ, lineis transversis interruptis crenulatis notatâ. Manus extus partim subtiliter crenulato-lineolatu, digito superiore tribus costis crenulatis supernè notato, unâ interiore obsolescente.

Carapax nearly orbicular, sparingly transverse, front between the antennæ bilobate, the lobes slightly excavate, and about nine-toothed, long ciliate; antero-lateral margin remotely five-toothed, and between these teeth other minute teeth, also somewhat ciliate; surface of carapax indistinctly areolate, but marked with interrupted transverse crenulate lines. Hand in part crenulato-lineolate, upper finger having above three longitudinal crenulate ridges, the inner one obsolescent.

Plate 19, fig. 1 *a*, female, enlarged two diameters; *b*, enlarged view of front; *c*, outer maxilliped; *d*, hand, enlarged three diameters; *e*, tarsus of third pair, enlarged; *f*, abdomen of female, enlarged.

Sandwich Islands, island of Maui.

The specimen described is a female. Length of carapax, five and a half lines; breadth, six and a half lines. The carapax shows faint indications of the median areolet. The ciliation of the front is quite as long as the front margin of either lobe; the ciliæ are easily broken off, and were probably mutilated in Krauss's specimen, as they are not mentioned by him, nor represented in his figure. The lateral margin is furnished with some hairs, and besides there are a few on the surface near this margin. The posterior legs are rather stout, the joints broader for the length than in the figure of the South African species by Krauss. The third joint of the fifth pair is hardly twice as long as its breadth. The fourth joint of the outer maxillipeds is furnished with very long hairs on the anterior margin, two or three times as

long as the joint, while they are half as long as the joint in Krauss's figure. The apex of the peduncle of the eye has two or three minute spinules or points. The penult joint of the female abdomen is nearly rectangular and rather longer than broad, each joint excepting the first and last has two tufts of long hairs, those of the second joint are in part reversed, and as long as the first and second joints together. The sternum is very narrow. The orbit has an emargination at its outer angle, and on the upper side of the peduncle of the eye adjoining the cornea there is a short spine, less acute and shorter than in Krauss's figure.

Platyonychus rugulosus, KRAUSS, Südaf. Crust., p. 26, Pl. 1, f. 5.
Trichocera porcellana? A. WHITE, Voy. Samarang, p. 59.

GENUS TELMESSUS, *White*.

TELMESSUS SERRATUS, *White*.

Plate 18, fig. 8 *a, b, c*.

Puget's Sound. *C. Pickering*.

The form of this species is very closely as represented in White's figure (Crust., Voy. Samarang, Pl. 3). The front between the eyes projects and is three-lobed, the two outer lobes triangular and subacute, the inner a little more prominent, and with four small dentations at apex. The dorsal view on the Plate referred to, appears to represent the middle lobe of the front as in our specimen, but not so the under view (fig. *a*, of White). The outer antennæ project either side of the median lobe. The antero-lateral margin is coarsely four-dentate; teeth triangular and partly with spinulous margins; posterior tooth (S) largest. The line between the teeth crosses the carapax much behind the middle of the carapax, the anterior and posterior part having nearly the proportions in length of 8 to 5. The breadth along the line between these teeth in one specimen is seventeen lines, and length of carapax, fourteen lines. The postero-lateral margin has two prominent teeth, the posterior of the two much the smaller.

The position and size of the base of the outer antennæ, as well as the short épistome and general form, lead us to believe that the

species pertains properly with the Corystoidea, and not with the Maiioidea, where it is placed by White.

Telmessus serratus, WHITE, Ann. and Mag. Nat. Hist., 1846, xvii. 497, and Crust., Voy. of the Samarang, p. 14, Pl. 3.

FAMILY III. CORYSTIDÆ.

PELTARION SPINULOSUM (*White*), *Hombrou and Jacquinot*.

Plate 18, fig. 6 *a*, animal, natural size; *b*, abdomen of male.

From Southern Patagonia.

Length of carapax of a male to tip of beak, two inches; breadth, also two inches. Finely reticulated with a reddish-orange colour, legs yellow, or orange. The regions in this species may be distinguished, although not very apparent. The medial is a little raised, and the intra-medial (3 M), is distinct from the extra-medial (2 M); this intra-medial is prolonged somewhat backward and has a linear scar either side of it, and from near the posterior part of this scar a depression commences which passes obliquely towards the margin, reaching it between two of the prominent points of the lateral margin,—the median one of the lateral margin and the next posterior. This depression is the limit between the antero-lateral and postero-lateral regions, and the posterior of the points on the margin is therefore S; anterior to it there are four prominences, corresponding to T, N, E, D, making the normal number five, each of which lobes is set with spinules.

Atecyclus spinulosus, A. WHITE, Ann. Mag. N. H., xii. 345.

Peltarion magellanicus, H. and JACQ., Voy. au Pole Sud, pl. 8, f. 1.

PSEUDOCORYSTES SICARIUS (*Perppig*), *White*.

Valparaiso, Chili.

Length of carapax, one inch and eleven lines; breadth, one inch and ten lines; ratio of length to breadth, 1 : 0.99.

Corystes sicarius, PÆPPIG, Wieg. Arch., 1836, 139.

Pseudocorystes armatus, EDWARDS, Crust., ii. 151; LUCAS, D'Orb. S. A. Crust., p. 30, pl. 15, f. 2.

Pseudocorystes sicarius, A. WHITE, Catalogue of Crust., Brit. Mus., 1847, 53.

GOMEZA SERRATA.

Carapax subovatus, scabrosus, breviter hirsutus, rostro apicem truncato, margine prope apicem utrinque inciso, lateribus acutè 5-serratis, serraturâ 4tâ fere medianâ, quoque subtilissimè denticulatis. Pedes marginibus pubescentes.

Carapax subovate, scabrous and short hirsute, beak truncate at apex, and the margin near the apex either side incised; the sides acutely five-serrate, the fourth serrature being near the middle of the margin, also minute denticulate. Feet with the margins pubescent.

Off the coast of Patagonia, in fifty fathoms water. *Lieut. Case.*

Plate 18, fig. 7 *a*, animal, enlarged eight diameters; *b*, view of extremity of beak, more enlarged; *c*, under view, showing antennæ and mouth.

Length of carapax, one and a half lines. The extremity of the beak is cut square off, but has a sinuous apical margin, and either side, just at the angle, there is a longitudinal incision, separating a very narrow and acute lobe; the margin of the beak behind this is minutely denticulate. The five teeth of the margin are D, E, N, T, S, or the normal teeth; and the markings of the surface show that the medial region extends far back of the middle, as shown by the teeth. The eyes are on rather short pedicels, and are directed straight outward. The flagellum of the outer antennæ consists of nine or ten joints, and has a few short hairs; the whole length beyond the carapax is not one-third the length of the carapax. The outer maxillipeds are short hirsute, and the two do not quite meet on the medial line. The third joint is subquadrate, not at all oblong, with the anterior

inner angle deeply truncate; in length, about half the second. Abdomen hirsute. Hand short; fingers a little incurved, inner margin denticulate. Tarsus of following legs slender tapering, and nearly as long as two preceding joints, which two are subequal in length.

IV. CRUSTACEA GRAPSOIDEA.

THE Grapsoidea correspond nearly to the Catometopa of Edwards. The Telphusa group is excluded, as having somewhat closer affinities with the Cancroidea.

In subdividing the Grapsoidea, we first observe a number of species in which the outer maxillipeds have a Cancroid character—the fourth joint articulated with the *inner* apex of the third joint—and which thus are unlike the great majority of the Grapsoidea. These may be considered as forming the transition to the Cancroidea; among them, the genus Eucrate has much the form of Pilmunus or Panopæus.

This group, the GONOPLACIDÆ, is different from that of other authors so called, in that the Macrophthalmi and related species are not included, as is evidently required by their characters.

The remaining Grapsoidea constitute naturally five families. One group has near relations to the Gonoplacidæ and Podophthalmidæ; it is the MACROPHTHALMIDÆ, under which are embraced, (1) Macrophthalmus and the related genus Cleistostoma; (2) Ocypoda and Gelasimus; and (3) Doto, making three subfamilies. The long eyes, narrow front, narrow male abdomen, as well as similarity of general form, even to the acute anterior angles of the carapax, require this union of the species; while the transverse or longitudinal position of the inner antennæ separates the Macrophthalminæ and Ocypodinæ, and the concealed termination of the outer maxillipeds, characterizes the Dotinæ.

The next family is the GRAPSIDÆ. They have shorter eyes and a longer front than the Macrophthalmidæ, a more depressed form, with

straight or arcuate sides, and a *wide* male abdomen, very nearly covering at its base, with few exceptions, the whole breadth of the sternum. The few exceptions with respect to the abdomen, here alluded to, are among species in which the short eyes, depressed form, and margined sides of the carapax are so distinct, that they could not, by any mistake, be referred to another family among the Grapsoidea. The genus *Helice* alone is ambiguous in its relations, being somewhat related to *Cleistostoma*; and through these groups the *Macrophthalmidæ* and *Grapsidæ* pass into one another; but both this genus and *Chasmagnathus* have the oblique piliferous crest upon the outer maxillipeds which is so characteristic of the *Sesarma* group, a peculiarity that does not occur among the true *Macrophthalmidæ*.

The fourth family is the *GEARCINIDÆ*—distinguished, as with other authors, by having an inflated form, and high, broadly-rounded sides, instead of anterior angles and a dentated lateral margin. The abdomen at base, as in most of the *Grapsidæ*, covers the whole breadth of the sternum. While all the *Grapsidæ* have the ridge on the prælabial plate or palate, bounding the efferent channel, very prominent, the *Gecarcinidæ* have no such ridge.

The fifth family is the *PINNOTHERIDÆ*. Like the last family, the body has rounded sides, but the form may be very much depressed, or much inflated. The male abdomen is very narrow, being much narrower at base than the corresponding part of the sternum. The genus *Pinnotherelia* forms a transition to the *Gecarcinidæ*, in having a rather broad front between the eyes, and the antennary fossettes separate. Some of the *Pinnotheridæ* have the second joint of the outer maxillipeds obsolete or obsolescent; but there are very gradual transitions among the species, to those in which the form is nearly the same as in certain of the *Gecarcinidæ*, with the second joint larger than the third. The eyes have regular orbits, but in some species related to *Hymenosoma*, the eyes are not retractile into orbits, any more than in *Pericera* among the *Maioid Crustacea*. A few species have a somewhat triangulate and subrostrate form, resembling the *Inachidæ*, with which group they were associated by early authors. This is most striking in the genus *Elamena*. But even here, the male abdomen and male sexual appendages have in all respects a *Grapsoid* character.

The sixth family is the *MYCTIRIDÆ*. The genus *Myctiris* is near the *Pinnotheridæ* in general form; but it has no distinct orbits. The

inner antennæ are longitudinal, as in the Ocypods, to which they have close relations; but the body is very narrow in front, and rounded tumid instead of quadrilateral.

The following is a brief recapitulation of the characters of these several families.

CRUSTACEA GRAPSOIDEA.

1. *Articulus maxillipedis externi 4tus angulo 3tii interno articulatus.*

Fam. I. GONOPLACIDÆ.—Carapax transversus. Frons quartâ parte latitudinis carapacis longior, paulo deflexus lamellatus. Antennæ internæ transversæ. Articulus abdominis *maris* 2dus sterno contiguo angustior.

2. *Articulus maxillipedis externi 4tus angulo 3tii apicali interno non articulatus sed medio marginis apicalis sive angulo externo.*

Fam. II. MACROPHTHALMIDÆ.—Oculi tertiâ parte latitudinis carapacis non breviores. Carapax subquadratus sæpissime transversus, anticè latissimus, angulis anticis acutis, lateribus non arcuatis. Antennæ internæ sive transversæ, sive longitudinales. Articulus abdominis *maris* 2dus sterno contiguo angustior. Articulus maxillipedis externi 3tius cristâ obliquâ piliferâ nunquam ornatus.

Fam. III. GRAPSIDÆ.—Oculi tertiâ parte latitudinis carapacis breviores. Carapax subquadratus, sæpius depressus, lateribus aut rectis aut arcuatis. Antennæ internæ transversæ. Articulus abdominis *maris* 2dus sterno contiguo sæpius vix angustior. Articulus maxillipedis externi 3tius sive inornatus sive cristâ obliquâ piliferâ ornatus. Palatum colliculo viæ efferentis limite instructum.

Fam. IV. GECARCINIDÆ.—Oculi breves. Carapax obesus, paulo transversus, antice latus, curvatim declivis, lateribus arcuatis poneque oculos largè rotundatis, vix dentatis. Antennæ internæ transversæ. Articulus abdominis *maris* 2dus sterno postico vix angustior. Articulus maxillipedis externi 3tius cristâ obliquâ piliferâ non ornatus. Palatum colliculo viæ efferentis limite non instructum.

Fam. V. PINNOTHERIDÆ.—Oculi perbreves, orbitis insiti, raro non retractiles. Carapax sive obsus, sive depressus, raro paulo oblongus et interdum parce rostratus, lateribus valde rotundatis. Antennæ internæ aut transversæ aut obliquæ. Abdomen *maris* angustum, versus basin sterno contiguo valde angustius. Palatum colliculo viæ efferentis limite instructum. (Species omnes parvæ.)

Fam. VI. MYCTIRIDÆ.—Corpus obesum. Carapax antice perangustus, vix rostratus, orbitis carentes. Antennæ internæ parvulæ, longitudinales.

We do not believe in a properly lineal order in classification; yet the succession we have given to the families is a natural succession, as nearly as can be made. The *first*, Gonoplacidæ, link the Grapsoidea with the Cancroidea, and the genus Eucrate is very near Eriphia and Panopæus in form. The *second*, Macrophthalmidæ, is closely allied to the first, so much so that Macrophthalmus and Gonoplax have been arranged in the same group. The *third*, Grapsidæ, are again very near the Macrophthalmidæ, and the genus Helice is almost as correctly placed with one as the other. Thence the transition is as gradual also, to the *fourth* or Gecarcinidæ, and from the fourth to the *fifth* or Pinnotheridæ, and from the fifth to the *sixth* or Myctiridæ. Still, there are other relations of somewhat less prominence, which this order does not exhibit. The Myctiridæ are evidently an aberrant form, of inferior grade, intermediate between Pinnothera, Doto (or Ocypoda), and Helœcius. The resemblance of Elamena to Inachus was long since recognised.

The Gonoplacidæ are placed in the Cancer group by De Haan, who neglected the important distinction based on the male verges. The other genera, exclusive of Pinnothera and the species related, he divides into two groups, the *Ocypus* and *Grapsus* groups, the former having the fourth joint of the outer maxillipeds articulated with the outer angle of the third, and the latter, articulated with the middle of the apical margin,—a distinction difficult to carry out and dividing natural groups, as the Gecarcinidæ, Grapsidæ, &c. His genera of the OCYPUS group, are Doto, Scopimera, Myctiris, Gelasimus, Macrophthalmus, Cleistostoma, Cardisoma, Chasmagnathus, Helice, Uca, Ocypoda, Acanthopus (a division of Plagusia); those of the GRAPSUS group, are Gecarcinus, Philyra (division of Plagusia), Plagusia (ano-

ther division), Grapsus, Trichopus, Eriocheir, Pachysoma, Goniopsis, Platynotus, Brachynotus, Nautilograpsus, Cyclograpsus, and in his "Decas Septima," published in 1849, he unites with the group, Pinnotheres and Hymenosoma.

FAMILY I. GONOPLACIDÆ.

THE following are the characters of the genera of Gonoplacida:

Genus I. EUCRATE,* *De Haan*.—Carapax anticè arcuatus, parce declivis, Panopæo formâ antennisque affinis. Appendices *maris* genitales e sterno ortæ abdominisque tectæ. Pedes *maris* antici breves, crassi. Oculi breves. Abdomen *maris* 5-articulatum, versus basin sterno contiguo vix angustius.

Genus II. CURTONOTUS, *De Haan*.†—Carapax antice arcuatus, parce declivis, margine antero-laterali rotundato. Appendices *maris* genitales e basi pedum ortæ in canaliculo sterni ductæ, deinde abdomine tectæ. Oculi breves. Pedes *maris* antici prælongi.

Genus III. GONOPLAX, *Leach*.—Carapax latus, trapezoidalis, anticè elongatè transversus, angulis anticis acutis. Appendicibus *maris* genitalibus *Curtonoto* affinis. Oculi longi. Pedes *maris* antici prælongi.

GENUS EUCRATE, *De Haan*.

The species of this genus have nearly the characters of *Pilumnus* or *Panopæus*, but the position of the male verges removes them from the Cancroidea. They differ from the *Curtonoti* in having these organs proceed from the sternum beneath the abdomen. Our species has a subtrapezoidal form, with the antero-lateral margin rounded, thin and dentate. Width of the front, about one-third the width of

* *De Haan*, in *Faun. Japon.*, 36; *Geryon*, *Kröyer*, *Tidskr.*, i. (1837), 15, Pl. 1.

† *De Haan*, *Faun. Japon.*, p. 20. *Pseudorhombila*, *EDWARDS*, *Crust.*, ii. 58.

the carapax. Orbit with two fissures above and one below. Hands nearly equal, short and very stout. Sternum broad, but somewhat oblong, and the base of the abdomen is not broader than the corresponding part of the sternum. Buccal area broader anteriorly. Epistome as in the Cancridæ.

EUCRATE CRASSIMANUS.

Carapax nudus, bene areolatus, areolis 2 M 3 M discretis, quoque 5 L 6 L discretis, 2 L 3 L coalitis, 1 L 4 L obsolete, margine antero-laterali 4-dentato, dentibus tribus posticis prominenter triangulatis; fronte fere recto, medium emarginato. Pedes antici crassi subæqui, nudi, læves, inermes, manu infra compressâ, carpo intus breviter acuminato, brachio marginem posticum prope apicem unidentato. Pedes 8 postici sat graciles, marginibus ciliati, tarso recto, infra hirsuto tantum.

Carapax naked, areolate, areolets 2 M, 3 M separated, 5 L, 6 L also distinct, 2 L, 3 L coalesced, 1 L, 4 L obsolete. Antero-lateral margin four-toothed, three posterior teeth prominently triangular; front nearly straight, emarginate at middle. Anterior feet stout, subequal, naked, smooth, unarmed, hand compressed below, carpus with a low point on inner side, arm having a single obtuse spine or tooth on the hinder margin near apex. Eight posterior feet rather slender, margins ciliate, tarsus straight, hirsute only below.

Plate 19, fig. 2 *a*, male, natural size; *b*, abdomen and sternum of male, natural size; *c*, outer maxilliped; *d*, hand, natural size.

Rio Janeiro?

Length of carapax, ten lines; greatest breadth, thirteen lines; ratio of length to breadth, 1:1.3. The four teeth of the antero-lateral margin include the posterior angle of the orbit, which tooth (the first, corresponding normally to D and E) is truncate above and rounded behind; the others are subequal. Areolet 5 L has its anterior margin prominent and subacute, and nearly transverse. Areolet 2 F is slightly raised and circumscribed; but 1 M is not separate from 2 M.

E. crassimanus, DANA, Proc. Acad. Nat. Sci. Philad., 1851, v. 248.

FAMILY II. MACROPHTHALMIDÆ.

THE Macrophthalmidæ are remarkable for the length of their eye-peduncles; for their trapezial or quadrate form, the anterior angles being prominent, and the breadth of the carapax generally greatest between them; and for having the male abdomen much narrower behind than the contiguous part of the sternum. The species of Grapsidæ which approach most to the Macrophthalmidæ have a ridge (usually piliferous), crossing obliquely the third joint of the outer maxillipeds, and may thus be distinguished, as this character belongs to no true Macrophthalmidæ.

In the genera of this family, the outer maxillipeds are wholly exposed, excepting in a small group, in which the extremity is concealed beneath the broader basal portion. And among those having these maxillipeds of the normal character, part have the inner antennæ transverse, and part longitudinal. There are thus three distinct sub-families in this family. Their characters and the distinctions of the genera they contain, are as follows:

SUBFAM. 1. MACROPHTHALMINÆ.—Antennæ internæ transversæ, sub fronte insitæ. Antennæ externæ basi frontem appressæ. Articulus maxillipedis externi 4tus apertus.

G. 1. CLEISTOSTOMA, *De II.**—Carapax subquadratus, paulo transversus. Frons quartâ parte latitudinis carapacis vix brevior. Oculi longiusculi. Pedes antici *maris femineæve* breves. Articulus maxillipedis externi 3tus 2do vix minor, quadratus.

G. 2. MACROPHTHALMUS, *Latr.*—Carapax latus, transversim rectangulatus. Frons angustissimus. Oculi longissimi. Articulus maxillipedis externi 3tus 2do multo minor.

SUBFAM. 2. OCYPODINÆ.—Antennæ internæ longitudinales, juxta frontem utrinque insitæ. Antennæ externæ fronte paulum remotæ. Articulus maxillipedis externi 4tus apertus, 3tus 2do minor.

1. *Articulus maxillipedis externi 2dus 3tio valde major.*

G. 1. GELASIMUS, *Latr.*—Oculi graciles, corneâ parvulâ, parce oblongâ. Pedes

* Crust., Faun. Japon., p. 26.—From *κλειστός*, *shut*, and *στόμα*, *mouth*—not *Cleistotoma*.

maris antichi portentose inæqui. Manus minor debilis, digitis sæpissimè instar cochlearis excavatis aut spatulatis.

G. 2. HELÆCIUS, *Dana*.*—Oculis habituque *Gelasimo* affinis. Pedes antichi subæqui. Abdomen versus basin sterno contiguo vix angustius. Maxillipedes externi sulco lineari fere longitudinali superficie notati.

G. 3. OCYPODA, *Fabr.*—Oculi crassi, corneâ longâ, fere ad pedunculi basin productâ. Pedes *maris* antichi inæqui, minoris digitis acuminatis. Abdomen basi angustum. Carapax transversus.

2. *Articulus maxillipedis externi 2dus 3tio parce major, non oblongus.*

G. 4. SCOPIMERA, † *De H.*—Corpus globoso-cubicum. Pedes *maris* antichi subæqui, non crassi. Habitu *Gelasimo* affinis.

SUBFAM. 3. DOTINÆ. — Articuli maxillipedis externi 4tus et sequentes 3tio celati.

Genus DOTO, *De H.* †—Corpus subquadratum.

SUBFAMILY I. MACROPHTHALMINÆ.

GENUS CLEISTOSTOMA, *De Haan.*

The genus *Cleistostoma* has the front narrower than in *Helice*, though still, not less than one-fourth the breadth of the carapax, and it does not coalesce with the septum below. The eyes are also longer, the body thinner, the third joint of the outer maxillipeds quadrate. The anterior feet in the male, are of moderate length.

CLEISTOSTOMA BOSCH? (*Audouin*), *Edwards.*

Plate 19, fig. 3 *a*, animal, enlarged; *b*, outer maxilliped; *c*, hand, enlarged; *d*, male abdomen and sternum in part.

Feejee Group, Rewa Reef, Viti Lebu.

* Includes *Gelasimus cordiformis*.

† Crust., Faun. Japon., p. 24.

‡ Crust., Faun. Japon., p. 24.

Length of carapax, 3 lines; breadth, 3·85 lines; ratio of length to breadth, 1 : 1·28. The fissures about the medial region are deep and in part a little hairy. The carapax is granulous; the tarsus is striated and unarmed. There is a single emargination in the lateral margin anteriorly, and this margin is somewhat hairy. The hand and the stout tooth near base of moveable finger, are as figured by Krauss. The other finger is slightly channeled, and a faint ridge extends from it backwards over the surface of the hand. The abdomen of male differs a little from his figure, in having the breadth hardly increased at the penult segment, and hardly any more so at the third segment; the breadth slightly diminishes from the third segment towards apex. The hand and fingers on the inner surface are densely hairy. The abdomen and sternum are smooth, naked, and shining.

Macrophthalmus Boscii, AUDOUIN, Expl., pl. Egypt.

Cleistotoma Boscii, EDWARDS, Crust., ii. 68.

Macrophthalmus Boscii, KRAUSS, Südaf. Crust., pl. 2, f. 5, p. 40.

GENUS MACROPTHALMUS.

MACROPTHALMUS TELESCOPICUS.

Sandwich Islands.

Gelasimus telescopicus, OWEN, Voyage of the Blossom, Crustacea, p. 78, pl. 24, f. 1, 1839.

Macrophthalmus compressipes, RANDALL, Jour. Acad. Nat. Sci. Philadelphia, viii. 123, 1840.

Macrophthalmus podophthalmus, EYDOUX and SOULEYET, Voy. de la Bonite, pl. 3, f. 67.

MACROPTHALMUS PACIFICUS.

Carapax valde transversus, nudus et levis, regione medianâ valde circumscriptâ, margine laterali arcuato, antèrius 2-emarginato, emarginatione anteriore profundâ, posteriore obsolescente; fronte latiusculo, lateribus non excavato. Oculi graciles, sat breves, tertiam latitudinis carapacis partem longitudine æquantès. Pedes maris antici parvuli, læves, manu extus nudâ, subtiliter punctatâ et non costatâ, digito

inferiore non deflexo. Pedes postici marginibus pubescentes, articulo pedis 4ti 3tio duplo latiore quam 5tus, apice cum dente acuto armato.

Carapax wide transverse, naked and smooth, median region deeply circumscribed, lateral margin arcuate, with two emarginations anteriorly, the first deep, the second obsolescent; front rather broad, its sides not excavate. Eyes slender, rather short, as long as one-third the breadth of carapax. Anterior feet of male small, smooth, hand naked on outer surface, minutely punctate, and not costate, lower finger not bent downward at all. Posterior feet with pubescent margins, third joint of fourth pair twice as broad as fifth joint, and having a spiniform tooth at apex.

Plate 19, fig. 4 *a*, male, enlarged two diameters; *b*, abdomen, *ibid.*; *c*, hand, *ibid.*

Island of Upolu, Samoan Group.

Length of carapax of a male, four lines; breadth, five and two-thirds lines; ratio of length to breadth, 1 : 1.42. This species, owing to its arcuate sides, is narrower in front than some distance back, and the anterior outer angle projects much less outward than the tooth behind the first emargination, the sides from this tooth inclining inward instead of outward. The eye scarcely reaches the outer angle. The sides are not indented posterior to the second emargination. The feet are all unarmed. The fingers are very finely denticulate, and there is a low, broad tooth near base of moveable finger. The lower margin of hand and lower finger make a continuous straight line. The inner denticulate margin of the other finger is slightly two-lobed; its outer surface is slightly channeled. The front, as seen in a front view, is truncate below with the centre very slightly prominent.

M. pacificus, DANA, Proc. Acad. Nat. Sci. Philad., 1851, v. 248.

SUBFAMILY II. OCYPODINÆ.

GENUS GELASIMUS.

We have separated from *Gelasimus* the group with equal hands

to constitute the genus *Helœcius*. The most striking peculiarity of the species of *Gelasimus*, as adopted, is the very great inequality of the hands in males. In this character, and also the spatulate or spoon-excavate character of the fingers of the smaller hand, and the very slender eyes with short cornea, the species are very unlike those of the genus *Ocypoda*. The *Gelasimi*, moreover, are marsh species, while the *Ocypoda* are found about sand beaches.

GELASIMUS NITIDUS.

G. Duperreyi similis. *Carapax nitidus, antice paulo arcuatus, fronte angustissimo, supra paulo constricto. Pedes maris antici valde inæqui, manu majore valde compressâ et latâ, extus valde granulâtâ, intus cristis duobus obliquis ornatâ, digito superiore laminato, fere duplo latiore quam inferior, inferiore juxta basin uni-dentigero. Pedes 8 postici fere nudi, articulo 3tio pedis quinti perangusto.*

Near the *Duperreyi*. Carapax shining, a little arcuate anteriorly, front very narrow, and somewhat narrow constricted above. Anterior feet of *male* very unequal, the larger hand much compressed and broad, strongly granulous without, and having two oblique crests within, one towards lower margin; upper finger laminate, nearly twice as broad as lower, the lower with a prominent tooth near base. Eight posterior feet nearly naked, the third joint of fifth pair very narrow.

Plate 19, fig. 5 *a*, male, natural size; *b*, abdomen and sternum, enlarged two diameters; *c*, outer view of larger hand of male, natural size; *d*, inner view, showing the two crests, natural size.

From the Feejee Islands.

Length of carapax of a male, six and one-fourth lines; breadth between anterior angles, nine lines; length of large hand, sixteen lines; length of moveable finger, nine lines; and its greatest breadth, three lines. The crests on the inner surface of the hand are made up of largish granules; one is near the articulating side, and the other towards the lower margin; the lower finger terminates in two

points, and has the inner surface twice concave and denticulate. The male abdomen is flat or nearly so.

H. nitidus, DANA, Proc. Acad. Nat. Sci. Philad., 1851, v. 248.

GELASIMUS DUPERREYI, *Guérin*.

Tongatabu and Upolu.

Length of carapax of a male, nine lines; breadth between the anterior angles (greatest breadth), thirteen lines; ratio, 1 : 1.44; length of hand, one inch six and a half lines. Colours, brownish red, or purplish, marbled with white, but varying much.

This species is near the *nitidus*, but has much narrower fingers and less compressed hand, yet the hand is equally large. There is a large open space between the fingers when they are closed. Anterior margin of carapax strongly arcuate, the anterior angles being much behind the line of the front, and the lateral margins quite to these angles straight or slightly concave. Surface smooth and shining. Legs nearly naked; anterior pair very unequal, the larger hand obtuse and nearly straight above, very minutely granulous on outer surface; basal portion rather longer than broad; inner surface with the lower crest (so prominent in the *nitidus*) obsolete; upper finger narrowing from base to apex, and somewhat bending downward, lower margin somewhat concave, granulous, but not lobed or dentate; lower finger with upper margin granulous, and two low elevations on outer half. Arm with anterior margin hardly acute, entire, and terminating above in an acute or subacute tooth. Eight posterior legs nearly naked; tarsus fringed either side with hairs.

The front is narrow, but not narrower between the eyes than below; the lower margin of the orbit is crenulate.

G. Duperreyi, GUERIN, Voy. de la Coquille, pl. 1, f. 2.

GELASIMUS ANNULIPES, *Latreille*.

Singapore, East Indies.

The breadth of the front and narrower fingers, readily distinguish this species from the *nitidus*.

*
G. annulipes, EDWARDS, Crust., ii. 55.

GELASIMUS VOCANS (*Degeer*), *Desmarest*.

Rio Janeiro.

Length of carapax of a male, nine and two-thirds lines; greatest breadth, fifteen lines; ratio, 1 : 1.55; length of hand, two inches and five lines. The greatest breadth of the carapax is posterior to the line of the anterior angles; for the sides, instead of being straight convergent from the anterior angles, are somewhat arcuate, they being first divergent and then longitudinal before converging behind. The front is broad subtriangular and rounded below.

Cancer vocans, DEGEER, Mem. pour servir, etc., vii. pl. 26, f. 12.

Gelasimus vocans, DESMAREST, Crust., p. 123; EDWARDS, Crust., ii. 54, and Cuv. Règne An., pl. 18, f. 1.

GELASIMUS MARACOANI, *Latreille*.

Rio Janeiro.

Length of carapax of a male, eleven and a half lines; breadth, seventeen lines; ratio, 1 : 1.48; length of hand, two inches and two lines. The anterior part of the lateral margin is longitudinal, and the breadth in the line of the anterior angles is hardly less than that a short distance posteriorly. From the posterior part of this longitudinal portion a line of granules commences, which extends backward near the sides of the carapax, with an inward curve. The upper surface of the fourth joint of the eight posterior legs is short tomentose, and so also, in part, that of the next joint. The basal portion of the hand is small pustulous, while the lower finger is dark punctate. The anterior margin is nearly straight transverse.

In another male specimen from Rio Janeiro, closely like the preceding in the characters of the carapax, the front, the eight posterior legs, and the maxillipeds, the large hand is not more than half as

long, being shorter than the breadth of the carapax. The hand at base is only fine granulous; the upper and moveable finger is broadest towards base and narrow towards apex; the lower finger has the apex curved outward; the arm is not crested on the anterior margin. It may be an individual of the *G. maracoani*, with the right or large hand partly grown after mutilation. Length of carapax, twelve and three-fourths lines; breadth, eighteen and three-fourths lines; breadth across the anterior angles slightly greater than that a short distance posteriorly.

G. maracoani, LATR. Encyc., pl. 296, f. 1; EDWARDS, ii. 51.

GENUS HELÆCIUS, Dana.

Gelasimo affinis, antennis internis longitudinalibus, juxta frontem utrinque insitis, externis fronte paulum remotis, articulo maxillipedis externi 3tio brevior quam 2dus. Pedes maris antici subæqui. Articuli maxillipedis externi 2dus 3tiusque sulco lineato fere longitudinali bene notati. Abdominis articulus 2dus maris sterno vix angustior.

Related to *Gelasimus*, the inner antennæ being longitudinal either side of the front, and the outer at a distance from the front, and the third joint of the outer maxillipeds being much smaller than the second. Anterior feet of *male* subequal. Second and third joints of outer maxillipeds marked with a linear sulcus, which is nearly longitudinal. Second joint of *male* abdomen hardly narrower than the sternum behind.

One of the species here included, the *cordiformis*, has been referred to *Gelasimus*. But in *Gelasimus*, the outer maxillipeds have seldom the sulcus here described, the anterior feet are always very unequal, and the male abdomen at base is much narrower than the sternum behind. Besides, the habit is different. The buccal mass is somewhat projecting, approaching that of *Doto* and *Myctiris*; the surface just back of the anterior angles of the carapax is more abruptly inclined, being nearly vertical for a short distance, which gives this portion of the animal a fulness not seen in *Gelasimus*, and the orbits the appearance of a somewhat lower position, in a front view. Yet the general

form is very much as in *Gelasimus*. There is no hiatus in the outer margin of the orbit in the species seen by us. The sulci of the outer maxillipeds converge backward, and have the form of a letter V, with the sides convex outward. The aspect is somewhat like that of *Gonoplax*; but the third joint of the outer maxillipeds bears the following at its outer instead of inner angle, and the fourth joint has the outer surface more convex. The front in our species is very narrow, but not narrower between the eyes than below. The under surface of the third joint of the six anterior legs is densely hairy or woolly, which is not true of any *Gelasimi*, as far as observed by the writer. The male abdomen widens a little towards its base, and its first or second joint is hardly narrower than the third, and as wide as the sternum corresponding. The lateral margin in the species is somewhat convex anteriorly, the greatest breadth being posterior to the anterior angles.

The genus is evidently intermediate between *Gelasimus* and *Doto*. The name is derived from *ἰλος*, *marsh*, and *οἶκος*, *house*.

HELÆCIUS CORDIFORMIS (Latreille), Dana.

Plate 19, fig. 6 *a*, natural size; *b*, hand, natural size.

New South Wales.

Length of carapax of a male, seven and a half lines; breadth, eleven and three-fourths lines; ratio, 1 : 1.57; length of larger hand, with moveable finger extended, fourteen lines; of same, to apex of lower finger, eleven and a half lines; length of carpus, five and one-third lines, and breadth, two and a half lines; length of hand, anterior to fingers, measured to lower basal angle, eight and one-third lines, and breadth, four lines. The last segment of the male abdomen is not as short transverse as in the *inornatus*, and though narrower than the preceding, is not abruptly so; it appears to have a triangular form, owing to the dense hairs at apex; the other abdominal segments also are shorter transverse. The hand enlarges from the base outward, and the part below the fingers is more oblong than in that species, and somewhat triangular in form. The buccal mass is more projecting. We have suspected that the *inornatus* may be only a younger condition of the *cordiformis*; but the size is not very unlike,

and we cannot therefore reconcile on this ground the different proportions in all the particulars stated.

HELÆCIUS INORNATUS.

Carapax convexus, nudus, angulis anticis fronte posterioribus. Pedes antici sat breves; carpo non duplo longiore quam latiore, margine interno angulato; manu latâ, parte antedigitali paulo oblongâ. Segmentum abdominis maris ultimum breviter transversum, penultimo subito angustius. Articulus pedum tertius supra tomentosus.

Carapax convex, naked, anterior angles posterior to line of front. Anterior feet moderately short; carpus not twice as long as broad, inner margin having an angle near middle; hand broad, part preceding fingers somewhat oblong. Last segment of male abdomen short transverse, abruptly narrower than the penult. Third joint of the feet tomentose above.

Plate 19, fig. 7 *a*, male, natural size; *b*, front, seen from below obliquely, enlarged; *c*, hand, natural size.

New South Wales?

Length of carapax of male, six lines; breadth, eight and three-fourths lines; ratio, 1 : 1.48; length of larger hand with the moveable finger extended, equal to breadth of carapax; length of hand to apex of lower finger, eight lines; length of carpus, four lines, and greatest breadth, two and one-fourth to two and one-third lines; length of hand anterior to fingers, measured to lower basal angle, five and one-third lines, and its breadth, three and one-fourth lines. The medial region of the carapax is partly circumscribed. The right hand is largest in one specimen, and the left in another.

