

ON SOME ASILIDAE (DIPTERA) PRESENT IN THE B.P.
BISHOP MUSEUM, HONOLULU III

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INTRODUCTION

It is the third and last lot of asilids from India and Nepal received on loan for study through the courtesy of Dr. Neal L. Evenhuis, Associate Entomologist, B.P. Bishop Museum, Honolulu, Hawaii, 96819. A new species, *Philodicus indicus*, described is based also on the material from the Zoological Survey of India, Calcutta. The arrangement of genera followed in this paper is after "A Review of the Asilidae (Diptera) from the Oriental Region" by Joseph and Parui (1984).

Types are deposited in the B.P. Bishop Museum, Honolulu, and in the Zoological Survey of India, Calcutta.

Leptogaster Meigen

1803. *Leptogaster* Meigen, *Magazin insektkde*, 2 : 269.

1. **Leptogaster albimana** Walker

1859. *Leptogaster albimana* Walker, *J. Linn. Soc. London*, 3 : 89.

Material examined: 1 Male, India, Kerala, Trivandrum District, Poonmudi Range, 900 m., iv-v. 1971, Coll. P.S. Nathan.

Remarks: The species was originally described from "India" (Walker, 1859).

Lobus Martin

1972. *Lobus* Martin, *J. Kansas ent. Soc.*, 45(1) : 8.

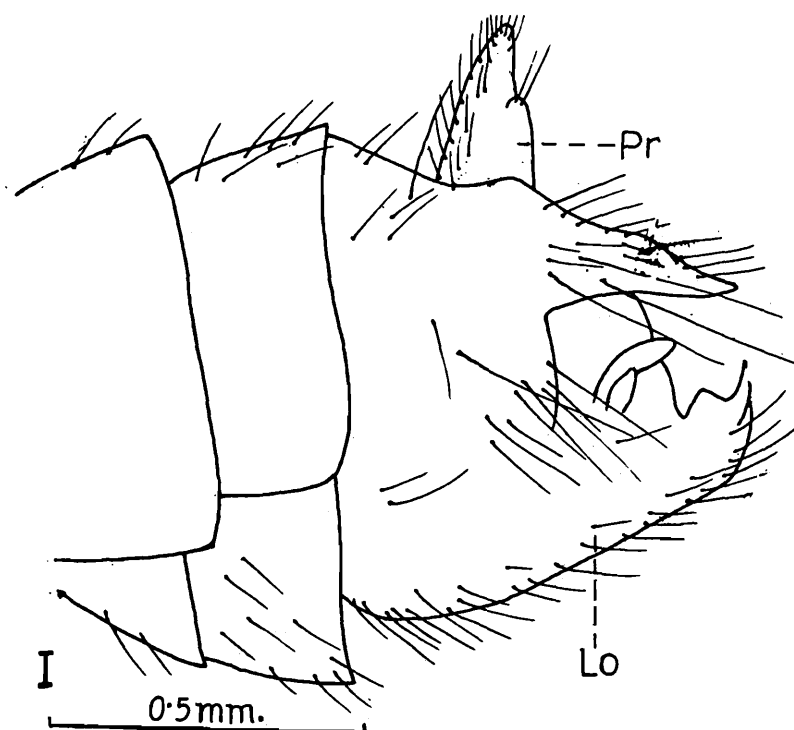
2. **Lobus evenhuisi** sp. nov.

(Fig. 1)

A slender black species with dark brown and yellowish-brown legs, brown wings and black with grey tomentose abdomen. Male: length 11 mm, wing 7 mm.

Male: Head black with grey and greyish-yellow tomentum; gibbosity indistinct, mystax white and arranged in transverse row on mouth border, frontal vitta slightly raised and golden yellow, postcranium black with greyish-white tomentum posterolaterally, hairs black above and white below. Antennae broken with flagellum and style absent, scape and pedicel dark brown, scape with 1 and pedicel with few black bristles, pedicel slightly longer than scape. Palpi and proboscis black, former black haired, latter bare.

