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NOTICE.

It is to be understood that the Society is not responsible for any opinion or statement of facts in the Essays published in this Volume. The Authors of the several Papers are alone answerable for their contents.

ERRATA ET CORRIGENDA.

- Page 120, line 16, *after abdomen insert male.*
 „ 128, line 11 from bottom, *for lienâ read lineâ.*
 „ 128, line 4 „ *for sinus read sinum.*
 „ 128, line 3 „ *for duas read duabus, and dele vidi and quæ.*
 „ 330, line 25, *for tomentosus read gnatherion.*
 „ 331, line 21, *et seq., omit from which to dubia, and insert P. acanthophora.*
 „ 333, line 15, *insert and Luc. after Edw.*
 „ 333, line 31, *for D'Orbigny read Edw. and Luc.*
 „ 334, line 30, *for minute read truncate.*
 „ 334, line 34, *for on read only.*
 „ 335, line 18, *for last read next.*
 „ 336, line 12, *after specific name insert (Edw. and Luc. sp.)*
 „ 337, line 21, *for last read P. perlatus.*
 „ 338, lines 2 & 8, *for the preceding and the preceding species read P. perlatus.*
 „ 348, line 17, *dele PORCELLANA DUBIA (n. s.)*
 „ 348, line 18, *for D'Orbigny read Edw. and Lucas.*
 „ 349, line 20 from bottom, *dele from After to carapace.*
 „ 349, line 3 from bottom, *dele from The to Boscii.*
 „ 350, line 2, *for PAGURIS read PAGURUS.*

XXX.—*Remarks on Crustacea collected in Peru, the High Seas, and South Australia; with descriptions of undescribed species.* By JOHN ROBERT KINAHAN, M.B., M.R.D.S., M.R.I.A., Professor of Zoology, Government School of Science applied to Mining and the Arts, &c., &c. With two Plates.

[Read Friday Evening, January 2, 1857.]

As in a former communication (*ante*, p. 111), which I had the honour to submit to your Society during last session, and to which this paper is in a great degree supplementary, these remarks are intended to illustrate additions lately made to your Museum, viz. : the Crustacea collected by me on the western shores of South America, the high seas, chiefly the northern horse latitudes, and a few from South Australia which I either omitted or imperfectly characterized in my list of Crustacea from Port Philip.

The localities whence they were obtained require a brief descriptive notice.

The Peruvian station resolves itself into two most characteristic localities, viz.: Callao Roads and the Chinchas Islands. At the former of these, the principal place whence I obtained specimens was the Reef. A mere enumeration of the species thence, would lead to very deceptive results as regards their habits, as we have good reason to conclude that most, if not all, those obtained on the Reef proper are carried there by the tides, either from San Lorenzo, or else from the comparatively calm water within the Roads, and therefore are not properly denizens of that place.

I would here premise that many species, perhaps even common, are omitted from my lists; as nothing is admitted therein of which specimens were not brought home and identified, and, owing to circumstances, I was unable to procure specimens of several species which were common, and, even of those procured, some of my finest specimens were destroyed in the transit: for instance, the streams about Bella Vista abound in fresh-water crustacea, of which I was unable to procure specimens; and of the most characteristic of all the South American genera, Cancer, although possessing specimens of four species, most of them are imperfect.

Callao roadstead owes its maintenance as a port to the protection afforded its shores by a chain of two or three islands,

which, distant from the main land about seven miles, stretch along in a N.W. and S.E. direction. The largest and most western of these, San Lorenzo, is about five and a half nautical miles in length, and separated from the main land on which the town stands by a channel called the Boqueron. This name properly belongs only to the narrow channel, two and a half miles wide, which divides Callao Point from the island; we will include under the same name the whole channel separating the shore and islands. This, at its easternmost mouth, between the Island of Fronton and Chorillos Point, is about eight miles wide, but having formed the expanses of Chorillos and Miraflores Bays, the coast bends rapidly to the south-west as a low spit, a mile and more in length, forming a *cul de sac* into which the full sweep of the tide setting in from the southwards meets the current from the north; and to these the Reef of Callao owes its preservation, if not origin.

The Reef is composed of a raised sea-beach, on digging into which subfossilized shells of species similar to those at present extant will be found, and, being everywhere made up of loose shingle, the tide penetrates through it, so that at high water we find its central portions studded with a number of salt pools without any visible outlets; around it an immense wall of shingle, in some places a double bank, extends; this is in parts four to five feet high, and six to eight feet wide at its summit: the work of that ceaseless surf which for untold ages has been vexing these inaccessible shores. Save in one spot, a narrow strip close to the Reef, no trace of living Crustacea *in situ* are to be seen, the long heavy rollers rolling and tossing the well-worn shingle, entirely preclude the preservation of life in any animal so powerless in its habits.

But on the summits of the ridges just described, hundreds or even thousands of specimens may be picked up in a day's walk. These owe their preservation to the Gallinazos, or turkey buzzards, which are to be seen like a file of soldiers lining its summits.

When the rollers are setting in strong, the Reef is a truly busy scene. Along the shingle ridges, pelicans, gannets, cormorants, darters, turkey buzzards, sitting in solemn state, gorged with prey, or eagerly watching each wave, or hovering over the tumbling waters, then for a quarter of a mile wide one tossed and turbid, heaving, foaming surf, their surface thickly strewn with dead bodies, which, floated off the coast for perhaps miles by the receding tide, have been, in its returning

flow, caught and carried by the stream of the Boqueron into the *cul de sac* of this ill-favoured bay. Sharks and lesser Cetacea innumerable are seen darting backwards and forwards, mixed with an odd seal and sea otter, while countless multitudes of gannets, gulls, and terns, lend their quota of life to swell the busy crowd.

The amount of animal remains which, strewing the shores, wither and moulder beneath the tropic sun, almost passes belief: mules, seals, otters, all the above-mentioned birds, and many others, sharks, rays, and human bones, testify to the abundance of the higher animals; while molluscs, crabs, starfishes, urchins, corals, sponges, all in their turn combine to swell the lists of this great charnel-house of organic remains.

One remarkable fact with regard to these often struck me—that no matter how numerous they might be along the summits of the ridges, the search for them between tide-marks was nearly useless: everything which once had life appeared to have been by “Gallinazo” transported into his larder, and here these birds might be seen toiling the whole day, snatching up every waif as fast as thrown up by the tide.

On the northern side of the Reef we have comparatively smoother water, and the shingly walls gradually decrease in height till near the town they vanish almost entirely. Here, on the piles and stones of which the Mole is built, innumerable beach crabs (*Cyclograpsus cinereus* and *C. tomentosus*) are seen running over and among the sticks and stones, but keeping generally well out of tide range, busy plying their scavenging trade. One of these also (*C. cinereus*) occurred under the stones on the flat shingly spit near the Reef.

The species wafted in on the Reef, either from San Lorenzo or from the smooth waters inside, were ten or twelve in number.

The most numerous and characteristic of these consist of two species of Hepatus (*H. Chiliensis* and *H. angustata*), which here replace, to a great extent, the “box crabs” (*Leucosiadae*) of Australian shores: these are probably inhabitants of the shallower waters, and make up three-fourths of the specimens which compose “Gallinazo’s” larder; they appear especial favourites with this bird; as it is almost impossible amongst the hundreds which occur here to find a specimen whose hard shell does not bear traces of this bird’s beak.

Next in frequency comes another and a most typical genus, the type of the family of Brachyura, “the Crab” (*Cancer*): four species at least occur, though in varying proportion, viz., the

toothed crab (*C. dentatus*), the most abundant; the rainbow crab (*C. plebeius*); the long-legged crab (*C. longipes*); and Edwards' crab (*C. Edwardsii*); these, from their abundance on the slope of the reef and state of preservation, I take to be inhabitants of the shallow waters around San Lorenzo.

