

**TWO NEW SPECIES OF GENUS *SIOBLA* CAMERON (HYMENOPTERA : TENTHREDINIDAE) FROM INDIA AND A REVISED KEY TO THE INDIAN SPECIES**

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**INTRODUCTION**

Genus *Siobla* was erected by Cameron (1877) taking *S.mooreana* as its type species. Later, in 1934 Malaise added another species i.e. *S. turneri* to this genus. However, while reviewing this genus from South East Asia in 1945, he, in addition to lowering species status of *S. punctata* Cameron 1899 to sub species level i. e. *S. mooreana punctata* Cameron 1899, raised another sub species *S. mooreana melaena* from Myanmar. Five new species were added to this genus by Saini *et al.*, 1985, thus raising the total to seven. In the present text, two new species are described and *S. mooreana punctata* malaise has been raised to species level after taking some morphological and external genitalia differences into consideration. The types of new species are presently with the authors, but will be submitted to IARI, PUSA, National Collections, New Delhi.

**Remarks :**

Genus *Siobla* Cameron is having a typical wing venation of Subfamily Tenthredinine, but cross vein of anal or lanceolate cell is long and strongly oblique. The genus is represented by following sum of characters ; supra antennal pit wide and deep, inner margins of eyes strongly converging downwards ; clypeus flat with truncate anterior margin ; antennae stout, some what compressed ; border of meso-sternum with blunt carina ; mesosternum without thorns ; hind legs large and knees surpassing apex of abdomen ; subapical tooth of claw much longer than apical one.

**Abbreviations :**

AST = Anterior subbasal tooth, CL = Clypeus, GP = Gonostipes, H = Harpe, IATS = Inner apical tibial spur, ICD = Intercenchri distance, IDMO = Interocular distance at the level of median ocellus, ITD = Intertegular distance, LB = Labrum, LID = Lower interocular distance, MB = Metabasitarsus, OATS = outer apical tibial spur, OCL = Ocello -occipital line, PNS = Parapenis, POL = Postocellar line, PST = Posterior subbasal tooth, VC = Valviceps, VV = Valvura.

*Key to the Indian species of Siobla*

1. Body without metallic lustre .....2
- Body metallic blue except four apical antennal segments which are black ; brownish black are : labrum palpi, tarsi of four front legs .....*S. infuscata* Saini *et al.*
2. Antenna bicoloured or entirely black ; atleast frontal area including ocelli and entire mesopleura black .....3

