

## ON A COLLECTION OF BOMBYLIIDAE (DIPTERA) FROM INDIA AND PAKISTAN

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### INTRODUCTION

In course of arranging family-wise the large dipterous collections of various old surveys present in the Diptera Section of the Zoological Survey of India, 97 examples of bombyliid flies were sorted out. These include specimens from different parts of India and Pakistan. Some of these specimens are affected by the silt deposition of flood of the River Varuna in Varanasi in 1943 (but not damaged and properly cleaned for study). The present collection represents 22 species in 8 genera of 2 subfamilies. Two species from India and one species from Pakistan are described as new, one species is recorded for the first time from India, and a several species have extended their range into different Indian provinces from their previous distributional records. After the publication of 'Fauna' by Brunetti (1920), Nurse (1922) described 7 species and Kapoor *et al.* (1978) described 5 species from India. Recently Zaitzev (1988 a, b, c) described 9 species from India and 6 species from Sri Lanka, and recorded 2 species from the Indian part, totalling the Indian species to 118. He (1988 a) also provided key to a group of *Exoprosopa* Macquart species from India and Sri Lanka. With the description of 2 new species and record of 1 species from the Indian part the number of Indian bombyliid species now stands 121. The 'types' of all the new species are deposited in the Zoological Survey of India, Calcutta.

The Bombyliidae or bee-flies are predominatly present in arid and semi-arid parts of the World (Bowden, 1975). The adults feed on nectar and pollen grain of flowers, and are of importance as they help to a certain extent in pollination. The larvae of bombyliids are known to be parasitic on larvae or pupae of other endopterygote insects viz., Lepidoptera, Hymenoptera, Diptera and Coleoptera, or predacious on egg pods of acridids (Orthoptera). The adults are commonly found in dry areas, or sandy woodlands and less commonly occur in the wet forested areas.

### SYSTEMATIC ACCOUNT

#### Subfamily BOMBYLIINAE

##### 1. *Bombylius ardens* Walker

1849. *Bombylius ardens* Walker, *List Dipt. Colln. Br. Mus.* 2 : 284.

1920. *Dischistus ardens* : Burnett, *Fauna Br. India, Dipt.* 2 : 274.

1975. *Bombylius ardens* : Bowden, *Catalog Dipt. Orient. Reg., Hawaii* 2 : 171.

*Material examined* : 1 ♂ INDIA : KARNATAKA, North Kanara District, Castle Rock, 11-26.x.1961, S. Kemp.

*Distribution* : INDIA : Karnataka (New record).

*Remarks* : This species is recognised by the first posterior cell of wing open ; hyaline wing, dark brown at base and slightly so along borders which is oblique and slants posteriorly towards base; black body covered with long, bright hairs.

## 2. *Systoechus socius* (Walker)

1852. *Boobylius socius* Walker, *Insecta Saundersiana* 1 : 201.

1909. *Systoechus socius* : Brunetti, *Rec. Indian Mus.* 2 : 458.

*Material examined* : 3 ♂♂, 2 ♀♀ INDIA : PUNJAB, Muree Sub Division, Tret, 3306 ft. (1002 m.), 5.x.1928, H.S. Pruthi.

*Distribution* : INDIA : West Bengal, Sikkim, Uttar Pradesh, Punjab (New record), Kashmir, Karnataka, Tamil Nadu; SRI LANKA: NEPAL: PAKISTAN.

*Remarks* : This species can be recognised by the underside of head moderately pubescent, pubescence of the body pale yellow to bright yellow, femora blackish and abdominal spines black. This species resembles *S. nivialis* Brunetti, the pubescence of which is nearly white.

## Subfamily ANTHRACINAE

### 3. *Petrorossia ceylonica* (Brunetti)

1909. *Argyra.noeba ceylonica* Brunetti, *Rec. Indian Mus.* 2 : 471.

1920. *Aphoebantus ceylonicus* : Brunetti, *Fauna Br. India, Dipt.* 2 : 257.

1975. *Petrorossia ceylonica* : Bowden, *Catalog Dipt. Orient. Reg., Hawaii* 2 : 173.

*Material examined* : 1 ♂, INDIA : S. ANDAMAN, Worigtung, 50 ft. (15 m.), 24.iii.1964, B.S. Lamba.

*Distribution* : INDIA : West Bengal, Bihar, Uttar Pradesh, Andaman Is. (New record); SRI LANKA.

*Remarks* : This species is identified by the second longitudinal vein with a strong loop near tip of wing, clear wing with costal and subcostal cell yellowish; oblong abdomen furry, yellowish with middle part longitudinally blackish.

### 4. *Anthrax distigma* Wiedemann

1828. *Anthrax distigma* Wiedemann, *Aussereurop. zweifl. Insekt.* 1 : 309.

1857. *Anthrax argyropyga* Doleschall, *Natuurk. Tijdschr. Ned-indië* 14 : 401.

1867. *Anthrax tripunctata* Wulp, *Tijdschr. Ent.* 11 : 109.

1882. *Anthrax tripunctata* : Osten-Sacken, *Ann. Mus. Genev.* 21 : 433.

1898. *Spogostylum distigma* : Coquillett, *Proc. U.S. Natl. Mus.* 21 : 318.

1907. *Argyra.noeba distigma* : de Meijere, *Tijdschr. Ent.* 50 : 241.

1988. *Anthrax distigma* : Zaitzev, *Rev. Ent. URSS* 67 : 867.

**Material examined** : 9 ♂♂, 10 ♀♀ INDIA : ARUNACHAL PRADESH, Subansiri District, Tamen, 305-457 m., 18-20.v.1966. A.N.T Joseph.

**Distribution** : INDIA : West Bengal, Sikkim, Bihar, Uttar Pradesh, Arunachal Pradesh, Tamil Nadu, Karnataka ; BANGLADESH : BURMA ; SRI LANKA ; INDONESIA (Java, Sumatra) ; SULAWESI : PHILIPPINES.

**Remarks** : Distal margin of dark wing band limited to enclosing anterior cross-vein and bases of discal and fourth posterior cell ; spot on fork of second longitudinal vein and that at base of third posterior cell quite isolated from the band itself and of almost same size; spot at base of second posterior cell small, indistinct or absent, are the major diagnostic features of *distigma*.

### 5. *Villa aperta* (Walker)

1852. *Anthrax aperta* Walker, *Insecta Saundersiana* 1 : 180.

1975. *Villa aperta* : Bowden, *Catalog Dipt. Orint. Reg., Hawaii* 2: 177.