The florid crabs (*Xanthidæ*) come next: three species; *Panopeus crenatus*, commonest; *Paraxanthus sexdecimdentatus* next; and lastly, and rarest, *Xantho Orbignyi*: the two former also probably from San Lorenzo.

One specimen of the pearly raspberry crab (*Pilumnoides perlatus*) occurred here, a fact of particular interest, as I had dredged the same species in Port Philip Harbour, Australia, and again met it as a denizen of the littoral zone in the Chinchas Islands.

The two beach crabs (*C. cinereus* and *C. tomentosus*), already mentioned, are very numerous here, and alone of their *confrères* appear to be overlooked by the turkey buzzard, probably on account of their minute size. Porcelain crabs of several species occurred also, but owing to the accident already referred to, I lost them all but two: one, a species of extreme beauty, which I cannot satisfactorily refer to any described species, and have therefore described as new, under the name of *Porcellana dubia*; the other, the violet porcelain crab (*P. violacea*) which occurs alive on the shingly strip on the eastern side of Callao Point.

The islands present a very different scene as regards crab-life. I have already, in a paper on the Guano Deposits of the Chinchas (*vide ante*, page 89), described the principal features of the locality. I need, therefore, now but recall to your memories that these islands have for the most part a completely iron-bound coast with lofty cliffs, beneath which, in some parts, is a shingly beach a few yards in extent; the rocks everywhere pierced with lofty caverns and fissures, and a few sandy coves in one or two places; between the islands are channels varying from twenty-five to seven fathoms, its bottom, rocks, shingle, or fine sand.

In the caves and fissures beneath the stones, Porcelain crabs of three species are to be met (*Porcellana violacea*, *P. striata*, *P. granulosa*) in such abundance, especially the first, as to impress a peculiar character on the district; the two Beach crabs (*Cycl. cinereus* and *C. tomentosus*) also abound amidst the shingle and decaying weeds in the fissures and caves.

Running over the shingle, foraging among the dead sea-lions and other animal and vegetable remains, and climbing

even the perpendicular faces of the cliffs above, in immense numbers, and most striking from their gaudy colours, size, and swiftness, the Wrinkled beach crabs (*Grapsus strigosus*) cannot fail to arrest the attention of even an unscientific observer, the chase after them, especially on the summit of the cliffs, is exciting, being fraught with danger through the slipperiness of the foothold. It was most laughable to see the way in which they would at times, after escaping capture round some inaccessible projecting point, peep round the corner at you, as though exulting in having eluded your pursuit. They may be often seen, too, engaged in fierce combat in the rocks, but seemingly as careful as any delicate young lady of wetting their feet.

Coiled up in empty *Balani* and the crevices and crannies in the perpendicular cliffs between the tide-marks, was found the pearly raspberry crab (*Porcellana perlatus*), already alluded to; whilst from the waters beneath, an allied species (*P. Danai*) was dredged.

In the channels and bays, by means of the dredge, were procured the spine-clawed crab (*Acanthonyx concamerata*), one species of *Goniograpsus* (*G. simplex*), *Paraxanthus* 16-dentatus; but the most characteristic families here, as on the beach, were the Anomoura; Porcelain crabs, and Hermit and Soldier crabs, far outnumbering the other species obtained; most of the latter appertaining to the same type of feeders as the *Grapsi*, i.e., those with spoon-excavated claws. The Liver crabs (*Hepatus Chiliensis* and *angustata*) occur, but sparingly, dead on the beach in the South Island; and one specimen, apparently nondescript, was met in the dredge, ten fathoms, sandy bottom.

The slight difference between tide-marks, and the heavy surf, prevented any particular observations on the habits of these animals. *Cancri* occur here very sparingly, one species (*C. longipes*) alone having been met with, and that rarely.

The specimens from the high seas (excluding two or three fish parasites, obtained either in the Cystoseira Belt off the Falklands, or in the North Atlantic) were captured amidst the meadows of Sargassum, between 23° and 33° N. lat., and 48° to 38° W. long. Here, amid the long ridges of weed which, like the swathes of an immense meadow, extend far as the eye can reach on either side, I obtained the following species of Crustacea:—*Lupa Sayi*, *Planes Linneana*, *Pallemon natator*, *Hippolyte ensiferus*, *Amphithoe pelagica*, and species of *Balanus* not as yet identified; but all of peculiar interest, as being

animals which but a slight change of current or winds might render, at any moment, denizens of the British coast.

List and Localities of Species obtained.

- *ACANTHONYX CONCAMERATA (*Mei*) (*n. s.?*) Chinchas. Dredged.
- *CANCER DENTATUS (*Bell*). Callao Reef, Chinchas.
- *CANCER PLEBEIUS (*Pappig*). Callao Reef.
- *CANCER LONGIPES (*Bell*). Callao and Chinchas, South Island.
- *CANCER EDWARDSII (*Bell*). Callao Reef.
- *XANTHO ORBIGNYI (*Edw. and Luc.*). Callao Reef.
- *PARAXANTHUS SEXDECIMDENTATUS (*Edw. and Luc. sp.*) Callao, Chinchas. Dredged.
- *PANOPEUS CRENATUS (*Edw. and Luc. sp.*) Callao and Chinchas, South Island.
- *PILUMNOIDES DANAI (*Mei*) (*n. s.*) Chinchas. Dredged.
- *PILUMNOIDES PERLATUS (*Edw.*) Callao Reef, Chinchas, North Island, and *Australia*.
- *LUPA SAYI (*Gibbes*). Sargasso Sea.
- *GRAPSUS STRIGOSUS (*Herbst. sp.*) San Lorenzo (?), Chinchas.
- *GONIOGRAPSUS SIMPLEX (*Dana*). Chinchas. Dredged.
- *PLANES LINNEANA (*Leach*). Sargasso Sea.
- *CYCLOGRAPUS PUNCTATUS (*Edw.*) Callao Wharf, Chinchas, South Island.
- *CYCLOGRAPUS GNATHERION (*Mei*) (*n. s.*) Callao Wharf, Chinchas.
- *CYCLOGRAPUS GRANULATUS (*Dana*). *Australia*.
- *HEPATUS CHILIENSIS (*Edw.*) Callao, Chinchas.
- *HEPATUS ANGUSTATA (*Fabric.*) Callao.
- HEPATUS ———? (*n. s.*) Chinchas. Dredged.
- *PORCELLANA GRANULOSA (*Guerin*). Chinchas. Dredged.
- *PORCELLANA VIOLACEA (*Guerin*). Chinchas, Callao.
- *PORCELLANA CARINATA (*Mei*) (*n. s.*) Chinchas. Dredged.
- *PORCELLANA ACANTHOPHORA (*D'Orbigny*). Callao.
- PAGURISTES WEDDELI (*Edw. sp.*) Chinchas.
- *BERNHARDUS PERLATUS (*Edw. sp.*) Chinchas.
- *CLIBANARIUS TOMENTOSUS (*Edw. sp.*) Chinchas.

The species marked thus (*) are in the Society's Collection (the others in my own).

Besides these, several species were met with, which, owing to circumstances, cannot be included in this part of the paper; they, however, with general remarks on the whole, shall appear in a subsequent Number of the Journal.

I have here, as in the former paper, adopted the nomenclature and arrangement given in Dana's Crustacea, especially in the Anomoura; his divisions appear to be most judicious and natural, and it is much to be regretted that he did not extend his labours to some of the yet intact genera, e. g., Porcellana, in which we have a great magazine of some thirty or forty species all included under the one generic head.

Descriptions of Genera and Species.

DECAPODA BRACHYURA.

Family—MAIADÆ. Sub-family—PERICERIDÆ. Genus—ACANTHONYX (*Latreille*).

