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Ozolaimus megatyphlon (Rud., 1819) a little known helminth from *Iguana tuberculata.*

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THE writer has recently been fortunate in obtaining several well preserved specimens of this interesting parasite, and as it features some peculiar characteristics in its anatomy which have not been figured, the writer has deemed it advisable to attempt a redescription with figures.

These helminths are whitish and relatively stout, the females varying in length from 5 to 6.5 mm. with a maximum thickness in the middle of the body of 0·64 to 0·73 mm., and the males are from 3·5 to 5 mm. long with a thickness of about 0·45 mm. The middle of the body is thickest in both sexes and from here the body becomes attenuated towards both extremities, the attenuation however, becoming more marked towards the anterior end. In the females the tail is short, straight and pointed, whereas in the males it is obtuse and

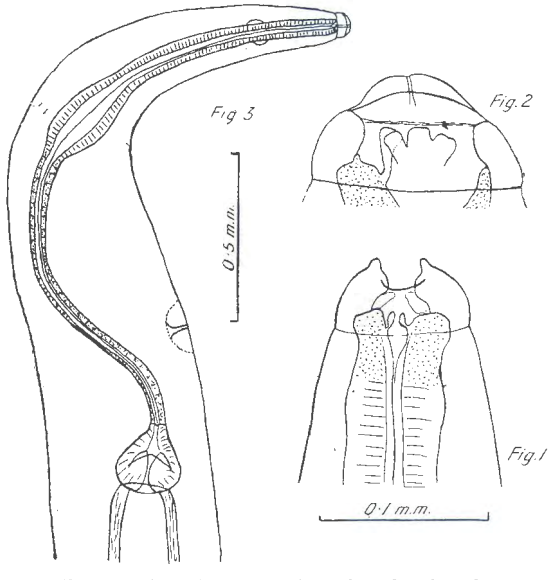

Fig. 1.—Anterior extremity of male, dorsal view.
Fig. 2.—Lateral view of head of female.
Fig. 3.—Oesophageal region of male.

more often curved towards the ventral side. Cuticular annulations are present, and lateral alae are absent in both sexes. The mouth is a vertical slit bounded by two conspicuous and hemispherical lateral lips, which are slightly set off at their bases from the rest of the body (Fig. 1). The anterior edge of each lip is considerably thinner than its remaining portion (Fig. 2), and in consequence when viewed from its side it appears, in sagittal section, as if surmounted by a papilla. The lateral cephalic papillae are very inconspciuous and are situated in the middle of each lip; each is traversed by a thin duct leading from the

corresponding cephalic gland. Medio-lateral papillae were not evident. The mouth leads into a mouth cavity into which project 3 tripartite cuticular flanges, one from each of the 3 oesophageal segments. It is lined by cuticle but there is no buccal capsule. The oesophagus is relatively very long occupying about 2/5ths of the total body length in both sexes. It consists of two parts, each of which is terminated by a bulb (Fig. 3). The anterior portion is muscular and is thinnest at its proximal end; it gradually increased in diameter posteriorly where it swells out to form a fusiform bulb about 0·24 mm. long by 0·15 mm. thick; the posterior oesophageal portion is slightly longer than its anterior portion and is also more slender; except for its bulb it has a uniform thickness of about 0·05 mm.; it is semiglandular in nature. The bulb is pyriform in shape and is provided with three cuticular valves characteristic of the Oxyuridae.

The nerve ring is found in the region of the anterior oesophageal portion and is found more or less at the junction of its 1st and 2nd quarters. The excretory pore is prebulbar in position in both sexes, being lodged in the majority of specimens just anterior of the posterior oesophageal bulb; in some specimens, however, which appear to be much stretched, its position is shifted slightly forwards.

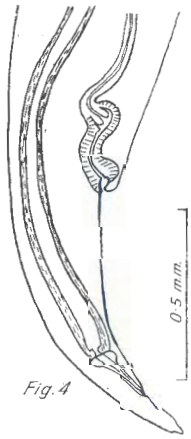

Fig. 4.—Posterior extremity of female.

Female.—The vulva is conspicuous and is found in the posterior quarter of the body usually at about the junction of the 4th and last body fifths; its distance anterior of the anal aperture varies from 1·13 to 1·27 mm. (Fig. 4). It is a transverse slit whose anterior lip protrudes slightly and overhangs the aperture; it leads into a short and muscular vagina, about 0·4 mm. long and 0·085 mm. in diameter, which passes obliquely forwards and inwards and has a slight sigmoid shape. The ovejector opens into it through a papilla and is about 1 mm. long and 0·04 mm. thick; it also passes forwards and its lumen is provided with a cuticular lining. It is followed by the trompe which is of the same length but about three times as thick, and passes backwards parallel to the ovejector. The uterus proper, which follows, is thin walled and at first is dilated to form a small chamber containing a few eggs, after which it splits into the two uteri which bend forwards and together with the two ovaries from a few loops anterior of the vulva. Few eggs are present and these are oval,

thin-shelled and contain a partially developed embryo *in utero*: they vary in length from 0·122 to 0·139 mm. with a maximum thickness of 0·06 to 0·064 mm. The tail is short and pointed and varies in length from 0·29 to 0·31 mm., thus forming about 1/20th of the total body length.

