

NOTES ON THE NORTH AMERICAN CARIDEA IN THE MUSEUM OF THE
PEABODY ACADEMY OF SCIENCE AT SALEM, MASS.

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The following paper is merely preliminary to a proposed monograph of the North American shrimps. I would here return thanks to Prof. S. I. Smith, of Yale College, for many favors received.

CRANGONIDÆ.

CRANGON Fabricius.

Crangon vulgaris Fabr.

I find this species in collections made by Dr. Packard at Fort Macon, N. C. I should be inclined to call the *Steiracrangon Allmanni* of Kinahan (Proc. Roy. Irish Acad. 1862, vii. p. 71, pl. iv.) as this species, there being no constant character to separate them; but Rev. A. M. Norman, in the Report of the British Association for the Advancement of Science for 1868, p. 265, pronounces them unquestionably distinct. The only characters given by Kinahan for the separation are the sulcation of the sixth and seventh abdominal segments, a feature which I have found in undoubted specimens of *C. vulgaris* from our own coast. Nor can the bathymetrical distribution, mentioned by Norman, affect the case, as *C. vulgaris* is common in seventy fathoms. I am also inclined to consider *C. nigricauda* Stm., *C. nigromaculata* Lockington, and *C. alaskensis* Lockington, as *C. vulgaris*, but will not decide until the examination of larger series of specimens from the west coast. Dekay (N. Y. Fauna, Crustacea, p. 25) has this astounding statement concerning this species (under the name *C. 7-carinata* Say), "eyes sessile, and resting on the concave surface of the peduncle of the inner antennæ."

HIPPOLYSMATA Stimpson.

? **Hippolysmata cubensis.**

Hippolyte cubensis, Von Martens, Wiegmann's Archiv für Naturgeschichte, 1872, p. 136, pl. v. f. 14.

I refer this with a doubt to this genus, though Dr. V. Martens gives nothing in regard to the mandibles and external maxillipeds. The genus *Hippolyte* is northern in its range.

Hippolysmata intermedia, n. s.

Carapax with antennal and branchiostegal spines, rostrum horizontal, extending to base of the third joint of antennular peduncle, shorter than in *H. wurdemanni* Stm., and longer than in *H. cubensis*; the carina extending back to the posterior portion of the carapax; six or seven toothed above, three or four teeth being on the carapax, and three on the rostrum; below with three teeth, the first being directly under the last on the upper margin. Antennular spine extending slightly beyond the basal joint of peduncle; third joint two-thirds as long as preceding, flagella nearly as long as the body, the outer thickened for a fourth of its length, and exhibiting traces of a division. A spine on the outside of the basal joint of antennæ, antennal scale narrow, regularly tapering, extending over half its length beyond the rostrum; flagellum longer than the body.

External maxillipeds elongate, pediform, extending beyond the antennal scale, the carpal joint reaching the tip of antennal peduncle. Feet of first pair reaching the extremity of the antennal scale, fingers half as long as palm; hand, carpus, and meros subequal. Feet of second pair elongate, filiform, carpus multiarticulate. Telson narrow, tapering, the apex acute.

Length.	Carapax.	Rostrum.	2d pair.
25 mm.	6 mm.	3 mm.	19 mm.

Fort Jefferson and Tortugas, Fla., W. H. Jacques.

This species differs from *H. cubensis* in the longer rostrum and carapax, the antennular flagella, and in the fifth pair of feet not being longer than the others; from *H. wurdemanni* in the shorter rostrum and the arrangement of the rostral teeth, and the presence of a branchiostegal spine.

TOZEUMA Stimpson.*Tozeuma carolinensis*, n. s.

Elongate, compressed, carapax with sub-ocular and branchiostegal spines; rostrum narrow, slender, curving upwards very slightly, a half longer than the carapax, not extended as a carina on the carapax, a small spine on each side at the base; upper margin smooth, rounded, lower with many small teeth. Basal spine of antennulæ slender, extending beyond the first joint of the peduncle; first joint as long as the two following which are equal; flagella short, the upper and outer the larger, neither reach-

ing the tip of antennal scale. Basal joint of antennæ with a small spine beneath; antennal scale narrow, lanceolate, nearly as long as carapax, peduncle short, flagellum a third as long as the body without rostrum. External maxillipeds short, last joint twice as long as the preceding one. Feet all short, first pair very short, stout, carpus with a spine above, hand inflated, fingers curved, closing completely. Feet of second pair slender, reaching to the tip of antennal peduncle, meros joint as long as the first two joints of the carpus, first joint of carpus as long as the other two, third a half longer than the second; hand hirsute, as long as the last articulation of the carpus. Remaining feet simple; dactyli curved, propodi spinulose beneath. Dorsum of abdomen smooth; sixth segment as long as the two preceding; telson elongate, slender, acute.

