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1846 not 1843 as stated in Ray Soc.

Arrangement of the British Entomostraca, with a List of Species, particularly noticing those which have as yet been discovered within the bounds of the Club. By WILLIAM BAIRD, M.D., &c.

Sub-Kingdom, ANNULOSA.

Class, CRUSTACEA ; Division, ENTOMOSTRACA.

The Entomostraca may be characterized by their being all aquatic,—by their being either covered with a shell, which is of a horny or coriaceous texture, and formed of one or two pieces, in some approaching in appearance to a bivalve shell, in others, being in the form of a buckler, which completely, or in part, envelopes the body of the animal ; or being completely enclosed in a hard testaceous covering of several pieces,—by having branchiæ attached either to the feet or organs of mastication,—by their feet being jointed, and all more or less ciliated,—and by their undergoing a regular moulting or change of shell as they grow, in some approaching to a species of transformation.

Legion 1st.—BRANCHIOPODA—Latreille.

Mouth furnished with organs fitted for mastication. Branchiæ attached to the feet or jaws. Body sometimes naked, but generally having an envelope, in form of a buckler, enclosing the head and thorax, or in the shape of a bivalve shell enclosing the whole animal. Feet varying in number, all articulated and more or less ciliated. Antennæ two or four, articulated, and generally ciliated. Eyes sometimes two or even three, but most frequently only one, or if more, so closely approximated as to appear single. They are all free and unattached, swimming at large in the water, or creeping on aquatic plants.

Legion 2d.—PÆCILOPODA—Latreille.

Mouth not possessed of organs fitted for mastication, having instead an apparatus adapted for sucking. Feet partly formed for walking or prehension, and part branchiferous, and fitted for swimming. Body, in the greater number, enclosed almost totally within a buckler, consisting generally of one piece, more seldom of two. Parasitical upon fishes, &c.

Legion 3d.—CIRRHIPODA.

Mouth possessing organs of mastication, consisting of lateral jaws. Feet numerous, in pairs, consisting of many small ciliated articulations. Body enclosed in a hard testaceous covering, composed of several pieces. Fixed to rocks or to other marine substances.

BRANCHIOPODA.

ORDER 1.—PHYLLOPODA—LATREILLE.

Feet numerous, generally at least twenty in number, and sometimes many more. Articulations foliaceous and branchiform, being chiefly adapted for respiration, and not for locomotion. Eyes generally two, but sometimes three; in some situated at the extremity of two moveable peduncles. Antennæ generally of only one pair, though sometimes two,—in most, small and not fitted for assisting the animal in swimming. Mandibles always without palpi.

FAMILY 1.—APUSIDÆ.

Antennæ, one pair, short and styliform. Eyes, three. Feet, sixty pairs. Nearly the whole body covered by a large shield-formed carapace. Body composed of numerous rings.

Genus 1st.—*APUS*, *Schæffer*.* There being only one genus in this family, the characters given above will apply to the genus.

Sp. 1st.—*Apus cancriformis*, *Latr.* *Monoculus apus*, *Linn.* *Branchipus cancriformis*, *Schæffer*.† *Limulus cancriformis*, *Lamk.* *Binoculus cancriformis*, *Leach*.

Sp. 2d.—*Apus Montagui*, *Leach*. *Encyc. Brit. Suppl.*, t. 1.

FAMILY 2.—NEBALIDÆ.

Antennæ, two pairs, large and ramiform. Eyes two, pedunculated. Feet, twelve pairs; eight branchial and four natatory. Carapace enclosing head, thorax, and part of abdomen, almost in form of a bivalve shell.

Genus 1st.—*Nebalia*, *Leach*.‡ There is only one genus in the family.

Sp. 1st.—*Nebalia Montagui*, *Thompson*.§ *Monoculus rostratus*, *Montague*.

* Monogr., tab. 1—5.

† Element. Entomol., t. 29, p. 1—2.

‡ Zool. Miscell., I.

§ Zool. Research.

FAMILY 3.—BRANCHIPUSIDÆ.

Body not enclosed within, or covered by, a carapace of any kind. Antennæ, two pairs, the inferior pair being prehensile. Eyes two, pedunculated. Feet, eleven pairs, all branchial.

Genus 1st.—*Branchipus*, *Schæffer*.^{*} Body elongated, almost filiform. Abdomen very large, composed of nine articulations, the last bilobed and terminated by two large well developed plates, forming a tail. At the base of the prehensile or second pair of antennæ, there are setaceous appendages in form like the superior antennæ.

Sp. 1st.—*Branchipus stagnalis*, *Latr.*† *Cancer Stagnalis*, *Linn.* *Branchiopoda stagnalis*, *Lamk.* *Branchipus Schæfferi*, *Thompson.*

Genus 2d.—*Artemia*, *Leach.* Last articulation of abdomen simply two-lobed, and destitute of the two large plates. No setaceous appendages at the base of the prehensile antennæ.

Sp. 1st.—*Artemia salina*, *Leach.*‡ *Cancer salinus*, *Linn.* *Gammarus salinus*, *Fabr.* *Artemisus salinus*, *Lamk.*

No species of any of the genera of the above mentioned families have as yet, I believe, been noticed within the limits of this Club; but I have little doubt that some of them will be found hereafter.

ORDER 2.—LOPHYROPODA—LATREILLE.

Feet not numerous, and not exceeding ten in number, with more or less cylindrical joints. Branchiæ not numerous. Generally speaking, only one eye. Most of them have two pairs of antennæ, the inferior of which are used, in most of the genera, as organs of motion. Many of them have a palpus attached to the mandible.

Section 1st.—CLADOCEERA—LATR.

Body, except the head, which is distinct and projecting, entirely enclosed within a covering of two pieces joined together on the back, and divided within this envelope into rings, not very distinct. No foot jaws. Inferior antennæ branched, large and performing functions of swimming organs. Feet more or less foliated, and generally four or five pairs. No external ovary.

* *Element. Entomol.* † *Hist. Nat. des Crust., &c., iv., 299.*

‡ *Dict. des Scien. Nat., xiv., 543.*

FAMILY 1.—DAPHNIDÆ.

Two pairs of antennæ; superior very small; inferior large and branched, and used as organs of locomotion. Five pairs of feet. Head prolonged into a more or less blunt beak. Eye single, large. Intestine straight.

Genus 1st.—DAPHNIA—*Muller.*

Inferior antennæ large and branched, one branch having four, the other three articulations.

Sp. 1st.—*D. pulex*—*Daphne pulex*, *Mull.* Zool. Dan. prod. *Daphnia pennata*, *Mull.* Entomost. *Daphnia pulex*, *Straus.* *Monoculus pulex*, *Jurine.* *Hab.* common in ponds and ditches, &c., in all parts of Berwickshire.

Sp. 2d.—*D. vetula*—*Daphne vetula*, *Mull.* Zool. Dan. prodrom. *Daphnia sima*, *Mull.* Entomost. *Daphnia vetula*, *Straus.* *Monoculus sima*, *Jurine.* *Hab.* common in ponds and ditches in Berwickshire.

Sp. 3d.—*D. reticulata*—*Monoculus reticulatus*, *Jurine.** *Daphnia quadrangula?* *Muller.* Entomost. *Hab.* ditch near Berwick.

Sp. 4th.—*D. rotunda*, *Straus.* Mem. du Mus. d'Hist. Nat., v. t. 29, f. 27-28.

