

OCCASIONAL PAPER No. 318

**Records of the
Zoological Survey of India**

**Some Phasmida (Stick and Leaf
Insects) of India**

**S.K. MANDAL
K. YADAV**

ZOOLOGICAL SURVEY OF INDIA

OCCASIONAL PAPER No. 318

**RECORDS
OF THE
ZOOLOGICAL SURVEY OF INDIA**

**Some Phasmida (Stick and Leaf
Insects) of India**

S.K. MANDAL AND K. YADAV

*Zoological Survey of India, 'M' Block, New Alipore
Kolkata 700 053*

Edited by the Director, Zoological Survey of India, Kolkata



सत्यमेव जयते

**Zoological Survey of India
Kolkata**

CITATION

Mandal, S.K. and Yadav, K. 2010. Some Phasmida (Stick and Leaf Insects) of India, *Rec. zool. Surv. India, Occ. Paper No.*, **318** : 1-64, (Published by the Director, *Zool. Surv. India*, Kolkata)

Published : August, 2010

ISBN 978-81-8171-267-7

© *Govt. of India*, 2010

ALL RIGHTS RESERVED

- No Part of this publication may be reproduced, stored in a retrieval system or transmitted in any form or by any means, electronic, mechanical, photocopying, recording or otherwise without the prior permission of the publisher.
- This book is sold subject to the condition that it shall not, by way of trade, be lent, resold, hired out or otherwise disposed off without the publisher's consent, in a form of binding or cover other than that in which, it is published.
- The correct price of this publication is the price printed on this page. Any revised price indicated by a rubber stamp or by a sticker or by any other means is incorrect and should be unacceptable.

PRICE

Indian Rs. 150.00

Foreign \$ 15 £ 10

Published at the Publication Division, by the Director, Zoological Survey of India, 234/4 A.J.C. Bose Road, 2nd MSO Building, Nizam Palace (13th floor), Kolkata 700 020 and printed at Typographia, Kolkata 700 012.

**RECORDS
OF THE
ZOOLOGICAL SURVEY OF INDIA
OCCASIONAL PAPER**

No. 318

2010

Page 1-64

CONTENTS

INTRODUCTION	1
ABBREVIATIONS	1
SUMMARY	54
ACKNOWLEDGEMENTS	54
REFERENCES	54
FIGURES	56-64

INTRODUCTION

The Phasmida popularly known as Walking or Leaf insects, together with some leaf insects. These are in many respects a very interesting group of insects, but their study has been comparatively neglected. In spite of their peculiarities a very small information is available on Phasmids of India. Though earlier workers like Westwood (1859), Wood-Mason (1873, 1876 and 1877), Rehn (1904), Kirby (1896 and 1904) had studied Indian Phasmida but major works on Indian Phasmida were done by Redtenbacher (1908), Carl (1913), Günther (1938), Bradley *et al.* (1977).

After these so far, no body has studied Indian Phasmids. Indian Phasmids, as per records comprise nearly 146 species (Shishodia, 1998), and Global Phasmids are estimated about 2500 species (Kevan, 1982).

The Phasmids are sluggish insects, highly protective in their appearance. They are difficult to see and collect. These are moderate to large sized, and vary from 30 mm to 325 mm in length. The body form usually elongate and cylindrical, more rarely depressed and leaf like; the pronotum is short, the meso and metanotum usually elongate, the tergum of the later is closely associated with first abdominal segment; and hind pair of legs not modified for jumping, the coxae are small, tarsi five segmented, and are often greatly reduced or absent; the tegmen (when present) usually short, leather like; hind wings (when present) are fan-like and surpassing the tegmina. Abdomen has distinct short, symmetrical unsegmented cerci (some time expanded in female). The male external genitalia is very variable, but symmetrical. The ovipositor of the female is short and complex. All Phasmids are phytophagous and most of them are nocturnal. The diagrams have been taken after Hennmann (2006) and Tilgner (2002).

This study is based on the materials, either represented in the National Zoological Collection, Zoological Survey of India, Kolkata, and from the literature.

Classifications followed here after Günther (1953) and Beier (1968).

ABBREVIATIONS OF DIFFERENT BODY PARTS OF PHASMIDA

Head

aa – area apicalis; ap – tentorial apodemis; d – dentes; e – compound eyes; es – epistomal sulcus; f – swollen lateral region of frons; il – incissor lobe; lam – labrum; lt – lacinial teeth; ic – incisor lobe; ml – molar lobe; ms – medi cranial sulcus; mxp – maxillary palp; poc – post occipital carina; ptp – posterior tentorial pit; tb – tubercles; vs – ventral sclerite; sc. – sape.

Cervix

cv – Cervical sclerite; p – cervical plate; g – glua.

Thorax

bs – basisternum; cp – coxopleura; dt – dorsal tubercle; lb – swollen lacinal base; lo – lobe; p – anterior projection of apodeme; pn – pranotum; t – tergite.

Abdomen

C – cercus; cr – crop; gap – gonapophysis; ov – oesophageal valve; pp – paraproct; pv – proventriculus; mes – mesosternum; n – proventriculus neck; op – operculum.

Order PHASMIDA

Common names (s) : Walking sticks, stick insects and leaf insects

Family DIAPHEROMERIDAE

Subfamily NECROSCIINAE

Tribe NECROSCIINI

Genus ***Asceles*** Redtenbacher, 1908

1. *Asceles annandalei* Günther

Genus ***Calvisia*** Stål, 1875

2. *Calvisia fuscoalata* Redtenbacher
3. *Calvisia hilaris* (Westwood)

Genus ***Lopaphus*** Westwood, 1859

4. *Lopaphus bootanicus* (Westwood)

Genus ***Marmessoidea*** Brunner von Wattenwyl, 1893

5. *Marmessoidea qudriguttata* (Burmeister)

Genus ***Nescicroa*** (Karnny), 1923

6. *Nescicroa bimaculata* (Olivier)

Genus ***Orthonicroscia*** Kirby, 1904

7. *Orthonicroscia filum* (Westwood)

Genus ***Orxines*** Stål, 1875

8. *Orxines xiphias* (Westwood)

Genus ***Oxyartes*** Stål, 1875

9. *Oxyartes cresphontes* (Westwood)
10. *Oxyartes despectus* (Westwood)

Genus ***Parasipyloidea*** (Redtenbacher), 1908

11. *Parasipyloidea fictus* (Redtenbacher)
12. *Parasipyloidea montana* Redtenbacher
13. *Parasipyloidea shiva* (Westwood)

Genus ***Parasobia*** Redtenbacher, 1893

14. *Parasobia inferior* Redtenbacher

Genus ***Scionecra*** Karny, 1923

15. *Scionecra menaka* (Wood-Mason)

Genus ***Sipyloidea*** Brunner von Wattenwyl, 1893

16. *Sipyloidea acutipennis* (Bates)
17. *Sipyloidea nitida* Günther
18. *Sipyloidea sipylus* (Westwood)
19. *Sipyloidea stigmata* Redtenbacher

Genus ***Sosibia*** Stål, 1874

20. *Sosibia pholidotus* (Westwood)

Genus ***Tagesoidea*** Redtenbacher, 1907

21. *Tagesoidea tages* (Westwood)

Genus ***Trachythorax*** Redtenbacher

22. *Trachythorax sparaxes* (Westwood)

Subfamily PACHYMORPHINAE Brunner von Wattenwyl, 1893

Tribe GRATIDIINI Cliquennois 2004

Genus ***Clonaria*** Stål, 1875

23. *Clonaria indica* (Gray)

Genus ***Sceptrophasma*** Brock & Seow-Choen, 2001

24. *Sceptrophasma humilis* (Westwood)

Family PHASMATIDAE, Karny 1923

Subfamily CLITUMNAE Brunner von Wattenwyl, 1893

Tribe CLITUMINI Brunner von Wattenwyl, 1893

Genus ***Cuniculina*** Brunner von Wattenwyl

25. *Cuniculina cuniculina* (Westwood)
26. *Cuniculina insignis* Wood-Mason
27. *Cuniculina stilpna* (Westwood)

Genus **Ramulus** Saussure, 1861

28. *Ramulus aboricus* (Giglio-Tos)
29. *Ramulus alienus* (Brunner von Wattenwyl)
30. *Ramulus angustior* (Brunner von Wattenwyl)
31. *Ramulus anterior* (Brunner von Wattenwyl)
32. *Ramulus artemis* (Westwood)
33. *Ramulus decolyi* (Brunner von Wattenwyl)
34. *Ramulus hydrocephalus* (Brunner von Wattenwyl)
35. *Ramulus laevigatus* (Wood-Mason)
36. *Ramulus russelli* (Bates)
37. *Ramulus westwoodii* (Wood-Mason)

Genus **Rhamphophasma** Brunner von Wattenwyl, 1893

38. *Rhamphophasma mallati* Brunner von Wattenwyl
39. *Rhamphophasma spinicorne* (Stål)

Tribe Medaurini, Carl, 1913

Genus **Medaura** Stal, 1875

40. *Medaura austeni* (Wood-Mason)
41. *Medaura scabriuscula* (Wood-Mason)

Tribe PHARNACIINI Günther, 1953

Genus **Phobaeticus** Brunner von Wattenwyl, 1907

42. *Phobaeticus annamallayanus* (Wood-Mason)

Genus **Phryganistria** Stål, 1875

43. *Phryganistria virgea* (Westwood)

Genus **Tirachoidea** Brunner von Wattenwyl

44. *Tirachoidea biceps* (Redtenbacher)
45. *Tirachoidea westwoodii* (Wood-Mason)

Subfamily LONCHODINAE Brunner von Wattenwyl, 1893

Tribe Lonchodini Brunner von Wattenwyl, 1893

Genus **Carausius** Stål, 1875

46. *Carausius burri* Brunner von Wattenwyl
47. *Carausius debilis* Brunner von Wattenwyl
48. *Carausius imbellis* Brunner von Wattenwyl
49. *Carausius morosus* (Sinety)

- 50. *Carausius rudissimus* Brunner von Wattenwyl
- 51. *Carausius sikkimensis* (Brunner von Wattenwyl)
- 52. *Carausius vacillans* Brunner von Wattenwyl

Genus ***Lonchodes*** Gray

- 53. *Lonchodes normalis* Brunner von Wattenwyl
- 54. *Lonchodes verrucifer* Wood-Mason

Genus ***Menexenus*** Stål

- 55. *Menexenus lacertinus* (Westwood)
- 56. *Menexenus rotunginus* Giglio-Tos
- 57. *Menexenus semiarmatus* (Westwood)
- 58. *Menexenus tenmalainus* Günther

Genus ***Myronides*** Stal 1875

- 59. *Myronides baucis* (Westwood)
- 60. *Myronides curvithorax* Brunner von Wattenwyl

Genus ***Pericentrus*** Redtenbacher, 1906

- 61. *Pericentrus bicoronatus* (Westwood)
- 62. *Pericentrus pinnatus* Redtenbacher

Genus ***Prisomera*** Gray

- 63. *Prisomera asperum* (Brunner von Wattenwyl)

Genus ***Pseudostheneboea*** Carl, 1913

- 64. *Pseudostheneboea minor* Carl
- 65. *Pseudostheneboea segregata* Carl

Tribe NEOHIRASEINI Hennemann & Conle, 2008

Genus ***Neohiraseini*** Rehn, 1904

- 66. *Neohiraseini asperatus* (Bates)
- 67. *Neohiraseini obesus* (Brunner von Wattenwyl)

Family ASCHIPHASMATIDAE Brunner von Wattenwyl, 1893

Subfamily ASCHIPHASMATINAE Brunner von Wattenwyl, 1893

Tribe ASCHIPHASMATINI Brunner von Wattenwyl, 1893

Genus ***Abrosoma*** Redtenbacher, 1906

- 68. *Abrosoma apterum* Redtenbacher
- 69. *Abrosoma carinulatum* Redtenbacher

70. *Abrosoma modestum* Redtenbacher

71. *Abrosoma sericeum* Redtenbacher

Genus ***Coloratobistus*** Zomporo, 2004

72. *Coloratobistus villosum* (Redtenbacher)

Genus ***Dinophasma*** Uvarov, 1940

73. *Dinophasma nathani* Brgg

74. *Dinophasma ruficornis* (Redtenbacher)

Family PRISOPODIDAE Karny

Subfamily KORINNINAE Günther

Genus ***Korinnis*** Günther, 1932

75. *Korinnis errans* Günther

Family PHYLLIIDAE Brunner von Wattenwyl

Subfamily PHYLLIINAE Karny

Tribe PHYLLIINI Brunner von Wattenwyl

Genus ***Phyllium*** Illiger, 1798

Subgenus ***Phyllium*** Illiger, 1798

76. *Phyllium (Phyllium) celebicum* Haan

77. *Phyllium (Phyllium) siccifolium* (Linnaeus)

Subgenus ***Pulchriphyllium*** Griffini

78. *Phyllium (Pulchriphyllium) bioculatum* Gray

Family DIAPHEROMERIDAE Kirby, 1904

Antennae filiform and indistinctly segmented, especially beyond the middle, longer than the fore femora and often longer than the body length; if shorter than the fore femora it is distinctly jointed, the ventral surface of all femora smooth, ventral surface of middle and hind femur not evenly serrated, usually only with a distal teeth or unarmed; male terminal segment never split and extended in lobe.

Subfamily NECROSCIINAE Brunner von Wattenwyl 1893

Antennae thread like and indistinctly jointed, specially beyond the middle, longer than the fore femora, often body length; ventral carina of the hind femora not evenly serrated, usually only with a few distal teeth or completely unarmed; winged or with distinct wing rudiments; if wingless then the mesonotum is longer or shorter than the metanotum; the terminal segment of the male are not split or bi-lobed and the female has no beak shaped ovipositor.

Tribe NECROSCIINI Brunner von Wattenwyl, 1893

Antennae filiform and indistinctly segmented; tegmina rarely spined shaped; **ovipositor** not developed; operculum excised and emarginated at the posterior margin; **femora** at base distinctly curved and carinate; ventral carina of hind femora not evenly serrated, usually only with a few distal teeth or completely unarmed; thin stick like insects.

Genus *Asceles* Redtenbacher, 1908

1908. *Asceles* Redtenbacher, *Die Insektenfamilien der Phasmiden*, 3 : 500.

Diagnosis : Head depressed, globular; tegmen distinct, rarely spine shaped at the posterior margin; wings more or less expanded; ovipositor not developed; operculum excised or emarginated at the posterior margin.

1. *Asceles annandalei* Günther

1938. *Asceles annandalei* Günther, *Rec. Indian Mus.*, 40 : 136.

2005. *Asceles annandalei* : Otte & Brock. *Catalog of Stick and Leaf Insects of the world* : 52.

Material examined : Kerala : 1♀, Tenmalai, 22.xi.1908, collc. N. Annandale. (ZSI, Regd. No. 617/H5).

Diagnosis : Female : Greenish brown in colour; body almost smooth and hardly convex, mesonotum anteriorly a little rugose, two light black stripe run behind the both post ocular eye to the middle of 2nd abdominal segment; eye rather flat, antennae as long as the length of body; head a little longer than the pronotum; a faint narrow transverse furrow present in the middle of the mesonotum; tegmen flat distinctly longer than breadth; wings reaches up to the end of 7th segment; anal segment small 9th segment smooth; operculum navicular; posterior margin of subgenital plate obtusely rounded; cerci small reaches up to the end of the body.

Distribution : India (Kerala).

Measurements (in mm) : Body length 87; mesonotum. 14, metanotum. 13, tegmen 7.5, wings 54.5, anterior. legs 26, posterior. legs 25.

Remarks : This species is present in National Zoological Collections as a type.

Genus *Calvasia* Stål, 1875

1874. *Calvasia* Stål, *Rec. Orth.*, 3 : 142.

1908. *Calvasia* : Redtenbacher, *Die Insektenfamilie der Phasmiden*, 3 : 565.

Diagnosis : Head strongly globular, small mesonotum constricted or depressed; anteriorly and medially with bi-tuberculate; elytra small, arch shaped; wings elongated;

lateral margin posteriorly with dark colour. Male : Anal segment with posterior margin smoothly rounded; anterior femora incurved. Female : Anal segment small, posterior margin emarginated; subgenital plate smooth, arch shaped; operculum pointed or obtuse or emarginated.

2. *Calvisia fuscoalata* Redtenbacher

1908. *Calvisia fuscalata* Redtenbacher, *Die. Insetenfamilie der Phasmiden*, **3** : 567.

1914. *Calvisia fusco-alata* : Giglio-Tos, *Rec. Indian Mus.*, **8** : 423.

Material examined : Nil.

Diagnosis : Male : Green colour; pronotum double length than the mesonotum, tectiform, near the middle with 2 tubercle, sterna with faint carina; elytra at base uniformly green; anal segment smooth, in the middle with a incision on subgenital plate, with obtuse teeth; cerci incurved; anterior femora straight.

Measurements (in mm) : Male : Body length 46, mesont. 6, metn. 9, anterior femur 14, middle femur 11.5.

Remarks : This species is taken from the literature (Giglio-Tos, 1914).

3. *Calvisia hilaris* (Westwood)

1848. *Phasma (Necroscia) hilare* Westwood, *Cab. Orient. Entom.*, **38** : 1.

1904. *Calvisia hilaris* : Kirby, *Syn. Cat. Orthopt.*, **1** : 370.

Material examined : Not available.

Diagnosis : Female : Colour green; head posteriorly narrow; mesonotum obtusely bi-tuberculated; tegmen with a little raised, and the margin fumigated, posterior area with dark colour; abdomen golden yellow.

Remarks : It is taken from the literature (Kirby, 1904).

Genus *Lopaphus* Westwood, 1859

1877. *Lopaphus* Westwood, *Cat. Orth. Brit. Mus.*, Part I. Phasmida : **26** : 7.

Diagnosis : Male : Female : Head elongate; depressed; thorax smooth or granulose; elytra and wings present or absent or rudimentary; abdomen smooth, second segment double length with brick like; femora without denticles on dorsal surface; tibiae and tarsi with spine like hairs. Male : Anal segment tectiform, small, emarginated and with a cleft. Female : Anal segment semiquadrate, smooth compressed and posterior margin emarginate; cerci small, subgenital plate small, hood shaped; operculum like a vessel, apex pointed or obtuse.

4. *Lopaphus bootanicus* (Westwood)

1859. *Lonchodes bootanicus* Westwood, *Cat. Orthopt. Brit. Mus.*, Part I, Phasmidae, 26 : 8.

1877. *Lopaphus bootanicus* : Wood-Mason, *J. Asiatic. Soc. Bengal*, 46 : 348.

Material examined : Nagaland : 4♂♂, 2♀♀, Naga hills, dt. nil, collc. Ratiram. (Regd. Nil).

Diagnosis : Male; Female : Head clearly longer than breadth, median carina extends behind the eye to the 1st posterior margin of the head, tubercle scatterdly present in the posterior; antennae long reaches up to the 7th segment of abdomen, base of the antennal segment broad and depressed, second segment reduced in length and size; eyes globular; pronotum slightly shorter than breadth, mesonotum double length of the metanotum; median carina prominent; large number of tubercles scatterdly present in mesonotum and metanotum; along the lateral carina tubercles present; sternum with small spines and tubercles. Male : pronotum along the middle and lateral carina with tubercles, mesonotum with dense tubercle; pro-meso and metasternum with dense tubercles; tegmen pad like; abdomen elongate as long as mesonotum; femora with ridge having a few hair like spines; tibiae and tarsi with spine like hairs; anal segment pointed; cerci thick, apex rounded, extends beyond the body; Female : Wings extends up to the end of 4th segment; cerci extends far beyond the body; operculum boat shaped; subgenital plate as long as metanotum.

Distribution : India (Nagaland).

Measurements (in mm) : Male; Female : Body length 85; 115, meson. 21; 29, met. 10; 12.3, posterior femur 27.5; 28.5.

Remarks : We have studied the specimens present in National Zoological Collections, ZSI.

Genus *Marmessoidea* Brunner von Wattenwyl, 1893

1893. *Marmessoidea* Brunner von Wattenwyl, *Revis. D. Sys. D'Orth* : 80.

Diagnosis : Male; Female : Body more or less slender; head strongly globular; eyes large, globular, usually present on the anterolateral side of the head.

5. *Marmessoidea quadriguttata* (Burmeister)

1838. *Pasma bisbiguttatum* Burmeister, *Handbuch der Entomologie*, 2 : 586.

1904. *Marmessoidea quadriguttata* : Kirby, *A synonymic catalogue of Orthoptera*, 1 : 371.

Material examined : Assam : 1♂, Sibsagar, dt. of colln. Nil, collc. S.E. Peal. (ZSI, Regd. No. 1126/H5).

Diagnosis : Male; Female : Body slender; head strongly globular, longer than broad; antennae longer than the body, basal segment longer than the second segment; eyes

globular, pronotum a little longer than broad and slightly narrowed to its posterior end; mesonotum much longer than broad, its surface plane; tegmen ovate, small arch shaped and about equal length of pronotum; wings at the anterior border with deep brown stripe; first abdominal segment longer than the second and second, third and fourth segment equal. Male : head, pro and mesonotum smooth; metanotum with distinct tubercles on both side of the carina; mesonotum near about double length of pronotum; cerci extend beyond the last anal segment; subgenital plate, extend beyond the body and apex rounded. Female : Meso-notum with some scattered small tubercles on the dorsum; mesonotum as long as front femur; supranal plate with posterior margin obtusely truncate; last 3 abdominal segment narrower than the front; cerci extend a little beyond the body; posterior margin of subgenital plate obtusely rounded.

