

ON SOME EARTHWORMS FROM
WESTERN HIMALAYAS

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INTRODUCTION

The paper includes a taxonomic account of a collection of earthworms from the western Himalayas, mostly from moderate to high altitudes in the Himalayan range bordering western Uttar Pradesh, Himachal Pradesh and Jammu and Kashmir. Some material from Murree Hills in Pakistan is also included for the sake of zoogeographical continuity. The material studied contains 19 species included in 10 genera and 3 families. Apart from taxonomic information, the write-up also covers new structural variations and locality records.

The present paper is a continuation of earlier studies part of which has already been published by the first author (Soota, 1970) in his paper on earthworms from Doon Valley. To avoid redundancy descriptive notes are restricted to observations not mentioned in the earlier report.

SYSTEMATIC ACCOUNT

Family MONILIGASTRIDAE

Drawida japonica Michaelsen, 1892

Material.—2 ex. ; Z. S. I. Reg. An 829/1 ; locality—Dhobi ghat, Murree Hills in Pakistan ; 14. ix. 1928 ; collector—*H. S. Pruthi*. 6 ex. ; Z. S. I. Reg. No. An 830/1 ; locality—Chakrata, Dehra Dun District ; 17. ix. 1962 ; collector—*R. K. Bhatnagar*.

Remarks.—This species is recorded for the first time from Chakrata (Uttar Pradesh).

Drawida nepalensis Michaelsen, 1907

Material.—6 ex. ; Z. S. I. Reg. No. An 831/1 ; locality—Neugal Nadi near Palampur (Himachal Pradesh) ; 6. vi. 1950 ; collector—*Z. S. I. and Panjab University party*.

Remarks.—This species is recorded for the first time from Himachal Pradesh.

Family MEGASCOLECIDAE

Subfamily MEGASCOLECINAE

Tribe MEGASCOLECINI

Amyntas diffringens (Baird, 1869)

Material.—5 ex. ; Z. S. I. Reg. No. An 832/1 ; locality—Harwan,

Kashmir ; 25. vi. 1955 ; collector—*K. K. Tiwari*. 47 ex. ; Z. S. I. Reg. No. An 833/1 ; locality—Sta. 8 ; 19. viii. 1964 and 17. ix. 1964. 253 ex. ; Z. S. I. Reg. No. An 834/1 ; locality—Lansdowne ; 5. iii. 1965. One ex. ; Z. S. I. Reg. No. An 835/1 ; locality—Dal Lake near Nasim Bag (Kashmir) ; 21. viii. 1965 ; collector—*T. D. Soota*. One ex. ; Z. S. I. Reg. No. An 836/1 ; locality—Raj Bhavan compound, Nainital 12. iv. 1971 ; collector—*S. K. Bhattacharya*. 2 ex. ; Z. S. I. Reg. No. An 837/1 ; locality—Bajdol, Solan (Himachal Pradesh) ; 1. ix. 1969 ; collector—*O. B. Chhotani and G. S. Arora*. One ex. ; Z. S. I. Reg. No. An 838/1 ; locality—Bhimtal, Kumaun ; 4. v. 1948 ; collector—*Kumaun Hills Survey party*. 3 ex. ; Z. S. I. Reg. No. An 839/1 ; locality—Rajgarh (Himachal Pradesh) ; 31. xii. 1976. 4 ex. ; Z. S. I. Reg. No. An 840/1 ; locality—Solan (Himachal Pradesh) ; 2. i. 1977 ; collector—*T. D. Soota*.

Remarks.—The following morphological variations were noted in number and location of presetal (Table I) and postsetal genital markings (Table 2) in specimens from Sta. 8 and Lansdowne.

TABLE 1.—Showing location of presetal genital markings.

Segment on which genital markings present	No. of specimens
On VII	9
Only on left side of VII	4
Only on right side of VII	3
On VIII	15
Only on left side of VIII	1
On IX	4
Only on right side of IX	1
Only on left side of X	1
Only on right side of XI	1
No markings	1

Total number of specimens examined = 20

TABLE 2.—Showing location of postsetal genital markings

Segment on which genital markings present	No. of specimens
On VI	1
Only on right side of VI	3
On VII	7
Only on left side of VII	1
Only on right side of VII	1
On VIII	8
Only on right side of VIII	1
No markings	11

Total number of specimens examined = 20

Variations were also noted as follows :

In a specimen from Lansdowne first dorsal pore in 13/14 ; spermathe-

cal pore on right side in 7/8, in 8/9—10/11, on left side in 11/12 ; male pores on right side of XX and on left side of XXI ; intestine begins in XVIII ; prostate only on left side of XXI.