Sp. 5th.—*D. brachiata*—*Monoculus brachiatus*, *Jurine.* Hist. de Monoc., &c., t. 12, f. 3-4.

Sp. 6th.—*D. mucronata*—*Daphnia mucronata*, *Mull.* Entomost. *Monoc. bispinosus*, *De Geer.* *Daphnia bispinosa*, *Koch.* Deutsch. Crust., H. 8, t. 1.

Genus 2d.—SIDA—*Straus.*

Inferior antennæ, large and two branched, one branch having three, and the other two articulations.

Sp. 1st.—*Sida crystallina*, *Straus.* Mem. du Mus. v.—*Daphnia crystallina*, *Muller.* *Monoculus elongatus*, *De Geer.*

FAMILY 2.—BOSMINIDÆ.

Superior antennæ pendulous from the beak, and longer than in preceding family. Inferior large, two branched.

* Hist. des Monoc., &c., 139, t. 14, f. 3-4.

*Genus 1st.—MACROTHRIX—Baird.**

Superior antennæ flat, having only one articulation. Inferior antennæ large, two-branched, each branch having three articulations. Second articulation of anterior branch, provided with a very long seta or filament. Eye accompanied with a black spot situate in front of it.

Sp. 1st.—*M. roseus*—*Monoculus roseus*, *Jurine*. †

This species has been taken by Sir W. Jardine, in Lochmaben Loch, Dumfriesshire, where it appears to form, in part, the food of the vendace.

Sp. 2d.—*M. laticornis*, *Baird*. ‡ *Monoc. laticornis*, *Jurine*. *Daphnia Curvirostris*, *Muller*. Entomost.

Genus 2d.—BOSMINA.

Inferior antennæ large, two-branched, one branch having four, the other three articulations. Superior antennæ, long, curved, round, and many-jointed.

Sp. 1st.—*Bosmina cornuta*—*Monoculus cornutus*, *Jurine*. § *Daphnia cornuta*, *Baird*. *Lynceus longirostris*? *Muller*. Entomost.

FAMILY 3.—POLYPHEMIDÆ.

Four pairs of feet, not contained within the shell. Eye very large. Lower part of shell forming a large vacant space for containing the ova and young.

Genus 1st.—POLYPHEMUS—Muller.

Head distinct from body; abdomen projecting externally from shell. Inferior antennæ or rami large, two-branched, one branch having three, the other four articulations.

Sp. 1st.—*Polyphemus oculus*, *Mull*. Entomost. *Polyphemus stagnorum*, *Leach*. *Polyphemus pediculus*, *Straus*. *Cephaloculus stagnorum*, *Lamk*. *Monoculus pediculus*, *Linn*. *Mon. polyphemus*, *Jurine*.

Genus 2d.—EVADNE—Loven.

Head not distinct from body. Abdomen inclosed within the

* Ann. Mag. Nat. Hist.

† Hist. des Monoc., &c., t. 15, f. 4-5.

‡ Ibid.

§ Ibid.

shell. Second pair of antennæ large, two-branched, one branch having four, the other three articulations.

Sp. 1st.—*Evadne Nordmanni*, *Loven*, *Edwards*, *Goodsir*. *Edin. Phil. Jour.* xxxiii., t. 6, f. 15-16.

This species has been taken in the Firth of Forth, by Mr Goodsir. We may reasonably expect it to exist also along the coast of Berwickshire.

FAMILY 4.—LYNCEIDÆ—*Baird*.*

Two pairs of antennæ, superior very short, inferior of moderate size, two-branched, each branch having three articulations. Feet five pairs. Head prolonged into a more or less sharp beak. Eye single, but accompanied with a black spot, situate in front of it. Intestine convoluted, having one complete turn and a half. Abdominal portion of body jointed.

Genus 1st.—EURYCERCUS—*Baird*.

Subquadrangular. Abdomen very broad, in form of a flat plate, densely serrated.

Sp. 1st.—*E. lamellatus*.—*Lynceus lamellatus*, *Muller*. *Monoc. lamellatus*, *Linn*. *Eurycercus lamellatus*, *Baird*. *Ann. Mag. Nat. Hist.*

Hab. In Yetholm Loch: pool on Beaumont water, near Yetholm, &c.

Genus 2d.—CHYDORUS—*Leach*. *Enc. Brit. Suppl.*

Nearly spherical in shape. Beak very long and sharp, curved almost into the shape of a crescent. Inferior antennæ very short.

Sp. 1st.—*C. sphæricus*.—*Lynceus sphæricus*, *Mull*. *Chydorus Mulleri*, *Leach*. *C. sphæricus*, *Baird*. *Ann. Mag. Nat. Hist.*

Hab. Very common throughout the county.

Sp. 2d.—*C. globosus*, *Baird*. *Ann. Mag. Nat. Hist.*

Genus 3d.—CAMPTOCERCUS—*Baird*.

Ovoid-shaped. Abdomen long, slender, and extremely flexible; serrated.

Sp. 1st.—*C. macrourus*, *Baird*. *Ann. Mag. Nat. Hist.* *Lynceus macruorus*, *Muller*. *Entomost.*

* *Ann. Mag. Nat. Hist.*

Genus 4th.—ACROPERUS—Baird.

Somewhat harp-shaped, anterior margin terminating inferiorly in a more or less blunt point projecting forwards; inferior antennæ long.

Sp. 1st.—*A. harpæ*, Baird. Ann. Mag. Nat. Hist.

Hab. Pond on Beaumont water at Yetholm. Dunglass pond, &c.

Sp. 2d.—*A. nanus*, Baird. Ann. Mag. Nat. Hist.

Genus 5th.—ALONA—Baird.

Shell quadrangular-shaped, striated; inferior antennæ short.

Sp. 1st.—*A. quadrangularis*, Baird. Ann. Mag. Nat. Hist.
Lynceus quadrangularis, Muller.

Hab. In the Pease burn, Cockburnspath: pool on Beaumont water, Yetholm.

Sp. 2d.—*A. reticulata*, Baird. Ann. Mag. Nat. Hist.

Genus 6th.—PLEUROXUS—Baird.

Anterior margin prominent on upper portion; the lower part being truncated, or, as it were, cut sharp and straight. First pair of feet very large.

Sp. 1st.—*P. trigonellus*, Baird. Ann. Mag. Nat. Hist. *Lynceus trigonellus*, Muller.

Hab. Pond at Fouldean, Berwickshire, and at Yetholm.

Sp. 2d.—*P. hamatus*, Baird. Ann. Mag. Nat. Hist. *Lynceus hamatus*, Baird. Trans. Berw. Nat. Club.

Hab. Yetholm loch, and pool on Beaumont water, near Yetholm.

Genus 7th.—PERACANTHA—Baird.

Oval-shaped, lower extremity slightly curved backwards, and, as well as the upper extremity of anterior margin, beset with strong hooked spines.

Sp. 1st.—*P. truncata*, Baird. Ann. Mag. Nat. Hist. *Lynceus truncatus*, Muller. *Hab.* Pool on Beaumont water, near Yetholm.

SECTION 2.—OSTRACODA—*Latreille.*

Body enclosed entirely in a covering of two valves, resembling a bivalve shell, not divided into rings. Posterior jaws branchiferous. No external ovary.

FAMILY 1.—CYPRIDÆ.