Length.

Carapax.

Rostrum.

51 mm.

10 mm.

15.5 mm.

Fort Macon, N. C., A. S. Packard, Jr.

This species differs from *T. lanceolatum* Stm., from China, the only other species that I know of, in the shortness of the rostrum and antennæ, the want of spines on the dorsal surface of the abdomen, etc.

ATYIDÆ.

ATYA Leach.

Atya punctata, n. s.

Compressed, carapax and abdomen everywhere thickly punctate, rostrum short, depressed, carinate above and below, tip acute, lateral angles obtuse, the sulci separating the median from the lateral carinæ deep. Antennular spine falling short of base of second joint, acute; peduncle granulate above, third joint two-thirds as long as second; outer flagellum shorter than the inner, inner three-fourths as long as carapax. A spine on the basal joint of antennæ beneath; antennal scale longer than antennular peduncle, extremity ovate, external margin nearly straight, with a short acute spine. External maxillipeds slender, extending beyond the antennal peduncle. Feet of the first two pairs subequal; meral joints compressed, longitudinally sulcated. Feet of the third pair cylindrical, stout, covered with tubercles interspersed with hairs. These tubercles on the upper surfaces show a tendency to arrange themselves in longitudinal rows, and on the carpus become some-

what spiniform. Ischium three times as long as meros, meros and carpus of the same length, the former being somewhat the stouter; dactylus short, stout, smooth above, a single row of spines beneath, apex acute. Fourth pair of feet resembling the third in ornamentation and proportions of joints, but shorter and more slender. Fifth pair still shorter and more slender, carpus twice as long as meros and slightly longer than the ischium; otherwise not differing from the two preceding. Telson, with the sides straight, extremity truncate; a slight sulcus above, which, in the posterior portion, is divided by a median carina; on each side a row of aculei.

Length.	Carapax.	Third pair feet.
59 mm.	18.5 mm.	28 mm.

Hayti, Dr. D. F. Weinland.

This species differs from *A. scabra* in the longer feet of the first pair, the three last pair more slender, the more tuberculate character of the ornamentation, and in the proportionate length of the joints. The second abdominal segment is also more dilated. From the short description of *Atya occidentalis* Newport, in the thorax and abdomen being punctate; from the *A. tenella* Smith, in the larger feet of the third pair; and from *A. rivalis* in the more obtuse lateral teeth of the rostrum.

Atya occidentalis Newport, Annals and Magazine of Natural History, 1847, vol. xix. p. 159. Von Martens, Archiv für Naturgeschichte, 1871, p. 135.

Specimens in the museum of the Peabody Academy which I refer to this species differ from the foregoing species in having the distal portion of the basal joint of antennular peduncle armed with short bristles or spines; inner flagellum three-fourths the length of carapax. Legs of third pair much larger than the others; meral, carpal, and propodal joints tuberculate, without hairs; meros longer than three succeeding joints, rounded, triangular in section; carpus and propodus subequal; dactylus short, claw-like, basal portion greatly thickened and armed with small spines beneath. Fourth pair with meros as long as carpus and propodus; carpus shorter than propodus, dactylus as in third pair. Meros and carpus each with a single spine beneath. Meros and propodus of fifth pair subequal; propodus a half longer than carpus. Telson as in *A. rivalis* Smith.

Length.	Third pair of feet.
57 mm.	31 mm.

Whether this be the *A. occidentalis* of Newport, cannot be determined from his short description, but it presents no conflicting characters.

ATYOIDA Randall.

Atyoida glabra, n. s.

Compressed, rostrum slender, short, extending slightly beyond the base of the second joint of antennular peduncle, horizontal, rounded above, not angulated on the sides, no lateral carinæ; below with two to four teeth near the tip. Peduncle of antennæ unarmed, last two joints nearly equal; outer flagellum about half as long as the carapax; inner more slender, three times as long as the outer. Antennal scale longer than the antennular peduncle, extremity ovate, outer margin straight and armed with a small, stout, acute spine; flagellum nearly as long as the body. External maxillipeds slender, pediform, extending a little beyond the peduncles of the antennulæ. First two pairs of feet smooth and naked; the first as long as the maxillipeds, the second extending to the tip of the antennal scale. Meral and carpal joints of remaining pairs armed below with spines; dactyli short, stout, also with spines. Two posterior pairs subequal. Abdomen smooth, compressed, the sides being higher than is usual in this and allied genera. Telson narrow, sides straight, extremity arcuate-truncate, with numerous small spines; dorsal surface without a furrow, but furnished with rows of small aculei.

Length.	Length of Carapax.	Height of Carapax.	Height of abdomen.
22 mm.	6.5 mm.	3.2 mm.	5.3 mm.

Polvon and Corcuera, west coast of Nicaragua, J. A. McNiel.

PALÆMONIDÆ.

