

*An Account of the Crustacea of the United States. By Thomas Say. Read November 4, 1817.*

(Continued.)

The two following undescribed animals possess characters so distinct from any genus hitherto established, that I have thought proper to connect them under a new genus. By the conformation of their organs of locomotion, they will serve to approximate still more closely the orders *Brachyura* and *Macroura*, than has been done by the genus *Porcellana*. To this genus I have applied the name of *MONOLEPIS*,† from the Greek words signifying *one* and *scale*, in allusion to the conformation of the tail. I shall here lay down its characters, at length, distinguishing them into essential, natural, and artificial, and finally note the affinities of the genus.

#### Order MACROURA.

*Head* intimately united with the thorax; *feet* ten; *abdomen* beneath furnished with five pairs of natatory feet; *tail* with lateral foliaceous lamellæ.

#### Genus MONOLEPIS.\*

##### *Essential Character.*

*Hind-feet* very small, folded on the posterior angle of the thorax; *caudal lamellæ* simple on each side.

##### *Artificial Character.*

*Thorax* oblong, narrowed before, equal, emarginate over the insertion of the abdomen; *eyes* very large, remote, lateral; *external pedipalpi* incurved, joints subequal, the

† From *μονος*, one, and *λεπίς*, a scale, in allusion to the caudal lamellæ.

terminal one abruptly straitened, internal peduncle with the radical joint somewhat dilated on the inner edge, second joint half as large as the preceding, suboval, entire, rounded at tip; *anterior feet* didactyle; *second, third, and fourth* pairs simple; *fifth* pair much smaller and generally terminated by setæ; *abdomen* not longer than the thorax; *tail* furnished with a single lamellæ on each side.

*Natural Character.*

THORAX CONVEX, equal, longitudinally oblong, gradually a little narrowed before, so as to pass between the eyes, terminating before in a short rostrum, posterior margin of greatest breadth, emarginate over the insertion of the abdomen, posterior lateral angles, with an abbreviated, slightly impressed groove above, for the reception of the posterior feet, sides of the body abruptly deflected, vertical, slightly grooved to receive the feet; *eyes* remarkably large, rather thicker than their peduncles which are short, inserted on each side of the anterior part of the thorax, and destitute of prominent orbits; *antennæ* four, placed between the eyes, *external ones* eleven-jointed, inserted between the anterior angles of the mouth and the base of the peduncles of the eyes, folded upon themselves at the third joint when at rest, *first and second joints* nearly equal, the former cylindrical, the latter a little dilated beneath, with a few hairs, *third* rounded half as large as the preceding; *fourth and fifth* very short, subequal, *eighth* as long as the two preceding ones conjunctly, terminated by two setæ which extend to the apex of the antenna, *terminal* joint minute, tipped with a seta; *interior antennæ* thick, bifid at tip, folded and concealed on each side of the rostrum, and attached to a large, rounded, conspicuous peduncle; *body* beneath (*pectus*) with an

abrupt, profound fossula for the repose of the abdomen; *feet* moderate, anterior ones didactyle, second, third, and fourth pairs equal, simple, posterior pair very small, folded on the lateral angles of the thorax, and terminated by elongated setæ.

ABDOMEN semicylindric, not longer than the thorax, of six segments, first segment very short, concealed by the thorax, second, third, fourth, and fifth equal, consimilar, transverse, convex, with acute posterior lateral angles, sixth segment very short, depressed; *natatory feet* large, prominent, internal division of the bifid tip, very small; *tail* as broad at base as the terminal segment of the abdomen, rounded at tip, simple, concealing the lateral foliaceous appendages; *lateral lamellæ* composed each of a single, small, membranaceous, suboval piece, ciliated with long hair, and supported by a short peduncle.

SPECIES.

1. *M. inermis*.\* *Tarsi* simple; *hind feet* very small, terminated by three setæ; a large truncate tubercle behind each eye; *rostrum* deflected.

*Inhabits* the eastern shore of Maryland.

Cabinet of the Academy.