Two pairs of antennæ ; superior slender, jointed and setiferous, inferior large and pediform. Body enclosed in a bivalve shell. Eye single.

Genus 1st.—CYPRIS—*Muller.*

Two pairs of feet only, one pair always contained within the shell. Posterior or pediform antennæ, furnished with a pencil of long hairs or filaments. Abdomen terminated by a long slender bifid tail. Animal swims freely in the water.

Sp. 1st.—*C. tristriata*, *Baird.* Trans. Berw. Nat. Club. *C. pubera*, *Baird.* Mag. Zool. and Bot. *Hab.* Pond at Little Swinton.

Sp. 2d.—*C. vidua*, *Muller.* Entomost.

Sp. 3d.—*C. monacha*, *Muller.* Entomost. *Hab.* Newnham Loch, Northumberland.

Sp. 4th.—*C. fusca*, *Straus.* Mem. Mus. d'Hist. Nat.

Sp. 5th.—*C. compressa*, *Baird.* Trans. Berw. Nat. Club. *C. punctata*, *Koch.* Deutsch. Crustac., H. 21. t. 23. *Hab.* Yetholm Loch.

Sp. 6th.—*C. minuta*, *Baird.* Trans. Berw. Nat. Club. *Hab.* Pools near Yetholm.

Sp. 7th.—*C. Joanna*, *Baird.* Trans. Berw. Nat. Club. *Hab.* Pool on hill opposite Abbey St Bathans.

Sp. 8th.—*C. elongata*, *Baird.* Trans. Berw. Nat. Club. *Hab.* Pool at Yetholm.

Sp. 9th.—*C. Westwoodii*, *Baird.* Trans. Berw. Nat. Club. *Hab.* Yetholm Loch.

Sp. 10th.—*C. gibbosa*, *Baird.* Mag. Zool. and Bot.

Sp. 11th.—*C. clavata*, *Baird.* Mag. Zool. and Bot.

Sp. 12th.—*C. strigata*, *Muller.* Entomost. *Hab.* Pool on sea-shore, a little above high water-mark, at Thornton Loch, near Cockburnspath.

Sp. 13th.—*C. elliptica*, n. s.

Sp. 14th.—*C. sella*, n. s.

Genus 2d.—CANDONA.

Two pairs of feet, one pair contained within the shell. Abdomen terminated by a long slender bifid tail. Pediform antennæ

not furnished with a pencil of long hairs or filaments. Animal creeps at the bottom, or upon aquatic plants, &c.

Sp. 1st.—*C. candida*. *Cypris candida*, *Muller*. Entomost. *Hab.* At Cockburnspath, and at Yetholm.

Sp. 2d.—*C. reptans*. *Cypris reptans*, *Baird*. Trans. Berw. Nat. Club. *Hab.* Yetholm Loch.

Sp. 3d.—*C. hispida*. *Cypris hispida*, *Baird*. Trans. Berw. Nat. Club. *Hab.* Pool on Beaumont water, Yetholm.

Sp. 4th.—*C. detecta*. *Cypris detecta*, *Muller*. Entomost. *Hab.* Pool on Beaumont water, Yetholm.

Sp. 5th.—*C. similis*, n. s.

Genus 3d.—CYTHERE—Muller.

Pediform antennæ not possessed of long filaments. Three pairs of feet all external to shell. Animal creeps on marine plants, &c.

Sp. 1st.—*C. flavida*, *Muller*. Entomost. *Hab.* In pools of sea-water on the shore at Cockburnspath.

Sp. 2d.—*C. reniformis*, *Baird*. Trans. Berw. Nat. Club. *Hab.* In pools on the rocks on sea-shore at Cockburnspath and Berwick.

Sp. 3d.—*C. albo maculata*, *Baird*. Mag. Zool. and Bot. *Hab.* Berwick bay.

Sp. 4th.—*C. alba*, *Baird*. Trans. Berw. Nat. Club. *Hab.* Sea-shore at Dunbar.

Sp. 5th.—*C. variabilis*, *Baird*. Trans. Berw. Nat. Club. *Hab.* At Cockburnspath and Berwick.

Sp. 6th.—*C. aurantia*, *Baird*. Mag. Zool. and Bot. *Hab.* Berwick bay.

Sp. 7th.—*C. nigrescens*, *Baird*. Mag. Zool. and Bot. *Hab.* Berwick bay.

Sp. 8th.—*C. inopinata*, *Baird*. Zoologist, i., 195, f. a. b.

SECTION 3.—COPEPODA—*Latreille*.

Body divided into several very distinct rings; envelope consisting of a buckler, enclosing head and thorax; mouth possessed of foot-jaws; feet generally four or five pairs in number. An external ovary.

FAMILY 1.—CYCLOPIDÆ.

Head distinct from body, not possessing a moveable beak; body

generally of four, and abdomen of six, segments; foot-jaws two pairs, generally small; legs about five pairs. One eye.

Genus 1st.—CYCLOPS—*Muller.*

Foot-jaws large and strong, branched; antennules simple. Ovaries double.

Sp. 1st.—*C. quadricornis*, *Muller.* Zool. Dan. prod.—Entomost. *Monoculus quadricornis*, *Linn.*, *Jurine.* *Cyclops vulgaris*, *Desmarest*, *M. Edwards.*

Hab. Common in all ponds and ditches throughout the county.

Genus 2d.—CYCLOPSINA—*M. Edwards.*

Foot-jaws of considerable magnitude; simple; antennules two-branched; ovaries double.

Sp. 1st.—*C. castor*—*Monoculus castor*, *Jurine.** *Cyclops cæruleus*, *rubens*, and *lacinulatus*, *Muller.* *Cyclops castor*, *Desmarest.* *Hab.* Dunglass pond; Yetholm Loch.

Genus 3d.—CANTHOCARPUS.—*Westwood.*

Foot-jaws small, simple. Antennules simple. Ovary single.

Sp. 1st.—*C. minutus*—*Cyclops minutus*, *Muller.* Entomost. *Monoculus staphylinus*, *Jurine.* *Cyclops staphylinus*, *Desmarest.* *Hab.* Pools and ditches, common throughout the district.

Sp. 2d.—*C. Stromii*—*Cyclops Stromii*, *Baird*, Mag. Zool. and Bot. *Cyclops brevicornis*, *Baird.* Trans. Berw. Nat. Club. *Hab.* In pools on sea-shore, amongst corallines, &c. At Cockburnspath and Berwick Bay.

Sp. 3d.—*C. furcatus*—*Cyclops furcatus*, *Baird.* Mag. Zool. and Bot. *Cyclopsina furcatus*, *M. Edwards.* *Hab.* Berwick Bay.

Sp. 4th.—*C. minuticornis*—*Cyclops minuticornis*, *Muller.* Entomost. *Cyclops inermis?* *Tilesius.* *Hab.* Berwick Bay.

Genus 4th.—ARPACTICUS—*M. Edwards.*

Foot-jaws possessing strong cheliform hands; antennules simple. Ovary single.

Sp. 1st.—*A. chelifer*—*Cyclops chelifer*, *Muller.* Entomost. *Cyclops Johnstoni*, *Baird.* Trans. Berw. Nat. Club. *Cyclops*

* Hist. des Monoc, 50, t. 4, 5, 6.

armatus? *Tilesius*. *Hab.* Pools of sea water in rocks on shore at Cockburnspath and Berwick.