**Material examined** : 1 ♂, INDIA : ARUNACHAL PRADESH, Kameng District, Dirong Dzong Jungle; 1601 m., 20.vii.1961, S. Biswas.

**Distribution** : INDIA : Uttar Pradesh, Himachal Pradesh, Meghalaya, Arunachal Pradesh.

**Remarks** : This species is characterized by the pubescence on sides of abdomen entirely snow-white, except for few bunches of scales on each side near tip; legs blackish.

### 6. *Villa baluchianus* (Brunetti)

1920. *Anthrax baluchianus* Brunetti, *Fauna Br. India, Dipt.* 2 : 250.

1975. *Villa baluchianus* : Bowden, *Catalog Dipt. Orient. Reg., Hawaii* 2 : 177.

**Material examined** : 3 ♂♂ PAKISTAN : North West Frontier Province, Chitral, Lutokh Valley, Izh, viii.1929, B.N. Chopra.

**Distribution** : INDIA : Kashmir; PAKISTAN.

**Remarks** : This species can be recognised by the costal cell of wing yellowish. ground colour of abdomen blackish; pubescence on sides of abdomen not arranged as in *aperta* and generally yellowish-grey; legs all blackish.

### 7. *Villa claripennis* : Brunetti)

1909. *Anthrax hottentota* L. var. *claripennis* Brunetti, *Rec. Indian Mus.* 2 : 452.

1975. *Villa claripennis* : Bowden, *Catalog Dipt. Orient. Reg., Hawaii* 2 : 177.

**Material examined** : 2 ♂♂, 1 ♀ PAKISTAN : North West Frontier Province, Chitral. 1 ♀, 20-28.vi.1929 ; Lutokh Valley, Izh. 1 ♂, viii.1929 ; Mastuj Valley, Buni, 1 ♂, viii.1929, coll. B.N. Chopra.

**Distribution** : INDIA : Uttar Pradesh (W. Himalayas); PAKISTAN : N.W. Frontier Province (New record) :

*Remarks* : The characteristic features of this species are : Wing clear, hyaline with subcostal cell yellowish-brown bifurcation of second and third longitudinal vein is exactly over anterior cross-vein, blackish dorsum of thorax with minute elongate yellow scale-like pubescence, frons wholly black haired.

#### 8. *Villa fuscolimbata* (Brunetti)

1917. *Anthrax fuscolimbata* Brunetti, *Rec. Indian Mus.* **12** : 75.

1975. *Villa fuscolimbata* : Bowden, *Catalog Dipt. Orient. Reg., Hawii* **2** : 177.

*Material examined* : 1 ♀, INDIA : TAMIL NADU, Anamalai Hills, Cinchona, 3500 ft. (1060 m.), iv.1957, P.S.N.

*Distribution* : INDIA : Himachal Pradesh, Uttar Pradesh, Tamil Nadu.

*Remarks* : This species can be recognised by its clear wing with the brown suffusion on anterior part limited to subcostal cell or little below it, anterior cross-vein situated just above middle of discal cell, abdomen black with transverse bands of small yellowish-grey or whitish scales, thorax black and more or less covered with small impressed yellow scales, frons covered with yellowish impressed scales and blackish pubescence.

#### 9. *Villa* sp. nr. *manifesta* (Walker)

*Material examined* : 1 ♂, INDIA : UTTAR PRADESH, Dehra Dun District, below Bhatta, 4 miles below Mussoorie, 16.vi.1930, B.N.C., in khud.

*Distribution* : INDIA : Uttar Pradesh.

*Remarks* : This species comes close to *manifesta* by wing with deep brownish-black costa and open anal cell. But the clear part of wing of this species is with tint brown suffusion, pubescence of thorax and abdomen wholly blackish and not very densely pubescent. These differences may deserve a separate specific status for the species under consideration. But I preferred to wait for more material for better comparative study before coming to a conclusive opinion.

#### 10. *Villa paniscus* (Rossi)

1790. *Bibio paniscus* Rossi, *Fauna Etrusca* **2** : 256.

1820. *Anthrax cingulatus* Meigen, *Systematische Beschreibung der bekannten europäischen zweiflügeligen Insekten* **2** : 145.

1834. *Anthrax binaculatus* Macquart, *Nouvelles suites à Buffon, for.nant avec les oeuvres de cet auteur, un cours complet d' Histoire naturelle* **1** : 403.

1849. *Anthrax hottentottus*, Walker, *List Dipt. Colln. Br. Mus.* **2** : 259.

1920. *Anthrax paniscus* : Brunetti, *Fauna Br. India Dipt.* **2** : 248.

1975. *Villa paniscus* : Bowden, *Catalog Dipt. Orient. Reg., Hawaii* **2** : 177.

*Material examined* : 2 ♂♂, INDIA : ARUNACHAL PRADESH, Kameng District, Dun Bridge, 1524 m., 1 ♀, iv.1966, A.N.T. Joseph ; TAMIL NADU, Anamalai Hills, Cinchona, 3500 ft. (1060 m.), 1 ♀, iv.1957, P.S.N.

*Distribution* : INDIA : Uttar Pradesh, Arunachal Pradesh, Tamil Nadu (New record) ; EUROPE.

*Remarks* : This species can be recognised by its clear wing little iridescent, base

and fore margin yellowish-brown down to first longitudinal vein or a little further, basal part of vein blackish-brown ; abdomen black with sides of first two segments brownish, first four segments covered with coppery pubescence, sides of seventh segment with whitish pubescence ; thorax dull black with coppery scaly pubescence.

11. **Exoprosopa (Exoprosopa) andamanica** sp. nov.  
(Test-fig. 1)

Moderately large, about 12 mm., largely yellowish-brown with yellowish and blackish pubescence.

*Male* : *Head* broader than long ; frons light brown, covered with short yellowish, squamiferous scales, interspersed with longer blackish hair-like pubescence ; frons at level of antennae slightly more than one-third as wide as head, narrowing towards vertex ; ocellar triangle small. *Antenna* with apical two segments nut-brown, 1st antennal segment about thrice as long as 2nd, 2nd about as broad as long, 3rd segment elongated, about as long as 1st one ; style narrow-cylindrical, about 0.7 time as long as third segment and distinctly demarcated from it ; 1st antennal segment with long black bristles and 2nd with shorter bristles, 3rd segment bare. *Proboscis* dark brown, strong, slightly longer than head and bifid apically. *Eyes* blackish-brown, facets very small and uniform ; occiput blackish with whitish squamiferous scales on sides and blackish pubescence throughout.

