

NOTES ON THE SPECIES OF *PARALABIS* BURR (DERMAPTERA :  
CARCINOPHORIDAE) FROM INDIAN SUBCONTINENT

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ABSTRACT

In the Indian subcontinent this genus is represented by four species. Besides, three more species viz., *P. nandii*, *P. carinatus* and *P. denticulatus*, are described as new to science. It is proposed to place *P. antennatus* Ramamurthi as synonym of *P. lefroyi* (Burr). A key for the discrimination of various species is provided.

INTRODUCTION

The genus *Paralabis* was erected by Burr (1915) with *P. owenii* Burr, as its type and three other species viz. *P. pervicina* (Burr), *P. dohrni* (Kirby) and *P. greeni* (Burr). Excepting, *P. pervicina* (Burr), all others are still included in the genus.

At present altogether four species viz., *P. lefroyi* (Burr), *P. dohrni* (Kirby), *P. greeni* (Burr) and *P. montshadskii* Bey-Bienko are included from the Indian subcontinent. Besides three more species are described as new to science in the present paper.

The distribution of various species appears to be interesting. Excepting *P. dohrni* (Kirby) which occurs in Sri Lanka and almost throughout India, all others have much restricted distribution. *P. greeni* (Burr) is endemic to Sri Lanka and *P. lefroyi* (Burr) alongwith *P. nandii* sp. n., are confined to peninsular India. The remaining two new

species viz., *P. carinatus* and *P. denticulatus* together with *P. montshadskii* are restricted to Eastern Himalayas in India excepting the last one which occurs in South China also.

Since *P. antennatus* Ramamurthi appears to be identical with *P. lefroyi* in most details it is placed as synonym of the latter.

Genus *Paralabis* Burr

*Paralabis* Burr, 1915, *J. R. micr. Soc.*, 1915 ; 540.

*Type-species* : *Anisolabis owenii* Burr, 1911.

*Diagnostic characters* : Male parameres about as long as broad or slightly longer, broader at base or middle, narrowed towards apex with tip obtuse, outer margin convex and inner margin concave ; distal lobes variously armed.

*Distribution* : Ethiopian and Oriental Regions.

*Remarks*: Due to the unsatisfactory position of various genera of subfamily Carcinophorinae it is thought desirable to follow Burr's (1915) arrangement which certainly helps in recognizing them.

*Key to the species (♂♂ only)*

- 1(10). Penultimate sternite entire posteriorly  
 2(5). Elytra perfect  
 3(4). Elytra with hind margin feebly oblique; sides of abdominal segments 6 to 9 rugosely punctate and acute angled posteriorly ... *P. lefroyi* (Burr)  
 4(3). Elytra with hind margin truncate; sides of abdominal segments 6 to 9 smooth and obtuse angled posteriorly ... *P. dohrni* (Kirby)  
 5(2). Elytra abbreviated or apterous  
 6(9). Elytra abbreviated; sides of abdominal segments ecarinate  
 7(8). Pronotum broader than long, widened posteriorly; elytra abbreviated as narrow ovate flaps on mesonotum; sides of abdominal segments 7 to 9 acute angled posteriorly and rugosely punctate ... *P. nandii* sp.n.  
 8(7). Pronotum longer than broad, almost of uniform width throughout; elytra abbreviated, narrowed at base exposing large part of mesonotum and posteriorly slightly overlapping along the median line; sides of abdominal segments 6 to 9 obtuse angled posteriorly and punctate ... *P. greeni* (Burr)  
 9(6). Apterous; sides of abdominal segments 7th and 8th with a median oblique carina ... *P. carinatus* sp.n.

- 10(1). Penultimate sternite emarginate in middle posteriorly  
 11(12). Body punctation distinct; legs with femora in distal one fourth yellowish; an oblique carina on the sides of ultimate tergite distinct and distal lobes unarmed ... *P. montshadskii* Bey-Bienko  
 12(11). Body feebly punctate; legs uniformly coloured; sides of ultimate tergite with a weakly developed oblique carina; distal lobes apically armed with chitinous denticulated pad ... *P. denticulatus* sp.n.

*Paralabis lefroyi* (Burr)

(Figs. 1—5)

*Anisolabis brunneri*? Burr (néc Dohrn), 1906, *J. Asiat Soc. Beng* (N.S.), 2 (4): 389 ♀ (néc ♂), Purneah, Dist., N. Bengal (now in Bihar).

*Psalis lefroyi* Burr, 1910, *Faune Brit. India, Dermaptera*: 77, pl. 3, fig. 20, ♀ (not ♂), Bombay, Mahim, "feeding on plaintain roots", Pusa Bengal; type ♀ in British Museum (Natural History), London.

*Euborellia lefroyi*; Srivastava, 1971, *Entomologist Rec. J. Var.*, 83: 206. figs. A-C (♂ genitalia); Srivastava, 1976, *Rec. zool. Surv. India, Occ. Pap.*, 2: 23.

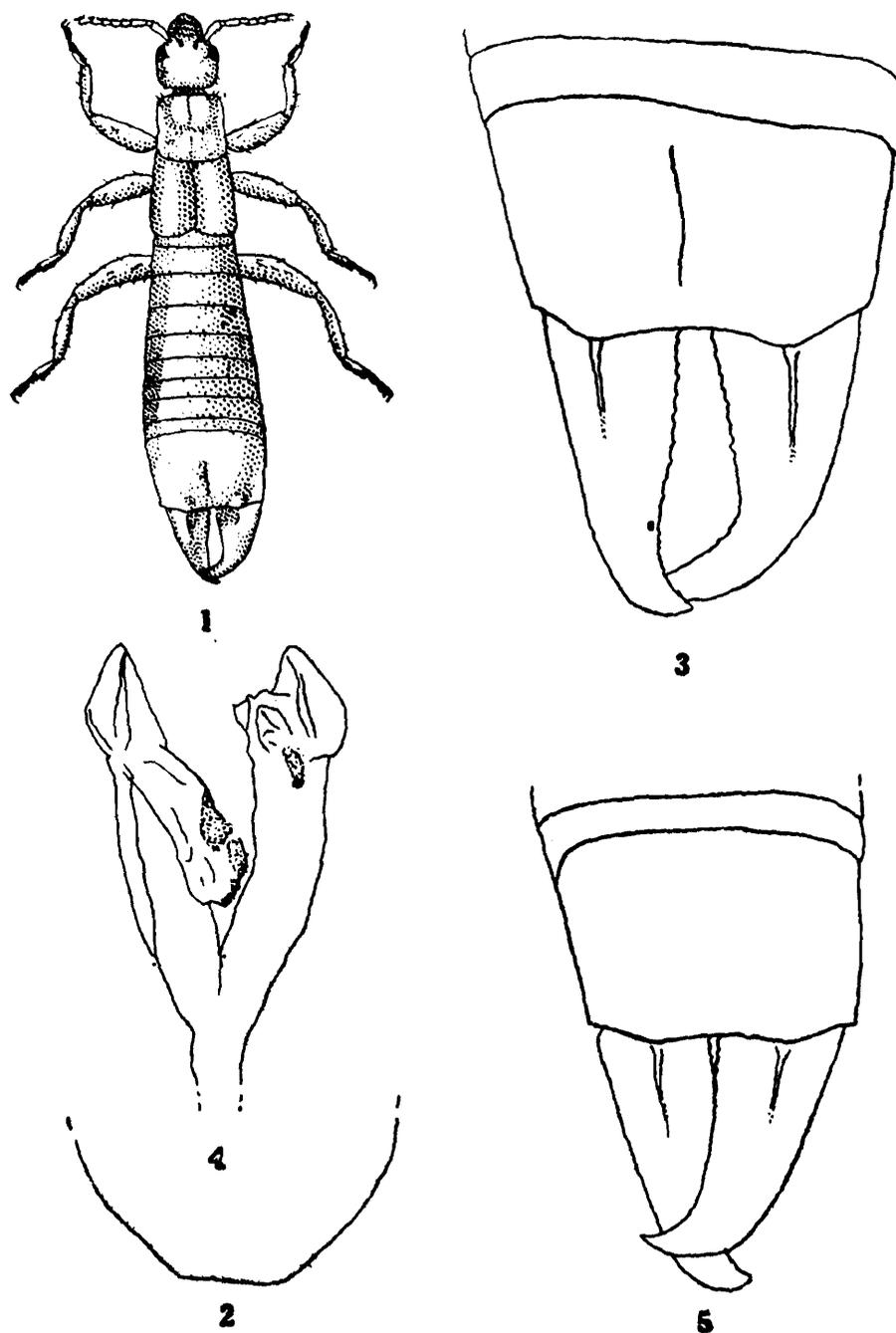
*Paralabis antennatus* Ramamurthi, 1973, *Zool. Anz.*, 5/6: 441, figs. 11-13 (1 ♂, 3 ♀♀, 1 nymph, Tamil Nadu, Kallar-types with the author).—syn. nov.