Sp. 2d.—*A. nobilis*. Nov. spec.

Thoracic and abdominal portions of body distinct from each other. The thorax is composed of four segments, and is large and rounded. Abdomen consists of six slender segments, the last bilobed, and giving off two long and two short setæ. The whole insect is beautifully coloured with green, red, and purple. Eye large, of a ruby colour. Antennæ short, of seven segments, all setiferous; the two first short and stout, the third much longer, toothed on upper edge, and giving off at its extremity several long setæ; four last small and short. Antennules composed of two segments, the first giving off a shoot from about the middle of its length, the second terminating in several stout setæ. The mandibles and anterior, or first pair of foot-jaws, are strong, and resemble the same organs in *cyclops quadricornis*. Posterior foot-jaws shorter and stouter than those of preceding species, and consisting of two joints and a terminal hooked claw. Thoracic pair of feet differ from abdominal ones. They consist of two stalks rising from a common base: the anterior or upper stalk consisting of one long joint, and a very short one which terminates in a strong claw; the posterior or inferior stalk is very short, toothed on the edge, and giving off several stout setæ. The abdominal feet resemble those of preceding species, the setæ with which they and the fulcra are provided being all plumose. The fulcra resemble those of *chelifera*. The setæ of tail, however, are not plumose. This species is, at least, three times larger than preceding, and has the body more rounded and much stouter. *Hab.* Berwick Bay, September 1844.

Genus 5th.—ALTEUTHA.*

Foot-jaws small, simple; body flat. Two strong falciform appendages from fifth segment of body.

Sp. 1st.—*Alteutha depressa*—*Cyclops depressus*, *Baird*. *Mag. Zool. and Bot.* *Hab.* Berwick Bay.

FAMILY 2.—PONTIADÆ.

Head distinct from body, with a beak in front. Thoracic por-

* *The Town of the Tweed.*

tion of body divided into five joints; abdomen into about two; superior antennæ long; inferior two branched; foot-jaws, three pairs, large and well developed; legs, five pairs; eyes, two in number.

Genus 1st.—PONTIA—*M. Edwards.*

Head furnished with a moveable beak; foot-jaws well developed; antennules two branched, serving the purpose of natory organs. Last pair of feet differ in construction from preceding pairs.

Sp. 1st.—*Pontia Patersonii*—*Anomalocera Patersonii*, *Templeton*. *Trans. Ent. Soc. II.*

Genus 2d.—CETOCHILUS—*Roussel de Vauzème.*

Head furnished with two small styliform prolongations. Antennules of two branches of nearly equal size. Third pair of foot-jaws smaller than in preceding genus. Last pair of feet of the same formation as the others.

Sp. 1st.—*Cetochilus septentrionalis*, *Goodsir*. *Edin. New Philos. Jour. xxxv.* *Hab.* Frith of Forth.

Genus 3d.—IRENÆUS—*Goodsir.*

Head furnished with a beak; a large tubular organ arises from the lower or abdominal surface of the body, in the superior extremity of which the organs of vision are situated. The right antennæ are very much swollen a little behind the middle.

Sp. 1st.—*Irenæus splendidus*, *Goodsir*. *Edin. New Philos. Jour. xxxv.* *Hab.* Frith of Forth.

As these last two species have recently been found by Mr Goodsir in the Frith of Forth, I have little doubt they will be found by future observers on the shores of Berwickshire also.

PÆCILOPODA.

ORDER—SIPHONOSTOMA.

Mouth furnished with a syphon, which possesses styliform mandibles. Thorax composed of several distinct rings, and having three or four pairs of feet. Foot-jaws well developed.

FAMILY 1.—CALIGIDÆ.

Head in form of a large buckler, having anteriorly large frontal plates. Four pairs of feet, which are furnished with long plumose hairs. Antennæ small, flat, and two-jointed.

Genus 1st.—CALIGUS—*Muller.*

Fourth pair of feet slender, of one branch, and serving the insect for walking. Not possessed of any appendage in the centre of the anterior part of the buckler.

Sp. 1st.—C.—Nov. spec? *Hab.* The salmon, at Berwick.

FAMILY 2.—ARGULIDÆ.

Head in form of a large circular-shaped shield. Antennæ short, thick, two-jointed; second pair of foot-jaws absent, being replaced by a pair of large suckers.

Genus 1st.—ARGULUS—*Muller.* Contains only one Genus.

Sp. 1st.—*Argulus foliaceus*—*Monoculus foliaceus.* *Linn.* Syst. Nat. *Argulus foliaceus,* *Jurine fils.* Ann. des Mus. d'Hist. Nat. vii. 431. *Argulus delphinus,* *Muller.*

FAMILY 3.—DICHELESTIDÆ.—(*Dichélestiens,* *M. Edwards.*)

Head small, thick, obtuse in front, giving insertion to two slender antennæ at its anterior edge. Body elongated.

Genus 1st.—ANTHOSOMA—*Leach.*

Three pairs of feet, all foliaceous. Thorax provided above with large lamellar appendages.

Sp. 1st.—*A. Smithii,* *Leach.* Encyc. Brit. Suppl. i., t. 20, f. 1-6.

The order Lerneidæ, introduced here by M. Edwards, containing so many curious and outré forms, and the animals of which, till within a few years, were considered to belong to the Vermes, has been very little, if at all, studied in this country. As I have not had an opportunity of examining these curious little creatures alive, nor met with any from our Berwickshire coast, I will not enter upon their arrangement here, though I have no doubt many are to be found within the limits of our coasts.

The Pycnogonidæ have been constituted into an order of the

Pæcilopoda by M. Edwards, though most naturalists, up to his time, have arranged them amongst the Arachnides. These interesting little animals I have not had an opportunity of examining alive, and as it is still with some hesitation that M. Edwards admits them amongst the Crustacea, I will not introduce their arrangement here. In the mean time, I may state, that an exceedingly valuable paper upon these little creatures, whose "position in society" has puzzled naturalists so much, has been published by Dr Johnston in the Magazine of Zoology and Botany, i., 368,—in which additional reasons are given for arranging them amongst the Crustacea; and a list of six British species are given, four of which he has found on the coast of Berwickshire.

CIRRHIPODA.

The natural affinities of the Cirrhipoda with the Crustacea are now so well understood, that it is no longer doubtful where they ought to be placed. They form, in fact, a portion of the Entomostraca, their close connection with them having been pointed out by Burmeister and others, and their position assigned to them, as a family of this division, by Mr J. E. Gray, in the Synopsis of the Contents of the British Museum, 1842. As, however, they have generally heretofore been studied by conchologists, and arranged amongst or near to the Mollusca, I will not enter further into their history or arrangement here than to state, that our indefatigable member, Dr Johnston, has published in our Transactions, vol. i., p. 63, a list of the species, amounting to six, which he has found on the coasts within the limits of our Club, and to which I must refer you.

ULVA DEFRACTA.

In our "Proceedings" I have stated that this production is a "true vegetable," which a recent examination, with a better microscope than that I used formerly, proves to be incorrect. I procured some specimens this summer from Eyemouth, and there is no doubt that they are the spawn of a molluscous animal, probably of one of the Mollusca nudibranchia.—G. J.

The following text is generated from uncorrected OCR.