*Thorax* somewhat quadrate, little broader than head, ground colour blackish ; dorsum somewhat bare, only with yellowish pubescence near posterior margin ; fringe of light brown bristly hairs on anterior margin and shoulders, continued posteriorly with whitish setae ; groups of long, black bristles directed backwards from posterior callus and above wing base ; underside of thorax with moderate amount of greyish hairs. *Scutellum* brownish with yellowish pubescence near antero-median part, blackish pubescence on sides and little below the former one, posterior margin with row of strong blackish bristles directed backwards.

*Legs* long, slender, yellowish-brown ; fore legs practically bare, posterior ones minutely pubescent and with distinct blackish bristles, which are stronger on hind pair.

*Wing* (Fig. 1) clear hyaline with yellow spots in larger area, first longitudinal vein feebly curved apically, Rs vein arises a little before r-m cross-vein, apical loop of 2nd longitudinal vein moderately strong, r-m cross-vein joins discal cell at middle of its length, 1st basal cell about 1.25 times longer than 2nd basal cell, 1st posterior cell and anal cell open, 2nd posterior cell slightly wider apically than at base, pattern of wing spots as shown in Fig. 1. *Haltere* yellowish with a small apical brown spot.

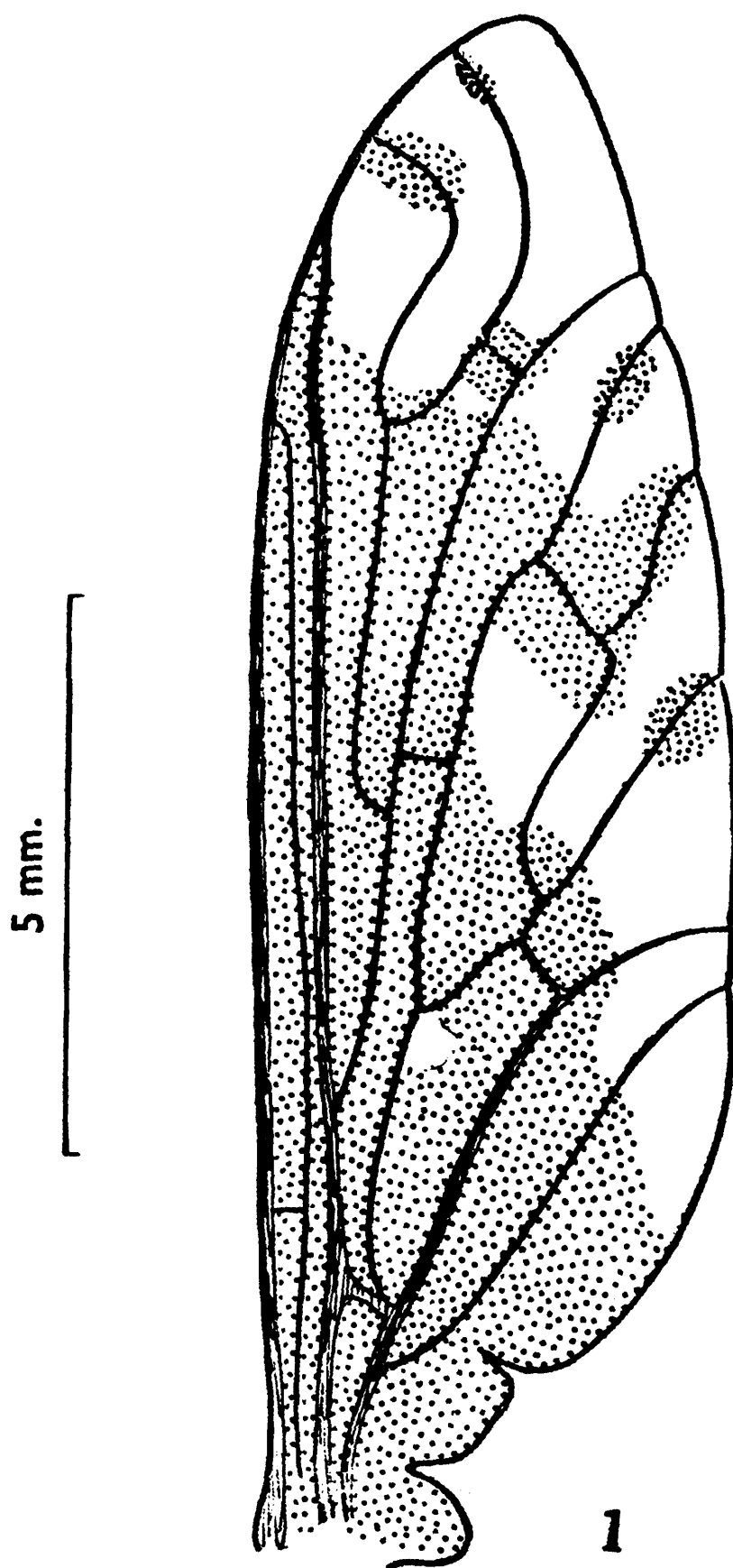
*Abdomen* elongate-oblong, ground colour yellowish brown ; a broad triangular median black spot on 2nd segment, which slightly shorter and narrower on 3rd segment, more area of 4th and 5th segments blackish ; dorsum with sparsely arranged short, depressed blackish setae, some yellowish setae here and there, a bunch of yellowish-brown elongate hairs at sides of 1st segment. *Venter* covered with whitish setae.

*Length* : Body-12.0 mm. ; wing-13.0 mm.

*Female* : Similar to male but abdomen comparatively darker.

*Holotype* ♂, INDIA : ANDAMAN Is., S. Andaman, Waraftur's Creek, Baratang, 13.iii.1964, B.S. Lamba ; *Paratype* ♀, same data as holotype except 17.iii.1964 (Z.S.I. Regn. No. 7489/H<sub>6</sub> and 7490/H<sub>6</sub>).

This species resembles only with *E. insulata* (Walker) in having isolated spots in



Text-fig. 1. Right wing of *Exoprosopa andamanica* sp. nov.

clear part of wing. It can be separated from the latter by having additional subapical transverse band joining baso-costal oblique wing band, wing spots yellowish, and ground colour of abdomen and legs yellowish.

## 12. *Exoprosopa* (s. str.) *brahma* Schiner

1868. *Exoprosopa brahma* Schiner, In : *Reise der osterreichischen Fregatta Novara, Dipt.* : 118.

1975. *Exoprosopa (Exoprosopa) brahma* : Bowden, *Catalog Dipt. Orient. Reg., Hawaii* 2 : 181.

1988. *Exoprosopa brahma* : Zaitzev, *Entomol. Review* : 7.

*Material examined* : 18 ♀♀ INDIA : PONDICHERRY, Karaikal, ii.1985 & ii.1960, P.S.N.