♂: General colour blackish brown, antennal segments 2nd, 13th and 14th and pronotum laterally yellow; legs yellow but femora banded with black.

Head smooth, about as long as broad, triangular, sutures faint, frons convex. Antennae 17-segmented, 1st shorter than the distance between antennal bases; 2nd short; 3rd long and slender; 4th and 5th almost

equal in length. Pronotum slightly longer than broad, anterior margin straight, sides very slightly concave in middle, hind margin briefly rounded, median sulcus faint, prozona feebly convex. Elytra perfect, smooth, meeting along the middle line, at base axillary angle slightly rounded off to show a small

scutellum, hind margin truncate, slightly oblique. Legs normal. Wings wanting. Abdomen punctate, convex, gently enlarging posteriorly, sides of segments 6 to 9 acute angled posteriorly and rugosely punctate. Penultimate sternite triangular with hind margin briefly rounded or sub-truncate,



Figs. 1-5 : *Paralabis lefroyi* (Burr), ♂, 1. Dorsal view, 2. Posterior margin of penultimate sternite ; 3. Ultimate tergite and forceps 4. Genitalia ; ♀. 5. Ultimate tergite and forceps.

manubrium three times as long as the sternite with its apex dilated. Ultimate tergite transverse, gently narrowed posteriorly, laterally with a longitudinal fold, hind margin trisinate, laterally feebly oblique, median sulcus short. Forceps with branches subcontiguous at base, trigonal with ridge present in basal one third only, weakly asymmetrical, right branch more curved and crossing over the left near apex, tip pointed, gently hooked, inner margin finely crenulate. Genitalia with parameres broadest at about middle, inner margin straight, distal lobes with denticulated chitinous pads.

♀ : Agrees with ♂ in most characters except that ultimate tergite comparatively narrowed posteriorly; penultimate sternite obtusely rounded in middle posteriorly and forceps with branches contiguous and straight.

Measurements : (in mm)

	♂	♀ ♀
Length of body	12.2-13.0	9.0-10.0
Length of forceps	2.0-2.2	1.7-2.0

*Material examined* : INDIA : MADHYA PRADESH : Dist. Shadol, left bank of Narbada between Kund and Kapil Dhara, 2 ♂ ♂ (1 ♂ with genitalia mounted between two coverslips and pinned with the specimen), 22.v.1962 (*P. Singh*) ; ANDHRA PRADESH : Gytimamidi, E. Ghats, 2 ♂ ♂ (1 ♂ with genitalia mounted between two coverslips and pinned with the specimen), 3 ♀ ♀, 3 nymphs, 23.ii.1985 (*S. Saha*).

*Distribution* : India : Andhra Pradesh, Bihar, Madhya Pradesh and Maharashtra.

*Remarks* : This species resembles *P. dohrni* (Kirby) but differs by its slightly larger size, stouter build, sides of abdominal

segments 6 to 9 acute angled posteriorly and rugosely punctate. It can also be separated by the posterior margin of elytra in being slightly oblique but this character alone may not be very reliable.

Since *P. antennatus* Rammamurthi agrees well with *P. lefroyi* in almost all the details it is proposed to sink the former as synonym of the latter.

### *Paralabis dohrni* (Kirby)

(Figs. 6-10)

*Nannopygia dohrni* Kirby, 1891, *J. Linn. Soc. (Zool.)*, 23 : 508. (♀ ; Ceylon-Type in British Museum (Natural History), London ; Bormans, 1900, *Das Tierreich*, 11 : 11.

*Labidura femoralis* ; Dubrony (néc Dohrn), 1879, *Annali Mus. civ. Stor. nat. Giacomo Doria*, 14 : 353.

*Carcinophora caeruleipennis* Bormans, 1900, *Das Tierreich*, 11 : 40.

*Carcinophora dohrni* ; Burr, 1901, *J. Bombay nat. Hist. Soc.*, 14 : 328, pl. B, fig. 20 (♂, ♀, Description) ; Brindle, 1971, *Ent. Scand. Suppl.*, 1 : 219.