[Begin Page: Page 145]

ih^L Knrimz An/^fitM,i> >-.
DR BAIRD ON ENTOMOSTRACA. 146

DR BAIRD ON ENTOMOSTRACA. 146

Arrangement of the British Entomostraca, with a List of Species particularly noticing those which have as yet been discovered within the bounds of the Club. By William Baird, M.D., 6mj.

Sub-Kingdom, Annulosa.

Class, Crustacea ; Division, Entomostbaoa.

The Entomostraca may be characterized by their being all aquatic, — by their being either covered with a shell, which is of a horny or coriaceous texture, and formed of one or two pieces, in some approaching in appearance to a bivalve shell, in others, being in the form of a buckler, which completely, or in part, envelopes the body of the animal ; or being completely enclosed in a hard testaceous covering of several pieces, — ^by having branchiae attached either to the feet or organs of mastication, — ^by their feet being jointed, and all more or less ciliated, — and by their undergoing a regular moulting or change of shell as they grow, in some approaching to a species of transformation.

Legion 1st. — BRANCHIOPODA — Latreille,

Mouth furnished with organs fitted for mastication. Branchiae attached to the feet or jaws. Body sometimes naked, but generally

having an envelope, in form of a buckler, enclosing the head and thorax, or in the shape of a bivalve shell enclosing the whole animal. Feet varying in number, all articulated and more or less ciliated. Antennae two or four, articulated, and generally ciliated. Eyes sometimes two or even three, but most frequently only one, or if more, so closely approximated as to appear single. They are all free and unattached, swimming at large in the water, or creeping on aquatic plants.

Legion 2d. — PACILOPODA — Latreille.

Mouth not possessed of organs fitted for mastication, having instead an apparatus adapted for sucking. Feet partly formed for walking or prehension, and part branchiferous, and fitted for swimming. Body, in the greater number, enclosed almost totally within a buckler, consisting generally of one piece, more seldom of two.

Parasitical upon fishes, &c.

[Begin Page: Page 146]

146 DR BAIRD ON ENTOMOSTRACA.

Legion 3d, — Cirrhipoda.

Mouth possessing organs of mastication, consisting of lateral jaws. Feet numerous, in pairs, consisting of many small ciliated articulations. Body enclosed in a hard testaceous covering, composed of several pieces. Fixed to rocks or to other marine substances.

BRANCHIOPODA.

Order 1.— PHYLLOPODA— Latreille.

Feet numerous, generally at least twenty in number, and sometimes many more. Articulations foliaceous and branchiform, being chiefly adapted for respiration, and not for locomotion. Eyes generally two, but sometimes three ; in some situated at the extremity of two moveable peduncles. Antennae generally of only one pair, though sometimes two, — in most, small and not fitted for assisting the animal in swimming. Mandibles always without palpi.

FAMILY 1.— APUSIDÆ.

Antennae, one pair, short and styliform. Eyes, three. Feet, sixty pairs. Nearly the whole body covered by a large shield-formed carapace. Body composed of numerous rings.

Genus 1st. — *Apus*, ScJuffer* There being only one genus in this family, the characters given above will apply to the genus.

Sp. 1st. — *Apus cancriformis*, Latr. *Monoculus apus*, Linn.

Branchipus cancriformis, ScJuffer. *Limulus cancriformis*, Lamk, *Binoculus cancriformis*, Leach.

Sp. 2d. — *Apus Montagu*, Leach. *Encyc. Brit. Suppl.*, t. 1.

FAMILY 2.— NEBALID[^].

Antennae, two pairs, large and ramiform. Eyes two, pedunculated. Feet, twelve pairs ; eight branchial and four natatory.

Carapace enclosing head, thorax, and part of abdomen, almost in form of a bivalve shell.

Genus 1st. — [^]Nebalia, Leach.X There is only one genus in the family.

Sp. 1st. — Nebalia Montagui, Thompson.[^] Monoculus rostratus, Montague.

* Monogr., tab. 1 — 5. f Element. Entomol., t. 29, p. 1 — 2.

X Zool. Miscell., I. § Zool. Research.

[Begin Page: Page 147]

DR BAIRD ON ENTOMOSTRACA. 147

FAMILY 3.— BRANCHIPURID[^].

Body not enclosed within, or covered by, a carapace of any kind.

Antennae, two pairs, the inferior pair being prehensile. Eyes two, pedunculated. Feet, eleven pairs, all branchial.

Genus 1st. — Branchipus, ScJuffer* Body elongated, almost filiform. Abdomen very large, composed of nine articulations, the last bilobed and terminated by two large well developed plates, forming a tail. At the base of the prehensile or second pair of antennae, there are setaceous appendages in form like the superior antennae.

Sp. 1st. — Branchipus stagnalis, Latr.^ Cancer Stagnalis, 2/tnn. Branchiopoda stagnalis, Lamk. Branchipus Schaefferi, Thompson.

Genus 2d. — Artemia, Leach. Last articulation of abdomen simply two-lobed, and destitute of the two large plates. No setaceous appendages at the base of the prehensile antennae.

Sp. 1st. — ^Artemia salina, Leach.X Cancer salinus, Linn. Gammarus salinus, Fahr. Artemis salinus, Lamk.

No species of any of the genera of the above mentioned families have as yet, I believe, been noticed within the limits of this Club ; but I have little doubt that some of them will be found hereafter.

Order 2.— LOPHYROPODA— Latreille.

Feet not numerous, and not exceeding ten in number, with more or less cylindrical joints. Branchiae not numerous. Generally speaking, only one eye. Most of them have two pairs of antennae, the inferior of which are used, in most of the genera, as organs of motion. Many of them have a palpus attached to the mandible.

Sectum 1»<.— CLADOCEERA— Latr.

Body, except the head, which is distinct and projecting, entirely enclosed within a covering of two pieces joined together on the back, and divided within this envelope into rings, not very distinct. No foot jaws. Inferior antennae branched, large and performing functions of swimming organs. Feet more or less foliated, and generally four or five pairs. No external ovary.

* Element. Entomol. t Hist. Nat. des Crust., &c., iv., 299.

t Diet, des Scien. Nat.> xiv., 543.

[Begin Page: Page 148]

148 DR BAIRD ON ENTOMOSTRACA.

FAMILY 1.— DAPHNID^.

Two pairs of antennae ; superior very small ; inferior large and branched, and used as organs of locomotion. Five pairs of feet.

Head prolonged into a more or less blunt beak. Eye single, large.

Intestine straight.

Genus Is<.— DaphniA — Muller.

Inferior antennas large and branched, one branch having four, the other three articulations.

Sp. 1st. — *D. pulex* — *Daphne pulex*, Mull. Zool. Dan. prod.

Daphnia pennata, Mull. Entomost. *Daphnia pulex*, Straus.

Monoculus pulex, Jurine. Hah. common in ponds and ditches, &c., in all parts of Berwickshire.

Sp. 2d. — *D. vetula* — *Daphne vetula*, Mull. Zool. Dan. pro-

drom. *Daphnia sima*, Mull. Entomost. *Daphnia vetula*,

Straus. *Monoculus sima*, Jurine. Hah. common in ponds and ditches in Berwickshire.

Sp. 3d. — *D. reticulata* — *Monoculus reticulatus*, Jurine.*

Daphnia quadrangula ? Muller. Entomost. Hah. ditch near Berwick.