These dimensions differ from those of the *H. cordiformis*. The hand and carpus are both more oblong in the *cordiformis*. Either side of the buccal area there is a smooth, flat, or slightly concave surface, which narrows anteriorly; the same surface in the *cordiformis* is narrower and much more concave. In both species, the surface either side adjoining the upper outer angle of the buccal area is granulous,

and the pterygostomian region, as well as the lower portion of the orbit near the buccal area, has a sparse covering of short hairs.

H. inornatus, DANA, Proc. Acad. Nat. Sci. Philad., 1851, v. 248.

GENUS OCYPODA.

In Ocypoda, the body is very nearly rectangular in form, the sides not converging backward, as is usual in Gelasimus. The lateral margin of the upper surface has a distinct border, which converges somewhat behind, from a point a short distance from the anterior angles, yet the convergence is much less than in Gelasimus; but the lower lateral margin upon the sides does not incline inward at all, and even diverges from the medial line in some species. Besides this character, the less equal hands in males, the pointed fingers of both hands, and the stout eye-peduncles, covered with the cornea nearly to the base, remove the species from Gelasimus.

These species are able to make a sound, by means of a series of minute ridges on the inner surface of the hand, which acts like a rasp against a prominent edge on the second joint of the same pair of legs. The surface adjoining both the rasp and the edge is usually short hairy.

In males, the first suture in the sternum is posterior to the last articulation of the abdomen, while it is anterior in Grapsus.

1. *Oculi pedunculus apice non productus.*

OCYPODA RHOMBEA, *Fabr.*

Plate 19, fig. 8*a*, male, natural size; *b*, abdomen and sternum; *c*, hand.

Rio Janeiro.

Length of a female, seventeen and one-fourth lines; breadth across middle, twenty-one and a half lines; ratio, 1 : 1.25; length of a male, sixteen lines; breadth across the middle, nineteen and a half lines;

ratio, 1:1.22. The sides, as seen from above, diverge somewhat backward, so that the breadth just over the third pair of legs, is twenty-two and a half lines in the female, and twenty and a half lines in the male. Also, the breadth at the anterior angles is twenty lines in the female, and seventeen and a half lines in the male.

As the species *arenaria* and *rhombea* have both hairy legs, and appear to be at times confounded, we describe with some detail the specimens here referred to *rhombea*.

Anterior angles of carapax not posterior to any part of the upper orbital margin. Lateral margin fine serrulate. Inferior margin of orbits denticulate. Anterior margin of the arm with irregular spini-form teeth. Carpus mostly smooth on its upper surface. Hand rough granulous on its outer as well as inner surface, somewhat spinous above, and spini-dentate on the lower margin; moveable finger also subspinous. The crest on the inner surface of the hand, near the articulation, naked. Part of hand anterior to fingers, in male, ten lines broad; length of same to posterior margin of upper half, ten and a half lines; distance between the lower posterior angle and a point between the bases of the two fingers, eleven and a half lines. In the female, the proportions are about the same, but the hand is smaller (its breadth seven lines), and it is much more nearly smooth. The third joint of the eight posterior legs has smooth sides, and a narrow upper border which is indented and hirsute at the indentations; in the fifth pair there is also a lower border; the under side in the second and third pairs especially has its two margins hairy. The fourth joint is sulcate above, especially for the second and third pairs, the margins either side of the sulcus hirsute. The fifth joint of the second and third pairs is densely hairy along a medial line on the posterior surface, as well as on the upper and under margins, and along two or three lines on the anterior surface. The tarsus enlarges somewhat towards its extremity. The male abdomen has the penult segment narrowing slightly towards its apex with a curve, being broadest at its base, and the last segment is oblong triangular. The third joint of the outer maxillipeds is as long as broad, and faintly granulous near the margins.

Ocyroda rhombea, FABR., Suppl., p. 348; EDWARDS, Crust., ii. 6.

OCYPODA PALLIDULA, *Hombron and Jacquinot.*

Plate 20, fig. 1 *a*, male, natural size; *b*, hand, enlarged; *c*, extremity of fourth pair of legs.

Tongatabu.

This species, figured by Hombron and Jacquinot in the Zoological Atlas of the Voyage au Pole Sud, in the *Astrolabe* and *Zélée*, under D'Urville, has not been described, and we refer our specimens here with hesitation. They give us the following characters. Length of carapax, seven lines; breadth, eight and one-sixth lines; ratio, 1:1.16. Peduncle of eye but slightly wider at tip of cornea than it is a short distance below. Legs not at all spinulose, the fifth joint short and thin, pubescent above as well as on the sides, but not dense hairy. Larger hand short and very broad, the part anterior to the fingers being even broader than long, outer surface fine granulous, not coarser above; lower finger at base rather broader than half its length. Inner surface also granulous, especially its lower part; and there is a crest upon this surface near the articulation, but it is not hairy. Last joint of the male abdomen triangular and about equilateral; surface of the carapax quite evenly fine granulous. Anterior angles advanced, and in a line with the inner part of the upper margin of the orbit, or but slightly posterior to it. The lateral surfaces of the body are parallel and not divergent behind. The third joint of the outer maxillipeds is hardly as long as broad, and the surface is uneven, being granulous near the opposite margins. The tarsi are not wider towards their tips. The eye reaches almost to the very base of the peduncle, the interval left being much less than the breadth of the peduncle at base.

The figure of an Ocypod by Savigny, in the work on Egypt (Plate 1, fig. 2), referred to *O. rhombea* by Audouin, has a close resemblance to the above.

O. CORDIMANA? *Latr.*—In Balabac Straits, two small specimens of a species of Ocypod were collected, probably young, which have the carapax as in *cordimana*, the anterior angles scarcely projecting ante-

rior to the upper orbital margin adjoining, but none of the joints of the legs are spinulous. The larger hand is more oblong than in *pallidula*. The tarsus is also much more slender than in *pallidula*, and not at all enlarged towards its extremity. The legs are but little pubescent, and not hairy, like those of *arenaria*.

OCYPODA LÆVIS.

Carapax omnino subtiliter granulatus, angulis anticis antice productis et acutis. Pedes fere nudi; antici inermes, manu perlatâ et brevi, subtiliter granulata, parte ante digitos transversâ, marginibus non dentatis, inferiore subtiliter denticulato, digito inferiore ad basin longitudine ejus parce angustiore; 8 postici læves, articulo 5to breviter pubescentes, parium 2di 3tiique apice latereque anteriore breviter denseque pubescenti, tarso versus apicem non latiore, basi pubescente. Abdominis segmentum maris ultimum æquilateraliter triangulatum.

Carapax throughout fine granulous, anterior angles produced forward and acute. Feet nearly naked; anterior pair unarmed, hand very broad and short, finely granulate, the part before fingers transverse, margins unarmed, lower very minutely denticulate, lower finger at base nearly as broad as its length, eight posterior legs smooth, fifth joint short pubescent, in second and third pairs a dense short pubescence towards apex of this joint and on its anterior surface; tarsus not broader towards apex, pubescent at base. Last abdominal segment equilaterally triangular.

Sandwich Islands.

Plate 20, fig. 2, larger hand of male, showing its form.

Length of carapax, seven lines; breadth, anteriorly, eight and one-half lines; ratio, 1 : 1.21. The larger hand, as well as lower finger, is shorter for its breadth than the same in the *pallidula*; the second and third pairs of legs have the fifth joint densely (instead of sparsely) pubescent, the pubescence in both species short; the peduncle of the eye at the tip of the cornea is twice as broad as it is a short distance below, being in this part suborbicular in outline. It is readily distin-

guished from the *rhombea* and *arenaria* by its nearly naked legs; and from the *cordimana* in not having the lower margin of the larger hand dentate or denticulate, as well as in the other legs, which are wholly unarmed. The hands have a very smooth look, the upper margin is fine granulate like the outer surface; the vertical crest on the inner surface is naked. The surface of the sternum behind the mouth bears a few short hairs. The anterior angle of the carapax is in the same line with the inner part of the superior orbital margin.

2. *Oculi pedunculus apice productus.*

OCYPODA BREVICORNIS, *Edwards.*

Plate 20, fig. 3 *a*, female, natural size; *b*, eye of another female.

Feejees or Tongatabu.

Length of carapax of a female (the eye of which is represented in figure *b*), sixteen and a half lines; greatest breadth (across the line of the anterior angles), nineteen lines; ratio, 1 : 1.15. Another specimen (fig. *a*), length, fourteen lines; breadth, sixteen lines; ratio, 1 : 1.14.

The specimens referred to this species are females. They have the short ophthalmic horn of the *brevicornis*, its length being about a fourth as great as the rest of the eye or less. The hand is closely granulous, the granules small and hardly pointed; the length anterior to the fingers not greater than breadth of same. The fingers are flattened and tapering. The anterior surface of the fifth joint on the second and third pairs has but one dense line of hairs, and sometimes another much less distinct. The outer maxillipeds are also similar, the third joint being longer than broad, and the surface near either margin being granulous. The small prominence within the orbit near its inner limit, a short distance from the outer antennæ, is denticulate.

How far the length of the horn admits of variation in a species, we cannot decide from the facts within our knowledge. It is possible that the *pallidula* is only young of this species.

In one specimen (that represented in figure 3 *a*), the eye termi-

nates in a short point, very slightly elongated. The anterior surface of the fifth joint in the second and third pairs of legs has two dense lines of short hairs; on the second pair the smallest line is below the medial one, and on the third pair it is above. In other respects, the specimens are essentially identical.

Variety *longicornuta*. Plate 20, fig. 4 *a*, male, natural size; *b*, abdomen and sternum; *c*, larger hand, natural size; *d*, extremity of leg of third pair; *e*, outer maxilliped.

Tongatabu, Pacific; also, from Singapore.

This variety has the long horn of the *ceratophthalma* (*O. cursor*), but the carpus has a regularly convex surface, as in the *brevicornis*. In nearly all its characters excepting the horn of the eye, it agrees with the *brevicornis*. But the basal joint of the inner antennæ appears to be more globular and less oblong.

Tongatabu specimen, a male. Length of carapax, seventeen lines; greatest breadth, nineteen and two-thirds lines; ratio, 1:1.15. The anterior angle of the carapax is a right angle; it does not project forward of the upper orbital margin adjoining it. The breadth of the body is as great in front as over the third pair of legs. The horn of the eye is cylindrical, and as long as the eye to its basal articulation. The third joint of the outer maxillipeds is somewhat oblong, and near either margin granulous. The large hand is coarse granulous, somewhat spinous above, and short spini-dentate below. The hand anterior to the fingers is nine and a half lines broad, and the same in length, measuring the length to the posterior margin above the articulation. Inner surface of hand granulous below and above, and dense hairy in an oblique line near the articulation. Carpus similarly granulous. Arm unevenly spini-dentate on anterior margin. Eight posterior legs without hairs on the margins, surface granuloso-rugate; anterior surface of fifth joint of second and third pairs with two or three dense rows of short hairs; tarsus widened towards extremity. Abdomen of male with penult joint not narrower at middle than at base, last joint triangular, slightly oblong.

Specimen *from Singapore*, a female. Length of carapax, sixteen lines; breadth, eighteen and a half lines; ratio, 1:1.16. In

general, corresponding to the above description. Horn of eye shorter, about half as long as preceding part of eye. Large hand somewhat smaller and not so rough above, but of the same proportions. Third joint of outer maxilliped two and a half lines long, two lines wide at base. Anterior surface of fifth joint of second and third pairs of legs with only two dense rows of hairs, and one of these obsolescent. The hairy oblique line on inner surface of hand near articulation much narrower or less hairy.

The lateral margins of upper surface of carapax in both are anteriorly for a short distance parallel.

OCYPODA URVILLII, *Guerin*.

Plate 20, fig. 5 *a*, outline of male, natural size; *b*, outer maxillipeds, enlarged three and a half diameters; *c*, outline of larger hand, enlarged two and a half diameters.

Sandwich Islands.

This species resembles the *brevicornis*, as it has the eyes barely tipped with a short point. But it is a somewhat broader species: length of a male, six and a half lines; breadth, eight lines; ratio, 1 : 1.23. The outer maxillipeds differ in having the second and third joints *very nearly smooth* and *somewhat shining*, and the third joint is transverse, and much broader at base than at apex. The large hand is broad and fine granulous, and the carpus is acute at the outer as well as inner angle. The smaller hand is of the usual form. The tarsus of the following pairs is not wider towards its extremity. Penult joint of male abdomen about as long as broad. Base of inner antennæ a large pearly-looking joint. Prominence within orbit near its inner limit not denticulate, a little pubescent. Fifth joint of second and third pairs of legs somewhat pubescent, and with a few minute stiffer hairs.

Carapax evenly granulous; as broad at the anterior angles as posteriorly, these angles very slightly advanced, but much posterior to inner part of upper orbital margin. Pterygostomian region nearly smooth.

We cannot be confident that this is the *Urvillii* figured in the Coquille, for want of details connected with that figure; but it appears

to be the species so called by Owen in his account of the Crustacea of the Voyage of the Blossom.

O. Urvillii, GUERIN, Voyage de la Coquille, pl. 1, f. 1; OWEN, Voy. of the Blossom, p. 80; EDWARDS, Crust., ii. 49.

OCYPODA GAUDICHAUDII, *Edw. and Lucas.*

Valparaiso, Chili.

O. Gaudichaudii, EDWARDS and LUCAS, D'Orbigny's S. A., p. 26, pl. 11, f. 4.

FAMILY III. GRAPSIDÆ.

WE have divided the Grapsidæ into three subfamilies:—the inner antennæ exposed in a longitudinal sinus of the front characterize one group, the *Plagusinæ*; and the rest (having the same antennæ covered by the front), are divided according as the third joint of the outer maxillipeds is crossed or not by a ridge (usually hairy) that passes obliquely over the outer angle or outer surface of the second joint; one division being the *Grapsinæ*, the other the *Sesarminæ*. The existence of this oblique ridge, so well marked in *Sesarma*, has not in all instances been allowed the authority of a generic characteristic. Yet it seems to us that it should have even the higher importance, here attributed to it.

De Haan divides the genus *Grapsus* according to the form of the third joint of the maxillipeds, his *Grapsi* (constituting a subgenus in his system) having this joint scarcely longer than broad; and his *Goniopses* having this joint oblong, or as long as the second joint. The former include in part the *Cyclograpsi* of Milne Edwards. A somewhat similar subdivision was subsequently made, by Dr. Randall, in volume viii., pp. 124 and 126, of the Journal of the Academy of Natural Sciences of Philadelphia, published in 1839. He retained for the genus *Grapsus*, De Haan's *Goniopsis*, and called the species with the

third joint of the outer maxillipeds short and broad, *Pachygrapsi*—excluding, however, Edwards's *Cyclograpsi*. It is important then to ascertain what are the natural groups among these species. In external form, there are two groups of very obvious and trenchant characters: the first having arcuate sides, and a front not as long as half the breadth of the carapax, as the *pictus*, *strigosus*, and *variegatus*; the second having straight sides, often convergent backward, and a front longer than half the breadth of the carapax, like the *cruentatus*, *messor*, and *plicatus*. These groups appear to be natural and of equal importance; and the latter forms a transition to *Sesarma*. In the former, the outer antennæ come out either side of the front; in the latter, often from directly beneath the front. May we retain these as true genera, or are other subdivisions indicated by the outer maxillipeds? As to the length of the third joint of these organs, we would observe, that there are the oblong and the short forms, in both of these groups. In the former group, the two varieties connect by very gentle gradations. In the *pictus*, the third joint is but slightly shorter than the second; in the *strigosus*, the difference is a little greater; in the *planifrons*, a species from Valparaiso, so resembling the *variegatus* that it has apparently been called by this name, the length does not exceed the breadth. The *variegatus*, having a nearly horizontal front like the *planifrons*, has the same joint oblong as in the *pictus*, the latter species with a vertical front. The variations in the form of this joint hence do not correspond with any peculiar character in the front; and they occur among species that have the same general outline, that is, arcuate sides and a short front. Again, among the square Grapsi, there are both kinds: the *cruentatus* has the third joint of the outer maxillipeds as long as the second joint; in the *plicatus* it is a little oblong; and in the *messor* and *Thukujar* it is as broad as long. If we follow then the peculiarities of this joint, we must either divide in two or more parts each of the groups pointed out, or associate the species without reference to what seem to be characters of quite as great importance, the character of the front and general form of the species. For ourselves, we deem it best to disregard the form of this maxilliped joint, since we have found that even in the genus *Xantho* (for example), it may be both transverse and oblong. We therefore divide the genus *Grapsus* into *GRAPSUS* proper, in which the sides are arcuate and front narrow; and *GONIOGRAPSUS*, with the sides straight and front long. The latter group is not the *Goniopsis* of De Haan, nor the *Pachygrapsus*

of Randall, and hence to avoid confusion, we do not adopt either of these generic names. The *cruentatus* is so like the *messor* and *plicatus* in habit, that we cannot disjoin them on the grounds of the difference alluded to; and it is so different from the *pictus* in this respect (the former a salt marsh species, the latter—like the *variegatus* and *planifrons*—a rapid runner over the rocks of an open sea-shore), that we cannot believe in the propriety of their union.

Other changes have been found necessary, besides the introduction of some new genera. For example, it appears that *Gnathochasmus* of M'Leay, and *Cyclograpsus* of Edwards, were introduced upon related types, and are essentially identical, and that the latter must be retained as having the precedence in time. A portion of Edwards's *Cyclograpsi*, not having the typical character and not answering to his description (requiring the third joint of the outer maxillipeds to be crossed by an oblique piliferous crest), forms naturally a distinct group. They are true *Grapsinæ*, while the *Cyclograpsi* are *Sesarminæ*. We have not felt at liberty to adopt M'Leay's name for *Cyclograpsus*, and *Cyclograpsus* for the latter group, as is done by Gray, in the Catalogue of the Crustacea of the British Museum, as we are at no liberty to misuse Edwards's name; and we therefore give the second group a distinct name, calling it *Hemigrapsus*. As above stated, the species are *De Haan's Grapsi*.

Other changes introduced will be remarked upon beyond.

A constant characteristic of the Grapsidæ is the division of the palate by a ridge separating the efferent channel from the middle of the plate, as in the *Eriphiæ*, and most *Portunidæ*. This peculiarity separates them from the *Gecarcinidæ*, and from most, also, of the *Macrophthalmidæ*. The *Eriphidæ*, in the palate or efferent channel, as well as general form, are thus the connecting link between the *Cancrinea* and *Grapsidæ*.

The following is a synopsis of the subfamilies and genera of *Grapsidæ*:

1. GRAPSINÆ.—Antennæ internæ fronte tectæ. Articulus maxillipedis externi 3tius costâ obliquâ in 2dum productâ non ornatus.

1. *Maxillipedes externi vix hiantes.*

G. 1. PSEUDOGRAPSUS, *Edw.*—Articulus maxillipedis externi 3tius orbiculato-cordatus, aut subquadratus, 2do brevior. Frons dimidio latitudinis carapacis vix brevior. Carapax lateribus arcuatus.

- G. 2. HETEROGRAPSUS, *Lucas*.*—*Pseudograpsus* similis. Carapacis latera recta postice convergentia, ac in *Sesarmâ*.
 G. 3. ERIOCHEIR, *De H.*†—Articulus maxillipedis externi 3tius ac in *Pseudograpsus*. Frons dimidio latitudinis carapacis multo brevior. Carapax subpolygonatus.
 G. 4. PLATYNOTUS, *De H.*‡—Articulus maxillipedis externi 3tius 2do longior, margine postico valde obliquo.
 G. 5. TRICHOPUS, *De H.*§—Articulus maxillipedis externi 3tius latior quam longus, extus dilatatus. Pedum articuli 5tus 6tusque posticorum compressi denseque ciliati.

2. *Maxillipedes externi rhomboidicè hiantes.*

- G. 6. GRAPSUS, *Lamk.*—Carapax transversim lineolatus, lateribus plus minusve arcuatis. Frons dimidio latitudinis carapacis brevior. Antennæ externæ juxta frontis latera oblique exsertæ. Tarsi spinulis armati.
 G. 7. GONIOGRAPSUS, *Dana*.||—Carapax transversim lineolatus, lateribus rectis, postice sæpe convergentibus. Frons dimidio latitudinis carapacis longior. Antennæ externæ sub frontis margine sæpius exsertæ. Tarsi spinulis armati.
 G. 8. PLANES, *Leach*.¶—Carapax non lineolatus, lævis, fere quadratus, parce oblongus. Frons rectus. Articulus maxillipedis externi 3tius latior quam longus, cordatus. Tarsi spinulis armati.
 G. 9. HEMIGRAPSUS, *Dana*.**—Carapax non lineolatus, fere lævis, lateribus plus minusve arcuatis. Frons rectus aut rectiusculus, antennis internis transversis. Articulus maxillipedis externi 3tius fere orbiculato-cordatus. Tarsi inermes.
 G. 10. CYRTOGRAPSUS, *Dana*.—Carapax gibbosus, subhexagonus non lineolatus.

* *Lucas*, Expl. de l'Alger, pl. 2, f. 4.

† *Faun. Japon.*, p. 32, 59.—*Utica* of White (*Ann. Mag. Nat. Hist.*, xx. 206, and *Crust. Voy. Samarang*, 52, pl. 13, fig. 6).

The *E. penicillatus* of De Haan (p. 60, pl. 11, f. 6), appears to be a true *Pseudograpsus*.

‡ *Faun. Japon.*, p. 34.

BRACHYNOTUS is the name of another genus by De Haan, based on a Mediterranean species described by Risso, *Hist. Nat. de l'Eur. Merid.*, v. 13. The male abdomen is but four-jointed, the female seven-jointed; second and third joints of the outer maxillipeds of equal length, and the third truncate at either extremity.

§ *Faun. Japon.*, p. 32.—*Varuna* of Edwards, *Crust.*, ii. 94.

|| In part, *Goniopsis* of De Haan, *Faun. Japon.*, p. 33, and *Pachygrapsus* of Randall, *J. Acad. Nat. Sci. Philad.*, viii. 126.

¶ *MS. Mus. Brit.*; the genus is recognised in Bowdich's "Madaira and Porto Santo," p. 151; and more lately in Bell's *Brit. Crust.*, p. 133.—*Nautilograpsus* of Edwards, *Crust.*, ii. 89.

** *Grapsus* (subgenus) of De Haan, *Faun. Japon.*, p. 31; *Cyclograpsus*, in part of Edwards, *Crust.*, ii. 77.

Frons sursum sinuosus, antennis internis obliquis, in plicis frontis insitis. Articulus maxillipedis externi 3tius suborbiculato-cordatus. Tarsi inermes.

2. SESARMINÆ. — Antennæ internæ fronte tectæ. Articulus maxillipedis externi 3tius costâ obliquâ in 2dum productâ notatus.

1. *Articulus maxillipedis externi 3tius apice rotundatus.*

G. 1. SESARMA, *Say.** — Carapax quadratus, sæpe partim lineolatus, lateribus rectis, fronte rectè prærupto. Abdomen *maris* versus basin sterno contiguo vix angustius. Tarsi sæpe armati.

G. 2. SARMATIUM, *Dana.* — Carapax subquadratus, lateribus arcuatis, fronte curvatim declivi. Abdomen *maris* versus basin sterno contiguo vix angustius. Tarsi inermes.

2. *Articulus maxillipedis externi 3tius apice truncatus sæpeque excavatus.*

G. 3. CYCLOGRAPSPUS, *Edw.†* — Carapax lævis, medio planus, ad margines anteriores declivis, lateribus arcuatis, integris. Abdomen *maris* versus basin sterno contiguo vix angustius.

G. 4. CHASMAGNATHUS, *De H.‡* — Carapax convexus, subquadratus, lateribus arcuatis et antice emarginatis, fronte curvatim declivi. Oculi breves. Abdomen *maris* versus basin sterno contiguo parce angustius.

G. 5. HELICE, *De H.§* — Carapax quadratus, lateribus parallelis, rectis. Oculi longiusculi. Abdomen *maris* versus basin sterno contiguo multo angustius.

3. PLAGUSINÆ. — Antennæ internæ sinubus frontis longitudinalibus apertæ.

G. 1. ACANTHOPUS, *De H.||* — Corpus valde depressum. Articulus maxillipedis externi 3tius oblongus, parvus, apice 2di multo angustior. Ramus maxillipedis 1mi internus apice angustus et non transversus.

G. 2. PLAGUSIA, *Latr.,¶ D.* — Corpus minus depressum, crassius. Articulus maxillipedis externi 3tius apice 2di vix angustius, raro longior quam latus. Ramus maxillipedis 1mi internus apice transversus.

* Jour. Acad. Nat. Sci., i. 76, 1817. *Pachysoma* of De Haan, Faun. Japon., p. 33.

† Crust., ii. 77. — Gnathochasmus of M'Leay, Smith's Illust. Zool. S. Africa, and Cat. Crust. Brit. Mus., by A. White, 1847, 40.

‡ Faun. Japon., p. 27.

§ Faun. Japon., p. 28.

|| Faun. Japon., p. 29. Corresponds to *Plagusia clavimana*.

¶ Corresponds to *Plagusia* and *Philyra* of De Haan, Faun. Japon., p. 31.

SUBFAMILY I. GRAPSINÆ.

GENUS PSEUDOGRAPSUS.

The genus *Pseudograpsus* is very near *Eriocheir* of De Haan; both have the inner margins of the outer maxillipeds nearly parallel, and the third joint round-cordate or subquadrate. But in the figures of De Haan's *Eriocheir Japonicus*, the front is narrower than half the breadth of the carapax, while in our *Pseudograpsi*, it is as wide as half the carapax, or even wider; and again, the form in the *Eriocheir* is more polygonal, and the abdomen appears to be triangular from a rather broad base, hardly narrower than the corresponding part of the sternum and nearly twice as broad as the penult segment, while according to Edwards, the *Pseudograpsi* have the abdomen narrower at base than the sternum or but little broader than the penult segment, and the carapax has arcuate sides. The *Eriocheir Japonicus* is a fresh-water species, and the *Pseudograpsi*, as far as known, are sea-shore species. The *Eriocheir penicillatus* of De Haan probably falls with the *Pseudograpsi*: he does not mention whether it is marine or not. The genus *Utica* of White, appears to be essentially congeneric with *Eriocheir*, judging from the polygonal form and narrowness of the front in the figure by White (*Voy. Samarang*, Pl. 13, f. 6), although wanting in the bushy hair of the hand.

PSEUDOGRAPSUS OREGONENSIS.

Carapax parce areolatus, regione medianâ leviter circumscriptâ, cum lineâ transversâ antice levissimè notatâ, margine præmediano abrupto; fronte sinuoso, margine antero-laterali bi-emarginato, dentibus acutis. Pedes antici laves, manu extus nulâ, infra obsoletè uni-costatâ, intus partim lanosâ, carpo levi, digitis maris hiantibus. Pedes postici marginibus paulo hirsuti præcipue articulorum 4ti 5tique.

Carapax sparingly areolate, median region faintly circumscribed, crossed by a faint transverse line anteriorly, præmedian margin abrupt; front sinuous; antero-lateral margin bi-emarginate, teeth

acute. Anterior feet smooth, hand naked externally, below absolutely uni-costate or hardly so, surface within having a lanose spot, carpus smooth; fingers of *male* gaping and touching only at tips. Posterior feet somewhat hirsute at the margins, especially of fourth and fifth joints.

Plate 20, fig. 6 *a*, animal, natural size; *b*, hand, in outline.

Puget's Sound.—Lieut. Case.

Length of carapax, ten lines; breadth, eleven and a half lines.

P. oregonensis, DANA, Proc. Acad. Nat. Sci. Philad., 1851, v. 248.

PSEUDOGRAPSPUS NUDUS.

Carapax obsolete areolatus, regione medianâ vix circumscriptâ, cum lineâ elevatâ non intersectâ, areolâ intramedianâ (3 M) non circumscriptâ, fronte paulo arcuato, margine antero-laterali bi-emarginato. Pedes toti nudi; antici æqui, manu extus nudâ, lævi, infra levissimè uni-costatâ, intus partim lanosâ, carpo lævi; 8 postici paulo lati, tarso sulcato.

Carapax obsoletely areolate, median region hardly circumscribed, not crossed by a raised line, areolet 3M (intramedian), not circumscribed; front slightly arcuate, antero-lateral margin bi-emarginate. Feet all naked; anterior equal, hand naked and smooth without, faintly uni-costate towards lower part, within over a spot lanose, carpus smooth; eight posterior feet compressed, tarsus sulcate, compressed.

Plate 20, fig. 7 *a*, male, natural size; *b*, under view; *c*, hand, natural size.

Puget's Sound and San Francisco.—C. Pickering.

Length of carapax of a female, ten and a half lines; greatest breadth, twelve and a half lines; ratio, 1:1.19; length of a male,

ten and two-thirds lines; breadth, twelve and one-third lines; ratio, 1:1.16; length of another male, twelve and three-fourths lines; breadth, fourteen and one-tenth lines; ratio, 1:1.11. The colour is dark or light brown, or brownish red, with the hand coarsely dotted with colour. The median region is smooth, and shows its limits distinctly behind, and also on the front of the præmedial areolet and the front of the outer part of the extramedial, behind the eyes, but the limit is very faintly discerned elsewhere; the intramedial areolet is not distinct except in its posterior outline. The front is slightly impressed at middle. The tarsi have two sulci either side, and one above, and the dorsal surface is scabrous, the lateral less so.

P. nudus, DANA, Proc. Acad. Nat. Sci. Philad., 1851, v. 249.

GENUS TRICHOPUS, *De Haan*.

TRICHOPUS LITTERATUS (*Fabr.*), *De Haan*.

Plate 20, fig. 8 *a*, male, natural size; *b*, abdomen and sternum.

At sea, fifty miles southwest of west entrance of Straits of Sunda, found on a floating piece of bamboo.

Cancer litteratus, FABR., Supp., 342; HERBST, iii. 58, pl. 48, f. 4.

Trichopus litteratus, DE HAAN, Faun. Japon., Crust., 32.

Varuna litterata, EDWARDS, Crustacés, ii. 95, pl. 14bis, f. 8.

GENUS GRAPSUS.

In Grapsus, the sides of the carapax are arcuate, the surface more or less lined transversely, the front shorter than half the breadth of the body, and the tarsi spinulous below. The third joint of the outer maxillipeds may be either oblong or as broad as long.

GRAPSUS PICTUS, *Latreille*.

Plate 21, fig. 1, outer maxillipeds.

Island of Madeira; Cape Verds; San Lorenzo, Peru; Vincennes, and other islands of Paumotu Archipelago; Sandwich Islands.

We have given a figure of the outer maxillipeds for comparison with the same organs in the *G. cruentatus*. The approximation is so close, that on this ground, only the smallest specific distinction could be drawn. In this species the vertical front is about twice as long as its height. The bend in the front of the carapax takes place at the front margin of the præmedial areolets, and the projecting lobes are the fronts of these areolets; in the specimens from Madeira they are nearly entire. Length of front, seven lines; height, three lines. In young specimens the front is less vertical, being inclined at about 120°, and there is something of a crest on the epistome either side; the hand also is smoother outside, and the lower apex of the third joint of the third and fourth pairs of legs is but two-toothed. Such are specimens from the Sandwich Islands.

In a large specimen from San Lorenzo, the third joint of the eight posterior legs enlarges towards the apex, where it is broadest, instead of being broadest about the middle, as in the common variety of the *pictus*. The front is quite vertical, and hardly twice as long as it is high, and rather broader above than below. The front of the præmedial areolets, either side of the middle, is two or three-dentate. The process separating the orbit from the antennæ is much elongated, so as to reach quite as far forward as the front. Both this and the preceding have the lower apex of the third joint of the posterior legs entire and rounded. The hand has the costa near lower side made up of granules.

Length of carapax, two and a half inches; breadth, two and three-fourths inches; ratio, 1:1.1; length of front (across middle), twelve lines; height of front, five and a half lines.

The colours vary between deep brownish black and orange-yellow, in irregular transverse lines, much interrupted. They are more finely broken up in the Madeira specimens than in those of Peru.

Grapsus pictus, LATR., Hist. Crust., vi. 69; EDWARDS, Crust., ii. 86, and Cuv., pl. 22, f. 1.

Goniopsis pictus, DE HAAN, Fauna Japonica, 33.

GRAPSUS STRIGOSUS (*Herbst*), *Latreille*.

Plate 21, fig. 2, outer maxillipeds, natural size.

Valparaiso, Chili.

Length of carapax of a male, two inches; breadth, two inches and two lines; length of front, ten and a half lines; height, three lines. The front is quite different in proportions from the *pictus*, and corresponds with the shorter epistome. The third joint of the posterior legs (like that of the other legs), in our specimens and in *Herbst's* figure, is three-dentate at its lower apex, instead of entire, like *pictus*. The inner oblong acute process to carpus is narrow and thorn-like. The præmedial front projects prominently over the surface below. The fifth joint of the eight posterior legs is short, or less than three times its length. The third joint of the second pair of legs is but little shorter than that of the third pair—about one-fifth shorter. The angle between the line of the back and the front is 120° to 130° . The process (in our specimen) between the orbit and the antennæ is quite long and oblique, reaching as far as the front.

Cancer strigosus, HERBST, pl. 47, f. 7.

Grapsus strigosus, LATREILLE, Hist. Crust., vi. 70; EDWARDS, ii. 87.

Goniopsis strigosus, DE HAAN, Faun. Japon., 33.

GRAPSUS PLANIFRONS.

Nudus. Frons fere horizontalis, sat latus. Margo carapacis lateralis bene arcuatus, antero-lateralis bi-emarginatus. Epistoma brevissimum. Articulus maxillipedis externi 3tius vix longior quam latus. Pedes antici sat crassi, manu supra pustulatâ, extus infraque lævi; brachio apicem anticum 5-6-denticulato. Pedes 8 postici valde compressi, articulo 3tio pedis postici ad apicem inferiorem integro, articulo penultimo supra scabro.

Naked. Front nearly horizontal, rather broad; lateral margin of

carapax arcuate, antero-lateral bi-emarginate. Epistome very short. Third joint of outer maxillipeds as long as broad. Anterior feet rather stout; hand above small pustulate, externally and below smooth; arm with five or six teeth at anterior apex. Eight posterior feet much compressed, third joint of posterior pair entire at inferior apex; penult joint scabrous above.

Plate 21, fig. 3 *a*, animal, natural size; *b*, abdomen and sternum of male; *c*, outer maxillipeds, natural size; *d*, hand, natural size; *e*, spine of tarsus.

Valparaiso, Chili; Callao, Peru.

Length of carapax, seventeen and one-third lines; breadth, nineteen lines; length of front, six and three-fourths lines; breadth of front to front of præmedial areolets (which but slightly project), two and one-fourth lines. Colour, finely lined and spotted irregularly with brownish black or black, with intervening spaces a little yellowish.

Sides of carapax much arcuate. The species is near *G. variegatus*; but according to Edwards's description of that species, and the figure in Guerin's "Iconographie," it has the third joint of the outer maxillipeds much oblong, while in this species, the joint is not longer than broad.

The figure in the Voy. de l'Uranie, under Freycinet, pl. 76, f. 2, may be this species.

G. planifrons, DANA, Proc. Acad. Nat. Sci. Philad., 1851, v. 249.

GRAPSUS LONGITARSIS.

Carapax nudus, regione medianâ granulatus, fronte abrupto, perangusto, lateribus parce arcuatis, margine antero-laterali 1-emarginato. Articululus maxillipedis externi 3tius vix oblongus. Epistoma breve, utrinque acutè cristatum. Pedes antici sat parvi, manu carpoque supra parce granulatis, manu extus fere lævi, infra leviter costatâ. Pedes postici nudi; tarso elongato, spinulis dorsi multo brevioribus.

Carapax naked, median region granulate, front abrupt, very narrow,

sides little arcuate, antero-lateral margin one-emarginate. Third joint of outer maxillipeds hardly longer than broad. Epistome short, acutely cristate either side. Anterior feet rather small, hand and carpus above sparsely granulous, hand externally very nearly smooth, towards lower side faint costate. Posterior feet naked; tarsus long, dorsal spines much shorter than those below.

Plate 21, fig. 4 *a*, male, natural size; *b*, under view, four diameters; *c*, hand, natural size; *d*, outline of arm.

Paumotu Archipelago.

Length of carapax, nine and a half lines; breadth, ten and three-fourths lines; length of front, five lines, and breadth (to præmedials), hardly a line. The third joint of the outer maxillipeds is short, as in the *planifrons*; but the front is abrupt and very narrow, and there is but one emargination in the antero-lateral margin. The tarsus is quite long, and has a neater or more naked aspect than usual, from the shortness of the dorsal spinules; and there is a densely ciliate line near dorsal margin.

The third joint of the last pair of legs is three or four-denticulate at the inferior apex. The postero-lateral surface of carapax is strongly lined transversely.

G. longitarsis, DANA, Proc. Acad. Nat. Sci. Philad., 1851, v. 249.

GRAPSUS LIVIDUS, *Edwards*.

Plate 21, fig. 5 *a*, male, natural size; *b*, outer maxillipeds, enlarged two diameters; *c*, hand, natural size.

Island of San Lorenzo, Peru.