Distribution : India (Assam); Borneo; Malesia.

Measurements (in mm) : Male; Female : Body length 39-43; 76, tegmen length 3; 6, wings 30-37; 53, mesn. 10-11; 14, anterior femur 11; 12, posterior Femur 18-20; 21.

Remarks : We have studied the specimen present in National Zoological Collections, Zoological Survey of India, Kolkata.

Genus *Necroscia* Westwood, 1859

1859. *Necroscia* Westwood, *Cat. Phasm.*, : 147.

Diagnosis : Tegmen and wings long; anterior femora at base straight, cylindrical, carina indistinctly present.

6. *Necroscia bimaculata* (Olivier)

1792. *Mantis bimaculata* Olivier, *Encyclopedie Methodique, ou par ordre de matieres par un societe de gens de letters, de savannas, deet d'artistes Histoire Naturelle*, 7 : 637.

1859. *Necroscia bimaculata* : Westwood, *Catalogue of the orthopterous insects in the collection of British Museum Part I, Phasmidae* : 141.

1908. *Necroscia bimaculata* : Redtenbacher, *Die Insektenfamilie der Phasmiden* : 3 : 564.

Material examined : Tamil Nadu : Coromondel coast, date and Collector not known.

Diagnosis : Male : Light green colour; thorax anteriorly rounded, hairs absent; tegmen lanceolate, light black with large black spot in the middle; wings hyaline, basally rufotestaceous, light fuscous at the anterior; strongly clavate; femora anteriorly rectangular.

Distribution : India (Tamil Nadu).

Measurements (in mm) : Not available.

Remarks : This species is taken from the literature (Redtenbacher, 1908).

Genus *Orthonecrosia* Kirby, 1904

1904. *Orthonecrosia* Kirby, *Ann. Mag. Nat. Hist.*, (7)13 : 436.

Diagnosis : Body elongate, smooth; antennae extends beyond the last segments; wings extends a little beyond the body; abdominal segment of supra-anal plate extends a little beyond the body; tibiae with all along the carina with small hair like spine.

7. *Orthonecrosia filum* (Westwood)

1848. *Phasma (Necrosia) filum* Westwood, *Cab. Orient. Entom.*, : 79.

1904. *Orthonecrosia filum* : Kirby, *Ann. Mag. Nat. Hist.* (7)13 : 554.

Material examined : Assam : ♂, Sibsagar, dt. nil, collc. S.E. Peal (Regd. No. 1127/H5).

Diagnosis : Male : Body cylindrical, colour brown or green, laterally blackish; antennae brown large yellow patch in the middle; head a little raised from the body; head longer than breadth; eyes globular, present at the lateral side; antennae extends beyond the body; first segment depressed and little larger than the second; pronotum longer than breadth, a little narrow at the posterior; along the middle carina with tubercles and along the lateral carina with small spines; mesonotum large, long, anteriorly narrowed; tegmen pad like; wings long extended 1/4th length beyond the body, with yellow streak in every intervals; cerci small, inwardly curved; supra anal plate little extended beyond the last segments; subgenital plate obtusely rounded at apex.

Distribution : India (Assam).

Measurements (in mm) : Male : Body length 45, mesonotum, 12, metan. 10, wing 42, anterior femur 20, middle fem 21, posterior femur 22.

Remarks : We have studied the species from National Zoological Collections (ZSI), Kolkata.

Genus *Orxines* Stal, 1875

1875. *Orxines* Stal, *Ofversigt af Kongolia Vetenskaps-Akaddemiens Forhandlingar* : 32 : 87.

Diagnosis : Elytra at least in female, not present or minimize, lobular or apterous; anterior femur of metatarsus simple; operculum narrow, totally corneous, tube like, together with ovipositor elongate.

8. *Orxines xiphias* (Westwood)

1859. *Anophelepis xiphias* Westwood, *Cat. orthopt. Brit. Mus.*, Part I, Phasmidae : 71.

1875. *Orxines xiphias* : Stal, *Ofversigt af Kongolia Vetenskaps-Akademiens Forhandlingar*, 32 : 87.

Material examined : Assam : 1♀, Sibsagar, dt. nil, collc. S.E. Peal. (Regd. No. 1159/H5).

Diagnosis : Female : Yellowish brown in colour; body smooth, elongate; head longer than breadth; antennae long extended upto the 6th segment, basal segment longer than the second segment; eyes globular; pronotum elongate rectangular, a little narrow at the anterior, length double as breadth; median carina faintly developed; lateral carina prominent; mesonotum elongate, median carina faintly developed, small tubercle present scatterdly on the dorsum; metanotum laterally with small tubercles, posterior margin of metanotum with deeply incurved at the middle; tegmen a small pad like structure; wings vestigial; abdominal segment 1-6 equal, last segment smaller than the penultimate segment; subgenital plate long, extended far beyond the body; bifurcate at apex; supraanal plate with a small notch at apex, extended half of the length of subgenital plate; femur with quadrate carina and all along with small hair like; tibiae also with small hairs like; anterior femora relatively elongate; a little longer than mesonotum, quadrate margin with distinct carinae; tibiae as long as femora.

Distribution : India (Assam); Malaysia.

Measurements (in mm) : Female : Body length head 5.5, pronotum 5, meson. 29, metan. 7, anterior femur 37, anterior tibia 38, middle femur 30, tibia 31, posterior femur 36, post. tibia 41.

Remarks : We have studied the specimens present in National Zoological Collections (ZSI), Kolkata.

Genus *Oxyartes* Stal, 1875

1875. *Oxyartes* Stal, Orth., III : 18.

Diagnosis : Male : Female : Head depressed, longer than broad; posterior end with obtuse tubercle; thorax with spinose or acute granules; tegmen absent or rudimentary; wings very little and distinctly squamiform; femora all along quadrangulate, anteriorly in lower margin distinctly incurved spine on the both side. Male : Abdomen a little raised up, anal segment tectiform, posterior margin truncate or a little irregularly emarginated; subgenital plate arched shaped, apex smoothly rounded or abruptly a little pointed. Female : abdomen depressed, granulose or carinulate; anal segment depressed, transverse at apex with irregular denticle; cerci strongly incurved.

9. *Oxyartes cresphontes* (Westwood)

1859. *Anophelepis cresphontes* Westwood, Cat. Orth. Brit. Mus., Part I Phasmidae : 68.

1908. *Oxyartes cresphontes* : Redtenbacher, Die Insektenfamilie der Phasmiden, 3 : 475.

Material examined : Meghalaya : 1♂, 1♀, Khasi hills, dt. nil, collc. S.E. Peal. (Regd. No. 770/H5, 110/H5).

Diagnosis : Male : Female : Orange yellow in colour; tegmen pale or dark colour, on the boundry ash colour; head longer than breadth, a little narrow posteriorly, posterior

margin all along with 10 tubercles; eyes large globular; antennae at base articles depressed, thick and next articles small than the base and after that all the articles small; pronotum as double length of breadth and anterolateral corner a little extended; median carina of pro-meso and metanotum faintly developed; Male : pronotum at the posterior and just above the middle with 3 prominent spines, small tubercles also scatteredly present on the dorsum, laterally with tubercles; mesonotum with irregular 6-8 spines present in the middle, posteriorly with 2 strong spines; tegmen small; wings vestigial; tergal segments posteriorly truncate, all along dorsum of the terga with spine like scattered tubercles present; abdominal terga with 1st, 2nd and the third with single spines medially; anal segment smooth, transverse, emarginated at apex; subgenital plate hood shaped smooth to some extent granulose. Female : Pronotum with large number of scattered tubercle on the dorsum; mesonotum anterior and posterior with 2 tubercles; pleura with along the carina small spines; metanotum also covered with small tubercle like spines along carina; subgenital plate navicular; cerci extended up to the terminal segment.

Distribution : India (Assam, Meghalaya).

Measurements (in) : Male; Female : Body length 79; 110, pronotum, meson. 19; 25., metn. 11; 14, anterior femur 23; 24, posterior femur 25; 25.

Remarks : We have studied the specimens present in National Zoological Collections, Zoological Survey of India, Kolkata.

10. *Oxyartes despectus* (Westwood)

1848. *Phasma (Acanthoderus) despectum* Westwood, *Cat. Orient. Entom.*, : 80.

1875. *Oxyartes despectus* : Stal, *Ofversigt af Kongliga Vetenskaps-Akademiens Forhandlingar*, 32 : 73.

Material examined : Assam : 1♀, Miao, 2.v.1981, collc. S. Biswas. (Regd. No. 9327/H5).

Diagnosis : Male : Female : Light black in colour; head with posterior margin with 4 obtuse tubercle; femur below 4-6 spines in both sides. Male : Thorax smooth, mesonotum on the dorsum posteriorly with 2 spines; anal segment tectiform or widely triangular or emarginated. Female : Antennae long, base of the antennae depressed, thick, second segment is half of the length of the 1st segment, hairy; anterior margin of pronotum convex, dorsum covered with tubercles; mesonotum on the dorsal side at the anterior and posterior with 2 large spines, along the lateral margin spines also present, a single spine present at the posterior middle, abdomen along the middle carina posteriorly with single spines in the 1st and 2nd segment, 3rd and 4th segment with 3 spines, 5th segment squamiform; anal segment transverse; subgenital plate raised; cerci small.

Distribution : India (Assam, Arunachal Pradesh, Meghalaya and Nagaland); Bangladesh.

Measurements (in mm) : Male : Female : Body length 52; 73, mesont. 16; 16.5, metn. 8; 9, anterior femur. 17; posterior femur 18; 18.5.

Remarks : We have studied the female specimens present in National Zoological Collections, Zoological Survey of India, Kolkata.

Genus *Parasipyoidea* Redtenbacher, 1908

1908. *Parasipyoidea fictus* Redtenbacher, *Die Insektenfamilie der Phasmiden* : 479.

Diagnosis : Male : Female : Body unarmed, elongate; thorax smooth or granulose; tegmen and wings equal in length, or obliterated; anterior femora barely incurved, carinate and rounded. Male : Anal segment flat; emarginated. Female : Anal segment elongated, pointed or obtuse; cerci long, straight or sub-straight; operculum lanceolate, apex obtusely pointed.

11. *Parasipyoidea fictus* (Redtenbacher)

1908. *Paramyronides fictus* Redtenbacher, *Die Insektenfamilie der Phasmiden* : 3 : 478.

2005. *Parasipyoidea fictus* : Otte & Brock, *Catalogue of Stick and Leaf Insects of the world*, 254.

Material examined : Sikkim : Larvae.

Diagnosis : Body olive green in colour; head depressed; thorax obtusely granulose, tri-carinate; wings small, squamiform; abdomen depressed.

Distribution : India (Sikkim).

Measurements (in mm) : Male (larvae) : Body length 35, mesont. 12, metn. 7, anterior femur 11, middle fem. 7, posterior femur 10.

Remarks : This species is taken from literature (Redtenbacher, 1908).

12. *Parasipyoidea montana* Redtenbacher

1908. *Parasipyoidea montana* Redtenbacher, *Die Insektenfamilie der Phasmiden* 3 : 479.

Material examined : West Bengal : 1♂, Darjeeling. dt. of colln. and collc. nil.

Diagnosis : Male : Olive green in colour; body and pronotum smooth; antennae dark colour and at apex reddish in colour; mesonotum with dense granules, carina indistinct; metanotum with a saw like teeth, rarely granules present at the middle; abdomen base reddish in colour and smooth; anal segment truncate, medially with a incision; cerci cylindrical, apex obtuse; sternum granulose.

Distribution : India (West Bengal).

Measurements (in mm) : Male : Body length 64, mesn. 13, metn. 8, anterior femur 16, posterior femur 19.

Remarks : The description of the species is taken from the literature (Redtenbacher, 1908).

13. *Parasipyloidea shiva* (Westwood)

1859. *Bacteria shiva* Westwood, *Cat. Orth. Brit. Mus.*, Part I. Phasmidae, 8 : 6.

1904. *Lonchodes shiva* : Kirby, *Syn. Cat. Orthopt.*, 1 : 322.

1908. *Parasipyloidea shiva* : Redtenbacher, *Die Insektenfamilie der Phasmiden*, 3 : 470.

Material examined : Meghalaya : 1♂, 1♀, Shillong, dt.nil, collc. not available. (legs damage).

Diagnosis : Male : Female : Green in colour; completely apterous; body smooth, head longer than breadth, first segment of antennae double length of the second segment after that filiform and extended upto the eighths segment of abdomen, on the back of the ocellus with ornamented black; eyes present at the anterolateral side of the head, dorsum of the head with 8 minute granules; mesonotum with scatteredly minute granules, median carina not prominent, lateral carina prominent. Abdominal segment 6th slightly expanded than the remaining segments. Male : Subgenital plate long, angular, not extended beyond the supraanal, plate, apex obtusely rounded; supraanal plate with posterior margin obtusely pointed, extended beyond the subgenital plate, median carina prominent. Female : Abdomen with multicarinate, medially dilated; anal segment at apex pointed; cerci elongate; operculum at apex pointed.

Distribution : India (Meghalaya, Sikkim).

Measurements (in mm) : Male; Female : Body length 52; 58, mesn. 10; 11, metn. 6.5; 7, ant. fem. 17.5; 16, post. fem. 17; 16.

Remarks : We have studied the specimens present in National Zoological collections, (ZSI), Kolkata.

Genus *Parasobia* Redtenbacher, 1908

1908. *Parasobia* Redtenbacher, *Die Insektenfamilie der Phasmiden*, 3 : 482.

Diagnosis : Head at the posterior margin greatly elevated with two large spines in the middle; eyes relatively large, globular.

14. *Parasobia inferior* Redtenbacher

1908. *Parasobia inferior* Redtenbacher, *Die Insektenfamilie der Phasmiden*, 3 : 482.

Material examined : South India. ZSI, Regd. No. 958/H5. (Abdominal segment damaged).

Diagnosis : Male : Deep brown in colour; Body elongate; head little longer than broad; at the posterior greatly elevated with two large curved spines in the middle, behind the posterior margin present a row of serially arranged small tubercles; eyes relatively large, globular; pronotum longer than broad, dorsum uneven, transverse sulcus uneven, lateral carina prominent and with row of tubercles, posterior lateral angle a little expanded; mesonotum elongate, more than double length of pronotum, posterior region narrowly expanded, a little depressed in the middle, median and lateral carina prominent, on the dorsum with some scattered tubercles; metanotum long, nearly half of the length of mesonotum; abdominal tergite segment longer than broad; anterior femora a little shorter than the mesonotum, all margin carinate; anterior tibiae a little shorter than the femora, margin simple; front femur with anterior tarsi at the proximal segment elongate, hairy, equal in length in remaining tarsal segments; cerci thick, a little extended beyond the body; subgenital plate short.

Distribution : India (Tamil Nadu).

Measurements (in mm) : Male : Body length 26.5, head 4, pronotum 4.5, meson. 4, metn. 5.5, ant. fem. 10.

Remarks : We have studied the specimens present in National Zoological Collections, ZSI, Kolkata.

Genus *Scionecra* Karny, 1923

1923. *Scionecra* Karny, Zur Nomenclatur der Phasmoiden. *Treubia*, 3 : 230-242.

Diagnosis : Male; Female : Head a little globular, some times minute granule present on the dorsum; antennae thin not extended beyond the body; hind femur smooth and straight.

15. *Scionecra menaka* (Wood-Mason)

1876. *Necrosia menaka* Wood-Mason, *Ann. Mag. Nat. Hist.* (4)20 : 130.

2001. *Scionecra menaka* : Bragg, *Phasmids of Borneo* : 600.

Material examined : Meghalaya : 1♂, Khasi hills, dt. of colln. not available, collc. Capt. Butler. (partly damaged).

Diagnosis : Male : Green or brown in colour; body elongate; Head longer than breadth, eight minute granules present on the head; eyes globular and present on anterolateral side of the head; antennae thin, extended upto the eighth segment, base of the antennae quadrate in shape, second segment smaller than the first; pronotum broader than long; mesonotum longer than the metanotum; tegmen pad like; wings long and reaches upto the end of the abdomen; posterior femur straight, smooth, all the femur along the lower carinae with hair like structures.

Distribution : India (Meghalaya).

Measurements (in mm) Male : Body length 40 Meson. 9, metan. 7, tegmen 4, wings 27, post. fem. 17, post. tibiae 14.

Genus ***Sipyloidea*** Brunner von Wattenwyl, 1893

1893. *Sipyloidea* Brunner von Wattenwyl, *Revis. D. Syst. D'Orth.*, : 80.

Diagnosis : Head elongated and depressed; eyes present in front of the head; wings in female long; anterior portion of posterior legs ventrally unarmed.

16. ***Sipyloidea acutipennis*** (Bates)

1865. *Sipyloidea acutipennis* Bates, *Trans. Linn. Soc. London*, 25 : 354.

1908. *Sipyloidea acutipennis* : Redtenbacher, *Die Insektenfamilie der Phasmiden* 3 : 550.

2007. *Sipyloidea acutipennis* : Bragg, *Phasmid of Studies.*, 16(1) : 11.

Material examined : Not available.

Diagnosis : Male : Head and body green; eyes brown; a white stripe running from the back of the each eye to the back of the head; head and body smooth, antennae slender, clearly longer than the fore legs; eyes produced laterally; pronotum about 1.6 time longer than wide; mesonotum with a very fine median longitudinal carina, slightly narrowed behind the anterior margin then widening evenly; head and body extremely sparingly setose except abdominal sternite 7-9 which are moderately setose; metanotum and abdominal terga 1-6 without setae; metanotum and abdominal segments 1-6 about equal length; fore wing extends up to the end of metanotum with a small conical hump; wings reaches upto the 6th abdominal segments. cerci prominent, almost cylindrical, strongly incurving near the apex; legs with carinae dense setose; fore tibiae and fore femora almost equal, mid and hind tibiae slightly shorter than the femora. Female : Stripe on the body indistinct; mesonotum widening slightly and evenly length about four times width of the posterior margin.

Material examined : Male; Female : Body length 49; 77, pront. 2.4.3.6, meson. 8.5; 11.0, metn. 30; 51.5, ant. fem. 15.7; 19.2, middle fem. 11.0; 12.9, post. fem. 15; 17.

Distribution : India (Kerala and Tamil Nadu).

Remarks : The description of the species is taken from the literature (Redtenbacher, 1908).

17. ***Sipyloidea nitida*** Günther

1938. *Sipyloidea nitida* Günther, *Rec. Indian Mus.*, 40 : 137.

Material examined : 1♀, Cachar, dt. nil, collc. J. Wood-Mason.

Diagnosis : Female : Head a little longer than breadth, little narrow posterior margin, ocelli absent; antennae as long as the body, at first yellowish brown in colour after wards darker with bright rings; a brightly brown red or brightly purple wide postocular band run upto the back of the head; pronotum as long as the head and narrow with cross furrow before the middle; mesonotum small and in the middle line with few granules; tegmen as wide as long, olive green to brown in colour, costal region bright, before the middle elevated; wings reaches upto the 9th segment of abdomen; meso and meta pleura with some granules; mesosternum smooth; abdominal segment gradually increasing in length from the beginning of the segment, eighth segment a little longer than the 9th segment; supraanal plate flat, posterior margin concave; cerci with posterior margin rounded; legs with upper margin with sharp edges; anterior legs with upper margin bent inward; metatarsus shorter than the rest of the tarsus.

Measurements (in mm) : Body length 57, meson. 10, metn. 8, tegmen. 3, wings 35, ant. fem. 16, middle fem. 10.5, post. fem. 15.

Distribution : India (Assam).

Remarks : The description of the species is taken from the literature (Günther, 1938).

18. *Sipylodea sipylus* (Westwood)

1859. *Necroscia sipylus* Westwood, *Cat. Orthopt. Brit. Mus.*, Part I. Phasmidae : 138.

1908. *Sipylodea sipylus* : Redtenbacher, *Die Insektenfamilie der Phasmiden*, 3 : 544.

Material examined : Assam : 1♂, Sibsagar, dt. of colln. not known, collc. S.E. Peal, (Regd. No. 843/H5); West Bengal : 4♂♂, 6♀♀, Darjeeling, dt. of colln. not known, collc. WSA. (Regd. No. 744/H5 - 749/H5.).

Diagnosis : Male : Female : Deep brown to pale yellow colour; Body slender; abdomen with 2 to 5th segment uniformly width; head longer than breadth, smooth, depressed; antennae much longer than the fore legs, basal segments flattened; pronotum longer than breadth, a little swollen; mesonotum with indistinct carina, pleura and mesosternum with densely granulated; elytra elongate with a little humped; wings anteriorly with deep brown and posteriorly faint yellowish; wings with costal area brown; veins light brown
Male : Anal segment with deep emarginated; supra-anal plate small; cerci elongate, sub-erect. Female : Anal segment with posterior margin carinate, elongate and acutely pointed; cerci compressed; subgenital plate small and obtusely angulated; operculum smooth, angulate, apex sub-acute; legs pilose; femora with 4 carina; middle carina distinctly visible.

Distribution : India (Assam and West Bengal); China.

Measurements (in mm) : Male : Body length 57, meson. 10, metn. 8, tegmen wings 35, ant. fem. 16, middle fem. 10.5, post. fem. 15.