ACANTHONYX CONCAMERATA (*n. s.*)

Testâ paulò convexâ, marginibus superne angulatis, superficie *carapacis omnino minutè reticulato punctatâ*. Lateribus parallelis posteribus dentibus duobus setigeris ornatis. *Regione medianâ obsolete tuberculis setigeris tuberculatâ*.

Pedibus anticis (in maribus) reliquis crassioribus (in fœminis et maribus junioribus debilibus), digitis parce hiantibus, carpo margine superiore rotundatâ suberistatâ. Brachio cristato, tuberculo setigero ornato.

Pedibus posticis articulo penultimo latè triangulato infra oblique truncato et spinâ corneâ tenui armato. Tarso bene denticulato, sparse setigero. Pedibus tuberculis minutissimis confertis.

Abdomine segmentis sex (4to et 5to coalitis) in maribus angusto-triangulari, in fœminis rotundatâ.

Reticulated Spine-clawed Crab. (Plate XIV., Fig. 1.)

Carapace slightly convex; sides nearly parallel; their superior termination prolonged into a somewhat rounded lobe, most strongly marked in the males; behind near posterior angle two small triangular teeth; all the teeth setigerous. *Two minute setigerous tubercles on median region. Whole surface of carapace, as well as limbs, finely punctuated*, owing to a dense epidermis.

Anterior legs in males much stouter than following; the hand oval, compressed; fingers spoon-excavated; wrist keeled with a single nearly obsolete setigerous tubercle; the keel also terminating as a setigerous tubercle in females, and in mature males; anterior feet scarcely stouter than following; tubercle on wrist less strongly marked. Posterior feet both sexes, penultimate joints (fifth) broadly triangular, obliquely minute; below angle of truncation, near superior articulation, furnished with a long and horny spine; tarsus furnished with two ranges of fine teeth, sparingly setigerous.

Abdomen in both sexes with six segments on fourth and fifth segments, being consolidated. In males elongately triangular; in females much rounded, convex.

Male, mature:—Length, 0·6 inch; breadth, 0·4 inch; distance between anterior angle and first tooth, 0·125 inch; between teeth, 0·075 inch. Immature 0·55; 0·375; 0·1; 0·05; Female:—Length, 0·60; breadth, 0·39; angle to first tooth, 0·15; between teeth, 0·1.

Colour, yellow-red; an oval white patch in median region; movable fingers, pale-red; the tips of fingers white. A somewhat heart-shaped, white, polished spot, marking apex of abdomen below, and in males continuous on thorax.

HABITAT: Dredged 7-10 fathoms, gravelly bottom, North Chinchas Island.

Fig 2 $\frac{1}{4}$

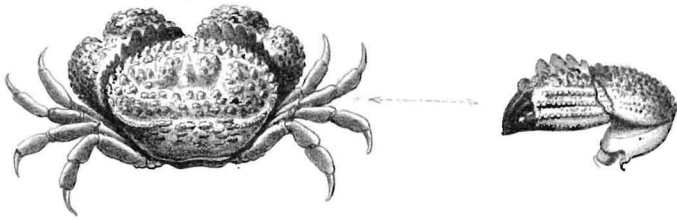


Fig 1 $\frac{2}{4}$

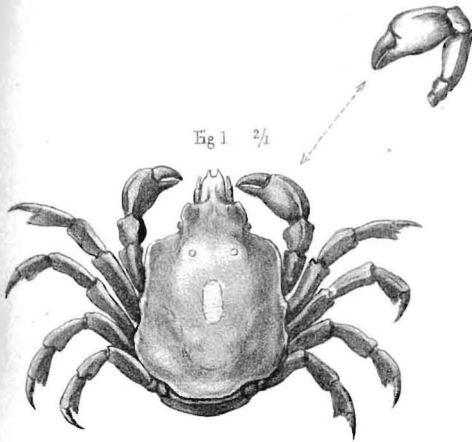


Fig 3. $\frac{2}{4}$

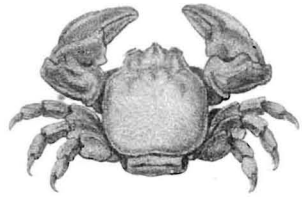
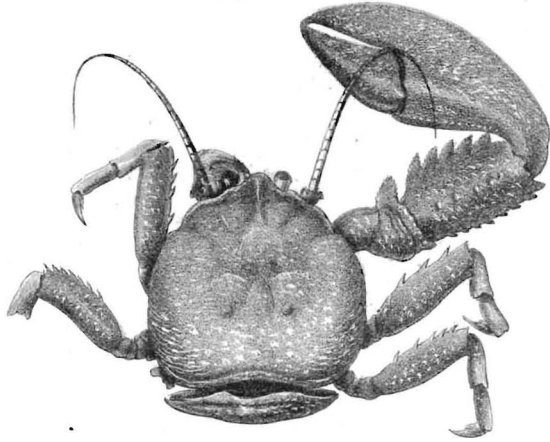


Fig 4 $\frac{1}{4}$



This species neighbours to both *A. Petiverii* and *A. debilis* (*Dana*); it differs from the former in the presence of the tubercles on the median region—from the latter in the stout chelæ of the mature males—and from both in the reticulated appearance of the surface of the carapace. The specimens obtained were three in number, two of them males, one of which had the chelæ much stouter than the other. There are also one or two slight comparative differences between them, but not sufficient to justify their separation as distinct species. The hands of the mature males are polished internally, whilst those of the other specimens are reticulated.

The specimens were dredged on a gravelly bottom near some rocks, depth, 7-10 fathoms (there is no seaweed growing here).

Family—CANCRIDÆ. Sub-family—CANCRINÆ. Genus—CANCER.

CANCER DENTATUS (*Bell*), Hairy Crab.

This species appears to be more general, or rather much commoner, than the last; it makes up the greatest part of the numerous "crabs" to be found on the reef at Callao, occurring of every size. I also dredged it in the Chinchas on gravelly bottom, and captured it under the stones at Callao.

In the shape and distribution of colours this species differs much from the other Cancris. The pterygostomian regions and under parts generally (in other species unpainted) are here dashed with a rose-red on a yellow ground, reminding one strongly of the genus *Hepatus*. The hairy lines on the carapace become fewer by age. The raised lines on the hand so characteristic of the genus, but which are also found in other genera (e. g. *Hepatus*, *Eriphia*, &c.), are more strongly marked in this than the other species. In them we find that these lines, though well marked in the young crab, become more and more indistinct each year, till at length they vanish nearly altogether.

CANCER PLEBEIUS (*Pæppig*). CANCER IRRORATUS (*Bell*),
Painted Crab.

This species appears to be the rarest of those met with; perhaps it is a deep-water species. The general colours are yellowish-red, with two semilunar lines of white dots on each branchial region.

Callao Reef.

CANCER LONGIPES (*Bell*).

Callao Reef; not uncommon, easily distinguished from its congeners by the approximation of the branchial regions.

CANCER EDWARDSII (*Bell*).

Callao Reef, rare.

Family—CANCRIDÆ. Sub-family—XANTHINÆ. Genus—XANTHO.

XANTHO ORBIGNYI (*Edwards and Lucas*).

A single specimen from Callao Reef; it would appear to be rare.

Family—CANCRIDÆ. Sub-Family—XANTHINÆ. Genus—PARA-

XANTHUS (*Lucas*).

PARAXANTHUS SEXDECIMENTATUS.

This species appears to be very common; several specimens were obtained on Callao Reef. I also dredged specimens on a sandy bottom, 7 to 10 fathoms, in the channel between South and Middle Islands, Chinchas.

The specimens were identified with those in the British Museum collection. I may mention I have also seen a specimen sent home in the same case with a guano mummy from Peru, now in the Society's collection. The colour, when fresh is a dark red-brown, mottled irregularly with yellowish-white, and the regions are more strongly marked in the young than the old specimens.

Abdomen :—Male, five-jointed ; third and fifth coalesced.