Length of carapax, eleven lines; breadth, thirteen and a half lines; length of front, five and a half lines, and breadth (to præmedials), about one line. Colour, mostly dark chestnut-brown, in transverse linings. The carapax is naked and smoothish, nearly square, the sides being sparingly arcuate anteriorly, front abrupt. Anterior feet nearly

equal, carpus, hand, and upper finger neatly granulous above, hand externally smooth or nearly so and not costate, arm at anterior margin about five-dentate. Posterior feet broad, fourth and fifth joints and tarsus with the margins long and sparingly hairy. The third joint with a spiniform seta at apex and no tooth; tarsus rather stout and tapering.

The posterior margin of the epistome bordering the buccal area is very nearly straight, and even with the level of the outer maxillipeds, and nine or ten denticulate. Third joint of outer maxillipeds oblong. Inner margin of third joint naked, except at base. The pterygostomial region is pubescent. There is a distinct and deep emargination at the outer extremity of the orbit.

GRAPSUS CRINIPES.

G. livido affinis. Carapax nudus, sublaevis, fere quadratus, fronte sat abrupto, margine antero-laterali 1-emarginato. Pedes antici fere aequi, carpo manu digitoque mobili superne granulatis, manu extus fere laevi, nec costatâ; brachio ad apicem anticum 5-7-denticulato. Pedes postici sparsim criniti, articulo tertio lato, tarso perangusto, lineari, paulo curvato. Margo epistomatis posticus valde arcuatus.

Near *G. lividus*. Carapax nude, nearly smooth, subquadrate, front rather abrupt, antero-lateral margin with one emargination. Anterior feet nearly equal, carpus, hand, and moveable finger granulous above, hand externally nearly smooth and not costate; arm with five to seven teeth at anterior apex. Posterior feet sparsely long, hairy, third joint broad, tarsus very narrow and not at all tapering. Posterior margins of epistome much arcuate.

Plate 21, fig. 6 *a*, outer maxillipeds, enlarged two diameters; *b*, outline of part of arm, natural size; *c*, leg of fourth pair, enlarged two diameters; *d*, hand of female, natural size.

Sandwich Islands.

Length of carapax of female, nine and three-fourths lines; breadth, eleven and a half lines; length of front, four and three-fourths lines;

breadth of third joint of fourth pair of legs, four lines; breadth of fifth joint, two and three-fourths lines, or less than half the third; breadth of tarsus at base, four-fifths of a line. This species is very near the *lividus*, and is in most points very well represented by the figure of that species. But the tarsus and the two preceding joints are very much more slender; the epistome has not a straight margin behind, but curved, as in figure 6a; the emargination at the outer extremity of the orbit is very shallow; the third joint of the outer maxillipeds is similarly oblong, but has a few unequal hairs along the whole length of the inner margin; the striæ of the carapax and legs are much shallower. The pterygostomian region is pubescent; the front nearly vertical; the posterior apex of third joint of fifth pair of legs entire.

G. crinipes, DANA, Proc. Acad. Nat. Sci. Philad., 1851, v. 249.

GENUS GONIOGRAPSUS, Dana.

Carapax multis lineis transversim notatus, subquadratus, lateribus rectis, sive parallelis sive postice convergentibus. Frons dimidio latitudinis carapacis longior. Antennæ externæ sub fronte sæpius exsertæ. Tarsi armati.

Carapax crossed transversely by numerous raised lines, subquadrate, sides straight, often convergent backwards. Front longer than half the breadth of the carapax. Outer antennæ usually exsert from beneath the front. Tarsi armed with spinules.

The remarks on page 330 render farther explanations unnecessary. We only add, that while the Grapsi live mostly about the rocks in the surf, the Goniograpsi are found to some extent about salt marshes, as well as in shallow and deep waters.

GONIOGRAPSUS CRUENTATUS.

Plate 21, fig. 7, male, natural size.

Rio Janeiro, in salt marshes.

The length of carapax of a male, nineteen lines; breadth, twenty-two and a half lines; length of a female, eighteen lines; breadth, twenty-two and a half lines; length of front in male, twelve lines, and breadth to angle, two and a half lines. The colour of the carapax is olive-green, finely lined or mottled, and posteriorly, yellowish with green dottings,—it becomes red on dying; legs cherry-red, with a few large ocelli, having a white centre and brown border, upon the sides of the coxæ. The antero-lateral margin has a single emargination. The hand, carpus, and moveable finger are small spinulous above.

Grapsus cruentatus, LATR., Hist. Crust., vi. 70; EDWARDS, ii. 85.

Goniopsis cruentatus, DE HAAN, Faun. Japon., 33.

Grapsus longipes, RANDALL, Jour. Acad. Nat. Sci. Philad., viii. 125.

GONIOGRAPSUS PLICATUS (*Edw.*), *D.*

Sandwich Islands.

Length of carapax, nine and a half lines; breadth, twelve lines; length of front, seven and a half lines, and breadth to præmedials, about one line. The linings of this species are peculiarly salient over the surface, and are minutely ciliate. The antero-lateral margin has no emargination. The hand and carpus are granulous above, and the hand is costate on its outer surface. The third joint of the posterior legs has the lower apex three or four toothed, but no other teeth on the lower margin; and there is only one above, and that near apex. The longest spinules of the tarsus are those on the upper side towards apex. The fourth and fifth joints of the eight posterior legs are very thinly hairy. The third joint of the outer maxillipeds is a little longer than broad. This is a very thick species, with a high, steep front, the vertical part rounding into the back, the front of the præmedial areolet bending down nearly to the margin, instead of stopping at the angle.

Grapsus plicatus, EDWARDS, Crust., ii. 89.

Grapsus plicatus? KRAUSS, Südafrikanischen Crust., pl. 3, f. 1.

From the dentations on the third joint of the posterior legs of Krauss's species, on both margins, we judge that his species must be a different one—and it may be called *Goniograpsus Kraussi*.

GONIOGRAPSUS THUKUJAR, *Owen*.

Sandwich Islands; Feejee Archipelago; Samoan Islands.

Length of a female, ten and a half lines; breadth, thirteen lines; length of the front, eight lines. Surface nearly smooth. Front bends downward rather abruptly, and becomes nearly vertical. Sides converge somewhat backward. Antero-lateral margin entire. Third joint of the posterior legs with three small teeth at the lower apex. Hand and carpus slightly rugate above, but the outer surface of the hand smooth, with a single raised line near its lower side. Third joint of outer maxillipeds not longer than broad.

Grapsus Thukujar, OWEN, Crust. Blossom, 80, pl. 24, f. 3.

Pachygrapsus parallelus, RANDALL, Jour. Acad. Nat. Sci. Philad., viii. 124.

GONIOGRAPSUS VARIUS?

Rio Janeiro?

The species here referred, has the front projecting and nearly horizontal, as in the *varius*, and there are two emarginations in the antero-lateral margin. Sides hardly converge backward. Hand smooth outside, and slightly margined above; carpus minutely rugate. Fourth and fifth joints of eight posterior legs sparsely hairy; third joint of last pair entire and rounded at lower apex. Fourth joint of the outer maxillipeds articulated with third, near middle of summit margin. The specimen is a small one, but five lines broad; length of front, three lines.

Grapsus varius, LATREILLE, Hist. Crust., vi. 67; EDWARDS, Crust., ii. 88.

GONIOGRAPSUS SIMPLEX.

Vario similis. *Carapax fere quadratus, lateribus postice vix convergentibus, fronte paulo declivi, parce sinuoso, margine antero-laterali*

1-emarginato. Carpus supra minutè rugatus; manus extus lævis, supra paulo rugata. Articuli 4tus 5tusque pedum 8 posticorum sparsim hirsuti; 3tius pedis postici apice inferiore truncatus, integer, pedis 4ti 3tiive 2-3-dentatus.

Near *varius*. Carapax subquadrate, sides hardly convergent backward, front a little inclined and slightly sinuous, antero-lateral margin one-emarginate. Carpus above minutely rugate; hand smooth externally, slightly rugate above. Fourth and fifth joints of feet sparsely hairy; third joint of last pair truncate at lower apex, entire, of third and fourth pairs two or three-toothed.

Plate 21, fig. 8 *a*, outline of carapax, enlarged two diameters; *b*, leg of fifth pair, enlarged four diameters.

Rio Janeiro?

Length of carapax, four lines; breadth, four and three-fourths lines; length of front, two and three-fourths lines. The antero-lateral margin has a single emargination, as in the *crassipes* of Randall, J. Acad. Nat. Sci., viii. 127; but that species, according to Dr. Randall, has "the front considerably depressed, with four rounded lobes above, all very convex, and resembling great tubercles,"—but in this species, the two outer of these lobes are faint, and the two inner are low, and could hardly be compared to tubercles. The body, moreover, is rather thin instead of stout. The arm in the *crassipes*, has the inner apex very much dilated and projecting, with the projection truncate.

G. simplex, DANA, Proc. Acad. Nat. Sci. Philad., 1851, v. 249.

GONIOGRAPSUS INNOTATUS.

Carapax fere quadratus, lateribus postice convergentibus, fronte sat declivi, margine antero-laterali 1-emarginato, lineis transversis carapacis subtilissime crenulatis. Carpus supra lævis; manus supra extusque lævis; brachium apice 2-3-dentatum. Articulus pedis postici tertius apice inferiore 3-dentatus.

Carapax nearly quadrate, sides converging, front considerably inclined, antero-lateral margin one-emarginate, transverse lines of carapax very minutely crenulate. Carpus smooth above; hand smooth above; arm two to three-toothed at apex. Third joint of posterior feet three-toothed at lower apex.

Plate 21, fig. 9 *a*, male, natural size; *b*, outer maxillipeds, enlarged two diameters; *c*, hand, natural size.

Locality uncertain; probably from the South American coast.

Length of carapax of a male, seven lines; breadth, nine lines; length of front, five and one-fourth lines. Near the *simplex*, but differs in having the sides convergent, the lower apex of third joint of last legs denticulate, and the carpus smoother. Also, the first joint of the outer antennæ is long linear transverse, and the process just inside of it, reaching down from the front, is broad and truncate below; the basal joint extends farther inward towards the medial line than the inner side of this process. Third joint of outer maxillipeds not longer than broad.

G. innotatus, DANA, Proc. Acad. Nat. Sci. Philad., 1851, v. 249.

GENUS PLANES, *Leach*.

PLANES MINUTUS (*Fabr.*)

Gulf-weed, Atlantic.

This long-known species has usually a dull yellowish colour, clouded with brownish yellow. The male abdomen is quite regularly triangular, with an obtuse apex, and the greatest breadth more than two-thirds its length; the third joint is not abruptly broader than the following, but instead, the sides from the third joint are regularly converging. The upper margin of the fourth and fifth joints of the eight posterior legs is rather densely ciliate.

Cancellus marinus minimus quadratus, SLOANE, Jamaica, xi. pl. 245, f. 1.

Cancer minutus, FABRICIUS, Ent. Syst., xi. 443, and Supp., 343.

Grapsus minutus, LATREILLE, Hist. Nat. des Crust., vi. 68.

Nautilograpsus minutus, EDWARDS, ii. 90; GOODSIR, Ann. Mag. N. H., xv. 73.

Grapsus cinereus, SAY, Jour. Acad. Nat. Sci. Philad., i. 99.

PLANES CYANEUS.

Pedes octo postici valde compressi, articulis tribus ultimis extus densè villosociliatis. Abdomen maris angustè triangulatum, duplo longius quam latum, 7-articulatum, articulo tertio latiore, breviorè quam quartus, ultimo triangulato.

Eight posterior feet much compressed, last three joints densely ciliate on outer margin. Abdomen of *male* narrow triangular, about twice as long as broad, third segment broadest, but shorter than fourth, last triangular.

Plate 22, fig. 1 *a*, animal, natural size; *b*, under view; *c*, exterior antennæ; *e*, tarsus of fourth pair of legs; *f*, male abdomen; *g*, female abdomen.

Very abundant in the Pacific, latitude 28° north, longitude 174° east; May 18, 1841. A similar animal taken in south latitude 15° 50', longitude 105°, July 26, 1839. No sea-weed in these seas.

Colour, cerulean blue. Eyes same, but paler. Length, one-half to two-thirds of an inch.

The specimen figured was from 28° north latitude. The carapax is smooth and but little shining. The lateral margin has an obsolescent border. Third and fourth pairs of legs somewhat longer than first or second pair. Greatest breadth of male abdomen, about half the length; of female abdomen, three-fourths the length. The antennæ are situated as shown in the figure; the exterior pair has a very stout angular base. The exterior maxillipeds have the third joint about half as long as second; the second is slightly arcuate within.

The specimen obtained south of the equator was very similar to the above. The description drawn up at the time does not include any point of difference; the drawing made, however, represents the female abdomen very nearly orbicular, or scarcely longer than broad (fig. 1 *b*), which may depend on age. The length is equal to the breadth, and the carapax was smooth and shining. Fig. 1 *i* represents the exterior maxillipeds.

The male abdomen is so different in shape from the *minutus*, and the colour also, so unlike, that we believe the two to be different species.

P. cyaneus, DANA, Proc. Acad. Nat. Sci. Philad., 1851, v. 250.

GENUS HEMIGRAPSUS, Dana.

Carapax fere lævis, lineis transversis non notatus, fronte fere recto, lateribus arcuatis. Maxillipedes externi rhombicè hiantes, articulo 3tio orbiculato-cordato. Antennæ internæ transversæ.

Carapax nearly smooth, not marked by transverse lines, front nearly straight, sides arcuate. Outer maxillipeds separated by a large rhomboidal space, third joint orbiculato-cordate. Inner antennæ transverse.

Hemigrapsus includes part of the species referred to Edwards's Cyclograpsus, as explained on page 331. The process outside of the outer antennæ is transverse, triangular, and sets closely against the first joint of the antennæ. The abdomen of the male is rather narrow, and at base it does not quite reach to base of posterior legs. Carpus rounded on inner side. Part of De Haan's Grapsi belong to this genus.

HEMIGRAPSUS SEXDENTATUS (*Edw.*), Dana.

Plate 22, fig. 2 *a*, male, natural size; *b*, leg of second pair, *ibid.*; *c*, leg of fifth pair, *ibid.*

Bay of Islands, New Zealand.

Length of carapax, nine lines; breadth, ten lines; length of front, four and two-thirds lines. Colour of back, dark brown to black clouded with gray, or dirty white; legs black, clouded or banded with dirty white. Front considerably inclined, straight; antero-lateral margin two-emarginate, teeth triangular, subacute. Legs naked,

tarsus rather stout and unarmed. Hands very nearly equal, smooth, but not shining, a slightly raised horizontal line below on outer surface, running into lower finger.

Cyclograpsus sexdentatus, EDWARDS, Crust., ii. 79.

HEMIGRAPsus CRENULATUS (*Edw.*), *Dana*.

Plate 22, fig. 3 *a*, hand, natural size; *b*, leg of second pair, *ibid.*; *c*, leg of fifth pair, *ibid.*; *d*, abdomen, *ibid.*

Bay of Islands, New Zealand.

The specimens referred to this species, are similar in the front and antero-lateral margin to the *sexdentatus*. The teeth are triangular and nearly acute. But the tarsi are much more slender, and the margins of both these and the other joints of the eight posterior legs (including upper margins of third joint), are somewhat hirsute. The hand and carpus are smooth. The surface of the carapax in both species is fine granulous.

Length of carapax of a male, nine and a half lines; breadth, eleven lines; length of the front, five lines.

Cyclograpsus crenulatus, EDWARDS, Crust., ii. 80.

HEMIGRAPsus CRASSIMANUS.

Carapax subtiliter granulatus, margine antero-laterali leviter 2-emarginato, dentibus brevissimis et rotundatis, etiam emarginatione tertiâ obsoletâ. Pedes maris antici crassi, nudi, carpo supra indentato. Pedes sequentes tenues, articulo tertio supra fere nudo, infra lanoso, reliquis margines plerumque pubescentibus, quinto supra sulcato, tarso gracili. Abdomen maris perangustum, articulo ultimo angustè elongato.

Carapax very fine granulate, antero-lateral margin slightly two-emarginate, teeth very short, rounded; also, a third obsolete emargination. Anterior feet of *male* stout, naked, carpus indented above.

Following feet slender, third joint nearly naked above and lanose below, the following joints with the margins mostly pubescent, fifth sulcate above, tarsus slender. Abdomen of *male* very narrow, last joint narrow elongate.

Plate 22, fig. 4 *a*, male, enlarged two diameters; *b*, abdomen and sternum of male; *c*, outer maxillipeds, enlarged four diameters; *d*, leg of second pair, enlarged two diameters.

Sandwich Islands.

Length of carapax, six and one-fourth lines; breadth, six and three-fourths lines; length of front, two and three-fourths lines. The hands have a narrow flattened space along the top, and the carpus an indentation in the upper surface. The third joint of the second and third pairs of legs is very densely hairy below, and the same joint of the fourth pair is somewhat less so, and the fifth joint is also nearly as densely hairy below. The last joint of the male abdomen is hardly larger at base than above, being linear nearly in form. The lateral margin has a third obsolescent emargination, behind the two which are more distinct, nearer the second than the second to the first. The fifth joint of the last pair of legs, is much more hairy on both margins than in the other pairs. From the extremity of the lower finger, on its inner and upper side, there is a crenulate line extending towards its base; and a similar line less distinct on the upper finger.

H. crassimanus, DANA, Proc. Acad. Nat. Sci. Philad., 1851, v. 250.

HEMIGRAPUS AFFINIS.

H. crassimano ferre affinis. Manus maris crassa, minus tumida, antice paulo compressa, digitis hiantibus. Articulus pedis 2di 3ti 4tve tertius infra villosus, supra partim pubescens. Pes 5tus articulis 4to 5to 6toque infra supraque pubescens. Margo carapacis antero-lateralis 3-emarginatus, emarginationibus duabus posticis parvulis.

Very near *H. crassimanus*. Hand of *male* stout, but less tumid and somewhat compressed towards fingers, fingers gaping. Third joint

of second, third, or fourth pair of legs villous below, and in part pubescent above. Fifth pair pubescent above and below, on fourth, fifth, and last joints. Antero-lateral margin of carapax three-emarginate, two posterior emarginations quite small.

Plate 22, fig. 5 *a*, hand of male, natural size; *b*, leg of second pair, *ibid.*; *c*, leg of fifth pair, *ibid.*; *d*, part of outer maxilliped; *e*, abdomen and sternum.

Rio Negro, Northern Patagonia.

Length of carapax, seven lines.

H. affinis, DANA, Proc. Acad. Nat. Sci. Philad., 1851, v. 250.

GENUS CYRTOGRAPSUS.

Carapax fere octagonus, angulatè gibbosus, fronte angusto, margine super antennas internas prominenter reflexo, eoque his antennis valde obliquis et non transversis. Maxillipedes externi rhombicè liantes, articulo 3tio subtriangulato, vix angustiore quam longo.

Carapax nearly octagonal, angulately gibbous, the part of the front over the inner antennæ reflexed, and these antennæ, therefore, nearly longitudinal, or very oblique instead of transverse. Outer maxillipeds with a broad rhomboidal interval, third joint subtriangular, hardly narrower than long.

The angular aspect of the species is peculiar, and especially the front, which in a front view is very sinuous, the part over the inner antennæ being arched upward so as to afford space for the base of these antennæ in a nearly longitudinal position. The antero-lateral margin is four-dentate; from the last tooth a sharp ridge proceeds inward and slightly backward. The anterior legs are stout in the male, and quite small and weak in the female. The outer antennæ have the first joint very short and not reaching to the front, or nearly so, as in *Hemigrapsus*; on the contrary, the first and second joints together reach the front. The length of the front is not over a third of the breadth of the carapax.

The name of this genus is from the Greek *κυρτος*, *gibbous*, and *Grapsus*.

CYRTOGRAPSUS ANGULATUS.

Carapax angulato-gibbosus, granulosis, nudus, margine antero-laterali fere recto, 4-dentato, margine postero-laterali leviter uni-dentato. Pedes maris antici crassi, granulati, manu supra paulo truncatâ, carpo intus truncato. Pedes 8 postici fere nudi, valde compressi, margine articuli 3tii superno subacuto, articulo 5to supra sulcato, tarso sulcato.

Carapax angulato-gibbous, granulous, naked, antero-lateral margin nearly straight, four-toothed, postero-lateral one-toothed. Anterior feet of *male* stout, granulous, hand somewhat flattened above and carpus flattened on inner side. Eight posterior feet nearly naked, much compressed, upper margin of third joint subacute, fifth joint sulcate above, tarsus sulcate.

Plate 22, fig. 6 *a*, male, natural size; *b*, under view, *ibid.*; *c*, front view of front; *d*, sternum and abdomen, *ibid.*; *e*, hand, natural size, *ibid.*

Rio Negro, Northern Patagonia.

Length of carapax of a male, seventeen and three-fourths lines; breadth, twenty-one lines; length of front, six lines; breadth between the post-orbital teeth, twelve and a half lines. In the male, the ridge extending inward from the lateral tooth is rather sharp and the carapax where it terminates is rounded prominent; the cardiac areolet is well defined and separated by a deep suture from the preceding; the intra-medial areolet is also well pronounced.

C. angulatus, DANA, Proc. Acad. Nat. Sci. Philad., 1851, v. 250.

SUBFAMILY II. SESARMINÆ.

GENUS SESARMA, Say.

1. *Margo antero-lateralis emarginatus.*SESARMA BIDENS (*De Haan*).

Feejee, or Friendly Islands.

Length of carapax of a male, ten lines; breadth in front, twelve lines. The breadth diminishes slightly posteriorly. The surface is shining, and there are some interrupted transverse lines on the carapax anteriorly. The upper finger is obtuse and crenulate above; the hand is very short at its upper inner edge, and this edge rises into two dentations, which dentations are continued upon the surface outward in a raised line, which is surmounted by a minute pectinate crest of a dark or horn-like colour. The hand is scattered granulous; the carpus is also granulous, but the granules are partly in short lines. The third joint of the eight posterior legs is very broad, and the fifth joint has a few tufts of short stiff hairs about its margins, besides a very short ciliation of the upper margin, which extends also a short distance upon the fourth joint. The greatest breadth of the male abdomen is less than twice the breadth of the penult joint.

2. *Margo antero-lateralis integer.*

SESARMA ANGUSTIPES.

Carapax quadratus, postice parce latior, granulatus, non nitidus, regione postero-laterali leviter lineolatâ, margine antero-laterali integro, lateribus bene marginatis, fronte perpendiculari, supra 4-lobato, margine frontali medio vix excavato. Epistoma granulatum. Pedes antici subœqui, carpo manu digitoque superiore granulatis, granulis nunquam seriatis, manu superné integrâ. Pedes 8 postici angusti, fere

nudi, articulo 3tio triplo longiore quam lato, 5to supra non pubescente, infra partim breviter pubescente, tarso elongato, spinuloso.

Carapax quadrate, rather broader behind, granulate, not shining, postero-lateral region faint lineolate, sides with an acute margin, antero-lateral margin entire, front perpendicular, above four-lobed, frontal margin very slightly excavate at middle. Epistome granulate. Anterior feet subequal, carpus, hand, and upper finger granulate, granules not seriate, hand entire above. Eight posterior feet narrow, nearly naked, third joint three times as long as broad, fifth not pubescent excepting somewhat so below, tarsus elongate and spinulous.

Plate 22, fig. 7 *a*, male, natural size; *b*, male abdomen and sternum; *c*, hand, natural size.

South America.

Length of carapax of a male, nine lines; breadth at middle, nine and a half lines; in front, nine and one-fourth lines; length of front, five and one-third lines; length of hand below base of moveable finger, two and a half lines; length of moveable finger, four and three-fourths lines, but it appears less in a vertical view, as it passes very obliquely downward when closed. The carapax has the intramedial areolet very distinct. The sides have an acute edge, which extends from the front angle to the posterior margin of the carapax.

The species differs from the *hamatochir* of De Haan, which also has a narrow third joint to the eight posterior legs, in having shorter fingers, and the fourth and fifth joints of the eight posterior legs not hairy above. The epistome is not smooth as in the *quadratus*.

SESARMA TRAPEZIUM.

Carapax quadratus, paulo transversus, posticè sensim multo angustior, granulatus, regione laterali lineolatá, margine antero-laterali integro, fronte perpendiculari, supra leviter 4-lobato, infra leviter arcuato, medio non excavato. Epistoma granulatum. Pedes antichi mediocres, granulati, manu brevi, supra non dentatá, seriatim subtilissimè granu-

latâ, digito mobili infra versus basin dense pubescente. Pedes postici valde compressi, articulo 3tio sat lato, 4to 5toque supra pubescentibus. Abdomen maris angustum.

Carapax quadrate, somewhat transverse, considerably narrower behind, granulate, lateral region marked with raised lines, antero-lateral margin entire, front perpendicular, above faintly four-lobed, below very slightly arcuate and not excavate at middle. Epistome granulate. Anterior feet of moderate size, granulate, hand short, not dentate above, but having series of minute granules; moveable finger with a dense hairy spot below near base. Posterior feet much compressed, third joint rather broad, fourth and fifth pubescent above. Abdomen of male narrow.

Plate 22, fig. 8 *a*, male (mutilated), natural size; *b*, hand, enlarged three diameters; *c*, leg, enlarged three diameters; *c'*, same, natural size.

Sandwich Islands.

Length of carapax of a male, $5\frac{1}{2}$ lines; breadth in front, 7.1 lines; breadth behind, 5.9 lines; length of front, 5 lines. The front is quite long. The surface of the carapax is a little uneven, and anteriorly, as seen with a lens, the granules are sometimes in short series. The third joint of the eight posterior legs is not hairy above. The hairy tuft on the inner surface of the moveable finger near its articulation is short.

SESARMA OBTUSIFRONS.

Carapax quadratus, sat transversus, posticè paulo angustior, omnino bene granulatus, lateraliter nec lineolatus, granulis sparsis, paulo areolatus, margine antero-laterali integro, fronte perpendiculari, supra rotundato, margine frontali arcuato. Epistoma granulatum. Pedes antichi mediocres, carpo manūque supra granulatis, manu extus lævi, digitis nudis. Pedes postici granulati, articulo 5to brevissimè sparsim hirsuto, 4to fere nudo.

Carapax quadrate, more transverse than usual, a little narrower behind,

throughout with prominent granules, and with no lines on the lateral regions, granules scattered and distinct, surface rather distinctly areolate, antero-lateral margin entire, front perpendicular, but rounding above into back, frontal margin arcuate. Epistome granulate. Anterior feet of moderate size, carpus and hand granulate above, outer surface of hand smooth, fingers naked. Posterior feet granulate, fifth joint very short and scattered hirsute, fourth nearly naked.

Plate 22, fig. 9 *a*, animal (mutilated), enlarged two diameters; *b*, front view of front; *c*, outer maxilliped, enlarged; *d*, hand, enlarged.

Island of Maui, Sandwich Islands.

Length of carapax, three lines; breadth, anteriorly four lines; posteriorly, three and a half lines. In another specimen, length, four lines; breadth anteriorly, five and one-fourth lines; breadth posteriorly, four and one-fourth lines. The breadth begins to diminish a short distance back of the anterior angles. The distinctness of the granules and their even distribution over the whole carapax give it a neat look. The front has not the usual right angle at its connexion with the dorsal surface, but rounds into this surface; its surface above is four-lobate, or raised into four low rounded elevations. The intra-medial areolet is very distinct, and there is an impressed line running inward and obliquely backward from the anterior part of the lateral margin. But the usual oblique lines posterior to this, either side, are not distinct.

S. obtusifrons, DANA, Proc. Acad. Nat. Sci. Philad., 1851, v. 250.

SESARMA OBESUM.

Carapax crassus, quadratus, parce areolatus, posticè vix angustior, punctatus, non nitidus, lateribus ferè arcuatis, nulla parte acutis, margine antero-laterali integro; fronte perpendiculari, supra fere recto, infra bene arcuato. Epistoma granulatum. Pedes antici breves, manu brevi, non granulata, supernè integrâ et brevi. Pedes 8 postici angusti, articulo 4to non hirsuto, 5to sparsim breviter hirsuto, tarso breviter hirsuto.

Carapax stout, very slightly areolate, quadrate, anteriorly very slightly narrower than near middle, the sides almost arcuate, in no part with an acute edge, antero-lateral margin entire, front perpendicular, line above nearly straight, margin below regularly arcuate. Epistome granulate. Anterior feet short, hand short, not granulous, above entire and short. Eight posterior feet narrow, fourth joint not hirsute above, fifth with some very short hirsute tufts, tarsus very short hirsute.

Plate 22, fig. 10 *a*, male, natural size; *b*, male abdomen and sternum, enlarged two diameters; *c*, hand, natural size.

Straits of Balabac.

Length of carapax, six lines; breadth, six and three-fourths lines. Body thicker than usual, and peculiar in having no acute margin, but rounded sides, except close to the anterior angles. The front is vertical, and the vertical surface flat; the margin above is nearly straight, the usual prominences being but slightly indicated.

S. obesum, DANA, Proc. Acad. Nat. Sci. Philad., 1851, v. 250.

GENUS SARMATIUM, Dana.

Carapax longitudinaliter convexus, fronte sat brevi (latitudine carapacis duplo brevior), curvatim declivi, lateribus arcuatis. Articulus maxillipedis externi 3tius subellipticus, apice rotundatus, 2do vix brevior. Abdomen maris 7-articulatum, articulo 2do sternum posticum usque ad latera vix omnino tegente.

Carapax longitudinally convex, front short, curvately inclined, sides arcuate. Third joint of outer maxillipeds subelliptical, rounded at apex. Second joint of male abdomen not covering the corresponding parts of the sternum quite to its sides.

Like *Sesarma*, this genus has the third joint of the outer maxillipeds rounded above. But *Sesarma* has a vertical front much longer than half the breadth of the carapax, besides straight sides, and an

abdomen which covers at its base the whole breadth of the sternum. The species here referred have a very thick body. The eyes are short. The anterior legs short and rather stout. The orbit is continued at its outer extremity in a broad furrow. The crest or ridge on the third joint of the outer maxillipeds is naked instead of pilose or ciliate; but we cannot say that this is a generic characteristic.

This genus in Edwards's system would fall into *Sesarma*.

SARMATIUM CRASSUM.

Carapax obesus, supra laevis, lateribus valde arcuatis, fronte fere recto, margine antero-laterali leviter 2-emarginato, dentibus rotundatis. Pedes antici maris breves, manu supra transversim 4-5-plicatâ, extus fere laevi, digito mobili supra breviter 4-subspinoso, carpo plerumque laevi, supra paulo seriatim granulato.

Carapax obese, smooth above, sides much arcuate, front nearly straight, antero-lateral margin faintly two-emarginate, the teeth rounded and slightly projecting. Anterior feet of male short, hand above transversely four to five-plicate, externally nearly smooth, moveable finger with four short rudiments of spines, carpus mostly smooth, a few seriate granules above.

Plate 23, fig. 1 *a*, male, natural size; *b*, under view, enlarged four diameters; *c*, male abdomen and sternum, enlarged two diameters; *d*, hand, enlarged three diameters.

Upolu, Samoan Group, Pacific Ocean.

Length of carapax, six and one-eighth lines; breadth, seven lines; thickness of the body, four and one-fourth lines; length of the front, three lines; length of the hand, four lines; length of third joint of posterior legs, three lines; of same joint of penult pair, four lines. This joint is much compressed, and has an acute tooth near apex, as in *Sesarma*; it is naked and slightly granulous on part of outer surface. Legs not pilose. Epistome granulous. Third joint of outer maxillipeds rather shorter than second. Sides of the carapax around to the mouth reticulated, as in *Sesarma*; a triangular space beneath the

orbit, transversely oblong, not thus reticulate. The surface of the carapax is but slightly areolate.

S. crassum, DANA, Proc. Acad. Nat. Sci. Philad., 1851, v. 251.

GENUS CYCLOGRAPSUS, *Edwards*.

The genus *Cyclograpsus* is described by Edwards as having a ciliated crest or ridge upon the third joint of the outer maxillipeds, although with the mention that some exceptions to this exist. Moreover, the typical species, as accepted by him, are thus characterized. In dividing the genus, therefore, and separating species in which this ridge exists from the others in which it is wanting, the name *Cyclograpsus* if rightly employed, will be used for the former. On this ground, we reject the name *Gnathochasmus* of M'Leay, subsequently published, which corresponds to the typical *Cyclograpsi*, and give a new name, *Hemigrapsus*, to the other species, as described on a preceding page. Krauss refers the South African species (*Gnathochasmus barbatus* of M'Leay) to the genus *Sesarma*.*

The carapax in the *Cyclograpsi* has an entire margin, a nearly or quite smooth surface, and also a curvately declivous front, the slope of which is carried around a short distance beyond the orbits, and diminishes laterally. The third joint of the outer maxillipeds has a truncate or excavate summit, and is not always shorter than the second joint, as described by Edwards. The third joint of the eight posterior legs has no tooth or spine near its apex, or only a rudimentary tooth.

The species are found along the sea-shore, under stones washed by the tides.

CYCLOGRAPSUS AUDOUINII (*Edwards*).

Plate 23, fig. 2, under view of buccal area, and part of sternum adjoining.

From the Feejee Islands, or New Zealand, probably the latter.

* Südaf. Crust., 45.

Length of carapax of a male, eight lines; breadth, ten lines; ratio, 1 : 1.25; breadth of front, four lines. Male abdomen narrowing much from third segment to penult, and outline in this part very slightly excavate; penult segment with arcuate sides; last segment about half as wide as penult, very slightly longer than wide, and broadly rounded at apex. Fifth joint of second pair of legs above, covered, upon apical half at least, with a very short tomentose coat; tarsus of same pair above tomentose, with either two very narrow naked lines, or none apparent. Fingers denticulate on inner edges. Ciliate crest of third joint of outer maxillipeds is produced backward, so as to reach the outer margin of the second joint, about two-thirds or three-fourths of the way to the base of this joint; third joint nearly naked, longer than broad and hardly shorter than the second. Fifteen or sixteen minute crenatures along the ridge below the orbit.

The abdomen differs widely from that of the Valparaiso species, in narrowing so much backward, and the orbits are also different in being very imperfect below. The eyes, moreover, are longer.

Cyclograpsus Audouinii, EDWARDS, Crust., ii. 78.

CYCLOGRAPSPUS CINEREUS.

Carapax parce transversus, non areolatus, paulo nitidus, non granulatus. Orbita infra plerumque circumscripta. Articulus maxillipedis externi 3tius valde oblongus, 2do non brevior, pubescens, cristâ fere ad angulum 2di externo-posteriorem productâ. Digiti intus denticulati. Articulus pedis 2di 5tus apice non tomentosus, tarso non spinuloso, lineis angustis tomentosis supra ornato. Abdomen maris fere rectangulatum, posticè parce angustius, lateribus subparallelis, rectis, segmento postico elongatè triangulato, triplo angustiore quam penultimum. Sternum pone aream buccalem pubescens.

Carapax sparingly transverse, not areolate, a little shining, not granular. Orbit mostly complete below. Third joint of outer maxillipeds much elongate, not shorter than second, pubescent, crest extending back towards posterior outer angle of second joint. Fingers denticulate on inner edges. Fifth joint of second feet not tomentose at apex; tarsus not at all spinulous, having a few narrow

tomentose lines. Abdomen of male nearly rectangular, slightly narrower posteriorly, the sides subparallel and straight, last segment oblong triangular, one-third as broad as penult. Sternum behind the mouth pubescent.

Plate 23, fig. 3 *a*, male, natural size; *b*, under view, enlarged four diameters; *c*, abdomen of male, enlarged two diameters; *d*, hand, *ibid.*; tarsus of fourth pair, enlarged.

Valparaiso, Chili; also Sandwich Islands.

Length of carapax of a male, 6 lines; breadth, 7.15 lines; ratio, 1:1.19; length of front, three lines. The outer maxillipeds are pubescent, excepting the part anterior to the crest; and posterior to the mouth the sternum for a short distance is short hairy. The pterygostome is pubescent. The orbit is like that of the *integer*, but the tarsi are not at all spinulose; a character, according to Edwards, of that species. The general form is like that of the *Audouinii*, but less broad for the length. The apex of the fifth joint of the posterior legs is often tomentose, although that of the second pair is not so. The tarsus and preceding joint have a few distant hairs below. The character of the orbit separates it from either the *punctatus* or *Audouinii*. It has the third joint of the outer maxillipeds much more oblong than in the *barbatus*, as this South African species is figured by Krauss, *Südaf. Crust.*, pl. 3, f. 3.

The Sandwich Island specimens have similar maxillipeds, legs, abdomen, and other characters.

C. cinereus, DANA, Proc. Acad. Nat. Sci. Philad., 1851, v. 251.

CYCLOGRAPsus GRANULATUS.

Carapax non areolatus, antice paulo granulatus. Orbita infra incompleta. Articul. maxillipedis externi 3tus vix oblongus, 2do multo brevior, nudus, cristâ tenui, pilosâ, angulum 2di externo-anteriolem intersecante tantum; 2dus nudus. Articul. pedis 2di 5tus apice non tomentosus, tarso lineis tomentosis paulo laxis ornato, non spinuloso. Manus glabra, nitida, digitis maris intus non denticulatis. Abdomen

maris ferme ac in cinereo, lateribus vix excavatis, segmento postico parce oblongo, apice late rotundato. Sternum pone aream buccalem nudum.

