

An account of the Crustacea of the United States. By Thomas Say. Read September 22, 1818.

(Concluded.)

Genus STENOSOMA. Leach.

Body sublinear; *tail* two or three jointed, ultimate joint destitute of lateral appendices, furnished beneath with two parallel laminæ, attached by their external margins and opening like valves; *antennæ*, exteriores elongated, interiores very short.

SPECIES

1. *S. irrorata**. *Body* oblong, third segment broadest, attenuated to the tip of the tail, which is three toothed, middle tooth longest.

Inhabits Egg-harbour; common.

Cabinet of the Academy.

Body oblong, attenuated before and behind from the third segment, second, third and fourth segments longest, nearly equal; *tail* with the first and second segments equal, short, third equal on each side to the preceding, but obsolete above, terminal segment as long as the six preceding ones conjunctly, longitudinally somewhat elevated on the disk, tip with two crenæ forming obtuse lateral teeth and a more prominent middle one; *antennæ* half as long as the body, interior ones very short, attaining the tip of the third joint of the exteriores; *eyes* somewhat hemispherical, placed on the middle of the lateral margin.

Length, female rather more than one half of an inch.

Very common in bays and inlets of the coast on fuci, &c.

2. *S. filiformis**. *Body* very much elongated, linear; *segments* distant emarginate each side; *antennæ*, exteriores subclavate; *tail* cuneiform at tip.

Inhabits Egg-harbour.

Cabinet of the Academy.

Body appearing of only seven segments exclusive of the ultimate one, of equal breadth throughout, sometimes covered with very short filaments; segments emarginate, each side, and separated by wide insisures; ultimate segment nearly as long as the four preceding ones, contracted in the middle of the margin, and suddenly attenuated near the tip into an obtusely cuneiform termination; *head* elevated on the disk into a tubercle which is sometimes double; *eyes* hemispherical, very prominent; *antennæ* robust, intermediate ones very short, exterior ones more than half as long as the body, terminal joint perceptibly somewhat thicker than the preceding.

Length two fifths of an inch.

Found in company with the preceding species, and may be readily known by its linear form.

Genus IDOTEA. *Leach.*

Body oval, *caudal* segments two or three, ultimate one largest, destitute of lateral appendices, furnished beneath with two laminæ, which are elongated, parallel, attached by their external margins and opening like valves; *antennæ* subequal, short.

SPECIES.

1. *I. cæca**. *Body* ovate, attenuated behind to an acute point; *antennæ* equal, approximated at base, without

interval; three anterior pairs of feet monodactyle; *eyes* inconspicuous.

Inhabits coast of the United States.

Cabinet of the Academy.

Body broadest at the third segment; three abdominal segments narrowest; *head* quadrate, immersed, depressed, a profound fissure on the lateral edge; *antennæ* as long as the head, equal; *tail*, first segment short, second somewhat trilobated, middle lobe interrupting the preceding segment above, *ultimate segment* half as long as the body, attenuated to an acute point, convex and subcarinate, above, margin near the tip suddenly depressed; *feet* gradually longer to the posterior ones which are longest, three anterior pairs robust, monodactyle, remaining ones simple, unarmed, furnished with rigid hair or setæ; *nails* of the hind pairs rectilinear, tipped with setæ.

Length nearly three tenths of an inch; one specimen was upwards of two fifths.

Found in the small pools of sea-water, left by the reflux tide. Colour when recent, whitish, varied with brown dots, which are sometimes nearly united into bands; *eyes* milk-white; head with a transverse black band, which is angulated behind, a large milk white spot on the back and a smaller triangular one before the tail, both sometimes obsolete; swims on its back, and conceals itself in the sand; found as far south as Florida.

2. *I. triloba**. *Body* oval, somewhat oblong; *segments* with the lateral processes convex; *intermediate antennæ* short; *feet* armed with strong curved nails.

Inhabits Egg-harbour.

Cabinet of the Academy.

