

ON A NEW SPECIES OF THE GENUS *ACANTHOCEPHALUS*
FROM *RANA* SP. AND A NEW HOST RECORD OF *CENTRO-*
RHYNCHUS CINCTUS (RUDOLPHI).

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The present communication is based on the study of four specimens of *Acanthocephalus* Luhe 1911 and three specimens of *Centrorhynchus* Luhe 1911. The former (*A. kabulensis*) were collected by Mr. Ali Akhtar from the intestine of *Rana* sp. at Kabul, Afghanistan. Of these, only two (a male and a female) are fully developed. The specimens of the latter (*C. cinctus*) were obtained by one of us from the intestine of *Ptyas mucosus* (Linn.) at Banaras. All the three (one male and two females) are not fully developed.

The specimens obtained from *Rana* sp. were found to be different from all the hitherto known species of the genus *Acanthocephalus* and accordingly have been placed in a new species. Those from *Ptyas mucosus* (Linn.) were identified as *Centrorhynchus cinctus* (Rudolphi¹ 1819) with some variations of little significance. This species was previously reported from *Coluber viridiaeneus* from Italy, while the present report is from host so far unrecorded. In view of this new host record we have added a detailed description for this species also in this paper.

***Acanthocephalus kabulensis*, sp. nov.**

Male.—The body is almost cylindrical, the anterior region being broader than the posterior. The worm is 4.38 mm. in total length and 1.02 mm. in maximum width anteriorly. The body gradually narrows down posteriorly.

The proboscis is 0.32 mm. long and 0.28 mm. wide. There are 7-9 longitudinal rows of hooks with 4-7 hooks in each row. The hooks measure 0.06-0.08 mm. in length. The proboscis sheath is 0.81 mm. long. The lemnisci are longer than the proboscis sheath. The nerve ganglion is situated in the posterior region of the proboscis sheath and 0.85 mm. from the anterior end.

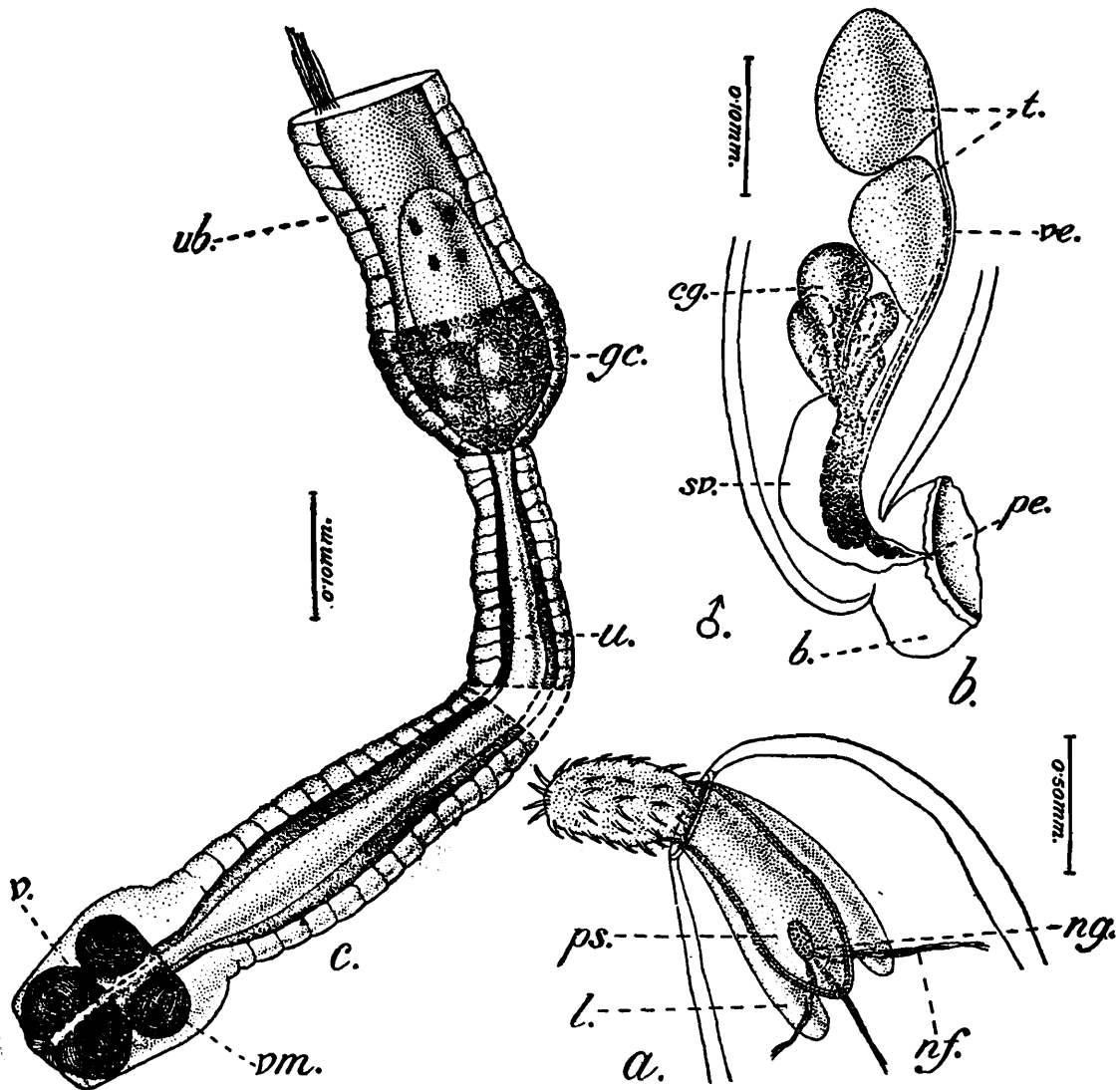
The testes (text-fig. 1b.) are unequal; the anterior bigger measures 0.58 × 0.43 mm., while the posterior smaller measures 0.55 × 0.39 mm. The former begins 2.06 mm. from the anterior end. The cement glands are six in number and pyriform in shape. They are situated behind the posterior testis partly overlapping it. They are massed together and the entire mass measures 0.58 × 0.37 mm. Seminal vesicle is approximately 0.65 mm. long. Bursa is protruded out.

