

Trematodes of the Northumberland coast. No. III. A preliminary note on Echinostephilla virgula, a new trematode in the turnstone / by Marie V. Lebour.

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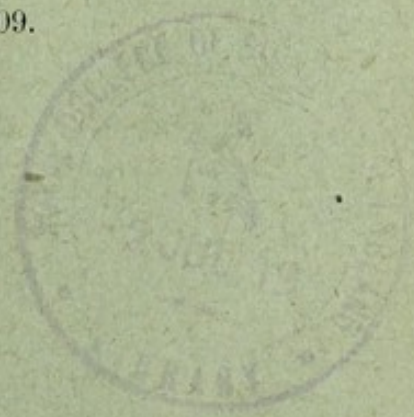
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UPON-TYNE.—NEW SERIES, VOL. III., PART 2

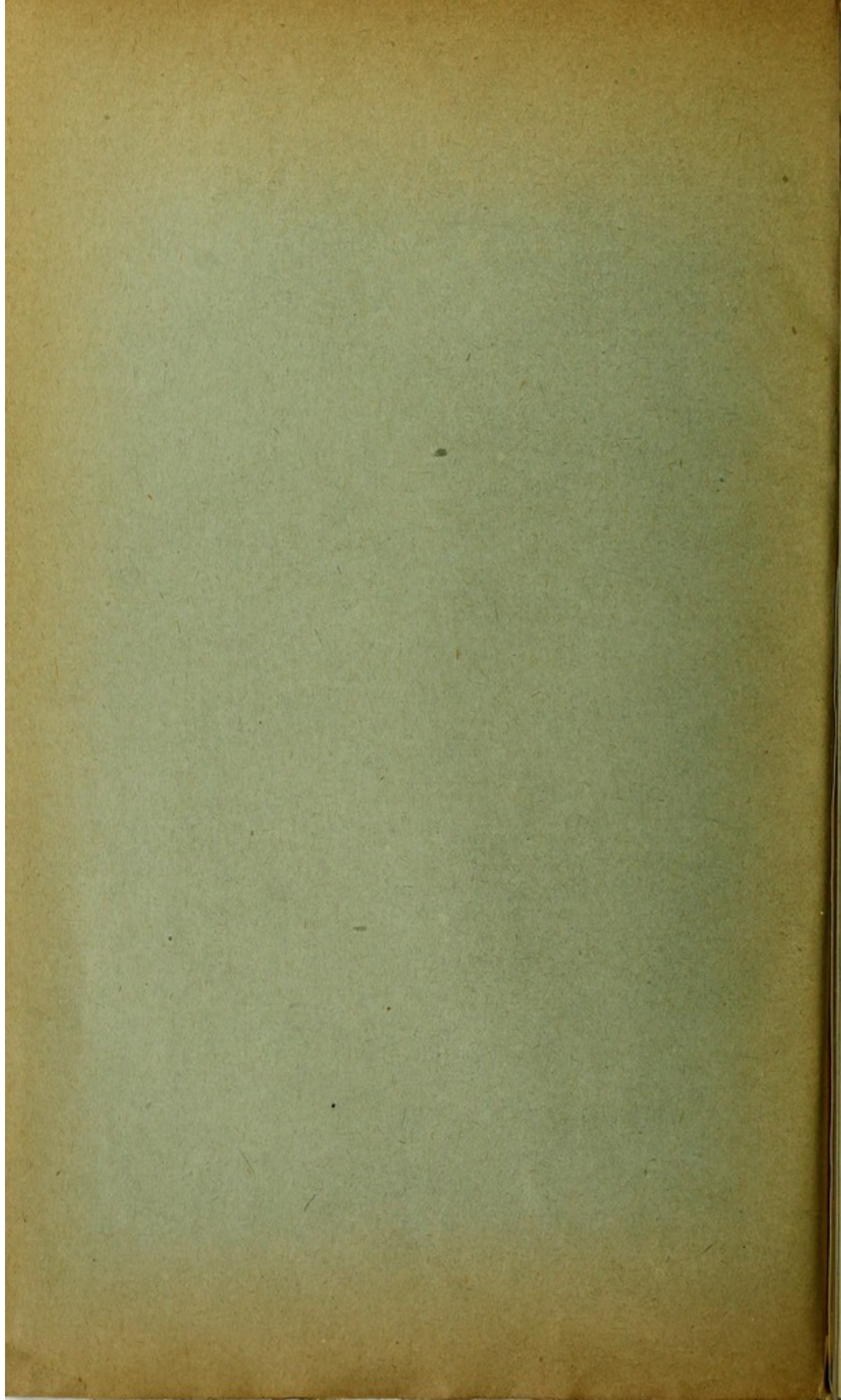
TREMATODES OF THE NORTHUMBERLAND COAST,
No. III.—A PRELIMINARY NOTE ON ECHINO-
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BY MARIE V. LEBOUR, M.Sc., Assistant Demonstrator in
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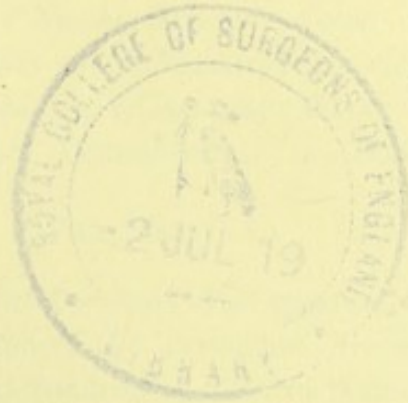
(With Plate).