Body composed of seven segments, *tail* of two; *segments* of the body with the lateral processes, very convex, lobated, first segment shortest; *head* transverse, oval, unequal on the disk, an impressed transverse line behind, sinuate anterior edge, and impressed with a longitudinal abbreviated line; *antennæ* filiform, rather distant, intermediate ones short, exteriores with the terminal joint rather more than half as long as the preceding one; *eyes* very prominent, hemispherical, placed in the middle of the lateral margin; *tail* narrower than the body, first segment trilobated, middle lobe much the largest, convex, ultimate segment rather longer than the three preceding ones conjunctly, subtriangular, very convex on the disk, margin near the base depressed and channelled, tip depressed, acute; *feet* rather long, armed with curved, acute nails.

Length one fourth of an inch.

Found with the preceding species, is remarkable by the lobate appearance of the lateral processes. Of the *I. triloba* a new genus might be formed with the greatest propriety, as the description will evince.

Genus ASELLUS. Geoff.

Tail one large segment; *caudal appendices* exerted, bifid, inserted near the middle of the hind margin; *anterior branchial valves* rounded, attached by the base; *tarsi* simple; *eyes* minute; *antennæ* four, setaceous, the last segment many-jointed.

SPECIES.

1. *A. communis**. *Body* oblong oval, furnished with short rigid hairs; *interior antennæ* equal to the peduncle of the exterior ones; *caudal appendices*, peduncle depressed.

Inhabits small streams of fresh water, under stones.

Cabinet of the Academy.

Body oblong-oval, a little narrowed before, segments transverse, subequal, indistinctly emarginate on the edges each side, hairy; hairs very short on the disk, longer on the edges and feet; third and fourth segments linear, the anterior ones a little curved forwards and the posterior ones backwards; *head* narrower than the first segment, and not longer; *superior antennæ* extending to the base of the tail; *inferior antennæ* equal to the peduncle of the superior ones; *eyes* obovate, oblique, prominent, black; *tail* as broad as the segments of the body, transverse-suborbicular, equal to the two last segments conjunctly, depressed, and a little prominent between the appendices; *appendices* as long as the tail, laciniaë subequal, peduncle dilated; *anterior feet* hardly longer, monodactyle, unarmed; *thumb* as long as the hand; *hand* oval; *carpus* triangular; *remaining feet* gradually longer to the hind pair, which is longest, first and second joints suboval, gibbous above, third joint triangular, extended over the base of the succeeding one and tipped with long hairs, fourth and fifth linear; *tarsi* half as long as the preceding joint, simple, acute.

Length one fourth of an inch, breadth less than one tenth.

A very common species in our fresh waters, particular-

ly in rivulets under stones. It is frequently introduced with the Schuylkill water into Philadelphia. The female may be distinguished from the male by a valvular pectoral follicle in which the young are protected. In one of these I counted twenty-eight young ones.

2. *A. lineatus**. *Body* oblong; *interior antennæ* much shorter than the peduncle of the exteriores; *caudal appendices*, peduncle cylindrical.

Inhabits South Carolina.

Cabinet of the Academy.

Body oblong, not distinctly attenuated before; *segments* subequal, entire; *head* at base equal to the preceding segment, a sinus each side in the middle; *eyes* prominent, black; *antennæ*, exteriores as long as the body in one sex, in the other longer, interiores nearly attaining the tip of the second joint; *hands* with a prominent angle on the middle of the inferior edge, thumb closing on and surpassing the angle, shorter than the hand; *nails* somewhat bifid at tip; *terminal caudal segment* longitudinally subovate, styles elongated cylindrical, equal to the terminal segment of the body, *laciniaë* very unequal, inner one nearly thrice the length of the outer one, truncate at tip; *colour* pale brown with a double dorsal brown line, united at the tip of the tail, a brown line or two each side of the tail.

Length nearly one fourth of an inch.

This animal is not an uncommon inhabitant of the swamps in the forests of South Carolina. It might be referred to the genus *Janira* of Dr. Leach.

Genus PHILOSCIA. *Latr.*

Caudal styles four, simple, saliant, lateral ones biarticulate; *antennæ*, exteriores eight-jointed, interiores obsolete; *tail* abruptly narrower than the body.

SPECIES.

1. *P. vittata**. Fuscous, glabrous, margin and two broad vittæ cinereous.

Inhabits the United States, common.