Male.—The posterior extremity of the male is cut away ventrally and is generally curved towards its ventral surface. There are only two pairs of papillae, one pair large, ventral and precloacal in position and the other pair small and situated towards the tip of the tail (Figs. 5 and 6). Round the cloaca there are two pairs of appendages, one pair large and dorslateral in position and the other pair small and membranous and occupying a ventrolateral position. Well developed and hyaline caudal alae are present originating just anterior of the insertion of the tail and terminating just anterior of the caudal papillae. The spicule is massive and almost straight and tapers to a fine point; it varies in length from 1·17 to 1·23 mm. with a maximum thickness at its proximal end of 0·025 mm. A conspicuous gubernaculum is present which

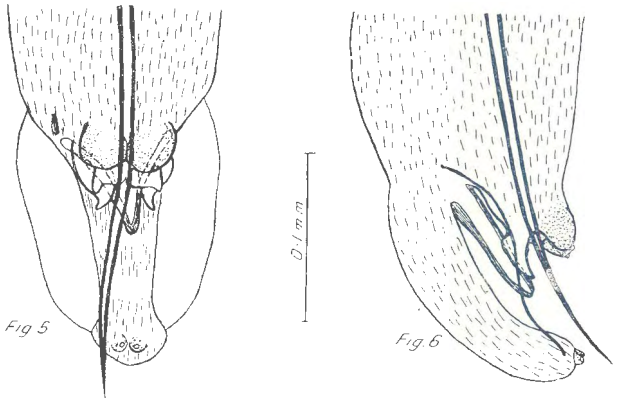

Fig. 5.—Posterior extremity of male, ventral view.
Fig. 6.—Posterior extremity of male, lateral view.

is V-shaped and projects over the dorsal margin of the cloacal aperture between the two large cloacal appendages. The tail varies in length from 0·13 to 0·146 mm. and forms about 1/38th part of the total body length.

Discussion.—Since Rudolph's original description appeared there is only one record of this helminth, namely, by Dujardin (1845) who examined numerous specimens contained in the Paris Museum and collected from a young Iguana in August, 1841. Unfortunately the scientific name of the host is not given. Dujardin gives a fairly good description but has, unfortunately, missed the details round the male cloaca. There can, however, be no doubt that his specimens are the same as Rudolphi's and the writer's. The peculiar nature of the oesophagus and the presence of only two lips is similar in all, and the spicules in Dujardin's material are of the same length as in the writer's specimens. *Ozolaimus cirratus* (v. Linstow, 1906) was described from material obtained from the same host as the writer's material: the describer differentiated it from Rudolphi's species in that the caudal papillae and appendages were not recorded or figured for the male of this species, and also because the spicule was much shorter—1·25 mm. as against 2·2 mm. in his material. However, to the writer there does not appear to be any doubt as to the identity of these

two species. The writer's material has spicules agreeing in length with those in Rudolphi's species, and is also provided with caudal appendages and papillae in the male as recorded for v. Linstow's species; the writer feels confident that v. Linstow's measurements of the spicule are at fault, and that the appendages, etc., on the tail of the male were missed by both Rudolphi and Dujardin. The fact that his material originated from the same host as Rudolphi's and the writer's material lends additional weight to this conclusion. There are, however, slight differences to be recorded in the writer's material; v. Linstow states that in his material the length of the oesophagus was 1/3·9 in the male and $\frac{1}{3}$ in the female of the total body; in the writer's material it is relatively longer being about $\frac{2}{5}$ths of the body length in both sexes; further he records the presence of five processes ventral of the tail in the males, the most ventral pair of which each carries a papilla; this pair probably corresponds to the 1st pair of caudal papillae described above; the 2nd pair is more dorsal in position and probably corresponds to the large pair of processes described above, and the unpaired process separating these two corresponds to the gubernaculum which forms a process extending dorsally over the cloaca. The small pair of membranous processes described above have probably been overlooked. v. Linstow gives the eggs as 0·098 mm. long by 0·066 mm. broad; this agrees very closely with the measurements given by Dujardin, 0·096 to 0·1 mm. by 0·053 mm., but are much smaller than those measured by the writer.

Affinities.—The presence of a well defined posterior oesophageal bulb with its three valves, the nature of the body musculature, the simple genitalia and shape of the eggs definitely places this genus in the family Oxyuridae Cobbold, 1864; it, however, differs from all the members of this family in two important characteristics, namely, the presence of two large lateral lips and the peculiar structure of the oesophagus; these characters appear to the writer to be of sufficient importance to exclude this genus from the sub-family Oxyurinae Hall, 1916, in which it has always been placed; in consequence, it is deemed necessary to create a new sub-family—Ozolaiminae—for its reception, which sub-family may be diagnosed as follows:—

Oxyuridae. Mouth bounded by two large and simple lateral lips; oesophagus consists of two parts, the anterior muscular and stouter and ending in a fusiform bulb, and the posterior more slender and ending in a pyriform bulb with three valves. Males with a single large spicule, a V-shaped gubernaculum and caudal alae. Vulva in the posterior quarter of the body.

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