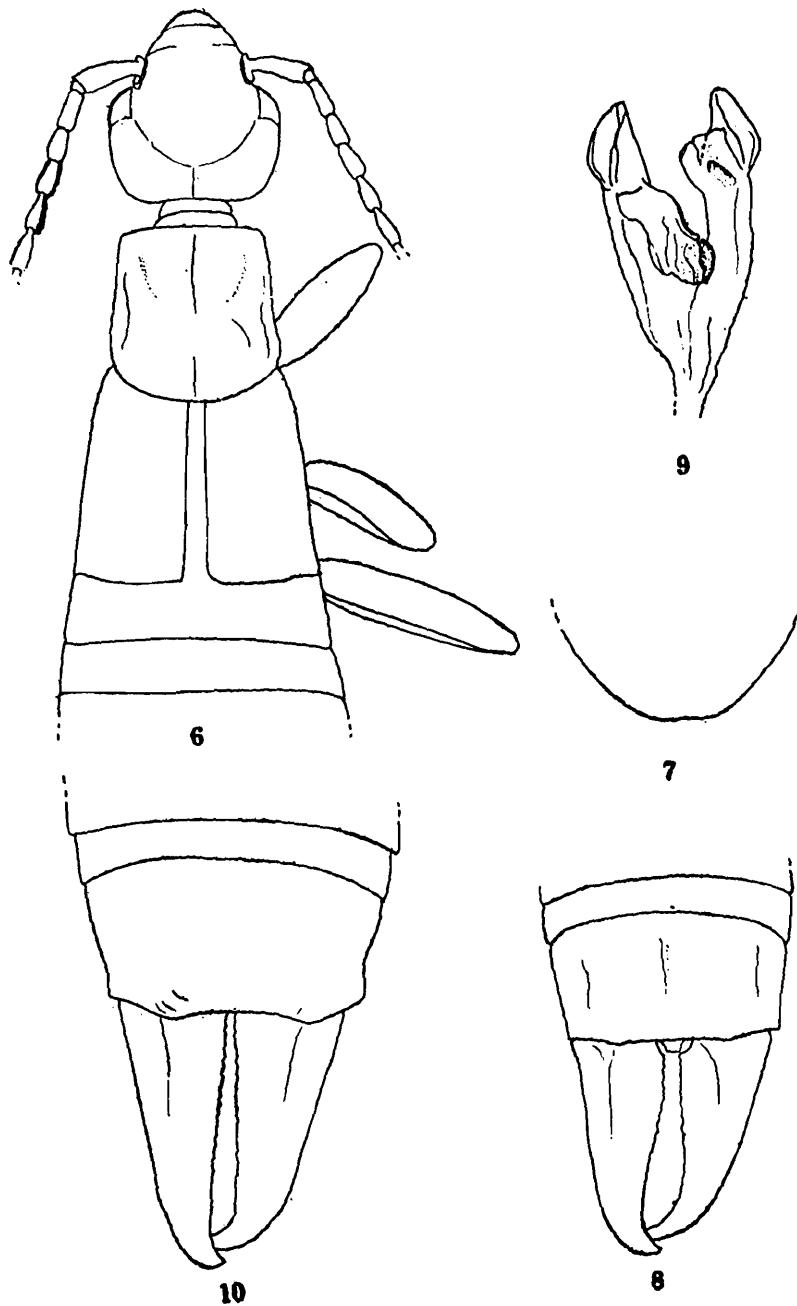
*Psalis dohrni* ; Burr, 1910, *Fauna Brit. India Dermaptera* : 76, pl. 3, fig. 19 ; Burr, 1911, *Genera Insect.*, 122 : 74 ; Burr, 1912, *Annln naturh. Mus. Wien*, 26 : 74 ; Burr, 1913, *Rec. Indian Mus.*, 8 (2) : 138 ; Burr, 1914, *Rec. Indian Mus.*, 10 : 287.

*Paralabis dohrni* ; Burr, 1915, *J. R. micr. Soc.*, 1915 : 540, pl. 12, fig. 1 (♂ genitalia) ; Borelli, 1931, *Rev. Suisse Zool.*, 38 : 295 ; Kapoor, 1958, *Agra Univ. J. Res. (Sci.)*, 16 (1) : 9 ; Srivastava, 1971, *Entomologist Rec. J. Var.*, 83 : 19 ; Srivastava, 1976, *Rec. zool. India, Occ. Pap.*, 2 : 23.

♂ : General colour blackish to reddish brown ; basal antennal segment and one or two pre-apical segments yellow ; pronotum pale on sides ; legs yellowish brown, femora banded with black.

Head about as long as broad, convex, sutures faint. Eyes black, smaller than the post-ocular length. Pronotum slightly longer than broad, gently widened posteriorly, sides straight, hind margin rounded, median sulcus faint. Elytra slightly longer than the pronotum, hind

margin truncate, a small scutellum visible. Wings generally wanting, sometimes present. Abdomen obscurely punctulate, gently widened posteriorly, sides of segments 6 to 9 obtuse angled posteriorly and smooth. Penultimate sternite rounded posteriorly. Ultimate tergite transverse, gently narrowed



Figs. 6-10 : *Paralabis dohrni* (Kirby), ♂, 6. Anterior portion of body, legs of one side only shown ; 7. Posterior margin of penultimate sternite ; 8. Ultimate tergite and forceps ; 9. Genitalia ; ♀, 10. Ultimate tergite and forceps.

posteriorly, hind margin trisinate, laterally oblique, postero-lateral angles a little projecting, laterally with an oblique fold. Forceps subcontiguous, trigonal in basal one third, tapering apically, apices gently incurved, inner margin finely crenulate. Genitalia with parameres semicircular, broadest near base, inner margin straight, distal lobes with denticulated chitinous pads apically.

♀ : Agrees with ♂ but differs by the sides of the abdominal segments convex ; penultimate sternite obtuse posteriorly and forceps simple and straight.

*Measurements* : (in mm)

	♂ ♂	♀ ♀
Length of body	10-12	9.5-12.5
Length of forceps	2-2.5	1.9-2.5

*Material examined* : SRI LANKA : Peradenya, 2 ♂ ♂ (1 ex. winged), 10.vi.'10, 1 ex. (only head remaining), 14.vi.'10, 2 nymphs, 17.vi.'10 ; Kandy, 2 ♀ ♀ (1 ex. winged) ; all det. by Burr. INDIA : MAHARASHTRA : Poona, University compound, 2 ♀ ♀, 23.vi.1962 (*B. K. Halder*) ; Satara, Koyna valley, 1 ♂ (genitalia mounted between two coverslips and attached with the specimen), 26-27.iv.1912 (*F. H. Gravely*), det. by M. Burr ; ASSAM : Sadiya, Abor, Exped., 1 ♂ (winged, ♂ genitalia mounted between two coverslips and pinned with the specimen), 27.xi.'11 (*Kemp*), det. by M. Burr.

***Paralabis greeni* (Burr)**

(Figs. 11-14)

*Anisolabis greeni* Burr, 1899, *Ann. Mag. nat. Hist.*, (7)4 : 257 (♂, ♀, Pundalu—Oya (nec Punduloya), Ceylon—types in British Museum (Natural History), London ; Burr, 1901, *J. Bombay nat. Hist. Soc.*, 14 : 319 ; Brindle, 1971, *Ent. Scand, Suppl.*, 1 : 219, figs. 16, 20.

*Borellia greeni* : Burr, 1907, *Bull. Mus. Hist. nat. Paris*, 13 : 87.

*Euborellia greeni* ; Burr, 1910, *Trs. R. ent. Soc. Lond.* 1910 ; 30 ; Burr, 1912, *Annln naturh. Mus. Wien*, 26 : 75 ; Burr, 1914, *Rec. Indian Mus.*, 10 : 285.

*Paralabis greeni* ; Burr, 1915, *J. R. micr. Soc.* : 540, pl. 12, fig. 2 (♂ genitalia).

♂ : General colour shining dark blackish brown ; antennae and legs dark brown ; whole body i.e., head, pronotum, elytra, exposed part of mesonotum, metanotum and abdominal tergites finely but distinctly punctate.

