

VI.—*Notes on North American CRUSTACEA, in the Museum of the Smithsonian Institution. No. III.*

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THE publication of these notes has been discontinued for many years,¹ owing to various unfavorable circumstances, among which may be mentioned the destruction by fire of some of the author's manuscripts and materials, and want of opportunity of access to the rest. It is proper to state that some of the descriptions here following were written more than ten years ago, and have not been revised.²

***Herbstia pubescens*, nov. sp.**

Body covered with a dense short pubescence, beneath which the carapax is smooth and unarmed, except at the sides, where there are a few minute spines. There are two inconspicuous tubercles in the median line on the gastric region, and a short, transverse, tuberculiform ridge between the gastric and the cardiac region, which latter is somewhat prominent. There is a single small triangular tubercle at the posterior extremity, on the intestinal region. Rostrum very short. Chelipeds with the meros and carpus armed with spiniform tubercles; hand smooth, unarmed; fingers not gaping (in the female

¹ For No. I. see *Annals of the Lyceum*, Vol. VII. (1860), pp. 49-93; No. II., same vol., pp. 176-246.

² Since these pages were placed in the hands of the printer, the remainder of these materials were involved in the disaster of the great fire of Chicago. The manuscript descriptions of the North American Schizopods, Stomapods, and Tetracapods, intended to form a part of the present paper, with numerous drawings and the specimens upon which they were based, were all burnt in this third and finally complete destruction of the author's scientific property.

and young male). Ambulatory feet unarmed, pubescent; dactyli very short.

Length of carapax in a female, 0.85; breadth, 0.67 inch.

It differs from *H. condyliata* in its shorter, broader, and smoother carapax, and smooth hand. From *H. pyriformis* (*Rhodia pyriformis* Bell) in its shorter rostrum, and in the spines of the lateral margins of the carapax, which are smaller and more numerous.

Found at Manzanillo, West Coast of Mexico, by J. Xantus, Esq.

This species would come under the group named as a genus, *Rhodia*, by Bell. This can scarcely be considered as distinct from *Herbstia*, the only important differences being those of the chelipeds.

Herbstiella, nov. gen.

This name is proposed for a group of small crabs allied to *Herbstia*, which it resembles in form, but differs in having a strong tooth on the inferior margin of the orbit between its external angle and the base of the antennæ; and in having three teeth instead of two on the outer side of the basal joint of the antennæ. It also differs in its longer chelipeds and spinous meros-joint of the ambulatory feet.

Herbstia depressa Stm., which inhabits the Caribbean Sea, may be considered as the type of the genus *Herbstiella*. It also includes *H. Edwardsii* Bell, from the Gallapagos Islands, and two new species described below.

Herbstiella depressa.

Herbstia depressa Stimpson, Notes on N. American Crust., p. 57 (Annals Lyc. Nat. Hist. N. Y., VII (1860) 185).

In the description of this species quoted above, the præorbital teeth, orbits, and antennæ are by a slip of the pen stated to be "nearly as in *H. condyliata*" instead of "nearly as in *H. parvifrons*," which was intended; the species alluded to as

"*H. parvifrons*" being that described below under the name *Herbstiella camptacantha*.

***Herbstiella camptacantha*, nov. sp.**

Herbstia parvifrons Stimpson, Notes on N. American Crust., p. 57 (Annals Lyc. Nat. Hist. N. Y., VII (1860), 185); not of Randall.

A more careful consideration of the terms of Randall's description of *H. parvifrons* (Jour. Acad. Nat. Sci. Phila., VIII. 107) leads me to believe that the species noticed by me under that name cannot be the same as that meant by that author.

In *H. camptacantha* the carapax is but slightly convex, and the surface is very regularly and conspicuously punctate. The cervical suture is deep and well marked, but the sulci separating the branchial from the cardiac regions are very shallow, and there is no sulcus whatever between the branchial and the rather flattened intestinal region. There are twenty small tubercles on the carapax, not including the marginal spines. Of these tubercles there are five on the gastric region, four of which are arranged in a transverse line across the middle, the two on either side being approximated; three on the cardiac region, two on the intestinal, and five on each branchial region. On the margin of the carapax on each side behind the orbit, there are fourteen spines; five on the antero-lateral and nine on the postero-lateral margin. The posterior spines are very small, blunt, or tuberculiform; but the anterior ones are larger, and, like the spines on the legs, abruptly bent at the tip, so that they have a truncated appearance, with the sharp apex pointing forward. There is a similar spine and two smaller ones on the subhepatic region; and the oblique ridge separating the pterygostomian from the subhepatic region is armed with five spines, the anterior three being small and tooth-like. The horns of the rostrum are rather large and divergent; they form considerably more than half the length of the rostrum, and their tips as well as those of the antennal spines are bent inward. All of the spines are much more acute in young specimens than in adults. The chelipeds are long, and the meros-joint is armed with numerous (about 13) blunt spines on the outer side; the carpus is tuberculated above; the large and compressed hand is perfectly smooth, and un-

armed above and below; the fingers are less than half as long as the palm, and gaping; and the dactylus bears a strong truncated tooth at the middle. In the ambulatory feet the meros-joint is armed with seven to ten spines along the upper edge, and two or three below near the extremity; the carpus is slightly tuberculated, and the penult joint unarmed.

The adult male specimens before me are entirely naked, but young and female specimens are frequently pubescent. Possibly the adult males may have been accidentally denuded.

Dimensions of an adult male: Length of carapax, 0.675; breadth, 0.57 inch.

It was found at Cape St. Lucas by Mr. John Xantus, and there are specimens in the Museum of Comparative Zoology taken at Acapulco by Alexander Agassiz, Esq.

Herbstiella tumida, nov. sp.

The following description is that of a female: Body and feet pubescent. Carapax convex, with the regions more protuberant than in the other two species. There are indications of tubercles on the upper surface, distributed as in *II. camptacantha*, but they are faint protuberances rather than tubercles, except the two on the intestinal region, which are small but distinctly prominent. There is a minute sharp spine at the anterior end of the branchial region and one on the hepatic region. On the antero-lateral margin there are no distinct spines, but the rounded surface is covered with minute, sharp tubercles. On the postero-lateral margin there are about ten minute spines, the anterior one largest. The horns of the rostrum are small, acute, and placed close together; they form rather less than half the length of the rostrum. Basal-joint of the antennæ short and broad, with a sharp projection at the insertion of the movable part of the antennæ not seen in *II. camptacantha*; antero-exterior spine straight, acute, and pointing obliquely outward; the other spines shorter than in the allied species. In the chelipeds the meros-joint is armed above with eight acute spines; carpus with one minute spine above and a slight crest on the outer side; hand unarmed; fingers little gaping;

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dactylus without tooth. Ambulatory feet with ten long, slender spines above and two or three below.

Length of carapax, about half an inch.

Found at Manzanillo (West Coast of Mexico), by John Xantus, Esq.

Notolopas, nov. gen.

Carapax pyriform; back with a flattened area on the posterior half, enclosed by a ridge which posteriorly becomes a broad concave lamella, occupying the entire width of the carapax and projecting over its posterior extremity. Rostrum long, bifid; horns divaricate. There is a præorbital spine of moderate size, and behind the eye a strong triangular lobe extending slightly beyond the tip of the eye, and somewhat excavated in front, forming part of the orbit, which, however, is not completed below. The external antennæ are not concealed beneath the rostrum, and the basal joint is broad, with a lobed laminiiform expansion at the outer side; coxal joint with a small but prominent tooth on the outer side. Outer maxillipeds of the form usual in the Pisinae; meros-joint with no distinct notch for the reception of the palpus. Ambulatory feet cylindrical; dactyli very strong, curved, and nearly as long as the penult joint. Male abdominal appendages of the first pair somewhat flattened, reaching to the last segment of the abdomen, and tapering very little toward the extremity, which is truncate and expanded, with a fold on the outer and a small slender hook on the inner side.

This genus resembles in general appearance some of the genera of Acanthonychidæ rather than those of the *Pisa* group, in which the characters of the orbital region would lead us to place it. It differs, however, from *Halimus* and *Pugettia* in the strong post-ocular lobe excavated in front, and from *Halimus* also in the non-expanded penult joint of the ambulatory feet. From *Acanthophrys* A. M. Edw. it differs in its exposed external antennæ. The posterior lamelliform expansion of the carapax will distinguish it at a glance from most if not all other genera of Maioids.

Notolopas lamellatus, nov. sp.

Body and limbs pubescent. Carapax with an erect spine and two tubercles on the gastric region, and a strong spine on each branchial region, on the ridge near the outer end of the laminiform expansion of the posterior extremity, which has a triangular tooth at the middle. Rostrum half as long as the post-frontal part of the carapax. From the antero-exterior angle of the buccal area a crest passes backward, defining the pterygostomian region, which crest is armed with two teeth, the anterior one largest. There is also a crest on the sub-branchial region, along the bases of the feet, ending anteriorly in a projecting tooth.

Length of carapax in a male, 0.63; breadth, 0.35 inch.