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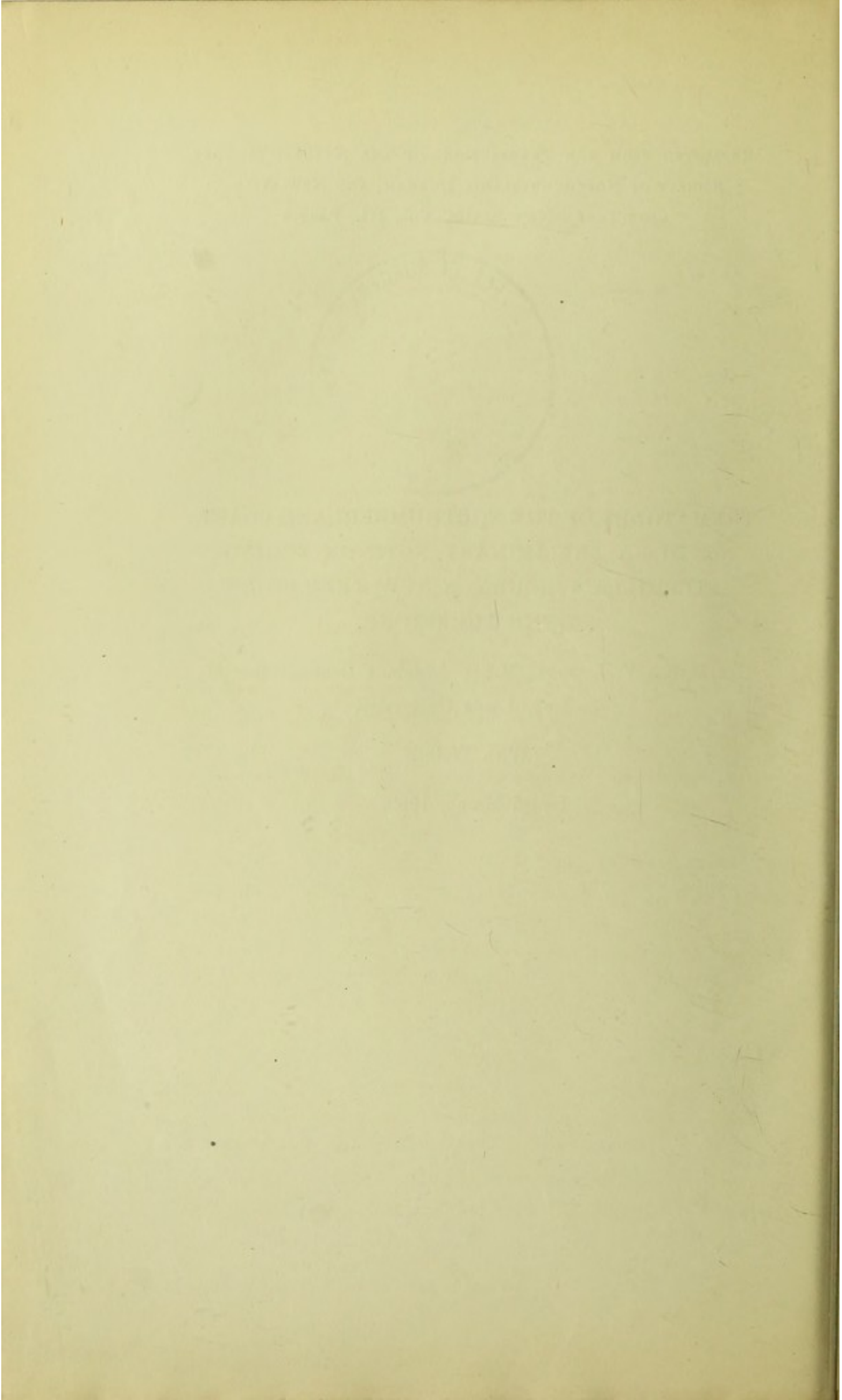


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(With Plate XI.)