Head longer than broad, convex above, hind margin emarginate in middle ; antennae 14-segmented or more, 1st stout, expanded apically, longer than the combined length of 2nd to 4th ; 2nd small, about as long as broad ; 3rd long and slender, longer than the 4th and 5th ; 6th onwards segments gradually increasing in length and each segment gently expanded apically. Eyes shorter than the post-ocular length. Pronotum slightly longer than broad, all margins straight, sides gently reflexed, median sulcus faint. Elytra abbreviated, narrowed in basal half, exposing a large transverse mesonotum, afterwards greatly enlarged and slightly overlapping along the median line, hind margin straight. Legs normal. Abdomen spindle shaped, moderately convex above, sides of segments 6 to 9 obtuse angled posteriorly, pilose, shining and punctate. Penultimate sternite faintly punctate, triangular, hind margin in middle obtuse. Ultimate tergite transverse, gently sloping and narrowed backwards, hind margin straight in middle, laterally slightly oblique. Forceps stout, remote and broadened at base, tapering apically, almost straight in basal two thirds, afterwards gently

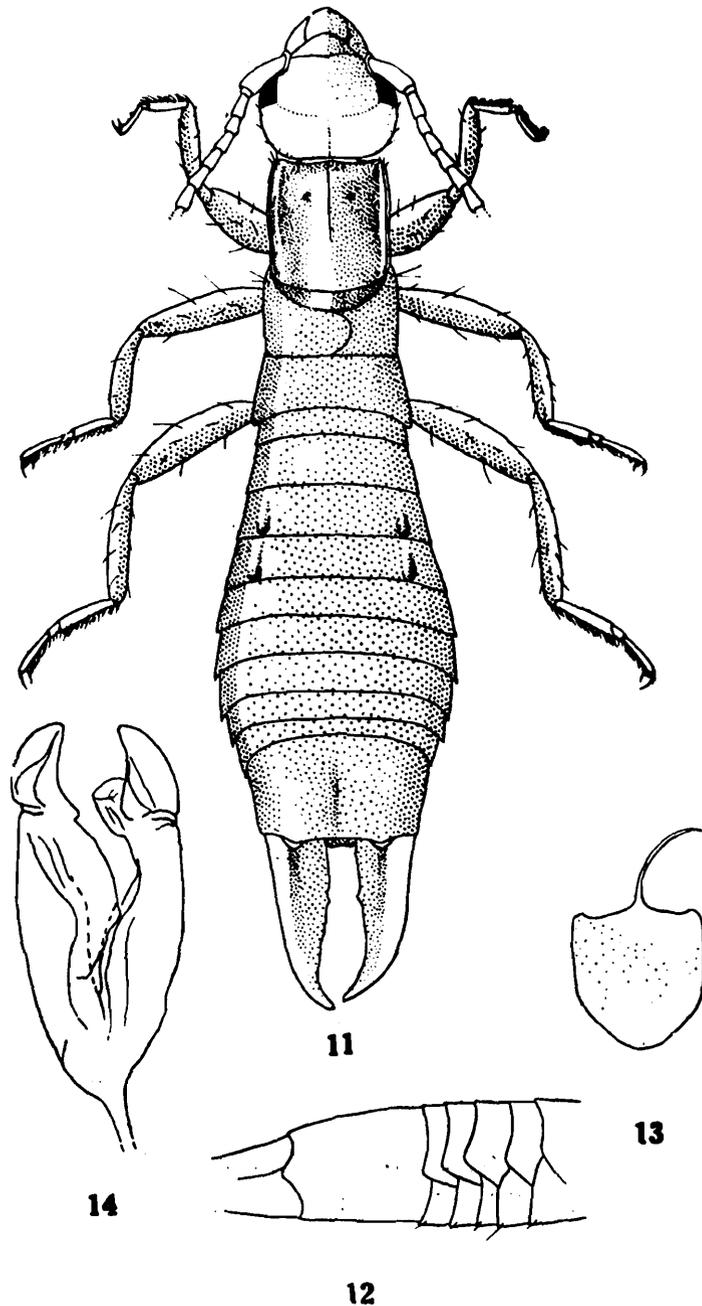
incurved with apices hooked and crossing, trigonal above in basal one thirds, afterwards depressed, inner margin faintly serrated, with a minute tooth at about middle. Genitalia with parameres gradually narrowing from base to apex, external margin regularly convex and inner margin concave; distal lobes unarmed.

♀ ; Agrees with ♂ in most characters

except that pronotum sometimes gently enlarged posteriorly and equal in length and width and sides of abdominal segments convex posteriorly.

*Measurements :* (in mm)

	♂	♀
Length of body	14.9	21.0
Length of forces	2.3	4.4



Figs. 11-14 : *Paralabis greeni* (Burr), ♂, 11. Dorsal view, 12. Sides of a few posterior abdominal segments ; 13. Penultimate sternite ; 14. Genitalia.

**Material examined :** SRI LANKA : CENTRAL PROVINCE : Ramboda, 7 mls NW Nuwara Ellya, 1 ♂, 4.iii.1962, Loc. 118 ; Teldeniya, 1400 ft, 6 mls E of Kandy, 1 ♀, 10.iii.1962, det. by Brindle as *Anisolabis greeni* (Burr) ; Kanpola, 5 mls ENE Nuwara Ellya, 1 nymph, 4.iii.62, Loc. 115, under stones, ravine with stream, det. by Brindle as *Anisolabis kudagae* (Burr).

**Distribution :** Sri Lanka.

**Remarks :** The original description the species is based on 3 ♂♂, 3 ♀♀ labelled as Sri Lanka, Punduloya, V & X, '97, under stones in bungalow ; II.99, under stones, (coll. E. E. Green). Of these one specimen is designated as the 'Type' which was examined by Hebard (1923). From the available literature, it appears that some variations in colour and size of various body parts exist.

This species resembles, in external features with *Epilabis punctata* Srivastava, from various parts of South India but the ♂ parameres in the latter are quite distinctive.

It may be mentioned here that various records of this species from India are most likely referable to *Epilabis punctata* Srivastava.

### ***Paralabis nandii* sp.n.**

(Figs. 15-18)

♂ : General colour shining brownish black with varying shades on certain body parts ; basal and 2nd antennal segments and legs yellowish brown.

Head smooth, slightly longer than broad, globose, frons convex, sutures fine, hind margin almost straight. Eyes not prominent, about half as long as the post-ocular length. Antennae 17-segmented or more (since apical ones broken in the present material), 1st

segment distinctly shorter than the distance between antennal bases ; 2nd about as long as broad ; 3rd long and cylindrical ; 4th shorter than 3rd ; 5th and 3rd almost equal ; remaining gradually becoming slender and narrowed basally. Pronotum smooth, slightly broader than long, widened posteriorly, lateral margins straight, gently reflexed, hind angles and margin rounded, median sulcus faint, prozona and metazona not well differentiated. Mesonotum obscurely punctate and with elytra as narrow, lateral ovate flaps, median sulcus faint. Metanotum transverse, median sulcus faint, obscurely punctate, hind margin broadly concave.