Remarks : We have studied the specimens present in National Zoological Collections, ZSI, Kolkata.

19. *Sipyloidea stigmata* Redtenbacher*

1908. *Sipyloidea stigmata* Redtenbacher, *Die Insektenfamilie der Phasmiden*, 3 : 546.

Material examined : Not available.

Diagnosis : Female : Body light green in colour; dry specimens dull brown with green tinge on antero-ventral portion of head; antennae light brown; either side of mesonotum with a light green longitudinal area with dark patches and dark border extending from posterior end to slightly beyond the middle; hind wings light pink; lateral band along the pro and meso thorax and anterior area of wings; anal region of hind wings translucent brown with light pink vein; abdominal sternite laterally dull white, abdominal tergite tinged brown beneath hind wings; tarsi light brown.

Distribution : India (Karnataka).

Remarks : This species is taken from Redtenbacher (1908).

Genus *Sosibia* Stål, 1875

1875. *Sosibia* Stal, *Ofversigt af Kongolia Vetenskaps-Akademiens Forhandlingar*, 32 : 87.

Diagnosis : Back of the head globular and elevated; tegmen sometime with distinct hump; operculum acuminate or round at the posterior margin.

20. *Sosibia pholidotus* (Westwood)

1859. *Necroscia pholidotus* Westwood, *Cat. Orthopt. Brit. Mus.*, Part I. Phasmidae, 17 : 4; 20 : 6.

1875. *Sosibia pholidotus* : Stal, *Ofversigt af Kongolia Vetenskaps-Akademiens Forhandlingar*, 32 : 87.

1908. *Sosiabia pholidotus* : Redetenbacher, *Die Insektenfamilie der Phasmiden*, 3 : 536.

Material examined : Assam : 3♂, 2♀, Sibsagar, dt. nil, collc. nil.

Diagnosis : Male : Female : Body large, black; head posteriorly narrowed, globular with dense tubercles; tegmen semi-quadrate, dark olive colour, anteriorly with a narrow whitish margin and a little hump; wings at the anterior dirty olive in colour, posteriorly infumated; Male : abdominal segment 8 and 9 carinate; femora thin, tooth-less; anteriorly dialated. Female : anal segment of carina at the posterior margin strongly triangular and to some extent tectiform; cerci thick and obtusely cylindrical; operculum angular at apex; smooth.

Distribution : India (Assam); Bangladesh.

Measurements (in mm) : Male; Female : Body length 85; 112, meson. 15; 16, metn. 12; 15, ant. fem. 19; 17, middle fem. 12.5; 14, post.fem. 22; 21.

Remarks : We have studied the specimens present in National Zoological Collections, ZSI., Kolkata.

Genus *Tagesoidea* Redtenbacher, 1908

1908. *Tagesoidea* Redtenbacher, *Die Insektenfamilie der Phasmiden*, **3** : 565.

Diagnosis : Head slightly globular; ocelli absent; mesonotum smooth; pronotum double longer than breadth, at the anterior with 2 tubercles; tegmen small, transverse; anal segment of male and female rounded at the posterior margin; male: supranal-plate arched shaped, apex rounded or obtuse; operculum obtuse; anterior femora straight.

21. *Tagesoidea tages* (Westwood)

1859. *Necrosia tages* Westwood, *Cat. Orthopt. Brit. Mus.*, Part I. Phasmidae, **18** : 1.

1908. *Tagesoidea tages* : Redtenbacher, *Die Insektenfamilie der Phasmiden*, **3** : 565.

Material examined : Assam : 1, Cachar, ix.1981, collc. Indian Museum (Regd. No. 947/H5); 1, ♀ Sibsagar, dt. nil, collc. S.E. Peal (Regd. No. 501/H5); Sikkim : 1♂, Sikkim, dt. nil, collc. Indian Museum.

Diagnosis : Male : Female : Head and thorax region green or olive green; antennae bright black; mesonotum a little rugolose, carinate medially; elytra at upper and lower part copper rust colour, cerci strongly incurved, apex obtuse. Male : Abdomen light black in colour; anal segment a little swelling, sub-genital plate a little arched shaped, apex rounded. Female : Abdomen reddish in colour; anal segment obtusely rounded; operculum small, lanceolate, apex obtuse.

Distribution : India (Assam, Sikkim and West Bengal).

Measurements (in mm) : Male; Female : Body length 39; 52, meson. 5.5; 6, metn. 8; 12, ant. fem. 10; 12, middle fem. 9; 9, post. fem. 13; 12.

Remarks : We have studied the specimens present in National Zoological collections, Zoological Survey of India, Kolkata.

Genus *Trachythorax* Redtenbacher, 1908

1908. *Trachythorax* Redtenbacher, *Die Insekten familie Phasmiden*, **3** : 508.

Diagnosis : Male; Female : Head and body smooth without any granules; antennae not extended beyond the body.

22. *Trachythorax sparaxes* (Westwood)

1859. *Necrosia sparaxes* Westwood, *Cat. Orthopt. Brit. Mus.*, Part I. Phasmidae : 153.

1908. *Trachythorax sparaxes* : Redtenbacher, *Die Insektenfamilie der Phasmiden*, **3** : 508.

Material examined : Bihar : 1♀, Singhbhum, ii.1908, collc.; ZSI Regd. No. 962/H5; Sikkim : 1?, Sikkim, dt. of colln. not available, collc.

Diagnosis : Female : Body greenish brown; three black median and lateral stripes prominent, starts one from the occiput of the head as a median carina another two lateral carina from the back of the eye to the end of mesonotum; head and body smooth, without any granules; head longer than breadth, slightly narrowed posteriorly, antennae slender, base of the antennae slightly longer than breadth, second antennal segment slightly smaller than preceding one, others filiform and reaches up to the 5th abdominal segment; eyes globular producing laterally; pronotum wider than long; mesonotum slightly narrowed posteriorly; metanotum a little narrowed anteriorly; abdominal segment 1-to 6 equal, eighth segment smaller than 7th segment; supraanal plate with posterior margin a little concave; cerci tubular and extended beyond the abdomen; subgenital plate boat shaped, apex pointedly rounded; legs with spines, carina densely setose; anterior femora and tibiae more or less equal; mid and hind tibiae shorter than the corresponding femora.

Distribution : India (Bihar, Sikkim); Sri Lanka.

Measurements (in mm) : Female : Body length 66-80; head 5; pronotum 4; meson. 9; metanotum 7; tegmen 8 mm, wing 50-65, hind fem. 17, post. fem. 16.

Remarks : We have studied the species present in National Zoological Collections, ZSI, Kolkata.

Subfamily PACHYMORPHINAE

Antennae distinctly segmented, shorter than the fore femora, never as long as the body; ventral surface of the all femora smooth; stick like or sturdy animals, if sturdy rather small and mostly smooth; male terminal segment not cleft or drawnout into lobes.

Tribe *Gratidiini* Cliquennois 2004

Anal segment of males truncate or slightly emarginated; those of female variable; antennae shorter than fore femora; second abdominal segment 2 times longer than the wide (except *Paramachymorpha*); cerci some times elongate but never dialated lobes, middle and hind femora unarmed or rarely spinulose.

Genus *Clonaria* Stål, 1875

1875. *Clonaria* Stal, *Ofversigt af Konglia Vetenskaps-Akademiens Forhandlingar* 32 : 87.

Diagnosis : Male : Body smooth; head globular; anal segment truncate, small emarginated at apex. Female : anal segment strongly variable.

23. *Clonaria indica* Gray

1835. *Bacteria indica* Gray, *Synopsis of the species of insects belonging to the Family*. Phasmidae, **22** : 1.

1907. *Gratidia indica* : Brunner von Wattenwyl, *Die Insektenfamilie der Phasmiden*, **2** : 227.

2005. *Clonaria indica* : Otte & Brock, *Catalog of Stick and Leaf Insects of the world* : 101.

Material examined : Maharastra : 1♂, Satara, Dt. Satara, 24.iii.1931, collc. R.B.S.S. & H.S.R.

Diagnosis : Male : Body elongate, smooth; head long and smooth and posteriorly narrowed; eyes present at the anterolateral side of the head, interocular space longer than the base of the antennae; antennae big headed, thick, twenty five segments and scarcely long as the body; median carina of the head not visible; pronotum longer than breadth; mesonotum smooth, lateral carina smooth; mesonotum shorter than the hind femora; metanotum slightly narrowed medially; abdominal median carina faintly developed seventh ventral segment truncate; supra anal plate with a prominent median carina, posterior margin slightly out curved; cerci thick and large, extended beyond the body; subgenital plate angular and triangularly produced.

Distribution : India (Maharastra).

Measurements (in mm) : Male : Body length 89, mesont. 18, metnt. 14.5, ant.fem. 17.5, middle fem. 21, post. fem. 15.5.

Remarks : We have studied the species present in National Zoological collections, ZSI, Kolkata.

Genus *Sceptrophasma* Brock & Seow-Choen, 2000

2000. *Sceptrophasma* Brock & Seow-Choen. In Seow-Choen. *An illustrated Guide to the Leaf Insects of Peninsular Malaysia and Singapore* : 3.

24. *Sceptrophasma humilis* (Wood-Mason)*

1859. *Bacillus humilis* Westwood, *Cat. Orthopt. Brit. Mus.*, Part I. Phasmidae, **2** : 7.

2005. *Sceptrophasma humilis* : Otte & Brock, *Phasmida species File. Catalog of Stick and Leaf Insects of the world* : 311.

Material examined : Bihar : 3 exs. Parashnath, v.1909, collector, J.K. Atkinson. (Damedged). Regd. No. 884-886.

Distribution : India (Bihar, Karnataka and Kerala).

Family PHASMATIDAE

Antennae distinctly segmented, usually shorter than fore femora, and then femora of females are distinctly serrated dorsobasally or longer than fore femora, but never as long as the body, and then ventral carinae of middle and hind femora distinctly and evenly serrated.

Subfamily CLITUMINAE

Totally apterous; antennae small; metanotum small; anterior femora above and below regularly serrate; middle femora lobate. Male : Antennae reaches before the anterior femora; anal segment tectiform, compressed, cleft and lobe more or less pointed; cerci at apex incurved. Female : Antennae scarcely stretched; anal segment flat, truncate or a little emarginated at apex; operculum navicular, middle rostrum like.

Tribe *Clitumini*Genus *Cuniculina* Brunner von Wattenwyl, 1907

Diagnosis : Male : Female : Body thin, rarely granulose; head with interocular space with 2 spines; antennae as long as anterior femur or little longer; thorax rarely granulose; legs lobate or not. Male : Anal segment lobate. Female : Anal segment with posterior margin deeply emarginated, supra anal plate very small, a little emarginated at base; operculum navicular, a little flat, compressed.

25. *Cuniculina cunicula* (Weswood)

1859. *Bacillus cuniculus* Westwood, *Cat. Orthopt. Brit. Mus.*, Part I. Phasmidae, 6 : 2.

1907. *Cuniculina cuniculus* : Brunner von Wattenwyl, *Die Insektenfamilie der Phasmiden*, 2 : 206.

2003. *Cuniculina cunicula* : Brock, *Rearing and studying stick and leaf insects*, 22 : 62.

Material examined : Bihar : 2♀♀, Singbhum, dt. of collection not available, collc. J.A. gravely.

Diagnosis : Female : Size large; colour pale yellow; thorax small; seventh abdominal segment undulated; operculum navicular, extend at the end of the abdomen; posterior margin of anal segment shallowly emarginated; anterior femora with upper margin totally saw like denticles and below with equal or tri or unidentate denticles; middle femora basally dentate upto the 3/4th length; middle tibiae posteriorly at upper margin with spine and below uni-or bi-dentate.

Distribution : India (Bihar); Sri Lanka.

Measurements (in mm) : Male; Female : Body length 110; mson. 22, metn. 19, ant. fem. 39, middle femur 27, post. fem. 30.

Remarks : It is taken from the literature (Brunner von Wattenwyl, 1907).

26. *Cuniculina insignis* Wood-Mason

1873. *Bacillus (Baculum) insignis* Wood-Mason, *J. Asiatic Soc. Bengal*, 42(2) : 51.

1907. *Cuniculina cuniculus* : Brunner von Wattenwyl, *Die Insektenfamilie der Phasmiden*, 2 : 204.

Material examined : Meghalaya : 7♀♀, Cherapunji, dt. nil, collc. Godwin Austin (Regd. No. 326/1); Nagaland : 1♀, Samagooting, dt. nil, collc. Captain Butler. (Regd. No. 989/H5).

Diagnosis : Female : Body large in size, strongly robust, elongated, sub-cylindrical and convex; head conspicuously narrowed from the eyes to posterior region with forwardly directed two spines; antennae 25 segments, basal joints depressed; mesonotum gradually attenuated from the 1st segment to 3rd segment; last three segment with grooved above the middle with posterior margin with obtuse angle; operculum extend beyond the abdomen, its posterior half greatly compressed and the extremity truncate; cerci minute conical; legs stout; anterior femora with upper and lower edges with spine from the base to the apex; middle femora curved, upper margin convex and below the base with two conspicuous divergent foliaceous expansions and conical spines at apex; posterior femora with feebly indication of foliaceous lobes and spine at apex; upper edges of middle tibiae with reduced or absent lobes.

Distribution : India (Assam, Meghalay, Sikkim).

Measurements (in mm) : Female : Body length 140-149, meson. 23.4-29.1, metn. 24-26, ant. fem. 24-30.8, middle fem. 22-24.6, post. fem. 22.8-31.2.

Remarks : We have studied the species present in National Zoological Collections, Zoological Survey of India, Kolkata.

27. *Cuniculina stilpna* Westwood

1859. *Bacillus cuniculus* Westwood, *Cat. Orthopt. Brit. Mus.*, Part I. Phasmidae, 25 : 8.

1873. *Bacillus (Baculum) furcillatus* Wood-Mason, *J. Asiatic Soc. Bengal*, 42(2) : 54.

2003. *Cuniculina stilpna* : Brock, *Rearing and studying stick and leaf insects*, 22 : 62.

Material examined : Sikkim : 2♂♂, Ghumti, vi.1912, collc. not available (Regd. No. 1079-80/H5).

Diagnosis : Male : Female : Body uniformly light green, extremely slender, cylindrical; head scarcely narrowed from the eyes to towards the posterior region, carinate above; antennae second joint nearly twice as long as broad, a little depressed, rest of the joints filiform; antennae as long as the metanotum, 17 jointed, first joint depressed; mesonotum and metanotum indistinctly carinate; abdominal region of 4th and 5th slightly expanded, 9th segment obtusely rounded at the apex; posterior margin of subgenital plate slightly emarginated; cerci long, obtuse at apex, inwardly curved; and extended beyond the abdomen; anterior femora slightly longer than the posterior femora. Female : Head more or less double length longer than broad; antennae shorter than the posterior femora; supra anal plate small, apex rounded; cerci small; subgenital plate not extended beyond the body.

Distribution : India (Assam, Meghalay, Sikkim).

Measurements (in mm) : Male; Female : Body length 97-100; 150-160, head 5; 6-6.5, pron. 3; 4.5-5, meson. 21; 29, metn. 17; 24, ant. fem. 37; 37, ant. tibiae 47; 45, middle fem. 26; 26, post. fem. 30; 30, post. tibiae 31; 33.

Remarks : We have studied the specimens present in National Zoological Collections, ZSI, Kolkata.

Genus *Ramulus* Saussure, 1861

1861. *Ramulus* Saussure.

Diagnosis : Male : Female : Body thin, globular or depressed, smooth; bright yellowish or green in colour; antennae smaller than the anterior femora; pronotum smooth; middle part of metanotum raised. Male : Anterior femora of upper ridges not serrulate; middle femora posteriorly a little lobate; anal segment deeply incision lobes and long; cerci small; subgenital plate at apex strongly stretched. Female : Anterior femora with upper ridges serrulate; legs small; middle femora posteriorly rarely lobate; anal segment tectiform, compressed, smooth, triangular emarginated; supraanal plate small; operculum navicular.

28. *Ramulus aboricus* (Giglio-Tos)

1914. *Clitumnus aboricus* Giglio-Tos, *Rec. Indian Mus.*, 8 : 417.

2005. *Ramulus aboricus* : Otte & Brock, *Catalogue of Stick and Leaf Insects of the world* : 299.

Material examined : Arunachal Pradesh : Parong., date and coll. Not available.

Diagnosis : Female : Pale yellow in colour; black stripe extended behind the eye to the apex of abdomen; head elongate, depressed, posterior margin a little angulate; occiput on the both side sulcated backwardly; antennae long; pronotum smooth; mesonotum and metanotum with some small granules on the both side, lateral margin with granules and 3-5 large granules, median carina poorly developed; abdomen with ultimate segment bilobed at apex; supra-anal plate small, carinate; cerci small, conical; operculum navicular, swollen; anterio femora long, tricarinate, upper carina serrate or denttate; middle femora with upper carina anteriorly with lobe, tricarinate, medially with 4-5 large granules; posterior femora with lower carina undeveloped; anterior and middle tibiae with 2-3 spines at the anterior; posterior tibiae at the anterior with 3-4 spines.

Distribution : India (Arunachal).

Measurements (in mm) : Not available.

Remarks : This species is taken from the literature (Giglio-Tos, 1914).

29. **Ramulus alienus** (Giglio-Tos)

1907. *Clitumnus alienus* Brunner von Wattenwyl, *Die Insektenfamilie der Phasmiden*, **2** : 193.

2005. *Ramulus alienus* : Otte & Brock, *Catalogue of Stick and Leaf Insects of the world* : 299.

Material examined : Not available.

Diagnosis : Female : Body large; head elongate, sub-cylindrical; antennae a little smaller than anterior femur; middle femora at the base swollen; pronotum and mesonotum unitedly smaller than the posterior femur; posterior femora at apex on lower carina tri or quadrate lobes; anal segment lanceolate, superior margin straight.

Distribution : India.

Measurements (in mm) : Male; Female : Body length 113, mesont. 24, metn. 20, ant. fem. 40, middle fem. 27, post. fem. 33.

Remarks : It is taken from the literature (Brunner von Wattenwyl, 1907).

30. **Ramulus angustior** (Brunner von Wattenwyl)*

1907. *Clitumnus angustior* Brunner von Wattenwyl, *Die Insektenfamilie der Phasmiden*, **2** : 192.

2005. *Ramulus angustior* : Otte & Brock, *Catalogue of Stick and Leaf Insects of the world* : 299.

Material examined : Not available.

Diagnosis : Male : Head long; cylindrical; thorax as long as anterior femur, posterior margin obtusely dentate and lateral margin straight; anal segment lanceolate, margin straight.

Distribution : India.

Measurements (in mm) : Male : Body length 68, mesn. 15, metn. 15.5, ant. fem. 32, post. fem. 27.

Remarks : This species is taken from the literature (Brunner von wattenwyl, 1907).

31. **Ramulus anterior** (Brunner von Wattenwyl)

1907. *Cuniculina anterior* Brunner von Wattenwyl, *Die Insektenfamilie der Phasmiden*, **2** : 201.

2005. *Ramulus anterior* : Otte & Brock, *Catalogue of Stick and Leaf Insects of the world* : 299.

Material examined : Not available.

Diagnosis : Female : Vertex with two spines; thorax small; anterior femora of upper edges and below serrated; middle femora at base below with lobes; middle tibiae at upper side bi-dentate; anal segment elongate and triangularly emarginated; operculum small, apex pointed.

Distribution : India (Assam).

Measurements (in mm) : Female : Body length 126, mesont. 26, metn. 21, ant. fem. 34, middle fem. 23, post. fem. 27.

Remarks : This species is taken from the literature (Brunner von Wattenwyl, 1907).

32. *Ramulus artemis* (Westwood)

1859. *Bacillus artemis* Westwood, *Cat. Orthopt. Brit. Mus.*, Part I. Phasmidae, 26 : 9.

1873. *Bacillus (Baculum) artemis* : Wood-Mason, *J. Asiatic Soc. Bengal*, 42(2) : 51.

1907. *Clitumnus angustior* : Brunner von Wattenwyl, *Die Insektenfamilie der Phasmiden*, 2 : 195.

2005. *Ramulus angustior* : Otte & Brock, *Catalogue of Stick and Leaf Insects of the world* : 300.

Material examined : Assam : 2 exs, Cacchar, dt. of colln., collc. not available; Nagaland : Naga hills, 2♂♂, 2♀♀, date of colln. not available, collc. Butler.

Diagnosis : Diagnosis : Head long cylindrical; anterior femur as long as thorax; posterior margin obtusely dentate and lateral margin straight; anal segment lanceolate, margin straight.

Distribution : India. (Assam, Nagaland, Sikkim and West Bengal); Bangladesh.

Measurements (in mm) : Male; Female : Body length 68, 112, mesn. 15, 23, metn. 15.5, 17.5, ant. fem. 22, 26, post. fem. 23, 26.

Remarks : We have studied the specimens present in National Zoological Collections, ZSI, Kolkata.

33. *Ramulus decolyi* (Brunner von Wattenwyl)*

1907. *Cuniculina decolyi* Brunner von Wattenwyl, *Die Insektenfamilie der Phasmiden*, 2 : 202.

2005. *Ramulus decolyi* : Otte & Brock, *Catalogue of Stick and Leaf Insects of the world* : 301.

