# A NOTE ON *EORRHACHIS TRUTTA* (BLANFORD).

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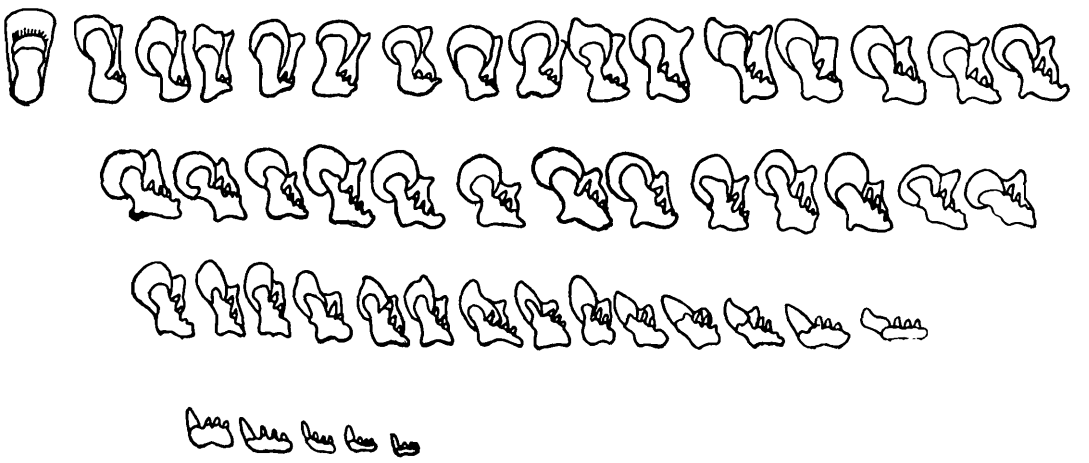
Sometime ago a few specimens of what at first sight appeared to be *Rachisellus praetermissus*, Blanford were obtained from Sudikonda, Godavary District, Madras Presidency, through the courtesy of Mr. T. K. Gopalachari, M.A., of the P. R. College, Cocanada. I had the shells compared with those in the Indian Museum, Calcutta, and in the British Museum, through the kindness of Dr. Baini Prashad and Mr. Winckworth. A comparison with the specimens in the British Museum led to the identification of my shells as those of *Rachisellus trutta* (Blanford). But an examination of the soft parts showed that the animal is not a *Rachisellus* but an *Eorrhachis*. I give below a short description of the soft parts, particularly with reference to the radula and the reproductive system which differ markedly from those of *Rachisellus*.

The radula is about 4 mm. long and more or less of the same width throughout. About 110 transverse rows were counted in one specimen. The radula formula is 46 to 48—1—46 to 48. The transition from the laterals to the marginals is so gradual that it is not possible to define their regions. Text-fig. 1 shows the entire series on one side. The rows