Sp. 4th. — *D. rotunda*, Straus. Mem. du Mus. d'Hist. Nat.,

V. t. 29, f. 27-28.

Sp. 5th. — *D. brachiata* — *Monoculus brachiatus*, Jurine. Hist,

de Monoc, &c., t. 12, f. 3-4.

Sp. 6th. — *D. mucronata* — *Daphnia mucronata*, Mull. Ento-

most. *Monoc. bispinosus*, De Geer. *Daphnia bispinosa*, Koch,

Deutsch. Crust., H. 8, t. 1.

Genus 2d. — *SIDA* — Straus.

Inferior antennae, large and two branched, one branch having three, and the other two articulations.

Sp. 1st. — *Sida crystallina*, Straus. Mem. du Mus. v. — *Daphnia crystallina*, Muller, *Monoculus elongatus*, De Geer.

FAMILY 2.— BOSMINIDJE.

Superior antennae pendulous from the beak, and longer than in preceding family. Inferior large, two branched.

Hist. des Monoc., Ac, 139, t. 14, f. 3-4.

[Begin Page: Page 149]

DB BAIKD ON ENTOMOSTRACA. 149

Genus Ist. — *Macrotropis* — Baird*

Superior antennae flat, having only one articulation. Inferior antennae large, two-branched, each branch having three articulations. Second articulation of anterior branch, provided with a very long seta or filament. Eye accompanied with a black spot situate in front of it.

Sp. 1st. — *M. roseus* — *Monoculus roscus*, Jurine. ^

This species has been taken by Sir W. Jardine, in Lochmaben Loch, Dumfriesshire, where it appears to form, in part, the food of the vendace.

Sp. 2d. — *M. laticomis*, Baird. X *Monoc. laticomis*, Jurine.

Daphnia Curvirostris, Muller. Entomost.

Genus 2d. — *BosMiNA*.

Inferior antennae large, two-branched, one branch having four, the other three articulations. Superior antennae, long, curved, round, and many-jointed.

Sp. 1st. — *Bosmina comuta* — *Monoculus comutus*, Jurine. ^

Daphnia comuta, Baird, *Lynceus longirostris* ? Muller, Entomost

FAMILY 3.— *POLYPHEMID* ^.

Four pairs of feet, not contained within the shell. Eye very large. Lower part of shell forming a large vacant space for containing the ova and young.

Genus 1st, — *PolTFHEMUS* — Muller,

Head distinct from body ; abdomen projecting externally from shell. Inferior antennae or rami large, two-branched, one branch having three, the other four articulations.

Sp. 1st. — *Polyphemus oculus*. Mull, Entomost. *Polyphemus stagnorum*, Leach. *Polyphemus pediculus*, Straus. *Cephaloculus stagnorum*, Lamk. *Monoculus pediculus*, Linn. Mon. *polyphemus*, Jurine.

Genus 2d, — Eyaoke — Lwen,

Head not distinct from body. Abdomen inclosed within the

Ann. Mag. Nat. Hist. f Hist, dee Monoc., Ac., t. 15, f. 4-6.

: Ibid. § Ibid.

B. N. C. ^VOL. II. NO. XJII. M

[Begin Page: Page 150]

150 DR BAJRD ON ENTOMOSTRACA.

shell. Second pair of antennae large, two-branched, one branch having four, the other three articulations.

Sp. 1st. — Evadne Nordmanni, Loven^ Edwards ^ Goodsir,
Edin. Phil. Jour, xxxiii., t. 6, f. 15-16.

This species has been taken in the Firth of Forth, by Mr Goodsir. We may reasonably expect it to exist also along the coast of Berwickshire.

FAMILY 4.-LYNCEIDJE— JBatVcf.*

Two pairs of antennae, superior very short, inferior of moderate size, two-branched, each branch having three articulations. Feet

five pairs. Head prolonged into a more or less sharp beak. Eye single, but accompanied with a black spot, situate in front of it. Intestine convoluted, having one complete turn and a half. Abdominal portion of body jointed. ,

Genw 1st. — EuRTCERCUS — Baird.

Subquadrangular. Abdomen very broad, in form of a flat plate, densely serrated.

Sp. 1st. — E. lamellatus. — ^Lynceus lamellatus, Muller. Monoc. lamellatus, Linn. Eurycercus lamellatus, Baird. Ann. Mag. Nat. Hist.

Hab. In Yetholm Loch : pool on Beaumont water, near Yetholm, &c.

Genus 2d. — Chydorus — Leach. Enc. Brit. Suppl.

Nearly spherical in shape. Beak very long and sharp, curved almost into the shape of a crescent. Inferior antennae very short.

Sp. 1st. — C. sphsericus — Lynceus sphsericus, Mull. Chydorus Mulleri, Leach. C. sphaericus, Baird. Ann. Mag. Nat. Hist.

Hab. Very common throughout the county.

Sp. 2d. — C. globosus, Baird. Ann. Mag. Nat. Hist.

Oenus 3d, — Camptocercus — Baird.

Ovoid-shaped. Abdomen long, slender, and extremely flexible ;
serrated.

Sp. 1st. — *C. macrourus*, Baird. Ann. Mag. Nat. Hist. Lyn-
ceus macruorus, Muller. Entomost.

* Ann. Mag. Nat. Hist.

[Begin Page: Page 151]

DR BAIRD ON ENTOMOSTRACA. 161

Oenus 4th, — AcBOPEBUS — Baird.

Somewhat harp-shaped, anterior margin terminating inferiorly
in a more or less blunt point projecting forwards ; inferior antennae
long.

Sp. 1st. — *A. harpse*, Baird. Ann. Mag. Nat. Hist.

Hab, Pond on Beaumont water at Yetholm. Dunglass pond,
&c.

Sp. 2d. — *A. nanus*, Baird. Ann. Mag. Nat. Hist.

Oenus 5th. — Alona — Baird.

Shell quadrangular-shaped, striated ; inferior antennae short.

Sp. 1st. — *A. quadrangularis*, Baird. Ann. Mag. Nat. Hist.

Lynceus quadrangularis, Muller.

Hab. In the Pease bum, Cockbumspath : pool on Beaumont water, Yetholm.

Sp. 2d. — *A. reticulata*, Baird. Ann. Mag. Nat. Hist.

Oenus 6th. — *Pleuroxus*— BatVd.

Anterior margin prominent on upper portion ; the lower part being truncated, or, as it were, cut sharp and straight. First pair of feet very large.

Sp. 1st. — *P. trigonellus*, Baird. Ann. Mag. Nat. Hist. *Lynceus trigonellus*, Muller.

Hab. Pond at Fouldean, Berwickshire, and at Yetholm.

Sp. 2d. — *P. hamatus*, Baird. Ann. Mag. Nat. Hist. *Lynceus hamatus*, Baird. Trans. Berw. Nat. Gub.

Hab. Yetholm loch, and pool on Beaumont water, near Yetholm.

Oentu 7th. — *Pebacantha* — Baird.

Oval-shaped, lower extremity slightly curved backwards, and, as well as the upper extremity of anterior margin, beset with strong hooked spines.

Sp. 1st. — *P. truncata*, Baird. Ann. Mag. Nat. Hist. Lynceus truncatus, Muller. Hab. Pool on Beaimont water, near Yetholm.

SECTION 2.— OSTRACODA—

Body enclosed entirely in a covering of two valves, resembling a bivalve shell, not divided into rings. Posterior jaws branchi-
frous. No external ovary.