Material examined : West Bengal : ♀, Kurseong, dt. nil, collc. Pantell.

Diagnosis : Female : Deep brown colour; large body; head elongated, inter-ocular tubercle spine like in appearance; thorax small; anal segment triangular, emarginated; supra-anal plate posteriorly truncate; opercula a little navicular; anterior femora at upper edge serrated, below not serrated, middle femora posteriorly below rarely with spines.

Distribution : India (West Bengal).

Measurements (in mm) : Female : Body length 148, mesont. 28, metn. 25, ant. fem. 34, post. fem. 34.

Remarks : This species is taken from the literature (Brunner von Wattenwyl, 1907).

34. *Ramulus hydrocephalus* (Brunner von Wattenwyl)*

1907. *Clitumnus hydrocephalus* Brunner von Wattenwyl, *Die Insektenfamilie der Phasmiden*, 2 : 195.

2005. *Ramulus decolyi* : Otte & Brock, *Catalogue of Stick and Leaf Insects of the world* : 303.

Material examined : Assam.

Diagnosis : Female : Head strongly globular, thorax smooth; abdomen with posterior margin of anal segment emarginated; operculum elongate navicular; apex extends beyond the abdomen; anterior femora with upper and lower edges serrulated; middle femora with upper edges denticulate; middle tibiae with upper margin basally dentate; posterior tibiae with upper edge without denticle and below basally with lobe.

Distribution : India (Assam).

Measurements (in mm) : Male; Female : Body length 110, meson. 22, metn. 19, ant. fem. 39, middle fem. 27, post. fem. 30.

Remarks : This species is taken from the literature (Brunner von Wattenwyl, 1907).

35. *Ramulus laevigatus* (Wood-Mason)*

1873. *Bacillus laevigatus* Wood-Mason, *J. Asiatic Soc. Bengal*, 42(2) : 49. 1907.

1907. *Clitumnus laevigatus* Brunner von Wattenwyl, *Die Insektenfamilie Phasmiden*, 2 : 200.

Material examined : 1♀, (larvae), Naga hills dt. Nil, collc. Capt. Butler.

Diagnosis : Female : Body slender, cylindrical and smooth; head a little narrowed posteriorly, two minute blunt erect spines in between the ocular space, its posterior margin 3-4 notches; antennae half of the length of mesonotum, first joint depressed and some what expanded, feebly carinate above, second segment as broad as long, abdomen extremely long and slender, tapering very gradually from apex to the seventh abdominal segment; cerci pointed; first joint of anterior tarsi as twice as the length of the other tarsi, and short in posterior tarsi.

Distribution : India (Nagaland).

Measurements (in mm) : Female : Body length 71, meson. 14, metn. 11, ant. fem. 23, middle fem. 14, post. fem. 17.

Remarks : This species is taken from the literature (Brunner von Wattenwyl, 1907).

36. *Ramulus russellii* (Bates)

1865. *Lonchodes russellii* Bates, *Trans. Linn. Soc. London*, 25 : 339.

1907. *Clitumnus russellii* : Brunner von Wattenwyl, *Die Insektenfamilie der Phasmiden*, 2 : 195.

2005. *Ramulus russelli* : Otte & Brock, *Catalogue of Stick and Leaf Insects of the world* : 300.

Material examined : West Bengal : 1♂, Darjeeling, dt. nil, collc. nil; Sikkim : 1♂, Sikkim, dt. nil, collc. nil. (Regd. No. 215/1).

Diagnosis : Male : Body large in size, smooth; head elongated, longer than breadth, narrowed towards the posterior region from the eyes; antennae reach upto the base of the anterior femur; pronotum little longer than broad; dorsal surface smooth; mesonotum longer than metanotum; anal segment lanceolate, emarginated at apex; subgenital plate more or less triangularly compressed, and a little arch shaped; cerci small, inwardly curved.

Distribution : India (Sikkim and West Bengal).

Measurements (in mm) : Male; Body length 110, meson. 23, metan. 20, ant. fem. 38, post. fem. 34.

Remarks : We have studied this species present in National Zoological Collections, Zoological Survey of India, Kolkata.

37. *Ramulus westwoodii* (Wood-Mason)

1873. *Bacillus westwoodii* Wood-Mason, *J. Asiatic Soc. Bengal*, 42(2) : 50.

1875. *Lonchodes westwoodii* : Wood-Mason, *J. Asiatic Soc. Bengal*, 44(3) : 215.

1907. *Cuniculina westwoodii* : Brunner von Wattenwyl, *Die Insektenfamilie der Phasmiden*, 2 : 203.

2005. *Ramulus westwoodii* : Otte & Brock, *Catalogue of Stick and Leaf Insects of the world* : 308.

Material examined : Andaman and Nicobar Islands : 1♀, Camorta, Nicobar, dt. of colln. Aug.-Sept., collc. Mr. Homfray (Regd. No. 447/1).

Diagnosis : Female : Body elongated, slender, subcylindrical; head narrowed from the eyes to the posterior region, lateral margin a little convex with two spines between the eyes, posterior margin with faintly notched in the middle; antennae as long as or more than half of the thorax; operculum boat shaped, extends about the end of the abdomen, its posterior half strongly compressed; cerci minute conical, subgenital plate basally compressed and extends a little beyond the abdomen; supra-anal plate lanceolate; legs tri-quartos, edges with short cilia; upper edges of femora serrate nearly to the apical end; middle and posterior femora with triangular spines below the apex; all the tibiae foleaceous, carina arising near the base and gradually decreasing towards the apex.

Distribution : India (Andaman & Nicobar Islands, Meghalaya, Sikkim).

Measurements (in mm) : Female : Body length 119, meson. 24, metn. 17, ant. fem. 36, post. fem. 27.

Remarks : We have studied the specimen present in National Zoological Collections, Zoological Survey of India, Kolkata.

Genus ***Ramphophasma*** Brunner von Wattenwyl, 1893

1907. *Ramphophasma* Brunner von Wattenwyl, *Revis. D. Syst. d'Orth.*, : 92.

Diagnosis : Male : Female : Body pale in colour, elongated; head with 2 spine in front of the eyes; anterior femur with tri-quartrous; middle femora a little smaller than mesonotum. Male : Antennae as long as front femur, apex thin; anal segment with a deep groove forward; anal lobe lanceolate. Female : Antennae small; anal segment long; cerci very small. Female : Operculum lanceolate; subgenital plate a little expanded than the supraanal plate.

38. *Ramphophasma mallati* Brunner von Wattenwyl

1907. *Clitumnus angustior* Brunner von Wattenwyl, *Die Insektenfamilie der Phasmiden*, **2** : 210.

Material examined : Not available.

Diagnosis : Male : Head long cylindrical; anterior femur as long as thorax; posterior margin obtusely dentate and lateral margin straight; anal segment lanceolate, margin straight.

Distribution : India (Tamil Nadu).

Measurements (in mm) : Male : Body length 68, pronotum meson. 15, metn. 1.5, ant. fem. 32.3, middle fem. post. fem. 27.

Remarks : We have studied the specimen present in National Zoological Collections, ZSI, Kolkata.

39. *Ramphophasma spinicorne* (Stål)

1875. *Entoria spinicornis* Stal, *Ofversiga Vetenskaps-Akademiens Forhandlingar*, **32** : 72.

1877. *Lonchodes westwoodii* : Wood-Mason, *J. Asiatic Soc. Bengal*, **46** : 342.

1907. *Ramphophasma spinicorne* : Brunner von Wattenwyl, *Die Insektenfamilie der Phasmiden*, **2** : 210.

1938. *Ramphophasma spinicorne* : Gunther, *Rec. Indian Mus.*, **40** : 126.

Material examined : West Bengal : 1♂, Kolkata, dt. nil, collc. nil. (Regd. No. 1154 and 1155/H5).

Diagnosis : Male : Body large size, slender; head with hard thorns like; anal segment hairy; cerci short, basal portion bigger and posteriorly truncate; subgenital plate flat; hind legs below the whole length flat and in front and at the apex with teeth; first tarsal segment longer than other tarsal segments.

Distribution : India (West Bengal).

Measurements (in mm) : Male; Body length 80, meson. 17, metn. 13. ant. fem.

Remarks : We have studied this species present in National Zoological Collections, Zoological Survey of India.

Tribe *Medaurini*

Diagnosis : Anal segment with lobe and extended beyond the body; supranal plate small; operculum lanceolate.

Genus *Medaura* Stal, 1873

1873. *Medaura* Stal, Rec. orth., 3 : 69.

Diagnosis : Female : Body depressed; thorax with minute granules; anterior femora with upper margin serrulate; anal segment with posterior margin deflex; supra anal plate extended beyond the body; operculum lanceolate.

40. *Medaura austeni* (Wood-Mason)

1875. *Lonchodes austeni* Wood-Mason, *J. Asiatic Soc. Bengal*, 44(3) : 216.

1907. *Medaura austeni* : Brunner von Wattenwyl, *Die Insektenfamilie der Phasmiden*, 2 : 241.

Diagnosis : Male : Head and thorax with minute granules; mesonotum, metanotum and abdomen with carina and strong spines; anal segment small, fused at base, rounded; subgenital plate compressed and hood shaped; middle and posterior femora at base below with single spine.

Distribution : India (West Bengal); Bangladesh.

Measurements (in mm) : Male; Female : Body length 64, meson. 16, metn. 10, ant. fem. 21.5, middle fem. 16, post6. fem. 19.

Remarks : From the literature (Brunner von Wattenwyl 1907).

41. *Medaura scabriuscula* (Wood-Mason)

1873. *Bacillus scabriuscula* Wood-Mason, *J. Asiatic Soc. Bengal*, 42(2) : 50.

1877. *Lonchodes westwoodii* : Wood-Mason, *J. Asiatic Soc. Bengal*, 46 : 342.

1907. *Medaura nimia* : Brunner von Wattenwyl, *Die Insektenfamilie der Phasmiden*, 2 : 241.

1913. *Medaura subintegra* : Carl, *Revue Suisse de Zoologie* 21(1) : 1.

Material examined : Meghalaya : 1♀, Khasi hills, dt. nil, collc. nil.

Diagnosis : Female : Dark colour; head with minute granules; interocular spines present, near the posterior margin two tubercles are present; antennae small, 18 segmented, before medially strongly stretched; thorax with minute granules; mesonotum

and metanotum tri-carinate, lateral carina indistinct; abdomen with minute granules; anterior femora as close as terga, serrulated; posterior femora a little convex; middle and posterior tibiae medially furrowed and with a spine on both sides.

Distribution : India (Meghalaya, Nagaland and West Bengal).

Measurements (in mm) : Female : Body length 85, mesont. 21, metnt. 12, ant. fem. 32, middle fem. 22, post. fem. 29.

Remarks : From the literature (Carl, 1913).

Tribe *Pharnaciini*

Genus *Phobaeticus* Brunner von Wattenwyl, 1907

42. *Phobaeticus annamallayanus* (Wood-Mason)

1876. *Phibalosoma annamallayanum* Wood-Mason, *J. Asiatic Soc. Bengal*, **46** : 161.

2008. *Phobaeticus annamallayanus* : Hennemann & Conle, *Revisión of Oriental Phasmatodea*, *Zootaxa* : 137.

Material examined : Tamil Nadu : Annamali hills, dt. of collc. Not available. (Material damaged).

Distribution : India (Kerala and Tamil Nadu).

Genus *Phryganistytia* Stal, 1875

1875. *Phryganistytia* Stål, *Rec. orth.*

43. *Phryganistytia virgea* (Westwood)

1848. *Bacteria virgea* Westwood, *Cab. Orient. Ent.*, : 66.

1877. *Phibalosoma vergea* : Wood-Mason, *J. Asiatic Soc. Bengal*, **46** : 161.

1907. *Phryganistytia vergea* Brunner von Wattenwyl, *Die Insekten fam. der en Phasmiden* **2** : 183.

Material examined : Assam : 4♂♂, 2♀, Sibsagar, dt. not available, collc. S.E. Peal. Regd. No. 766-67/H5, 988/-889/H5, 942-943/H5; Meghalaya : 2♂♂, Shilong, dt. and collc. not available.; Nagaland : 1♂, naga hills, dt. of colln. not available, collc. Doherty (Regd. No. 717/H5). Tamil Nadu : 1♂, Yarkard, dt. of collc. and collc. not available (Regd. No. 1006/H5).

Diagnosis : Male; Female : Body large, smooth, head longer than breadth, smooth, posteriorly in the middle with a little bulging; antennae longer than the fore femora, hairy, base of the antennae double length than the breadth, second segment as long as breadth; eyes laterally placed; pronotum longer than breadth; median carina faintly present; on the mesonotum and metanotum median carina faintly present; abdomen

smooth; femora with quadrate carina; anterior femora with lateral margin of all the femora with serially placed spines present; all the tibia with serially placed spines. Male : Antennae reaches upto the second abdominal segments; posterior margin of seventh segment laterally swollen; supraanal plate with posterior margin bifurcate upto the middle; subgenital plate small, triangular, apex obtusely rounded; cerci incurved, apex obtusely pointed. Female : Antennae reaches middle of mesonotum; supraanal plate small, posterior margin obtusely rounded; small tubercles present on dorsal surface; subgenital plate large, extended far beyond the body; posterior margin widely bifurcated.

Distribution : India (Assam, Meghalaya, Nagaland and Tamil Nadu); Bangladesh.

Measurements (in mm) : Male; Female : Body length 145; 230, meson. 27-30; 44-49, metn. 21-26; 32-36, ant. fem. 44-55; ant. 57-65, middle fem. 35-40; 49-56, middle tibiae 36-35; 53-56, post. fem. 43-45, hind tibiae 48-55; 56-57.

Remarks : We have studied the species present in National Zoological Collection, ZSI, Kolkata).

Genus *Tirachoidea* Brunner von Wattenwyl, 1893

Diagnosis : Male : Body tooth-less, elongate and soft; antennae smooth; occiput in the middle globular or conical and bi-tuberculate, mesonotum elongate; tegmen elongate; subgenital plate hump shaped or elevated. Female : Size large; antennae small; tegmen rudiments quadric shaped; wings small or absent; abdominal segment above or below folioceous, lateral margin with single denticle; operculum medially with a groove like a vessel.

44. *Tirachoidea biceps* (Redtenbacher)

1908. *Pharnacia biceps* Redtenbacher, *Die Insekten fam. der en Phasmiden*, 3 : 451.

2005. *Tirachoidea biceps* : Zompro, *Arthropoda*, 13(4) : 4.

Material examined : Nil.

Diagnosis : Male : Female : Dark olive colour; occiput strongly hump shaped, anterior margin with 2 tubercles; femur with carina all along denticulate or serrate. Male : Tegmen darker throughout, anterior margin obtusely rounded, golden yellow or green; wings fuscous, anterior margin dilated; anal segment compressed, carina present with a deep cleft. Female : Abdominal dorsal segment wholly elevated; segment 5th square in shape; seventh segment posteriorly rounded, anal segment triangular; operculum not extended beyond the body; anterior femora with upper crest 4-6 denticles, tibiae anteriorly at below serrate or dentate; metatarsus at apex with spines.

Distribution : India (Assam); Java; Tonking.

Measurements (in mm) : Male; Female : Body length 110-138; 185-205, pronotum meso, 27-32; 40-58, metn. 19-21; 25-35, elytra 8-9; ant. fem. 42; 34-51, post. fem. 41; 45-54.

Remarks : Body large size.

45. *Tirachoidea westwoodii* (Wood-Mason)

1874. *Phibalosoma westwoodii* Wood-Mason, *J. Asiatic Soc. Bengal*, **44**(3) : 216.

1904. *Tirachoidea westwoodii* : Kirby, *Syn. Cat. Orthoptera*, Phasmidae, **1** : 359.

Material examined : Nagaland : Samaguting.

Diagnosis : Female : Large body; head posteriorly broad, hump shaped and convex; at upper margin with two unequal tubercles; elytra small and a small squamiform; abdominal segment posteriorly dentate.

Distribution : India (Assam ?? and Nagaland).

Measurements (in mm) : Female : Body length 237, pronotum meso, 45.5, metn. 32.8.

Remarks : We have studied the species present in National Zoological Collections, Zoological Survey of India, Kolkata.

Subfamily LONCHODINAE

Totally apterous; antennae long setaceous, segment numerous; middle portion indistinct; mesonotum always longer than the metanotum; legs smooth, lobate; hind legs reaches almost to the end of abdomen; Male : Anal segment tectiform, compressed, terminal segment cleft and expanded into two lobes, which narrow inside, view towards the rear, or at least have two figure shape curved medio ventral proceses. Female : Anal segment plane, navicular, median carina strongly prominent.

Tribe LONCHODINII Brunner von Wattenwyl, 1893

Totally apterous; antennae long, setaceous; metanotum segment medium; anal segment of male compressed, posterior margin a little emarginated at apex.

Genus *Carausius* Stål, 1875

Diagnosis : Male; Female : Vertex smooth or spinose, transverse; occiput posteriorly to some extent tuberculate; pro and meso-sternum straight; metasternum with acute carina up to the middle; anterior and posterior tibiae plain and compressed. Male : Body semi smooth; anal-segment tectiform, compressed, dark, lobes pointed. Female : Body rugose or granulose; mesonotum smooth; anal segment at posterior margin

emarginated; supraanal plate distinctly large; operculum navicular, apex acute and compressed.

46. *Carausius burri* Brunner von Wattenwyl

1907. *Carausius burri* Brunner von Wattenwyl, *Die Insekten fam. der en Phasmiden*, **2** : 270.

Material examined : Tamil Nadu : Nilgiri hills.

Diagnosis : Female : Deep brown in colour; head granulose; interocular space on the head transverse; thorax granulose; anal segment with a small lobe; operculum navicular, carina crenulate; anterior femora a little undulate on upper crest, below mutilated; middle femora posteriorly tridentate; anterior tibiae very small; on the dorsal side a little undulated; tarsi small; metatarsi lobate at the anterior.

Distribution : India (Tamil Nadu).

Measurements (in mm) : Female : Body length 97, pronotum meso, 23, metn. 16, ant. fem. 18, middle fem. 13.5, post. fem. 16.

Remarks : From the literature (Brunner von Wattenwyl, 1907).

47. *Carausius debilis* Brunner von Wattenwyl

1907. *Carausius debilis* Brunner von Wattenwyl, *Die Insekten fam. der en Phasmiden*, **2** : 270.

Material examined : Tamil Nadu : ♀, Madurai, dt. nil, collc. nil.

Diagnosis : Female : Body bright black in colour; head rarely granulose; vertex with 2 lobes, laterally continuously straight up to the posterior margin; mesonotum and metanotum rarely granulose; 5th abdominal segment full of small tubercle; ninth segment compressed, elevated, anal segment compressed triangularly emarginated; supra-anal plate small, closely connected; operculum compressed, apex acute.

Distribution : India (Tamil Nadu).

Measurements (in mm) : Female : Body length 73, pronotum meso, 17, metn. 11.5 ant. fem. 9, middle fem. 10, post. fem. 12.

Remarks : From the literature (Brunner von Wattenwyl, 1907).

48. *Carausius imbellis* Brunner von Wattenwyl

1907. *Carausius imbellis* Brunner von Wattenwyl, *Die Insekten fam. der en Phasmiden*, **2** : 269.

Material examined : Not available.

Diagnosis : Body strong; head rarely granulose; thorax granulose; abdomen densely granulose; anal segment a little emarginated; supraanal plate small; operculum with

carina; anterior femora on upper crest undulated; tibiae on the dorsal side a little undulated; tarsi small.

Distribution : India (Tamil Nadu).

Measurements (in mm) : Female : Body length 93, meson., 22, metn. 16, ant. fem. 21, middle fem. 16, post. fem. 18.

Remarks : From the literature (Brunner von Wattenwyl, 1907).

49. *Carausius morosus* (Sinety)

1901. *Dixippus morosus* Sinety, *Cellula*, **19** : 121.

1907. *Carausius morosus* : Brunner von Wattenwyl, *Die Insekten fam. der en Phasmiden*, **2** : 268.

Material examined : Karnataka : Shambaganur.

Diagnosis : Male : Pale in colour; anterior margin of anal segment truncate, lobe small and obliquely truncate; ninth segment stretched; subgenital plate very small, arch shaped, apex rounded; middle and posterior femora at apex below on the both sides mutilated; tibiae at the anterior upper side split; tarsi smooth. Female : Black with thickly granulose; middle and posterior femora at apex below on the both sides bi- or tri spines; abdomen with obtuse tri-carinate at apex; anal segment smooth, triangular and apex emarginated; supra anal plate small, closely connected; operculum compressed, carina strongly acute.

Distribution : India (Karnataka, Tamil Nadu).

Measurements (in mm) : Male; Female : Body length 55; 83, meson, 14; 19, metn. 10; 13.5, ant. fem. 12; 16, middle fem. 10; 12, post. fem. 13; 15.5.

Remarks : From the literature (Brunner von Wattenwyl, 1907).

50. *Carausius rudissimus* Brunner von Wattenwyl

1907. *Carausius rudissimus* : Brunner von Wattenwyl, *Die Insekten fam. der en Phasmiden*, **2** : 274.

Material examined : Tamil Nadu : ♀, Madurai.

Diagnosis : Female : Colour deep brown; head entirely granulose; vertex depressed; thorax at the anterior with acute granulated and tuberculated; anal segment truncate; operculum rugolose; anterior tibiae at dorsal surface undulate.

