ON SOME NEMATODES FROM INVERTEBRATES

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A large number of cockroaches and cricket moles were examined from various localities near Lucknow and two new species from the former host and three new and one already known species from the latter host were recovered which are being described here. The diagnosis of genus *Bulhoesia* (Schwenck, 1926) is emended, and genus *Mirzaiella* Basir, 1942 is considered a synonym of *Gryllocola* Basir, 1942 which is also emended.

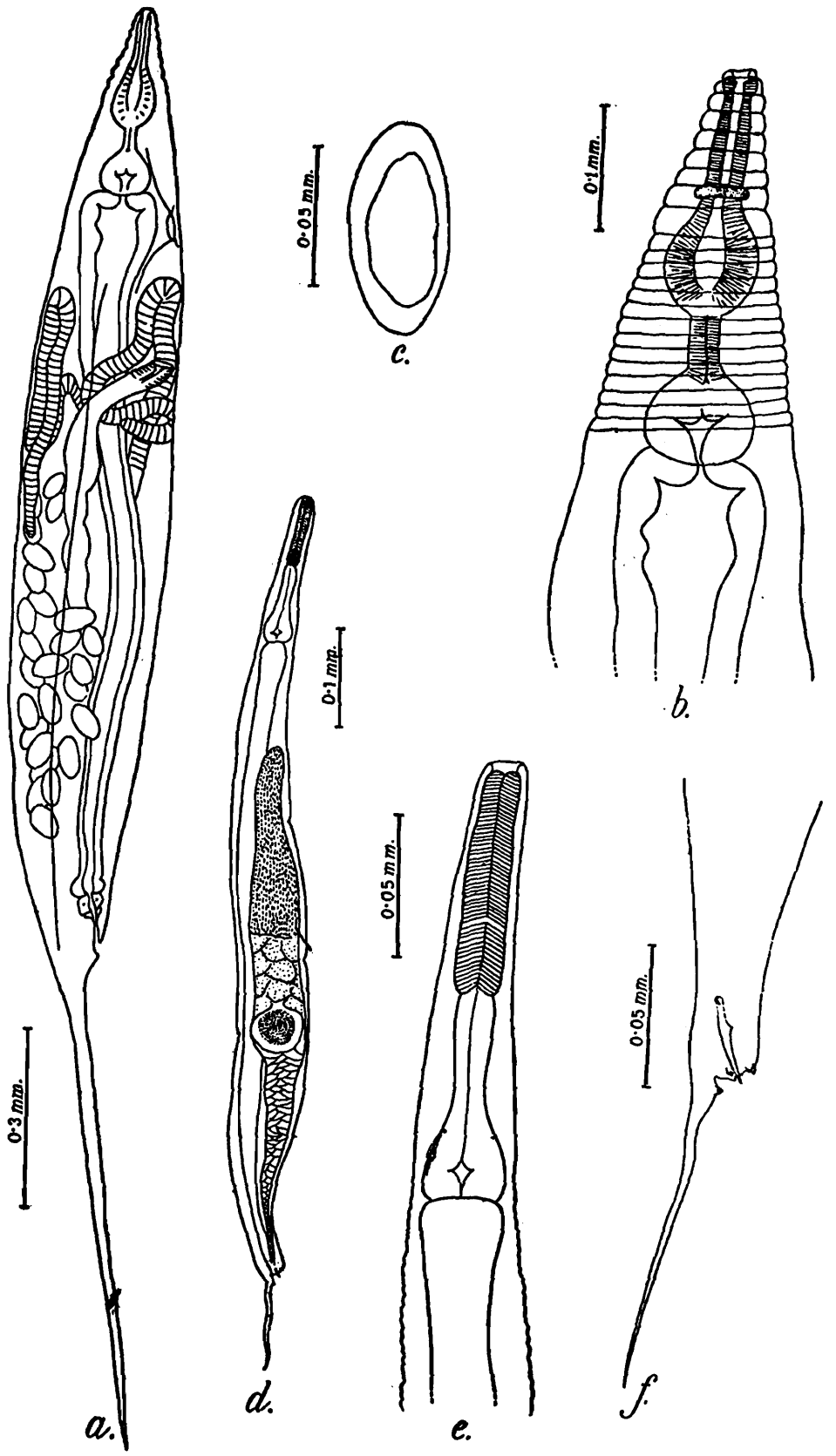
Genus **Leidynemella** Chitwood & Chitwood, 1933

Leidynemella periplaneticolae, sp. nov.

Female.—(Text-fig. 1*a*, *b*). Length 2·13—2·945 mm., maximum breadth 0·245—0·295 mm. Lateral alae present from the base of the oesophagus upto the anus *i.e.* $\frac{3}{4}$th of the posterior part of the body. The alae are about 0·026 mm. wide and well marked off. I-III annules are about 0·017 mm. wide, IV-VI annules are 0·025—0·026 mm. wide and the annules posterior to the base of the oesophageal bulb are about 0·022 mm. wide and correspond to the lateral alae. The cuticle in the region of the oesophageal bulb is rather smooth. Buccal cavity is prismoidal and possesses cuticular thickenings at the base. Oesophagus 0·305—0·34 mm. long, consisting of: a corpus 0·185—0·215 mm. long and the diameter of the anterior region (anterior corpus) is 0·026—0·028 mm. and that of the posterior region (posterior corpus) is 0·065—0·069 mm., an isthmus measuring 0·043—0·051 mm. long and 0·023—0·025 mm. broad ; and a valvular bulb 0·077—0·078 mm. long and 0·082—0·086 mm. broad. The intestine is enlarged to form a cardia which has a greater diameter than the oesophageal bulb. The nerve ring is present just behind the posterior part of the corpus, 0·104—0·108 mm. from the anterior end. The anus is 0·912—1·06 mm. from the posterior end. The tail is elongated and filiform. The vulva is 0·485—0·618 mm. from the anterior end or anterior to the middle body exclusive of the tail. The excretory pore is 0·352 mm. from the anterior end and posterior to the base of the oesophageal bulb. The vagina is long and directed posteriorly. The two uteri are divergent. The eggs are oval (text-fig. 1*c*) and measure 0·073—0·082 × 0·034—0·039 mm. When deposited, the eggs are segmented. The two ovaries are present in the region of the vulva.