¹Meyer, A. "Acanthocephala". In Bronn's Klassen und Ordnungen Das Tierreich "P. 105. (1932)".

Female.—The body is similar to that of male. It measures 6.17 mm. in length and 1.19 mm. in maximum width in the anterior region.

The proboscis is 0.49 mm. in length and 0.41 mm. in width. The number and the arrangement of hooks is the same as in male. The hooks measure 0.07-0.09 mm. in length.

The body is full of ova which measure 0.09—0.11 × 0.05—0.08 mm. The uterine bell (text-fig. 1c) is 0.29 mm. long. The uterus along with the vagina measures 0.58 mm. in length. Guard cells are five in number, the anterior-most is the biggest and contains six nuclei.



TEXT-FIG. 1.—*Acanthocephalus kabulensis*, sp. nov.

a. Anterior region of male; b. Male genital organs; c. Female genital organs.

b., bursa; cg., cement glands; gc., guard cells; l., lemnisci; nf., nerve fibre; ng., nerve ganglion; pe., penis; ps., proboscis sheath; sv., seminal vesicle; t., testis; u., uterus; ub., uterine bell; v., vagina; ve., vasa efferentia; vm., vaginal muscles.

We give the following statement in order to indicate clearly the characters in respect of which the present species agrees or differs from its nearest allies viz. *Acanthocephalus minor* Yamaguti^{1, 2a} 1935 and *Acanthocephalus opsariichthydis* Yamaguti^{3, 4a} 1935.

¹. Yamaguti, S., *Jap. Journ. Zool.*, VI, pp. 253-254, figs. iii-v (1934).

². Yamaguti, S., *Jap. Journ. Zool.*, VIII (3), pp. 320-321 (1939).

³. Yamaguti, S., *Jap. Journ. Zool.*, VI, pp. 254-256 (1934).

⁴. Yamaguti, S., *Jap. Journ. Zool.* VIII (3), pp. 322-323.