*Distribution* : INDIA : Karnataka, Pondicherry (New record) ; SRI LANKA.

*Remarks* : This species can be recognised by its sooty brown wing with front margin darker and more reddish, first posterior cell closed at very margin of wing and without distinct petiole, with eight isolated black spots ; the second abdominal segment with basal band of whitish pubescence and scutellum and antennae reddish-yellow. Zaitzev (1988a) recorded this Sri Lankan species from Karnataka of India.

## 13. *Exoprosopa (Exoprosopa) flexuosus* sp. nov. (Text-Fig. 2)

Large, about 14.8 mm. long, dark tan with brownish pubescence.

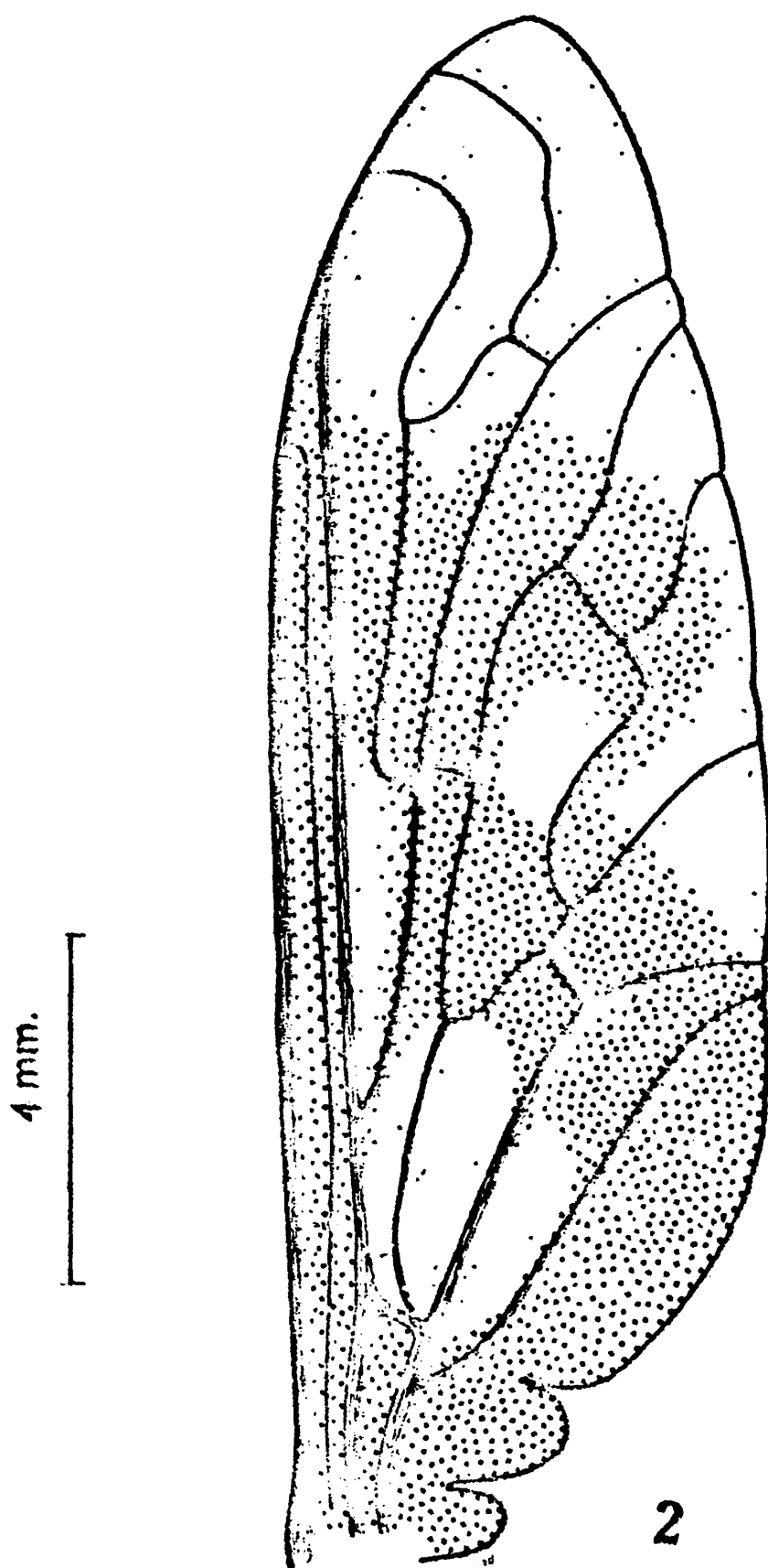
*Female* : *Head* dark brown, broader than long ; frons brownish, covered with short golden-yellow pubescence ; frons at level of antennae one-third as wide as head, narrowing towards vertex ; ocelli on a minute protuberance. Antennae nut-brown. 1st antennal segment more than twice as long as 2nd, 2nd broader than long, 3rd segment long, more than 1.5 times as long as 1st and 2nd together ; style elongated, narrow-cylindrical, demarcated from 3rd segment ; 1st antennal segment with long black bristles and 2nd segment with shorter bristles, 3rd segment bare. Proboscis black, strong, about as long as head and bifid apically. Eyes blackish brown, facets very small and uniform ; occiput blackish with short darker pubescence.

*Thorax* somewhat quadrate, little broader than head, blackish-brown, fringe of light brown bristly hairs on anterior margin and shoulders ; dorsum covered with moderately close, short brown pubescence ; 6-7 long, black bristles directed backwards on the posterior callus ; underside of thorax with moderate amount of greyish hairs. Scutellum deep reddish-brown, covered with pubescence as on dorsum of thorax, posterior margin with a row of strong blackish bristles directed backwards.

*Legs* long, slender, deep reddish-brown ; fore legs practically bare, posterior ones minutely pubescent and with distinct blackish bristles, which are stronger on the hind pair.

*Wing* (Fig. 2) : Ground colour smoky pale yellow, costa reaching near apex and ending between 2nd and 3rd longitudinal vein, first longitudinal vein feebly curved apically, Rs vein arises immediately before r-m cross-vein, 2nd longitudinal vein take a strong loop before joining wing margin, r-m vein joins discal cell at middle of

its length, 1st basal cell about 1.25 times longer than 2nd basal cell, 1st posterior cell and anal cell open. Two dark brown broad transverse bands leaving three clear spaces within basal two-thirds : base of wing orange-yellow up to 2nd basal cell, extending anteriorly along costa above bifurcation of 2nd and 3rd longitudinal vein,



Text-fig. 2. Right wing of *Exoprosopa flexuosus* sp. nov.

and posteriorly along anal vein up to its apex ; first dark band about as wide as half (basal) of discal cell and 2nd band about as wide as apical third of discal cell to basal half 2nd posterior cell ; three clear spaces : first below radius almost up to origin of 2nd longitudinal vein, 2nd about half as wide as 1st basal cell and extending up to anal vein, and third in the apical half of discal cell. Haltere dark brown.