Carapax not areolate, anteriorly somewhat granulous. Orbit incomplete below. Third joint of outer maxillipeds very slightly oblong, much shorter than second, naked excepting crest, which is quite slender, and crosses only the antero-external angle of the second joint; second joint naked. Fifth joint of second feet not tomentose at apex, tarsus with lines which are rather lax tomentose, not at all spinulous. Hand smooth and shining, fingers of male not denticulate within. Male abdomen nearly as in the *cinereus*, sides very slightly excavate, last segment very little oblong, apex broadly rounded. Sternum immediately behind the mouth naked.

Plate 23, fig. 4 *a*, male, enlarged two diameters; *b*, outer maxillipeds, enlarged five and a half diameters; *c*, male abdomen, enlarged four diameters; *d*, hand, enlarged four diameters; *e*, tarsus of fourth pair, enlarged.

Island of Maui, Hawaiian Group, Pacific.

Length of carapax of male, 3.7 lines; breadth, 4.6 lines; ratio, 1:1.24. Sides rather regularly arcuate. Fingers somewhat gaping, and remarkable for being entire within instead of denticulate. There are some faint traces of areolation.

C. granulatus, DANA, Proc. Acad. Nat. Sci. Philad., 1851, v. 251.

GENUS CHASMAGNATHIUS, *De Haan*.

The genus Chasmagnathus is between *Helice* and Hemigrapsus in its characters. It has the narrow and curvately declivous front, thick body, and outer maxillipeds of *Helice*, but with arcuate sides emarginated anteriorly, and short eyes, as in Hemigrapsus. Like *Helice*, moreover, the fourth joint of the outer maxillipeds is articulated with the third joint, nearer its outer apex than in most of the Grapsidæ, though nearly as in *Goniograpsus cruentatus*. The third joint of the outer maxillipeds may be even longer than the second, and is dilated

a little on the outer side; it is truncate or excavate at top. The lower margin of the epistome sometimes projects more forward than the front, so as to be seen in a vertical view. The base of the outer antennæ is separated from the orbit by a triangular process, usually broader than high. Orbits open at the outer side. Tarsi unarmed. A small tooth at the apex of the third joint of the eight posterior legs. Basal part of abdomen not as broad as the corresponding part of sternum.

CHASMAGNATHUS SUBQUADRATUS.

Carapax convexus, lævis, postice paulo punctatus, paulo areolatus, fronte margineque antero-laterali uti in C. granulato, lateribus parce arcuatis, areolâ præmedianâ anticè vix circumscripta. Maxillipedes externi sternique pars proxima brevissimè hirsuti. Pedes antici posticique plerumque uti in C. lævi, manu non granulata, minutè punctata. Regio pterygostomiana breviter reticulata. Articulus pedis 2di 5tus infra non tomentosus, supra anticeque tomentosus. Abdomen lateribus excavatum, basi latius, longius ciliatum.

Carapax convex, smooth, somewhat punctate posteriorly, a little areolate, front and antero-lateral margin as in the *lævis*, sides but slightly arcuate, præmedial areolet hardly distinct before or elsewhere. Posterior part of outer maxillipeds, and adjoining part of sternum very short hirsute. Feet nearly as in the *lævis*, hand not granulate, minute punctate. Pterygostomian region very short reticulate. Fifth joint of second feet tomentose above and on anterior surface, but not below. Abdomen broader than usual at base and longer ciliate, sides excavate.

Plate 23, fig. 5 *a*, outer maxillipeds, enlarged two diameters; *b*, hand, natural size; *c*, abdomen, natural size.

New South Wales? New Zealand?

Length of carapax of male, eight lines; breadth, nine and one-fourth lines; length of front between the eyes, four lines. The surface depressions are nearly as in the *lævis*. The third joint of the

outer maxillipeds is rather longer than the second, and very densely long hairy at its inner margin, and the second joint is densely villous on part or all of its surface. The surface of the sternum between the buccal area and the apex of the abdomen, and for a short distance beyond, is densely short hirsute, but naked beyond this part. The width of the penult segment is not more than two-thirds that of the third. The reticulation of the pterygostomian surface is neat, and extends over the sides of the carapax with the same regular character and distinctness.

Cyclograpsus Gaimardii? EDWARDS, Crust., ii. 79.

Chasmagnathus subquadratus, DANA, Proc. Acad. Nat. Sci. Philad., v. 251.

CHASMAGNATHUS GRANULATUS.

Carapax valde convexus, sat areolatus, fronte sinuato, medio depresso et juxta marginem minutè apiculato, margine antero-laterali tenui, 2-inciso, dentibus triangulatis, acutis. Margo epistomatis inferior fronte prominentior. Pedes antici maris crassi, subæqui, granulati, carpo intus acuto, manu supra tenui et paulo obtusâ. Pedes postici valde compressi, articulis 4to 5toque dorso paulo tomentosis, 5to pedis 2di infra non tomentoso, tarso tenui, tenuiter sulcato et sulcis hirsuto. Abdomen maris lateribus fere rectum.

Carapax very convex and considerably areolate; front arcuate, slightly excavate at middle, and having a minute point on the surface; antero-lateral with two incisions. Posterior margin of epistome more projecting than the front. Anterior feet of male stout, subequal, granulate, carpus acute within, upper margin of hand a little obtuse. Posterior feet much compressed, fourth and fifth joints somewhat tomentose along the back, tarsus slender and fine sulcate, with a range of short hairs on the sulci. Sides of abdomen nearly straight and regularly convergent.

Plate 23, fig. 6 *a*, male, natural size; *b*, under view, enlarged two diameters; *c*, male abdomen and sternum, natural size; *d*, hand, natural size.

Marshes of Lake Peteninga, near Rio Janeiro, Brazil.

Length of carapax of male, fifteen lines; breadth, seventeen and a half lines; length of front measured between eyes, seven lines; length of hand of male to apex of moveable finger extended, twenty lines; height of hand, nine and a half lines; height of hand of female of like size, five lines. The intramedial areolet is strongly circumscribed, excepting its anterior prolongation; the surface is quite convex either side of the medial line in front, but the outline of the præmedial areolet is not distinguishable. The third joint of the outer maxillipeds is rather longer than the second. On the postero-lateral region there is a raised line running obliquely inward and backward. Besides the two incisions or emarginations on the lateral margin, as described, there is another obsolete one more posteriorly.

C. granulatus, DANA, Proc. Acad. Nat. Sci. Philad., 1851, v. 251.

CHASMAGNATHUS LÆVIS.

Carapax convexus, lævis, vix granulatus, paulo areolatus, fronte marginæque antero-laterali uti in granulato sed fronte juxta marginem medio non apiculato, areolâ præmedianâ antice præruptâ. Epistoma fronte nunquam prominentius. Pedes antici maris æqui, manu leviter granulata, supra non tenui. Pedes postici angustiores; articulus pedis 2di 5tus infra antice supraque tomentosus. Abdomen lateribus fere rectum, obsolete excavatum.

Carapax convex, smooth, hardly granulous, somewhat areolate, front and antero-lateral margin as in the *granulatus*, but the front not having a point near the margin at middle; præmedial areolet abrupt anteriorly. Epistome in no part more prominent than the front. Anterior feet of male equal, hand slightly granulate, not thin above. Posterior feet narrower than in *granulatus*, fifth joint of second pair tomentose above and below and on the anterior side. Sides of abdomen nearly straight, obsoletely excavate.

Plate 23, fig. 7 *a*, male, natural size; *b*, male abdomen and sternum, *ibid.*; *c*, outer maxillipeds, enlarged two diameters; *d*, natural size.

Sydney, New South Wales.

Length of carapax of a male, eleven and a half lines; breadth, fourteen lines; length of front between the eyes, six lines; height of head, six and a half lines. The carapax has a transverse depression but no distinct areolets, excepting the cardiac, which is nearly hexagonal. The third joint of the outer maxillipeds is about as long as the second, the second has its surface partly naked. There is an oblique raised line on the postero-lateral region, but it is hardly distinct. There are no indications of a *third* emargination on the lateral margin, like that of the *granulatus*. The surface of the sternum between the buccal area and the apex of the abdomen is naked, excepting very near this area.

C. laevis, DANA, Proc. Acad. Nat. Sci. Philad., 1851, v. 252.

GENUS HELICE, *De Haan*.

Carapax subquadratus, angulis anticis acutis, fronte paulo brevior quam latitudinis dimidium carapacis, septoque inter-antennali medio connatis. Oculi tertio latitudinis carapacis breviores. Articuli maxillipedis externi 2dus 3tiusque obliquè canaliculati, 3tio paulo oblongo non brevior quam 2dus, apice latiore. Pedes maris antici sat breves.

Carapax nearly quadrate, anterior angles acute, front somewhat shorter than half the breadth of the carapax, and coalescing with the inter-antennary septum below. Eyes shorter than one-third the breadth of the carapax. Second and third joints of outer maxillipeds with an oblique longitudinal channel, the third joint a little oblong, not shorter than second, at apex broadest. Anterior feet of male rather short.

This genus differs from *Sesarma* and other Grapsidæ in its narrow male abdomen. It has a broader front and shorter eyes than *Cleistostoma*, and this front unites below with the septum, between the inner antennæ.

The fossettes of the inner antennæ extend laterally as far as the front, so that the outer antennæ stand just outside the outer angle of the front. The basal joint of these antennæ is very broad and

short. The legs are naked, or nearly so, and the tarsus quite unarmed. The body is rather thick, on either side as well as at middle, but has the lateral margin acute, and forming a kind of border.

The male abdomen has seven distinct segments.

HELICE CRASSA.

Carapax subquadratus, margine laterali anticè bi-emarginato, fronte dimidii latitudinis carapacis longitudine. Manus brevis et lata, supernè subcarinata; extus fere levis, minutè granulata. Articulus pedum sequentium 3tius supra subacutus. Regio pterygostomiana granulata, leviter pubescens.

Carapax subquadrate, lateral margin with two emarginations anteriorly, front half as long as breadth of carapax. Hand short and broad (or high), above subcarinate, externally nearly smooth, minutely granulate. Third joint of following feet subacute above. Pterygostomian region granulate, thin pubescent.

Plate 23, fig. 8*a*, animal, enlarged two diameters; *b*, outer maxillipeds, enlarged four diameters; *c*, hand, enlarged two diameters; *d*, abdomen of male, *ibid*.

Shores of Illawarra, New South Wales.

Length of carapax, five and a half lines; breadth, six and one-fourth lines; ratio of length to breadth, 1 : 1.13. The upper margin of the orbit is somewhat oblique backward and outward instead of transverse. The surface of the carapax is naked, but hardly shining, and somewhat uneven. Posterior to the hinder tooth there is a slightly raised oblique line on the surface of the carapax. The front meets the antennary septum at its middle, and the fossettes either side are triangular in outline. The pterygostome has a smooth channel parallel with the sides of the buccal area, a short distance from it, and also another passing backward parallel nearly with the lower margin of the orbit. The lower orbital margin is minutely crenulate. The surface above the legs as well as the pterygostome is throughout granu-

lous. The last abdominal segment in the male is hardly longer than its breadth at base, has a broadly rounded apex, and is about half as broad as the penult segment.

H. crassa, DANA, Proc. Acad. Nat. Sci. Philad., 1851, v. 252.

SUBFAMILY III. PLAGUSINÆ.

GENUS PLAGUSIA.

De Haan, besides separating the genus *Acanthopus* from the old *Plagusia*, makes two genera of the remainder; one, *Plagusia* (corresponding to *P. squamosa* of authors), having a flagellum terminating the palpus of the outer maxillipeds, and the other, *Philyra* (corresponding to *Plagusia depressa*), having no flagellum to this palpus. The name *Philyra* was earlier used by Leach for a genus of *Oxystomes*; moreover, we are not satisfied that the character mentioned, is in this case of sufficient importance to require the separation into two genera.

1. *Articulus pedum 8 posticorum 3tius non multispinosus.*

PLAGUSIA SQUAMOSA (*Herbst*), *Lamarck*.

Island of Madeira.

Length of carapax of a male, eighteen and three-fourths lines; greatest breadth, nineteen lines; length of a female, eighteen and one-fourth lines; breadth, nineteen lines.

In the areolation of this species the normal areolets may be distinguished. In the medial region the intramedial and extramedial areolets are distinct; the præmedial, which is not separated from the extramedial, terminates in a point or short spine on the front either side of the medial line. The posterior part of the intramedial areolet is arcuate or angulate either side. Of the four lateral teeth, the posterior is S, and the first probably includes D and E, as numerous species in other groups exemplify; the second and third will then be N and T. Of the antero-lateral areolets, 6 L is distinct, but the others.

excepting 1 L, are coalescent or obsolete; 1 L is marked by a single small tubercle. The cardiac areolet is rather distinct and large. These areolets are much subdivided. The intramedial is made up of a posterior range hardly divided; another just anterior made up of four transverse tubercles; then a shorter transverse line sometimes concealed; then two transverse tubercles; then a transverse line, and then two more tubercles. In this species, the raised line adjoining the posterior margin of the carapax is broken up into a number of unequal tubercles.

Cancer squamosus, HERBST, i. 260, pl. 20, f. 113.

Grapsus squamosus, LATR., Hist. Nat. Crust., vi. 73.

Plagusia squamosa, LAMK., Hist. An. sans Vert., v. 247; LATR.; EDWARDS, Crust., ii. 44; DE HAAN, Faun. Japon., 31.

PLAGUSIA DEPRESSA (*Herbst*), *Latr.*

At sea, east of Straits of Sunda.

Specimen a small one. Length of carapax, seven lines; breadth, seven and a half lines.

In the absence of the flagellum from the palpus of the outer maxillipeds, this species is intermediate between *Acanthopus* of De Haan (*Plagusia clavimana* and the allied), and the *Pl. squamosa*, but this intermediate relation does not extend to the main branch of the outer maxillipeds or other distinctive characters, in which respects, it is very near the *squamosa* and the other thick-bodied *Plagusia*.

Cancer depressus, HERBST, pl. 3, f. 55.

Grapsus depressus, LATR., Crust., vi. 66.

Plagusia depressa, LATR. Encyc., x. 147; EDWARDS, ii. 93.

PLAGUSIA SPECIOSA.

Squamosæ affinis. Margo antero-lateralis 3-dentatus.

Near the *squamosa*; but antero-lateral margin with only three teeth.

Plate 23, fig. 9, carapax, natural size.

Waterland Island, Paumotu Archipelago.

Length of carapax, fourteen lines; breadth, fifteen lines. The carapax is tuberculate, like the *squamosa*, and the tubercles are depressed and edged with short scabrous hairs, as in that species; but the number of teeth is less. As we have only a carapax, we cannot give the characters from the legs and other parts. The range of tubercles adjoining the posterior margin of the carapax, consists simply of three linear parts, instead of being broken into smaller tubercles, as in the *squamosa*. Moreover, the intramedial region is different: it consists (beginning behind) of, first, a transverse crenate range, not divided (as in the *squamosa*); then, instead of a continuous range of four largish transverse tubercles, the four exist, but the two inner of these four are placed a little more anteriorly, and exteriorly overlap a little the outer, while behind the two inner there is a range of four minute tubercles, forming a very narrow line between the inner termination of the two outer. Anterior to these four, there is a transverse ridgelet (as long as the two inner tubercles just alluded to), hardly divided at middle, and corresponding to the two transverse tubercles in the *squamosa*; it has two small crenatures or flattened tubercles upon its posterior part, which correspond to a transverse line, more distinct and isolated, and having the same position as in the *squamosa*. These characters of the surface might be supposed to be subject to wide variations in the same species. We should not thus detail them from a single carapax alone, if we had not found a striking uniformity in different specimens of the *squamosa*, both large and small, male and female.

P. speciosa, DANA, Proc. Acad. Nat. Sci. Philad., 1851, v. 252.

2. *Articulus pedum 8 posteriorum 3tius non multispinosus.*

PLAGUSIA TOMENTOSA, *Edwards.*

New Zealand; Illawarra, New South Wales; Cape of Good Hope.

Length of carapax of a female, twenty-one lines; breadth, twenty-two and two-thirds lines; breadth of front between antennary sinuses,

four and a half lines, and its length, two and one-fourth lines; border at middle spinulose, the spinules passing into granules either side. Hands very strongly costate, the costæ in all nine in number and neatly crenulate. Length of the hands in a male, fourteen lines, and height, five and a half lines; length in a female, ten lines, and height, four lines; giving very nearly the same ratio: length of upper margin to finger in male, five and a half lines, or more than a third greater than the height. Behind the process of the front that forms the inside of the orbit, on the back of the carapax, there is a small naked obtuse prominence. The specimens here measured and described were from New Zealand. Krauss's figure of a South African specimen (Südaf. Crust., pl. 2, f. 6) does not represent these naked points just alluded to, and the front has throughout a granulous margin, as described by Edwards, and not spinules at middle. De Haan's *Pl. dentipes* (Faun. Japon., 58, pl. 8, f. 1) differs widely in having the upper margin of the hand to the fingers, much longer than the fingers, and many scattered granules on the hand, while they are all in lines forming costæ in the *tomentosa*; the teeth too of the third joint of the eight posterior legs are coarser and fewer in the *dentipes*.

Plagusia tomentosa, EDWARDS, Crust., ii. 92; KRAUSS, Südaf. Crust., p. 42, Pl. 2, f. 6.

Plagusia capensis, DE HAAN, Crust., Faun. Japon., 58.

PLAGUSIA GLABRA.

Carapax lævis, glaber, margine antero-laterali 4-dentato, fronte supernè obliquè subcristato, non spinigero. Pedes maris antici perbreves, parte manus basali brevior quam alto, supra granulata, extus lævi et non costata, carpo fere lævi. Articulus pedum 8 posteriorum 3tius lævis. Articulus maxillipedis externi 3tius quadratus, parce oblongus.

Carapax smooth and glabrous, antero-lateral margin four-dentate, front above obliquely subcristate, not spinigerous. Anterior feet of *male* very short, part of hand preceding fingers shorter than its height, granulate above, smooth externally and not costate, carpus nearly smooth. Third joint of eight posterior feet smooth. Third joint of outer maxillipeds quadrate, slightly oblong.

Plate 23, fig. 10 *a*, animal, natural size; *b*, front view of front, enlarged four and a half diameters; *c*, outer maxilliped, enlarged four diameters; *d*, abdomen and sternum, natural size.

New South Wales.—Received from the Rev. Mr. Wilton, of Newcastle, N. S. W.

Length of carapax of a male, nine lines; breadth, nine lines, but between tips of lateral teeth, nine and two-thirds lines; length of hand, five lines; height, three lines; length of hand along upper margin to finger, one and three-fourths lines. The crest on the beak runs nearly parallel with the front margin either side of the medial depression; it is minutely crenulate as seen with a lens. The antennary incision is more oblique than in the other *Plagusiæ*, and not as deep. The carpus has a flattened surface and an acute point within, with the upper edge of this flattened surface nearly a right angle. The outer antennæ are placed quite obliquely, and the first joint has the outer apex much prolonged, the prolongation being equal in length to the second joint. The fingers are nearly entire on the inner edge. The form of the third joint of the outer maxillipeds is a little oblong, although scarcely narrower than the apex of the second joint, while in the other *Plagusiæ* it is transverse. The palpus of these maxillipeds has a flagellum, and the basal part is as long as the second joint of these organs.

GENUS ACANTHOPUS, *De Haan*.

The narrow oblong form of the third joint of the outer maxillipeds (much narrower than apex of second joint), together with the absence of a transverse plate from the inner branch of the first maxillipeds, and the very short palpus appended to the outer maxillipeds, it being a simple styliform joint, afforded De Haan sufficient ground for separating from the other *Plagusiæ* the species included in this genus.

ACANTHOPUS PLANISSIMUS (*Herbst*).

Madeira; Raraka, in the Paumotu Archipelago; Tahiti, Society

Islands; Tutuila and Upolu, Samoan or Navigator Islands; Island of Maui, Hawaiian Group.

Length of carapax of male, ten and a half lines; breadth, nine and three-fourths lines. The colour varies; sometimes a light grayish purple and grayish brown, with claws purplish (Raraka); or, the same with a longitudinal streak of light green down the middle of the back; commonly brown or brownish yellow, with a bright yellowish green streak along middle of back, as found at Raraka and elsewhere; at Madeira, reddish brown. In the male, the arm projects two and one-fourth lines beyond the extraorbital spine, which is just half its length, as measured below; in a female of like size, it projects about three-fourths of a line. In a small pale-coloured male from the Paumotus, four and a half lines long, it projects only half a line, or about one-third of its length. The tomentose coat covers the whole back, excepting a few linear spaces. The hand has an obtusish edge above.

In a female specimen from the Sandwich Islands, the two apical spines of the front or beak are coalescent nearly to their tips, instead of being divergent, so that they form a single spine with a bifid tip. In another (male), from the same region, the apical spines have the usual character, though shorter.

Cancer planissimus, HERBST, iii. 3, pl. 59, f. 3.

Plagusia clavimana, LATR., Gen., i. 34; DESMAREST, 127, pl. 14, f. 2; EDWARDS, Crust., ii. 92.

Acanthopus clavimanus, DE HAAN, Faun. Japon., 30; KRAUSS, Südaf. Crust., 42.

ACANTHOPUS ABBREVIATUS.

Carapax subquadratus, non oblongus, supra omnino tomentosus, lineis nudis nullis, fronte ac in planissimo sed latiore; margine antero-laterali 4-dentato dente 2do inconspicuo. Pedes maris antici æqui, manu vix inflatâ, supra sulcatâ. Abdomen maris angustius, lateribus excavatum.

Carapax subquadrate, not oblong, above tomentose throughout without any naked lines, front as in the *planissimus*, but wider; antero-lateral margin four-toothed, second tooth inconspicuous. Anterior

feet of male equal, hand hardly inflated, sulcate above. Abdomen of male rather narrow, with the sides excavate.

Plate 23, fig. 11 *a*, animal, enlarged one and a half diameters; *b*, outer maxilliped, *ibid.*; *c*, male abdomen and sternum, *ibid.*

Island of Tahiti, Society Group.

Length and breadth of carapax of male, six lines. Colour, reddish brown and grayish brown. The legs have much resemblance to those of the *planissimus*, though shorter, and the carapax is not so regular and distinct in its naked longitudinal lines, the tomentose coat being more general. The width of the front is equal to the distance from its base to the tip of its first spines (counting from base). The second apical spines are shorter than in the *planissimus*. The less inflated hand, sulcate above, and the absence of naked lines, as well as the shorter form, are good characteristics. The second tooth or spine of the antero-lateral margin rises just anterior to the third, and is mostly concealed by it, being also very small, the apex of the second not reaching as far forward as the apex of the third.

A. abbreviatus, DANA, Proc. Acad. Nat. Sci. Philad., 1851, v. 252.

FAMILY IV. GECARCINIDÆ.

THE Gecarcinidæ pertain naturally to two groups or subfamilies, one having the termination of the outer maxillipeds *exposed* as usual, and the other having this part concealed beneath the second and third segments. The subfamilies and genera are as follows:—

SUBFAM. 1. UCAINÆ.—Articulus maxillipedis externi 4tus apertus.

1. *Maxillipedes externi non hiantes*.

G. 1. UCA, *Leach*.—Articulus maxillipedis externi 4tus angulo 3tii externo insitus.

G. 2. GECARCINICUS, *Edwards*.—Articulus maxillipedis externi 4tus marginis medio apicalis 3tii insitus.

2. *Maxillipedes externi latè hiantes.*

G. 3. CARDISOMA, *Latr.*—Articulus maxillipedis externi 4tus apice 3tii externo insitus.

G. 4. GECARCOIDEA, *Edwards*.—Articulus maxillipedis externi 4tus marginis medio excavato apicalis 3tii insitus.

SUBFAM. 2. GECARCININÆ.—Articuli maxillipedis externi 4tus et sequentes 3tio celati.

G. 1. GECARCINUS, *Latr.*

SUBFAMILY I. UCAINÆ.

GENUS UCA, *Leach*.

UCA LÆVIS? *Edwards*.

Valparaiso? Rio Janeiro.

The specimen here referred to the *lævis* is a male. Length of carapax, twenty-eight lines; breadth, thirty-seven lines (greatest breadth much anterior to middle). Legs of the second pair longest, and its tarsus having a group of long hairs on the inner side towards apex. Hands very unequal, the largest as long as breadth of carapax, short spinous above and within, and fingers, carpus, and arm the same. The spines have a translucent horny texture.

GENUS CARDISOMA, *Latreille*.

CARDISOMA OBESUM.

Carapax obesus, undique convexus, lateribus antero-lateralibus valde tumidis, lineâ elevatâ angulove marginis omnino carentibus. Articulus

antennarum externarum Imus transversus, apice utrinque productus et subacutus, superficie granulatus, processu orbitam antennamque sejungente subtriangulato, trihedrico, non truncato.

Carapax obese, throughout convex above, antero-lateral sides very tumid, without any trace of a margin or angle. First joint of outer antennæ transverse, apex either side of next joint prolonged and subacute; process adjoining (between the base of these antennæ and the orbit), subtriangular, trihedral, not truncate.

Plate 24, fig. 1, part of carapax, under side, natural size.

Peacock Island, of the Paumotu Archipelago.

Length of carapax, three inches; breadth, three and two-thirds inches; length of the front, between the eyes, twelve lines; same. between the angles of the margin just above the outer antennæ, nine and a half lines; breadth of buccal area anteriorly, nine lines. The process between the outer antennæ and orbits, has the outer side arcuate, the inner excavate, and the outer surface adjoining the inner margin concave. The second joint of the outer antennæ is small and polygonal. Upon the surface of the carapax near the front margin, the front of the præmedial areolet is but slightly indicated. The only specimen of this species saved from among the many collected, is a carapax.

C. obesum, DANA, Proc. Acad. Nat. Sci. Philad., 1851, v. 252.

CARDISOMA HIRTIPES.

Carapax longitudinaliter convexus, margine laterali anticè notatus, prope dentem postorbitalem minutè apiculato, areolâ præmedianâ antice juxta frontem paulo abruptâ, regione pterygostomianâ pilosâ. Processus præorbitalis orbitam antennamque externam sejungens triangulatus, trihedricus. Articulus antennarum externarum Imus rectangulatus, apice rectè truncatus. Pedes maris antici crassi, subæqui, sunt breves, manu punctatâ, brevior quam latitudo carapacis, parte manus ante digitos brevior quam altiore, digitis late hiantibus. Pedes postici hirti.

Carapax longitudinally convex, lateral margin having a border anteriorly and a minute point near the postorbital angle, præmedian areolet near margin of front quite abrupt, pterygostomian region pilose. Process between orbit and outer antennæ triangular, trihedral. First joint of outer antennæ rectangular, truncate across above. Anterior feet of *male* short but stout, subequal, hand punctate, shorter than breadth of carapax, along upper margin to finger much shorter than high, fingers much gaping. Posterior feet rough hairy.

Plate 24, fig. 2 *a*, male, natural size; *b*, male abdomen and sternum; *c*, base of outer antennæ and the adjoining process between it and orbit; *d*, tarsus of fourth pair, enlarged.

Feejee Islands, Pacific.

Length of carapax of male, twenty-two and a half lines; breadth, twenty-eight lines; length of front, seven and a half lines; breadth of buccal area anteriorly, five and two-thirds lines; posteriorly, eight and one-fourth lines; length of upper margin of hand to finger, eight lines; height, thirteen and a half lines; whole length of hand, twenty-three lines. The angle on the lateral margin is continued through nearly half the length of the sides. The third joint of the eight posterior legs forms an edge above, which edge is hairy as well as the lower margin. Carpus entire and smooth, nearly rectangular and subacute on inner side. The line between the medial and posterior regions of the carapax, is situated much posterior to the middle of the carapax.

C. hirtipes, DANA, Proc. Acad. Nat. Sci. Philad., v. 253.

CARDISOMA CARNIFEX (*Herbst*), *Latr.*

Madeira?

We refer here a small male specimen, evidently young, which has the marginate sides of the *carnifex* and the tooth just behind the post-orbital tooth. It is four and three-fourths lines long, and five and a

half wide. The hands are nearly equal and short. The outer maxillipeds are naked, and the pterygostomial region hirsute.

FAMILY V. PINNOTHERIDÆ.

THE Pinnotheridæ differ much in appearance, the form varying from wide transverse, through orbicular, to oblong triangular, the front becoming slightly rostrate in some species. In all, the sides are rounded, and the male abdomen behind is much narrower than the corresponding part of the sternum. They are often very much inflated and even subglobose, as in some Pinnotheræ, or depressed, with a flat thin body, as in the Hymenosoma. In Elamena, the third joint of the outer maxillipeds is nearly as in many Grapsidæ, smaller than the second. But in Hymenicus, it is somewhat larger than the second; in Hymenosoma, nearly twice as large; in Pinnotherelia, more than twice, and in Pinnothera and related species, the second is nearly obsolete. In the last-mentioned group, the outer maxillipeds have usually a very oblique position, the two of the pair diverging widely behind; yet this is not invariable, and *P. faba*, beyond, is an example of near parallelism.

The eyes in all are small, and in the species of *Halicarcinus* and *Hymenicus*, although imbedded in orbits, they cannot be retracted and concealed.

The species of this family naturally fall into two subfamilies. These subfamilies and the included genera are distinguished as follows:

1. PINNOTHERINÆ. — Articulæ maxillipedis externi 2dus parvulus aut obsoletus. Corpus sive obesum sive depressum.

1. *Oculi approximati. Fossæ antennales conjunctæ.*

a. *Pedes 8 postici sat graciles, subæqui.*

G. 1. PINNOTHERA, *Latr.* — Corpus obesum. Carapax superficie integerrimus, nunquam areolatus. Oculi normales.

G. 2. FABIA, *Dana.* — Corpus obesum. Carapax superficie anticâ pone orbitas suturâ longitudinali divisus. Oculi normales.

- G. 3. XENOPHTHALMUS, *White*.*—Corpus obesum, fronte incisionibus duabus profundis oculos gerentibus instructo.
- G. 4. XANTHASIA, *White*.†—Corpus depressum, supra fere planum margineque elevato utrinque instructum, fronte paulo producto. Oculi normales.

b. Pedes 4ti longiores et multo validiores.

- G. 5. PINNIXA, *White*.‡—Corpus portentosé transversum.

2. Oculi sat remoti. *Fossæ antennales septo latiusculo sejunctæ. Articulus maxillipedis externi 2dus fere dimidiū 3tū longitudine.*

- G. 6. PINNOTHERELIA, *Lucas*.§—Pedes 8 postici sat graciles, subæqui. Corpus suborbiculare.

2. HYMENICINÆ. — Corpus sæpius parce rostratum, depressum. Articulus maxillipedis externi 2dus dimidio 3tū major.

- G. 1. HYMENOSOMA, *Leach*.—Carapax suborbiculatus, angulo extra-orbitali acuto. Frons angustissimus, non lobatus, oculis valde approximatis.
- G. 2. HALICARCINUS, *White*.||—Carapax suborbiculatus, angulo extra-orbitali nullo. Frons tridentatus, antennis internis inter dentes se porrigentibus, oculis remotioribus. Articulus maxillipedis externi 3tū 2do paulo major.
- G. 3. HYMENICUS, *Dana*.¶—Carapax suborbiculatus; angulo extra-orbitali nullo aut parvulo. Frons productus, simplex aut lobatus, antennarum basin celans, oculis remotioribus. Articulus maxillipedis externi 3tū 2do paulo major. Pedes gracillimi.
- G. 4. ELAMENA, *Edw*.—Carapax subtriangulatus, paulo oblongus, paulo rostratus, fronte antennas internas celante. Articulus maxillipedis externi 3tū 2do minor.

SUBFAMILY I. PINNOTHERINÆ.

The species constituting the subfamily Pinnotherinæ are usually

* *White*, Ann. Mag. Nat. Hist., xviii. 177, and Voy. of Samarang, p. 63. The genus *Fabia* forms a transition from Pinnothera to Xenophthalmus; it includes the *P. chilensis*.

† Ann. Mag. Nat. Hist., xviii. 176.

‡ Ann. Mag. Nat. Hist., xviii. 177. Includes Say's *Pinn. cylindricum*, Jour. Acad. Nat. Sci. Philad., i. 452.

§ Crust. of D'Orbigny's S. Amer., p. 24. The genus forms a transition to the Geocarcinidæ.

|| Ann. Mag. Nat. Hist., xviii. 178.

¶ The genus *Hymenosoma* belongs to the Cape of Good Hope; *Halicarcinus* to the extremity of South America, and *Hymenicus* to New Zealand.

thick and inflated forms; yet, as in *Xanthasia*, they may have the depressed back of a *Hymenosoma*. The fossæ of the inner antennæ are generally coalescent, and the front very narrow; but in the genus *Pinnotheria*, the front is wide, and the union of it medially with the epistome below, forms a rather wide separation between the anten-nary-fossettes.

GENUS PINNOTHERA.

PINNOTHERA OBESA.

Carapax plus minusve transversus, interdum suborbicularis, obesus, nudus, nitidus. Maxillipedes externi multi, articulo tertio transversim insito, marginibus oppositis extus convergentibus. Oculi parvuli. Pedes nudi; anteci mediocres, manu tumidâ supra rotundatâ, infra non pubescente, digitis crassis, intus pubescentibus, superiore crassiore; pedes postici gracillimi, tarso tenui, infra breviter pubescente, articulo quinto versus apicem vix pubescente.

Carapax transverse elliptical, obese, naked, shining. Outer maxillipeds naked, third joint placed transversely, the opposite margins converging outward. Eyes quite small, and in female, not seen from above. Feet naked, the anterior of moderate size, hand a little compressed, rounded above, not pubescent below, fingers stout, pubescent on the meeting surfaces; posterior legs very slender, tarsus slender, short pubescence below; a few hairs towards apex of fifth joint.

Plate 24, fig. 3 *a*, small male, enlarged three diameters; *b*, *c*, outlines of different females, natural size; *d*, under view of front of fig. *a*; *e*, outer maxillipeds of fig. *b*, enlarged; *f*, same, more enlarged; *g*, seta of same; *h*, male abdomen; *i*, hand, enlarged three diameters.

Feejee Islands.

Length of carapax of a female, four and three-fourths lines; breadth, six and one-third lines. Of a male slightly broader than long, the third joint of the fourth pair of legs is two and three-fourths lines

long, or nearly half the breadth of the carapax. In a small male and also a female of like size, the eyes are seen in an upper view, and the front margin, in this view, seems to be emarginated by the orbits; the breadth in each is but slightly transverse. In a larger female, the eyes in one specimen are seen in an upper view, but not so in a second specimen. The outer maxillipeds have, as usual, the last joint attached to the inner side of the penult, and not reaching beyond its apex; this joint is narrow linear.

This species is near the *P. globosus* of Hombron and Jacquinet (Voy. au Pole Sud, pl. 5, f. 21, 26); but the upper finger has not the prominent tooth, represented in their figure, and the outer maxillipeds are of very different form; the breadth at the lower extremity (outer as the organs lie in the animal) is very narrow, not half as wide as that towards the other extremity.

PINNOTHERA FABÆ.

Carapax latè transversus, nudus, paulo nitidus. Maxillipedes externi nudi, vix obliqui. Oculi parvuli. Pedes antici feminæ breves, manu supra rotundatâ, digitis subtiliter pubescentibus. Pedes postici perbreves crassiusculi, articulo tertio pedis 4ti triplo brevioribus quam carapacis latitudo, tarso brevi, basi crasso, subconico, apice uncinato.

Carapax very broad transverse, naked, somewhat shining. Outer maxillipeds naked, nearly longitudinal. Eyes small. Anterior feet of female short, hand rounded above, fingers minutely pubescent. Posterior feet quite short and stout, third joint of fourth pair one-third as long as breadth of carapax, tarsus short, subconical from a stout base, uncinatè at apex.

Plate 24, fig. 4 *a*, female, natural size; *b*, outer maxillipeds, enlarged; *c*, hand, enlarged.

Puget's Sound.

Length of carapax of a female, five and a half lines; breadth, eight lines; length of third joint of fourth pair of legs, two lines, and breadth of same, about one line; tarsus of same, about a line long.

A very little short pubescence on some of the joints of the legs; fingers very short pubescent, and hand very slightly so, more so on inner surface. Front faint pubescent.

P. faba, DANA, Proc. Acad. Nat. Sci. Philad., 1851, v. 253.

GENUS FABIA.

Pinnotheræ affinis. *Orbita margine superiore fissa; carapax pone orbitas suturâ longitudinali instructus aream medianam includens.*

Near *Pinnothera*. Carapax with a longitudinal suture behind the orbits enclosing between them the median area.

The slender subequal legs and general form are the same as in *Pinnothera*. The area included by the post-orbital suture on the back of the carapax, corresponds properly to the normal *median region*, together with the frontal, which is not separated. The suture—like the depression limiting the median region—begins in the margin of either orbit, and extends back to the middle of the carapax, in which part the two from either side meet. Unlike the depression in other Crustacea, the suture has sometimes a depth and distinctness, which seems almost like a division of the carapax. The upper margin of the orbit in the *Pinnotheræ* is entire; while in the *Fabia* it is cut through by the termination of this suture. In this suture we see a transition step towards the deep incisions of the front, from which the eyes proceed in *Xenophthalmus* of White.

FABIA SUBQUADRATA.