	<i>A. minor</i> Yamaguti.	<i>A. opsariichthydis</i> Yamaguti.	<i>A. kabulensis</i> , sp. nov.
1. Length of body .	♂2.7-3.4 mm. . ♀3.0-3.7 mm. .	♂1.8-5.6 mm. ♀2.1-7.2 mm.	♂4.38 mm. ♀6.17 mm.
2. Width of body .	♂0.6-1.0 mm. ♀0.8-1.2 mm.	♂0.42-1.0 mm. ♀0.46-1.3 mm.	♂1.02 mm. ♀1.19 mm.
3. Proboscis .	♂0.25-0.4 × 0.14-0.21 mm. ♀0.5-0.55 × 0.21-0.28 mm.	0.4-0.65 × 0.08-0.18 mm.	♂0.32-0.28 mm. ♀0.49 × 0.41 mm.
4. Number of longitudinal rows of hooks.	13-14 . . .	8-9 . . .	7-9.
5. Number of hooks in each row.	♂7-8 . . . ♀6-7	5-7 . . .	4-7.
6. Length of hooks .	♂Largest subapical hooks 68-75μ Smallestbasals 25-50μ ♀Below apex of proboscis 85μ Basals 30-35μ .	Largest hooks 150μ Smallest basals 25-51μ	♂0.06-0.08 mm. ♀0.07-0.09 mm.
7. Host . . .	<i>Fishes</i> . . .	<i>Fishes</i> . . .	<i>Amphibia</i> .

Specific diagnosis.—Body almost cylindrical with the anterior region broader than the posterior ; proboscis with 7-9 longitudinal rows of hooks with 4-7 hooks in each row ; cement glands massed together and not in two longitudinal rows of three each.

Regd. No.—W3832/1, Zoological Survey of India.

Host.—*Rana sp.*

Locality.—Kabul, Afghanistan.

Remarks.—*A. kabulensis* resembles *A. minor* Yamaguti in respect of the body shape and the arrangement of prostate glands but differs from it in the size of the body, the number of longitudinal rows of hooks and the number of hooks in each row. It almost agrees with *A. opsariichthydis* Yamaguti in respect of the body shape, the number of longitudinal rows of hooks and the number of hooks in each row but differs from it in the arrangement of the prostate glands.

Centrorhynchus cinctus (Rudolphi 1819).