Male.—(Text-fig. 1 *d*, *e*, *f*). Length 0·931—1·08 mm., maximum breadth in the posterior third of the body is 0·068—0·071 mm. Lateral alae are absent. The cuticle is smooth anteriorly upto the valvular bulb, but it is present posteriorly where it is 0·007—0·008 mm. wide. The buccal cavity is small. The oesophagus is 0·14—0·149 mm. long,

consisting of an anterior corpus measuring 0·050—0·053 mm. long and 0·009—0·012 mm. wide, a posterior corpus almost of the same diameter measuring 0·019—0·022 mm. long and 0·011—0·014 mm. wide, an isthmus



Text-fig. 1.—*Leidynemella periplaneticolae*, sp. nov.

a. Female ; *b*. Female, anterior end ; *c*. Egg ; *d*. Male ; *e*. Male, anterior end ; *f*. Male, posterior end.

0·043—0·05 mm. long and 0·009—0·011 mm. wide, and a valvular bulb 0·026—0·031 mm. long and 0·025—0·027 mm. wide. The anus is subventral. The tail appears to be attached as an elongated appendage,

almost in the same plane as the body. When living, the worm is capable of moving the tail appendage to the dorsal side, in which position it was probably examined in the case of *Leidynemella fusiformis* Cobb, 1920. The single testis is well developed and extends almost upto the excretory pore, which is present much posterior to the base of the oesophageal bulb and 0·211—0·233 mm. from the anterior end. One single spicule, 0·027—0·03 mm. long. Caudal papillae are present: one pair preanal and subventral, one pair adanal and subventral, and one single papilla postanal and midventral on the tail appendage.

Host.—*Periplaneta americana* Linn.

Location.—Rectum.

Locality.—Lucknow, India.

Discussion.—The genus *Leidynemella* was created by Chitwood and Chitwood (1933) to accommodate a new species *L. paracranifera*, and the genus also included *L. fusiformis* Cobb, 1920, and *L. panesthiae* (Galeb, 1878). The present form differs from these three species in many of the characters and can be differentiated according to the following key :

KEY TO THE SPECIES OF THE GENUS *Leidynemella*

1. Vulva posterior to the middle of the body (exclusive of tail)	*L. panesthiae.*
Vulva anterior to the middle of the body (exclusive of tail)	2
2. Lateral alae of female terminating as spinate process both anteriorly and posteriorly; annules not over 0·005 mm.	*L. fusiformis*
Lateral alae of female not terminating in spinate processes; annules much more than 0·005 mm. wide.	3
3. Annules 0·01 mm. wide near middle of body	*L. paracranifera.*
Annules 0·02—0·022 mm. wide near middle of body	*L. periplaneticolae*, sp. nov.

The male of *Leidynemella periplaneticolae*, sp. nov. closely resembles that of *Hammerschmidtiella diesingi* (Hammerschmidt, 1838). The chief difference between *Hammerschmidtiella* Chitwood, 1932 and *Leidynemella* Chitwood & Chitwood, 1933, lies in the fact that the corpus in the latter genus possesses a distinct swelling in the posterior region. This distinction is, however, well marked only in female specimens and in the male specimens the distinction between the two is not so evident. Similar sexual dimorphism is also present in *H. diesingi.* In the other species of *Leidynemella* the corpus of the male is not well described : in *L. paracranifera* Chitwood & Chitwood, 1933, the male is unknown ; in *L. fusiformis* Cobb, 1920, the " oesophagus is not described ; presumably as in female " ; and in *L. panesthiae* (Galeb, 1878) the corpus is not described and the male is " somewhat similar to that of *H. diesingi* " In the present form however, the posterior part of the corpus though of the same diameter as the anterior part, can easily be distinguished by a partition (text-fig 1*e*). The males of both *L. periplaneticolae*, sp. nov. and *H. diesingi* possess similar anal papillae and a single spicule.

Genus **Bulhoesia** Schwenck, 1926 emended

Bulhoesia thapari, sp. nov.

Female.—(Text-fig. 2 *a*, *b*). Length 2·323—2·53 mm., maximum breadth 0·176—0·217 mm. Lateral alae absent. The first cuticular annule is 0·017—0·018 mm. wide and the posterior annules are about 0·013 mm. wide. The mouth opening is triangular, surrounded by eight small labiopapillae and two circular amphids. The buccal cavity is almost square and 0·014—0·015 mm. deep. The oesophagus is 0·451—0·481 mm. long, consisting of a corpus measuring 0·335—0·388 mm. long and 0·034 mm. wide, an isthmus 0·030—0·031 mm. long and 0·030 mm. wide, and a valvular bulb 0·086 × 0·086 mm. The nerve ring is 0·215—0·217 mm. from the anterior end and in the posterior part of the corpus. The excretory pore is 0·559—0·575 mm. from the anterior end and posterior to the base of the oesophageal bulb. The intestine is slightly enlarged to form a cardia. The anus is 0·602 mm. from the posterior end. The tail is elongated and filiform. The vulva is 1·226—1·348 mm. from the anterior end or posterior to the midbody exclusive of tail. The vagina is short, muscular and anteriorly directed. The two uteri are divergent. The two ovaries are present anterior and posterior to the vulva. The eggs are oval, 0·069—0·074×0·043—0·049 mm. in size, and segmented when deposited.