Family—CANCRIDÆ. Sub-Family—XANTHINÆ. Genus—PANO-

PÆUS (*Edwards*).PANOPÆUS CRENATUS (*Edwards and Lucas*).

The regions are tolerably fairly marked, the median clearly defined. Not having D'Orbigny's South American Voyage by me, I am obliged to name this from the description only.

Length, 1.0 inch ; breadth, 1.5.

Callao Reef, Peru.

The species appears common.

Family—ERIPHIDÆ. Sub-Family—OZINÆ. Genus—PILUMNOIDES
(Edwards and Lucas).

PILUMNOIDES DANAI (n. s.)

Testâ ut *genus*. Fronte producta submarginatâ. Marginibus antero-lateralibus supra-productis 5 ad 7 lobatis, lobis irregulariter denticulatis. Testâ, regionibus posticis, lineis colliculorum denticulorum suprastriatâ; regionibus anticis tuberculis sparsis.

Pedibus anticis, margine interiore tribus lobis compressis productâ, areâ superiore tuberculis planis confluentibus, dense confertis, ornatis. Latere exteriori tuberculorum lineis tribus ornatis; granulis duplice ordine, intercalatis inter lineas primam et secundam, tertium ordine simplice, margine inferiore granulatâ. Carpo margine interiore productâ lobatâ tuberculis confluentibus planis armatis. Brachio marginibus hirsutis.

Pedibus posticis ut *P. perlatus*.

Abdomine *maris* (?). Fœminæ lanceolato, lateribus subrectis, articulis septem distinctis.

Colore, rubro-fulvo; pedibus pallide-rubris, lineis albis circumcinctis; chelis et tarsibus nigro-fuscis.

Habitat: ad Insulas "Chinchas," Peru.

Tuberculated Raspberry Crab. (Plate XIV., Fig. 2.)

Carapace rounded as in last; *front much produced triangular emarginate; sides produced into a flattened, raised, denticulated border, broken into from five to seven irregular, somewhat triangular lobes*; the first or orbital small, but distinct: posterior region covered with linear denticulated ridges.

Anterior surface of carapace covered with much elevated, pointed, mammillated tubercles, most numerous on the lateral regions (where they are arranged in curved lines); on median region they are irregular, rounded, and pointed.

Hands armed on inner edge with three much produced, laterally compressed lobes; the apices of the lobes rounded; superior area somewhat flattened, irregularly densely covered with *flat-topped, confluent tubercles*. Beneath these, the three rows of fine tubercles, as in *P. perlatus*, a doubled row of small granules intercalated between the first and second, and a single row between the second and third; inferior margin finely tuberculated.

Chelæ as *P. perlatus*; tubercles more marked; wrist flattened superiorly; inner edge produced, irregularly broken into lobes, furnished with numerous small, flat-topped tubercles; granular on outer inferior edge.

Arm with hairy borders.

Posterior legs as *P. perlatus*, but more granulated.

Abdomen: female, articulations seven distinct; linear-lanceolate sides nearly parallel; seventh joint nearly triangular, very long, densely hairy along border.

Colour yellow-white, blotched over pale-red; legs pale-red, irregularly banded with yellowish-white; under parts yellowish-white; claws and tarsi black-brown.

Length, 0.7 inch; breadth, 0.9 inch.

HABITAT: Chinchas Islands, Peru, 7 fathoms.

The distinctive marks between this hitherto undescribed species and the preceding are striking, the lateral border of this species having its lobes continuous and irregular; the anterior portions of the carapace covered with mammillated tubercles, made up of granules irregularly piled on each other, and hence most unequal in size and height; all the ridges and tubercles are much more marked than in the preceding species, especially in the median region, which in the adult *P. perlatus* is nearly smooth, the tubercles being so small as not be distinguishable without a lens, while in *P. Danai* they are raised and prominent. The superior orbital edge also is tuberculated. The posterior regions of the carapace have a number of prominent raised ridges; in fact, the whole animal is everywhere more tuberculated. The differences of sculpture in the hands, &c., speak for themselves.

Only one specimen, a female, occurred to me in the dredge, as above; it was so covered with growing zoophytes as to render the cleansing of the carapace a task; the surface of the carapace appears to have had a hairy covering.

PILUMNOIDES PERLATUS (*Pæppig* sp.), Pearly Raspberry Crab.
(*Vide* p. 120.)

Carapace rounded, very convex; front produced, *deeply emarginate*, bordered with tubercles; sides furnished with five to six irregularly sized teeth, the first or orbital very small; antero-lateral margin much longer than postero-lateral, much arched, curved back over surface of carapace; region thus cut off smooth; surface of carapace anterior to uncurved lateral line covered with rounded mammillated prominences, very prominent on lateral regions.

Hands armed with three rounded teeth along its superior internal border, succeeded by three principal irregular slanting lines of warted tubercles; a few small tubercles scattered between them. Beneath these are the three slender costæ of tubercles, generally found in the Cancroidea. Chelæ equal in size; movable finger, with a deep punctated channel along outer edge; fingers black; wrist rounded, covered with tubercles, most numerous on its outer edge; a row of small tubercles bordering its upper surface within; posterior legs; carinated on upper edges, which are granulated in third and fourth joints, hairy in fifth and sixth; nail short and black.

Abdomen in both sexes, articulations distinct, seven; in male, second narrower than first; third broadest, thence gradually narrowing to sixth, which is broader than fifth; seventh triangular, apex slightly obtuse. In female, abdomen narrow lanceolate, sides nearly parallel.

Colour, rose-red on yellowish-white ground; the tips of prominent tubercles a deeper red; legs clouded with the same colour. Adult male, length 0·73 inch; breadth, 0·9; ratio, 1 : 1·23.

HABITAT: Callao Reef, Peru; two small specimens dredged in from 8 to 10 fathoms on gravelly bottom, North Islands, Chin-chas; one specimen was also met with here between tide-marks, coiled up in a defunct *Balanus tintinnabulum*. Also, Port Philip, Victoria, Australia; 12 fathoms, gravelly bottom.

The lateral border of the carapace of this interesting species is furnished with five broad denticulated lobes, posterior to the orbital angle; these lobes are irregular in size, and at least in adult individuals very distinct among themselves, and, along with the smooth posterior space, the deeply emarginate front, and the rounded character of the tubercles with which the carapace is covered, afford very good specific distinctive marks between this species and *P. Danai*. The front in both species is prettily beaded, and the eyes furnished with two minute rounded horns at the base of the cornea.

The young of this species differ as follows from the above description: ridges on hands more prominent and distinct^a, *vide postea*; and the median region of the carapace is covered with granular tubercles; the posterior region also is furnished with a few tubercles on its lateral portions, but of a very different character from the dentelated ridges seen in these regions in the adult *P. Danai*.

Family—PORTUNIDÆ. Sub-family—LUPINÆ. Genus—LUPA
(Leach).

LUPA SAYI (?), Gibbes, Short-spined Oceanic Crab.

Front almost straight across, three-lobed, *the median lobe deeply emarginate*, its division very minute; lateral lobes of front rounded, scarcely prominent; orbits well marked, hairy along upper border, with two deep fissures above; internal orbital angle rounded, as long as lobes of front; external angle prolonged as an obliquely quadrate tooth; antero-lateral margin of carapace divided into seven equal lobes, curved forwards, somewhat quadrate in form; posterior to these, the lateral edge is prolonged into a triangular curved tooth, attaining half-way to the termination of the third articulation of the second pair of legs; a raised granular line connecting the teeth.

^a This character seems to prevail throughout many, if not all, the Canceroidea. In young specimens of *C. pagurus*, the chelæ, which in adult specimens are nearly smooth, exhibit three distinct beaded ridges, and the same appears to hold good in *C. Edwardsii*.