Distribution : India (Tamil Nadu).

Measurements (in mm) : Female : Body length 77, meso, 18, metn. 12, ant. fem. 15, middle fem. 12, post. fem. 13.

Remarks : From the literature (Brunnervon Wattenwyl, 1907).

51. *Carausius sikkimensis* (Brunner von Wattenwyl)

1907. *Dixipus sikkimensis* : Brunner von Wattenwyl, *Die Insekten fam. der en Phasmiden*, 2 : 274.

1998. *Carausius sikkimensis* : Brock, *Kataloge der wissenschaftlichen Sammlungen des Naturhistorischen Museums in Wien*, 13(5) : 58.

Material examined : Sikkim.

Diagnosis : Male : Vertex with two minute spines; thorax with densely rugose or granulose; anterior femora at apex plane; posterior femora at apex below with 3 spines on the both sides; anterior meta tarsi long, thin; anal segment basally dark, lobe visible to make it pointed; apex of abdominal segment long.

Distribution : India (Sikkim).

Measurements (in mm) : Male : Body length 72, meson, 18. metn. 13, ant. fem. 18, post. fem. 16.5.

Remarks : From the literature Brunner von (Wattenwyl, 1907).

52. *Carausius vacillans* (Brunner von Wattenwyl)

1907. *Carausius vacillans* Brunner von Wattenwyl, *Die Insekten fam. der en Phasmiden*, 2 : 271.

Material examined : Tamil Nadu : dt. Nil, collc. nil.

Diagnosis : Female : Head granulose; interocular margin transverse; thorax on dorsal side granulose or rugolose, below smooth; abdomen rugose; sixth abdominal segment full of tubercles; eighth and ninth segment lobate; anal segment emarginated; supra-anal plate small; operculum strongly compressed, carina entirely acute; anterior femora on upper crest on dorsal side undulated; middle femora bi-dented at the posterior; anterior tibiae small; middle and posterior tarsi hairy.

Distribution : India (Tamil Nadu).

Measurements (in mm) : Female : Body length 88, meso, 22.5, metn. 14, ant. fem. 18, middle fem. 13 post. fem. 15.

Remarks : From the literature (Brunner von Wattenwyl, 1907).

Genus *Lonchodes* Gray, 1835

1835. *Lonchodes* Gray, *Syn. Pasma*, : 19.

1907. *Lonchodes* : Brunner von Wattenwyl, *Die Insekten fam. Der en Phasmiden* 2 : 256.

Diagnosis : Male : Female : Body smooth; head elongate, posteriorly a little emarginated; inter-ocular space smooth or 2 spine; metanotum posteriorly a little raised; middle femora as long as metanotum. Male : Abdomen with 3rd segment long; anal segment extended; cerci small, rectangular; subgenital plate very small, arch shaped.

Female : Anal segment with posterior margin emarginated; supra-anal plate closely connected; operculum navicular, apex extendd.

53. *Lonchodes normalis* Brunner von Wattenwyl

1907. *Lonchodes normalis* Brunner von Wattenwyl, *Die Insekten fam. der en Phasmiden*, 2 : 261.

Material examined : Not available.

Diagnosis : Male : Colour dirty black; head smooth with 2 spines; mesonotum smooth; abdominal segment dilated; anal segmental lobe posteriorly obliquely truncate; anterior femora at apex hairy; middle femora on the both side with unidentate.

Distribution : India (West Bengal).

Measurements (in mm) : Male; Female : Body length 43; 63, meson, 10.5; 19.7 metn. 7.2; 19.8.

Remarks : From the literature (Brunner von Wattenwyl, 1907).

54. *Lonchodes verrucifer* Wood-Mason

1876. *Lonchodes verrucifer* Wood-Mason, *J. Asiatic Soc. Bengal*, 45(1) : 47.

Material examined : South Andaman : 1♂, 2♀♀, South Andaman, collc. nil.

Diagnosis : Male : Female : Head with two broad curved spines between the eyes, connected by slight transverse elevation, hind margin with 4 or 5 tubercles; all the femora with 2 minute spines close together in the same straight line near the apex below; upper edge of the tibiae and the 1st segment of tarsal joints of fore legs elevated in to a sharp foliaceous crest, this part in other legs simple. Male : Body quite smooth, uniformly wide or tapering, seventh dorsal segment dilated, narrowed from the base to the apex; ninth segment strongly carinate upto the basal half, divided by a linear slit into 2 parts connected by a membrane; terminal ventral segment at the posterior longtitudinally carinate and the posterior end broadly rounded; cerci short, posteriorly obtuse and depressed, tips incurved. Female : Body entirely covered with granules dorsal surface of the thorax and abdomen with five raised longitudinal sharp spine; mesothorax continuously dilated at the insertion of legs; abdomen tapers from the base to the apex; a little widen at the end of the 5th segment, seventh segment depressed; last three terminal segment narrow, tapering slightly to the apex; posterior margin with small tubercles, cerci small; supra-anal plate semi oval; operculum compressed.

Distribution : India (Andaman & Nicobar Islands).

Measurements (in mm) : Male; Female : Body length 92; 118, meson, 24; 30, metn. 14; 19, ant. fem. 24; 25, middle fem. 17; 20, post. fem. 19; 20.5.

Remarks : This species distributed only in south Andaman.

Genus *Menexenus* Stål, 1875

Diagnosis : Male : Female : Body with rugulose or spinose; head depressed, without spines or with two spines; thorax with acute granulose or rugulose or spinose; metanotum at the anterior half with spines, or narrow spines or not at all; anterior femora medially with lobate or dentate or mutilated. Male : Abdomen rough, squamiform at each segment at base rounded; tectiform, compressed or pointed. Female : Abdominal segments transverse; supra-anal plate bent at apex; operculum navicular, pointed at apex.

55. *Menexenus rotunguis* Giglio-Tos

1914. *Menexenus rotunguis* Giglio-Tos, *Rec. Indian mus.*, **8** : 421.

Material examined : Arunachal Pradesh : 1♀, and 1♀ (larvae), Rorung, Kobo, dt. of colln. not available, collc. not available.

Diagnosis : Male : Female : Body dark brown in colour; rugulose or granulose; head longer than broad, at the back of the antennae with sharp spine; cerci not reaches beyond the abdomen; Male : Antennae longer than the body, deep yellow, apex brown and setaceous; head with minute granules, on the dorsum, subcylindrical, median carina absent; metanotum conical, straight and posterior margin with minute tubercles; abdomen subcylindrical with obtuse granules, segment 1-5 with anterior and posterior margin with conical spines, segment 6-8 at apex tuberculate and medially with strongly tuberculate; anal segment compressed, apex deeply divided with lobes and laterally with minute denticles; anterior femur with upper margin substraight middle femora on the upper margin with minute tubercles and lower margin dentate; posterior femora on the upper margin undulated and lower margin with small denticles. Female : Pronotum smooth; mesonotum tectiform, compressed, along the lateral carina with granules, posterior margin tuberculate; mesonotum densely tuberculate; metanotum medially narrow and margin with spines; abdomen depressed, pleura with carina granulose; segment 1-5 with posterior margin medially with spines; segment 8 anteriorly with lobed and depressed, acutely triangular at apex; anal segment small, tricarinate, apex truncate; supra-anal plate small and transverse; anterior femur with upper margin irregularly undulated; middle femora as long as metanotum.

Distribution : India (Arunachal Pradesh).

Measurements : Male; Female : Body length 58; 69, head 4.5; 6, pronotum 4; 4.4-5, meson. 13.5; 16, metn. 6; 6, ant. fem. 18; 17, middle fem. 13; 13, post. fem. 17; 19.

Remarks : The description of the species is taken from the literature Giglio-Tos, 1914).

56. *Menexenus lacertinus* (Westwood)

1848. *Phasma (Acanthoderus) lacertinus* Westwood, *Cab. Orient. Entom.*, : 80.

1875. *Menexenus lacertinus* Westwood, *Cat. Orthopt. Brit. Mus.*, Part I. Phasmidae : 49.

Material examined : Assam : 1♂, 2♀♀, Sibsagar, dt. nil, collc. Capt. Butler (Regd. No. nil); Nagaland : 3♂♂, 2♀♀, Naga hills, dt. nil, collc. Motiram.

Diagnosis : Male : Female : Large body; deep brown in colour; head longer than broad, inter-ocular space with large spines, around the spine granulose; eyes globular, relatively prominent, six tubercles present in the middle just above the lower margin of the head; antennae with basal segment double length than the second segment; pronotum length and breadth equal; middle below posteriorly with 3-4 spines. Male : Yellowish green colour; mesonotum along the middle with 4 large spines, posteriorly with 2 spines; metanotum small and posteriorly with 2 spines; abdomen up to 5th segment with 2 spines; to some extent 8th and 9th segments enlarged; anal segment at base slightly divided; subgenital plate compressed; anterior femora posteriorly below with single denticle; middle femora with upper crest without denticle and below the carina anteriorly with 4 spines; posterior femora at lower margin serrated, and posteriorly with 2 spines. Female : Deep brown colour; metanotum granulose, posteriorly with 2 spines; abdomen 1st to 4th segments granulose or rugulose with 2 denticles on the both sides of the median carina; eighth segment not compressed; supra-anal plate transverse, apex pointed; operculum navicular and pointed.

Distribution : India (Assam, Nagaland); Bangladesh.

Measurements (in mm) : Male; Female : Body length 83; 110, meson, 17; 27, metn. 12.5; 17, ant. fem. 21; 29.0, middle fem. 14; 21, post. fem. 19; 26.

Remarks : We have studied species present in National Zoological Collections, Zoological Survey of India, Kolkata.

57. *Menexenus semiarmatus* (Westwood)

1848. *Phasma (Acanthoderus) semiarmatus* Westwood, *Cab. Orient. Entom.*, 7 : 2.

1859. *Acanthoderus semiarmatus* : Westwood, *Cat. Orthop. Brit. Mus.*, Part I. Phasmidae : 50.

1904. *Menexenus semiarmatus* : Kirby, *Syn. Cat. Orthoptera*, Phasmidae, 1 : 325.

1938. *Menexenus semiarmatus* : Gunther, *Rec. Indian Mus.*, 40 : 127.

Material examined : ♂♂, ♀♀, Sikkim, vi.1912, collc. nil (Regd. No. 1051/H5, 1052/H5, 1131/H5, 1138/H5; West Bengal : ♂♂, ♀♀, Kursiang, 21-9v.1908, collc. N. Annandale, (Regd. No. 961/H5, Darjeeling, dt. nil, collc. nil; (Regd. No. 1053/H5, 1152/H5, 1133/H5).

Diagnosis : Male : Green colour; head weavy, inter-ocular space with 2 spines; thorax smooth, posteriorly rounded; anal segment deep black; lobes incurved, lanceolate; subgenital plate hood shaped, compressed, ninth segment at apex hump shaped, hardly extended beyond the body. Female : Deep brown colour; body rugose; head granulose; interocular space with 2 spines; thorax tectiform, a little compressed; anterior femora below the upper margin obtusely crenulate; middle femora with upper margin not dentate; posterior femora with upper and lower margin obtusely dentate; tibiae with upper margin lobate; abdomen rugose; anal segment of anterior margin emarginated; supra-anal plate transverse with a little extended; operculum small, not extended beyond the body.

Distribution : India (Sikkim & West Bengal).

Measurements (in mm) : Male; Female : Body length 54; 73-52, meson. 12; 12-18, metn. 8; 8-10, ant. fem. 17.5; 13-17, middle fem. post. fem. 17; 13-18.

Remarks : Specimens studied here is present in the National Zoological Collections, ZSI, Kolkata.

58. *Menexenus tenmalainus* Günther

1938. *Menexenus semiarmatus* : Gunther, *Rec. Indian Mus.*, 40 : 127.

Material examined : Kerala : 1♂, Courtallum, Tenmala, 16.xi.1921, collc. H.S. Rao; 2♂♂, Tenmala, dt. 28.x.1926, collc. H.S. Rao (Regd. No. 610 & 611/H5).

Diagnosis : Male : Head globular, longer than breadth, posteriorly a little narrow; antennae 40 segmented as long as anterior femur or a little longer; pronotum with 2 spines along the posterior margin in the both sides; mesonotum with median carina, towards the posterior region tapering; mesopleura with distinctly granulose; elytra broad and wide; posterior margin rounded; wings reach upto the ninth segment; abdomen smooth; supra-anal plate long and elongated; cerci robust, long, posterior margin flat, anterior margin of hind legs with spines.

Distribution : India (Kerala & Tamil Nadu).

Measurements (in mm) : Male : Body length 51, meso, 6.5, metn. 8.5, tegmen length 37, wings length 36, ant. fem. 11 middle fem. 8 post. fem. 12.

Remarks : We have studied the male specimens from the National Zoological Collections, ZSI, Kolkata.

Genus *Myronides* Stal, 1875

1875. *Myronides* Stal, *Rec. Orth.*, 3 : 8.

Diagnosis : Male : Female : Body to some extent with minute granules; head little elongated, anterior to posterior laterally straight; occiput with minute tubercles; femora

at base on the lower margin with 1 to 3 denticle or spines; tarsi long. Male : Anal segment tectiform, compressed and pointed; cerci small; subgentiplate to some extent hairy, a little compressed. Female : Anal segment truncate; supra-anal plate long, cerci small; operculum navicular, acute, posterior margin obtuse.

59. *Myronides baucis* (Westwod)

1859. *Acanthoderus semiarmatus* : Westwood, *Cat. Orthop. Brit. Mus.*, Part I. Phasmidae : 50.

1877. *Menexenus lacertinus* Westwood, *Cat. Orthopt. Brit. Mus.*, Part I. Phasmidae, 46 : 349.

Material examined : Assam : 2♂♂, 5♀♀, Sibsagar, dt. nil, collc. S.E. Peal (Regd. No. 899/H5; 900/H5; 9001/H5, 904/H5, 906/H5, 931/H5, 1108/H5; Nagaland : 1♀, Naga hills, dt. nil, collc. Motiram (Regd. No. 905/H5).

Diagnosis : Male : Female : Deep brown dirty colour; vertex smooth, eyes globular black; head a little longer than breadth; metanotum 1/3 length of the mesonotum; anterior femora without spines or denticles; middle femora posteriorly below with strong denticles. Male : Abdomen with terminal segments dilated, a little convex, sub-straight; anal segment posteriorly pointed; subgenital plate boat shaped; cerci small, incurved; tarsi long. Female : Anal segment smooth, small, strongly emarginated; supra-anal plate small; operculum navicular, small, arch shaped; tarsi small and thin.

Distribution : India (Assam, Arunachal Pradesh, Nagaland, Tamil Nadu ??).

Measurements (in mm) : Male; Female : Body length 95; 109, meson. 22; 26, metn. 14; 12, ant. fem. 29.5; 29, middle fem. 22; 21, post. fem. 29; 27.

Remarks : Materials studied from the National Zoological Collections, ZSI, Kolkata.

60. *Myronides curvithorax* Brunner von Wattenwyl

1907. *Myronides curvithorax* Brunner von Wattenwyl, *Die Insekten fam. der. Phasmiden* 2 : 254.

Material examined : Nil.

Diagnosis : Male : Deep brown colour; body strong; vertex with small spine; thorax with dense granules; mesonotum incurved; abdominal segment at apex dilated, all the segments with deep cleft; anterior margin truncate; subgenital plate arch shaped; posterior margin obtusely pointed; anterior and posterior femora with lower crest tridentate; tarsi a little visible.

Distribution : India (Sikkim).

Measurements (in mm) : Male : Body length 62, meson, 15, metn. 11.5, ant. fem. 18, middle fem. 14, post. fem. 14.

Remarks : From the literature (Brunner von Wattenwyl, 1907).

Genus *Pericentrus* Redtenbacher, 1907

1907. *Pericentrus* Brunner von Wattenwyl, *Die Insekten fam. der Phasmiden*, 2 : 281.

Diagnosis : Body with small wings; thorax with dense tubercle like spines; abdominal segment with lateral spines; anal segment elongated; sub-genital plate navicular like a vessel. Female : Anal segment small; cerci more or less long; subgenital plate in the middle with a narrow space, carina distinct; femur at below lobate; tibiae below frequently with lobate like denticle; tarsi elongate; metatarsi long.

61. *Pericentrus bicoronatus* (Westwood)

1848. *Phasma (Acanthoderus) bicoronata* Westwood, *Cab. Orient. Entom.*, : 15.

1859. *Acanthoderus bicoronatus* : Westwood, *Cat. Ortopp. Brit. Mus. Part I. Phasmidae* : 50.

1938. *Pericentrus bicoronatus* : Gunther, *Rec. Indian Mus.*, 40 : 130.

Material examined : Northern Assam : 1♀, Northern Assam, dt nil, collc. nil; Sikkim : 1♀, Mongpo, 1914, collc. nil; West Bengal : 1♀, Kurseong, dt. nil, collc. nil (Regd. No. 889/H5).

Diagnosis : Female : Dark or light black in colour; head towards the posterior region tapering, convex,; eyes globular; antennae distinctly 28 jointed, a pair of spines present between the eyes; pronotum with 4 sharp spines at the anterior end, along with distinct lateral furrow always with sharp tubercles; at the posterior end with a sharp tubercles; occiput with large 8 spines and with several minute tubercles; thorax with abdomen with minute tubercles; pro-meso- and metanotum with 6-10 strong spines; abdominal segment with 8-9 in the middle with large denticle; anal segment with tubercle and posterior margin emarginated; supra-anal plate angular and triangularly produced; sternum with large tubercles; operculum with tubercles; apex pointed and in the middle elevated.

Distribution : India (Assam, Sikkim & West Bengal).

Measurements (in mm) : Female : Body length 40-47, meson, 10-12, metn. 6, ant. fem. 14-16, middle fem. post. fem. 14-16.

Remarks : We have studied the species present in National Zoological Collections, Zoological Survey of India, Kolkata.

62. *Pericentrus pinnatus* Redtenbacher

1907. *Pericentrus pinnatus* Brunner von Wattenwyl, *Die Insekten fam. der en Phasmiden*, 3 : 352.

1938. *Pericentrus pinnatus* : Günther, *Rec. Indian Mus.*, 40 : 131.

Material examined : Sikkim : 1♂, Gangtok, 1914, collc. Lord Carmichael.

Diagnosis : Male : Green colour; head robust, globular convex tapering at the posterior with 8 spines, in the first row 4, behind it 2 more acute spines and at the posterior with 2 spines, in the middle with delicate or weak transverse furrow; mesonotum in the middle with 4 irregular spines; metanotum dorsally with 4 spines, 2 large at the anterior and 2 at the posterior unitedly; abdominal segment at the anterior medially with 2 spines, anal segment tectiform and triangularly produced; cerci large foliaceous, sternum ventrally with spines; tibiae foliaceous and dentate.

Distribution : India (Sikkim).

Measurements (in mm) : Male : Body length 47, meso, 9.4, metn. 5.5.

Remarks : From the literature (Günther, 1938).

Genus *Prisomera* Gray, 1835

1835. *Prisomera* Gray, *Syn. Phasm.*, : 16.

Diagnosis : Male : Female : Body rugose or spinose; head more or less transeverse; mesonotum 3 times longer than metanotum and upper part lobate; femora thin, anteriorly upper margin undulated; posterior femora entirely unilobate; anterior tibiae upper margin sulcate; in the middle more or less lobate. Male : Anal segment tectiform, compressed and cleft; cerci small, straight; subgenital plate hood shaped and compressed. Female : Anal segment with posterior margin emarginated; supraanal plate small, transverse; operculum navicular.

63. *Prisomera asperum* (Brunner von Wattenwyl)

1907. *Stheneboea aspera* Brunner von Wattenwyl, *Die Insekten fam. der en Phasmiden*, 2 : 250.

2005. *Prisomera asperum* : Otte & Brock. *Catalogue of Stick and Leaf Insects of the world* : 283.

Material examined : Nil.

Diagnosis : Female : Body light black, totally rugose or granulose; head small, interocular space transverse; pronotum anteriorly with 2 spines; pleura rarely obtuse and dentate; abdominal segment from the middle to posterior region without spines; anal segment at posterior margin truncate; operculum navicular; apex acute and compressed; anterior femora with upper carina uneven; upper carina of middle femora with 3-4 denticles; tarsi thin and small.

Distribution : India (Sikkim).

Measurements (in mm) : Male : Body length 55, meso, 13, metn. 7 ant. fem. 15, middle fem. 11, post. fem. 14.

Remarks : From the literature (Brunner von Wattenwyl, 1907).

Genus *Pseudostheneboea* Carl, 1913

1913. *Pseudostheneboea* Carl, *Revue Suisse de Zoologie*, 21(1) : 25.

Diagnosis : Body with tubercles or strongly with spiniform; head depressed; interocular space with spines; mesonotum 3 times smaller than metanotum.

64. *Pseudostheneboea minor* Carl

1913. *Pseudostheneboea minor* Carl, *Revue Suisse de Zoologie*, 21(1) : 26.

Material examined : 2♂♂, Khasi hills, 20.v.1909, collc. B. Warren. (Regd. No. 1003/H5).