Found at Panama by Capt. J. M. Dow, and at Manzanillo by John Xantus, Esq.

Tyche lamellifrons.

Tyche lamellifrons Bell, Trans. Zool. Soc., II. 58; pl. xii., f. 3.

Found at Cape St. Lucas by John Xantus, Esq.

Acanthonyx Petiveri.

Acanthonyx Petiveri H. Milne-Edwards, Hist. Nat. des Crust., I. 343.

This is one of the few species which inhabit the shores of both sides of tropical America. We have it from St. Thomas, collected by A. H. Riise, and from Cape St. Lucas by John Xantus.

Podonema vestita, nov. sp.

This is the first species of the genus which has been reported from the Western coast. It differs from all of the East coast species in its more hairy body, shorter ambulatory feet, and notched outer lamina or crest of the basal joint of the antennæ. The sternum and basal joints of the feet are vermiculated. The penult joint of the ambulatory feet is somewhat thickened in its distal half.

Length of the carapax in a female, 0.52; breadth, 0.42 inch.

Found at Cape St. Lucas by John Xantus, Esq.

Eupleurodon, nov. gen.

Allied to *Epialtus*, but with a depressed and uneven carapax. The antero-lateral angles of the carapax are strongly prominent, forming projecting teeth directed forward, almost parallel to the axis of the body. The ambulatory feet are strongly prehensile, with dentigerous penult joints. The size is small.

Eupleurodon trifurcatus, nov. sp.

Carapax with a profound depression in front of the gastric region, and one on either side of the cardiac, which with the gastric region forms a prominent median ridge. Branchial region depressed, with a tubercle near the postero-lateral angle. Teeth and prominences of the carapax generally setose. Rostrum half as long as the post-frontal part of the carapax, and one-third as broad as long, flattened, truncate, and emarginate at the extremity. Tooth of the antero-lateral angle half as long as the rostrum and curving forward: the distance between the tips of these teeth equals the greatest width of the carapax, and is one-third greater than the middle width. There is a small tooth on the lateral margin behind the antero-lateral angle. Orbital margin arched but not toothed. Feet with an angular or dentated carpal joint.

Of this species I have seen only one specimen, a female, the dimensions of which are: Length of carapax, 0.31; breadth, between tips of antero-lateral teeth, 0.25 inch.

Found at Cape St. Lucas by John Xantus, Esq.

Lambrus excavatus, nov. sp.

This species resembles *Parthenope* in general appearance. The carapax is irregularly hexagonal, and one-sixth broader than long. Antero-lateral margin concave, and forming an angle with the outer lateral margin, which is nearly straight and parallel with the axis of

the body, and terminates posteriorly in a strongly projecting angle. The postero-lateral margins are slightly concave, and form a very obtuse angle with each other on account of the little projection of the intestinal region. The periphery is armed with teeth, which are short, triangular, and regularly approximated on the antero-lateral and outer lateral margins, but are longer, more spiniform, and irregularly arranged on the postero-lateral margins. On the upper surface, besides the usual depression between the cardiac and branchial regions, there are four deep excavations in front of the latter region;—two separating it from the hepatic, and two, somewhat larger, from the gastric region. There is also a deep concavity on the frontal region, which is continued posteriorly for a short distance on the gastric region. The rostrum is large, regularly triangular, and deflexed to a right angle with the general level of the gastric region; margin unarmed, or only obscurely toothed. The surface of the protuberant parts of the carapax is covered with low, granulated tubercles. The chelipeds are much shorter and stouter than in the typical forms of the genus, and are simply concave above, the concavity being smooth or nearly so, and defined by prominent marginal crests, which, except on the carpus, are strongly toothed. The meros-joint of the cheliped is particularly short; its anterior crest is armed with three or four teeth, and its superior one with only two large teeth, the outer one of which is much the largest. In the hand, the crest of the superior margin is armed with six unequal, approximated, triangular teeth; and that of the outer margin with two conical distant teeth, besides the knob at each extremity. The lower surface of the hand is ornamented with four or five rows of granulated tubercles, those of the middle row being largest and most conspicuous; inner margin serrated with granulated teeth. Ambulatory feet much compressed, and crested above. In the female abdomen each segment is armed with short setose tubercles, there being a larger ridge-like one, equalling in extent the length of the joint, in the middle, and four or five small ones on each side.

Length of the carapax in a female, 1.20; breadth, 1.38 inch; proportion 1:1.15; length of meros-joint of cheliped, 0.68; length of greater hand, 1.20 inch.

It is distinct from all other known species with the carapax broader than long, in the shortness of its chelipeds. In one of the specimens before me the right hand is nearly twice as broad as the left.

Two specimens were collected at Manzanillo, Mex., by John Xantus, Esq.

Lambrus hyponcus, nov. sp.

The carapax is subrhomboidal in shape, the posterior region being well developed and prominent, as in *L. angulifrons*. There is one low tubercle on the gastric region, two large, prominent ones on the cardiac, one small, spiniform one on the posterior margin at the median line, and two rather large ones on the branchial region, the posterior one of which is the taller, and situated close to the posterolateral margin. Besides these tubercles, there are several other, minute ones, roughly arranged in eight or ten longitudinal rows, and the general surface is covered with punctures, crowded together. There are two or three small pits in the depression between the branchial and gastric regions. The antero-lateral margin behind the cervical sulcus is armed with eight triangular, denticulated teeth, the posterior one being but little longer than the others, which are equal in size. Front smooth. Rostrum of moderate size, subtriangular, deflexed; sides slightly concave, unarmed; apex obtuse. Chelipeds long; surface smooth above, except that of the meros, which has a median tuberculated ridge; edges of meros, carpus, and hand armed with small teeth, which, on the superior edge of the meros, are spiniform; outer edge of hand with sixteen teeth alternating in size. Below, the chelipeds are smooth and glabrous except the inner edges, which are tuberculated; the tubercles being small. Sternum with a strongly prominent, almost capitate tubercle on each side at the base of the chelipeds, which also bears a small tubercle on the basal joint; these four tubercles are somewhat flattened at the top and bent forward. In the female abdomen the segments are each armed with a transverse ridge, more or less developed; on the second and third joints this ridge is strongly toothed, and on the penult joint it appears in the form of a median tubercle.

Of this species there is but one specimen in the collection, a sterile female, the dimensions of which are: Length of the carapax, 0.60; breadth, 0.68 inch; proportion, 1:1.133; length of meros of cheliped, 0.60 inch.

Found at Panama by Capt. J. M. Dow, to whom the Institution is indebted for this and many other interesting species.

Lambrus depressiusculus, nov. sp.

Body depressed, though much less so than in *L. crenulatus*. Carapax one-fifth broader than long; regions moderately prominent, the cardiac region most so; surface covered with scattered, granulated tubercles, irregular in size. Branchial region broadly expanded. Lateral margin armed with about fourteen spiniform, granulated teeth, largest on the outer side of the branchial region; at the postero-lateral angle they are as long, or longer, than the rostrum. The intestinal region is broad, and projects but little beyond the line of the postero-lateral angles. Of the fourteen lateral teeth mentioned above, only five properly belong to the postero-lateral margin. The frontal region is concave. The rostrum is small, triangular, and horizontal. Chelipeds of the usual length; superior surface of the meros with a median row of about five spiniform tubercles; margins of both meros and hand armed with numerous spiniform teeth, of which there are about ten on the outer side of the hand. All these teeth of the chelipeds are granulated like those of the carapax, but not ramose. Beneath, the hands are ornamented with longitudinal rows of small, smooth tubercles, largest along the inner edge, and fading out toward the exterior margin. Ambulatory feet slightly compressed, but not crested, and perfectly smooth and unarmed. There is a small, slender spine on the penult joint of the abdomen in the male.

Length of the carapax in a male, 0.85; breadth, spines included, 1.15 inch; proportion 1:1.35; length of hand, 1.13 inch.

Found at Manzanillo, Mex., by John Xantus, Esq.

Solenolambrus arcuatus, nov. sp.

Carapax short and broad, with projecting lateral angles. Surface punctate, much more finely than in *S. typicus*. Antero-lateral

margin long and convex. The two antero-lateral margins together would form a regular arc were it not for the projection of the rostrum. The postero-lateral margin is concave, and the posterior margin short and slightly convex. The antero-lateral margin is armed with eleven tridenticulate teeth, little projecting; the middle ones broadest. Protuberances of carapax like those of *S. typicus*, but stronger; their ridges crenulated. Gastric and cardiac protuberances very tall, with strongly projecting apices, which are almost spiniform but not acuminate. Ridge of branchial region convex forward, and crenulated, with a larger toothlet at the middle. Basal joint of the external antennæ shorter than the next joint. Eyes very small. Afferent and subhepatic channels very deep; the ridge separating them being prominent and very thin and sharp. No supplementary ridge on the subhepatic region. External maxillipeds with hairy margins, and with a tubercle near the inner summit of the ischium; antero-exterior angle of the meros less acute and prominent than in *S. typicus*; meros with three or four strong tubercles on the external oblique ridge. Sternum between the chelipeds concave, without tubercles. Chelipeds rather short; meros seven-toothed before and behind; carpus with five denticulated crests; hand with nine strong, subspiniform teeth on the superior crest, and the same number of tuberculiform teeth on the outer and the inner edge of the lower surface; on the inner edge the teeth are minute toward the base, but are large on the outer half of the hand. The surface of the hand between the toothed crests is smooth; the inferior surface, and the interstices of the teeth of all three of the crests, are pubescent. The hand is expanded in width at the distal extremity, and the dactylus when retracted is exactly at right angles with the palm. Ambulatory feet compressed, glabrous; meros-joints with acute, sparsely ciliated superior edge; meros of the posterior pair obtuse below, without crest. Abdomen smooth.