Male.—(Text-fig. 2*c*, *d*). Length 0·874—1·264 mm., maximum breadth 0·077—0·112 mm. The lateral alae are absent. The cuticular annules are present near the anal region, about 0·004 mm. wide. The buccal cavity is small and about 0·005 mm. deep. The oesophagus is 0·108—0·168 mm. long. The corpus measures 0·108—0·138×0·014—0·017 mm. The isthmus is 0·022—0·026 mm. long and 0·011—0·012 mm. broad, and the valvular bulb is 0·035—0·04 mm. long and 0·036—0·042 mm. broad. The nerve ring could not be detected. The excretory pore is present much posterior to the base of the oesophageal bulb and in one specimen about 0·361 mm. from the anterior end. The anus is 0·146—0·155 mm. from the posterior end. The tail is much elongated and filiform. The single testis is reflexed and reaches almost upto the excretory pore. The anal papillae are distributed as follows: one pair preanal and subventral, one pair postanal and subventral and one single postanal and medial papilla. The spicule is single, 0·039—0·043 mm. long.

Host.—*Periplaneta americana* Linn.

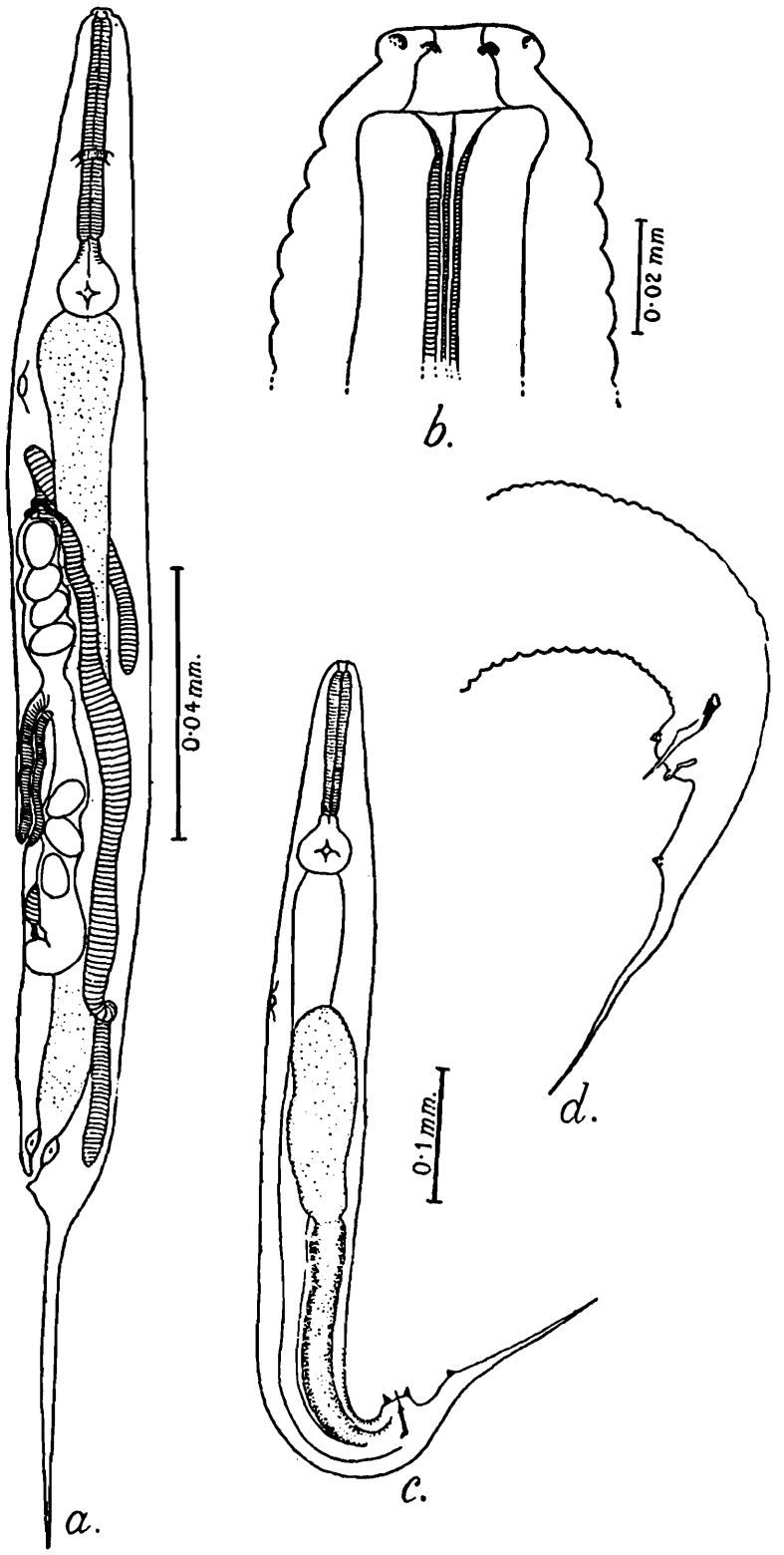
Location.—Rectum.

Locality.—Lucknow, India.

Discussion.—The genus *Bulhoesia* was created by Schwenck (1926) but it was made a synonym of *Thelastoma* by Travassos (1929) and accepted by Chitwood (1932) and other workers.