*Abdomen* subconical, ground colour deep brown with posterior margin of all segments blackish, dorsum with short depressed brownish pubescence, a bunch of yellowish-brown elongate hairs at sides of first segment. Venter covered with short lighter hairs.

*Length* : Body—14.8 mm. ; wing—16 mm.

*Male* : Unknown.

*Holotype* ♀ , PAKISTAN, North West Frontier Province, Izh, Lutkoh Valley, Chitral, viii.1929, B.N. Chopra (Z.S.I. Regn. No. 7491/H<sub>6</sub>).

This species comes close to *E. flammea* Brunetti, described originally by a female specimen. It can be separated from the latter by the difference of dark wing bands, especially the clear spaces, first posterior cell open, r-m cross-vein joins discal cell before middle of its length; ground colour of body, legs and pubescence darker.

#### 14. *Exoprosopa* (s. str.) *insulata* Walker

1852. *Anthrax (Litorhynchus) insulata* Walker, *Insecta Saundersiana* 1 : 172.

1909. *Exoprosopa insulata* : Brunetti, *Rec. Indian Mus.* 2 : 446.

1975. *Exoprosopa (Exoprosopa) insulata* : Bowden, *Catalog Dipt. Orient. Reg., Hawaii* 2 : 181.

*Material examined* : 2 ♀ ♀ INDIA : UTTAR PRADESH, Garhwal District, Mopata, 4700 ft. (1424 m.), 3.ix.1958, B.S. Lamba.

*Distribution* : INDIA : Bihar, Meghalaya, Uttar Pradesh, Madhya Pradesh, Himachal Pradesh, Karnataka, Tamil Nadu ; SRI LANKA ; NEPAL.

*Remarks* : Characteristic features of this species are : abdomen and antennae black, dorsum of abdomen with white scale-spots ; first posterior cell of wing broadly open at margin, dark pattern of wing extending beyond middle of discal and anal cell, with several isolated dark spots on clear part, alula well developed.

#### 15. *Exoprosopa* (s. str.) *lateralis* Brunetti

1909. *Exoprosopa lateralis* Brunetti, *Rec. Indian Mus.* 2 : 467.

1975. *Exoprosopa (Exoprosopa) lateralis* : Bowden, *Catalog Dipt. Orient. Reg., Hawaii* 2 : 181.

*Material examined* : 2 ♀ ♀ INDIA : ORISSA, Jeypore, 1775 ft. (538 m.), x.1958, P.S.N.

*Distribution* : INDIA : West Bengal, Orissa (New record), Karnataka.

*Remarks* : This species can be recognised by the brownish wing with a pattern of broad darker mark, first posterior cell open and the second posterior cell about twice as wide at base as tip ; thorax blackish with long bright reddish-yellow bristly hairs on anterior margin, below shoulders and on posterior calli; abdomen blackish with the sides more or less broadly reddish-yellow.

16. **Exoprosopa** (s. str.) **siva** Nurse  
(Text-figs. 3, 4)

1922. *Exoprosopa siva* Nurse, *J. Bombay nat. Hist. Soc.* **28** : 654.

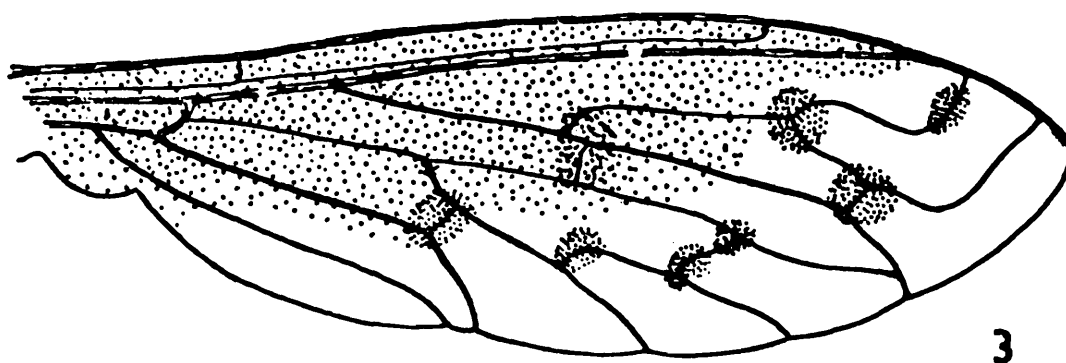
1975. *Exoprosopa* (*Exoprosopa*) *siva* : Bowden, *Catalog Dipt. Orient. Reg., Hawaii* **2** : 182.

1988. *Exoprosopa siva* : Zaitzev, *Entomol. Review* : 7.

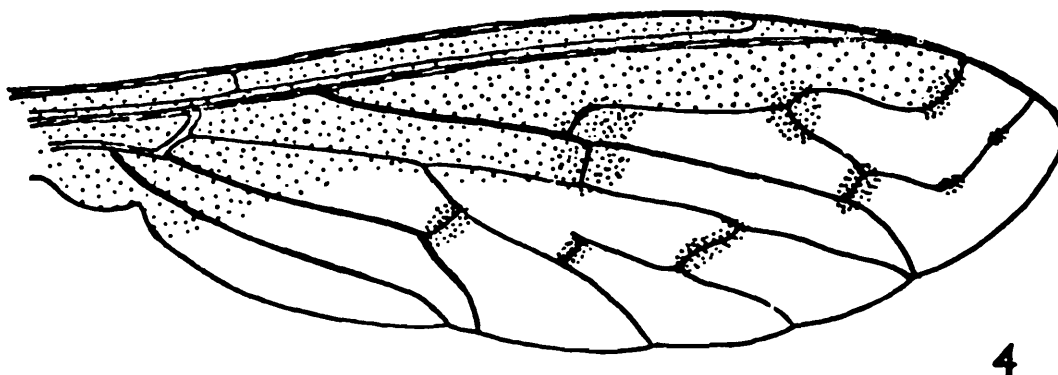
**Material examined** : 7 ♂♂, 6 ♀♀ INDIA : ORISSA, Jeypore, 1775 ft. (538 m.), x.1958, P.S.N. ; HIMACHAL PRADESH, Kangra Valley, Stn. 27, 1950, ZSI & PU coll.