Diagnosis : Male : Body dark and joints black; head quadrate; between the ocular region with tubercles, near the posterior margin straight and with 3 minute tubercles; pronotum wavy in the middle; carina of meso-metanotum indistinctly present; mesonotum with minute denticles; before the posterior region in the metanotum with 2 denticles and anterior margin with 4 tubercles; abdominal segment 1-6 with 2 tubercles; subgenital plate rounded at the posterior margin; all the femora with indistinct 3 carina.

Distribution : India (Meghalaya).

Measurements (in mm) : Male : Body length 55, meson. 14, metn. 10, ant.fem. 17, middle fem. 13, post. fem. 15.

Remarks : We have studied the species present in National Zoological Collections, ZSI, Kolkata.

65. *Pseudostheneboea segregata* Carl

1913. *Pseudostheneboea minor* Carl, *Revue Suisse de Zoologie*, 21(1) : 26.

Material examined : Meghalaya : 1♂, Khasi hills, dt. of colln and collec. Not available.

Diagnosis : Body unicolour; head granulose with inter-ocular spines; posterior margin transverse with 6 tubercles; abdominal segment with tubercles; subgenital plate rounded at apex; tibiae and meta-tarsi simple; posterior femora with upper margin bi-denticulate.

Distribution : India (Meghalaya).

Measurements (in mm) : Male : Body length 86, meson, 22, metn. 14, ant. fem. 25, middle fem. 20, post. fem. 25.

Remarks : From the literature (Carl, 1913).

Tribe *Neohiraseini* Hennemann & Conle 2008

Diagnosis : Anal segment of males not truly split but with 2 weak figure form process on the hind margin; supraanal plate of females often attached to anal segment and supraanal plate elongated.

Genus *Neohirasea* Rehn, 1904

1904. *Neohirasea* Rehn, Studies in the Orthopterous Family Phasmidae. *Proc. Acad. Nat. Sci. Philadelphia*, **56** : 38-107.

66. *Neohirasea asperatus* (Bates)

1865. *Lonchodes asperatus* Bates, *Linn. Trans. Linn. Soc. London*, **25** : 339.

1904. *Staelonchodes asperatus* : Kirby, *Syn. Cat. Orthoptera*, Phasmidae, **1** : 318.

1907. *Menexenus asperatus* : Brunner von Wattenwyl, *Die Insekten fam. der en Phasmiden*, **2** : 245.

2005. *Neohirasea asperatus* : Otte & Brock. *Catalogue of Stick and Leaf Insects of the world* : 217.

Material examined : Sikkim : Ghumti, vi.1912, collc. not known. Regd. No. 1050/H5, 1057/H5. West Bengal : 1 ex. Jalpaiguri, dt. of colln. and collc. not available (Regd. No. 793/H5); 1 ex. Kurseang, dt. of colln. collc. not available (Regd. No. 792/H5).

Diagnosis : Male : Female : Black with smooth body; vertex with 2 small spines; anterior femora posterior in lower carina armed with a little denticle; middle femora at apex on both side present large denticles and basally with minute denticles. Male : Abdomen at apex dilated; anal segment at apex dark, lobe sharply pointed; subgenital plate hairy; seventh abdominal segment ventrally with lobe, compressed. Female : Seventh abdominal segment truncate; supra-anal plate triangular operculum hood-shaped.

Distribution : India (Sikkim and West Bengal).

Measurements (in mm) : Male; Female : Body length 65; 82, meson, 13; 18, metn. 10; 11.5, ant. fem. 16; 19, middle fem. 11; 14, post. fem. 15.5; 19.

Remarks : From the literature (Brunner von Wattenwyl, 1907).

67. *Neohirasea obesus* (Brunner von Wattenwyl)

1907. *Menexenus obesus* Brunner von Wattenwyl, *Die Insekten fam. der en Phasmiden*, **2** : 246.

1998. *Neohirasea obesus* : Brock, *Kataloge der wissenschaftlichen Sammlungen des Naturhistorischen Museums in Wien*, **13(5)** : 47.

Material examined : Sikkim : 1♂, dt. nil, collc. nil. (Regd. No. 895/H5). West Bengal : 2♂♂, Darjeeling, Sukna, i.vii.1908, collc. N. Annandale (Regd. No. 970/H5 and 1104/H5).

Diagnosis : Male : Deep brown colour; head totally granulose; inter-ocular spine small; thorax rugulose or granulose; abdominal segments incrassate at apex and dilated with deep incision; subgenital plate hairy; apex of 9th segment extended beyond the abdomen; subgenital plate compressed; apex not extended beyond the abdomen; anterior femora with upper crest incrassate; middle and posterior femora anteriorly along the upper margin tri-dentate.

Distribution : India (Sikkim and West Bengal).

Measurements (in mm) : Male : Body length 68, meson, 14, metn. 10, ant.fem. 18, middle fem. 11, post. fem. 16.

Remarks : We have studied the material from National Zoological Collections, ZSI, Kolkata.

Family ASCHIPHASMATIDAE 1893

Diagnosis : Antennae considerably longer than the profemora; area apicalis not spinose, prosternum with one sensory area at base; antennae considerably longer than profemora; tegmina spiniform, filiform or absent.

Subfamily ASCHIPHASMATINAE 1893

Diagnosis : Profemora smooth ventrally, curved and compressed.

Tribe ASCHIPHASMATINI 1893

Genus *Abrosoma* Redtenbacher, 1906

1906. *Abrosoma* Redtenbacher, *Die Insekten fam. der. en*, 1 : 82.

Diagnosis : Anterior femora smooth ventrally, curved, and compressed basally, if not mesonotum without posteromedial spine; tegmina absent.

68. *Abrosoma apterum* Redtenbacher

1906. *Abrosoma apterum* Redtenbacher, *Die Insekten fam. der en Phasmiden*, 1 : 85.

Material examined : Tamil Nadu : ♂♀, Nilgiri hills slope, dt. nil, collc. nil (Regd. No. 115/H5).

Diagnosis : Male : Female : Body more or less unicolour, hairy; antennae with proximal part dark, other rust in colour; head with 4-6 dark brown stripes Male : Pronotum greenish brown colour; mesonotum light colour; wings absent; abdomen cylindrical, apex clavet; anal segment carinate; posterior margin dentate; subgenital plate strongly convex at apex; cerci long to some extent incurved. Female : Dark brown, posteriorly light in colour; wings lobate; abdomen with segments tectiforms, anal segment posteriorly rounded.

Distribution : India (Tamil Nadu).

Measurements (in mm) : Male; Female : Body length 32; 45-48, pronotum meson. 4.5; 6-6.5, metn. 4.6; 5.8-6.3, ant. fem. 7.8; 8-8.5, post. fem. 9.8-10.2.

Remarks : The diagnosis is taken from (Redtenbacher, 1906).

69. ***Abrosoma carinulatum*** Redtenbacher

1906. *Abrosoma carinulatum* Redtenbacher, *Die Insekten fam. der en Phasmiden*, 1 : 83.

Material examined : Tamil Nadu : ♂, Madurai, dt. nil, collc. nil.

Diagnosis : Male : Deep brown in colour, body with elongate, hairy; head to some extent hairy, narrow posteriorly; first 2 articles of antennae black and rest brown, basal article longer than second, as long as head and pronotum together; eyes large and globular, pronotum trapezoidal, with 4 carinae, anterior margin straight or little concave, posterior margin straight; mesonotum and metanotum on both side with lateral carinae; wings absent; abdominal segment laterally rounded; cerci incurved.

Distribution : India (Tamil Nadu); Sumatra.

Measurements (in mm) : Male; Body length 32, meson, 4.8, metn. 4.6, ant. fem. 7.8, post. fem. 8.7.

Remarks : The species is taken from literature (Redtenbacher, 1906).

70. ***Abrosoma modestum*** Redtenbacher

1906. *Abrosoma modestum* Redtenbacher, *Die Insekten fam. der en Phasmiden*, 1 : 84.

Material examined : Nil.

Diagnosis : Male : Female : Body light green in colour, moderately hairy; antennae unicolour; mesonotum wavy, granular; wings absent; anal segment rounded; tibiae black. Male : Anal segment hairy; cerci small, incurved and pointed. Female : Cerci sub-erect.

Distribution : India (Tamil Nadu); Sumatra.

Measurements (in mm) : Male; Female : Body length 32; 34, meson, 4.6; 5.5, metn. 4.5; 5.5, ant. fem. 6.7; 10, post. fem. 9.5-10; 10.5.

Remarks : This species is taken from literature (Redtenbacher, 1906).

71. ***Abrosoma sericeum*** Redtenbacher

1906. *Abrosoma sericeum* Redtenbacher, *Die Insekten fam. der en Phasmiden*, 1 : 85.

Material examined : Tamil Nadu : ♀, ♀, Chennai, Tiruchinapally, dt. nil, collc. nil.

Diagnosis : Female : Body sub-unicolour, wavy; sternum with light brown in colour; legs pale in appearance with punctuate spots; wings absent.

Distribution : India (Tamil Nadu); Sumatra.

Measurements (in mm) : Male : Female : Body length 50, meson, 7.5, metn. 7, ant. fem. 10, post. fem. 11.

Remarks : This species is taken from literature (Redtenbacher, 1906).

Genus *Coloratobistus* Zompro, 2004

2004. *Coloratobistus* Zompro, Revision of the genera of the Areolatae (Insecta : Phasmatoidea) : 82.

72. *Coloratobistus villosum* (Redtenbacher)

1906. *Abrosoma villosum* Redtenbacher, *Die Insekten fam. der en Phasmiden*, 1 : 85.

2004. *Coloratobistus villosum* : Zompro, Revision of the genera of the Areolatae (Insecta : Phasmatoidea) : 82.

Material examined : Tamil Nadu : ♂, ♀, Kodi kanal, name of collector and dt. of collection not available.

Diagnosis : Male : Female : Dark colour; antennae above iron rust in colour, yellowish brown at base and tip of the antennae dark. Male : Head and thorax pale, lateral side dark; pronotum and mesonotum with distinct tubercle; abdomen anteriorly dark and posteriorly light yellow; penultimate sternum with obtusely rounded. Female : Body pale in colour; head light dark; mesonotum a little longer than metanotum; supranal plate with apex rounded; operculum at apex rounded.

Distribution : India (Tamil Nadu); Perak.

Measurements (in mm) : Male; Female : Body length 32; 44, pronotum meson. 5-7.2; 6.25, metn. 4.6; 6, ant. fem. 7.8; 9.2, post. fem. 8.7; 10.4.

Remarks : It is taken from the literature (Redtenbacher, 1906).

Genus *Dinophasma* Uvarov, 1940

Male : Female : Pronotum more or less as long as breadth; elytra and wings absent in male and squami form in female.

73. *Dianophasma nathani* Bragg

2005. *Dianophasma nathani* Otte & Brock. Catalog of Stick and Leaf Insects of the world : 130.

Distribution : India (Tamil Nadu).

Remarks : It is taken from the literature (Brag 2005).

74. *Dianophasma ruficornis* (Redtenbacher)

1906. *Dina ruficornis* Redtenbacher, *Die Insekten fam. der Phasmiden*, 1 : 86.

1998. *Dianophasma ruficornis* : Brock, *Kataloge der wissenschaftlichen Sammlungen des Naturhistorischen Museums in Wien*, 13(5) : 54.

Material examined : Orissa : ♂, ♀, Balasore, date of collection and collector not available.

Diagnosis : Male : Female : Black or light black; head a little narrow posteriorly; antennae thick, elongated, two basal segments deep brown; strongly compressed; tibiae compressed and undulated. Male : Mesonotum finely granulated, small spine at the posterior; tegmen small, lobulate, squamiform, wings hardly reach upto the base of posterior femur, base deep brown, anteriorly infumated; abdominal segments with 6 to 9 conical tubercles, segment 8 with 2 strong tubercles; cerci incurved; sub-genital plate small, rounded. Female : Pronotum posteriorly tuberculate, compressed and elevated, a little spine at the posterior, at apex compressed, metanotum and abdominal segments 1-3 with minute tubercles; cerci small, cylindrical; operculum narrow and reaches up to the end of abdomen.

Distribution : India (Orissa).

Measurements (in mm) : Male; Female : Body length 41; 64, mesont. 6; 6.3, metn. 7; 7.7, ant. fem. 10.4; 11.2, post. fem. 12.6; 14.

Remarks : From the literature (Brunner von Wattenwyl, 1906).

Family PRISOPODIDAE Karny 1923

Diagnosis : If abdomen dialated, tergites folds laterally; sternite weakly dialated; area apicalis not spinose, prosternum with one sensory area at least at base; tegmina present scale shaped or longer.

Subfamily KORINNINAE

Diagnosis : Tegmina scale shaped, radial vein of wings not branched.

Tribe Korinnini Günther, 1953

Diagnosis : Profemora smooth ventrally and curved basally, wings at rest not coloured.

Genus *Korinnis* Günther, 1932

Diagnosis : Tegmina scale shaped, radial vein of wings not branched; anterior femora curved basally.

75. *Korinnis errans* Gunther

1938. *Korinnis errans* : Günther, *Rec. Indian Mus.*, 40 : 125.

Material examined : Assam : 1♀, Sibsagar, dt. nil, collc. S.E. Peal (Regd. No. 608/H5).

Diagnosis : Female : Light greenish brown in colour; mesonotum and metanotum and abdomen under side light glossy; head longer than broad towards the posterior region tapering; antennae uniformly coloured; pronotum with deep transverse or lateral furrow ahead; metazoan in the middle with a faint furrow and with some granules present.

Distribution : India (Assam).

Measurements (in mm) : Female : Body length 80, meson, 17, metn. 13.

Remarks : Specimen present in the National Zoological Collections, Zoological Survey of India, Kolkata.

Family PHYLLIIDAE Brunner von Wattenwyl

Male : Antennae longer than the head and bristly; metanotum longer than wide; leaf like; margins of abdomen foliaceously dilated, leaf like dilations also on femora and some times tibiae; wings scarcely longer than thorax. Female : Antennae of females barely as long as head, foliaceously dilated, leaf like; elytra often covering almost entire abdomen.

Subfamily PHYLLIINAE

Diagnosis : Male : Female : Pronotum small, trapezoid; femora all along compressed; folioceous dilated; tibiae strong. Male : Antennae elongate, hairy, ocelli not prominent; mesonotum short and laterally broad; abdomen strongly depressed; laterally folioceous, dilated, lanceolate; ocelli prominent; tegmen wide, elongated wings obliterated; abdomen anteriorly ovate, to some extent carinate. Female : antennae small; ocelli a little visible; tegmen laterally elongate, semi ovate; radial and ulner vein approximate; wings obliterated; abdomen ovate shape, at the dorsal side with small carina.

Tribe Phylliini Brunner von Wattenwyl

Genus *Phyllium* Illiger, 1798Subgenus *Phyllium* Illiger, 1798

Diagnosis : Head with single tubercle or spine on the posteriod medially; anal region of the wings transparent; mesonotum before the tegmina almost quadrate.

76. *Phyllium (Phyllium) celebicum* Haan

1842. *Phyllium celebicum* Haan, In : Temminck [Ed.] *Verhandelingen over Natuurlijke Geschiedenis der Neederlansche Overzeesche Bezittingen*, 2 : 111.

1914. *Phyllium celebicum* : Giglio-Tos, *Rec. Indian Mus.*, **8** : 417.

2001. *Phyllium (Phyllium) celebicum* : Grösser, Ein Katalog aller bisher beschriebenen Phyllinae-Arten und deren Eier mit drei Neubeschreibungen. Ist edition 64.

Material examined : Assam : 3♂♂, 5♀♀, Cachar and Sibsagar, 3.viii.1939, collc. E. Vehell.

Diagnosis : Male : Female : Mesonotum laterally with obtuse tubercles; wings elongate; anterior femora wide; anterior tibiae totally lobate. Male : Antennae filiform compressed, 25 segmented; ocelli distinct; tegmen continuously reach up to the second abdominal segment; external lobe of anterior femora elongate or triangular, apex denticulate; intermediate femora narrow, posteriorly at upper side dilated, below at apex semi triangular, at apex strongly serrate; abdomen lanceolate all along up to the 7th segment and posteriorly rounded; eighth segment a little triangular; Female : tegmen reaches up to the 6th abdominal segments; radial vein from middle divergent; discoidal vein reaches up-to the extremities; abdomen wide; eighth segment angularly rounded.

Distribution : India (Arunachal Pradesh, Assam); Celebes; Camboidea; Malaysia; Myanmar; Philippines; Sulawesi; Tondano.

Measurements (in mm) : Male; Female : Body length 52-66; 80-88, pronotum 4.1-4; 5.0; 5.8, tegmen 16.5; 42-55, ant. fem. 13.5; 14.6, post. fem. 12.7; 15-18.5.

Remarks : We have studied the specimens present in National Zoological Collections, Zoological Survey of India, Kolkata.

77. *Phyllium (Phyllium) siccifolium* (Linnaeus)

1758. *Gryllus (Mantis) siccifolius* Linnaeus, *Syst. Natur.* (10th ed.) : 425.

1825. *Phyllium siccifolium* : Latereille *Histoire Nature Naturelle*, **10** : 115.

2001. *Phyllium (Phyllium) siccifolium* : Grosser, *Ein Katalog aller bisher beschriebenen Phylliinae-Arten und deren Eier mit drei Neubeschreibungen.* (ed.) : 94.

Material examined : West Bengal : 2♂♂, 1♀, Kolkata, dt. nil, collc. nil; ♂♂, ♀♀, South Andaman, dt. nil, collc. nil.

Diagnosis : Male : Female : Green in colour; antennae, head and pronotum more or less smooth; antennae filiform, compressed; mesonotum with lateral margin absent. Male : Tegmen lanceolate, longitudinally extended and reach upto the end of abdomen, discoidal vein away from the ulnar vein; mesonotum with 2 wrinkle; abdomen with posterior margin lanceolate, on the back a small portion angulated; anterior femora with long spine on external side, inside with minute denticles; middle femora below at apex

with 1-2 denticles; posterior femora a little dilated on inner side and at apex entirely dentate; anterior tibiae wholly lobate. Female : Mesonotum with 3 wrinkle; wings large, extended beyond the abdomen; anterior femora semi elliptical, inner side below finely denticulate on the both side; abdomen wide, ovate, eighth segment and the seventh segment on the back angulated.

Distribution : India (Andaman and Nicobar Islands, West Bengal); Indo-China.

Measurements (in mm) : Male; Female : Body length 55-68; 65-68, pronotum 3.3-3.8; 4.2-6.5, tegmen 21-25; 40-63, ant. fem. 11.5-13.5, middle fem. post. fem. 11.5-15.5; 12.5-24.

Remarks : We have studied the specimens present in National Zoological Collections, Zoological Survey of India, Kolkata.

Subgenus *Pulchriphyllium* Griffini, 1898

78. *Phyllium (Pulchriphyllium) bioculatum* Gray

1832. *Phyllium bioculatum* Gray, G.R., *Anim. Kingdom Ins.*, II : 191.

1838. (1839). *Phyllium pulchrifolium* Serville, *Historie naturelle des Insectes, Orthopteres* : 292.

1843. *Phyllium scythe* Gray, G.R. *Zoologist*, 1(1) : 121.

Material examined : West Bengal : 2♂♂, 1♀, Kolkata, dt. nil, collc. nil; ♂♂, ♀♀, South Andaman, dt. nil, collc. nil.

Diagnosis : Male : Female : Size medium; antennae pilose, subpectinet, compressed, to some extent distally pectinet; head and pronotum smooth, a little undulating or wavy; mesonotum with lateral margin denticulate and the dorsal margin with denticles; middle femora ovate, apex dentate; posterior femora not dilated; upper margin totally with small spines; anterior tibiae at the posterior on the both side dilated; Male : Tegmen small; wings elongate, anterior femora anteriorly with external membrane, triangularly elongated, basally with small denticle; abdomen basally narrow, segment 4 obtusely elongate, up to 8th segments more or less parallel and smooth; tegmen semiovate, wide, radial vein medially divergent, discoidal vein extended up to extremities; femora with external membrane strongly backwardly produced and triangular.

Distribution : India (Andaman and Nicobar Islands, West Bengal); Africa; Bangladesh; Borneo; Indo-China; Java; Malaka; Myanmar; Sri Lanka; Sumatra.

Measurements (in mm) : Male; Female : Body length 50; 80, pronotum 2.8; 4.8, tegmen 9.2; 40-50, ant. fem. 11.3; 16, middle fem. post. fem. 9.3; 14-16.

Remarks : This species is leaf like in appearance.

SUMMARY

The paper deals with seventy eight species of the Order Phasmida, distributed over India. They belong to 36 genera and 5 families and 7 subfamilies. Distributional records, diagnosis and measurements of species have also been provided.