A number of species of *Thelastoma* have been described from various posts but only two species *viz.*, *Thelastoma indiana* and *Thelastoma aligarhica* have been described from India. The species, which were

described by Basir (1940), are respectively from *Leucophaea sp.* and *Periplaneta americana.* Unfortunately males were not found in either case and the description of the female specimens is not satisfactory and



Text-fig. 2.—*Bulhoesia thapari*, sp. nov.

a. Female ; *b.* Female, anterior end ; *c.* Male ; *d.* Male, posterior end.

also the author failed to distinguish the species. Chitwood (1932, p. 20) divided the species of *Thelastoma* parasitic in Blattidae in two groups: (*a*) those species having the " excretory pore anterior to or at the same level as the oesophageal bulb ; tail of female distinctly filiform " under *Thelastoma sensu restricto* ; and (*b*) the rest of the species having the " excretory pore posterior to the base of the oesophagus, tail of female conical or attenuated " under *Thelastoma sensu lato.* To the latter group,

to which the present species belongs, also belong *Bulhoesia icemi* Schwenck, 1926, *B. magalhaesi* Schwenck, 1926, and *Thelastoma aligarhica* Basir, 1940. The other species, *Thelastoma indiana* cannot, at present, be assigned to any of these groups as the excretory pore in the species was not observed and the male is unknown. The character of tail is not consistent with the position of the excretory pore as in *T aligarhica* Basir, 1940, the present form and, according to Todd (1943), in *B. icemi* Schwenck, 1926 (syn. *Thelastoma icemi* Schwenck, 1926) the tail is filiform though for the latter species the tail has also been described as attenuated (Chitwood, 1932). It therefore seems necessary that the character of tail be not used to distinguish between the two groups, *Thelastoma sensu restricto* and *lato*, as done by Chitwood (1932).

The group *Thelastoma sensu lato* of Chitwood includes three species and the male specimen was for the first time described by Todd (1943) for *B. icemi* Schwenck, 1926 and now in the present form.

The females of *Thelastoma aligarhica* Basir, 1940 and those of *Bulhoesia magalhaesi* Schwenck, 1926, resemble very closely and hence *T aligarhica* Basir 1940, must be considered a synonym of *B. magalhaesi* Schwenck, 1926.

In *Thelastoma*, according to Chitwood (1932), the male possesses four pairs of anal papillae, but in *B. icemi* Schwenck, 1926 (see Todd, 1943) and the present form (the only two species of *Thelastoma sensu lato* in which male is known) there are three pairs and two pairs and a single papilla respectively. This character of possessing less than four pairs of anal papillae and also having the excretory pore posterior to the base of the oesophageal bulb are in contrast with the characters of *Thelastoma sensu restricto* in which there are four pairs of anal papillae and also the excretory pore is anterior to the oesophageal bulb. The choice, therefore before us is, either to neglect the characters of the tail, position of the excretory pore and the number of the anal papillae and regard the species as belonging to *Thelastoma* with no reservation or to restore the genus *Bulhoesia* Schwenck, 1926. To the authors, the latter course seems to be more convenient for the sake of classification and hence the genus *Bulhoesia* Schwenck, 1926 is revived with the emended diagnosis as given below.

Generic diagnosis.—Thelastominae ; Mouth of female surrounded by eight submedian labiopapillae. Lips usually salient ; amphids as circular openings. Oesophagus simple, cylindrical (corpus), followed by a distinct isthmus and a valvular bulb. Excretory pore posterior to the base of the oesophageal bulb. Tail of female usually filiform, may be attenuated. Vulva near middle of body. Two ovaries ; uteri divergent. Eggs simple. Tail of male elongate and filiform, bearing less than four pairs of anal papillae : one pair preanal and ventral, one pair postanal and subventral and one pair postanal and ventral papillae present some distance from the cloaca. (The latter pair may be fused together to form a single median papilla as in *B. thapari*,* sp. nov.) One spicule.

* The species is named in honour of our teacher, Prof. G. S. Thapar.

KEY TO THE SPECIES OF THE GENUS *Bulhoesia*

1. Females more than 3 mm. in length ; eggs almost spherical . . *B. magalhaesi.*

   Females 2—3 mm. in length ; eggs nearly oval . . 2

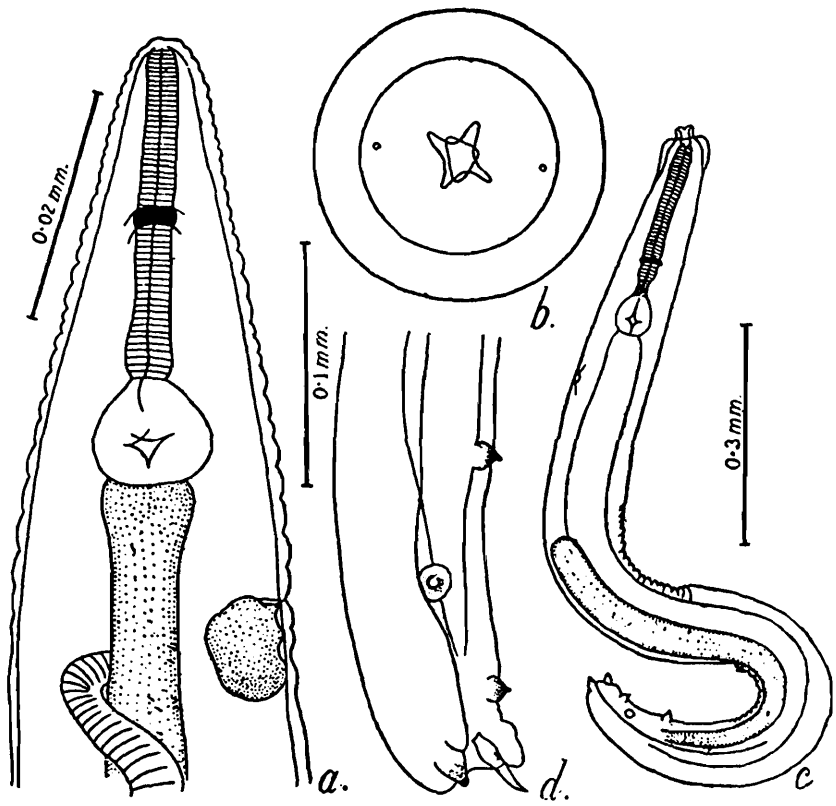
2. Oesophagus of female 0·37—0·42 mm. long ; excretory pore 0·380—0·47 mm. from anterior end ; eggs 0·065—0·070 × 0·050—0·057 mm., unsegmented when deposited *B. icemi.*

   Oesophagus of female 0·45—0·48 mm. long ; excretory pore 0·056—0·058 mm. from anterior end ; eggs 0·069—0·074 × 0·043—0·049 mm., segmented when deposited *B. thapari*, sp. nov.