Length of carapax in a female specimen, 0.40; breadth, 0.52; length of meros-joint of cheliped, 0.31; length of hand, 0.37 inch.

Taken at Panama by Capt. J. M. Dow.

Heterocrypta, nov. gen.

The type of this genus is the *Cryptopodia granulata* of Gibbes, which approaches *Solenolambrus* in its characters, and

differs greatly from *Cryptopodia* in the want of a posterior expansion of the carapax, and in the existence of a ridge on the pterygostomial region defining the afferent passage.

H. granulata inhabits the seas of the Southern States and of the West Indies.

***Heterocrypta macrobrachia*, nov. sp.**

Body depressed. Carapax narrower and less triangular than that of *H. granulata*, but resembling it in its granulated ridges and protuberances. Antero-lateral margin regularly convex, and crenulated with fourteen or fifteen teeth which are themselves denticulated. Margin between the lateral angle of the carapax and the projecting terminus of the branchial ridge profoundly concave. Posterior margins crenulated like the anterior, with a somewhat larger tooth on each side at the juncture of the posterior with the postero-lateral margins. Exognath of the external maxillipeds not tuberculated. Chelipeds very long, smooth, and naked above, except at the crenulated edges. Ambulatory feet compressed; meros-joint with sharp, minutely denticulated lower edge.

Color yellowish; sometimes with bluish-gray patches on the carapax, and bands of the same color across the chelipeds.

Dimensions of a male: Length of carapax, 0.56; breadth, 0.60; length of meros of chelipeds, 0.46; length of hand, 0.55 inch.

It differs from *H. granulata* in its longer chelipeds, and more strongly toothed margins of the carapax.

Taken at Panama by Capt. J. M. Dow.

CANCROIDEA.

***Liomera cinctimana*.**

Carpilius cinctimanus Adams and White, Voy. Samarang, Crust., p. 37; pl. vii, fig 4.

Liomera cinctimana Dana, U. S. Expl. Exped., Crust., I. 161. A. Milne-Edwards, Nouv. Arch. du Mus., I. 219.

The dactylus of the ambulatory feet is white, with a red base and black tip.

This species, like the next, is one of the few Indo-Pacific forms which have thus far occurred on the west coast of America. It was found at Cape St. Lucas by John Xantus, Esq.

Liomera lata.

Liomera lata Dana, U. S. Expl. Exped., Crust., I. 161; vii. 6. A. Milne-Edwards, Nouv. Arch. du Mus., I. 220.

Our specimens are somewhat broader than those figured by Dana. Color light-red. Lateral extremities of carapax in the male white. Pterygostomial regions white. Fingers of hand black with white tips. Dactylus of ambulatory feet with a broad white ring at the middle.

The dimensions of a male specimen are: Length of carapax, 0.41; breadth, 0.74 inch. Of a female: Length of carapax, 0.48; breadth, 0.90 inch.

These specimens were found at Cape St. Lucas by John Xantus, Esq.

***Actaea Dovii*, nov. sp.**

Very closely allied to the West Indian species *A. setigera*, but differing in the granulation of the carapax, which is finer and more dense, and on the posterior regions more distinct.

Dimensions of a male: Length of carapax, 0.45; breadth, 0.63 inch.

Found at San Salvador by Capt. J. M. Dow, and at Panama, by Alex. Agassiz, Esq.

Actaea erosa.

Actaea erosa Stimpson, Notes on N. American Crust., p. 5.

The raised parts of the surface of the carapax, between the small cavities, are conical or ridge-like, and roughened. The lobes of the antero-lateral margin are not distinctly defined, with the exception of the posterior one, which is small, triangular, and projecting.

This species differs from the *Xantho vermiculata* of H. Milne-

Edwards, judging from the description in the "Histoire Naturelle des Crustacés" in sculpture;—the surface of the carapax is not "converté de petits tubercles soudés entre eux par doubles rangées." Also, the notch of the meros of the external maxillipeds is not at the *middle* of the anterior margin. Milne-Edwards gives no locality for his *vermiculata*.

Alphonse Milne-Edwards regards this species as belonging to the *Xantho*-group.

Xanthodes Xantusii, nov. sp.

In this small species the carapax is smooth on the middle and posterior portions of its surface, but in front it is areolated and roughened with somewhat squamiform granules and slight transverse crenulated ridges. The antero-lateral margin is armed with four teeth, not including the angle of the orbit, between which and the first tooth there is a granulated concavity. Front little projecting, and bordered by a thin lamella; outline of lobes somewhat concave. Fissures of orbit very slight. Subhepatic region irregularly granulated. Basal joint of the external antennæ short, scarcely reaching the process of the front. In the chelipeds, the carpus and hand are strongly granulated above and on the whole outer surface; carpus with a deep sulcus near and parallel to its extero-anterior margin; hand with three slight longitudinal sulci, one on the upper and two on the outer surface. Smaller cheliped sparsely short-setose. Ambulatory feet setose and roughened above with minute asperities.

The dimensions of a male specimen are: Length of carapax, 0.25; breadth, 0.35 inch.

It resembles somewhat *X. granosimanus* Dana, a Polynesian species, but the carapax is narrower and more convex, and the lobes of the front are concave instead of convex.

It is very common at Cape St. Lucas, judging from the large number collected by Mr. John Xantus.

Xanthodes insculpta, nov. sp.

Very small. Carapax naked, areolated; anterior areolets rather strongly protuberant. Surface very minutely granulated. Antero-

lateral margin with five teeth, including the angle of the orbit, which is about equally prominent with the other teeth. There is generally a minute denticle or two in the interval between the teeth. From the posterior tooth a slight transverse ridge extends inward across the branchial region. Front rather broad; median and lateral sulci deep; margin of lobes convex. Orbital margin smooth, or simply granulated; fissures very slight, except the extero-inferior one. A slight ridge on the subhepatic region extending forward from the second antero-lateral tooth. Chelipeds with large tubercles or projections, five or six on the carpus, and nine or ten on the hand; outer surface of the hand with a slight median ridge and obsolete transverse ranges of minute granules.

Of this species I have seen only one specimen, a male, perhaps immature, the dimensions of which are: Length of carapax, 0.12; breadth, 0.17 inch.

The specimen was found at Cape St. Lucas by Mr. John Xantus.

Menippe Rumphii.

Cancer Rumphii Fabr., Suppl., 336 (?). Herbst, Naturg. d. Krabben u. Krebse, III, xlix., 2.

Menippe Rumphii De Haan, Fauna Japonica, Crust., 21; Dana U. S. Expl. Exped., Crust., I., 179. Smith, Trans. Com. Acad. II. 34.

Pseudocarcinus Rumphii H. Milne-Edwards, Hist. Nat. des Crust., I. 408.

Menippe nodifrons Stimpson, Notes on N. American Crust., p. 7.

In this species, as in *M. obtusa*, there is a striated area on the inner surface of the hand, but it is far less developed than in that species, and the striæ are much finer and more closely set; in some specimens they are scarcely perceptible.

The description of Fabricius does not apply, in all respects, to our species; as, for instance, "carpi vix unidentati" and "frons margine quadridentata."

H. Milne-Edwards, and the older authors generally, give the East Indies as the habitat of the species, but White and Dana refer it to the West Indies and Brazil. In the Smithsonian Museum there are specimens from Florida (Wurdemann), Jamaica (C. B. Adams), and St. Thomas (A. H. Riise).

Micropanope latimana, nov. sp.

Carapax moderately convex, naked, smooth, and polished, except toward the anterior and antero-lateral margins, where it is somewhat granulated. Front rather broad, and little projecting; lobes with straight margins. Subhepatic region minutely granulated. Chelipeds large and angular; hands broad, smooth, and polished, strongly protuberant at the postero-inferior angle; palm broader than long; fingers nearly as long as the palm, deflexed, and black; the black of the propodal finger extends on the palm for one-third its length. The hands are unequal, and the fingers of the smaller one are longer and more deflexed than those of the greater one, which gives the smaller hand a more angular form and a deeply concave inferior outline. Ambulatory feet slender, smooth, and sparsely hairy.

Dimensions of a male: Length of carapax, 0.28; breadth, 0.38 inch.

Found at Cape St. Lucas by John Xantus, Esq.

Micropanope cristimana, nov. sp.