- Antenna reddish yellow ; extremely narrow dark brown stripe encircles each ocellus, only dorsal border of mesopleuron brownish black .....*S. kalatopi* Saini *et al.*
- 3. Fore wing distinctly infuscated towards apex .....4  
Fore wing hyaline or uniformly infumated .....5
- 4. Labrum ; clypeus ; base of mandibles ; apical four antennal segments ; pronotal upper and lower angles ; scutellum ; appendage ; post-scutellum ; middle of broad hind margin of propodeum entire ; 2nd tergite ; lateral spots on 3<sup>rd</sup> tergite ; four front legs except basal  $\frac{3}{4}$  th of their coxae and broad outer stripes on femora ; metaleg except basal  $\frac{3}{4}$  th of metacoxa, apical  $\frac{3}{4}$  of femora and apical  $\frac{1}{3}$ <sup>rd</sup> of metatibia, pale .....  
.....*S. mooreana* Cameron (Fig. 1,5,9)
- General body colour black except labrum ; four apical antennal segments ; anterior aspects of four front legs ; basal half of metatibia and all meta tarsal segments fulvous ; posterior angles of pronotum, pale .....*S. punctata* Cameron
- 5. Antenna black ; clypeus truncate ; lower interocular distance equal to eye length .....  
.....*S. malaisei* Saini *et al.*
- At least apex of antenna fulvous ; clypeus truncate to narrowly rounded or with irregular anterior margin ; lower interocular distance more than eye length .....6
- 6. Only extreme apex of antenna paler ; hind trochanters black .....*S. turneri* Malaise.
- At least 4 apical joints of antenna and hind trochanters pale to fulvous .....7
- 7. Head distinctly punctured ; pro and mesonotum punctured like head ; few large and shallow punctures on apex of scutellum and along its antero-lateral tangent lines .....8
- Head covered with minute, dense but shallow punctures ; pro-and mesonotum covered with scattered punctures ; few large and isolated punctures on posterior slope of scutellum .....  
.....9
- 8. Legs pale yellow except most of all coxae ; posterior aspects of four front femora ; extreme tips of four front tibiae ; metafemora except basal  $\frac{1}{3}$ <sup>rd</sup> and apical  $\frac{1}{3}$ <sup>rd</sup> of metatibia fulvous to black. Entire abdomen black .....*S. bengalensis* Saini *et al*
- Legs except coxae entirely fulvous ; 1<sup>st</sup> and 2<sup>nd</sup> abdominal tergites entirely and large spots on lateral sides of 3<sup>rd</sup>, fulvous .....*S. darjeelingia* Saini, *et al.*
- 9. Antenna longer than head and thorax combined, 1<sup>st</sup> and 2<sup>nd</sup> antennal segment each longer than broad ; head entirely black ; pro-, meso- and metalegs with distal tip of coxae entirely fulvous ; in male only the basal half of metatibia and all metatarsal joints yellowish to fulvous .....*S. harpeata*, sp. nov.
- Antenna as long as head and thorax combined, 1<sup>st</sup> antennal segment as long as broad, 2<sup>nd</sup> segment longer than broad ; fulvous frontal spot covering narrow inner orbits ; hind orbits ; temples and postocellar area ; four front legs except coxae, metaleg except coxa and femora fulvous ; in male head entirely black .....*S. scapeata*, sp. nov.

*Siobla punctata* Cameron, 1899

(Fig. 13,2,6,10)

*Siobla mooreana punctata* Malaise, 1945 : *Opus. Ent. Suppl* : 122.

**Female** : Average length : 11 mm. General colour of body black ; posterolateral aspects of pronotum sordid whitish. Fulvous are : four apical antennal segments more or less, labrum, 9<sup>th</sup> abdominal tergite, anterior aspects of four front legs except base of coxae, femora and metatarsi. Wings hyaline except infuscated apical margin upto proximal end of stigma. Stigma and venation dark brown to black.

Clypeus roundly truncate (Fig. 13) ; labrum convex with deflexed rounded anterior margin ; malar space 1.1 x diameter of an ocellus ; inner margins of eyes emarginate and slightly converging downwards ; LID : IDMO : EL = 1.5 : 3.0 : 2.3 ; OOL : POL : OCL = 1.0 : 0.75 : 1.0. Antenna longer than head and thorax combined ; 1<sup>st</sup> and 2<sup>nd</sup> antennal segments each longer than broad ; 3<sup>rd</sup> and 4<sup>th</sup> as 4 : 3 ; 4 to 9 slightly decreasing in length ; frontal area raised almost to level of eyes ; supraantennal tubercles moderately raised and confluent with frontal ridges ; median fovea broad and shallow with uneven bottom ; circum, inter and postocellar furrows sharp, lateral ones sunken, almost reaching hypothetical hind margin of head ; postocellar area as long as broad. Head carinated and converging behind eyes. Scutellum roundly raised with blunt apex. IATS : MB : OATS = 2.0 : 3.8 : 1.7.

Head on and around frontal area with dense minute but distinct punctures, surface between punctures less than the diameter of each puncture. Hind orbits covered with very fine and scattered punctures, area subshining. Mesonotum with minute, shallow and scattered punctures. Anterior slope of scutellum almost impunctate, smooth and shining, posterior slope with dense and deep punctures. Appendage impunctate. Mesepisternum densely rugosely punctured. Mesosternum covered with very fine, minute and shallow punctures. Metepisternum finely punctured along dorsolateral aspect. Abdomen impunctate shining. Body covered with silvery pubescence.

**Female lancet with 11 serrulae, as in figure.-2**

**Male** : Average length : 9.5 mm. Similar to female except following differences ; antenna may be entirely black, colour of both clypeus and labrum may be fulvous, scutellum may be partially to completely fulvous.