Anterior pairs of legs shorter than second; arm triangular; *its inner margin armed with four* strong, triangular, flattened, spiriform teeth; a few scattered denticles filling up intervening portion of border; its upper surface covered with granules, coarsest and most numerous on the external margin; a sulcus running across from base of fourth tooth to external angle of articulation; this sulcus cuts off about superior fifth of arm; *posterior apex truncated, without any tooth*; wrist somewhat quadrate; superior articulations emarginate; internal apex produced as a strong triangular tooth; external margin with a raised border terminating as a short spiniform tooth; median portion of articulating border triangular; hands superior; area marked with two carinæ, of which the inner is best marked, and ending in a tooth; exterior area, three raised carinæ, the superior terminating in a tubercle; the entire surface of hand granulated; *the carinæ slightly granulated only*; fingers curved, strongly carinated, slender, pointed; arms, wrists, and hands, with a hairy border on inner side.

Posterior pairs of legs: first to fourth gradually decreasing in length; the articulations somewhat flattened; carinated along superior edge, last three joints hairy on their lower borders; terminal joint flattened, lanceolate eminently natatorial; fourth pair, terminal joint oval, with a raised median ridge; *pterygostomian region and foot-jaws pubescent*.

Abdomen, male, somewhat triangular, four-jointed (the third, fourth, fifth, and sixth consolidated); first and second strongly transversely carinated.

Colour when recent, reddish-white, with white rounded spots.

Length of specimen, 0.3 inch; breadth, 0.5 inch; ditto, exclusive of posterior spine, 0.44; ratios, 1:1.6 and 1:1.1.

HABITAT: Gulf-weed; lat., 23° N.; long., 38° W.

This specimen appears to be identical with *Lupa Sayi* (Gibbes), but having only De Kay's figure to go by, I have described it in full. It is extremely active, generally speaking, dropping off the gulf-weed as soon as withdrawn from the water.

Family—GRAPSIDÆ. Sub-family—GRAPSINÆ. Genus—GRAPSUS (*Lamarck*).

GRAPSUS STRIGOSUS (*Herbst.*, sp.), Wrinkled Shore Crab.

Chinchas Islands, on rocks.

Breadth, 2.57 inches; length, 2.15; ditto of front, 0.96; height of ditto, 0.47.

This crab abounds all along the cliffs, where it might be seen wandering in every conceivable position, sometimes running along even the under sides of the rock; it runs with ex-

traordinary swiftness, so that it is almost impossible to run it down. When pursued it secretes itself in the crevices of the rocks. Several specimens captured were in spawn, which is of a bright salmon colour. The crab itself varies much in colour, some being of a dark-brown, others of a pale-yellow, and every intermediate shade is to be met with. All are characterized by white ocelli scattered over the legs. The claws in my specimens vary greatly in size.

In the proportions of the front, the three teeth on the lower apex of the fourth pair of legs, and the shape of the foot-jaws, my specimens agree accurately with Dana's descriptions; a detailed description is therefore unnecessary.

Genus—GONIOGRAPSUS (Dana).

GONIOGRAPSUS SIMPLEX (Dana).

"*Vario similis*. Carapax fere quadratus, lateribus postice vix convergentibus, fronte paulo declivi, parce sinuoso, margine antero-laterali 1-emarginato [ā] carpus supra-minute rugatus; manus extus lævis, supra paulo rugata. Articuli 4tus, 5tusque, pedum 8 posticorum sparsim hirsuti; 3tius pedis postici apice inferiore truncatus, integer; pedis 4ti 3tique 2-3 dentatus."

Carapace somewhat quadrilateral; swollen indistinctly plicated; front advanced; beaded along margin, subemarginate; external orbital angle produced, posterior to this, a short rounded lobe arising from an emargination of the border of the carapace.

Anterior pair of legs moderate; arm with its interior apex armed with four flattened teeth; its posterior apex granulated; wrist quadrate, interior apex ending in a curved tooth, anterior apex curved and dentiform, the posterior angle broadly truncate; hand swollen, curved, stout, smooth exteriorly; faintly plicated superiorly; tuberculated on inferior edge, owing to the plications terminating abruptly here.

Posterior pairs of legs, first and fourth equal in length, and much shorter than second and third; third articulation in first three pairs, with its inferior apex terminating in a toothed lobe; in fourth pair this lobe is simply rounded; last three articulations hairy along upper border; the whole of the legs plicated; tarsus somewhat truncate, terminating in a stiff nail, and, along with penultimate joints, strongly spiny along lower border.

Pterygostomial region smooth.

Abdomen, female, oblong-ovate, 7-jointed; fourth joint broadest; seventh rounded, narrowest.

Colour, yellowish-white, with dark fawn-coloured dots and tracings.

Length, 0.55 inch; breadth, 0.55; depth of front, 0.125; breadth, ditto.

HABITAT: Channel between Middle and South Islands, Chinchas; sandy bottom, seven fathoms, dredged.

The Latin description is after Dana; the English description drawn up from my specimen. Dana gives Rio Janerio as the locality for this species, but marks it with a query.

Genus—PLANES (*Leach*). NAUTILOGRAPSPUS (*Edwards*).

PLANES LINNEANA (*Leach*), Floating Crab.

A female specimen washed on board during a gale, in 47° N., 38° W.; no gulf-weed seen for two days previous; this was by far the largest specimen I obtained: its dimensions are as follows: breadth, 0·5 inch; length, 0·5 inch.

Of other specimens obtained on the Sargassum, I have carefully examined fifty, and found no sufficiently strongly marked characters to justify me in separating them from *P. Linneana*—at the same time, I must allow that there are two distinct types among them: the one having the carapace somewhat squared, and the terminal joint of the abdomen in males triangular, as in *P. Linneana*; the other having the carapace rather rounded, and the terminal joint of abdomen rounded. All my specimens were males; they occurred between the parallels 23° and 33° N., and 38° and 48° W. Their colours, when fresh, were brown markings scattered irregularly over a yellowish-brown ground.

Should the last-named variety prove to be more than a juvenile state of *P. Linneana*, perhaps we might restore to it Fabricius' old name, *minutus*. The surface of all my specimens were smooth and glistening.

Sub-family—SESARMINÆ. Genus—CYCLOGRAPSPUS (*Edwards*).

CYCLOGRAPSPUS PUNCTATUS (*Edwards*), Dotted Beach Crab.

Carapace convex, sparingly transverse, *smooth*, polished, and shining; finely punctate under the lens; a single deep punctuation on each branchial region; frontal region declivous; lateral angles curved; a *distinctly marked, raised border running around carapace*; orbits open above and below, their angles well marked; *infra-orbital ridge and ridge of epistome distinctly beaded along its margin*; *pterygostomian region granulated, slightly pubescent*; external maxillipeds finely punctate, sparingly tomentose; *third joint much longer than broad, and equal to second, bearing the fourth joint on its excavated apex*; the raised ridge running along inner edge of third articulation, and terminating at superior internal angle of second joint; *terminal articles reaching half way down third articulation*; interior pair of feet, with arm finely beaded along its upper edge; hand smooth, globular; *fingers finely denticulate*.

Posterior pairs of legs: second pair longest, perfectly smooth; tarsus short, curved; a few spines beneath, and a few raised hairy lines along its inner sides.

Abdomen, female, attaining to base of foot-jaws, seven-jointed ovate; first segment shortest, linear; fifth longest; seventh slightly rounded at its tip, forming nearly a right angled isosceles triangle.

Colour, fawn-brown, fading off on flanks into a dark yellowish-white; on each hepatic region a semicircular row of white impressed spots; a semilunar white line bounding frontal region posteriorly.

Length, 0.5 inch; breadth, 0.6 inch; breadth of front, 0.25 inch; ratio, 1: 1.1.

HABITAT: under stones, in crevices and clefts of rocks along shores of islands; also on piles at Callao, along with next.