*Thorax* olivaceous-green, with minute darker spots, an impressed circle between the posterior recipient grooves, two small, geminate, deeply impressed punctures, on the middle of the thorax, before which on each side is an oblique, irregular, impressed line; *clypeus* unequal, extended into a short rostrum, which is deflected, adpressed to the face, margined, and furnished with a tooth on each side near the eyes; a large truncate tubercle behind each eye, upon the lower-edge of the body, as long as the peduncle of the eye; *anterior feet* rather small,

shorter than the others, hand gibbous above and furnished with a tubercle at the base within; *tarsi* simple as long as the preceding joint, those of the posterior feet furnished with three, elongated setæ at the extremity; *pectoral groove* with the margin elevated, interrupted, unequal.

Length of the thorax one fourth of an inch.

Of this interesting animal I found several specimens on the eastern shore of Maryland, which had been cast on the beach by the reflux tide. They appeared desirous to protect themselves from the dashing of the surf, and the influence of the sun, by burrowing in the sand, in order to wait the return of the tide; but their efforts had no further effect on the compact sand, than to raise a small portion of the surface, which, by the action of the waves was spread over them so as to be distinguishable from the general surface by a small elevation.

2. *M. spinitarsus*. *Tarsi* spinose beneath; tubercle behind the eyes obsolete; *hind feet* terminated by three setæ; *rostrum* deflected.

*Inhabits* South Carolina.

Cabinet of the Academy.

*Clypeus* rather prominent between the eyes; *rostrum* deflected, and adpressed to the face; tubercle of the side of the body obsolete; *tarsi* armed beneath with about seven, rigid, acute spines, of which the fifth one is largest, and the sixth one smallest, tip incurved, acute; *pectoral groove* with the margin simple, equal; *hind feet* smallest, terminal setæ longer than the tarsus, and inserted near the tip.

Length of the thorax rather more than  $\frac{1}{4}$  of an inch.

This description is drawn from two specimens in the possession of the academy which were found about thirty

years ago, on the coast of South Carolina; they had been preserved in spirits, but were lately taken out, to be more conveniently arranged in the cabinet, by exposure to the air and the evaporation of the liquid, they had become considerably contracted, but the striking character of the spinous tarsi, even if the other traits were deceptive, from desiccation, is very sufficient to distinguish it from the preceding species.

The characters of the remarkable animals of which I have here thought proper to construct a new genus, widely differ in essential particulars, from those of all other genera, as defined by naturalists. From a transient view, or slight examination, we would be disposed to refer this genus to the first order of Brachyura, in consequence of the great similarity of habit, which its species bear to that of the individuals of that order. But however closely it may be allied to the Brachyuræ in point of external figure, it is very certain that the character, drawn from the conformation of the caudal lamellæ, is of itself sufficient to exclude it absolutely from that natural group of the Crustacea, in which the tail is invariably simple, or destitute of lateral appendices of any kind.

The precise situation it ought to occupy in the order to which I have assigned it, may perhaps be, with more difficulty, determined. This difficulty does not arise from any proximity, which *Monolepis* can claim, with any of the existing genera, but, in consequence of its remoteness from either of them. There is no genus of the genuine Macroura which is furnished with a less number than two foliaceous appendices on each side of the tail, and but one (*Porcellana*) that has the abdomen inflected into a groove beneath the body. The resemblance of this last genus

to the Brachyura is so imposing, that it is but recently it has been referred to its true place in the system, yet it is worthy of remark that the lateral processes are very conspicuous, crustaceous, and never withdrawn under the middle division. In *Monolepis*, on the contrary, the lamellæ of the tail are minute membranaceous, hyaline, and entirely concealed beneath the middle division, to which they are so closely applied that the unassisted eye would not detect their presence.

These differential characteristics, by which the genus under consideration is distinguished, combined with the form of the antennæ, which it must be confessed is very closely allied to that of the Brachyura, seem to indicate its true situation in the system. It would indeed appear to supply an intermediate shade, a more closely connecting link in the gradation, by which the two orders to which I have referred, are approximated. Hence in an arrangement perfectly natural, it would be the first of the order, but in the artificial system it will precede the genus *Porcellana*, forming of itself a division of the Macroura.

### *Genus* HIPPA.

Hands simple, compressed and oval; the tarsus of the second and third pairs of feet lunated, of the fourth triangular. *Eyes* supported upon a filiform peduncle.

#### SPECIES.

1. *H. talpoida*.\* *Body* convex, oval; four anterior segments of the abdomen not inflected and having the natatory appendices of the tail, reflected on their sides; *tail* elongated, more than half as long as the body, sublanceolate; *clypeus* with two sinuses forming three teeth; *eyes* minute.

