habits. This little animal takes up its abode in any empty uni-
valve shell, which continues to form its habitation until its
increasing size renders it necessary for it to abandon it for a
larger. It often happens that it fixes upon one already tenanted
by another of its species, and a desperate struggle ensues, which
is rarely discontinued until either one or both be disabled.

The few shells that are to be found on the beach in the Straits
are small and common, such as the Solen truncatus, or truncated
razor-sheath; the Mya nicobarica, or Nicobar trough-shell, or
gaper; the Venus decussata, or decussated Venus; the Murex
tribulus, or thorny woodcock; the Murex rana, or frog Murex;
the Mytilus plicatus, or plaited muscle; the Trochus indicus, or
Indian top; and Voluta auris Mida, Midas's car volute.

The entomology of the Straits presents a wide field for the
naturalist, but several circumstances prevented my turning my
attention to it. The few specimens that I had an opportunity of
noticing are as follows:—the Atlas moth; the Papilio memnon,
or Memnon butterfly; the Papilio pamnon, or Pamnon butterfly;
the Locusta citrifolia, or lemon-leaved locust; the Phyllium sic-
cifolia, or walking-leaf; the Scarabaeus rhinoceros, or rhinoceros
beetle; the Libellula clavata, or club-shaped dragon-fly; and the
Libellula tricolor, or tricoloured dragon-fly.

L.—Description of some new Genera and Species of British
Entomostraca. By W. Baird, M.D. &c.

[With a Plate.]

Legion BRANCHIOPODA.

Order LOPHYROPODA.

Section 1. Cladocera.

In the genus Daphnia, as elaborated by Milne Edwards in his
'History of the Crustacea,' there are two species which are so
anomalous in their characters that it becomes necessary to sepa-
rate them from the true Daphnia, and even to form a distinct
genus for each. These are the D. cornuta and the D. rosea. The
latter I have already in a previous paper (Ann. Mag. Nat. Hist.
xi. 87) given my reasons for removing from the genus Daphnia,
and constituting for it the genus Macrothrix, and the former I
have shortly characterized as a new genus in the 'Transactions
of the Berwickshire Naturalists' Club' for 1845, p. 149.

The genus Daphnia of Müller was revised by Straus in the
'Mém. du Mus. d'Hist. Nat.' iv., and split into three genera, the
generic characters being taken from the number of joints in the
inferior or large antennae, the rami of Straus. In these three genera, which have been all adopted by Milne Edwards, the superior antennae (antennules of M. Edwards) in most of the species are exceedingly small compared with the inferior, so much so indeed, as almost to have escaped the notice of Müller altogether. They are also situated beneath the beak. In the two species however which I have mentioned above, they are very much larger than in the others, and instead of springing from the head under the beak, hang pendulous from or are articulated to the beak itself. In the *Daphnia rosea* (*Macrothrix roseus*) they are flat, one-jointed and distinctly pendulous from the beak, occupying such a position that they cannot be mistaken or overlooked.

In the *Daphnia cornuta* however, from the extremely minute size of the little animal, they have been hitherto constantly misunderstood by observers, and though much too large and prominent to be overlooked, they have been described as a totally different organ. Having last autumn met with this curious little creature in great abundance in the water from the Hampstead ponds, I have been enabled to place it under a microscope of high power, and have thus succeeded in ascertaining the real structure and position of these organs. In the notices of this species by Müller, Jurine and M. Edwards, the antennules are not mentioned at all, but the animal is described as possessing a long beak*; and certainly at first sight and with a low magnifying power these organs appear as being merely a prolongation of the anterior part of the head, similar to what we see in many of the *Lynceidae*. This is not so however, and upon a careful investigation I have found this apparent beak to consist of two long, curved, cylindrical bodies, consisting each of about twenty small articulations, and united to the beak or anterior part of the head by a distinct joint. In structure these organs resemble very much the antennae of the *Cyclopidae*, but like the antennules of the other *Daphniae* possess very little motion. Müller considered this animal to be a *Lynceus*, and led away by the above-mentioned resemblance to the beak of many of that genus, he has described it under the name of *L. longirostris* †. Jurine has described it under the division of *Monoculis* belonging to the group of the *Daphniade*, under the name of *Monoc. cornutus*, and has been followed by Desmarest and M. Edwards. In the 'Ann. Mag. Nat. Hist.' I have also described it under the name of *Daph. cornuta*, not having then distinctly seen the structure of the antennules. These are so peculiar however in their structure and position, and so distinct from those of the other *Daphniade*, that in the 'Trans.