Thorax black, greyish-white tomentose; pronotum rather densely greyish-white tomentose, bare; scutum shining black, vestiture black leaving mediolongitudinal bare stripe; 2 supra-alar bristles present; scutellum black, grey tomentose, scutellar disc with few black hairs, hind border with rather dense black hairs, without bristles; pleura grey tomentose, mesopleuron and sternopleuron anteriorly bearing dense white hairs. Halteres pale yellow.



1. *Lobus evenhuisi* sp. nov., lateral view of male genitalia.

Legs dark brown and yellowish-brown, fore and mid femora dark brown with basal and apical yellowish-brown marks, yellowish-brown more in mid femur, hind femur yellowish-brown nearly half length; fore and mid tibiae dark brown and yellowish-brown particoloured to varying extent, hind tibia yellowish-brown with apical third dark brown, tarsus dark brown, but basitarsus to varying extent yellowish-brown, vestiture predominantly white, bristles black.

Wings uniformly brown.

Abdomen black with grey tomentum, tergite 2 medially and distally, tergites 3 and 4 both anteriorly and posteriorly, and tergite 5 posteriorly with transverse band of grey tomentum, tergites 1 and 2 laterally with black and pale yellow hairs. Male genitalia (Fig. 1) black with pale yellow hairs predominant.

According to the key to *Lobus* Martin by Joseph and Parui (1984) it runs to *L. martini* Joseph and Parui, from which it differs in larger size, predominantly dark brown legs, uniformly brown wings, and in details of male genitalia, especially epandrium.

Holotype Male, S. India, Madras (Tamil Nadu), Anamalai Hills, Cinchona, 1067 m, v. 1956, Coll. P.S. Nathan.

Laphria Meigen

1803. *Laphria* Meigen, *Magazin insektkde*, 2 : 270.

3. *Laphria nathani* Joseph and Parui

1981. *Laphria nathani* Joseph and Parui, *Ent. Scand.*, 12 : 217.

Material examined: 1 Male, Kerala, Calicut District, Chembra Peak Area, 1067 m., v. 1970, Coll. T.R.S. Nathan.

Remarks: This species is so far recorded from Kerala and Karnataka.

Cyrtopogon Loew

1847. *Cyrtopogon* Loew, *Linn. Ent.*, 2 : 516.

4. *Cyrtopogon laphrides* Walker

1851. *Cyrtopogon laphrides* Walker, *Insecta Saundersiana*, 1:99.

Material examined: 1 Male, 3 Females, Nepal, Langtong Valley, 60 km. N. of Katmandu, 2700 m., 13-25. x. 1965, Coll. L.V. Gupta.

Remarks: This is reported for the second time from Nepal.

Microstylum Macquart

1838. *Microstylum* Macquart, *Dipt. exot.* 1(2) : 26.

5. *Microstylum ananthakrishnani* Joseph and Parui

1984. *Microstylum ananthakrishnani* Joseph and Parui, *Ent. Scand.*, 15 : 449.

Material examined: 1 Male, India, Kerala, Trivandrum District, Poonmudi Range, 900 m., iv - v. 1971, Coll. P.S. Nathan.

Remarks: So far the species is recorded only from Kerala.

6. *Microstylum apicale* (Wiedemann)

1821. *Dasyogon apicale* Wiedemann, *Dipt. exot.*, 216.

1975. *Microstylum apicale* (Wiedemann): Oldroyd, *A catalog of Diptera of the Oriental Region*, 2 : 119.

Material examined: 2 Females, India, West Bengal, Sukna, 55 km. S. of Darjeeling, V. 1966, Coll. J & M. Sedlacek.

Remarks: It is originally described from 'Bengal'.

Neolaparus Williston

1889. *Neolaparus* Williston, *Psyche*, 5 : 525.

7. *Neolaparus volcatus* (Walker)

1849. *Dasyogon volcatus* Walker, *List Dipt. Colln. Br. Mus.*, 2 : 346.