Carapax (feminæ) *subquadratus, antice rotundatus, parce latior quam longus, nudus, nitidus. Maxillipedes externi nudi, valde obliqui. Oculi minimi. Suturee postfrontales fere parallelæ. Pedes antici feminæ sat tenues, manu elongatâ, infra 2 lineis pubescentibus (lineâ unâ usque ad digiti extremitatem productâ) ornatâ. Pedes 8 postici sat graciles, articulo 3tio supra partim pubescente, 5to infra pubescente. tarso brevi, dimidii articuli 5ti longitudine, uncinato.*

Carapax (of female) subquadrate, rounded anteriorly, slightly broader than long, naked, shining. Outer maxillipeds naked, very oblique. Eyes very small. Post-frontal sutures nearly parallel, included area oblong. Anterior feet of female rather slender, hand long, two pubescent lines below, one reaching to extremity of finger; eight posterior feet rather slender, third joint partly pubescent above, fifth, same below, tarsus short, half as long as fifth joint, uncinata.

Plate 24, fig. 5 *a*, female, back view, natural size; *b*, same, under view; *c*, under view of front, enlarged nearly six diameters; *d*, hand, enlarged five diameters; *e*, extremity of leg.

Puget's Sound.

Length of carapax, five and three-fourths lines; breadth, six and three-fourths lines; breadth between the post-frontal sutures, two and one-fourth lines; length of third joint of fourth pair of legs, two and three-fourths lines, or length about two-fifths of the breadth of the carapax. Female abdomen very broad transverse elliptical.

F. subquadrata, DANA, Proc. Acad. Nat. Sci. Philad., 1851, v. 253.

FABIA CHILENSIS.

From an Echinus, on the coast of Chili, near Valparaiso.

Pinnothera chilensis, EDWARDS, Crust., ii. 33; EDWARDS and LUCAS, Crust., D'Orbigny's S. A., 23, pl. 2, f. 2.

GENUS XANTHASIA, *White*.

The carapax in *Xanthasia* has an elevated margin, an elevated quadrate area on the upper surface near middle, and two oblong elevations just posterior to the front.

The species observed by the author has the habits of a *Pinnothera*, and the depressed carapax of a *Hymenosoma*, although the body is much thicker. The outer maxillipeds are like those of a *Pinnothera*. The male abdomen is very narrow.

Xanthasia, A. WHITE, Ann. and Mag. Nat. Hist., xviii. 176, Sept., 1846.

XANTHASIA MURIGERA, *White.*

Carapax paulo transversus, muro marginali tenui lateraliter posticèque omnino circumscriptus, muro anticè paulo involuto, rostro rotundato integro. Oculi parvuli. Pedes breviusculi, nudi. Manus brachio cir crassior, nuda, oblonga, digito triplo brevior quam manus. Tarsi perbreves, valde uncinati.

Carapax a little broader than long, bordered laterally and also behind by a thin, elevated ridge, which anteriorly curves around a little spirally. Beak rounded, entire. Eyes small. Feet rather short, naked. Hand hardly stouter than arm, naked, oblong, finger one-third as long as hand. Tarsi short and strong uncinated.

Plate 24, fig. 6 *a*, animal, enlarged two and one-fourth diameters; *b*, under view, enlarged eight diameters.

From a *Mytilus*, obtained from the reefs of Vanua Lebu, of the Feejee Archipelago, near Mathuata, 1840.

Length of carapax of a female, four lines; breadth, five lines.

The ridge bordering the carapax in our specimen is very thin, with the edge acute. The front margin between the eyes and the elevated ridge has a low angle. The eyes are very small, as in *Pinnothera*. The legs are not hairy. The epistome is subtriangular, and the part upon which the outer antennæ rest is wholly separated from the inner portion. The surface is unevenly pitted.

Xanthasia murigera, A. WHITE, Ann. and Mag. Nat. Hist., xviii. 176, pl. 2, f. 3, 1846.

SUBFAMILY II. HYMENICINÆ.

The genus *Hymenosoma* has a projecting tooth or angle, just exterior to the eyes, and the front is a narrow point equally projecting between the eyes. There are other related species, in which the margin of the carapax has no extra-orbital projection, and the eyes are more distant; moreover, the front between the eyes has three

tooth-like projections, between which (the middle and either outer tooth) the inner antennæ project. These teeth proceed from the front, just below the front edge of the carapax, this edge appearing to be truncated. The genus *Halicarcinus* of White, was based upon a species of this kind. Still, others have the front produced and either entire or lobed, and the inner antennæ are concealed at base; these also have the margin of the carapax outside of the orbit, nearly or wholly, without an extra-orbital tooth. Of these species we make the genus *Hymenicus*. In all, the carapax is flattened above. In the last two genera, the eyes are situated in orbits, but, like the *Periceridæ*, they are not retractile, so as to conceal the summit or any part of it.

The genus *Hymenosoma* occurs at the Cape of Good Hope, *Halicarcinus* at Tierra del Fuego and the Falkland Islands, and *Hymenicus* at New Zealand.

The species of this family live under stones along the sea-shore, where washed by the tide. The species of Tierra del Fuego were found abundantly in such positions, and so also those of New Zealand.

GENUS HALICARCINUS, *White*.

Mr. Adam White does not particularly describe the front in giving the characters of his genus, but mentions that it contains the species from the Falkland Islands and that figured by Guérin, which are quite distinct in the character of the front from the species of New Zealand examined by us. We therefore take the Falkland species as the type of his genus, the general outline of which, even to the front, is well represented by Guérin. The margin of the carapax in front, is not directly connected with the teeth, which arise from a somewhat lower level, and often have a softer texture, and a few short hairs at apex.

The back is either flat or concave, and on the lateral margin there are two distant obsolescent teeth. When these teeth are most prominent they appear to consist of three or four slender papillæ.

HALICARCINUS PLANATUS (*Fabr.*), *White*.

Plate 24, fig. 7 *a*, animal, enlarged; *b*, outer maxilliped.

Nassau Bay, Tierra del Fuego, abundant.

Length of carapax, four to five lines. Colour, mostly dark reddish brown, somewhat clouded. Carapax transversely orbiculato-elliptical. Upper surface of carapax smooth. Feet slender and very nearly naked. Tarsus of eight posterior legs but little shorter than preceding joint and nearly straight, short hirsute within. Second and third joints of outer maxillipeds nearly equal, surface pubescent. Buccal area nearly square.

Leucosia planata, FABR., Ent. Syst., Suppl., 350.

Halicarcinus planatus, WHITE, Ann. Mag. Nat. Hist., xviii. 178, 1846, pl. 2, f. 1.

Hymenosoma Leachii, GUERIN, Icon., pl. 10, f. 2, and Voy. de la Coquille, ii. 22.

Hymenosoma tridentatum? HOMBRON and JACQUINOT, Voy. au Pole Sud, pl. 5, f. 27. This figure is referred to the *planatus* by White; but the form as represented, is more transverse; and as no description has yet been published, we feel still uncertain as to its identity with the above.

HALICARCINUS PUBESCENS.

Carapax ovato-orbicularis, pone medium latior. Pedes longitudine mediocres, 8 postici laxè pubescentes. Abdomen maris angustum, fere lineare, apice triangulatum.

Carapax ovato-orbicular, broadest posterior to middle. Feet of medium length, eight posterior lax pubescent. Abdomen of male narrow, nearly linear, triangulate at apex.

Plate 24, fig. 8, male, enlarged.

From a depth of fifty fathoms, off Cape Blanco, the east coast of Patagonia, where it was dredged up by Lieut. Case. It was found in holes, or upon the surface of coral or stones.

Length, one-tenth of an inch. The back is slightly concave, and either side there are two small teeth (the anterior nearly obsolete), situated, as usual in the genus, on the lateral surface, below the margin. The sides of the male abdomen are for the most part parallel, the last joint a nearly equilateral triangle.

H. pubescens, DANA, Proc. Acad. Nat. Sci. Philad., 1851, v. 253.

GENUS HYMENICUS, Dana.

Carapax depressus, planus, suborbiculatus. Frons paulo productus breviter obtusè rostratus, aut paulo trilobatus, antennis internis quoad basin carapace omnino tectis. Pedes tenues, manu mediocri.

Carapax depressed, flat, suborbicular. Front with a short rounded or trilobate beak, the first antennæ not being seen in an upper view, the base being wholly concealed beneath the carapax. Feet slender, hand of moderate size.

In this genus, the front has not the three teeth of *Halicarcinus* (between which the flexed first antennæ are seen), but a simple rounded or trilobate prominence forms the front, and the first antennæ are covered. The feet are much longer and more slender than in any of the species of *Halicarcinus*, seen by the author. As in *Halicarcinus*, the eyes are more distant than in *Hymenosoma*, and there is no prominent extra-orbital tooth, or but a slight one.

The genus includes the *Hymenosoma depressum* of Hombron and Jacquinot (Voy. au Pole Sud., pl. 5, f. 34), referred by White to his genus *Halicarcinus* (Ann. Mag. Nat. Hist., xviii. 178, 1846).

HYMENICUS VARIUS.

Carapax lævis, nudus, planus, ovato-orbiculatus, vix transversus, fronte expansus et trilobatus, margine antero-laterali dentibus duobus obsoletis armato. Abdomen maris angustum, subtriangulatum, segmento primo latiore et utrinque triangulato, penultimo angustiore quam precedens, ultimo paulo oblongo, apicem rotundato. Pedes antici mediocres, octo sequentes tenuissimi, fere aut omnino nudi.

Carapax smooth, naked, flat, nearly orbiculate or ovato-orbiculate, very slightly wider than long, front projecting and trilobate, antero-lateral margin with two obsolescent teeth. Abdomen of male narrow, oblong subtriangular, first segment broadest, and triangulate on either side, penult narrower than preceding, last oblong, subtriangular, rounded at apex. Anterior feet of moderate size, eight following very slender, nearly or quite naked.

Plate 24, fig. 9 *a*, *b*, different varieties, enlarged; *c*, exterior maxilliped; *d*, abdomen of male.

From the shores of the Bay of Islands, New Zealand.

Length, two to three lines. Colour various; often greenish black, or black and white in irregular areas, or wholly dirty white or grayish, mottled with brown.

The lobed front occupies the whole space between the eyes, and the middle lobe is most projecting. The two antero-lateral teeth are like those of *Hymenosoma*. The abdomen narrows from the second segment (which is very short), to the penult (narrowing more especially in the fourth segment), is then linear through the penult, but tapers again in the last segment, which is somewhat oblong. The legs are a little pubescent. The female abdomen is very broad and inflated, covering the whole space between the legs.

Figure 10, Plate 24, represents the abdomen of another specimen, probably of the above species. As all the other characters observed are those of the *varius*, we are not prepared to pronounce it distinct on the characters derived from the abdomen, as this part varies so much with growth.

Hymenicus varius, DANA, Proc. Acad. Nat. Sci. Philad., 1851, v. 253.

Hymenicus Novi-Zelandiæ, of the same place, is probably a variety of the *varius*.

HYMENICUS PUBESCENS.

Carapax pubescens, fermè orbiculatus aut vix ovato-orbiculatus, posticè arcuatus, rostro parvulo simplicissimo, rotundato, et marginem pubescente, margine carapacis omnino integro, inermi. Abdomen maris angustum lineari-subtriangulatum, segmentis penultimo precedentibusque duobus fere æquis, postice parce angustantibus, ultimo subtriangulato paulo oblongo, obtuso. Pedes breviter pubescentes; antici mediocres, sequentes tenues.

Carapax pubescent, very nearly orbiculate or hardly ovato-orbiculate. arcuate behind, beak small, quite simple, rounded, margin pubes-

cent; whole margin of carapax entire, unarmed. Abdomen of male narrow, linear, subtriangular, penult joint and two preceding nearly equal, slightly narrowing posteriorly, last segment subtriangular, a little oblong, obtuse. Feet short pubescent, the anterior of moderate size, the others slender, but less so than in the *varius*.

Plate 24, fig. 11 *a*, animal, enlarged; *b*, abdomen of male; *c*, abdomen of female.

From the same localities as the preceding.

Length, one and a half to two lines.

The beak is subtriangular and small, and not lobed like the *varius*. The whole body above and below is pubescent, including legs and outer maxillipeds. The female abdomen is large and suborbicular, and has a low longitudinal elevation along the middle.

This species is very near the *Hymenosoma depressum* of Hombron and Jacquinot (Voy. au Pole Sud, pl. 5, f. 34;—*Halicarcinus depressus*, A. White, Ann. Mag. Nat. Hist., xviii. 178, 1846); but the figure of the *depressum* represents a small tooth on the margin, outside of the eyes, which does not exist in our species.

H. pubescens, DANA, Proc. Acad. Nat. Sci. Philad., 1851, v. 254.

FAMILY VI. MYCTIRIDÆ.

MYCTIRIS LONGICARPIS, Latr.

From salt marshes near Sydney, New South Wales.

LATR. Encyc. Atlas, pl. 297, f. 3; GUERIN, Icon., pl. 4, f. 4; EDWARDS, Hist. ii. 57, and Cuv., pl. 18, f. 2.

V. CRUSTACEA LEUCOSOIDEA VEL OXYSTOMATA.

THE group Leucosoidea includes those Brachyura in which the effe-

rent canal terminates at the middle, instead of the sides of the front of the buccal area. The area is, therefore, produced and narrowed forward, and the canal is generally a regularly formed channel, covered quite exactly by the inner branch of the first maxillipeds, which branch is narrow and much prolonged. These Crustacea are thus widely different from other Brachyura, and the triangulate form of the buccal area, by which they are distinguished, is the mark of a fundamental distinction. They are brought together by De Haan with the same limits and subdivisions as are here adopted, except that he includes the Raninidæ, an Anomoural form; the Corystidæ, a very different type, are excluded. The natural families are as follows:

1. *Appendices maris genitales basi pedum 5torum ortæ.* [*Via afferens pone regionem pterygostomianam ingrediens.*]

Fam. I. CALAPPIDÆ.—Articuli maxillipedis externi terminales non celati.

Fam. II. MATUTIDÆ.—Articuli maxillipedis externi terminales celati. 3tio triangulato, palpo vix longiore quam articulus 2dus.

2. *Appendices maris genitales sterno ortæ.*

Fam. III. LEUCOSIDÆ.—Via afferens apud angulum palati antero-lateralem ingrediens. Articuli maxillipedis externi terminales precedentibus tecti. Pedes postici ad normam gressorii.

Fam. IV. DORIPPIDÆ.—Via afferens parte regionis pterygostomianæ posticâ ingrediens. Articuli maxillipedis externi terminales precedentibus non celati. Pedes 2-4 postici subdorsales, prehensiles.

The known genera of living species pertaining to these families are distinguished as follows.

FAM. I. CALAPPIDÆ.

SUBFAM. 1. CALAPPINÆ.—Pedes nulli natatorii.

- G. 1. CALAPPA, *Fabr.*—Carapax valde transversus, lateribus alate expansis, pedes plerumque tegentibus.
- G. 2. PLATYMERIA, *Edw.*—Carapax transversim ellipticus, lateribus non expansis. Maxillipedis externi articulus 3tius 4tum margine interno gerens.
- G. 3. MURSIA, *Edw.*—Carapax fere orbiculatus, parce transversus, lateribus non expansis. Maxillipedis externi articulus 3tius 4tum margine apicali gerens, 2do non longior. Tarsi quinti styliformes.
- G. 4. CYCLOES, *De Haan.**—Carapax suborbiculatus, sæpius non transversus, lateribus non expansis. Maxillipedis externi articulus 3tius 2do longior. Tarsi quinti angustè lanceolati.

SUBFAM. 2. ORITHYINÆ.—Pedes 8 postici natatorii.

- G. ORITHYIA.—Carapax suborbiculatus, non transversus, antice truncatus.

FAM. II. MATUTIDÆ.

- G. 1. HEPATUS, *Latr.*—Carapax valde transversus. Pedes nulli natatorii.
- G. 2. THEALIA, *Lucas.*†—Carapace *Matuta* affinis. Pedes nulli natatorii.
- G. 3. MATUTA, *Fabr.*—Carapax suborbiculatus. Pedes 8 postici natatorii.

FAM. III. LEUCOSIDÆ.

A. CARAPAX LATERE SÆPIUS NON DILATATUS, LATERIBUS PEDES RETRACTOS NON TEGENTIBUS.

1. *Carapax lateribus non spinigerus nec cylindricè productus. Articulus maxillipedis externi 3tius subtriangulatus.*
1. Palpus maxillipedis externi latissimus, maxillipe multo latior. [Carapax inermis. Area buccalis subquadratus.]
- G. 1. PHILYRA.—Carapax suborbiculatus, inermis, non tuberculatus, fronte posteriore quam epistoma. Antennæ internæ transversæ.
2. Palpus maxillipedis externi maxillipe aut vix latior aut angustior.
- a. *Pedes antici breves vel mediocres, crassi. [Carapax inermis. Area buccalis subtriangulata.]*
- G. 2. LEUCOSIA, *Fabr.*—Carapax non tuberculatus, latere non dilatatus, antice angustè productus, extremitateque oculos minutos antennasque gerens. Palpus maxillipedis externi longus et latus, extus non dilatatus. Pedes antici mediocres.

* De Haan, Faun. Japon., 67, 69, Decas Tertia, 1837, and p. 125, Decas Quinta. *Cryptosoma* of Brulé, Edwards's Crust., ii. 110, 1837, and Iles Canar. Ent., p. 16.

† Lucas, Ann. de la Soc. Ent. de France, viii. 573, tab. 21.

- G. 3. LEUCISCA, *M'Leay*.*—Carapax non tuberculatus, latere non dilatatus, antice parce productus, antennis oculisque inferioribus, extremitateque frontis remotis. Palpus maxillipedis externi latus, brevis. Pedes antici breves [brachio parce exserto].
- G. 4. EBALIA, *Leach*.—Carapax interdum tuberculatus, latere dilatatus et margine tenuis, fronte latiusculo. Oculi grandiores, marginales. Palpus maxillipedis externi mediocris, extus rectus. Pedes antici mediocres. Antennæ internæ obliquæ, sat grandes.
- G. 5. NUCIA, *Dana*.—Carapax tuberculatus, latere non dilatatus, fronte latiusculo, oculis grandioribus, marginalibus. Palpus maxillipedis externi angustus, extus rectus, longus. Pedes antici breves. Antennæ internæ obliquæ, sat grandes.
- G. 6. NURSIA, *Leach*.—Carapax antice parce productus, denticulis tuberculisve partim ornatus. Palpus maxillipedis externi extus dilatatus.
- b. *Pedes antici prælongi, tenues.* [*Carapax duobus vel pluribus spinis tuberculisve postice armatus. Area buccalis triangulata.*]
- G. 7. ILIA, *Leach*.—Carapax globosus, postice 2–4 dentibus armatus, fronte bilobatus, latere non dilatatus. Palpus maxillipedis externi angustus, extus rectus. Digniti non in eodem plano cum manus articulatione. Pedes 8 postici subcylindrici.
- G. 8. MYRA, *Leach*.—Carapax ante medum paulo latior, postice 2–3-spinis armatus. Palpus maxillipedis externi angustus, extus paulo dilatatus. Digniti uti in *Leucosiâ*. Pedes 8 postici compressi.
- G. 9. PERSEPHONA, *Leach*.†—Carapax globosus, postice 3 spinis armatus, latere parce dilatatus. Palpus maxillipedis externi uti in *Iliâ*. Digniti pedesque 8 postici uti in *Leucosiâ*. Fossæ antennales fere transversæ.
2. *Carapax latere cylindricè productus.* [*Area buccalis subquadrata. Articulus maxillipedis externi 3tius subtriangulatus.*]
- G. 10. IXA, *Leach*.—Pedes antici gracillimi.
3. *Carapax latere spinigerus.* [*Area buccalis subquadrata. Articulus maxillipedis externi 3tius vix triangulatus, apice latè rotundatus.*]
- G. 11. IPHIS, *Leach*.—Carapax paulo rhombicus, antice productus ac in *Leucosiâ*. supra inermis, spinâ longâ latere armatus, postice spinis paucis aliis. Pedes antici gracillimi.
- G. 12. ARCANIA, *Leach*.—Carapax globosus, undique multispinosus, fronte prominenter bilobatus. Pedes antici sat longi, mediocriter graciles.

* M'Leay in Smith's Illustrations of Zool. of S. Africa, Crust., pl. 3.

† Includes Guaia, Edwards, Crust., ii. 127.

B. CARAPAX TRANSVERSUS, LATERE VALDE DILATATUS, LATERIBUS PEDES
RETRACTOS TEGENTIBUS.

G. OREOPHORUS, *Rüppell*.*—Carapax transversim subtriangulatus, latere subrotundatus, fronte angustus, paulo saliens.

G. TLOS, *White*.†—Carapax transversim subellipticus, regionibus lateralibus concavis, fronte integro, rotundato, sursum reflexo.

Mr. A. White also adds to the Leucosidæ, the genera *Harrovia* and *Iphiculus* (Voy. Samarang, pp. 55 and 57). The latter, as we have observed on a former page, is probably the same with *Polydectus*. The former has the general habit of the Parthenopidæ (especially *Ceratocarcinus*, *White*), not merely in form, but in the long hand with short fingers, and in the position of the hand upon the carpus. Still, if it is like the *Oxystomes* in the mouth and efferent channel, it belongs with the Leucosidæ. On this point we cannot decide, except from the reference of it by Mr. White to this group.

FAMILY I. CALAPPIDÆ.

CALAPPA TUBERCULATA (*Fabr.*)

Sooloo Sea; Feejees and Tongatabu, South Pacific; Sandwich Islands, North Pacific.

In the Voyage of the Bonite, this species from the Sandwich Islands is figured as new, under the name *C. Sandwichensis* (pl. 3, f. 9).—I find no essential difference between the specimens and that of the *tuberculata* from the Sooloo Sea.

FABR. Suppl. 345; HERBST, pl. 13, f. 78; GUERIN, Iconog., pl. 12, f. 2; EDWARDS, Crust. ii. 106.

CALAPPA GALLUS (*Herbst*), *Edwards*.

Philippine Islands; Maui, Sandwich Islands.

* *Rüppell*, Krabben des rothen Meeres, 18, pl. 4, f. 5; *Edwards*, Crust., ii. 130; *A. White*, Voy. Samarang, 54, pl. 6, f. 1.

† *A. White*, Crust. Voy. Samarang, 57, pl. 13, f. 2.

Cancer gallus, HERBST, iii. 46, pl. 58, f. 1.

Calappa gallus, EDWARDS, Crust. ii. 105.

CALAPPA FORNICATA? *Fabr.*

Plate 25, fig. 1.

Only a carapax of this species was obtained. Its breadth was five and three-fourths inches; length, three and one-fourth inches; giving the ratio of length to breadth, 1 : 1.77. The surface is polished and quite smooth, with some transverse interrupted lines or scratches, and a few punctated lines or spots, as shown in the figure. There is no median or stomach region apparent. The beak is scarcely at all prominent, and is a little bifid. The orbits are large. The sides of the carapax are rounded and very projecting. The margin from the eye to where the curve commences to bend into the lateral lobe is crenate, with twelve or fourteen broad, but low and uneven crenations. The posterior margin of the carapax is regularly arcuate.

Calappa fornicata, FABRICIUS, Suppl., 345; EDWARDS, Crust., ii. 106.

Cancer calappa, HERBST, i. 197, iii. 3, 16, pl. 12, f. 73, 74. Much narrower proportionally than our specimen.

MURSIA CRISTATA, *Leach.*

Cape of Good Hope.

Mursia cristata, LEACH; EDWARDS, Crust., ii. 109, and Cuvier's Reg. An., pl. 13, f. 1.

FAMILY II. MATUTIDÆ.

HEPATUS ANGUSTATUS (*Fabr.*)

Plate 25, fig. 2.

Rio Janeiro, Brazil, where it is common.

The hand has five raised lines on its outer surface, the upper of which is a range of small obtusish points; the next, similar points, but broader and sometimes coalescent; the others, nearly or quite continuous lines, with a crenate margin. Colour, pale yellowish brown, with dark brown transverse lines, or transverse series of spots; the legs are subochreous, with one or two large purplish blotches in each joint.

Calappa angustata, FABRICIUS, Supp., 347.

Hepatus fasciatus, LATREILLE, Hist. Crust., v. 988; EDWARDS, Crust., ii. 117, and Cuv., pl. 13, f. 2.

HEPATUS CHILENSIS, *Edwards*.

Plate 25, fig. 3.

Valparaiso, Chili.

Colour of carapax, a yellowish or ochreous base closely covered with a brownish purple reticulation.

Hepatus chilensis, EDWARDS, Crust., ii. 117; Crust. of D'Orbigny's S. America, 28, pl. 14, f. 1.—The colours in this figure resemble those of a faded specimen, after death or preservation in alcohol.

MATUTA LUNARIS (*Herbst*), *Leach*.

Cape of Good Hope; Tongatabu.

The carapax of the specimen from Tongatabu is reticulate with dark lines of dots. No such reticulation exists on the South African specimen.

Cancer lunaris, HERBST, iii. 43, pl. 48, f. 6.

Matuta lunaris, LEACH, Zool. Misc., iii. pl. 127, f. 345; EDWARDS, Crust., ii. 114.

MATUTA VICTOR, *Fabr*.

Singapore, East Indies.

The male has a crenated raised line along the outer side of the moveable finger, while in the female, the ridge is nearly or quite obsolete. The *lunaris* has the same ridge, but it is either smooth, or only crenated towards the extremity of the finger.

FAMILY III. LEUCOSIDÆ.

IPHIS LONGIPES.

Carapax parce granulatus, suborbicularis, non latior quam longus, armatus spinis duabus longissimis lateralibus latitudine carapacis vix brevioribus (unâ in latere utroque), et duabus minutis antero-lateralibus, duabus parvulis postero-lateralibus, et unâ posticâ corporis dimidium longitudine fere æquante. Frons bilobatus parce prominens. Pedes 8 postici prelongi.

Carapax sparingly granulous, suborbicular, not broader than long, having two lateral spines (one either side) as long as breadth of body, two minute antero-lateral, two postero-lateral quite small, and one posterior nearly half as long as body. Front bilobate, sparingly prominent. Posterior feet very long and slender.

Plate 25, fig. 4 *a*, male, natural size; *b*, outer maxillipeds; *c*, abdomen.

Taken from the stomach of a Tetraodon, among the reefs of Viti Lebu, Feejee Islands.

Length, excluding the posterior spine, ten and a half lines; with this spine, fourteen and one-fourth lines; breadth, excluding the lateral spines, ten and three-fourths lines, and with these spines, twenty-four lines. The front of the carapax is less advanced than in Herbst's figure of the *septem-spinosa*. Besides, this species has either side but one postero-lateral spine, while there are two in the *septem-spinosa*, and both are much more prominent. The legs also are much longer. The hands and carpus together are as long as the breadth of the body and one lateral spine; the third joint of the second and third

pairs of legs extends out very nearly as far as the apex of the lateral spine.

The outer maxillipeds are like those of the genus *Arcania*, the third joint being rounded at apex. The body of the palpus extends as far forward as the apex of the third joint of the organs, and has nearly the same width.

GENUS NUCIA.

Carapax parce transversus, antice non productus, latere non dilatatus, inermis, superficie paulo tuberculatus, fronte bilobatus et non saliens. Oculi paulo remoti, grandiores, marginales. Area buccali bene triangulata. Maxillipedis externi articulus 3tius triangulatus; palpus angustus, extus rectus. Pedes toti breves et crassi, digiti in plano subverticali claudente, eodem cum manus articulatione.

Carapax sparingly transverse, not produced in front, sides not dilatate, unarmed with spines, surface somewhat tuberculate, front bilobate, and not salient. Eyes rather remote and large, marginal. Buccal area neatly triangular. Third joint of outer maxillipeds triangular; palpus narrow, on outer side straight. Feet all short and stout, fingers opening nearly in a vertical plane, in the same plane with the articulation of the hand with the carpus.

NUCIA SPECIOSA.

Carapax obesus, latere 5-6-tuberculatus, supra utrinque 5-6 tuberculis obsoletis ornatus, undique bene granulatus, postice areâ prominente tuberculisque juxta marginem duobus ornatus. Pedes perbreves, brachio parce exserto, digitis bene canaliculatis.

Carapax obese, with five or six tubercles along either side, and above, either side of middle, five or six obsolescent tubercles; whole surface neatly granulate, behind having a prominent area, and below it on the margin two tubercles. Feet very short, arm sparingly exsert, fingers deeply channeled.

Plate 25, fig. 5 *a*, animal, enlarged three diameters; *b*, outer maxillipeds.

Sandwich Islands.

Length of carapax, 0·3 inch; breadth, 0·37 inch; or ratio, nearly as three to four. The eyes are unusually large for the family Leucosidæ. The front hardly projects as far forward as the epistome. The frontal lobes are rather large and deeply separated. A faint depression proceeds along the back of the carapax, either side of the middle, and passes either side of the posterior area. The tarsi are short pubescent. Outer maxillipeds in part pubescent.

FAMILY IV. DORIPPIDÆ.

DORIPPUS SIMA, *Edwards*.

Singapore, East Indies.

Dorippus sima, EDWARDS, *Crust.*, ii. 157.

TRIBE II. CRUSTACEA EUBRANCHIATA ANOMOURA.

THE relations of the Anomoura to the other Eubranchiata, have been discussed on pages 49 to 58, and we give here only a recapitulation of the grand divisions, with their subdivisions, making but a few preliminary remarks.

As the Anomoura constitute properly a transition group, between the Brachyura on one side and the Macroura on the other, there may be much doubt as to the proper limit in each direction. *Ranina* and *Dromia*, with some allied genera, are separated from the rest by De Haan, and placed with the Brachyura; while *Galathea* and *Grimo-*

thea, are taken from the Macroura, and associated in a common section with Porcellana. In both these particulars, this author differs from Edwards, by whom the tribe Anomoura was instituted.

Among the characteristics in which the Anomoura diverge from the Brachyura and graduate toward the Macroura, the position of the vulvæ is one of the most striking; and in this respect *Ranina* and *Dromia* are unlike the Brachyura: and as this characteristic is also sustained by others that bear a like impress of degradation, we think it more correct to refer these genera to the Anomoura. *Galathea*, on the other side, has strongly an Anomoural character, much like *Porcellana*, which it exhibits in its posterior pair of legs, short and inflexed beneath the carapax, and in the lateral suture of the carapax, — a Brachyural and not a Macroural characteristic. Still, these species, unlike all the Anomoura, have the abdomen complete in its pairs of members, and in all other particulars it is mainly Macroural. In *Æglea*, the posterior pair of legs and abdomen are as in *Galathea*, except that the abdominal appendages in the male are obsolescent. A lateral suture may be distinguished extending along by the lateral margin of the carapax; but there is another longitudinal suture, as in *Pagurus*, and in the *Thalassinidea* among the Macroura. The inner antennæ are posterior to the eyes, a Macroural characteristic, and not between them, as in *Porcellana*. The term *Anomoural* refers to the anomalous character of the abdomen; and when this part is not anomalous, it would seem plain that the species should be excluded from the tribe. Yet the existence of such a name, does not decide upon the true limits of the group so designated. After much deliberation, and still much hesitation, we incline to arrange these genera with the Anomoura. They are closely related to the *Thalassinidea*, and in either arrangement they are the osculant genera between the Macroura and the Anomoura.

We also refer to the Anomoura, with some doubt as to its propriety, the genera *Bellia* and *Corystoides*, which are Brachyural in most of their characteristics. The absence of interantennary fossettes, and the non-retractile eyes, are so decidedly Macroural traits, and so unlike the Cancroids, which otherwise they resemble, that we naturally rank them below any true Brachyura. They are inferior to the *Corystoidea* in these respects, and also differ from them strongly in the small or obsolete outer antennæ.

The subdivisions of the Anomoura adopted are as follows:—

SECTIO I. ANOMOURA SUPERIORA.

Oculi antennis Imis non anteriores. Antennæ 2dæ oculis interdum posteriores non exteriores. Abdomen angustum, ad sternum sæpius appressum, appendicibus caudalibus non instructum.

Subtribus I. DROMIDEA (vel ANOMOURA MAIDICA SUPERIORA).—Carapax subtriangulatus vel subquadratus vel suborbiculatus, fronte angusto, oculis approximatis. Pedes postici subdorsales. Via efferens uti in Maiioideis.

Subtribus II. BELLIDEA (vel ANOMOURA CANCRIDICA).—Carapax parce oblongus, subellipticus. Pedes 8 postici inter se similes. Via efferens uti in Dromideis.

Subtribus III. RANINIDEA (vel ANOMOURA LEUCOSIDICA).—Carapax oblongus. Via efferens osque uti in Leucosoideis.

SECTIO II. ANOMOURA MEDIA.

Oculi antennis Imis non anteriores. Antennæ 2dæ oculis posteriores et exteriores. Abdomen inflexum, sed non stricté appressum, appendicibus caudalibus instructum. Os nunquam uti in Leucosoideis.

Subtribus IV. HIPPIDEA (vel ANOMOURA CORYSTIDICA).—Carapax oblongus. Maxillipedes externi operculiformes, articulo 3tio elongato et lato. Pedes 2di 3tii 4ti natatorii, 5ti debilis inflexi.

Subtribus V. PORCELLANIDEA (vel ANOMOURA GRAPSIDICA).—Carapax suborbiculatum. Maxillipedes externi male operculiformes, articulo 3tio paulo minore quam 2dus. Pedes 2di 3tii 4tique gressorii, 5ti debiles, inflexi.

SECTIO III. ANOMOURA SUBMEDIA.

Oculi antennis Imis plane anteriores. Abdomen valde dilatatum.

inflexum sed stricté non appressum, appendicibus caudalibus non instructum.

Subtribus VI. LITHODEA (vel ANOMOURA MAIDICA SUBMEDIA).—Carapax subtriangulatus uti in Maioides. Abdomen latum, vix symmetricum. Pedes nulli natatorii, 2dis 3tiis 4tisque inter se similibus, 5tis parvulis, sub carapace inflexis.

SECTIO IV. ANOMOURA INFERIORA.

Oculi antennis 1mis anteriores. Antennæ 2dæ oculis posteriores et exteriores. Abdomen elongatum, vix inflexum, appendicibus caudalibus instructum, sæpe appendicibus quoque ventralibus.

Subtribus VII. PAGURIDEA (vel ANOMOURA MAIDICA INFERIORA).—Carapax elongatus, postice mollior. Abdomen plerumque molle, appendicibus imparibus sæpius instructum. Pedes 3tii 4tis dissimiles.

Subtribus VIII. ÆGLEIDEA. — Carapax elongatus, texturâ omnino crustaceus. Abdomen extus crustaceum, in maribus, appendicium paribus obsoletis, in feminis elongatis, instructum. Branchiæ penicillatæ. Pedes 3tii 4tique similes, 5ti debiles sub carapace inflexi.

Subtribus IX. GALATHEIDEA. — Carapax elongatus, texturâ omnino crustaceus. Abdomen extus crustaceum, in maribus et feminis, appendicium paribus elongatis infra instructum. Pedes 3tii 4tique similes, 5ti debiles sub carapace inflexi. Branchiæ foliosæ.

An arrangement equally natural, may be based upon the type of structure in the species rather than their grade or rank. It is indicated above, and is as follows :

I. ANOMOURA MAIDICA.

1. DROMIDEA.—*Superiora*.
2. LITHODEA.—*Media*.
3. PAGURIDEA.—*Inferiora*.
4. ÆGLEIDEA.—*Macrourica*.

II. ANOMOURA CANCRIDICA.

I. BELLIDEA.

III. ANOMOURA CORYSTIDICA.

I. HIPPIDEA.

IV. ANOMOURA GRAPSIDICA.

1. PORCELLANIDEA.—*Superiora*.
2. GALATHEIDEA.—*Inferiora* or *Macrourica*.

V. ANOMOURA LEUCOSIDICA.

I. RANINIDEA.

The Corystoid Crustacea are properly degraded forms below the Cancroidea, and hence it is that the section A. Cancridica contains but a single group.

The Ægleidea are closely related in the sutures of the carapax to the Paguri, as is shown beyond; in their penicillate branchia, they look toward the Astacoid Macroura.

SECTION I. ANOMOURA SUPERIORA.

SUBTRIBE I. DROMIDEA.

THE known genera of living Dromidea, are as follows:—

1. *Antennæ internæ fossis instructæ.*

- G. 1. DYNOMENE, *Latr.*—Frons parce triangulatus, oculis approximatis. Pedes brevibus; 5ti abbreviati tantum, subdorsales.
- G. 2. DROMIA, *Fabr.*—Carapax suborbiculatus, fronte subtriangulato, angusto, oculis approximatis. Pedes crassi, breves; 4ti 5tique abbreviati, subdorsales.

2. *Antennæ internæ fossis non instructæ.*

G. 3. LATREILLIA, *Roux*.—Carapax elongatè triangulatum. Pedes longissimi, gracillimi, postici longi.

G. 4. HOMOLA, *Leach*.—Carapax subquadratus vel subellipticus, fronte angusto, oculis elongatis. Pedes longi, postici breves.

The genera *Cymopolia* and *Caphyra* also seem to be related to this division; since De Haan has shown a relation to the Maia group. But as we have not had an opportunity to examine specimens of either genus, we do not venture to decide upon their place in the system.

not DROMIA HIRSUTISSIMA, *Lamk.*

Sandwich Islands, five inches in length. Also, Cape of Good Hope.