* "Le bec est long et gros."—Edwards.
† Entomostraca, p. 76. t. 10. f. 7, 8.
Dr. Baird on some new Genera and Species

Berw. Nat. Club' for 1845, I have proposed forming a distinct family for receiving all those species of the genera Daphnia and Lynceus of Müller that have the antennæ pendulous from the beak. In the 'Ann. Mag. Nat. Hist.' xi. p. 87, I have arranged the genus Macrothrix, provisionally, under the fam. Lynceidae, as it possesses only three articulations to each joint of the large antennæ, and has also the black point in front of the eye. I have now ascertained however that it has not the articulated abdomen nor the convoluted intestine that form such distinguishing marks in the Lynceidae, being in these respects formed like the Daphnidae. It cannot thus be received into that family, and as in its position of antennæ it agrees with the D. cornuta, I now propose arranging it in the same family. The two families and genera will be thus characterized:—

Fam. I. DAPHNIDÆ.

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

This family contains two British genera, Daphnia and Sida.


Fam. II. BOSMINIDÆ.

Two pairs of antennæ; superior longer than in preceding family, and pendulous from or articulated to the extremity of the beak. In other respects as in Daphnidae.

This family contains two British genera, Bosmina and Macrothrix.


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


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


This animal is very small. The shell is rounded on the posterior margin, bulging out anteriorly, and terminating at inferior angle in a sharp point or spine, which projects straight downwards. The superior antennæ consist of twenty articulations; the seven first are short and close to each other; at the seventh two or three setæ spring, projecting forwards and upwards; then follow thirteen articulations, each one longer than the preceding. It requires a strong magnifying power to make out this articulated structure distinctly. Like the antennules of the Daphnidae and Lynceidae they appear to be almost destitute of motion, and thus, when seen close to each other, they certainly bear a close resemblance to a prolongation of the beak. The inferior antennæ, though strong bodies, are much shorter than in most of the Daphnidae. The anterior branch has four articulations, the posterior only three. They are furnished with long filaments, which are not plumose. The ova are few in number. The motion of this curious little creature through the water is caused by numerous and very rapid strokes of its inferior antennæ or rami, being in that respect very similar to the Lynceidae. The males I have never yet met with.

Section 2. Ostracoda.

The genus Cypris as established by Müller has hitherto remained intact. As however a number of the species which have been described possess a set of organs which many others do not, and which exercise a decided influence upon their economy and habits, I think it becomes incumbent upon us to separate the two sets of species into distinct genera. In the one set the animals have a much greater degree of motion and agility than the others, swimming freely and rapidly through the water in all directions, and apparently possessing a higher degree of enjoyment in their existence. This arises from a bundle of long plumose setæ which spring from the second articulation of the pediform antennæ (the first pair of feet of Müller and others), and by means of which they can suspend themselves in the water or transport themselves through it with great facility. The other set are deficient in this apparatus, and instead of swimming gaily through the limpid element, crawl in the mud at the bottom of the pools in which they are found, or creep along the aquatic plants which grow there, and if dropped into a glass of water fall to the bottom without being able to suspend themselves for the shortest time. They thus form a connecting link between the genera Cypris and Cythere.

I propose characterizing them thus:—

Gen. 1. Cypris, Müller.

Two pairs of feet, one pair always contained within the shell.
Abdomen terminated by a long, slender, bifid tail. Posterior or pediform antennae furnished with a bundle of long setae, generally plumose. Animal swims freely in the water.


Two pairs of feet, one pair contained within the shell. Abdomen terminated by a long, slender, bifid tail. Pediform antennae not furnished with a bundle of long setae. Animal creeps at the bottom or upon aquatic plants, &c.

The *Cypris reptans*, Baird, Mag. Zool. Bot. i. p. 135. t. 5. f. 5, will serve as the type.

Gen. 3. *Cythere*, Müller.