This pretty little crab is tolerably abundant among the shingle at Callao, and in the caverns and cliffs of rocks at the islands; it is extremely active in its habits, and vigilant; thousands of it and the next species may be seen running over and among the piles of the wharf at Callao, even in the broad sun-glare.

By an inadvertency in my former paper, I described this species as having occurred to me instead of the granular shore crab, *C. granulatus*; but *vide infra*.

Edwards' description is so meagre that I have described the species fully, and also figured it; the characters of its orbits, feet, carapace, and foot-jaws separate it easily from its congeners.

CYCLOGRAPSUS (?) GNATHERION (*n.s.*)

(*σφαθος, ἐπίον.*)

Carapace, parce tranverso, plano non areolato, polito, marginibus curvis declivis. Pedibus anticis lævibus, digitis, *maris* sæpissime inermis. Pedibus posticis, tarsis spinulosis, articulis tertio et quinto, infra hirsuto. Maxillip. externis, omnino hirsutis, articuli 3tio oblongo 2do non brevior, cristâ angustâ pilosâ; articulis, 4to, 5to, 6toque productis, 6to lateribus rectis, apice triangulato. Regionibus pterygostomianis hirsutis. Abdomine *maris*, triangulari, articulo ultimo quadrato.

Colore, albo-flavescente.

Habitat: ad insulas "Chinchas," Peru.

Hairy-jawed Beach Crab.

Carapace transverse, smooth, very shining; frontal regions very declivous, antero-lateral angles much rounded; a faintly marked border edging carapace; regions not marked out; orbits open above, their angles badly marked, *closed in beneath by a distinct ridge, beneath which there is a dense row of stiff hairs*, the orbital gutter distinctly marked, a minute tooth at its superior external angle; pterygostomian regions *very prominent, rounded, hairy, and granulous*; three distinct curved hairy ridges, crossing epistome; *ex-*

terminal foot-jaws densely hairy, third articulation as long as second, fourth inserted into excavated apex of third, and bearing on its summit two elongated, flattened segments, the terminal of which has its sides parallel, apex rounded, furnished with a brush of long soft hairs, and attaining to internal superior angle of second articulation so as to completely fill the lozenge-shaped space between the foot-jaws of the two sides; anterior legs small, smooth; fingers of males very faintly denticulated; posterior legs, second pair longest, first and third equal, fourth very small; tarsus spinulose, with sparsely tomentose lines beneath; third and fifth articulations densely tomentose at their inferior apex.

Abdomen, male, attaining to base of foot-jaws, triangular; seven-jointed, terminal segment almost circular, received into the deeply excavated margin of sixth, carried folded down under sixth; first segment carinated in males; in females almost linear; second segment nearly obsolete; a double row of pits running down segments of abdomen.

Colour, light fawn-yellow.

Length, 0.375 inch; breadth, 0.5 inch.

HABITAT: Chinchas Islands and Callao.

This species is even more common than the last, and in the same localities: it is, partially at least, a vegetable feeder. I cannot find it described in Dana, unless he considered it *C. Audouinii*; yet its posterior legs, smooth above, the proportions of the abdomen, and characters of the orbits, separate it from this species. The spinulous tarsi, characters of sternum, abdomen, exclude *C. cinereus*. It would answer M. Edwards' short description of *C. integer*, if it were not for the distinctly marked infra-orbital gutter.

One striking peculiarity in all my specimens is the fact of the seventh joint of the abdomen being carried folded beneath the sixth joint, so that it appears wanting.

I am not sure that it should be referred to this genus.

CYCLOGRAPUS GRANULATUS (?) (*Dana*). (*Vide* page 126.)

In naming this species in my former paper I fell into an error with regard to *C. punctatus* of Edwards, and *C. granulatus* of Dana, through placing too much dependence on characters which I now believe to be inconstant, and which led me to pass over the latter species. M. Edwards' descriptions are so curt that without figures it is often most difficult among a number of allied species to distinguish those which he describes. I now give Dana's description of this species, bracketing the characters which do not accord with my specimens.

"Carapax non areolatus, antice paulo granulatus. Orbita infra incompleta. Articulæ maxillæ. externi 3tius vix oblongus, 2do multo brevior, nudus, cristâ tenui pilosâ angulum 2di externo-anteriozem intersecante tantum; 2dus nudus. Articulæ pedis 2di, 5tus apice non tomentosus, tarso lineis tomentosis paulo laxis ornato non spinuloso. Manus glabra nitida [digitis maris intus non denticulatis]. Abdomen, femine ac in cinereo, lateribus vix excavatis, postico parce oblongo, apice late rotundato, sternum pone aream buccalem nudum."

My specimen differs from this description only in having the fingers denticulate, a character which a careful examination of the hands in other species would lead me to place secondary dependence on as a specific distinction.

HABITAT: Port Philip, Victoria, Australia (*vide* page 126, *Cyclograpsus punctatus*).

Family—LEUCOSIDÆ. Sub-family—MATUTINÆ. Genus—HEPATUS
(Latreille).

HEPATUS CHILIENSIS (Edwards).

The commonest of the species found dead on Callao Reef; there is much variation in colour; the general colour, being a whitish or yellowish ground, with dark-brown reticulations densely covering it, in some specimens the white only appearing as circular dots; this may be a distinct species, the granulations in foot-jaws, &c., being much more strongly marked than in the ordinary variety. The *sternum* in all these specimens is *densely tomentose*.

HEPATUS ANGUSTATUS (Fabric. sp.)

Appears to be nearly equally common with the former, from which it is best distinguished by its *entire front*; the same range of colouring prevails.

In a bay with a shingly bottom, seven fathoms, North Island, Chinchas, I dredged a specimen of Hepatus, differing from both these species; in it the sternum is strongly tuberculated, not tomentose, the hands more strongly tuberculated, and the surface of the carapace marked by granular ridges. As the specimen is a very small one, I do not wish to describe it as new till I can examine specimens of cognate species.

DECAPODA ANOMOURA.

Family—PORCELLANIDÆ. Genus—PORCELLANA (Lamarck).

Front entire, no lateral teeth.

PORCELLANA GRANULOSA (Guerin), Granular Porcelain Crab.

P. STRIATA (M. Edwards).

To this species I have referred a small specimen dredged in ten fathoms (gravelly bottom) off the North Chinchas

Island; the following points in its description deserve notice; it otherwise agrees with Milne Edwards' description.

Carapace covered with oblique striæ (almost squamulose); striæ most strongly marked on the lateral regions; two rounded prominences behind frontal region; posterior orbital angle prolonged as a triangular tooth, behind which there is a slight depression in lateral border; lateral channel nearly obsolete.

Pterygostomian region covered with raised waved hirsute striæ, which are also seen on the external pedipalps.

Hand (left) finely granulose on upper surface; under surface polished, punctuated. *Movable finger finely denticulated (rather coarsely on cutting edge)*; *rictus furnished with short, fine hairs*; carpus granulose no inner edge, which is entire; squamulose on outer edge; under surface nearly smooth, polished.

Posterior legs striated with numerous fine denticulated squamæ. Fourth, fifth, and sixth joints hairy in tufts; a few small stiff spines on lower margin.

Length, 0·375 inch; breadth, 0·3 inch.

Colour, reddish-brown, waved and mottled with darker red; paler beneath; the tips of foot-jaws bluish-purple.

PORCELLANA VIOLACEA (*Guerin*), Violet Porcelain Crab.

Front triangular, much inclined downwards; superior orbital border straight; internal angle slightly projecting, so as to present somewhat the appearance of a lobe; external angle sloped off; a re-entrant angle marking the commencement of the lateral edge, which scarcely projects, so that the sides are nearly plane; the depressed lateral groove, so evident in other species, being almost obsolete.

Pterygostomian region covered with curved, denticulated, hairy lines; lateral suture very open; foot-jaws smooth.