Carapax convex, smooth posteriorly, and with a transverse ridge, interrupted at the middle, on the gastric, and one on each hepatic and branchial region. Front convex, rather strongly projecting at the middle, where there is a deep sinus, from which arises a deep furrow extending backward to the gastric region. Posterior lateral tooth rather more prominent than in *M. latimana*. Hiatus of outer side of orbit almost entirely obsolete. Inferior inner tooth of orbit large. Basal joint of the external antennae very short. Chelipeds large, smooth, and polished; carpus with one tooth at the inner angle, and a short crest, bordering a depressed area, at the outer angle; hands very short and broad, and compressed, especially above, where a smooth crest is formed; posterior outer extremity of hand protuberant and bituberculate, the tubercles being most conspicuous in the greater hand. Fingers black, with white tips; those of the smaller hand much deflexed and longer than the palm. Ambulatory feet rather compressed and faintly crested above; dactyli pubescent.

Dimensions of the carapax in a male: Length, 0.22; breadth, 0.27 inch.

Cape St. Lucas. J. Xantus.

Micropanope caribbaea, nov. sp.

Carapax somewhat pubescent, with two or three transverse raised lines, or slight pubescent ridges, on the gastric and on each branchial ridges, on the gastric and on each branchial region. Frontal and gastric regions nearly smooth. Front rather prominent, nearly horizontal; margin straight; median sinus slight. Flagellum of the external antennæ as long as the front is broad. Chelipeds obsoletely granulated; carpus with four or five tubercles above, and a tooth at the inner angle; hand unarmed, but with two slight parallel longitudinal ridges on the upper side. Ambulatory feet smooth, slightly pubescent.

The dimensions of the carapax in a male specimen are: Length, 0.16; breadth, 0.22 inch.

Found at St. Thomas, by A. H. Riise, Esq.

Chlorodius occidentalis nov. sp.

This species represents on the West Coast the *C. floridanus* of the Caribbean Sea. Like many other West Coast crabs, it differs from its eastern analogue in its broader and less convex carapax. The antero-lateral teeth are less prominent than in *C. floridanus*, the second tooth in particular being broader and much less acute. The median lobes, or teeth of the front, do not project beyond the lateral ones.

Dimensions of a male specimen: Length of carapax, 0.45; breadth, 0.74 inch.

Found at Panama by Alex. Agassiz, Esq., and at Manzanillo, Mex., by Mr. John Xantus.

Panopeus planissimus.

Xantho planissima Stimpson, Notes on N. American Crustacea, p. 77.

The reception of several specimens of this species of larger size, and more perfect than those first obtained, gives an opportunity for a re-examination of its characters, which leads me to refer it to the genus *Panopeus*.

The body and chelipeds are very much depressed. The chelipeds are very large, and the carpus has a groove on the upper surface,

running parallel and near to the antero-exterior margin; above this groove there are two tubercles, separated from each other by a short groove placed at right angles with the first.

Dimensions of a male specimen: Length of carapax, 0.34; breadth, 0.53 inch.

Cape St. Lucas.

Pilumnus depressus, nov. sp.

Body depressed; carapax for the most part flattened and naked, but slightly curved, pilose and roughened toward the anterior and antero-lateral margins. Frontal margin spinulose. Margins of the orbits above and below armed with spiniform teeth. Antero-lateral margin with three spiniform teeth besides the angle of the orbit, which, like the next lateral tooth, is bifid. Subhepatic tooth minute. Subhepatic and suborbital regions covered with sharp granules concealed beneath pubescence. Feet pilose and spinulose; spinules shorter than in *P. Xantusii*. Greater cheliped naked and obsoletely granulated on the larger part of its outer surface.

Dimensions of a male specimen: Length of carapax, 0.35; breadth, 0.47 inch.

Cape St. Lucas. J. Xantus.

Pilumnus ceratopus.

Pilumnus ceratopus Stimpson, Notes on N. American Crustacea. p. 87.

Pilumnus? Desbonne et Schramm, Crust. de la Guadeloupe. p. 33; pl. iii, figs. 9, 10.

This species, originally discovered on the Florida coast, was found at Guadeloupe by M. Desbonne.

Pilumnus marginatus, nov. sp.

A very small species. Carapax somewhat hairy, moderately convex, somewhat distinctly areolated, and regularly covered with small equidistant tubercles, between which the surface is very minutely punctate. The posterior extremity is very narrow. The areolets are not protuberant. The median frontal channel is rather deep and conspicuous. The front is broad, very little prominent, and separated

from the supra-orbital margin by a small notch; its margin is simply granulated, and there is a slight channel running parallel with it and separating it from the frontal region. The orbital margin is unarmed except by small tubercles or granules, and has a single slight fissure at the middle above. The antero-lateral margin is sharply defined, almost limbed; and is armed with three very slightly prominent teeth, besides the angle of the orbit, and a broad lobe posterior to it, neither of which project beyond the general outline; the three teeth are each composed of two or three denticles, of about the size of the tubercles of the dorsal surface. There is no subhepatic tooth. The ridge of the endostome is almost obsolete. Chelipeds large, granulated; carpus and hand usually covered on the outside with a dense tuft of algoid growth.

Dimensions of a male specimen: Length of carapax, 0.16; breadth, 0.20 inch.

This species is chiefly remarkable for the absence of a subhepatic tooth, and the character of the antero-lateral margin, which approaches somewhat in appearance that of *Pilumnoides*, though much shorter.

Cape St. Lucas: J. Xantus.

Acidops nov. gen.

Carapax broad, smooth, with convex antero-posterior and nearly plane transverse dorsal outline; surface nearly even. Antero-lateral margin short, acute, with three inconspicuous teeth, besides the angle of the orbit. Eyes and orbits elongated, resembling somewhat those of certain Macrophthalmoids. Orbits destitute of teeth or fissures. Eye-peduncles flattened, with an acute anterior edge continuous with that of the margin of the carapax. The basal joint of the external antennae fills the hiatus of the orbit and just reaches the front. Chelipeds small. Ambulatory feet broad and compressed, except the terminal joint, which is narrow. Abdomen of the male with the third joint much produced on either side. Male appendages of the first pair broadly laminate at base, geniculated at the posterior third of their length, and tapering to a fine point, somewhat incurved toward the extremity, and reaching to the penult segment of the

abdomen; those of the second pair two-thirds as long as the first, slender, cylindrical, and tapering to a filiform extremity.

This genus is somewhat allied to *Pilumnus*, but differs greatly in the character of the orbits and eye-peduncles.

Acidops fimbriatus, nov. sp.

Anterior and antero-lateral margins of the carapax ciliated with a fringe of long fine hairs. Carapax covered with a short pubescence, and areolated, the areolets being sufficiently distinct, but not at all protuberant. Angle of the orbit and next tooth of the antero-lateral margin about equal in size; the other two teeth very small. Sub-hepatic region smooth. Front not prominent; median sinus slight; lobes very slightly convex. External maxillipeds hairy; meros-joint somewhat swollen. Chelipeds somewhat hairy; hand granulated on the outer side; fingers short, acuminate, and with granulated longitudinal ridges. Ambulatory feet ciliated.

Dimensions of a male specimen: Length of carapax, 0.21; breadth, 0.28 inch.

This little crab resembles *Ceratoplax ciliatus* in appearance. Cape St. Lucas. J. Xantus.

Achelöis transversus, nov. sp.

Carapax broad; regions only slightly protuberant; ridges distinct, granulated; branchial ridge sinuous, but only slightly convex, curving forward even less than in *A. Gibbesii* and scarcely more than in *Callinectes*, but nevertheless forming an angle near the base of the lateral spine. The oblique meso-branchial lobes are distinct. The lateral spine is long, as long as the space occupied by the four or five teeth in front of it. The other antero-lateral teeth are pretty strong, equal, and have a granulated surface. Front nearly as in *A. panamensis* described below, but with the teeth somewhat more pointed. Chelipeds rather short; meros four-toothed in front. Meros of the posterior pair of feet with a spiniform tooth at inferior extremity.

Dimensions of a male: Length of carapax, 0.39; breadth., 0.85 inch.

Of this species I have seen only one specimen, which is in-

perfect, the hands being wanting. It has somewhat the aspect of a *Cullinectes*.

It was taken at Manzanillo, Mex., by John Xantus, Esq.

***Achelöus acuminatus*, nov. sp.**

Body and feet pubescent. Carapax very short and broad; proportion of length to breadth, 1:2.52; surface uneven, but with the protuberances few in number and large, these being on the gastric, cardiac, and inner branchial regions. All the protuberances and ridges are granulated at their summits only. The branchial ridge is convex, bending rather abruptly forward near the base of the lateral spine. This lateral spine is very long, nearly two-thirds as long as the antero-lateral margin. The other teeth are rather strong, the second, fourth, and sixth being somewhat smaller than the others. Front convex, separated from the orbit by deep incisions; median teeth projecting somewhat beyond the level of the outer angles of the orbit; teeth equal, bluntly triangular, moderately deeply cut; median teeth most projecting. A large notch on the margin of the orbit above the insertion of the external antennæ. Chelipeds very long, nearly three times as long as the carapax; meros longer than the carapax, projecting nearly to the middle of the penult joint of the first pair of ambulatory feet, and tapering, and armed with four spines in front; carpus slender, inner spine no longer than the basal spine of the hand; hand very slender, almost sword-shaped, and with strong granulated ridges. A spine on the meros-joint of the posterior pair of feet.