Legs normal. Abdomen gradually enlarging posteriorly, convex above, punctation feeble, sides of segments obtuse angled posteriorly and feebly punctate and that of 7th to 9th acute angled posteriorly and rugosely striate. Penultimate sternite triangular, obscurely punctate, hind margin almost truncate. Ultimate tergite strongly transverse, smooth, feebly convex but gently depressed in middle posteriorly, sides straight with an oblique carina, above the base of forceps with a feebly raised area, hind margin trisinate, laterally oblique. Forceps stout, remote, dilated and trigonal at base with a dorsal ridge in basal one fourth only, afterwards depressed, tapering apically, incurved in apical two thirds, apices gently hooked and pointed, inner margin feebly dentate. Genitalia with parameres roughly semicircular, about twice as long as broad, narrowed apically with external margin regularly convex, inner margin feebly concave, distal lobes with a small denticulated pad.

♀ : Agrees with males in most characters except that sides abdominal segments smooth and convex ; penultimate sternite

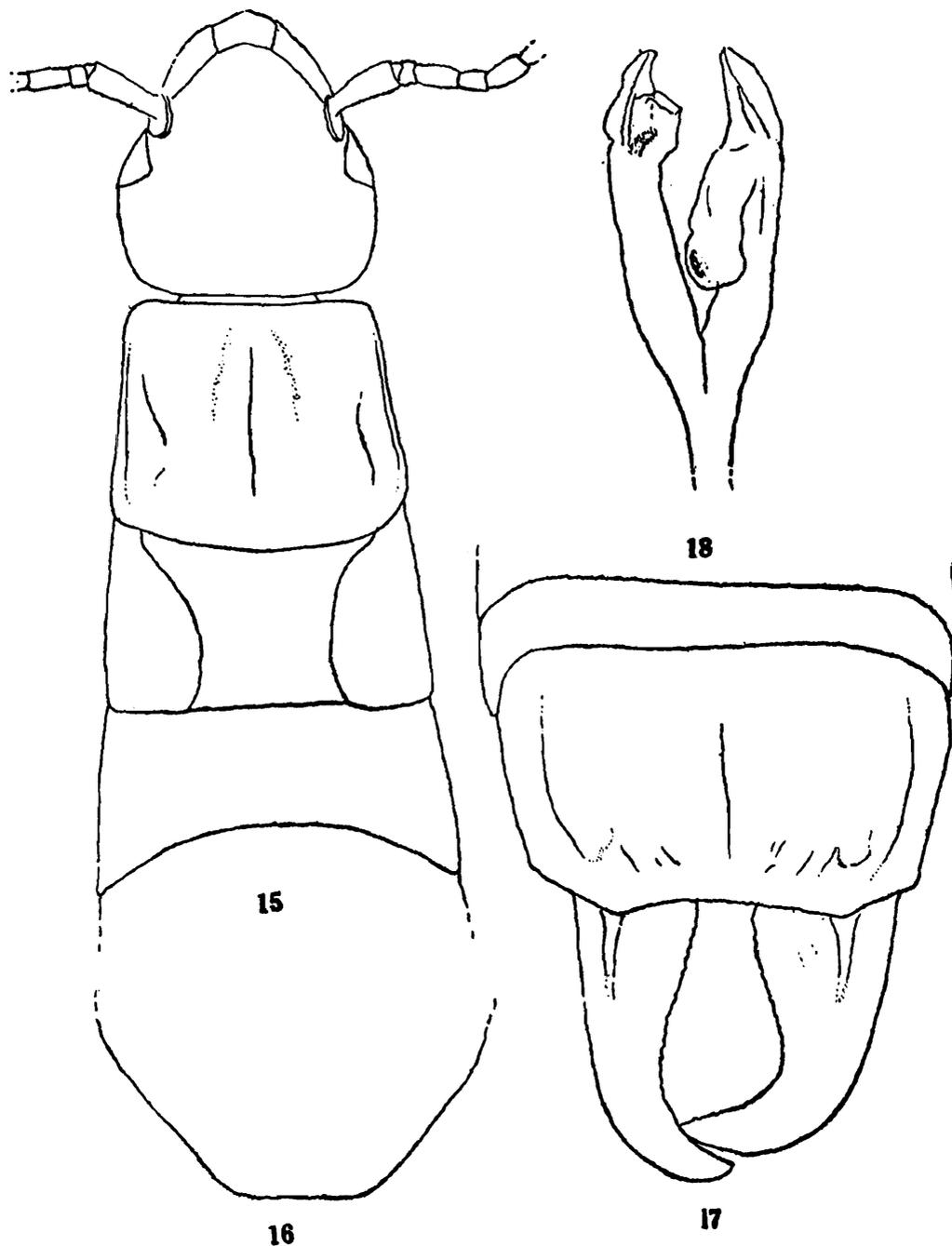
obtuse posteriorly ; ultimate tergite narrowed posteriorly and forceps simple, almost straight and contiguous.

*Measurements* : (in mm)

	Holotype	Paratypes	
	♂	2 ♂♂	2 ♀♀
Length of body	14.3	11.3-12.4	10.7-14.8
Length of forceps	2.0	1.7-2.0	1.9-2.0

*Material examined* : INDIA : KARNATAKA : Dist. Kolar, Nandi Hill, Holotype ♂, Paratypes 2 ♂♂ (genitalia mounted between two coverslips and pinned with the respective specimens), 2 ♀♀, 1 nymph, 2.iii.1978 (*M. B. Rao*), deposited in the Zoological Survey of India, Calcutta.

*Distribution* : India (Karnataka).



**Figs. 15-18** : *Paralabis nandi* sp.n., Holotype ♂. 15. Anterior portion of body, legs of both sides not shown ; 16. Posterior margin of penultimate sternite ; 17. Ultimate tergite and forceps, 18. Genitalia.

**Remarks :** This species can be easily separated from the other Indian species of the genus by the presence of elytra as narrow ovate, lateral flaps on mesonotum. Besides male genitalia especially parameres are distinctive.

**Paralabis carinatus** sp.n.

(Figs. 19-22)

*Euborellia aborensis* (pars); Burr, 1913, *Rec. Indian Mus.*, 8(2): 137 (1♂, Assam, Dibrugarh, excluding remaining material).

*Paralabis aborensis* (pars); Srivastava, 1968. *Entomologist Rec. J. Var.*, 80: 292 (Material same as above); Srivastava, 1971, *Entomologist Rec. J. Var.*, 83: 22 (figs. B, D & F only).

♂ : General colour dark blackish brown, legs and antennae reddish brown, sides of abdomen, ultimate tergite and forceps with traces of black. Whole body clad with long and short golden pubescence.