**Distribution** : INDIA : Maharastra, Karnataka, Orissa (New record), Himachal Pradesh (New record).

**Remarks** : This species can be diagnosed by its blackish body with spots of pure white scales present along sides of 3rd and 6th abdominal tergites and on middle of 4th and 7th abdominal tergites ; wing with baso-costal dark oblique band and some isolated dark spots in the clear space, first posterior wing cell closed (Fig. 3). But in the specimens from Kangra Valley (2 male and 3 female) the first posterior wing cell is just open (Fig. 4).



5 mm.



Text Figs.: 3 and 4 : 3. Right wing *Exoprosopa siva* Nurse ; 4, Right wing of variant form of *E. siva*.

### 17. *Exoprosopa* (s. str.) *tamerlan* Portschinsky

1887. *Exoprosopa tamerlan* Portschinsky, *Horae Soc. ent. ross.* **21** : 185.

1909. *Exoprosopa flavipennis* Brunetti, *Rec. Indian Mus.* **2** : 465.

1975. *Exoprosopa* (*Exoprosopa*) *ta.nerlan* : Bowden, *Catalog Dipt. Orient. Reg., Hawaii* **2** : 182.

*Material examined* : 1 ♂ INDIA : ORISSA, Jeypore, 1775 ft. (538 m.), x.1958, P.S.N.

*Distribution* : INDIA : Bihar, Orissa (New record) ; PAKISTAN ; IRAN ; SOVIET UNION (Turkemenistan).

*Remarks* : This species apparently resembles *lateralis* Brunetti and can be distinguished by its first posterior wing cell closed. The wing of this species is almost entirely bright yellow to beyond middle and a narrow band in apical half.

### 18. *Litorhina* *lar* (Fabricius) (Text-Fig. 5)

1781. *Bibio lar* Fabricius, *Spec. Insect* **2** : 414.

1828. *Anthrax lar* : Wiedemann, *Aussereurop. zweifl. Insekt.* **1** : 268.

1840. *Litorhynchus collaris* (nec. Wiedemann) : Macquart, *Dipteres exotiques nouveaux ou peu connus* **2** (1) : 80.

1840. *Litorhynchus lar* : Oldroyd, *Ann. Mag. nat. Hist.* (11) **5** : 202.

1841. *Anthrax rugicollis* Saunders, *Trans. Ent. Soc. Lond.* **3** : 59.

1920. *Exoprosopa lar* : Brunetti, *Fauna Br. India, Dipt.* **2** : 194.

1909. *Exoprosopa collaris* (nec. Wiedemann) : Brunetti, *Rec. Indian Mus.* **2** : 444.

1975. *Litorhynchus lar* : Bowden, *Catalog Dipt. Orient. Reg. Hawai* **2** : 80.

1989. *Litorhina lar* : Evenhuis, *Catalog Dipt. Australian Oceanian Reg.* : 373.

*Material examined* : 1 ♂ INDIA : KARNATAKA, Kaddur District, Bababudan Hills, Jungle between Kemmangundi & Kalhattigiri, 4500-6155 ft. (1363-1865 m.), 17.xii.1928, H.S. Rao.

*Distribution* : INDIA : Bihar, Uttar Pradesh, Madhya Pradesh, Gujarat, Kerala, Karnataka ; SRI LANKA.

*Remarks* : This species can be recognised by its wing (Fig. 5) clear with a broad basal and median transverse band, the latter sometimes reaching hind border, both bands joined on the costa ; abdomen black with sides reddish.

### 19. *Ligyra flaviventris* (Doleschall)

1875. *Anthrax flaviventris* Doleschall, *Natuurk. Tijdschr. Ned. indie* **14** : 400.

1909. *Hyperalonis flaviventris* : Osten-Sacken, *Berl. Ent. Zeitschr.* **24** : 112.

1909. *Hyperalonia flaviventris* : Burnetti, *Rec. Indian Mus.* **2** : 441.

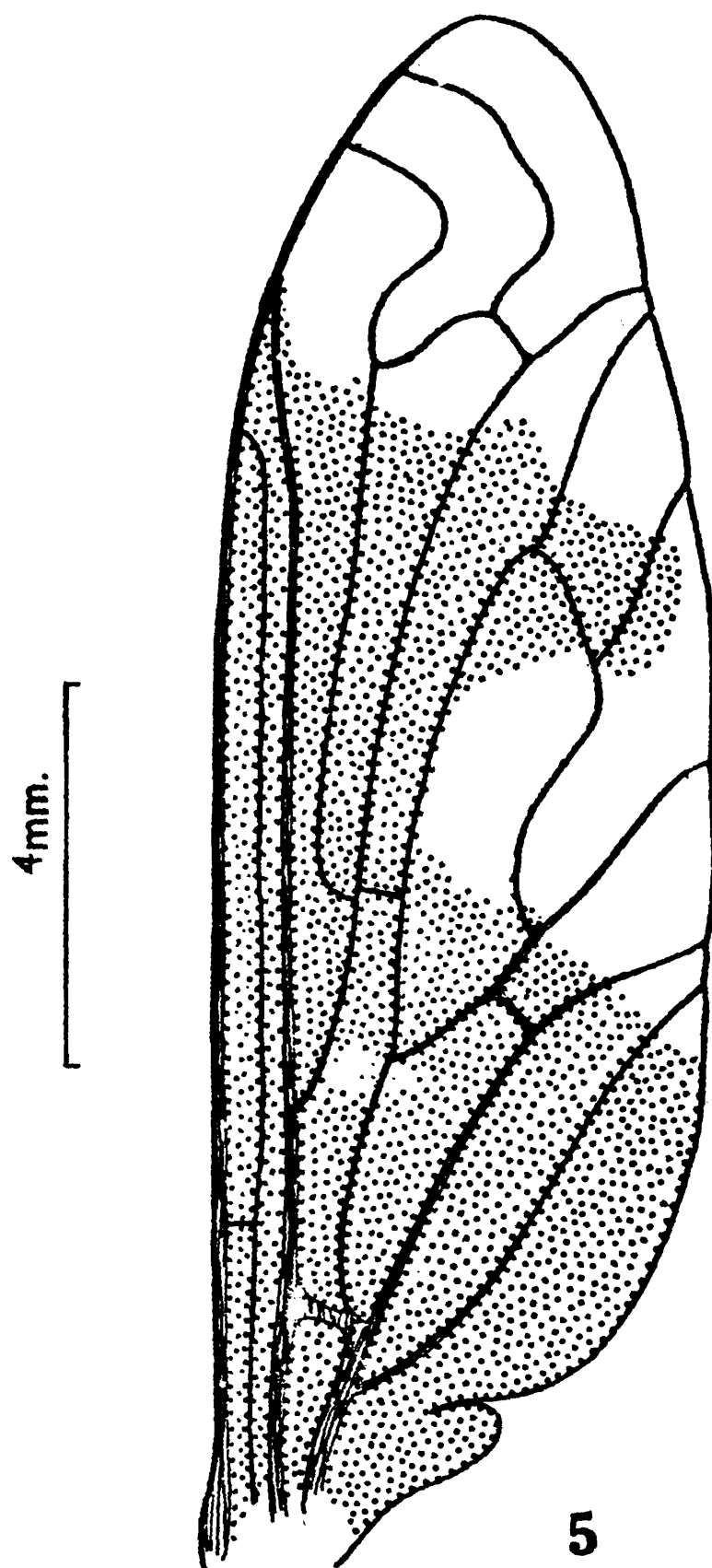
1975. *Ligyra flaviventris* : Bowden, *Catalog Dipt. Orient. Reg., Hawaii* **2** : 183.