ALPHEUS Fabr.

Alpheus normanni.

Alpheus affinis Kingsley, Bulletin U. S. Geological and Geographical Survey of the Territories, 1878, vol. iv. p. 195.

The specific name *affinis* being already preoccupied in this genus (Guise, Annals of Natural History, 1854, 2d series, vol. xiv. p. 275), it is necessary to apply a new one to the Panama form, and I therefore dedicate it to the Rev. A. M. Norman, of England, who called my attention to the oversight.

PANDALUS Leach.

Pandalus franciscorum, n. s.

Carapax with a minute pubescence; antennal and branchiostegal spines acute; rostrum a fifth longer than the carapax, extending a fourth its length beyond the antennal scales, considerably recurved, ten or eleven teeth above, of which five are on the carapax, and the remainder on the basal portion of the rostrum; distal half of the rostrum above smooth, the apex being minutely bifid or trifid; below with seven to nine teeth, the posterior being the largest. Third joint of antennular peduncle a third longer than the preceding; flagella about as long as the carapax. Basal joint of antennæ with a spine on the outside, and another below; antennal scales long and proportionately narrower than in *P. borealis* Kroyer; flagellum longer than the body. External maxillipeds falling short of the extremity of the antennal scale. Second pair of feet unequal, the shorter extending further forward than the external maxillipeds. Posterior pairs stout, armed with spines below. Fifth and sixth abdominal segments with a spine at the infero-posterior angle. Telson narrow, a shallow furrow on its upper surface, apex obtusely triangular.

Length.

110 mm.

Carapax.

52 mm.

San Francisco, Cal., W. G. W. Harford.

THOR,¹ nov. gen.

Carapax with antennal spine, rostrum short, toothed above; antennulæ biflagellate, outer branch very stout. Mandibles without palpi, bifurcate, apical process narrow; proximal process stout with one acute and one obtuse tooth, and a pubescence of minute curved hooks, reminding one of the basal joints of the limbs of *Limulus*. External maxillipeds pediform, exopodite present. Feet of the first pair short, stout; of the second elongate, slender; carpus five annulate. Telson elongate, triangular.

This genus differs from all the *Alpheinæ* with which I am acquainted in the absence of mandibular palpus, and from the *Palæmoninæ* in the relative size of the first two pairs of thoracic feet, and in having the carpus of the second pair annulate.

¹ Thor, a Scandinavian deity.

Thor floridanus, n. s.

Carapax with a small antennal spine; rostrum shorter than the eyes, five toothed above, the first being over the orbits, beneath smooth and rounded. Antennulæ with basal joint large, basal spine long, acute, reaching nearly to third joint; second and third joints very short, the second with a slender, acute spine on the outside. Inner flagellum slender, slightly longer than the basal joints; outer about as long as the basal joints, stout, ciliated on the apex and inner margin. Antennæ with a spine on the basal joint, antennal scale reaching as far as the outer branch of antennular flagellum, its inner margin slightly concave, flagellum half as long as the body. Mandibles robust, apical process with five terminal teeth. External maxillipeds slender, pediform, reaching the tip of antennal scale, the penult joint the shortest, antepenult three, and last joint four times as long as the penultimate, the last joint terminated with slender spines. First pair of feet short, stout, meral and carpal joints subequal, the latter with minute spines on the inner margin; hands subcylindrical, the dactyli occupying two-fifths their length. Second pair of feet elongate, filiform, carpus five annulate, third and fourth joints the shortest, equal, fifth, second, and first increasing in length in the order given, the first being as long as the third and fourth together; hand as long as the third and fourth articulations of the carpus, with the fingers occupying two-fifths of its length; meral joint as long as the first four articulations of the carpus. Dactyli and distal portions of the propodi of posterior pairs of feet spinulose beneath. Telson elongate, triangular, apex truncate, spined.

Length.

13 mm.

Carapax.

3.9 mm.

Key West, Florida, A. S. Packard, Jr.

PONTONIA Latreille.

Pontonia domestica Gibbes, Proceedings of the American Association for the Advancement of Science, 1851, iii. p. 196.

In addition to the brief description of Gibbes, I would add the following characters, derived from specimens in the collection of the Boston Society of Natural History from the Bahamas (Dr. H. Bryant).

Antennal spine short, acute; rostrum extending nearly to last joint of peduncle of antennulæ. Third joint of antennular

peduncle but slightly longer than the second; flagella very short, the outer branch the longer and stouter, basal spine short, obtuse. Antennal scale broad, extending as far as antennular peduncle; extremity arcuate-truncate. Feet of the first pair slender, carpus a half longer than the hand. Palm of the second pair a half longer than the fingers; thumb with two teeth, finger with only one, points of fingers crossing. Telson twice as long as broad, margins slightly arcuate as in *P. margarita*, Smith.