1975. *Neolaparus volcatus* (Walker): Oldroyd, *A Catalog of Diptera of the Oriental Region*, 2 : 122; details of synonymy given by Oldroyd, 1975.

Material examined: 1 Male, India, Kerala, Trivandrum District, Poonmudi Range, 900 m., iv - v. 1971, Coll. P.S. Nathan.

Remarks: This is the first record of the species from Kerala.

Saropogon Loew

1847. *Saropogon* Loew, *Linn. Ent.*, 2 : 439.

8. *Saropogon hulli* Joseph and Parui

1981. *Saropogon hulli* Joseph and Parui, *Oriental Ins.*, 15 : 27.

Material examined: 1 Male, India, Kerala, Anaimalai Hills, Cinchona, 1067 m., v. 1959, Coll. P.S. Nathan.

Remarks: So far the species has been recorded only from Kerala.

Scylaticus Loew

1858. *Scylaticus* Loew, *Ofvers. K. svenska Vet. -Akad. Forh.*, 14 : 346.

9. *Scylaticus indicus* Bromley

1939. *Scylaticus indicus* Bromley, *Indian J. Agric. Sic.*, 8 (6):864.

Material examined: 2 Males, India, Kerala, Calicut District, Chembra Peak Area, 1067 m., v.1970, Coll. T.R.S. Nathan.

Remarks: The species was described from Tamil Nadu. Here it is recorded for the first time from Kerala.

***Stenopogon* Loew**

1847. *Stenopogon* Loew, *Linn. Ent.*, 2 : 453.

10. *Stenopogon kherai* Joseph and Parui

1976. *Stenopogon kherai* Joseph and Parui, *Ent., Scand.*, 7 :105.

Material examined: i Male, India, Kerala, Anaimalai Hills, Cinchona, 1067 m., v.1959, Coll. P.S. Nathan. i Female, Nepal, Kathmandu, 1300 - 1400 m., 7-12.v. 1966, Coll. J & M. Sedlacek.

Remarks: It is recorded for the first time from outside India.

***Trigonomima* Enderlein**

1914. *Trigonomima* Enderlein, *Wien. ent. Ztg.*, 33 : 164.

11. *Trigonomima anamaliensis* Joseph and Parui

1980. *Trigonomima anamaliensis* Joseph and Parui, *Bull. zool. Surv. India*, 2 (2 & 3) : 197.

Material examined: 1 Male, India, Kerala, Anamalai Hills, Cinchona, 1067 m., v. 1959, Coll. P.S. Nathan.

Remarks: So far the species is reported only from South India.

***Damalis* Fabricius**

1805. *Damalis* Fabricius, *systema antliatorum*, : 147.

12. *Demalis cederholmi* (Joseph and Parui) new combination

1984. *Xenomyza cederholmi* Joseph and Parui, *Ent. Scand.*, 15:448.

Material examined: 1 Female, India, Kerala, Trivandrum District, Poonmudi Range, 900m., iv -v. 1971, Coll. P.S.Nathan.

Remarks: So far the species has been recorded only from Kerala.

13. *Damalis dravidica* (Joseph and Parui) new combination

1984. *Xenomyza dravidica* Joseph and Parui, *Ent. Scand.* **15** : 441.

Material examined: 1 Female, India, Kerala, Calicut district, Chembra Peak Area, 1067 m., v. 1970, Coll. T.R.S. Nathan.

Remarks: So far the species has been recorded only from Kerala.

14. *Damalis fusca* Walker

1849. *Damalis fusca* Walker, *List. Dipt. Colln. Br. Mus.*, **2** : 481.

1975. *Damalis fusca* : Joseph and Parui, *Insecta : Asilidae (Diptera) Fauna of West Bengal State Series* (in press)

Material examined: 1 Male, 1 Female, India, Pondechery, Karaikal, viii.1970, Coll. P.S. Nathan; 2 Males, 1 Female, Kerala, Trivandrum District, Poonmudi Range, 900 m., iv - v. 1971, Coll. P.S. Nathan.