Genus **Gryllocola** Basir, 1942

Gryllocola gryllotalpae, sp. nov.

Female.—(Text-fig. 3*a*, *b*). Length 1·948—2·185 mm. ; maximum breadth 0·228—0·238 mm. Cuticle is striated in the anterior half, annules 0·012—0·014 mm. wide. Cervical and caudal alae are absent. Mouth



TEXT-FIG. 3.—*Gryllocola gryllotalpae*, sp. nov.

a. Female, anterior end ; *b*. Female, anterior end, end on view ; *c*. Male, *d*. Male, posterior end.

opening X-shaped, being surrounded by three slightly developed lips. The labiopapillae could not be detected even under high power. Two amphids present. Buccal cavity small and inconspicuous, about 0·016 mm. deep and broadly V-shaped. Oesophagus 0·026—0·031 mm. broad. The isthmus is almost absent and cannot be distinguished from the corpus. The oesophageal bulb is valvular and measures 0·093 × 0·093 mm. The nerve ring is 0·161 mm. from the anterior end. The excretory pore is

0·434—0·496 mm. from the anterior end, posterior to the base of the oesophageal bulb, and possesses a well developed excretory bag. The intestine is slightly enlarged to form a cardia, which is less broad than the valvular bulb. The anus is 0·211—0·217 mm. from the posterior end. The tail is short, conical and tapering. The vulva is 1·131—1·364 mm. from the anterior end *i.e.* approximately 12/20—14/23 from the anterior end. The vagina is short, muscular and directed anteriorly. The two uteri are divergent. The two ovaries are present—one anterior and the other posterior to the vulva. The eggs are oval, 0·053—0·056 × 0·030—0·031 mm. in size, segmented, and do not have any polar caps.

Male.—(Text-fig. 3 *c*, *d*). Length 1·071—1·397 mm., maximum breadth 0·093—0·112 mm. Cervical alae absent, caudal alae present. The cuticle is almost smooth. Buccal cavity comparatively large. The mouth opening appears to be surrounded by three well developed lips. Oesophagus 0·301—0·31 mm. long. Corpus 0·202 mm. long, isthmus 0·016 × 0·016 mm., and the valvular bulb 0·053—0·062 × 0·049—0·053 mm. Nerve ring 0·190—0·202 mm. from the anterior end. The excretory pore is 0·357—0·434 mm. from the anterior end, posterior to the base of the oesophageal bulb. Cloaca almost near the posterior end, on the ventral side. Tail truncated. Caudal papillae consisting of one pair of large ventral and preanals, one pair subventral preanals, one pair ventral and preanals immediately anterior to the cloaca and one pair of large subventral postanals. Testis single and reflexed. One spicule 0·025 mm long.

Host.—*Gryllotalpa africana* Beauv.

Location.—Rectum.

Locality.—Lucknow, India.

Discussion.—The genus *Gryllocola* was created by Basir in 1942 to accommodate *G. gryllocola* from *Gryllotalpa* sp. The present species differs from the type species, *G. gryllocola* Basir, 1942, in the size of the female and the male worms, absence of cervical alae in both the sexes, size of oesophagus in female, position of anus and vulva in the female, large eggs without polar caps; position of nerve ring in male, position of the anal papillae and size of the spicule.

In the male and female forms of the present species the lips are fairly well developed, though not much in the female but can be distinguished all the same. The lips in the type species, *G. gryllocola* cannot be distinguished though in the female it is described as " Oral opening prismoidal with three inner cuticular projections, surrounded by eight submedian labiopapillae " It seems that the " three inner projections " are nothing but the slightly developed lips as present in the present species. The labiopapillae could not be detected though examined very carefully under high magnification.

The genus *Mirzaiella* Basir, 1942, closely resembles the genus *Gryllocola* Basir 1942. According to Basir, however, the genus *Mirzaiella* differs from *Gryllocola* in having three well developed lips, intestine forms big cardia and the tail appendage is somewhat distinctly set off from the body, the rest of the characters, being strikingly similar. In

G. gryllocola, Basir could not observe the excretory pore, but in the form described above the excretory pore is posterior to the base of the oesophageal bulb whereas in *Mirzaiella* the excretory pore is anterior to the valvular bulb. In the present species, which closely resembles *G. gryllocola* Basir, 1942 in large number of characters, the lips are fairly well developed, a character it shares with *Mirzaiella*. Hence, the present form shows characters shared by *Gryllocola* and *Mirzaiella* as described by Basir, but it seems more probable that the genus *Mirzaiella* is a synonym of the genus *Gryllocola*. Unfortunately, no male of *Mirzaiella asiatica* was recovered which alone would decide the issue. In case the male of *M. asiatica* bears out the above conclusion, the genus *Mirzaiella* will be a synonym of *Gryllocola*, the latter genus having page precedence. The generic diagnosis of the genus will be as follows.