In another specimen also from Lansdowne, first dorsal pore in 13/14 ; spermathecal pores on 6/7—9/10 ; male pores on left side of XVIII and XIX, and on right side of XX ; prostates on left side in XVIII and on right side in XX.

In a specimen from Bajdol, Solan, spermathecal pores only on right side in 5/6—8/9.

This species is recorded for the first time from Kashmir Valley.

***Amyntas morrisi* (Beddard, 1892)**

Material.—One ex. ; Z. S. I. Reg. No. An 841/1 ; locality—Sta. 6 ; 25. ix. 1961. 2 ex. ; Z. S. I. Reg. No. An 842/1 ; locality—Sta. 9 ; 18. iv. 1962 ; collector—*T. D. Soota*.

***Metaphire alexandri* (Beddard, 1900)**

Material.—9 ex. ; Z. S. I. Reg. No. An 843/1 ; locality—Sta. 5 ; 11. x. 1963. 8 ex. ; Z. S. I. Reg. No. An 844/1 ; locality—Sta. 8 ; 18. viii. 1964. One ex. ; Z. S. I. Reg. No. An 845/1 ; locality—Sta. 7 ; 23. x. 1964. 5 ex. ; Z. S. I. Reg. No. An 846/1 ; locality—Gujrara village, Dehra Dun District ; 10. ix. 1965 ; collector—*T. D. Soota*.

***Metaphire anomala* (Michaelsen, 1907)**

Material.—3 ex. ; Z. S. I. Reg. No. An 847/1 ; locality—Dehra Dun ; 1930 ; collector—*B. N. Chopra*. 24 ex. ; Z. S. I. Reg. No. An 848/1 ; locality—Sta. 5 ; 11. x. 1963. 16 ex. ; Z. S. I. Reg. No. An 849/1, locality—near Barkot Forest rest house ; 26. vii. 1964. 20 ex ; Z. S. I. Reg. No. An 850/1 ; locality—Forest Block, Mussoorie Forest range, Dehra Dun District ; 30. vii. 1964. One ex. ; Z. S. I. Reg. No. An 851/1 ; locality—Sta. 18 ; 26. viii. 1964. 160 ex. ; Z. S. I. Reg. No. An 852/1 ; locality—Sta. 4 ; 27. viii. 1964. 26 ex. ; Z. S. I. Reg. No. An 853/1 ; locality—Sta. 16 ; 24. x. 1964. 35 ex. ; Z. S. I. Reg. No. An 854/1 ; locality—Gujarara village, Dehra Dun District ; 10. ix. 1965 ; collector—*T. D. Soota*.

Remarks.—The following morphological variations were observed in number and location of genital markings in the specimens from Barkot Forest rest house (Table 3a) and Sta. 16 (Table 3b) as well as in number and location of spermathecal pores also in specimens from Sta. 16 (Table 4).

TABLE 3.—Showing location of genital markings

(a) Barkot Forest rest house :

Segment on which genital marking present	No. of specimens
On XVII	4
Only on right side of XVII	1
Only on left side of XVII	1
On XVIII	8
On XIX	8
On XXI	8
On XXII	7
Only on left side of XXII	1
On XXIII	6
On XXIV	1
Only on left side of XXIV	1
Only on right side of XXIV	1
No markings	3

Total No. of specimens examined = 14

(b) Sta. 16 :

Segment on which genital markings present	No. of specimens
On XVII	3
Only on left side of XVII	2
Only on right side of XVII	1
On XVIII	10
On XIX	10
On XXI	10
On XXII	5
Only on left side of XXII	3
Only on right side of XXII	1
On XXIII	1
Only on left side of XXIII	1
Only on right side of XXIII	1

Total No. of specimens examined = 23

TABLE 4.—Showing number and location of spermathecal pores.

