

ON CONOCHILUS UNICORNIS AND EUCHLANIS PARVA—TWO NEW
ROTIFERS.

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PLATE XXIV.

1. *Conochilus unicornis* (Fig. 11a.)—The genus *Conochilus* contains two species, *C. volvox* and *C. dossuaris*, to which I can now add a third. I found this new species at our recent excursion to Keston, and propose to name it *C. unicornis* on account of its peculiar and prominent ventral antenna.

The corona closely resembles that of *C. volvox* in shape and structure, by having the buccal orifice on the corona towards the dorsal side, a ciliated groove close within the edge, and a well marked ventral gap in the ciliary wreath, but instead of having two ventral antennæ widely apart as in *C. volvox*, this new species has only one large antenna placed on the surface of the corona near the centre, and surmounted by a single, long and stout bristle, which can be retracted somewhat within the tubular sheath; this antenna is a conspicuous feature of the corona, and at once strikes the observer. Between the antenna and buccal funnel the skin of the corona is raised and forms a fleshy cone; this cone has a deep groove on the dorsal side running down to the buccal funnel; the sides of the groove are thickly clothed with cilia, and have a lip-like motion capable of opening out or closing the groove more or less.

The mastax, digestive organs, and vascular system appear to be normal. The rami have four teeth and a number of ridges, which get smaller and smaller; these teeth and ridges were the very first structures observable in a developing egg.

The cloaca is placed high up on the dorsal side, nearly on a level with the mastax. The brain and two red eyes are conspicuous; each eye consists of a minute, clear, refracting sphere, seated on a hemispherical cushion of red pigment (Fig. 11d).

Four pairs of narrow bands of muscles are attached to the head below the corona, and run down over the trunk to the extremity of

the foot. The foot contains four sets of long and well developed glands, reaching into the body cavity.

Both *C. volvox* and *Dossuarius* lay eggs, but in *C. unicornis* I have seen the fully-formed young, with eyes and moving jaws, within the mother, so that it is probable this species is viviparous like an *Asplanchna*. I have not, however, witnessed the birth of a young, but on the other hand have not seen a single egg in any of the clusters examined.

The clusters consist of very few individuals, from two to seven, living together in a gelatinous secretion; although rolling freely in the water, the clusters are more or less unsymmetrical. The size of the individual is $\frac{1}{100}$ to $\frac{1}{120}$ inch, which is very much smaller than *C. volvox*; the body is rather stout, but the foot is short and does not much exceed the body in length.

P.S.—Since writing the above paper I have had another opportunity of observing this Rotifer, which has enabled me to complete its study and add considerably to the description given.

I paid a second visit to Keston on the 19th October, and collected a very large number of *C. unicornis*; the colonies were more vigorous than when first discovered, and more numerous in individuals, some of the larger ones having as many as 20 to 25 individuals, but the majority of the colonies were smaller, and they continued to present a more or less unsymmetrical appearance.

The single antenna, which is so conspicuous under a low power, is found, when seen from the ventral or dorsal side under a high power, to consist of two antennæ closely united, and enclosed within a single sheath. The stout bristle resolves itself under a very high power ($\frac{1}{100}$ apocbromatic water immersion) into two brushes of very long and very fine setæ, one belonging to each antenna, as shown in Fig. 11b.

I have mentioned above that I had seen the young fully formed in utero; I have now also seen it born. One egg was lying across the body on the ventral side and filling fully one-third of the whole body cavity. By degrees it was pushed towards the dorsal side, and then gliding slowly past the stomach and intestine it came out at the cloaca, which is situated high up on the dorsal side; I could see no trace of an oviduct, but it is evident there must exist one, otherwise it will be difficult to imagine how so large an egg could find its way from the ventral side, past all the

overlying viscera, to the cloaca at the opposite corner of the body cavity. When laid the egg was fully mature, with jaws moving incessantly, the eyes distinct, and the cilia playing round the head; it remained a quiet rounded mass at the foot of the mother for about fifteen minutes, then quite suddenly pushing out its foot it swam round and took its place in the colony. In this as also in a second egg I could see no trace of an eggshell, but the difficulty of understanding how the young, if born quite free, could remain folded together in the manner it did, even for a short period, made me watch a third egg with greater care, and this time I succeeded in making out an exceedingly thin, transparent, soft membrane covering the egg, totally unlike the thick chitinous eggshell we are accustomed to find in other Rotifers. When the young had emerged I could, with the best optical means, only just distinguish the outline of the collapsed membrane. Although, therefore, *C. unicornis* cannot, strictly speaking, be said to be viviparous, it comes very near to it.