*Material examined* : 1 ♂ , 1 ♀ INDIA : ANDAMAN Is., S. Andaman, Wraftur's Creek, Baratung, 13.iii.1964, B.S. Lamba.

*Distribution* : INDIA : Kerala, Andaman Is. (New record) ; BURMA : MOLUCCAS.

*Remarks* : This species is characterised by the wing with apical part and a

considerable portion of the posterior half clear but the demarcation line with the darker part is less-defined ; blackish thorax bearing dense, long, fiery-orange bristly hairs along anterior margin ; blackish abdomen with a bunch of long fiery-orange hairs on sides of first and second segments, continued posteriorly with shorter setae, median stripe of pubescence on venter bright reddish-yellow:



Text-fig. 5. Right wing of *Litorhina lar* (Fabricius)

**20. *Ligyra oenomaus* (Rondani)**

1875. *Hyperalonia oenomaus* Rondani, *Annali Mus. civ. Stor. nat. Giac.no Doria* 7 : 453.

1909. *Hyperalonia oenomaus* : Brunetti, *Rec. Indian Mus.* 2 : 442.

1975. *Ligyra oenomaus* : Bowden, *Catalog Dipt. Orient. Reg., Hawaii* 2 : 184.

*Material examined* : 1 ♀ INDIA : ARUNACHAL PRADESH, Kameng District, Tipi, 213 m., 3.v.1966, A.N.T Joseph.

*Distribution* : INDIA : Arunachal Pradesh, Assam, Sikkim, West Bengal (Darjeeling District) ; PHILIPPINES ; MALAYASIA.

*Remarks* : This species resembles closely with *L. flaviventris*, but can be distinguished by its blackish antennae, median ventral stripe of pubescence snow-white, and the darker part of wing with an iridescent violet tinge.

**21. *Ligyra peninsularis* sp. nov.**

(Text-fig. 6)

Moderately large, about 10.6 mm. blackish with grey or whitish pubescence.

*Male* : *Head* broader than long ; frons blackish, covered with whitish, short squamiferous scales, interspersed with longer blackish hair-like setae ; frons at level of antennae more than one-third as wide as head, narrowing towards vertex ; ocellar triangle small, protuberance-like. Antenna with basal two segments yellowish-brown and apical segment dark brown, 1st antennal segment more than twice as long as 2nd, 2nd about as broad as long, 3rd segment elongated, about as long as 1st and 2nd together ; style narrow-cylindrical, about 0.6 time as long as 3rd segment and distinctly demarcated from it ; 1st antennal segment with long black bristles and 2nd with shorter bristles, 3rd segment bare. Proboscis a dark brown, strong, little longer than head and bifid apically. Eyes dark brown peripherally with inner part blackish, facets very small and uniform. Occiput blackish with whitish setae.

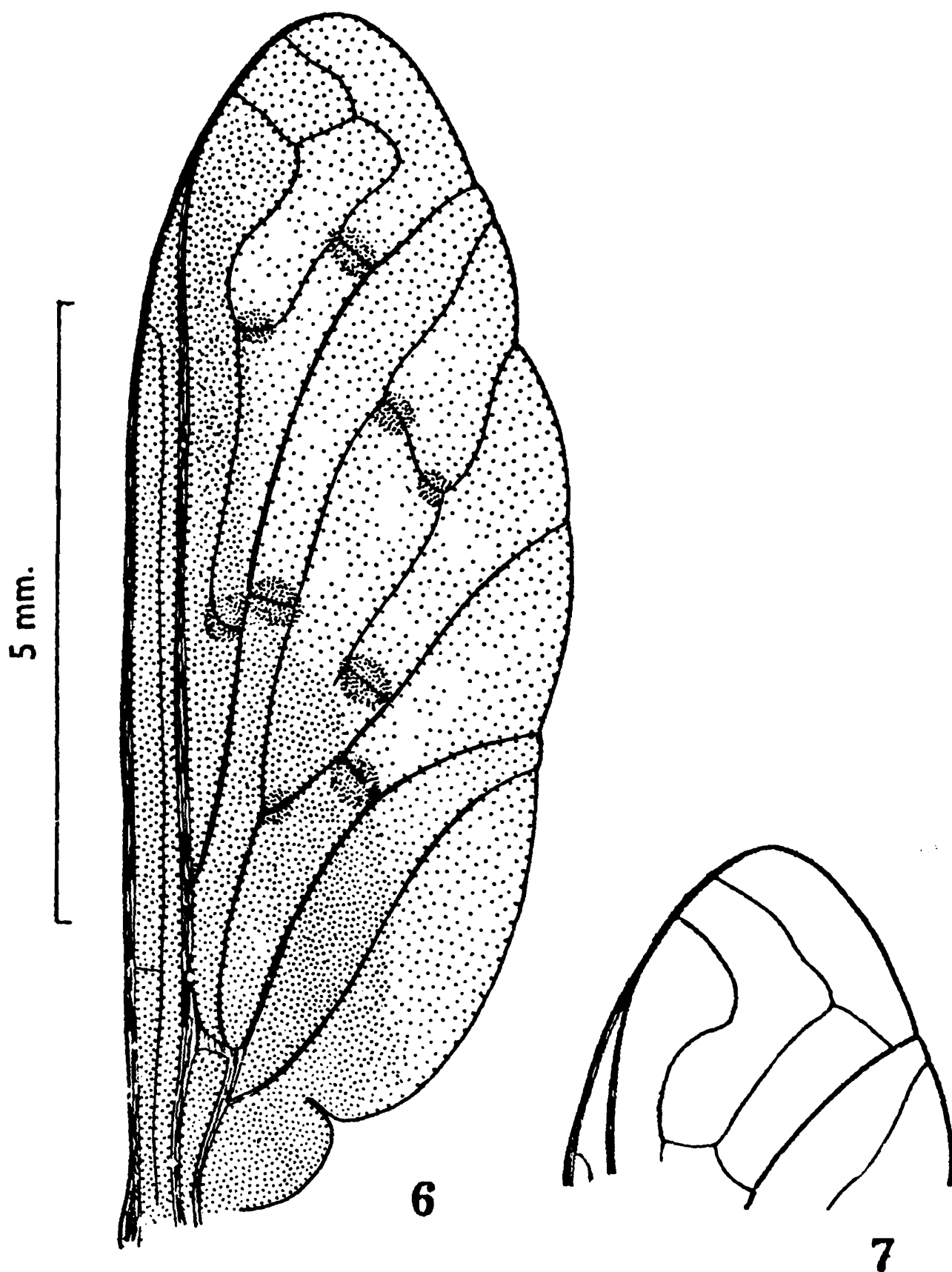
*Thorax* broader than long, little broader than head, blackish ; dorsum with scanty whitish pubescence ; fringe of whitish bristly hairs on anterior margin and shoulders, continued posteriorly with shorter setae ; groups of long, black bristles directed backwards from posterior callus and above wing base ; underside of thorax with moderate amount of greyish hairs. Scutellum blackish with apical half brownish, whitish squamiferous scales on sides, posterior margin with a row of strong blackish bristles directed backwards.