Cabinet of the Academy.

Head above transversely oval; *eyes* longitudinally oval, granulate; *antennæ* with minute distant hairs, ultimate joint tipped with a seta; *body*, first segment rather longer than the others, which are nearly equal; *tail*, segments subequal, terminal one rounded at tip, not longer than the preceding one, and attaining the tip of the first joint of the external styles, intermediate styles setaceous at tip, rather shorter than the external ones; *head*, *body*, and *tail* with the margin and two broad vittæ cinereous.

Length one-fifth of an inch.

Very common under stones, wood, &c. in moist situations.

2. *P. spinosa**. Brown, oblong-oval, with numerous spines above; *feet* armed with short setæ beneath.

Inhabits Georgia.

Cabinet of the Academy.

Body brown, elongate-oval, armed with numerous spine-like tubercles; sixth and seventh segments produced on each side behind, acute, the latter attaining the base of the fifth succeeding joint; *abdominal* and *caudal*

segments somewhat glabrous, terminal segment surpassing the first joint of the lateral styles; *antennæ* rough and subspinose before, terminal joint glabrous, pale; *feet* beneath armed with short distant setæ.

Length nearly one-fifth of an inch.

Under stones, old wood, &c. in moist situations near Savannah, Georgia.

Genus ONISCUS.

Caudal styles four, lateral ones biarticulate, intermediate ones concealed by the terminal segment of the tail; *antennæ*, exteriores eight-jointed, interiores obsolete; *tail* not abruptly narrower than the body.

SPECIES.

*O. affinis**. *Head* and *anterior segments* of the body scabrous; *tail* glabrous, terminal segment attenuated, attaining the tip of the inferior styles, and the middle of the last joint of the exterior ones.

Inhabits North America; common.

Cabinet of the Academy.

Body dilated, oval, somewhat depressed, sides a little rounded, not rectilinear; *head* and *anterior segments* of the body scabrous, posterior segments gradually less so; *tail* glabrous; terminal segment, almost subulate, attaining the middle of the last joint of the exterior styles, and exactly equal to the interior ones; *colour* fuscous with a cinereous edge and submarginal line, which are united on the tail into a broad margin, disk with a few cinereous spots.

Length half an inch, breadth three tenths of an inch.

Inhabits damp places, under stones, decaying wood,

&c.; when thrown on its back, turns with difficulty; exceedingly like the *O. asellus*, which was some years since in great repute in some parts of Europe for its supposed virtues in the cure of pulmonary and other diseases, but which is rejected as worthless by the present pharmacology; I consider ours as distinct on the authority of Mr. Latreille's description of the European species; he observes that "les appendices inferieures et intermédiaires de la queue dépassent la pièce supérieure et terminale du corps."

Genus PORCELLIO. Latr.

Caudal styles four, lateral ones biarticulate, intermediate ones concealed by the terminal segment of the tail; *antennæ*, exteriores seven-jointed, interiores obsolete; *tail* not abruptly narrower than the body.

SPECIES.

1. *P. spinicornis**. *Body* scabrous; *antennæ*, third joint with a mucronate carina above.

Inhabits North America, common.

Cabinet of the Academy.

Body scabrous with granules, black-brown, margin and submarginal lines cinereous, three dorsal lines of alternate yellowish subquadrate spots, of which the intermediate ones are smallest; *head*, *antennæ*, and *disk of the tail*, blackish, the latter with two or three small yellowish spots each side at base; *antennæ* with the third joint elevated above, and armed with an acute spine; *terminal joint of the tail* canaliculate, hardly surpassing the first joint of the exterior styles.

Length two-fifths of an inch.

A very common inmate of our houses, crawling up the walls in damp cellars, &c. It seems probable that it resembles the *P. scaber* of Europe, of which however we have no good description by which to judge.

2. *P. nigra**. Black, scabrous, immaculate; antennæ with the spine of the third joint hardly prominent.

Inhabits Pennsylvania.

Cabinet of the Academy.

Body black, immaculate, beneath whitish, granulae numerous, elevated, very rough, segments of the tail margined behind with abbreviated, elevated lines, terminal segment acute, attaining the tip of the intermediate styles and the middle of the last joint of the others.