Three pairs of feet, all external to the shell. Abdomen short and blunt. Pediform antennae not furnished with a bundle of long setae, but possessing one stout articulated filament. Animal creeps at the bottom or upon submerged plants, &c.

Genus CYPRIS.


Nearly elliptical in shape, of a light green colour clouded with darker patches of the same colour on the sides of the shell. Hairy round the edges, but otherwise glabrous. Pediform antennae provided with five or six long setae.

Hab. Pond at Highgate. British Museum.

Sp. 2. *C. sella*, n. s. Pl. IX. f. 3.

Shell somewhat elliptical in shape, and rather globose, about half the size of preceding, of a uniform light greenish colour, marked on the back and side with a patch of a dark colour. A dark streak runs along the upper edge of the shell, beginning from immediately behind the eye and terminating at about the same distance from posterior extremity. It there extends a short way down the side and then runs forward a little way in a somewhat lunated shape. At the anterior commencement of the dorsal mark a narrower streak of the same colour runs down the side, stopping only a short distance from anterior margin. The shell is densely set all round with hairs. Pediform antennae provided with long setae (f. 3 a). This species resembles a little the *C. vidua* in shape, but is smaller and differs very considerably in the markings, which are uniformly the same.

of British Entomostraca.

Genus Candona.


Shell somewhat elliptical in figure, flattish, slightly sinuated in middle of anterior edge, white with two dark orange-coloured spots on the back. It is smooth, except round the edges, which are beset with some rather stiff hairs, more numerous at anterior extremity than posterior, transparent, rather larger at anterior extremity than posterior. The feet have one long curved claw and one short. Pediform antennae (f. 4 a) have three strong curved claws at their extremities, but no bundle of long setæ. It creeps upon the plants, &c. at the bottom of the water, and when it walks it leisurely puts first one foot forward, then the other.

It approaches Cypris detecta, Müller; the posterior extremity however is narrower than the anterior, which is the reverse in the detecta.

Hab. Pond on Clapham Common.

Section 3. Copepoda.

The genus Cyclops of Müller, composed of very heterogeneous materials, required reform, and has accordingly been reviewed by M. Edwards, who, in his great work on the Crustacea, distinguishes three different genera. The characters of these he takes from the structure of the second or inferior pair of antennæ and the foot-jaws. In his genus Cyclopsina however he includes two species of Cyclops described by Müller, which are very different from each other and cannot be placed together. The chief character of the genus Cyclopsina is the branched nature of the second or inferior pair of antennæ, a character which agrees well with the structure of these organs in the Cyclops ceruleus of Müller, but not with his C. minutus, in which the inferior antennæ are simple and not branched. I propose dividing this family into the following genera:—

Fam. CYCLOPIDÆ.

Head distinct from body, not possessing a moveable beak; body consisting generally of four, abdomen of six segments; foot-jaws two pairs, sometimes small; legs about five pairs; one eye.

Genus 1. Cyclops, Müller.

Foot-jaws large and strong, branched; second or inferior pair of antennæ simple; external ovaries double.

The C. quadricornis, Müll., is the type of the genus.


Foot-jaws of considerable magnitude, simple; second or inferior pair of antennæ branched; external ovary single.

The Cyc. ceruleus, Müller (Monoc. Castor, Jurine), is the type of this genus.
Genus 3. Canthocarpus, Westwood MSS.

Foot-jaws small, simple; second or inferior pair of antennae simple; ovary single.

The Cyc. minutus, Müll., is the type of the genus.


Foot-jaws possessing strong hooked claws at their extremity; second or inferior pair of antennae simple; external ovary single.

The Cyc. chelifer, Müll., is the type of this genus.

Genus 5. Alteutha, Baird.

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

The Cyclops depressus, Baird, is the type and only known species of this genus.

Genus Arpacticus.


Pl. IX. f. 5.

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 (f. 5 a) 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 (f. 5 b) 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 (f. 5 c) shorter and stouter than those of typical species, and consisting of two joints and a terminal hooked claw. Thoracic pair of feet (f. 5 d) 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 the typical species, the setae with which they and the fulcra are provided being all plumose. The fulcra are the same also as in the other species. The setae of the tail however are not plumose. This species is at least three times larger than the chelifer, and has the body more rounded and much stouter.

Hab. Berwick Bay.