

From the Zoological Survey of India, Calcutta

**NOTES ON THE EARTHWORMS FROM DARJEELING DISTRICT,
WITH DESCRIPTIONS OF TWO NEW SPECIES**

By

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With 2 tables

A good amount of work has been done on the earthworms of the eastern Himalayas, especially from Darjeeling district (STEPHENSON, 1923; GATES, 1937, 1945, 1951, 1958). But more information is required to have a better understanding of the taxonomic status of species described from the area, as a majority of them are represented by a single or only a few examples and immature forms. The present studies are based on the recent material collected at various localities from Darjeeling district of West Bengal. As a result, eighteen species are recorded, of which two species, *Perionyx jorpokriensis* and *Plutellus ghumensis* are new to science.

Systematic Account

Family MONILIGASTRIDAE

Drawida nepalensis MICHAELSEN, 1907

Material. — 1 ex; on way to Dr. Graham's Home, Kalimpong, alt. 1515 m.; 8. i. 71; J. M. Julka. 1 ex; Near Forest Ranger's Office, Sukiapokri, alt. 2160 m.; 15. v. 71; A. R. Bhowmick. 2 ex; 1 km. on way to Ghum, Sukiapokri, alt. 2128 m.; 17. v. 71; A. R. Bhowmick. 1 ex; Near Health Centre, Sukiapokri, 2126 m.; 18. v. 71; A. R. Bhowmick.

Remarks. — Genital markings are absent on two worms. Markings on a specimen from Sukiapokri (near Health Centre) are unpaired, median, setal, on VII, VIII, IX, paired, postsetal, on X and paired, presetal, on XII.

Family MEGASCOLECIDAE

Pheretima diffringens (BAIRD, 1869)

Material. — 28 ex; Kurseong, alt. 1459 m.; 25. xii. 70; J. M. Julka. 32 ex; Kurseong, alt. 1459 m.; 26. xii. 70; J. M. Julka. 3 ex; Daw Hill, Kurseong, alt. 1810 m.; 27. xii. 70; J. M. Julka. 17 ex; Lloyd's Botanic Gardens, Darjeeling, alt. 2060 m.; 1. i. 71; J. M. Julka. 5 ex; Near Burdwan House, Darjeeling; 2. i. 71; J. M. Julka. 2 ex; Himalayan Zoological Park, Darjeeling; 3. i. 71; J. M. Julka. 2 ex; Lloyd's Botanic Gardens, Darjeeling; 4. i. 71; J. M. Julka. 2 ex; Kalimpong, alt. 1515 m.; 8. i. 71; J. M. Julka. 10 ex; About 2 km. on way to Siliguri, Kalimpong, alt. 1100 m.; 9. i. 71; J. M. Julka. 2 ex; Mahanadi, alt. 1240 m.; 25. iv. 71; A. R. Bhowmick. 17 ex;

Near Bandrikhola stream, Mahanadi alt. 1242 m.; 26. iv. 71; A. R. Bhowmick. 4 ex; Near Singell, Kurseong, alt. 1435 m.; 1. v. 71; A. R. Bhowmick. 6 ex; Near Forest Rangers' Office, Sukiapokri; alt. 2160 m.; 15. v. 71; A. R. Bhowmick. 7 ex; 1 km. on way to Ghum, Sukiapokri, alt. 2128 m.; 17. v. 71; A. R. Bhowmick. 11 ex; Near Health Centre, Sukiapokri, alt. 2126 m.; 18. v. 71; A. R. Bhowmick. 4 ex; on way to Mane Bhanjan, Sukiapokri, alt. 2140 m.; 20. v. 71; A. R. Bhowmick. 29 ex; Near D. I. Fund Rest House, Jorpokri, alt. 2220 m.; 22. v. 71; A. R. Bhowmick. 28 ex; From a forest 1 km. E. of Jorpokri, alt. 2210 m.; 23. v. 71; A. R. Bhowmick. 3 ex; 2 km. S. of D. I. Fund Rest House, Jorpokri, alt. 2200 m.; 24. v. 71; A. R. Bhowmick. 3 ex; Lloyd's Botanic Gardens, Darjeeling, alt. 2060 m.; 26. v. 71; A. R. Bhowmick. 23 ex; Ghum Bhanjang, alt. 2195 m.; 28. v. 71; A. R. Bhowmick. 4 ex; Along Sukiapokri—Simana Road; 15. v. 72; M. R. Mansukhani. 6 ex; Jorpokri, alt. 2220 m.; 16. v. 72; M. R. Mansukhani.