Genus **Gryllocola** Basir, 1942, emended

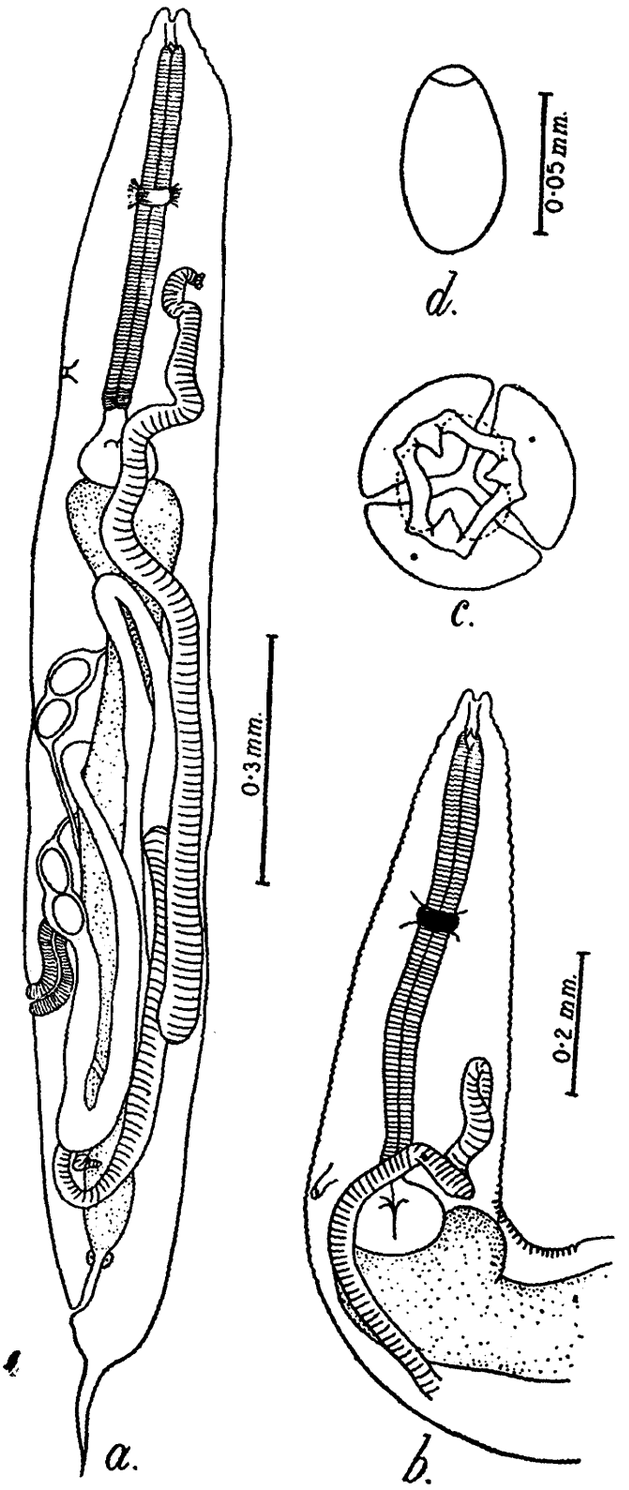
Synonym : **Mirzaiella** Basir, 1942

Thelastomatinae : Mouth opening prismoidal surrounded by three lips and eight submedian labiopapillae. Cervical and caudal alae may be present. Oesophagus consists of an anterior corpus, isthmus and a valvular bulb. Intestine enlarged to form a cardia. Vulva about 2/3 from the anterior end. Tail of female conical and tapering. Tail of male truncated bearing three pairs of preanal and one pair postanal papillae. Vagina directed anteriorly ; ovaries two ; uteri two, divergent. Eggs oval, with or without polar caps. Spicule single. Parasites of *Gryllotalpa* sp. Type species : *G. gryllocola* Basir, 1942.

Gryllocola indicus, sp. nov.

Female.—(Text-fig. 4*a*, *b*, *c*). Length 1·948—2·328 mm. ; maximum breadth 0·226—0·248 mm. The cuticle is annulated upto the bulb, the first annule is 0·016 mm. in breadth, the rest of the annules upto the bulb are 0·006—0·009 mm. in breadth, decreasing in width posteriorly. The three lips are well developed and surround a triangular mouth opening. Two amphids present, the labiopapillae could not be detected even after careful examination. Buccal cavity 0·037—0·043 mm. deep and 0·025—0·028 wide, cylindrical. Three chitinous teeth present at the base of the buccal cavity. The oesophagus is 0·58—0·657 mm. long, consisting of a corpus measuring 0·543 × 0·037 mm. ; an isthmus 0·019—0·022 × 0·02—0·025 mm. ; and a valvular bulb 0·078—0·093 mm. Nerve ring 0·236—0·295 mm. from the anterior end, in the anterior half of the corpus. Excretory pore 0·496—0·558 mm. from the anterior end, anterior to the oesophageal bulb. Intestine dilated to form a big cardia, greater in diameter than that of the oesophageal bulb. Anus 0·226—0·233 mm. from the posterior end. Tail long and tapering appendage about 0·164 mm. in length. Vulva 1·311—1·473 mm. from the anterior end or approximately 60—66 per cent. posteriorly of the body. Vagina muscular and directed anteriorly. Ovaries two, the anterior one reaching anterior to the excretory pore and the posterior one posterior to the vulva.

The two uteri are divergent. The eggs (text-fig. 4*d*) measure 0·056—0·062 × 0·034 mm. They are segmented.



Text-fig. 4.—*Gryllocola indicus*, sp. nov.
a. Female ; *b*. Female, anterior end ; *c*. Female, anterior end, end on view ; *d*. Egg.

Host.—*Gryllotalpa africana* Beauv.

Location.—Rectum.

Locality.—Lucknow, India.

Discussion.—The present form closely resembles *Gryllocola asiatica* Basir, 1942 (syn. *Mirzaiella asiatica* Basir, 1942) in many points but differs mainly in having three cuticular teeth at the base of the buccal

cavity, size of eggs, absence of labiopapillae (it seems improbable that they have been overlooked in the present form), small buccal cavity and position of the vulva. Unfortunately, the type specimen of *G. asiatica* is not available to us for study and hence it is difficult to decide the systematic position of the present form, more so because the measurements of *G. asiatica* available are apparently from one single female specimen, the males being unknown both in *G. asiatica* and the present form.

It so happened that a large number of hosts, *Gryllotalpa africana* Beauv. ere examined but in all the cases, mixed infection was found and there was some difficulty in classifying the male forms described here as *Gryllocola gryllotalpae*, sp. nov., since it could be described both with *Gryllocola gryllotalpae* sp. nov., as well as the present form. With the former species the male resembles in having the excretory pore posterior to the base of the oesophagus whereas it resembles the latter species, *G. indicus*, sp. nov., in having three well developed lips. But the male described under *Gryllocola gryllotalpae*, sp. nov. resembles very closely the male of *G. gryllocola* Basir, 1942, the authors feel inclined to classifying it under *G. gryllotalpae*, sp. nov. rather than with *G. indicus*, sp. nov.