The following is a brief account of an apparently new Trematode from the intestine of the Turnstone *Arenaria interpres*. The birds were shot at Beadnell on the Northumberland coast, where they are winter visitants. Their stomachs usually contain small marine Crustacea (chiefly Isopoda), insect larvæ, and Mollusca (*Littorina rudis*, *Paludestrina stagnalis*, etc.) A dozen birds were examined at different times, three of which contained the Trematode about to be described. Not more than two specimens occurred in each bird, and some were dead and in a bad condition for examination.

This was by no means the only worm parasite in the intestine of the Turnstone, for numerous Cestodes were present, and three other Trematodes were found, including *Echinostomum leptosomum* Creplin, and *Monostomum petasatum* Desl., the latter in the intestinal cæca.

This new Trematode is found from about the middle of the intestine to near the terminal part, and is usually associated with Cestodes, from which at first sight it is with difficulty distinguished, as it has the same peculiar opaque, cream-white appearance. The live specimens were killed with corrosive sublimate and preserved in alcohol, afterwards being examined in oil of cloves as pressure preparations. In this way the details of the female reproductive system could not be exactly made out, but enough of the structure of the worm was seen to show that it is almost certainly a new genus and species, and for it I propose the name *Echinostephilla virgula*.

The worm is long and narrow, and, when living, almost invariably curved up at the posterior end and looking much like

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a comma. (The drawing shows a straightened preparation.) The length varies from 4 to 8 mm. All the measurements here given are taken from a specimen 4.5 mm. in length. The body is broadly rounded at the anterior end and tapers to a point posteriorly. The greatest breadth is in the region of the ventral sucker, where it measures 0.6 mm. The front end is slightly marked off from the rest of the body by a neck which is situated about 0.16 mm. from the anterior end. The body is flattened dorso-ventrally, particularly in the region between the two suckers, where it is peculiarly concave ventrally.

The suckers are both strongly muscular and are circular, with circular apertures. The oral sucker is much the smaller, being only 0.12 mm. in diameter, with an aperture of 0.08 mm., and is situated at the extreme anterior end. The ventral sucker is large, measuring 0.40 mm. across. It occurs at about the anterior fifth of the body.

The worm is very tough, with a thick cuticle, armed with sharply pointed spines, which gradually broaden as they reach the centre of the body, and become more leaf-shaped. The spines begin a short way below the neck, running all round in rows, and arranged in quincunx order so as to give the appearance of oblique striation (see plate xi., fig. 1.) Each spine measures about 0.01 mm. in length. Posterior to the ventral sucker they thin out and are scattered more irregularly, soon disappearing except at the sides, where they become farther apart until the distance between the spines is twice as great as in the fore part of the body. At the last seventh of the body they disappear altogether. The spines originate on the inner surface of the cuticle, and are arranged obliquely with their apices directed backwards; only the points reach the surface. As they thin out posteriorly they are entirely within the cuticle.

The head is completely surrounded by a crown of two rows of blunt spines measuring about 0.008 mm. in length and closely set together. The exact number was not ascertained, but, roughly speaking, there appeared to be about 56 in each

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row. Each spine in the anterior row is placed exactly in front of the corresponding spine in the posterior row, and does not alternate with it.

The oral sucker leads to a short prepharynx 0.10 mm. long, and a muscular pharynx slightly longer than it is broad. From this runs a long narrow œsophagus 0.30 mm. long, branching a short way in front of the ventral sucker into two narrow lobes reaching the posterior end about 0.60 mm. from its termination.

The excretory vesicle is a long narrow sac running forward and reaching beyond the posterior testis. It gives off lateral branches which divide continually in the anterior part of the body in a sort of network of ducts running out horizontally from the laterals, which terminate in a single curved tube on each side of the oral sucker.

The genital pore occurs in the median plane just anterior to the ventral sucker and below the fork of the intestine, the male and female ducts opening side by side, the male on the right and the female on the left.