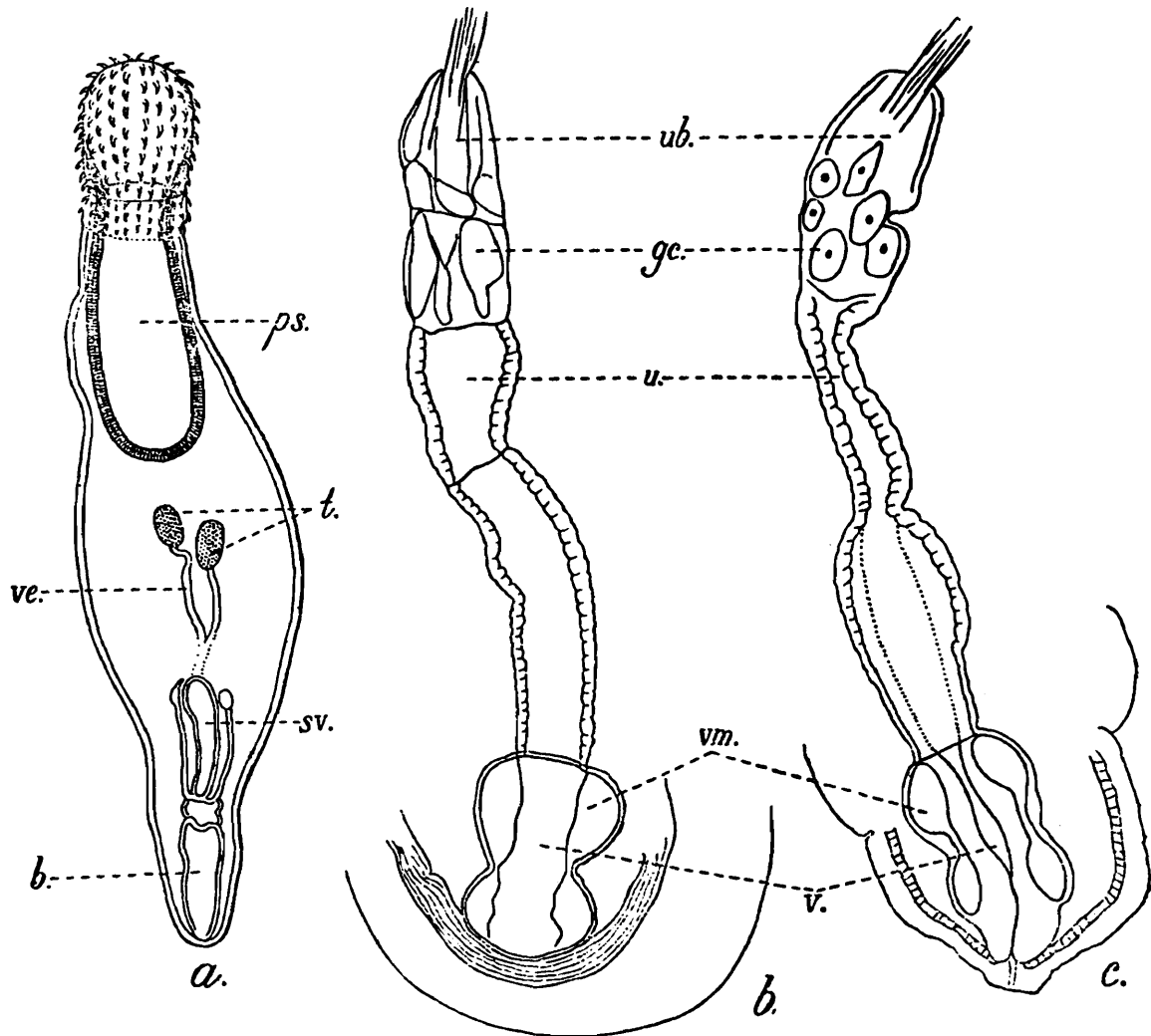
Male.—The body is bulged in the middle gradually narrowing towards the ends—the posterior end being narrower than the anterior. The entire length of the worm is 3.19 mm. The width in the middle is 0.77 mm.

The proboscis is 0.58 mm. in length and 0.37 mm. in width. The number of longitudinal rows of hooks is 30-32 and the number of hooks in each row is 12. The hooks in longitudinal rows are divisible antero-posteriorly into three groups of 5, 4 and 3 respectively depending on their shapes and roots. The hooks are 0.02-0.05 mm. in length. The proboscis sheath is 0.96 mm. long.

The testes (Text-fig. 2a) are unequal ; the anterior testis is a little smaller than the posterior and is situated 1.55 mm. from the anterior end. The former measures 0.15 × 0.09 mm. and the latter 0.17 × 0.09 mm.

In the only male specimen available for our study the two vasa efferentia arising from their respective testis are clearly visible and traceable upto their junction with each other but after this the material gives no clear indication of their further course upto the region of seminal vesicle. The prostate glands also are similarly obscure. The seminal vesicle is 0.33 mm. long. The bursa along with the muscular capmeasures 0.66 mm. in length.

Female.—The body is similar to that of the male. The largest worm is 3.38 mm. in length and 0.75 mm. in width in the middle of the body.



TEXT-FIG. 2.—*Centrorhynchus cinctus* (Rudolphi 1819).

a. Entire male; b. and c., Female genital organs.

b., bursa; gc., guard cells; ps., proboscis sheath; sv., seminal vesicle; t., testis; u., uterus., ub., uterine bell; v., vagina; vm., vaginal muscles.

The proboscis is 0.75 mm. in length and 0.38 mm. in width. The number and the arrangement of the hooks is similar to the male. The proboscis sheath is 0.96 mm. long.

The uterine bell (Text fig. 2b, 2c) measures 0.16 mm. in length. The uterus along with the vagina is 0.41 mm. long. Guard cells are seen there.

Reg. No.—W3833/1, Zoological Survey of India.

Host.—*Ptyas mucosus* (Linn.).

Locality.—Banaras (U. P.).