Genus **Gryllophila** Basir, 1942

Gryllophila khehariae, sp. nov.

Female.—(Text-fig. 5 *a, b, c*). Length 2·256—3·107 mm.; maximum breadth 0·342—0·409 mm. The I and II annules are very prominent measuring 0·022 and 0·030 mm. respectively, rest of the annules anterior to the bulb are less prominent, measuring upto 0·045 mm., and in the rest of the body the annules are about 0·032 mm. Buccal cavity small. The oesophagus is 0·456—0·49 mm. long, consisting of a corpus 0·304—0·335 × 0·034—0·036 mm.; an isthmus 0·046—0·062 × 0·036—0·037 mm., and a valvular bulb 0·093—0·099 × 0·093—0·099 mm. The mouth opening is irregularly pentagonal and surrounded by eight labiopapillae and two amphids. The intestine is much enlarged to form a cardia, greater in diameter than the valvular bulb. Nerve ring 0·226—0·236 mm. from the anterior end, situated at the posterior end of the corpus. Excretory pore 1·054 mm. from the anterior end, much posterior to the base of the valvular bulb. Anus 0·31—0·34 mm. from the posterior end. Tail conical and tapering. Vulva 1·758—2·375 mm. from the anterior end or approximately 75 per cent. posterior to the body. Vagina directed anteriorly. Ovaries two. Uteri two, divergent. Eggs oval 0·140 × 0·099 mm., segmented before deposition.

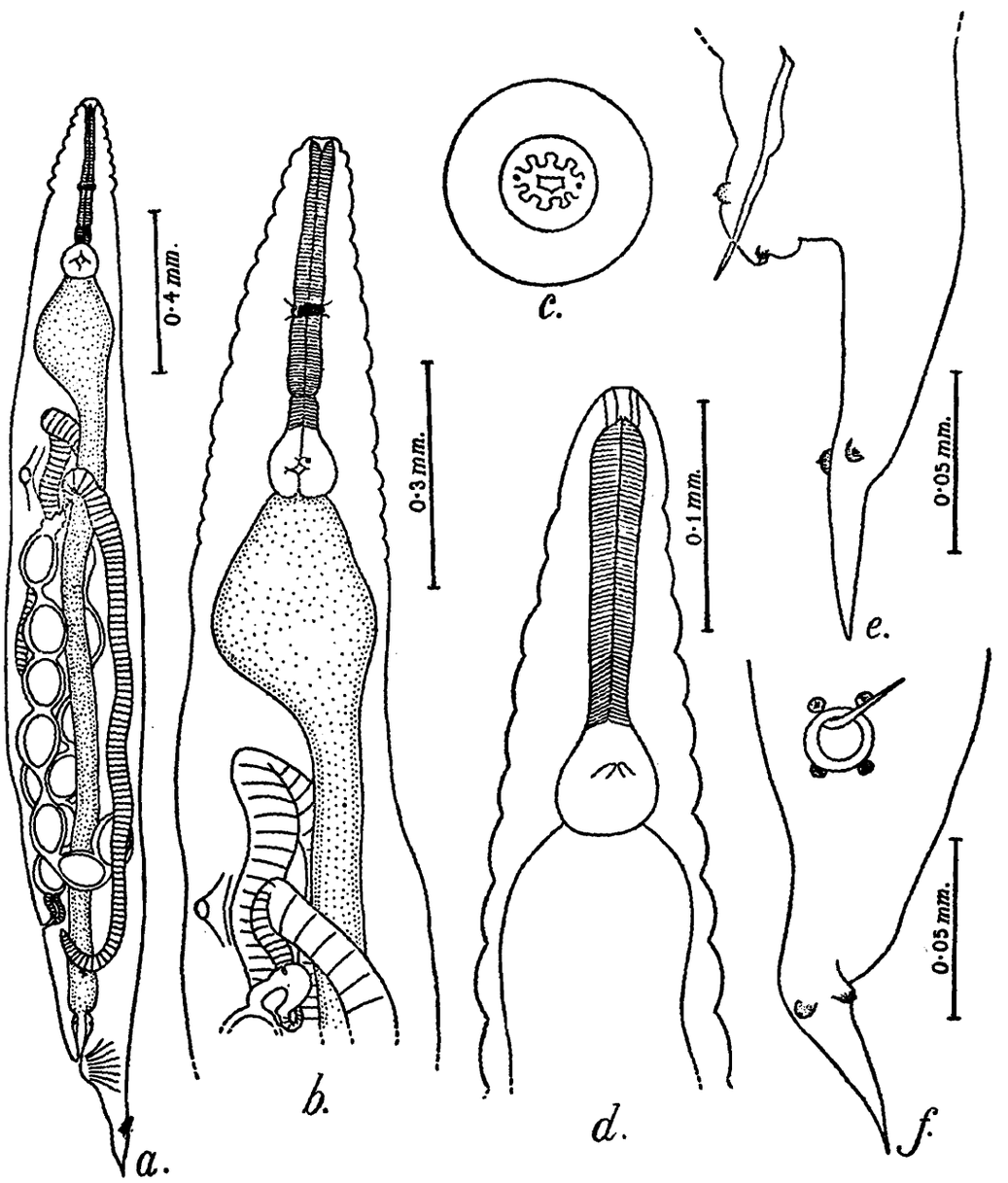
Male.—(Text-fig. 5 *d, e, f*). Length 1·378—1·38 mm., maximum breadth 0·133—0·146 mm. Body annulated prominently throughout the body length. First annule very big. Buccal cavity 0·021 mm. deep, cylindrical. Oesophagus 0·177—0·18 mm. long. Corpus 0·099 × 9·02 mm.; isthmus 0·037 × 0·015 mm., and valvular bulb 0·042—0·046 × 0·042—0·046 mm. The intestine is enlarged, having a greater diameter than that of the bulb. The nerve ring and the excretory pore could not be detected. Cloaca 0·115—0·118 mm. from the posterior end. Tail attenuated and tapering. Testis single, reflexed. Spicule

0·057—0·062 mm. long. Three pairs of caudal papillae present: one pair preanal and one pair postanal surrounding the cloacal opening and one pair of postanal papillae much posterior to the cloacal opening. All the papillae are ventral.