Dimensions of a male: Length of carapax, 0.50; breadth, 1.26 inch.

Found at Panama by Capt. J. M. Dow.

***Achelöus panamensis*, nov. sp.**

Carapax moderately broad; regions moderately protuberant. Branchial ridge bending very abruptly forward near the base of the lateral spine. Lateral spine as long as the space occupied by the three teeth in front of it. The other lateral teeth are rather strong, and of equal size. Front projecting slightly beyond the level of the

angles of the orbits; teeth rather blunt, equally prominent; median teeth smaller than the laterals, and separated from each other by a much deeper and narrower sinus than that separating them from the laterals. Notch of orbital margin over base of antennæ very slight. Chelipeds rather long; meros with four spines in front; inner spine of carpus about twice as long as basal spine of hand; hand of ordinary proportions, if anything rather more slender than usual. A spine on meros joint of posterior feet.

Dimensions of a male: Length of carapax, 0.40; breadth, 0.75 inch. The breadth in this and the two preceding species of *Achelouïs* is measured between the tips of the lateral spines.

It differs from *A. acuminatus* in its narrower carapax, shorter lateral spines, blunter frontal teeth, and thicker hand.

Panama. Capt. J. M. Dow.

Achelouïs anceps.

Lupea anceps De Saussure, Crust. nouv. des Antilles, etc., p. 18; pl. ii, f. 11.

Lupea Duchassagnii Desbonne et Schramm, Crust. de la Guadeloupe, p. 39; pl. iv, f. 25.

Specimens from St. Thomas in the Smithsonian Collection agree with the descriptions quoted above in everything except their shorter chelipeds.

OCYPODOIDEA.

Pachygrapsus gracilis.

Metopograpsus gracilis De Saussure, Crust. nouv. des Antilles, etc., p. 27; pl. ii, fig. 15.

Found at Barbados by Professor T. Gill.

Pachygrapsus transversus.

Grapsus transversus Gibbes, Proc. Am. Assoc. Adv. Sci., 1850, p. 181.

Pachygrapsus transversus Gibbes, *loc. cit.*, p. 182.

Metopograpsus dubius De Saussure, Crust. nouv. des Antilles, p. 29; pl. ii, fig. 16.

Found at St. Thomas by A. H. Riise, and at Barbados by Theo. Gill.

Pachygrapsus socius, nov. sp.

Closely allied to *P. transversus*, but differing in several minor particulars. The carapax is somewhat narrower, less convex, and more strongly striated; and the frontal region is more depressed and expanded. The propodal finger of the chelipeds never has the dark patch which is always more or less conspicuous in *P. transversus* and *P. innotatus*.

Dimensions of a male specimen: Length of carapax, 0.63; breadth, 0.725 inch.

There are specimens in the Smithsonian Collection from the following localities: Peru, C. H. Raymond; Panama, Alex. Agassiz; San Salvador, J. M. Dow; Manzanillo, Mex., John Xantus; Cape St. Lucas, John Xantus.

LEUCOSOIDEA.

Calappa convexa.

Calappa convexa De Saussure, Rev. et Mag. de Zool., 1853, pl. xiii, fig. 3.

Calappa Xantusiana Stimpson, Notes on N. American Crust., p. 109.

There are specimens in the Smithsonian Collection from Cape St. Lucas (Xantus), Mazatlan (Bischoff), and Panama (Sternbergh).

Osachila acuta, nov. sp.

Carapax depressed between the protuberances, and particularly toward the antero-lateral margins, where it is broadly expanded and concave. Protuberances rather small and somewhat conical; the three on the gastric region equal; all of them tuberculated, and with the tubercles coarsely punctate. Between the large protuberances there are no small ones, but the surface is smooth, naked, and microscopically and crowdedly punctate. The rostrum is flattened, narrow, prominent, and bilobed at the extremity; margin thin and sharp, and at the extremities of the lobes denticulated. Antero-lateral margin acute, arcuated anteriorly but becoming nearly straight and parallel to the axis of the body posteriorly; its armature is variable,

but generally there are seven or eight teeth behind the obtuse tuberculated space near the orbit, or rather behind the point where the transverse subhepatic ridge joins the margin; the teeth increase in size posteriorly, and each one is composed of two or three denticles, the median one being largest where there are three. The posterolateral margin is thickened, as if double; it is irregularly tuberculated, and bears two strong triangular teeth, one next the lateral tooth of the carapax and the other next the posterior extremity. The posterior extremity of the carapax is narrow, with two thickened, tuberculated margins placed one above the other. Beneath, the surface of the body is rough with pits and tubercles both anteriorly and posteriorly; but the subbranchial region is smooth. Chelipeds angular; meros smooth below, and having a transverse, crenulated, laminiform crest at the superior extremity, following the upper part of the base of the carpus; supero-exterior surface of the carpus nearly smooth; superior crest of the hand with three equal teeth; outer surface of hand with five longitudinal ridges, the three upper ridges formed of large, the two lower ones of small tubercles. Ambulatory feet nearly as in *O. tuberosa*, but with the crests less prominent, that of the meros-joint not pitted, but faintly denticulated and sparsely hairy.

Color yellowish, with spots of red and white resembling patches of lichen.

Dimensions of a male: Length of carapax, 0.70; greatest breadth, at the antepenult antero-lateral tooth, 0.83 inch.

There are several specimens of this species in the Smithsonian Collection, which were taken at Panama by Capt. J. M. Dow, and at Manzanillo by John Xantus, Esq.

Lithadia pontifera, nov. sp.

The following description is that of an adult female, the only specimen I have seen. The carapax is rather broader and less convex than in other species of the genus, and has an angular outline, with an aspect somewhat like that of a *Nursia*. The sides project considerably over the bases of the feet. The entire upper surface is

granulated. The protuberances of the carapax are smaller than usual, but prominent, and covered with tubercles, or granules, much larger than those on the depressed parts. The branchial protuberance is divided into two, one part being connected by a ridge with the anterior lateral tooth, and the other by a thicker ridge with the posterior lateral tooth. There is a median tuberculated ridge extending from the frontal region to the cardiac, and interrupted at the centre of the carapax. Between the cardiac and the branchial region on either side there is a deep narrow cavity, bridged over by the meeting of a projection from the cardiac region with a similar projection from the posterior branchial protuberance. The hepatic region is not very protuberant above, and bears a short longitudinal ridge. The marginal teeth of the carapax are all prominent, thickened, coarsely granulated, and separated by rather deeply concave intervals. The anterior lateral tooth (that on the branchial region, forming the antero-lateral angle of the body) is very large and prominent, and there is a smaller triangular tooth in front of it, pointing downward. Between this latter and the triangular hepatic tooth there is a deep sinus. The subhepatic tooth is very prominent and tuberculated. The posterior lateral tooth is obtusely rounded. The posterior margin is thinner than the anterior and lateral margins on account of the deep excavation around the cardiac region; the intestinal region is bilobed, but the lobes do not form dentiform projections, the posterior outline being nearly straight when viewed from above, though interrupted at the middle. The front has a deep sinus at the middle, and is somewhat bimarginate. The epistome is very short, and the suborbital region less developed than usual. The external maxillipeds are granulated, with the meros of the endognath much smoother than the other joints. The chelipeds are somewhat flattened, and resemble those of the type, *L. Cumingii*; the outer crest of the hand is rather sharp. The ambulatory feet are granulated and tuberculated; the tubercles not spiniform. The abdomen is densely tuberculated.

Dimensions of the female specimen: Length of carapax, 0.39; breadth, 0.48 inch.

This can scarcely be the *Ebalia mammillosa* of Desbonne and

Schramm, Crust. de la Guadeloupe, p. 54. for that species is described as having the granulations of the chelipeds larger than those of the carapax; the meros of the chelipeds rounded, and both meros and hand without crest; the ambulatory feet simply granulated; and no mention is made of the bridged fossæ between the cardiac and the branchial regions, unless these are what is meant by "trous borgnes," which is not probable. What *E. macumillosa* is will, perhaps, always remain a matter of conjecture, as no specimen was preserved in Desbonne's collection, and no figure was made. It is probably a *Lithadia*.

Found at Barbados by Theodore Gill.

Uhlia, nov. gen.

Closely allied to *Oreophorus*, but differing in its broadly elliptical shape, in the greater expansion of the sides of the carapax, in the non-projecting front, in the concealment of the eyes beneath the orbital margin of the carapax, in the broader and non-tapering exognath of the external maxillipeds, and in the expanded penult joint and short dactylus of the ambulatory feet. The hepatic region is not distinctly defined, and is not toothed.