Sta. 16 :

Number and location	No. of specimens
Single spermathecal pore on right side	
in 5/6	3
Single spermathecal pore on left side	
in 5/6	1
Single spermathecal pore on left side	
in 6/7	1
Single spermathecal pore on left side	
in 7/8	1
Two spermathecal pores on left side	
in 5/6 and 6/7	1
No spermathecal pores	19

Total number of specimens examined = 26

Metaphire birmanica (Rosa, 1888)

Material.—2 ex. ; Z. S. I. Reg. No. An 855/1 ; locality—Timli, Dehra Dun District ; 24. vii. 1956 ; collector—*K. K. Tiwari*. 2 ex. ; Z. S. I. Reg. No. An 856/1 ; locality—Sta. 1 ; 12. ix. 1964. 3 ex. ; Z. S. I. Reg. No. An 857/1 ; locality—Sta. 18 ; 20. x. 1964. 3 ex. ; Z. S. I. Reg. No. An 858/1 ; locality—Sta. 7 ; 23. x. 1964. 32 ex. ; Z. S. I. Reg. No. An 859/1 ; locality—Sta. 16 ; 24. x. 1964 ; collector—*T. D. Soota*.

Remarks.—The following morphological variations were noted in three specimens, two from Sta. 16 and one from Sta. 7. In one specimen from Sta. 16, first dorsal pore in 14/15 ; spermathecal pores on right side in 5/6, in 6/7, and left sides in 7/8 and 8/9 ; clitellum from XV to XVII on left side and from XVI to XVIII on right side ; male pores on left side of XIX, on right side of XX and XXI ; female pores presetal, on XII and XIII ; intestine begins in XVI ; prostates from XVIII to XXI on left side and from XIX to XXII on right side. In the other specimen from the same Station, male pores on right side of XVIII and left side of XX ; last hearts in XIII ; intestine begins in XV ; prostates from XVII to XX on right side and from XIX to XXII on left side. In the specimen from Sta. 7, first dorsal pore in 11/12 ; clitellum XIV—XV on right side and XIII—XIV on left side ; male pore on right side of XVIII only ; spermathecal pores in 5/6 and 6/7, only on right side in 7/8.

Metaphire houlleti (Perrier, 1872)

Material.—2 ex. ; Z. S. I. Reg. No. An 860/1 ; locality—Rajaji Sanctuary, Saharanpur District ; 5. xi. 1962. 10 ex. ; Z. S. I. Reg. No. An 861/1 ; locality—Phanduwala, Dehra Dun District ; 18. ii. 1963. 23 ex., Z. S. I. Reg. No. An 862/1 ; locality—Sta. 23 ; 21. xi. 1963. 11 ex. ; Z. S. I. Reg. No. An 863/1 ; locality—Rajaji Sanctuary ; 21. x. 1963 and 5. xii. 1963. 80 ex. ; Z. S. I. Reg. No. An 864/1 ; locality—Sta. 22 ; 20. viii. 1964. 16 ex. ; Z. S. I. Reg. No. An 865/1 ; locality—Sta. 5 ; 10. ix. 1964. 50 ex. ; Z. S. I. Reg. No. An 866/1 ; locality—Sta. 11 ; 18. ix. 1964. 4 ex. ; Z. S. I. Reg. No. An 867/1 ; locality—Sta. 7 ; 23. x. 1964. 5 ex. ; Z. S. I. Reg. No. An 868/1 ; locality—Sta. 16 ; 24. x. 1964. 35 ex. ; Z. S. I. Reg. No. An 869/1 ; locality—Sta. 15 ; 19. ix. 1964. 25 ex. ; Z. S. I. Reg. No. An 870/1 ; locality—Gujrara village, Dehra Dun District ; 10. ix. 1965 ; collector—*T. D. Soota*. 5 ex. ; Z. S. I. Reg. No. An 871/1 ; locality—Devak Nala, Udhampur (Jammu & Kashmir) ; 8. ix. 1964 ; collector—*Raj Tilak*. One ex. ; Z. S. I. Reg. No. An 872/1 ; locality—Jeori, Mandi District (Himachal Pradesh) ; 19. ix. 1969, collector—*O. B. Chhotani and G. S. Arora*,

Remarks.—The following morphological variations were observed in the specimens, of which five are from Rajaji Sanctuary, three from Sta. 15, one from Sta. 11 and one from Sta. 5.

In those from Rajaji Sanctuary, one specimen shows spermathecal pores in 6/7, only on right sides in 7/8 and 8/9, and only on left side in 9/10 ; male pores on left side of XVII and on right side of XVIII ; last heart on right side only in XIII ; intestine begins in XIV. Second specimen shows male pores—one on left side of XVII and another on right side of XVIII. Third specimen shows spermathecal pores only on left side in 5/6, in 6/7—7/8, and only on right side in 8/9 ; male pores on XVIII and only on left side of XXV ; female pores paired, presetal on XIII ; intestinal caeca begins on right side in XXVI and on left side in XXVIII. Fourth specimen shows male pores only on right side of XVIII. Fifth specimen shows spermathecal pores only on left side in 6/7, in 7/8 and 8/9.