Head slightly longer than broad, weakly depressed, sutures distinct, hind margin slightly emarginate in middle. Eyes shorter than the post-ocular length. Antennae partly damaged (8 segments on the right and 11 on the left remaining), 1st stout, gently expanded apically and shorter than the distance between antennal bases; 2nd short; 3rd long and slender; 4th and 5th subequal, globular and both shorter than the 3rd; 6th onwards segments gradually increasing in length and each gently expanded apically. Pronotum anteriorly slightly narrower than the head, sides straight, parallel sided, gently reflexed, hind margin subtruncate, median sulcus faint, prozona weakly convex and not well differentiated from flat, weakly convex metazona. Elytra and wings wanting. Legs normal, with long pubescence. Abdomen

weakly depressed, punctate, tergites gradually enlarging posteriorly, sides of segments 6 to 9 acute angled posteriorly but median longitudinal carina present on segments 7th and 8th only. Penultimate sternite narrowed posteriorly, obtuse in middle. Ultimate tergite weakly transverse, disc feebly depressed, median sulcus distinct, sides with a distinct oblique carina, hind margin in middle almost straight, very slightly oblique on sides, the area close to hind margin with serrations. Forceps subcontiguous, tapering apically, left branch almost straight, only gently incurved near apex, right branch incurved from middle and crosses over the left a little before apex, apices gently hooked and pointed, inner margin serrated. Genitalia with parameres broadest at base, gradually narrowed apically with tip obtuse, external margin convex, inner margin concave, distal lobes with a pair of chitinous, denticulated rods.

♀ : Unknown.

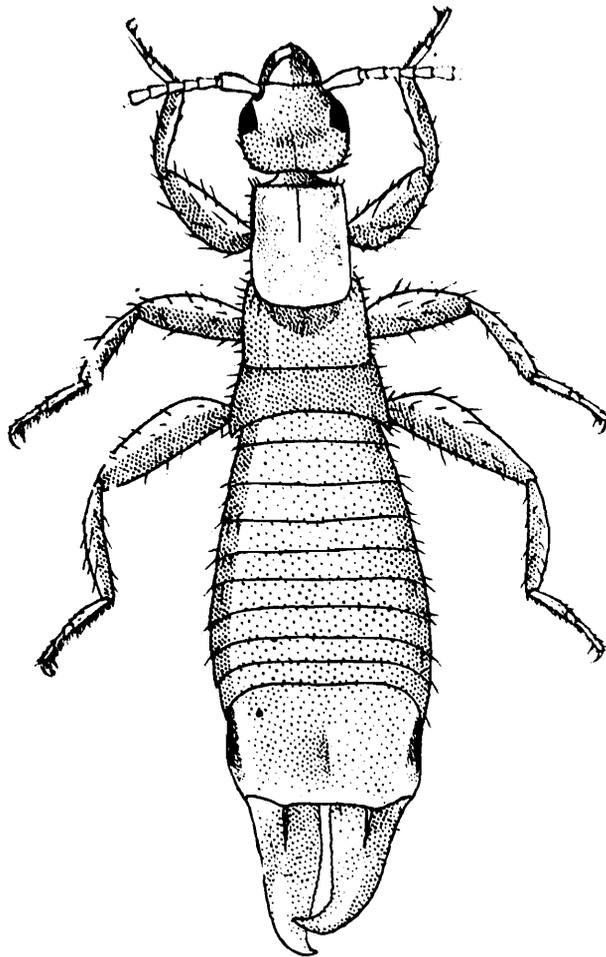
*Measurements :* (in mm)

	Holotype ♂
Length of body	12.0
Length of forceps	2.3

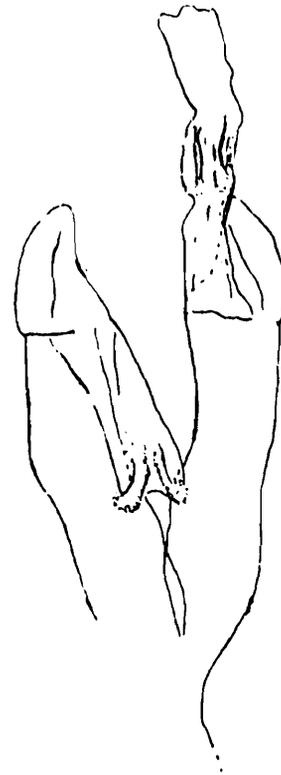
*Material examined :* INDIA : ASSAM : Dibrugarh, Holotype ♂ (Reg. No. 2432/19), 17-19.xi.1911, Abor Expedition (*S. W. Kemp*), deposited in the Zoological Survey of India, Calcutta.

*Distribution :* Known from the type locality only.

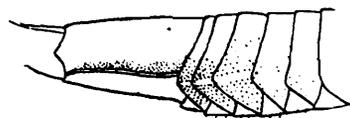
*Remarks :* It differs from the other known species from the Indian subcontinent in having the body pubescent and male genitalia with distal lobes armed apically with a pair of chitinous denticulated rods.



19



22



20



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Figs. 19-22 : *Paralabis carinatus* sp.n., Holotype ♂, 19. Dorsal view, 20. Sides of a few posterior abdominal segments ; 21. Posterior margin of penultimate sternite ; 22. Genitalia.

***Paralabis montshadskii* Bey-Bienko**  
(Figs. 23-28)

*Anisolabis (Paralabis) montshadskii*, Bey-Bienko, 1959, *Ent. Obzor.* 38 : 600, fig. 16 (♂, ♀ ; China : Yunnan—Types at Academy of Zoology, Leningrad, U.S.S.R.).