[Begin Page: Page 152]

162 DR BAIRD ON ENTOMOSTRACA.

FAMILY 1.— CYPRIDIE.

Two pairs of antennae ; superior slender, jointed and setiferous, inferior large and pediform. Body enclosed in a bivalve shell.

Eye single.

Genus 1st. — *Cypris* — Muller.

Two pairs of feet only, one pair always contained within the

shell. Posterior or pediform antennae, furnished with a pencil of long hairs or filaments. Abdomen terminated by a long slender bifid tail. Animal swims freely in the water.

Sp. 1st. — *C. tristriata*, Baird. Trans. Berw. Nat. Club. C.
pubera, Baird. Mag. Zool. and Bot. Hab. Pond at Little Swinton.

Sp. 2d. — *C. vidua*, Muller. Entomost.

Sp. 3d. — *C. monacha*, Muller. Entomost. Hab. NcAvnham Loch, Northumberland.

Sp. 4th. — *C. fusca*, Straus. Mem. Mus. d'Hist. Nat.

Sp. 6th. — *C. compressa*, Baird. Trans. Berw. Nat. Club. C.
punctata, Koch. Deutsch. Crustac, H. 21. t. 23. Hab. Yetholm Loch.

Sp. 6th. — *C. minuta*, Baird. Trans. Berw. Nat. Club. Hab.
Pools near Yetholm.

Sp. 7th. — *C. Joanna*, Baird. Trans. Berw. Nat. Club. Hab.
Pool on hill opposite Abbey St Bathans.

Sp. 8th. — *C. elongata*, Baird. Trans. Berw. Nat. Club. Hab.
Pool at Yetholm.

Sp. 9th. — *C. Westwoodii*, Baird. Trans. Berw. Nat. Club.

Hab. Yetholm Loch.

Sp. 10th. — *C. gibbosa*, Baird, Mag. Zool. and Bot.

Sp. 11th. — *C. clavata*, Baird. Mag. Zool. and Bot.

Sp. 12th. — *C. strigata*, Muller. Entomost. Hab. Pool on sea-shore, a little above high water-mark, at Thornton Loch, near Cockburnspath.

Sp. 13th. — *C. elliptica*, n. s.

Sp. 14th. — *C. sella*, n. s.

Genus 2d. — *Candona*.

Two pairs of feet, one pair contained within the shell. Abdomen terminated by a long slender bifid tail. Pediform antennae

[Begin Page: Page 153]

X>R BAIRD ON ENTOMOSTRACA. 153

not furnished with a pencil of long hairs or filaments. Animal creeps at the bottom, or upon aquatic plants, &c.

Sp. 1st. — *C. Candida*. Cypris *Candida*, Muller. Entomost.

Hab. At Cockburnspath, and at Yetholm.

Sp. 2d. — *C. reptans*. Cypris reptans, Baird. Trans. Berw.

Nat. Club. Hah, Yetholm Loch.

Sp. 3d. — *C. hispida*. Cypris hispida, Baird. Trans. Berw.

Nat Club. Hah. Pool on Beaumont water, Yetholm.

Sp. 4th. — *C. detecta*. Cypris detecta, Muller. Entomost, Hah.

Pool on Beaumont water, Yetholm.

Sp. 6th. — *C. similis*, n. s.

Genus 3d. — *Ctthere* — Muller.

Pediform antennae not possessed of long filaments. Three pairs of feet all external to shell. Animal creeps on marine plants, &c.

Sp. 1st. — *C. flavida*, Muller. Entomost. Hah. In pools of sea-water on the shore at Cockbumspath.

Sp. 2d. — *C. reniformis*, Baird. Trans. Berw. Nat. Club. Hah.

In pools on the rocks on sea-shore at Cockbumspath and Berwick.

Sp. 3d. — *C. albo maculata*, Baird. Mag. Zool. and Bot. Hah.

Berwick bay.

Sp. 4th.— *C. alba*, Baird. Trans. Berw. Nat. Club. Hah. Sea-shore at Dunbar.

Sp. 5th. — *C. variabilis*, Baird. Trans. Berw. Nat. Club. Hah.

At Cockbumspath and Berwick,

Sp. 6th. — *C. aurantia*, Baird. Mag. Zool. and Bot. Hah.

Berwick bay.

Sp. 7th. — *C. nigrescens*, Baird. Mag. Zool. and Bot. Hah.

Berwick bay.

Sp. 8th. — *C. inopinata*, Baird. Zoologist, i., 196,/. a. h.

SECTION 3.—COTEFODA—Latreille.

Body divided into several very distinct rings ; envelope consisting of a buckler, enclosing head and thorax ; mouth possessed of foot-jaws ; feet generally four or five pairs in number. An external ovary.

FAMILY 1.—CYCLOPIDIE.

Head distinct from body, not possessing a moveable beak ; body

[Begin Page: Page 154]

1 64 DR BAIRD ON ENTOMOSTRACA.

generally of four, and abdomen of six, segments ; foot-jaws two

pairs, generally small ; legs about five pairs. One eye.

Genus 1st. — Cyclops — Muller.

Foot-jaws large and strong, branched; antennules simple.

Ovaries double.

Sp. 1st. — *C. quadricomis*, Muller. Zool. Dan. prod. — Entomost. *Monoculus quadricomis*, Linn. y Jurine. *Cyclops vulgaris*, Desmarest, M. Edwards.

Hah. Common in all ponds and ditches throughout the county.

Genus 2d. — *Cyclopsina* — M. Edwards.

Foot-jaws of considerable magnitude ; simple ; antennules two-branched ; ovaries double.

Sp. 1st. — *C. castor* — [^]*Monoculus castor*, Jurine* *Cyclops coBruleus*, *rubens*, and *lacinulatus*, Muller. *Cyclops castor*, Desmarest. Hah. Dunglass pond ; Yetholm Loch.

Genus 3d. — *Canthocarpus*. — ^TFestfooc?.

Foot-jaws small, simple. Antennules simple. Ovary single.

Sp. 1st. — *C. minutus* — *Cyclops minutus*, Muler. Entomost. *Monoculus staphylinus*, Jurine. *Cyclops staphylinus*, Desmarest.

Hah, Pools and ditches, common throughout the district.

Sp. 2d. — *C. Stromii* — *Cyclops Stromii*, jBairc?, Mag. Zool. and

Bot. *Cyclops brevicomis*, Baird. Trans. Berw. Nat. Club.

Hah. In pools on sea-shore, amongst corallines, &c. At Cock-
bumspath and Berwick Bay.

Sp. 3d. — *C. furcatus* — *Cyclops furcatus*, Baird. Mag. Zool.

and Bot. *Cyclopsina furcatus*, M. Edwards. Hah. Berwick

Bay.

Sp. 4th. — *C. minuticornis* — *Cyclops minuticornis*, Muller.

Entomost. *Cyclops incrmis* ? Tilesius. Hah. Berwick Bay.

Genus 4M. — *Arpacticus* — M. Edwards,

Foot-jaws possessing strong chcliform hands ; antennules simple.

Ovary single.

Sp. 1st. — *A. chelifer* — *Cyclops chelifer*, Muller. Entomost.

Cyclops Johnstoni, Baird, Trans. Berw. Nat. Club. Cycloj s

Hist, des Monoc, 50, t. 4, 6, 6.

[Begin Page: Page 155]

armatus 1 Tilesius. Hah, Pools of sea water in rocks on shore
at Cockbumspath and Berwick.