*Inhabits* the coast of the United States; common.  
Cabinet of the Academy.

*Thorax* imbricately rugose before, rugæ interrupted, undulated on their edges; an impressed, abbreviated, transverse line, near the anterior teeth, and a curvilinear one before the middle; deflected margin dilated and ciliate behind the middle, and subserrate before the middle; *external antennæ* as long as the thorax, with the second joint of the pedicel largest, of the colour of the thorax, and two spined at tip: at the base before, of the anterior spine, a deep fissure, forming almost a third tooth: third joint convex above, with a fissure near the exterior tip; fourth joint cylindrical, attenuated at base to receive an elongation of the preceding one; *eyes* very small, pedicels filiform, prominent; *feet* and dilated basal joint of the external pedipalpi ciliated; *anterior feet* with the third joint dilated, and traversed by impressed, interrupted lines of ciliæ; fourth joint mucronate at the exterior tip: fifth triangular, margined within with reflected ciliæ: *hand* margined on the outside; *tail* and last segment of the body reflected under the thorax, nearly reaching the base of the palpi, attenuated, sublanceolate, margined, with reflected ciliæ above, and inflected ones on the edge, with two short impressed lines at base.

Length from the clypeus to tip of tail two-inches, greatest breadth near three-fifths of an inch.

Known generally on the coast by the name of *Sand-bug*, and may be found burrowed in the sand of the beach, at the recess of the tide; its exuviae is frequent on the line formed by the extreme wave. This species certainly approaches very closely to the *H. emerita* of authors, but Mr. Latreille observes of that animal, that the antennæ are

half as long as the thorax; this character, if constant, and not a sexual difference, is very sufficient to distinguish that from our specimen, in which the antennæ are equally long with the thorax. In other respects this Hippa agrees very well with the excellent detailed description of the *H. emerita*, by Mr. Latreille, in the *Hist. Nat. Crust. et Ins.* It may not be superfluous to observe, however, that all the descriptions I have seen of that species, with the exception of the detailed one above-mentioned, represent the last segment of the tail as oval; and although under the generic head Mr. Latreille's words are, "son dernier segment est alongé, triangulaire," yet under the descriptions of species, we have "Caudæ ultimo segmento ovato."

### *Genus* PAGURUS.

*Interior antennæ* short and bifid at tip; exterior ones setaceous and longer; *body* oblong, *thorax* crustaceous; *abdomen* vesicular, naked, soft and furnished at tip with hooks or holders.

#### SPECIES.

1. *P. pollicaris*.\* *Thorax*, with the first segment, depressed, rounded and broader before; *right hand* larger, granulate, almost tuberculate, subspinous above on the wrist; *thumb* above elevated into a prominent angle, *hand* and *finger* crested and denticulated beneath.

*Inhabits* the coast of the United States.

Cabinet of the Academy.

Anterior segment of the thorax subcordate, truncate behind; posterior segment gradually dilated to the base, where it is emarginate for the reception of the abdomen; small scales at the base above of the pedicels of the eyes

small, simple, somewhat concave on the disk, and terminating in a rather obtuse point; *hands* unequal, the right one larger, covered with large and conspicuous granulæ, beneath crested, and dentated to the tip of the finger; *thumb* above projected almost into a right angle; *wrist* with scattered but larger tubercles than those of the hand, subspinous above; thumb of the smaller claw not angulated; *thighs* of the second and third pairs of feet, glabrous, above rugose, two following joints glabrous, above spinous, somewhat hairy; *tarsi* mucronate, nearly equal to the two preceding articulations conjointly, ciliate with hair, compressed and strongly marked by an impressed line on each; appendice to the pedicel of the exterior antennæ as long as the eyes.

Length of the thorax one inch and one fourth.

A large species; it is often cast ashore during the prevalence of heavy north-east winds, otherwise it is not often found. Inhabits our largest species of shells, such as *Natica rugosa*, *Pyrula caniculata*, *Pyruly* (*Fulgur*, De Monfort) *eliceans*, &c.

2. *P. longicarpus*.\* *Right hand* larger and longer than the left; *wrist* and *hand* rather long, linear and granulate; *fingers* short, white, equal.

Inhabits bay shores.

Cabinet of the Academy.