Carapace smooth; a few indistinct striæ on posterior lateral region; regions very indistinctly marked out.

Hands (upper surface) *finely granulated* (M. Edwards says—“*Finement ponctuées*”) especially in the external longitudinal channel; the external border rounded and perfectly smooth; under surface finely punctuated; inner edge of fingers finely granulated; carpus rather coarsely granulated except on outer edge, which is raised, rounded, and smooth.

Posterior legs having a few tufts of hair above on penultimate joints, and a number of spines between fifth and sixth joints.

Length, 0·75 inch; breadth, 0·70 inch.

Colour, purple patches irregularly arranged, on a yellowish-red ground. First pair of legs purple, the joints and borders of the fingers and hands, &c., edged with a narrow salmon-red border. Third to sixth joints of posterior four pair of legs prettily banded with purple and yellowish-red; under parts much lighter in colour.

HABITAT : Under stones between water-marks in rock-pools; a single chelæ was also dredged near shore.

My specimen differs in some respects from M. Edwards' description of *P. violacea*; I have therefore entered somewhat fully into the details. The species appears tolerably common in the localities mentioned. The species varies much in size; my finest specimens were obtained under stones at the Middle Island by John Steevens, Esq., Jun. I found them also myself at the North and South Islands, and at Callao, and their habits appear to be similar to those of *Porcellana longicornis*. The most remarkable joint in their structure is the absence of the lateral groove, so that the animal is unable to conceal its antennæ beneath the edges of its carapace.

Front three-lobed.

PORCELLANA CARINATA (n. s.)

Testâ triangulari-ovatâ, minute punctatâ. *Fronte trilobatâ*, lobo medio majore. *Margine orbitali superiore rectâ*. *Lateribus carapacis, arcuatis, integris, maxime dilatatis*, Regionibus pterygostomianis granulis tuberculatis super-sparsis. *Maxilleped externis, articulo 3tio tuberculis ornato; articulo 4to carinato. Antenn. externarum articulis tribus infimis subquadratis tuberculis ornatis.*

Pedibus anterioribus manu triangulatâ compressâ cristatâ. Marginibus minute granulatis. *Carpo margine interiore dente triangulari lato productâ*. Margine exteriori crassâ, lobo terminante, carinis duabus aut tribus ornatâ.

Pedibus posterioribus compressis articulo 3tio tubercule-carinato articulo 4to bicarinato. *Tarso brevi et crasso.*

Colore fulvo-rufo, pedibus annulis rubris et albidis circumcinctis.

Habitat : ad insulas Peruvianas "Chinchas" dictas.

Carinated Porcelain Crab (n. s.) (Plate XIV., Fig. 3)

Front triangular, three-lobed; middle lobe triangular largest; lateral lobes small; border of lobes raised, rounded and tuberculated irregularly; superior orbital border straight, finely tuberculated.

Sides of carapace curved, entire, much dilated laterally; carapace finely pitted; regions well marked out.

Pterygostomian region irregularly covered with coarse tuberculated granules; lateral groove well marked, finely punctuated. Foot-jaws, first and second articulations pitted irregularly; third, tuberculated; fourth, with an irregular tuberculated crest.

External antennæ long and slender; three basal joints somewhat squared, covered with irregular, flattened, tuberculated masses; filament long; short hairs at origin of articulations.

Hands triangular and thin, external edge nearly straight, with a finely tuberculated raised edge; another crest running from rictus backwards, towards carpal articulation; movable finger slightly curved; its edge raised and tuberculated. *Inner edge of wrist dilated into a flattened triangular tooth*; outer edge thickened and rounded, terminating superiorly in a rounded lobe. *Two or more well-marked, raised, tuberculated crests on its superior surface.*

Posterior feet flattened, dilated—their third and fourth articulations furnished with a tuberculated crest (crest double on fourth). Tarsi thick and short.

Length, 0·3 inch; breadth, 0·275 inch.

Colour, uniform yellowish-red; the legs prettily banded with darker red.

HABITAT: Chinchas Island, Peru.

A species neighbouring *P. cristata* (Edwards), but readily distinguishable by its curiously tuberculated antenna and pedipalps, and the double crests on the fourth articulation of posterior leg, and carpus of anterior pair. It differs from *P. tuberculosa* and *P. tuberculifrons* (Guerin) in the absence of teeth on the carpus.

The only specimen obtained was dredged adhering to a rough stone, in about seven fathoms of water, gravelly bottom, North Island.

PORCELLANA DUBIA (*n. s.*) (Plate XIV., Fig. 4.)

P. ACANTHOPHORA (D'Orbigny).

Testâ subconvexâ, minute granulâtâ, regionibus lateralibus substriatis, in medio squamulis denticulatis granulatis. *Fronte trilobatâ* medio lobo prominenter triangulari, sulcato. *Margine orbitale superiore* supra productâ *concaâ* cum angulo inferiore lobato, et angulo exteriori dente triangulari lato producto. *Margine carapacis laterali vix productâ, dente parvo spinoso pone orbitali angulo armatâ.*

Regionibus pterygostomianis plicatis; Articulis 2dis et 3tiis maxillep. extern. levibus.

Pedum primo pare; Manu magnâ compressâ subtriangulatâ et granulâtâ. *Margine superiore* minute-serratâ. *Digito mobili* adunco, ricto intus villosa: *margine internâ* denticulatâ. *Carpis* contracto crasso, *margine inferiore supra dilatatâ, quinque denticulatis triangularibus lobis supra armatâ. Margine exteriori* octo spinosâ. *Brachio* dente lato armato.

Pedibus posterioribus tenuibus squamosis articulo 3tio supra spinoso et hirsuto. *Articulis 4to ad ultimum supra hirsutis, paucis spinis infra tarso.* Antennarum externarum, articulo basilari antero-rotundato, dente quadrato intra ornato.

Colore, rubro albis cæruleisque punctis et annulis maculato.

Habitat: ad sinum Callao, Peru.

Spinous-legged Porcelain Crab (*n. s.*)

Carapace moderately rounded; *front three-lobed*, the central lobe prominently triangular, obtuse, *a deep sulcus on the median line*, furnished with a raised granular border; lateral lobes small and triangular, forming internal angle of orbit; *orbits concave*, edges prolonged upward, external angle prolonged as a flat triangular tooth; *behind external angle*, a narrow sulcus separating it, *a small tooth; remainder lateral line entire*, a deep transverse sulcus marking out front, and continuous with sulcus behind lateral angle; posterior to this, two small rounded prominences.

Carapace wrinkled on lateral regions; surface minutely ridged; ridges not continuous, made up of minute *denticulate squamulae*; edges of carapace, front and orbits finely beaded; *lateral depression scarcely marked.*

Pterygostomian regions plicated; external pedipalps smooth.

Anterior pair of legs beautifully squamulose; hand (right) flattened, large, somewhat triangular; outer edge finely serrated and curved; upper surface covered with small, flattened tubercles; under surface granular; inner edge of hand and movable finger furnished with a narrow raised border; movable finger elongated, curved inwards, hooked, and (as well as rictus) densely villous within, finely denticulate on cutting edge; whole hand incurved.

Carpus narrowed, thick, superior inner edge dilated, armed with five triangular, flattened, denticulate teeth; eight rounded spines (including superior external angle) on exterior border; a small spinous tooth, on upper edge above, on carpal articulation, which is lobed beneath; superior surface squamulose; the squamæ passing into granules externally; inferior surface smooth and polished, covered with depressed squamulæ. Arm with a long denticulate, triangular tooth at its upper extremity.

Posterior pairs of legs, their third joint spinous along superior margin, hairy, squamose; fourth and fifth joints hairy along superior border. Tarsus short, hairy above, spinous beneath.

Outer antennæ long and tapering; basal joint rounded anteriorly, furnished internally with a squared tooth.