LAMARCK, *Hist. des An. sans Vert.*, v. 264; DESMAREST, *Crust.*, 137, pl. 18, f. 1; EDWARDS, *Crust.*, ii. 176.

SUBTRIBE II. BELLIDEA.

THE only genera of this division are *Corystoides* of Lucas (*Crust. D'Orbigny's S. A.*, p. 31, pl. 16), and *Bellia*, Edwards (*Ann. des Sci. Nat.* [3], ix. 192, 1848).

SUBTRIBE III. RANINIDEA.

THE known genera, as described, have the following characteristics:—

G. 1. RANINOIDES, *Edwards*.—Carapax oblongus, lævis, antice vix angustior, paucidentatus. Pedes 2di 3tii inter se remoti, postici fere filiformes, tarsis 4tis latis. Sternum inter pedes 2dos latum.

G. 2. RANINA, *Lamk.*—Carapax antice non angustior, fere rectangulatus, fronte

- truncato vel arcuato. Tarsi lati, postici 4tis vix angustiores. Antennæ externæ breves, articulo 2do processu auriculiformi instructo, 3tio cordiformi. Articulus maxillipedis externi 3tius 2do parce brevior. Sternum inter pedes 2dos lineare.
- G. 3. *RANILIA*, *Edwards*.—Carapax antice non angustior, fronte arcuato. Pedes uti in *Raninâ*. Antennæ externæ basi processu auriculiformi non instructæ, articulo 3tio crasso, cylindrico. Articulus maxillipedis externi 3tius 2do longior.
- G. 4. *NOTOPUS*, *De Haan*.*—Carapax antice non angustior, margine antico lato, paucidentato, superficie fere lævi. Pedum 2dorum 3tiorum 5torumque tarsi angusti, pedibus 5tis parce minoribus.
- G. 5. *LYREIDUS*, *De Haan*.†—Carapax antice latera convergens, margine anterolaterali valde obliquo, rectiusculo, margine antico angustissimo. Pedum 2dorum, 3tiorum 5torumque tarsi angusti, pedibus 5tis parvulis, fere filiformibus.
- G. 6. *COSMONOTUS*, *White*.‡—Carapax plerumque uti in *Lyreido*. Pedes postici 4tis parce minores.

RANINA SERRATA, *Lamk.*

Sandwich Islands.

- Cancer raninus*, *LINN.*, *Mus. Lud. Ulr.*, p. 130.
Ranina serrata, *LAMK.*, *Syst.*, 256, and *Hist. des An. sans Vert.*, v. 225.
Ranina dentata, *LATREILLE*, *Encyc.* x. 268; *EDWARDS*, *Crust.*, i. 194, pl. 21, figs. 1-4, and *Cuv.*, pl. 41, f. 1; *DE HAAN*, *Faun. Japon.*, p. 139, pl. 34, 35.

SECTION II. ANOMOURA MEDIA.

SUBTRIBE IV. HIPPIDEA.

THE genera of Hippidea, thus far described, are distinguished as follows by Edwards:

- ALBUNÆA*, *Fabr.*—Antennæ externæ breves. Pedes antici subcheliformes.
ALBUNHIPPA, *Edw.*§—Antennæ externæ longæ. Pedes antici subcheliformes.
- * *Faun. Japon.*, 136, pl. 35.
† *Faun. Japon.*, 136, pl. 35.
‡ *Voy. Samarang*, 60, pl. 13, f. 3.
§ *Arch. du Mus. d'Hist. Nat.*, ii. 474.—*Blepharipoda*, *Dr. J. Randall*, *Jour. Acad. Nat. Sci. Philad.*, viii. 130.

REMIPES, *Latr.*—Antennæ externæ breves. Pedes antici subcylindrici et non cheliformes.

HIPPA, *Fabr.*—Antennæ externæ longæ. Pedes antici non cheliformes, articulo ultimo laminato.

Blepharipoda of Randall is identical with *Albunhippa* of Edwards, and the two appear to have been described near the same time. Edwards's genus was published in 1839, and Randall's in January, 1840, although read before the Academy of Philadelphia in June of 1839.*

ALBUNÆA SPECIOSA.

Carapax lineis transversim notatus, margine antico utrinque ferme 10-denticulato, cephalothoracis lateribus parallelis. Oculorum peduncululi graciles, attenuati. Margo articuli ultimi pedum quartorum anticus fere rectus. Segmentum caudale paulo oblongum, integerrimum, apice subtriangulatum, lateribus fere parallelis, parce arcuatis.

Carapax marked with transverse lines, anterior margin either side of middle about ten-toothed, sides of thorax nearly parallel. Peduncles of eyes slender, attenuate. Anterior or upper margin of last joint of fourth pair of legs nearly straight. Caudal segment a little oblong, quite entire, at apex subtriangular, its sides nearly parallel, sparingly arcuate.

Plate 25, fig. 6 *a*, animal, natural size; *b*, front, enlarged three diameters; *c*, outer antennæ, enlarged two diameters; *d*, extremity of first pair of legs, *ibid.*; *e*, part of fourth pair, *ibid.*; *f*, caudal extremity, *ibid.*

Sandwich Islands.

Length of carapax, seven and a half lines; breadth, six and a half lines. The markings of the carapax are rather strong, and the edge adjoining each depression is set with extremely minute spinules. The peduncles of the eyes are not properly lamellar, but are quite narrow

* See on these dates, Proc. Acad. Nat. Sci. Philad., for 1850, v. 29.

from the base and increasingly so towards the apex. The two are contiguous by their inner side, except at base; and between the bases of the two, in the semicircular excavation of the front, there is a small triangular piece; the centre of this excavation bears a minute tooth. The small teeth exterior to the eyes are about ten in number, with, in some cases, a minuter tooth intermediate.

ALBUNÆA SCUTELLATA, *Desmarest.*

San Lorenzo?

Length of carapax of a female, six lines; breadth, seven lines; breadth of large or second abdominal segment, six lines; of fourth, five and a half lines; of fifth, one and one-fourth lines. These proportions are different from those in the figure by Edwards (*Crust.*, pl. 21, f. 9), yet the species appears not to differ. The hand is very thin and high, the height being equal to the length; the lower margin is slightly arcuate, and not at all deflexed at the base of the immoveable finger; this finger is acute and short, the margin above it vertical and hairy. The front margin has a low median point, and also another equally advanced, half way to the side, with the margin between sinuous.

Albunæa scutellata, DESMAREST, *Crust.*, p. 173; EDWARDS, *Crust.*, ii. 204, pl. 21, figs. 9-13.

ALBUNHIPPA SPINOSA, *Edwards.*

San Lorenzo, Peru.

Length of carapax, one and one-fourth inches. The surface has a peculiarly smooth and almost porcelain polish.

Albunhippa spinosa, EDWARDS, *Arch. du Mus. d'Hist. Nat.*, ii. 474, pl. 28.

The *Blepharipoda occidentalis* of Randall, from California (*Jour. Acad. Nat. Sci.*, viii. 131, pl. 6), is another species of this genus, having the lower margin of the hand one-toothed near middle, and sharp three-toothed below the immoveable finger; moreover the margin of the carapax is very hairy.

REMIPES PACIFICUS.

Frons 4-dentatus, dentibus fermè æquis, externis vix prominentioribus, mediano nullo. Oculi parvuli. Antennæ 1mæ ferme dimidii carapacis longitudine, flagellis inæquis, minore 10-articulato. Antennæ 2dæ 5-articulatæ, articulo 1mo latissimo, vix oblongo, 3tio longiore quam 2dus, 4to 5toque parvulis. Pedes antici parce pubescentes, apice setosi, articulo ultimo vix longiore quam penultimus.

Front four-dentate, teeth very nearly equal, the outer scarcely more prominent, no median tooth. Eyes of moderate length, not shorter than base of first antennæ. First antennæ about half as long as carapax, flagella unequal, the smaller ten-jointed. Second antennæ five-jointed, first joint very broad, but slightly oblong, third longer than second, fourth and fifth small. Anterior feet sparingly pubescent, setose at apex, last joint hardly longer than penult.

Plate 25, fig. 7 *a*, animal, twice natural size; *b*, part of longer branch of inner antennæ, much magnified; *c*, mandible, enlarged, upper view; *c'*, same, under view; *d*, outer maxillipeds, enlarged two diameters; *e*, first pair of feet, *ibid.*; *f*, third pair of feet, *ibid.*; *g*, fifth pair, enlarged seven diameters.

Island of Ovalau, Feejee Group; Sandwich Islands; Samoan Group?

Length, one to one and one-fourth inches. General form, oval. Inner antennæ nearly two-thirds as long as carapax; of the basal joints observed, the penult is largest, broadest at apex, and hairy along the apical margin; the last oblong, in an upper view appearing slender, but wide in profile, and closing below the preceding; shorter flagellum about two-thirds as long as the other, joints ten, slightly oblong, having a few very short hairs at apex of each; longer flagellum consisting of numerous very short transverse joints, hairs on the inferior side longest, yet exceeding but little the diameter of the joints. Second or outer antennæ about half as long as inner, not seen in an upper view of the animal; first joint short pubescent on its inner margin; second, pubescent on outer side.

Exterior maxillipeds cover completely the mouth, the large joint

(third) not half longer than its breadth. First pair of legs have the second joint very large and broad, the remaining three oblong, the last longer than the other two, which are nearly equal. Last joint of second pair of legs short pubescent on the margin. Last joint of fourth pair slender, a little curved, short pubescent on inner side. Fifth pair terminates in a small, imperfect hand; the hand broadest at apex and truncate nearly transversely; the short finger closing against the terminal margin, and not quite as long as the margin; hairs about the extremity numerous, as long as the hand or even longer. This pair extends up into the branchial cavity.

No appendages to fourth abdominal segment (out of the six observed); those of first and second segments long filiform, and sparsely covered with long scattered hairs, a little curling; third pair slender but short; last pair as in *Hippa*. Anus situated at centre of last segment of abdomen.

The *Remipes marmoratus* of Hombron and Jacquinet (Voy. au Pole Sud., pl. 8, f. 22-26) has the outer antennæ very much more slender than in the *pacificus*.

REMPES HIRTIPES.

Carapax paulo latior, suturâ transversâ non notatus. Dentes 4 frontales obtusi, externi vix prominuliores, mediano fere obsolete. Oculi parvi, paulo exserti, basi antennarum primarum valde breviores. Antennæ primæ fere dimidii carapacis longitudine, flagellis subæquis, setis flagelli minoris paulo longis. Pedes antici valde hirti.

Carapax rather broader than in preceding species, not marked with a transverse suture near middle. Four frontal teeth obtuse, the outer hardly more prominent, a median tooth nearly obsolete. Eyes very small, but little exsert, much shorter than base of first antennæ. First antennæ about half as long as carapax, flagella nearly equal, setæ of smaller flagellum two or three diameters of the organ in length. First pair of feet rough and unevenly hairy.

Plate 25, fig. 8 *a*, animal, natural size; *b*, first antenna in profile; *c*, second antenna, under view.

From near the shores of a small island off Soung, the harbour of

the principal Sooloo island; found swimming along the sandy bottom in shallow waters.

Length, one and one-eighth inches. Colour, whitish, or cream-coloured. The eyes slightly project beyond the limits of the indentation, from beneath which they arise. The shorter flagellum of the first antennæ is ten-jointed, and the under side is furnished with hairs as long as two or three of the joints. The longer flagellum has short hairs about as long as the joints. The carapax has no transverse lines, and only two faint depressions, less than a line long, forward of the middle. In the two preceding species there are two transverse lines, one near the front, and one anterior to the middle, reaching between the same points as are here occupied by the faint depressions.

The base of the first antennæ was distinctly three-jointed; the second joint very short; the third broad in profile view, and having the upper side pubescent.

HIPPA EMERITA (*Linn*), *Fabr.*

Plate 25, fig. 9 *a*, front, with eyes and antennæ, enlarged six diameters; *b*, third joint of outer maxilliped, enlarged two diameters; *c*, last joint of anterior legs, enlarged six diameters.

Rio Janeiro.

This species is distinguished from the following by having a regularly triangular median tooth to the front, acute or nearly so, and the inner apex of the outer maxillipeds much prolonged, the elongation being as long nearly as its breadth at base. The form of the terminal joint of the anterior legs, appears to vary much, and affords no certain distinction, except it may be the absence of a tooth on the anterior margin of the joint.

Cancer emeritus, LINN.

Hippa emerita, FABR., Supp. Ent. Syst., 370; EDWARDS, Crust., ii. 209, and Cuv., pl. 42, f. 2.

HIPPA TALPOIDES (*Say*).

Plate 25, fig. 10 *a*, front, enlarged six diameters; *b*, third joint of

outer maxillipeds, enlarged two diameters; *c*, last joint of anterior legs.

Valparaiso.

The rounded median tooth of the front appears to be a constant character of this species. The inner apex of the third joint of the outer maxillipeds is produced, but is quite short, and the anterior margin of the last joint of the anterior legs has a small acute tooth towards the articulation. The prolongation of the apex of both the penult and antepenult joints, in these legs, is less than in the *emurita*.

Hippa talpoida, SAY, Jour. Acad. Nat. Sci., i. 160; GIBBES, Proc. Meeting of Amer. Assoc. at Charleston, 1850, p. 188.

SUBTRIBE V. PORCELLANIDEA.

THE Porcellanidea pertain to a single genus *Porcellana*. Edwards, in his corresponding division, "Porcellaniens," embraces also the genera *Æglea* and *Megalopus*, yet expresses his doubts with regard to such an arrangement. The genus *Æglea* belongs properly to a lower grade of the *Anomoura* than *Porcellana*, inasmuch as the inner antennæ are posterior to the eyes, and, therefore, fall into our lowest section of the *Anomoura*, the *Anomoura inferiora*. The genus *Megalopus* has little actual relation to the Porcellanidea.

GENUS PORCELLANA.

The carapax in the genus *Porcellana* varies much in form and markings. The front is usually more or less triangular, and when straight in a view from above, there is often, if not always, a triangular outline when observed in a front view, so that the straight margin, in such cases, is owing to the front being deflexed. The surface may be entirely smooth. But commonly the front and posterior margin of

the median region are distinct, the former being seen in a small transverse elevation adjoining the medial line, and in a line with the post-orbital angles. There is generally an angle in the lateral margin a short distance behind the orbit, where there is sometimes a small spine, and this angle is in many species the termination of a depressed line, which passes inward and backward to the posterior limit of the median region, the whole evidently corresponding to the depression so common in *Grapsus*, and observed, also, in *Eriphia*; it appears to terminate just posterior to the first or second normal tooth (tooth D or E). In a few species there is a transverse depression in a line with the posterior side of the median region, as in our figures of the *P. tomentosa* and *monilifera*, especially in the former, and this depression terminates normally just anterior to tooth S. Rarely, as in the *spinifrons*, the surface is still more divided; the median region shows the intramedial areolet distinct from the extramedial, and is even subdivided partly into three parts in the usual way; moreover, some of the antero-lateral areolets are distinct. The system of areolets in the Porcellanæ, is evidently the same as in the Cancroidea. The sides of the carapax may be either rounded *without* a margin, or thin margined; and the margin may be entire, denticulate, or even spinulose in part, the last being the case in the *P. armata*.

The characters of the mouth and other organs are given in Edwards's work on Crustacea, and need not be repeated. One of the most remarkable peculiarities is the position of the outer antennæ, posterior and exterior to the eyes. The species live under stones along sea-coasts, near low-tide level, also in cavities among corals, &c.

1. FRONS SUPERNE VISUS RECTE TRANSVERSUS, NON TRIANGULATUS.

PORCELLANA BIUNGUICULATA.

Parce transversus, valde convexus et subglobosus, lævis, fronte supernè viso recto. Pedes antici meliiores, carpo elongato, plus duplo longiore quam lato, integro, lævi, manu lævi, obsoletè punctatâ, digitis manus majoris valde hiuntibus, superiore bene arcuato. Pedes sequentes nudi, tarso brevi, verticaliter valde biunguiculato (spinâ unguiculatâ vix breviorè quam unguiculum verum infra instructo).

A little transverse, very convex and subglobose, smooth; front as seen from above straight. Anterior feet of moderate size; carpus more

than twice as long as broad, entire, smooth; hand smooth, absolutely punctate, wholly naked, fingers very much gaping, the superior quite regularly and largely arcuate. Following feet naked, or very nearly so, tarsus short, profoundly two-clawed (an unguiculate spine hardly smaller than the true claw, proceeding from the under surface of the tarsus).

Plate 26, fig. 1 *a*, animal, enlarged four diameters; *b*, larger hand (left), *ibid.*; *c*, front view of front; *d*, tarsus, enlarged.

Loc. — ?

Length one and a half lines. Unlike the *pisum*, which it resembles, it has a narrow, oblong, and entire carpus. The two claw-like terminations of the tarsus are in the same vertical plane, and each is about as long as the part of the tarsus preceding the claw. These legs are without hairs, excepting two or three at the extremity of the fifth joint. The upper side of the hand, including the upper finger, is arcuate in outline. The larger hand is not hirsute between the fingers at base, while the smaller is so, and, at the same time, the latter closes so that the fingers are nearly in contact. Looking at the front in a front view, it is seen to be pointed at middle, and rather prominently so.

PORCELLANA SCULPTA, *Edwards.*

Plate 26, fig. 2 animal, enlarged.

Island of Ovalau, Feejee Archipelago; also. Sooloo Sea, or Balabac Straits.

This thick, convex species has a bright red colour, with spots of white, or it may be wholly white. It is a little transverse.

EDWARDS, Crust., ii. 253.

PORCELLANA PISUM, *Edwards.*

Sooloo Sea, coral reefs.

A small and very convex species, slightly broader than long. The hand is broad and short and has faint longitudinal sulci, with a slight rugosity. The fingers are widely gaping in our specimen. The carpus is slightly longer than broad, three-toothed within, the first tooth much the largest, and its surface is nearly smooth. Following legs very nearly naked.

P. pisum, EDWARDS, Crust., ii. 254.

2. FRONS PARCE SALIENS, TRIANGULATUS; CARAPAX LEVIS, NUDUS.

PORCELLANA MONILIFERA.

Corpus paulo crassum. Carapax laevis, vix latior quam longus, fronte obsoletè triangulato, superne pubescente. Carpus latus, non oblongus, margine antico 3-dentatus, superficie supernâ 4 seriebus tuberculorum instar monilium confertis ornatus; manus lata et brevis, quoque seriatim tuberculosa. Pedes sequentes angusti, supra hirsuti.

Body rather thick. Carapax smooth, hardly broader than long, front obsoletely triangulate, pubescent above. Carpus broad, not oblong, anterior margin three-toothed, upper surface with four crowded rows of tubercles looking like beads; hand broad and short, also seriatly tuberculous. Following feet narrow, hirsute above.

Plate 26, fig. 3, animal, enlarged two diameters.

Rio Janeiro; also, Raraka?

Length of carapax, 4·3 lines; breadth, 4·4 lines; length of carpus of larger leg, 3 lines, and breadth, 3½ lines, being broader than long. The proportions of the animal are nearly as in the *grossimana*. It is also near the *sculpta*; but the front is not straight transverse, and the anterior margin of the arm is three-toothed. These teeth are nearly equal (the basal longest), sparingly denticulate and minute tuberculate above. The tubercles of the carpus and hand look somewhat like ranges of beads. The moveable finger is also tuberculate; surface of hand under base of moveable finger densely hairy. The fourth and fifth joints of the fourth pair of legs are densely hirsute above; the

third joint is somewhat hirsute, and the second and third pairs of legs are similar.

PORCELLANA SULUENSIS.

Carapax convexus, æque latus ac longus, non rugatus, sparsim crinitus, fronte fere recto, leviter triangulato; latere carapacis pone angulum post-orbitalem sed ante emarginationem antero-lateralem uni-spinoso, posteriore prope medium minutè tri-spinuloso. Pedes paulo hirtelli; antici mediocres, carpo oblongo, intus 2-3-dentato, dentibus tenuiter spinuliformibus.

Carapax as long as broad, rather convex, not rugate, sparsely crinite, front nearly straight, faint triangulate, side of carapax behind the post-orbital angle but anterior to the antero-lateral emargination uni-spinose; more posteriorly, near middle, three minute spinules. Feet somewhat hairy, anterior of moderate size, carpus oblong, two or three teeth on inner margin, the teeth like slender spinules.

Plate 26, fig. 4, animal, enlarged four diameters.

Sooloo Sea, from a depth of six and a half fathoms.

Length and breadth of carapax, 1·4 lines. The specimen is evidently young, yet its characters are so far peculiar that we have felt warranted in naming and describing it. The hairs on the carapax are probably, to a great extent, due to its young state. It resembles the *grossimana* in the low triangular front, and is also near the *pisum*; but it is distinguished by the oblong carpus, with its two or three spiniform teeth, and the spinules on the lateral margin of the carapax, as well as that just behind the post-orbital angle. It is possible that on reaching maturity, the front becomes more inflexed, so as to present a straight profile in an upper view, as in the *pisum*, and others allied.

PORCELLANA GROSSIMANA, Guérin.

San Lorenzo, Peru; also, Valparaiso.

Length of carapax, six lines; breadth, six and one-third lines; breadth and length of carpus, three and one-fourth to three and a half lines. Colour, a fawn tint; also, other specimens from San Lorenzo, spotted with brownish black of different shades and a light red tint, carpus brownish, apex of fingers approaching vermilion. Carpus widest towards base, and having two teeth on its inner margin. Upper surface of both carpus and hand unevenly coarse granulous or minute tuberculous. Under surface of hand fine and even granulous. Third, fourth, and fifth joints of the following pairs of legs hairy above, and the fifth somewhat so below. Front of the carapax very short triangular, the sides being concave, and the surface above pubescent.

GUERIN, Mag. de Zool. for 1838, fig. 3, pl. 26.

P. natalensis (?) of KRAUSS, op. cit., p. 58, pl. 4, f. 1.

3. FRONS SUPERNE VISUS PROMINENTER TRIANGULATUS, NON DENTATUS.

a. *Carapax levis, nudus.*

PORCELLANA VALIDA.

Violaceæ et granulosæ affinis. Carapax fere levis, utrinque obsolete marginatus, fronte planus, quoad marginem orbitâ paulo excavatus. Antennæ externæ flagello parce pubescentes, pilis latitudine flagelli longioribus. Articulus pedum 4-torum 3tius latus, 5tus paulo hirsutus, 4tus prope apicem parce hirsutus. Carpus manusque subtiliter granulati; manus superficie partim villosa.

Near the *violacea* and *granulosa*. Carapax nearly smooth, with a minute margin either side, front plain, the front margin excavated by the orbit. Outer antennæ having the flagellum sparingly pubescent, the hairs longer than the breadth of the flagellum. Third joint of the fourth pair of legs broad, fifth a little hirsute, fourth somewhat hirsute about apex. Carpus and hand minute granulous; hand above partly villous.

Plate 26, fig. 5 *a*, animal, natural size; *b*, part of flagellum of outer antennæ, from near its middle.

Valparaiso?

Length of carapax, 8.2 lines; breadth, 8.4 lines. Colour, dark brown with interrupted lines of brown and yellow, especially on posterior part of carapax. The species differs from both the *violacea* and *granulosa* in the hairs of the outer antennæ; it has the lateral margin nearly, the orbit, the granulous carpus and hands, and the hirsute extremity of the fourth pair of legs, of the *granulosa*; but the broad third joint of the same legs, the plane beak without a medial depression or furrow, are as in the *violacea*. The villous covering on the hand near its outer margin is also characteristic.

PORCELLANA VIOLACEA, Guérin.

Plate 26, fig. 6 *a*, part of flagellum of outer antennæ, from near its middle, enlarged; *b*, extremity of leg, natural size.

Among stones, along the shores of the Bay of Valparaiso.

Length of carapax, 9.8 lines; breadth, 10.2 lines; ratio, 1:1.04. Colour, fine blue and purplish blue. The outer antennæ are long, and the flagellum is without hairs, excepting a few that are shorter than the joints and inconspicuous. The fourth joint of the second, third, and fourth pairs of legs is naked, and so also the fifth, excepting near tip, and a single range on the outer lateral surface in fourth pair: on the inner surface near lower margin there are three or four minute spines, the line terminating in one or two at the lower apex of the joint.

Porcellana violacea, GUÉRIN, Bull. Soc. Sci. Nat. de France, Séance du 23 Déc., 1835, p. 115; Mag. de Zool., 1838, p. 5, pl. 25, f. 2; EDWARDS, Crust., ii. 250.
P. macrocheles, PÆPPIG, Crust. Chili, Wieg. Arch., 1836, p. 142, pl. 4, f. 1.

PORCELLANA GRANULOSA, Guérin.

Plate 26, fig. 7, part of flagellum of outer antennæ, from near its middle, enlarged.

Sandy beaches near Valparaiso.

Length of carapax, 6·4 lines; breadth, 6·9 lines; ratio, 1:1·08. The outer antennæ are as naked as in the *violacea*. The carpus and hand are fine granulous. The penult (fifth) joint of the second, third, and fourth pairs of legs is hirsute in tufts, and the fourth joint a little so; the third joint is much narrower than in the *violacea*. The colour of the species is dark brownish or bluish black, somewhat lined transversely.

P. granulosa, GUERIN, Bull. Soc. Sci. Nat. de Fr., 1835, p. 115, and Mag. de Zool., 1838, p. 6, pl. 25, f. 1.

P. striata, EDWARDS, Crust., ii. 250.

PORCELLANA ELONGATA, *Edw.*

New Zealand, Bay of Islands.

Length of carapax, 6·4 lines; breadth, 5·8 lines; ratio, 1:0·9. In our specimens, the tooth on the anterior margin of the carpus near its base is commonly acute, though sometimes obtuse. The outer antennæ are naked, the hairs being extremely short. The longitudinal depression of the beak is not deep. The fifth joint of the fourth pair of legs is hirsute, and the fourth somewhat so about apex. The third joint has a nearly smooth surface.

In another specimen, seven and one-fifth lines long, which appears to be of this species, the tooth on the anterior margin of carpus is obsolete, and there is only one serrature on the posterior margin near apex. The third joint of the fourth pair of legs has the surface slightly rugulose.

P. elongata, EDWARDS, Crust., ii. 251; A. WHITE, Voy. Erebus and Terror, pl. 3, f. 3.

PORCELLANA SPECIOSA.

Carapax depressus, lævis, parce oblongus, pone angulos post-orbitales

dente acuto instructus, superficie inter hos angulos paulo carinata, fronte undulato, paulo inflexo. Carpus leviter granulatus, intus inequaliter 4 dentatus, extus versus apicem 2-3 serratus; manus minutè granulata, nuda. Articulus pedis 4ti 5tus gracilis, paulo compressus, sparsim pubescens.

Carapax depressed, smooth, sparingly oblong, a short distance behind the orbit an acute tooth, surface between the post-orbital angles somewhat carinate either side of the medial line; front undulate, inflexed. Carpus fine granulous, on inner margin about four unequal teeth, on the outer towards apex two or three serratures. Hand minute granulous, naked. Fifth joint of fourth pair of feet slender, a little compressed, sparsely pubescent.

Plate 26, fig. 8, animal, enlarged two diameters.

Drummond Island (or Tapateouea), Kingsmills Group; Wakes Island, North Pacific; Mangsi Islands, Balabac Straits; Raraka. Paumotu Archipelago.

Length of carapax, 4.4 lines; breadth, 4 lines. Colour, yellowish or buff, with purple and orange dots; legs of same colour, excepting third and fourth joints of second, third, and fourth pairs, which are purple with some buff, and white on outer half of fifth joint. The carapax is slightly granulous or rugulose near the lateral margin. The outer margin of the carpus is somewhat raised and granlato-serrulate, becoming serrulate near apex. There are sometimes five teeth on the inner margin of the carpus, though usually but four. The beak is rounded at extremity, and the apical portion is flexed downward a little more than the preceding part.

This species has the tooth behind the orbital angle which characterizes the *maculata*, but it is not "bombée;" the beak is not nearly horizontal, and the carpus has four instead of two or three teeth on the inner margin. The third joint of the fourth pair of legs is twice as broad as the fifth joint. The hands are granulous on both surfaces. The outer antennæ are about three times as long as the carapax.

PORCELLANA DENTATA? *Edw.*

Specimens from the Paumotu Archipelago (Waterland, Raraka, Carlshoff, and other islands), lost with the wreck of the Peacock, are mentioned as follows, in the author's note-book, and may pertain to the *P. dentata*.

"Colour, dark brownish purple to brownish blue and dark ash-brown; fine dark blue to purple below. Beak triangular, rounded, having a deep longitudinal furrow above. Carpus with *four* serratures."

PORCELLANA MITRA.

Carapax lævis, depressus, orbiculato-ovatus, anticè triangulatus et minutè denticulatus aut spinulosus, margine orbitâ non excavato. Pedes antici graciles, scabriculi; manus perangusta; carpus oblongus, intus subacutè 2-dentatus; brachium apice instar spinæ productum. Pedes sequentes superficie scabriculi, nudi.

Carapax smooth, depressed, round-ovate, triangulate anteriorly and margin minutely spinulous or denticulate, not excavated by orbit. Anterior feet slender, somewhat scabrous; hand very narrow; carpus oblong, having two narrow pointed teeth; arm produced at apex into a spine or tooth. Following feet with the surface scabrous, naked.

Plate 26, fig. 9 *a*, animal, enlarged; *b*, extremity of abdomen.

Island of San Lorenzo, Peru, under stones at low tide.

Length, two and a half lines. Colour, dark and dull violet, with a longitudinal whitish band along the middle of the back of the thorax, and also of the abdomen. The outline of the front is directly continuous with that of the sides, without any notch or emargination, and the margin is entire, except the minute spines or denticulations; it

is nearly acute in front and truncate behind. Outer antennæ somewhat longer than the body, flagella nearly naked.

b. *Carapax tomentosus aut pubescens, et non nudus.* [*Frons fere trilobatus.*]

PORCELLANA TOMENTOSA.

Carapax pedesque sparsim tomentosi. Carapax paulo oblongus, paulo pone oculos spinâ lateraliter instructus, fronte subito angustiore quam latitudo interorbitalis, eoque trilobato, lobo mediano triangulato, rotundato, externo rectangulato obtuso; superficie carapacis antè circumscriptâ, regione medianâ postice circumscriptâ. Pedes antici parvi, carpo oblongo, intus acute tenuiterque 4-5-dentato; manu elongatè triangulatâ, valde depressâ.

Carapax and feet sparsely tomentose. Carapax oblong, having a short spine a short distance behind the eyes; front abruptly narrower than interorbital breadth, and hence trilobate, median lobe triangular, rounded, the outer rectangular, and not projecting forward, obtuse; surface of carapax having a transverse prominence either side of median line, just posterior to line of orbits, median region circumscribed behind. Anterior feet small; carpus oblong, and having four or five slender acute teeth on inner margin; hand long triangular, and very thin.

Plate 26, fig. 10, animal, enlarged two diameters.

Raraka Island, Paumotu Archipelago.

Length of carapax, 3·2 lines; breadth, 2·7 lines. From the lateral spine of the carapax a depression passes inward and backward, and a connecting line forms at middle the posterior limit of the median region. The hands are about as long as the breadth of the carapax, and very thin. The orbit makes a semicircular depression in the margin of the carapax. Of the five teeth of the carpus in our specimen, the middle one is much smaller than the others, and the fifth is next smallest; there are six teeth, counting the one at the apex on the same margin.

c. *Carapax transversim rugatus*.

PORCELLANA BOSCHII? *Savigny*.

Plate 26, fig. 11, animal, natural size.

Rio Janeiro; found among serpulæ along rocky shores.

Length of carapax, three-fourths of an inch to one inch. Colour, deep cherry-red, paler at the base of the ridges. Beak prominently triangular, obtuse. Ridges of carapax and legs finely ciliated, those of the hand and carpus slightly crenulate. Carpus with four large denticulate serratures on the anterior margin, and outer margin of upper surface furnished with a few short spines. Hand broad and large (nearly twice as wide as carpus), with outer edge finely serrate, moveable finger with apex much prolonged and incurved, densely villose beneath. Following pairs of legs thin hairy, third joint ciliate on anterior margin. Basal joint of outer antennæ quadrate anteriorly and having angles acute and a little divergent; second joint cylindrical, length, more than three times that of the carapax. In our specimen, the ridges of the carapax are continued uninterrupted or nearly so across the medial region, while they are represented as much broken in the *Boschii*. The *rugosa* of Edwards is described as having five or six teeth to the anterior margin of the carpus.

P. Boschii, SAVIGNY, Crust., Egypt, pl. 7, f. 2.

4. FRONS TRIDENTATUS.*

PORCELLANA PUNCTATA (*Guérin*).

San Lorenzo.

* The lateral teeth of the front are either near the medial, or else distant and over the eyes. By losing their prominence, they pass gradually into species having a simply triangular front. *P. tomentosa* is intermediate, it having lateral lobes, but the front of these lobes is transverse and not salient, tooth-like.

Length, 6 lines; breadth, 6·1 lines, being greatest a little anterior to the middle.

P. punctata, GUERIN, Bull. de la Soc. des Sci. Nat. de France.
P. cristata, EDWARDS, Crust., ii. 254.

PORCELLANA TUBERCULATA, *Guérin.*

Valparaiso, Chili; San Lorenzo, Peru.

Length of carapax, 5·4 lines; breadth, 5·7 lines. Colour, brownish red with a tinge of purple; the prominent surfaces of the carapax blue with a purplish tinge; purplish below. The surface of the carapax is short downy, like the *tuberculifrons*, excepting the low prominences. The front has three nearly equal and similar points, each with a small tubercle above. The carpus has five or six denticulate teeth, rather broad and partly rounded; and there is a row of small tubercles or granules some distance from the posterior margin.

Porcellana tuberculata, GUERIN, Bull. de la Soc. des Sci. Nat. de France, Séance du 23 Dec., 1835, p. 115, and Mag. de Zool., 1838, p. 6, pl. 26, f. 2.
P. lobifrons, EDWARDS, Crust., ii. 256.

PORCELLANA TUBERCULIFRONS, *Edwards and Lucas.*

Valparaiso.

Length of carapax, fourteen lines; breadth, fifteen lines. The surface of the carapax is more even than in the *tuberculata* of Guérin (*lobifrons*, Edwards); the middle lobe of the front has two small tubercles above instead of one, and the outer lobes are subquadrate: the carpus has but two or three large teeth, and quite near its posterior margin there is a range of small tubercles. The carapax and legs have the surface short villous.

P. affinis, GUERIN, Bull. de la Soc. des Sci. Nat. de France, Séance du 23 Dec., 1835, p. 116, and Mag. de Zool., 1838, p. 6.

P. tuberculifrons, EDWARDS and LUCAS, D'Orb. Crust. S. A., 33. The name *affinis* was previously applied to another Porcellana by Gray.

PORCELLANA COCCINEA, *Owen*.

Sandwich Islands, island of Maui.

Length of carapax, 7.1 lines; breadth 7 lines, or slightly less than length, although the body looks oblong. The beak is prominent triangular, with a small tooth either side over the base of the eyes; the post-orbital angle is acute, and there is a short spine on the side of the carapax, a short distance posterior to the orbit, besides two or three denticulations between this spine and the angle of the orbit. Posterior to this spine there are no others on the sides of the carapax. The carpus in our specimen has three oblong teeth on the inner margin, exclusive of the inner apical angle. The third joint of the second, third, and fourth pairs of legs is laterally short hirsute, and the upper margin is spinous. The hand is minutely squamato-granulous. The rugosity of the carapax is faint, though distinct with a lens. The flagellum of the outer antennæ is naked. Under a lens, the triangular beak is a little denticulate either side, near the lateral tooth, where it is somewhat dilated, and just above there is a prominent point. The body is depressed and rather thin; the hand is thin.

P. coccinea, OWEN, Crust. of the Blossom, p. 87, pl. 26, figs. 1, 2. The specimens described by Owen, were from the Paumotu Archipelago.

PORCELLANA ANGUSTA.

Carapax multo oblongus, nudus, lævis, leviter rugulatus, fronte œque tridentato, dentibus triangulatis, margine antero-laterali acutè unidentato, posteriore integro. Pedes antici gracillimi, manu angustolongatâ, fere lineari, compressâ, digito inferiore infra pubescente, carpo oblongo, fere integro. Pedes 6 sequentes nudi aut nudiusculi; postici sub carapace celati.

Carapax unusually oblong, naked, smooth and shining, faintly rugulate, front with three equal triangular teeth, antero-lateral margin with a single acute tooth some distance behind the eyes; margin behind this entire. Anterior feet very slender, hand narrow elon-

gate, nearly linear, compressed, lower finger pubescent below, carpus oblong, nearly entire. Six following feet naked or nearly so; posterior pair concealed under the carapax.

Plate 26, fig. 12 *a*, animal, enlarged eight diameters; *b*, outer maxillipeds; *c*, extremity of abdomen.

Rio Janeiro, Brazil.