Remarks. — An extra male pore is present on the left side of XVII on one of the Kalimpong specimens. On one specimen from Jorpokri, clitellar glandularity on left side is XVI to XVIII, on right side is XIV—XVI, female pores two, mV, on XIV and XVI, male pore of left side on XX and of right side on XVIII.

Pheretima hawayana (ROSA, 1891)

Material. — 149 ex; Near Dhobikhola stream, Kurseong, alt. 1459 m.; 25. xii. 70; J. M. Julka. 28 ex; Kurseong, alt. 1459 m.; 26. xii. 70; J. M. Julka. 1 ex; Daw Hill, Kurseong, alt. 1810 m.; 27. xii. 70; J. M. Julka. 18 ex; Near P. W. D. Inspection Bungalow, Kalimpong, alt. 1234 m.; 7. i. 71; J. M. Julka. 5 ex; Govt. Seed Farm, Kalimpong, alt. 1030 m.; 10. i. 71; J. M. Julka. 5 ex; Kalimpong, alt. 1239 m.; 11. i. 71; J. M. Julka. 1 ex; Kalimpong; 19. i. 71; J. M. Julka. 8 ex; Mahanadi, alt. 1240 m.; 25. iv. 71; A. R. Bhowmick. 2 ex; Near Singell, Kurseong, alt. 1435 m.; 1. v. 71; A. R. Bhowmick. 12 ex; Seed Farm at Phlumdung, Sukiapokri, alt. 1560 m.; 19. v. 71; A. R. Bhowmick.

Remarks. — The variations in the location of the genital markings are recorded in Tables I and II.

Table I: Location of preclitellar genital markings in *Pheretima hawayana* from Darjeeling district

Segment Number:	No. of Specimens:
No genital markings	90
VI (absent on left side), VII	1
VII	28
VII, absent on right side	8
VII, absent on left side	7
VII—VIII	1
VIII, absent on left side	2
Total:	<u>137</u>

Pheretima robusta (PERRIER, 1872)

Material. — 4 ex; Lloyd's Botanic Gardens, Darjeeling, alt. 2060 m.; 1. i. 71; J. M. Julka. 1 ex; Near Health Centre, Sukiapokri, alt. 2124 m.; 18. v. 72; A. R. Bhowmick. 7 ex; Lloyd's Botanic Gardens, alt. 2060 m.; 26. v. 71; A. R. Bhowmick.

Perionyx excavatus PERRIER, 1872

Material. — 41 ex; Dhobikhola stream, Kurseong, alt. 1459 m.; 25. xii. 70; J. M. Julka. 29 ex; Daw Hill, Kurseong, alt. 1810 m.; 27. xii. 70; J. M. Julka. 69 ex; Govt. Seed Farm, Kalimpong;

alt. 1030 m.; 10. i. 71; J. M. Julka. 26 ex; From a Bustee near Mahananda river, Siliguri, alt. 260 m.; 13. i. 71; J. M. Julka.

Remarks. — On one specimen from Kalimpong, male pore of left side is on XVII and of right side on XVIII, right heart of XII is absent. Female pores are three, unpaired, median, on XIV, XV, XVI, male pores on XVII and segment XV is incompletely divided on the dorsum of one of the Kurseong specimens. On another specimen from Kurseong, clitellum is XIV—XVIII; spermathecal pores, three pairs, on 7/8, 8/9, 9/10; female pore, unpaired, median, on XV; male pores, on XIX; last hearts, in XIV. Segment III and IV are not distinctly divided, but the combined segment has two setal rings in another worm from Kurseong. On one specimen from Siliguri, male pores are on XVII and XVIII, and on another specimen, male pores are on XVII.