First segment of the thorax rounded, narrowed behind, and truncate at tip; second segment gradually dilating behind, emarginate at base for the reception of the abdomen; small scales at the base above of the pedicels of the eyes simple, concave on the disk, and terminating in a rather obtuse point; *anterior feet* somewhat elongated;

*wrist* linear, beneath ventricose, as long as the hand, scabrous, with a light groove above, formed by two lines of granules; *hand* linear, granulate, with a moniliform edge beneath, and raised line on the exterior side; *second* and *third pairs of feet* elongated, glabrous, with a few hairs, two penultimate joints punctured, and above serrate, *tarsi* scabrous, cylindrical, incurved, as long as the two preceding joints conjunctly: feet annulate.

Length of the thorax three tenths of an inch.

Very common in our estuaries are generally seen near the edge of the water, running actively about seeking food, or a more commodious or elegant shell, than that with which they are already furnished; they are very quarrelsome and approach each other with great caution. When two of them unexpectedly meet, they immediately and rapidly recede from each other, to a safe distance, in order to consider their respective strength: a combat sometimes ensues, which consists of a variety of movements, the object of which is to drag the adversary out of his dwelling. I have seen a large and powerful individual, whose shell was old and broken, attack one of inferior size, with the obvious intention of plundering him of a shell superior to his own.

They take possession of a *Nassa* and a *Turbo*, which are very numerous on our coast; but they may be found in almost every different univalve, regardless of the species; they take possession of any one, that is of a commodious size, but never, as far as I could observe, do they destroy, or offer violence to, the original inhabitant or fabricator of the shell. When recent, the feet are annulated with reddish-brown and whitish.

*Genus* ASTACUS.

*Antennæ* inserted in nearly the same horizontal line; *six anterior feet* didactyle; the anterior pair largest; middle division of the caudal lamellæ broader at base; external division biparted.

## SPECIES.

1. *A. marinus*. *Rostrum* two or three-spined; each side, a smaller simple one each side of the base, one more distant on the thorax, one usually beneath near the tip; *carpus* above five-spined; *hand* six or nine-spined on the inner edge.

*Astacus marinus americanus*.—Seba tom. 3. tab. 17. fig. 3.

*Inhabits* the rocky parts of the coast.

Cabinet of the Academy.

*Body* with numerous, small, unequal, excavated dots; *thorax* with a dorsal, linear, cicatrice, drawn from near the tip of the rostrum to the base of the abdomen, the last *joint* of the *abdomen* with two remote fascicles of hairs at tip, lateral angle duplicate beneath; *tail*, middle division simple, one-spined each side near the tip, a fascicle of hair near the base above, inner lateral lamella one-spined at the external angle, external one with rather acute spines at the junction of the accessory plate, outer margin rugose; colour, when recent, olivaceous-black, with darker spots, and varied with yellowish bands, beneath and tips of the spines orange-red. Caudal cilia fulvous.

Length

Seba appears to have been the only naturalist who has considered this species as distinct from the very prox-

imate European one. Under the trivial name here adopted he has figured it in his large work. There is no doubt but they are exceedingly similar, and it is probable that at the first view no one would suppose them distinct; but if we may rely on the laconic descriptions which have been given of the *gammarus*, there are certain traits of difference, sufficient to authorize a separation of the species. The *gammarus* is said to have a double tooth or spine each side of the base of the rostrum, the rostrum itself has four or more teeth each side, the bands have four, five, or six spines on the inner edge; in our species the teeth at the base of the rostrum, are small and simple, the rostrum is two or three toothed each side, and the inner edge of the bands six to nine spined.

The Linnæan name *gammarus* was rejected by Fabricius, and *marinus* was substituted in its stead. Notwithstanding this authority, Dr. Leach has, and, I think with great propriety, restored the name applied by Linné, inasmuch as it was given and published prior to that of the Entomologist of Kiel, and this reason, if the word be anywise admissible, according to the rules of the science, is I should conceive, ample of itself. The term *marinus*, as applied to the European species, being thus rejected, I have adopted it agreeably to the intention of Seba, for the one here described.

This is the *Lobster* of our markets; it is brought in considerable numbers to Philadelphia, in the fish wagons, from Long-branch, part of the coast of New-Jersey, in excellent preservation, and generally alive; they are much esteemed as food, and are sold at 18 cents *per. lb.* They are taken pretty much in the same manner as at the fisheries on the coast of Great Britain, by means of pots or traps,

made of slats or osiers, formed somewhat in the manner of a mouse-trap, baited with garbage, &c. attached to a cord and buoy, and sunk by means of a weight.