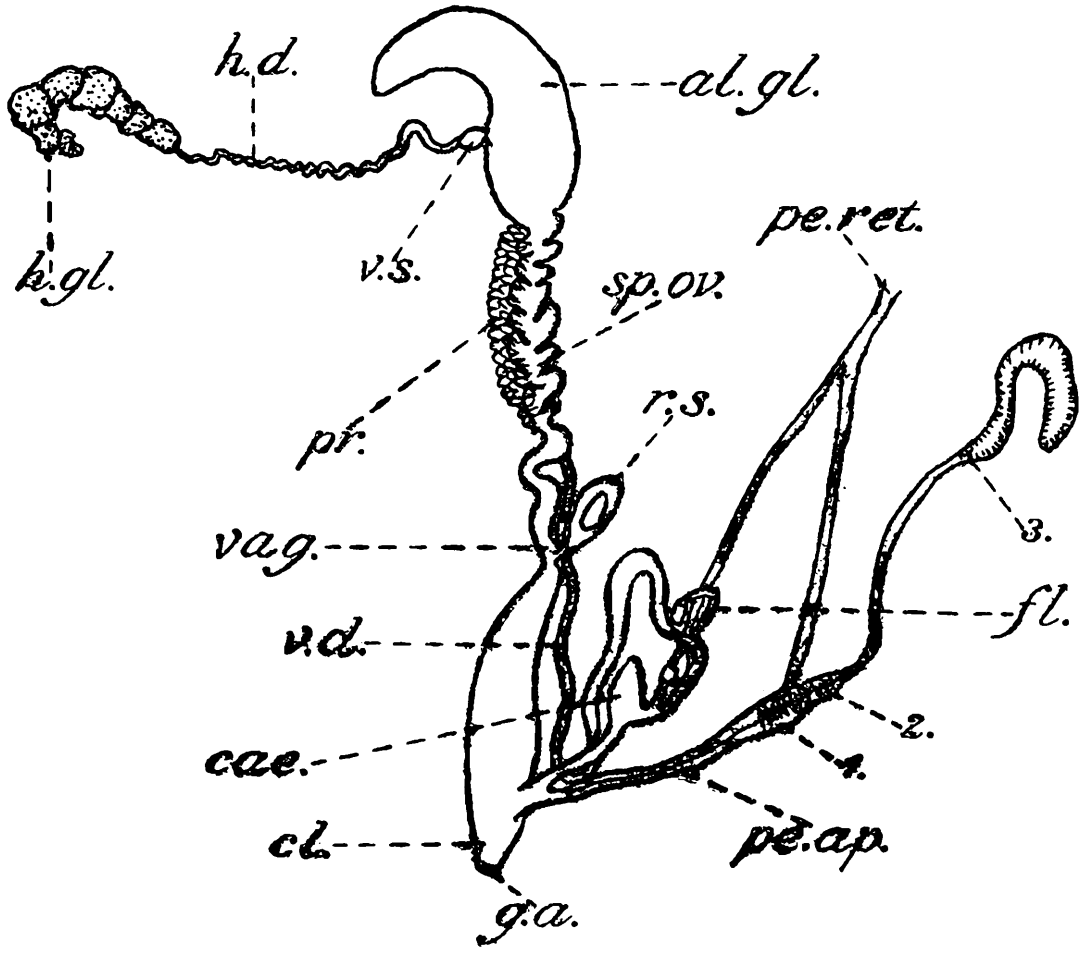
TEXT-FIG. 1.—The teeth of the radula *of Eorrhachis trutta* showing the central, and laterals and marginals of one side of a row.

are obliquely arranged at an inclination of about 30° to the horizontal line, unlike those of *Rachisellus* which are horizontal. The central is large, symmetrical and of nearly the same height as the others. It is rounded in front and has a large basal plate. The next one, that is, the first lateral is assymmetrical but is rounded in front like the central; the basal plate is seen displaced towards one side. Four parts can be made out in the lateral teeth, (1) a basal transverse part bearing laterally two cusps; (2) a median portion arising from the former and rounded in front; (3) extending beyond this is the third portion, which is also rounded in front, and (4) the basal plate extending on the outerside. The teeth become gradually modified as they pass to the outer margin

of the radula. The chief modifications that may be noticed are (1) the number of cusps shows a tendency to increase until in the marginal region four to five cusps are noticed, (2) the cusps become obliquely arranged, (3) the second portion of the tooth becomes narrower and finally becomes very much aborted, (4) the third part becomes more rounded and in the marginal region appears as a larger cusps, and (5) the basal plate becomes displaced laterally to the outside, and in the marginal region becomes insignificant.

It will be seen from this account that there is absolutely no point of resemblance between the radulae of *Rachisellus trutta* and *Rachisellus punctatus*.