Table II: Number of postclitellar genital markings in *Pheretima hawayana* from Darjeeling district

Number of markings on left and right sides of segment XVIII:	No. of specimens:
0—0	6
0—1	3
1—0	2
2—0	1
1—1	49
1—2	13
2—1	10
2—2	33
2—3	7
3—2	2
2—4	1
2—5	1
3—3	11
3—4	1
3—5	1
4—4	2
4—5	1
5—5	2
6—7	1
Total:	<u>137</u>

Perionyx m'intoshi BEDDARD, 1883

Material. — 7 ex; Near Goomti Forest Rest House, Mahanadi, alt. 1244 m.; 25. iv. 71; A. R. Bhowmick.

Perionyx jorpokriensis sp. nov.

Material. — 1 ex; Around Health Centre, Sukiapokri, alt. 2126 m.; 18. v. 71; A. R. Bhowmick 2 ex; Jorpokri, alt. 2220 m.; 22. v. 71; A. R. Bhowmick. 4 ex; From a forest 1 km. E. of Jorpokri alt. 2126 m.; 23. v. 71; A. R. Bhowmick.

External Characteristics. — Length, 58—62 mm. Diameter, 3 mm. (in clitellar region). Segments, 99—106. Pigmentation red, though appearing externally dark blue, restricted to

dorsum except on I—V where ventrum is also invaded. Prostomium epilobous, tongue open, a short median longitudinal furrow on tongue, lateral furrows reaching posteriorly a little beyond half of I. First dorsal pore, at 4/5. Setae, present from II, closely spaced ventrally, more widely separated dorsally, circles with a ventral gap $AA = 1\frac{1}{2} AB$, dorsal gap $ZZ = 1\frac{1}{2} YZ$. Setal formula, 28g¹⁾ — 35/II, 26 g — 35/III, 45 — 52/VIII, 42—45/XII, 40—43/XX; VIII/12—14, XVII/8—10, XVIII/0—4, XIX/6—9. Nephropores, in a single, irregular rank, near mL, close to margin of pigmentation. Clitellum, annular, on XIII to XVII, intersegmental furrows lightly marked, setae present, dorsal pores occluded.

Sexthecal, spermathecal pores, on 6/7—8/9, transverse slits with protuberant and annular lips, in line with *F* or *G*. Male field, a little depressed rectangular area, slightly raised along mV, reaching anteriorly to 17/18, posteriorly to 18/19, laterally to *FG* or *GH*. Male pores, postsetal, on the centre of two circular, short, porophores, in line with *D* or *E*. A short, longitudinal, fissure runs from each male pore anteriorly to a slight depression. Female pore, unpaired, presetal, median, on XIV.

Internal anatomy. — Pigment, red, associated with circular muscle layer, lacking just below the intersegmental furrows. Special longitudinal muscle band at mD, densely pigmented. Septa, delicate, without any apparent muscularity.

Gizzard, small, in V. Oesophagus quite vascular in X—XIII, widened and bead-shaped in XIII, with irregular longitudinal ridges on inner wall in X—XIII, valvular in XIV. Intestinal origin, in XV. Typhlosole lacking.

Dorsal blood vessel, single throughout, anteriorly bifurcates under the brain, the two branches reuniting above the sub-pharyngeal ganglion to form the ventral blood vessel. Supra-oesophageal in VII—XII, bifurcates posteriorly twice, one branch to the heart of XII, another passing to the oesophageal widening in XIII. Subneural and extraoesophageal trunks, obviously without any blood and unrecognizable. Large hearts, in X—XII, with connections with supra-oesophageal and dorsal trunks.

Nephridia, avesculate, ducts long and slender, passing into parieties in a slightly irregular rank on each side.

Holandric, male funnels and testes free, funnels iridescent. Seminal vesicles in XI and XII, speckled with spermatozoal iridescence, united dorsally above the gut. Coelomic cavity of X is filled with coagulum.