*Legs* long, slender, yellowish-brown ; fore legs practically bare, posterior ones minutely pubescent and with distinct blackish bristles, which are stronger on the hind pair.

*Wing* (Fig. 6) moderately dark brown, darker on anterior half, with isolated darker spots ; first longitudinal vein feebly curved apically, Rs vein arises a little before r-m cross-vein, apical loop of 2nd longitudinal vein rather strong ; a cross-vein between 2nd and 3rd longitudinal veins, a little away from apex divide first submarginal cell ; r-m cross-vein joins discal cell at middle of its length, 1st posterior cell 1.3 times longer than 2nd basal cell, 1st posterior cell and anal cell open, 2nd posterior cell slightly wider basally than at apex ; wing spots arranged as shown in

Fig. 6. Haltere yellowish-brown.

*Abdomen* elongated, sides rather parallel, ground colour blackish, segments apically yellow-bordered, dorsum mostly bare ; 1st segment with a sparsely arranged row of long whitish hairs along posterior margin, 2nd segment with densely arranged squamiferous scales near anterior border, other segments with less amount of



Text-figs. 6 and 7 : Right wing of *Ligyra peninsularis* sp. nov. ; 7. Apical part of right wing of *L. aurantiaca* (Guerin-Meneville) showing submarginal cells.

scales near anterior and posterior borders, a bunch of whitish elongate hairs at sides of 1st segment and continued to 2nd segment, sides of other segments and apical margin of 7th segment with long blackish hairs. Venter covered with whitish squamiferous scales and some long silvery hairs.

*Length* : Body-10.6 mm. ; wing-11.0 mm.

*Female* : Unknown.

*Holotype* ♂, INDIA : PONDICHERRY, Karikal, ii.1960, P.S.N. (Z.S.I. Reg. No. 7492/H<sub>6</sub>)

This species comes close to the Indian species, *L. aurantiaca* (Guerin-Meneville) in having blackish-brown wing fading to dark grey towards hind border ; but it can be differentiated from the latter in having several isolated dark spots on the wing. This species resembles also with *L. suffusipennis* (Brunetti) in having isolated darker spots on the wing ; but it can be differentiated from *suffusipennis* by its wing not uniformly dark brown throughout, the shapes and arrangement of isolated spots different and the edges of which are rather well-defined. This species in the present account is placed under *Ligyra* Newman for possessing four submarginal cells of wing. But it is strikingly different from the known oriental species of the genus by having the first submarginal cell is divided by a sub-apical cross-vein, instead of the division of third or posterior one (Fig. 7). This species may deserve a different generic status. But no attempt is made here to erect a separate genus for this species.

## 22. *Ligyra tantalus* (Fabricius)

1794. *Anthrax tantalus* Fabricius, *Ent. Syst.* 4 : 260.  
 1828. *Anthrax tantalus* : Wiedemann, *Aussereurop zweifl. Insekt.* 1 : 255.  
 1840. *Exoprosopa tantalus* : Macquart, *Dipteres exotiques nouveaux ou peu connus* 2(1) : 37.  
 1857. *Anthrax coeruleopenmis* Doleschall, *Natuurk. Tijdschr. Ned. Indie* 14 : 400.  
 1875. *Hyperalonia tantalus* : Rondani, *Annali Mus. civ. Stor. nat. Giacomo Doria* 7 : 453.  
 1907. *Exoprosopa tantalus* : de Meijere, *Tijdschr. Ent.* 50 : 239.  
 1909. *Hyperalonia tantalus* : Brunetti, *Rec. Indian Mus.* 2 : 438.  
 1975. *Ligyra tantalus* : Bowden, *Catalog Dipt. Orient. Reg., Hawaii* 2 : 184.

*Material examined* : 1 ♀ INDIA : ARUNACHAL PRADESH, Kameng District, Tipi, 6.v.1966, A.N.T Joseph.

*Distribution* : INDIA : Arunachal Pradesh, Assam, West Bengal (Darjeeling District), Uttar Pradesh ; NEPAL ; CHINA ; TAIWAN ; MALAYSIA ; INDONESIA ; SULAWESI.

*Remarks* : This species can be recognised by its entirely dark brown wing with iridescent violet tinge and posterior part hardly lighter, second posterior cell distinctly broader at base than at tip ; antennae blackish ; blackish thorax bearing bright yellowish-orange hairs on anterior margin and above wing base ; abdomen blackish with whitish scaly pubescence on sides of sixth and seventh segments, and median stripe of pubescence on venter white.

## SUMMARY

97 examples of Bombyliidae from India and Pakistan, of old surveys, are worked out. These represent 22 species in 8 genera of 2 subfamilies. 2 species viz., *Exoprosopa andamanica* and *Ligyra peninsularis*, and 1 species viz., *Exoprosopa flexuosus* are described as new, from India and Pakistan respectively. 1 species viz., *Bombylius ardens* Walker is recorded for the first time from India and several new records within the Indian territory are noted.

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