The testes are two oval bodies situated one in front of the other in the posterior part of the body about 2.4 mm. from the end. They are closely apposed, the front testis being slightly larger than the other, the measurements of their long axes, which lie longitudinally, being 0.24 mm. and 0.20 mm. respectively. The vasa deferentia run up to a long narrow cirrus sac which extends about 0.60 mm. beyond the ventral sucker.

The cirrus sac makes one or two bends, so that it has rather a twisted appearance. The portion behind the ventral sucker is occupied by the vesicula seminalis, and anterior to this is a long cirrus. No pars prostatica was observed. The cirrus sac runs dorsal to the ventral sucker, and opens ventrally by the side of the vagina. The cirrus is extremely long, and is usually exerted for about half its length. It has the form of a long narrow tube with a thick wall, the inside of the tube being lined with fine spines with their apices directed forwards. These spines are not continued into the anterior part of the cirrus and are never exerted, so they probably serve the

purpose, as Stossich * suggests in the case of *Stephanochasmus pristis* Desl., of preventing the sperms from going back after leaving the body.

The ovary is situated in front of the foremost testis, and is separated from it by a space of about 0.12 mm. It corresponds in shape and size with the larger testis. The uterus, full of eggs, winds behind the ovary, and then turns and twists in many loops in front, filling up the middle part of the body nearly as far as the vesicula seminalis. Here it dilates and runs forwards as a muscular vagina, which opens into the genital pore by a thick lip. No receptaculum seminis was observed. The vitellaria are not strongly developed, and consist of two thin bands of small spherules running along each side of the body close to the intestinal lobes, beginning in front of the posterior part of the testes, and ending at about the level of the central part of the vesicula seminalis. A transverse duct from each side unites with its fellow in a vitellarian receptacle just behind the ovary.

The ova are numerous, measuring 0.10 mm. \times 0.05 mm., each end being rounded equally. They are coated with thick yellow shells, and in the anterior half of the uterus have developed into miracidia with a conspicuous eye-spot. Near the genital pore the shells are empty, the miracidia having perhaps escaped. Empty shells were seen in the oral sucker.

This Trematode almost certainly belongs to the sub-family *Echinostominae* Looss, although differing from all the hitherto-known genera in the presence of miracidia in the eggs and in the weakly developed vitellaria, which do not extend into the posterior region of the body behind the testes. In these respects it resembles *Parorchis* Nicoll,† and in the presence of miracidia it resembles the sub-family *Philophthalminae* Looss. Besides the above-mentioned characters it differs from *Echinostomum* and *Stephanochasmus* in its very much thicker build and blunt head spines.

* Stossich, M., "Brani di Elmintol. Tergestina III.," Bol. Soc. Ad. Trieste IX., 1886.

† Nichol, W., "Parorchis acanthus, the type of a new Genus of Trematodes," Quart. Journ. Mic. Sci., Vol. 51, Part II., 1907.

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The genus *Echinostephilla* may be thus briefly described:—

ECHINOSTEPHILLA n.g. Medium-sized worm with long and narrow body, broadly rounded anteriorly and pointed posteriorly, flattened dorso-ventrally. Suckers approximated, strongly developed. Oral very small, and ventral large. Body armed with a thick cuticle, covered with spines except at the posterior end. Head armed with two complete rows of numerous flat blunt spines arranged one directly in front of the other. Prepharynx, pharynx, and fairly long œsophagus. Intestinal lobes reaching nearly to the posterior end of the body. Excretory vesicle long and narrow, vessels very much branched anteriorly. Genital pore median, between ventral sucker and fork of intestine. Testes oval, one behind the other and close together, in posterior third of body. Cirrus set long and narrow, reaching some way behind the ventral sucker, containing simple vesicula seminalis and long cirrus, the latter armed internally with spines and protrusible for the greater part of its length. Ovary in front of testes, uterus long and winding, containing numerous eggs, the most advanced being in the miracidium stage with eye-spot. Vagina long, winding, and muscular. Receptaculum seminis (?), Laurer's canal (?). Vitellaria weakly developed, reaching from posterior testis to near middle of vesicula seminalis. Type, *Echinostephilla virgula*.

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EXPLANATION OF PLATE XI.