Length three-tenths of an inch.

This species differs from the preceding, by being unicoloured, smaller and much more rough.

Genus ARMADILLO. Latr.

Caudal styles four, lateral ones biarticulate, connivent with, and not longer than the terminal segment of the tail, second joint triangular; *antennæ*, exteriores seven-jointed, interiores obsolete; *body* capable of being rolled into a sphere.

SPECIES.

*A. pilularis**. Plumbeous, margin and submarginal line cinereous, three yellowish lines of spots on the disk.

Inhabits North America.

Cabinet of the Academy.

Body with very minute punctures, lateral margin, and submarginal line of spots, cinereous, three lines of large

yellowish opposite spots on the disk, segments with the hind edges whitish.

Length half an inch.

This species comes so near to the description of *A. maculatus* that I should have considered it the same, had it not been remarked that the *maculatus* is twice the size of the *vulgaris*, the former must therefore be much larger than our species, which is about equal in size to the latter, as figured by Rœmer. It is very common in moist places, under stones, in decaying wood, &c.

ORDER V. BRANCHIOPODA. *Latr.*

SECTION I. PÆCILOPA. *Latr.*

Genus LIMULUS. *Fabr.*

Head confounded with the thorax; *antennæ* none; *mouth* inferior, simple and central, surrounded by the feet; *mandibles* and *feet* didactyle; *coxæ* supplying the place of *maxillæ*; *tail* elongated, attenuated.

SPECIES.

L. Polyphemus. *Thorax* seven-spined above; *abdomen* above three-spined; *tail* about twenty-five-spined above; *feet*, second joint of the four anterior pairs, with about five moveable spines.

Monoculus Polyphemus of Linne.

Limulus cyclops. Fabr. Syst.

Limulus polyphemus. Lam.

Polyphemus occidentalis. Latr.

Limulus Sowerbii. Leach. Zool. Miscel. vol. ii. pl. 84. Young.

Inhabits northern coast of the United States, very common.

Cabinet of the Academy, Peale's Museum.

Thorax sublunate, truncate at its junction with the abdomen, convex, margined on its outer and anterior edge, acute and elongated at the hind angles, seven subequal reflected spines on the disk, of which six are placed on two parallel, transverse lines, and transversely equidistant, posterior line on the edge of the truncature, lateral anterior ones bearing the eyes on their exterior side, seventh spine anterior and distant from the other, supporting two stemmata; *eyes* longitudinally oval; *feet*, second joint of the four anterior pairs, armed beneath with four or six moveable spines, of which two or three are approximated at tip, and two or three distant and placed longitudinally, second joint of the hind pair, with about two moveable spines and a much larger one at the inferior tip of the fourth joint; *abdomen* depressed, a longitudinal line of three, elevated, somewhat reflected spines, smaller than those of the thorax, anterior one placed at the base, intermediate one behind the middle, posterior one at tip over the insertion of the tail, lateral angles of the base elevated into a dilated, compressed, oblique spine, lateral edge with twelve alternately permanent and moveable spines, of which the latter are longer, hind angles elongated each side of the origin of the tail and acute; *tail* serrate above with from twenty to thirty spine-like teeth, which are unequal, inequidistant and shorter than one-fourth of the transverse diameter of the tail.

Length to the end of the tail, female nearly two feet, male about twenty inches.

The male differs from the female in being smaller,

and in having the hand of the anterior pair of feet, dilated, spherical, monodactyle, the thumb inflected at base, so as to form a right angle with the hand, compressed and obtuse at tip. In the immature state, the spines of the disk of the thorax and abdomen are very acute and prominent, but become more obtuse as the animal advances in age, so that in the full grown subject they are obsolete, often noted only by a hardly elevated tubercle browner than the shell. They are found in vast numbers in Delaware bay, in the bays of the Newjersey coast, and probably much further north. They never attempt to swim, but always crawl slowly on the bottom, the feet always concealed beneath the shell. When cast ashore by the waves, if they fall on the back, they cannot recover their proper position. Many people feed their hogs upon them, and it is said that some hogs that roam at large in the districts where they abound, become acquainted with the fact of their inability to turn themselves when placed on the back, and when there happens to be a scarcity, with a provident sagacity, they turn as many as they can eat, or as are within their view, before they proceed to satisfy their hunger. This fact with respect to one hog, was related to me on good authority.