**Penis valve** Fig.—6**Gonoforceps** Fig.—10

**Specimens Examined** : 1♀, 16♂♂ Nagaland, Pfutsero, 2400 M, 18. V. 93, 2♀♀ Manipur, Ukhrul, 1700 M, 15.VI.94. 12♀♀ Meghalaya, Cheerapunji, 1470 M, 20.IV.94, 10♀♀ Uttar Pradesh, Mándal, 2500 M, 19. VI. 87, 24♂♂ Himachal Pradesh, Kalatop, 2400 M 22. VII. 82, 20♂♂ Himachal Pradesh, Kalatop, 2400 M 16.VI.84.

**Population Variation** : Males of this species exhibit considerable amount of variations as colour of four front legs except bases of coxae and a broad stripe on posterior aspect of femora, basal 3/5<sup>th</sup> of all tibiae and tarsii varies from fulvous to black and wings may be entirely infumated.

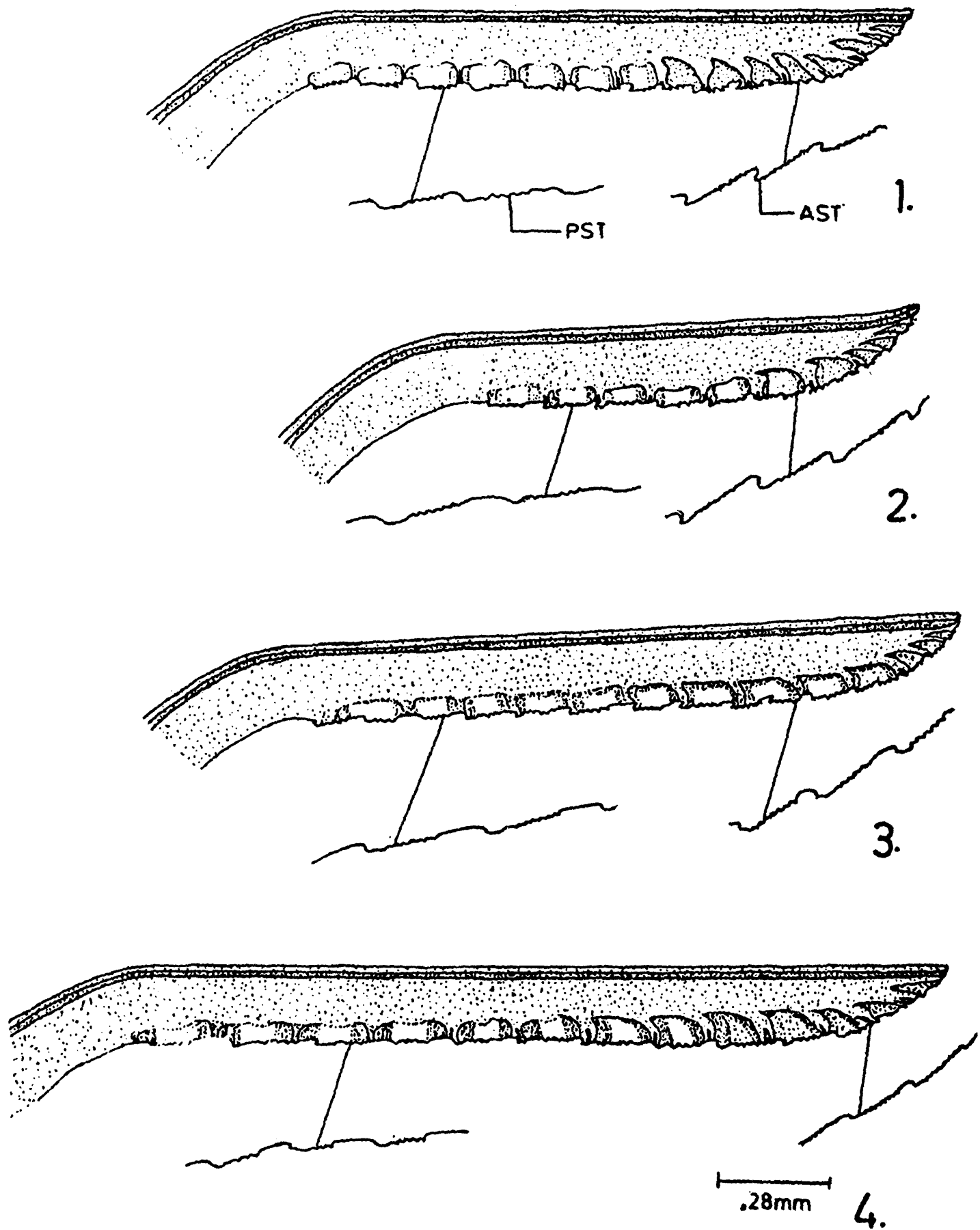
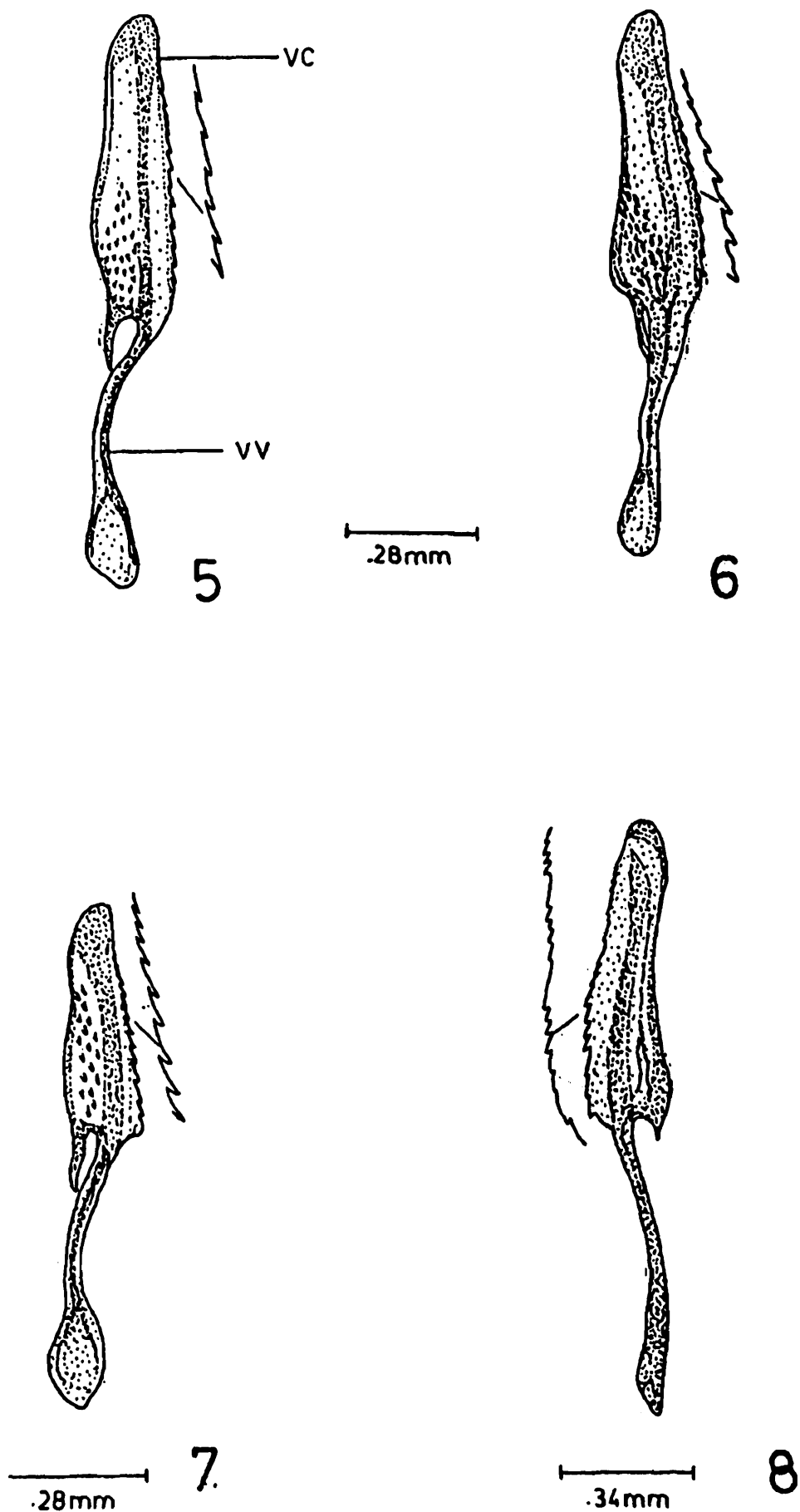
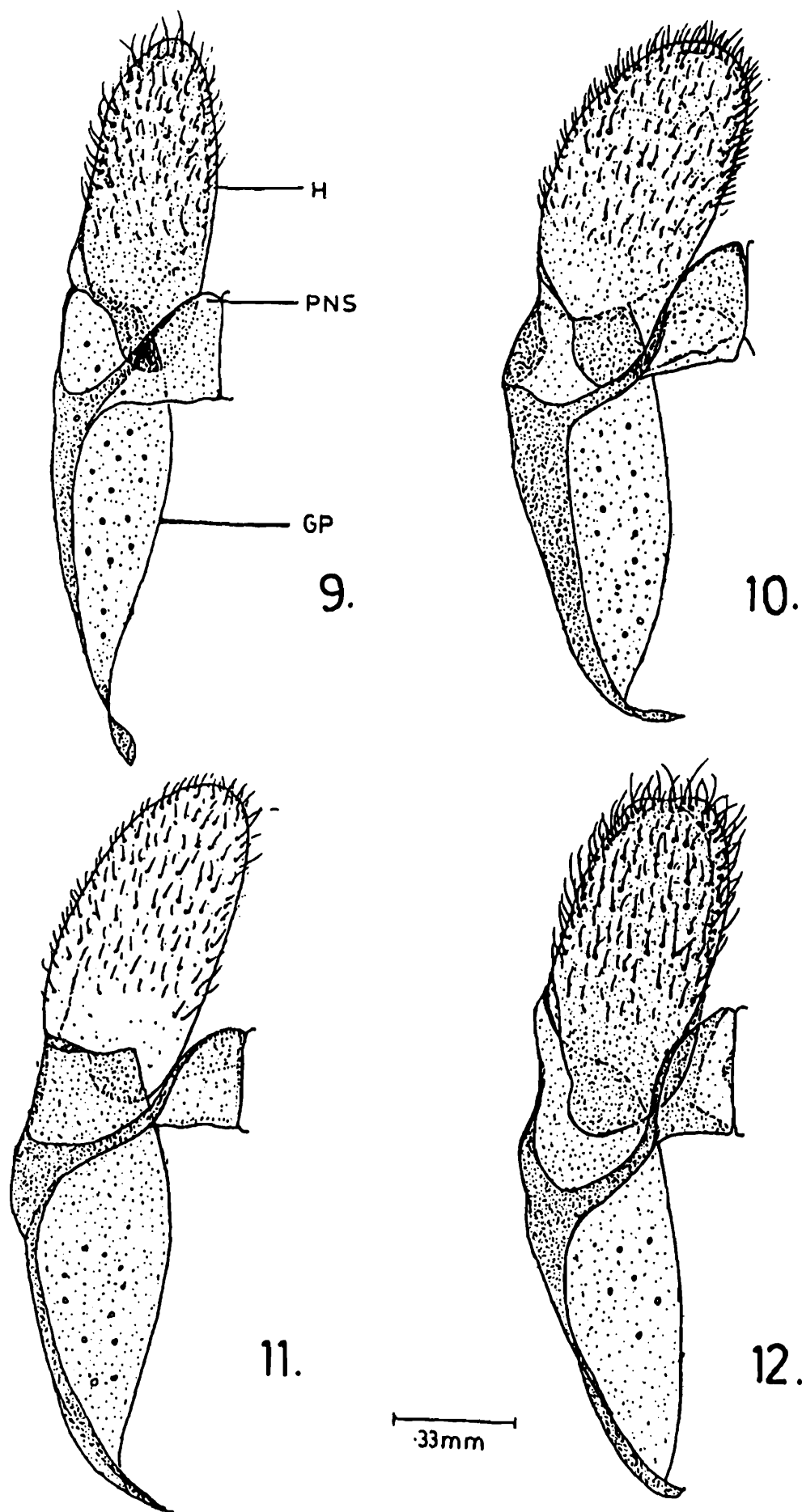