Uhlia is an American, while *Oreophorus* is an East Indian genus.

Uhlia ellipticus, nov. sp.

Of this species I have seen only one specimen, a female, which may be described as follows: Carapax broad, regularly elliptical, rather depressed; sides much expanded, lamiform; middle of the carapax elevated above the sides, which are depressed. Upper surface, with the exception of the central parts and the lateral expansions, covered with deep, rounded, or elongated pits. The posterior pits are the largest, and six of them, of a pentagonal or rounded shape, are situated on the posterior part of the branchial regions, three on each side. A large, transverse pit occupies the entire width of the intes-

tinal region, following the posterior margin. The pits on the frontal and hepatic regions are elongated in a direction parallel with the longitudinal axis of the body. The entire surface, except the bottoms of the pits, is granulated. The margins are slightly waved, but nowhere distinctly toothed. The front does not project much beyond the regular curve of the anterior outline. The frontal margin is thick, and the eyes are small, and in our specimen are firmly imbedded in their sockets, lying beneath the margin, so as not to be seen from above. The intestinal margin is straight. Feet granulated. Chelipeds short, with a crest on the meros and one on the hand. Ambulatory feet compressed, with a laminiiform crest on the meros joint, and two similar crests on the carpus and penult joint; this penult joint is broadly expanded below, forming a process against which the short dactylus retracts; thus giving a subcheliform appearance to the extremities of the feet.

Dimensions of the female specimen: Length of carapax, 0.20; breadth, 0.31 inch.

Found at Panama by Capt. J. M. Dow.

***Uhlias limbatus*, nov. sp.**

Description of an adult female: Carapax broad, subelliptical, rather sharply curved and almost angular at the sides, which are strongly projecting. Upper surface coarsely and closely granulated, and moderately convex, except towards the sides, where it is depressed as in *U. ellipticus*. The cardiac region is surrounded, except in front, by a deep furrow, which posteriorly follows the posterior margin of the carapax. There is also a deep circular pit on the posterior part of the branchial region; but there are no other well-defined pits, although the swollen part of the carapax is surrounded on the sides and in front by a shallow concavity, which deepens at its posterior extremity on the branchial region. The lateral margins are waved, but not distinctly toothed. The posterior margin is slightly convex. Ambulatory feet rather short and stout, not compressed, granulated above and below; penult and antepenult joints somewhat flattened or even concave above, but not crested; penult joint much less expanded below than in *U. ellipticus*, and not forming so distinct a

hand; dactyli about equal to the penult joint in length. The chelipeds are wanting in the only specimen I have seen.

The dimensions of this specimen are: Length of carapax, 0.22; breadth, 0.32 inch.

Found at St. Thomas, W. I., by A. H. Riise, Esq.

Spelacophorus nodosus, A. M.-Edw.

Orcophorus nodosus Bell, Trans. Lin. Soc., XXI, 307; pl. xxxiii, fig. 8.

Spelacophorus nodosus A. Milne-Edwards, Ann. Soc. Ent. de France, 4^e Serie, Tome V, p. 149.

Of this species there is one (female) specimen in the Smithsonian collection. It agrees well with the figure and description of Bell, except that the exognath of the outer maxillipeds does not taper, but is blunt, almost truncated at the extremity, and that the ambulatory feet are less spinous. The postero-inferior marginal lobe is concave in outline, and granulated below; and its lateral angles do not form teeth projecting downward, as in Bell's figure of a posterior view of the male carapax. This latter may be a sexual difference. The soldered segments of the female abdomen have a longitudinal sulcus on either side of the median line, and the lateral surfaces are rugose and pitted, as if eroded.

The specimen was taken at Jamaica by the late Prof. C. B. Adams.

PORCELLANOIDEA.

Petrolisthes eriomerus, nov. sp.

Near *P. rupicola*. Front nearly horizontal. Epigastric lobes rather sharply prominent, more so than in the allied species. The protogastric and epibranchial lobes are also prominent, and there is a channel between them and the orbital and the antero-lateral margins. Front broad, triangular, much less prominent than in *P. rupicola*. Chelipeds (except at the fingers) granulated; carpus rather elongated, with a straight and entire anterior margin destitute of a prominent

inner lobe, and a denticulated posterior margin; hand with a tuft of hair between the fingers below. Ambulatory feet everywhere hairy on upper edge. Surface of meros of third pair also hairy. Size of *P. rupicola*.

Found at Mendicino, Cal., by Alexander Agassiz, Esq.

Polyonyx macrocheles.

Porellana macrocheles Gibbes, Proc. Am. Assoc. Adv. Sci., 1850, p. 171.

This species lives in the tubes of *Chaetopterus*, along with the worm and its other guest, *Pinnixa chaetopterana*, on the coast of South Carolina.

HIPPOIDEA.

Remipes barbadensis.

Squilla barbadensis ovalis Petiver, Pætrigraphia americana, pl. ii, f. 9.

Body oval. Carapax depressed, not narrowed anteriorly; surface nearly smooth, but anteriorly and toward the sides minutely lineolated transversely as in other species. Front broad, undulated, with a single broadly rounded median tooth; margin minutely crenulated. The lateral margins are ornamented with a rather broad marginal stripe, which is transversely striated; striæ setiferous, and not interrupted at the middle as in some species. Inner antennæ half as long as the carapax; the shorter flagellum being scarcely a tenth part as long as the longer one, which is compressed and almost naked.

Length of carapax, 0.84; breadth, 0.69 inch.

Found σ , Barbados by Prof. Gill, and at Key Biscayne, Fla., by the late Gustavus Wurdemann.

THALASSINOIDEA.

Glypturus.

Glypturus Stimpson, Proc. Chicago Acad. of Sciences, I, 46.

Flagella of the antennulæ much longer than their peduncles. External maxillipeds indurated; meros and ischium not dilated, no

broader than the propodus (penult joint), and concave on the outer surface; ischium armed along the middle of its inner edge with a sharp, prominent, spinous crest; carpus thick, and only half as broad as the propodus, which is greatly dilated within, and truncated, but not grooved, at the broad anterior margin, against which the dactylus folds; dactylus rather stout, compressed, and rather longer than the anterior margin of the propodus. Mandibles strong, much indurated; corona with its margin unevenly toothed, deeply cleft within, and with the basal process as broad and half as high as the corona itself, and having also a toothed edge. Appendages to the first two joints of the abdomen in the male nearly similar to the corresponding parts in the female. Caudal lamellæ deeply sculptured. Of the appendages to the penult joint of the abdomen, the outer lamellæ appear as if composed of two pieces soldered together, the outer one of which overlaps the inner; while the inner lamellæ are obliquely triangular. Terminal segment of the abdomen very small.

Glypturus acanthochirus.

Glypturus acanthochirus Stimpson, Proc. Chicago Acad. of Sciences, I, 46.

Dorsal suture very deep. Front bearing an erect spine close to its anterior extremity, and a sharp, curved spine on either side, over the insertion of the outer antennæ. Greater cheliped rather short and stout; ischium, meros, and carpus with their lower edge spinous; meros with two spines above, and no projecting lobe at the base below; carpus much shorter than the palm of the hand; hand much broader than the carpus, with three spines on the upper edge, and a granulated area on the outer surface behind the base of the pollex or immovable finger; dactylus two-thirds as long as the palm of the hand. Smaller cheliped nearly similar to the greater one in shape and armature, but of less than half its size.

In a female specimen, the length of the animal, exclusive of the antennæ, is 3.9 inches; length of the carapax, 1.02; length of carpus and hand taken together, and measured to the end of the dactylus, 1.5 inches.

This species is not uncommon among the Florida Keys. A

considerable number of specimens was found at the Tortugas by Dr. Whitehurst.

It cannot be mistaken for any of the Thalassinidea found on our coast, unless it be a species described by Prof. Lewis R. Gibbes under the name of *Callianassa grandimana*, in the Proceedings of the Charleston meeting of the American Association for the Advancement of Science, in 1850. If the description given by that author is correct, however, our species differs from that named by him in having the palm of the hand less than twice as long as the carpus, and in having a granulated area on the outer surface of this palm; as well as in the armature of the lower edge of the greater cheliped.

Callichirus.

Callichirus Stimpson, Proc. Chicago Acad. of Sciences, I, 47.

Flagella of antennulæ rather shorter than their peduncles. External maxillipeds soft, coriaceous; meros and ischium compressed and dilated; meros short; carpus and propodus much dilated at the inner margins; propodus larger and more dilated than the carpus, and with a groove in its anterior margin, into which the small, curved dactylus folds. Inner lobes and laciniae of the second pair of maxillæ for the most part narrow. Mandibles very small and weak, not indurated; internal basal projection only slightly developed. Carpus and hand of the greater cheliped very long. The appendages to the first and second joints of the abdomen in the male are small; those of the first pair having but one branch, while those of the second pair have two branches, the outer branch being minute. Caudal lamellæ much thickened. Inner lamellæ of the appendages to the penult joint of the abdomen very narrow, almost styliform. Terminal joint of the abdomen short and broad, contracted at the base, and emarginated at the extremity.