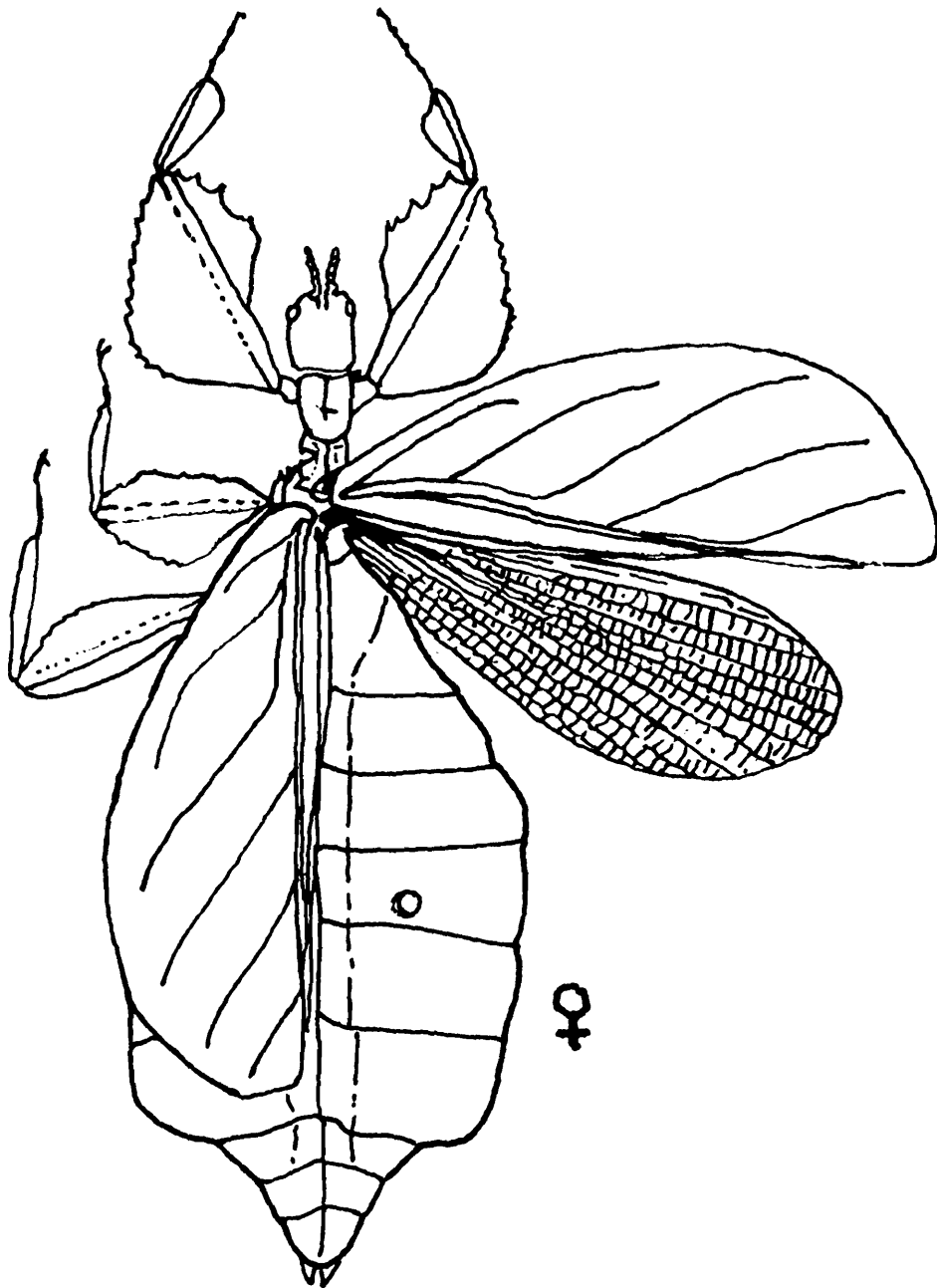
ACKNOWLEDGEMENTS

We are grateful to Dr. Ramakrishna, the Director, Zoological Survey of India, for laboratory facilities. We are also thankful to Dr. A. Bal, Scientist 'E' (in charge ent. Division 'B') for going through the manuscript, and for helping us in many ways to complete this work. Thanks are due to Dr. A.K. Sanyal, Scientist 'E' Our thanks are also due to staff of Orthoptera section.

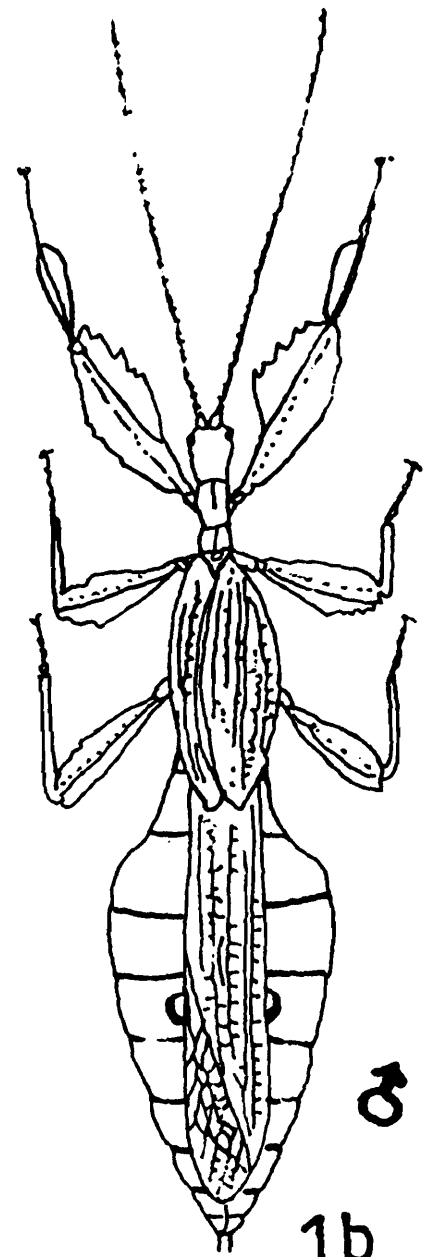
REFERENCES

- BEIER, M. 1968. Phasmida (Stab -oder Gespenstheuschrecken), *In Handbuch der Zoologie*, (Helmcke, J. -G, Starck, D and Wermuth, Heds), **4**(2), Lief. 6 : 56.
- BRADLEY, J.C & GALIL, B.S. 1977. The taxonomic arrangement of the Phasmotodea with keys to the families and tribes. *Proc. ent. Soc. Washington*, **79** : 176-208.
- BRAG, 2001. *Phasmids of Borneo*, : 248-249.
- CLARK, J.T. 1975. A key to the subfamilies of Phasmida. *Entomologist's Records*, **87** : 104-107.
- CARL, J. 1913. Phasmids nouveaux ou pu connus du Museum e Geneve. *Revue Suisse Zool.*, **21** : 1-55.
- GÜNTHER, K. 1938. Neue Und Wening Beckannte Phasmoiden as Dem Indian Museum. Kolkata, *Rec. Indian Mus.*, **40** : 123-141.
- GÜNTHER, K. 1953. Uber die taxonomische Gliederungsbiologie V erbreeitung der Insektenordnung der Phasmatodea, *Beitr. Ent.*, **3** : 541-563.
- HENNEMANN, FRANK, H. & OSKAR, V. 2006. Revision of Oriental Phasmatodea : Pharnaciini. *Zootaxa*, **6** : 1-306. (2008).
- KEVAN, D.K. McE. 1982. Contribution on "Orthoptera" and Phasmida "Phasmoptera" to Synopsis and classification of living organisms (Ed. S. Parker), to McGraw Hill, New York t. al2 : 379-383.
- KIRBY, W.F. 1896. On some new or rare Phasmidae in the collection of the British Museum. *Trans. Linn. Soc. London*, **6** : 47-472.
- KIRBY, W.F. 1904. *A synonmic Catalogue of Orthoptera*, London, **1** : 501.
- REDTENBACHER, R.J. 1908. Die Insekten familie der Phasmiden, Leipzig : 1-589.

- REHN, 1904. Studies in the Orthopterous family Phasmidae. *Proc. Acad. Nat. Sci. Philadelphia*, **56** : 38-107.
- STÅL, 1875. Ofversigt af Kongliga Vetenskaps-Akademiens Forhandlingar, **32** : 97.
- SHISHODIA, M.S. 1998. Faunal diversity of India (Edited by J.R.B. Alfred, A.K. Das and A.K. Sanyal), *Phasmida* : 189 British Museum. Part I Phasmidae 9.
- TILGNER, E.H. 2002. Systematics of Phasmida, B.S., Cornell University, The university of Georgia (Doctor of Philosophy).
- WESTWOOD, J.O. 1859. Catalogus of Orthopterous Insects in the Collection of the British Museum. Part I Phasmidae. *Brit. Mus. London*, **39** : 1-195.
- WOOD-MASON. 1873. On new or little known species of Phasmida. *Journ. Asiat. Soc. Bengal*, part 2, **11** : 45-49.
- WOOD-MASON. 1875. On new or little known species of Phasmida. *Journ. Asiat. Soc. Bengal*, **44**(3) : 2.
- WOOD-MASON. 1877. On new or little known species of Phasmida. *Journ. Asiat. Soc. Bengal*, part 6, **40** : 349.



1a



1b

Fig. 1a. *Phyllium (Phyllium) sicifolium*, ♀

Fig. 1b. *Phyllium (Phyllium) sicifolium*, ♂

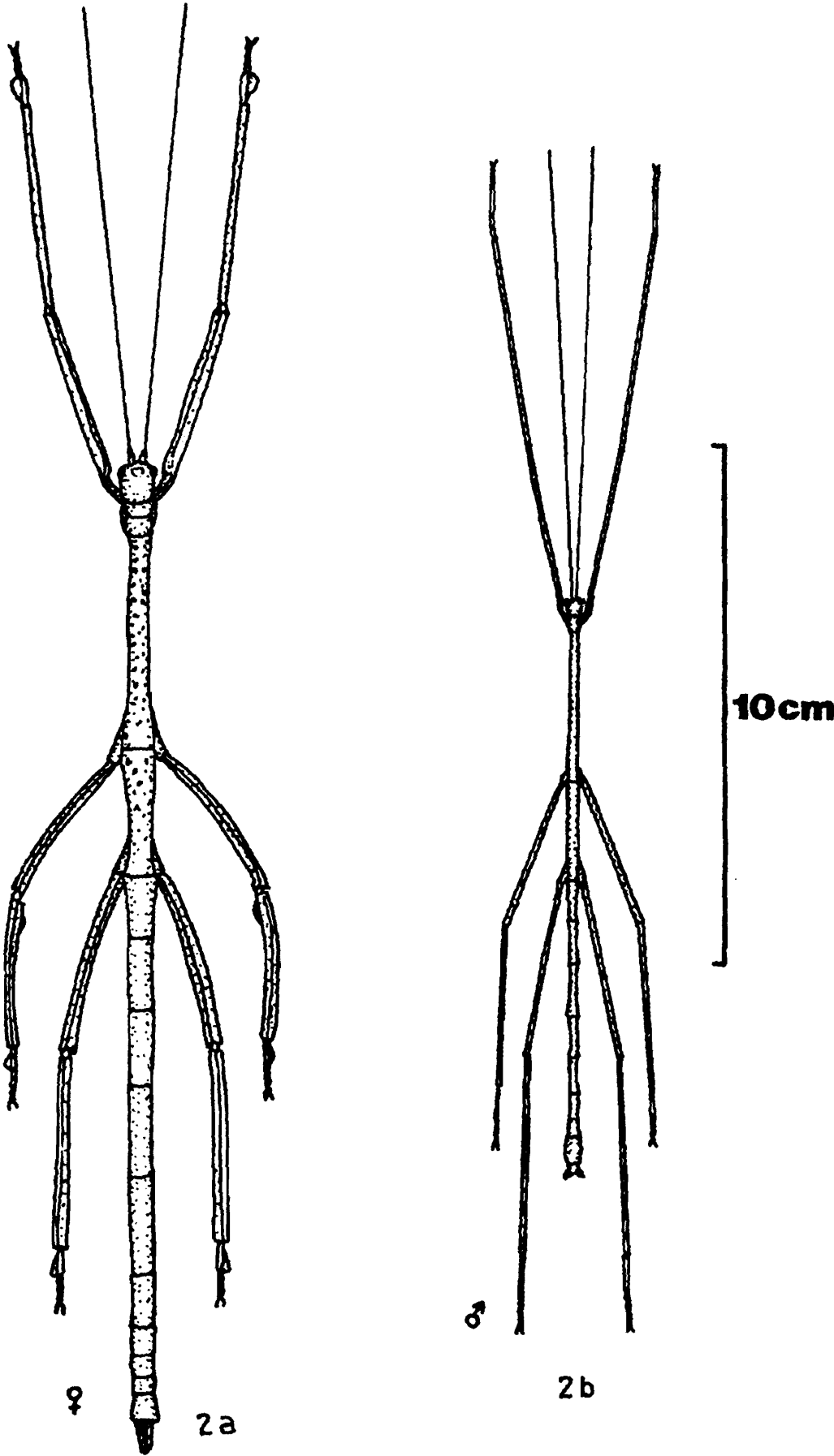


Fig. 2a. *Bacteria* sp. ♀
Fig. 2b. *Bacteria* sp. ♂

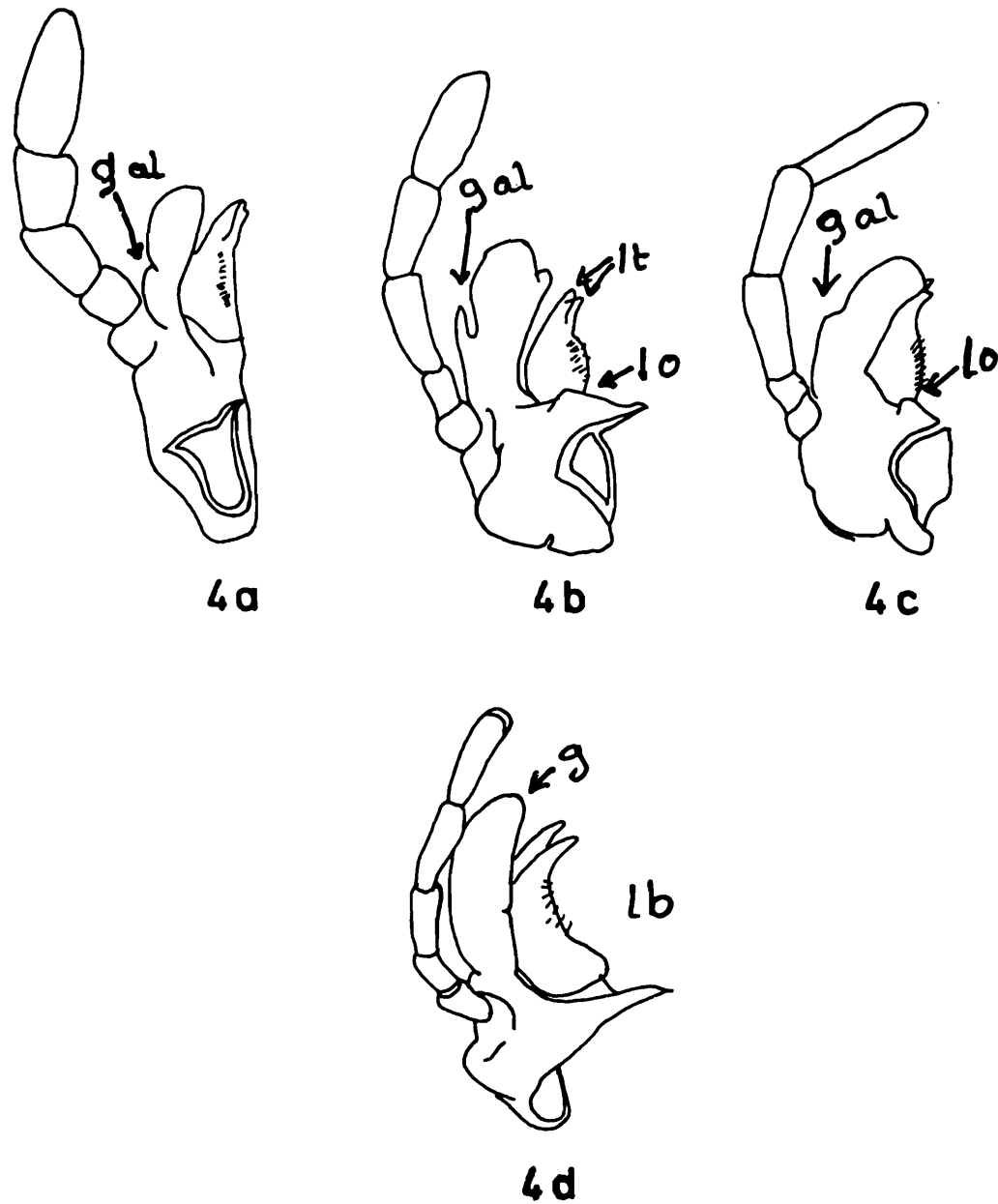
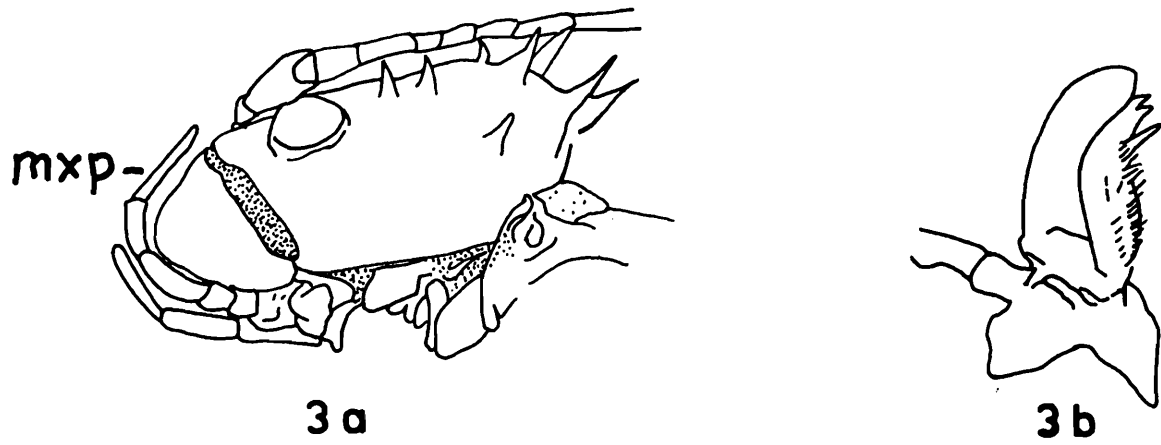