Prostates, racemose, squarish, confined to XVIII, but displacing 17/18 and 18/19. Prostatic duct, slender, straight, forming a loop before entering parieties close to nerve cord. No penial setae. Spermathecae, medium size. Spermathecal duct, muscular, a little shorter than the globular ampulla. A distinct ridge with two or three clearly demarcated iridescent lobes is present on the anterior face of duct just beneath ampulla. The duct widens before entering parieties and lumen is wide.

Ovaries fan-shaped, each with many egg strings.

Remarks. — *Perionyx jorpokriensis* is closely related to *Perionyx bingstoni* STEPHENSON, 1925, but can be distinguished by the clitellum extending over segments XIII—XVII (on XVI—XVI in *bingstoni*), and presence of a ridge-like diverticulum on the spermathecal duct.

Perionyx pulvinatus STEPHENSON, 1916

1916. *Perionyx pulvinatus* STEPHENSON, *Rec. Indian Mus.*, 12: 317.

1923. *Perionyx pulvinatus*: STEPHENSON, *Fauna Brit. India, Oligochaeta*: 353.

¹⁾ g — denotes a gap in the setal ring.

Material. — 1 ex; From a forest 1 km. E. of Jorpokri, alt. 2210 m.; 23. v. 71; A. R. Bhowmick 1 ex; 2 km. S. of D. I. Fund Rest House, Jorpokri, alt. 2200 m.; 24. v. 71; A. R. Bhowmick.

External characteristics. — Length, 7.2–9.3 mm. Diameter, .3–.35 mm. Segments, 121–126. Prostomium epilobous, tongue closed, a median dorsal groove on prostomium extending posteriorly a little beyond setal ring of II. First dorsal pore, at 4/5. Setae begin on II, rings more closely set ventrally than on dorsum. Setal formula, 44–46/II, 52/III, 66–68/VIII, 40–42/XX; VIII/18–22, XVII/12, XVIII/0, XIX/11–14. Nephropores, in a single irregular rank on dorsum. Clitellum, annular, reddish, on XI or XII–XIX, intersegmental furrows indistinct, setae present, dorsal pores occluded.

Quadrithecal, spermathecal pores, large transverse slits in line with setae *J–K*, on 7/8–8/9, slightly posterior to intersegmental furrows. Female pore, unpaired, median, presetal, on XIV. Male field, a conspicuous depression, rectangular with rounded corners, on XVIII, dislocating anteriorly 17/18 and posteriorly 18/19. Male pores, large, slightly postsetal, on longitudinal oval-shaped cushions.

Internal anatomy. — Pigment, red, associated with circular muscles, special longitudinal muscle band at mD, densely pigmented. Septa delicate. Gizzard small in V; Oesophagus, widened in XIII, highly vascular, with longitudinal calciferous ridges on its inner wall. Intestinal origin in XV. Typhlosole lacking.

Nephridia, aversiculate, ducts slender and long. Dorsal blood vessel, single throughout. Supra-oesophageal from X–XIII. Large hearts, in X–XII.

Holandric, male funnels and testes free. Funnels iridescent. Seminal vesicles, in XI and XII, of XII meeting each other above oesophagus, pushing back 12/13. Prostates, large, lobed, in XVIII–XIX, displacing 19–20. Prostatic ducts, muscular, nearly straight, passing into lateral face of vestibulum which is distinctly protuberant into coelomic cavity of XVIII. Penial setae absent.

Spermathecal ampulla, small, irregularly shaped; duct almost as long and as wide as ampulla, no diverticula.

Perionyx rimatus STEPHENSON, 1920

1920. *Perionyx rimatus* STEPHENSON, *Mem. Indian Mus.*, 7:206.

1923. *Perionyx rimatus*: STEPHENSON, *Fauna Brit. India, Oligochaeta*: 354.

Material. — 1 ex; Daw Hill, Kurseong, alt. 1810 m.; 27. xii. 70; J. M. Julka.