Fig. 1. Lancelet of *S. mooreana* ; Fig. 2. Lancelet of *S. punctata* ; Fig. 3. Lancelet of *S. harpeata* sp. nov. ;  
 Fig. 4. Lancelet of *S. scapeata* sp. nov.



**Fig. 5.** Penis valve of *S. mooreana* ; **Fig. 6.** Penis valve of *S. punctata* ; **Fig. 7.** Penis valve of *S. harpeata* sp. nov. ; **Fig. 8.** Penis valve of *S. scapeata* sp. nov.



**Fig. 9.** Gonoforceps of *S. mooreana* ; **Fig. 10.** Gonoforceps of *S. punctata* ; **Fig. 11.** Gonoforceps of *S. harpeata* sp. nov. ; **Fig. 12.** Gonoforceps of *S. scapeata* sp. nov.

**Discussion :** *S. punctata* Cameron 1899 was given the status of subspecies by Malaise, 1945 as *S. mooreana punctata* on basis of some male specimens only. Its female has been recorded for the first time and studies of its female and male external genitalia reveal considerable differences from the same of *S. mooreana* Cameron (1877). So its species status has again been restored.

***Siobla harpeata* sp. nov.**

(Fig. 13,3,7,10)

**Female :** Average length = 12 mm. General body colour black, reddish to fulvous are : inner aspect of scapus, 3 apical antennal segments more or less, mandible bases, clypeus, labrum, spot on hind orbits, posterolateral aspects of pronotum, basal half of tegula, meso and metascutellii, propodeum, 2<sup>nd</sup> and 3<sup>rd</sup> tergites with their deflexed sides, tip of 9<sup>th</sup> tergite entirely, 2-4 sternites, all legs except extreme distal margin of all coxae, trochanters, femur, tibia and tarsii. Wings yellowish hyaline, infumated upto proximal end of stigma. Stigma and rest of venation dark to black.

Clypeus roundly truncate (Fig. 13); labrum subconvex with a roundly pointed anterior margin; malar space 1.2 x diameter of an ocellus; inner margins of eyes emarginate and distinctly converging below; LID : IDMO : EL = 3.0 : 3.9 : 2.2, OOL : POL : OCL = 1.1. 0.75 : 1.0. Antenna slightly longer than head and thorax combined; 1<sup>st</sup> and 2<sup>nd</sup> antennal segments each longer than broad; length of 3<sup>rd</sup> and 4<sup>th</sup> as 2 : 1.1, 4 to 9 gradually decreasing in length. Frontal area slightly above level of eyes; supra antennal tubercles moderately elevated and confluent with low frontal ridges; median fovea broad, distinct with uneven bottom and divided into two parts by weak horizontal ridge; circum, inter and postocellar furrows sharp; lateral furrows distinct and outwardly curved, not reaching hypothetical hind margin of head; postocellar area convex, broader than long as 2:1.2. Head carinated and converging behind eyes. Scutellum convex. Appendage weakly carinated. IATS: MB : OATS = 2.0 : 3.6 : 1.7.

Head densely and minutely punctured. Mesonotum minutely, shallowly and sparsely punctured. Few large punctures on anterior slope of scutellum, its posterior slope and appendage impunctate. Mesepimeron and mesepisternum covered with large, shallow and almost confluent punctures. Propodeum and 1<sup>st</sup> two tergites punctured on lateral aspects, rest of the abdomen impunctate. Body covered with silvery pubescence.