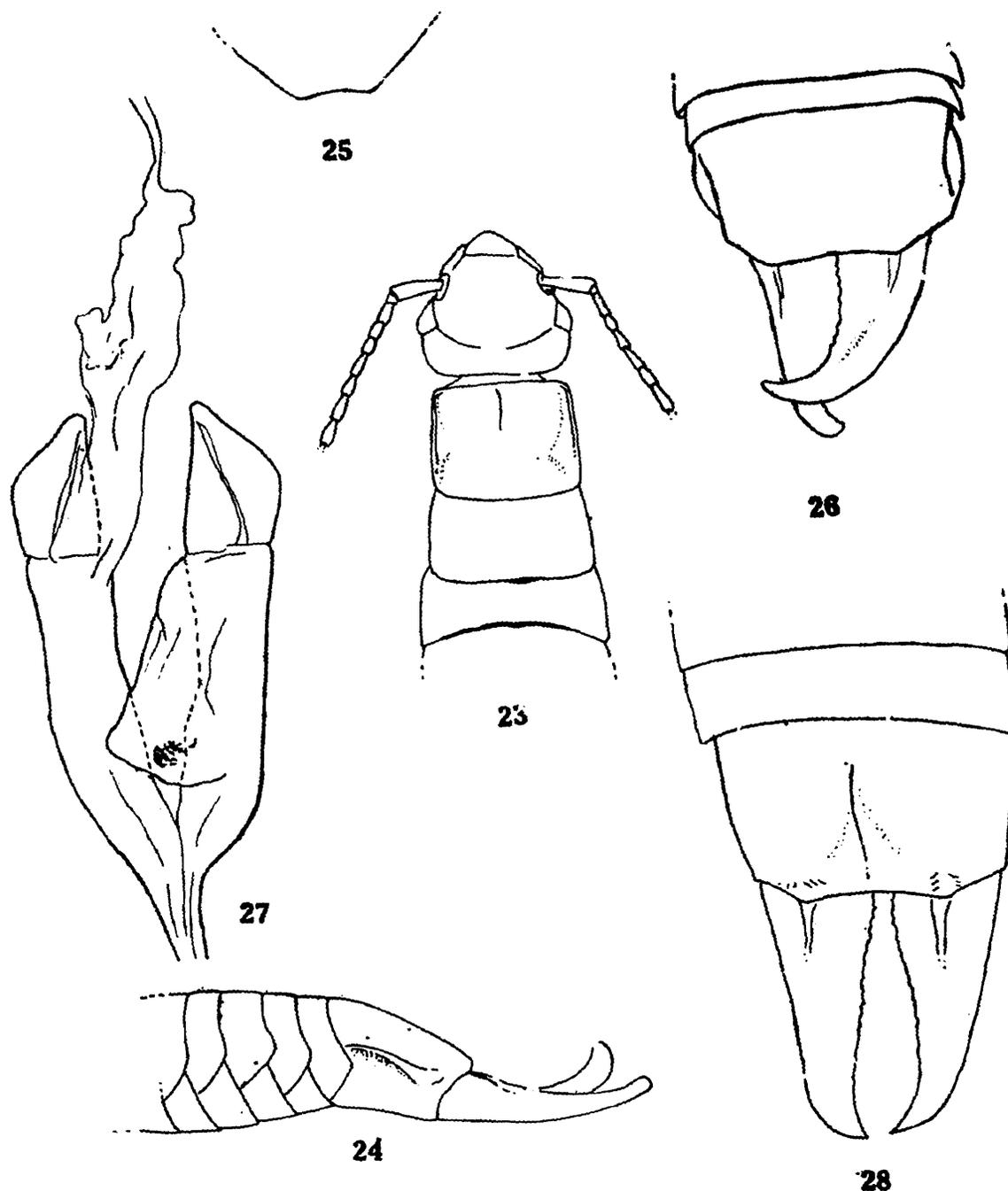
♂ : General colour dark blackish brown, mouth parts and distal half of basal antennal

segment, 2nd and a few preapical ones yellow ; legs with femora in distal one fourth and whole of tibia and tarsi yellowish ; sides of pronotum light brown.

Head slightly longer than broad, smooth, sutures faintly marked. Eyes shorter than the post-ocular length. Antennae 15-segmented or more ; 1st about as long as the dis-

tance between antennal bases, narrowed basally; 2nd small, transverse; 3rd long and cylindrical almost equal to 5th; 3rd and 4th stout; 4th slightly longer than the preceding; 4th onwards segments gradually increasing in length and becoming thinner, each narrowed basally and gently expanded apically. Pronotum about as long as broad,

gently expanded posteriorly, all margins straight, sides gently reflexed. Legs normal. Elytra and wings wanting. Abdomen weakly convex, gently expanded posteriorly, feebly punctulate, punctulations weaker in posterior half of each tergite, lateral tubercles on 3rd and 4th tergites weakly developed, sides of segments 7 to 9 more rugosely punctured,



Figs. 23-28 : *Paralabis montshadskii* Bey-Bienko, ♂, 23. Anterior portion of body, legs of both sides not shown; 24. Hind portion of body in lateral view, 25. Posterior margin of penultimate sternite, 26. Ultimate tergite and forceps; 27. Genitalia; ♀, 28. Ultimate tergite and forceps.

ecarinate and obtuse angled posteriorly. Penultimate sternite broadly sinuate posteriorly. Ultimate tergite transverse, narrowed posteriorly, almost smooth, median sulcus distinct, oblique carina present on sides. Forceps trigonal above in basal one fourth, afterwards depressed, tapering apically, curved in apical one third, right branch more curved and crossing over the left, internally crenulate. Genitalia with distal lobes lacking virga or chitinous teeth.

♀ : Agrees with male in most characters except that the abdomen more feebly punctulate and the sides of all the abdominal segments convex, not rugose ; penultimate sternite obtuse posteriorly and forceps simple and straight.

*Measurements* : (in mm)

	♂♂	♀
Length of body	13.0-14.5	13.7
Length of forceps	2.6- 3.0	2.6

*Material examined* : INDIA : ARUNACHAL PRADESH : Lohit Dist., Tihun, 2♂♂, 4160 ft., 12.xii.1969, Wakro, 1♀, 1700 ft., 1.xi.1969 Daphabum Exped. (J. M. Julka).

*Distribution* : India (Arunachal Pradesh) and China (Yunnan). Previous records of this species from India (Srivastava, 1971 and 72) are referable to the new species described in following pages.

*Remarks* : In one of the males forceps are subcontiguous and apics are almost touching.

***Paralabis denticulatus* sp. n.**

(Figs. 29-33)

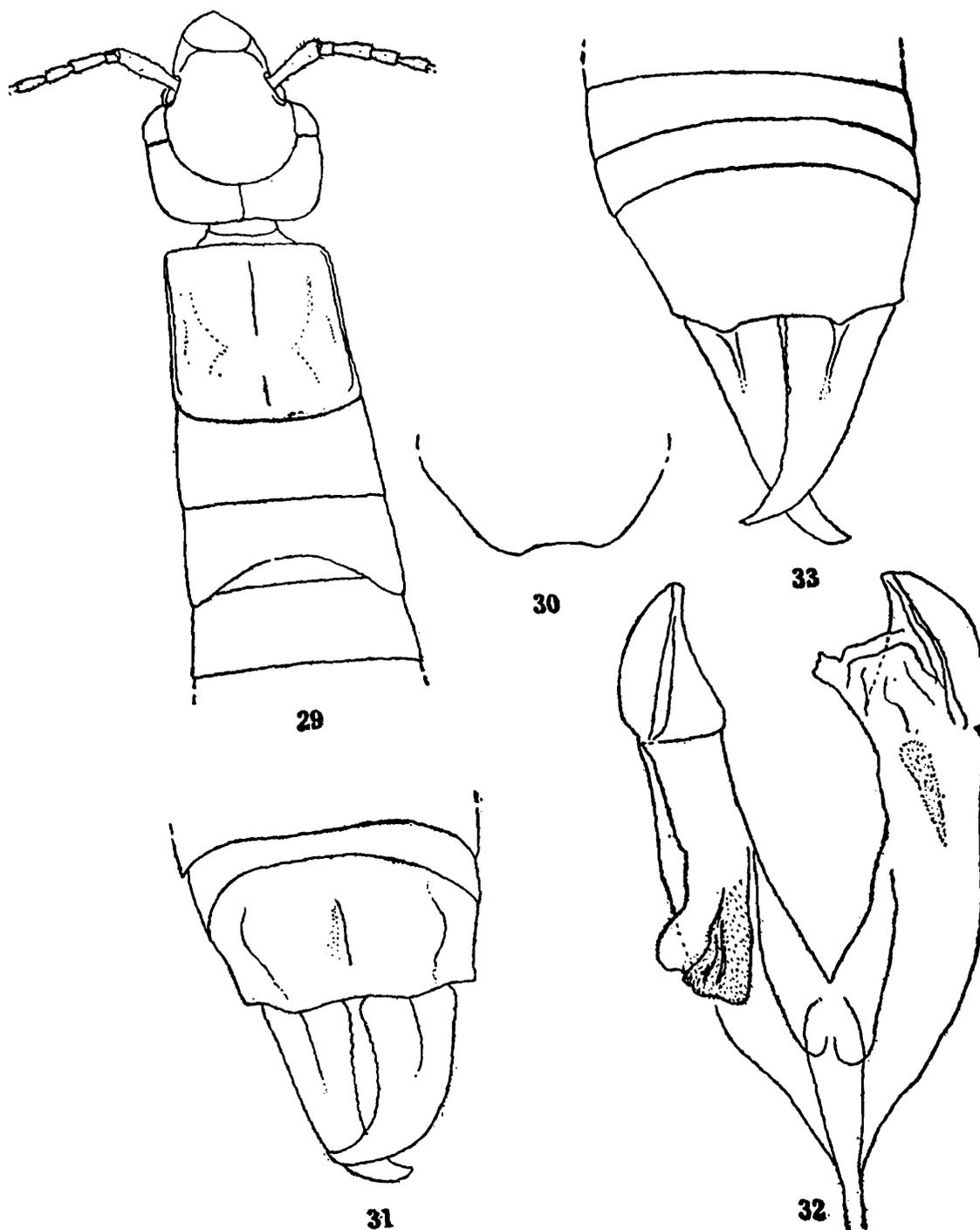
*Paralabis montshadskii* (néc Bey-Bienko) ; Srivastava, 1971, *Entomologist Rec. J. Var.*, 83 : 22 ; Srivastava, 1972, *Rec. zool. Surv. India*, 66 (1-4) : 134 (♂, ♀ ; NEFA (now Arunachal Pradesh).