External Characteristics. — Length, 75 mm. Diameter, 4 mm. (in clitellar region). Segments, 105. Pigmentation red, though appearing externally dark blue, restricted to dorsum. Prostomium, epilobous, tongue open behind, reaching a little beyond half of I. First dorsal pore, at 4/5. Setae, begin from II, closely arranged on ventrum than on dorsum, gaps $AA = 1\frac{1}{2} AB$, $ZZ = 1\frac{1}{2} YZ$. Setal formula, 42/II, 46/III, 54/VIII, 65/XII, 55/XX; VIII/6, XVII/5, XVIII/0, XIX/2. Nephropores near mL in a single rather irregular rank. Clitellum, annular, on XIII–XVI, dorsal pores and intersegmental furrows indistinct, setae present.

Quadrithecal, spermathecal pores, on 6/7–7/8, small slits, in line with *C*. Male field, transversely elliptical, a glandular dermal thickening, dislocating anteriorly 17/18 and posteriorly 18–19, extending laterally into region of *IJ*. Male pores in a deep transverse furrow across the middle of XVIII. Female pore, unpaired, median presetal, on XIV.

Internal anatomy. — Pigment, red, in circular muscles. Special longitudinal muscle band at mD densely pigmented. Septa, 6/7 slightly thickened, 7/8–9/10 muscular. Gizzard,

small, in V. Oesophagus, vascular in XI—XII, widened in XIII—XIV, with calciferous ridges on inner wall, continuing into XV, narrow and tabular in XV—XIX. Intestinal origin, not recognizable. No typhlosole.

Dorsal blood vessel single throughout. Last hearts in XII. Nephridia, avesticulate, ducts slender and straight.

Holandric, male funnels and testes free, funnels iridescent. Seminal vesicles, in XI—XII. Male gonoduct passes through the anterior lobe of prostate to open into ental end of prostatic duct. Prostates, large, in XVII—XVIII; duct narrow at the ental end, runs forward for a short distance forming a small u-shaped loop turns mesially to enter into parieties, ectal end of duct muscular and broader than the ental end. No penial setae. Spermathecal ampulla, a large irregular sac; duct stout, a little shorter than ampulla; diverticula represented by iridescent swellings near the junction of ampulla and duct.

Family OCTOCHAETIDAE

Eutyphoeus gammiei (BEDDARD, 1888)

Material. — 1 ex; 2 km. S. of Forest Ranger's office, Sukiapokri, alt. 2158 m.; 16. v. 71; A. R. Bhowmick.

Remarks. — Genital markings are lacking, avestibulate, penes short, supra-intestinal glands in XCIII—XCVI.

Family ACANTHODRILIDAE

Plutellus ghumensis sp. nov.

Material. — 7 ex; Jorpokri, alt. 2210 m.; 23. v. 71; A. R. Bhowmick. 6 ex; Hima Falls, Ghum Bhanjang, alt. 2180 m.; 27. v. 71; A. R. Bhowmick. 1 ex; Forest nursery, Ghum Bhanjang, alt. 2195 m.; 28. v. 71; A. R. Bhowmick.

External characteristics. — Length, 27—54 mm. Diameter, 1—1.5 mm. Segments, 61—109; VI—XI, XIX—XX with presetal and postsetal secondary furrows. Unpigmented, anterior segments, light brown. Prostomium, epilobous, tongue open. Setae begin on II, behind XXVI, $AB < CD < BC < AA$, $DD < \frac{1}{2}C$. First dorsal pore, at 6/7. Clitellum, yellowish brown, saddle-shaped, $\frac{1}{2}$ XIII—17/18, apparently lacking in AA, slightly developed in AB; dorsal pores and intersegmental furrows lacking, setae present.

Quadrithecal, spermathecal pores, at 7/8, 8/9, on or slightly median to C lines. Female pores, paired, on XIV, in line with A lines. Male pores, minute, at centre of conspicuously raised circular porophores in AB on XVIII.

Genital markings, small, nearly circular, each sharply demarcated peripherally and with a greyish, translucent central area, in transversely placed rows of 2—5. Each row within a raised transversely rectangular shield, extending laterally to B lines. Markings, located on intersegmental furrows, 8/9 (3 specimens), 9/10 (3), 11/12 (3), 12/13 (3), 14/15 (2), 15/16 (2), 16/17 (2), 17/18 (2), 19/20 (2), 21/22 (4), 22/23 (3), 23/24 (1).