Length, 1.0 inch; breadth, 1.2 inch.

Colour: cherry-red, prettily dotted with rounded white and bluish dots and rings, chelæ cherry-red, the tubercles showing as white dots.

HABITAT: Callao Reef.

After considerable hesitation I have felt compelled to add another to the many species already described as belonging to the section of Porcelain crabs with serrated margins to the carapace. This species comes near *P. Boscii* (Savigny). But if the figures and descriptions of that species be correctly given, it differs most remarkably in the *spinous* margins of the third articulation of the posterior pairs of legs (which are *hairy*, not spinous, in *P. Boscii*), also in having *five* instead of *four* serrations to the carpus of first pair of legs. The plicatures on the carapace are much broken up, owing to the squamæ being very minute; they are also slightly hairy under a lens; the lateral groove is but badly marked, the sides of the carapace being scarcely produced, and in consequence the external antennæ remain uncovered when folded back.

The only specimens obtained were three, picked up on that great charnel-house of Crustacea, southern side of Callao Reef.

In the beauty of its colour this species yields to none. The trivial name is meant to express my doubt as to its specific difference from *P. Boscii*.

The specimen figured is imperfect.

Family—PAGURIDÆ.

Genus—PAGURISTES (*Dana*).PAGURIS (APPENDICULES in part) (*M. Edwards*).

GEN. CHAR.—“Pedes 4ti vergiformes tarso terminali. Abdomen ad basin duabus vel quatuor appendicibus infra instructum. Antennarum externarum flagellum plus minusve cernitum sæpe elongate ciliatum. Antennæ interne longiores articuli, apice secundi extremitatem oculorum fere attingente.”

PAGURISTES WEDDELLII (*Edwards*' sp.)PAGURISTES HIRTUS (?) (*Dana*).

Rostrum very short; *carapace roughly hairy*; ocular peduncles moderate in length; *basal scales narrow, elongate, and denticulate on outer edge, touching each other*.

External antennæ equalling length of chelæ; their palps densely hairy beneath; basal acicle small, triangular, denticulate internally.

Second joint of internal antennæ attaining to end of ocular peduncles.

Hands sub-equal, compressed above, rather stout, tuberculated; spinous along outer edge; sub-elliptical in outline; inferior edge curved; superior nearly straight; *movable finger short, curved, and, as well as the thumb, terminating in a pointed black nail*, wrist furnished with a row of pointed spines along its internal border.

Ambulatory legs, moderate in length, rather stout; apices slightly contorted, garnished with long hairs, both above and below; fourth pair furnished with a regular nail as the others; legs densely covered with long, tufted hairs; colour, red, marbled with white, especially on the legs.

Dredged: channel between South and Middle Islands; 4 to 10 fathoms, and several other localities Chinchas Islands, where it appears common.

Several specimens of this species occurred to me as above, in shells of *Cancellaria*, *Purpura*, and *Nassa*; it would appear to be tolerably common; it is, I think, identical with the description of *Pagurus Weddellii* of Milne Edwards, published in 1848 (*vide* “*Annales des Sciences Naturelles*” (3) tom. x. page 64), as from Peru; though the descriptions in that notice are so short as to render it difficult to identify the species referred to. *Dana* has described a species of *Paguristes* under the name of *Hirtus*, which also tallies with my specimens; but as he has described his species as distinct from *P. Weddellii*, or at least implied so, I have hesitated to refer my specimens positively to his *Hirtus*. The young specimens are less hairy than the more mature.

Family—PAGURIDÆ.

Genus—CLIBANARIUS (*Dana*).

PAGURUS (APPENDICULES) (*M. Edwards*).

GEN. CHAR.—“Pedes antici subæqui. Digniti in plano horizontali claudentes, apice cornei, instar cochlearis excavati. Frons dente parvulo rostrata.”

CLIBANARIUS TOMENTOSUS (?) (*M. Edwards*' sp.)

Front produced into a moderate-sized pointed rostrum; a raised border running from apex of rostrum to origin of antennary peduncles; base of ocular peduncles, external antennæ, and borders of carapace generally, covered with long, silky, somewhat tufted hairs; anterior portion of carapace very much wrinkled; posterior portion acutely triangular; membranous portion over each branchial region densely hairy.

Hands sub-equal, flattened above, swollen beneath, covered on superior surface with long silky hairs in tufts, concealing numerous small black-pointed spines, arranged in somewhat parallel rows.

Fingers spoon-excavated at their tips, which are entire, black, calcareous; cutting-edge with five to eight triangular white calcareous teeth, nearly concealed beneath tufted long hairs; under surface garnished with numerous black spines and a single longitudinal line of silky hairs; wrists hairy and spinous, as hands.

Ambulatory legs; second to fourth pairs, crested along superior margin with hairs, inner edges and surface with a number of small black spines intermingled with short hairs, outer surface smooth; tarsus in second and third pairs shorter than preceding joint, terminated by a short curved, sharp, black nail; in fourth pair, subcheliform; scabrous area inferior and narrow; nail long, curved and serrated; fifth pair of legs slender, didactyle, tufted with yellowish hair at the tip.

Abdomen furnished with two pairs of false feet beneath, posterior, to which are three or four appendages, situated on the left side, arising from semi-lunar calcareous plates, the more anterior bearing a pair of palps, clothed with long hairs; a few tufts of downy long hairs scattered over the abdomen; dorsal plates in males calcareous, large, the first pair united as a ring; in females, reduced to longitudinal calcareous lines along each side of median line; external antennæ, filament moderate in length, hairy, furnished at its base with a triangular acicle, half length of ocular peduncles, externally bidentate at base; ocular peduncles slender, long, slightly compressed in the centre, basal scales very minute, multidentate at apex, and separated from each other by the prominent rostrum; internal antennæ short, basal portion scarcely attaining apex of ocular peduncles; colour reddish, with white blotches and dots scattered over calcareous portion of body, especially inferior portions of legs.

Length, 2.5 inches.

HABITAT: Chinchas Islands; 5-10 fathoms, gravelly bottom, near rocks; tolerably common.

This remarkable species occurred in shells of *Purpura chocolateum*.

Genus—BERNHARDUS (*Dana*).

PAGURUS (LES ORDINAIRES DEXTRES) (*M. Edwards*).

GEN. CHAR.—“Pedes 1mi interdum subæquales, sæpius dexter major, digiti acuminati, apice calcareo. Annulum ophthalmicum non rostriferum. Appendicibus articulatis pone pedes thoracis posticos carens.”

BERNHARDUS PERLATUS (*Edwards*' sp.)

B. EDWARDSII (*Dana*), Pearl-clawed Hermit Crab.

This prettily marked little species is very distinct from its congeners, owing to its broadly flattened oval right hand, covered with miliary white tubercles scattered over a lovely rose-red ground; the hands are markedly carinated along the edges in my specimen; the left claw elongate with linear sides, and a corneous cutting-edge, as in *Bernhardus streblonyx* of Britain. With the exception of the anterior legs, the body is of a reddish colour, clouded with yellowish-white; the great claw is acuminate and calcareous at the tip. The representative form in Ireland is evidently *Bernhardus Hyndmanni*, which approaches this species closely. *Dana* has charged *M. Edwards*' name for this species, alleging, and correctly, that *Perlatus* is very broad, and not pearly; however, the name may still, I think be retained with reference to the broad right hand of this species. I have therefore restored it.

XXXI.—Return of Donations to the Royal Dublin Society, to May 31, 1857.

THE LIBRARY.

HIS GRACE THE ARCHBISHOP OF DUBLIN.

- Sacra Domestica. A Course of Family Prayers. 8vo. Lond. 1845.
- Whately (Richard, Archbishop of Dublin). The Right Principle of the Interpretation of Scripture, in reference to the Eucharist. A Charge at the Triennial Visitation of the Province of Dublin. 8vo. Lond. 1856.