Remarks: The species was described from N. Bengal, it is the first record from Kerala.

Michotamia Macquart

1838. *Michotamia* Macquart, *Dipt. exot.* **1** (2) : 72.

15. *Michotamia aurata* (Fabricius)

1794. *Asilus aurata* Fabricius, *Ent. Syst.* **4** : 387.

1975. *Michotamia aurata* (Fabricius) : Oldroyd, *A catalog of Diptera of the Oriental Region*, **2** : 130.

Material examined: 1 Female, India, Pondichery, Karaikal, xi.1961, Coll. P.S. Nathan; 1 Female, Kerala, Calicut District, Chembra Peak Area, v. 1970, Coll. T.R.S. Nathan.

Remarks: It is widely distributed in India.

Ommatius Wiedemann

1821. *Ommatius* Wiedemann, *Dipt. exot.*, 213.

5. *Ommatius minor* Doleschall

1857. *Ommatius minor* Doleschall, *Natuurk. Tijdschr. ned.-Indie*, 14 : 395.

Material examined: 1 Male, India, Kerala, Calicut District, Chembra Peak Area, 1067 m., v. 1970, Coll. T.R.S. Nathan.

Remarks: For distributional records, please refer Joseph and Pauri (in press).

17. *Ommatius tuberculatus* Joseph and Parui

1983. *Ommatius tuberculatus* Joseph and Parui, *Ent. Scand.* 14 : 87.

Material examined: 2 Females, India, Kerala, Anailamai Hills, Cinchona, 1067 m., v. 1956, Coll. P.S. Nathan; 1 Male, 11 Females, v. 1959, and 9 Females, v. 1970, other details as in preceding.

Remarks: It is a common species in Kerala.

Astochia Becker

1913. *Astochia* Becker, *Ann. Mus. Zool. Acad. St. Petersburg*, 17 : 538.

18. *Astochia philus* (Walker)

1849. *Asilus philus* Walker, *List. Dipt. Colln. Br. Mus.* 2 : 393.

1975. *Astochia philus* (Walker): Oldroyd, *A Catalogue of Diptera of Oriental Region*, 2 : 139.

Material examined: 1 Female, Nepal, Kathmandu, 1300-1400 m., 7-12.v. 1966, Coll. J & M. Sedlacek.

Remarks: This is the first record of the species from Nepal.

Clephroneura Becker

1925. *Clephroneura* Becker, *Ent. Mitt.*, 14 : 68.

19. *Clephroneura mudigorensis* Joseph and Parui

1984. *Clephroneura mudigorensis* Joseph and Parui, *Rec. zool. Surv. India*, Occ. paper No.66: 14.

Material examined: 2 Males, India, Pondichery, Karikal, ii-iv. 1971, Coll. P.S. Nathan.

Remarks: So far the species has been recorded only from South India.

20. Clephyroneura pulla Oldroyd

1938. *Clephyroneura pulla* Oldroyd, *Ann. Mag. nat. Hist.*, (11)1 : 467.

Material examined: 1 Male, India, Tamil Nadu, Coimbatore, 420 m, x. 69, Coll. T.R.S. Nathan.

Remarks: Hitherto recorded only from South India.

21. Clephyroneura wilcoxi Joseph and Parui

1979. *Clephyroneura wilcoxi* Joseph and Parui, 1979, *Ent. Scand.*, 10 : 35.

Material examined: 1 Male, India, Tamil Nadu, Coimbatore, 420m., xi. 1967, Coll. P.S. Nathan.

Remarks: This species has so far been reported from South India.

Machimus Loew

1849. *Machimus* Loew, *Linn. Ent.*, 4 : 1.

22. Machimus hirtipes Ricardo

1919. *Machimus hirtipes* Ricardo, *Ann. Mag. nat. Hist.*, (9) 3 : 49.