In those from Sta. 15, one of the specimens shows spermathecal pores only on right side in 6/7, in 7/8 and 8/9, and only on left side in 9/10 ; male pores only on right side of XVII and only on left side of XIX. Second specimen shows spermathecal pores only on left side in 6/7, in 7/8 and 8/9. Third specimen shows spermathecal pores only on left side in 5/6, in 6/7 and 7/8, and only on right side in 8/9 ; male pores on XVIII, only on left sides of XIX and XXV.

In the one from Sta. 11, spermathecal pores only on right side in 6/7, in 7/8 and 8/9, and only on left side in 9/10 ; male pores only on right side of XVIII and only on left side of XIX ; female pores paired, postsetal on XIII ; intestinal caeca begins on right side in XXVI and on left side in XXVII.

In the one from Sta. 5, spermathecal pores only on left side in 6/7, in 7/8 and 8/9, and only on right side in 9/10 ; male pores only on left side of XVIII and only on right side of XIX ; intestinal caeca begins on left side in XXVII and on right side in XXVIII.

This species is recorded for the first time from Udhampur (Jammu & Kashmir) and Mandi (Himachal Pradesh).

Metaphire posthuma (Vaillant, 1868)

Material.—6 ex. ; Z. S. I. Reg. No. An 873/1 ; locality—Udhampur (Jammu & Kashmir) ; 6. xi. 1964, collector—*Raj Tilak*. 5 ex. ; Z. S. I. Reg. No. An 874/1 ; locality—Tattapani, Mandi District (Himachal Pradesh) ; 18. ix. 1969. 2 ex. ; Z. S. I. Reg. No. An 875/1 ; locality—Jeori, Mandi District (Himachal Pradesh) ; 19. ix. 1969 ; collector—*O. B. Chhotani and G. S. Arora*.

Remarks.—The following morphological variations were noted in two specimens from Tattapani. In one (clitellate) of these specimens, dorsal pores from 13/14 ; spermathecal pores in posterior margins of VI—IX ; clitellum XV—XVII ; female pores in XV ; male pores in XIX ; genital papillae only on right side of XVIII, on XX, and only on left side of XXI. In the other specimen (aclitellate) genital papillae on XIX and XX.

Morphological variations in the reproductive system of some pheretimoids.

Gates (1956, 1972) on the basis of structures of the reproductive system of earthworms recognised four morphs viz., A, R, Z and H. Of these, A, lacking spermathecae, R, male terminalia and Z, testes, reproduce by parthenogenesis, H, alone being the normal hermaphrodite. Additional morphs recognised by him are AR, lacking spermathecae and male terminalia, and ARZ, lacking spermathecae, male terminalia and testes. These morphs have also been accepted by Easton (1976).

While examining some preserved specimens collected from different localities of western Himalayas, we came across some individuals showing some abnormal variations in the reproductive and other organs. Normal reproduction of the pheretimoids is generally hermaphroditic (H morph). However, some individuals of *Metaphire anomala* show the absence of spermathecae suggesting parthenogenetic reproduction (A morph).

Tribe PERIONYCHINI

Perionyx bainii Stephenson, 1915

Material.—3 ex. ; Z. S. I. Reg. No. An 876/1 ; locality—Dharamsala (Himachal Pradesh) ; 31. vi. 1926 ; collector—*S. L. Hora*.

Remarks.—This species is recorded for the first time from Dharamsala (Himachal Pradesh).

Perionyx excavatus Perrier, 1872

Material.—23 ex. ; Z. S. I. Reg. No. An 877/1 ; locality—Near Phanduwala Forest rest house, Dehra Dun District ; 15. iii. 1962, collector—*R. S. Pillai*. 7 ex. ; Z. S. I. Reg. No. An 878/1 ; locality—Rajaji Sanctuary, Saharanpur District ; 7. viii. 1963, collector—*T. D. Soota*.