When irritated they elevate the tail, which is acute at tip, but perfectly harmless. The boatmen make use of the thorax for baling their boats.

For the reception of her eggs, the female digs a hole in the sand with her feet, of considerable width, and but little depth, usually between high and low water marks. During this season, and for a considerable time previous to the oviposit, she is accompanied by a male, who at-

taches himself by means of his monodactyle hands, to the posterior processes of her abdomen. The connection endures so long, that the tergum of the female at the two posterior spines, is very much worn, by friction with the anterior part of the thorax of the male, and the posterior processes are often almost worn through, by the pressure of his thumbs.

The *L. Sowerbii* figured by Dr. Leach, seems to be the young of this species, as the description and figure agrees perfectly with it.

Var. β . Abdomen five-spined on the disk, of which three are in a longitudinal line as in the species, and a smaller one on each side in a transverse line with the anterior spine and nearer to the elevated lateral angles. This animal, which I have for the present considered as a variety only, is an inhabitant of the southern states and Florida, where they abound in considerable numbers; how far they may be found to the north I know not, or whether they inhabit the same districts with the species, but I have not observed them on this side of the Chesapeake bay. Although in general appearance it is perfectly similar to *L. Polyphemus*, yet in consideration of the character here noted, I propose that it be separated as a distinct species under the name of *australis*.

Genus PANDARUS. *Leach.*

Abdomen at base covered by imbricate scales.

SPECIES.

*P. sinuatus**. Body dilated, thorax emarginate before, abdomen sinuate behind.

Inhabits dog fish, (*Squalus Canis?* Mitchill.)

Cabinet of the Academy.

Length one fifth of an inch.

Body longitudinally oblong-quadrate; *thorax* transverse-quadrate, somewhat narrowed before, emarginate between the antennæ, middle of the base rectilinear and fuscous, angles projected backward and rounded at tips; *antennæ* very short; *anterior feet* formed for suction, at tip oval or subreniform, and placed obliquely; *scales*, four subequal ones in a transverse line at the base of the abdomen, each transverse and rounded at tip, and two larger ones originating beneath the preceding, slightly dentate at tip and not concealing one half of the abdomen; *abdomen* quadrate, as wide as the thorax but rather longer, posterior edge with a central sinus and lateral one each side, posterior angles acute; *oviducts* filiform.

Very commonly occur in considerable numbers on this species of *Squalus*, attaching themselves more particularly about the bases of the fins. They are by no means so active as the *Caligus piscinus*, which also occurs in plenty on the *Cod-fish* of our coast.

Genus BINOCULUS. Geoff.

Body suboval; *thorax* large; *eyes* two; *abdomen* of three, or four transverse segments; *tail* setaceous at tip.

SPECIES.

*B. caudatus**. *Body* subovate; *thorax* semioval or parabolic, posterior edge retuse for the reception of the abdomen, no dorsal, or transverse anterior line; *antennæ* exteriores laterally and horizontally extended, more than half

as long as the body, with short rigid hairs, interiores concealed; *feet* concealed, anterior pair near the base of the thorax and dilated at tip, posterior pair at the origin of the tail, extended obliquely, prominent, dilated, bisetous at tip; *abdomen*, basal segments very short, transverse, each side reflected, curvilinearly narrowed without interval, terminal segment longer, semiorbicular, narrower than the preceding ones and concealing the first caudal segment; *tail* half as long as the body, abruptly narrower than the preceding segment, segments three, basal one longitudinally quadrate, largest, second one transversely quadrate, narrower than the first in the female, elongated and attenuated in the male, third segment bifid and bisetous at the tip.

Length one fortieth of an inch, male smaller.

Cabinet of the Academy.

I have placed this parasite in Geoffroy's genus *Bino-culus*, not in consequence of the particular definition of that genus, but from a general resemblance in the outline, and similarity in the number and proportion of the segments of the body, which it unquestionably bears, to the singular animal discovered by that author, now the type of the genus.