Material examined: 1 Male, India, Kerala, Calicut district, Chembra Peak Area, 1067 m., v. 1970, Coll. T.R.S. Nathan.

Remarks: This is the first record of the species from Kerala. It has already been recorded from Tamil Nadu and West Bengal, other than its type locality Assam (Joseph and Parui, in press).

Philodicus Loew

1848. *Philodicus* Loew, *Linn. Ent.*, 3 : 991.

23. Philodicus indicus sp. nov.

(Fig. 2)

A medium black species with sparse grey tomentum, white mystax, black legs, and light brown and grey wings. Male: length 19-22 mm, wing 13-14 mm; female: length 22-24 mm, wing 14-15 mm.

Males: *Head* narrower than thorax, black, grey or greyish-yellow tomentose; mystax white; fronto-orbital plate with black and white bristles, ocellar bristles black, postocular bristles black and confined to above, postcranium white haired, postgena with dense white hairs. Antennae black with brown arista, scape and pedicel with black bristles, scape about 1 to 2 times length of pedicel, first flagellomere slightly shorter than scape. Palpi and proboscis black, both white haired.

Thorax black, grey or greyish-yellow tomentose; pronotum with transverse row of black bristles, laterally with dense white hairs; scutum with mediolongitudinal black stripe divided by narrow grey or greyish-yellow stripe, stripe extends from anterior border to more than four-fifths distance, laterally with 3 black spots in longitudinal row; chaetotaxy: 2 - 3 dorsocentral anterior to scutoscuteellar suture, 1 intra-alar, 1 supra-alar, 2 notopleural, 2 postalar; vestiture and bristles black; scutellar disc black or white haired or mixed with both, hind border with 4 black bristles and 2 thin, long, median, bristly black hairs, metapleuron with yellow or white bristly hairs, often also with some black ones, hypopleuron with white or mixed white and black bristly hairs. Halteres brown with occasional dark brown marking on head.

Legs black, mid and hind femora with anteroventral row of black bristles, vestiture white, bristles black, fore tibia and tarsus anteriorly with mat of golden yellow hairs, in hind tibia and tarsus similar hairs present posteriorly.

Wings light brown but basally nearly hyaline, submarginal cell mostly, and marginal and first posterior cells partly grey.