Subfamily ACANTHODRILINAE

Tribe OCTOCHAETINI

Octochaetona beatrix (Beddard, 1902)

Material.—31 ex. ; Z. S. I. Reg. No. An 879/1 ; locality—Sta. 18, viii. 1964 ; collector—*T. D. Soota*,

Family LUMBRICIDAE

Aporrectodea rosea (Savigny, 1826)

Material.—One ex. ; Z. S. I. Reg. No. An 880/1 ; locality—Baba Rishi, Tangmarg (Kashmir) ; 28. viii. 1955 ; collector—*T. D. Soota*. 12 ex. ; Z. S. I. Reg. No. An 881/1 ; locality—Baria village, Mandi District (Himachal Pradesh) ; 19. x. 1958. 5 ex. ; Z. S. I. Reg. No. An 882/1 ; locality—Mussoorie ; 26. viii. 1962. 19 ex. ; Z. S. I. Reg. No. An 883/1 ; locality—Lansdowne ; 5. iii. 1965 ; collector—*T. D. Soota*. 4 ex. ; Z. S. I. Reg. No. An 884/1 ; locality—Chail (Himachal Pradesh) ; 10. ix. 1969 ; collector—*O. B. Chhotani and G. S. Arora*.

Remarks.—This species is recorded for the first time from Mandi (Himachal Pradesh), Lansdowne and Mussoorie (Uttar Pradesh).

Aporrectodea trapezoides (Duges, 1828)

Material.—21 ex. ; Z. S. I. Reg. No. An 885/1 ; locality—Chamba (Himachal Pradesh) ; May, 1927 ; collector—*D. Bagchi*. 3 ex. ; Z. S. I. Reg. No. An 886/1 ; locality—Batboot Forest Nursery (Kashmir) ; 16. vi. 1955. One ex. ; Z. S. I. Reg. No. An 887/1 ; locality—Harwan (Kashmir) ; 25. vi. 1955. One ex. ; Z. S. I. Reg. No. An 888/1 ; locality—Banihal (Kashmir) ; 17. vii. 1955 ; collector—*K. K. Tiwari*. 11 ex. ; Z. S. I. Reg. No. An 889/1 ; locality—Pahalgam (Kashmir) ; 22. viii. 1955 ; collector—*T. D. Soota*. 10 ex. ; Z. S. I. Reg. No. An 890/1 ; locality—Chakrata, Dehra Dun District ; 17. ix. 1962, collector—*R. K. Bhatnagar*. One ex. ; Z. S. I. Reg. No. An 891/1 ; locality—Dal Lake (Kashmir) ; 21. viii. 1965. 20 ex. ; Z. S. I. Reg. No. An 892/1 ; locality—Anant Nag (Kashmir) ; 4. ix. 1965. 6 ex. ; Z. S. I. Reg. No. An 893/1 ; locality—Mussoorie ; 2. x. 1965 ; collector—*T. D. Soota*. 5 ex. ; Z. S. I. Reg. No. An 894/1 ; locality—Kaligar Forest, Ranikhet (Uttar Pradesh) ; 22. iv. 1971 ; collector—*S. K. Bhattacharya*.

Remarks.—This species is recorded for the first time from Mussoorie, Chakrata and Ranikhet (Uttar Pradesh).

Bimastos parvus (Eisen, 1874)

Material.—6 ex. ; Z. S. I. Reg. No. An 895/1 ; locality—Chamba (Himachal Pradesh) ; May, 1927 ; collector—*D. Bagchi*. One ex. ; Z. S. I. Reg. No. An 896/1 ; locality—Sta. 5 ; 21. ii. 1963 ; collector—*T. D. Soota*. 2 ex. ; Z. S. I. Reg. No. An 897/1 ; locality—Balli Nala, Udhampur (Jammu & Kashmir) ; 11. ix. 1964 ; collector—*Raj Tilak*. One ex. ; Z. S. I. Reg. No. An 898/1 ; locality—Kufri near Simla (Himachal Pradesh) ; 12. ix. 1969 ; collector—*O. B. Chhotani and G. S. Arora*.

Remarks.—This species is recorded for the first time from Chamba (Himachal Pradesh).

Dendrodrilus rubidus (Savigny, 1826)

Material.—26 ex. ; Z. S. I. Reg. No. An 899/1 ; locality—Shit Garhi, Sonemarg (Kashmir) ; 30. vii. 1955 ; collector—*T. D. Soota*. 3 ex. ; Z. S. I. Reg. No. An 900/1 ; locality—Uttarkashi (Uttar Pradesh) ; 14. vii. 1974 ; collector—*H. C. Ghosh*.

Remarks.—This species is recorded for the first time from Uttarkashi (Uttar Pradesh) and Kashmir Valley.