The type of this genus is the *Callianassa major* of Say (Jour. Acad. Nat. Sci., Philad., I, p. 238). This species is found abundantly on the sandy shores of the Southern States—North

and South Carolina, Georgia, Florida, etc. It burrows in the sands about low-water mark, its holes being usually about one foot in depth.

ASTACOIDEA.

Scyllarus nodifer.

Scyllarus nodifer Stimpson, Proc. Chicago Acad. of Sciences, I, 48.

Upper surface tuberculated; tubercles sparsely setose. A strong, bidentate projection on the gastric region of the carapax. On the third segment of the abdomen above there is a very prominent, median knob, which forms the posterior extremity of the body when the abdomen is folded in. The second joint of the antennæ is armed with four or five teeth on the antero-exterior margin—the teeth, with the exception of that at the angle, being little prominent. Fourth joint of the antennæ broader than long, with the margins crenulated, and the antero-exterior angle prominent.

The length of the largest specimen is about five inches. In a male, the length of the carapax is 2.1; and its breadth at the anterior extremity, 1.88 inches. In a female, length of carapax, 1.225; breadth anteriorly, 1.13 inches.

Found among the Florida Keys. The specimens in the Smithsonian Museum were taken at the Tortugas by Dr. Whitehurst, and there are examples from Key West in the Museum of Comparative Zoölogy at Cambridge.

CARIDEA.

Hippolysmata californica.

Hippolysmata californica Stimpson, Proc. Chicago Acad. of Sciences, I, 48.

Surface of carapax and abdomen minutely pubescent. Rostrum short, scarcely over-reaching the ante-penult joint of the peduncle of the antennulæ, and six-toothed above, the posterior tooth being situated at one-half more than the usual interval behind the next tooth,

and at about the anterior third of the length of the carapax; below, the rostrum is armed with three minute teeth. On the anterior margin of the carapax there is a strong spine above the base of the antennæ, and a minute one below it. Flagella of the antennulæ equal, and very long, one and a half times as long as the body. Acicles or appendages to the antennæ broad even to their tips, and much longer than the peduncles of the antennulæ. External maxillipeds thickly setose, and reaching the extremity of the acicles. Terminal segment of the abdomen with two pairs of aculei above.

Length, 1.25 inches.

Found at San Diego, Cal., by Mr. Cassidy.

This is the analogue of the Florida species, *II. Wurdemannii* (*Hippolyte Wurdemannii* Gibbs), from which it differs in its longer antennulæ, smaller eyes, etc.

Rhynchoeylus parvulus, nov. sp.

Dorsum of the carapax elevated, and protuberant at the middle of its length, its anterior half having a considerable slope forward, and being obtusely carinated and armed with five small, spiniform teeth; —the posterior two teeth being somewhat remote from the anterior three, which are approximated. Rostrum one-third as long as the carapax, rounded-ovate, reaching beyond the tips of the peduncles of antennulæ and the antennal scales, and serrated with six teeth above and three below near the extremity. Antennulæ longer than the rostrum; antennæ as long as the body. The external maxillipeds reach the extremity of the peduncle of the antennæ. Feet of the first pair very short; carpus half as long as the meros, and excavated in front for the reception of the hand. Feet of the second pair with a triarticulate carpus. Abdomen smooth above; caudal segment with two pairs of aculei on the dorsum.

The color in life is unknown to me. Alcoholic specimens are plentifully spotted and blotched with whitish pigment.

Length, half an inch.

Found at St. Joseph's I., Texas, by Gustavus Wurdemann, Esq.

Nectocerangon lar.

Crangon lar Owen, *Becchey's Voy.*, Zoöl., 88; pl. xxviii, f. 1.

Argis lar Kroyer, *Tidsskrift*, IV. 255; pl. v, f. 45-62.

Nectocerangon lar Brandt, *Sibirische Reise*, Zoöl., p. 115.

There are specimens in the Smithsonian collection, taken at St. John's, Newfoundland, by Prof. Gill.

Hippolyte picta, nov. sp.

Carapax and rostrum as in *H. sitchaensis* Brandt (*Sibirische Reise*, Zoöl., p. 116; pl. v, f. 8), the latter reaching a very little beyond the peduncle of the antennulæ, and armed with six teeth above (including two on the carapax) and three teeth below, near the extremity. On the antennulæ the outer flagellum has the slender part only one-fourth as long as the thick part; the inner flagellum is one-half longer than the outer. The external antennæ are one-third longer than the body. The external maxillipeds reach a little beyond the tip of the antennal scale, and are provided with a flagellum or epignath, but have no exognath. Feet of the first pair provided with an epipod; those of the last pair rather long and stout; abdomen smooth; last segment with four pairs of dorsal aculei.

Thorax obliquely streaked with crimson. Length of the largest specimen, 1.33 inch.

It differs from *H. sitchaensis* Brandt in its longer external maxillipeds and non-carinated abdomen. The rostrum is longer than in *H. palpator*, but much shorter than in *H. Layi*.

Found at Monterey, Cal., by A. S. Taylor, Esq.

Hippolyte vibrans, nov. sp.

This species resembles very closely *H. Phippsii* Kroyer (*Monog. Fremst. Hippol.*, p. 106, pl. iii, fig. 65-68), but differs in having but one spine over the eye, and only two or three teeth beneath the tip of the rostrum. The carina of the carapax is sufficiently well marked toward the base of the rostrum.

Found in Massachusetts Bay.

Hippolyte spina.

Cancer spinus Sowerby, British Miscellany, xxi.

Hippolyte spinus White, British Museum Cat., Crust. (1847), p. 76. Bell, British Crustacea, p. 284.

Hippolyte Sowerbei Leach. Kroyer, Monog. Fremst. Hippol., 90; pl. ii, fig. 45-54.

This species is very beautifully colored in life, being generally speckled or mottled with crimson, or bluish; the base of the antennulæ is usually brownish, and the scale of the antennæ blue.

It is common on rocky bottoms, among algæ in the laminarian zone, on the coasts of Maine and Massachusetts. I have several specimens from Grand Manan, where it occurs at low water mark.

Sowerby, by the name he gave to this species, doubtless had reference to a spine, or the backbone; in Latin *spina*, not *spinus*. *Spinus* is not an adjective, and means only the sloe-tree, which could scarcely have been intended. I have, therefore, taken the liberty to modify the name, and all the more willingly because *Hippolyte* is feminine.

Hippolyte Fabricii.

Hippolyte Fabricii Kroyer, Monog. Fremst. Hippol., p. 69; pl. i, f. 12-20.

This species is common in Massachusetts Bay, in which I have often obtained specimens by dredging.

Hippolyte Gaimardii.

Hippolyte Gaimardii H. Milne-Edwards, Hist. Nat. des Crust., II, 378. Kroyer, Monog. Fremst. Hippol., p. 74; pl. i, f. 21-29.

In our specimens the back of the abdomen at the third segment is smoothly rounded; but in Milne-Edwards' description this segment is said to be "moins denté." Our specimens, however, agree perfectly with Kroyer's description and figures.

This species occurred to me on a sandy bottom, covered with dead *Zostera*, in three fathoms, in Boston harbor, and I have found it in other parts of Massachusetts Bay.

Hippolyte pusiola.

Hippolyte pusiola Kroyer, Monog. Fremst. Hippol., p. 111.; pl. iii, fig. 69-73.

This small species is easily distinguished from our other Hippolytes by the smallness of its four-toothed rostrum, which is no longer than the eyes. There is no spine over the eye.

I have found it abundantly in Massachusetts Bay, particularly in Boston Harbor. It also occurred to me at Harpswell, Me. It lives in the laminarian zone, and is most frequent among eel-grass (*Zostera*).

Virbius pleuracanthus, nov. sp.

Back depressed. Rostrum horizontally broad, and smooth at base, acute, about half as long as the carapax, and scarcely more than half as long as the acicle of the antennæ, but reaching to the extremity of the penult joint of the peduncle of the antennulæ, and armed with one or two teeth above, and one below near the extremity. There is a small spine on each side at the base of the rostrum, above and a little behind the base of the ocular peduncles. On the anterior margin of the carapax there is a spine beneath the eye, but no pterygostomian spine. There is a sharp (hepatic) spine on the surface of the carapax behind the base of the antennæ. The scales of the antennæ are very large, as long as the carapax, and rather widening than narrowing toward their extremities. The dactyli of the posterior three pairs of feet are broad, compressed, and knife-like, with the inner edges nearly straight, and armed with minute spines. The dorsal angle of the abdomen at the third segment is very prominent, but not acute.

Length about one inch.

It is easily distinguished from *V. acuminatus* by the great size of the antennal scales, and the presence of an hepatic spine on the carapax.

It was dredged by me in the harbor of Norfolk, Va., in June, 1853; and found abundantly at Somers' Point, in Great Egg Harbor, N. J., in the summer of 1864. It lives among *Zostera* just below low water mark.

Pandalus borealis.