The examination of the reproductive system also has shown striking differences. The cloaca is much longer and wider, measuring in a medium




TEXT-FIG. 2.—The genitalia *of Eorrhachis trutta*. *al. gl.* albumen gland; *cae.* caecum; *cl.* cloaca; *fl.* flagellum; *h. d.* hermaphrodite duct; *h. gl.* hermaphrodite gland; *g. a.* genital atrium; *pe. ap.* penial appendage; *1. 2. 3.* its parts; *pe. ret.* penial retractor; *pr.* prostate; *r. s.* receptaculum seminis; *sp. ov.* spermoviduct; *vag.* vagina; *v. d.* vas deferens; *v. s.* vesicula seminalis.

sized individual about 8 mm. in length, while that of *Rachisellus punctatus* measures about 4 mm. The vagina also is longer measuring about 6 mm. and is slightly convoluted. The spermatheca, which in *Rachisellus* has a long peduncle, is very nearly sessile in *Rachisellus trutta*, the peduncle being very short. It is ovoid in outline measuring about 2 mm. long and 1·3 mm. across. The vas deferens is about 11 mm. in length and separates out from the spermoviduct higher up than in *Rachisellus punctatus*.

The cloaca receives the penial organ about a distance of 3 mm. from its external opening. The structure of this organ also is different from that of *Rachisellus punctatus*. It is short, being about 1·5 mm. in length and divides distally into branches. The outer penial appendage, as in *Rachisellus punctatus*, is divisible into three portions, which, however, present quite a different appearance. The lower portion measures about 6 mm. in length, is narrow in the middle and thicker towards either end. It is greyish in colour. Just below the termination of this part, the penial retractor arises. The second portion of the appendage, which is conical in shape and creamy white in colour, is situated in continuation of the first portion. The third or distal portion of the appendage consists of a lower tubular part prolonged distally into a club-shaped structure usually bent on itself.

The inner part of the penis consists of the epiphallus, flagellum, and caecum. The epiphallus is long, usually somewhat looped on itself, and is about 9 mm. in length. After receiving the vas deferens, it passes below the lower part of the penis, and proceeding up, takes a bend and turns down once again. A caecum is not represented in *Rachisellus punctatus*.

The hermaphrodite gland is about 4 mm. long, and consists of about eight lobes or acini, which are smaller than in *Rachisellus punctatus*. The vesicula seminalis is simply an ovoid swelling of the lower part of the hermaphrodite duct. The albumen gland has the same structure as in *Rachisellus punctatus*. In a full grown specimen it is about 10 mm. in length. The spermoviduct has a coiled appearance. The prostate has a ribbon-like appearance, being composed of transverse bands, but the arrangement is not so regular as in *Rachisellus punctatus*. It overlies the spermoviduct.

The nervous system resembles much that of *Rachisellus punctatus*, the only differences being the greater approximation of the cerebral, ganglia, and the greater thickness of the posterior pedal nerves.

It will be seen from this account that the differences between what has been termed *Rachisellus trutta* and *Rachisellus punctatus* are greater than what may be expected between species. Thiele (**4**) in defining the characters of the family Enidae, states that among the members of the family, *Rachistia* (*Eorrhachis*) alone has large rounded central tooth and that the lateral teeth are arranged in oblique series. *Rachisellus trutta* shows these characteristics, and it is, therefore, certain that what has been known as *Rachisellus trutta* does not belong to the genus *Rachisellus*, but is really an *Eorrhachis*.

Tomlin and Peile (**6**) in erecting the genus *Eorrhachis* rightly remarked, ' It is probable that all Eastern species with similar form of shell hitherto placed in *Rachis* including certain Indian forms such as *bengalensis*, Lam., and *mavortius*, Rve., will be found to belong to the genus *Eorrhachis* which we now erect.' The segregation of several of the species hitherto attributed to *Rachis* or *Rachisellus* as suggested by Connolly, and Tomlin and Peile on the evidence of radulae and shells, appears justified by the structure of the reproductive system also.

My best thanks are due to Dr. Baini Prashad and Mr. R. Winckworth for comparing my specimens with those in the Indian Museum

and British Museum respectively, and to Dr. H. S. Rao for kindly sending me an extract from Thiele's book.

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