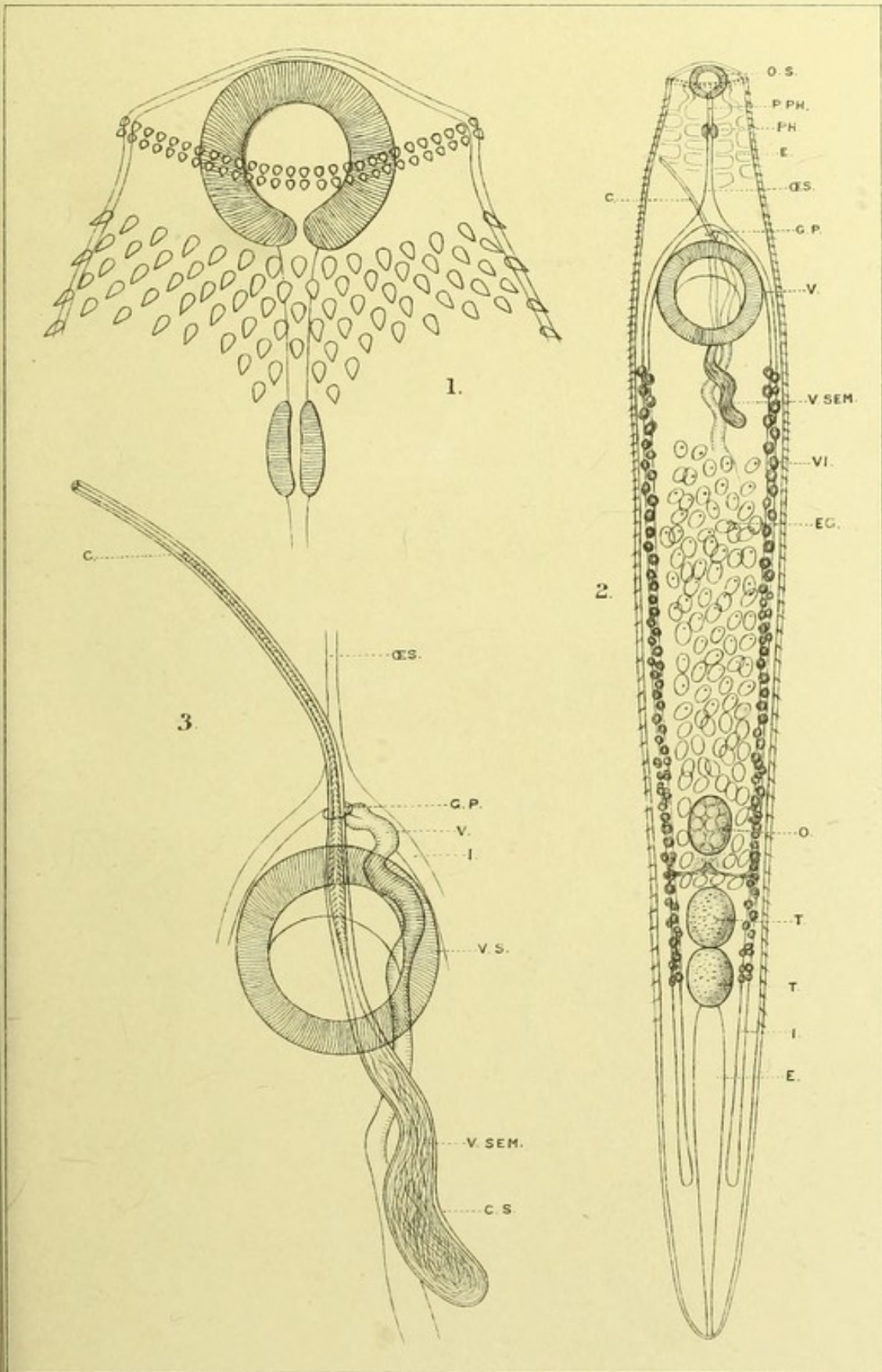
NOTE:—At the time when the plate was being lithographed it was proposed to name the genus *Strepsorchis*, and this name appears on the plate instead of *Echinostephilla*.

Fig. 1.—Head and fore part of body of *Echinostephilla virgula*. (For the sake of clearness the spines of the body are shown less numerous than they really are.)

Fig. 2.—*Echinostephilla virgula*—ventral view.

Fig. 3.—Region of genital pore of *Echinostephilla virgula*.

O. S.	oral sucker	V. S.	ventral sucker
P. PH.	prepharynx	V. SEM.	vesicula seminalis
PH.	pharynx	VI.	vitellaria
E.	excretory system	EG.	eggs
CES	oesophagus	O.	ovary
G. P.	genital pore	T.	testes
I.	intestine	C.	cirrus
V.	vagina	C. S.	cirrus sac



M.V. Lebour del

W. West lith.

STREPSORCHIS VIRGULA.

*