Sp. 2d. — *A. nohilis*. Nov. spec.

Thoracic and abdominal portions of body distinct from each other. The thorax is composed of four segments, and is large and rounded. Abdomen consists of six slender segments, the last bilobed, and giving off two long and two short setae. The whole insect is beautifully coloured with green, red, and purple. Eye large, of a ruby colour. Antennae short, of seven segments, all setiferous ; the two first short and stout, the third much longer, toothed on upper edge, and giving off at its extremity several long setae ; four last small and short. Antennules composed of two segments, the first giving off a shoot from about the middle of its length, the second terminating in several stout setae. The mandibles and anterior, or first pair of foot-jaws, are strong, and resemble the same organs in *cyclops quadricornis*. Posterior foot-jaws shorter and stouter than those of preceding species, and consisting of two joints and a terminal hooked claw. Thoracic pair of feet differ from abdominal ones. They consist of two stalks rising from a common base : the anterior or upper stalk consisting of one long joint, and a very short one which terminates in a strong claw ; the posterior or inferior stalk is very short, toothed on the edge, and giving off several stout setae. The abdominal feet resemble those of preceding species, the setae with which they and the fulcra are provided being all plumose. The fulcra resemble those of *chelifera*. The setae of tail, however, are

not plumose. This species is, at least, three times larger than preceding, and has the body more rounded and much stouter.

Hah. Berwick Bay, September 1844.

Oenu9 5th, — Altbutha.*

Foot-jaws small, simple ; body flat. Two strong falciform appendages from fifth segment of body.

Sp. 1st. — [^]Alteutha depressa — Cyclops depressus, Baird, Mag. Zool. and Bot. Hah, Berwick Bay.

FAMILY 2.— PONTIAD[^].

Head distinct from body, with a beak in front. Thoracic por-

* like Town of (A« TwMd.

[Begin Page: Page 156]

156 DR BAIRD ON ENTOMOSTRACA.

tion of body divided into five joints ; abdomen into about two ; superior antennae long; inferior two branched; foot-jaws, three pairs, large and well developed ; legs, five pairs ; eyes, two in number.

Genus 1st. — PoNTiA— if. Edwards,

Head furnished with a moveable beak; foot-jaws well developed ; antennules two branched, serving the purpose of natatory organs. Last pair of feet differ in construction from preceding pairs.

Sp. 1st. — *Pontia Patersonii* — *Anomalocera Patersonii*, Templeton* Trans. Ent. Soc. II.

Genus 2d, — *Cetochilus* — Roussel de Vauzime,

Head furnished with two small styliform prolongations. Antennules of two branches of nearly equal size. Third pair of foot-jaws smaller than in preceding genus. Last pair of feet of the same formation as the others.

Sp. 1st. — *Cetochilus septentrionalis*, Goodsir. Edin. New Philos. Jour. xxxv. Hab. Frith of Forth.

Genus 3d. — *Irenæus* — Goodsir.

Head furnished with a beak ; a large tubular organ arises from the lower or abdominal surface of the body, in the superior extremity of which the organs of vision are situated. The right antennae are very much swollen a little behind the middle.

Sp. 1st. — *Irenseus splendidus*, Goodsir. Edin. New Philos. Jour. xxxv. Hab. Frith of Forth.

As these last two species have recently been found by Mr Goodsir in the Frith of Forth, I have little doubt they will be found by future observers on the shores of Berwickshire also.

P[^]CILOPODA.

Order— SIPHONOSTOMA.

Mouth furnished with a syplion, which possesses styliform mandibles. Thorax composed of several distinct rings, and having three or four pairs of feet. Foot-jaws well developed.

[Begin Page: Page 157]

DR BAIRD ON ENTOMOSTRACA. 157

FAMILY 1.— CALIGIDJE.

Head in form of a large buckler, having anteriorly large frontal plates. Four pairs of feet, which are furnished with long plumose hairs. Antennae small, flat, and two-jointed.

Genus 1st. — Caligus — MuUr,

Fourth pair of feet slender, of one branch, and serving the insect for walking. Not possessed of any appendage in the centre of the anterior part of the buckler.

Sp. Ist. — C. — ^Nov. spec ? Hab. The salmon, at Berwick.

FAMILY 2.— ARGULID^.

Head in form of a large circular-shaped shield. Antennae short, thick, two-jointed ; second pair of foot-jaws absent, being replaced by a pair of large suckers.

Geniu Ist, — Argulus — Muller. Contains only one Genus.

Sp. 1st. — ^Argulus foliaceus — Monoculus foliaceus. Linn,

Syst. Nat. Argulus foliaceus, Jurinefils. Ann. des Mus. d'Hist.

Nat. vii. 431. Argulus delphinus, Muller.

FAMILY 3.— DICHELESTID^.— (Dichelestiens, M. Edwards).

Head small, thick, obtuse in front, giving insertion to two slender antennae at its anterior edge. Body elongated.

Genus 1st, — Anthosoma — Leach.

Three pairs of feet, all foliaceous. Thorax provided above with large lamellar appendages.

Sp. 1st. — A. Smithii, Leach. Encyc. Brit. Suppl. i., t. 20, f 1-6.

The order Lernaeidae, introduced here by M. Edwards, containing so many curious and strange forms, and the animals of which, till within a few years, were considered to belong to the Vermes, has been very little, if at all, studied in this country. As I have not

had an opportunity of examining those curious little creatures alive, nor met with any from our Berwickshire coast, I shall not enter upon their arrangement here, though I have no doubt many are to be found within the limits of our coasts.

The Pyenogonidra have been constituted into an order of the

[Begin Page: Page 158]

158 DR BAIRD ON ENTOMOSTRACA.

Paecilopoda by M. Edwards, though most naturalists, up to his time, have arranged them amongst the Arachnides. These interesting little animals I have not had an opportunity of examining alive, and as it is still with some hesitation that M. Edwards admits them amongst the Crustacea, I will not introduce their arrangement here. In the mean time, I may state, that an exceedingly valuable paper upon these little creatures, whose " position in society" has puzzled naturalists so much, has been published by Dr Johnston in the Magazine of Zoology and Botany, i., 368, — in which additional reasons are given for arranging them amongst the Crustacea ; and a list of six British species are given, four of which he has found on the coast of Berwickshire.

CIRRHIPODA.

The natural affinities of the Cirrhipoda with the Crustacea are now so well understood, that it is no longer doubtful where they

ought to be placed. They form, in fact, a portion of the Entomotraca, their close connection with them having been pointed out by Burmeister and others, and their position assigned to them, as a family of this division, by Mr J. E. Gray, in the Synopsis of the Contents of the British Museum, 1842. As, however, they have generally heretofore been studied by conchologists, and arranged amongst or near to the Mollusca, I will not enter further into their history or arrangement here than to state, that our indefatigable member, Dr Johnston, has published in our Transactions, vol. i., p. 63, a list of the species, amounting to six, which he has found on the coasts within the limits of our Club, and to which I must refer you.

ULVA DEPRACTA.

In our ** Proceedings" I have stated that this production is a •* true vegetable," which a recent examination, with a better microscope than that I used formerly, proves to be incorrect. I procured some specimens this summer from Eyemouth, and there is no doubt that they are the spawn of a molluscous animal, probably of one of the Mollusca nudibranchia.— G. J.