In these two animals there are however striking dissimilarities, which it is unnecessary here to particularize, as those who are conversant with the generic characters as laid down by Mr. Latreille, will immediately perceive them by the above description.

This parasite was found in considerable numbers, on various parts of the body of the specimen of *Callianassa*, described on page 238 of this Journal. The two sexes of nine tenths of the specimens were in coitu, the male adhering to the tail of the opposite sex, so as to conceal

by his body the two terminal segments. This adherence was so pertinacious, as to be permanently maintained after submersion in spirits of wine; a circumstance, which combined with the appearance of the living animals, was well calculated to deceive the ordinary observer into a belief of the unity of the two sexes so connected. Thus the thorax of the male appearing to the eye connected to the thorax of the female by a pedicel, would seem, unless minutely examined, to be no other than the abdominal portion of the same individual; nor would an ordinary magnifier exhibit the truth.

SECTION III. LOPHYROPA. *Latr.*

Genus CYTHERE.

Shell bivalve, concealing the head; eyes confluent; antennæ two, ciliated; feet eight.

SPECIES.

*C. bifasciata**. *Valves* ovate, viewed above and beneath, lateral view suboval, convex above, somewhat rectilinear beneath; a dorsal indentation behind the most elevated part; clothed with minute dense hairs; colour greenish-testaceous, tipped with black, the posterior spot emarginate above when the valves are closed, two black bands, the posterior one a little undulated and connected with the anterior one by a dilated, dorsal line, which terminates a little before the anterior band; *antennæ* as long as the valves, *ciliæ* obsolete; *feet* white.

Length one fortieth of an inch.

Var. a. *Valves* dusky green, banded and spotted with darker green, nearly as in the species.

In considerable numbers, in small shallow pools of fresh water. The specimens here described were found in Georgia and East Florida.

Genus DAPHNIA.

Shell bivalve; head distinct; antennæ generally four, ramose; feet eight or twelve; eye one.

SPECIES.

1. *D. angulata**. *Body* viewed laterally suboval, contracted before, gibbous above near the posterior edge, beneath ventricose in the middle; *back* subovate, acute behind and contracted before; *sides* striate with numerous, minute, parallel, oblique lines; *hind edge* of the body with a prominent angle in the middle, which is obtuse at tip, above the angle it is ciliated; *antennæ*, four filaments on the superior branch, and five on the inferior branch; *colour* white or red.

Length one tenth of an inch.

Cabinet of the Academy.

Very common in the stagnant marsh water of the forests in the southern states.

2. *D. rotundata**. *Body* viewed laterally ovate, narrowed before, rounded behind, and destitute of any prominent angle, and of gibbosity above; lateral oblique lines obsolete; *venter* deeply ciliated; *antennæ*, superiores three-branched, a small spine above at the insisures of the joints, inferiores five-branched; *colour* white.

Less than half as large as the preceding.

Cabinet of the Academy.

Found in the stagnant marsh water of the forests, in the southern states.

Genus CYCLOPS.

Body elongated and attenuated behind; thorax abbreviated; *eye* one; *antennæ* two to four, simple; *feet* six to ten, hairy; *tail* long, bifid.

SPECIES.

*C. naviculus**. *Body* oval, attenuated behind; *thorax* semioval, glabrous, rounded before, truncate behind, sanguineous, hind angles acute; *tail* and *feet* white, the former as long as the thorax, attenuated, terminal joint bifid, seta four as long as the tail, the outer ones shorter, two small equal spines at the base of each pair, and one subequal one on the exterior side of the bifid part of the tail, a little before the base of the seta; *anterior antennæ* two thirds the length of the body, spinose, white, extended each side horizontally, recurved, and more robust near the base, and attenuated to the tip.

Found in considerable numbers in stagnant fresh water of the southern states. Swim by jerks, being alternately at rest and in motion, the female carries her eggs in two follicles, which are attached one on each side, near the base of the tail, of the same colour as the thorax, and vastly large in proportion with it, being nearly two thirds the size. Eggs spherical, from twenty-five to thirty or more in each follicle, consisting each of a dark nucleus and paler border.