Length, one and a half lines; breadth, nearly a quarter less than the length. Tarsus much curved and naked. The medial tooth of the front is very slightly the largest, and its sides are not quite even. The carpus has one or two very minute serratures on anterior half of inner margin. The posterior legs were not in sight in any of the specimens. The caudal segment is triangular and nearly equilateral, the length slightly exceeding the breadth at base; the appendages either side are narrow oblong, with the articulation of the pair adjoining the caudal segment, situated just by the apex of the triangle; and the outer lamella does not reach beyond this articulation.

5. FRONS 5-7 DENTATUS.

PORCELLANA SPINIFRONS, *Edwards*.

Valparaiso, Chili; San Lorenzo, Peru.

Carapax a little oblong, embossed. Colour, fine brownish red spotted with brownish black; specimens from San Lorenzo vary from deep olive-green to brownish black, with a violet tinge, legs brownish violet. The legs are naked, and the carapax shining, though finely embossed.

EDWARDS, *Crust.*, ii. 256.

PORCELLANA SCABRICULA.

Carapax depressus, parce oblongus, transversim leviter rugatus et partim subtiliter hirsutus, fronte prominenter lateque triangulato, supra oculos

duobus minutis dentibus acutis armato, et anterieus 2-3-denticulato, latere carapacis prope medium tri-spinuloso, pone angulum post-orbitalem dente acuto, et posterius in superficie carapacis altero simili. Pedes antici mediocres, rugati et scabriculi, carpo elongato, intus 4-dentato dentibus fere aequis, extus juxta marginem spinulis seriatis ornato, manu tenui, ad marginem externum hirsutâ. Pedes sequentes sparsim criniti, articulo tertio supra 3-4 spinuloso.

Carapax much depressed, sparingly oblong, transversely faint rugate, and in part minute hirsute; front prominently and broadly triangular, above the eyes a small acute tooth, and another just anterior to this, and still more anterior two or three denticulations; sides of carapax near middle with three spines, behind the post-orbital angle an acute tooth or spine, and another posterior to this on the surface of the carapax. Anterior feet of moderate size, rugate and somewhat scabrous, carpus oblong, having four acute, nearly equal teeth within, and on upper surface near outer margin a series of spines; hand thin, at outer margin hirsute. Following pairs of feet sparsely hairy, third joint with three or four spinules on the upper margin.

Plate 26, fig. 13, animal, enlarged three diameters.

Sooloo Sea.

Length of carapax, 2·4 lines; breadth, 2·1 lines. The beak is without lateral lobes, the triangle occupying the whole breadth; yet there are two teeth near either eye, which place the species near the *spini-frons*, although the spines are smaller than in that species. The lateral spines are in all five on either side, posterior to the post-orbital angle; the *first* is situated just behind the antero-lateral emargination, and not anterior to it; the *second* is behind the first, a little distance from the margin; the other three are marginal, or nearly so. The teeth of the arm are nearly as broad as long, and acute. The upper surface of the hand has the upper and lower parts of the outer surface meeting in an angle, along a line reaching from the base to the articulation, and either part is rugate or pseudo-squamate.

PORCELLANA ARMATA.

Carapax lævis, subgranulosus, non areolatus, paulo convexus, oblongus, lateribus prope medium trispinosus et pone angulum post-orbitalem unispinosus, fronte 7-dentatus.

Carapax smooth, subgranulous, not at all areolate, little convex, somewhat oblong; sides of carapax having three acute spines near middle and one just behind post-orbital angle; front seven-toothed.

Plate 26, fig. 14, carapax, enlarged four diameters.

Mangsi Island, Balabac Passage, north of Borneo.

Length of carapax, two and one-fourth lines; breadth, two lines. The specimen is much mutilated in its limbs; yet, its distinctive characters are well pronounced in the carapax. The middle tooth of the front is also mutilated; of the others, the pair next to the medial tooth is broader and subacute; the other two are spiniform and acute, one of the spines being at the margin of the orbit, and the other more interior. The upper margin of the orbit is thin, and somewhat reflexed; its outline excavate. The tooth behind it is between the post-orbital angle and an indentation of the side of the carapax. The posterior margin of the carapax is straight.

 SECTION III. ANOMOURA SUBMEDIA.

SUBTRIBE VI. LITHODEA.

THE tribe Lithodea contains three genera, *Lithodes*, Latreille; *Lomis*, Edwards; and *Echinocerus*, White.

In *Lomis*, the beak is nearly rudimentary, the surface is tomentose, and the fifth joint of the outer maxillipeds, according to De Haan,* very broad (twice as broad as the fourth).

Lithodes has a distinct spinigerous beak, a spinous or verrucose carapax, and the fifth joint of the outer maxillipeds oblong and seldom wider than the fourth.

The genus *Echinocerus* of A. White, was proposed for a species from the Columbia River. From the description he has given,† we are unable to determine in what generic characters it differs from *Lithodes*.

GENUS LITHODES.

The species of *Lithodes* hitherto described are the following:—

1. *L. Maia*, figured by Pontoppidan, Hist. Nat. de la Norwege, ii. pl. 25; *Cancer maja* of Linnæus, Herbst; *L. Maia* of Leach; *L. arctica* of Lamarek, Edwards (ii. 186), &c.
2. *L. Camschatica* of Tilesius and De Haan (Faun. Japon., 217, pl. 47).
3. *L. hystrix*, De Haan (Faun. Japon., 218, pl. 48); *L. arctica* of Siebold (*Spicilegia*, Faun. Japon., 15).
4. *L. antarctica*, Hombron and Jacquinot (Voy. au Pole Sud, pl. 7).
5. *L. granulosa*, Hombron and Jacquinot (ibid., pl. 8, f. 15).
6. *L. brevipes*, Edwards and Lucas (Arch. du Mus. d'Hist. Nat., ii. 463, pl. 24-27).

The first three are from the northern seas; the last three from the southern. To these we add the *L. verrucosa*, another Fuegian species.

LITHODES ANTARCTICA, *Hombron and Jacquinot*.

Nassau Bay, Fuegia.

Plate 26, fig. 15, represents the abdomen of a large female, natural size.

The species grows to a very large size; specimens are often five inches

* Faun. Japon., p. 215, pl. Q, and pl. 48, f. 2, *Lomis dentata*, De Haan.

† Ann. Mag. Nat. Hist. [2], iii. 225.

long, with a breadth of four and one-third inches, the longest legs being nine and a half inches long. The exuvia of one, procured by us, was eight inches in length, with the longest legs fifteen inches in length. The species is abundant, and is found in six or seven feet water, where it is observed to creep along the bottom with sluggish motion; they have no legs or appendages fitted for swimming. Colour, dark cherry-red, the carapax with a slight purplish tinge. The long spines that cover the carapax and legs are longest proportionally in small individuals. Eye small, the cornea situated a little to one side of extremity of pedicel; there is a short process to apex of pedicel beyond cornea. Whole length of outer antennæ about half that of the carapax. Right hand much the stoutest. Second basal joint of outer antennæ with a single longish spine on outer side.

LITHODES VERRUCOSA.

Carapax omnino verrucosus, margine antero-laterali 12-15-dentato, rostro breviter trispinoso, paulo superante spinam extra-orbitalem. Antennæ externæ breves, articulo secundo extus valde dilatato et 4-5 spini-dentato. Pedes toti breves et undique verrucosi, carpo intus triangulate dilatato, 6-dentato, dentibus paulo hirsutis, manibus subtuberculatis, digitis hirtis; pedum sequentium articulis 3tio 4to 5toque supra dentatis, dentibus scabris.

Carapax verrucose throughout, antero-lateral margin 12-15-dentate, beak short three-spinose, projecting but little beyond the extra-orbital spine. Outer antennæ short, second joint superiorly much dilated, and with four or five spreading spiniform teeth. Feet all short and verrucose; carpus triangulately dilated at inner margin, and with six teeth which are a little hirsute, hands subtuberculate, fingers rough hairy; third, fourth, and fifth joints of following six legs dentate above, the teeth scabrous.

Plate 26, fig. 16, animal, natural size.

Fuegia.

Length of carapax of a male, one inch and seven lines; greatest breadth, one inch six and a half lines; right hand the larger, one

inch long, and half an inch wide; carpus, half an inch long, and nearly eight lines wide to top of medial spine on inner margin. The warts of the surface are very unequal; but none are over a line in breadth; they have a crenulate border, or a subradiate appearance, as in the enlarged figure. The fingers, as usual in the genus, are excavate and have corneous tips. The abdomen is verrucose on the outer surface throughout like the carapax.

The *granulosa* of Hombron and Jacquinot, according to the figure, has the beak projecting scarcely at all beyond the extra-orbital angle; the carpus is oblong and triangulately dilated within, and the fingers are hardly hairy. They have as yet published no description.

SECTION IV. ANOMOURA INFERIORA.

AMONG the Anomoura of this the lower section, we find a transition in the structure of the carapax to the Macroura, which it is of some interest to trace out. We have remarked elsewhere upon the differences in the sutures of the Brachyura and the Macroura; that the former have a longitudinal suture on the lower surface of the carapax, between the legs and outer margin, and the latter a transverse dorsal suture, with sometimes (as in the Astaci), traces of longitudinal dorsal sutures posterior to the transverse suture. In this division of the Anomoura, the transverse dorsal suture of the carapax is strongly marked in the Paguridea and Ægleidea, though faint or wholly wanting in the Galatheidea. The lateral longitudinal suture of the Brachyura exists in Galathea distinctly; it is less distinct, although apparent, in Æglea, and is wanting wholly in many Paguridea; while the dorsal longitudinal sutures are strongly drawn in both the Ægleæ and the Paguridea. The Galathæidea, it should be remembered, are in most of their characters more decidedly Macroural than either of the other groups, although wholly like the Brachyura in the sutures of the carapax.

These points, and others of equal interest, will be more clearly apparent from an examination of figures; and we refer, for further

illustration, to figures of *Pagurus punctulatus*, and *Æglea*, on Plate 28, and species of *Galathea*, on Plate 30.

In the Galatheæ, it appears that the dorsal transverse suture is only indicated by a faint depressed line, and may be wholly wanting; and the only distinct suture is a longitudinal below, on either side.

In the carapax of the *Pagurus punctulatus* (fig. 4 *a*), the transverse dorsal suture, *d*, is very distinct and open, being occupied by a corneous membrane; it is continued forward along *d'*, either side to *m*, and (fig. 4 *b*) extends to the front margin, at the base of the outer antennæ (*m*). But from *d'* there is a branch suture passing laterally and downward to *n*, so as to separate a piece lettered S in the figures; as this suture descends it loses its distinctness, and is not more prominent than several other sutures that divide the lateral portions of the carapax in this part into several narrow stripes, that are more or less subdivided by cross sutures. The dorsal suture of the carapax divides it into an anterior (A) and posterior (P) region. In the former, near its middle, there is a U-shaped suture, lettered *u u*. This suture is distinct and a little open in the *punctulatus*, and is connected posteriorly by a medial suture with the dorsal.

In the Calcini, the U suture is only faintly indicated, and in the Cenobitæ it is not at all apparent.

In the posterior region of the carapax, the two dorsal longitudinal sutures (*p p*) are distinct in all the Paguridea, as seen in fig. 4 *a*. Besides these, there is in the *punctulatus* another longitudinal suture either side, less distinct, marked *l* in figures 4 *a* and 4 *b*. This last is, apparently, the analogue of the longitudinal suture in the Brachyura. In figure 4 *b*, it is observed, that there is no other lateral suture corresponding to the Brachyural. This suture, *l*, extends by *l''* to the angle in the transverse dorsal (*d*); but there is also another continuation of it, *l'*, which reaches to *d'*, near the commencement of *d' n*, and an area, *r*, is included by these sutures.

The fact that the suture *l* is less distinct than *p*, the dorsal longitudinal, shows that the Macroural is beginning to preponderate over the Brachyural structure. In Cenobita, the suture *l* is wanting, or only appears for a short distance to be lost entirely as it proceeds backward, while the dorsal, *p*, remains distinct.

The surface included by the U suture appears to correspond to the medial region in the Brachyura (see page 29), and faint depressions near the eyes appear to mark the anterior limits of this region, corre-

sponding to the anterior and outer side of 2 M. The area between the sutures $p p$, is analogous to the cardiac and intestinal area. Outside of $u u$, between u and d' , there is a faint depressed line running forward and outward, and finally bending more outward, so as to reach d' at the margin adjoining the piece S anteriorly. The space between u and this depressed line may correspond to 6 L, 5 L, (p. 29), but it is more probable that the whole space from v to d' has this relation. In either case, the piece S may correspond to the normal tooth or lobe S, and the suture $d' n$, may be the equivalent of the line between 1 R and 2 R (p. 29), while l' may correspond to that between 2 R and 3 R.

We thus trace out many of the regions of the Brachyural carapax in the carapax of this Pagurus, while, at the same time, we show the strong influence of a Macroural character.

Æglea affords similar facts (see fig. 6, Plate 30), and it is not a little remarkable that the sutures should be throughout almost identical with those of the Pagurus described. The transverse dorsal (d , fig. 6 *b*) is strongly marked. Either side, it bends forward, taking the course of d' towards the margin, and thence there is a continuation forward (m , fig. 6 *c*) to the base of the outer antennæ, precisely as in Pagurus. Moreover, there is also another suture (n), passing laterally and downward from d' , and thus separating a piece S, as in Pagurus. The anterior region of the carapax has the same U depression, and depressed lines terminate either side in the margin at the anterior side of S.

The correspondence is thus far exact; and it is hardly less so in the posterior region of the carapax. The two dorsal longitudinal sutures p, p , are as in Pagurus, only a little more distant. There is a lateral longitudinal suture which follows near the lateral margin, running backward from the piece S, as if a continuation of m ; it lies above the margin of the carapax for much of its course backward, and then passes below this margin to the posterior margin, like the lateral suture in the Brachyura. Where it is below the margin, it forms an angle and receives another suture (o) running obliquely from the edge. The suture l is continued to the angle between d and d' , as well as to s , in exact parallelism with what has been described of the Pagurus, although the piece r , thus included, is of very different shape in the two.

The U suture is again the posterior limit of the median region, and

the lines running laterally from the anterior part of the U, are apparently equivalents to the front margin of 5 L, 4 L (p. 29). The surface between *u* and *d'* is here also the same with 5 L, 4 L; and S is the analogue of the normal tooth or lobe S. That this last is true, is further probable from the teeth of the margin. The extra-orbital tooth, judging from the distance to the next tooth, may correspond normally to D and E, which teeth are often coalescent; then the three following teeth will be in order N, T, S. The suture *l''* has the position and relations of the depression between 2 R and 3 R (p. 29) much more exactly than in the Pagurus, owing to the more nearly Brachyural form of the carapax, and the area *r* is much like the areolet 2 R; while the suture between *r* and S may be that between 1 R and 2 R.

There is, therefore, a striking parallelism between the lines and markings of the carapax of these two Anomoural forms, and between them and the Brachyural carapax. It is a fact of importance also, that the lines which are mere depressions of the surface in the latter become actual sutures in the former. It is also of special interest that both the Brachyural and Macroual lines or sutures are here combined in the same species. The more minute relations to the Macroura will properly come under consideration in our remarks on that tribe of Crustacea.

SUBTRIBE VII. PAGURIDEA.

THE Paguridea include two groups, distinguished by the inner antennæ, outer maxillipeds, and some other characters, the one *aquatic* and the other *subterrestrial* in habit.

1. PAGURIDÆ.—Inner antennæ short, the first joint very short. Outer maxillipeds having a multiarticulate flagellum to the palpus. Habit aquatic or littoral.

2. CENOBITIDÆ.—Inner antennæ very much elongated, the first joint as long as the eyes or longer, and bent obliquely downward. Outer maxillipeds having no flagellum to the palpus. Habit subterrestrial.

The Paguridæ have hitherto been divided into but two genera, *Pagurus* including the species with an unsymmetrical or one-sided abdomen, and *Cancellus*, of Edwards, those with a symmetrical abdomen. There are, however, important characteristics which point to a division into other groups. These have been partly indicated by Milne Edwards in his subdivisions of the genus *Pagurus*, in his work on Crustacea,* and more distinctly in the *Annales des Sciences Naturelles*, for July, 1848.† In the latter article, there are, in certain instances, discrepancies between the character of the species and those laid down for the subdivisions, which we find it difficult to reconcile, such as the placing of *P. tibicen*, and some related species, with his "Æquimanes," when the left hand is very much larger than the right, and the *guttatus* and *granulatus*, with the "Senestres," although, in the former, the hands are as nearly equal as in many of the "Æquimanes," and in the latter, the *right* hand (as stated in his *Crustacés*, and in fact) is actually the larger. Yet, his sections are, in the main, natural groups, and some of them have more important points of distinction than he has mentioned.

The *Pagurus Bernhardus* is the type of one of these groups; and, besides being usually "dextres," or right-handed, as made in the arrangement just alluded to, they are peculiar in having acuminate fingers, with calcareous tips on the larger hand; and, although the fourth pair of feet are subcheliform, the scabrous area or rasp of the hand is confined nearly to the posterior edge, in these species; and, also, the species are mainly inhabitants of cold waters, while the ordinary Paguri live in warm water, and abound in the tropics. All the Paguri of England are of the *Bernhardus* type, with a single doubtful exception; those of the northwest coast of America are the same: we naturally, therefore, distinguish this group as a genus, under the name BERNHARDUS.

Among the remaining Paguri, the larger part have the fourth pair of feet subcheliform, terminating in a small broad hand, with the tarsus placed on the anterior margin of the hand, forming a finger. Yet, there are a few in which these feet are vergiform, and the tarsus is terminal, as in the preceding pairs of legs. These, moreover, have two pairs of appendages at the base of the abdomen below: the species are the "Pagures appendicules" of Edwards. They are also peculiar in

* *Crustacés*, ii. 213; see also *Annales des Sci. Nat.* [2], vi. 257.

† *Annales des Sci. Nat.* [3], x. 59.

having the flagellum of the outer antennæ more or less hairy, and often long ciliate, and also the inner antennæ are longer than the eyes, the second basal joint reaching to the extremity of the eye-peduncle. So many peculiarities warrant us in placing the species in a distinct genus, which we name PAGURISTES.

Another small group is peculiar in having a rostriform appendage to the ophthalmic joint; they are the "Pagures armés" of Edwards, including *P. miles* and *P. custos*. Besides this, the fingers of the hand are acuminate, as in *Bernhardus*, and calcareous at tip, yet the species are not right-handed as in that group. Of these we make the genus DIOGENES.

The other species are similar in having the fingers of the hands more or less spoon-excavate; no rostriform appendage to the ophthalmic segment between the eyes; the basal part of the outer antennæ furnished above with a moveable acicle; the flagellum of the outer antennæ naked or nearly so; the inner antennæ never exceeding the length of the eyes by the length of the third joint; the fourth pair of feet subcheliform, with the scabrous area on the hand lateral and broad. The great majority of these species, large as well as small, have the tips of all the fingers corneous. But a few have these tips in the larger hand *calcareous*, besides being peculiarly smooth in the appearance of the limbs, and naked or nearly so. These have the left hand much the larger; yet, unlike the strongly left-handed species with corneous tips, the front margin has a small salient point at the middle, like most equal-handed species with corneous tips. Of the species with calcareous tips to the fingers, we make the genus CALCINUS. Of the remainder, part have the fingers opening vertically, while a well-characterized group have them opening horizontally; the former have the hands usually very unequal, and in general a truncate front, while the latter have nearly equal depressed hands, and a small rostrum or triangular median point to the front. The latter constitute the group CLIBANARIUS, and the former include the groups PAGURUS and ANICULUS. The former (*Paguri*) have the front truncate, without any appearance of a median point, while the latter (*Aniculi*) have a prominent point or rostrum, besides subequal hands. Aniculus forms the passage between Pagurus and Clibanarius; the general habit is that of the latter, while the fingers have the vertical motion of the former.

The following are the genera, with their characteristics:—

FAM. I. PAGURIDÆ.

Antennæ internæ mediocres, articulo 1mo brevissimo. Maxillipedis externi palpus flagello multiarticulato instructus.—Species aquaticæ vel littorinæ.

1. PAGURINÆ.—Abdomen asymmetricum.

1. *Digiti acuminati. Flagellum antennarum internarum sæpe plus minusve pilosum.*

G. 1. PAGURISTES (*D.*)—Pedes 4ti non subcheliformes, tarso terminali. Corpus 2–4 appendicibus pone pedum posticorum bases instructus. Basis antennarum internarum paulo longior, apice articuli 2di extremitatem oculorum fere attingente.

G. 2. DIOGENES (*D.*)—Pedes 4ti subcheliformes. Pedes 1mi inæqui, sinister major. Annulum ophthalmicum rostriferum. Appendicibus pone pedum posticorum bases carens.

G. 3. BERNHARDUS (*D.*)—Pedes 4ti subcheliformes. Pedes 1mi interdum subæquales, sæpius dexter major. Annulum ophthalmicum non rostriferum. Appendicibus articulatis pone pedum posticorum bases carens.

2. *Digiti instar cochlearis excavati. Flagellum antennarum internarum nudum vel nudiusculum.*

G. 4. PAGURUS.—Manus anticæ sæpius compressæ, interdum subæquæ, sæpius sinistrâ majore; digitis apice corneis, in plano verticali claudentibus. Frons medio non rostratus sed truncatus.

G. 5. CALCINUS, *D.*—Manus anticæ compressæ, inæquæ, sinistrâ majore, digitis apice calcareis, in plano verticali claudentibus. Frons medio breviter rostratus.

G. 6. ANICULUS, *D.*—Manus anticæ subæquæ, digitis apice corneis, in plano verticali claudentibus. Frons medio breviter rostratus.

G. 7. CLIBANARIUS, *D.*—Manus anticæ plus minusve depressæ, subæquæ, digitis apice corneis, in plano horizontali claudentibus. Frons medio breviter rostratus.

2. CANCELLINÆ.—Abdomen symmetricum.

G. CANCELLUS, *Edwards.*

FAM. II. CENOBITIDÆ.

Antennæ internæ multo elongatæ, articulo 1mo oculis sæpius longiore, valde deflexo. Maxillipedis externi palpus flagello non instructus.—Species subterrestriales.

G. 1. CENOBITA, *Edwards.*—Corpus angustum, carapace elongato, fronte non rostrato. Abdomen in cochleam retortum, superficie plerumque carnosum.

G. 2. BIRGUS, *Leach.*—Corpus latum, carapace parce oblongo postice latissimo, fronte triangulato. Abdomen rectum, laminis crustaceis dorso plerumque tectum.

FAMILY I. PAGURIDÆ.

SUBFAMILY I. PAGURINÆ.

GENUS PAGURISTES, Dana.

Pedes 4ti vergiformes, tarso terminali. Abdomen ad basin duabus vel quatuor appendicibus infra instructum. Antennarum externarum flagellum plus minusve crinitum, sæpe elongatè ciliatum. Antennæ internæ longiores, articuli apice secundi extremitatem oculorum fere attingente.

Feet of fourth pair not prehensile, tarsus being terminal. Abdomen having below at base two or four appendages. Flagellum of outer antennæ more or less crinite, often long ciliate. Inner antennæ longer than in other Paguridæ, the apex of second joint reaching to extremity of eyes.

In the following species of this genus the hands are equal or nearly so, and the inferior margin in each is very much more arcuate than the superior. The tips of the fingers are either calcareous or corneous; usually a terminal spine or point is of the latter character.

PAGURISTES LONGIROSTRIS.

Rostrum angustè elongatum, acutum, integrum. Carapacis regio antica subcordata, fere nuda. Oculi graciles, margine carapacis antico longiores, basi vel aciculo antennarum externarum vel basi antennarum internarum multo longiores; squamâ basali mediocri, acutâ. Flagellum antennarum externarum nudiusculum. Pedes antici æqui manu carpoque depressis, latis, bene areolatis non scabriculis, manu infra partim villosâ. Pedes 4 sequentes intus areolati, supra hirsuti, extus fere læves et nudi.

Beak long and narrow, acute, entire. Anterior region of carapax subcordate, nearly naked. Eyes slender, longer than anterior margin

of carapax, and very much longer than base or acicle of outer antennæ, or base of inner antennæ; basal scale of moderate size, acute. Flagellum of outer antennæ naked. Anterior feet equal, hand and carpus depressed, broad, neatly areolate, but not at all scabrous to the touch, hand below near outer margin villous. Four following feet areolate within, hirsute above, nearly smooth and naked on outer surface.

Plate 28, fig. 1 *a*, animal, enlarged two diameters; *b*, part of flagellum of outer antennæ.

East Indies.

Length, one and one-fourth inches. The carapax has on the front a projection just exterior to the eyes, which is simply acute on one side, and bears two minute points on the other; the anterior margin between forms a raised border. The basal scale of the eyes is broad at base, but abruptly narrows and terminates in a narrow triangular point, which has two or three spinules near apex. The acicle of the outer antennæ has spinulous margins. The hands are covered with small areolæ elongated transversely, which have the anterior margin ciliated; but the areolæ are so even in surface that there is no scabrous feel to the touch. The immoveable finger has a very neatly denticulate margin, while the moveable one has the margin corneous. The hairs of the back margin of the tarsi are longer than those of the lower margin. The inner surface of the penult joint of these legs has ciliated areolæ like the hands. The fourth pair of legs is not subcheliform, but unguiculate.

PAGURISTES HIRTUS.

Rostrum brevissimum. Carapax plerumque hirtus. Oculi graciles, margine carapacis antico non breviores, basi vel aciculo antennarum externarum multo longiores, basi antennarum internarum breviores, squamâ basali valde elongatâ, angustâ, margine externo arcuato et tenuiter bene denticulato. Flagellum antennarum externarum infra elongatè ciliatum. Pedes 2di 3tiii que hirti, crassiusculi. Pedes antici æqui, manu breviter spinosâ et fasciculis hirsutâ, subellipticâ, margine superiore fere recto, inferiore spinis conicis armato.

Rostrum very short. Carapax mostly rough hairy. Eyes slender, not shorter than anterior margin of carapax, much longer than base or acicle of outer antennæ, but shorter than base of inner; basal scale much elongated and narrow, the outer margin arcuate and edged with minute, slender teeth. Flagellum of outer antennæ long ciliate below. Feet of second and third pairs rough hairy in tufts, rather stout. Anterior feet equal, hand short spinous and tufted hirsute, subelliptical in outline, superior margin nearly straight, inferior much arcuate and set with conical spines.

Plate 28, fig. 2 *a*, animal, enlarged two diameters; *b*, part of inner antennæ; *c*, hand; *d*, part of leg of second or third pair; *e*, *ibid.*, of fourth pair; *f*, *ibid.*, of fifth pair.

Chili.

Length, two inches. The basal scale of the eyes is very peculiar in its very elongate narrow form, and denticulate outer margin. The male abdomen has four appendages on the left side, the first obsolete, the rest with a small basal joint and a long narrow ciliate termination. The ciliation of the outer antennæ is long.

The species resemble the *Bernhardus æquimanus*, as observed under that species.

GENUS DIOGENES, Dana.

Annulum ophthalmicum rostriferum. Pedes 4ti subcheliformes. Manus sinistra major; digiti acuminati, apicibus calcarei.

Ophthalmic ring bearing a rostrum. Fourth pair of feet subcheliform. Left hand the larger; fingers acuminate, calcareous at tips.

The pointed fingers with calcareous tips ally the species to those of *Bernhardus*; but the left hand is much the larger, and the rostriform appendage to the ophthalmic ring is peculiar. The acicle of the outer antennæ is broad, and often deeply furcate, the two processes extending either side of the next joint.

DIOGENES MILES (*Fabr.*), *Dana.*

Plate 27, fig. 9 *a*, part of hand, much enlarged; *b*, tarsus of second or third pair of legs.

Sooloo Sea; also, New South Wales.

Length, two inches. The rostriform piece between the eyes is slender, a little concave above in its posterior half, with the edges denticulate, the teeth larger and spiniform about the apex. The base of the inner antennæ projects the length of its last joint beyond the eyes. Front margin sinuous and denticulate. Basal scale of the eyes truncate above and denticulate. Carpus and hand with moveable finger spinous along upper margin in two or three rows. Flagellum of outer antennæ thin and lax pubescent, not fringed below. Tarsus of second and third pairs of legs very short spinulous on upper margin.

Cancer miles, FABRICIUS, Ent. Syst., 2, p. 470.

Cancer Diogenes, HERBST, ii. 17, pl. 22, f. 5.

Pagurus miles, FABRICIUS, Supp., 412; EDWARDS, Crust., ii. 235, and Ann. des Sci. Nat., vi. 1836, 284, pl. 14, f. 2.

DIOGENES CUSTOS (*Fabr.*), *Dana.*

Plate 27, fig. 10 *a*, part of animal, enlarged two diameters; *b*, ophthalmic rostrum and basal scale; *c*, part of outer antennæ; *d*, left hand; *e*, right hand; *f*, part of third pair; *g*, extremity of fourth pair.

New South Wales.

The specimens here described as the *custos*, have the following characters in addition to those mentioned by Milne Edwards. Posterior region of the carapax pilose; anterior region with a few hairs in tufts and surface a little uneven. Ophthalmic rostriform appendage sparingly dentate, and not as narrow as in the *miles*. Outer

antennæ having the flagellum fringed below; the acicle hardly prolonged into a process on inner side, and its outer process not reaching beyond the apex of the joint following it.

Pagurus custos, FABRICIUS, Supp., 412; EDWARDS, Crust., ii. 236, and Ann. des Sci. Nat., vi. 1836, 284.

GENUS BERNHARDUS, Dana.

Pedes 1mi interdum subæquales, sæpius dexter major; digiti acuminati, apice calcarei. Annulum ophthalmicum non rostriferum. Appendicibus articulatis pone pedes thoracis posticos carens.

Anterior feet sometimes subequal, usually the right larger; fingers acuminate, with calcareous tips. Ophthalmic ring not rostriferous. No articulate appendages just posterior to fifth thoracic feet.

In the genus Bernhardus, the hands are much flattened or depressed in form, and so also, in general, the carpus; and the latter joint is sometimes as long as the hand and similar in form, but reversed. Not only is the right leg of the anterior pair larger than the left; but the same relation holds for the following two pairs. In a few species, however, the legs of the anterior pair are nearly equal, and the left may even be a little the larger. The acicle of the outer antennæ is long subulate, seldom shorter than the eye-peduncle. The tips of the fingers of the larger hand are calcareous.

1. *Manus major quoad margines symmetrica vel æque arcuata.*

BERNHARDUS NOVI-ZEALANDIÆ.

Oculorum pedunculi margine carapacis antico vix breviores, basi antennarum externarum parce longiores, aciculo hirsuto multo longiores; cornea non obliqua, perbrevis; squama basalis paulo angusta, apice inciso-denticulata. Pedes antici valde inæqui, fere nudi, carpo versus apicem paulo pubescente, granuli-spinuloso, manu grandi, oblongâ, parce longiore non latiore quam carpus, superficie 6 lineis tuberculatis (marginibus inclusis) ornatâ hasque inter lineas fere lævi; digito mo-

bili carinato, crenulato et superficie uni-seriatim tuberculato etiam tuberculis minoribus instructo. Pedes 3 sequentes marginibus ambobus dense hirsuti, vix spinulosi.

Peduncles of eyes hardly shorter than anterior margin of carapax, slightly longer than base of outer antennæ, much longer than acicle, which is hirsute on inner side; cornea not oblique, short; basal scale rather narrow, inciso-denticulate at apex. Anterior feet very unequal, nearly naked; carpus towards apex somewhat pubescent, surface granuli-spinulous; larger hand oblong, sparingly longer but not broader than carpus, having on the surface six lines of small rounded tubercles, the marginal being included, and smooth between, the moveable finger carinate and crenulate, outer surface with one series of tubercles and other smaller tubercles. Four following pairs of feet with the margins densely hirsute, hardly spinulous.

Plate 27, fig. 1 *a*, animal, natural size; *b*, part of flagellum of outer antennæ, much enlarged; *c*, extremity of leg of fourth pair, enlarged.

New Zealand.

Length, one and a half to two inches; ratio of carpus to hand, in length, nearly as 10:11, and breadth of hand, two-thirds its length. Colour, dark green to grayish green; rows of granules on hand deep blue; deep blue colour also at base of joints of six anterior legs; peduncle of eye green, except near cornea where it is white; eye brownish green; inner antennæ green with blue tips. The fingers of the smaller hand have a corneous edge, but not those of the larger. The tarsi are rather short, without spines above. The anterior part of the carapax is rather longer than broad, or not shorter; and it is nearly naked. The peduncle of the eyes is cylindrical, and has the tip triangular in outline. The hand of the fourth pair of legs is smooth excepting lower edge, and the moveable finger is broad lamellar. This species dies soon after being taken out of the water.

The *P. cristatus* (a New Zealand species, Edwards, Crust., ii. 218) has the acicle of the outer antennæ longer than the eyes, while it is much shorter in the above species.

BERNHARDUS ARMATUS.

Carapax subnudus. Oculorum pedunculi margine carapacis antico breviores sive basi sive aciculo subulato subnudo antennarum externarum multo breviores; cornea obliqua, dimidii pedunculi longitudine; squama basalis subovata, apiculata. Frons marginatus, medio paulo saliens, obtusus. Pedes toti fere nudi (manu junioris pubescentiore), antici valde inæqui, usque ad digitorum extremitatem dense tenuiter spinosa spinis partim subseriatis, manu grandi latâ, oblongâ, multo longiore et parce latiore quam carpus; 4 sequentes supra spinulosi, tarsis infra paulo lateraliter uniseriatim spinulosi.

Carapax nearly naked. Peduncles of eyes shorter than front; also much shorter than base of outer antennæ, or than the acicle, which is slender, subulate, and nearly naked; cornea oblique, half as long as peduncle; basal scale subovate, apiculate. Front marginate, the middle slightly salient, obtuse. Feet all very nearly naked (hand of younger individuals more pubescent); anterior pair very unequal, densely spinous even to tips of fingers, spines slender and subseriate, large hand broad and oblong, much longer and slightly broader than carpus, four following spinulous above, tarsi with a series of spinules below but inside of lower margin.

Plate 27, fig. 2 *a*, animal, natural size; *b*, extremity of fourth pair, enlarged.

Puget's Sound.

Length, one and three-fourths inches; length of hand, seven and a half lines; breadth, four lines; length of carpus, four and a half lines. On the legs there are a few hairs among the spines, but none longer than the spines themselves, and without a glass, they appear quite naked. The fingers of the smaller hand have a corneous edge, and there are traces of the same on those of the larger hand. The tarsi are long, and slender, and naked like the rest of the legs. The anterior part of the carapax is hardly as long as broad. The peduncle of the eyes has the projection at tip narrow; the scale at base has a

white calcareous margin, differing from the middle portions, which have a fleshy look; there is also a white calcareous border along the front margin of the carapax. The posterior part of the carapax is hardly less calcareous than the anterior, and both are very flexible. The outer antennæ are nearly as long as the body; the acicle almost naked.

BERNHARDUS HIRSUTIUSCULUS.

Frons breviter rostratus, subacutus. Carapax brevis, sparsim pubescens, regione anticâ transversâ. Oculorum pedunculi perbreves, basi antennarum externarum multo breviores, aciculo subnudo parce breviores; cornea vix obliqua; squama basalis ovata, non acuta. Pedes antichi valde inæqui, angusti, carpo manuque pubescentes et granuli-scabri, margine superiore non spinulosi nec denticulati, crassi; manu oblongâ (duplo longiore quam latiore) paulo breviora parce latiora quam carpus, marginibus symmetricis. Pedes 4 sequentes hirsutiusculi, non spinulosi, tarsi paulo compressis, infra subtiliter spinulosi.

Front short rostrate and subacute. Carapax short, sparsely hairy in tufts, anterior region transverse. Peduncles of eyes very short, much shorter than base of outer antennæ, and slightly shorter than the acicle, which is nearly naked; cornea scarcely oblique; basal scale ovate, not acute. Anterior feet very unequal, narrow, carpus and hand pubescent and granuli-scabrous, on upper margin not spinulous nor denticulate, stout and rounded; hand oblong (twice as long as broad), somewhat shorter and slightly wider than carpus, the margins symmetrical. Four following feet short hirsute, not spinulous, tarsi a little compressed, below minutely spinulous.

Plate 27, fig. 3 *a*, animal, enlarged two diameters; *b*, part of flagellum of outer antennæ, much more enlarged.

Dungeness, Puget's Sound.

Length, one and one-fourth inches; length of hand, four lines; breadth, two lines; length of carpus, two and three-fourths lines. Fingers of smaller hand having a corneous edge, but not those of the

larger. Tarsi of third pair long. On the surface of the moveable finger there is a row of minute tubercles.

BERNHARDUS PUBESCENS.