**Female lancet with 15 serrulae, as in figure-3.**

**Male :** Average length-9.5 mm. Similar to female except following differences : meso and metascutellar appendages, 2<sup>nd</sup> and 3<sup>rd</sup> tergites except a median dirty patch, crescent shaped extreme anterior margin of 4<sup>th</sup> tergite, all legs except for coxae, metafemur and apical 1/3<sup>rd</sup> of metatibia, whitish. Head and thorax covered with comparatively minute and dense punctures.

**Penis valve** — Fig. 7

**Gonoforceps** — Fig. 10

**Holotype :** Female, Sikkim, Gangtok, 1700M, 14.V.93

**Paratypes :** 1♀ with same locality as of holotype, 1♀ Manipur, Ukhrul, 1700 M, 22.V.93,

3 ♂♂ Nagaland, Pfutsero, 2100 M, 20.V.93, 3 ♂♂ Arunachal Pradesh, Lazu (Khonsa) 2299 M, 6.V.94.

**Population Variation :** In some specimens black colour on abdomen covering more or less basal tergites.

**Discussion :** *S. harpeata* sp. nov. runs in Malaise's key of S.E. Asia (1945) upto couplet 13, but does not tally with *S. turneri* Malaise (1932), keyed out there. This species goes close to *S. bengalensis* Saini *et al.*, 1985, *S. darjeelingia* Saini *et al.*, 1985, but can be easily distinguished from them on the basis of puncturation of head and thorax.

**Etymology :** The species name *S. harpeata* is based on harpe (Gonoforceps), which has a strikingly different, light yellowish colour as compared to other known species of *Siobla*, which have dark brown colour.

*Siobla scapeata* sp. nov.

(Fig. 14,4,8,12)

**Female :** Average length-11.5 mm. Body black, reddish to dark brown are : scapus, 4 apical antennal segments, mandibles barring apex, labrum, clypeus, spot covering supraclypeal area, lower inner orbits, hind orbits extending upto temples and covering post-ocellar area, pronotum, lateral sides of mesonotal middle lobe meeting at apex, postero-lateral depressed sides of mesonotum, rectangular spot before scutellum, appendage, metanotum, nebulous spot on convexity of mesepisternum, propodeum except small spots on its deflexed sides, 2<sup>nd</sup> and 3<sup>rd</sup> tergites except their narrow posterior margin triangularly widened in middle ; 9<sup>th</sup> abdominal tergite, 2<sup>nd</sup> sternite more or less, extreme apices of all coxae & rest of legs entirely except metafemur. Wings yellowish hyaline, apical 1/3<sup>rd</sup> subinfuscated without any sharp limit. Stigma and venation dark brown to black.

Clypeus truncate with irregular anterior margin and a shallow median notch (Fig. 14) ; labrum subconvex with semicircular rounded anterior margin ; supra clypeal area triangularly raised

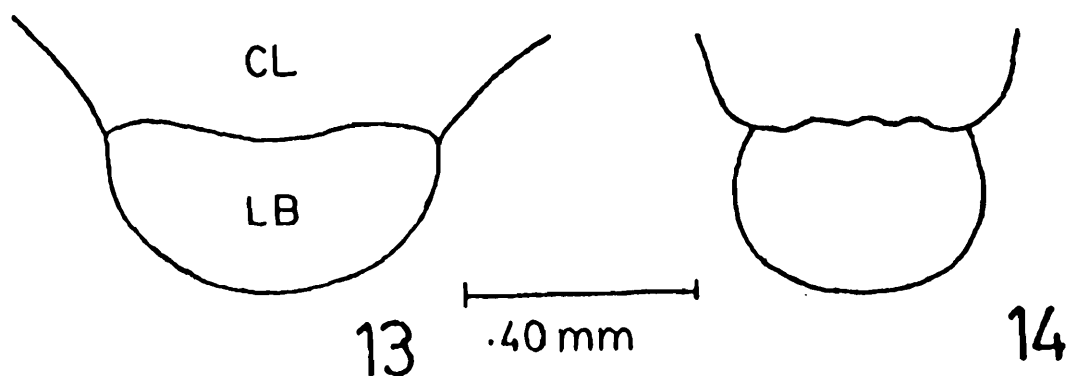


Fig. 13. Typical Clypeus of Genus *Siobla* ; Fig. 14. Clypeus of *S. scapeata* sp. nov.