Host.—*Gryllotalpa africana* Beauv.

Location.—Rectum.

Locality.—Lucknow, India.



Text-fig. 5.—*Gryllophila khehariae*, sp. nov.

a. Female; *b*. Female, anterior end; *c*. Female, anterior end, end on view; *d*. Male anterior end; *e*. Male, posterior end, lateral view; *f*. Male, posterior end ventral view.

Discussion.—The genus *Gryllophila* was created by Basir in 1942 for a new species *G. gryllophila* from *Gryllotalpa* sp. The present form differs from the only species of the genus *G. gryllophila* Basir 1942, in the male having three pairs of anal papillae and a large spicule. It is interesting to note that the rest of the structures of both male and female of the present species closely resemble those of *G. gryllophila*. Since it is very improbable that such large anal papillae, as present in the

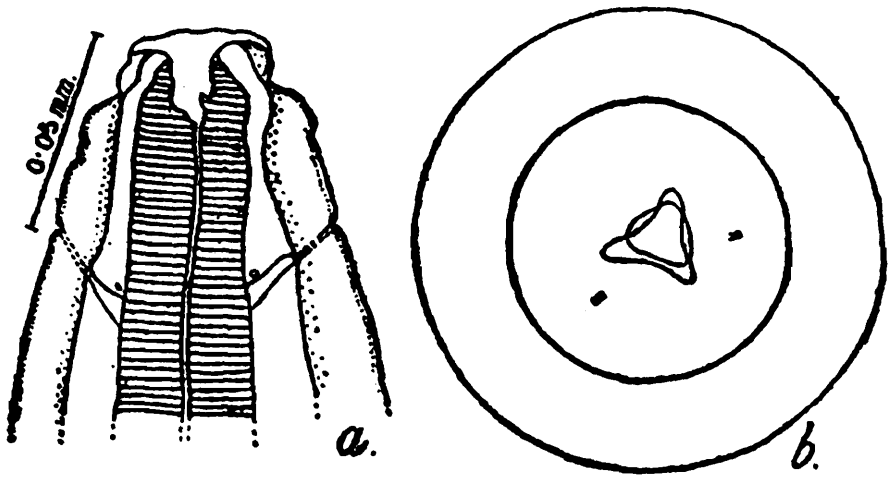
present form, may have been completely overlooked by Basir, it seems necessary to create a new species for the present form, which shall be known as *Gryllophila khehariae*, sp. nov.

Basir (quoted by Theodorides (1953)) is of the opininon that *Gryllophila gryllophila* Basir, 1942 and *Neyraiella neyrae* Sanchez, 1946 are synonymous to *Thelastoma skrjabini* Serguiev. Since *G. gryllophila* Basir, 1942 was the type species of the genus, the new species, *G. khcehariae* becomes the type species by designation. Further, the generic diagnosis of *Gryllophila* should include : " Three pairs of anal papillae : one pair preanal, one pair adanal and one pair postanal papillae "

Genus **Talpicola** Basir, 1942

Talpicola talpicola Basir, 1942

Female.—(Text-fig. 6 *a*, *b*). Length 2·708—2·964 mm., maximum breadth 0·186—0·26 mm. The cuticle is very lightly annulated in the



Text-fig. 6.—*Talpicola talpicola* Basir.

a. Female, anterior end, side view ; *b*. Female, anterior end, end on view.

first and second annules. Narrow cervical alae present. Mouth opening is tri-radiate. No labiopapillae could be seen, two amphids present. Buccal cavity 0·016—0·019 mm. deep and 0·006—0·009 mm. broad. Oesophagus 0·326—0·341 mm. long, consisting of : a corpus measuring 0·233—0·239 × 0·031—0·04 mm.; an isthmus 0·016—0·022 mm. long and 0·028—0·048 mm. broad and a valvular bulb 0·068—0·077 × 0·076—0·093 mm. The intestine is enlarged forming a cardia greater in diameter than the bulb. The nerve ring is almost in the middle of the corpus, 0·14—0·15 mm. from the anterior end. Excretory pore much posterior to the base of the oesophagus and 0·527—0·558 mm. from the anterior end. Anus 0·124—0·192 mm. from the posterior end. The tail is tapering and elongated. The vulva is 1·52—1·8 mm. from the anterior end or approximately 55 per cent. posterior of the body length. The vagina is muscular and anteriorly directed. Ovaries two, one reaching almost upto the excretory pore and the other posterior to the vulva. The two uteri are divergent. Eggs are oval, measuring 0·052—0·068 × 0·028—0·034 mm. They are segmented and do not possess any polar caps.

Host.—*Gryllotalpa africana* Beauv

Location.—Rectum.

Locality —Lucknow, India.

Note 1.—There seem to be two ducts coming out from the anterior, region of the corpus and opening to the outside through round apertures and narrow ducts. The opening is 0·052—0·056 mm. from the anterior end. The nature of these ducts and openings could not be ascertained.

Note 2.—The excretory pore and the tail is surrounded by small hair-like process in several specimens examined, which are probably fungi.

Discussion.—The present form though differing from *Talpicola talpicola* Basir, 1942 in the size of the buccal cavity, isthmus and eggs and the position of the nerve ring, must necessarily belong to the above species. The hair-like fungi and the opening of a duct of unknown nature are however being described for the first time for the genus. The nature of the ducts could not be ascertained.

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