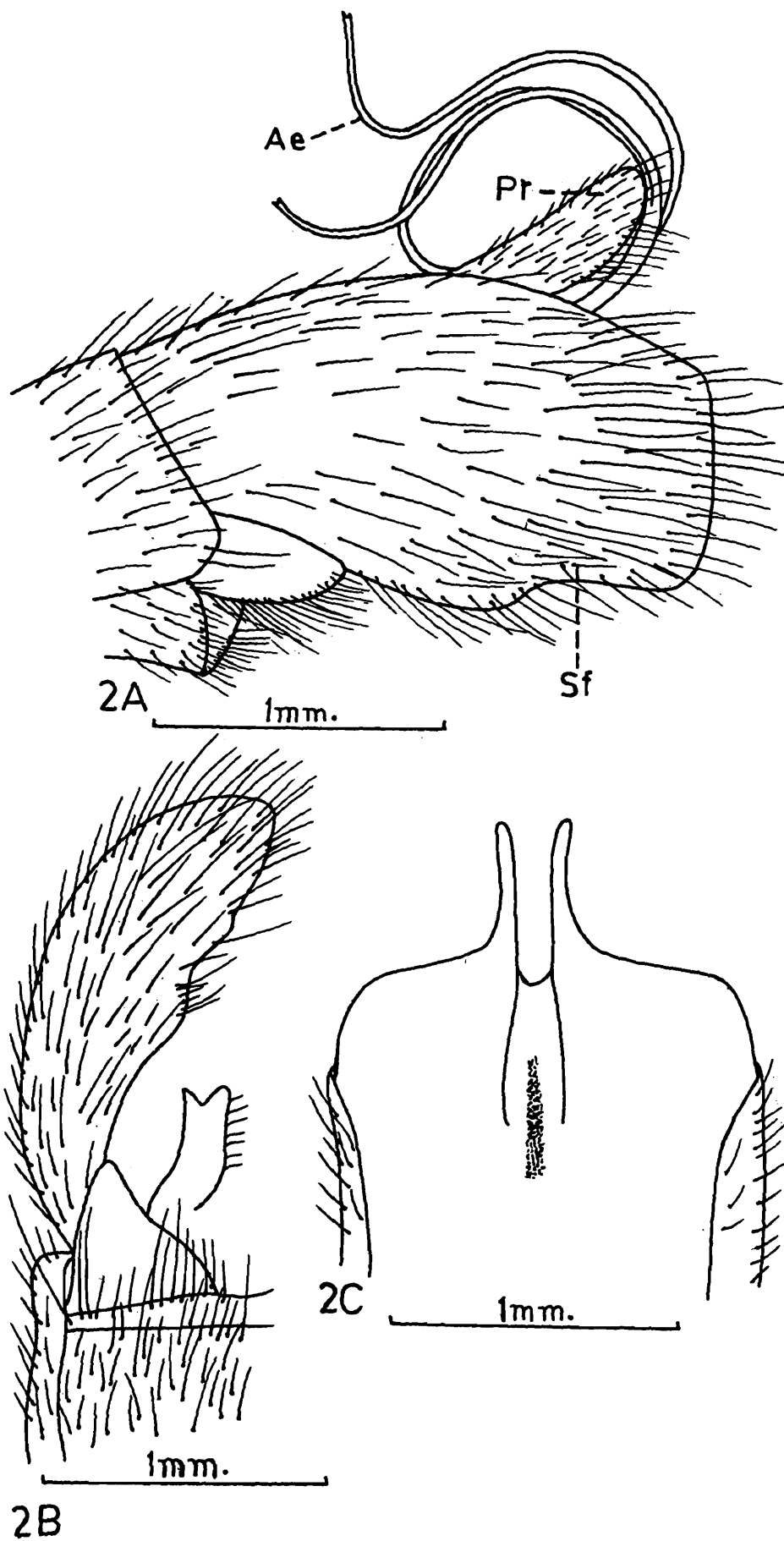
Abdomen black, grey tomentose, tergite 1 mostly grey tomentose, tergites 2-5 laterally and posterior border grey tomentose while rest black, tergite 6 laterally grey tomentose and remaining black, tergites 7 and 8 completely black, tergite 1 laterally with dense white hairs amidst which few black bristles, tergite 2 with few lateral black bristles both anteriorly posteriorly, tergites 3 and 4 with 3 or more black bristles posterolaterally, vestiture white and black. Male genitalia (Fig. 2 A, B) black with black and white hairs.

Females: Similar but with the following differences in the paratype from Mahe: the central bristly hairs on hind margin of scutellum white; genitalia (Fig. 2 C) black, ninth tergite with 8 spines.

It is similar to *Philodicus chinensis* Schiner but different from this and all the other known Indian species of the genus by the distinctive eighth sternite of female.

Holotype Male, ZSI Reg. No. 7407/H6, Maharashtra: Ratnagiri Sea Shore, 10. vii. 1981, Coll. P. Parui.

Paratypes 4 Males, 1 Female, ZSI Reg. Nos. 7408/H6 to 7412/H6, details as in holotype except 1 male type which is collected by P. Parui and P. H. Roy; all of these and holotype



Philodicus indicus sp. nov., A, lateral view of male genitalia; B, ventral view of male genitalia; C, ventral view of eighth sternite of female.

in ZSI. 1 ♂ in the Bishop Mus. Colln. with the following details: South India: Mahe, x. 1973, Coll. T.R.S. Nathan.

24. *Philodicus londti* sp. nov.
(Fig. 3)

A medium black species with black legs and brown wings. Male: length 15 mm, wing 9 mm; female: length 17-21 mm, wing 9-14 mm.