without any carina ; malar space equal to diameter of an ocellus ; inner margins of eyes emarginate and distinctly converging below ; LID : IDMO : EL = 3.0 : 4.0 : 2.4 ; OOL ; POL : OCL



= 2.0 : 1.0 : 1.1. Antenna as long as head and thorax combined, 1<sup>st</sup> segment as long as broad ; 2<sup>nd</sup> longer than broad ; length of 3<sup>rd</sup> and 4<sup>th</sup> as 2.0 : 1.1 ; 4 to 6 gradually decreasing in length ; 7 to 9 almost equal in length ; frontal area almost at level of eyes ; supraantennal tubercles elevated and confluent with slightly low frontal ridges ; median fovea deep in its anterior half and shallowly extending up to median ocellus in its posterior half ; circum, inter- and postocellar furrows sharp ; lateral furrows distinct almost reaching hypothetical hind margin of head ; postocellar area subconvex. broader than long as 6 : 5. Head carinated and converging behind eyes. Scutellum subconvex roundly raised. Appendage distinctly carinated in its anterior half. IATS : MB : OATS = 2.0 : 4.0 : 1.6.

Head covered with dense, minute, distinct, but shallow punctures. Mesonotum uniformly punctured. Scutellum with scattered and distinct punctures on its anterior slope, whereas its posterior slope with minute and dense punctures. Appendage almost impunctate. Mesepisternum and mesosternum with minute and shallow punctures. Propodeum with few punctures on its lateral aspects, remaining tergites almost impunctate shining. Body covered with silvery to golden pubescence.

#### **Female lancet with 17 serrulae as in figure-4**

**Male :** Average length –9.5 mm. Similar to female except following differences : antenna except 5 apical segments, clypeus, head, thorax and all abdominal tergites excepting 2<sup>nd</sup>, entirely black. Wings uniformly infumated.

**Penis valve** — Fig. 8

**Gonoforceps** — Fig. 12

**Holotype :** Female, Uttar Pradesh, Mukteshwar, 2288 M, 20.VI.91.

**Paratypes :** 24♂♂, Uttar Pradesh, Mandal, 2500 M, 19.VI. 87, 10♂♂, Himachal Pradesh, Kalatop, 2400 M, 28.VI.86, 1 ♀ Uttar Pradesh, Mukteshwar, 2288 M, 20.VI.91. 4♂♂ Uttar Pradesh, Binayak, 2225 M, 22.VI.91. 2♀♀ Uttar Pradesh, Chopta, 3000 M, 25. VI. 92.

**Population Variation :** In some specimens thorax and all abdominal tergites may be black.

### DISCUSSION

*S. scapeata* sp. nov. shows remarkable differences from other known species of this genus, as its scapus is as long as broad (While in others known species it is longer than broad) and clypeus truncate with irregular anterior margin, Fig. –14 (in others it is truncate with rounded anterior margin, Fig. –13). Comparatively, it is close to *S. harpeata* sp. nov., but can be differentiated from it on the basis of following combination of characters : In *S. scapeata* sp. nov. pedicellus fulvous (black in *S. harpeata* sp. nov.), in *S. scapeata* sp. nov. broad frontal spot covering inner & hind orbits, temples & postocellar area (head entirely black in *S. harpeata* sp. nov.) ; in *S. scapeata* sp. nov. antenna as long as head and thorax combined (in *S. harpeata* sp. nov. antenna longer than head and thorax combined).

## ETYMOLOGY

Species name *S. scapeata* sp. nov. pertains to its unique scapus, which is as long as broad.

## SUMMARY

The genus *Siobla* Cameron is represented by eight species from India. In addition *S. harpeata*, sp. nov. and *S. scapeata* sp. nov. are described now from India. *S. mooreana punctata* Malaise (1945) now has been raised to species level, on the basis of more distinct morphological differences. A revised key for Indian species of this genus is provided.

## ACKNOWLEDGEMENTS

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