Fig. 3a. Head, latera view

Fig. 3b. Maxillae, left dorsal views

Fig. 4a. 4b. Maxillae, left dorsal views

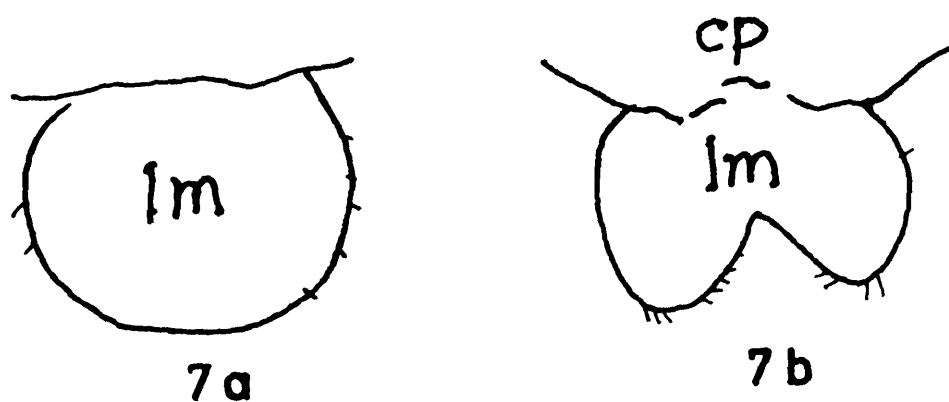
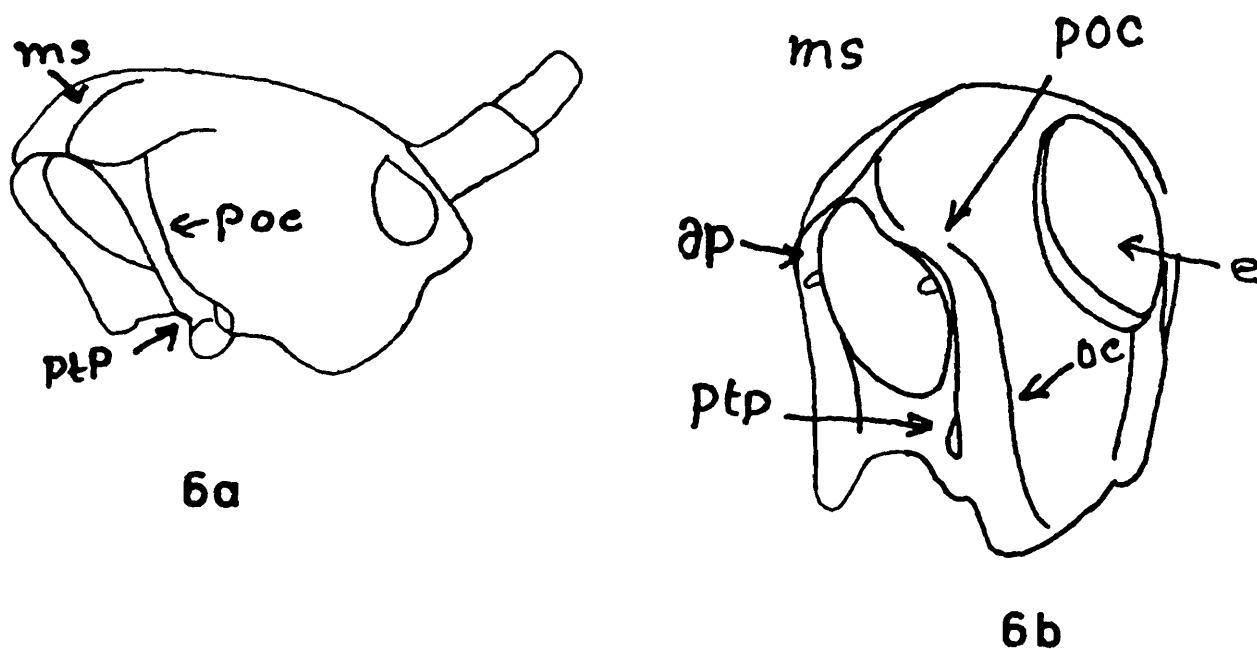
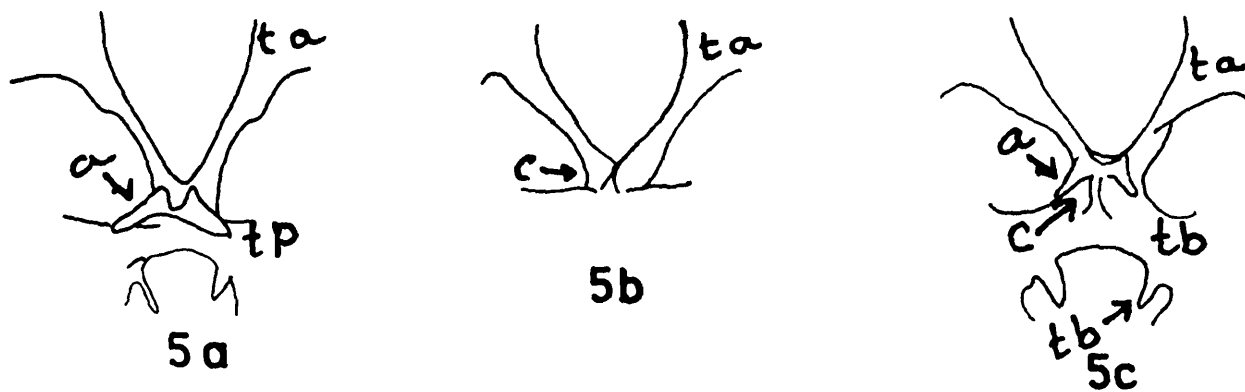
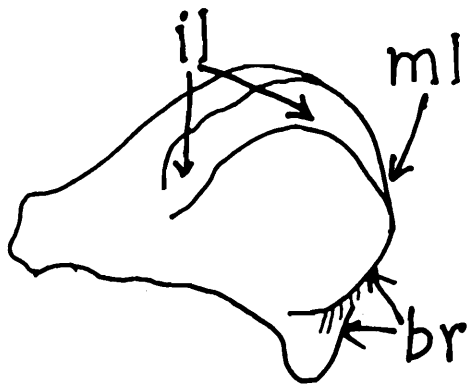
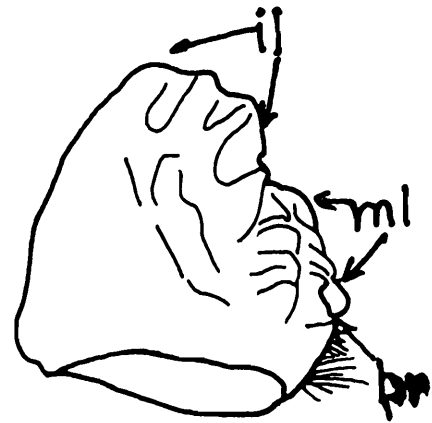


Fig. 5a. Frontal views of tentoria, **Fig. 5b.** Frontal views of tentoria
Fig. 5c. Frontal views of tentoria, **Fig. 6a.** Postero-lateral views of head
Fig. 6b. Postero lateral views of head, **Fig. 7a.** Frontal view of labral
Fig. 7b. Frontal view of labral (Phyllium)



8a



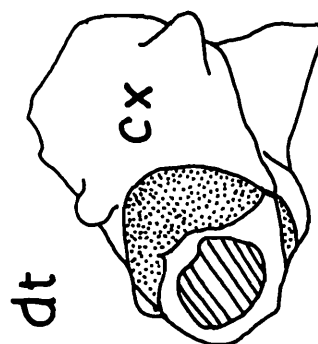
8b



9a



9b



9c

Fig. 8a. Mandibles, right ventrolateral views

Fig. 8b. Mandibles, right ventrolateral views

Fig. 9a. Mandibles, left ventrolateral views

Fig. 9b. Mandibles, left ventrolateral views

Fig. 9c. Procoxa, left lateral views

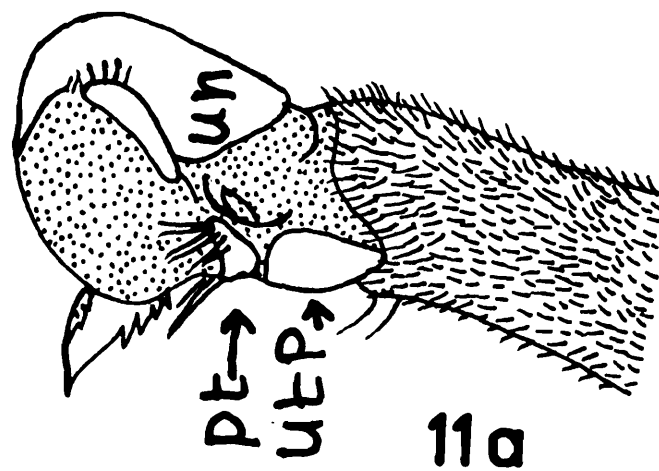
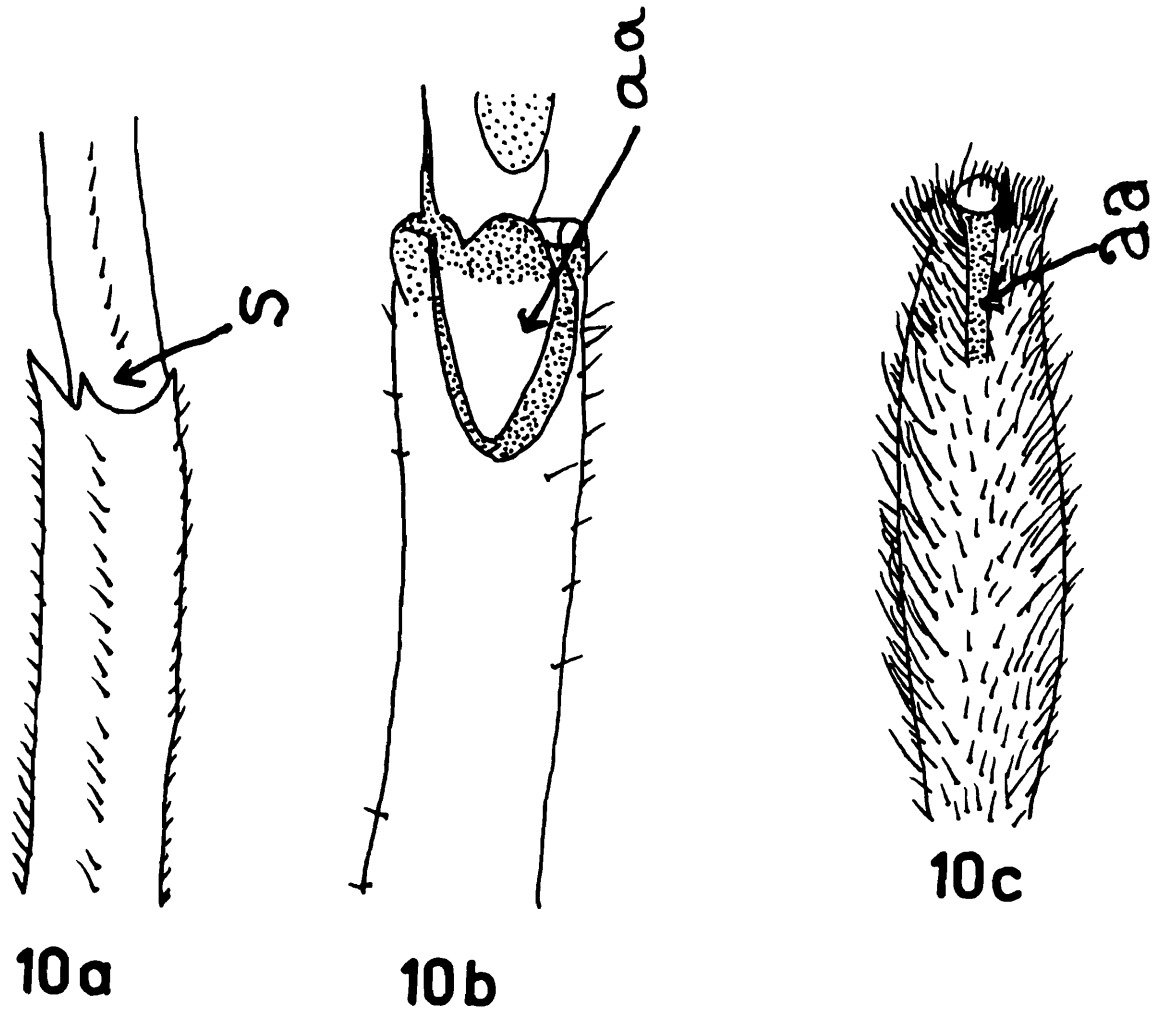


Fig. 10a. Mesothoracic legs, apices, right ventral views
Fig. 10b. Mesothoracic legs, apices, right ventral views
Fig. 10c. Mesothoracic legs, apices, right ventral views
Fig. 11a. Pretarcus, mesothoracic legs, lateral views

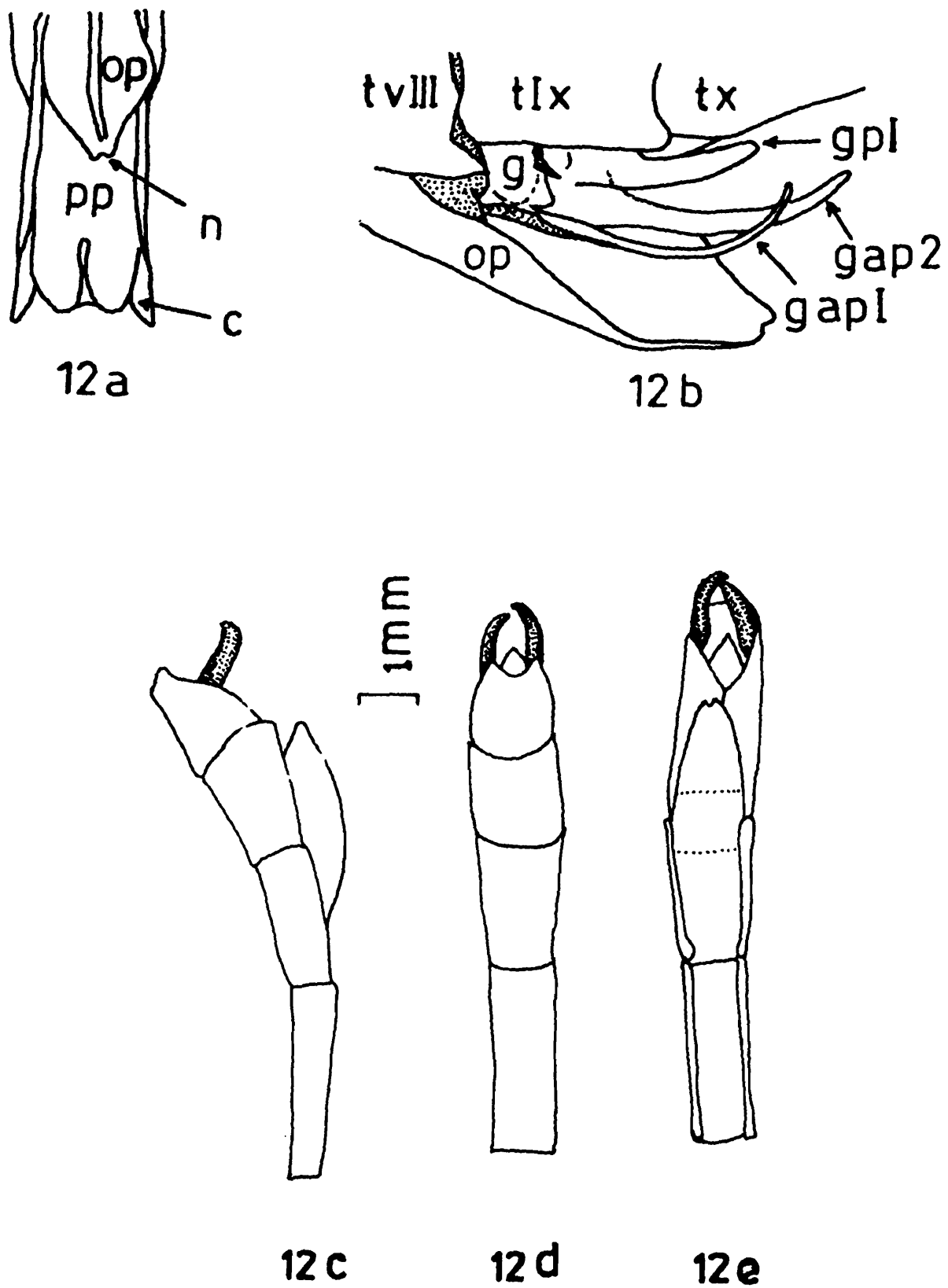


Fig. 12a. Terminal segments, ventral view

Fig. 12b. Terminal segments lateral view

Fig. 12c. Abdomen of male, latera view (*Sipyloidea acutipennis*)

Fig. 12d. Abdomen of male, dorsal view (*Sipyloidea acutipennis*)

Fig. 12e. Abdomen of male, ventral view (*Sipyloidea acutipennis*)

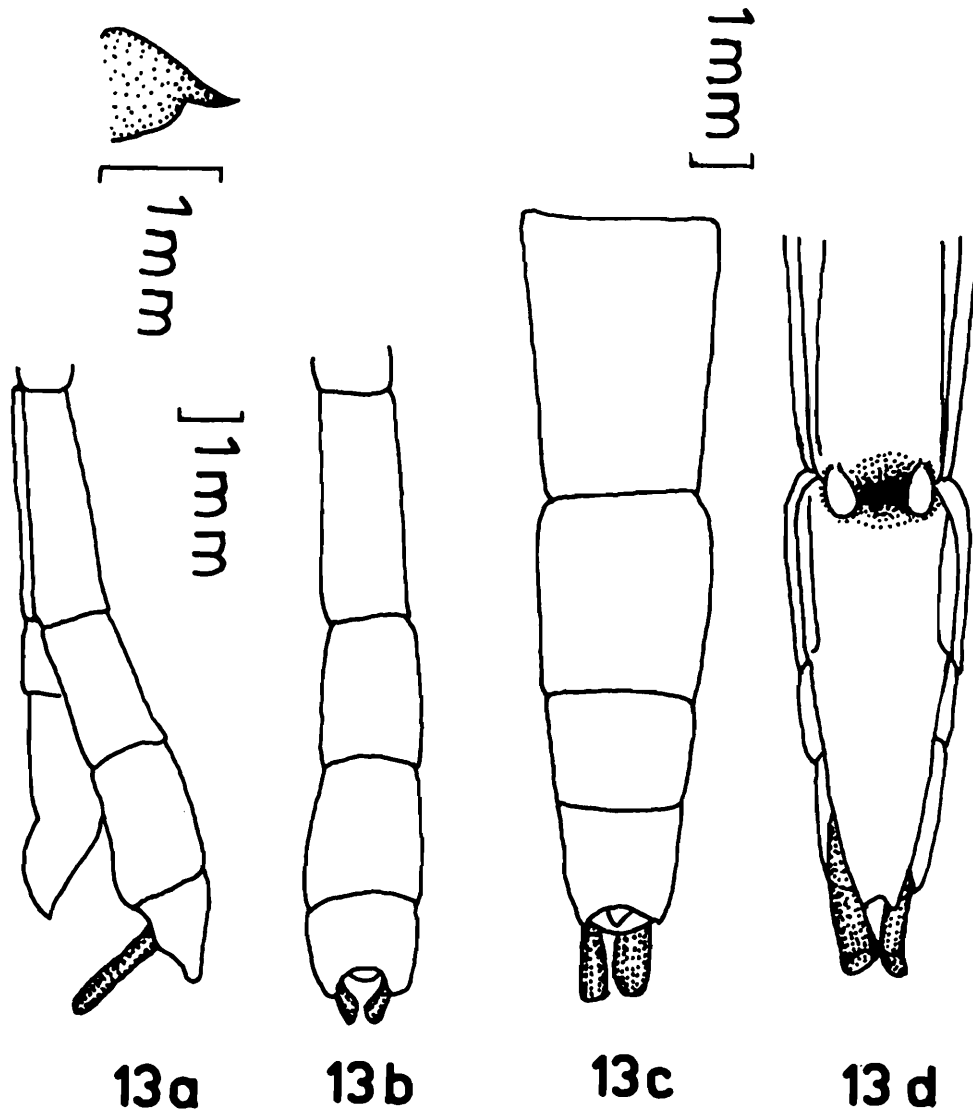


Fig. 13a. Abdomen of female, ventral view (*Necroschia sp.*)

Fig. 13b. Abdomen of female, dorsal view (*Necroschia sp.*)

Fig. 13c. Abdomen of male, dorsal view (*Necroschia sp.*)

Fig. 13d. Abdomen of male, lateral view

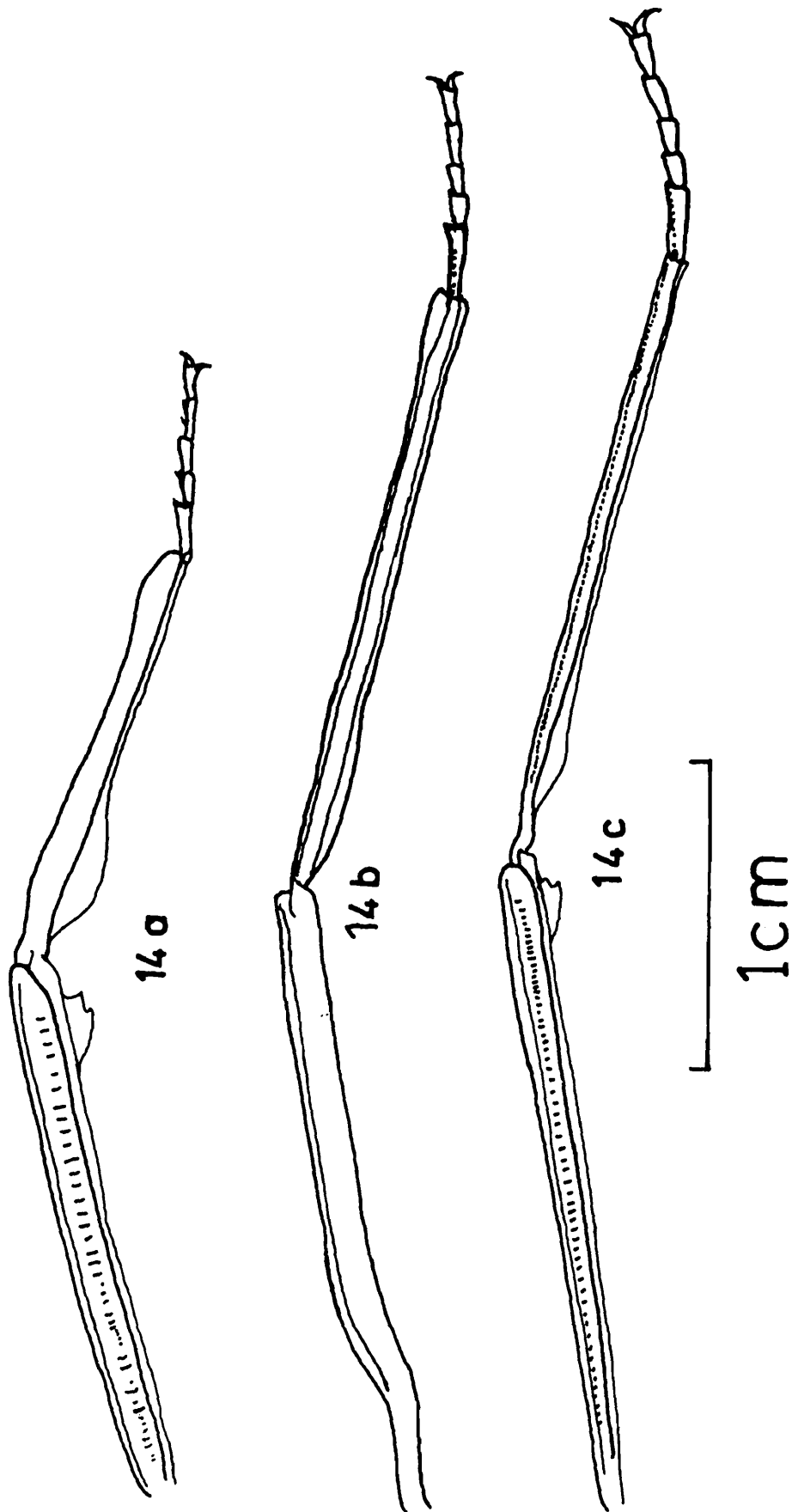


Fig. 14a. Left mid leg of female (*Lonchodes* sp.)
Fig. 14b. Right front leg of female (*Lonchodes* sp.)
Fig. 14c. Left mid leg of male (*Lonchodes* sp.)