Male: Head narrower than thorax, black with dense grey and greyish-yellow tomentum; mystax white; fronto-orbital plate with black hairs and bristles, ocellar bristles black, postocular bristles black, postcranium with few black hairs above and remaining white haired, postgena white haired. Antennae black, scape and pedicel with black bristles, pedicel long and only slightly shorter than scape, segment 3 about 1.5 times the length of scape. Palpi and proboscis black, both white haired.

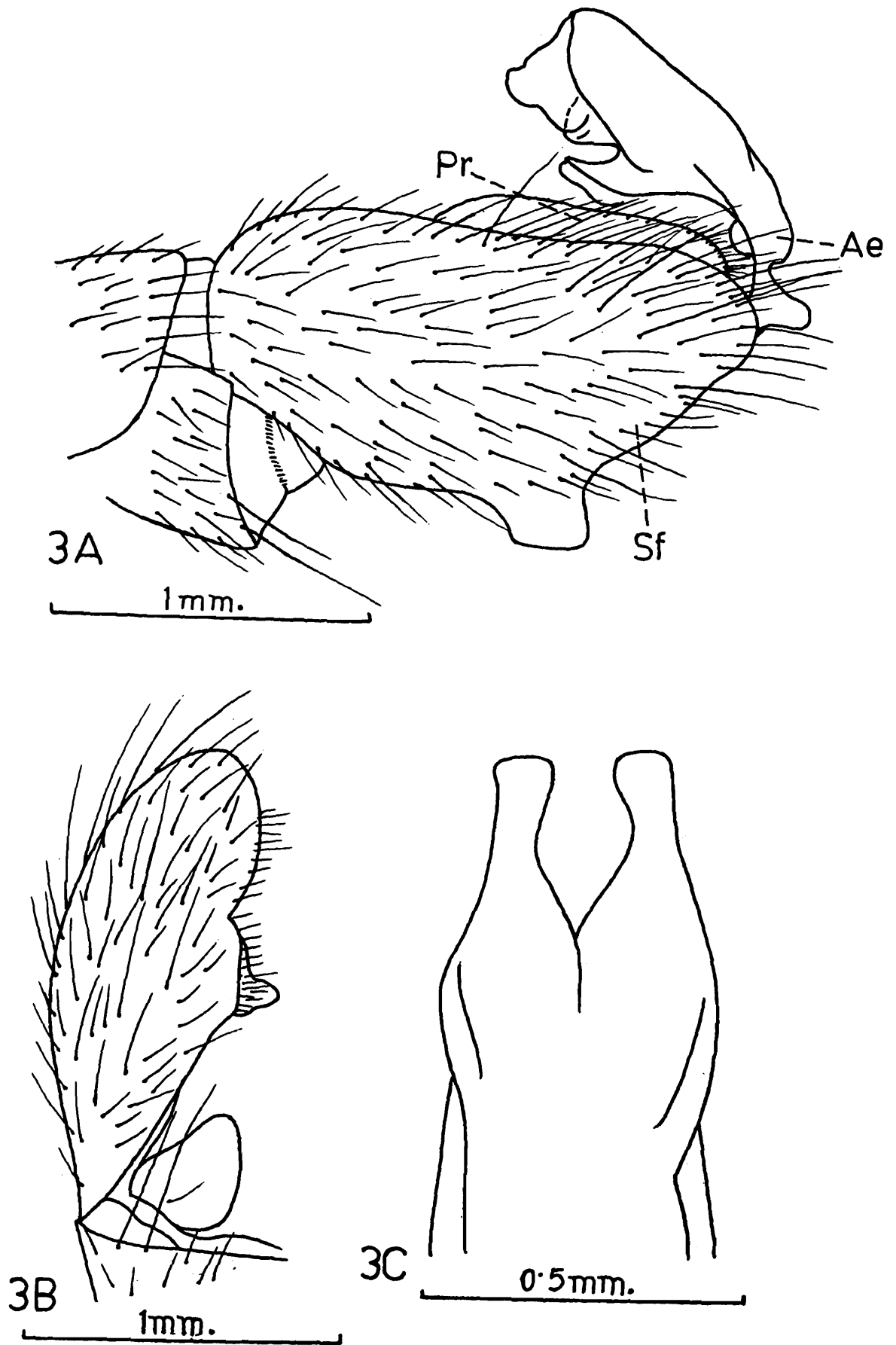
Thorax black with grey and greyish-yellow tomentum, pronotum with transverse row of black bristles, laterally with few short black hairs and some medium sized white hairs; scutum with mediolongitudinal black stripe extending from anterior border to near hind border, which is divided by greyish-yellow stripe, latter gradually narrows from front to behind, laterally with 3 black spots in longitudinal row; chaetotaxy: 2 dorso-central anterior to scutosutellar suture, 1 intra-alar, 1 supra-alar, 2 notopleural, 2 postalar; vestiture and bristles black; scutellar disc black haired, hind border with pair of black bristles; metapleuron with 2 black bristles. Halteres pale yellow with dark brown marking on head.