Pandalus borealis Kroyer, Tidsskrift, II, 254; Voy. en Skandinavie et Laponie, Zool., Crust., pl. vi, fig. 2.

In this species the feet of the posterior pair reach only to the extremity of the scales of the antennæ. The caudal segment has nine pairs of dorsal aculei, which is another mark by which this species may be distinguished from *P. annulicornis*. It reaches a large size.

Found in Massachusetts Bay.

Pandalus Gurneyi, nov. sp.

A large species, of the same size as *P. borealis*, etc. Surface of the carapax marked with shallow pits in clusters; not pubescent. Rostrum more than one-half longer than the carapax, and unarmed above, except near the base, where the crest has eight or nine teeth, four of which are on the carapax: these teeth are small and rather distant. Below, the rostrum is armed with nine teeth, the two teeth next the base being rather close together, large, and hook-shaped, but not broad. The feet of the third pair are rather short, not reaching the extremity of the rostrum; they terminate in well-formed subcheliform hands.

Found at Monterey, Cal., by A. S. Taylor, Esq. It is named *P. Gurneyi* at the request of its discoverer.

Palaemonetes.

This genus resembles *Palaemon* and *Leander* closely in all its characters, except that the mandibles are not palpigerous. From *Anchistia* it differs in its general form and habit, which are exactly those of *Palaemon*, and in its antennulæ, which are provided with three flagella. It agrees with *Leander* in the spines of the carapax. The species are for the most part inhabitants of fresh or brackish water.

The genus was described by me in manuscript about twelve years ago under the name *Palaemonopsis*, but this name has

P. caramote in having three teeth on the inferior edge of the rostrum. The number is, however, generally two, as in *P. setiferus*. The chief difference is that pointed out by Gibbes;—the want of spines at the base of the third pair of feet.

This species is often found in brackish water, and even ascends streams to points where the water is nearly or quite fresh. It was thus found in the Croton River at Sing Sing by Prof. Baird, and by myself in a fresh-water creek near Somers' Point, N. J. Besides these localities there are specimens in the Smithsonian collection from Great Egg Harbor, N. J. (Baird), Charleston, S. C. (Gibbes), Tortugas, Fla. (Whitehurst), Pensacola, Fla. (Jeffrey), New Orleans (Couch), Brazos Santiago, Tex. (Van Vliet), and Brazil (A. H. Riise).

Penaeus setiferus.

Cancer setiferus Lin., Syst. Nat.

Penaeus fluviatilis Say, Jour. Acad. Nat. Sci., Philad., I. 236.

Penaeus setiferus H. Milne-Edwards, Hist. Nat. des Crust., II, 414. Gibbes, Proc. Am. Assoc. Adv. Sci., 1850, p. 199.

The flagella of the antennulæ in males differ from those of females in being less tapering, naked, and armed with corneous teeth like those of a file, which form spinules along the margin.

In a specimen from Mobile Point, the rostrum is armed with one tooth only on the inferior edge.

Our specimens are from the following localities:—Norfolk, Va. (Farragut); Charleston, S. C. (Gibbes); Florida (Agassiz); Mobile Point, Ala. (Wurdemann); Biloxi, Miss. (Bellman); Calcasieu Pass, La., and Galveston (Kennerly); St. Joseph's I., Texas (Wurdemann); Brazos Santiago (Van Vliet).

***Penaeus pubescens*, nov. sp.**

Surface of thorax and abdomen short-pubescent. Lateral furrows of carapax shallow and inconspicuous, being filled with pubescence; lateral spine acute. No trace of a longitudinal furrow on the dorsum. A sharp and rather long spine on the anterior margin at the

insertion of the antennulæ, and one at the antero-inferior corner of the carapax. Rostral crest extending only as far back as the first or posterior tooth, which is situated at about the anterior third of the length of the carapax, and far distant from the second tooth, which is placed over the base of the eye-peduncle. Beyond and including this second tooth there are seven teeth on the superior margin of the rostrum, and perhaps more, as the tip is broken in our specimen. There are no teeth on the inferior margin. The rostrum, in its broken condition, reaches to about the middle of the penult joint of the peduncle of the antennulæ. Eyes very large. Antennulæ short, as in *P. setiferus*; the lamelliform appendage at its base is small, long-ciliated, and pointed, not dilated, at its extremity; flagellum very short. Antennæ only as long as the body; the antennal scales are a little shorter than the peduncle of the antennulæ. Feet unarmed at base; hands of the third pair very slender. Abdomen carinated from the middle of the second joint backward to the sixth joint, the carina becoming sharper and prominent towards its posterior extremity; seventh or caudal joint sub lanceolate, very slightly furrowed above, without carinæ, and terminating in an acute spine, with a smaller spine on either side at its base. Caudal lamellæ pubescent; the inner one longitudinally bicarinated in the middle, not sulcated as in *P. brasiliensis* and *P. setiferus*.

Of this species I have seen but one specimen, a female, two inches in length, excluding the antennæ.

It was presented to the Institution by A. H. Riise, Esq., who collected it at St. Thomas.

***Penaeus stylirostris*, nov. sp.**

Somewhat allied to *P. setiferus*, but with the following well-marked distinctive characters. The carapax behind the rostrum is obtusely carinated nearly to the posterior extremity; the carina being sometimes furrowed along the middle for a short distance at the point where the cervical sulcus would cross if continued, at which point there are two small pits indicating the attachment of the posterior supports of the stomach. Rostrum long, over-reaching the antennal scales, four-toothed below, and, including carina of the carapax, eight-

toothed above, the posterior tooth above being placed a little before the middle of the carapax. Terminal half of the rostrum styliform, without teeth above. Lateral furrows of the rostrum distinct, extending to the posterior tooth. Antero-lateral spine and sulci nearly as in *P. setiferus*. Antennulæ with the inner flagella much longer than the outer ones, and about as long as the carapax. Spines on the bases of the first and second pairs of feet very small. In the female the feet of the last three pairs bear lamelliform processes on the inner sides of the coxæ, and the sternum between the bases of the posterior feet bears a short but much projecting dentiform median carina. The abdomen is similar to that of *P. setiferus*.

Length of the largest specimen in the collection, six inches, excluding antennæ. Length of flagellum of antennæ, about twelve inches.

It differs from *P. semisulcatus* in its longer rostrum and antennulæ, and from *P. carinatus* in the oblique position of the anterior cervical sulcus.

Found at Panama by J. H. Sternbergh, Esq.

Penacus constrictus, nov. sp.

The abdomen is naked and glossy, but the carapax, particularly toward the front part, is pubescent with extremely minute setæ, directed forward, so that the surface is easily rubbed in a forward direction, but resists strongly when rubbed backward. The hepatic spine, and antennal spine, ridge, and sulcus are well marked or even prominent. The cervical sulcus is well-marked, and may even be traced in the middle of the back on either side of the median carina; it is deflected near its anterior extremity, running to the inferior margin of the carapax, and forming a deep groove parallel with the anterior margin; giving the carapax, seen from below, the appearance of being constricted close to its anterior extremity. A furrow along the inferior side of the antennal ridge flows into the cervical sulcus at the point where the latter is deflected. The angle at the outer base of the eye-peduncle projects a little, but scarcely forms a spine. The carapax is carinated on the anterior three-fourths of its length,

the carina being slightly flattened and longitudinally grooved at the point where the cervical sulcus crosses, and bearing a small tooth or spine behind the base of the rostrum. The rostrum is straight, ensiform, reaching the middle of the penult joint of the peduncle of the antennæ, and pointing forward and upward at an angle of about 20° with the horizon. It has a strong lateral carina, with a groove on each side of it, the upper groove being continued backward as far as the little gastric tooth of the carina of the carapax. Its dorsal crest is armed with eight teeth, which are equidistant, and diminish regularly in size toward the extremity, the anterior tooth being very near to this extremity, which is slender and acute. The inferior margin of the rostrum is ciliated and entire, without teeth. Eyes large, reniform. Antennulæ stout; peduncle longer than the flagellum, overreaching the acicle or scale of the external antennæ, and very pubescent above; its penult joint three or four times as long as the terminal joint. Feet of the first two pairs armed with a spine on the basis joint. Last pair of feet longer than the fourth pair, and nearly reaching the extremity of the acicle; dactylus half as long as the penult joint. Abdomen carinated from the fourth to the sixth joint inclusive; carina cristiform. Median sulcus of last joint very deep and narrow, defined by two carinæ: this sulcus is abruptly terminated at the base of the mucronate point which forms the posterior extremity of the joint. The first pair of abdominal appendages in the male have the inner lamellæ soldered together and folded, but diverging at the tip, forming two hard, lunate processes like the flakes of a grapple; the distance between the tips of these processes equaling two-thirds of the length of their peduncle.

Dimensions of a male specimen: Length, excluding antennæ, 1.70; length of carapax, rostrum included, 0.60; length of rostrum, 0.22; length of penult joint of the abdomen, 0.20 inch.

This species was dredged by me at the depth of four fathoms on a sandy bottom in the harbor of Beaufort, N. C., and I have also taken it in Charleston Harbor.