Length.	Carapax.
26 mm.	10.4 mm.

ANCHISTIA Dana.

Anchistia americana, n. s.

Rostrum rather broad, nearly reaching the extremity of the antennal scale, upper margin straight, seven to nine toothed, above the first tooth more remote from the second than the second from the third, two to three teeth below. Branchiostegal and hepatic spines present. Basal joint of antennulæ broad, as long as the two following which are equal. Upper and outer flagellum shorter and stouter than its fellow, and bifid for about a fourth of its length; inner and longer flagellum about as long as the peduncle. Basal joint of antennæ with a spine on the outside, antennal scale lanceolate, extremity rounded; flagellum as long as the body. Feet of the first pair slender, elongate, the middle of carpus reaching the tip of the antennal scale; meros and carpus equal, hands about two-thirds the length of the carpus, fingers shorter than palmar portion. Second pair of feet very elongate, resembling those of the proposed genus *Macrobrachium* Spence Bate, being longer than the whole body; meros very slightly longer than the carpus, carpus about half as long as the hand, the distal portion enlarged, hand cylindrical, fingers slender, somewhat curved downwards, not completely closing, with a few small teeth. Remaining feet slender, the posterior pair reaching the extremity of the rostrum. Telson narrow, triangular, truncate, terminated with bristles.

Length.	Carapax.	Second pair of feet.
20 mm.	4.5 mm.	25 mm.

Key West, Florida, A. S. Packard, Jr.

This species quite closely resembles the description of *Palæmon fluvialis* Streets, from the fresh waters of Mexico.

PALÆMONETES Heller.**Palæmonetes paludosa.**

Hippolyte paludosa Gibbes. Pro. Amer. Assoc., 1851, p. 197.

Palæmonetes exilipes Stimpson, Annals N. Y. Lyceum Nat. Hist. 1871, x. p. 130. Smith, Rep. U. S. Fish Commission, 1872-3, p. 641, pl. i., f. 1. Forbes, Bulletin Illinois Museum Nat. Hist. 1876, No. 1, p. 5 and 20.

I believe the species described by Stimpson to be the one mentioned previously by Gibbes, especially since the description of this author agrees, as far as it goes, with specimens of *P. exilipes* from various localities, that it comes from the fresh waters of South Carolina, from whence Stimpson's types were procured. Professor Gibbes says, "The specimens were not quite perfect, having lost some of their feet and antennæ," which would explain their reference to the wrong genus.

PENEIDÆ.**SICYONIA** H. Milne Edwards.**Sicyonia dorsalis**, n. s.

Body small, slightly compressed, carapax minutely punctate. Dorsal crest of the carapax with a tooth at about the middle, and a second near the anterior border. Hepatic spine slender, antennal shorter and stouter. Rostrum horizontal, short, extending slightly beyond the eyes and nearly to the second joint of antennular peduncle, three-toothed above, extremity acute, below entire. First joint of peduncle of antennula terminating exteriorly in a spine, second three times as long as the third; flagella short, hardly equalling the last two joints of peduncle. Antennal scale broad, regularly tapering, as long as antennular peduncle. External maxilliped falling short of the extremity of antennal peduncle. Feet slender, round; those of the third pair reaching slightly further than the external maxillipeds. Abdomen sharply carinate above, sides punctate, sculptured, protuberant parts rounded. Third to sixth segments with a spine at the postero-inferior angle. Telson narrow, acute, with a shallow groove on the dorsal surface.

Length.

Carapax.

Rostrum.

38 mm.

9.5 mm.

3 mm.

Fort Jefferson, Fla., Lieut. W. H. Jacques, U. S. N.

Is quite different from the two species *S. brevirostris* Stm. (*S. cristata* Saussure), and *S. lævigata*, Stm., before known from this coast.

PENEUS Latreille.

***Peneus brevirostris*, n. s.**

Compressed, sutures of carapax well marked, carina with a sulcus on each side extending nearly to the posterior margin of the carapax; rostrum short, horizontal, apex a little depressed, scarcely exceeding the eyes, ten-toothed above, of which the first four are on the carapax itself, distal fourth smooth; below with two teeth near the tip. Flagella of antennulæ very short. Antennal scale about as long as antennular peduncle, laminate portion extending beyond the spine at the antero-lateral angle; flagellum longer than the body, spines at the base of the first two pairs of feet slender. Third pair of feet the longest, extending to the apex of the antennal scale. Abdomen compressed, fourth to sixth segments with a dorsal median crest. Telson short, regularly tapering to an acute tip, a deep and narrow longitudinal furrow above. Inner caudal lamella longitudinally bisulcate.

Length.
42 mm.

Carapax.
10 mm.

Rostrum.
5 mm.

Estero at Realijo, W. Coast of Nicaragua (salt water), J. A. McNiel.