Internal anatomy. — Septa, 5/6 slightly muscular, 6/7—8/9 muscular. Gizzard, in V. Oesophagus, moniliform and vascularised in IX—XIII. Intestinal origin in XV. Typhlosole lacking.

Dorsal blood vessel, single, continued anteriorly onto pharyngeal bulb. Supra-oesophageal recognizable in X—XII. Extra-oesophageals, unrecognizable. Lateroparietals traceable from XVII anteriorly, passing through septum 13/14 bending upwards enter the ventral surface of oesophagus. Subneural lacking. Last hearts in XII, those of X—XII, latero-oesophageal.

Holandric, male funnels, apparently free, iridescent. Seminal vesicles, small, in XI and XII, of XI touching each other dorsally. Prostates tubular, coiled, elliptical in cross-section, extending from XVIII to XIX (2), XX (8), XXI (1). Prostatic duct short, slender, nearly straight. Vasa deferentia unrecognizable anteriorly, in XVII it passes into anterior face of prostatic duct, just ental to parieties. Penial setae, .464—.532 mm. long, .012 mm. thick; shaft slightly bow-shaped with a notch at the tip, ectal end slightly flattened without any ornamentation; ornamentation is of 8—12 circles of fine rather triangular teeth.

Spermathecae fairly large, reaching up at the level of dorsal surface of gut; ampulla ovoid; duct about as long as ampulla, straight, thick, slightly tapering before entering parieties. Each spermatheca with two, laterally and mesially, slenderly club-shaped diverticula. Diverticulum close to parieties, as long as or slightly longer than spermathecal duct, with a brilliant spermatozoal iridescence. In two specimens from Ghum-Bhanjang, one of the spermathecal diverticulum is bifid at the tip. Ovisacs in XIV.

Genital marking glands unrecognizable internally, longitudinal musculature uninterrupted over sites of markings.

Remarks. — The bidiverticulate spermathecae indicate relationships to *Plutellus palniensis* MICHAELSEN, 1907 and *Plutellus germinatus* GATES, 1961, but from both of which *Plutellus ghumensis* is clearly distinguished by the quadrithecal condition of the spermathecae. In one example from Hima Falls, Ghoom Bhanjang, the lateral or mesial diverticulum of posterior spermatheca is bifid at the tip, showing a possible relationship to tridiverticulate spermathecae of *Plutellus himalayanus* GATES, 1945. However, *P. himalayanus* is a bithecal species as compared to quadrithecal *P. ghumensis*.

Family LUMBRICIDAE

Bimastos parvus (EISEN, 1874)

Material. — 4 ex; Govt. Seed Farm, Kalimpong, alt. 1030 m.; 18. i. 71; J. M. Julka.

Dendrobaena rubida (SAVIGNY, 1826).

Material. — 6 ex; Himalayan Zoological Park, Darjeeling; 3. i. 71; J. M. Julka. 1 ex; 2 km. S. of Forest Ranger's Office, Sukiapokri, alt. 2158 m.; 16. v. 71; A. R. Bhowmick.

Remarks. — Specimens from Darjeeling are thecal forms; spermathecal pores are paired, on 9/10, 10/11, on C lines; spermathecae of IX are less developed and smaller than those of X. A single specimen from Sukiapokri is athecal.

Eisenia foetida (SAVIGNY, 1826)

Material. — 13 ex; Kurseong, alt. 1459 m.; 25. xii. 70; J. M. Julka. 2 ex; Kurseong, alt. 1459 m.; 26. xii. 70; J. M. Julka. 144 ex; Daw Hill, Kurseong, alt. 1810 m.; 27. xii. 70; J. M. Julka. 30 ex; Near Burdwan House, Darjeeling, alt. 2040 m.; 2. i. 71; J. M. Julka. 9 ex; Lloyd's Botanic