2. *A. Bartonii*. *Rostrum* mucronate, concave; *thorax* unarmed; *hand* short, destitute of spines; fingers moderate.

*A. Bartonii*, Latr. Gen. Crust. et Ins. v. 6, p. 240, from Bosc's Hist. des Crust.

*Inhabits* the small streams of fresh water of the United States.

Cabinet of the Academy.

*Body* and extremities with scattered, very visible punctures, more conspicuous on the hands and fingers; *rostrum* rather short, attaining the tip of the second joint of the peduncle of the inner antenna, suddenly attenuated into an acute termination, without any appearance of lateral spines; spines behind the eyes obsolete, no vestige of spines on the thorax; *anterior feet*, third joint with short spines beneath, above unarmed; *carpus* armed with a strong spine within, near the middle, behind which, near the base, is usually a smaller one, on the disk above is an abbreviated deeply indented groove; *hands* short, with large punctures, distance from the inner hind angle to the thumb joint, hardly equal to one half the length of the thumb, beneath rounded or without an edge; *fingers* with large punctures, *caudal lamellæ* ciliated, first segment of the middle one two spined each side at tip.

Length from the tip of the rostrum to that of the tail, two inches.

This species is very common in rivulets and small streams of fresh water, under stones, &c. it is familiarly

known by the name of *Craw-fish* or *Fresh-water lobster*; with many it is esteemed as a delicious food, though not much sought after, but in some parts of the country, children eat them alive, or only their claws. It was first described as distinct from the *fluviatilis* by Mr. Bosc, who named it in honour of the late professor B. S. Barton.

3. *A. affinis*.\* *Rostrum* mucronate, subcanaliculate, two-spined; a spine behind each eye, and a larger geminate one, on each side of the thorax; *hand* and *thumb* on the inner edge scabrous.

*Inhabits* the river Delaware.

Cabinet of the Academy.

*Body* and extremities with scattered distinct punctures, which are not conspicuously larger on the hands, all furnishing hairs, from one to four in each; *thorax* with a double, prominent, acute spine each side, behind the transverse arcuated band, which is deeply impressed, and terminated on the anterior lateral edge, at an acute spine; a spine on the peduncle of the base of the scale, and a moveable one at the base of the second joint of the peduncle of the exterior antenna; interior antenna with a prominent spine on the first joint of the peduncle beneath; a group of four or five spines between the base of the exterior antenna and the double spine; *rostrum* acutely spinose each side near the tip, tip attenuated into an acute spine, which rather surpasses the tip of the third joint of the peduncles of the interior antennæ, abbreviated carina each side of the base, elevated, and terminated behind the eye in a spine; *anterior feet*, third joint with a double series of spines beneath, two above placed obliquely, two smaller ones at tip, and one behind the outer condyle; *carpus*

four-spined, of which the largest is situate on the inner middle, one behind each condyle, and one beneath; an indented line above; *hands* moderate, punctures hardly larger, but more hairy, than those of the thorax, distance from the inner hind angle to the thumb joint exceeding half the length of the thumb; inner edge, with that of the thumb, scabrous, with short spines; *fingers* equal, fasciate with green near the tips; *caudal lamellæ* deeply ciliated, first segment of the middle one two-spined each side at tip, lateral ones with an elevated longitudinal line.

Length from tip of the rostrum to the tip of the tail, nearly three inches and three tenths—breadth of the thorax nine tenths.

This inhabitant of our rivers does not appear to have been noticed as a distinct species; it is larger than the preceding, and very different in the form of the rostrum, and in other characters, which will be obvious from the above descriptions; it approaches much nearer to the *A. fluviatilis* of Europe, to which indeed I should be induced to refer it, but that the hands are not tuberculated as those of that species are described to be. It is known to fishermen by the name of "Craw-fish," not being distinguished by them from the preceding.

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*Observations on several species of the genus ACTINIA; illustrated by figures. By C. A. Le Sueur. Read December 9, 1817.*

(Concluded.)

2. *A. ultramarina*. P. and L. (Plate VII. fig. 5.)  
Twenty segments; *tentacula* short; colour a fine ultrama-