B. hirsutiusculo affinis. *Frons medio subacutus. Carapax longior, fere nudus, regione anticâ non transversâ. Oculorum pedunculi longi, margine carapacis antico non breviores, basi antennarum externarum parce longiores, aciculo multo longiores; cornea non obliqua; squama basalis subovata, apice rotundata. Flagellum antennarum externarum nudiusculum. Pedes antici valde inæqui, angusti, carpo manuque pubescentes, scabriculi, non sparsim granulosi, carpo ad marginem superiorem subtilissimè spinuloso, manu oblongâ (duplo longiore quam latiore) vix breviorè vel latiore quam carpus, marginibus symmetricis. Pedes 4 sequentes pubescentes, non spinulosi.*

Near *B. hirsutiusculus*. Front subacute at middle. Carapax longer, naked, anterior region not transverse. Peduncles of eyes long, not shorter than anterior margin of carapax, slightly longer than the base of the outer antennæ, and much longer than the acicle; cornea not oblique; basal scale subovate, rounded at apex. Flagellum of outer antennæ nearly naked. Anterior feet very unequal, narrow, carpus and hand pubescent, minute scabrous, and not scattered granulous, carpus minute spinulous near upper margin, hand oblong (twice longer than broad), hardly shorter or wider than carpus, the margins symmetrical. Four following feet pubescent, not spinulous.

Plate 27, fig. 4 *a*, part of animal, enlarged four diameters; *b*, *c*, right and left hands.

Loc. —?—Collected by officers of the ship Relief? The shells in which the species occur, are found, according to Dr. A. A. Gould, on the coast of the United States, one species as far north as Massachusetts, and also in the West Indies; another not farther north than Carolina. The species may be from Florida, but if collected by the ship Relief (Exp. Exp.), it is probably from Brazil.

Length, one inch. Near each margin of the hand there is a row of acute granules; the hairs are fine and rather long. The tarsi are

flattened and rather long and slender, surface not channeled. Hairs of flagellum of outer antennæ few, not longer than breadth of joints.

BERNHARDUS OBESOCARPUS.

Frons medio prominulus, obtusus. Regio carapacis antica paulo transversa, nudiuscula. Oculi crassi et perbreves, aciculo longiores, squamâ basali ovatâ, subacutâ, integrâ. Antennæ externæ nudæ, basi multo longiore quam oculus, aciculo crasso, brevi, apicem articuli 3tii attingente. Pedes toti fere nudi et granulosi, non armati; antici inæquii, manu majore oblongâ, convexâ, symmetricâ, granulis nitidis, partim seriatis, carpo multo crassiore quam manus et tertiâ parte brevior, parce latiore; pares 2di 3tiique crassiusculi, articulo 3tio supra scabro-rugato et breviter hirsuto, tarso curvato, canaliculato.

Front slightly prominent at middle, obtuse. Anterior region of carapax transverse, nearly nude. Eyes very short and stout, longer than acicle, basal scale ovate, subacute, entire. Outer antennæ nude, base much longer than eye, acicle stout, short, reaching to apex of third joint of base. Feet all nearly nude and granulous, not armed with spines; anterior pair unequal; larger hand oblong, convex, symmetrical, granules neat and shining, partly in series, carpus oblong, much thicker than hand, and a third shorter; second and third pairs of legs moderately stout, third joint rugate or scabrous above and short hirsute, tarsus curved, channeled.

Plate 27, fig. 5 *a*, part of animal, enlarged two diameters; *b*, right hand, *ibid.*; *c*, left, *ibid.*; *d*, right leg of third pair, *ibid.*

Valparaiso ?

Length of body, three inches.

BERNHARDUS ÆQUIMANUS.

Carapax sparsim pilosus, regione anticâ non oblongâ, fronte ad medium angulato et vix rostrato. Oculi cylindrici, aciculum antennalem longi-

tudine æquantes, squamâ basali apice productâ et 3-4-denticulatâ. Antennarum externarum flagellum infra longe ciliatum. Pedes superficie granulati, partim sparsim hirsuti, marginibus hirti; antici æqui, mediocres, manu breviter ellipticâ, parce latiore et longiore quam carpus, non costatâ, marginibus subspinulosis, carpo supra subspinuloso et hirtio. Pedum 4 sequentium tarsus bene canaliculatus, infra ciliatus.

Carapax sparsely hairy in tufts, anterior region not oblong, front having a low angle at middle, hardly rostrate. Eyes cylindrical, as long as acicle, basal scale prolonged on inner side, and 3-4-denticulate at apex. Flagellum of outer antennæ below long ciliate. Feet having surface granulate, in part sparsely hirsute and margins longer hirsute; anterior pair equal, of moderate size, hand short, elliptic, a little broader and longer than carpus, not costate, margins subspinous, carpus also subspinous above and hairy. Tarsus of second and third pairs of legs long, canaliculate, below ciliate.

Plate 27, fig. 6, animal, enlarged three diameters.

Valparaiso?

Body one and a half inches long. Eyes hardly as long as anterior margin of carapax. The long fringe of the outer antennæ allies the species to the Paguristes. Fourth joint of second and third pairs of legs small tuberculate along dorsal side and hirsute; fifth joint between small tuberculate or granulous and corrugate, with traces of a longitudinal channel above. Tarsus much longer than fifth joint, channels deep, with a series of hairs on inner half of inner channel, and outer half of lower channel, the hairs being continued on in each of these channels, but shorter. Second basal joint of outer antennæ broad and flat above, and having inner margin denticulate. A few minute tufts of hairs on peduncles of eyes, especially towards outer side. Granules (or minute tubercles) of hands hardly in series, excepting a single series near middle of surface. Peduncle of eyes extending on inner side nearly to tip.

This species resembles *Paguristes hirtus* in its equal hands, fringed outer antennæ, and several other characters. But it differs in the points of generic peculiarity, and besides, is different in the basal joints and acicle of the outer antennæ, in the tarsi, &c.

BERNHARDUS EDWARDSII (*Edw.*), *Dana*.

Callao, Peru; Chili.

This neat species has very unequal hands; the right broad and short, oval (opposite sides parallel), thin with thin edges (the edges slightly carinated), and a smooth even surface, excepting a neat miliary granulation; the fingers are broad, and the extremity of the hand, the fingers being closed, is very regularly rounded. The carpus is narrower than the hand, and about three-fourths as long. Anterior region of the carapax subovate, slightly oblong, pointed at middle in front. Legs of second and third pairs very nearly naked. Colour of the legs in a dead specimen flesh-red. Length of body, about one inch.

Pagurus perlatus, EDWARDS, *Ann. des Sci. Nat.*, 1848 [3], v. 60. We change the name *perlatus*, as the word in Latin signifies very broad, and notpearly.

2. *Manus majoris margines inter se dissimiles, non æque curvati.*

BERNHARDUS TENUIMANUS.

Frons medio subacutus. Carapax nudus. Oculorum pedunculi breves, basi antennarum externarum paulo breviores, aciculo subulato subnudo vix breviores; cornea non obliqua, brevis; squama basalis angusta, acuta. Pedes toti nudi, antici valde inæqui, granulati granulis vix seriatis, carpo margine superiore denticulato, manu majore tenuissime compressâ, parce oblongâ, multo latiore quam carpus, margine superiore tenuiter cristato et denticulato, inferiore tenui, manu minore carpoque suo angustissimè oblongis. Pedes 4 sequentes lateraliter læves, margine superno subspinulosi.

Front at middle subacute. Carapax naked. Peduncles of eyes short, a little shorter than base of outer antennæ, but hardly shorter than the acicle, which is subulate and nearly naked; cornea not oblique, short; basal scale narrow oblong, acute. All the feet naked, the anterior very unequal granulate, granules hardly seriate, and quite

small, carpus denticulate (or subspinulose) at superior margin; large hand very thin, sparingly oblong, much broader than carpus; superior margin thin cristate and denticulate, inferior thin; small hand and carpus very narrow oblong. Four following pairs of feet with the sides smooth, and upper margin subspinulose.

Plate 27, fig. 7 *a*, right hand and carpus, enlarged two diameters; *b*, left, *ibid.*; *c*, third pair, *ibid.*

Puget's Sound.

Length, one to one and one-fourth inches; length of larger hand, four lines; breadth, three lines; breadth and length of carpus, each two and a half lines; smaller hand, two and a half lines long, and one line broad. Remarkable for the thin hand, the two margins not symmetrical, upper margin cristate, surface with fine scattered granules, no hairs on carapax. The fingers of the smaller hand have a corneous edge, but not those of the larger. Flagella of outer antennæ as usual, naked. Tarsi long, somewhat compressed but narrow, some minute spines above and below; lateral surface of legs shining. Hand of fourth pair smooth, except lower edge.

The specimens preserved in alcohol, have a brownish red colour; the four posterior legs spotted with red.

BERNHARDUS CRINICORNIS.

Frons medio parce angulatus. Regio carapacis antica non transversa. Oculi mediocres, aciculo antennali paulo longiores, squamâ basali apicem rotundatâ. Flagellum antennarum externarum infra crinitum, non ciliatum. Pedes antici valde inæqui, nudiusculi; manu majore oblongâ paulo longiore et latiore quam carpus, scabriculâ, spinulis subtilissimis 4-5-seriatis, margine inferiore fere recto, carpo minutè spinuloso. Pedes 2di 3ti que laxè pubescentes, non spinulosi, tarso non canaliculato.

Front having a slightly prominent angle at middle. Anterior region of carapax not transverse. Eyes of moderate length, a little longer than acicle, basal scale rounded at apex. Flagellum of outer an-

tennæ rather long pilose below. Anterior feet very unequal, nearly naked; larger hand oblong, a little longer and broader than carpus, finely scabrous, the very minute spinules in four or five series, lower margin of hand nearly straight; carpus minutely spinulose. Feet of second and third pairs lax pubescent, not spinulose, tarsus not channeled.

Plate 27, fig. 8 *a*, part of animal, enlarged four diameters; *b*, basal scale of eyes; *c*, right hand, enlarged four diameters; *d*, left, *ibid.*; *e*, third pair, left, *ibid.*

Rio Janeiro; the specimens inhabit the *Nassa vibex* (Say), or a closely related species.

Length of body, nine to ten lines. Pubescence of second and third pairs of legs rather long, but very fine and sparse, and not at all concealing the surface of the legs, mostly confined to upper surface. The hairs of the flagellum of the outer antennæ are very fine, and as long as six or eight of the joints together. Base of outer antennæ not longer than eyes, cornea with posterior margin above nearly straight. Smaller hand and carpus linear, having some pubescence, carpus with two rows of spinules.

GENUS PAGURUS (*Fabr.*), *Dana*.

Pedes antici raro subæqui, sinistro sæpius majore. Digiti in plano verticali claudentes, apice cornei, instar cochlearis excavati. Frons non rostratus.

Anterior feet rarely subequal, the left usually the larger; fingers moving in a vertical plane, corneous at tips, spoon-excavate. Front not rostrate.

PAGURUS DIFFORMIS.

Feejee Islands; also Straits of Balabac.

Larger specimen, two and a half inches long; larger hand, thirteen lines long and eight and a half wide. The penult joint of the third

pair of legs, left side, has the summit obliquely truncate, the surface being linear, very slightly concave and at right angles nearly with the sides; the outer edge is most raised and subcarinate. The tarsus corresponding is carinate above and very nearly flat on outer surface. The ocular peduncle (including cornea), hardly longer than the base of the outer antennæ, is very much shorter than the base of the inner antennæ.

P. deformis, EDWARDS, Ann. des Sci. Nat. [2], vi. 272, pl. 13 f. 4; Crust., ii. 222.

PAGURUS ASPER (*De Haan*).

Sandwich Islands.

Length, two inches. The eyes and general characters of this species are as in the *difformis*. The front margin is a little rounded across the middle, and projects into a large tooth between either eye and the outer antennæ adjoining. It differs from the *difformis* in having the penult joint of the left leg of the third pair convex on the outer side, with the inner of the upper edges most prominent, and the outer obtuse; the tarsus is subcarinate, and has a raised ridge along the outer side. The base of the outer antennæ reaches a little beyond the eyes; the inner antennæ are much longer than the eyes. The second and third pairs of legs are very nearly naked, excepting the tarsus, which on the inner surface bears tufts of short hairs. They have some small tubercles along the upper side of some of the joints, but not more than in the *difformis*. The larger hand in our specimen is wanting. The smaller is quite small and tufted hairy. The surface is somewhat uneven, being a little raised at the base of the tufts of hairs, but it is not spinous. The specimen (a female) has three appendages on one side of the abdomen and none on the other; each is rather large, and consists of an oblong basal joint bearing three curved linear ciliated lamellæ; a fourth on the same side is very small. There are also two oblong, fleshy, ciliated lobes, a short distance inside (that is, nearer the ventral line) of the second and third of these appendages.

P. asper, DE HAAN, Faun. Japon., 208, pl. 49, f. 4.

PAGURUS GUTTATUS (*Olivier*).

Plate 28, fig. 3 *a*, animal, natural size ; *b*, leg of fourth pair.

Upolu, Navigator Islands, from the coral reef.

The legs are rounded in all their joints, and the tarsus of the second and third pairs is much longer than the preceding joint, terete and curved. The basal part of the peduncles of the eyes projects nearly their diameter beyond the front. Colour of the carapax anteriorly, greenish blue ; posteriorly, blue over the central area ; yellowish along the middle, and laterally, first nearly vermilion, and gradually changing to clear brownish red spotted with white. Legs deep maroon, spotted with white, excepting fourth joint, which is blue above. Base of peduncles of eyes and base of outer antennæ, same colour as legs ; rest of peduncles, a purplish umber ; first antennæ, dull greenish ; flagellum of second antennæ and last joint of base, dull green. Abdomen, deep brownish red spotted with white.

Carapax broad obcordate, transversely divided by a narrow furrow ; anterior portion marked with a large lyriform area. Anterior portion of lateral margin with a few tufts of bristly hairs, and similar hairs but shorter on the base of the ocular peduncles and outer antennæ. Peduncles of eyes subcylindrical, a little larger at extremity. Legs smooth, a little spinous at apex of joints, covered with hairs of same colour as leg, in tufts and scattered ; on left leg of third pair much more densely hairy than on right leg of same pair, and hairs mostly on superior and inferior margins.

Flagellum of second antennæ longer than carapax.

PAGURUS PUNCTULATUS, *Olivier*.

Plate 28, fig. 4 *a*, carapax, natural size ; *b*, side view of same.

China Seas.

The left hand is short and large, with the outer surface regularly

convex. The part of the hand preceding the fingers hardly longer than broad. In a specimen, the carapax of which is one and three-fourths inches long, this hand has for its breadth, thirteen lines; length, eighteen lines; length at middle to base of moveable finger, one inch or twelve lines. The carpus has three sharp and stout spines above; the arm several long and slender teeth on inferior margin. The eyes are stouter and proportionally shorter than in the *spinimanus*; they are enlarged and globular at the extremity. The structure of the carapax is described in the course of our general remarks on the Inferior Anomoura, page 430.

PAGURUS SPINIMANUS? *Edw.*

Plate 28, fig. 5 *a*, animal, natural size; *b*, front, enlarged; *c*, hand, side view, enlarged.

Honden or Dog Island, Paumotu Archipelago; Tongatabu, Friendly Islands; Sooloo Sea.

The specimens referred to the *spinimanus* of Edwards, resemble the *punctulatus*; but the hands are less unequal; the larger hand is not so massive, being proportionally more oblong and less inflated; and the spines have but few hairs arising from the base of each; the eyes are longer and more slender, being fully as long as the width of the carapax in front; the tarsi are all similarly subterete; the arm is twice as long as wide, instead of being as wide as it is long.

The colour of the body, including abdomen, carapax, and legs, is a bright cherry-red or brownish red, with white spots, set in a blackish or reddish black ring, and the hairs are reddish. The eye-peduncles have a reddish slate colour, bordering on purple; the inner antennæ, orange; outer, orange at base, with the flagellum colourless. The flagellum of the outer antennæ is naked, and consists of even symmetrical joints throughout. Minute spines may be distinguished on the penult joint of the second and third pairs of legs among the hairs.

Pagurus spinimanus, EDWARDS, Ann. des Sci. Nat. [3], v. 61, 1848.

PAGURUS EUOPSIS.

P. punctulato affinis. *Oculi fronte carapacis valde longiores, crassius-*

culi. Flagellum antennarum externarum nudum, articulis versus antennæ extremitatem latere interno gibbosis; aciculum parvulum. Pedes antici sat inæqui, manu majore carpoque oblongis, extus spinulosis et hirsutis. Pedes 2di 3tiique marginibus multo hirsuti, articulo 5to spinulis supra paulo armato, tarsis totis subteretibus, undique divaricatè hirsutis.

Near *P. punctulatus*. Eyes much longer than front of carapax, stoutish. Flagellum of outer antennæ nude, the joints of apical half gibbous on inner side at apex; acicle quite small and slender. Anterior feet moderately unequal, the larger hand oblong, hand and carpus spinulous and hirsute on outer surface. Feet of second and third pairs having hairy margins, fifth joint minute spinulous on upper side, tarsi all subterete, and on all sides divaricately hirsute.

Plate 28, fig. 6 *a*, animal, natural size; *b*, joints of flagellum, from basal half; *c*, *ibid.*, from apical half.

Upolu, Navigator Group; also, Balabac Passage.

Length of body, two and one-fourth inches. The specimen figured and coloured was from the Navigator Group. The carapax has a dark maroon spot, just behind the front; and the posterior region either side of the middle is of a similar colour dotted with white. The legs are pale sepia with a dark maroon (nearly black) broad band on the third and fourth joints of the second and third pairs. The eye-peduncle is pale brown, with a yellow band adjoining the cornea. Inner antennæ greenish. Hairs of legs spotted with red and white. Abdomen along its dorsal surface dark maroon, in part dotted with white.

The specimens resemble those referred to *spinimanus*, although different in colouring, in the flagella of the outer antennæ, and the much longer eyes. Both hands are convex externally without crests or a seriate arrangement of the spines. The cornea is short. Carapax almost wholly naked.

PAGURUS GRANULATUS, *Olivier.*

Rio Janeiro.

Length of body, from extremity of abdomen to front margin, eight inches; length, to extremity of hands, thirteen inches; the breadth of carapax in front, thirteen and a half lines; length of eye including peduncle, from base, fourteen and a half lines. The anterior part of the carapax is smoothish, with very few tufts of hairs. The carpus has a row of five stout spines above; the hand is without corresponding spines; the tubercles of the smaller hand in many instances have each a small centre tubercle, surrounded anteriorly by a radiating series of oblong tubercles. The tarsus of the second and third pairs of legs has three dense rows of hairs or tufts of hairs, which are most distinct or more dense along the apical half of the joint. The peduncle of the eye on the upper side, extends quite to the apex of the eye, and bears near its apex a few short hairs.

OLIVIER, *Encyc.*, viii. 640; EDWARDS, *Crust.*, ii. 225.

PAGURUS FABIMANUS.

Frons medio fere rectus. Carapax plerumque nudus, regione anticâ parce transversâ. Oculi longiusculi, basi antennarum omnium longiores; squama basalis lata, inverso-triangularata. Pedes antici valde inæqui; manu majore oblongâ, marginibus fere parallelis et subacutis, superiore spinuloso, inferiore crenulato aut subintegro, superficie externâ bene convexâ, tomentosâ, scabriculâ, digito mobili superne fere ad apicem minute spinuloso. Pedes 4 sequentes leviter hirsuti, tarsi prælongis, tarso pedis sinistri tertii subtriquetro, superficie hujus articuli et precedentis externâ planâ aut subconçavâ, tomentosâ, margine superiore non spinuloso.

Front nearly straight at middle. Carapax mostly naked, anterior part sparingly transverse. Eyes rather long, longer than base of either pair of antennæ; basal scale large and broad, inverted triangular. Anterior feet very unequal; larger hand oblong, the margins nearly parallel and subacute, upper margin spinulous, lower crenulate or subentire; outer surface evenly convex, tomentose, scabrous, moveable finger with the upper edge spinulous nearly to apex. Four following feet thin hirsute, tarsi very long, on the left foot of third pair, nearly three-sided, the outer surface of this and preceding joints flat or somewhat concave and tomentose, upper margin not spinulous.

Plate 28, fig. 7 *a*, animal, natural size; *a'*, part of animal, enlarged two diameters; *b*, left hand, natural size; *c*, right, *ibid.*; *d*, extremity of left leg, third pair, *ibid.*; *e*, extremity of fourth pair, enlarged.

From Caldera, Mindanao, Philippines; also, Feejee Archipelago and Tongatabu.

Length, one and one-half inches. Larger hand, six lines long, and three and two-thirds lines broad; moveable finger, two and a half lines long; whole length of eye from base, three and three-fourths lines. The basal scale is broadest above, and its apical margin but little oblique, with a few denticulations at the inner apex. The tarsus of the left leg of third pair is very narrow subfalciiform, being curved and narrow from its base where it is broadest; preceding joint considerably broader than tarsus, hardly twice as long as broad. On the left side the male abdomen has three small appendages, and none on the right.

The larger hand has nearly the shape of half a bean, and to this the specific name alludes.

A Tongatabu specimen is represented in the coloured figure. We refer it here with some little doubt, as we have not the specimen for comparison with the Philippine Island individuals. The coloured drawing was made from the living animal. The peduncles of the eyes are light slate-coloured, with yellow adjoining the cornea, eyes light blue; carapax mostly pale grayish green, near front brownish red, or brown more or less dotted with white, which same colour characterizes the upper portion of some of the joints of the legs; outer antennæ, yellow; inner, bluish, excepting orange tips. Abdomen grayish green and spotted or clouded.

PAGURUS SCABRIMANUS.

P. fabimano formâ carapacis manus et squamæ oculi basalis similis. Oculi parce breviores, basi antennarum externarum longiores, internarum non longiores. Manus major extus non tomentosa, nudiuscula, scabricula, supra spinulosa, infra denticulata aut crenulata, digito mobili supra vix spinuloso, carpo supra et extus prope apicem spinuloso.

Pedes 4 sequentes leviter hirsuti, tarsi praelongis, tarso pedis sinistri tertii non subtriangulo, superficie externâ nec planâ, nec tomentosâ, margine superiore minute spinuloso.

Very near the *fabimanus* in form of carapax, hands, and basal scale to eye. Eyes slightly shorter, longer than base of outer antennæ, but hardly longer than inner. Larger hand not tomentose externally, nearly naked, granuli-scabrous, spinulous on upper margin, denticulate or crenulate on lower, moveable finger hardly spinulous above, carpus spinulous above and also on outer surface near apex. Feet of two following pairs hirsute, tarsi very long, tarsus of left foot of third pair not subtriangular, outer surface not flat, and not tomentose, upper margin minute spinulous.

Plate 28, fig. 8 *a*, part of animal, enlarged two diameters; *b*, left hand, natural size; *c*, left leg, third pair, *ibid*.

Caldera, Mindanao.

Length, one to one and one-fourth inches. The form of the tarsus of the left leg of third pair, distinguishes this species readily from the *fabimanus*, which it so much resembles. The outer surface of the hand is also spinulous towards the upper edge, and the carpus has two or three small spines on the outer surface near the apical margin.

GENUS CALCINUS, Dana.

Pedes antici inæqui, sinistro majore. Digni in plano verticali claudentes, apice calcarei, instar cochlearis excavati. Frons breviter rostratus.

Anterior feet unequal, the left larger. Fingers moving in a vertical plane, calcareous at tips, spoon-excavate. Front with a small point as a rostrum.

The species are naked, or but little hairy. They have been found only in the tropics.

CALCINUS GAIMARDII (*Edwards*), *Dana*.

Plate 28, fig. 9, animal, natural size.

Feejee Islands, Pacific Ocean; Balabac Passage, north of Borneo, and Sooloo Sea.

Length, one and one-fourth inches. Colour of anterior part of carapax and legs, all deep reddish chestnut brown, except tips of fingers, which are white or yellowish white, and tarsi, which are orange, though becoming brownish at base and yellowish at apex. The peduncles of the eyes are deep yellow, except near tips, where they are bright blue; eyes, greenish black; posterior part of carapax, light grayish green; abdomen, nearly colourless, greenish at base; outer antennæ orange; inner, brownish green, with tips orange.

Peduncles of eyes long and slender, considerably longer than front margin of carapax. A small median point to front. Acicle of outer antennæ much shorter than half the eye-peduncle. Hands much unequal; the larger granulous, especially towards and on fingers; above nearly smooth, obtuse-angled, though nearly rounded; below rounded and longitudinally arcuate; smaller hand acute and dentate above; surface somewhat scabrous with a little short pubescence. Carpus of larger hand with a tooth above middle of outer surface. Second and third pairs of legs hairy, on under side of last two joints, densely so on third pair both sides. Tarsus rather short, rounded above, nearly naked. Legs all shining. Carapax naked.

Pagurus Gaimardii, EDWARDS, Ann. des Sci. Nat., [3], v. 63. July, 1848.

CALCINUS TIBICEN (*Herbst*), *Dana*.

Raraka, Vincennes, Carlshoff, Waterland, Paumotu Archipelago; Society and Sandwich Islands; Samoan Islands at Tutuila; Wakes Island; Straits of Balabac, north of Borneo.

Length, two to two and one-fourth inches. The hands are quite

smooth, without tubercles or hairs, the left much the larger, and black or brownish black above near articulation, while the lower part is white. The legs of the next two pairs have a clear brownish yellow colour, approaching burnt sienna, with a longitudinal line of sepia-brown. (These colours fade in alcohol, the dark part of the hand becoming pale brown or even purplish, and the following legs, an orange, with a darker longitudinal line.) The peduncles of the eyes are ochre yellow, except the basal half, which is bright blue; outer antennæ, orange; inner, bright blue, tips brownish red; carapax green to olive-green.

The carapax has a small median point in front; the anterior region is slightly oblong, and is marked like that of the *elegans*. Posterior region membranous, excepting anterior margin. Peduncles of the eyes longer than the front margin of carapax, more than twice as long as the acicle of the outer antennæ, which is quite short; scale of basal portion subtriangular, acute, the two nearly in contact on the median line. The larger hand is very large, subquadrate, and rounded above; fingers neatly spoon-excavate. The tarsus of the following four legs has a few tufts of hairs, and a single brown spot either side, which often meets on the medial line so as to become a single spot; preceding joints naked, with the exception of a few hairs at lower apex. The male abdomen has four pairs of slender ciliate appendages, proceeding from dorsal plates that are nearly or quite membranous.

Cancer tibicen, HERBST, ii. 25, pl. 23, f. 7.

Pagurus tibicen, EDWARDS, Crust., ii. 229, and Cuv., Règne An., pl. 44, f. 3.

Pagurus levimanus, RANDALL, Jour. Acad. Nat. Sci. Philad., viii. 135.

CALCINUS ELEGANS (*Edwards*), *Dana*.

Plate 28, fig. 10 *a*, animal, natural size; *b*, enlarged view; *c*, part of larger hand, enlarged.

Paumotu Archipelago, at the islands Clermont Tonnerre, Carlshoff, and Waterland; also, Hawaiian Islands; Wakes Island.

Length, one and three-fourths inches. This beautiful species is strongly marked in the preserved or dead specimen, by the bands of

bright red and white (three bands alternate) on its second and third pairs of legs, the bright red or dark spots on the tarsus, and the very small white tubercles on the fingers (and to some extent on the upper side of the hand), whose white colour contrasts strongly with the orange colour of the hands. A specimen figured by the writer, while alive, at the Paumotus, has the colours given in the figure referred to, and the same was observed at Wakes Island. The hands are bright green, excepting the minute white tubercles; the antennæ are orange; eyes, blue; second and third pairs of legs, banded with velvet black and bright blue, and punctate; hairs of the tarsus, carmine. Owen's figure gives the colours of our dead specimens. In alcohol, bright blue usually fades to white, in this and other species. The legs are almost wholly naked; on the under side of the last three joints of the second and third pairs of legs there are hairs in tufts, which are rather densely crowded on the left leg of the third pair. The hands are naked, with the exception of a minute bristle or so near the extremity of the fingers and on the inner surface. The eyes are a little longer than the front of the carapax, and the cornea has its posterior margin above straight transverse. The acicle of the outer antennæ is not half as long as the eye-peduncle. Carapax with a low median point to the front margin; anterior region slightly oblong and having the outline of its median region marked behind with a suture shaped like a broad V with convex sides. Posterior region of the carapax wholly membranous. Fingers neatly spoon-like, with the edges white.

Pagurus elegans, EDWARDS, Crust., ii. 229; Ann. des Sci. Nat. [2], vi. pl. 13, f. 2.

Pagurus pictus, OWEN, Crust. of the Blossom, p. 83, pl. 25, f. 2, 2 a, 1839.

Pagurus decorus, RANDALL, Jour. Acad. Nat. Sci. Philad., viii. 135, 1840.

CALCINUS LATENS (*Randall*), *Dana*.

Plate 28, fig. 11, animal, natural size.

Tongatabu; Feejee Archipelago; Wakes Island; Balabac Passage, north of Borneo; Sandwich Islands.

Length, one inch. Colour, when living, mostly pale green; the

penult joint of second and third pairs of legs pink or rose-coloured on basal half and the rest green; the tarsus dark brown at base, the tips yellowish white; peduncles of eyes, rose-coloured; eyes dark dull blue; outer antennæ, orange; inner antennæ, blue with orange tips.

Front with a low median point; carapax naked; posterior part wholly membranous, excepting sometimes its anterior margin. Peduncles of eyes longer than front margin of carapax, slender; scale of basal part very small, subtriangular; acicle of outer antennæ very short. Legs smooth; larger hand naked, granulous, carinate and subdentate below, and somewhat angled and uneven in outline above, finger subcarinate above, carpus having a small tubercle on the outer surface, as in the *Gaimardii*; smaller hand cristate, and five-dentate above, sparsely pubescent, finger subtuberculous, carpus carinate, but scarcely dentate; following legs smooth or very nearly so, no joints sulcate, a few hairs above on penult joint, some tufts below on same and on tarsus, but not so densely hairy on third pair as in *elegans*, or *Gaimardii*. The crested under side of the larger hand, distinguishes this species from the *Gaimardii*. Specimens preserved in alcohol are usually colourless except the basal portion of the tarsus which is brownish red.

This species is near the *crisimanus* of Edwards (Ann. des Sci. Nat. [3], v. 64, 1848), but in the short description given of that species, the stomach region is said to be furnished laterally with long hairs, which is not true of the *latens*. If the two species prove to be identical, Dr. Randall has the precedence in time by nearly ten years.

A specimen from the Sandwich Islands is very similar in all respects, but had the larger hand broken off; and this hand, if it be the one which is now with the specimen in the same bottle, as we believe, differs decidedly from that of the *latens* in being rounded below, and also, in being longitudinally much concave in the outline of the lower side.

Pagurus latens, J. W. RANDALL, Jour. Acad. Nat. Sci. Philad., viii. 135.

GENUS ANICULUS, Dana.

Pedes antici subœqui. Digiti in plano verticali claudentes, apice cornei, instar cochlearis excavati. Frons breviter rostratus.

Anterior feet subequal. Fingers moving in same vertical plane, corneous at tips, spoon-excavate. Front short rostrate.

The hands are short and subequal and the front rostrate, as in the *Clibanarii*; but the position of the hand is similar to that of the *Paguri*, the fingers having an up and down motion, instead of a lateral, owing to the different mode of articulation of the hand with the carpus.

ANICULUS TYPICUS, *Dana*.

Plate 29, fig. 1, animal, natural size.

Raraka, Waterland, and Carlshoff Islands, Paumotu Archipelago; also, Wakes Island, Pacific Ocean.

Colour, while living, as in the figure, much brighter in its tints than in Quoy and Gaymard's figure, *Voy. de l'Uranie*, pl. 79, fig. 1. Length of specimen, four inches. The anterior part of the carapax has the median region distinct, and moreover, what is unusual in this genus, the extramedial and intramedial areolets are distinct, the latter having the form of a narrow arrow-head.

Pagurus aniculus, FABR., *Supp.*, 411; OLIVIER, *Enc.*, viii. 640; EDWARDS, *Crust.* ii. 230; QUOY and GAYMARD, *Voy. de l'Uranie*, 531, pl. 79, f. 1.

GENUS CLIBANARIUS.

Pedes antici subæqui. Digiti in plano horizontali claudentes, apice cornei, instar cochlearis excavati. Frons dente parvulo rostratus.

Anterior feet subequal. Fingers moving in a horizontal plane, corneous at tips, spoon-excavate. Front having a small tooth as a beak.

The hands in the species of this genus are usually short and depressed, and commonly are covered above with short and small,

tubercle-like spines and scattered hairs. Either the right or left hand may be the larger, and the sexes often differ in this particular. The acicle of the outer antennæ is short, seldom exceeding half the length of the eyes. The basal scale of the eyes is very small, much smaller than in *Pagurus*. The eyes vary much in length, but are usually slender; sometimes they are nearly half longer than the breadth of the carapax in front.

As the specific name of a characteristic species, the *Pagurus clibanarius*, is here adopted for the name of the genus, this species may be called the *Clibanarius vulgaris*.

The Clibanarii are remarked upon as forming a distinct group by De Haan (Faun. Japon., p. 210), yet he did not make them a separate genus.

The species may be arranged in two divisions, one having the tarsus as long as the preceding joint or longer; and the other having it shorter. In the latter, the tarsus is often much compressed, and is vertically much wider at base than at middle.

1. *Tarsus articulo pedum penultimo non brevior.*

CLIBANARIUS LINEATUS (*Edwards*), *Dana*.

Plate 29, fig. 2 a, animal, enlarged two diameters.

Upolu, Samoan Islands, in shallow waters, along the coral reefs.

Length, one and one-fourth inches. Eyes distinctly shorter than front of carapax. Anterior region of carapax but slightly oblong. Carpus and hands rough above with small, acute, spiniform tubercles, and pilose. Right hand a little the longer in both sexes. Legs of second and third pairs moderately elongate, three narrow lines of dark colour (red in dead specimen) on outer surface of fifth joint, and five in all to this joint, with a few lax hairs on the surface, and inferior margins not furnished with tufts of stiff hairs. Tarsus as long as preceding joint, subterete; two stripes of dark colour on its outer surface. Outer surface of fifth joint of left leg of third pair convex. Basal scale of eyes pointed and denticulate at apex.

This species agrees quite closely with Edwards's description of his

lineatus; the nearly naked character of the second and third pairs of legs, corresponds with his statement. In this respect the *striolatus* is quite different.

CLIBANARIUS STRIOLATUS.

Regio carapacis antica fere quadrata. Oculi graciles, margine carapacis antico vix breviores, squamá basali angustá, acuminatá, bidentatá. Pedes antici subæqui, manubus brevibus, carpis quoque supra spini-tuberculatis et pilosis, sinistrá maris paulo majore. Pedes 2di 3tiique supra infraque paulo hirsuti, tarso subterete, non brevior quam articulus penultimus, sinistro 3ti paris articulo 5to extus parce convexo, acie rectangulatá superne instructo.

Anterior region of carapax nearly quadrate. Eyes slender, about as long as anterior margin of carapax, basal scale narrow, bidentate at apex. Anterior feet subequal, hands short, and with the carpus spini-tuberculate above and pilose, the left in male slightly the larger. Feet of second and third pairs short hirsute in tufts on upper and lower sides, tarsus subterete, as long as preceding joint, fifth joint, left side, of third pair slightly convex and having a right-angled edge above.

Plate 29, fig. 3 *a*, animal, enlarged one and a half diameters; *b*, basal scale of eye-peduncle; *c*, last two joints of third pair of legs, right side.

Coral reefs of Tongatabu and Feejees.

Length, two inches. Colour, a tawny or ochreous yellow, with deep brown thread-like longitudinal lines on the legs; three of these lines on either hand, five on the fifth joint of the second and third pairs of legs. There are numerous tufts of short hairs along the under side of the tarsus. The eyes are much longer than in the *lineatus*, and the legs less naked, the fifth joint having tufts of hairs below. Moreover, the left hand instead of the right is the larger in males.

CLIBANARIUS LONGITARSIS (*De Haan*), *Dana*.

Caldera, Mindanao.

Length of body, two inches. Eyes shorter than the frontal margin. Anterior legs a little unequal, the right the larger in males; hands elongate (longer than in other *Clibanarii* described), granulate above and somewhat pilose.* Tarsi longer than the preceding joint, subterete, with numerous tufts of hairs above and below; similar tufts scattered on upper and lower surfaces of fifth joint, and also on preceding. Fifth joint of left leg of third pair somewhat flattened on outer surface (though still convex), and having an obtusish edge above, which is a little pilose, the surface below naked, or nearly so. A longitudinal band of white, bordered by red, along outer surface of second and third pairs. Basal scale of eyes pointed.

Pagurus longitarsis, DE HAAN, Faun. Japon., 211, pl. 50, f. 3.
Pagurus asper? EDWARDS, Ann. des Sci. Nat., 1848 [3], v. 62.

2. *Tarsus compressus articulo pedum precedente brevior.*

CLIBANARIUS ÆQUABILIS.

Oculi elongati, margine carapacis antico vix breviores. Manus sive œquæ sive sinistra major. Pedes 2di 3tii nudiusculi et nitidi, superficie externâ nudâ, marginibus paulo hirsutis, pedibus paris tertii inœquis, articulo sinistro penultimo extus planiusculo, nudo, et superne subacuto.

Eyes elongate, hardly shorter than anterior margin of carapax. Hands equal, or the left a little the larger. Feet of second and third pairs nearly naked and shining, outer surface naked, margins somewhat hirsute; feet of third pair unlike, the penult joint on left side flattened on outer side, and having a subacute edge above.

* The *Pagurus symmetricus* of Randall (Jour. Acad. Nat. Sci., viii. 133, 1840), is another species of *Clibanarius*, having the tarsus a fifth longer than the preceding joint.