Gardens, Darjeeling, alt. 2060 m.; 4. i. 71; J. M. Julka. 4 ex; Govt. Seed Farm, Kalimpong, alt. 1030 m.; 10. i. 71; J. M. Julka; 1 ex; Bhalutar Basti, Sonada, alt. 1929 m.; 12. v. 71; A. R. Bhowmick. 21 ex; 1 km. on way to Ghum, Sukiapokri, alt. 2128 m.; 17. v. 71; A. R. Bhowmick. 4 ex; Near Health Centre, Sukiapokri, alt. 2126 m.; 18. v. 71; A. R. Bhowmick. 16 ex; Phlumdung Seed Farm, Sukiapokri, alt. 1560 m.; 19. v. 71; A. R. Bhowmick. 3 ex; From a forest 1 km. E. of Jorpokri, alt. 2210 m.; 23. v. 71; A. R. Bhowmick. 12 ex; Forest Nursery, Ghum Bhanjang, alt. 2195 m.; 28. v. 71; A. R. Bhowmick.

Remarks. — In one specimen from Kurseong (Daw Hill), segment XXIV is incompletely divided, 'ridges' asymmetrically developed, on left side, XXIX—XXXII, on right side, XXVIII—XXX.

Eiseniella hortensis (MICHAELSEN, 1890)

Material. — 49 ex; Daw Hill, Kurseong, alt. 1810 m.; 27. xii. 70; J. M. Julka.

Remarks. — On one specimen, male pore of left side is on XIV and of right side on XV.

Eisenia tetraedera f. *typica* (SAVIGNY, 1826)

Material. — 7 ex; Kurseong, alt. 1459 m.; 25. xii. 70; J. M. Julka. 12 ex; Kurseong, alt. 1459 m.; 26. xii. 70; J. M. Julka. 2 ex; Daw Hill, Kurseong, alt. 1810 m.; 27. xii. 70; J. M. Julka. 7 ex; Tibetan Naya Basti, Sonada, alt. 2182 m.; 31. xii. 70; J. M. Julka. 1 ex; Near Singell, Kurseong, alt. 1435 m.; 1. v. 71; A. R. Bhowmick. 4 ex; 1 km. on way to Ghum, Sukiapokri, alt. 2128 m.; 17. v. 71; A. R. Bhowmick. 1 ex; Near Health Centre, Sukiapokri, alt. 2126 m.; 18. v. 71; A. R. Bhowmick. 7 ex; Near D. I. Fund Rest House, Jorpokri, alt. 2220 m.; 22. v. 71; A. R. Bhowmick.

Octolasion cyaneum (SAVIGNY, 1826)

Material. — 5 ex; Near D. I. Fund Rest House, Jorpokri, alt. 2220 m.; 22. v. 71; A. R. Bhowmick. 46 ex; From a forest 1 km. E. of Jorpokri, alt. 2210 m.; A. R. Bhowmick.

Octolasion lacteum (ÖRLEY, 1881)

Material. — 35 ex; Near Forest Ranger's Office, Sukiapokri, alt. 2160 m.; 15. v. 71; A. R. Bhowmick. 11 ex; 1 km. on way to Ghum, Sukiapokri, alt. 2128 m.; 17. v. 71; A. R. Bhowmick. 5 ex; Near Health Centre, Sukiapokri, alt. 2126 m.; 18. v. 71; A. R. Bhowmick. 4 ex; Near D. I. Fund Rest House, Jorpokri, alt. 2220 m.; 22. v. 71; A. R. Bhowmick. 11 ex; From a forest 1 km. E. of Jorpokri, alt. 2210 m.; 23. v. 71; A. R. Bhowmick.

Summary

The present article deals with the systematic studies on the earthworms collected from Darjeeling district, West Bengal. Morphological variations in *Drawida nepalensis* MICHAELSEN, *Pheretima diffringens* (BAIRD), *Pheretima hawayana* (ROSA), *Perionyx excavatus* PERRIER, *Dendrobaena rubida* (SAVIGNY), *Eisenia foetida* (SAVIGNY) and *Eisenia hortensis* (MICHAELSEN) have been recorded. Detailed descriptions of two new species, *Perionyx jorpokriensis* and *Plutellus ghumensis* are also given. Further, *Perionyx pulvinatus* STEPHENSON and *Perionyx rimatus* STEPHENSON are being redescribed.

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