♂ : General colour reddish brown with traces of black on certain body parts ; mouth parts yellowish ; 1st and 2nd antennal segments and legs testaceous brown.

Head slightly longer than broad, smooth, convex above, sutures fine but distinct, gently narrowed behind eyes, hind margin almost straight, faintly depressed in middle. Eyes about half as long as the post-ocular length. Antennae (partly broken) 17-segmented or more ; 1st stout, about as long as the distance between antennal bases, narrower at base and expanded apically, third onwards length of corresponding segments on right and left side variable in Holotype ♂ only, segments more elongated in right antennae, left antennae with 3rd segment long and cylindrical, 4th shorter than the preceding, narrowed basally ; 5th equal to 3rd, further segments gradually increasing in length and thinner ; antennae of right side with 3rd segment cylindrical, only slightly shorter than the 1st and almost equal to 6th ; 4th and 5th shorter than 3rd. Pronotum about as long as broad, smooth, sides straight, feebly reflexed in middle only, gently diverging posteriorly with hind margin sub-rotundate, median sulcus faintly marked, prozona weakly raised and poorly differentiated from flat metazona. Mesonotum and metanotum transverse, smooth, hind margin truncate in the former and broadly emarginate in the latter. Elytra and wings absent. Legs normal. Abdomen weakly convex, enlarging from base to 6th tergite and narrowing feebly from 7th to 9th tergites, finely punctulate, lateral tubercles on 3rd and 4th tergites almost obsolete, sides of segments 6 to 9 acute angled, rugosely punctate but punctation weaker on 6th segment. Penultimate sternite

transverse, narrowed posteriorly, hind margin broadly sinuate, in posterior half above with a rounded, depressed area and a faintly raised longitudinal stripe in the middle. Ultimate tergite transverse, almost smooth except for a few punctations sparsely placed, narrowed posteriorly, laterally raised above in middle,

median sulcus distinct, laterally oblique carina weakly marked, hind margin trisinuate, oblique laterally. Forceps subcontiguous, branches stout, tapering apically, almost straight in basal two third, afterwards gently incurved, right branch more strongly curved and crossing over the left, apices gently



Figs. 29-33 : *Paralabis denticulatus* sp.n. ; Holotype ♂, 29. Anterior portion of body ; 30. Posterior margin of penultimate sternite ; 31. Ultimate tergite and forceps ; 32. Genitalia ; Paratype ♀ ; 33. Ultimate tergite and forceps.

hooked with tip pointed, trigonal above in basal one third and afterwards depressed, internal margin faintly crenulate. Genitalia with parameres about twice as long as broad, gradually narrowing apically, distal lobes with chitinous denticulated pads apically.

♀ : Agrees with ♂ in most characters except that the sides of abdominal segments smooth, convex posteriorly ; penultimate sternite obtusely rounded posteriorly ; ultimate tergite comparatively strongly narrowed posteriorly and forces contiguous, simple and straight.

*Measurements* : (in mm)

	Holotype		Paratypes	
	♂	♂♂	♀	♀
Length of body	13.8	12.6	9.2-12.9	
Length of forceps	2.2	2.2	1.9-3.1	

*Material examined* : INDIA : ARUNACHAL PRADESH : Kameng Dist., Milankang, Holotype ♂ (genitalia mounted between two coverslips and pinned with the specimen), Paratypes 4 ♀♀, 2 nymphs, 18.vi.1961 ; milankang Digian, Paratype 1 ♀, 20.vi.1961, 6500 ft., Shergaon, Paratype 1 ♀, 28.iii.1961, 6600 ft., Chug, Paratypes 2 ♀♀, 17.iii.1961, (K. C. Jayaramkrishnan) ; Dirang, Paratype 1 ♂, 12.iii.1973, 1526 m ; Sappen, Paratypes 1 ♂ and 1 ♀, 13.iii.1973, 1800 m (S. K. Tandon and A. N. T. Joseph), all deposited in the Zoological Survey of India, Calcutta.

*Distribution* : Known from the type locality only.

*Remarks* : This species was confused with *Paralabis montshadskii* Bey-Bienko, by Srivastava (1971 and 1972) but differs in males by the uniformly coloured legs, com-

paratively feeble body punctulations, weakly developed oblique carina on the sides of ultimate tergite and genitalia provided with chitinous denticulated pads at the apical end of distal lobes.

In the present material general body colouration varies between reddish brown and dark blackish brown.

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#### REFERENCES

- BURR, M. 1911. Notes on the Forficularia, Part XVIII. *Ann. Mag. nat. Hist.*, (8) 8 : 39-50.
- BURR, M. 1915. On the male genital armature of the Dermaptera, Part II : Psalidae. *J. R. micr. Soc.*, 1915 : 521-546.
- HBBARD, M. 1923. Studies in Indian Dermaptera. *Mem. Dep. Agric. India ent. Ser.*, 7 : 195-242.
- SRIVASTAVA, G. K. 1971. Notes on the Indian species of the genus *Paralabis* Burr (Dermaptera : Carcinophoridae). *Entomologist Rec. J. Var.*, 83 : 17-23.
- SRIVASTAVA, G. K. 1972. Notes on a collection of Dermaptera from NEFA, India. *Rec. zool. Surv. India*, 66(1-4) : 129-142.