Legs black, mid and hind femora with anteroventral and postero-ventral rows of bristles which are poorly developed in former, vestiture white and bristles black, fore tibia and tarsus anteroventrally and hind tibia and tarsus posteriorly with mat of golden yellow hairs.

Wings brown, but medially and basally hyaline.

Abdomen black with sparse grey tomentum, tergites posteriorly light grey tomentose, tergite 1 posterolaterally white haired and mixed with few pale yellow bristles, tergite 2 with 1 black bristle laterally above middle, tergites 2-5 posterolaterally with 1 or 2 white bristles, vestiture black and white. Male genitalia (Fig. 3 A, B) black, greyish-yellow tomentose and predominantly black hairs.

Females: Similar but with the following differences: mystax white and black or wholly black, third antennal segment comparatively longer; chaetotaxy: 2-3 dorsocentral, metapleuron with 2 or more black bristles; mid femur with poorly developed anteroventral and posteroventral bristles; brown colour of wing more extensive, abdomen with grey tomentum distinct in some examples, bristles on abdomen black and white. Genitalia (Fig. 3 C) black, spines on ninth tergite very short, their number quite variable and in more than 1 row.



3. *Philodicus londti* sp. nov., A, lateral view of male genitalia; B, ventral view of male genitalia; C, ventral view of eighth sternite of female.

Philodicus londti sp. nov. is quite similar *P. univentris* (Walker) from which it differs in the shape of epandrium, especially ventrally, as well as in the shape of eighth sternite of female. It is named in honour of Dr. J.G.H. Londt, the distinguished student of Afrotropical Asilidae.

Holotype Male, S. India: Kerala State: Calicut District: Chembra Peak Area, 1067 m., v. 1970, Coll. T.R.S. Nathan.

Paratypes : 8 Female, data as in holotype.

25. *Philodicus raoi* Joseph and Parui

Philodicus raoi Joseph and Parui, *Rec. zool. Surv. India* (in press).

Material examined : 7 Males, 7 Females, India, Thar Desert, Banmuel, 1.vii. 1955, Coll. P.S. Nathan.

Remarks : It is also from the type locality.

SUMMARY

This paper reports 25 species of 16 genera of Asilidae from India and Nepal. Of these three species are new: *Lobus evenhuisi*, *Philodicus indicus* and *P. londti*.

ACKNOWLEDGEMENTS

Our heartfelt thanks are due to Dr. Neal L. Evenhuis, Associate Entomologist of B.P. Bishop Museum, Honolulu, Hawaii, for loaning the specimens dealt with in this paper. Our gratitude is also due to the Director, Zoological Survey of India, Calcutta, for laboratory facilities.

ABBREVIATIONS Ae, aedeagus; Lo, lobos; Pr, proctiger, Sf, superior forceps (epandrium).

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