In several colonies I found ephippial or so-called winter eggs (Fig. 11c); they are of the same size as the mature female egg (about $\frac{1}{300}$ of an inch long), white opaque, with a double shell; the inner shell is thick, granular, and has a tree-branch pattern on its surface, but no spines or scales; a distinct single ridge runs in an oblique direction all round the inner shell. The outer shell is thin, smooth, transparent.

I also found some small mature male eggs, both in utero and lying at the foot of the mother, and then the male (Fig. 11e), which is a small pear-shaped creature, with a small ciliated head and a larger wreath of cilia just below on a wider shoulder; two red eyes in the head are conspicuous; the body cavity is wholly taken up with the sperm sac, and the pointed lower end is ciliated as usual.

The specific characters may be summarized thus: Clusters more or less unsymmetrical, consisting of few (2-25) individuals, fused gelatinous tubes distinct; ventral antennæ joined together within a single sheath on the surface of the corona, large and conspicuous.

Size of individuals $\frac{1}{100}$ to $\frac{1}{120}$ inch, of clusters $\frac{1}{40}$ to $\frac{1}{60}$ inch in diameter, male about $\frac{1}{400}$ inch. Habitat: Keston.

2. *Euchlanis parva* (Fig. 12).—This small but very attractive *Euchlanis* I have found on two occasions, the last time being at Keston. It can at once be recognized by its small size compared

with that of its congeners, being only $\frac{1}{130}$ in. in length, whilst all the other species of the genus are double the size and larger, $\frac{1}{40}$ to $\frac{1}{70}$ in.

The lorica is egg-shaped, of glassy transparency; the dorsal plate is arched, having a broad rounded notch anteriorly, and a narrow notch behind. The ventral plate is much smaller, and flat. The dorsal occipital edge of the lorica is extremely thin and transparent, and the broad notch can therefore only be well seen when the head is completely retracted.

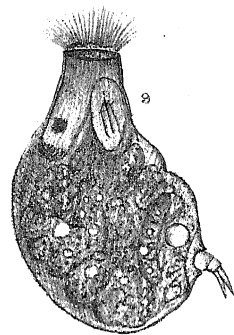
The internal anatomy is normal; the brain is large and carries a red eye just in front of the mastax; the lateral antennæ are quite conspicuous and protrude through the dorsal plate in the lumbar region on each side. In the other, larger, species these are visible with difficulty only.

The short three-jointed foot carries two long blade-shaped toes; one of the individuals seen had one seta on the foot, the other, however, had none.

Recapitulating the specific characters: Lorica egg-shaped, dorsal plate arched, occipital edge broadly notched, posterior edge with narrow notch. Ventral plate small and flat. Size small, $\frac{1}{130}$ in. without the toes. Toes rather more than one-third the size of the body. Habitat: Keston.

PLATE XXIV.

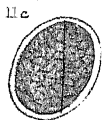
Fig. 11a.	<i>Conochilus unicornis.</i>	Female.
„ 11b.	„	Antennæ.
„ 11c.	„	Ephippial egg.
„ 11d.	„	Eye.
„ 11e.	„	Male.
„ 12.	<i>Euchlanis parva.</i>	



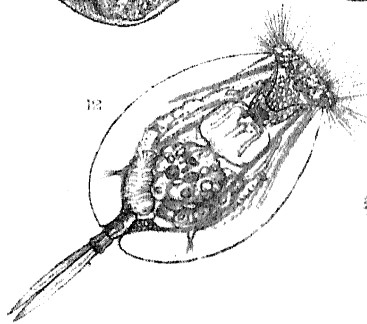
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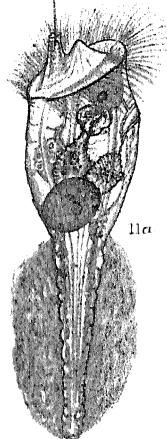
11c



11a



11e



11α



11b



11d