Eisenia foetida (Savigny, 1826)

Material.—27 ex. ; Z. S. I. Reg. No. An 901/1 ; locality—Dharamsala (Himachal Pradesh) ; 3. vi. 1926 ; collector—*S. L. Hora*. 4 ex. ; Z. S. I. Reg. No. An 902/1 ; locality—Solan (Himachal Pradesh) ; 12—13. vii. 1968 ; collector—*O. B. Chhotani*. 3 ex. ; Z. S. I. Reg. No. An 903/1 ; locality—Kufri near Simla (Himachal Pradesh) ; 12. ix. 1969 ; collector—*O. B. Chhotani and G. S. Arora*. 9 ex. ; Z. S. I. Reg. No. An 904/1 ; locality—Rajgarh (Himachal Pradesh) ; 31. xii. 1976. 9 ex. ; Z. S. I. Reg. No. An 905/1 ; locality—Solan (Himachal Pradesh) ; 2. i. 1977 ; collector—*T. D. Soota*.

Remarks.—This species is recorded for the first time from Dharamsala (Himachal Pradesh).

Octolasion cyaneum (Savigny, 1826)

Material.—One ex. ; Z. S. I. Reg. No. An 906/1 ; locality—Kotta (Himachal Pradesh) ; 17. vi. 1950 ; collector—Z. S. I. and *Punjab University party*. 2 ex. ; Z. S. I. Reg. No. An 907/1 ; locality—Manali (Himachal Pradesh) ; 18. x. 1958 ; collector—*T. D. Soota*. 12 ex. ; Z. S. I. Reg. No. An 908/1 ; locality—Happy Valley, Mussoorie ; 27. vii. 1962, collector—*T. D. Soota*. 8 ex. ; Z. S. I. Reg. No. An 909/1 ; locality—Kufri near Simla (Himachal Pradesh) ; 12. ix. 1969 ; collector—*O. B. Chhotani and G. S. Arora*.

Remarks.—This species is recorded for the first time from Manali (Himachal Pradesh) and Mussoorie (Uttar Pradesh).

Octolasion tyrtaeum (Savigny, 1826)

Material.—One ex. ; Z. S. I. Reg. No. An 910/1 ; locality—Murree Hills in Pakistan ; 16. ix. 1928 ; collector—*H. S. Pruthi*. 2 ex. ; Z. S. I. Reg. No. An 911/1 ; locality—Harwan (Kashmir) ; 25. vi. 1955, collector—*K. K. Tiwari*. One ex. ; Z. S. I. Reg. No. An 912/1 ; locality—Happy

Valley, Mussoorie ; 26. viii. 1962. One ex. ; Z. S. I. Reg. No. An 913/1 ; locality—Sta. 5 ; 19. viii. 1963. One ex. ; Z. S. I. Reg. No. An 914/1 ; locality—Sta. 12 ; 5. iii. 1965. 3 ex. ; Z. S. I. Reg. No. An 915/1 ; locality—Achabal (Kashmir) ; 1. ix. 1965. 5 ex. ; Z. S. I. Reg. No. An 916/1 ; locality—Mussoorie ; 20. x. 1965 ; collector—*T. D. Soota*. 3 ex. ; Z. S. I. Reg. No. An 917/1 ; locality—Chail (Himachal Pradesh) ; 10. ix. 1969. 7 ex. ; Z. S. I. Reg. No. An 918/1 ; locality—Kufri near Simla (Himachal Pradesh) ; 12. ix. 1969 ; collector—*O. B. Chhotani* and *G. S. Arora* ; 15 ex. ; Z. S. I. Reg. No. An 919/1 ; locality—Chakrata ; 17. ix. 1962 ; collector—*R. K. Bhatnagar*. One ex. ; Z. S. I. Reg. No. An 920/1 ; locality—Nainital ; 10. iv. 1971 ; collector—*S. K. Bhattacharya*.

Remarks.—This species is recorded for the first time from Doon Valley, Chakrata and Nainital (Uttar Pradesh).

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SUMMARY

The present paper deals largely with the earthworms collected from Mussoorie, Chakrata, Lansdowne, Dharamsala, Solan as well as some areas in Jammu & Kashmir and Doon Valley. Three examples from Murree Hills in Pakistan, present in the unnamed collections of the Zoological Survey of India have also been included in the present study as they come from the same zoogeographical range. Nineteen species belonging to 10 genera and 3 families have been discussed. Locality details are given only in respect of species not discussed in the earlier paper (Soota, 1970).

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